# wwPDB X-ray Structure Validation Summary Report (i)

Nov 7, 2023 – 06:33 PM JST

| | | |
|---|---|---|
| PDB ID | : | 8HQ8 |
| Title | : | Bry-LHCII homotrimer of Bryopsis corticulans |
| Authors | : | Li, Z.H.; Shen, J.R.; Wang, W.D. |
| Deposited on | : | 2022-12-13 |
| Resolution | : | 2.60 Å(reported) |

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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The following versions of software and data (see references (i)) were used in the production of this report:

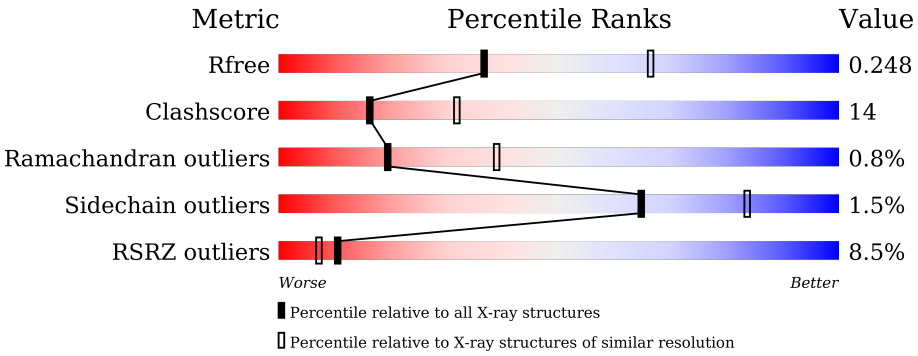
| | | |
|---|---|---|
| MolProbity | : | 4.02b-467 |
| Mogul | : | 1.8.5 (274361), CSD as541be (2020) |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 2.36 |
| buster-report | : | 1.1.7 (2018) |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| Refmac | : | 5.8.0158 |
| CCP4 | : | 7.0.044 (Gargrove) |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.36 |

# 1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.60 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.




| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|---|---|---|
| $R_{free}$ | 130704 | 3163 (2.60-2.60) |
| Clashscore | 141614 | 3518 (2.60-2.60) |
| Ramachandran outliers | 138981 | 3455 (2.60-2.60) |
| Sidechain outliers | 138945 | 3455 (2.60-2.60) |
| RSRZ outliers | 127900 | 3104 (2.60-2.60) |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | A | 249 | 6% 69% 20% 10% |
| 1 | B | 249 | 6% 71% 18% 10% |
| 1 | C | 249 | 7% 72% 17% 11% |
| 1 | D | 249 | 7% 73% 16% 10% |
| 1 | E | 249 | 14% 66% 22% • 10% |
| 1 | F | 249 | 6% 71% 17% • 10% |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|---|---|---|---|---|---|---|---|
| 10 | BET | B | 321 | - | - | - | X |
| 11 | LMG | F | 319 | - | - | - | X |
| 3 | NEX | A | 303 | - | - | - | X |
| 3 | NEX | D | 303 | - | - | - | X |
| 4 | LMU | A | 304 | - | - | - | X |
| 4 | LMU | B | 305 | - | - | - | X |
| 5 | CHL | A | 305 | X | - | - | - |
| 5 | CHL | A | 306 | X | - | - | - |
| 5 | CHL | A | 309 | X | - | - | - |
| 5 | CHL | A | 310 | X | - | - | - |
| 5 | CHL | A | 311 | X | - | - | - |
| 5 | CHL | A | 312 | X | - | - | - |
| 5 | CHL | A | 313 | X | - | - | - |
| 5 | CHL | A | 318 | X | - | - | - |
| 5 | CHL | B | 306 | X | - | - | - |
| 5 | CHL | B | 307 | X | - | - | - |
| 5 | CHL | B | 310 | X | - | - | - |
| 5 | CHL | B | 311 | X | - | - | - |
| 5 | CHL | B | 312 | X | - | - | - |
| 5 | CHL | B | 313 | X | - | - | - |
| 5 | CHL | B | 314 | X | - | - | - |
| 5 | CHL | B | 319 | X | - | - | - |
| 5 | CHL | C | 305 | X | - | - | - |
| 5 | CHL | C | 306 | X | - | - | - |
| 5 | CHL | C | 309 | X | - | - | - |
| 5 | CHL | C | 310 | X | - | - | - |
| 5 | CHL | C | 311 | X | - | - | - |
| 5 | CHL | C | 312 | X | - | - | - |
| 5 | CHL | C | 313 | X | - | - | - |
| 5 | CHL | C | 318 | X | - | - | - |
| 5 | CHL | D | 305 | X | - | - | - |
| 5 | CHL | D | 306 | X | - | - | - |
| 5 | CHL | D | 309 | X | - | - | - |
| 5 | CHL | D | 310 | X | - | - | - |
| 5 | CHL | D | 311 | X | - | - | - |
| 5 | CHL | D | 312 | X | - | - | - |
| 5 | CHL | D | 313 | X | - | - | - |
| 5 | CHL | D | 318 | X | - | - | - |
| 5 | CHL | E | 304 | X | - | - | - |
| 5 | CHL | E | 305 | X | - | - | - |

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| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|---|---|---|---|---|---|---|---|
| 5 | CHL | E | 308 | X | - | - | - |
| 5 | CHL | E | 309 | X | - | - | - |
| 5 | CHL | E | 310 | X | - | - | - |
| 5 | CHL | E | 311 | X | - | - | - |
| 5 | CHL | E | 312 | X | - | - | - |
| 5 | CHL | E | 317 | X | - | - | - |
| 5 | CHL | F | 304 | X | - | - | - |
| 5 | CHL | F | 305 | X | - | - | - |
| 5 | CHL | F | 308 | X | - | - | - |
| 5 | CHL | F | 309 | X | - | - | - |
| 5 | CHL | F | 310 | X | - | - | - |
| 5 | CHL | F | 311 | X | - | - | - |
| 5 | CHL | F | 312 | X | - | - | - |
| 5 | CHL | F | 317 | X | - | - | - |
| 6 | CLA | A | 307 | X | - | - | - |
| 6 | CLA | A | 308 | X | - | - | - |
| 6 | CLA | A | 314 | X | - | - | - |
| 6 | CLA | A | 315 | X | - | - | - |
| 6 | CLA | A | 316 | X | - | - | - |
| 6 | CLA | A | 317 | X | - | - | - |
| 6 | CLA | B | 308 | X | - | - | - |
| 6 | CLA | B | 309 | X | - | - | - |
| 6 | CLA | B | 315 | X | - | - | - |
| 6 | CLA | B | 316 | X | - | - | - |
| 6 | CLA | B | 317 | X | - | - | - |
| 6 | CLA | B | 318 | X | - | - | - |
| 6 | CLA | C | 307 | X | - | - | - |
| 6 | CLA | C | 308 | X | - | - | - |
| 6 | CLA | C | 314 | X | - | - | - |
| 6 | CLA | C | 315 | X | - | - | - |
| 6 | CLA | C | 316 | X | - | - | - |
| 6 | CLA | C | 317 | X | - | - | - |
| 6 | CLA | D | 307 | X | - | - | - |
| 6 | CLA | D | 308 | X | - | - | - |
| 6 | CLA | D | 314 | X | - | - | - |
| 6 | CLA | D | 315 | X | - | - | - |
| 6 | CLA | D | 316 | X | - | - | - |
| 6 | CLA | D | 317 | X | - | - | - |
| 6 | CLA | E | 306 | X | - | - | - |
| 6 | CLA | E | 307 | X | - | - | - |
| 6 | CLA | E | 313 | X | - | - | - |
| 6 | CLA | E | 314 | X | - | - | - |

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| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|---|---|---|---|---|---|---|---|
| 6 | CLA | E | 315 | X | - | - | - |
| 6 | CLA | E | 316 | X | - | - | - |
| 6 | CLA | F | 306 | X | - | - | - |
| 6 | CLA | F | 307 | X | - | - | - |
| 6 | CLA | F | 313 | X | - | - | - |
| 6 | CLA | F | 314 | X | - | - | - |
| 6 | CLA | F | 315 | X | - | - | - |
| 6 | CLA | F | 316 | X | - | - | - |

## 2 Entry composition (i)

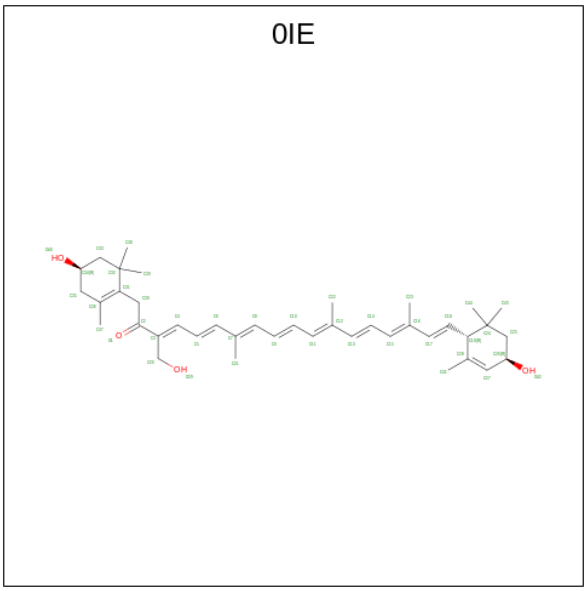
There are 12 unique types of molecules in this entry. The entry contains 16480 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called siphonaxanthin chlorophyll a/b binding light-harvesting complex II, Bry-Lhcb1.

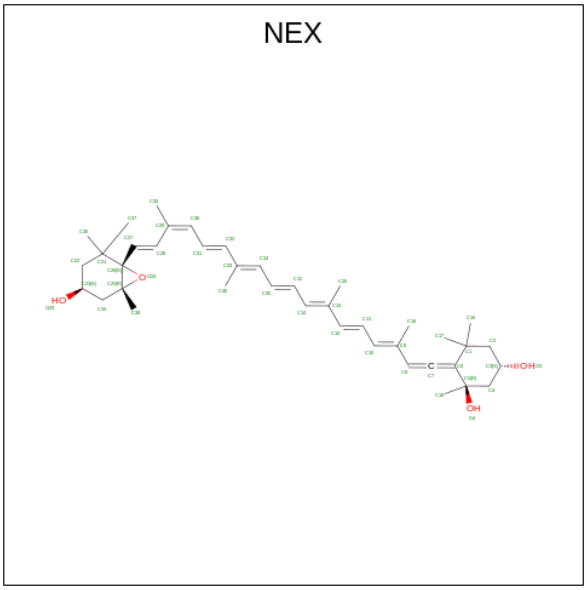
| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 223 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1672 | 1083 | 265 | 314 | 10 | | | |
| 1 | B | 223 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1669 | 1083 | 266 | 310 | 10 | | | |
| 1 | C | 222 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1659 | 1075 | 264 | 310 | 10 | | | |
| 1 | D | 223 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1682 | 1090 | 267 | 315 | 10 | | | |
| 1 | E | 223 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1684 | 1095 | 267 | 312 | 10 | | | |
| 1 | F | 223 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1685 | 1094 | 267 | 314 | 10 | | | |

- Molecule 2 is Siphonaxanthin (three-letter code: 0IE) (formula: $C_{40}H_{56}O_4$) (labeled as "Ligand of Interest" by depositor).



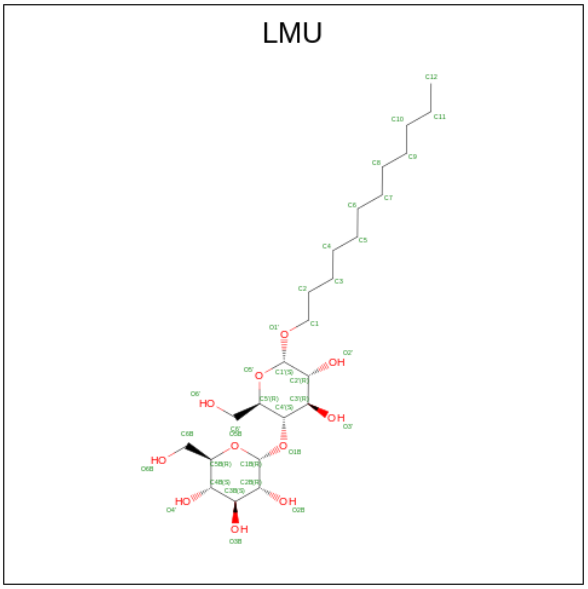
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 2 | A | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | A | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | B | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | C | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | C | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | D | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | D | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | E | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | E | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | F | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 2 | F | 1 | Total C O<br>44 40 4 | 0 | 0 |

- Molecule 3 is (1R,3R)-6-{(3E,5E,7E,9E,11E,13E,15E,17E)-18-[(1S,4R,6R)-4-HYDROXY-2,2,6-TRIMETHYL-7-OXABICYCLO[4.1.0]HEPT-1-YL]-3,7,12,16-TETRAMETHYLOCTADECA-1,3,5,7,9,11,13,15,17-NONAENYLIDENE}-1,5,5-TRIMETHYLCYCLOHEXANE-1,3-DIOL (three-letter code: NEX) (formula: $C_{40}H_{56}O_4$) (labeled as "Ligand of Interest" by depositor).



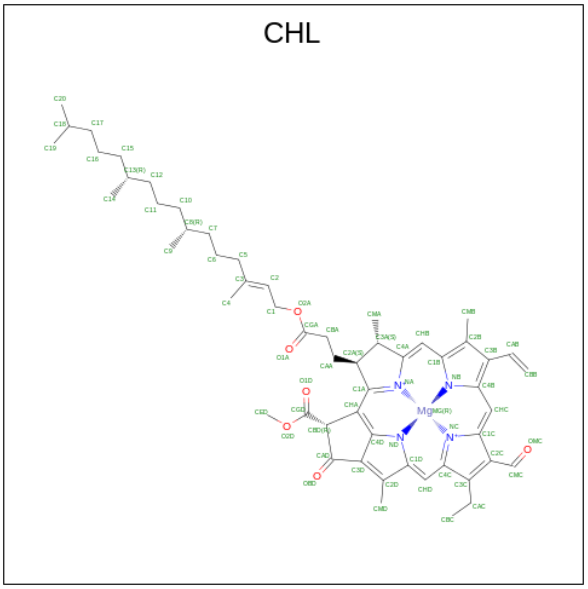
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 3 | A | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 3 | B | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 3 | C | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 3 | D | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 3 | E | 1 | Total C O<br>44 40 4 | 0 | 0 |
| 3 | F | 1 | Total C O<br>44 40 4 | 0 | 0 |

- Molecule 4 is DODECYL-ALPHA-D-MALTOSIDE (three-letter code: LMU) (formula: $C_{24}H_{46}O_{11}$) (labeled as "Ligand of Interest" by depositor).




| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 4 | A | 1 | Total C O<br>35 24 11 | 0 | 0 |
| 4 | B | 1 | Total C O<br>33 23 10 | 0 | 0 |
| 4 | B | 1 | Total C O<br>35 24 11 | 0 | 0 |
| 4 | D | 1 | Total C O<br>35 24 11 | 0 | 0 |
| 4 | E | 1 | Total C O<br>35 24 11 | 0 | 0 |

- Molecule 5 is CHLOROPHYLL B (three-letter code: CHL) (formula: $C_{55}H_{70}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).




| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|---|---|
| 5 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 64 | 53 | 1 | 4 | 6 | | |
| 5 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 43 | 34 | 1 | 4 | 4 | | |
| 5 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 51 | 40 | 1 | 4 | 6 | | |
| 5 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 61 | 50 | 1 | 4 | 6 | | |
| 5 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 56 | 45 | 1 | 4 | 6 | | |
| 5 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 42 | 33 | 1 | 4 | 4 | | |
| 5 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 54 | 1 | 4 | 6 | | |
| 5 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 43 | 34 | 1 | 4 | 4 | | |
| 5 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 51 | 40 | 1 | 4 | 6 | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|---|---|
| 5 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 62 | 51 | 1 | 4 | 6 | | |
| 5 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 57 | 46 | 1 | 4 | 6 | | |
| 5 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 47 | 36 | 1 | 4 | 6 | | |
| 5 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 42 | 33 | 1 | 4 | 4 | | |
| 5 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 44 | 35 | 1 | 4 | 4 | | |
| 5 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 61 | 50 | 1 | 4 | 6 | | |
| 5 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 56 | 45 | 1 | 4 | 6 | | |
| 5 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 44 | 35 | 1 | 4 | 4 | | |
| 5 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 54 | 1 | 4 | 6 | | |
| 5 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 42 | 33 | 1 | 4 | 4 | | |
| 5 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 45 | 35 | 1 | 4 | 5 | | |
| 5 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 62 | 51 | 1 | 4 | 6 | | |
| 5 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 57 | 46 | 1 | 4 | 6 | | |
| 5 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 46 | 35 | 1 | 4 | 6 | | |
| 5 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |

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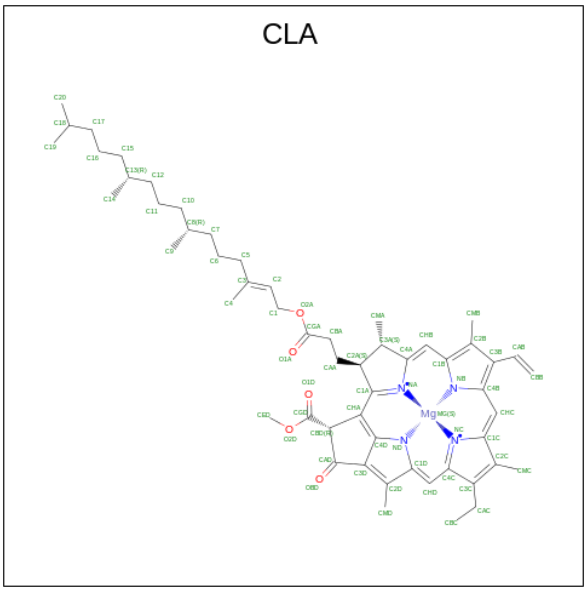
| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|---|---|
| 5 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 64 | 53 | 1 | 4 | 6 | | |
| 5 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 41 | 32 | 1 | 4 | 4 | | |
| 5 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 43 | 34 | 1 | 4 | 4 | | |
| 5 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 61 | 50 | 1 | 4 | 6 | | |
| 5 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 56 | 45 | 1 | 4 | 6 | | |
| 5 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 41 | 32 | 1 | 4 | 4 | | |
| 5 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 42 | 33 | 1 | 4 | 4 | | |
| 5 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 42 | 33 | 1 | 4 | 4 | | |
| 5 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 61 | 50 | 1 | 4 | 6 | | |
| 5 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 56 | 45 | 1 | 4 | 6 | | |
| 5 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 66 | 55 | 1 | 4 | 6 | | |
| 5 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 46 | 35 | 1 | 4 | 6 | | |

- Molecule 6 is CHLOROPHYLL A (three-letter code: CLA) (formula: $C_{55}H_{72}MgN_4O_5$) (labeled as "Ligand of Interest" by depositor).




| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|---|---|
| 6 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 50 | 40 | 1 | 4 | 5 | | |
| 6 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 55 | 45 | 1 | 4 | 5 | | |
| 6 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 63 | 53 | 1 | 4 | 5 | | |
| 6 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 45 | 35 | 1 | 4 | 5 | | |
| 6 | A | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 55 | 45 | 1 | 4 | 5 | | |
| 6 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 46 | 36 | 1 | 4 | 5 | | |
| 6 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 58 | 48 | 1 | 4 | 5 | | |
| 6 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 45 | 35 | 1 | 4 | 5 | | |
| 6 | B | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 46 | 36 | 1 | 4 | 5 | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|---|---|
| 6 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 53 | 43 | 1 | 4 | 5 | | |
| 6 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 45 | 35 | 1 | 4 | 5 | | |
| 6 | C | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 56 | 46 | 1 | 4 | 5 | | |
| 6 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 46 | 36 | 1 | 4 | 5 | | |
| 6 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 58 | 48 | 1 | 4 | 5 | | |
| 6 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 45 | 35 | 1 | 4 | 5 | | |
| 6 | D | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 50 | 40 | 1 | 4 | 5 | | |
| 6 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 55 | 45 | 1 | 4 | 5 | | |
| 6 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 63 | 53 | 1 | 4 | 5 | | |
| 6 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 45 | 35 | 1 | 4 | 5 | | |
| 6 | E | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 55 | 45 | 1 | 4 | 5 | | |
| 6 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 65 | 55 | 1 | 4 | 5 | | |
| 6 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 46 | 36 | 1 | 4 | 5 | | |
| 6 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 58 | 48 | 1 | 4 | 5 | | |
| 6 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 55 | 45 | 1 | 4 | 5 | | |
| 6 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 45 | 35 | 1 | 4 | 5 | | |

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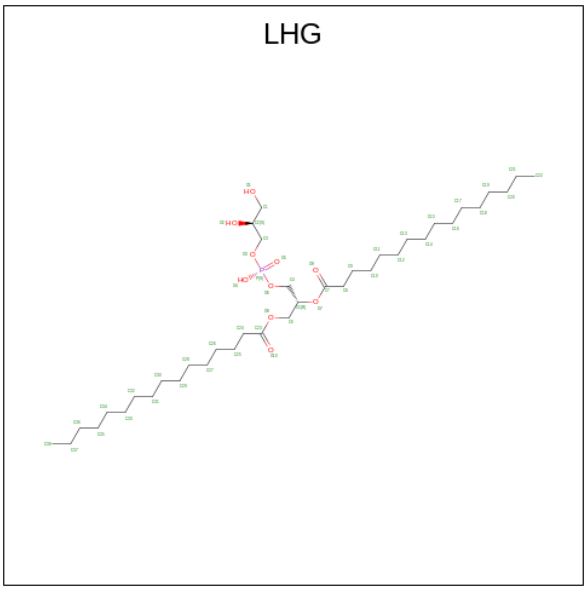
| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|---|---|
| 6 | F | 1 | Total | C | Mg | N | O | 0 | 0 |
| | | | 56 | 46 | 1 | 4 | 5 | | |

- Molecule 7 is 1,2-DIPALMITOYL-PHOSPHATIDYL-GLYCEROLE (three-letter code: LHG) (formula: $C_{38}H_{75}O_{10}P$) (labeled as "Ligand of Interest" by depositor).

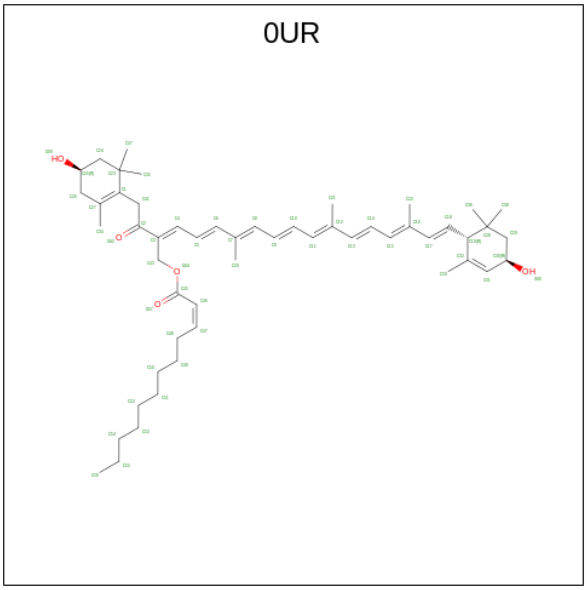



| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|---|
| 7 | A | 1 | Total | C | O | P | 0 | 0 |
| | | | 47 | 36 | 10 | 1 | | |
| 7 | B | 1 | Total | C | O | P | 0 | 0 |
| | | | 46 | 35 | 10 | 1 | | |
| 7 | B | 1 | Total | C | O | P | 0 | 0 |
| | | | 31 | 20 | 10 | 1 | | |
| 7 | C | 1 | Total | C | O | P | 0 | 0 |
| | | | 25 | 14 | 10 | 1 | | |
| 7 | C | 1 | Total | C | O | P | 0 | 0 |
| | | | 45 | 34 | 10 | 1 | | |
| 7 | D | 1 | Total | C | O | P | 0 | 0 |
| | | | 46 | 35 | 10 | 1 | | |
| 7 | E | 1 | Total | C | O | P | 0 | 0 |
| | | | 41 | 30 | 10 | 1 | | |
| 7 | F | 1 | Total | C | O | P | 0 | 0 |
| | | | 45 | 34 | 10 | 1 | | |

- Molecule 8 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

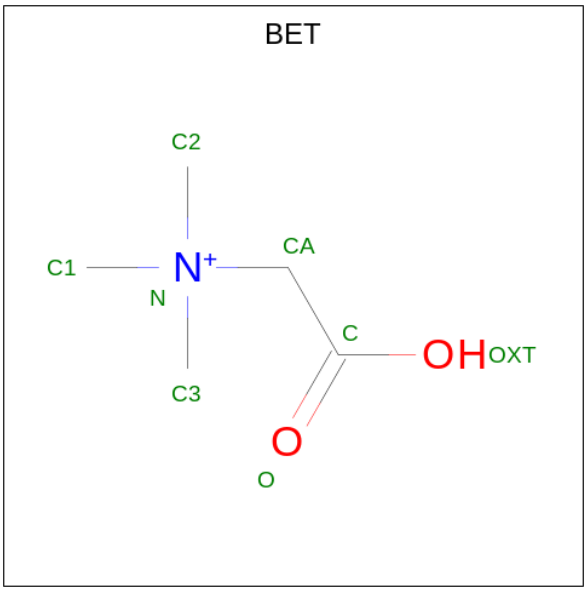
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 8 | A | 2 | Total Mg<br>2 2 | 0 | 0 |
| 8 | D | 1 | Total Mg<br>1 1 | 0 | 0 |

- Molecule 9 is Siphonein (three-letter code: 0UR) (formula: $C_{52}H_{76}O_5$) (labeled as "Ligand of Interest" by depositor).



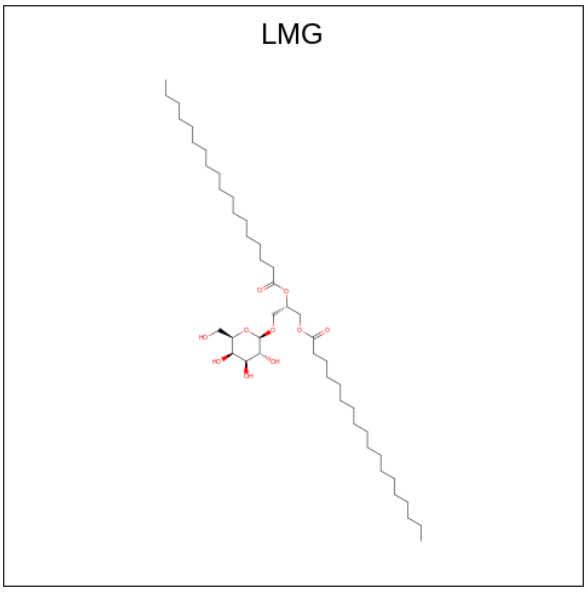

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 9 | A | 1 | Total C O<br>52 47 5 | 0 | 0 |
| 9 | B | 1 | Total C O<br>50 45 5 | 0 | 0 |
| 9 | B | 1 | Total C O<br>52 47 5 | 0 | 0 |
| 9 | C | 1 | Total C O<br>52 47 5 | 0 | 0 |
| 9 | D | 1 | Total C O<br>52 47 5 | 0 | 0 |
| 9 | E | 1 | Total C O<br>52 47 5 | 0 | 0 |
| 9 | F | 1 | Total C O<br>52 47 5 | 0 | 0 |

- Molecule 10 is TRIMETHYL GLYCINE (three-letter code: BET) (formula: $C_5H_{12}NO_2$).




| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 10 | B | 1 | Total C N O<br>8 5 1 2 | 0 | 0 |
| 10 | B | 1 | Total C N O<br>8 5 1 2 | 0 | 0 |
| 10 | C | 1 | Total C N O<br>8 5 1 2 | 0 | 0 |

- Molecule 11 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (three-letter code: LMG) (formula: $C_{45}H_{86}O_{10}$) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 11 | B | 1 | Total C O<br>30 20 10 | 0 | 0 |
| 11 | F | 1 | Total C O<br>30 20 10 | 0 | 0 |

- Molecule 12 is water.

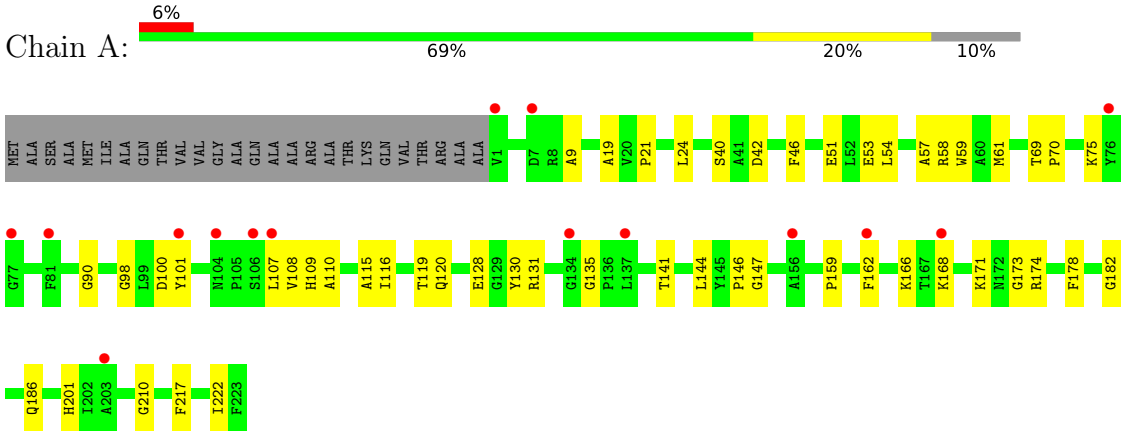
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 12 | A | 8 | Total O<br>8 8 | 0 | 0 |
| 12 | B | 7 | Total O<br>7 7 | 0 | 0 |
| 12 | C | 8 | Total O<br>8 8 | 0 | 0 |
| 12 | D | 4 | Total O<br>4 4 | 0 | 0 |
| 12 | E | 6 | Total O<br>6 6 | 0 | 0 |
| 12 | F | 8 | Total O<br>8 8 | 0 | 0 |

# 3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

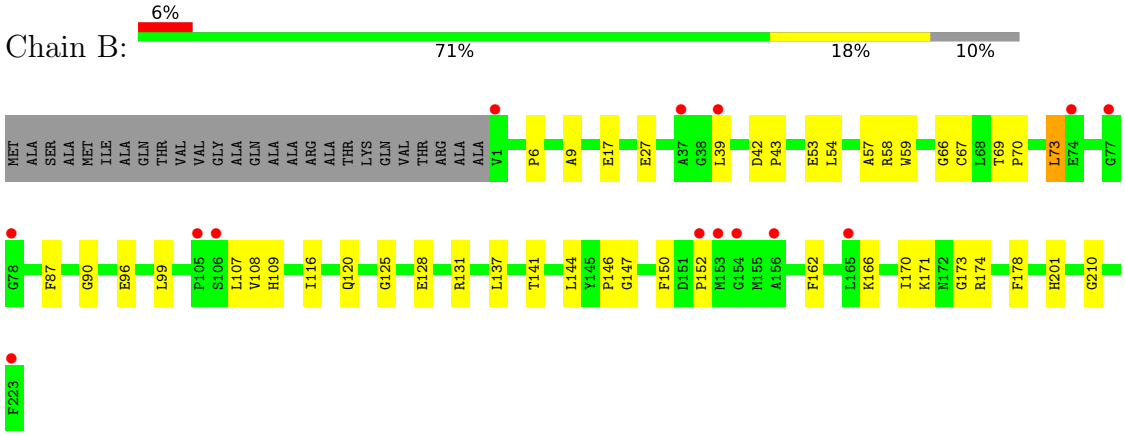
• Molecule 1: siphonaxanthin chlorophyll a/b binding light-harvesting complex II, Bry-Lhcb1

Chain A:



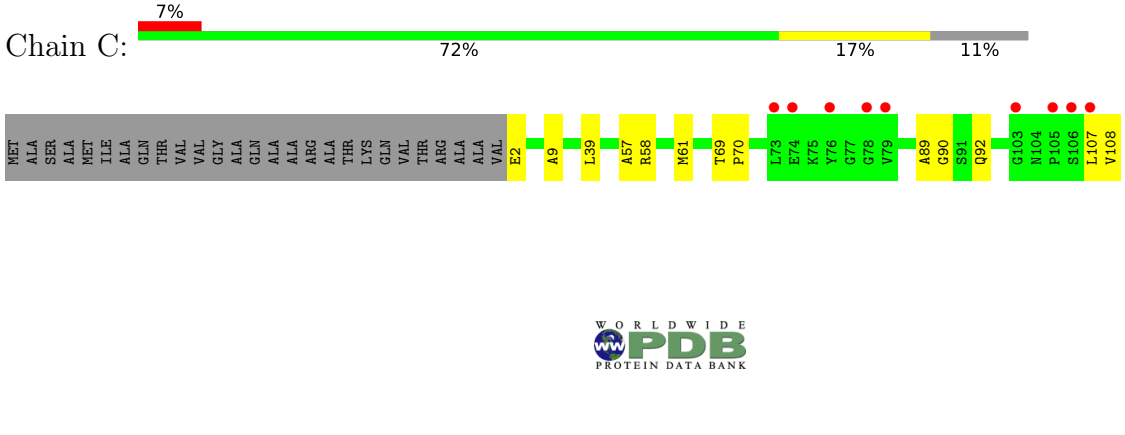

• Molecule 1: siphonaxanthin chlorophyll a/b binding light-harvesting complex II, Bry-Lhcb1

Chain B:



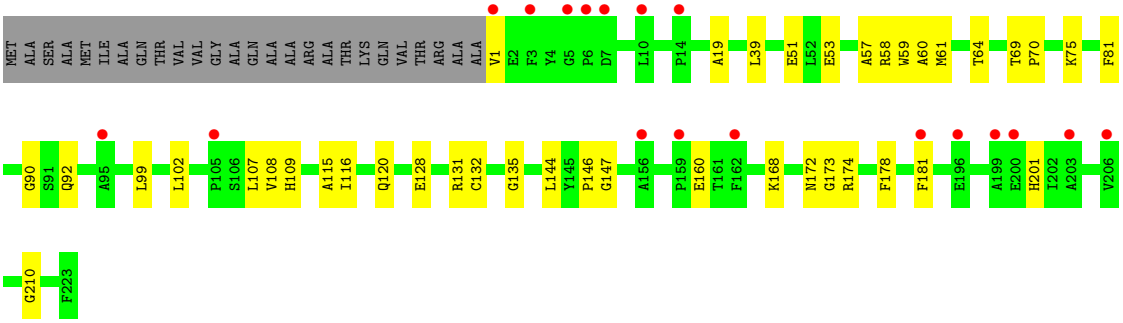

• Molecule 1: siphonaxanthin chlorophyll a/b binding light-harvesting complex II, Bry-Lhcb1

Chain C:



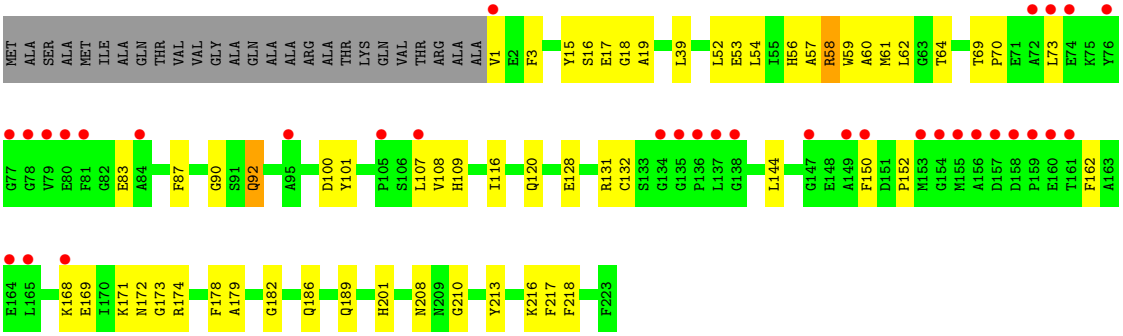

• Molecule 1: siphonaxanthin chlorophyll a/b binding light-harvesting complex II, Bry-Lhcb1

Chain D:

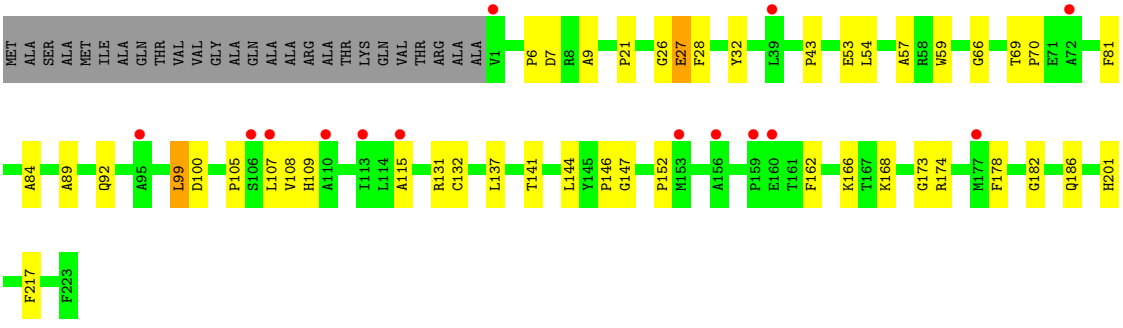

• Molecule 1: siphonaxanthin chlorophyll a/b binding light-harvesting complex II, Bry-Lhcb1

Chain E:


• Molecule 1: siphonaxanthin chlorophyll a/b binding light-harvesting complex II, Bry-Lhcb1

Chain F:

# 4 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|---|
| Space group | P 1 21 1 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 109.72Å 91.61Å 169.22Å<br>90.00° 103.52° 90.00° | Depositor |
| Resolution (Å) | 39.90 – 2.60<br>47.58 – 2.45 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | 66.2 (39.90-2.60)<br>56.8 (47.58-2.45) | Depositor<br>EDS |
| $R_{merge}$ | 0.06 | Depositor |
| $R_{sym}$ | (Not available) | Depositor |
| $< I/\sigma(I) >$ [1] | 1.20 (at 2.45Å) | Xtriage |
| Refinement program | PHENIX (1.18_3861: ???) | Depositor |
| R, $R_{free}$ | 0.207 , 0.249<br>0.214 , 0.248 | Depositor<br>DCC |
| $R_{free}$ test set | 2000 reflections (2.93%) | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 75.7 | Xtriage |
| Anisotropy | 0.099 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.32 , 70.9 | EDS |
| L-test for twinning[2] | $< \|L\| > = 0.49$, $< L^2 > = 0.32$ | Xtriage |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| $F_o$,$F_c$ correlation | 0.91 | EDS |
| Total number of atoms | 16480 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 83.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.43% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

# 5 Model quality

## 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 0UR, LMU, CLA, LMG, LHG, CHL, MG, NEX, BET, 0IE

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths | | Bond angles | |
|---|---|---|---|---|---|
| | | RMSZ | $\#\|Z\| > 5$ | RMSZ | $\#\|Z\| > 5$ |
| 1 | A | 0.30 | 0/1725 | 0.47 | 0/2350 |
| 1 | B | 0.29 | 0/1722 | 0.47 | 0/2345 |
| 1 | C | 0.30 | 0/1712 | 0.45 | 0/2332 |
| 1 | D | 0.29 | 0/1735 | 0.46 | 0/2361 |
| 1 | E | 0.28 | 0/1737 | 0.45 | 0/2364 |
| 1 | F | 0.31 | 0/1738 | 0.49 | 0/2366 |
| All | All | 0.30 | 0/10369 | 0.46 | 0/14118 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | A | 1672 | 0 | 1547 | 47 | 0 |
| 1 | B | 1669 | 0 | 1552 | 43 | 0 |
| 1 | C | 1659 | 0 | 1523 | 44 | 0 |
| 1 | D | 1682 | 0 | 1572 | 35 | 0 |
| 1 | E | 1684 | 0 | 1581 | 52 | 0 |
| 1 | F | 1685 | 0 | 1579 | 40 | 0 |
| 2 | A | 88 | 0 | 0 | 1 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 2 | B | 44 | 0 | 0 | 1 | 0 |
| 2 | C | 88 | 0 | 0 | 3 | 0 |
| 2 | D | 88 | 0 | 0 | 0 | 0 |
| 2 | E | 88 | 0 | 0 | 1 | 0 |
| 2 | F | 88 | 0 | 0 | 0 | 0 |
| 3 | A | 44 | 0 | 56 | 3 | 0 |
| 3 | B | 44 | 0 | 54 | 4 | 0 |
| 3 | C | 44 | 0 | 55 | 4 | 0 |
| 3 | D | 44 | 0 | 55 | 4 | 0 |
| 3 | E | 44 | 0 | 55 | 3 | 0 |
| 3 | F | 44 | 0 | 53 | 2 | 0 |
| 4 | A | 35 | 0 | 46 | 4 | 0 |
| 4 | B | 68 | 0 | 85 | 3 | 0 |
| 4 | D | 35 | 0 | 46 | 3 | 0 |
| 4 | E | 35 | 0 | 46 | 3 | 0 |
| 5 | A | 449 | 0 | 397 | 26 | 0 |
| 5 | B | 457 | 0 | 407 | 35 | 0 |
| 5 | C | 445 | 0 | 403 | 36 | 0 |
| 5 | D | 449 | 0 | 402 | 35 | 0 |
| 5 | E | 438 | 0 | 384 | 33 | 0 |
| 5 | F | 445 | 0 | 397 | 34 | 0 |
| 6 | A | 333 | 0 | 305 | 21 | 0 |
| 6 | B | 344 | 0 | 337 | 23 | 0 |
| 6 | C | 330 | 0 | 306 | 29 | 0 |
| 6 | D | 344 | 0 | 337 | 21 | 0 |
| 6 | E | 333 | 0 | 305 | 21 | 0 |
| 6 | F | 325 | 0 | 293 | 25 | 0 |
| 7 | A | 47 | 0 | 67 | 3 | 0 |
| 7 | B | 77 | 0 | 97 | 13 | 0 |
| 7 | C | 70 | 0 | 83 | 4 | 0 |
| 7 | D | 46 | 0 | 65 | 5 | 0 |
| 7 | E | 41 | 0 | 52 | 7 | 0 |
| 7 | F | 45 | 0 | 63 | 8 | 0 |
| 8 | A | 2 | 0 | 0 | 0 | 0 |
| 8 | D | 1 | 0 | 0 | 0 | 0 |
| 9 | A | 52 | 0 | 0 | 0 | 0 |
| 9 | B | 102 | 0 | 0 | 5 | 0 |
| 9 | C | 52 | 0 | 0 | 3 | 0 |
| 9 | D | 52 | 0 | 0 | 0 | 0 |
| 9 | E | 52 | 0 | 0 | 3 | 0 |
| 9 | F | 52 | 0 | 0 | 2 | 0 |
| 10 | B | 16 | 0 | 22 | 1 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 10 | C | 8 | 0 | 11 | 0 | 0 |
| 11 | B | 30 | 0 | 30 | 0 | 0 |
| 11 | F | 30 | 0 | 30 | 1 | 0 |
| 12 | A | 8 | 0 | 0 | 0 | 0 |
| 12 | B | 7 | 0 | 0 | 1 | 0 |
| 12 | C | 8 | 0 | 0 | 1 | 0 |
| 12 | D | 4 | 0 | 0 | 1 | 0 |
| 12 | E | 6 | 0 | 0 | 0 | 0 |
| 12 | F | 8 | 0 | 0 | 2 | 0 |
| All | All | 16480 | 0 | 14698 | 449 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 14.

The worst 5 of 449 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:83:GLU:H | 1:E:92:GLN:HE21 | 1.12 | 0.94 |
| 6:F:313:CLA:H43 | 6:F:315:CLA:HBA1 | 1.50 | 0.89 |
| 3:D:303:NEX:H42 | 4:D:304:LMU:H6'2 | 1.56 | 0.88 |
| 5:D:311:CHL:H62 | 5:D:313:CHL:H193 | 1.61 | 0.81 |
| 1:B:150:PHE:HD1 | 5:B:313:CHL:H2 | 1.47 | 0.79 |

There are no symmetry-related clashes.

## 5.3 Torsion angles (i)

### 5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 1 | A | 221/249 (89%) | 213 (96%) | 7 (3%) | 1 (0%) | 29 52 |
| 1 | B | 221/249 (89%) | 213 (96%) | 6 (3%) | 2 (1%) | 17 35 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 1 | C | 220/249 (88%) | 212 (96%) | 7 (3%) | 1 (0%) | 29 | 52 |
| 1 | D | 221/249 (89%) | 214 (97%) | 6 (3%) | 1 (0%) | 29 | 52 |
| 1 | E | 221/249 (89%) | 211 (96%) | 7 (3%) | 3 (1%) | 11 | 22 |
| 1 | F | 221/249 (89%) | 214 (97%) | 5 (2%) | 2 (1%) | 17 | 35 |
| All | All | 1325/1494 (89%) | 1277 (96%) | 38 (3%) | 10 (1%) | 19 | 39 |

5 of 10 Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | E | 17 | GLU |
| 1 | F | 27 | GLU |
| 1 | B | 17 | GLU |
| 1 | C | 108 | VAL |
| 1 | E | 92 | GLN |

### 5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 1 | A | 160/184 (87%) | 158 (99%) | 2 (1%) | 69 | 86 |
| 1 | B | 159/184 (86%) | 155 (98%) | 4 (2%) | 47 | 73 |
| 1 | C | 156/184 (85%) | 155 (99%) | 1 (1%) | 86 | 95 |
| 1 | D | 163/184 (89%) | 161 (99%) | 2 (1%) | 71 | 87 |
| 1 | E | 162/184 (88%) | 160 (99%) | 2 (1%) | 71 | 87 |
| 1 | F | 163/184 (89%) | 160 (98%) | 3 (2%) | 59 | 80 |
| All | All | 963/1104 (87%) | 949 (98%) | 14 (2%) | 65 | 83 |

5 of 14 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | D | 75 | LYS |
| 1 | D | 160 | GLU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | F | 141 | THR |
| 1 | F | 7 | ASP |
| 1 | F | 99 | LEU |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | B | 186 | GLN |
| 1 | E | 92 | GLN |
| 1 | F | 49 | ASN |

### 5.3.3 RNA (i)

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains (i)

There are no non-standard protein/DNA/RNA residues in this entry.

## 5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry (i)

Of 129 ligands modelled in this entry, 3 are monoatomic - leaving 126 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\| > 2$ | Counts | RMSZ | $\#\|Z\| > 2$ |
| 4 | LMU | B | 304 | - | 34,34,36 | 0.39 | 0 | 42,44,47 | 1.07 | 3 (7%) |
| 3 | NEX | A | 303 | - | 38,46,46 | 0.96 | 2 (5%) | 50,70,70 | 4.90 | 19 (38%) |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\|>2$ | Counts | RMSZ | $\#\|Z\|>2$ |
| 5 | CHL | C | 309 | 1 | 42,50,74 | 3.27 | 17 (40%) | 44,85,114 | 3.37 | 24 (54%) |
| 5 | CHL | B | 310 | 1 | 43,51,74 | 3.21 | 17 (39%) | 45,86,114 | 3.54 | 22 (48%) |
| 5 | CHL | A | 312 | 12 | 56,64,74 | 2.82 | 19 (33%) | 61,102,114 | 2.98 | 28 (45%) |
| 9 | 0UR | E | 320 | - | 50,53,58 | 0.99 | 1 (2%) | 58,72,77 | 2.05 | 19 (32%) |
| 6 | CLA | D | 314 | 1 | 58,66,73 | 1.56 | 11 (18%) | 67,104,113 | 1.54 | 12 (17%) |
| 5 | CHL | C | 305 | 1 | 66,74,74 | 2.57 | 20 (30%) | 73,114,114 | 2.74 | 26 (35%) |
| 5 | CHL | D | 312 | 12 | 57,65,74 | 2.74 | 19 (33%) | 62,103,114 | 2.67 | 28 (45%) |
| 9 | 0UR | B | 325 | - | 50,53,58 | 1.01 | 2 (4%) | 58,72,77 | 2.09 | 18 (31%) |
| 6 | CLA | F | 307 | 12 | 46,54,73 | 1.74 | 5 (10%) | 53,90,113 | 1.60 | 7 (13%) |
| 6 | CLA | D | 317 | 1 | 65,73,73 | 1.50 | 7 (10%) | 76,113,113 | 1.36 | 8 (10%) |
| 5 | CHL | B | 313 | 12 | 57,65,74 | 2.73 | 19 (33%) | 62,103,114 | 3.39 | 26 (41%) |
| 5 | CHL | C | 313 | 1 | 66,74,74 | 2.49 | 18 (27%) | 73,114,114 | 2.45 | 25 (34%) |
| 6 | CLA | C | 314 | 1 | 53,61,73 | 1.66 | 5 (9%) | 61,98,113 | 1.56 | 10 (16%) |
| 5 | CHL | D | 309 | 1 | 42,50,74 | 3.31 | 18 (42%) | 44,85,114 | 5.62 | 27 (61%) |
| 9 | 0UR | B | 302 | - | 48,51,58 | 1.14 | 3 (6%) | 56,70,77 | 2.80 | 19 (33%) |
| 5 | CHL | C | 318 | - | 44,52,74 | 3.23 | 18 (40%) | 46,87,114 | 3.82 | 23 (50%) |
| 5 | CHL | C | 311 | 12 | 61,69,74 | 3.18 | 19 (31%) | 67,108,114 | 2.76 | 27 (40%) |
| 5 | CHL | B | 312 | 12 | 62,70,74 | 2.89 | 18 (29%) | 68,109,114 | 2.76 | 28 (41%) |
| 6 | CLA | D | 307 | - | 65,73,73 | 1.47 | 5 (7%) | 76,113,113 | 1.44 | 7 (9%) |
| 5 | CHL | E | 311 | 12 | 56,64,74 | 2.82 | 19 (33%) | 61,102,114 | 2.85 | 27 (44%) |
| 5 | CHL | D | 313 | 1 | 66,74,74 | 2.60 | 16 (24%) | 73,114,114 | 2.45 | 26 (35%) |
| 5 | CHL | E | 305 | 1 | 64,72,74 | 2.42 | 18 (28%) | 70,111,114 | 2.33 | 27 (38%) |
| 5 | CHL | B | 306 | 1 | 66,74,74 | 2.75 | 18 (27%) | 73,114,114 | 3.60 | 28 (38%) |
| 6 | CLA | A | 314 | 1 | 55,63,73 | 1.58 | 12 (21%) | 64,101,113 | 1.68 | 14 (21%) |
| 6 | CLA | F | 306 | - | 65,73,73 | 1.51 | 5 (7%) | 76,113,113 | 1.41 | 7 (9%) |
| 5 | CHL | A | 318 | - | 42,50,74 | 3.39 | 19 (45%) | 44,85,114 | 3.03 | 24 (54%) |
| 6 | CLA | A | 308 | 12 | 50,58,73 | 1.72 | 5 (10%) | 58,95,113 | 1.58 | 8 (13%) |
| 6 | CLA | B | 316 | 7 | 65,73,73 | 1.53 | 5 (7%) | 76,113,113 | 1.42 | 9 (11%) |
| 9 | 0UR | C | 321 | - | 50,53,58 | 0.97 | 1 (2%) | 58,72,77 | 1.98 | 16 (27%) |
| 6 | CLA | E | 306 | - | 65,73,73 | 1.53 | 5 (7%) | 76,113,113 | 1.39 | 10 (13%) |
| 7 | LHG | E | 318 | 6 | 40,40,48 | 0.67 | 1 (2%) | 43,46,54 | 1.30 | 6 (13%) |
| 3 | NEX | C | 303 | - | 38,46,46 | 0.96 | 1 (2%) | 50,70,70 | 6.57 | 19 (38%) |
| 5 | CHL | F | 311 | 12 | 56,64,74 | 2.60 | 20 (35%) | 61,102,114 | 3.72 | 27 (44%) |
| 9 | 0UR | A | 322 | - | 50,53,58 | 1.01 | 2 (4%) | 58,72,77 | 2.10 | 21 (36%) |
| 7 | LHG | F | 318 | 6 | 44,44,48 | 0.67 | 1 (2%) | 47,50,54 | 1.33 | 8 (17%) |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\|>2$ | Counts | RMSZ | $\#\|Z\|>2$ |
| 6 | CLA | E | 316 | 1 | 55,63,73 | 1.61 | 6 (10%) | 63,100,113 | 1.47 | 7 (11%) |
| 6 | CLA | A | 307 | - | 65,73,73 | 1.49 | 5 (7%) | 76,113,113 | 1.37 | 8 (10%) |
| 6 | CLA | A | 317 | 1 | 55,63,73 | 1.67 | 6 (10%) | 63,100,113 | 1.45 | 9 (14%) |
| 9 | 0UR | D | 321 | - | 50,53,58 | 0.88 | 1 (2%) | 58,72,77 | 1.92 | 14 (24%) |
| 5 | CHL | A | 309 | 1 | 43,51,74 | 3.24 | 17 (39%) | 45,86,114 | 3.71 | 24 (53%) |
| 7 | LHG | B | 324 | - | 30,30,48 | 1.18 | 2 (6%) | 33,36,54 | 1.40 | 4 (12%) |
| 5 | CHL | F | 305 | 1 | 66,74,74 | 2.15 | 16 (24%) | 73,114,114 | 3.24 | 31 (42%) |
| 6 | CLA | B | 309 | 12 | 46,54,73 | 1.82 | 6 (13%) | 53,90,113 | 1.57 | 7 (13%) |
| 6 | CLA | E | 315 | 1 | 45,53,73 | 1.75 | 6 (13%) | 52,89,113 | 1.57 | 6 (11%) |
| 2 | 0IE | E | 302 | - | 42,45,45 | 1.49 | 5 (11%) | 49,63,63 | 1.76 | 9 (18%) |
| 5 | CHL | E | 312 | 1 | 66,74,74 | 2.50 | 18 (27%) | 73,114,114 | 3.00 | 29 (39%) |
| 5 | CHL | B | 319 | - | 47,55,74 | 3.24 | 19 (40%) | 50,91,114 | 4.04 | 24 (48%) |
| 6 | CLA | B | 308 | - | 65,73,73 | 1.50 | 6 (9%) | 76,113,113 | 1.47 | 9 (11%) |
| 5 | CHL | D | 306 | 1 | 65,73,74 | 2.29 | 16 (24%) | 71,112,114 | 2.83 | 30 (42%) |
| 6 | CLA | F | 316 | - | 56,64,73 | 1.60 | 6 (10%) | 65,102,113 | 1.48 | 7 (10%) |
| 11 | LMG | B | 323 | - | 30,30,55 | 1.05 | 0 | 38,38,63 | 1.12 | 5 (13%) |
| 6 | CLA | E | 313 | 1 | 55,63,73 | 1.60 | 5 (9%) | 64,101,113 | 1.46 | 8 (12%) |
| 2 | 0IE | F | 301 | - | 42,45,45 | 1.44 | 6 (14%) | 49,63,63 | 1.74 | 10 (20%) |
| 6 | CLA | C | 315 | 7 | 65,73,73 | 1.50 | 5 (7%) | 76,113,113 | 1.39 | 9 (11%) |
| 6 | CLA | D | 316 | 1 | 45,53,73 | 1.80 | 7 (15%) | 52,89,113 | 1.62 | 7 (13%) |
| 2 | 0IE | C | 302 | - | 42,45,45 | 1.45 | 6 (14%) | 49,63,63 | 1.67 | 9 (18%) |
| 11 | LMG | F | 319 | - | 30,30,55 | 0.93 | 0 | 38,38,63 | 1.21 | 3 (7%) |
| 2 | 0IE | B | 301 | - | 42,45,45 | 1.41 | 6 (14%) | 49,63,63 | 1.70 | 9 (18%) |
| 5 | CHL | A | 306 | 1 | 64,72,74 | 2.35 | 17 (26%) | 70,111,114 | 2.57 | 29 (41%) |
| 5 | CHL | A | 311 | 12 | 61,69,74 | 2.90 | 18 (29%) | 66,107,114 | 3.78 | 30 (45%) |
| 6 | CLA | B | 317 | 1 | 45,53,73 | 1.79 | 8 (17%) | 52,89,113 | 1.59 | 7 (13%) |
| 5 | CHL | E | 317 | - | 40,49,74 | 3.39 | 17 (42%) | 42,83,114 | 5.25 | 22 (52%) |
| 6 | CLA | D | 315 | 7 | 65,73,73 | 1.51 | 6 (9%) | 76,113,113 | 1.36 | 9 (11%) |
| 5 | CHL | A | 313 | 1 | 66,74,74 | 2.47 | 18 (27%) | 73,114,114 | 2.30 | 23 (31%) |
| 3 | NEX | E | 303 | - | 38,46,46 | 0.94 | 1 (2%) | 50,70,70 | 6.17 | 19 (38%) |
| 6 | CLA | F | 315 | 1 | 45,53,73 | 1.78 | 6 (13%) | 52,89,113 | 1.64 | 7 (13%) |
| 3 | NEX | F | 303 | - | 38,46,46 | 0.96 | 1 (2%) | 50,70,70 | 6.25 | 22 (44%) |
| 5 | CHL | F | 312 | 1 | 66,74,74 | 2.27 | 18 (27%) | 73,114,114 | 2.31 | 27 (36%) |
| 5 | CHL | D | 318 | - | 46,54,74 | 3.23 | 19 (41%) | 49,90,114 | 3.02 | 23 (46%) |
| 2 | 0IE | C | 301 | - | 42,45,45 | 1.47 | 6 (14%) | 49,63,63 | 1.71 | 9 (18%) |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\|>2$ | Counts | RMSZ | $\#\|Z\|>2$ |
| 7 | LHG | B | 320 | 6 | 45,45,48 | 0.67 | 1 (2%) | 48,51,54 | 1.30 | 6 (12%) |
| 3 | NEX | B | 303 | - | 38,46,46 | 0.94 | 2 (5%) | 50,70,70 | 5.77 | 22 (44%) |
| 7 | LHG | C | 304 | - | 24,24,48 | 0.87 | 0 | 27,30,54 | 1.22 | 2 (7%) |
| 6 | CLA | E | 314 | 7 | 63,71,73 | 1.57 | 5 (7%) | 73,110,113 | 1.38 | 8 (10%) |
| 6 | CLA | F | 313 | 1 | 58,66,73 | 1.52 | 12 (20%) | 67,104,113 | 1.71 | 12 (17%) |
| 5 | CHL | D | 305 | 1 | 66,74,74 | 2.97 | 19 (28%) | 73,114,114 | 2.66 | 26 (35%) |
| 6 | CLA | E | 307 | - | 50,58,73 | 1.69 | 6 (12%) | 58,95,113 | 1.65 | 9 (15%) |
| 6 | CLA | C | 307 | - | 65,73,73 | 1.48 | 6 (9%) | 76,113,113 | 1.49 | 9 (11%) |
| 5 | CHL | B | 311 | - | 51,59,74 | 3.09 | 19 (37%) | 55,96,114 | 5.12 | 29 (52%) |
| 2 | 0IE | E | 301 | - | 42,45,45 | 1.46 | 5 (11%) | 49,63,63 | 1.79 | 10 (20%) |
| 5 | CHL | E | 309 | - | 43,51,74 | 3.29 | 17 (39%) | 45,86,114 | 5.92 | 24 (53%) |
| 5 | CHL | F | 309 | - | 42,50,74 | 3.60 | 18 (42%) | 44,85,114 | 3.43 | 26 (59%) |
| 5 | CHL | E | 310 | - | 61,69,74 | 3.03 | 18 (29%) | 66,107,114 | 2.85 | 26 (39%) |
| 5 | CHL | F | 317 | - | 46,54,74 | 3.43 | 19 (41%) | 49,90,114 | 3.54 | 26 (53%) |
| 6 | CLA | C | 316 | 1 | 45,53,73 | 1.78 | 6 (13%) | 52,89,113 | 1.59 | 6 (11%) |
| 10 | BET | B | 322 | - | 7,7,7 | 1.02 | 0 | 10,10,10 | 0.87 | 1 (10%) |
| 5 | CHL | D | 311 | - | 62,70,74 | 2.99 | 20 (32%) | 68,109,114 | 2.92 | 30 (44%) |
| 5 | CHL | A | 305 | 1 | 66,74,74 | 2.73 | 18 (27%) | 73,114,114 | 3.24 | 31 (42%) |
| 6 | CLA | A | 316 | 1 | 45,53,73 | 1.81 | 6 (13%) | 52,89,113 | 1.62 | 7 (13%) |
| 6 | CLA | C | 317 | - | 56,64,73 | 1.57 | 11 (19%) | 65,102,113 | 1.53 | 10 (15%) |
| 5 | CHL | C | 306 | 1 | 66,74,74 | 2.38 | 18 (27%) | 73,114,114 | 2.73 | 30 (41%) |
| 5 | CHL | C | 310 | - | 44,52,74 | 3.20 | 18 (40%) | 46,87,114 | 3.01 | 20 (43%) |
| 2 | 0IE | A | 301 | - | 42,45,45 | 1.50 | 10 (23%) | 49,63,63 | 2.07 | 13 (26%) |
| 6 | CLA | B | 315 | 1 | 58,66,73 | 1.57 | 12 (20%) | 67,104,113 | 1.75 | 13 (19%) |
| 7 | LHG | D | 319 | 6 | 45,45,48 | 0.69 | 1 (2%) | 48,51,54 | 1.28 | 7 (14%) |
| 4 | LMU | D | 304 | - | 36,36,36 | 0.50 | 0 | 47,47,47 | 1.19 | 4 (8%) |
| 5 | CHL | C | 312 | 12 | 56,64,74 | 3.04 | 19 (33%) | 61,102,114 | 2.70 | 26 (42%) |
| 5 | CHL | B | 307 | 1 | 65,73,74 | 2.22 | 18 (27%) | 71,112,114 | 2.96 | 27 (38%) |
| 3 | NEX | D | 303 | - | 38,46,46 | 0.95 | 2 (5%) | 50,70,70 | 5.96 | 20 (40%) |
| 6 | CLA | B | 318 | 1 | 65,73,73 | 1.47 | 6 (9%) | 76,113,113 | 1.40 | 8 (10%) |
| 6 | CLA | F | 314 | 7 | 55,63,73 | 1.68 | 5 (9%) | 64,101,113 | 1.46 | 8 (12%) |
| 5 | CHL | A | 310 | - | 51,59,74 | 3.18 | 17 (33%) | 55,96,114 | 3.26 | 26 (47%) |
| 4 | LMU | E | 319 | - | 36,36,36 | 0.38 | 0 | 47,47,47 | 0.91 | 1 (2%) |
| 2 | 0IE | F | 302 | - | 42,45,45 | 1.43 | 6 (14%) | 49,63,63 | 1.71 | 9 (18%) |
| 5 | CHL | B | 314 | 1 | 66,74,74 | 2.29 | 18 (27%) | 73,114,114 | 2.54 | 25 (34%) |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\|>2$ | Counts | RMSZ | $\#\|Z\|>2$ |
| 7 | LHG | A | 319 | 6 | 46,46,48 | 0.64 | 1 (2%) | 49,52,54 | 1.22 | 3 (6%) |
| 6 | CLA | D | 308 | 12 | 46,54,73 | 1.76 | 6 (13%) | 53,90,113 | 1.58 | 7 (13%) |
| 4 | LMU | A | 304 | - | 36,36,36 | 0.40 | 0 | 47,47,47 | 0.91 | 1 (2%) |
| 9 | 0UR | F | 320 | - | 50,53,58 | 1.09 | 3 (6%) | 58,72,77 | 1.89 | 16 (27%) |
| 5 | CHL | F | 304 | 1 | 66,74,74 | 2.54 | 18 (27%) | 73,114,114 | 3.38 | 30 (41%) |
| 5 | CHL | D | 310 | 12 | 45,53,74 | 3.16 | 17 (37%) | 46,88,114 | 3.18 | 20 (43%) |
| 6 | CLA | A | 315 | 7 | 63,71,73 | 1.55 | 6 (9%) | 73,110,113 | 1.41 | 8 (10%) |
| 6 | CLA | C | 308 | 12 | 46,54,73 | 1.76 | 5 (10%) | 53,90,113 | 1.57 | 6 (11%) |
| 10 | BET | C | 320 | - | 7,7,7 | 1.01 | 0 | 10,10,10 | 0.75 | 0 |
| 5 | CHL | F | 308 | 1 | 42,50,74 | 3.28 | 18 (42%) | 44,85,114 | 3.85 | 26 (59%) |
| 2 | 0IE | A | 302 | - | 42,45,45 | 1.53 | 7 (16%) | 49,63,63 | 2.04 | 10 (20%) |
| 5 | CHL | E | 304 | 1 | 66,74,74 | 2.42 | 18 (27%) | 73,114,114 | 3.63 | 31 (42%) |
| 2 | 0IE | D | 302 | - | 42,45,45 | 1.43 | 6 (14%) | 49,63,63 | 1.68 | 11 (22%) |
| 5 | CHL | E | 308 | 1 | 40,49,74 | 3.57 | 18 (45%) | 42,83,114 | 3.07 | 19 (45%) |
| 7 | LHG | C | 319 | 6 | 44,44,48 | 0.73 | 1 (2%) | 47,50,54 | 1.30 | 7 (14%) |
| 4 | LMU | B | 305 | - | 36,36,36 | 0.38 | 0 | 47,47,47 | 1.09 | 5 (10%) |
| 2 | 0IE | D | 301 | - | 42,45,45 | 1.43 | 5 (11%) | 49,63,63 | 1.86 | 10 (20%) |
| 10 | BET | B | 321 | - | 7,7,7 | 1.03 | 0 | 10,10,10 | 0.85 | 1 (10%) |
| 5 | CHL | F | 310 | 12 | 61,69,74 | 2.82 | 21 (34%) | 67,108,114 | 3.09 | 25 (37%) |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 4 | LMU | B | 304 | - | - | 9/20/56/61 | 1/2/2/2 |
| 3 | NEX | A | 303 | - | - | 5/27/83/83 | 0/3/3/3 |
| 5 | CHL | C | 309 | 1 | 3/3/15/26 | 4/10/108/137 | - |
| 5 | CHL | B | 310 | 1 | 3/3/15/26 | 6/12/110/137 | - |
| 5 | CHL | A | 312 | 12 | 3/3/18/26 | 7/27/125/137 | - |
| 9 | 0UR | E | 320 | - | - | 6/42/81/86 | 0/2/2/2 |
| 6 | CLA | D | 314 | 1 | 1/1/13/20 | 9/29/107/115 | - |
| 5 | CHL | C | 305 | 1 | 3/3/20/26 | 24/39/137/137 | - |
| 5 | CHL | D | 312 | 12 | 3/3/18/26 | 5/29/127/137 | - |
| 9 | 0UR | B | 325 | - | - | 7/42/81/86 | 0/2/2/2 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 6 | CLA | F | 307 | 12 | 1/1/11/20 | 4/15/93/115 | - |
| 6 | CLA | D | 317 | 1 | 1/1/15/20 | 8/37/115/115 | - |
| 5 | CHL | B | 313 | 12 | 3/3/18/26 | 7/29/127/137 | - |
| 5 | CHL | C | 313 | 1 | 3/3/20/26 | 11/39/137/137 | - |
| 6 | CLA | C | 314 | 1 | 1/1/12/20 | 5/23/101/115 | - |
| 5 | CHL | D | 309 | 1 | 3/3/15/26 | 4/10/108/137 | - |
| 9 | 0UR | B | 302 | - | - | 16/40/79/86 | 0/2/2/2 |
| 5 | CHL | C | 318 | - | 3/3/15/26 | 4/13/111/137 | - |
| 5 | CHL | C | 311 | 12 | 3/3/19/26 | 15/33/131/137 | - |
| 5 | CHL | B | 312 | 12 | 3/3/19/26 | 9/35/133/137 | - |
| 6 | CLA | D | 307 | - | 1/1/15/20 | 10/37/115/115 | - |
| 5 | CHL | E | 311 | 12 | 3/3/18/26 | 8/27/125/137 | - |
| 5 | CHL | D | 313 | 1 | 3/3/20/26 | 18/39/137/137 | - |
| 5 | CHL | E | 305 | 1 | 3/3/19/26 | 12/37/135/137 | - |
| 5 | CHL | B | 306 | 1 | 3/3/20/26 | 16/39/137/137 | - |
| 6 | CLA | A | 314 | 1 | 1/1/13/20 | 6/25/103/115 | - |
| 6 | CLA | F | 306 | - | 1/1/15/20 | 15/37/115/115 | - |
| 5 | CHL | A | 318 | - | 3/3/15/26 | 5/10/108/137 | - |
| 6 | CLA | A | 308 | 12 | 1/1/12/20 | 6/19/97/115 | - |
| 6 | CLA | B | 316 | 7 | 1/1/15/20 | 6/37/115/115 | - |
| 9 | 0UR | C | 321 | - | - | 7/42/81/86 | 0/2/2/2 |
| 6 | CLA | E | 306 | - | 1/1/15/20 | 10/37/115/115 | - |
| 7 | LHG | E | 318 | 6 | - | 15/45/45/53 | - |
| 3 | NEX | C | 303 | - | - | 2/27/83/83 | 0/3/3/3 |
| 5 | CHL | F | 311 | 12 | 3/3/18/26 | 12/27/125/137 | - |
| 9 | 0UR | A | 322 | - | - | 8/42/81/86 | 0/2/2/2 |
| 7 | LHG | F | 318 | 6 | - | 23/49/49/53 | - |
| 6 | CLA | E | 316 | 1 | 1/1/12/20 | 7/25/103/115 | - |
| 6 | CLA | A | 307 | - | 1/1/15/20 | 13/37/115/115 | - |
| 6 | CLA | A | 317 | 1 | 1/1/12/20 | 10/25/103/115 | - |
| 9 | 0UR | D | 321 | - | - | 7/42/81/86 | 0/2/2/2 |
| 5 | CHL | A | 309 | 1 | 3/3/15/26 | 6/12/110/137 | - |
| 7 | LHG | B | 324 | - | - | 24/35/35/53 | - |
| 5 | CHL | F | 305 | 1 | 3/3/20/26 | 18/39/137/137 | - |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 6 | CLA | B | 309 | 12 | 1/1/11/20 | 4/15/93/115 | - |
| 6 | CLA | E | 315 | 1 | 1/1/11/20 | 6/13/91/115 | - |
| 5 | CHL | E | 312 | 1 | 3/3/20/26 | 9/39/137/137 | - |
| 2 | 0IE | E | 302 | - | - | 12/33/72/72 | 0/2/2/2 |
| 5 | CHL | B | 319 | - | 3/3/16/26 | 5/17/115/137 | - |
| 6 | CLA | B | 308 | - | 1/1/15/20 | 14/37/115/115 | - |
| 5 | CHL | D | 306 | 1 | 3/3/19/26 | 18/38/136/137 | - |
| 6 | CLA | F | 316 | - | 1/1/13/20 | 6/27/105/115 | - |
| 11 | LMG | B | 323 | - | - | 9/25/45/70 | 0/1/1/1 |
| 6 | CLA | E | 313 | 1 | 1/1/13/20 | 4/25/103/115 | - |
| 2 | 0IE | F | 301 | - | - | 12/33/72/72 | 0/2/2/2 |
| 6 | CLA | C | 315 | 7 | 1/1/15/20 | 15/37/115/115 | - |
| 6 | CLA | D | 316 | 1 | 1/1/11/20 | 2/13/91/115 | - |
| 2 | 0IE | C | 302 | - | - | 14/33/72/72 | 0/2/2/2 |
| 11 | LMG | F | 319 | - | - | 11/25/45/70 | 0/1/1/1 |
| 2 | 0IE | B | 301 | - | - | 11/33/72/72 | 0/2/2/2 |
| 5 | CHL | A | 306 | 1 | 3/3/19/26 | 15/37/135/137 | - |
| 5 | CHL | A | 311 | 12 | 3/3/18/26 | 14/33/131/137 | - |
| 6 | CLA | B | 317 | 1 | 1/1/11/20 | 2/13/91/115 | - |
| 5 | CHL | E | 317 | - | 3/3/14/26 | 3/10/104/137 | - |
| 6 | CLA | D | 315 | 7 | 1/1/15/20 | 9/37/115/115 | - |
| 5 | CHL | A | 313 | 1 | 3/3/20/26 | 14/39/137/137 | - |
| 3 | NEX | E | 303 | - | - | 4/27/83/83 | 0/3/3/3 |
| 6 | CLA | F | 315 | 1 | 1/1/11/20 | 4/13/91/115 | - |
| 3 | NEX | F | 303 | - | - | 3/27/83/83 | 0/3/3/3 |
| 5 | CHL | F | 312 | 1 | 3/3/20/26 | 16/39/137/137 | - |
| 5 | CHL | D | 318 | - | 3/3/16/26 | 4/15/113/137 | - |
| 2 | 0IE | C | 301 | - | - | 9/33/72/72 | 0/2/2/2 |
| 7 | LHG | B | 320 | 6 | - | 24/50/50/53 | - |
| 3 | NEX | B | 303 | - | - | 2/27/83/83 | 0/3/3/3 |
| 7 | LHG | C | 304 | - | - | 16/29/29/53 | - |
| 6 | CLA | E | 314 | 7 | 1/1/14/20 | 9/35/113/115 | - |
| 6 | CLA | F | 313 | 1 | 1/1/13/20 | 12/29/107/115 | - |
| 5 | CHL | D | 305 | 1 | 3/3/20/26 | 20/39/137/137 | - |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 6 | CLA | E | 307 | - | 1/1/12/20 | 2/19/97/115 | - |
| 6 | CLA | C | 307 | - | 1/1/15/20 | 7/37/115/115 | - |
| 5 | CHL | B | 311 | - | 3/3/17/26 | 5/21/119/137 | - |
| 2 | 0IE | E | 301 | - | - | 7/33/72/72 | 0/2/2/2 |
| 5 | CHL | E | 309 | - | 3/3/15/26 | 4/12/110/137 | - |
| 5 | CHL | F | 309 | - | 3/3/15/26 | 5/10/108/137 | - |
| 5 | CHL | E | 310 | - | 3/3/18/26 | 14/33/131/137 | - |
| 5 | CHL | F | 317 | - | 3/3/16/26 | 5/15/113/137 | - |
| 6 | CLA | C | 316 | 1 | 1/1/11/20 | 4/13/91/115 | - |
| 10 | BET | B | 322 | - | - | 5/5/5/5 | - |
| 5 | CHL | D | 311 | - | 3/3/19/26 | 15/35/133/137 | - |
| 5 | CHL | A | 305 | 1 | 3/3/20/26 | 21/39/137/137 | - |
| 6 | CLA | A | 316 | 1 | 1/1/11/20 | 4/13/91/115 | - |
| 6 | CLA | C | 317 | - | 1/1/13/20 | 5/27/105/115 | - |
| 5 | CHL | C | 306 | 1 | 3/3/20/26 | 16/39/137/137 | - |
| 5 | CHL | C | 310 | - | 3/3/15/26 | 7/13/111/137 | - |
| 6 | CLA | B | 315 | 1 | 1/1/13/20 | 6/29/107/115 | - |
| 2 | 0IE | A | 301 | - | - | 10/33/72/72 | 0/2/2/2 |
| 7 | LHG | D | 319 | 6 | - | 16/50/50/53 | - |
| 4 | LMU | D | 304 | - | - | 14/21/61/61 | 0/2/2/2 |
| 5 | CHL | C | 312 | 12 | 3/3/18/26 | 11/27/125/137 | - |
| 5 | CHL | B | 307 | 1 | 3/3/19/26 | 13/38/136/137 | - |
| 3 | NEX | D | 303 | - | - | 6/27/83/83 | 0/3/3/3 |
| 6 | CLA | B | 318 | 1 | 1/1/15/20 | 16/37/115/115 | - |
| 6 | CLA | F | 314 | 7 | 1/1/13/20 | 4/25/103/115 | - |
| 5 | CHL | A | 310 | - | 3/3/17/26 | 4/21/119/137 | - |
| 4 | LMU | E | 319 | - | - | 15/21/61/61 | 0/2/2/2 |
| 2 | 0IE | F | 302 | - | - | 12/33/72/72 | 0/2/2/2 |
| 5 | CHL | B | 314 | 1 | 3/3/20/26 | 19/39/137/137 | - |
| 7 | LHG | A | 319 | 6 | - | 18/51/51/53 | - |
| 6 | CLA | D | 308 | 12 | 1/1/11/20 | 6/15/93/115 | - |
| 4 | LMU | A | 304 | - | - | 14/21/61/61 | 0/2/2/2 |
| 9 | 0UR | F | 320 | - | - | 7/42/81/86 | 0/2/2/2 |
| 5 | CHL | F | 304 | 1 | 3/3/20/26 | 16/39/137/137 | - |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 5 | CHL | D | 310 | 12 | 3/3/15/26 | 2/13/112/137 | - |
| 6 | CLA | A | 315 | 7 | 1/1/14/20 | 9/35/113/115 | - |
| 6 | CLA | C | 308 | 12 | 1/1/11/20 | 7/15/93/115 | - |
| 10 | BET | C | 320 | - | - | 5/5/5/5 | - |
| 5 | CHL | F | 308 | 1 | 3/3/15/26 | 4/10/108/137 | - |
| 5 | CHL | E | 304 | 1 | 3/3/20/26 | 17/39/137/137 | - |
| 2 | 0IE | A | 302 | - | - | 11/33/72/72 | 0/2/2/2 |
| 2 | 0IE | D | 302 | - | - | 16/33/72/72 | 0/2/2/2 |
| 5 | CHL | E | 308 | 1 | 3/3/14/26 | 4/10/104/137 | - |
| 7 | LHG | C | 319 | 6 | - | 18/49/49/53 | - |
| 4 | LMU | B | 305 | - | - | 14/21/61/61 | 0/2/2/2 |
| 2 | 0IE | D | 301 | - | - | 14/33/72/72 | 0/2/2/2 |
| 10 | BET | B | 321 | - | - | 5/5/5/5 | - |
| 5 | CHL | F | 310 | 12 | 3/3/19/26 | 17/33/131/137 | - |

The worst 5 of 1204 bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 5 | E | 310 | CHL | MG-ND | -13.99 | 1.78 | 2.05 |
| 5 | C | 311 | CHL | MG-ND | -13.00 | 1.80 | 2.05 |
| 5 | E | 308 | CHL | MG-NA | 12.97 | 2.37 | 2.06 |
| 5 | C | 311 | CHL | MG-NA | 12.90 | 2.36 | 2.06 |
| 5 | D | 313 | CHL | MG-NA | 12.84 | 2.36 | 2.06 |

The worst 5 of 1981 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 5 | B | 311 | CHL | O2A-C1-C2 | 26.61 | 178.56 | 108.64 |
| 3 | F | 303 | NEX | C15-C35-C34 | 26.60 | 177.96 | 123.47 |
| 3 | E | 303 | NEX | C35-C15-C14 | 25.85 | 176.43 | 123.47 |
| 3 | C | 303 | NEX | C15-C35-C34 | 24.82 | 174.32 | 123.47 |
| 5 | E | 309 | CHL | CMD-C2D-C1D | 24.02 | 167.04 | 124.71 |

5 of 180 chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|---|---|---|---|---|
| 5 | A | 305 | CHL | NA |
| 5 | A | 305 | CHL | NC |
| 5 | A | 305 | CHL | ND |

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| Mol | Chain | Res | Type | Atom |
|---|---|---|---|---|
| 5 | A | 306 | CHL | NA |
| 5 | A | 306 | CHL | NC |

5 of 1237 torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 2 | A | 302 | 0IE | C5-C6-C7-C21 |
| 2 | A | 302 | 0IE | C5-C6-C7-C8 |
| 2 | A | 302 | 0IE | C3-C4-C5-C6 |
| 2 | A | 302 | 0IE | C15-C16-C17-C18 |
| 2 | A | 302 | 0IE | C23-C16-C17-C18 |

All (1) ring outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 4 | B | 304 | LMU | C1'-C2'-C3'-C4'-C5'-O5' |

111 monomers are involved in 359 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|---|---|---|---|---|---|
| 4 | B | 304 | LMU | 2 | 0 |
| 3 | A | 303 | NEX | 3 | 0 |
| 5 | C | 309 | CHL | 5 | 0 |
| 5 | B | 310 | CHL | 1 | 0 |
| 5 | A | 312 | CHL | 2 | 0 |
| 9 | E | 320 | 0UR | 3 | 0 |
| 6 | D | 314 | CLA | 4 | 0 |
| 5 | C | 305 | CHL | 5 | 0 |
| 5 | D | 312 | CHL | 3 | 0 |
| 9 | B | 325 | 0UR | 5 | 0 |
| 6 | F | 307 | CLA | 3 | 0 |
| 6 | D | 317 | CLA | 10 | 0 |
| 5 | B | 313 | CHL | 6 | 0 |
| 5 | C | 313 | CHL | 10 | 0 |
| 6 | C | 314 | CLA | 3 | 0 |
| 5 | D | 309 | CHL | 2 | 0 |
| 5 | C | 318 | CHL | 3 | 0 |
| 5 | C | 311 | CHL | 3 | 0 |
| 5 | B | 312 | CHL | 9 | 0 |
| 6 | D | 307 | CLA | 2 | 0 |
| 5 | E | 311 | CHL | 6 | 0 |
| 5 | D | 313 | CHL | 12 | 0 |

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| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|---|---|---|---|---|---|
| 5 | E | 305 | CHL | 5 | 0 |
| 5 | B | 306 | CHL | 2 | 0 |
| 6 | A | 314 | CLA | 4 | 0 |
| 6 | F | 306 | CLA | 8 | 0 |
| 5 | A | 318 | CHL | 1 | 0 |
| 6 | A | 308 | CLA | 3 | 0 |
| 6 | B | 316 | CLA | 2 | 0 |
| 9 | C | 321 | 0UR | 3 | 0 |
| 6 | E | 306 | CLA | 4 | 0 |
| 7 | E | 318 | LHG | 7 | 0 |
| 3 | C | 303 | NEX | 4 | 0 |
| 5 | F | 311 | CHL | 3 | 0 |
| 7 | F | 318 | LHG | 8 | 0 |
| 6 | E | 316 | CLA | 6 | 0 |
| 6 | A | 307 | CLA | 5 | 0 |
| 6 | A | 317 | CLA | 5 | 0 |
| 7 | B | 324 | LHG | 8 | 0 |
| 5 | F | 305 | CHL | 7 | 0 |
| 6 | B | 309 | CLA | 1 | 0 |
| 6 | E | 315 | CLA | 2 | 0 |
| 2 | E | 302 | 0IE | 1 | 0 |
| 5 | E | 312 | CHL | 8 | 0 |
| 5 | B | 319 | CHL | 3 | 0 |
| 6 | B | 308 | CLA | 5 | 0 |
| 5 | D | 306 | CHL | 5 | 0 |
| 6 | F | 316 | CLA | 5 | 0 |
| 6 | E | 313 | CLA | 3 | 0 |
| 6 | C | 315 | CLA | 3 | 0 |
| 6 | D | 316 | CLA | 3 | 0 |
| 2 | C | 302 | 0IE | 2 | 0 |
| 11 | F | 319 | LMG | 1 | 0 |
| 2 | B | 301 | 0IE | 1 | 0 |
| 5 | A | 306 | CHL | 5 | 0 |
| 5 | A | 311 | CHL | 4 | 0 |
| 6 | B | 317 | CLA | 1 | 0 |
| 5 | E | 317 | CHL | 3 | 0 |
| 6 | D | 315 | CLA | 3 | 0 |
| 5 | A | 313 | CHL | 6 | 0 |
| 3 | E | 303 | NEX | 3 | 0 |
| 6 | F | 315 | CLA | 2 | 0 |
| 3 | F | 303 | NEX | 2 | 0 |
| 5 | F | 312 | CHL | 5 | 0 |

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| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|---|---|---|---|---|---|
| 5 | D | 318 | CHL | 1 | 0 |
| 2 | C | 301 | 0IE | 1 | 0 |
| 7 | B | 320 | LHG | 5 | 0 |
| 3 | B | 303 | NEX | 4 | 0 |
| 6 | E | 314 | CLA | 3 | 0 |
| 6 | F | 313 | CLA | 7 | 0 |
| 5 | D | 305 | CHL | 3 | 0 |
| 6 | E | 307 | CLA | 4 | 0 |
| 6 | C | 307 | CLA | 11 | 0 |
| 5 | B | 311 | CHL | 4 | 0 |
| 5 | E | 309 | CHL | 3 | 0 |
| 5 | F | 309 | CHL | 2 | 0 |
| 5 | E | 310 | CHL | 3 | 0 |
| 5 | F | 317 | CHL | 2 | 0 |
| 6 | C | 316 | CLA | 4 | 0 |
| 10 | B | 322 | BET | 1 | 0 |
| 5 | D | 311 | CHL | 9 | 0 |
| 5 | A | 305 | CHL | 6 | 0 |
| 6 | A | 316 | CLA | 3 | 0 |
| 6 | C | 317 | CLA | 7 | 0 |
| 5 | C | 306 | CHL | 4 | 0 |
| 5 | C | 310 | CHL | 4 | 0 |
| 6 | B | 315 | CLA | 7 | 0 |
| 7 | D | 319 | LHG | 5 | 0 |
| 4 | D | 304 | LMU | 3 | 0 |
| 5 | C | 312 | CHL | 3 | 0 |
| 5 | B | 307 | CHL | 4 | 0 |
| 3 | D | 303 | NEX | 4 | 0 |
| 6 | B | 318 | CLA | 7 | 0 |
| 6 | F | 314 | CLA | 1 | 0 |
| 5 | A | 310 | CHL | 4 | 0 |
| 4 | E | 319 | LMU | 3 | 0 |
| 5 | B | 314 | CHL | 10 | 0 |
| 7 | A | 319 | LHG | 3 | 0 |
| 4 | A | 304 | LMU | 4 | 0 |
| 9 | F | 320 | 0UR | 2 | 0 |
| 5 | F | 304 | CHL | 8 | 0 |
| 5 | D | 310 | CHL | 5 | 0 |
| 6 | A | 315 | CLA | 3 | 0 |
| 6 | C | 308 | CLA | 3 | 0 |
| 5 | F | 308 | CHL | 1 | 0 |
| 2 | A | 302 | 0IE | 1 | 0 |

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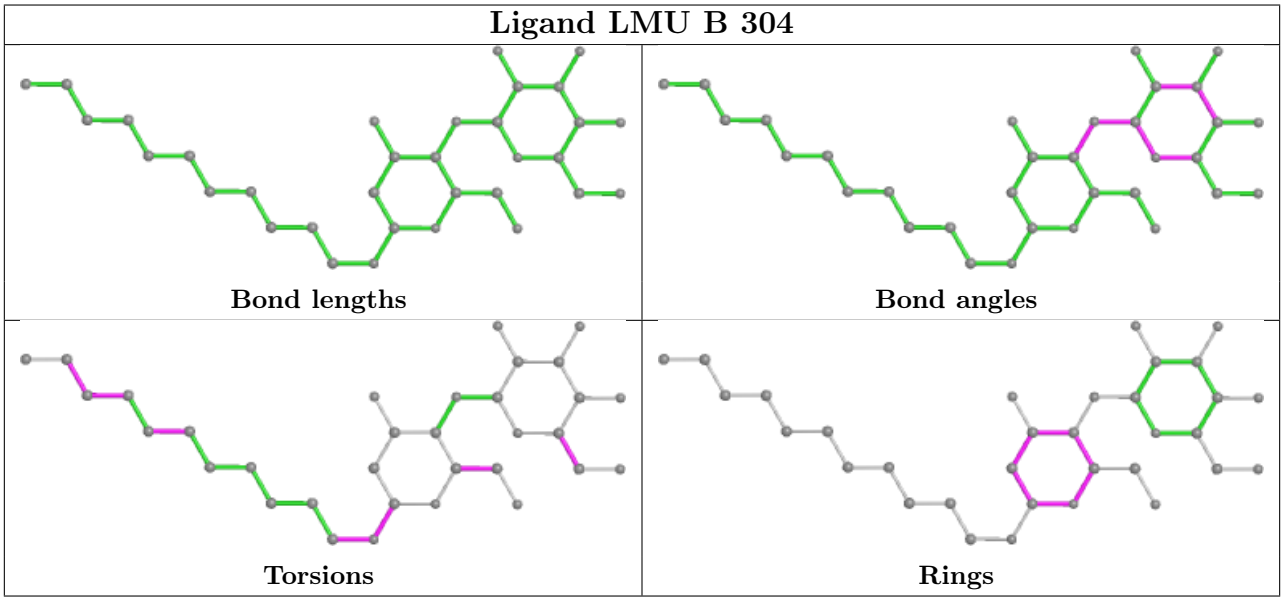
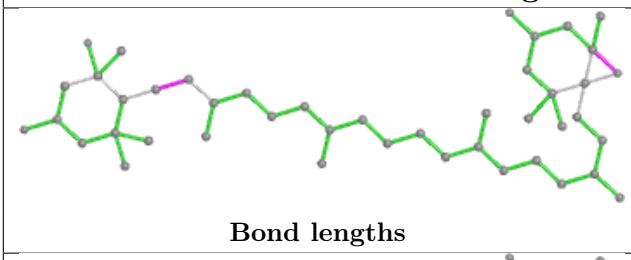
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|---|---|---|---|---|---|
| 5 | E | 304 | CHL | 4 | 0 |
| 5 | E | 308 | CHL | 3 | 0 |
| 7 | C | 319 | LHG | 4 | 0 |
| 4 | B | 305 | LMU | 1 | 0 |
| 5 | F | 310 | CHL | 7 | 0 |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

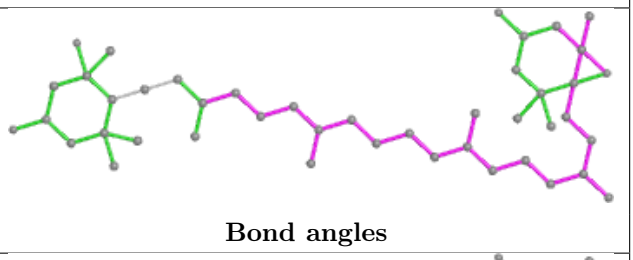
**Ligand LMU B 304**



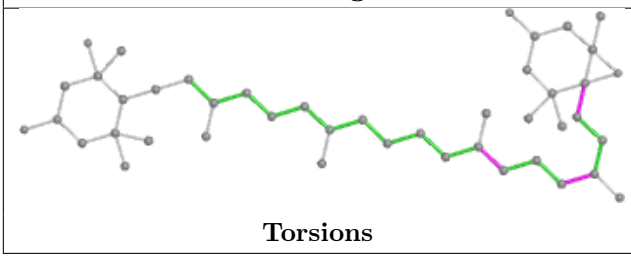
## Ligand NEX A 303



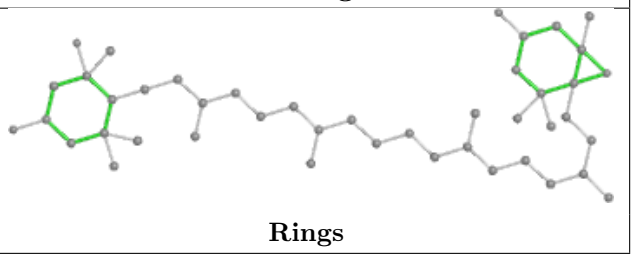
Bond lengths



Bond angles

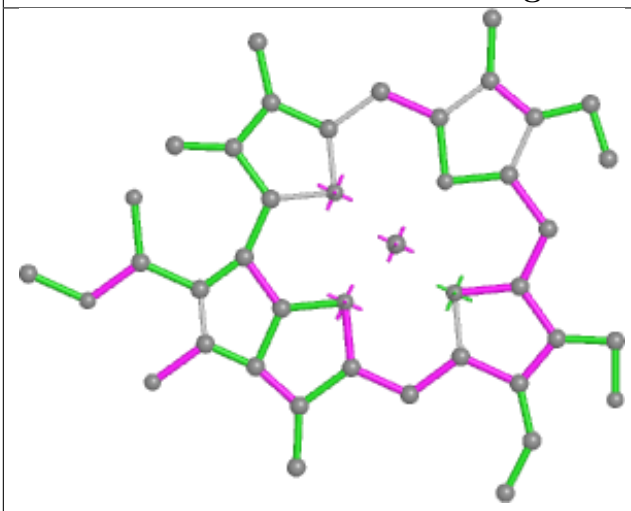


Torsions

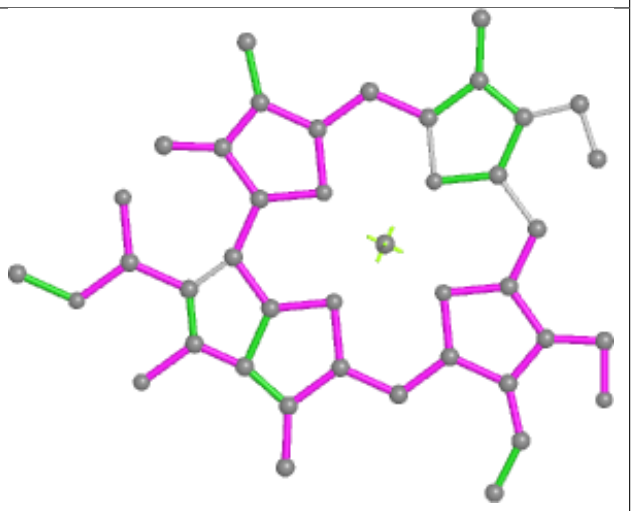


Rings

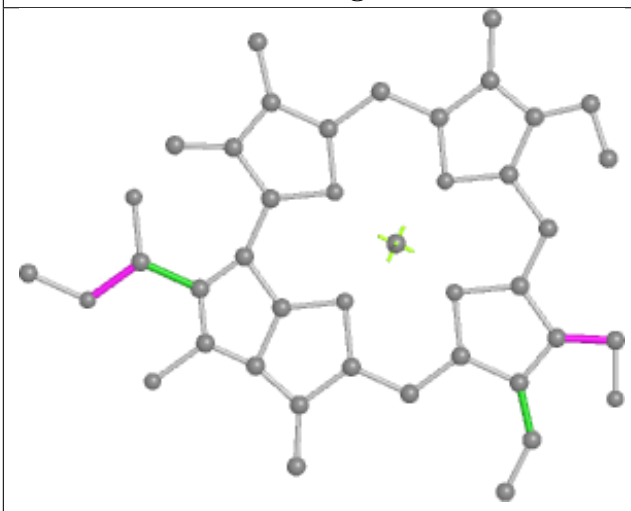
## Ligand CHL C 309



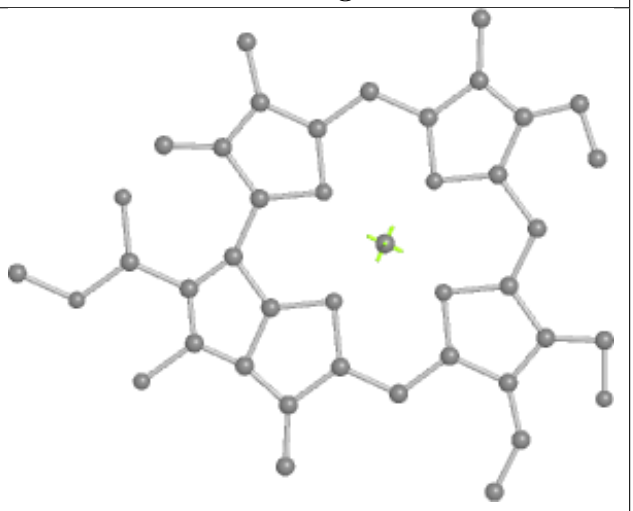
Bond lengths



Bond angles

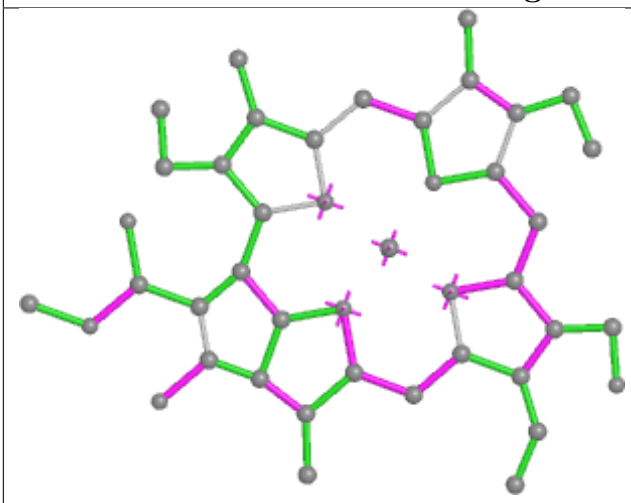


Torsions

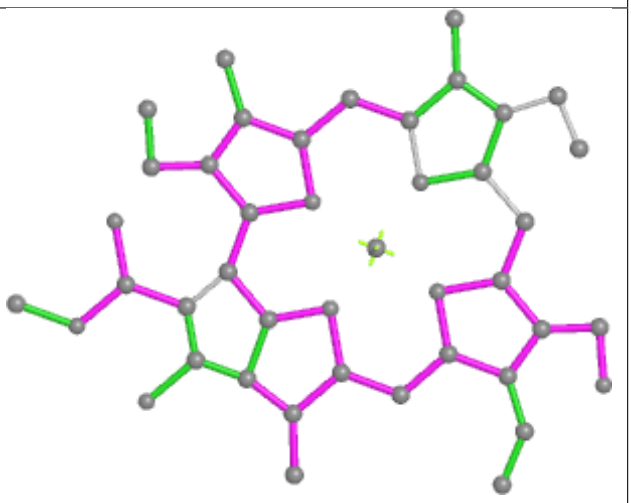


Rings

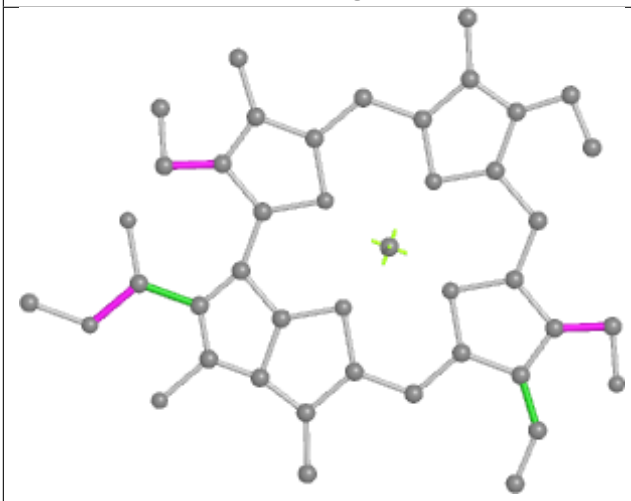
**Ligand CHL B 310**



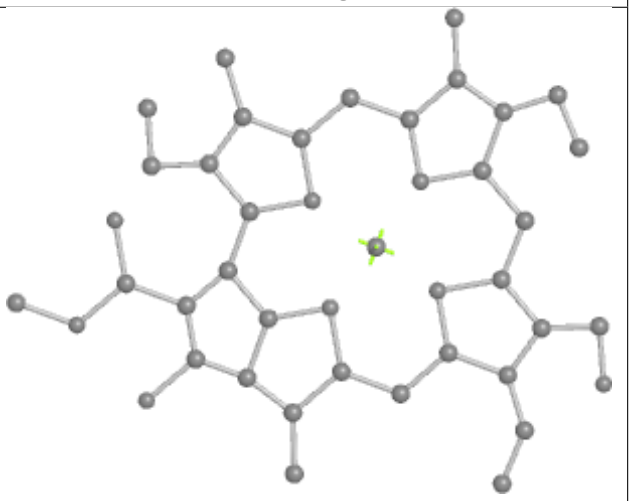
**Bond lengths**



**Bond angles**

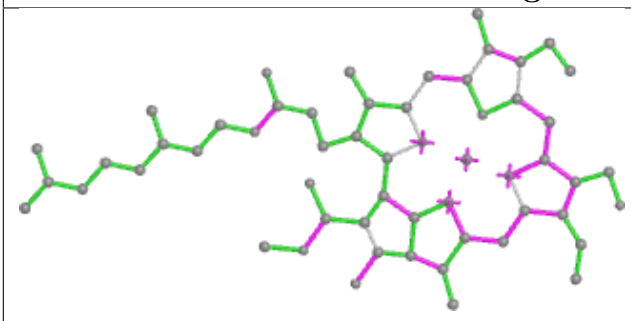


**Torsions**

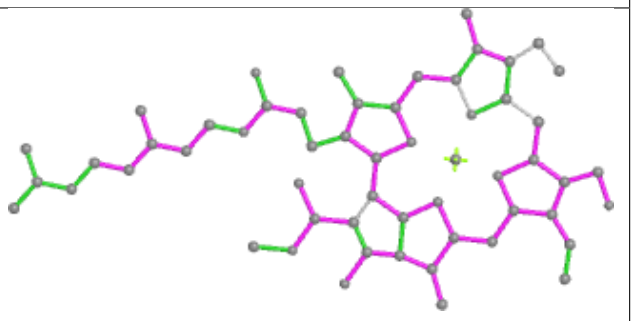


**Rings**

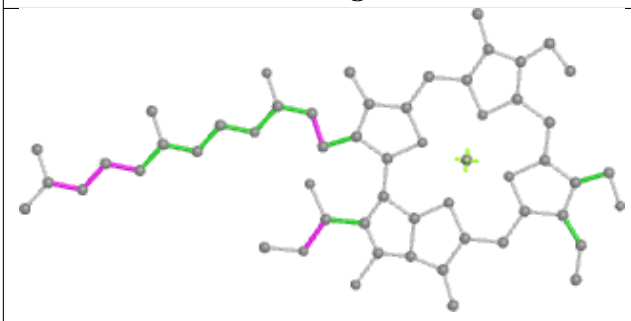
## Ligand CHL A 312



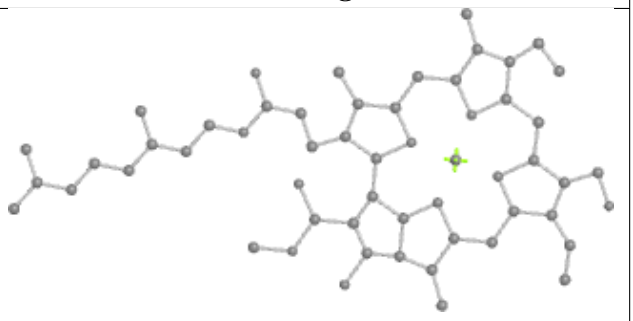
Bond lengths



Bond angles

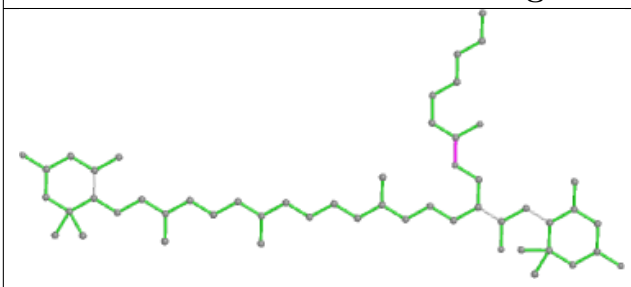


Torsions

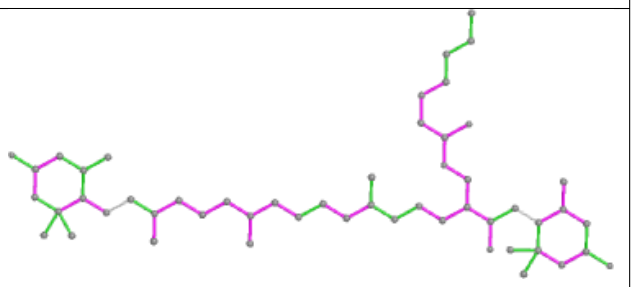


Rings

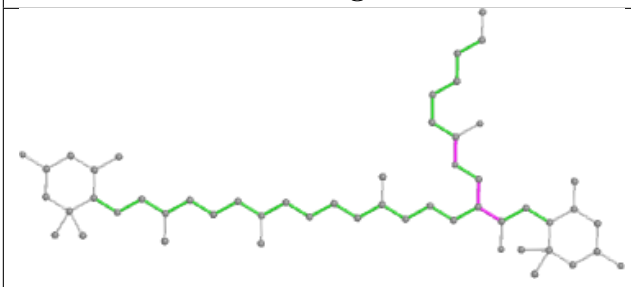
## Ligand 0UR E 320



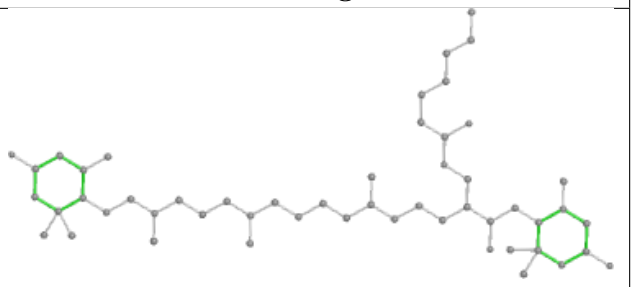
Bond lengths



Bond angles

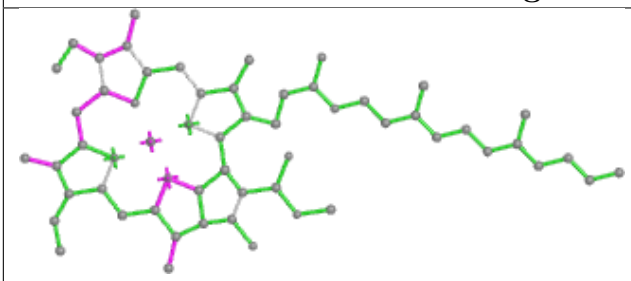


Torsions

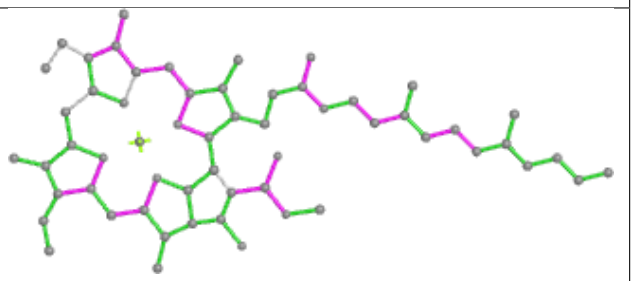


Rings

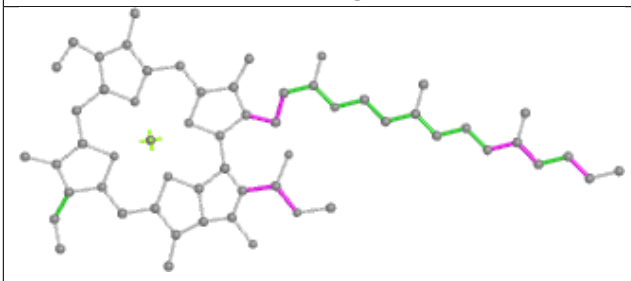
## Ligand CLA D 314



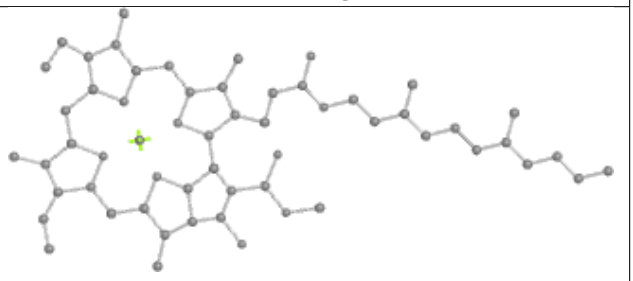
Bond lengths



Bond angles

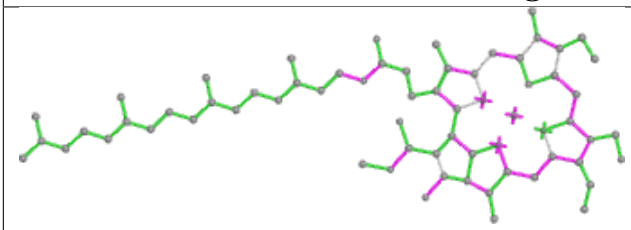


Torsions

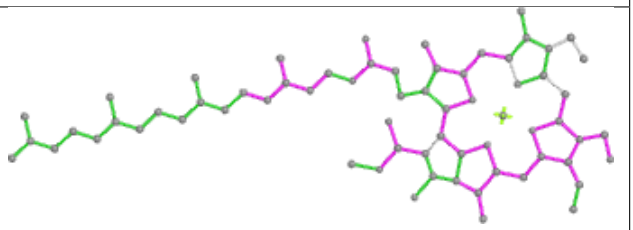


Rings

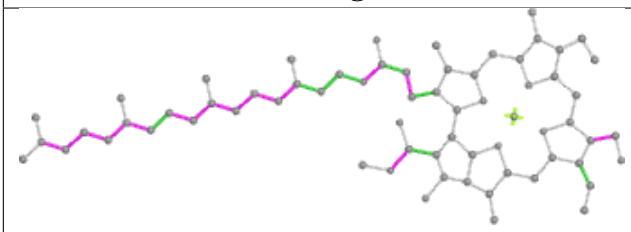
## Ligand CHL C 305



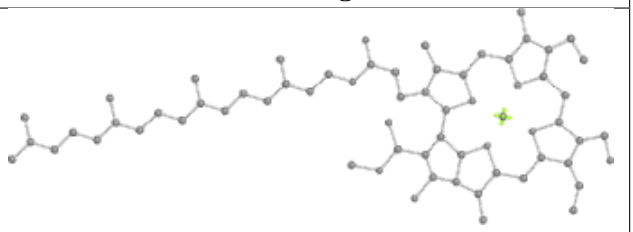
Bond lengths



Bond angles

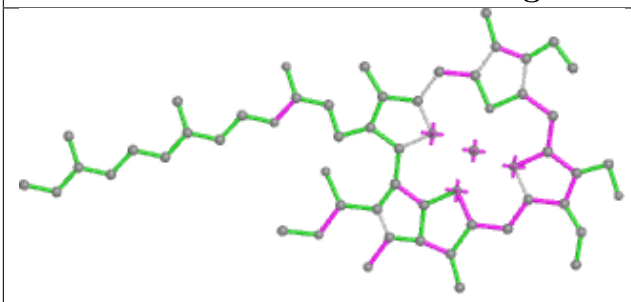


Torsions

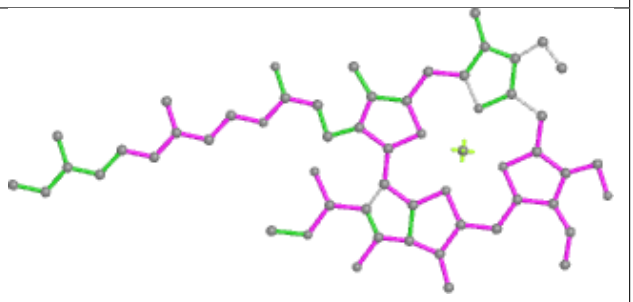


Rings

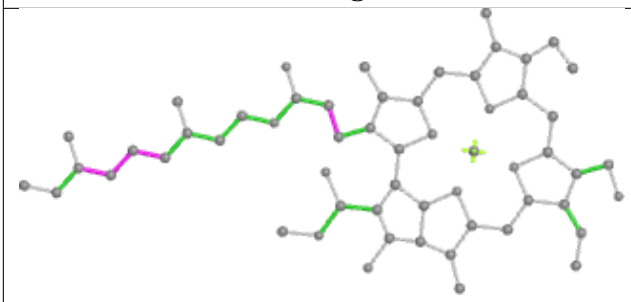
**Ligand CHL D 312**



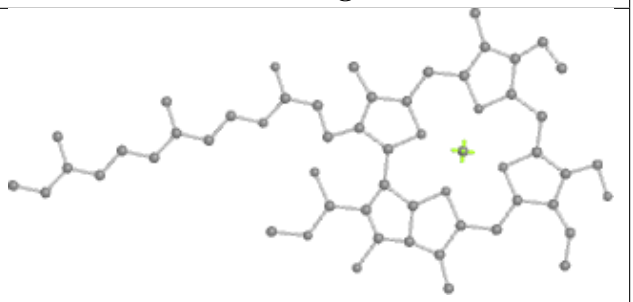
Bond lengths



Bond angles

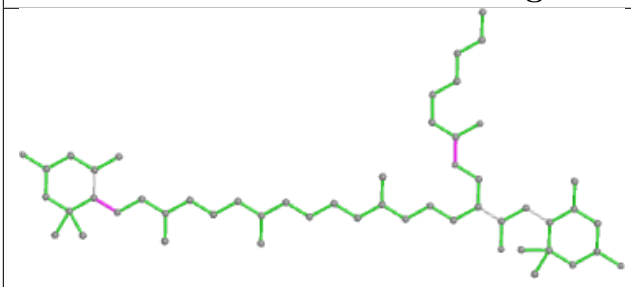


Torsions

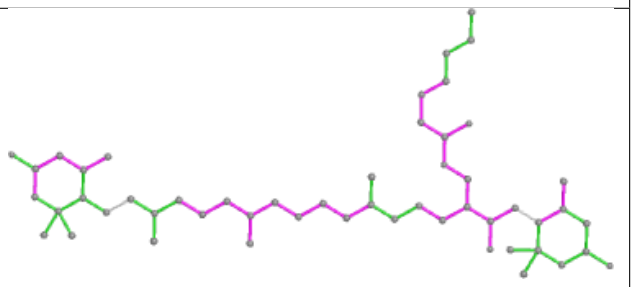


Rings

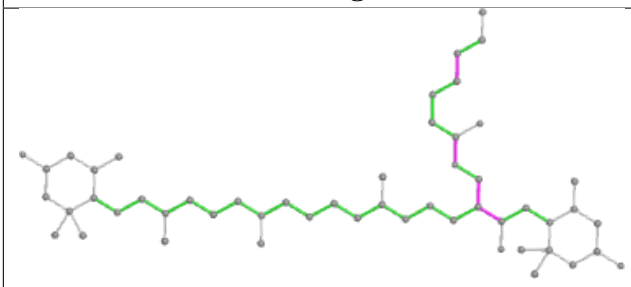
**Ligand 0UR B 325**



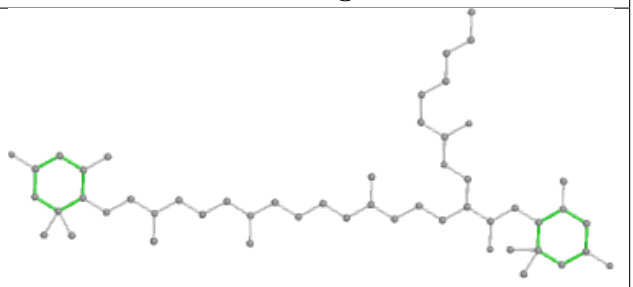
Bond lengths



Bond angles

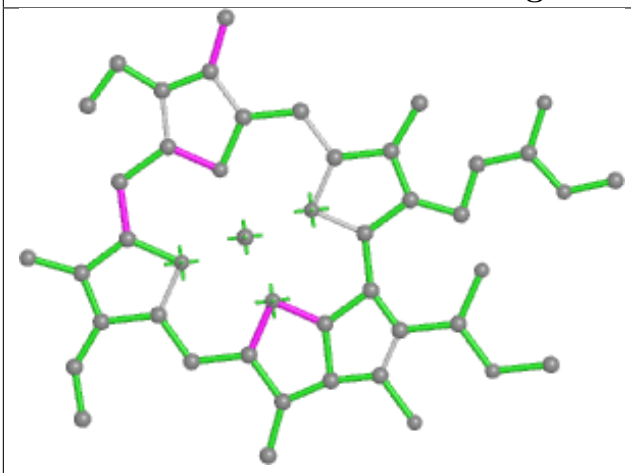


Torsions

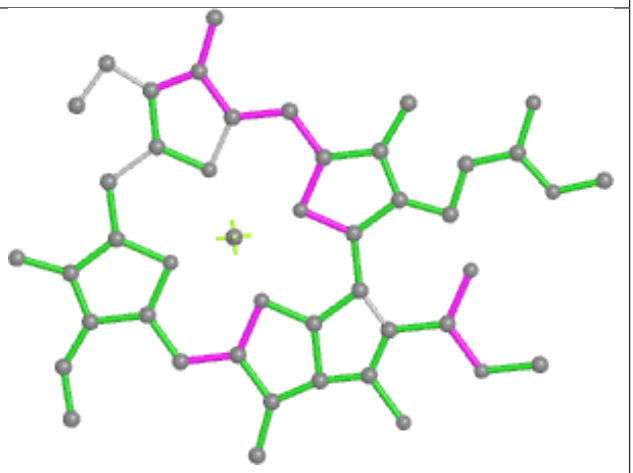


Rings

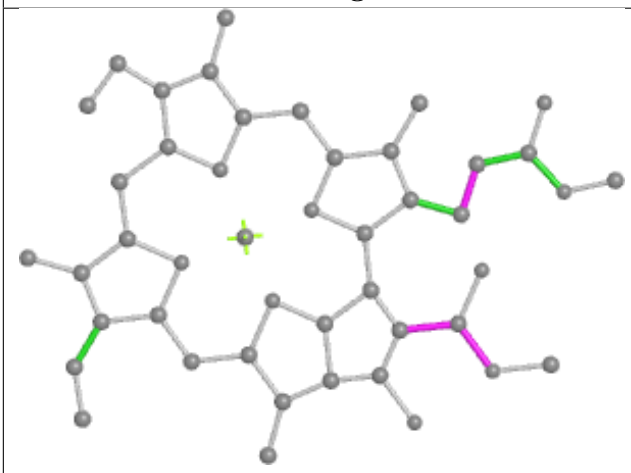
## Ligand CLA F 307



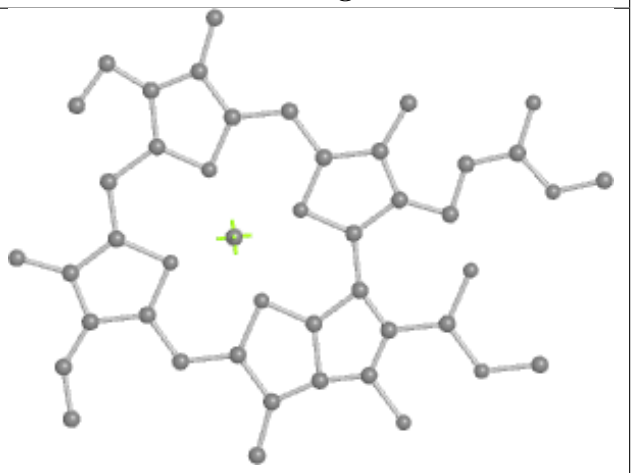
Bond lengths



Bond angles

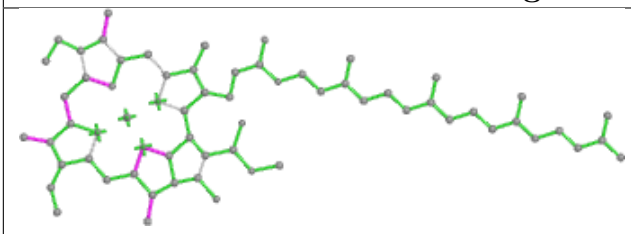


Torsions

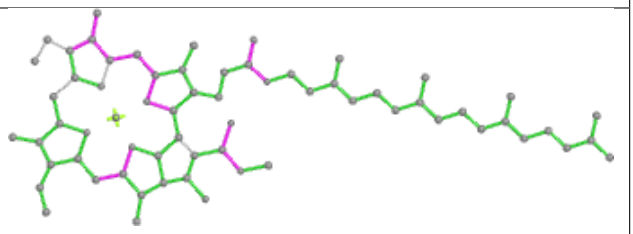


Rings

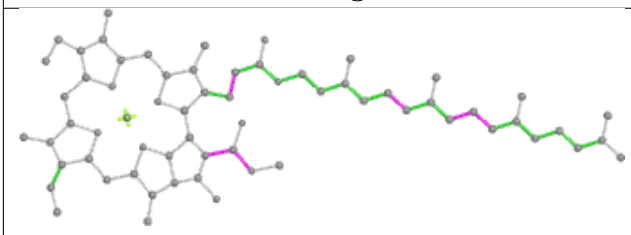
## Ligand CLA D 317



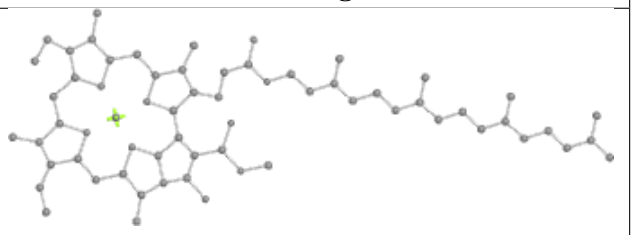
Bond lengths



Bond angles

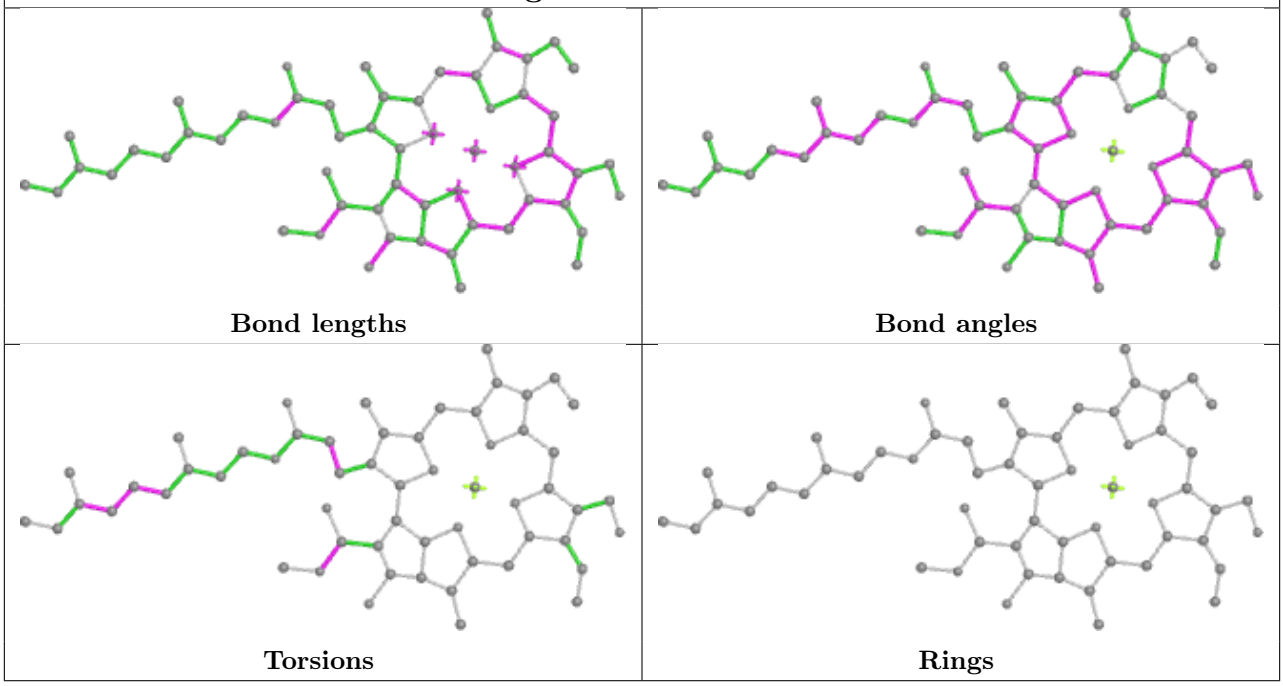


Torsions

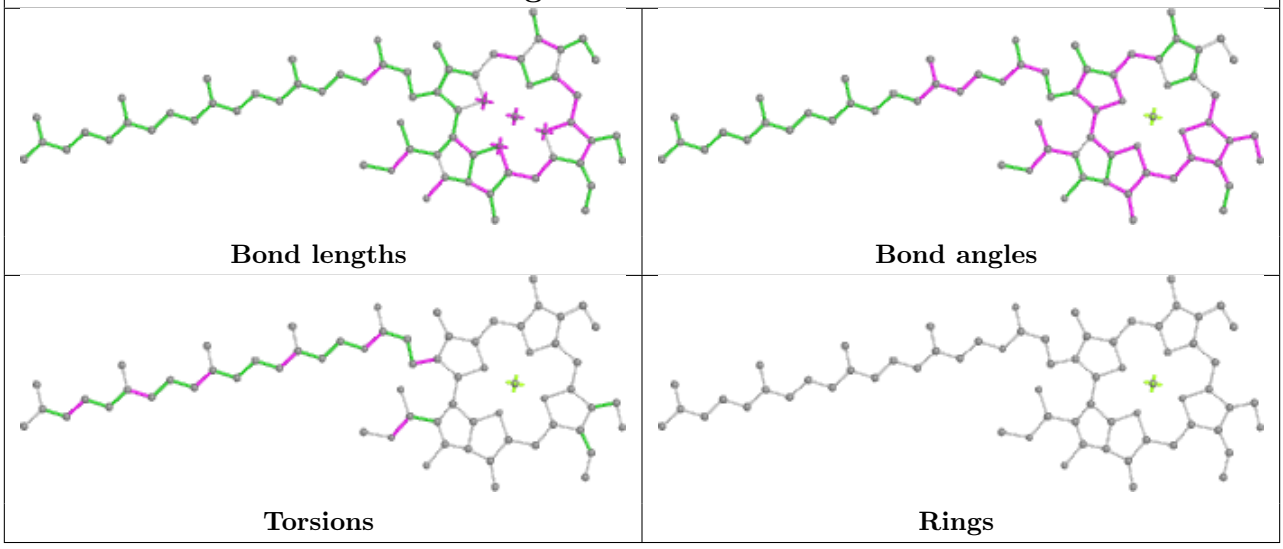


Rings

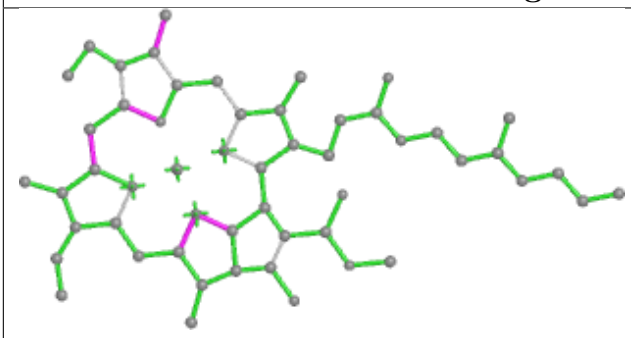
## Ligand CHL B 313



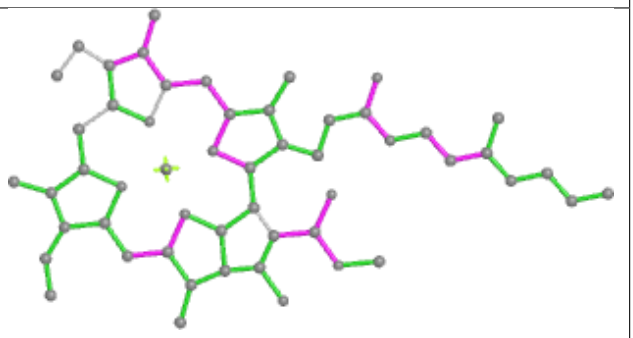

## Ligand CHL C 313



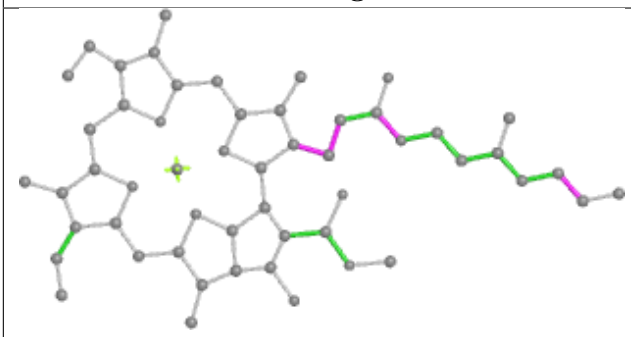
**Ligand CLA C 314**



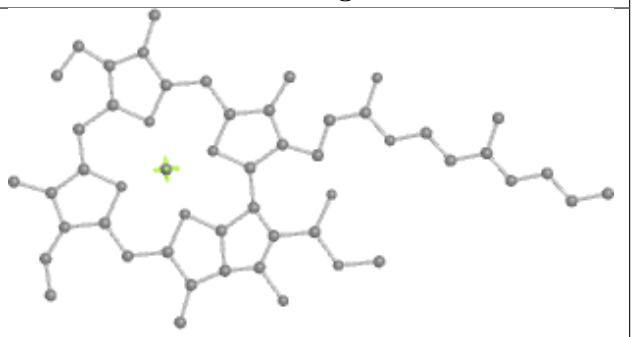
**Bond lengths**



**Bond angles**

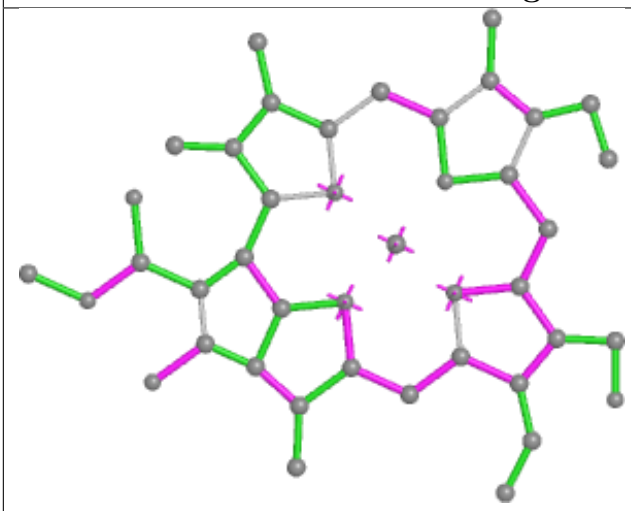


**Torsions**

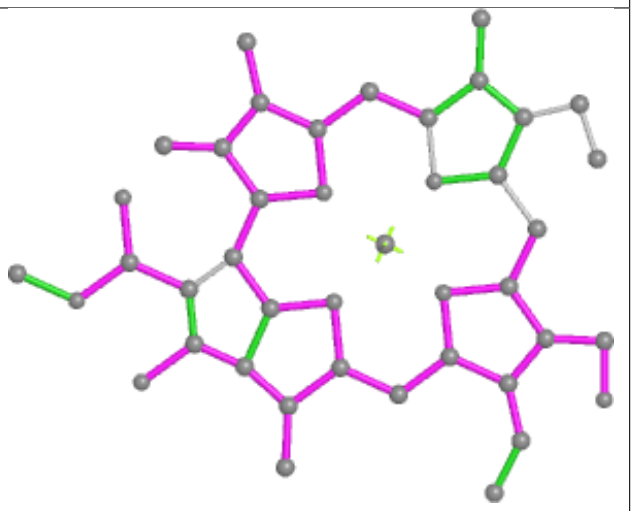


**Rings**

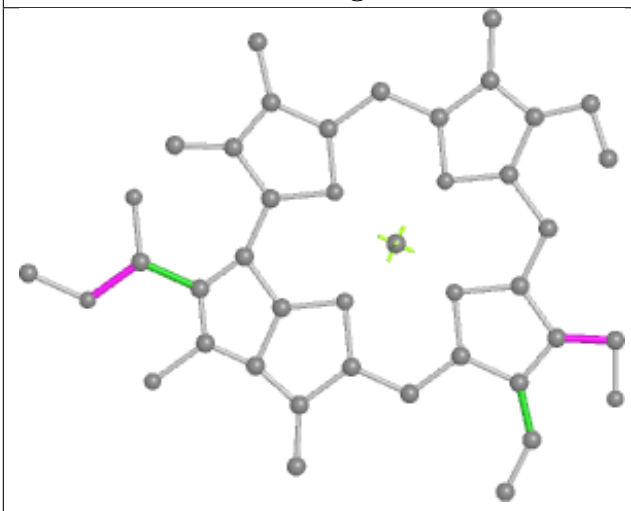
## Ligand CHL D 309



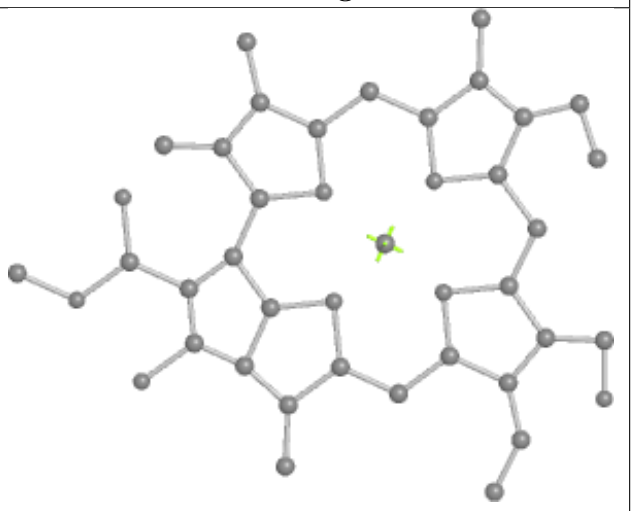
Bond lengths



Bond angles

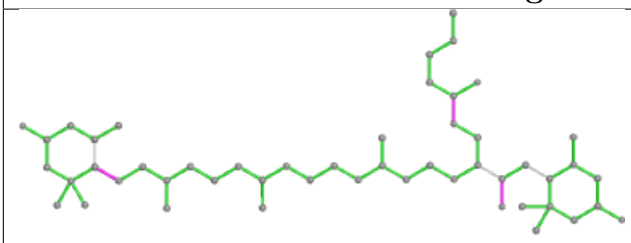


Torsions

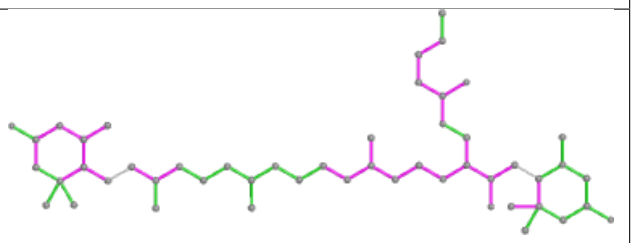


Rings

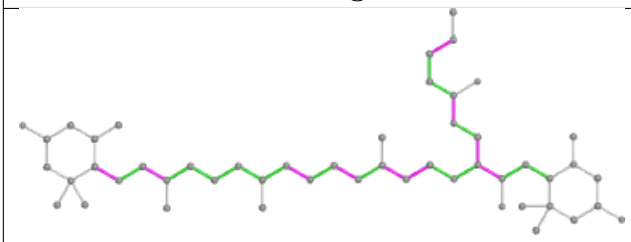
## Ligand 0UR B 302



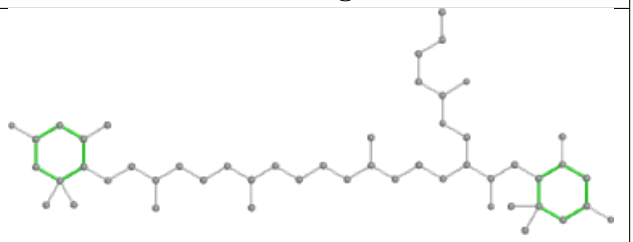
Bond lengths



Bond angles

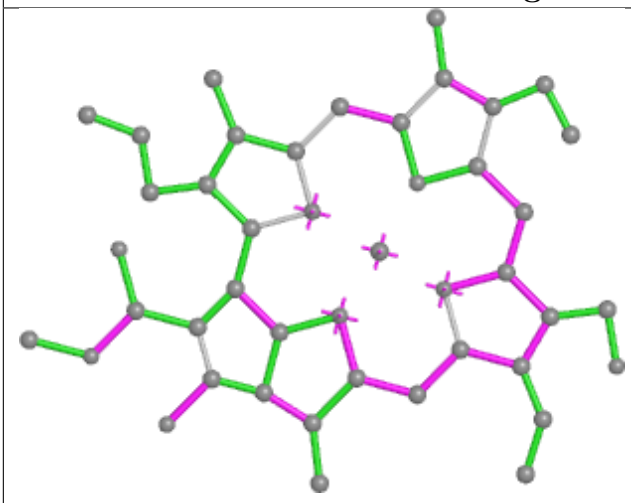


Torsions

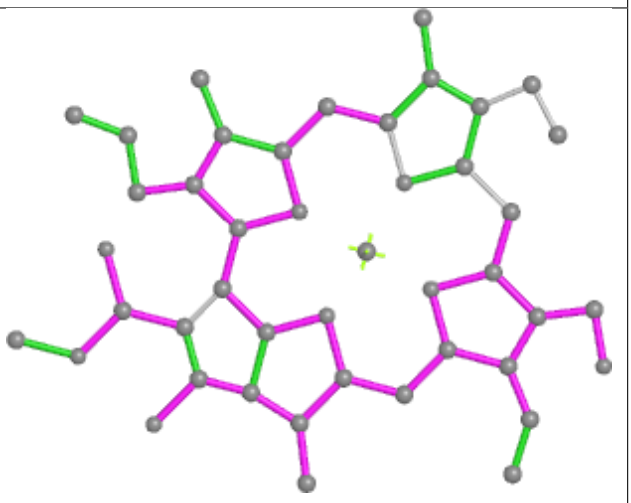


Rings

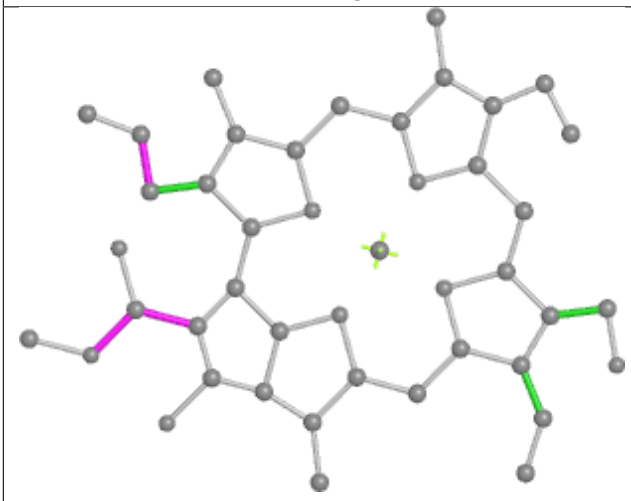
## Ligand CHL C 318



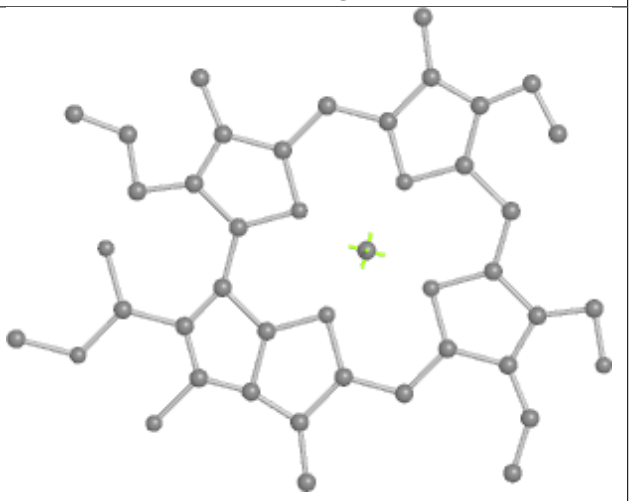
Bond lengths



Bond angles

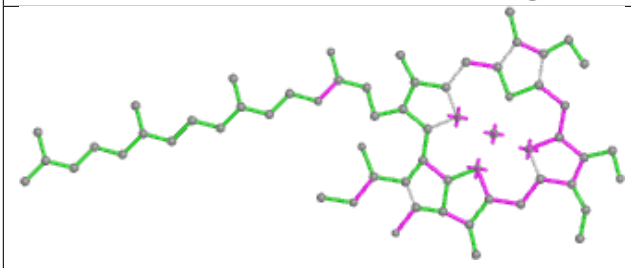


Torsions

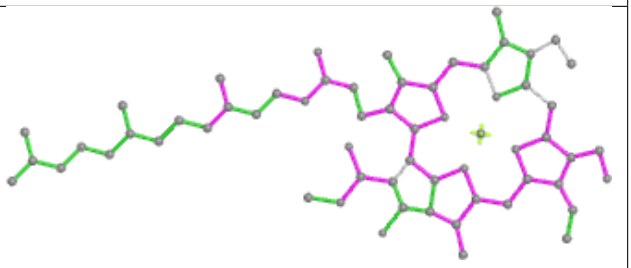


Rings

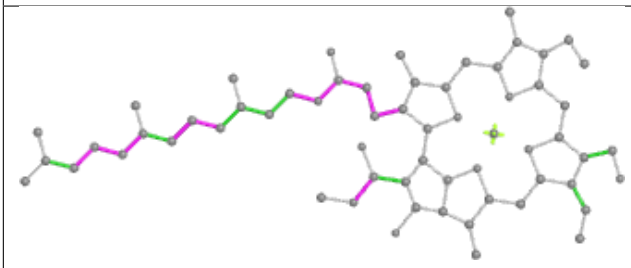
## Ligand CHL C 311



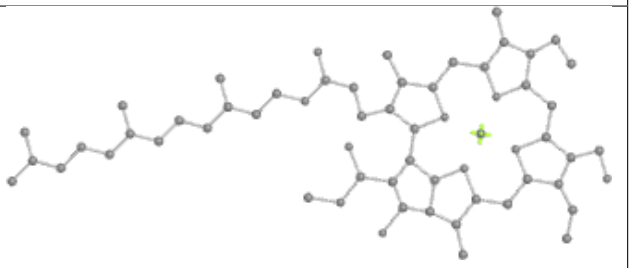
Bond lengths



Bond angles

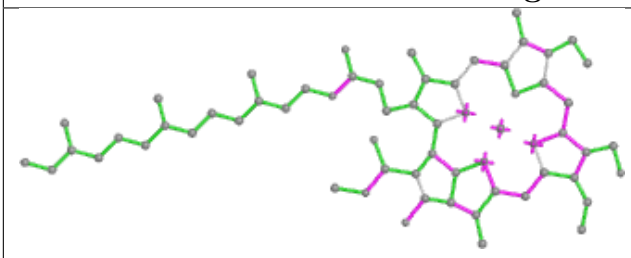


Torsions

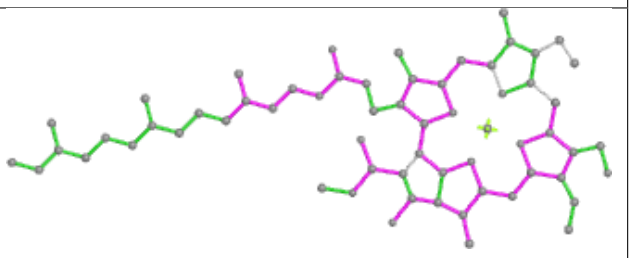


Rings

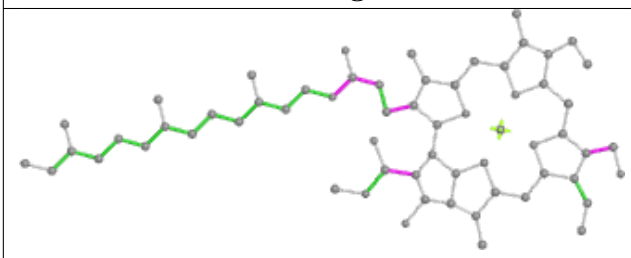
## Ligand CHL B 312



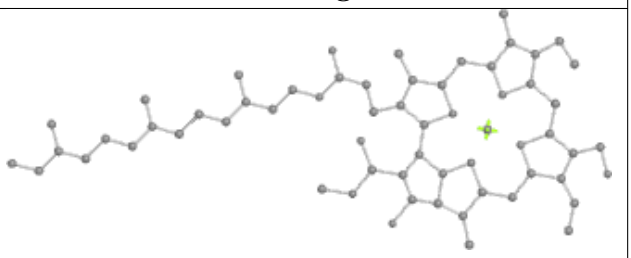
Bond lengths



Bond angles

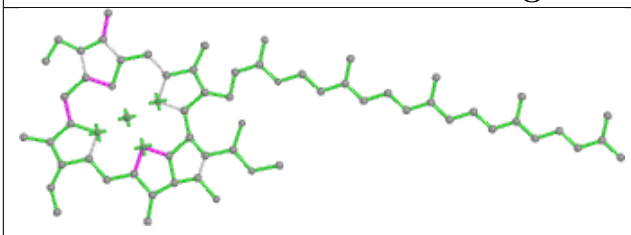


Torsions

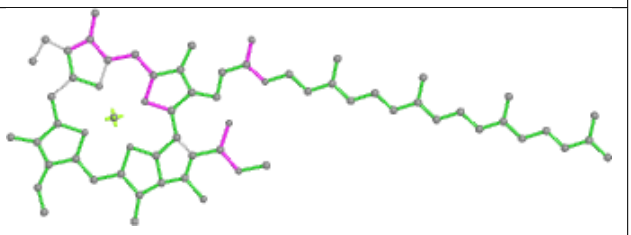


Rings

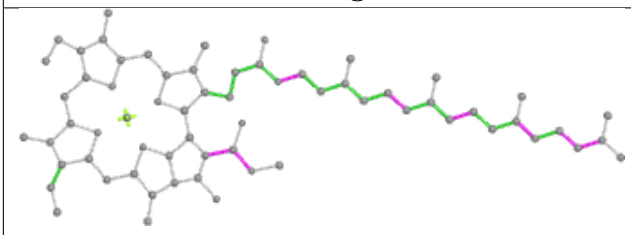
## Ligand CLA D 307



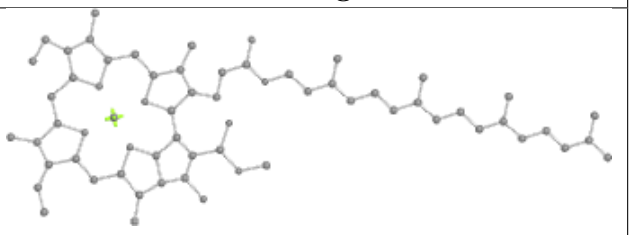
Bond lengths



Bond angles

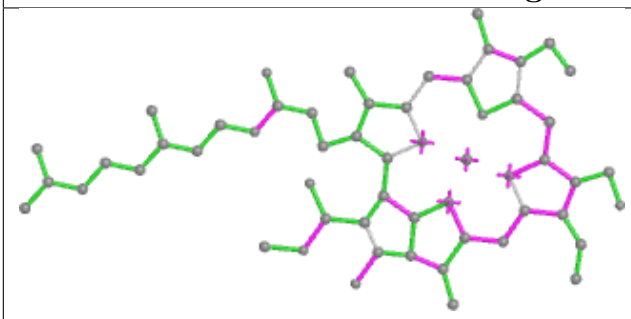


Torsions

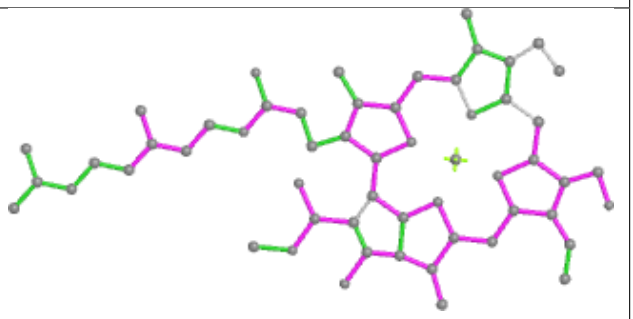


Rings

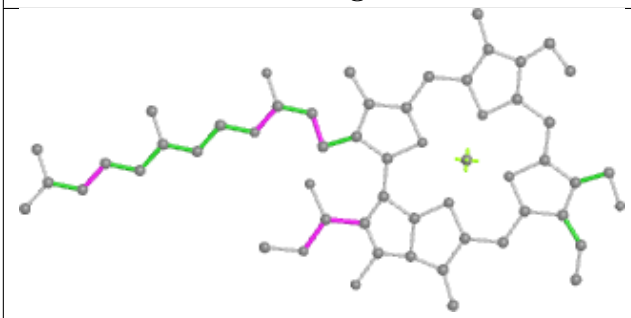
## Ligand CHL E 311



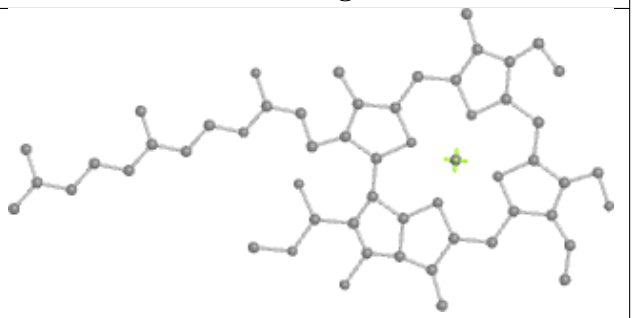
Bond lengths



Bond angles

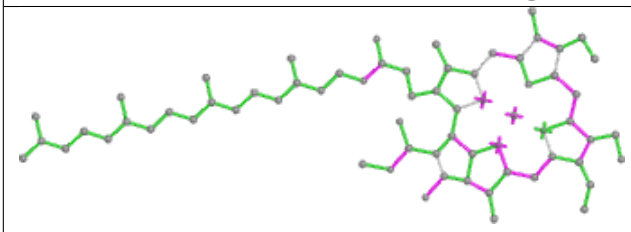


Torsions

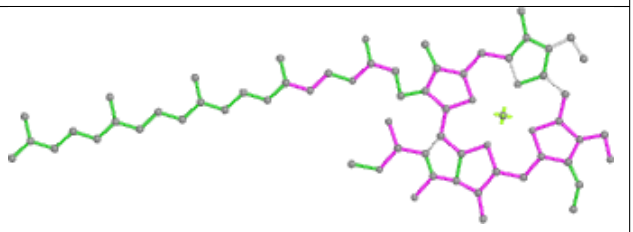


Rings

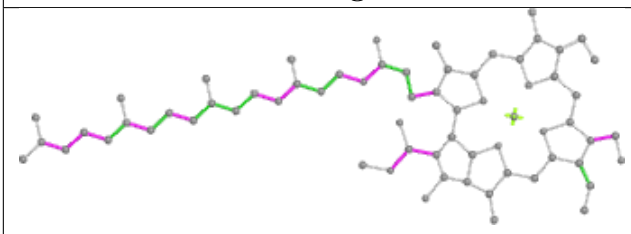
## Ligand CHL D 313



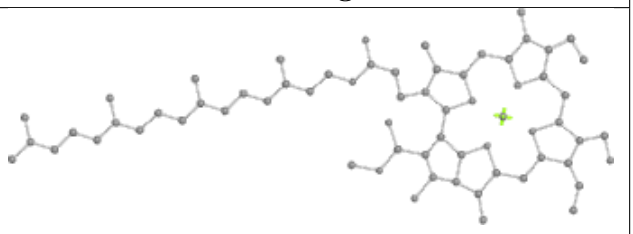
Bond lengths



Bond angles

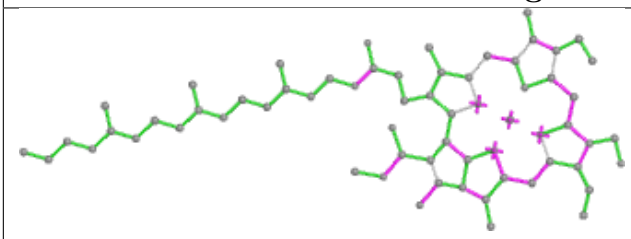


Torsions

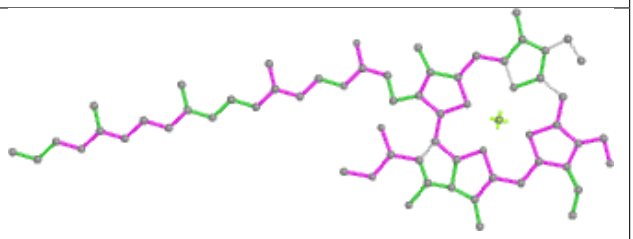


Rings

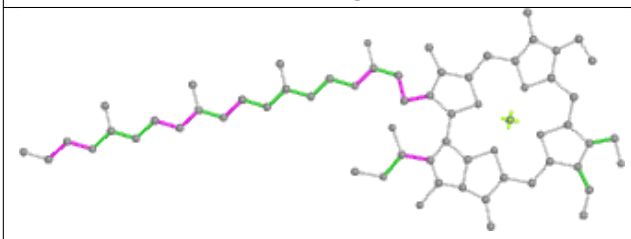
## Ligand CHL E 305



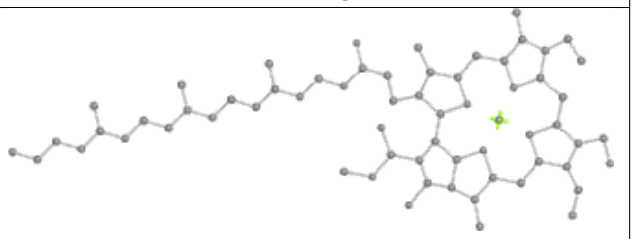
Bond lengths



Bond angles

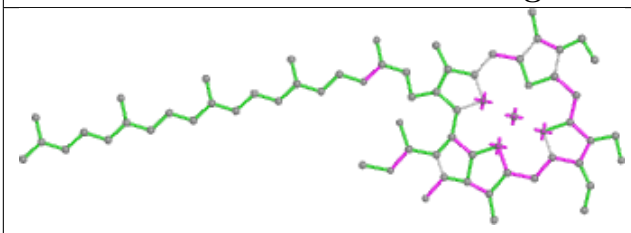


Torsions

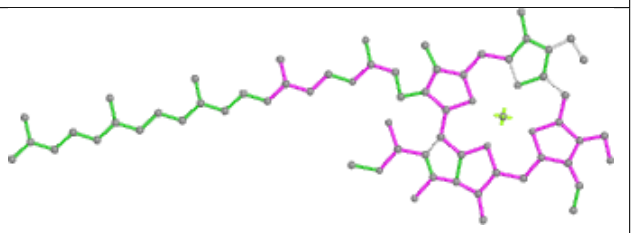


Rings

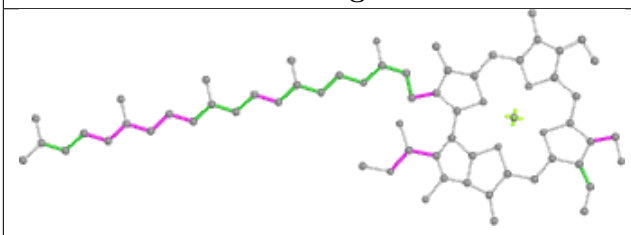
## Ligand CHL B 306



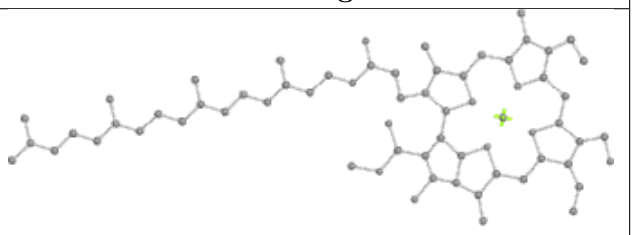
Bond lengths



Bond angles

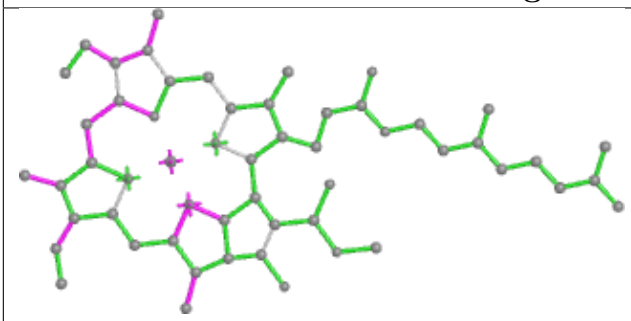


Torsions

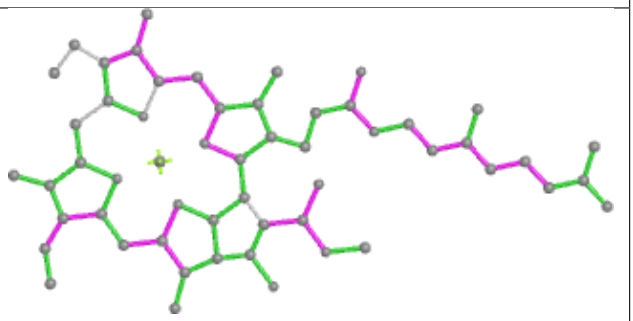


Rings

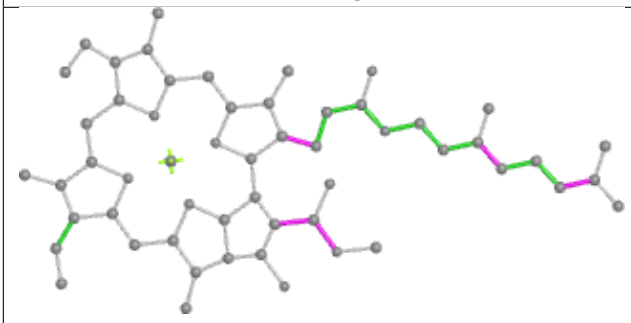
## Ligand CLA A 314



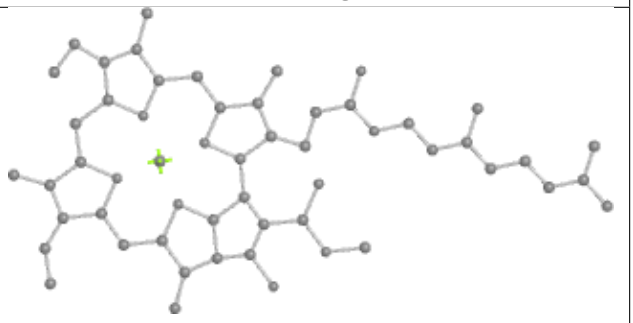
Bond lengths



Bond angles

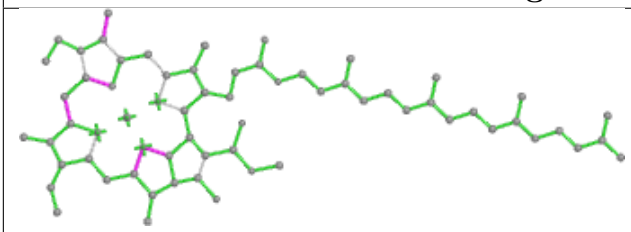


Torsions

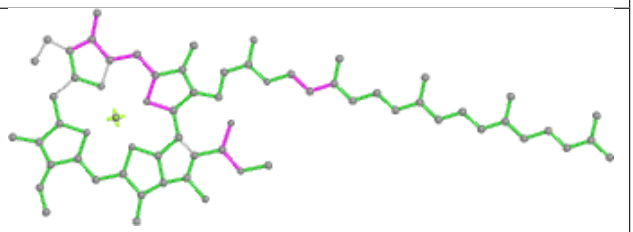


Rings

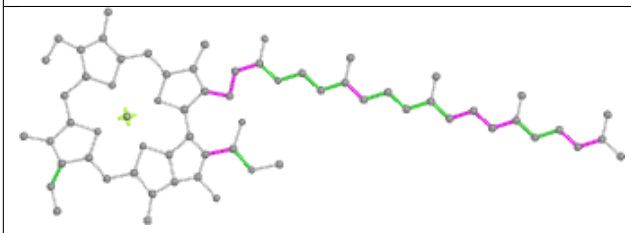
## Ligand CLA F 306



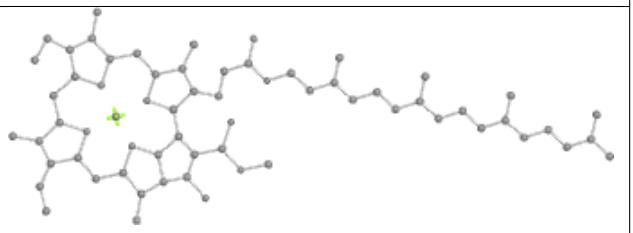
Bond lengths



Bond angles

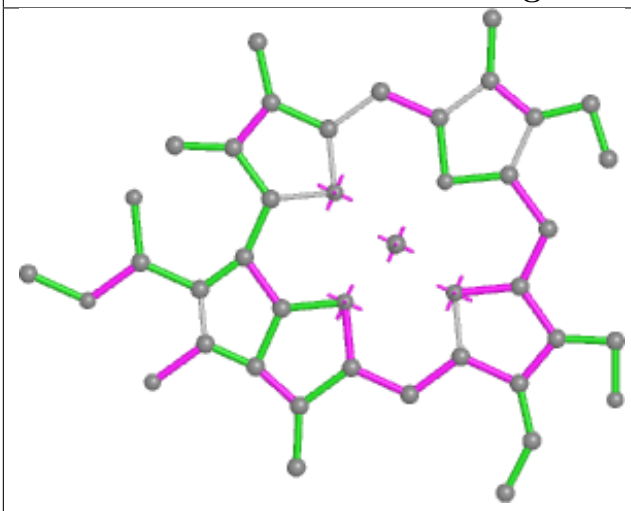


Torsions

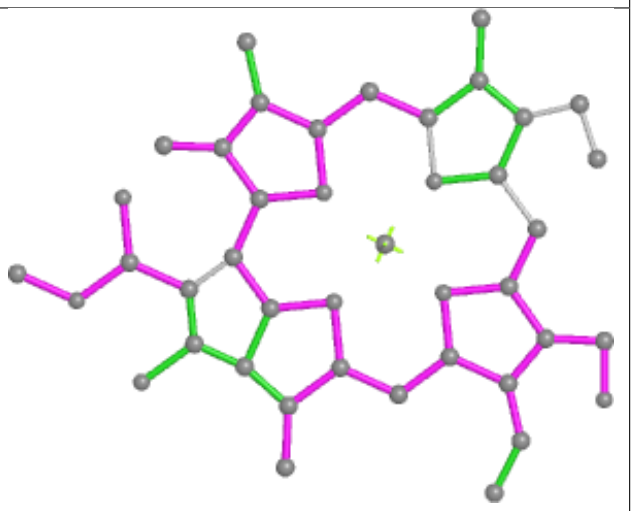


Rings

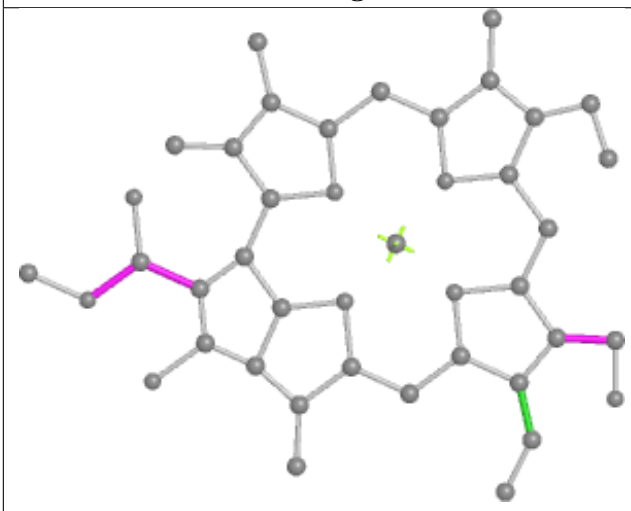
**Ligand CHL A 318**



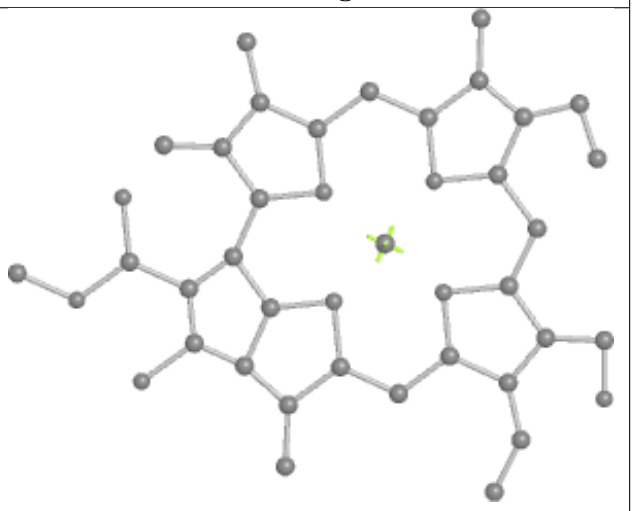
**Bond lengths**



**Bond angles**

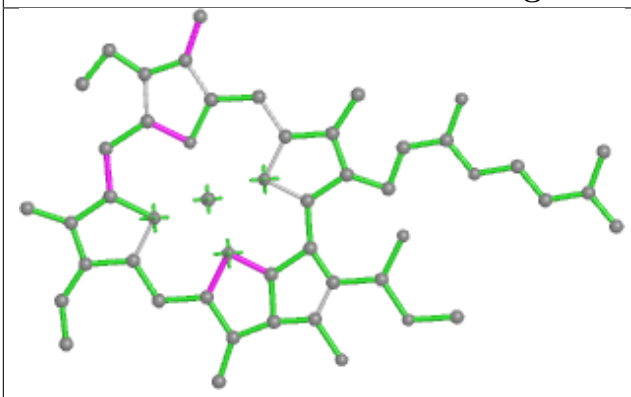


**Torsions**

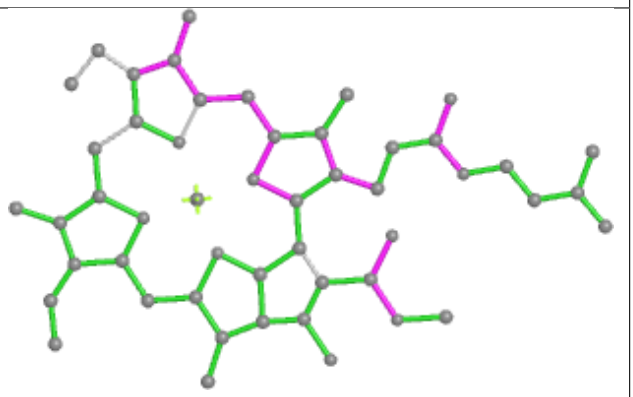


**Rings**

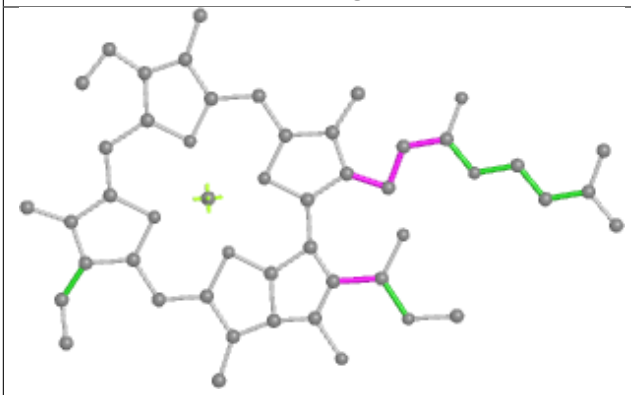
## Ligand CLA A 308



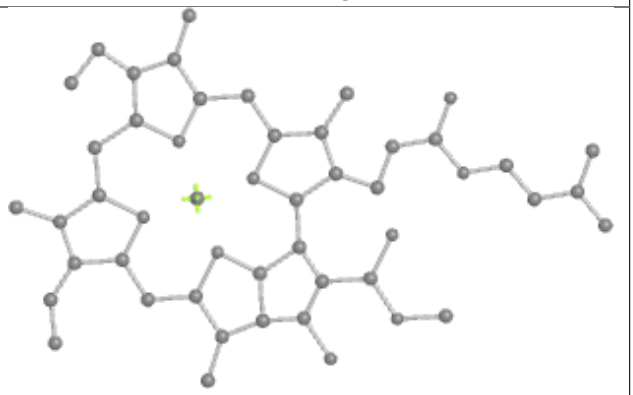
Bond lengths



Bond angles

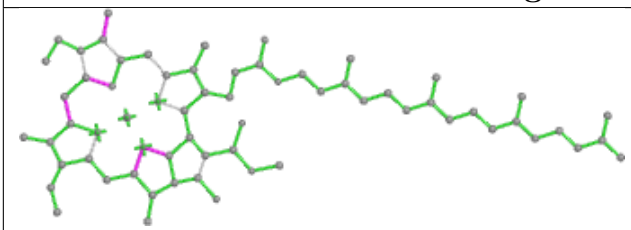


Torsions

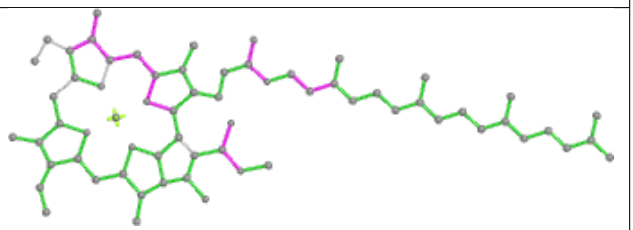


Rings

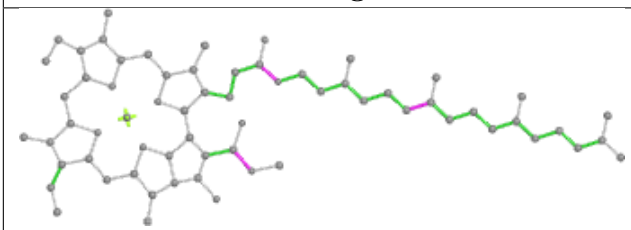
## Ligand CLA B 316



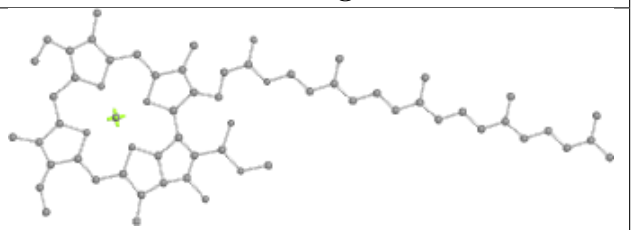
Bond lengths



Bond angles

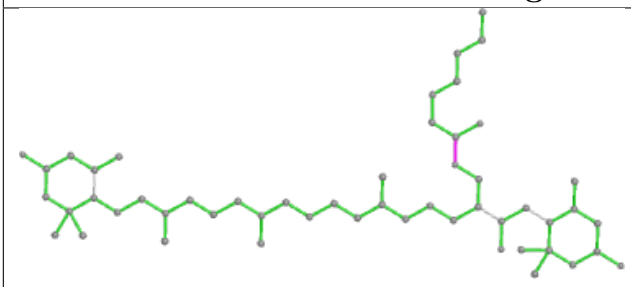


Torsions

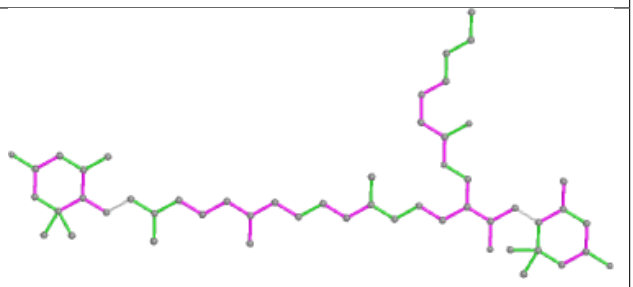


Rings

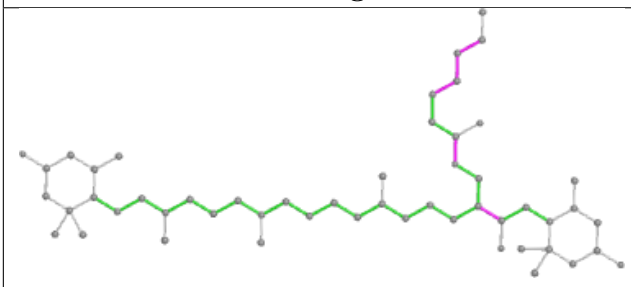
**Ligand 0UR C 321**



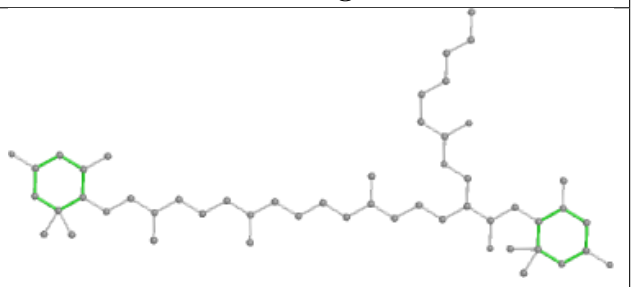
Bond lengths



Bond angles

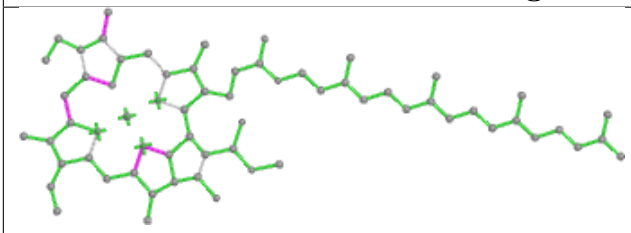


Torsions

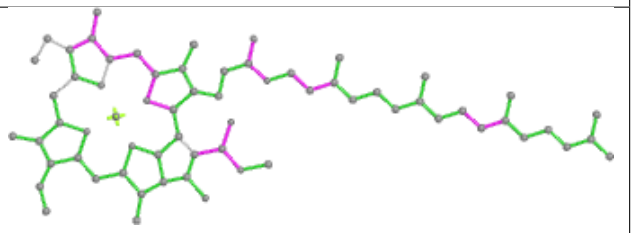


Rings

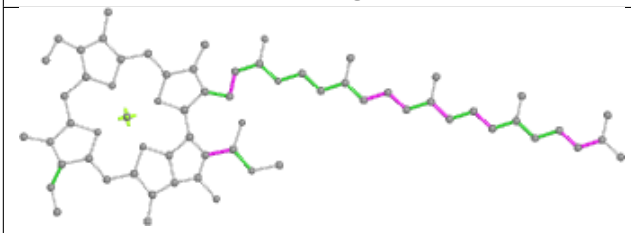
**Ligand CLA E 306**



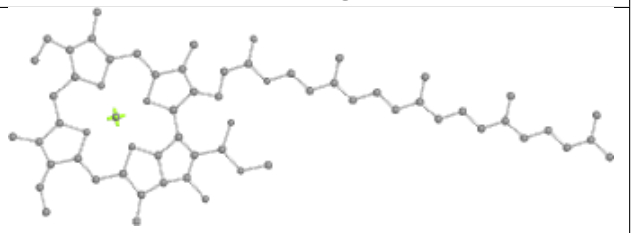
Bond lengths



Bond angles

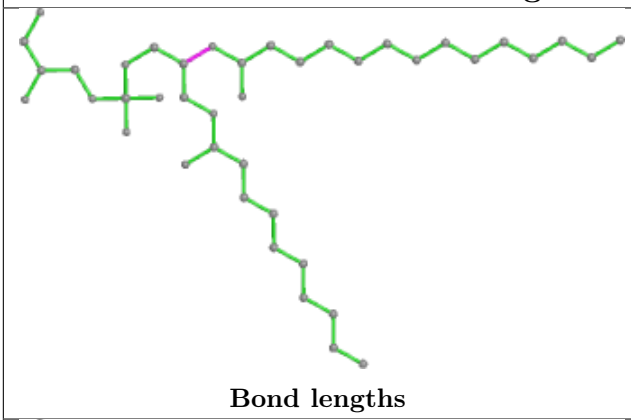


Torsions

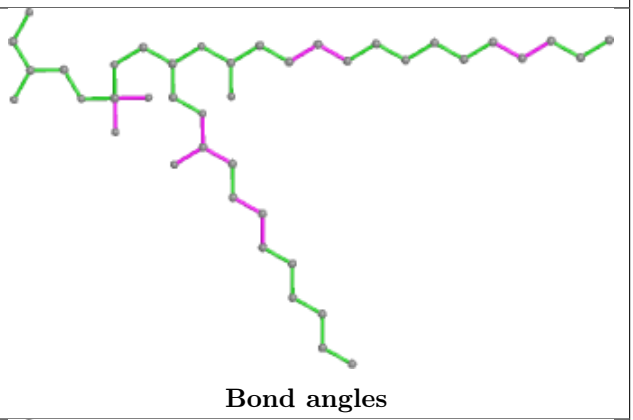


Rings

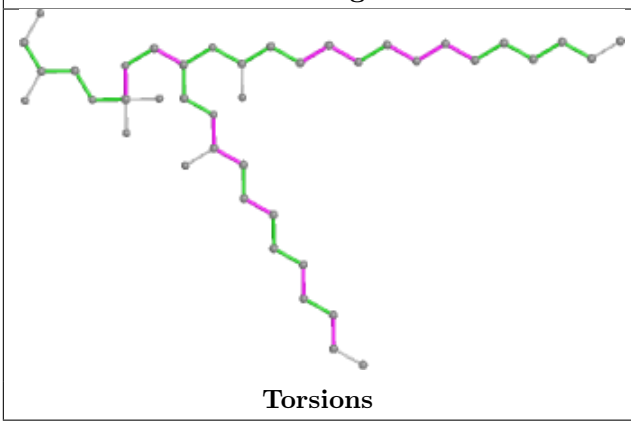
## Ligand LHG E 318



Bond lengths



Bond angles



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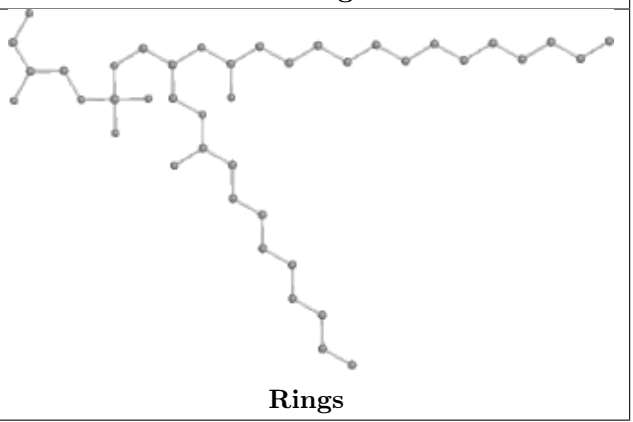
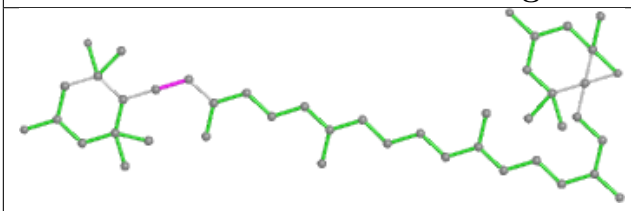
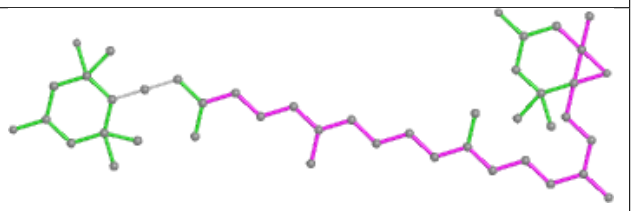


Rings

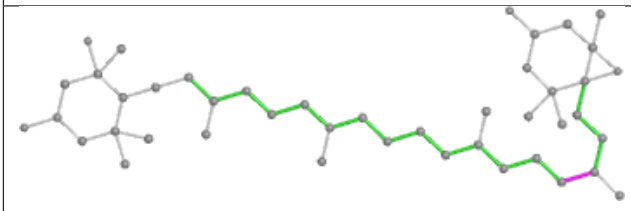
## Ligand NEX C 303



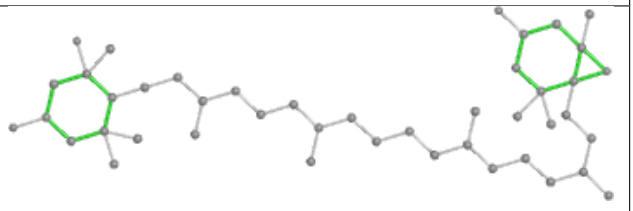
Bond lengths



Bond angles

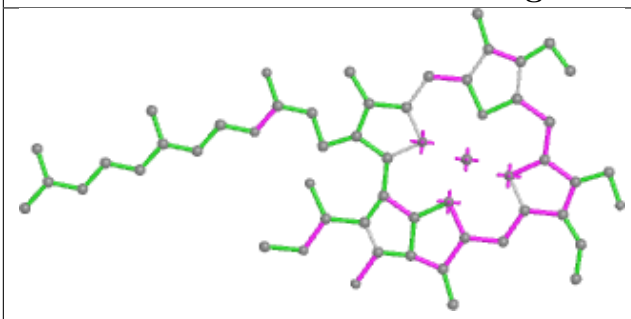


Torsions

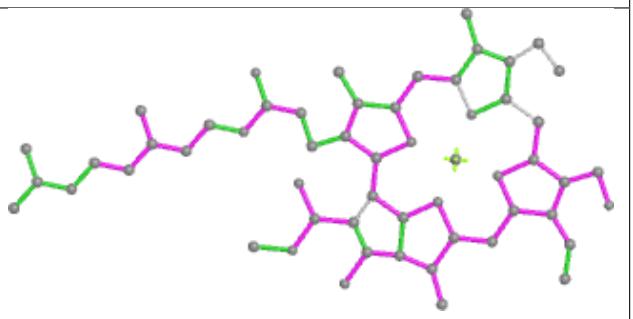


Rings

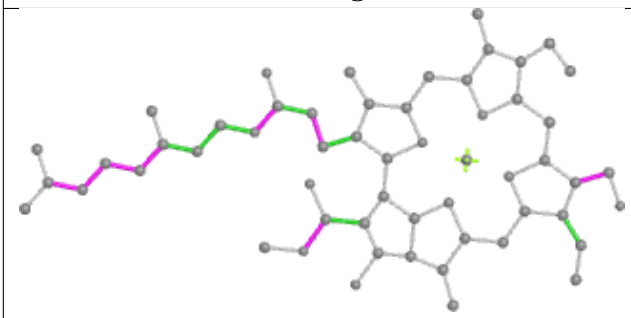
## Ligand CHL F 311



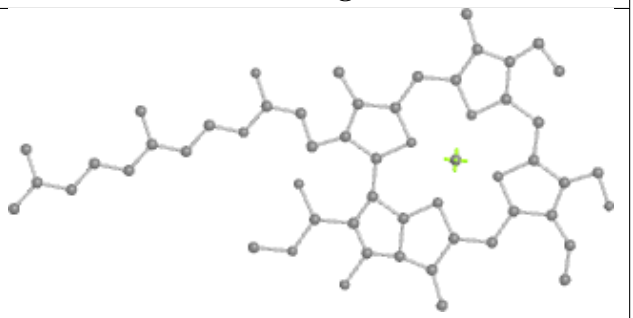
Bond lengths



Bond angles

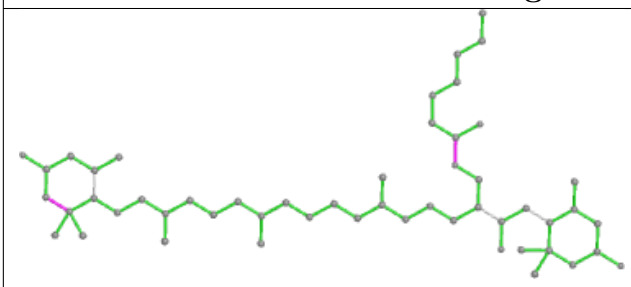


Torsions

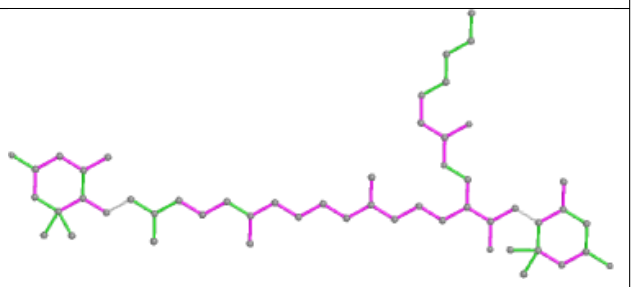


Rings

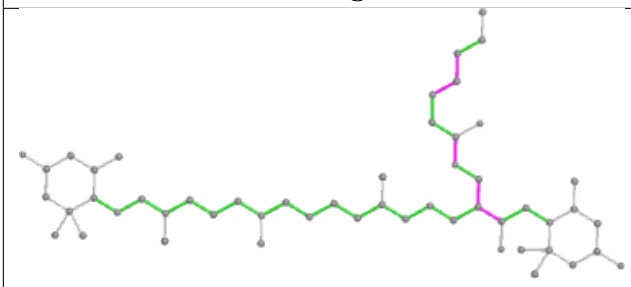
## Ligand 0UR A 322



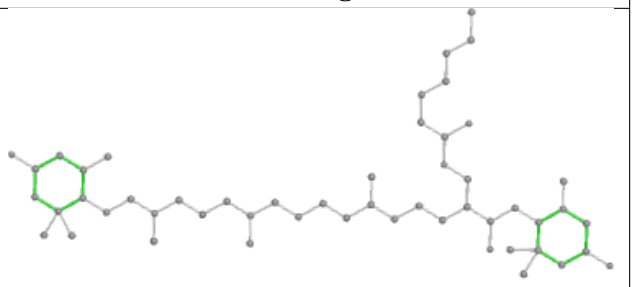
Bond lengths



Bond angles

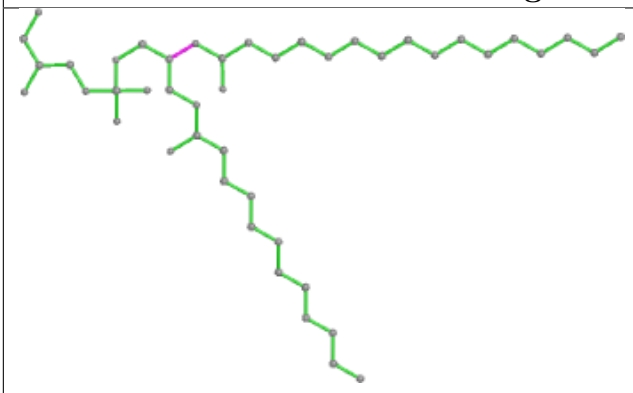


Torsions

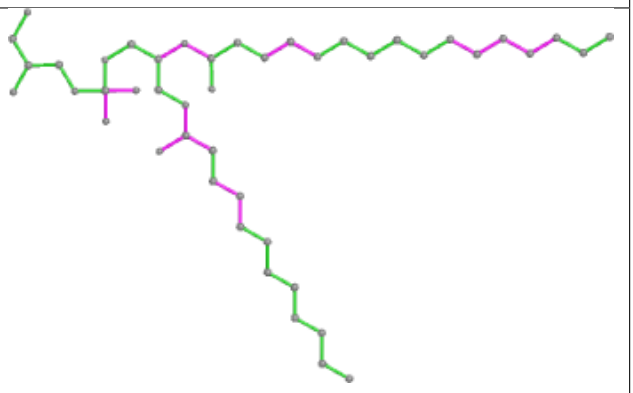


Rings

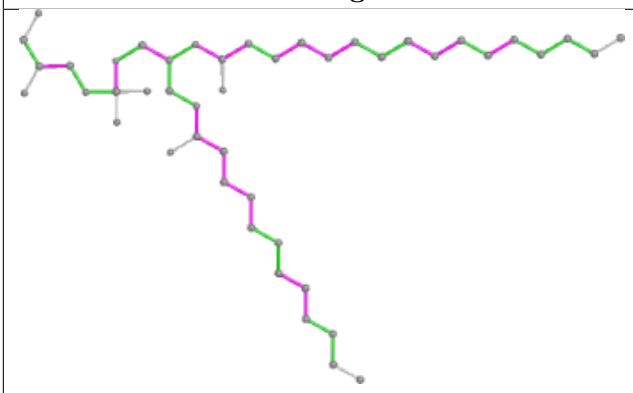
## Ligand LHG F 318



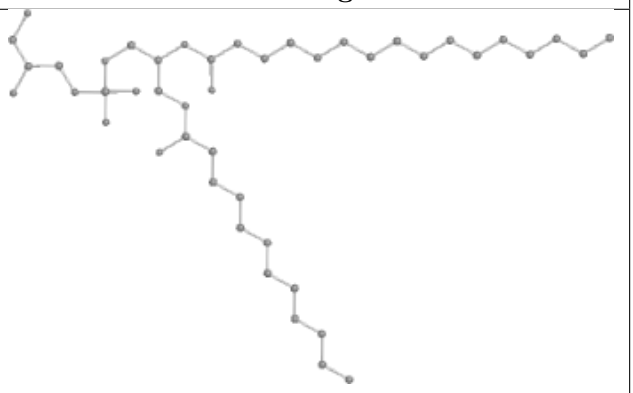
Bond lengths



Bond angles

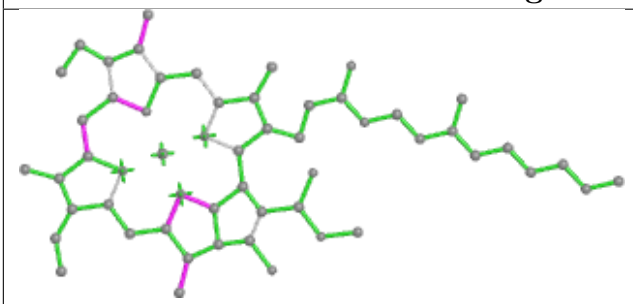


Torsions

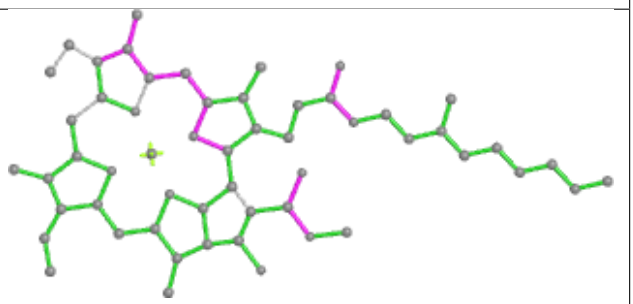


Rings

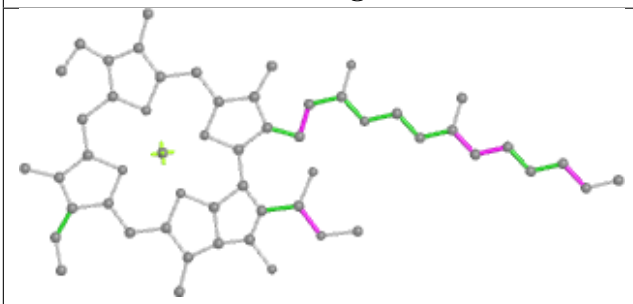
## Ligand CLA E 316



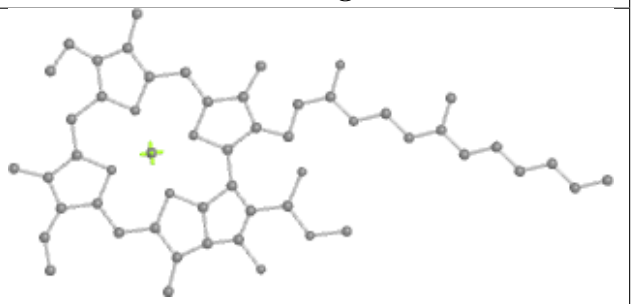
Bond lengths



Bond angles

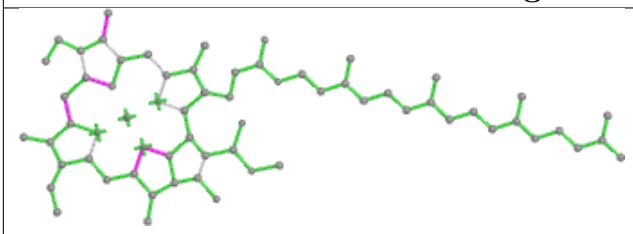


Torsions

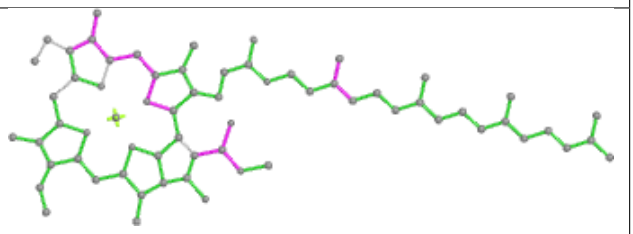


Rings

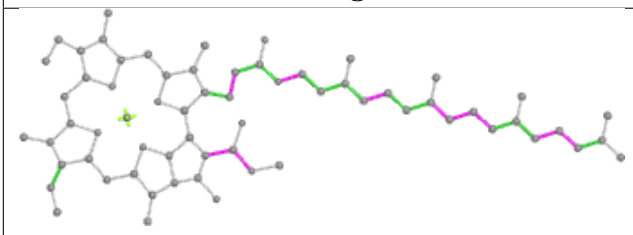
**Ligand CLA A 307**



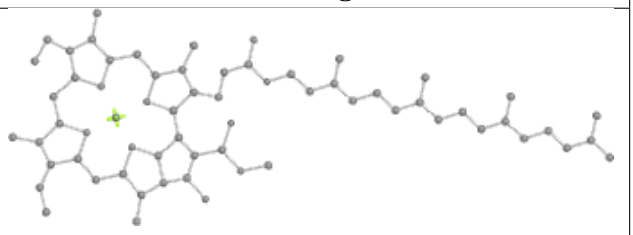
Bond lengths



Bond angles

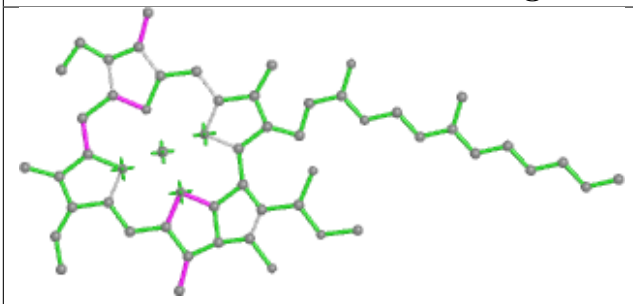


Torsions

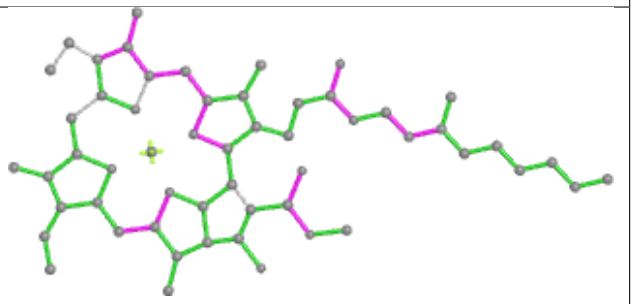


Rings

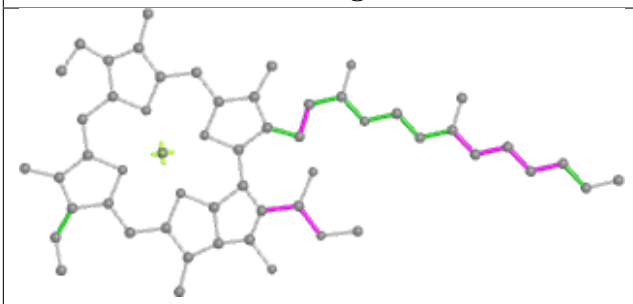
**Ligand CLA A 317**



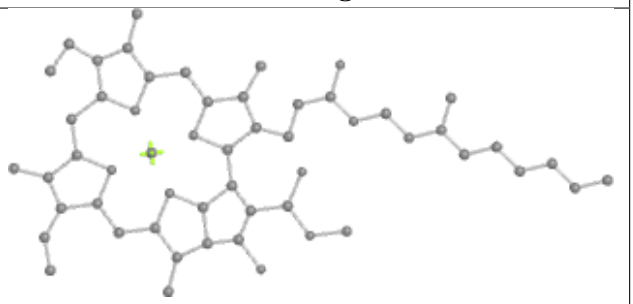
Bond lengths



Bond angles

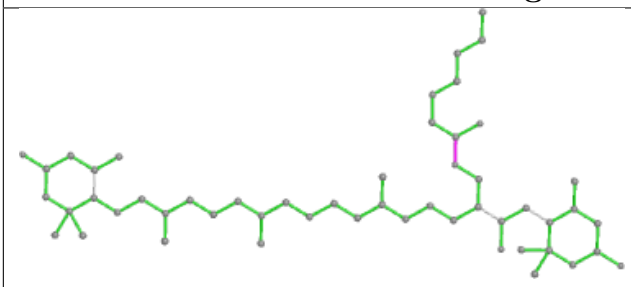


Torsions

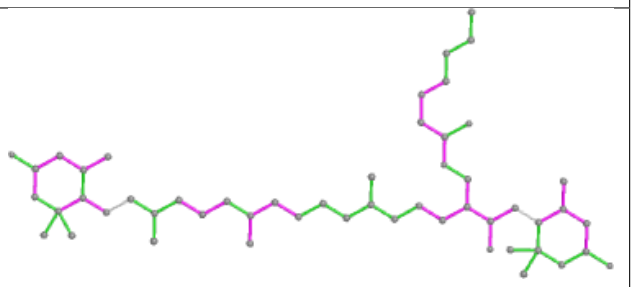


Rings

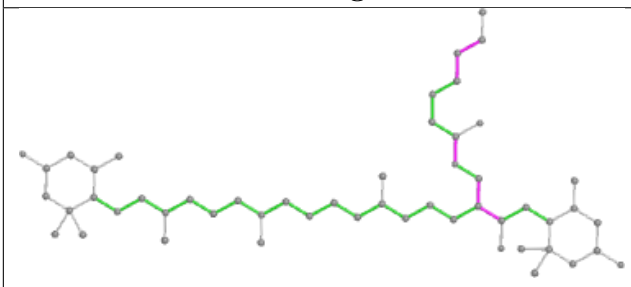
**Ligand 0UR D 321**



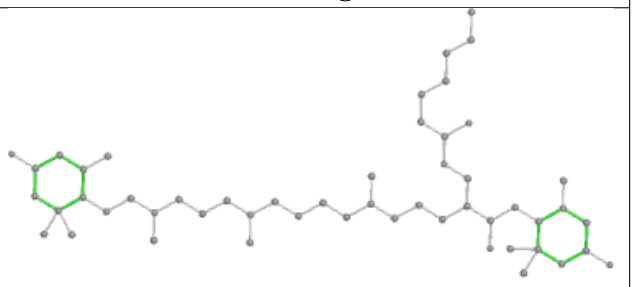
**Bond lengths**



**Bond angles**

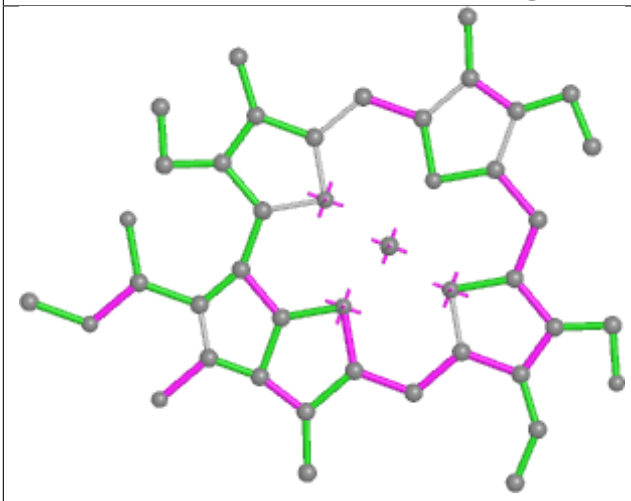


**Torsions**

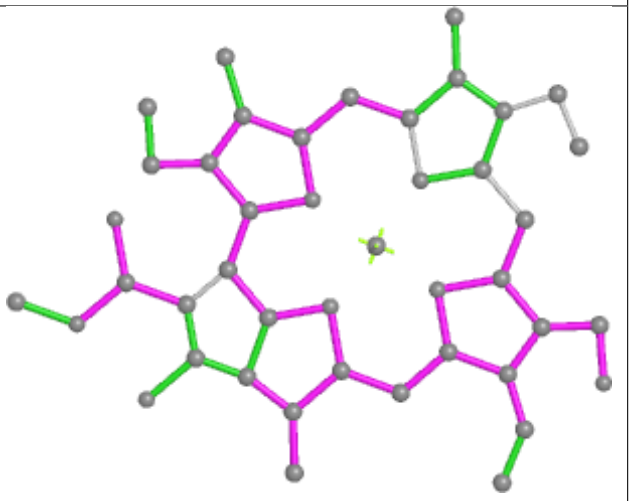


**Rings**

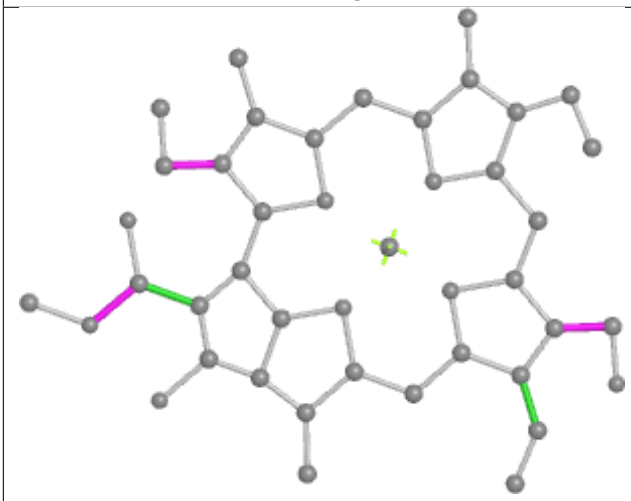
**Ligand CHL A 309**



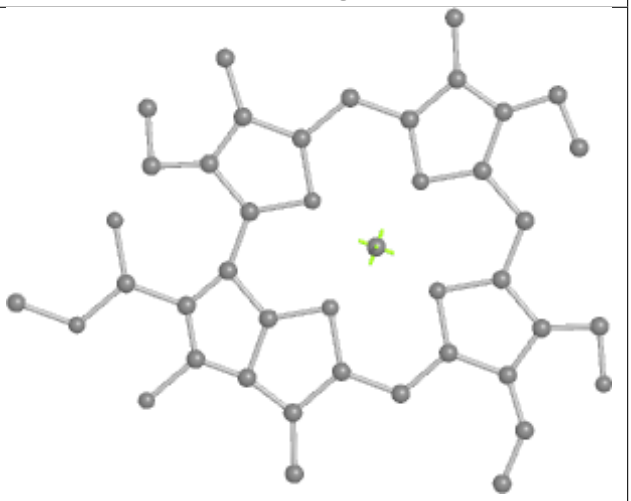
**Bond lengths**



**Bond angles**

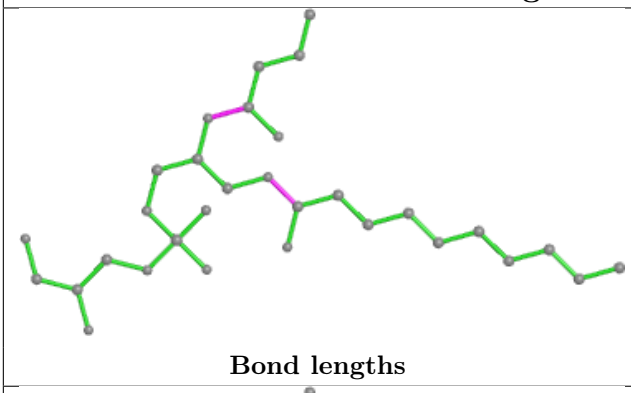


**Torsions**

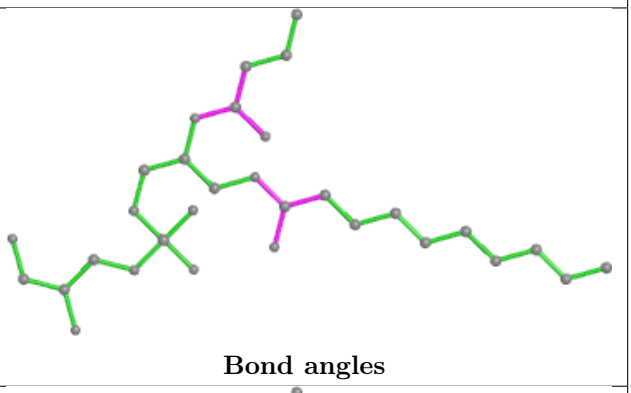


**Rings**

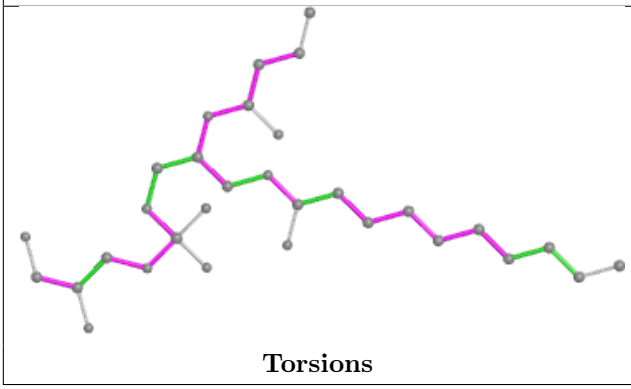
## Ligand LHG B 324



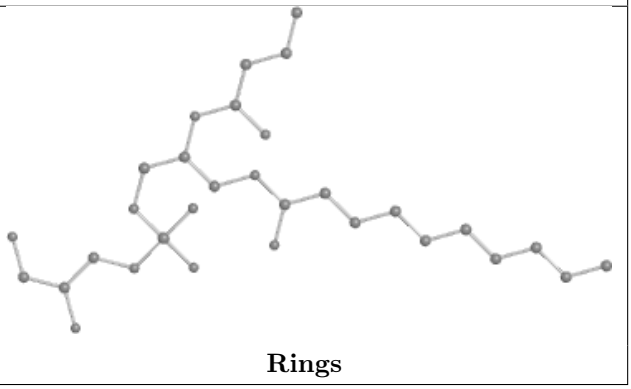
Bond lengths



Bond angles

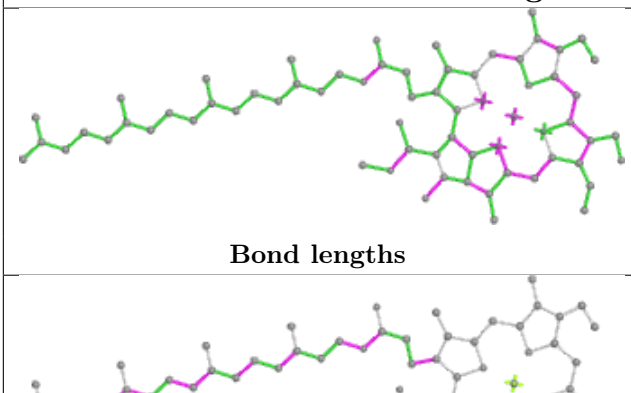


Torsions

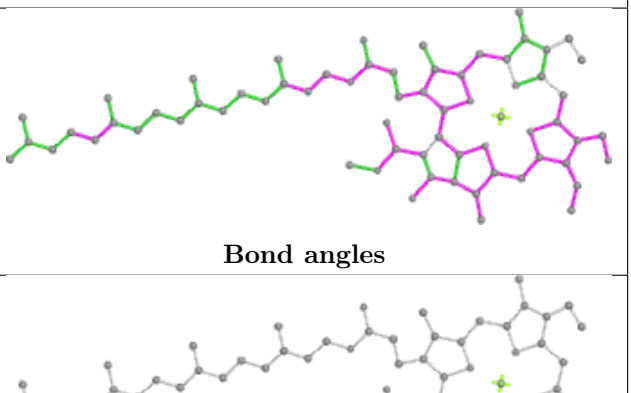


Rings

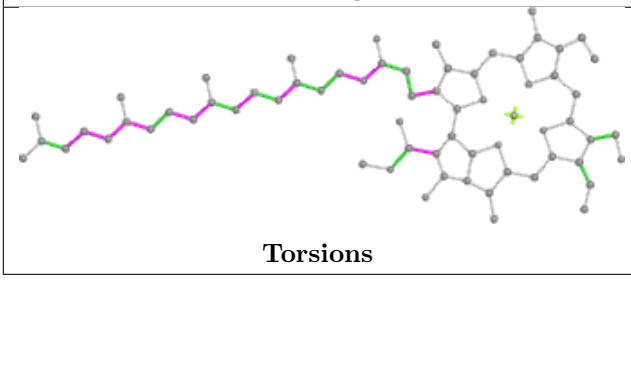
## Ligand CHL F 305



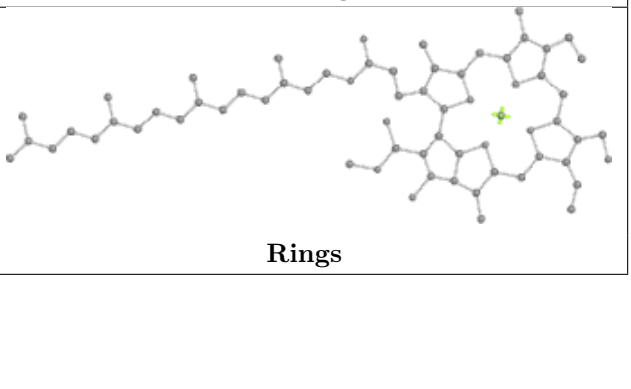
Bond lengths



Bond angles

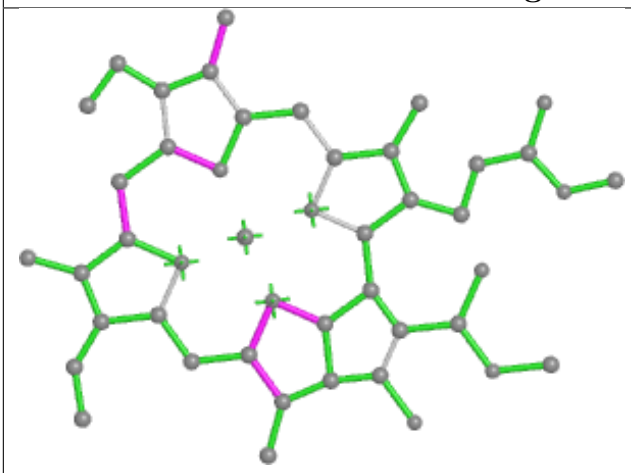


Torsions

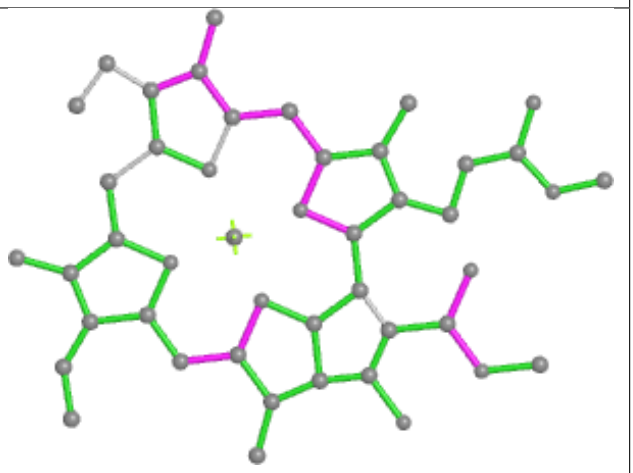


Rings

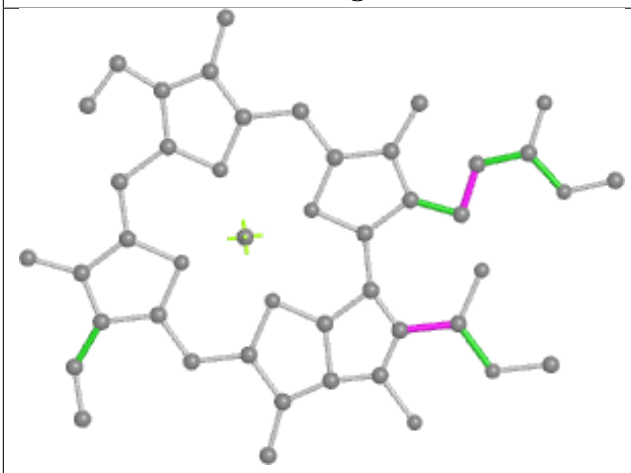
**Ligand CLA B 309**



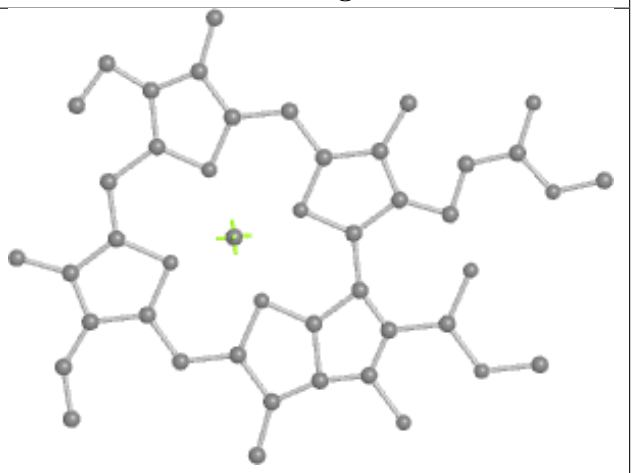
**Bond lengths**



**Bond angles**

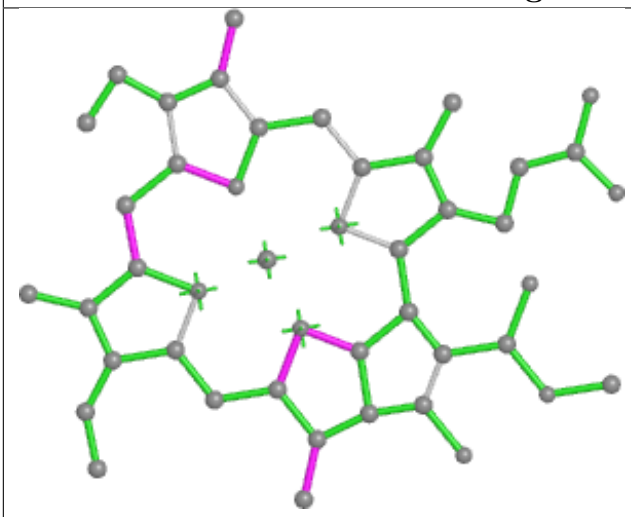


**Torsions**

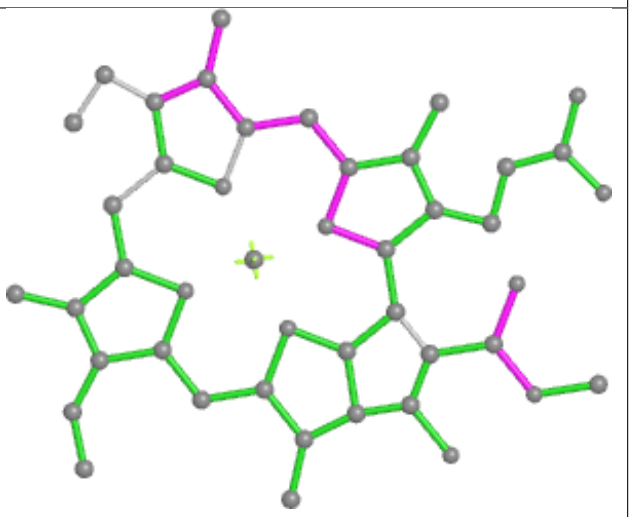


**Rings**

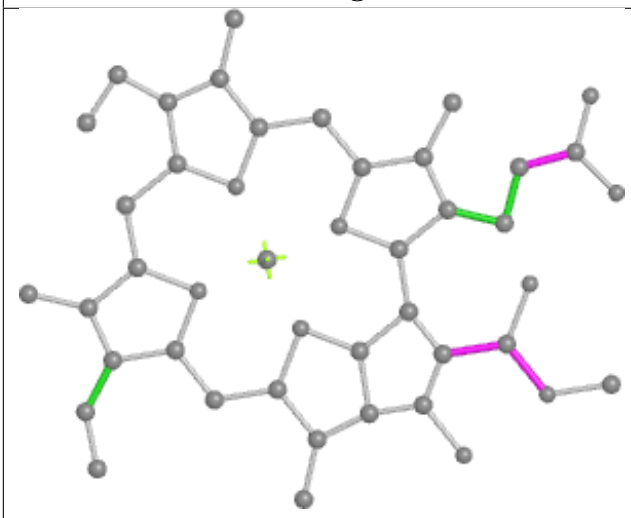
## Ligand CLA E 315



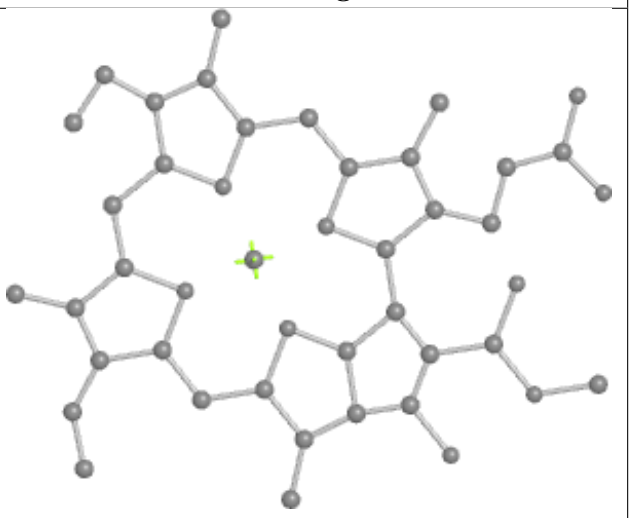
Bond lengths



Bond angles

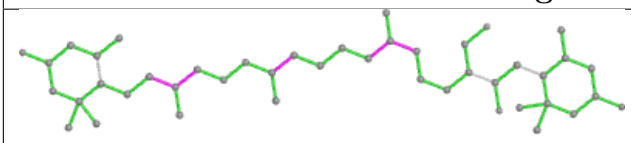


Torsions

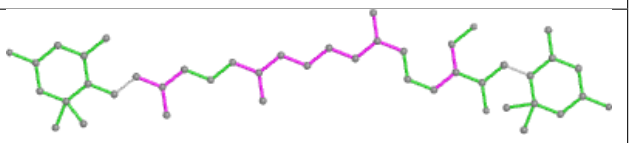


Rings

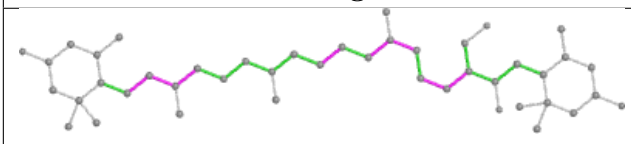
## Ligand 0IE E 302



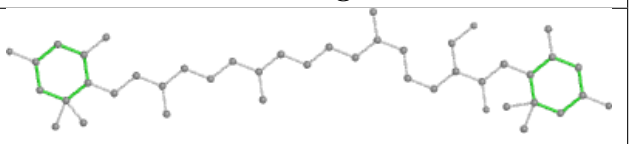
Bond lengths



Bond angles

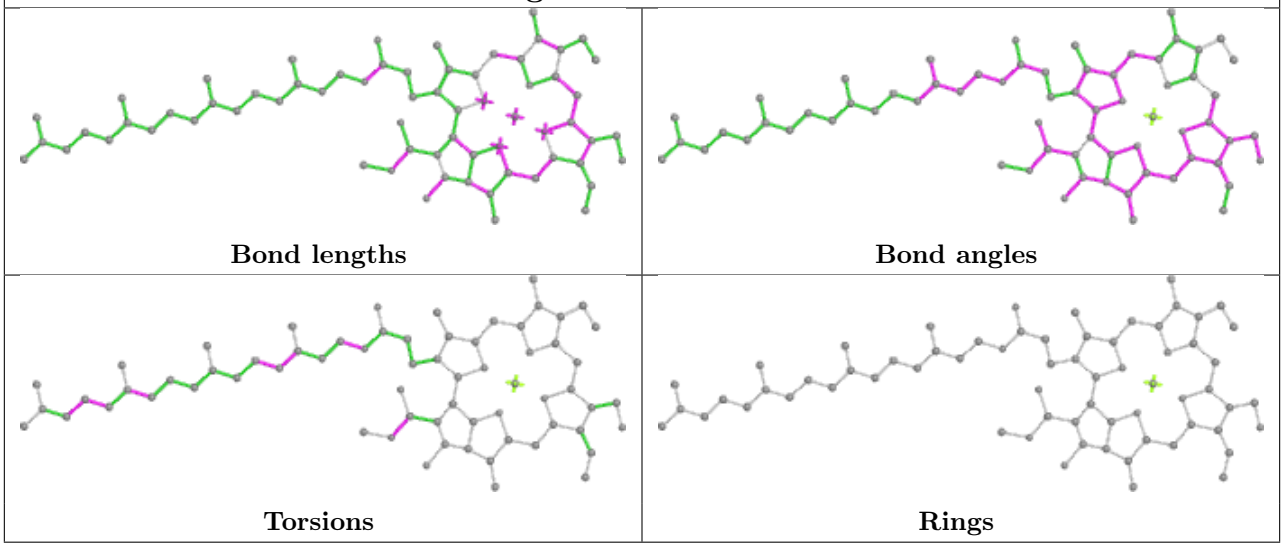


Torsions

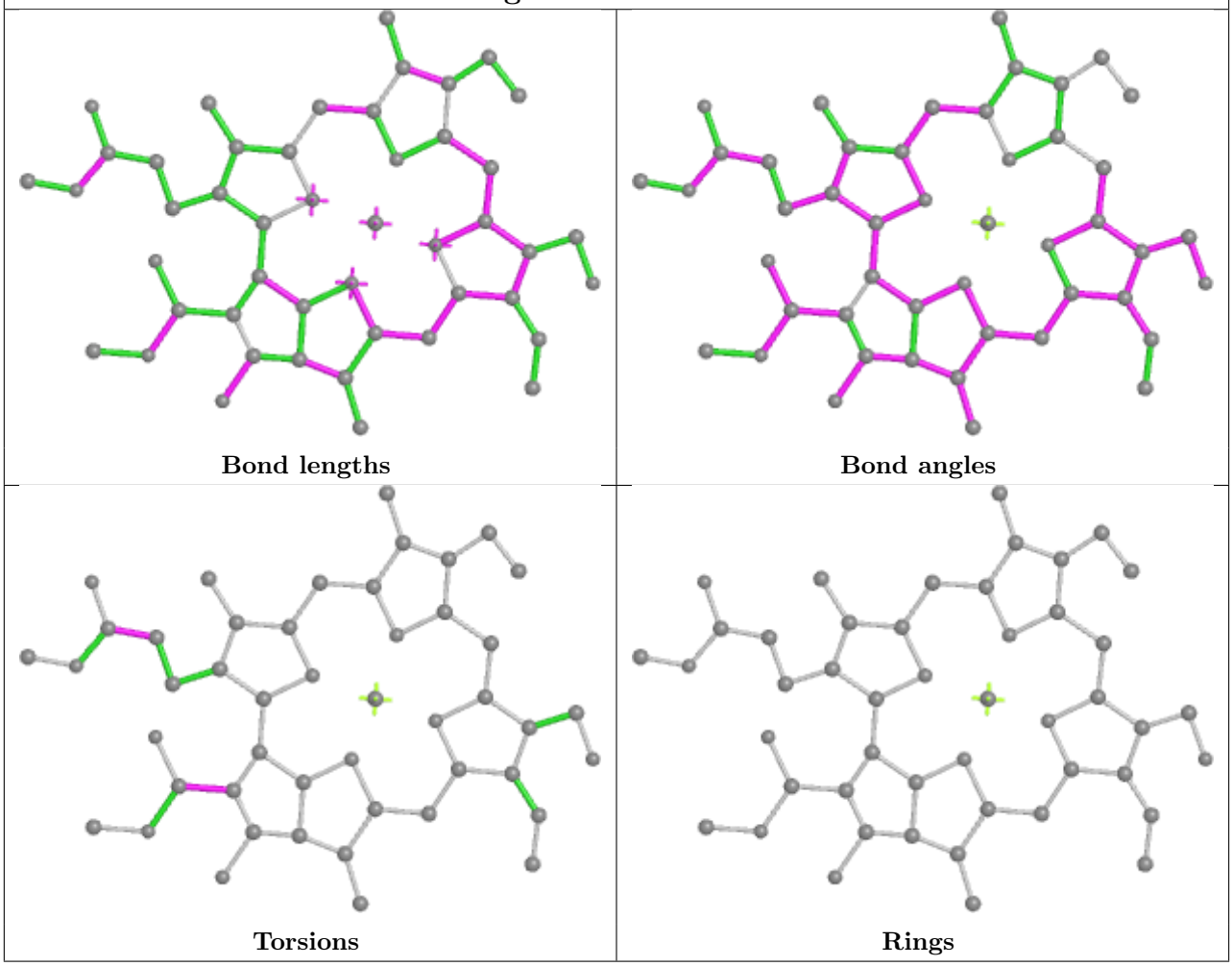


Rings

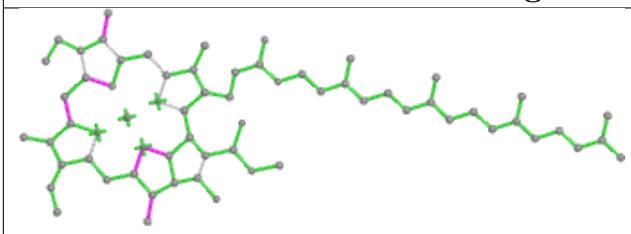
## Ligand CHL E 312



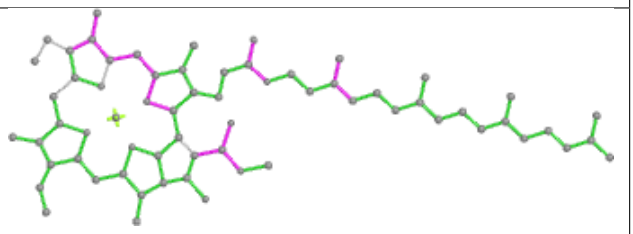

## Ligand CHL B 319



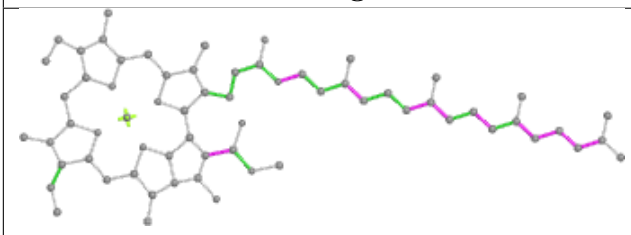
## Ligand CLA B 308



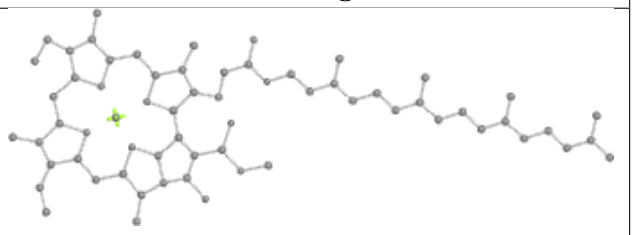
Bond lengths



Bond angles

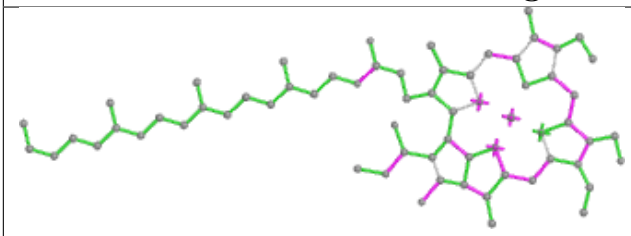


Torsions

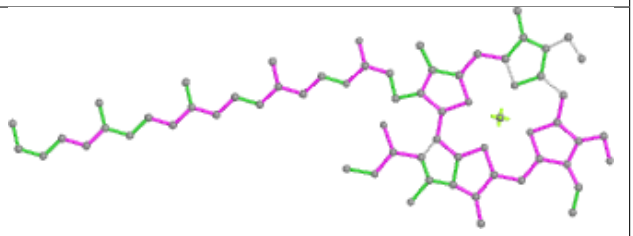


Rings

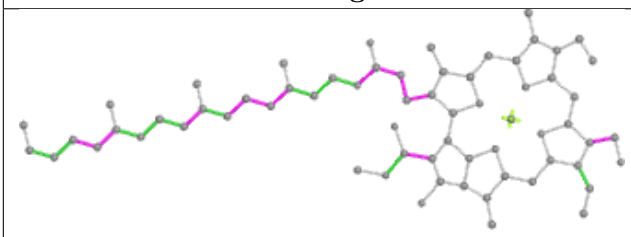
## Ligand CHL D 306



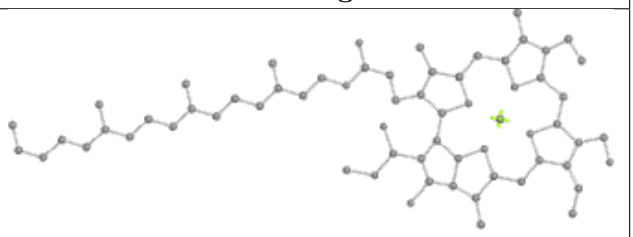
Bond lengths



Bond angles

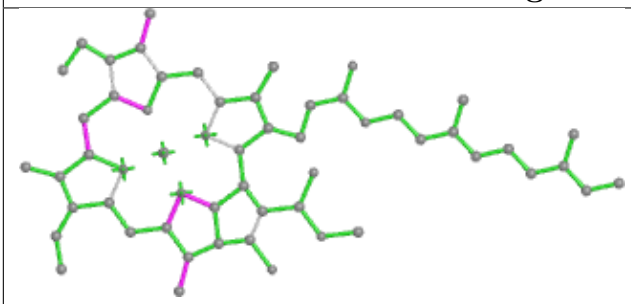


Torsions

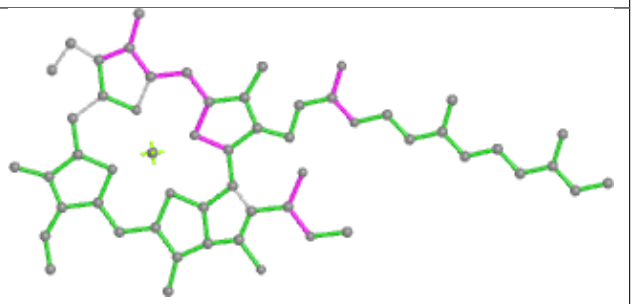


Rings

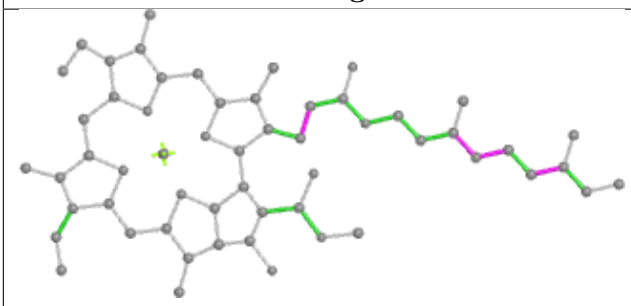
## Ligand CLA F 316



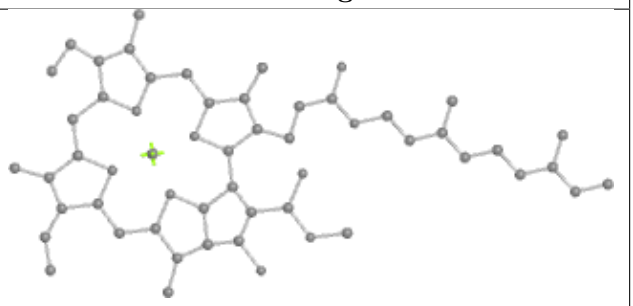
Bond lengths



Bond angles

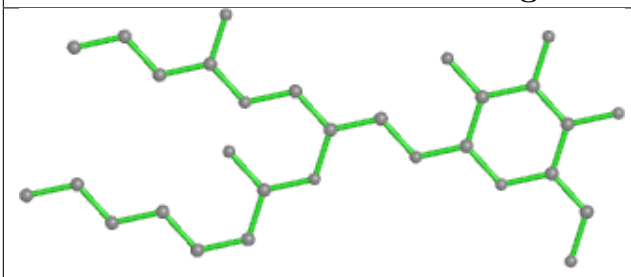


Torsions

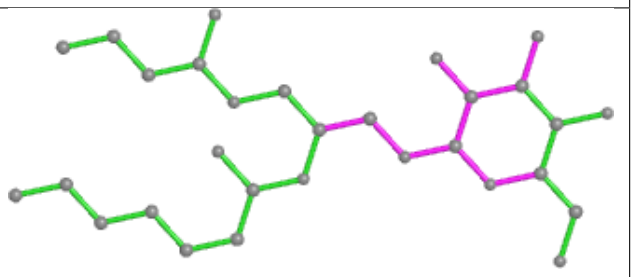


Rings

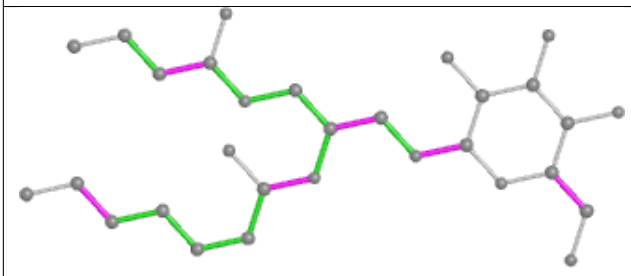
## Ligand LMG B 323



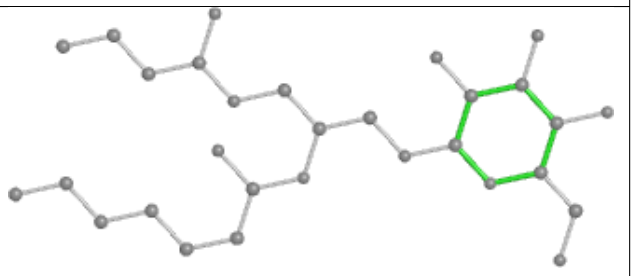
Bond lengths



Bond angles

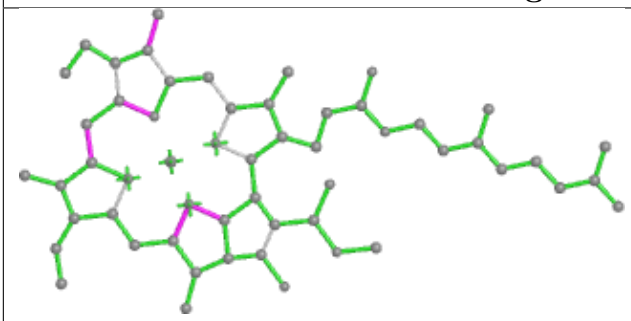


Torsions

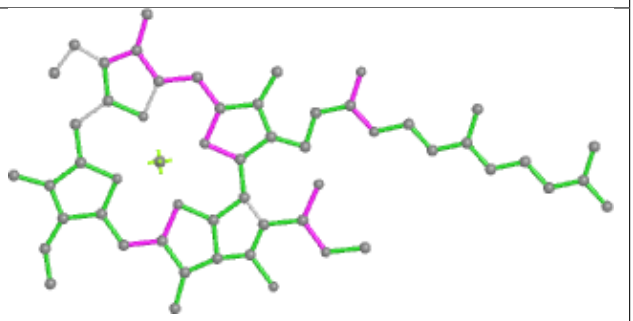


Rings

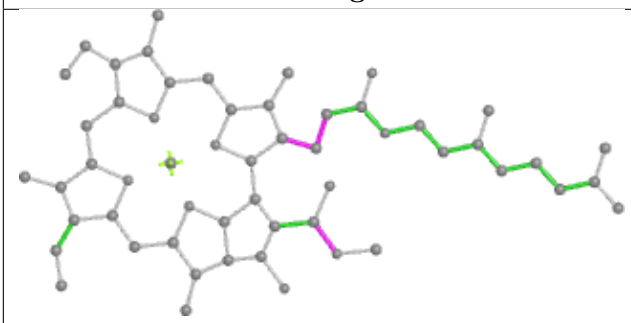
## Ligand CLA E 313



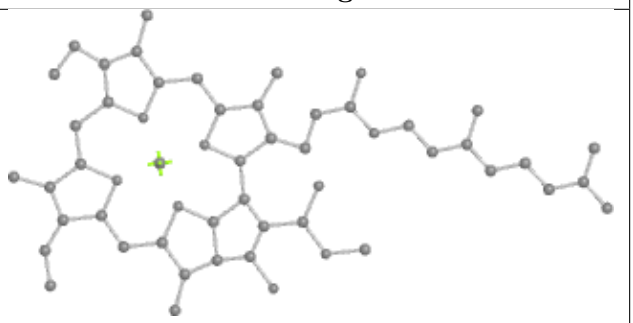
Bond lengths



Bond angles

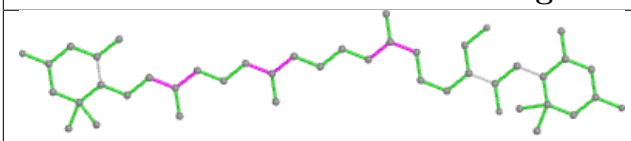


Torsions



Rings

## Ligand 0IE F 301



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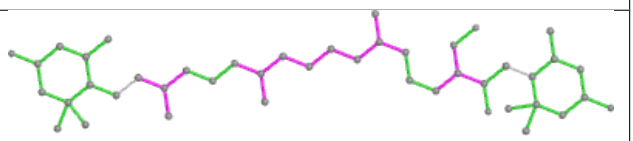
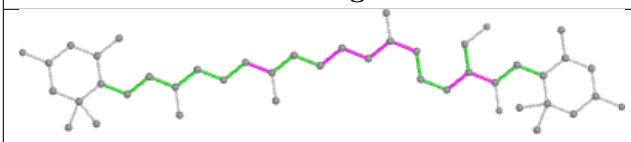


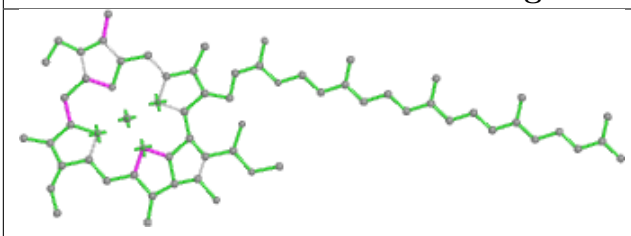
Bond angles



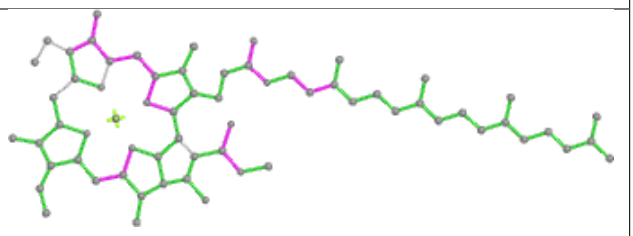
Torsions

Rings

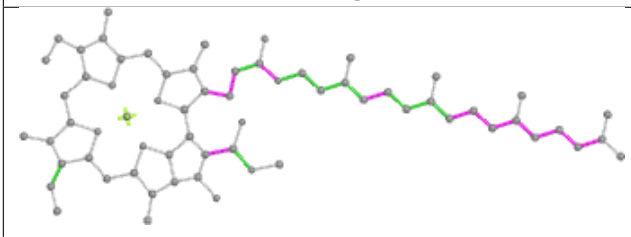
## Ligand CLA C 315



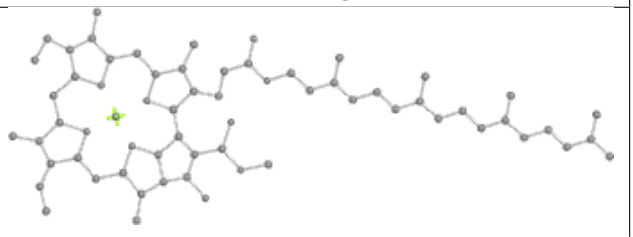
Bond lengths



Bond angles

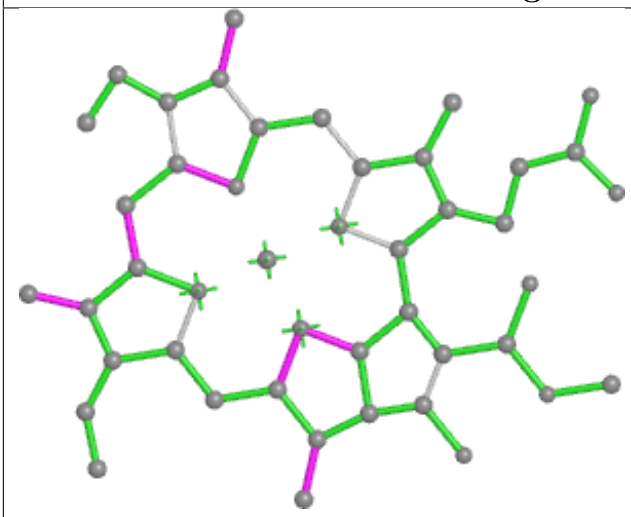


Torsions

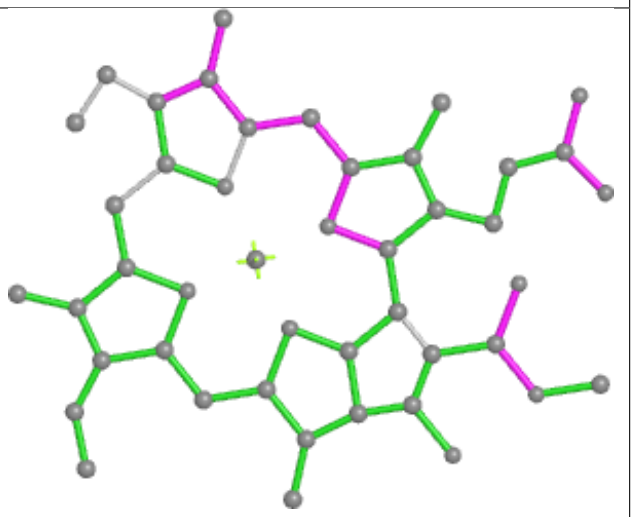


Rings

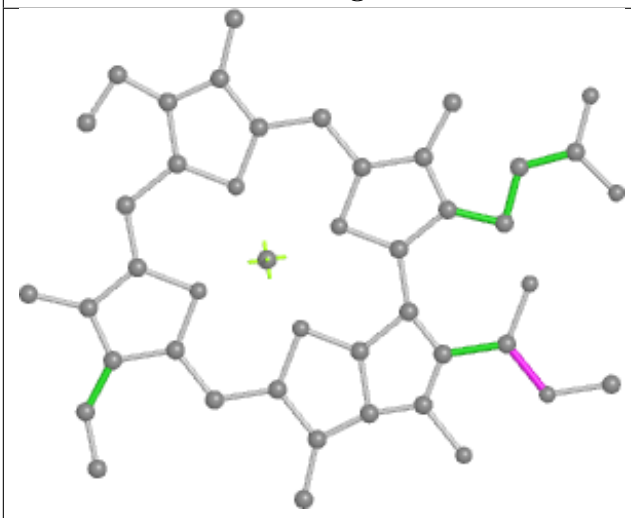
## Ligand CLA D 316



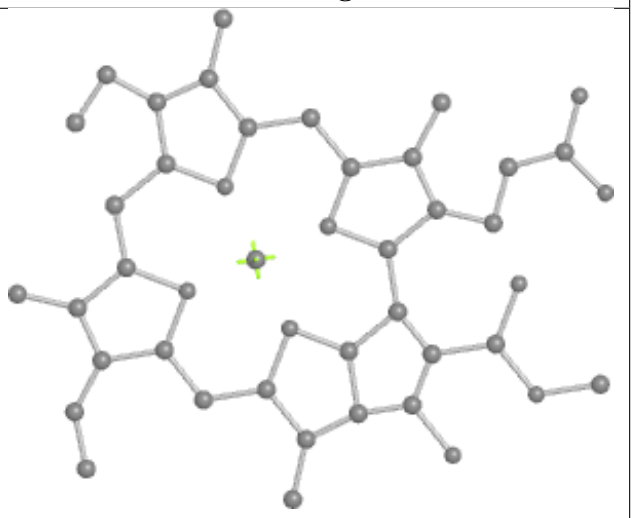
Bond lengths



Bond angles

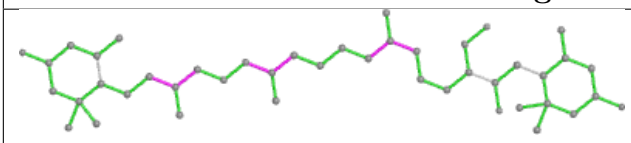


Torsions

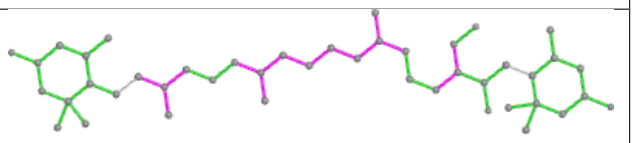


Rings

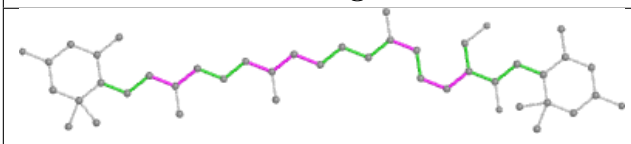
## Ligand 0IE C 302



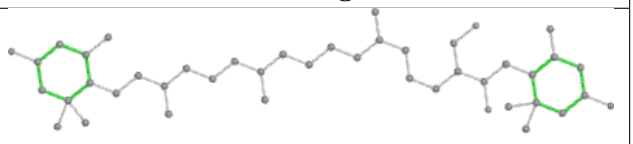
Bond lengths



Bond angles

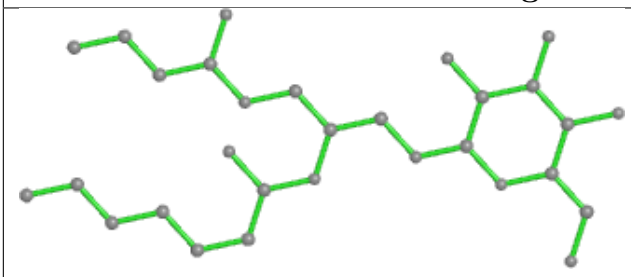


Torsions

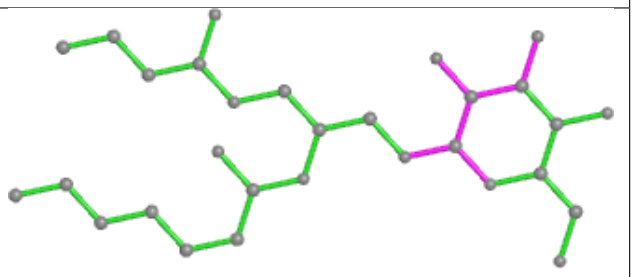


Rings

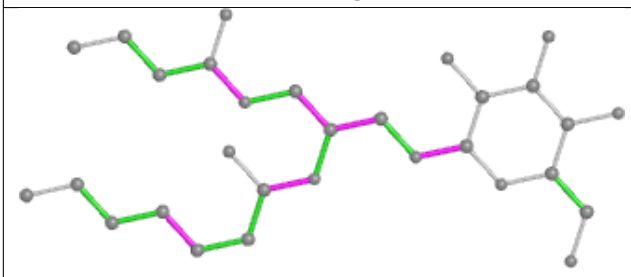
## Ligand LMG F 319



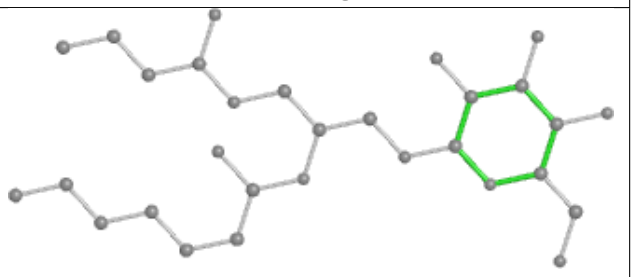
Bond lengths



Bond angles

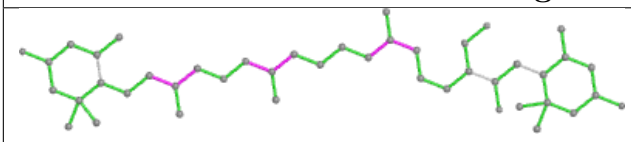


Torsions



Rings

## Ligand 0IE B 301



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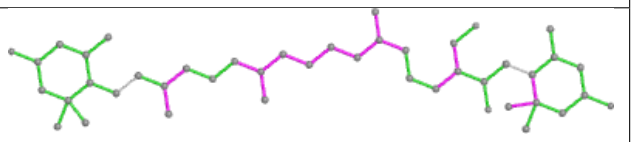
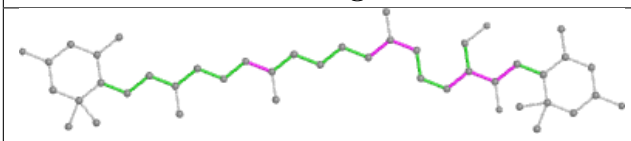
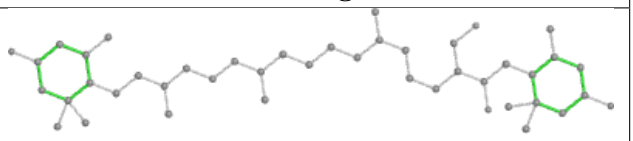


Bond angles

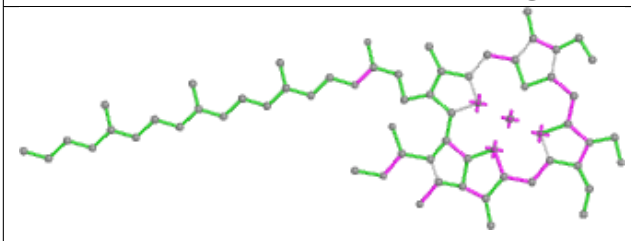


Torsions

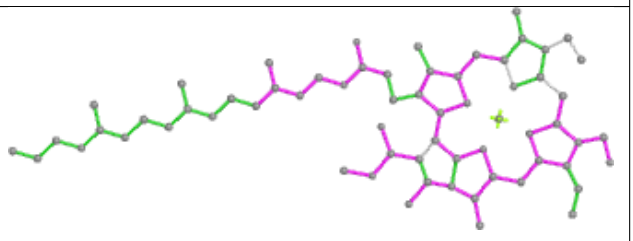


Rings

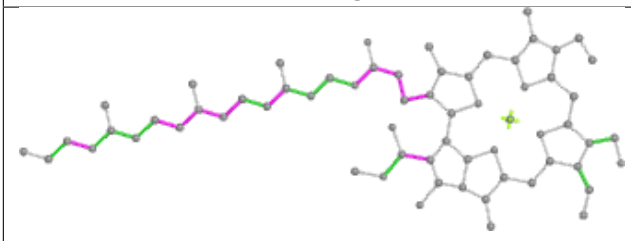
## Ligand CHL A 306



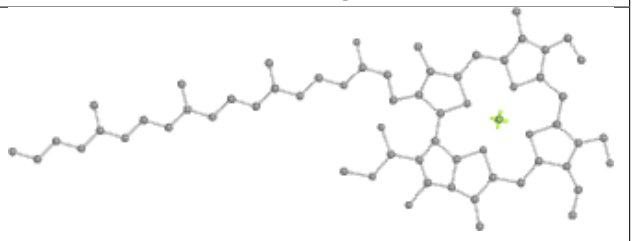
Bond lengths



Bond angles

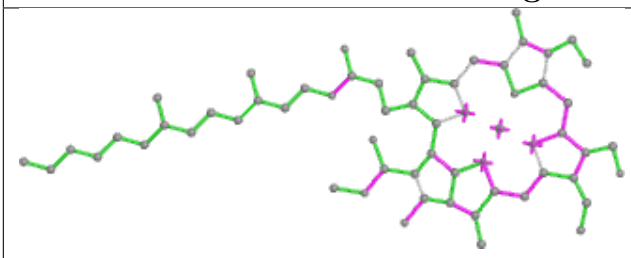


Torsions

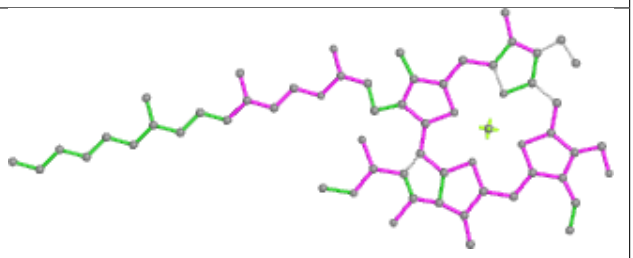


Rings

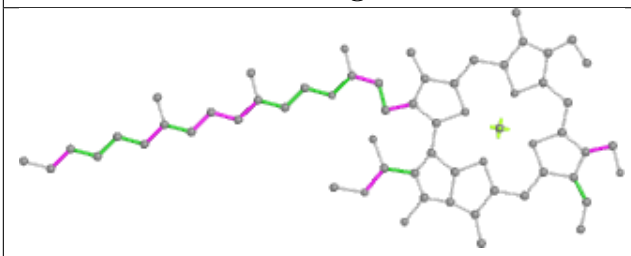
## Ligand CHL A 311



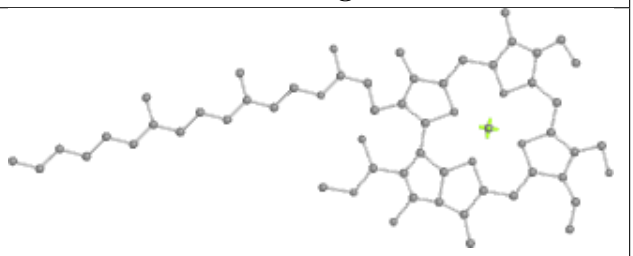
Bond lengths



Bond angles

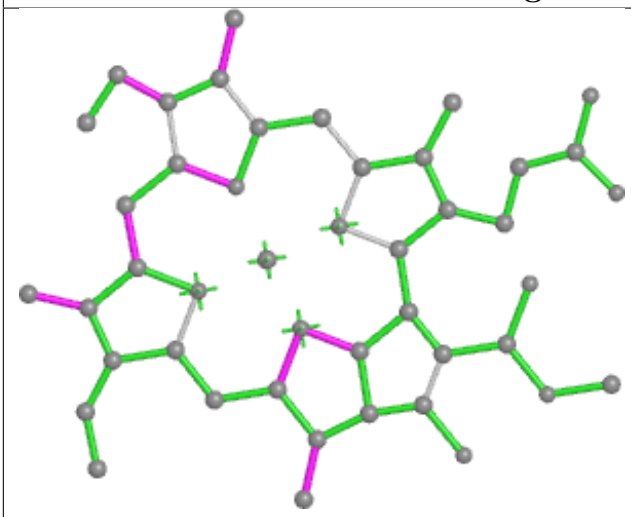


Torsions

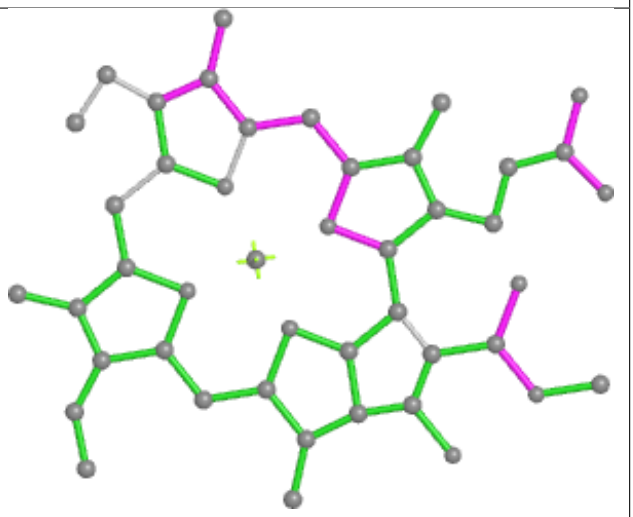


Rings

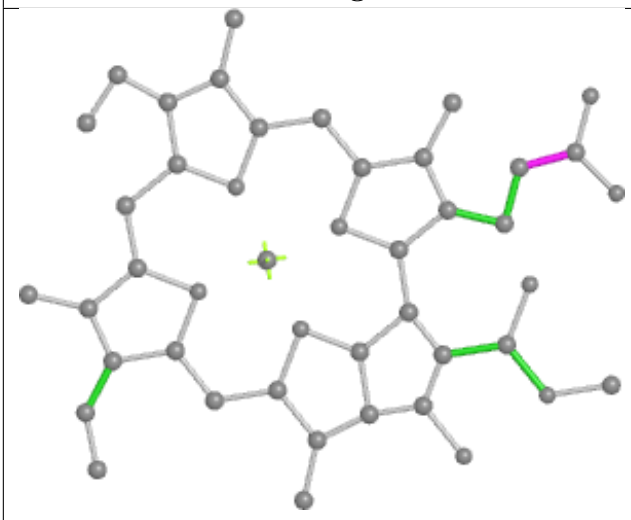
## Ligand CLA B 317



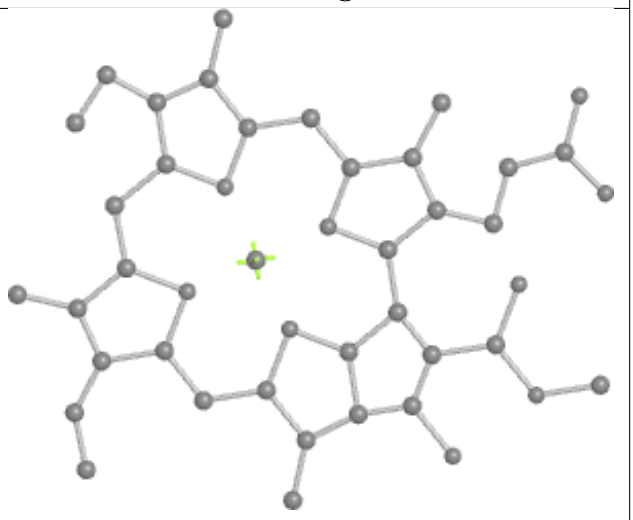
Bond lengths



Bond angles

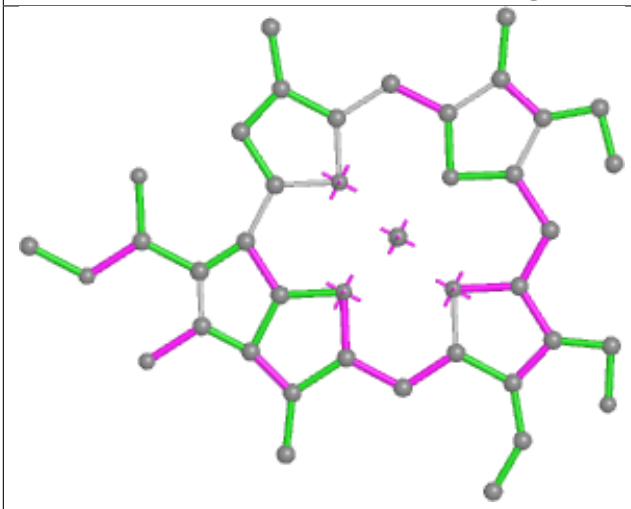


Torsions

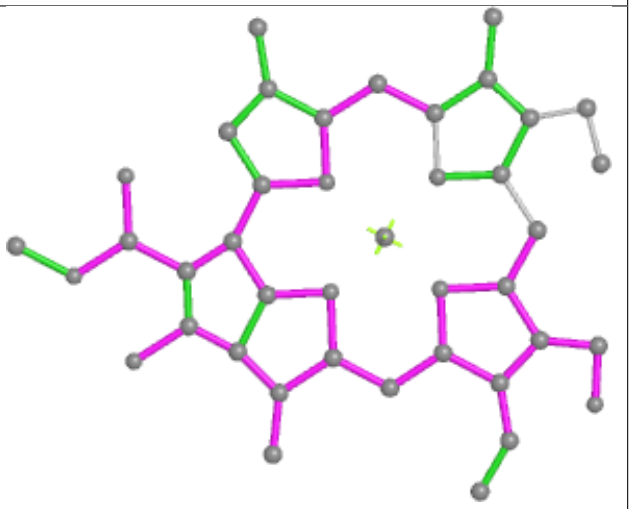


Rings

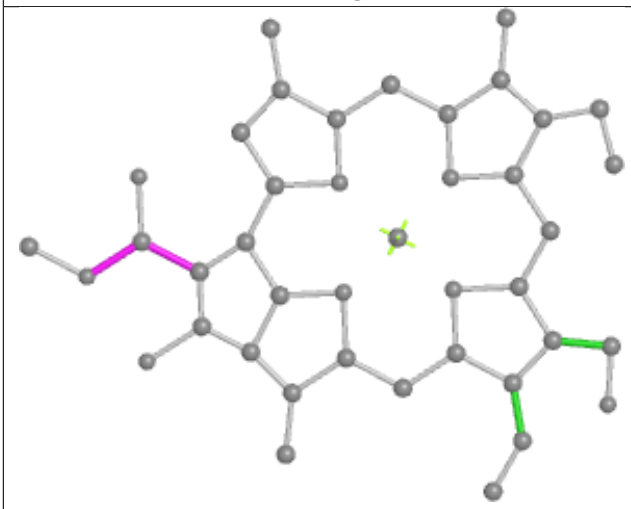
## Ligand CHL E 317



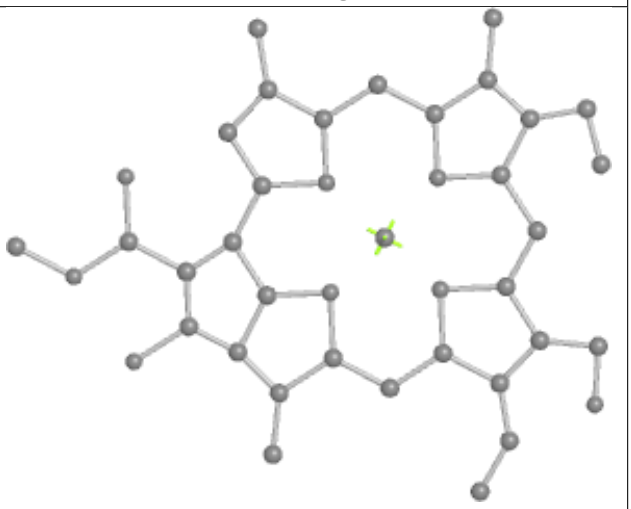
Bond lengths



Bond angles

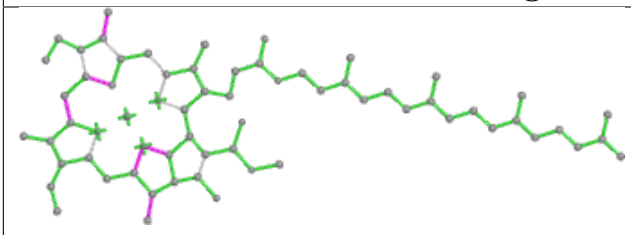


Torsions

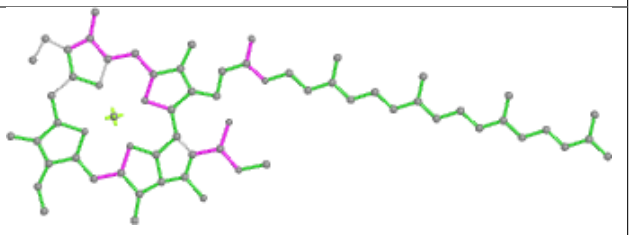


Rings

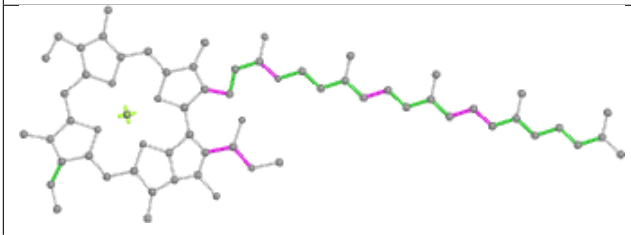
## Ligand CLA D 315



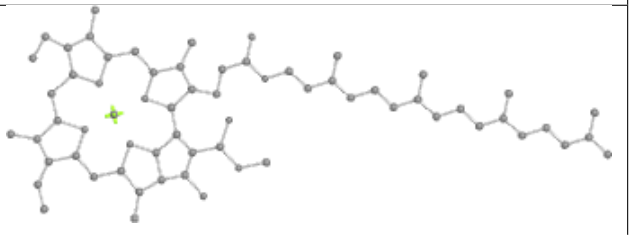
Bond lengths



Bond angles

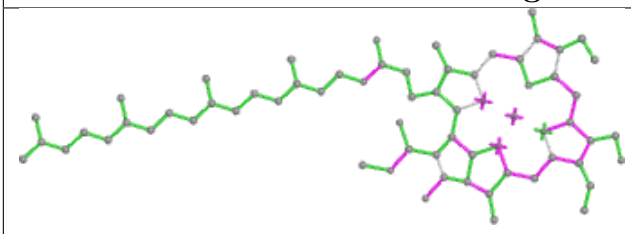


Torsions

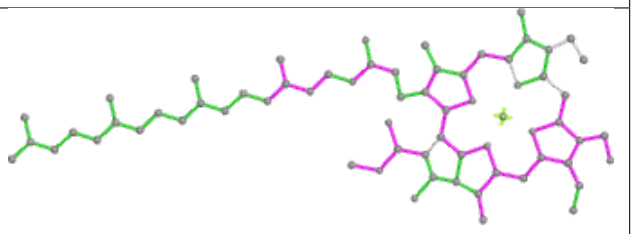


Rings

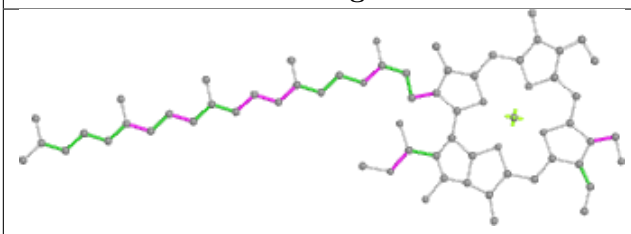
## Ligand CHL A 313



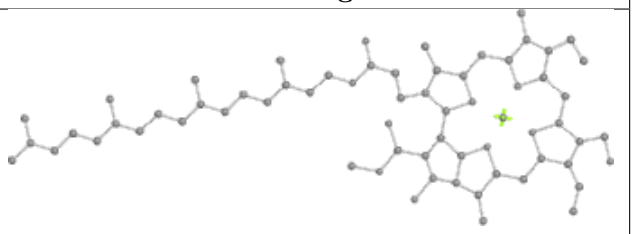
Bond lengths



Bond angles

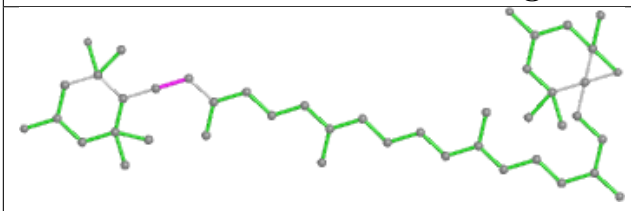


Torsions

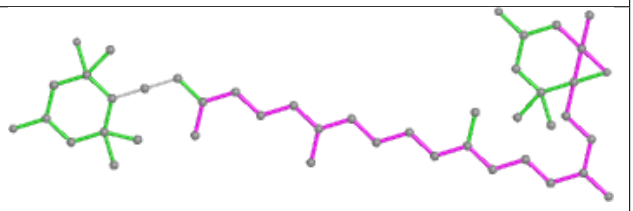


Rings

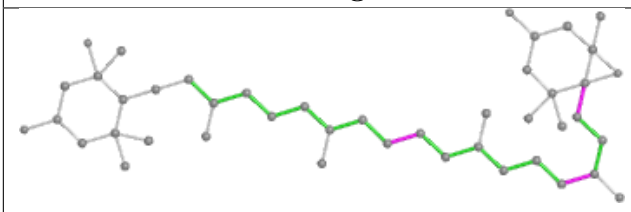
## Ligand NEX E 303



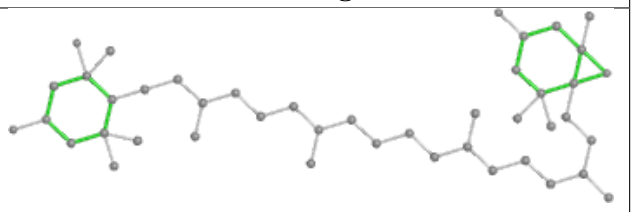
Bond lengths



Bond angles

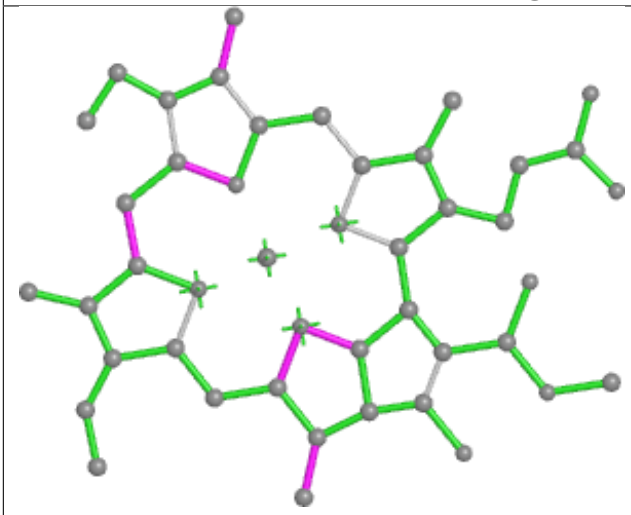


Torsions

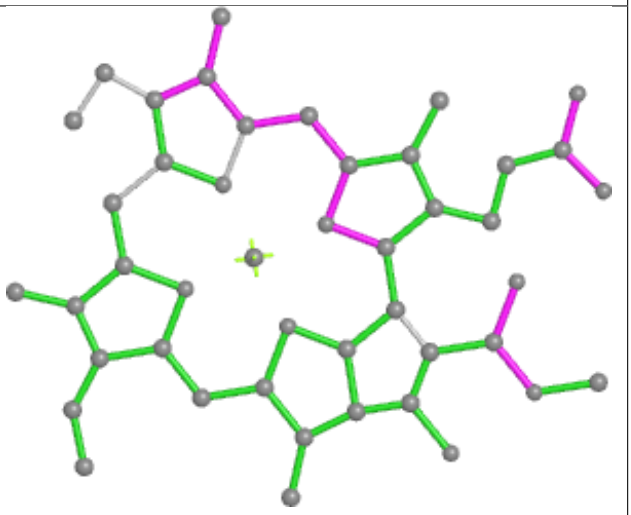


Rings

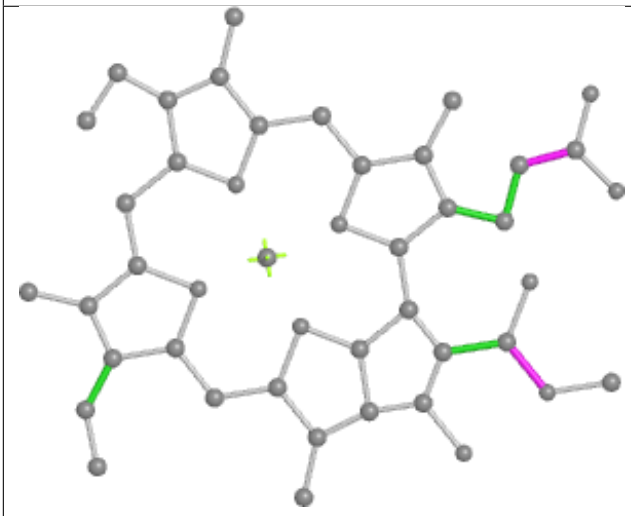
## Ligand CLA F 315



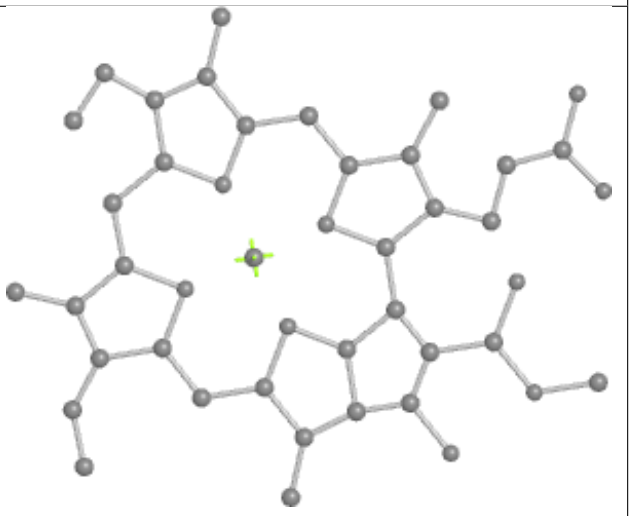
Bond lengths



Bond angles

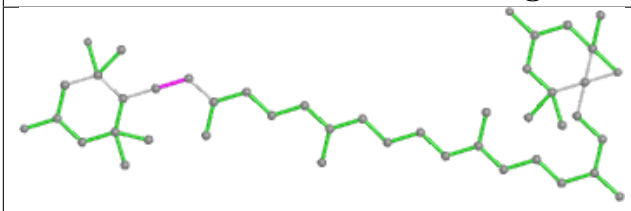


Torsions

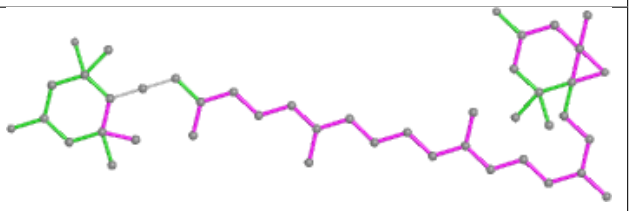


Rings

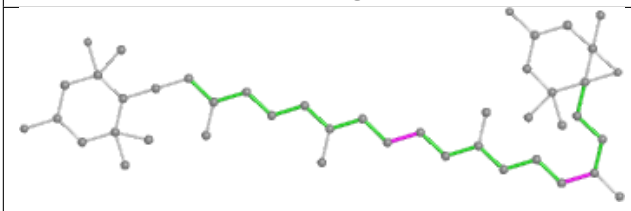
## Ligand NEX F 303



Bond lengths



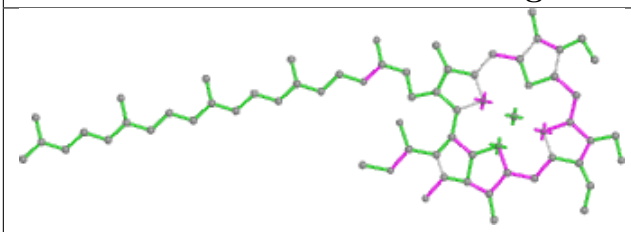
Bond angles



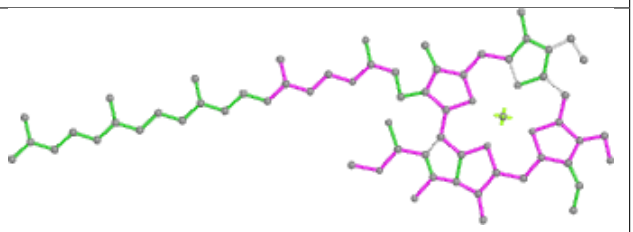
Torsions

Rings

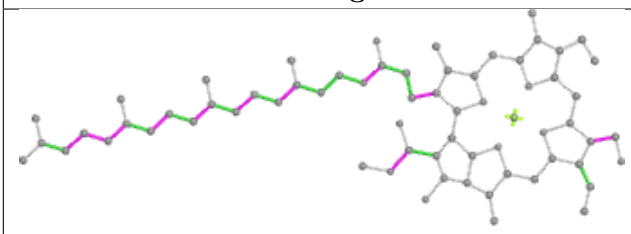
## Ligand CHL F 312



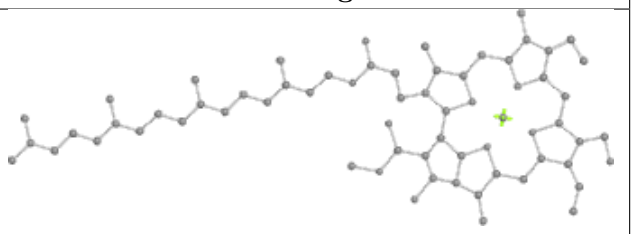
Bond lengths



Bond angles

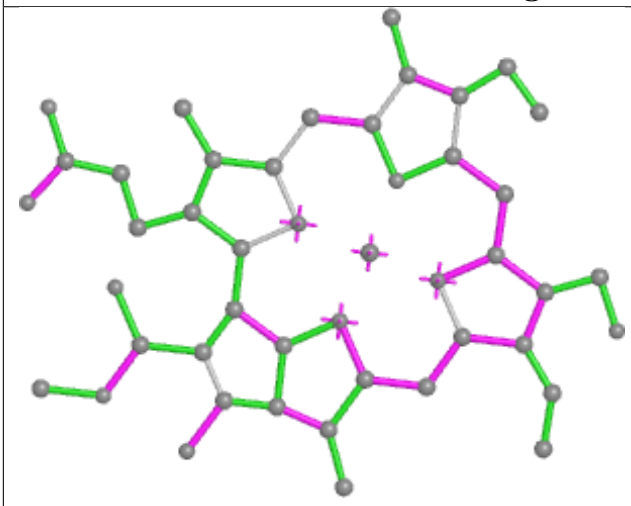


Torsions

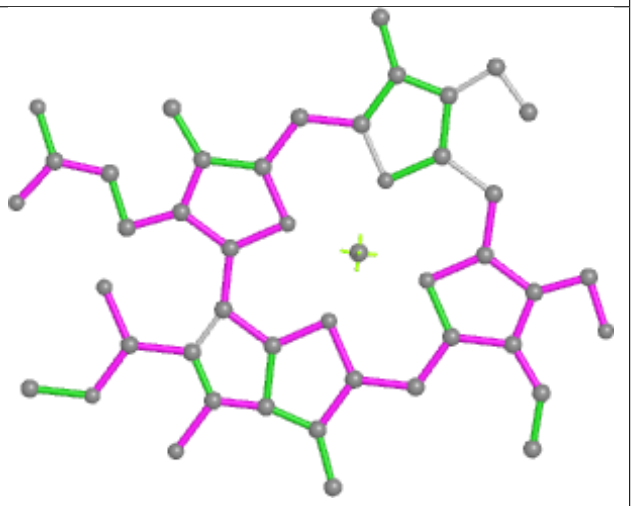


Rings

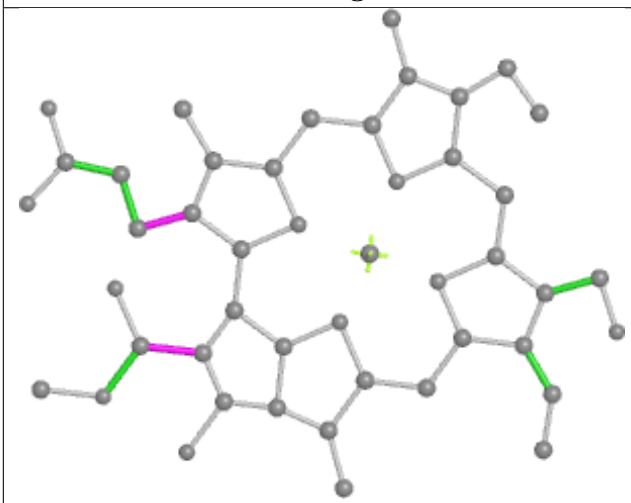
## Ligand CHL D 318



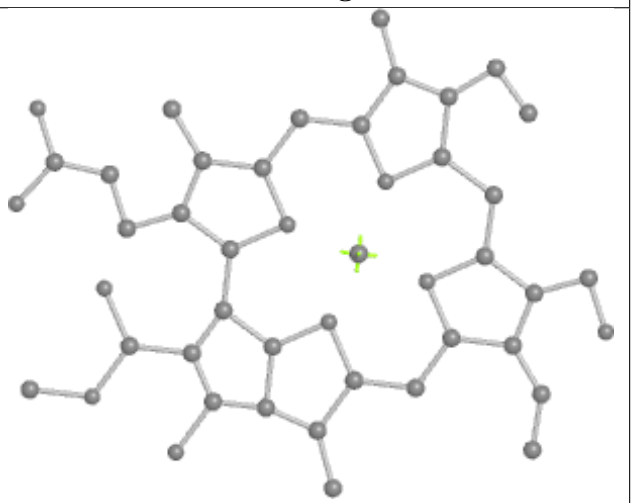
Bond lengths



Bond angles

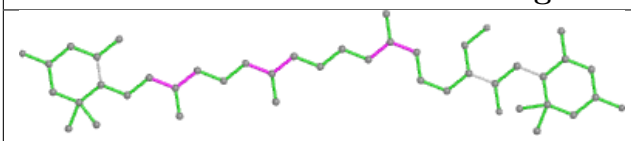


Torsions

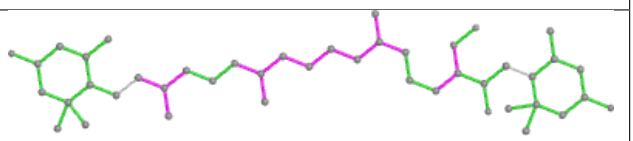


Rings

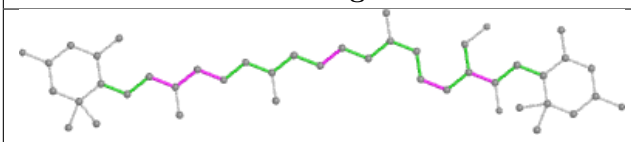
### Ligand 0IE C 301



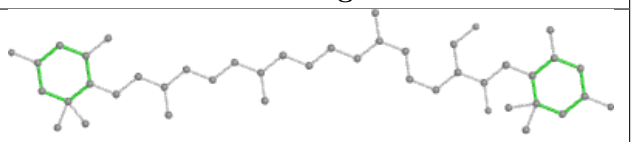
Bond lengths



Bond angles

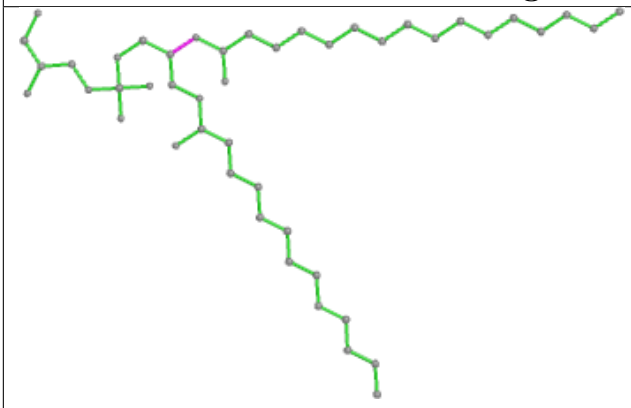


Torsions

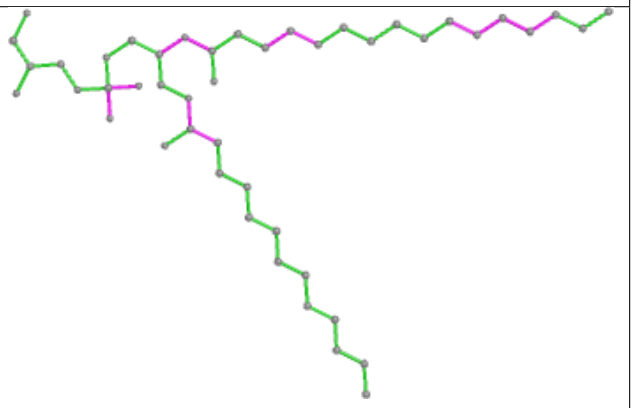


Rings

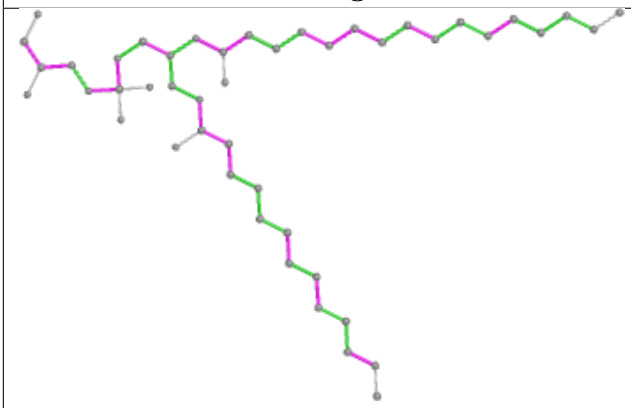
### Ligand LHG B 320



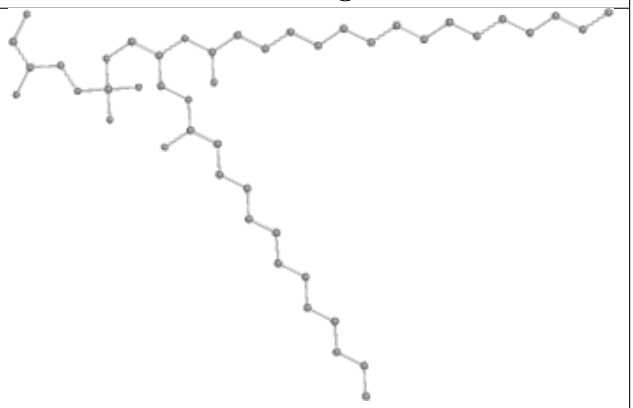
Bond lengths



Bond angles

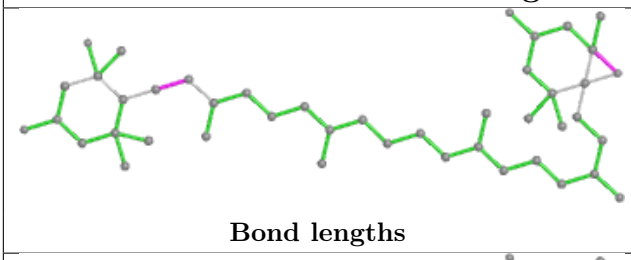


Torsions

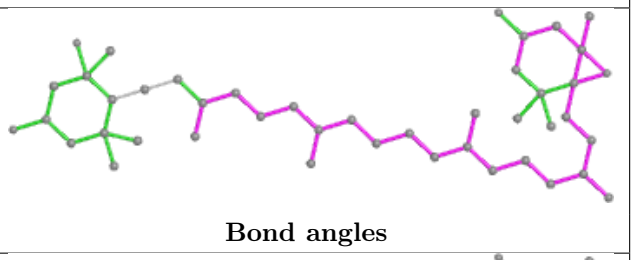


Rings

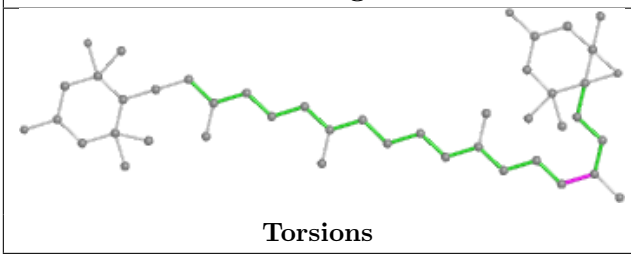
## Ligand NEX B 303



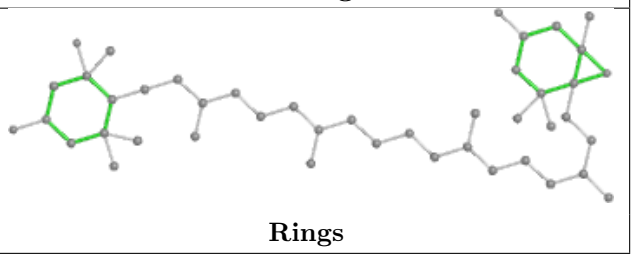
Bond lengths



Bond angles

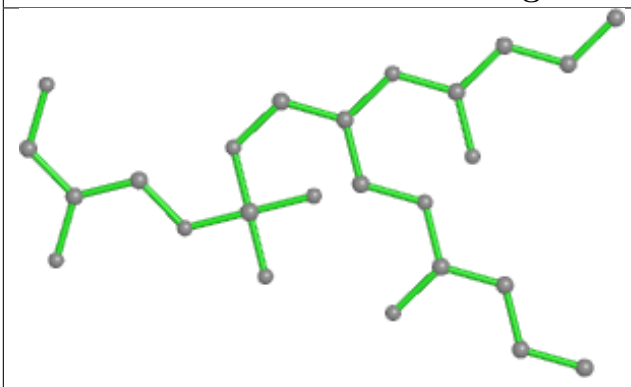


Torsions

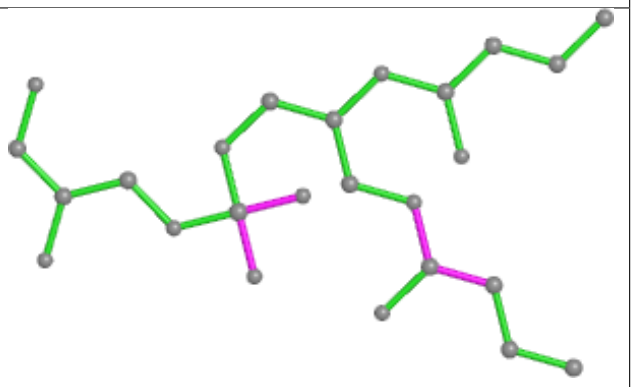


Rings

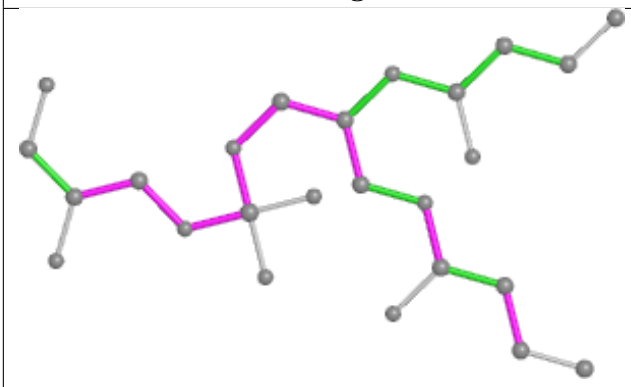
## Ligand LHG C 304



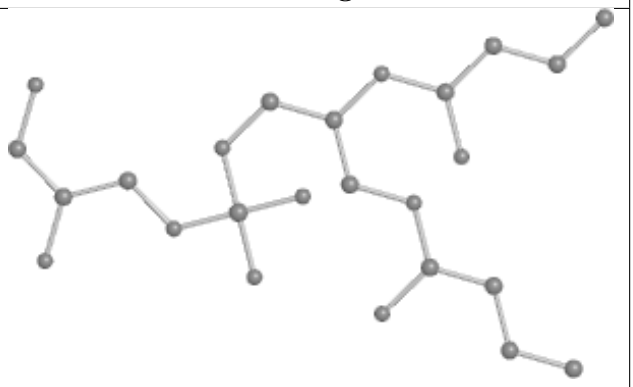
Bond lengths



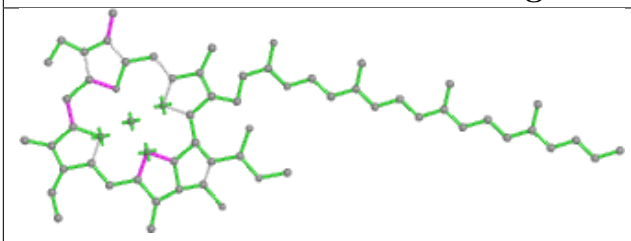
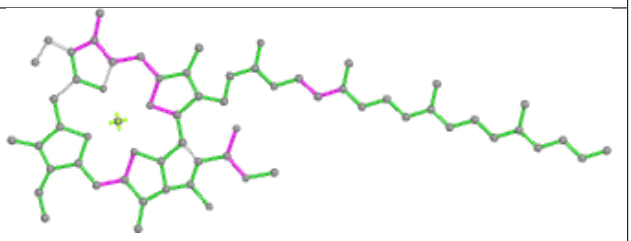
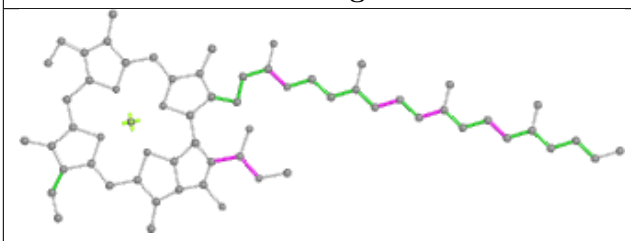
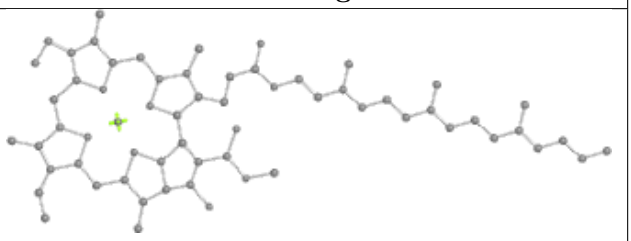
Bond angles

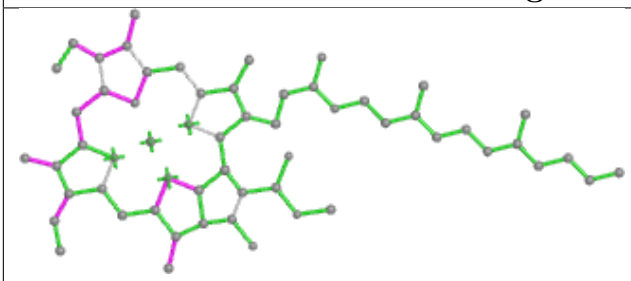
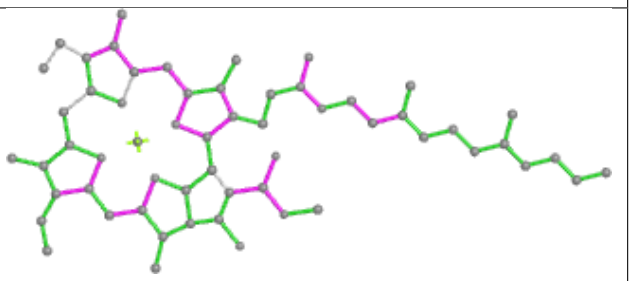
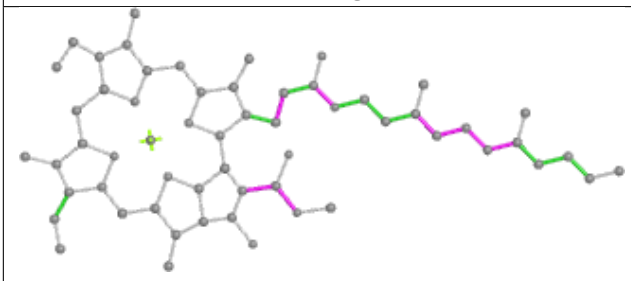
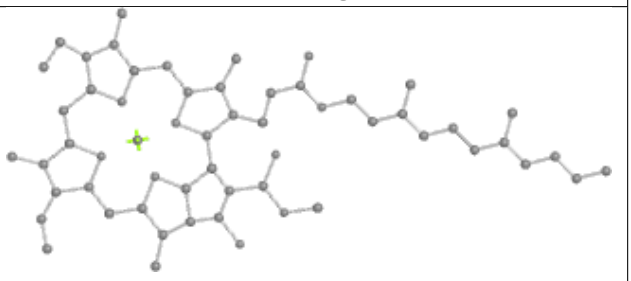


Torsions

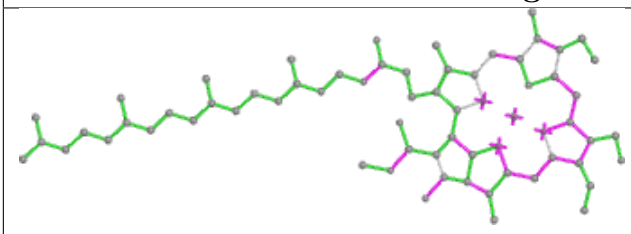


Rings

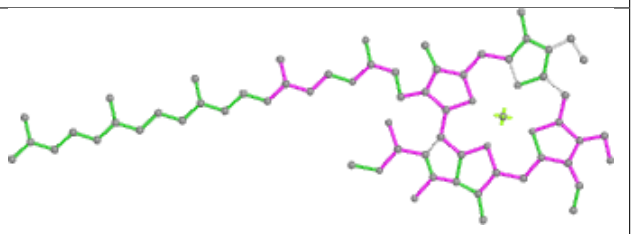
| Ligand CLA E 314 | |
|---|---|
|  Bond lengths |  Bond angles |
|  Torsions |  Rings |

| Ligand CLA F 313 | |
|---|---|
|  Bond lengths |  Bond angles |
|  Torsions |  Rings |

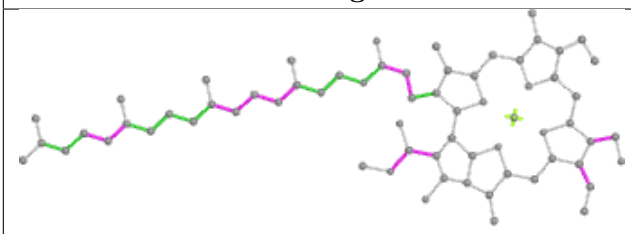
## Ligand CHL D 305



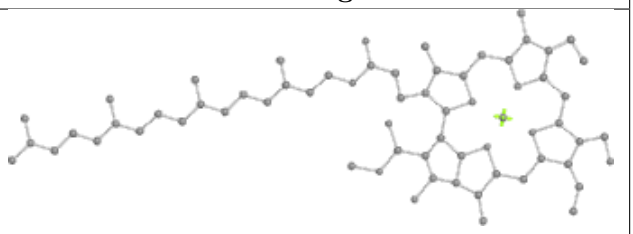
Bond lengths



Bond angles

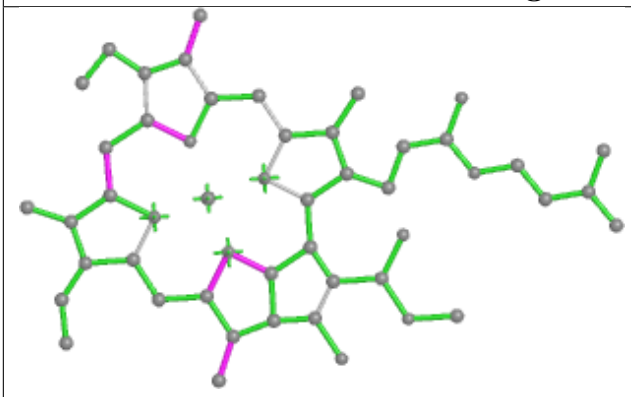


Torsions

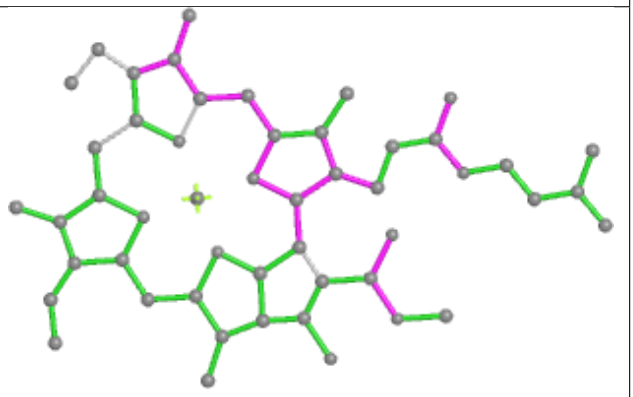


Rings

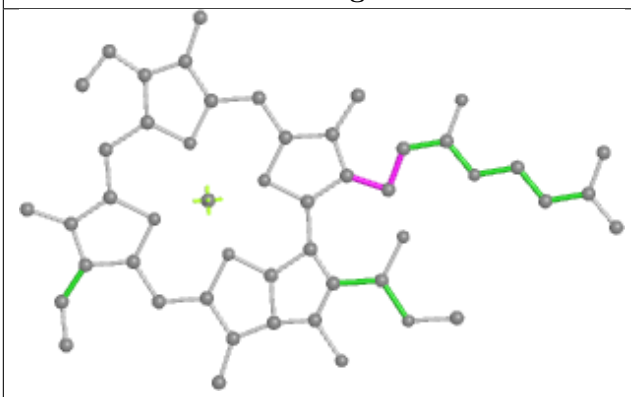
## Ligand CLA E 307



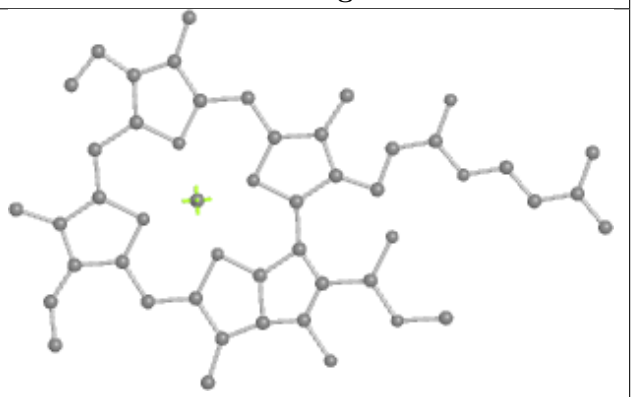
Bond lengths



Bond angles

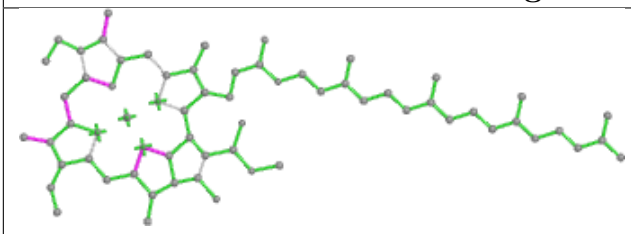


Torsions



Rings

## Ligand CLA C 307



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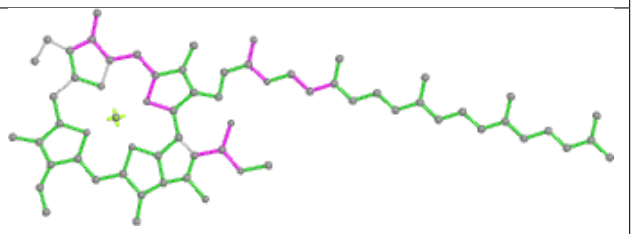
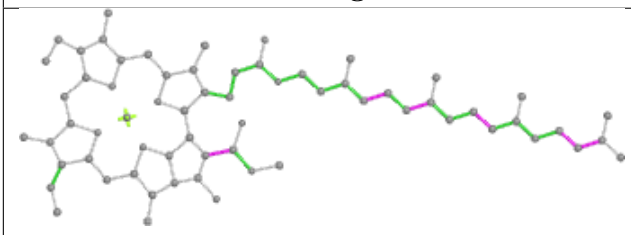


Bond angles



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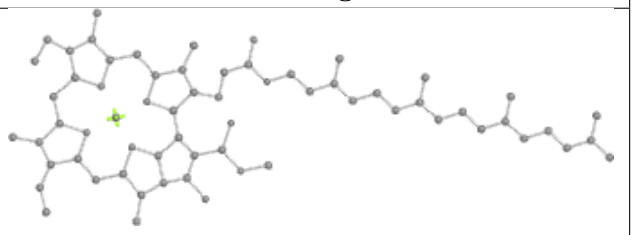
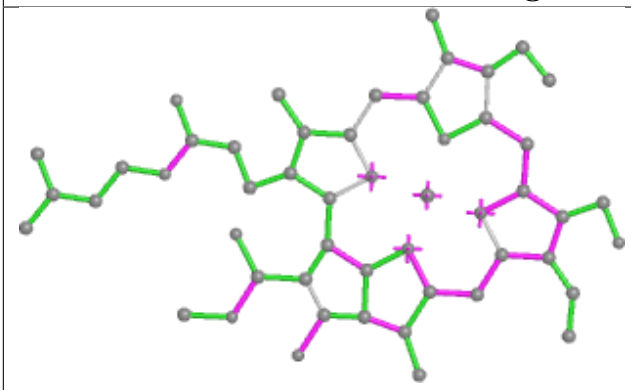


Rings

## Ligand CHL B 311



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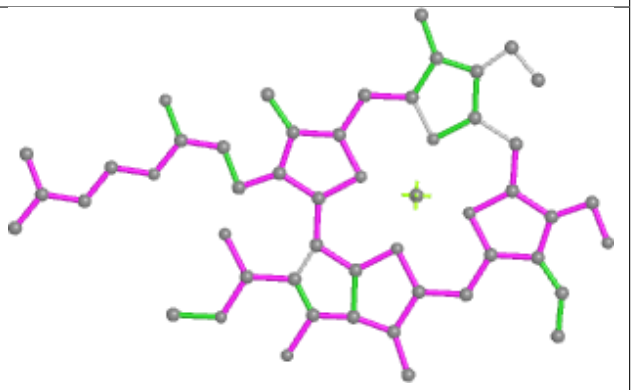
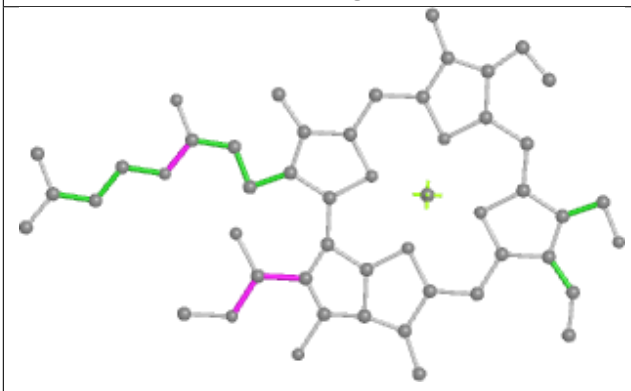


Bond angles



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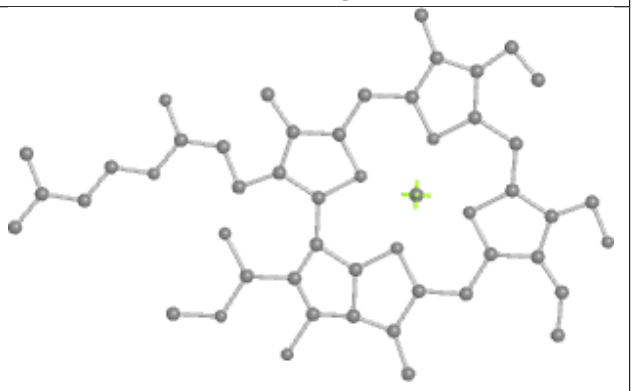
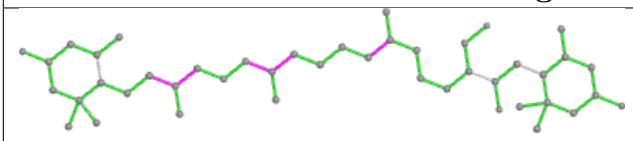
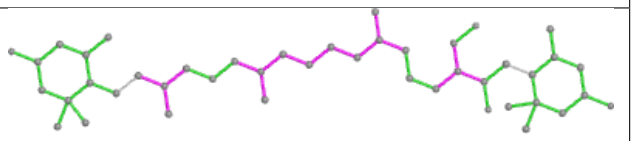


Rings

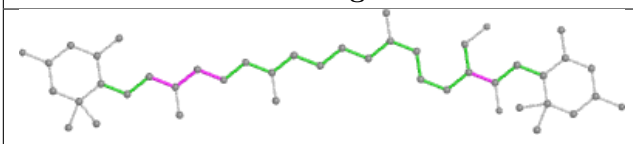
**Ligand 0IE E 301**



Bond lengths



Bond angles



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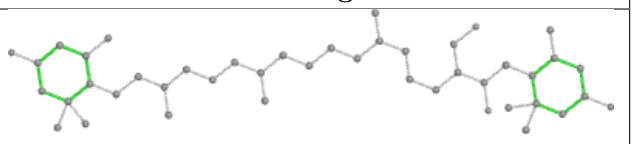
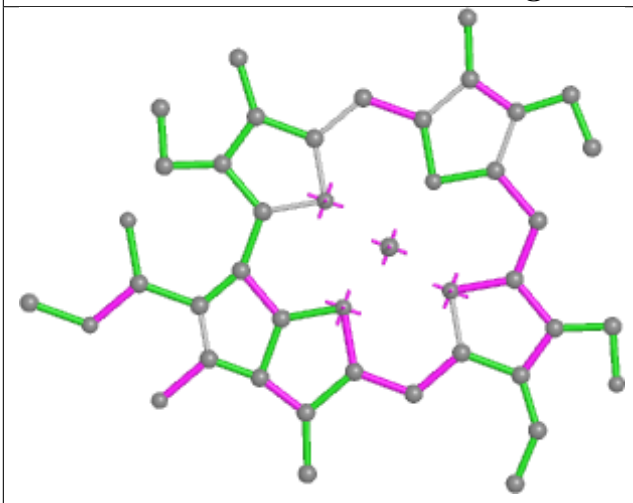
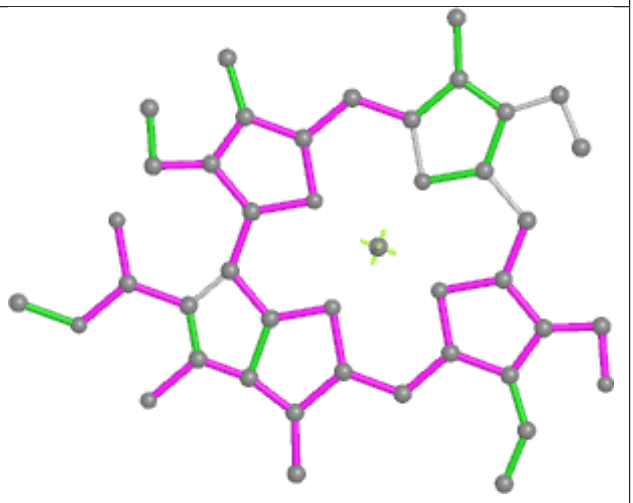


Rings

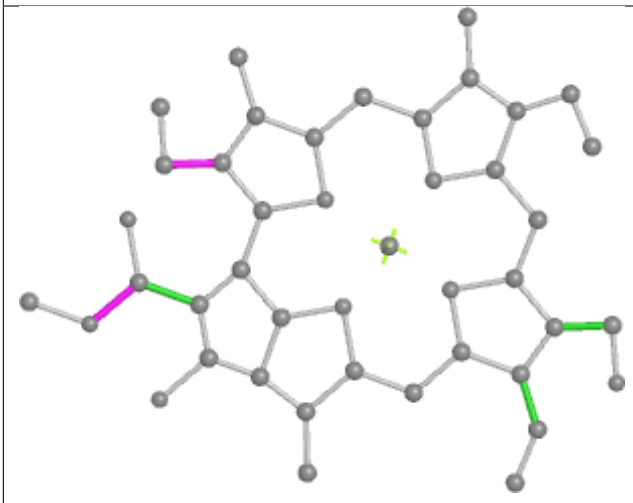
**Ligand CHL E 309**



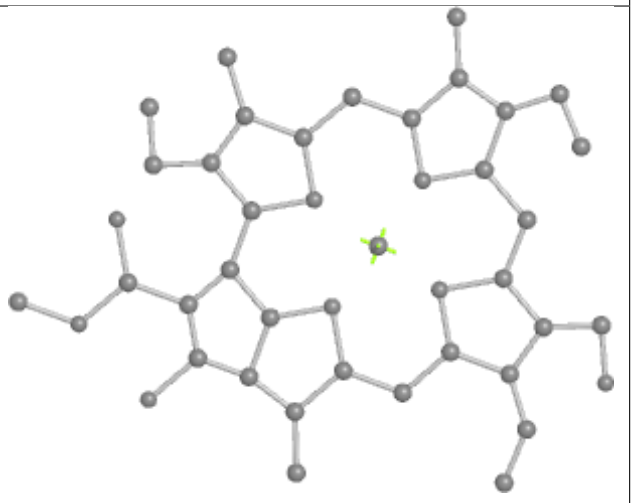
Bond lengths



Bond angles

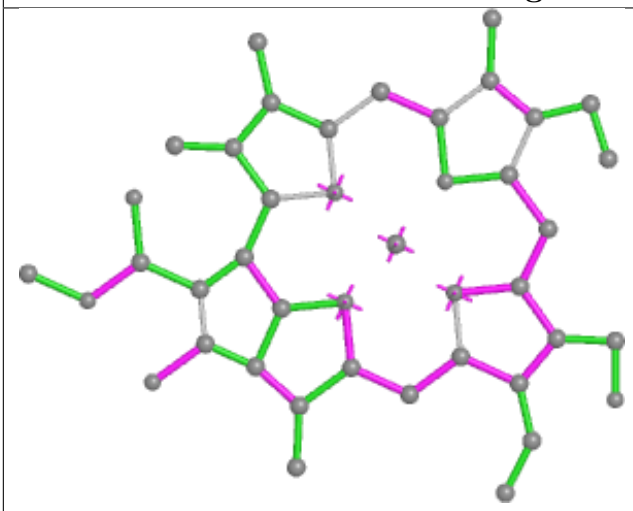


Torsions



Rings

## Ligand CHL F 309



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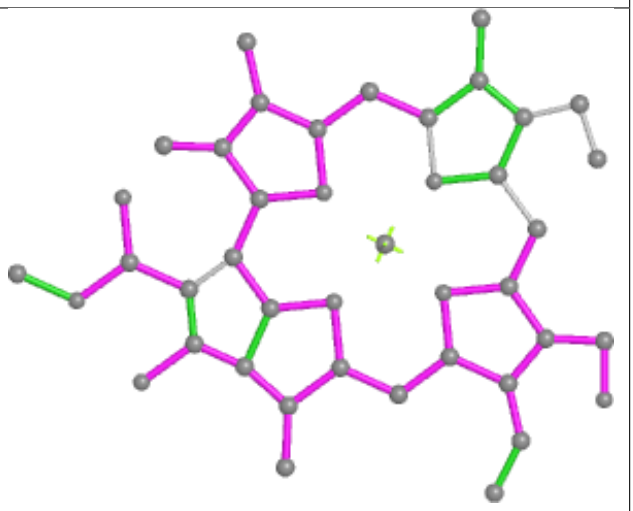
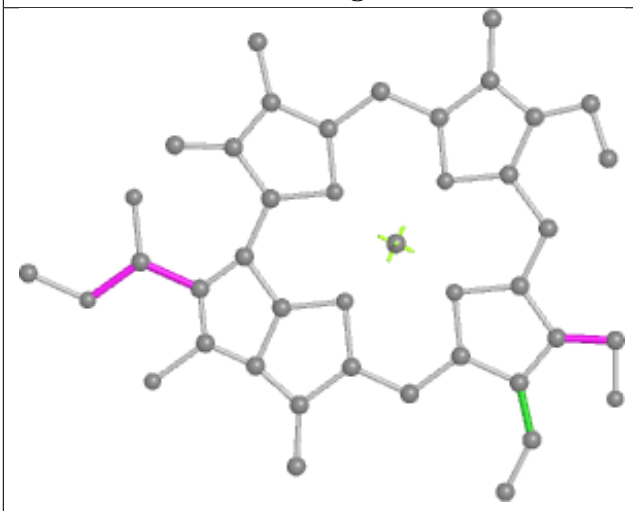


Bond angles



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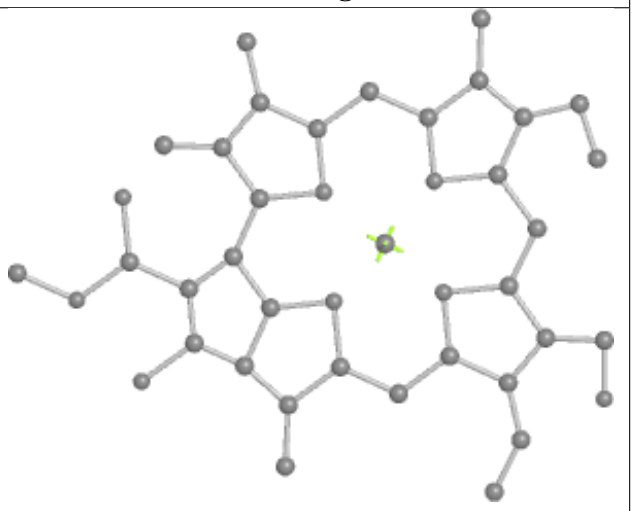
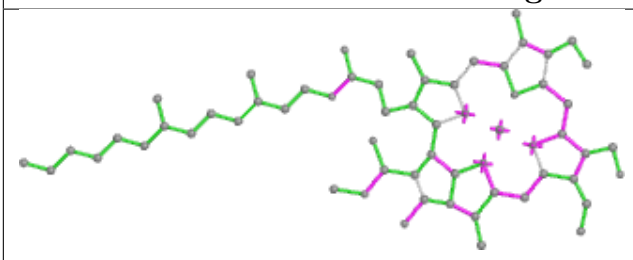


Rings

## Ligand CHL E 310



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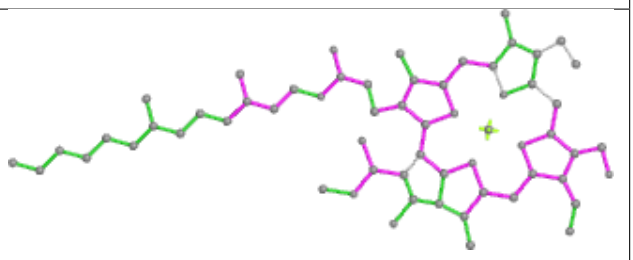
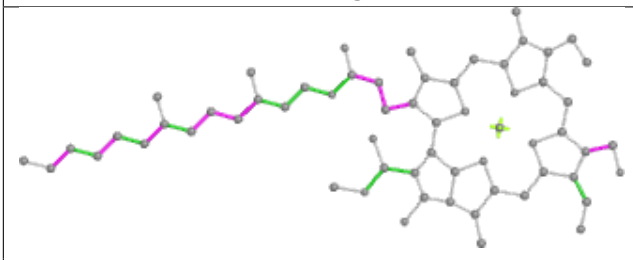
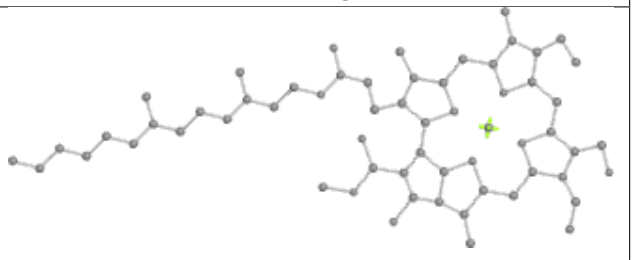


Bond angles

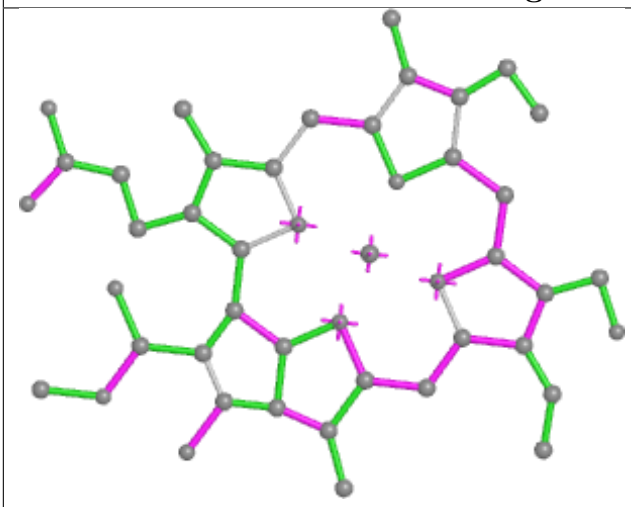


Torsions

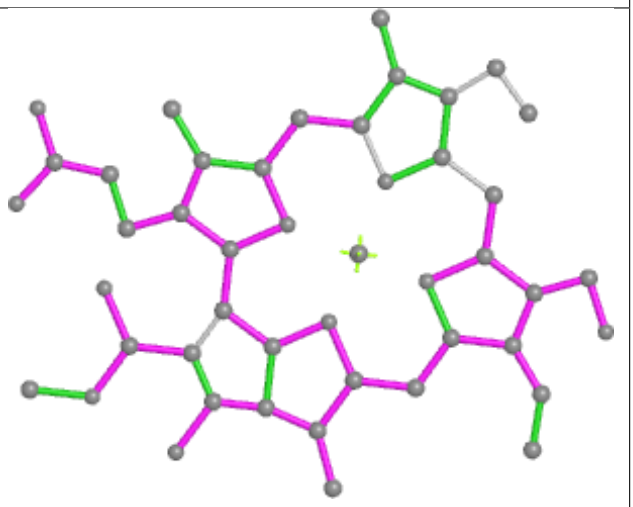


Rings

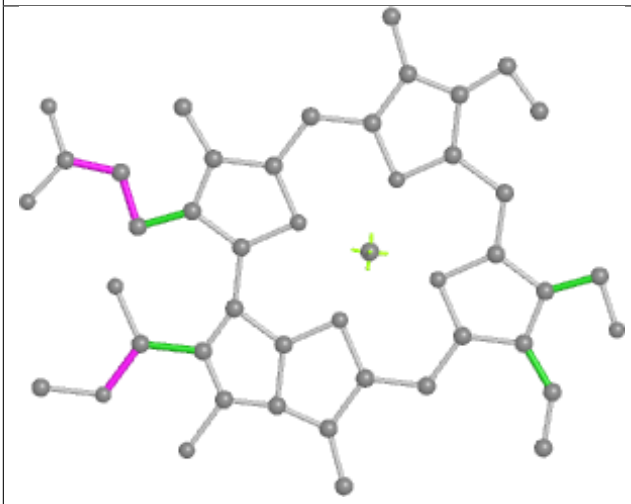
**Ligand CHL F 317**



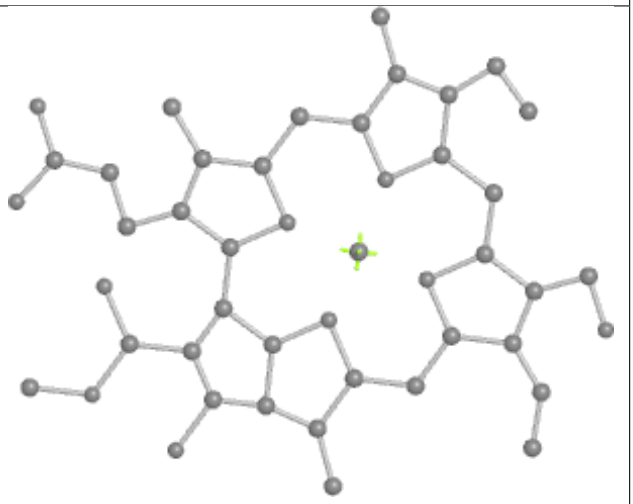
**Bond lengths**



**Bond angles**

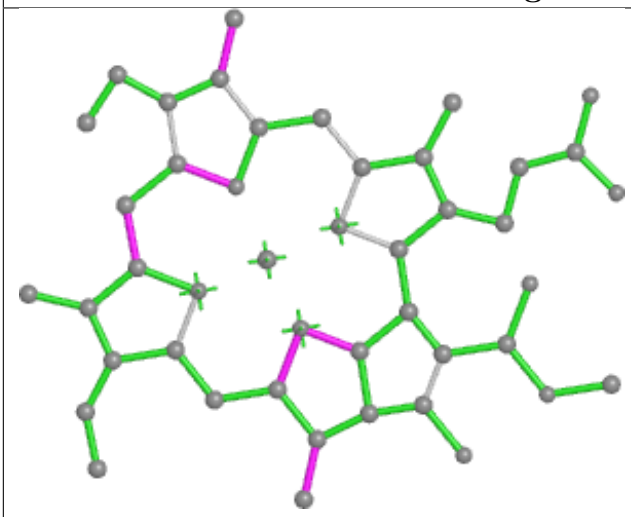


**Torsions**

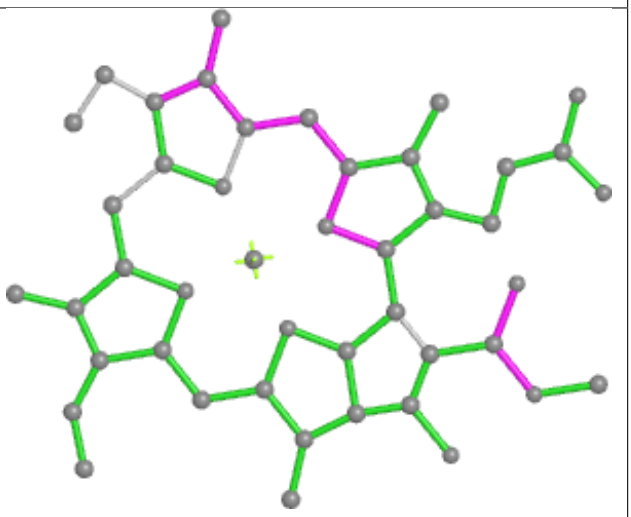


**Rings**

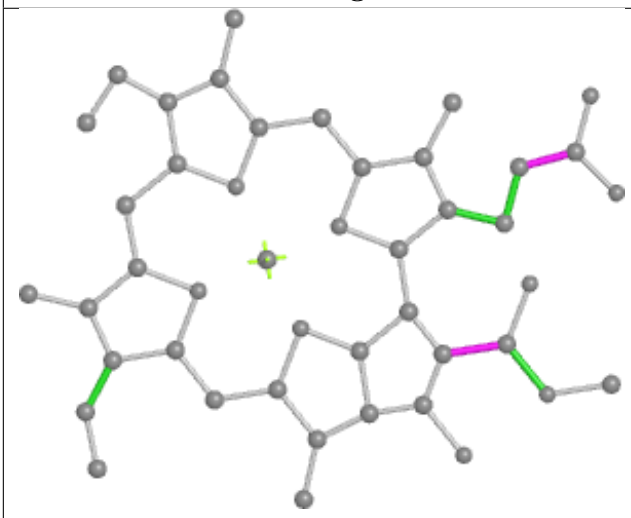
## Ligand CLA C 316



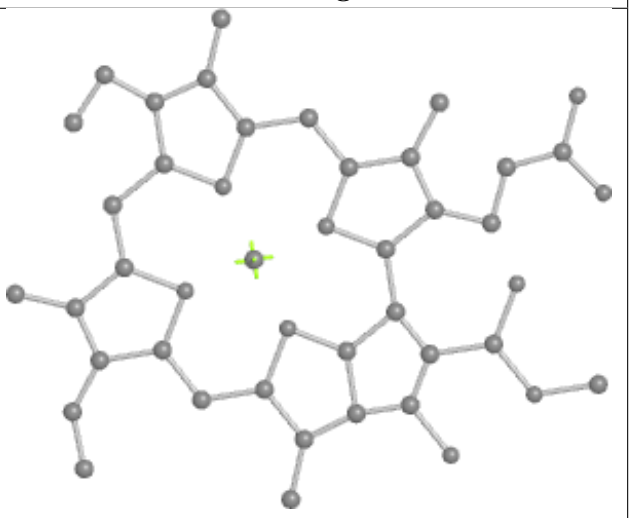
Bond lengths



Bond angles

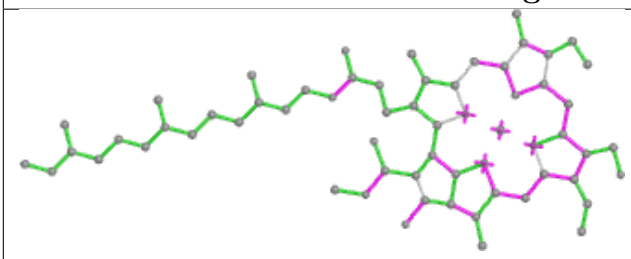


Torsions

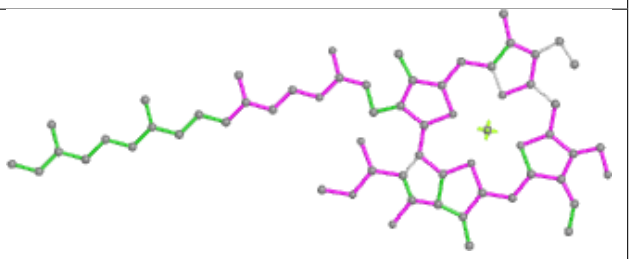


Rings

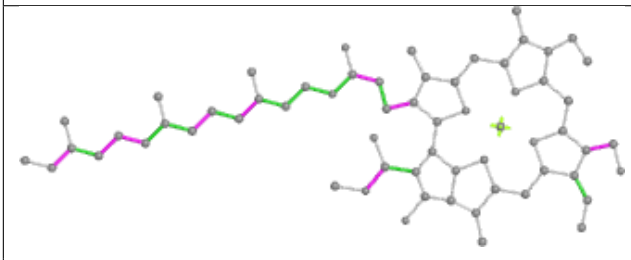
## Ligand CHL D 311



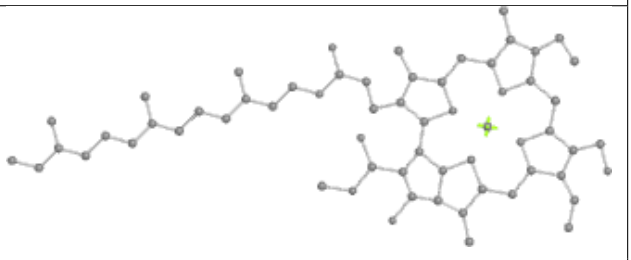
Bond lengths



Bond angles

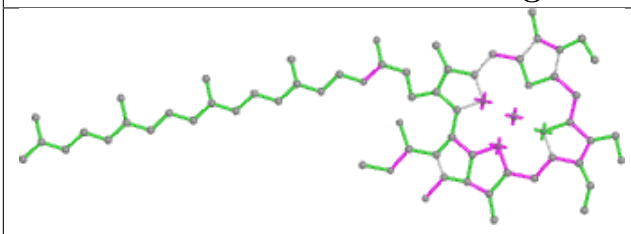


Torsions

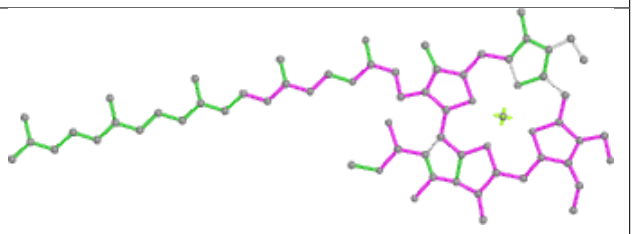


Rings

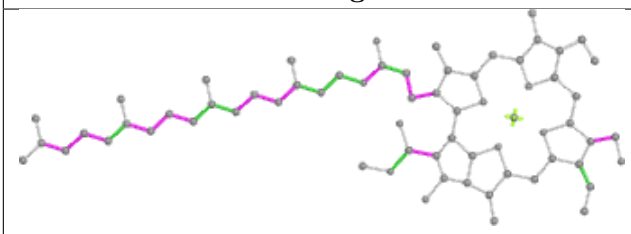
## Ligand CHL A 305



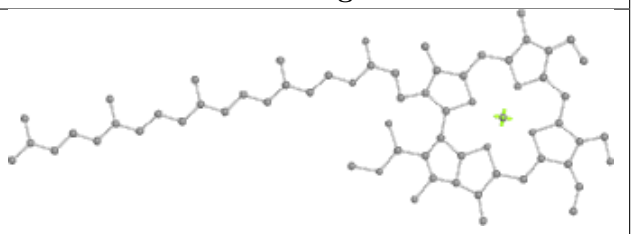
Bond lengths



Bond angles

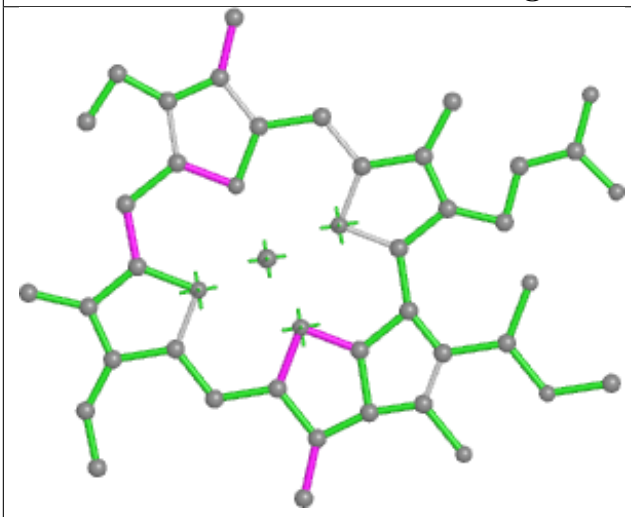


Torsions

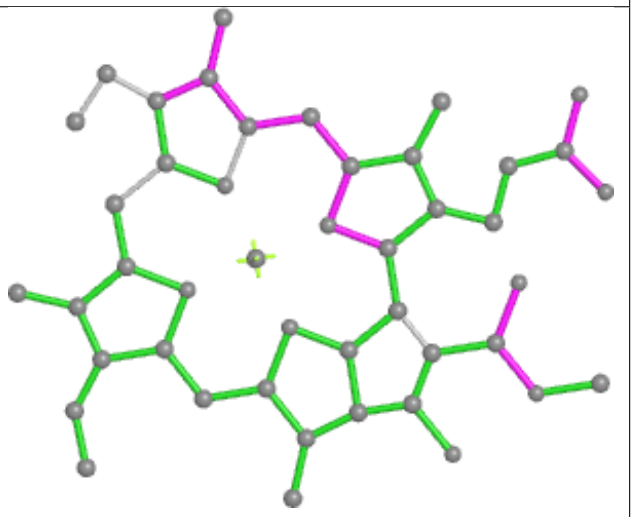


Rings

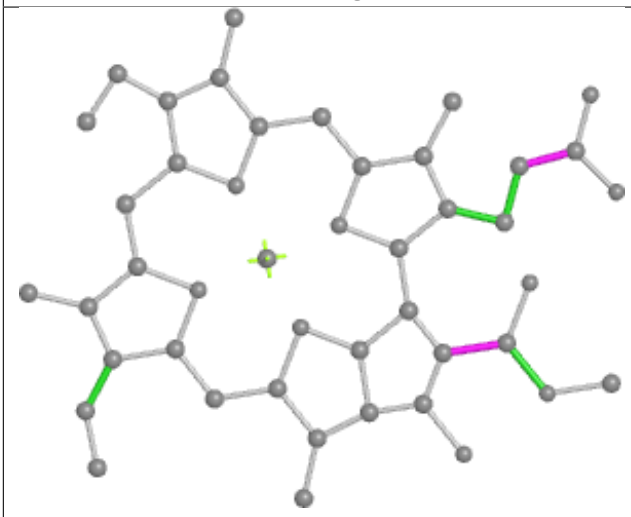
## Ligand CLA A 316



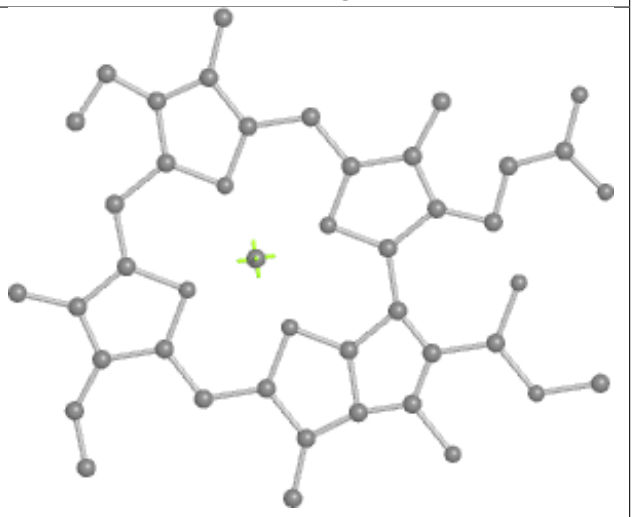
Bond lengths



Bond angles

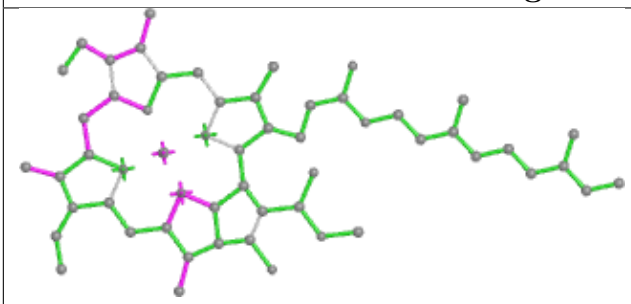


Torsions

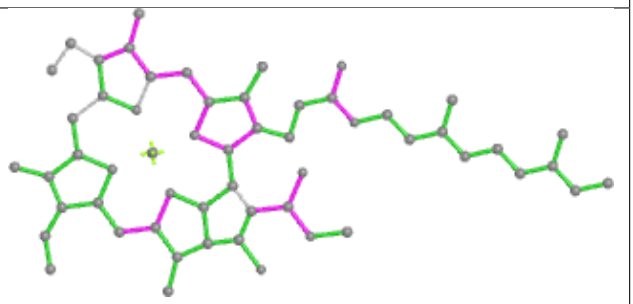


Rings

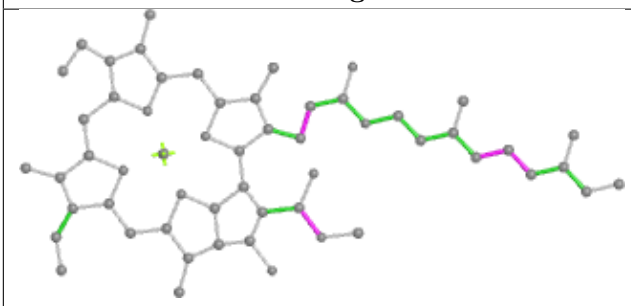
## Ligand CLA C 317



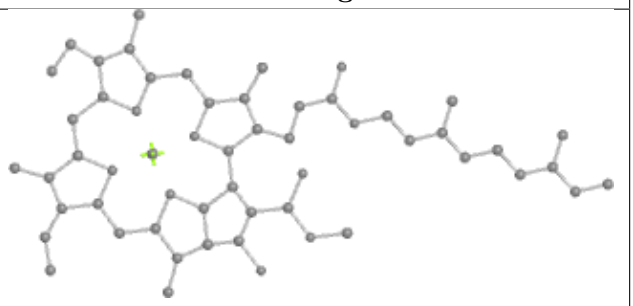
Bond lengths



Bond angles

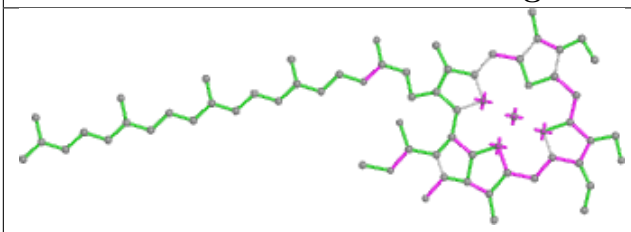


Torsions

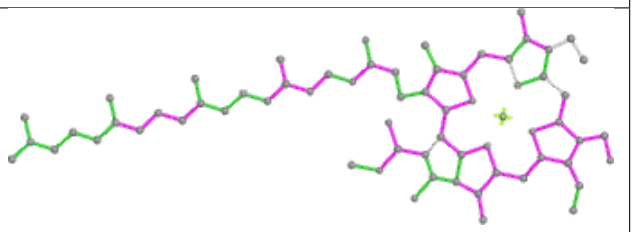


Rings

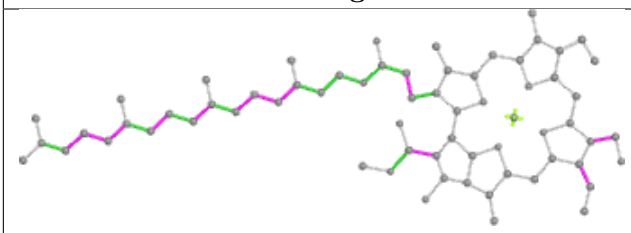
## Ligand CHL C 306



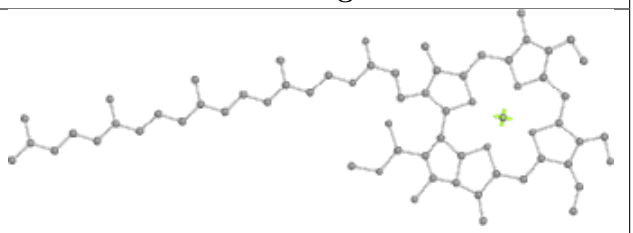
Bond lengths



Bond angles

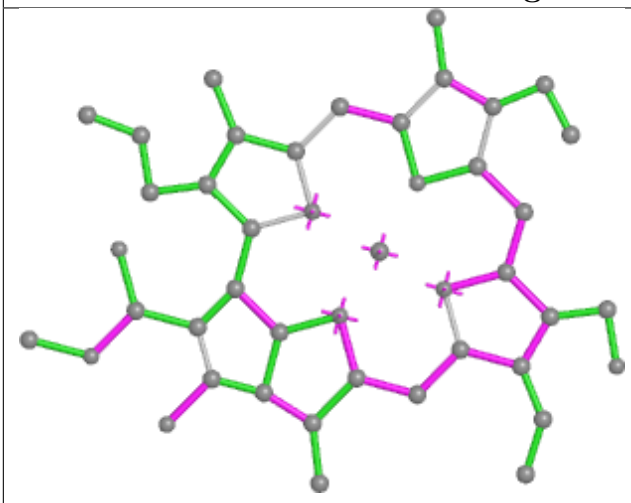


Torsions

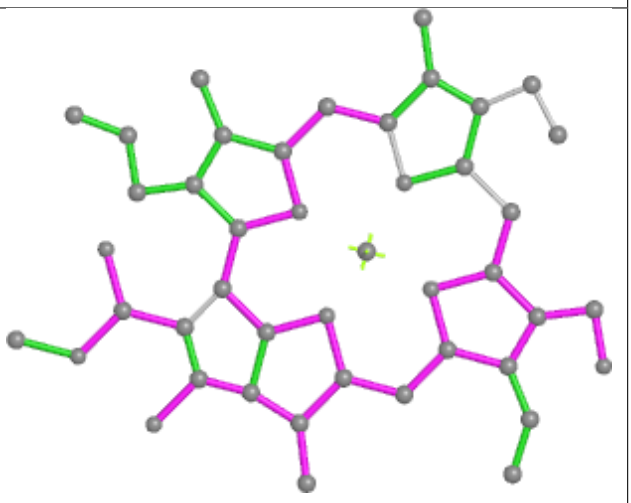


Rings

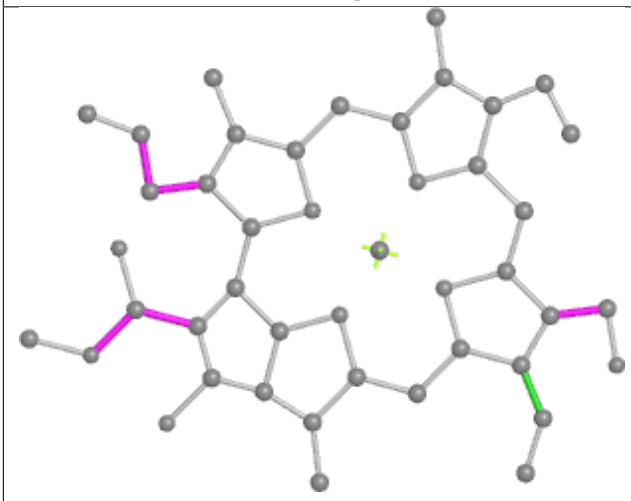
## Ligand CHL C 310



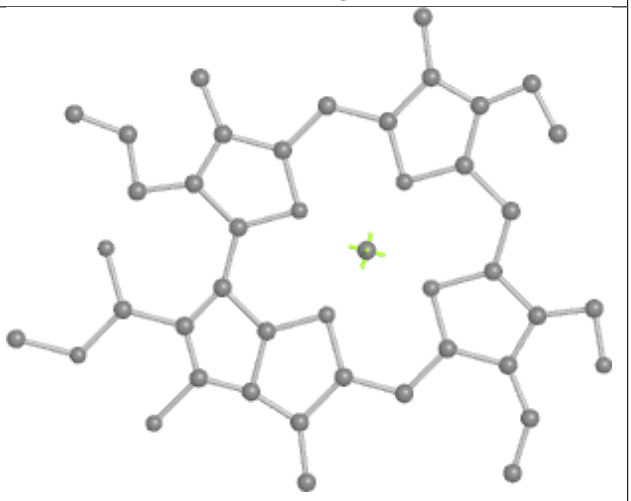
Bond lengths



Bond angles

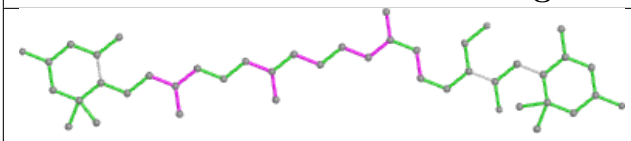


Torsions

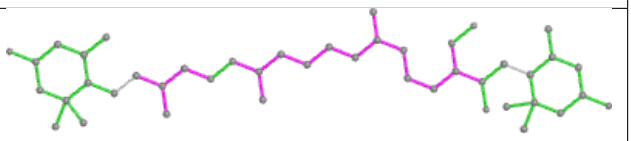


Rings

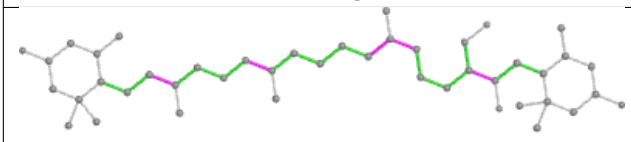
## Ligand 0IE A 301



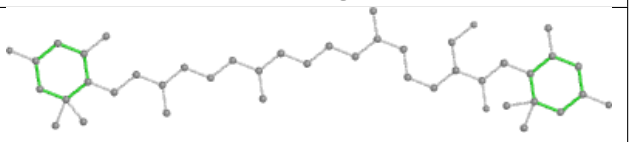
Bond lengths



Bond angles

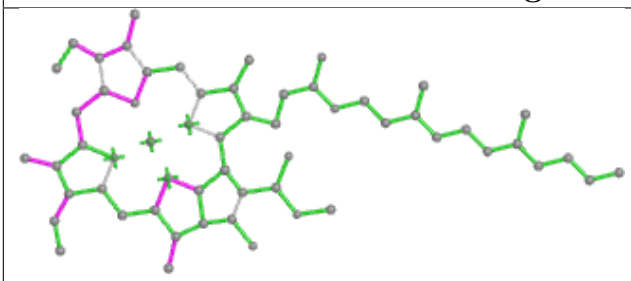


Torsions

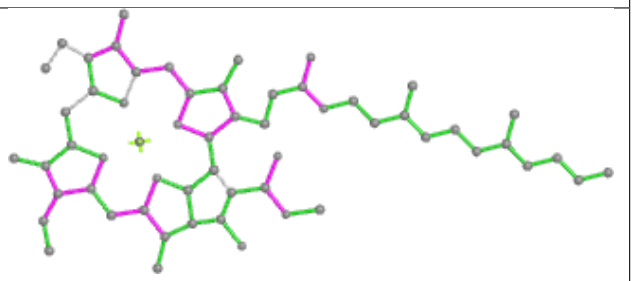


Rings

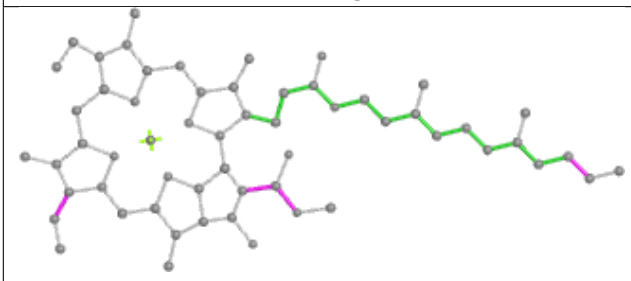
## Ligand CLA B 315



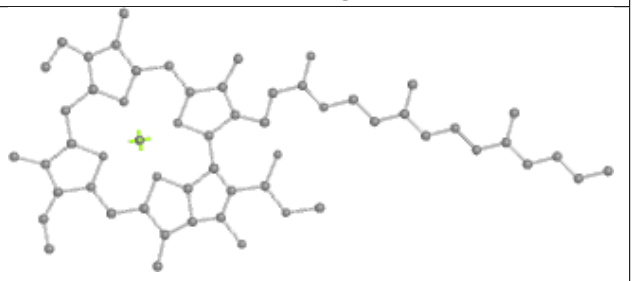
Bond lengths



Bond angles

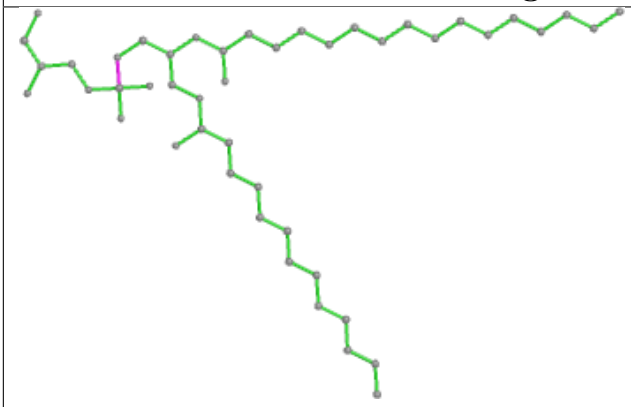


Torsions

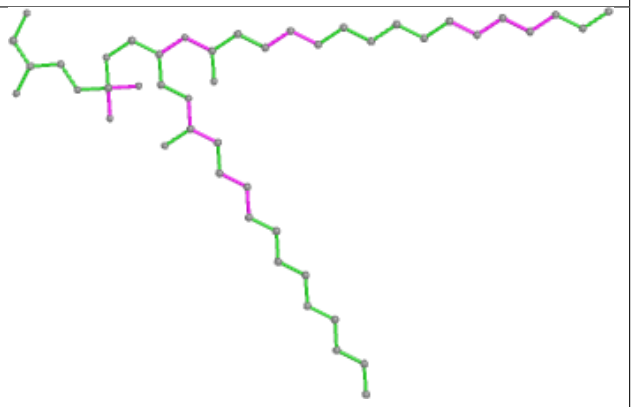


Rings

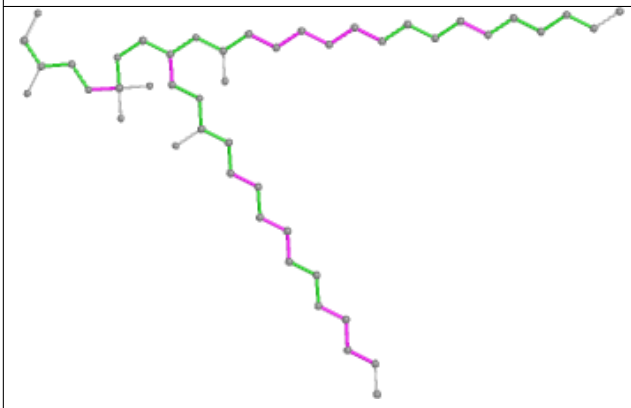
## Ligand LHG D 319



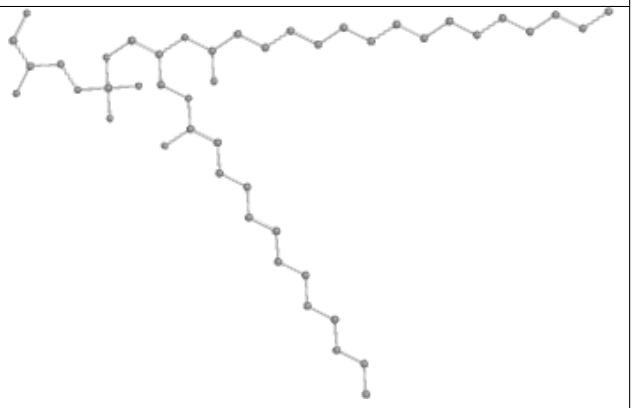
Bond lengths



Bond angles

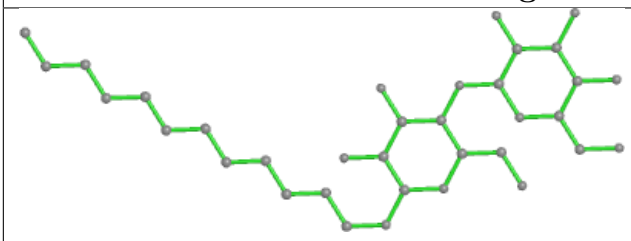


Torsions

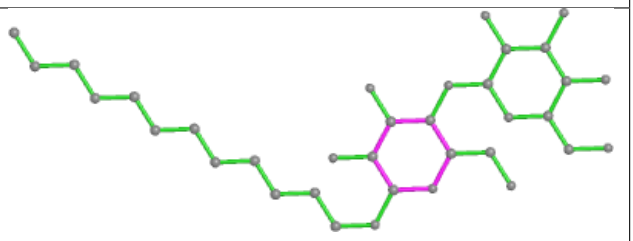


Rings

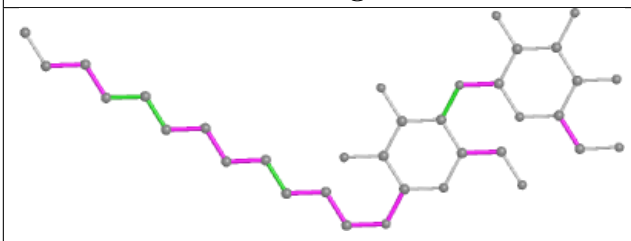
## Ligand LMU D 304



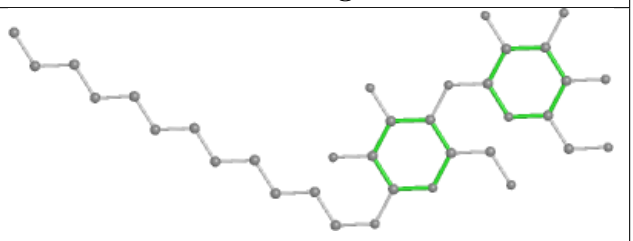
Bond lengths



Bond angles

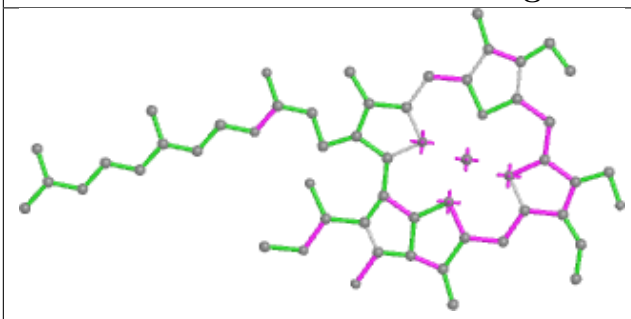


Torsions

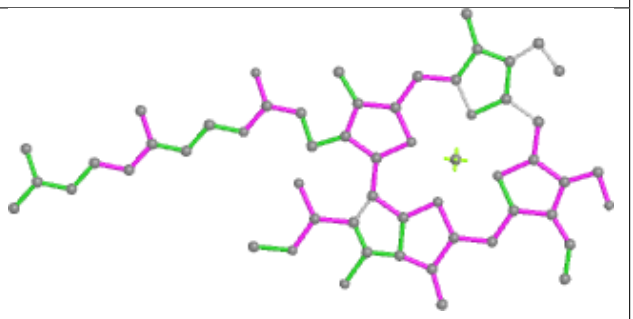


Rings

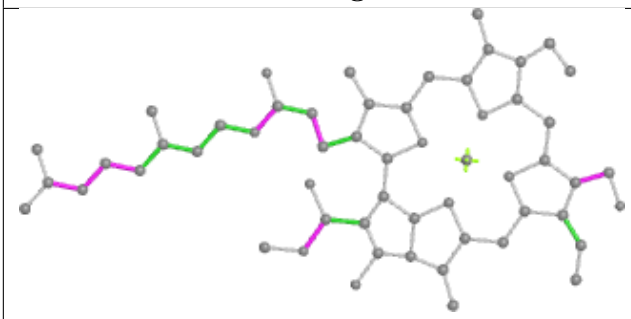
## Ligand CHL C 312



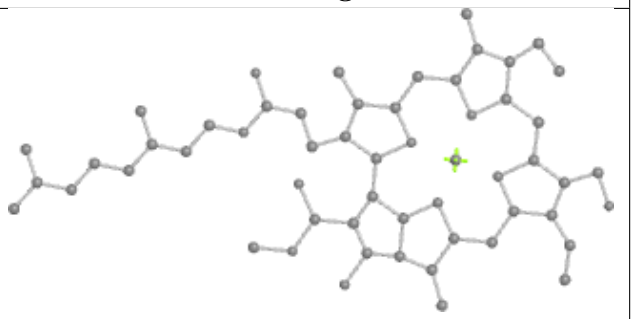
Bond lengths



Bond angles

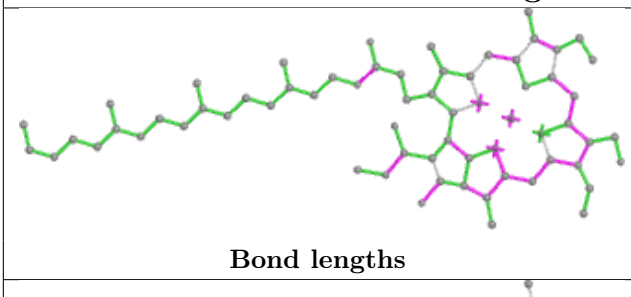


Torsions

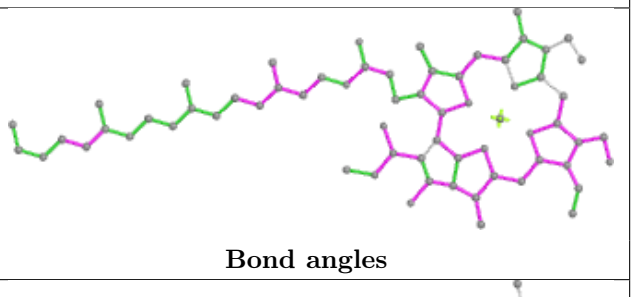


Rings

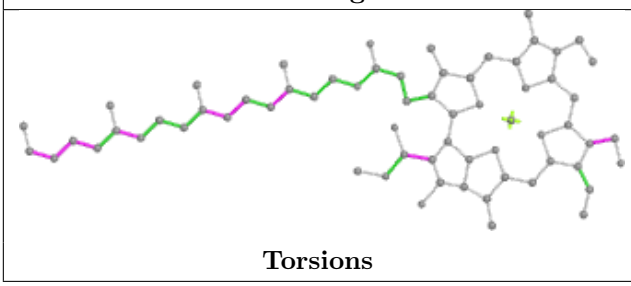
## Ligand CHL B 307



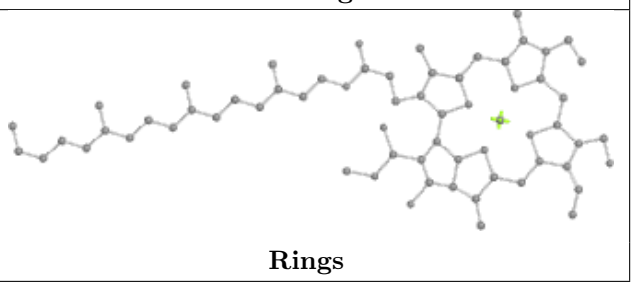
Bond lengths



Bond angles

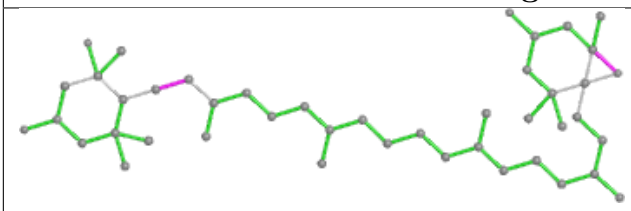


Torsions

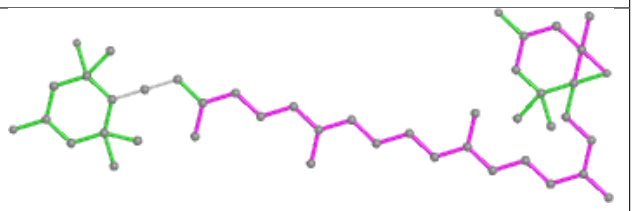


Rings

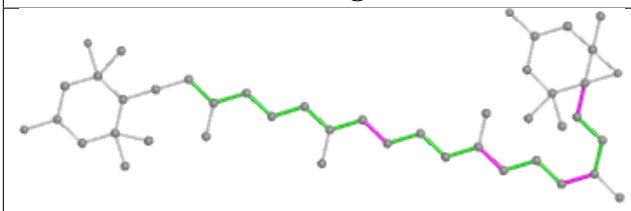
## Ligand NEX D 303



Bond lengths



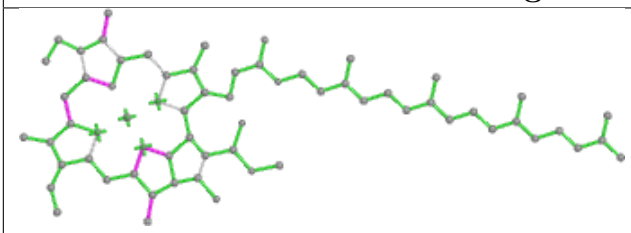
Bond angles



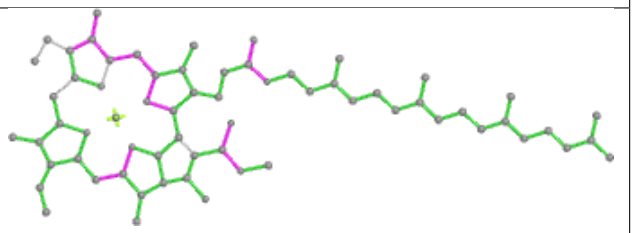
Torsions

Rings

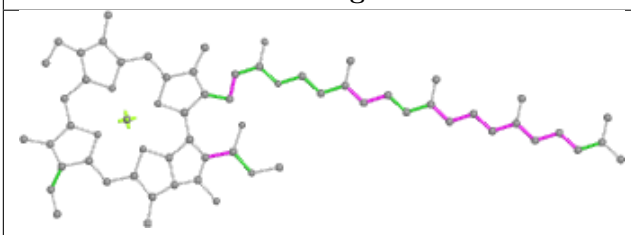
## Ligand CLA B 318



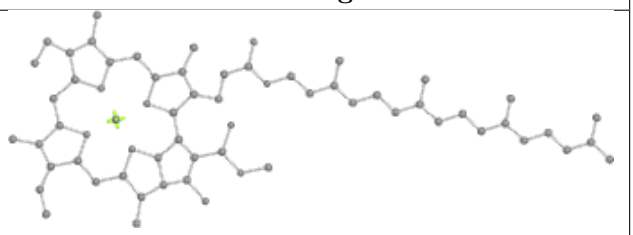
Bond lengths



Bond angles

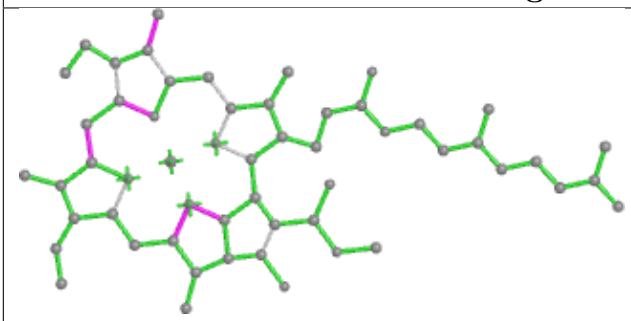


Torsions

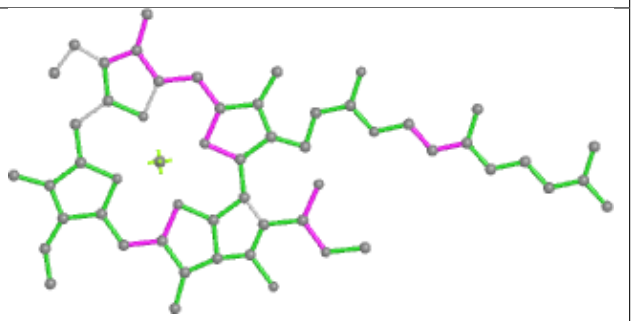


Rings

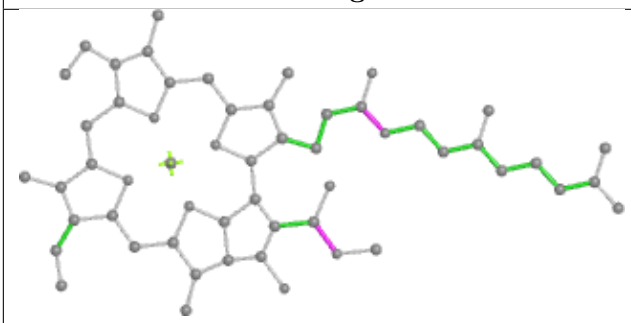
## Ligand CLA F 314



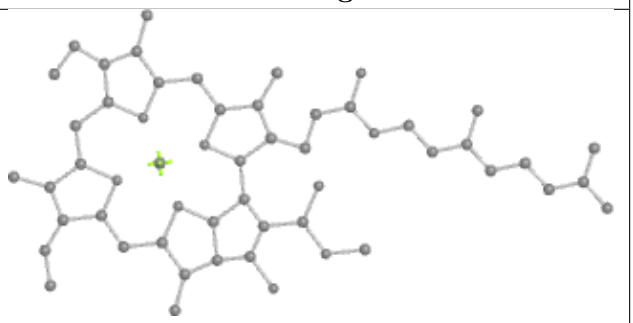
Bond lengths



Bond angles

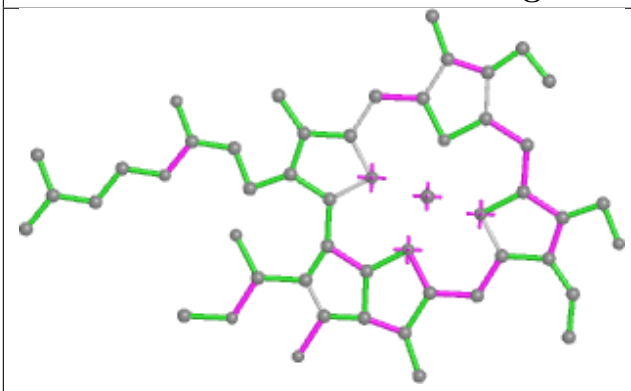


Torsions

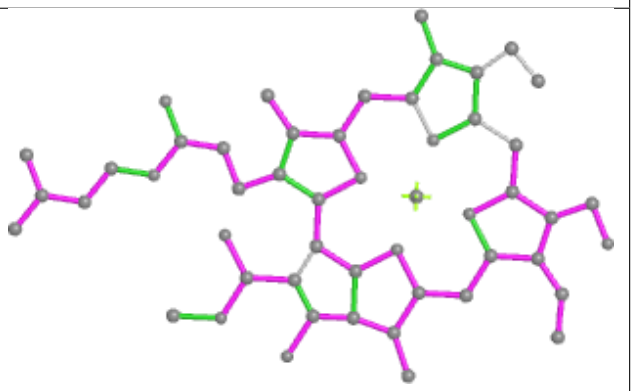


Rings

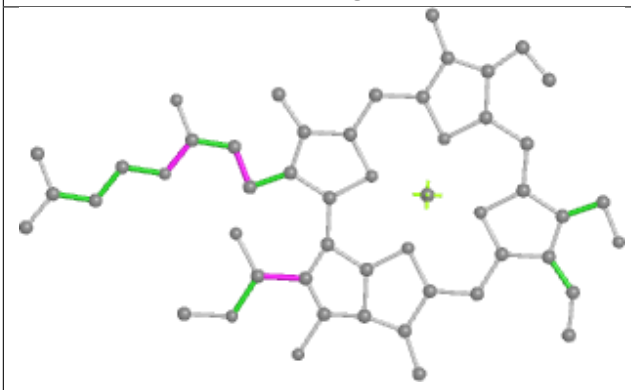
## Ligand CHL A 310



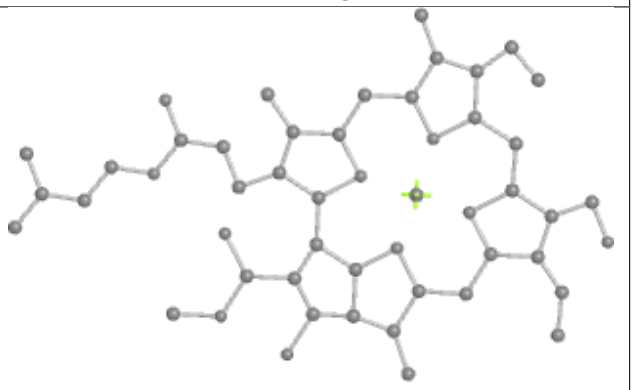
Bond lengths



Bond angles

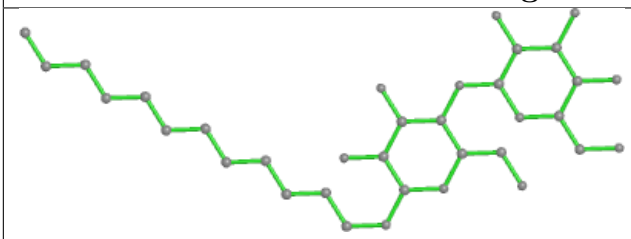


Torsions

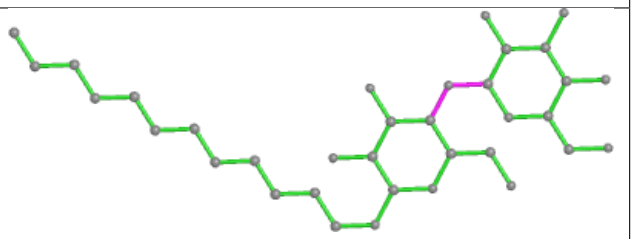


Rings

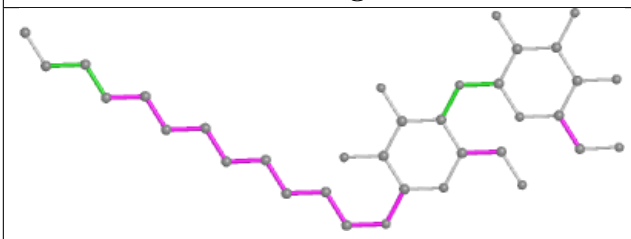
## Ligand LMU E 319



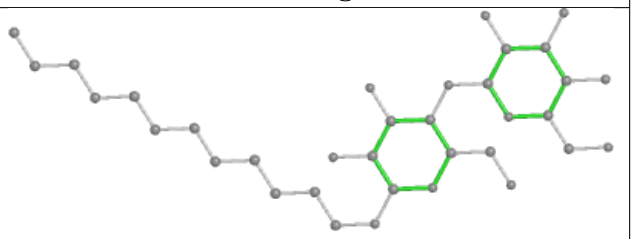
Bond lengths



Bond angles

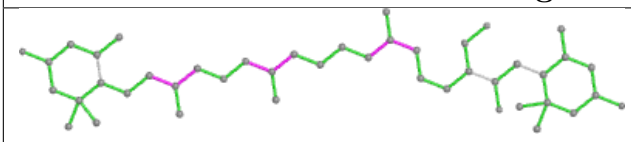


Torsions

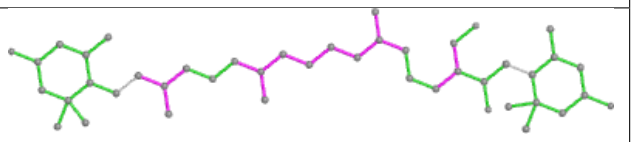


Rings

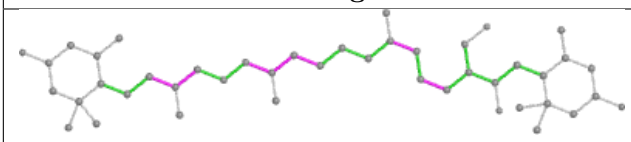
## Ligand 0IE F 302



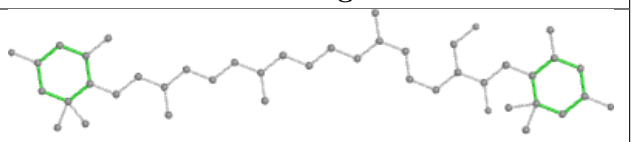
Bond lengths



Bond angles

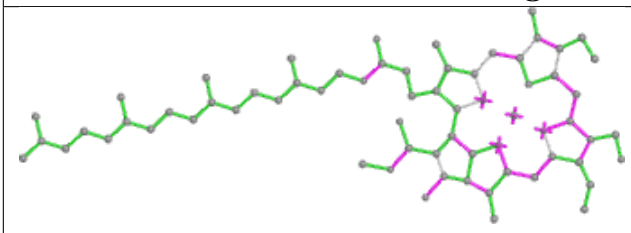


Torsions

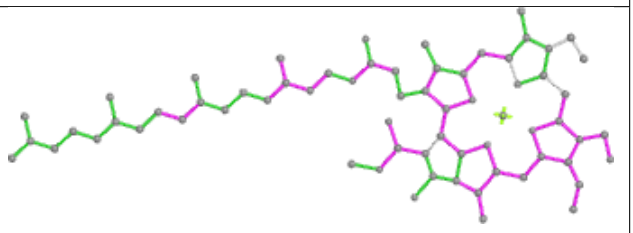


Rings

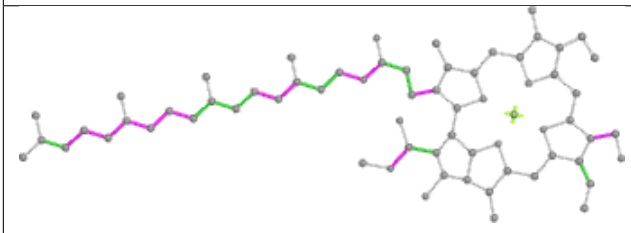
## Ligand CHL B 314



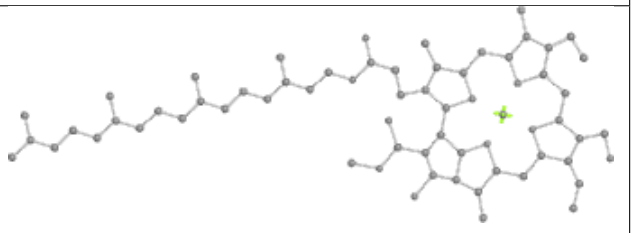
Bond lengths



Bond angles

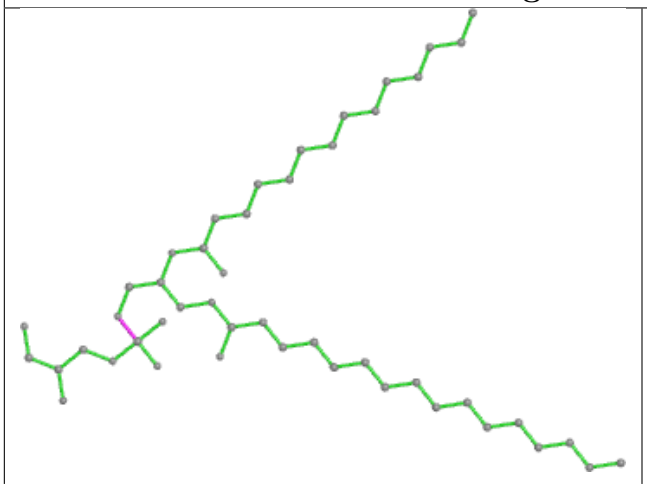


Torsions

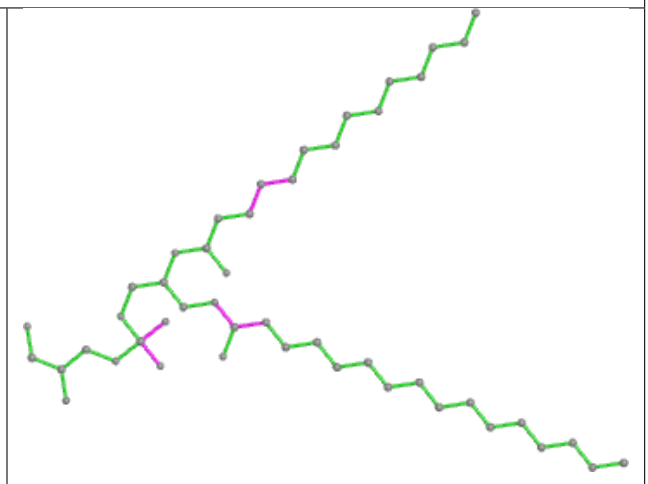


Rings

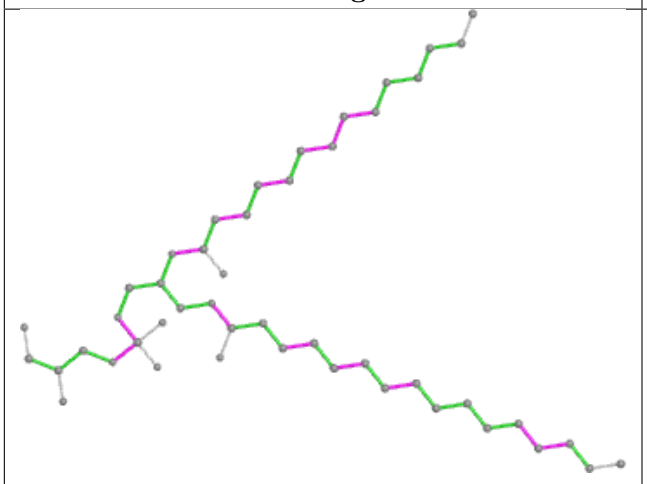
**Ligand LHG A 319**



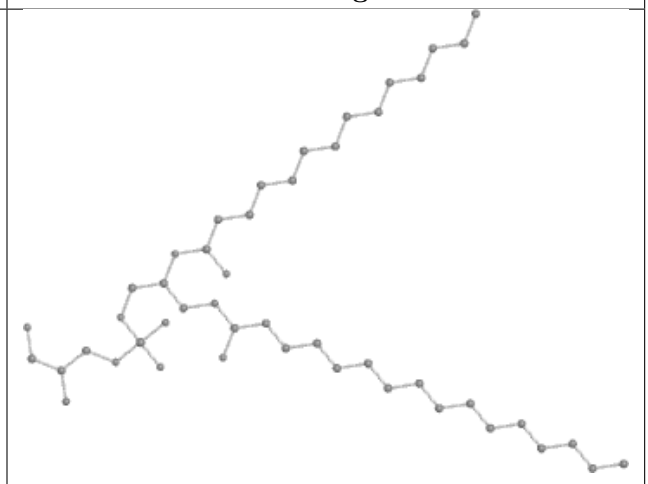
**Bond lengths**



**Bond angles**

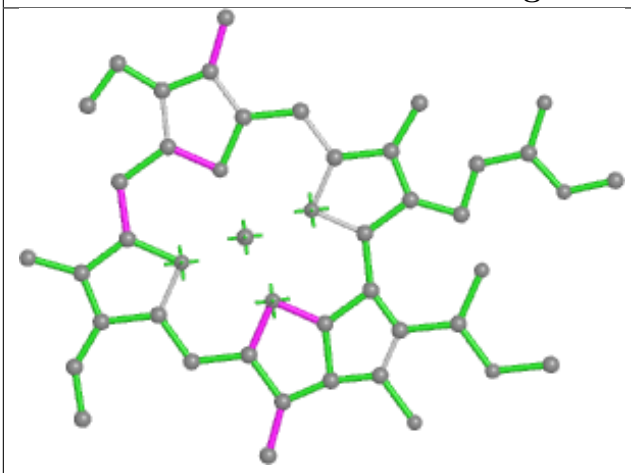


**Torsions**

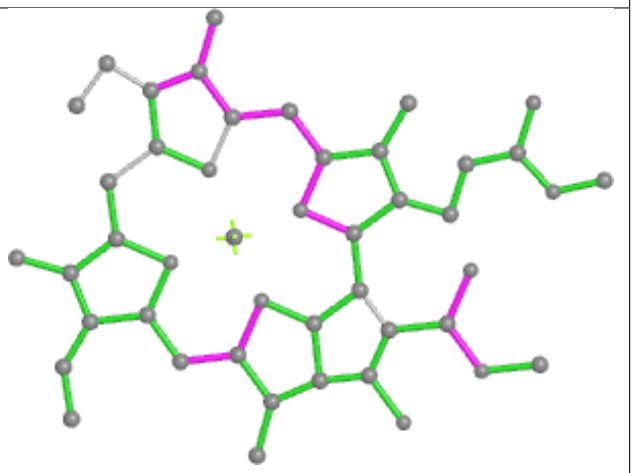


**Rings**

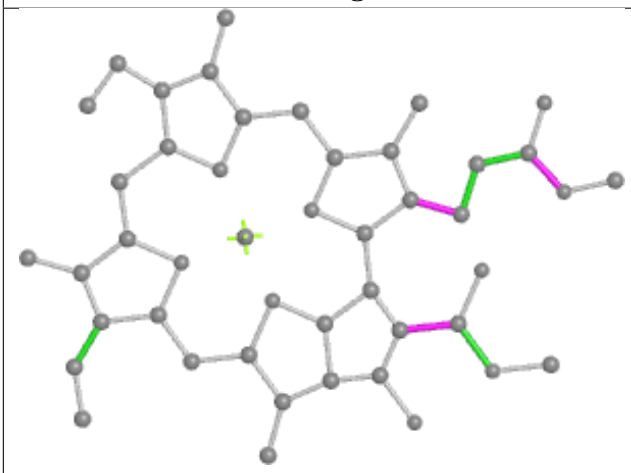
## Ligand CLA D 308



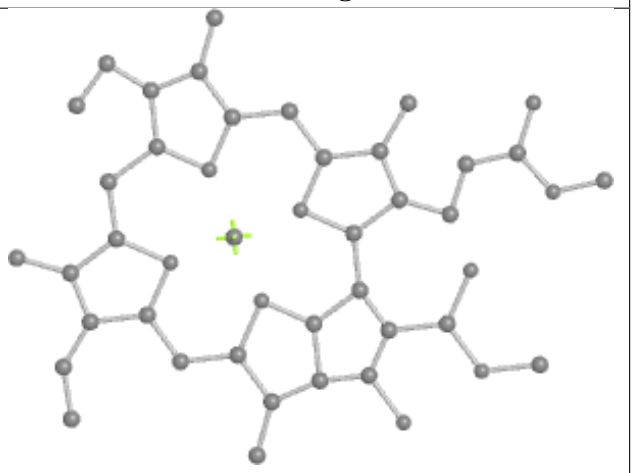
Bond lengths



Bond angles

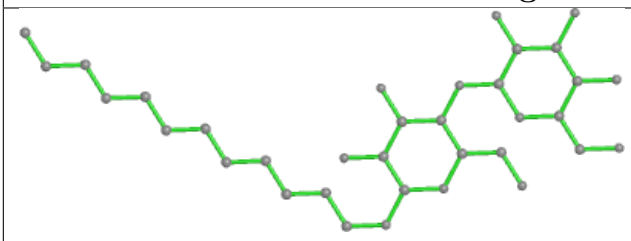


Torsions

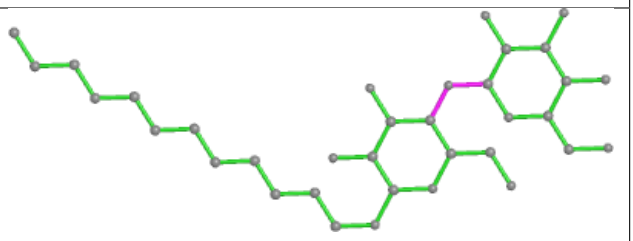


Rings

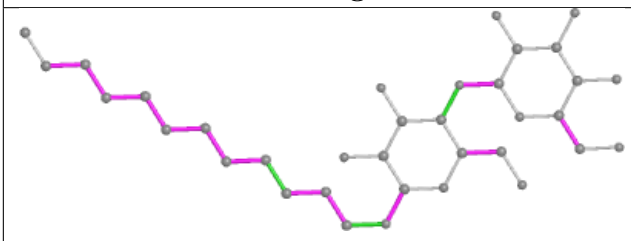
## Ligand LMU A 304



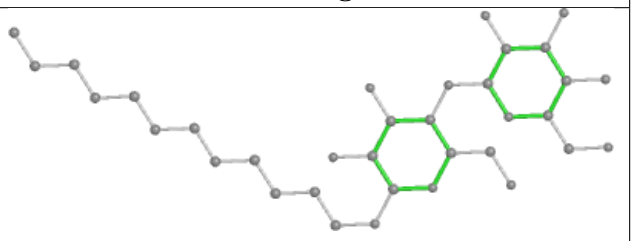
Bond lengths



Bond angles

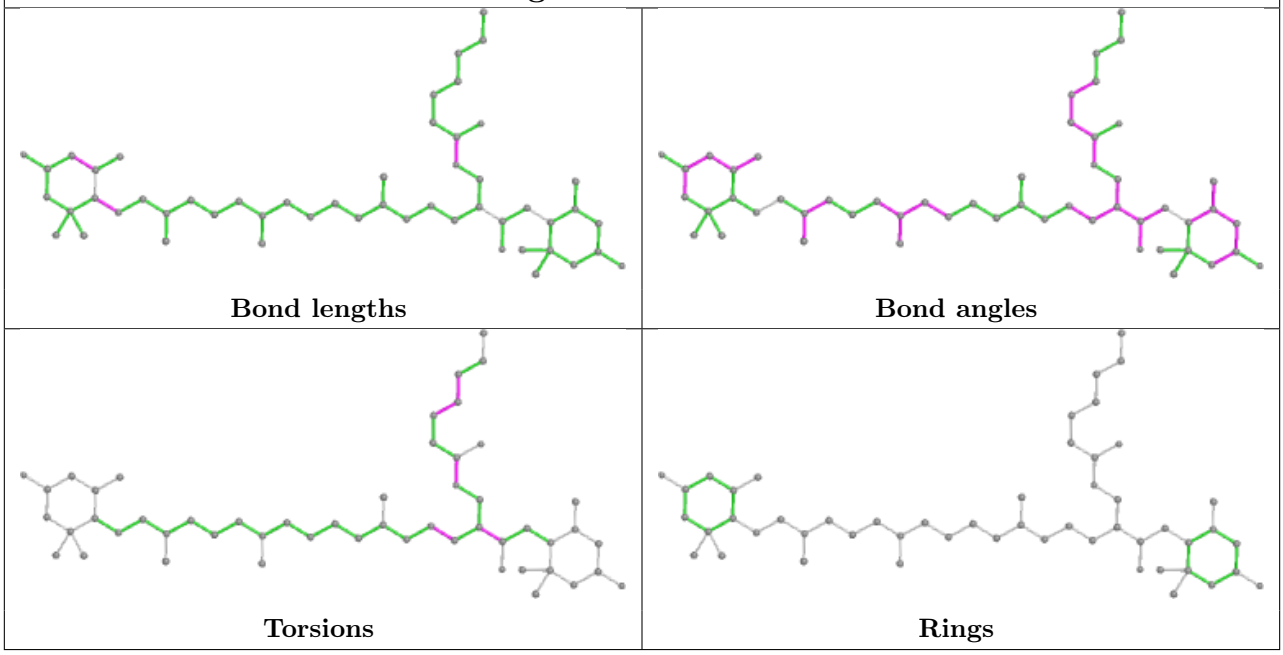


Torsions

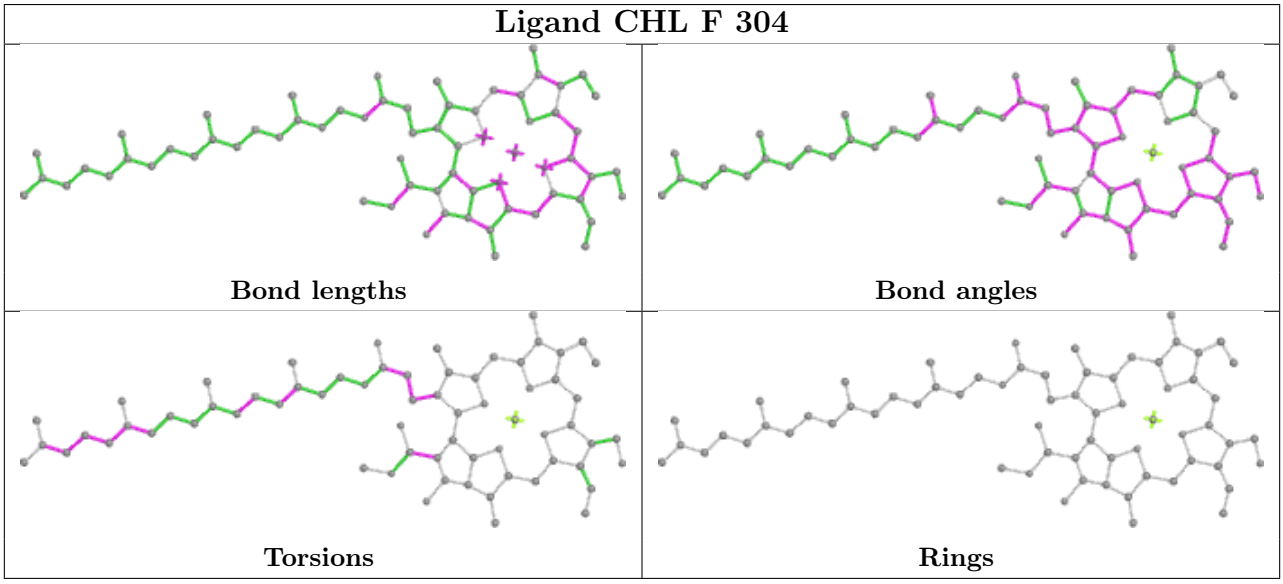


Rings

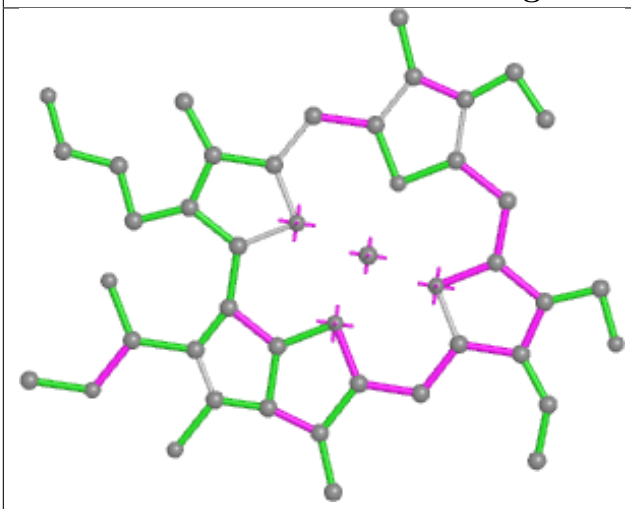
## Ligand 0UR F 320



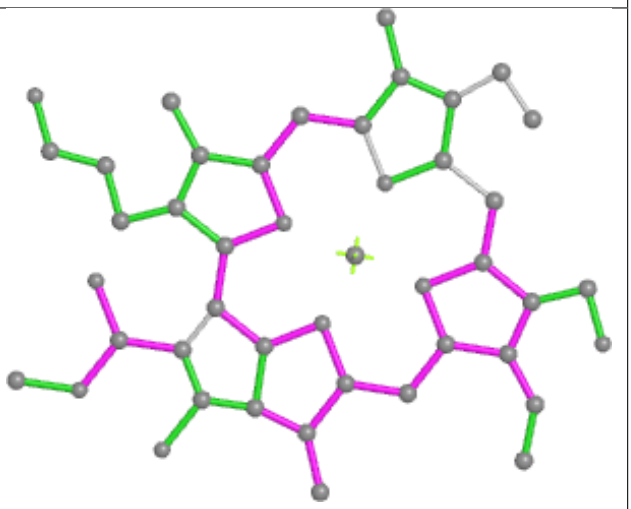

## Ligand CHL F 304



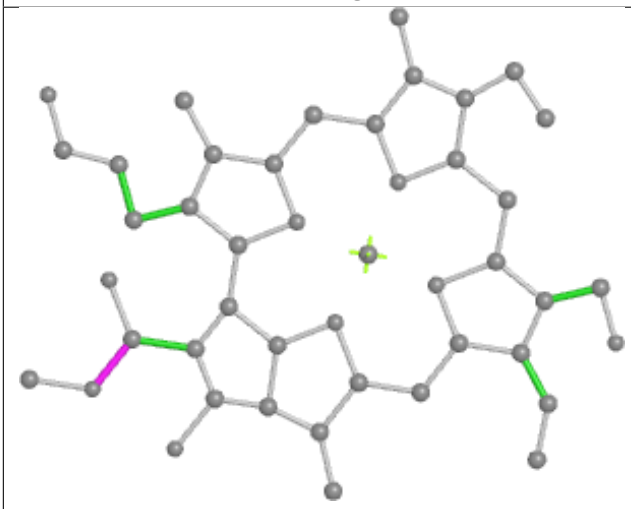
## Ligand CHL D 310



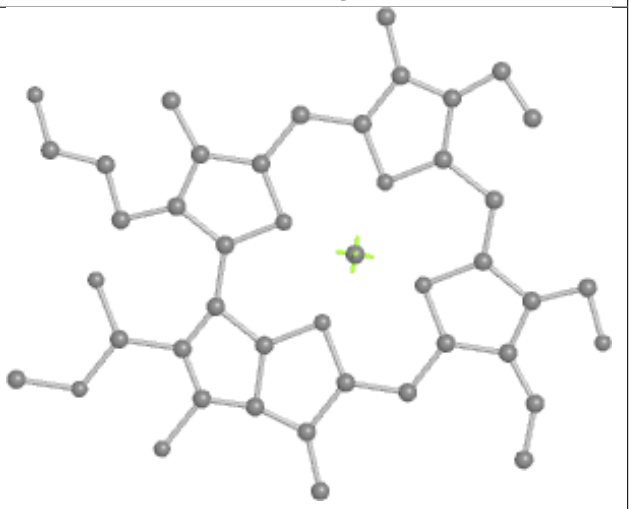
Bond lengths



Bond angles

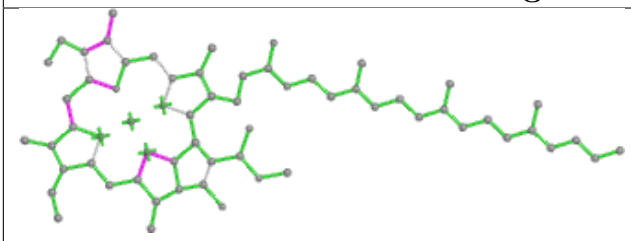


Torsions

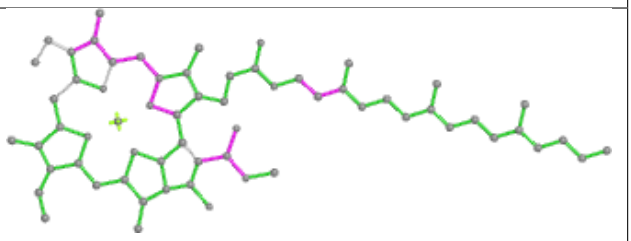


Rings

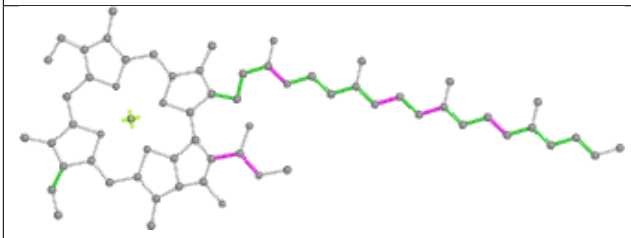
## Ligand CLA A 315



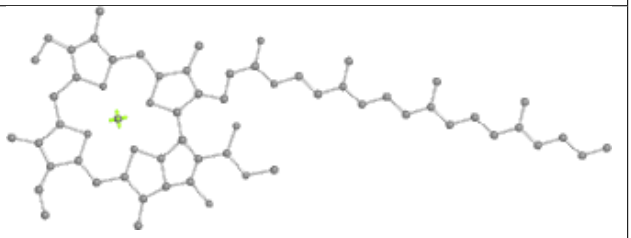
Bond lengths



Bond angles

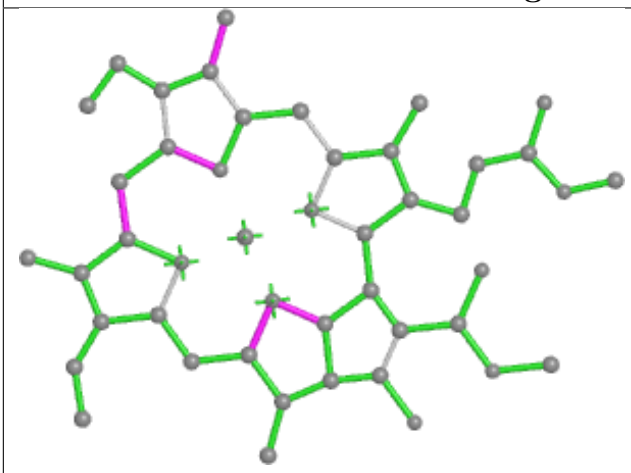


Torsions

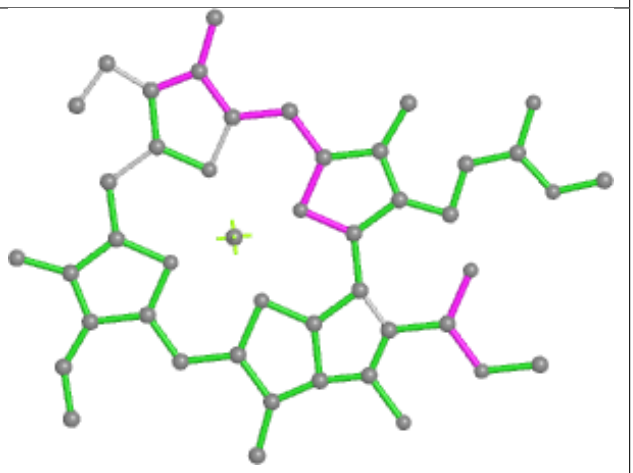


Rings

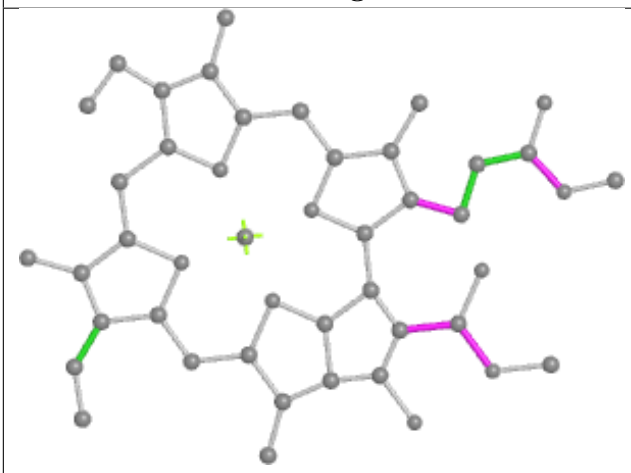
**Ligand CLA C 308**



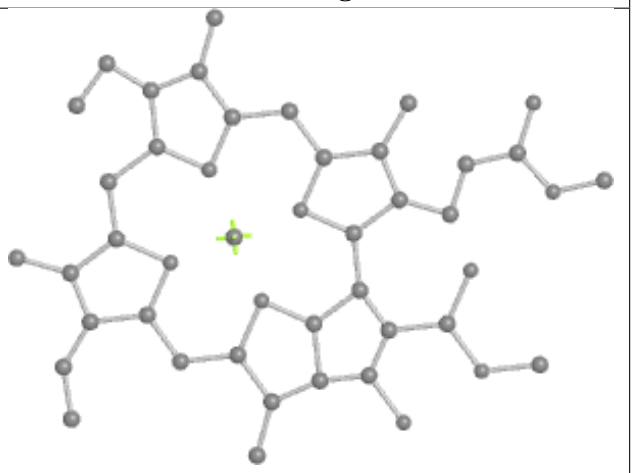
**Bond lengths**



**Bond angles**

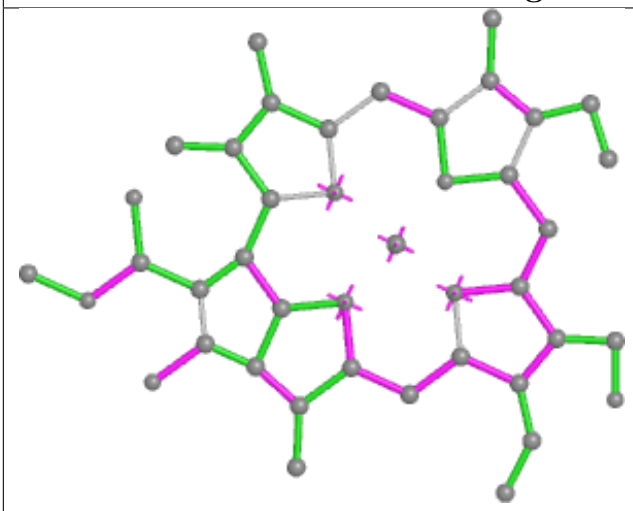


**Torsions**

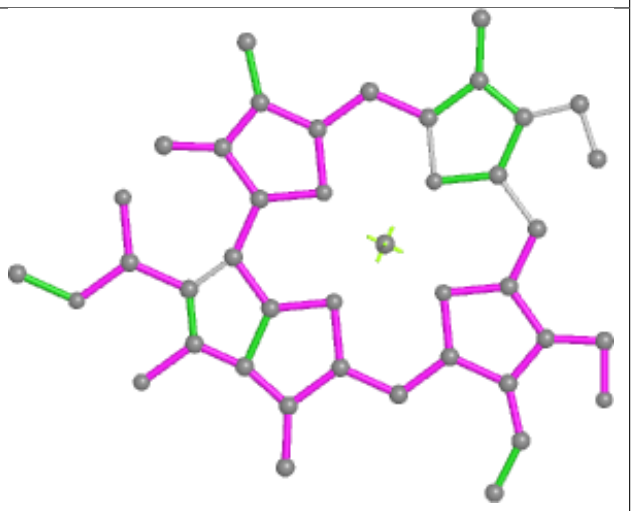


**Rings**

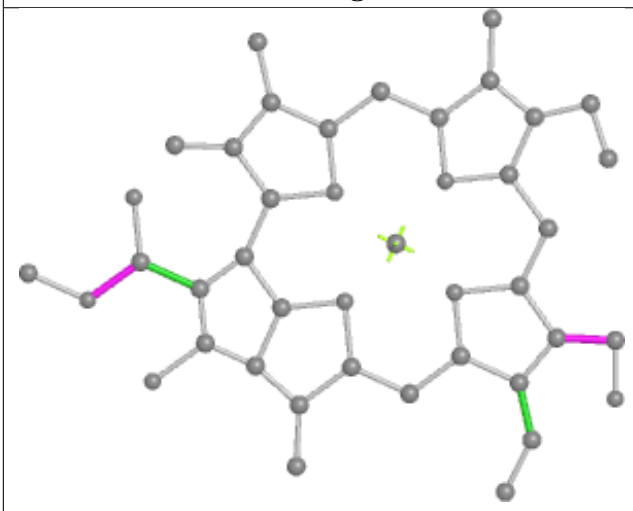
## Ligand CHL F 308



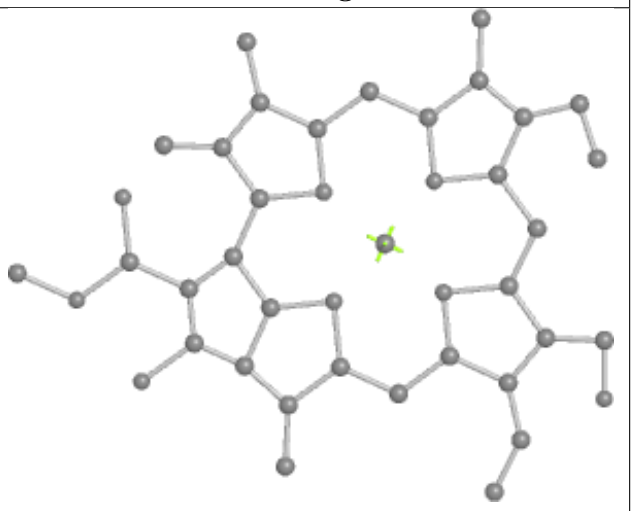
Bond lengths



Bond angles

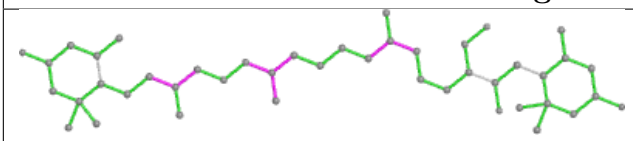


Torsions

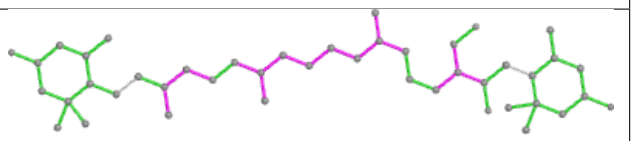


Rings

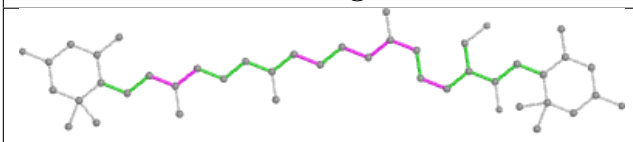
## Ligand 0IE A 302



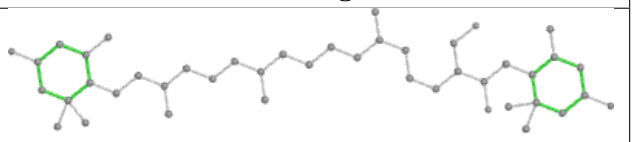
Bond lengths



Bond angles

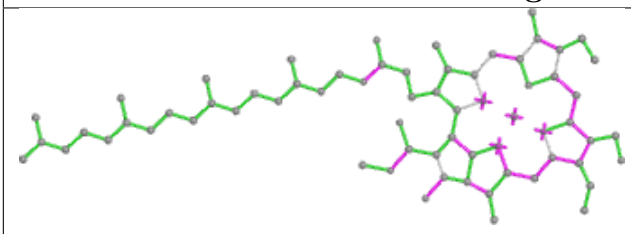


Torsions

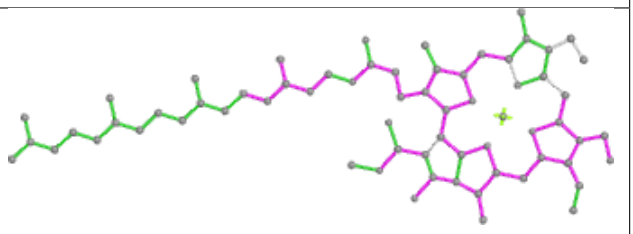


Rings

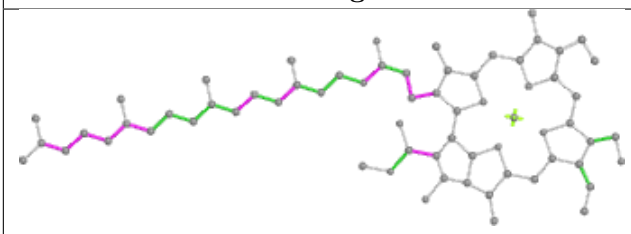
### Ligand CHL E 304



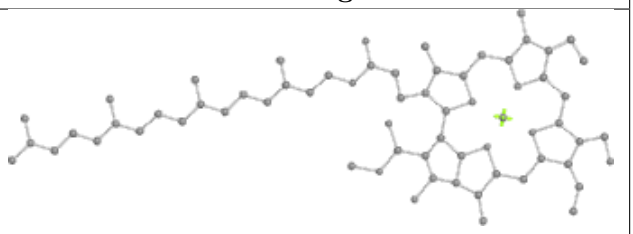
Bond lengths



Bond angles

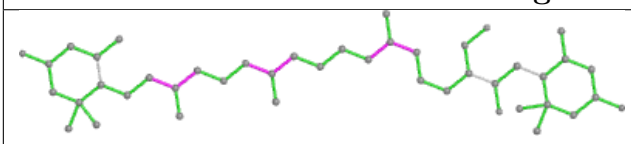


Torsions

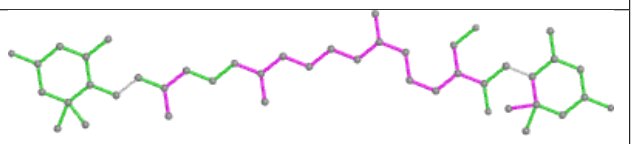


Rings

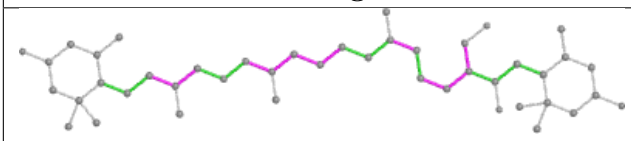
### Ligand 0IE D 302



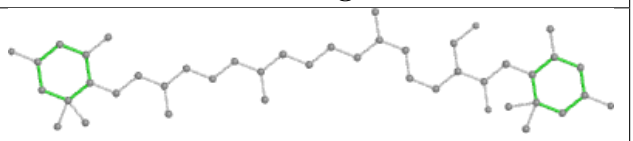
Bond lengths



Bond angles

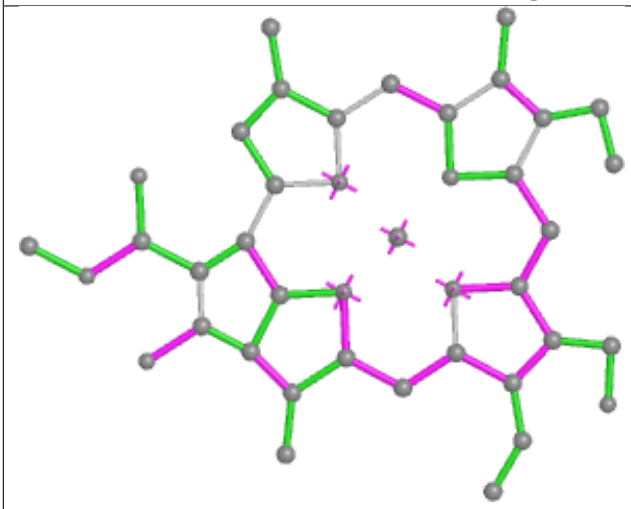


Torsions

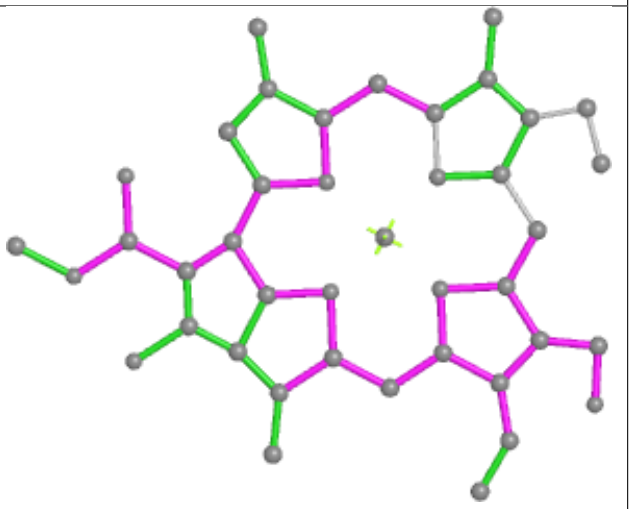


Rings

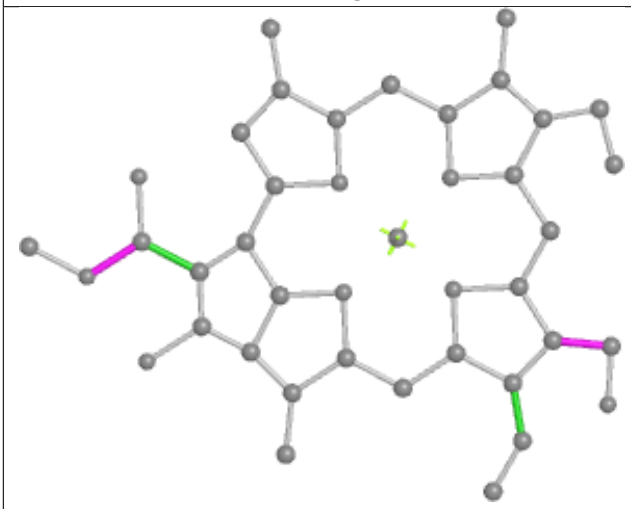
**Ligand CHL E 308**



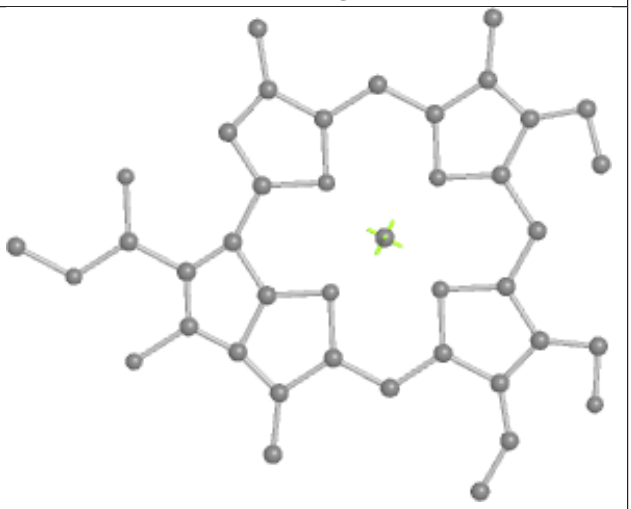
**Bond lengths**



**Bond angles**

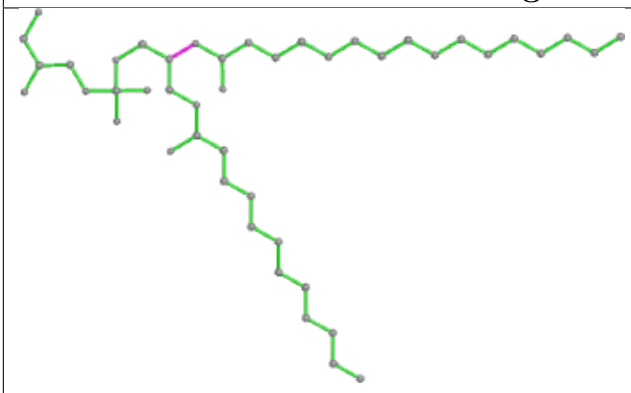


**Torsions**

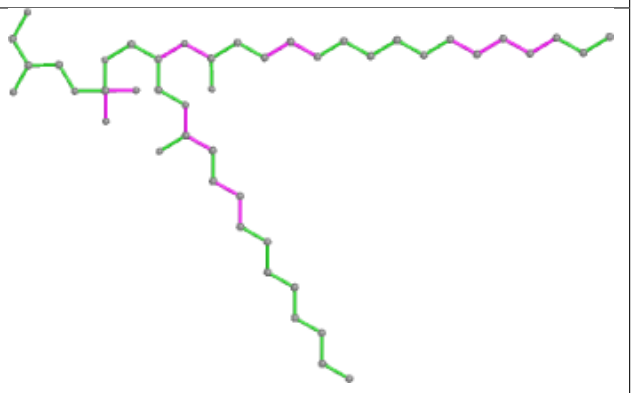


**Rings**

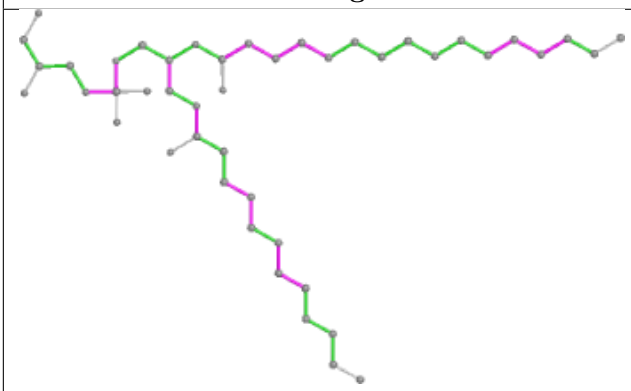
## Ligand LHG C 319



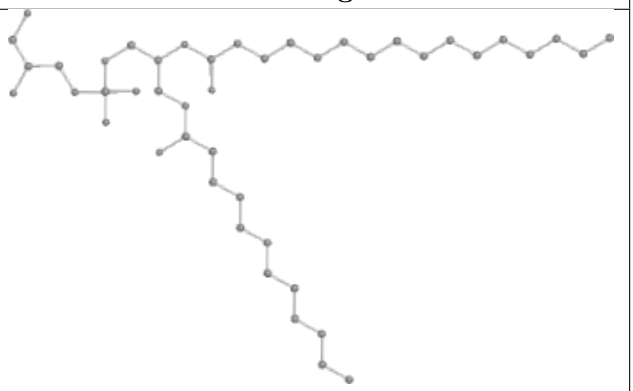
Bond lengths



Bond angles

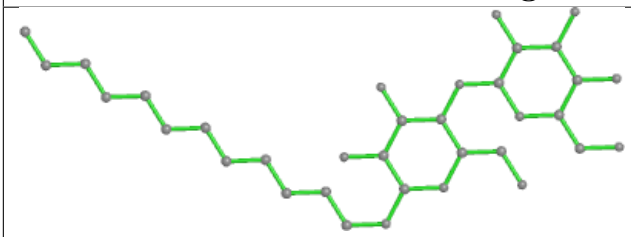


Torsions

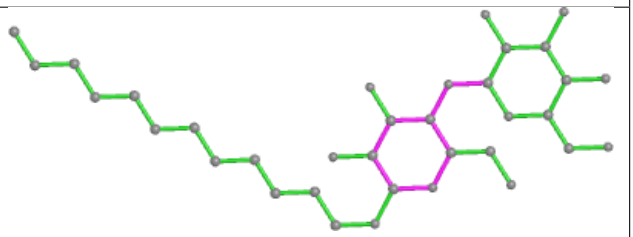


Rings

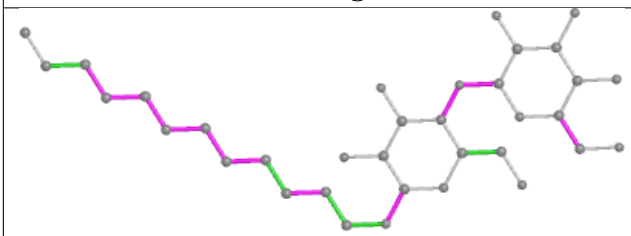
## Ligand LMU B 305



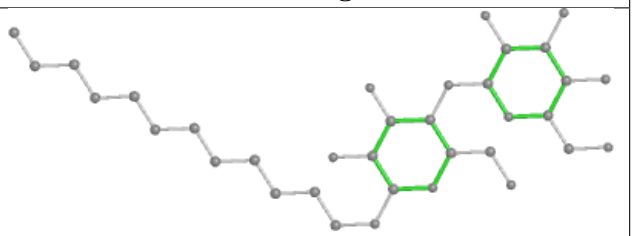
Bond lengths



Bond angles

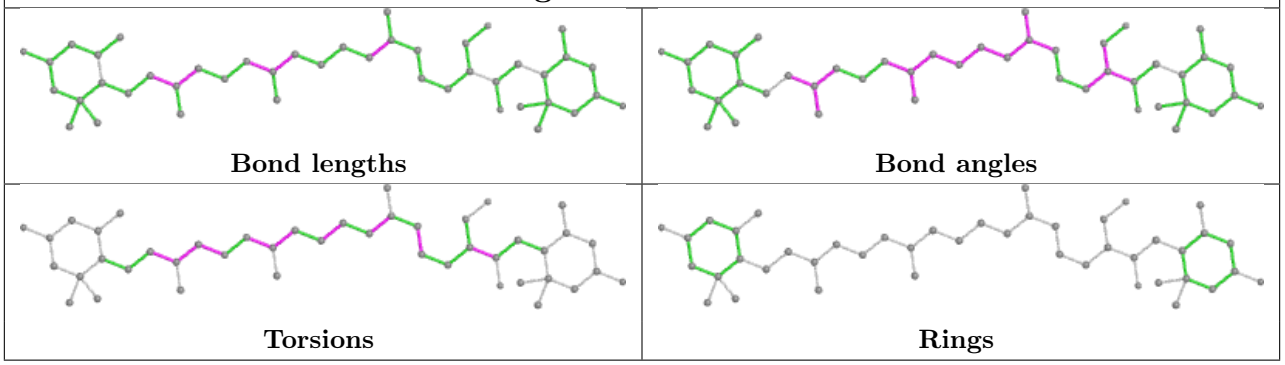


Torsions

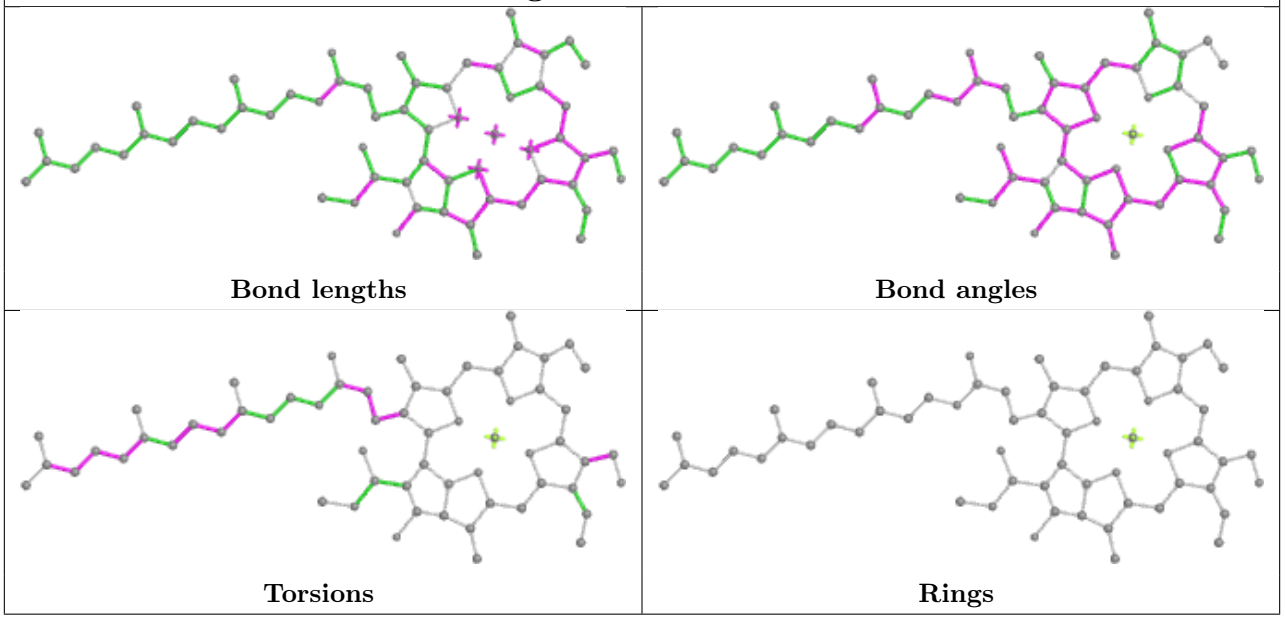


Rings

**Ligand 0IE D 301**




**Ligand CHL F 310**




## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

# 6 Fit of model and data

## 6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, $95^{th}$ percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|
| 1 | A | 223/249 (89%) | 0.39 | 15 (6%) 17 13 | 37, 79, 118, 154 | 0 |
| 1 | B | 223/249 (89%) | 0.19 | 14 (6%) 20 15 | 38, 79, 117, 137 | 0 |
| 1 | C | 222/249 (89%) | 0.15 | 18 (8%) 12 8 | 39, 84, 122, 158 | 0 |
| 1 | D | 223/249 (89%) | 0.32 | 18 (8%) 12 8 | 43, 80, 120, 151 | 0 |
| 1 | E | 223/249 (89%) | 0.55 | 34 (15%) 2 1 | 46, 100, 145, 161 | 0 |
| 1 | F | 223/249 (89%) | 0.25 | 14 (6%) 20 15 | 34, 76, 109, 126 | 0 |
| All | All | 1337/1494 (89%) | 0.31 | 113 (8%) 10 7 | 34, 83, 127, 161 | 0 |

The worst 5 of 113 RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | B | 1 | VAL | 17.1 |
| 1 | F | 1 | VAL | 12.1 |
| 1 | E | 76 | TYR | 8.3 |
| 1 | E | 1 | VAL | 7.4 |
| 1 | E | 165 | LEU | 6.7 |

## 6.2 Non-standard residues in protein, DNA, RNA chains

There are no non-standard protein/DNA/RNA residues in this entry.

## 6.3 Carbohydrates

There are no monosaccharides in this entry.

## 6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, $95^{th}$ percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 11 | LMG | F | 319 | 30/55 | 0.53 | 0.41 | 127,171,183,186 | 0 |
| 4 | LMU | B | 305 | 35/35 | 0.58 | 0.45 | 107,181,190,195 | 0 |
| 10 | BET | B | 322 | 8/8 | 0.66 | 0.21 | 90,114,123,132 | 0 |
| 4 | LMU | E | 319 | 35/35 | 0.67 | 0.33 | 117,171,194,195 | 0 |
| 7 | LHG | C | 304 | 25/49 | 0.68 | 0.35 | 132,176,208,243 | 0 |
| 4 | LMU | A | 304 | 35/35 | 0.69 | 0.50 | 115,156,181,187 | 0 |
| 4 | LMU | B | 304 | 33/35 | 0.70 | 0.35 | 116,148,174,180 | 0 |
| 10 | BET | C | 320 | 8/8 | 0.72 | 0.28 | 112,121,126,133 | 0 |
| 9 | 0UR | B | 325 | 52/57 | 0.72 | 0.32 | 66,89,116,126 | 0 |
| 3 | NEX | A | 303 | 44/44 | 0.73 | 0.42 | 78,96,144,152 | 0 |
| 4 | LMU | D | 304 | 35/35 | 0.73 | 0.40 | 86,132,160,170 | 0 |
| 11 | LMG | B | 323 | 30/55 | 0.74 | 0.39 | 122,164,179,181 | 0 |
| 10 | BET | B | 321 | 8/8 | 0.75 | 0.49 | 85,102,109,114 | 0 |
| 3 | NEX | D | 303 | 44/44 | 0.76 | 0.46 | 65,81,126,145 | 0 |
| 9 | 0UR | D | 321 | 52/57 | 0.77 | 0.26 | 66,89,116,126 | 0 |
| 9 | 0UR | E | 320 | 52/57 | 0.80 | 0.32 | 66,89,116,126 | 0 |
| 3 | NEX | E | 303 | 44/44 | 0.80 | 0.36 | 101,120,167,186 | 0 |
| 9 | 0UR | A | 322 | 52/57 | 0.80 | 0.24 | 66,89,116,126 | 0 |
| 9 | 0UR | F | 320 | 52/57 | 0.81 | 0.26 | 66,89,116,126 | 0 |
| 7 | LHG | B | 324 | 31/49 | 0.81 | 0.26 | 56,98,121,145 | 0 |
| 8 | MG | A | 321 | 1/1 | 0.81 | 0.77 | 74,74,74,74 | 0 |
| 8 | MG | A | 320 | 1/1 | 0.84 | 0.18 | 83,83,83,83 | 0 |
| 9 | 0UR | C | 321 | 52/57 | 0.84 | 0.22 | 66,89,116,126 | 0 |
| 3 | NEX | B | 303 | 44/44 | 0.85 | 0.24 | 76,95,144,165 | 0 |
| 2 | 0IE | A | 301 | 44/44 | 0.85 | 0.32 | 37,50,66,77 | 0 |
| 6 | CLA | D | 317 | 65/65 | 0.85 | 0.24 | 66,85,110,114 | 0 |
| 2 | 0IE | D | 302 | 44/44 | 0.86 | 0.17 | 74,87,104,108 | 0 |
| 7 | LHG | A | 319 | 47/49 | 0.87 | 0.26 | 49,74,99,106 | 0 |
| 3 | NEX | F | 303 | 44/44 | 0.87 | 0.22 | 71,92,168,179 | 0 |
| 2 | 0IE | A | 302 | 44/44 | 0.88 | 0.21 | 55,73,85,103 | 0 |
| 9 | 0UR | B | 302 | 50/57 | 0.88 | 0.26 | 67,87,107,123 | 0 |
| 5 | CHL | E | 310 | 61/66 | 0.88 | 0.22 | 62,79,92,98 | 0 |
| 5 | CHL | E | 312 | 66/66 | 0.88 | 0.24 | 46,76,90,100 | 0 |
| 7 | LHG | C | 319 | 45/49 | 0.89 | 0.20 | 59,84,108,139 | 0 |
| 5 | CHL | A | 312 | 56/66 | 0.89 | 0.23 | 51,74,104,117 | 0 |
| 2 | 0IE | F | 301 | 44/44 | 0.89 | 0.26 | 29,43,65,81 | 0 |
| 5 | CHL | E | 311 | 56/66 | 0.89 | 0.33 | 94,112,141,146 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 5 | CHL | A | 310 | 51/66 | 0.89 | 0.22 | 59,90,124,133 | 0 |
| 5 | CHL | F | 309 | 42/66 | 0.90 | 0.18 | 62,80,94,103 | 0 |
| 7 | LHG | F | 318 | 45/49 | 0.90 | 0.22 | 42,63,78,85 | 0 |
| 6 | CLA | A | 308 | 50/65 | 0.90 | 0.20 | 68,88,102,119 | 0 |
| 6 | CLA | A | 315 | 63/65 | 0.90 | 0.26 | 66,86,99,109 | 0 |
| 5 | CHL | D | 306 | 65/66 | 0.90 | 0.29 | 42,58,76,89 | 0 |
| 2 | 0IE | B | 301 | 44/44 | 0.90 | 0.26 | 33,46,75,79 | 0 |
| 5 | CHL | B | 310 | 43/66 | 0.90 | 0.38 | 95,121,136,143 | 0 |
| 5 | CHL | C | 311 | 61/66 | 0.90 | 0.24 | 51,68,84,92 | 0 |
| 2 | 0IE | F | 302 | 44/44 | 0.91 | 0.17 | 50,64,77,81 | 0 |
| 5 | CHL | D | 318 | 46/66 | 0.91 | 0.16 | 86,105,120,121 | 0 |
| 5 | CHL | A | 318 | 42/66 | 0.91 | 0.18 | 66,89,100,101 | 0 |
| 2 | 0IE | E | 302 | 44/44 | 0.91 | 0.27 | 57,75,105,125 | 0 |
| 5 | CHL | B | 311 | 51/66 | 0.91 | 0.22 | 71,90,122,134 | 0 |
| 5 | CHL | C | 310 | 44/66 | 0.91 | 0.20 | 66,86,104,107 | 0 |
| 2 | 0IE | E | 301 | 44/44 | 0.91 | 0.20 | 44,68,86,99 | 0 |
| 5 | CHL | C | 312 | 56/66 | 0.91 | 0.25 | 62,90,116,122 | 0 |
| 6 | CLA | B | 318 | 65/65 | 0.91 | 0.23 | 58,84,98,101 | 0 |
| 6 | CLA | C | 315 | 65/65 | 0.91 | 0.39 | 72,104,124,139 | 0 |
| 3 | NEX | C | 303 | 44/44 | 0.92 | 0.30 | 75,94,147,175 | 0 |
| 2 | 0IE | D | 301 | 44/44 | 0.92 | 0.26 | 44,58,74,85 | 0 |
| 5 | CHL | F | 308 | 42/66 | 0.92 | 0.43 | 93,110,123,128 | 0 |
| 5 | CHL | D | 305 | 66/66 | 0.92 | 0.20 | 59,85,100,108 | 0 |
| 7 | LHG | D | 319 | 46/49 | 0.92 | 0.19 | 66,87,101,108 | 0 |
| 5 | CHL | B | 313 | 57/66 | 0.92 | 0.20 | 59,84,104,105 | 0 |
| 5 | CHL | D | 313 | 66/66 | 0.92 | 0.24 | 33,50,74,96 | 0 |
| 5 | CHL | B | 314 | 66/66 | 0.92 | 0.24 | 41,61,77,91 | 0 |
| 5 | CHL | E | 305 | 64/66 | 0.92 | 0.23 | 44,65,79,95 | 0 |
| 2 | 0IE | C | 301 | 44/44 | 0.92 | 0.22 | 35,54,75,81 | 0 |
| 5 | CHL | A | 313 | 66/66 | 0.93 | 0.34 | 43,58,76,95 | 0 |
| 2 | 0IE | C | 302 | 44/44 | 0.93 | 0.20 | 57,77,101,107 | 0 |
| 5 | CHL | D | 309 | 42/66 | 0.93 | 0.25 | 86,109,121,128 | 0 |
| 5 | CHL | F | 304 | 66/66 | 0.93 | 0.21 | 41,58,70,84 | 0 |
| 5 | CHL | D | 310 | 45/66 | 0.93 | 0.15 | 52,77,90,91 | 0 |
| 5 | CHL | D | 311 | 62/66 | 0.93 | 0.19 | 40,72,88,94 | 0 |
| 5 | CHL | F | 310 | 61/66 | 0.93 | 0.20 | 49,65,80,89 | 0 |
| 5 | CHL | F | 311 | 56/66 | 0.93 | 0.20 | 55,83,110,118 | 0 |
| 5 | CHL | F | 312 | 66/66 | 0.93 | 0.25 | 45,61,77,86 | 0 |
| 5 | CHL | F | 317 | 46/66 | 0.93 | 0.20 | 63,83,106,122 | 0 |
| 5 | CHL | A | 311 | 61/66 | 0.93 | 0.19 | 51,70,82,97 | 0 |
| 6 | CLA | A | 314 | 55/65 | 0.93 | 0.15 | 60,71,85,87 | 0 |
| 5 | CHL | A | 309 | 43/66 | 0.93 | 0.28 | 103,123,135,140 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 6 | CLA | B | 315 | 58/65 | 0.93 | 0.23 | 65,76,100,107 | 0 |
| 5 | CHL | E | 304 | 66/66 | 0.93 | 0.21 | 54,75,102,137 | 0 |
| 5 | CHL | B | 312 | 62/66 | 0.93 | 0.19 | 51,68,84,93 | 0 |
| 6 | CLA | D | 314 | 58/65 | 0.93 | 0.23 | 60,76,97,101 | 0 |
| 5 | CHL | E | 308 | 41/66 | 0.93 | 0.26 | 119,142,157,160 | 0 |
| 6 | CLA | E | 307 | 50/65 | 0.93 | 0.17 | 89,108,130,132 | 0 |
| 6 | CLA | E | 314 | 63/65 | 0.93 | 0.29 | 89,121,136,151 | 0 |
| 6 | CLA | F | 314 | 55/65 | 0.94 | 0.23 | 51,63,93,103 | 0 |
| 6 | CLA | F | 316 | 56/65 | 0.94 | 0.17 | 54,68,79,90 | 0 |
| 5 | CHL | C | 309 | 42/66 | 0.94 | 0.34 | 92,113,122,129 | 0 |
| 7 | LHG | B | 320 | 46/49 | 0.94 | 0.18 | 50,74,88,106 | 0 |
| 5 | CHL | F | 305 | 66/66 | 0.94 | 0.29 | 29,43,59,71 | 0 |
| 6 | CLA | A | 317 | 55/65 | 0.94 | 0.16 | 48,77,87,97 | 0 |
| 6 | CLA | B | 309 | 46/65 | 0.94 | 0.16 | 72,88,99,103 | 0 |
| 5 | CHL | A | 305 | 66/66 | 0.94 | 0.20 | 45,73,91,106 | 0 |
| 7 | LHG | E | 318 | 41/49 | 0.94 | 0.16 | 55,85,121,144 | 0 |
| 6 | CLA | B | 317 | 45/65 | 0.94 | 0.19 | 74,82,99,112 | 0 |
| 5 | CHL | C | 305 | 66/66 | 0.94 | 0.19 | 51,71,86,102 | 0 |
| 6 | CLA | C | 314 | 53/65 | 0.94 | 0.20 | 79,97,118,126 | 0 |
| 5 | CHL | C | 306 | 66/66 | 0.94 | 0.24 | 34,58,71,87 | 0 |
| 6 | CLA | C | 316 | 45/65 | 0.94 | 0.20 | 77,95,118,123 | 0 |
| 5 | CHL | E | 309 | 43/66 | 0.94 | 0.15 | 89,105,127,130 | 0 |
| 6 | CLA | D | 315 | 65/65 | 0.94 | 0.26 | 79,95,107,112 | 0 |
| 6 | CLA | D | 316 | 45/65 | 0.94 | 0.17 | 81,85,101,105 | 0 |
| 5 | CHL | C | 313 | 66/66 | 0.94 | 0.21 | 46,63,80,86 | 0 |
| 5 | CHL | D | 312 | 57/66 | 0.94 | 0.17 | 44,63,94,103 | 0 |
| 6 | CLA | E | 313 | 55/65 | 0.94 | 0.22 | 100,112,130,140 | 0 |
| 5 | CHL | C | 318 | 44/66 | 0.94 | 0.15 | 70,96,112,129 | 0 |
| 6 | CLA | E | 315 | 45/65 | 0.94 | 0.20 | 100,118,132,138 | 0 |
| 6 | CLA | F | 307 | 46/65 | 0.94 | 0.14 | 61,79,91,96 | 0 |
| 6 | CLA | F | 313 | 58/65 | 0.94 | 0.19 | 58,70,101,102 | 0 |
| 5 | CHL | E | 317 | 41/66 | 0.95 | 0.15 | 83,96,113,116 | 0 |
| 6 | CLA | E | 316 | 55/65 | 0.95 | 0.16 | 65,78,89,95 | 0 |
| 6 | CLA | F | 306 | 65/65 | 0.95 | 0.36 | 36,53,75,90 | 0 |
| 6 | CLA | C | 308 | 46/65 | 0.95 | 0.14 | 65,86,94,100 | 0 |
| 5 | CHL | B | 319 | 47/66 | 0.95 | 0.17 | 80,96,112,117 | 0 |
| 6 | CLA | E | 306 | 65/65 | 0.95 | 0.36 | 48,63,78,86 | 0 |
| 6 | CLA | F | 315 | 45/65 | 0.95 | 0.16 | 58,74,92,100 | 0 |
| 5 | CHL | B | 307 | 65/66 | 0.95 | 0.27 | 32,45,64,88 | 0 |
| 6 | CLA | B | 316 | 65/65 | 0.95 | 0.22 | 63,79,109,139 | 0 |
| 5 | CHL | B | 306 | 66/66 | 0.95 | 0.22 | 45,63,77,93 | 0 |
| 6 | CLA | C | 307 | 65/65 | 0.96 | 0.26 | 33,51,75,92 | 0 |

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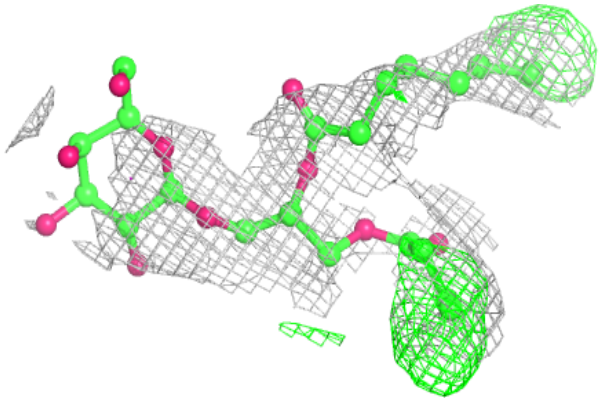
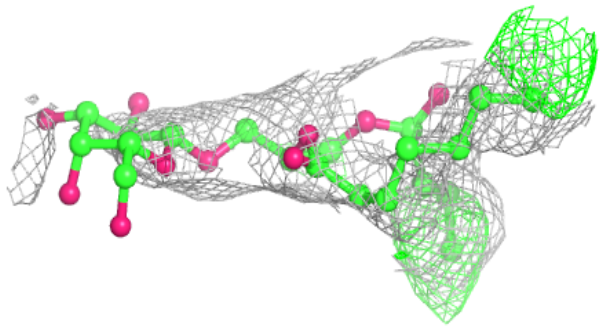
| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 6 | CLA | C | 317 | 56/65 | 0.96 | 0.16 | 57,75,89,96 | 0 |
| 6 | CLA | D | 307 | 65/65 | 0.96 | 0.38 | 34,51,81,90 | 0 |
| 6 | CLA | D | 308 | 46/65 | 0.96 | 0.15 | 68,84,96,104 | 0 |
| 5 | CHL | A | 306 | 64/66 | 0.96 | 0.27 | 30,51,64,82 | 0 |
| 8 | MG | D | 320 | 1/1 | 0.96 | 0.21 | 63,63,63,63 | 0 |
| 6 | CLA | A | 307 | 65/65 | 0.97 | 0.42 | 31,47,79,85 | 0 |
| 6 | CLA | B | 308 | 65/65 | 0.97 | 0.35 | 35,49,75,84 | 0 |
| 6 | CLA | A | 316 | 45/65 | 0.97 | 0.14 | 74,80,98,116 | 0 |

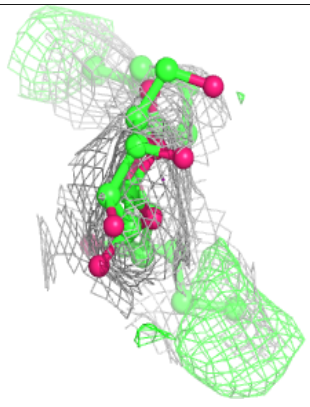
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around LMG F 319:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

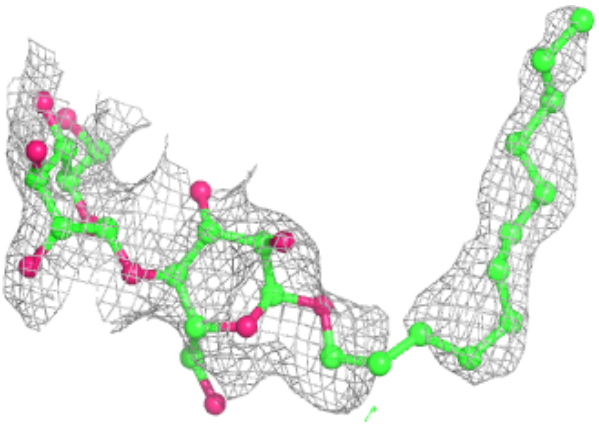


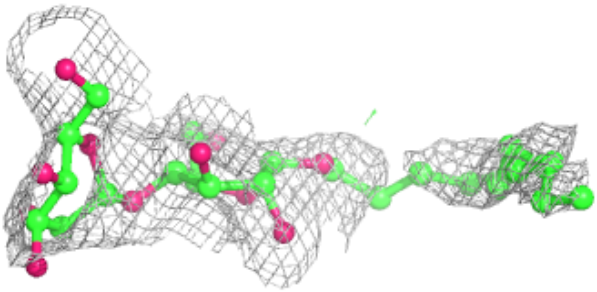


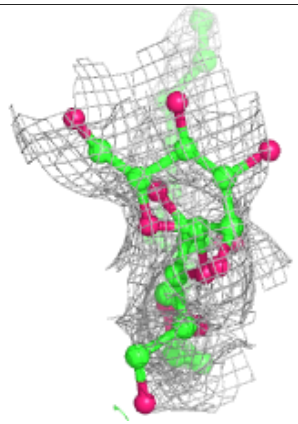


**Electron density around LMU B 305:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

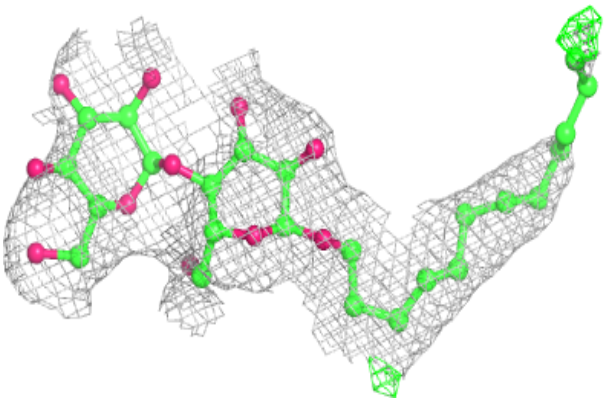


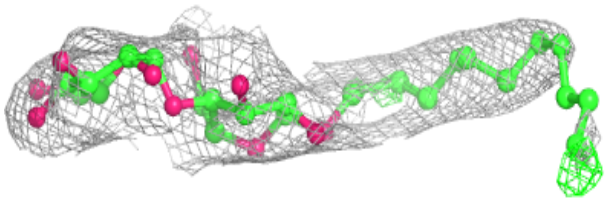


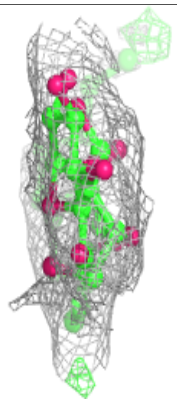


**Electron density around LMU E 319:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

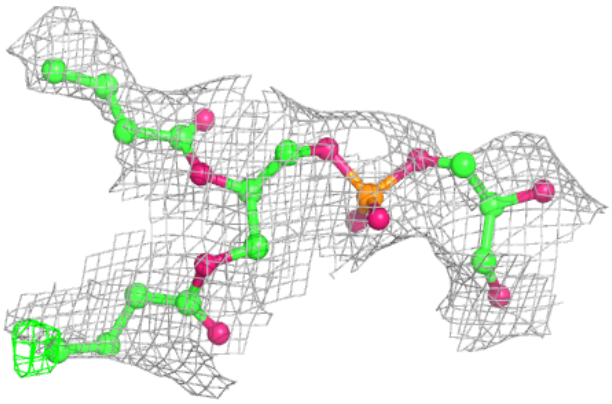


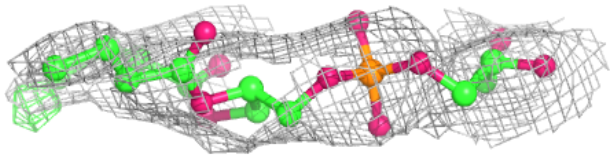


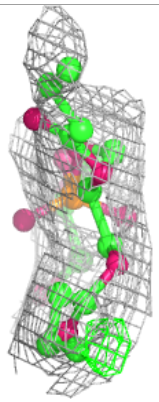


**Electron density around LHG C 304:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

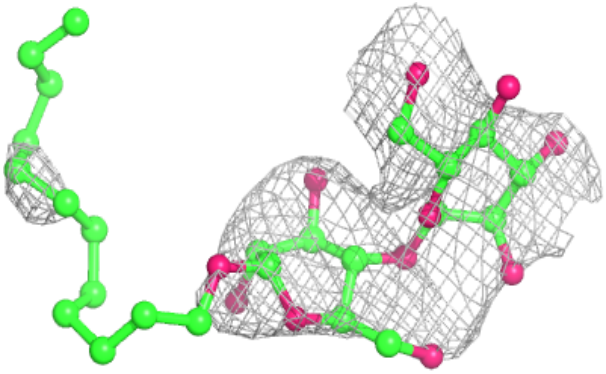


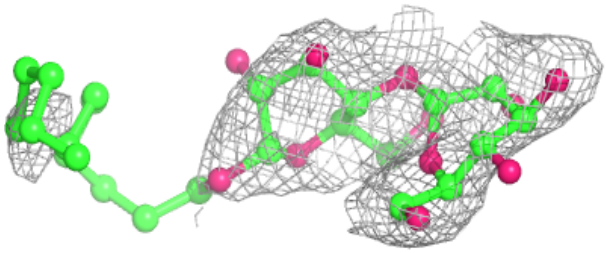


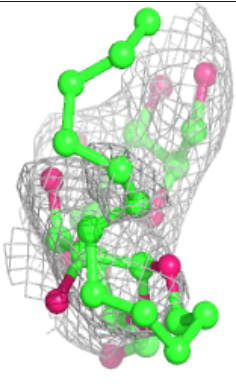


**Electron density around LMU A 304:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

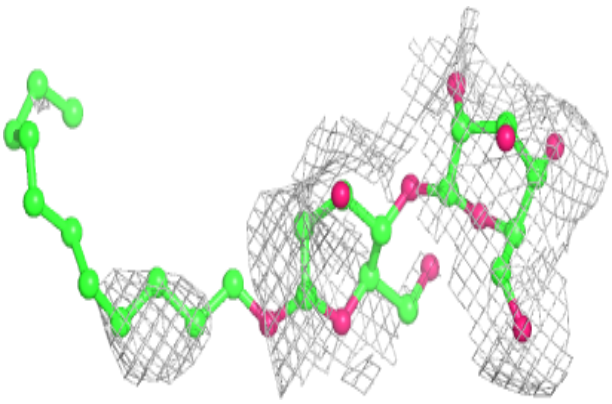


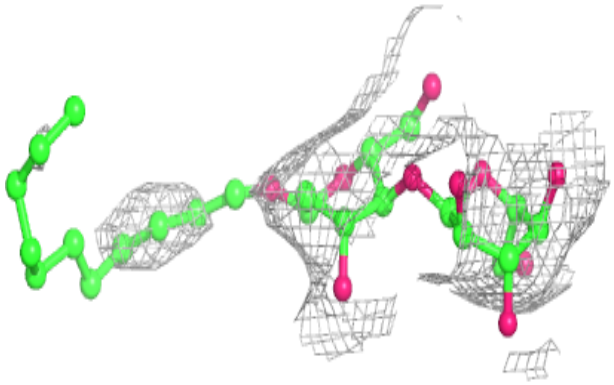


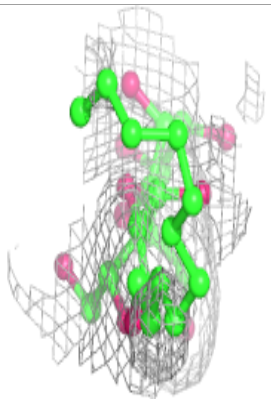


**Electron density around LMU B 304:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

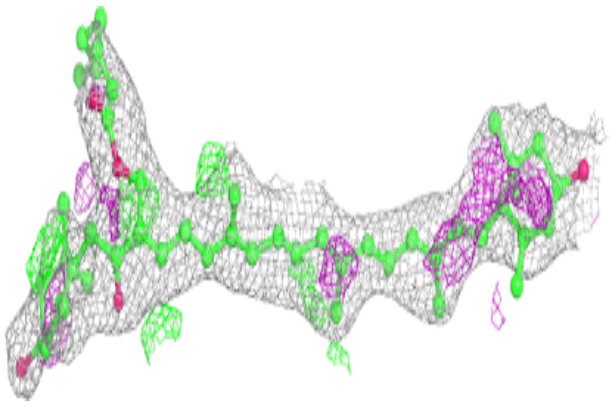


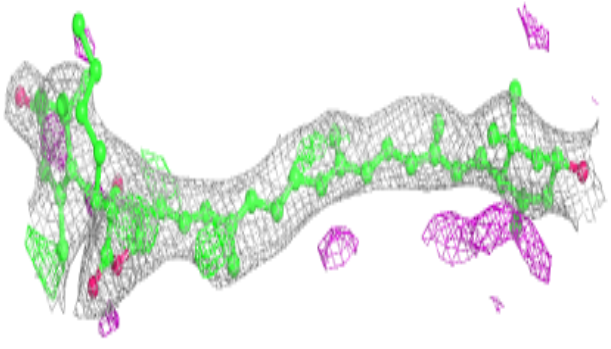


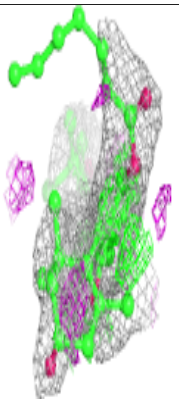


**Electron density around 0UR B 325:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

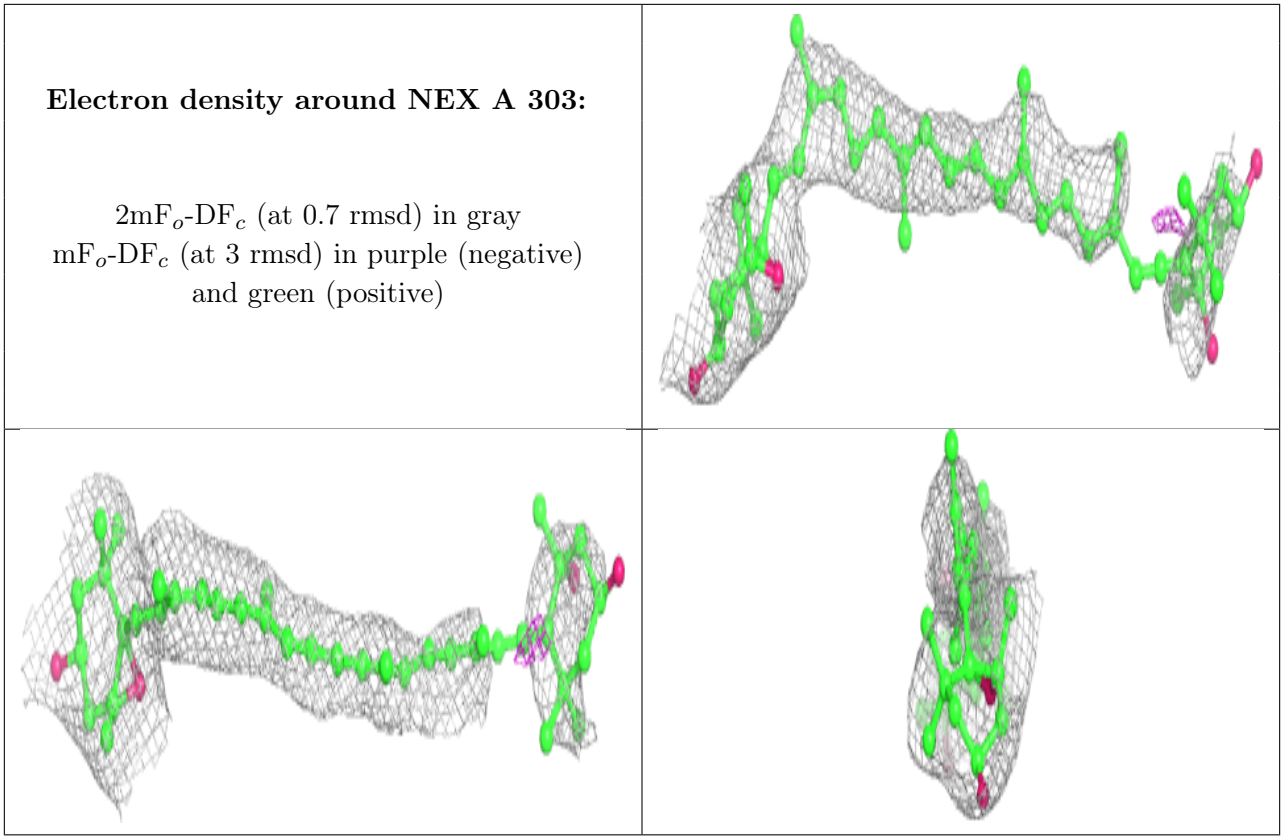






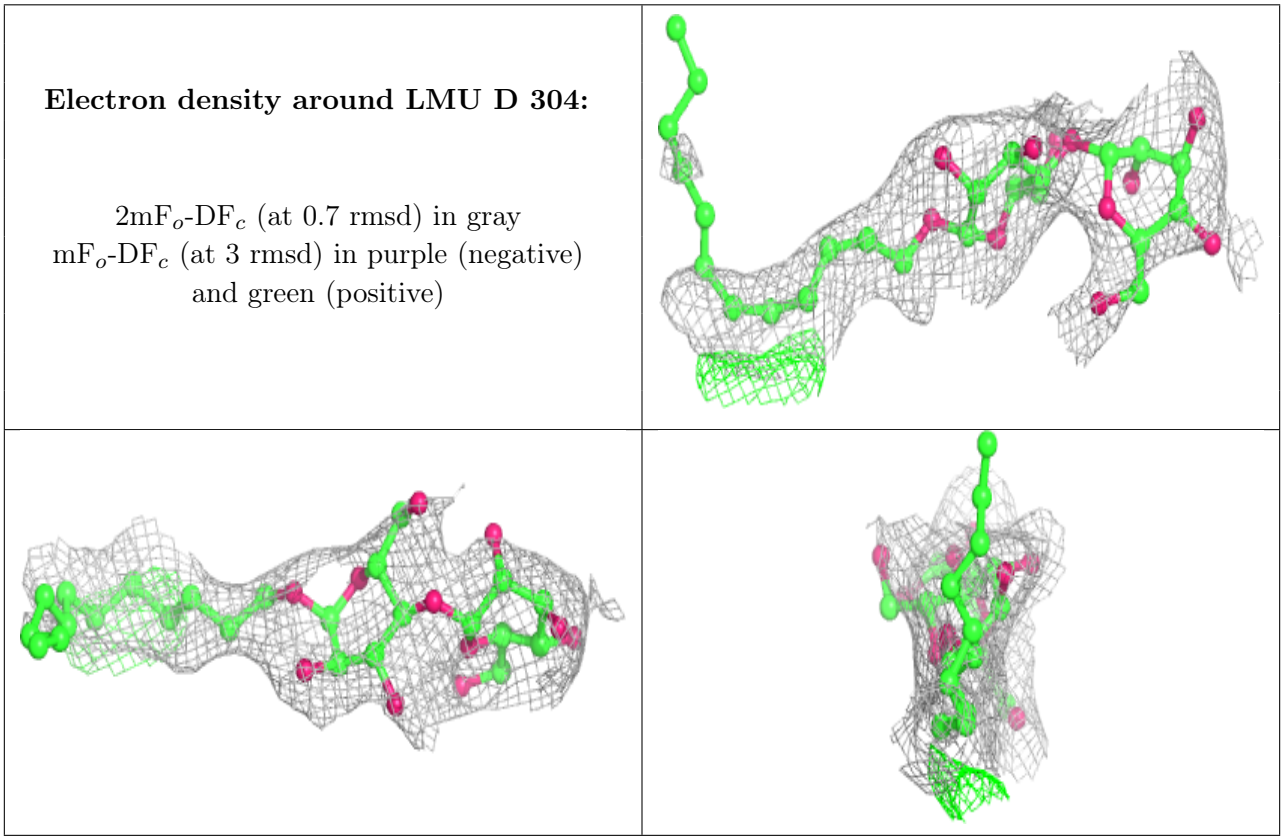
**Electron density around NEX A 303:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



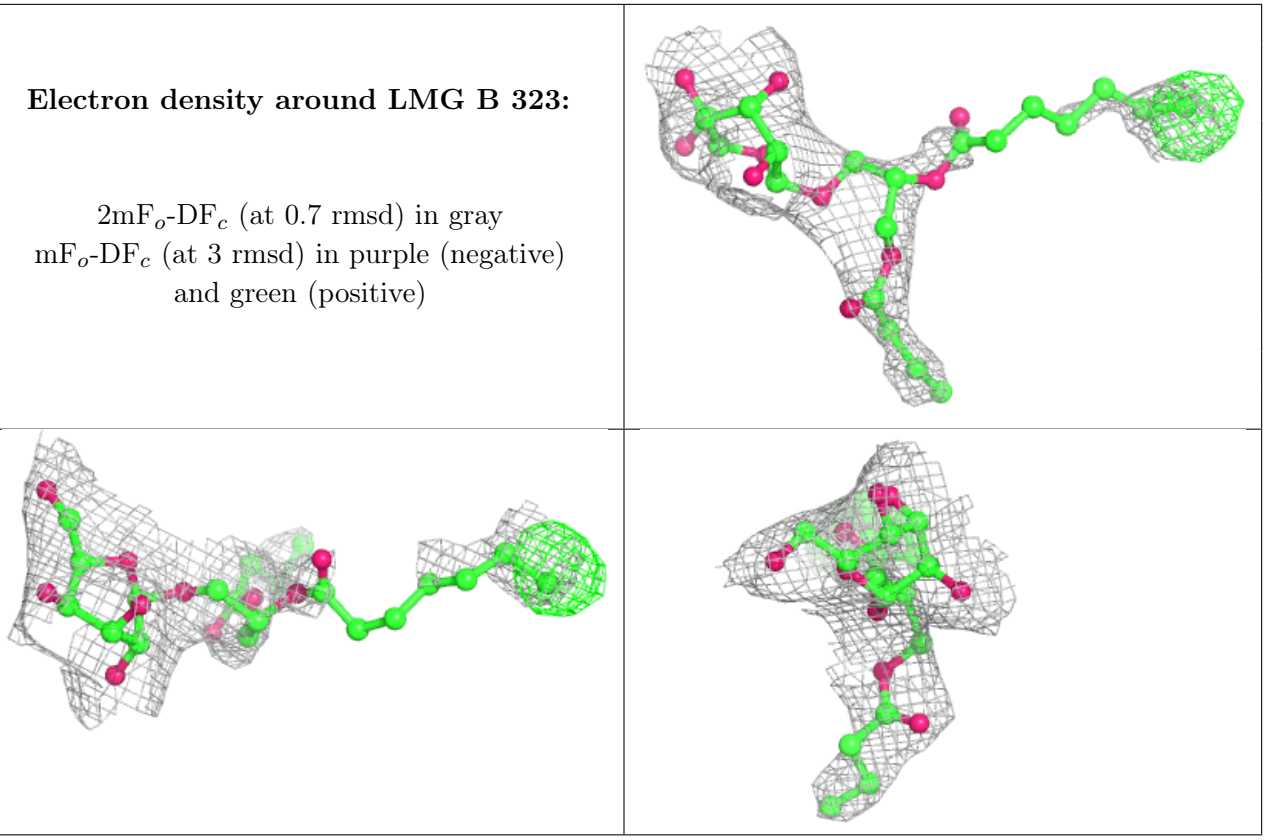
**Electron density around LMU D 304:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



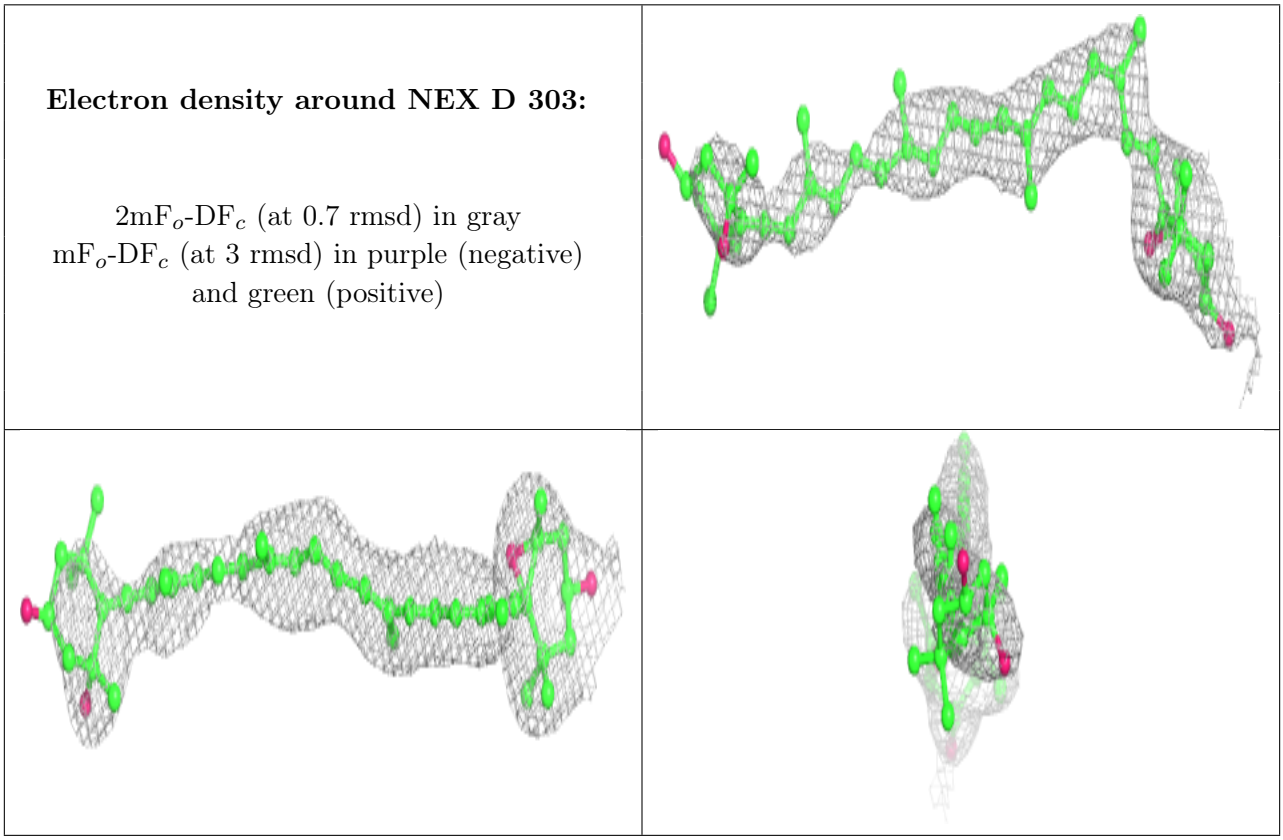
**Electron density around LMG B 323:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



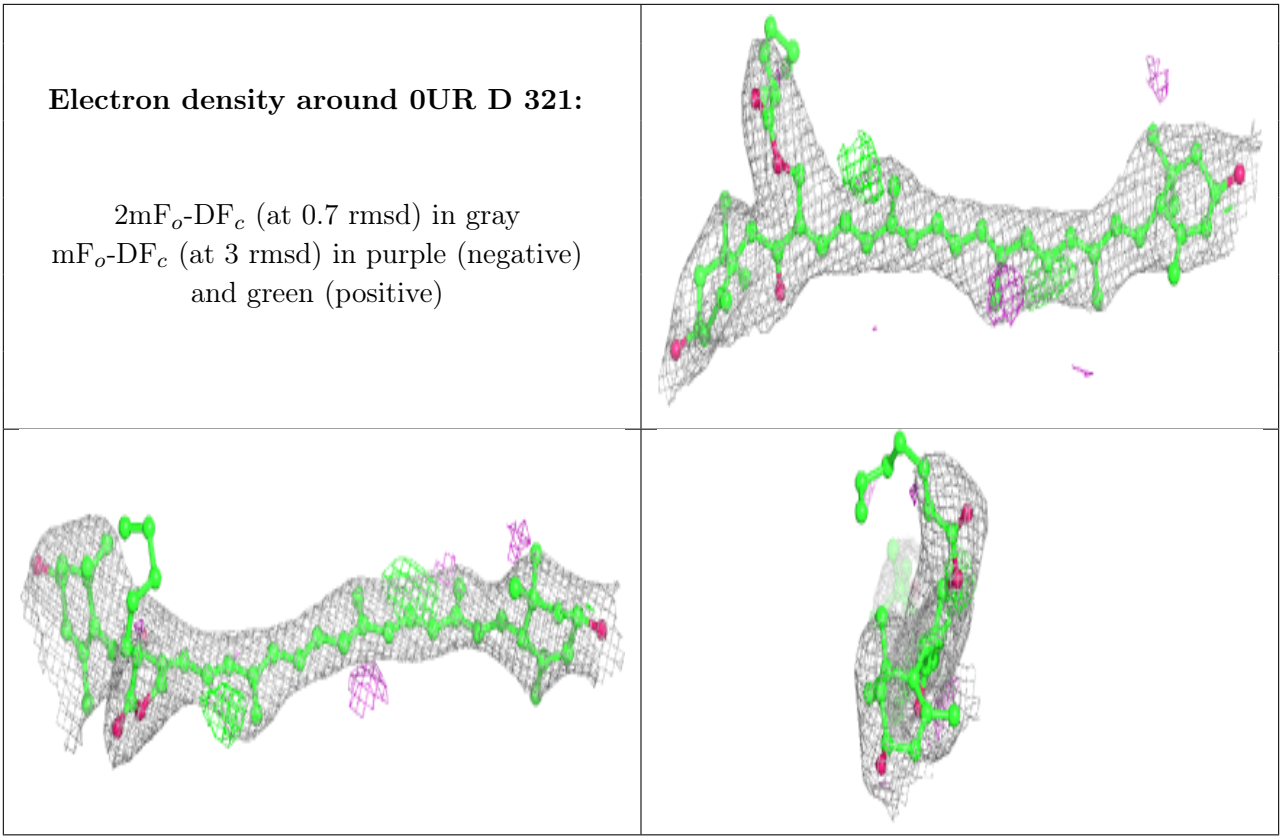
**Electron density around NEX D 303:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



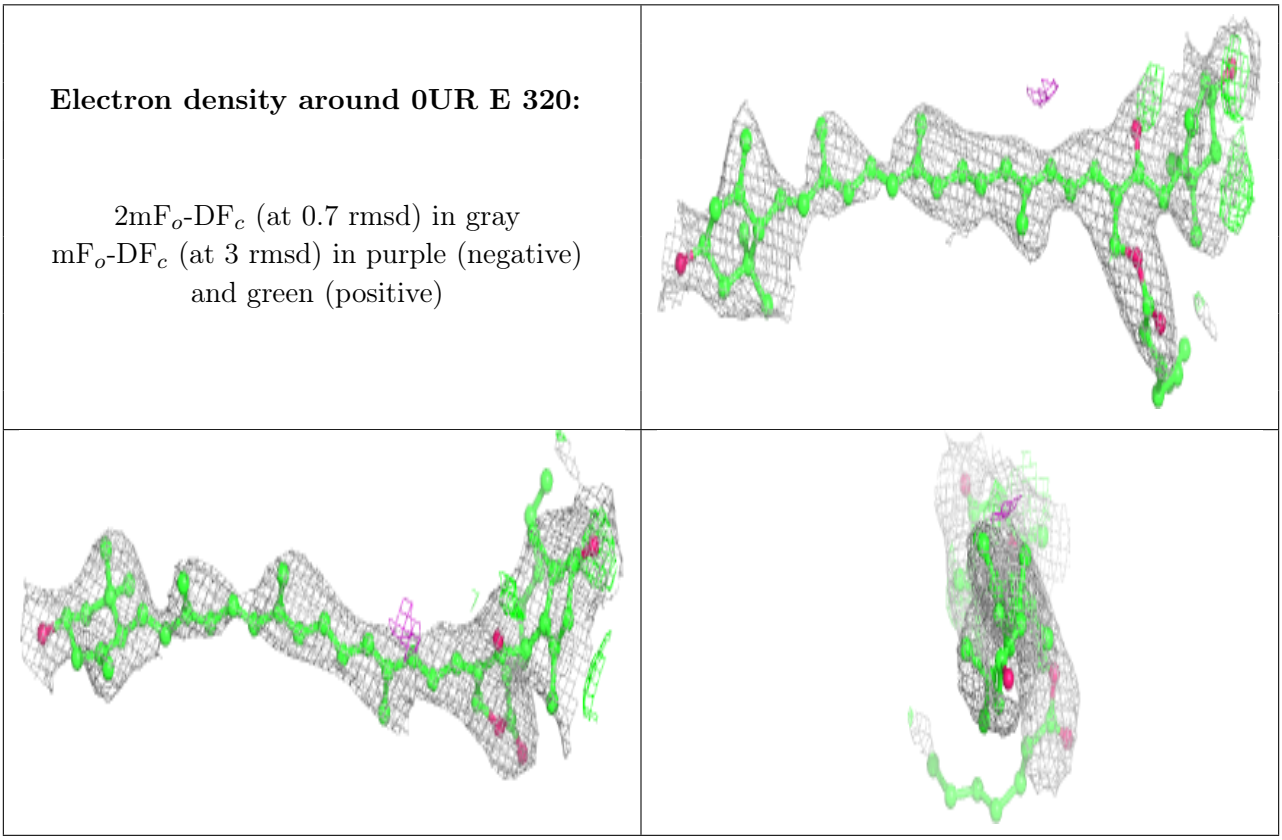
**Electron density around 0UR D 321:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



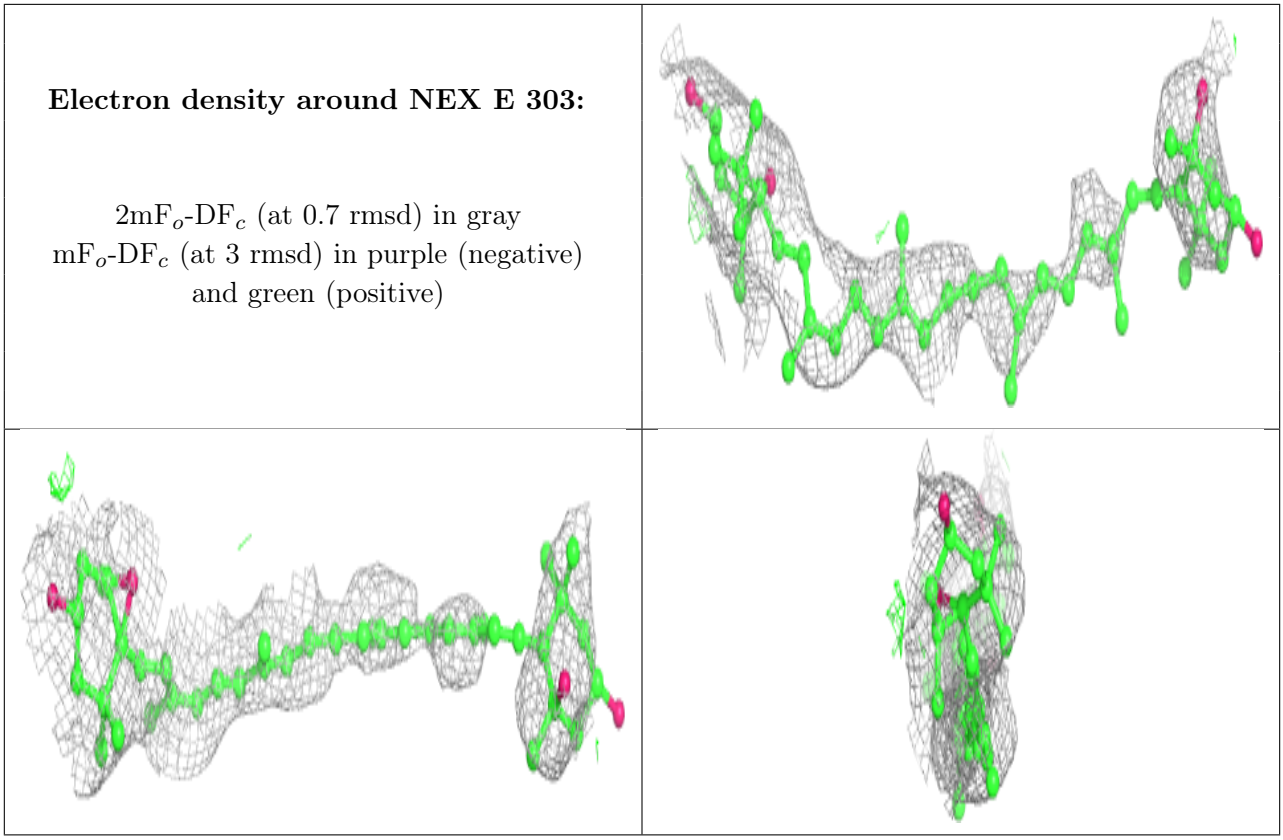
**Electron density around 0UR E 320:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



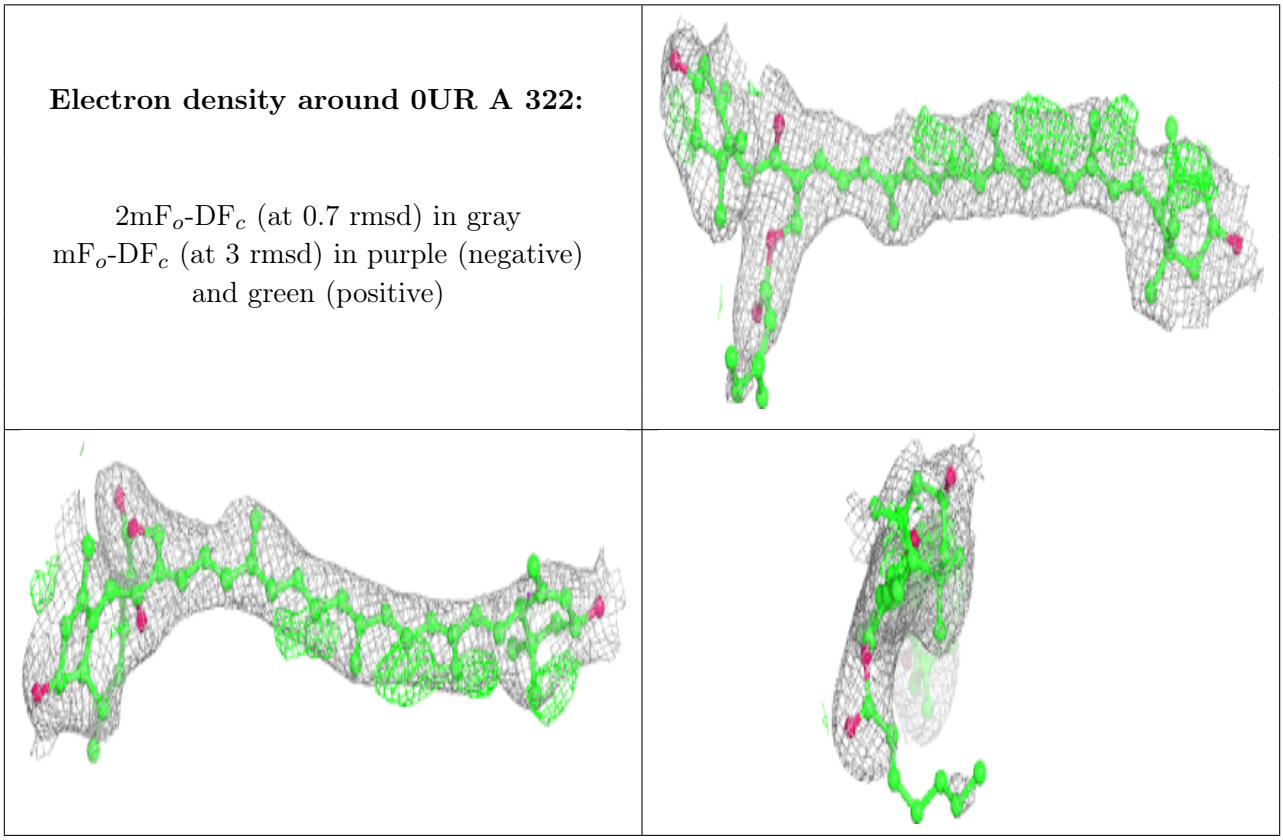
**Electron density around NEX E 303:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



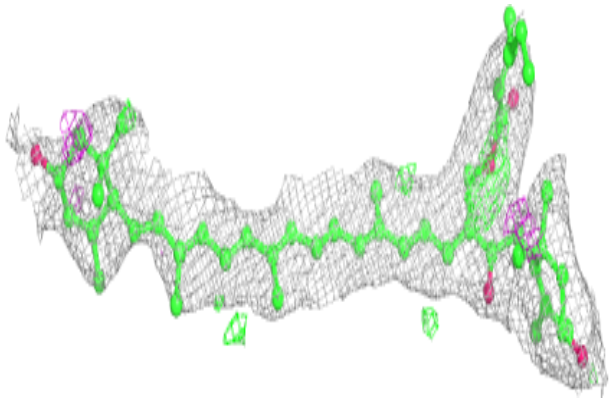
**Electron density around 0UR A 322:**

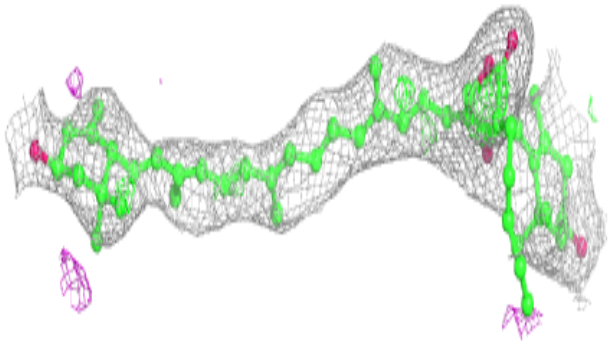
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

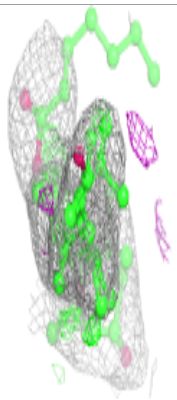


**Electron density around 0UR F 320:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

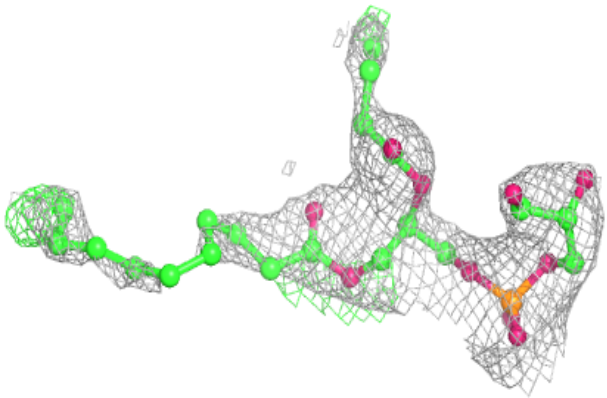


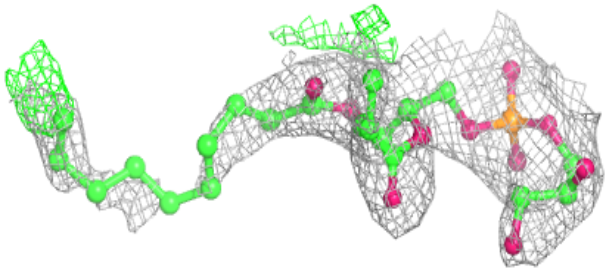


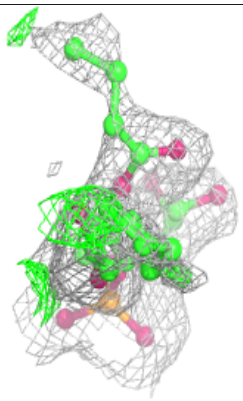


**Electron density around LHG B 324:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

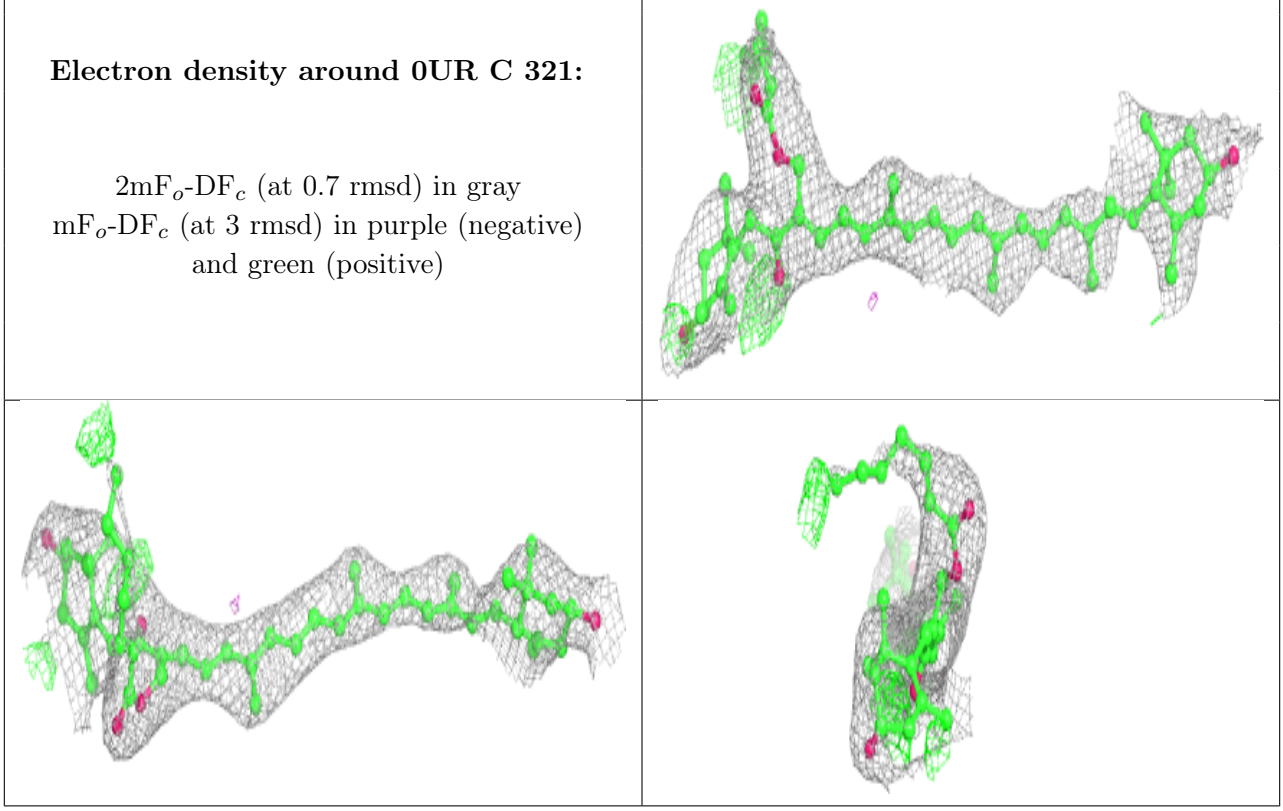






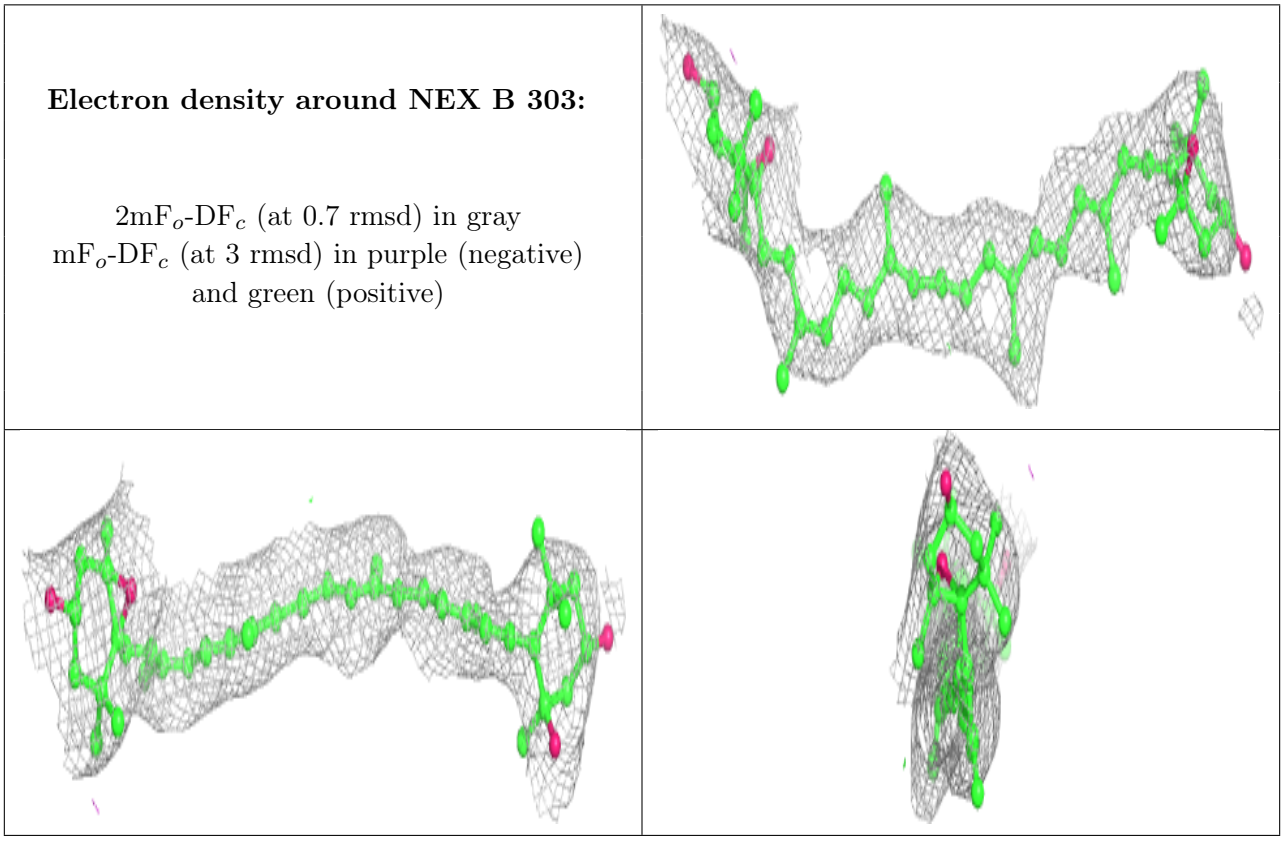
**Electron density around 0UR C 321:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



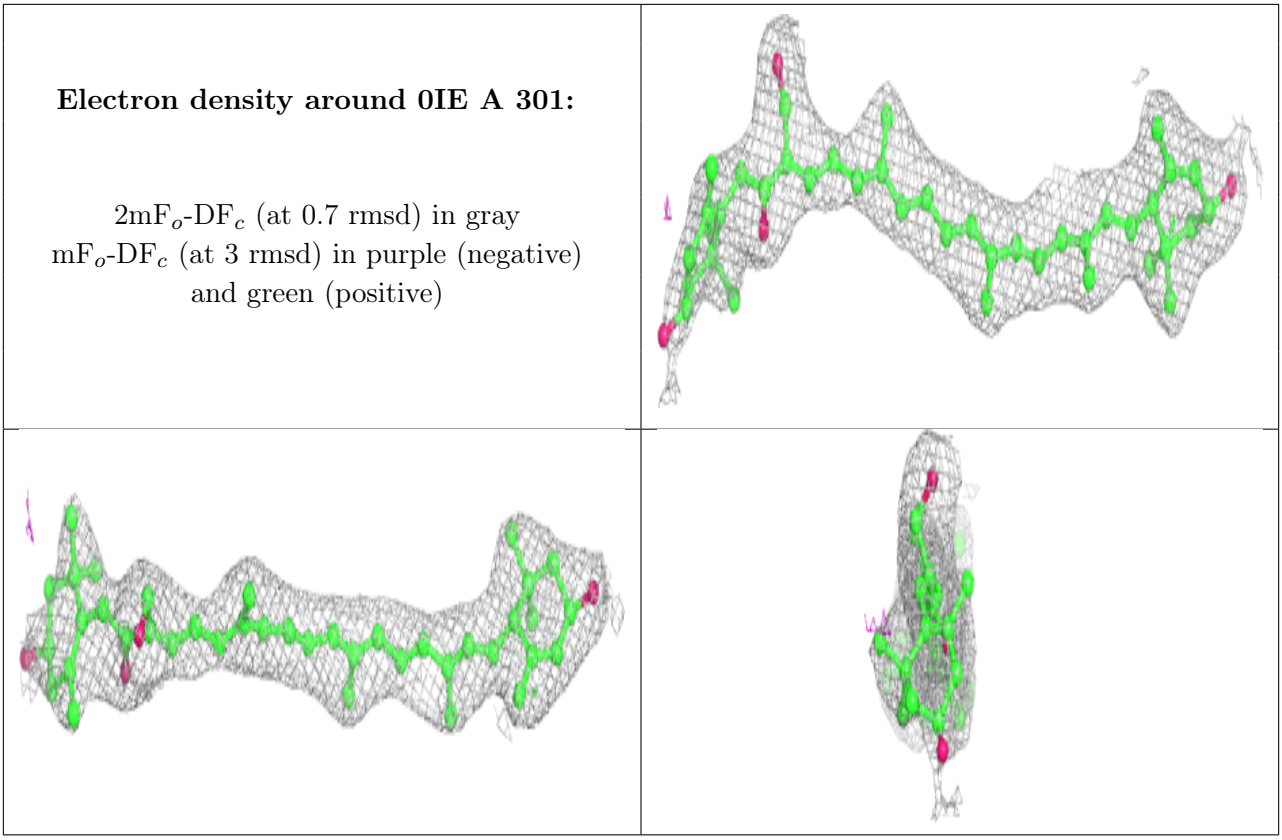
**Electron density around NEX B 303:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



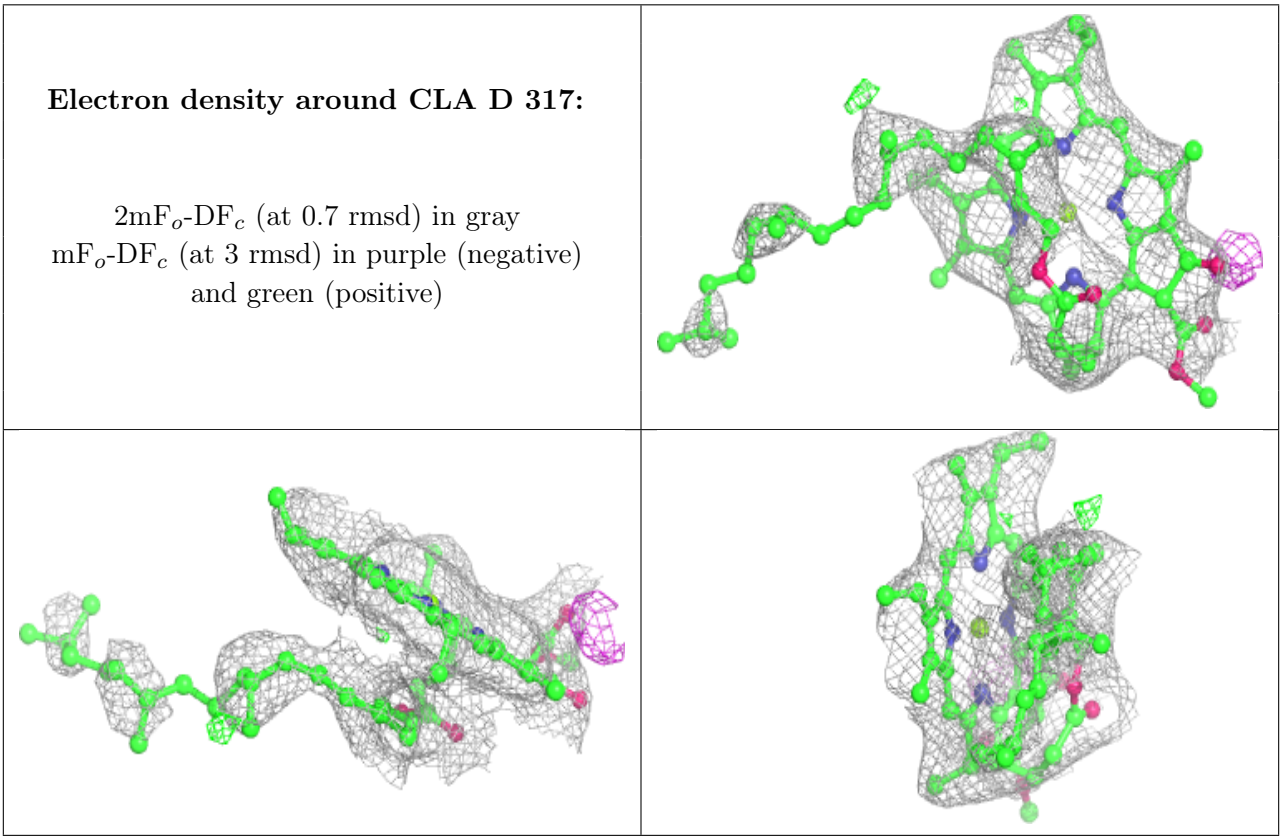
**Electron density around 0IE A 301:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



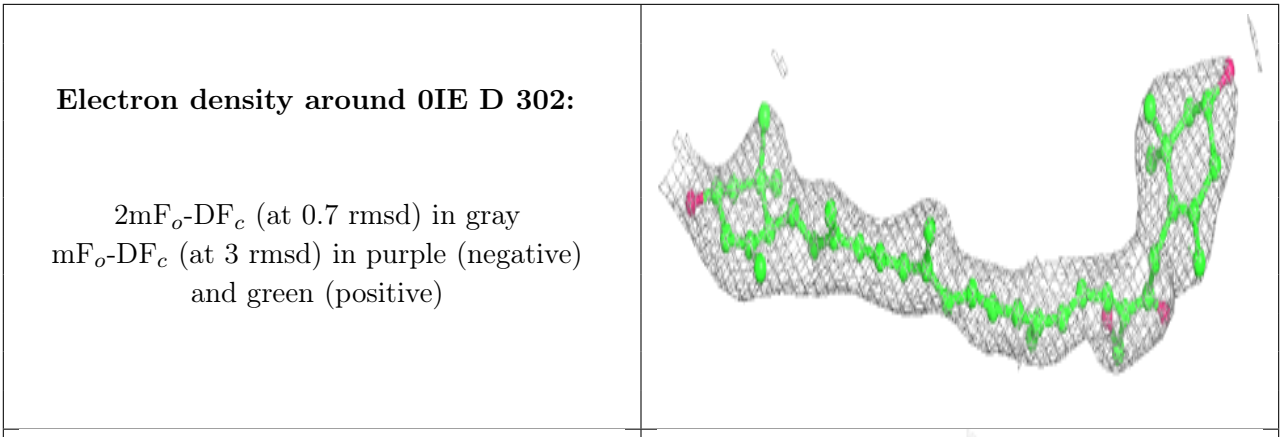
**Electron density around CLA D 317:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



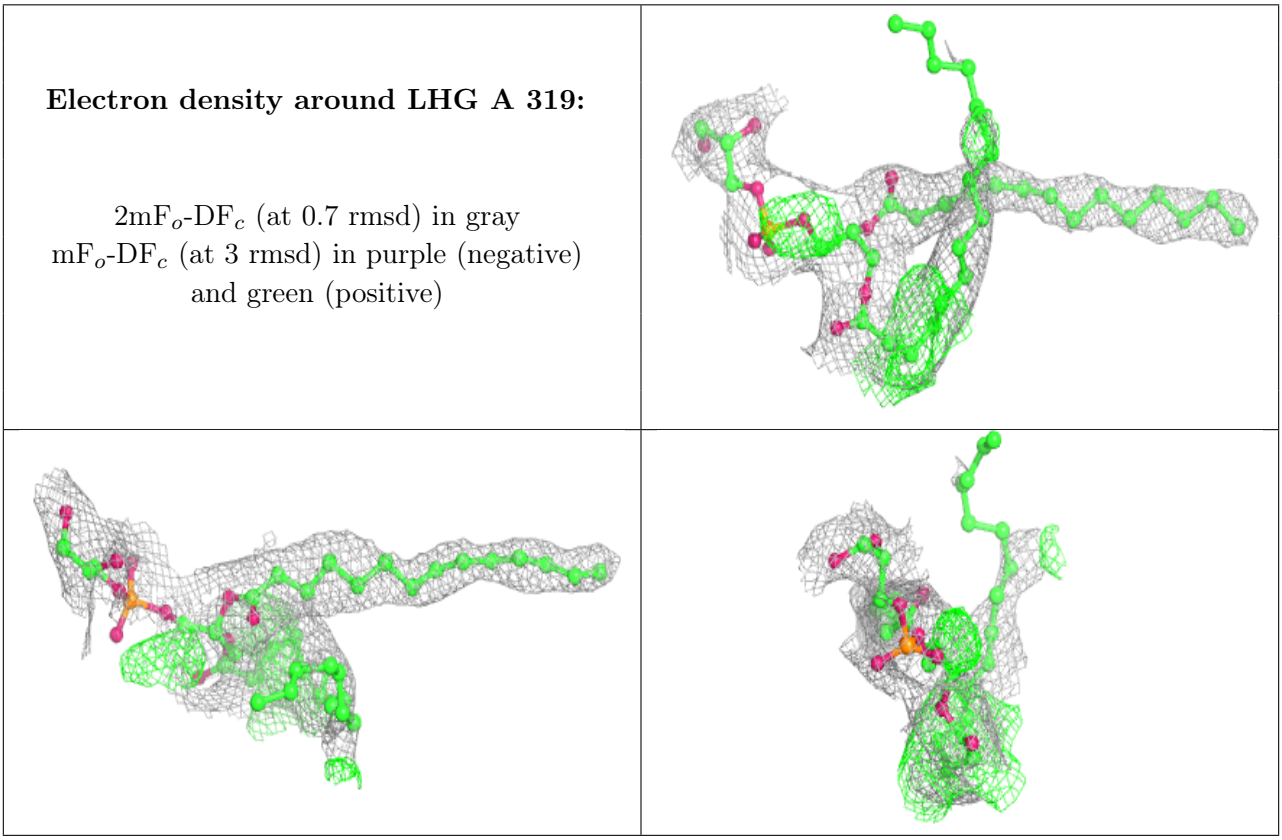
**Electron density around 0IE D 302:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



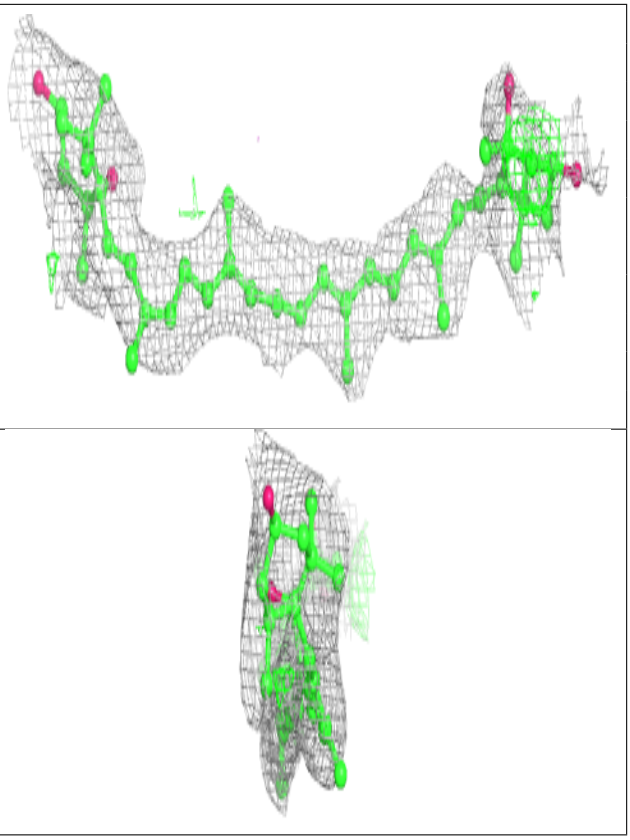
**Electron density around LHG A 319:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



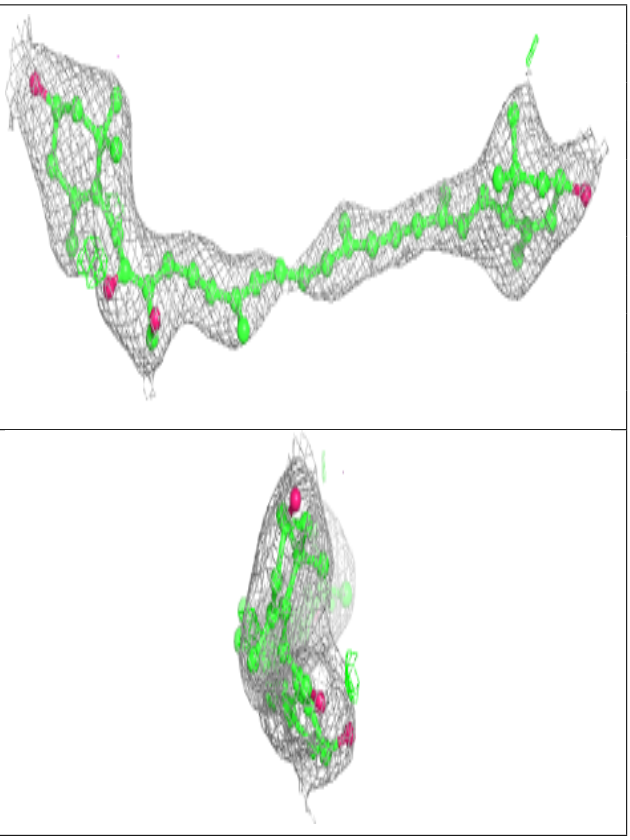
**Electron density around NEX F 303:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



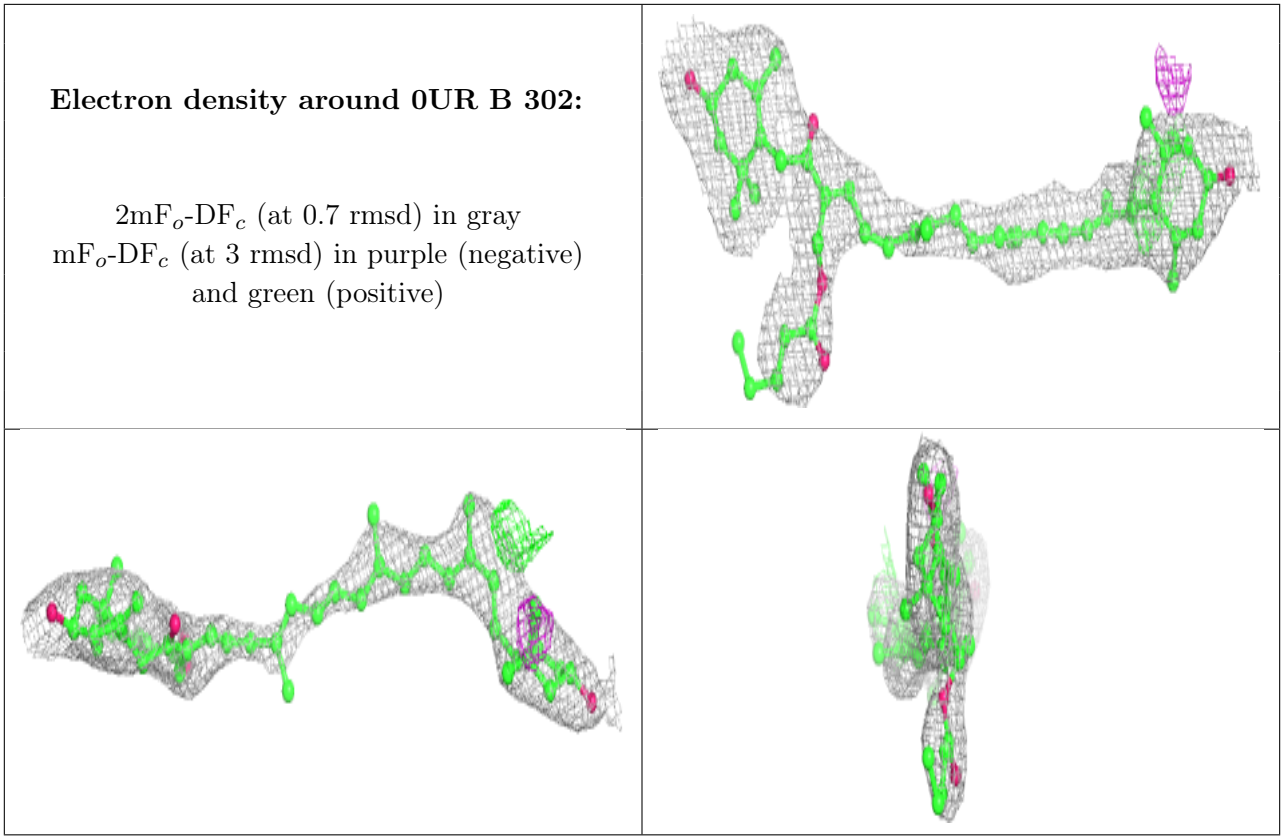
**Electron density around 0IE A 302:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



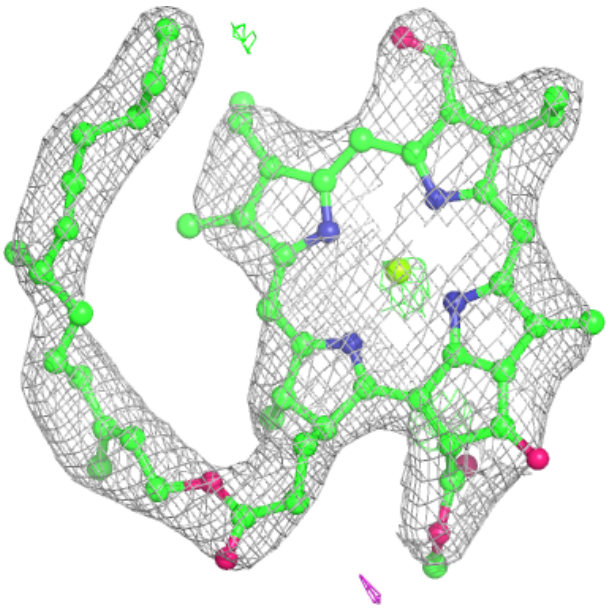
**Electron density around 0UR B 302:**

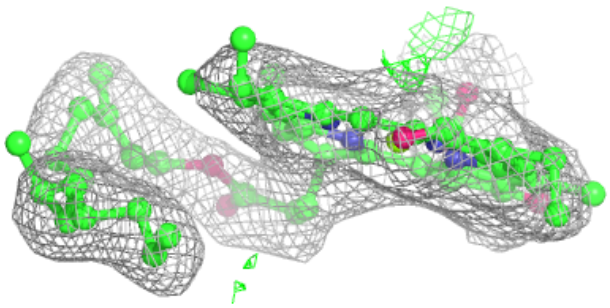
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

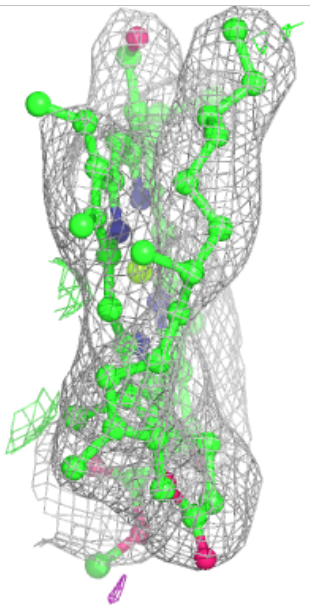


**Electron density around CHL E 310:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

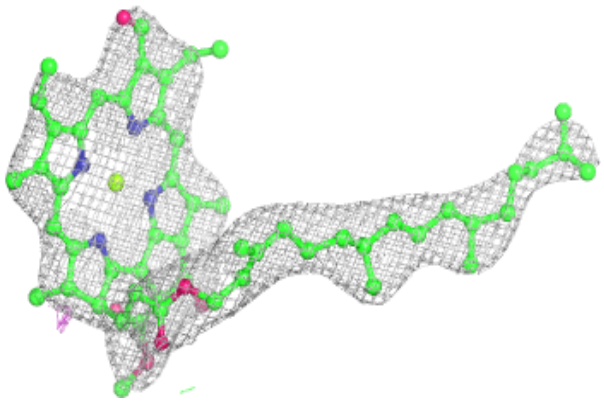


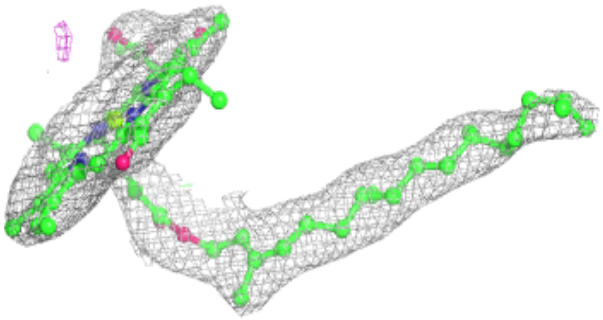


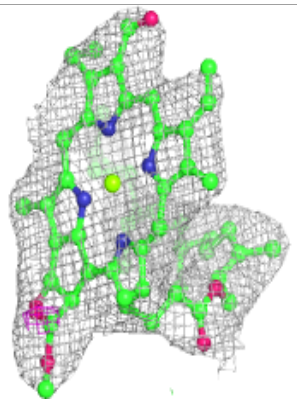


**Electron density around CHL E 312:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

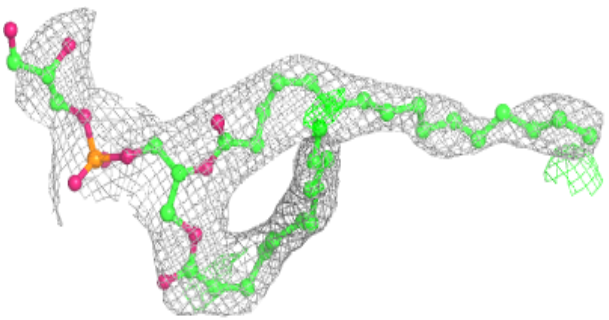


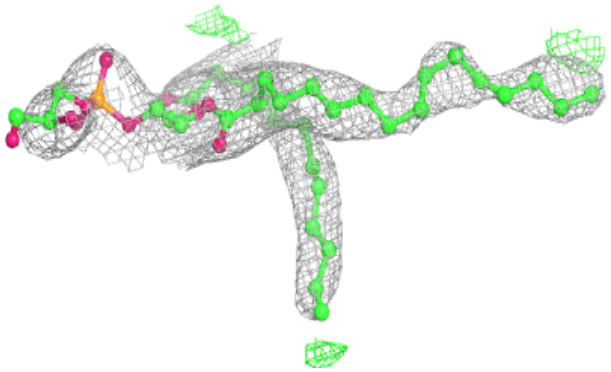


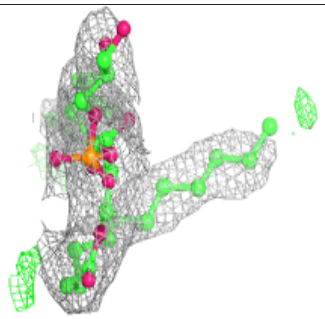


**Electron density around LHG C 319:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

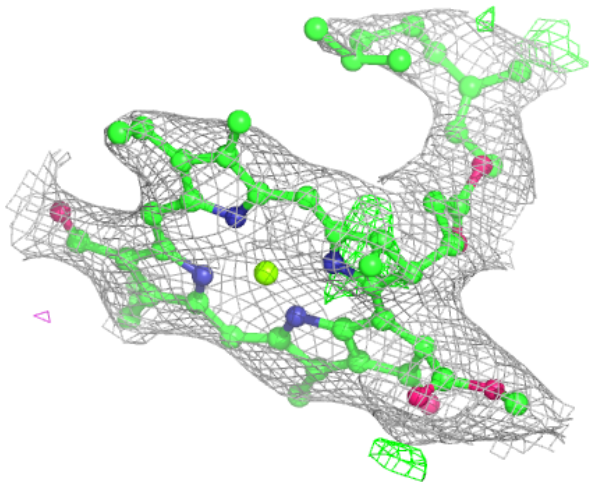


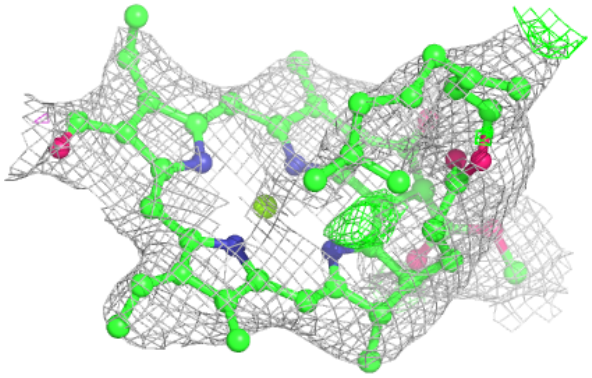


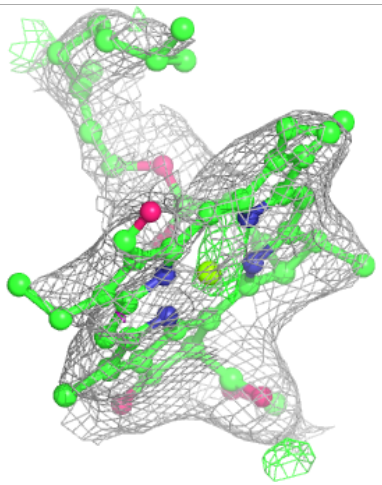


**Electron density around CHL A 312:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

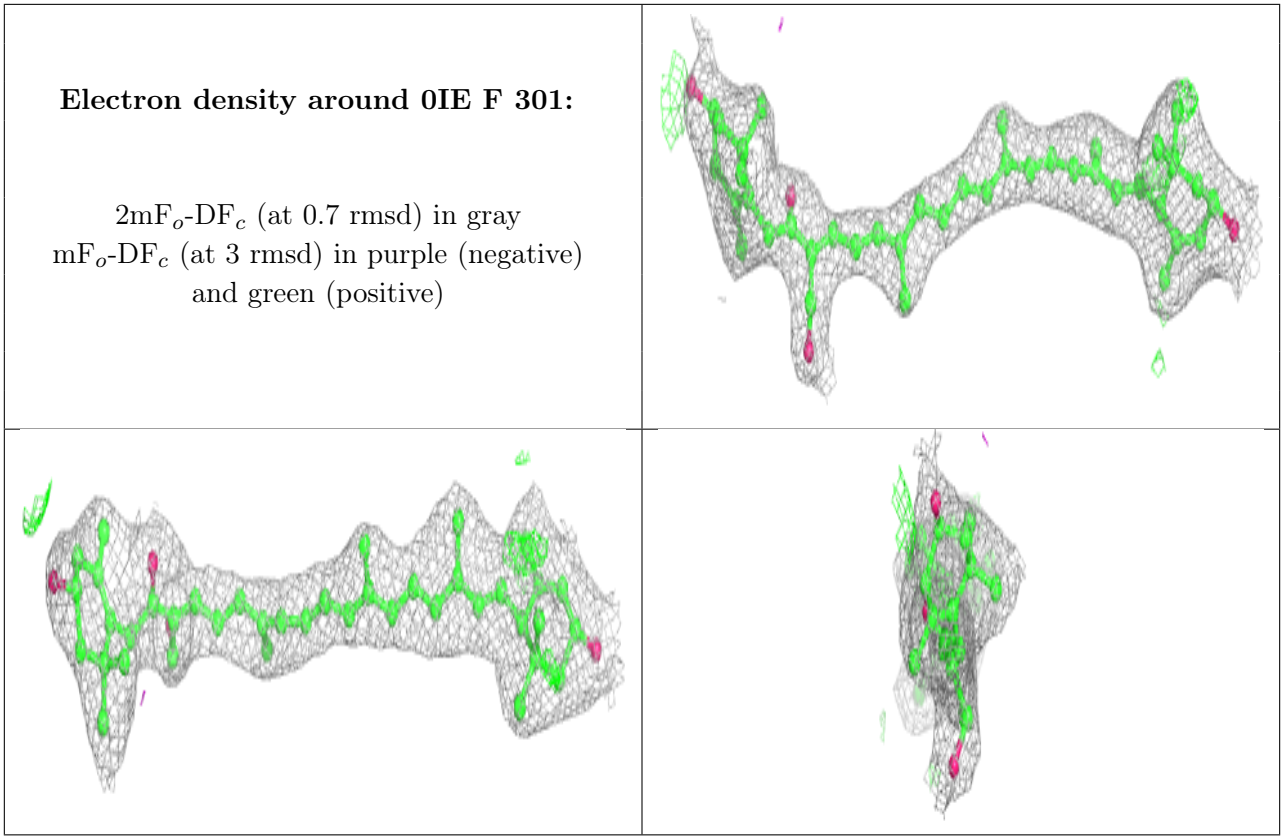






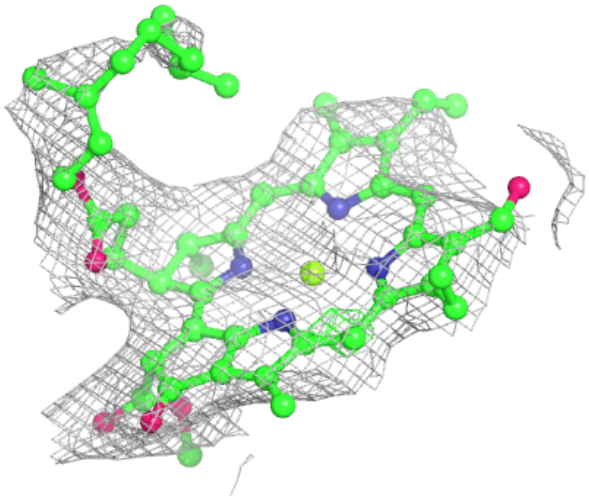
**Electron density around 0IE F 301:**

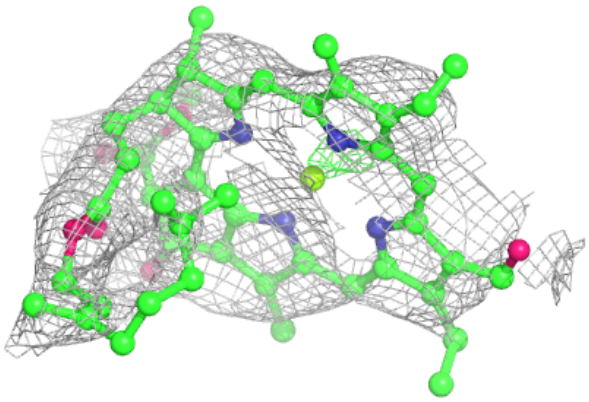
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

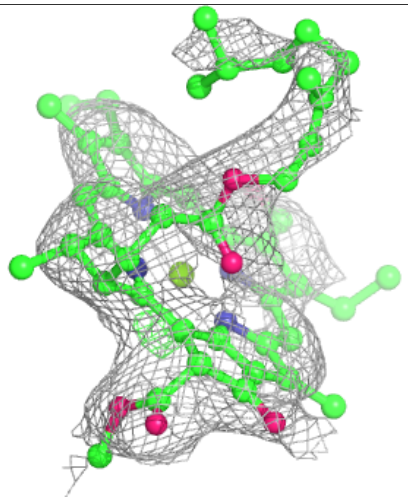


**Electron density around CHL E 311:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

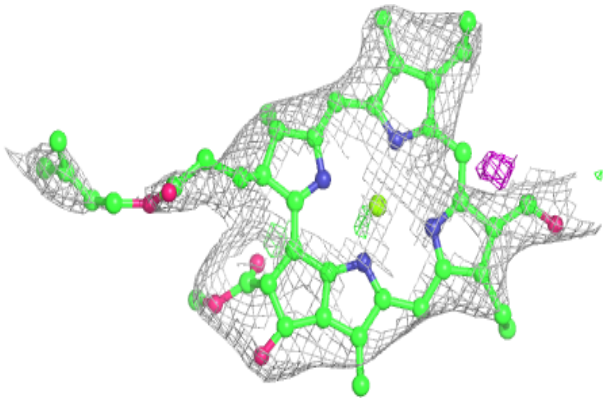


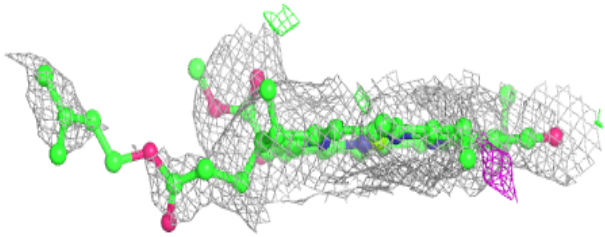


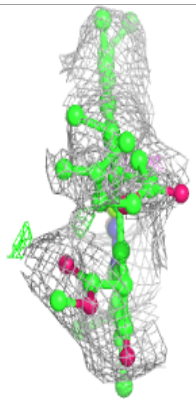


**Electron density around CHL A 310:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

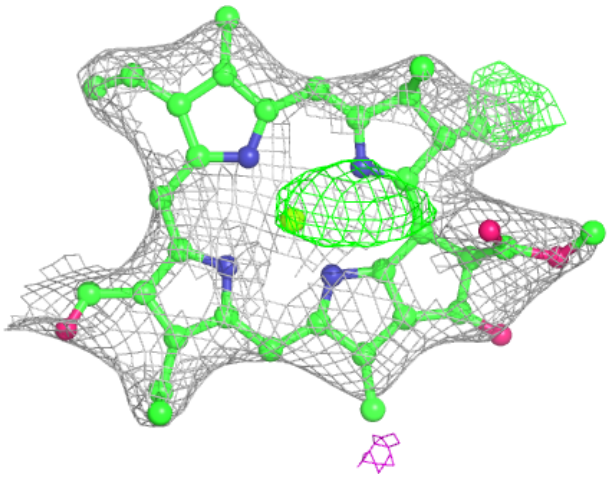


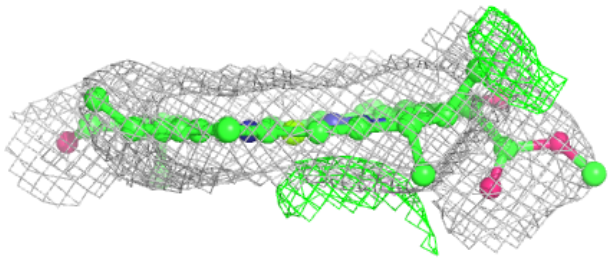


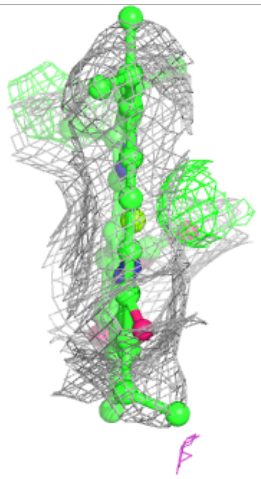


**Electron density around CHL F 309:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

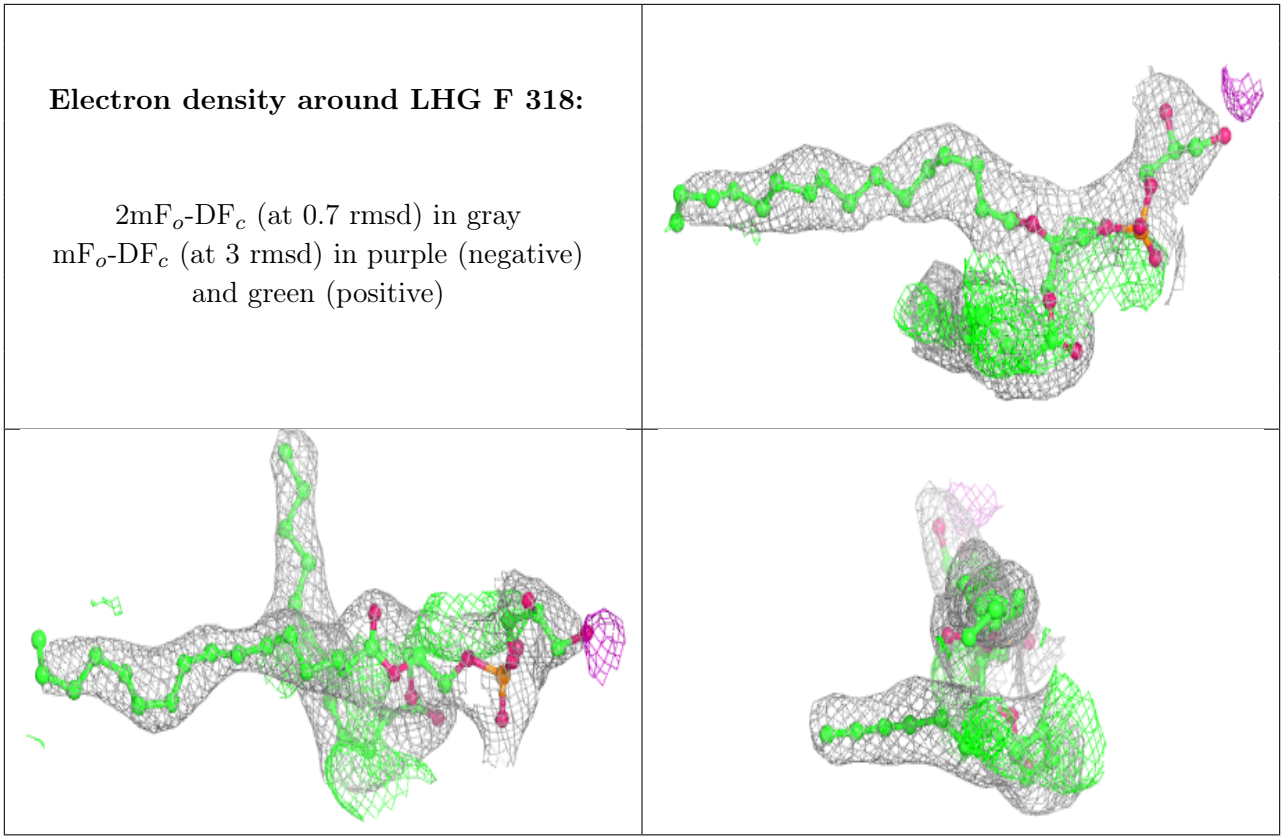






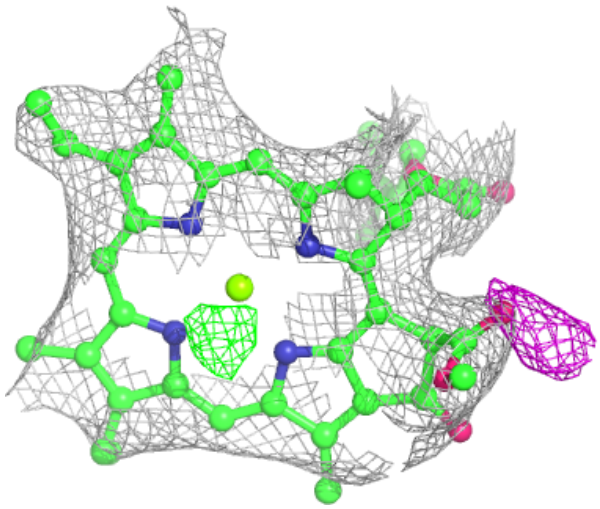
**Electron density around LHG F 318:**

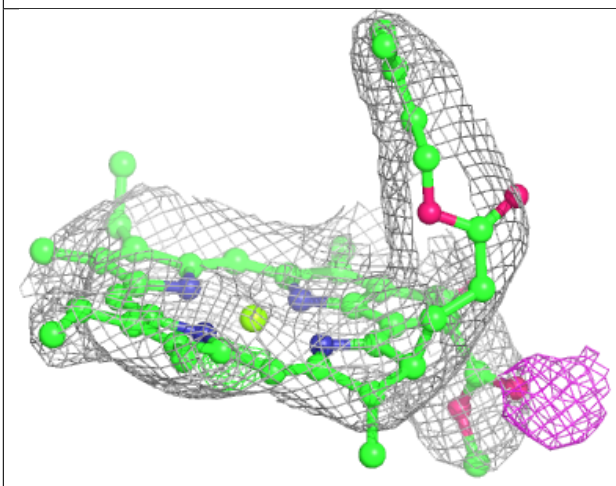
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

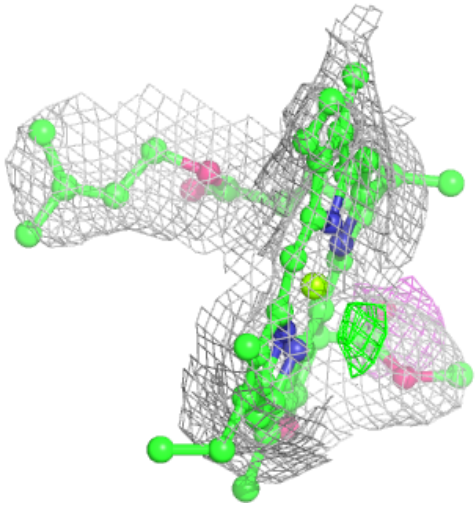


**Electron density around CLA A 308:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

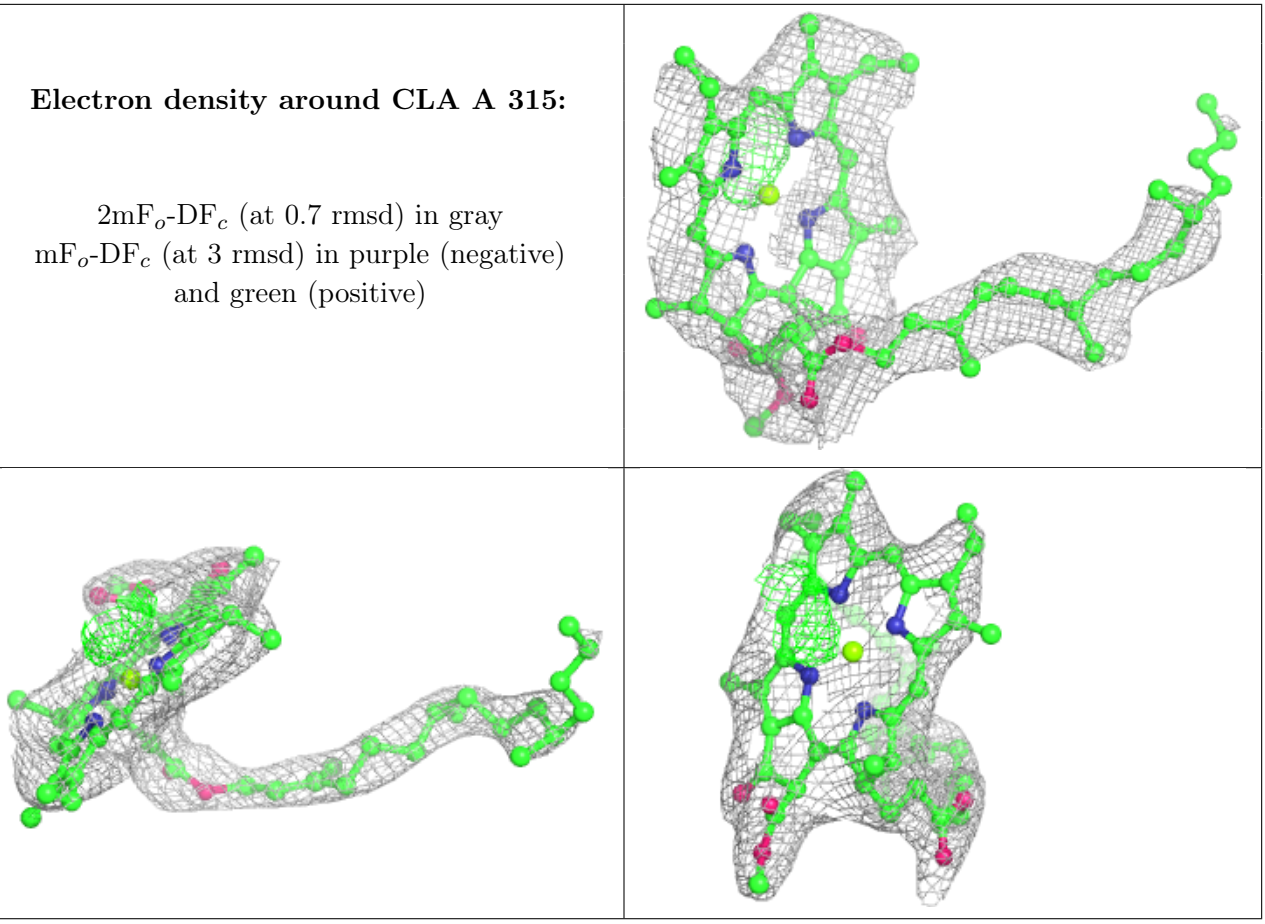






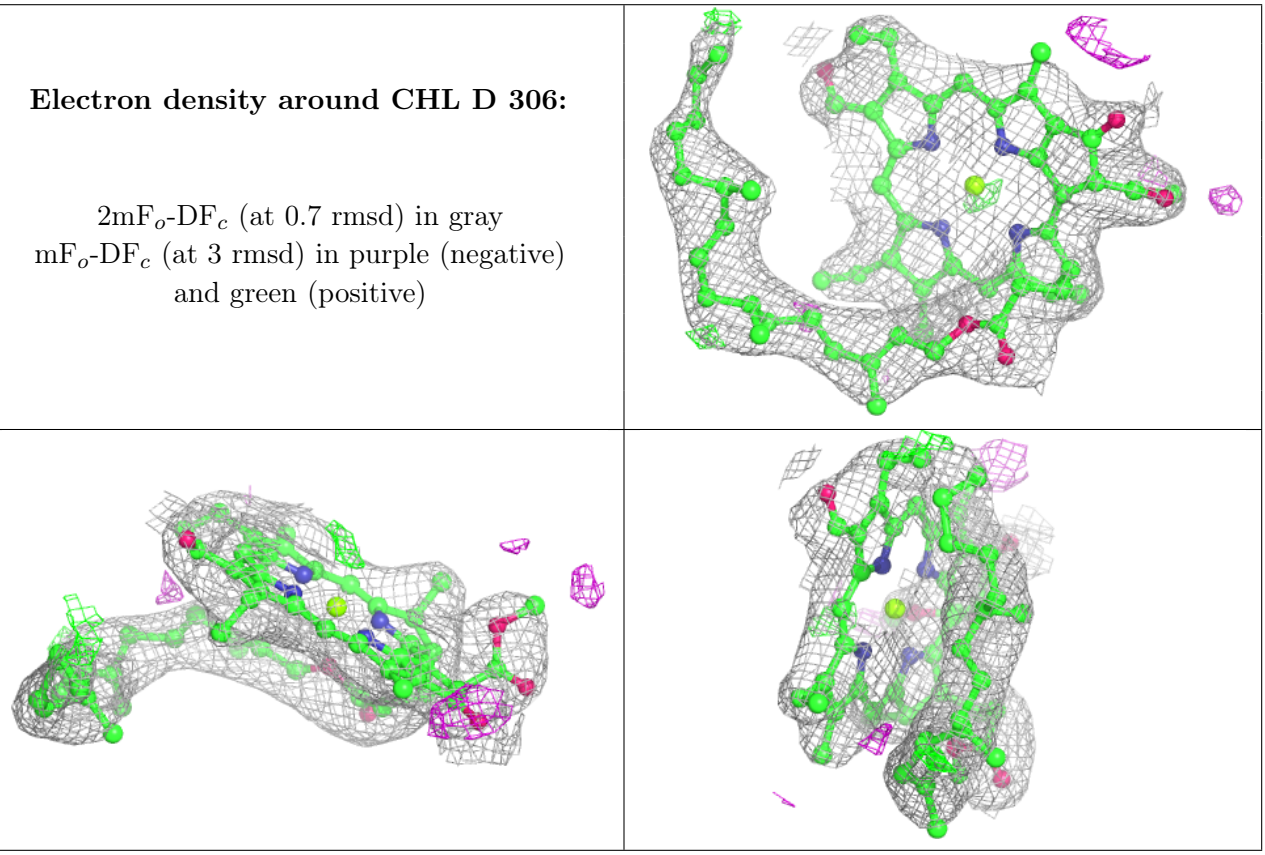
**Electron density around CLA A 315:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



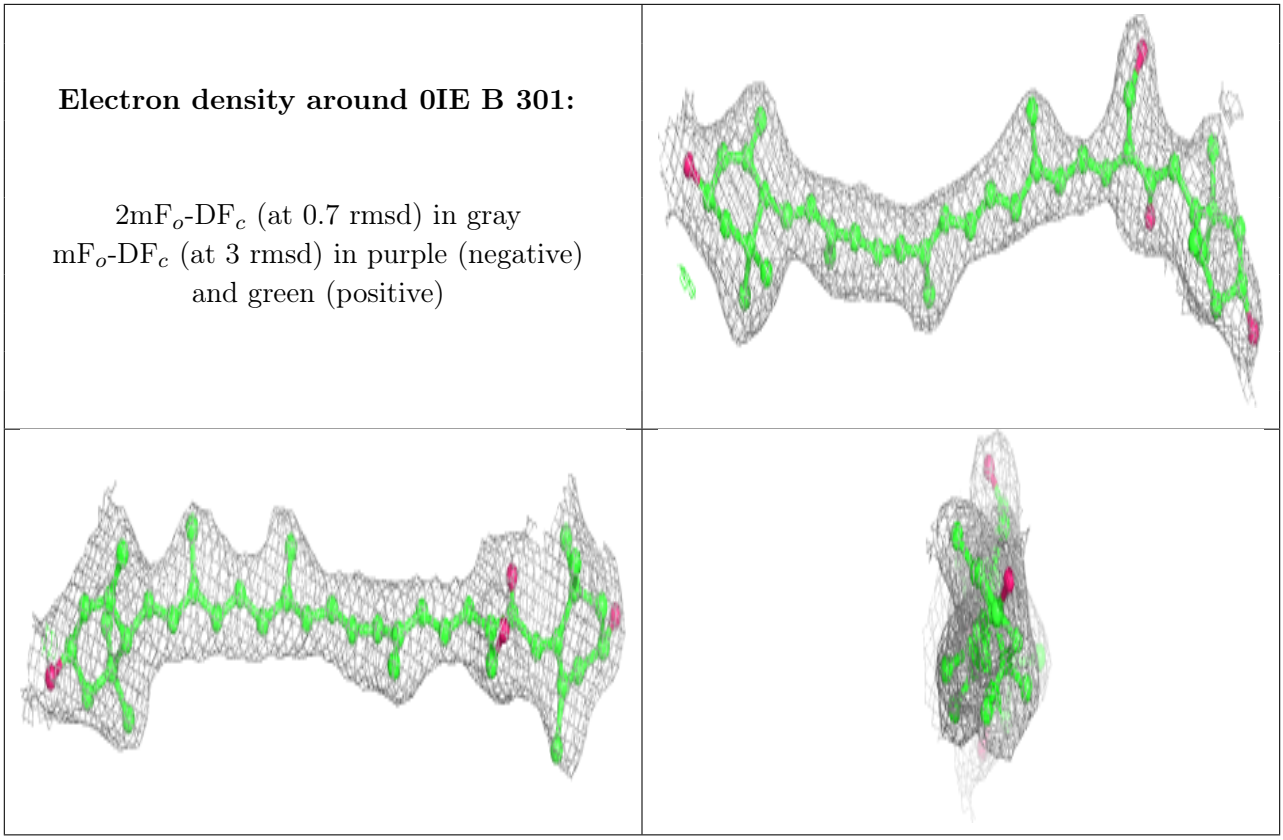
**Electron density around CHL D 306:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



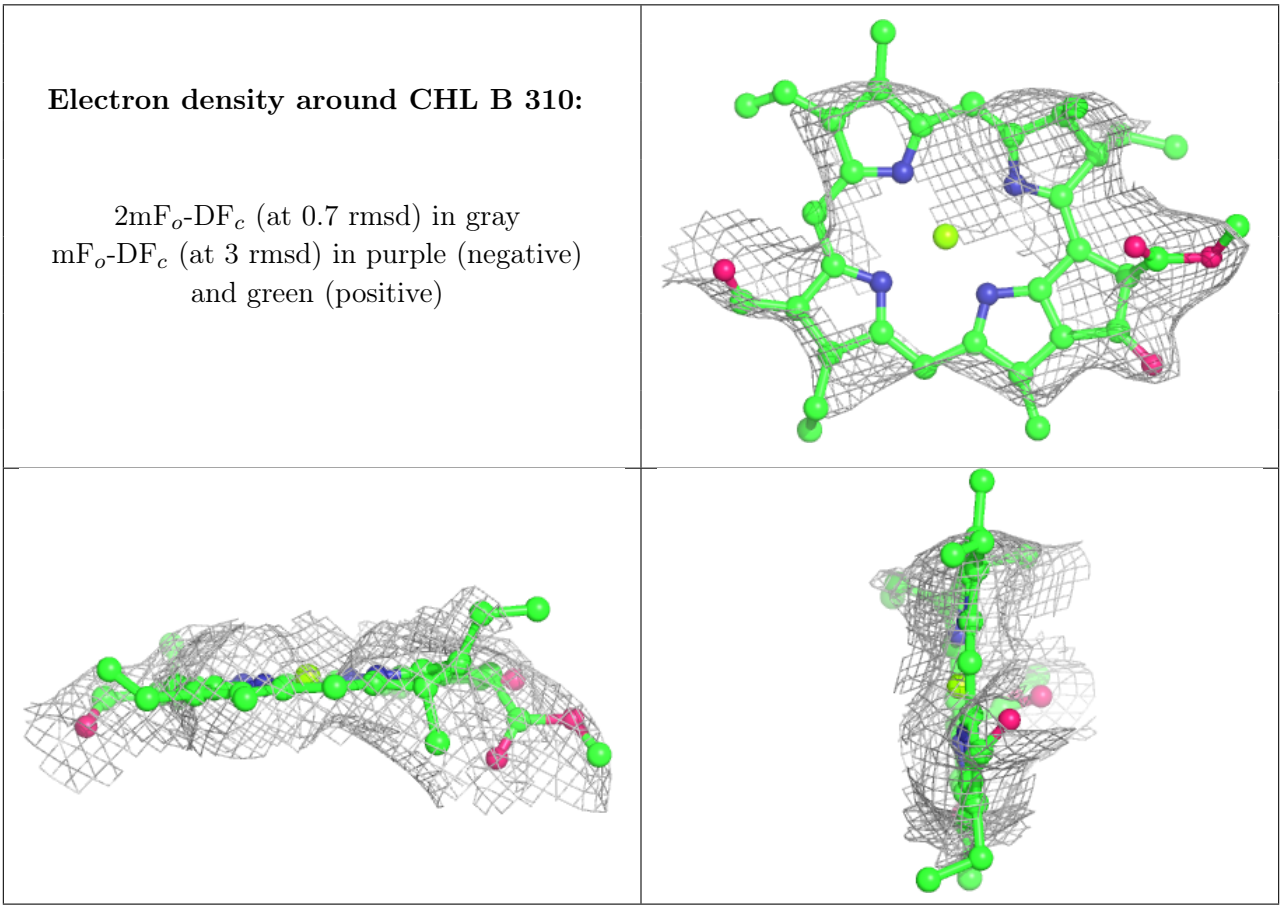
**Electron density around 0IE B 301:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



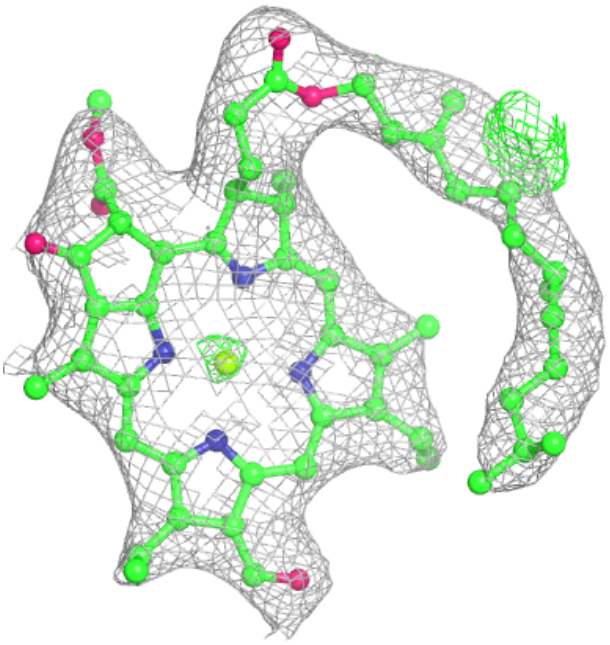
**Electron density around CHL B 310:**

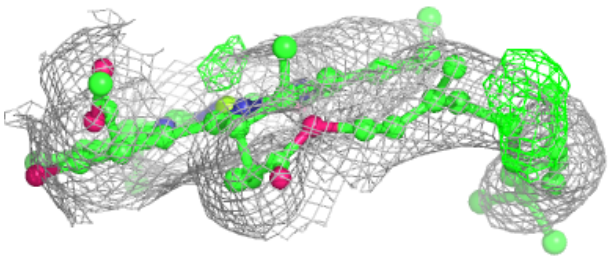
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

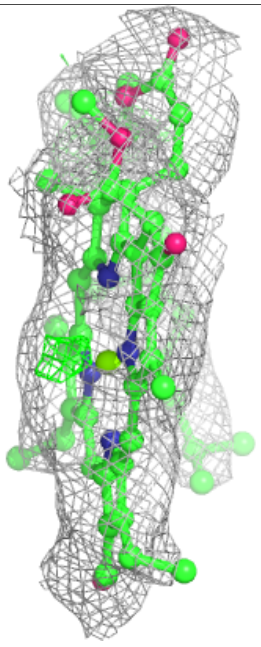


**Electron density around CHL C 311:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

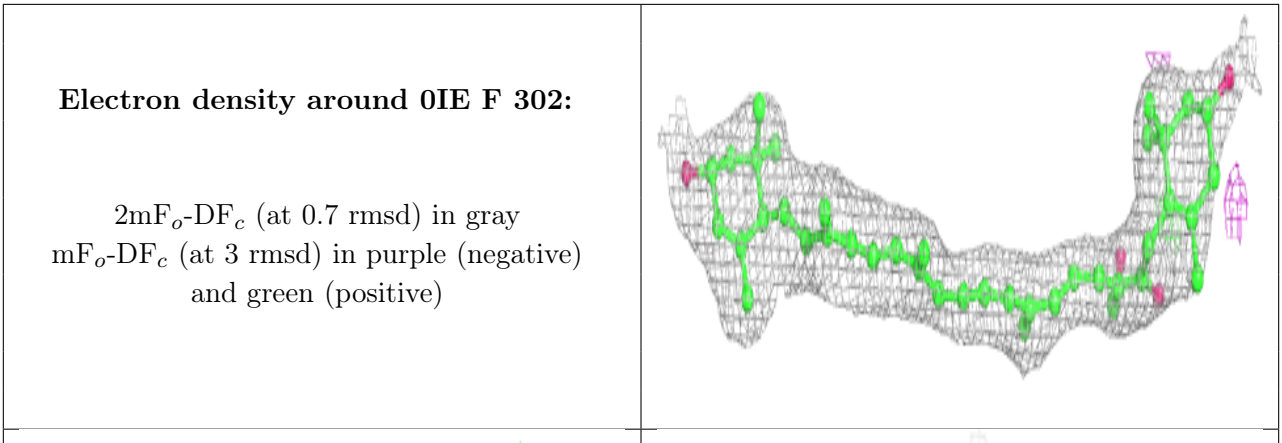






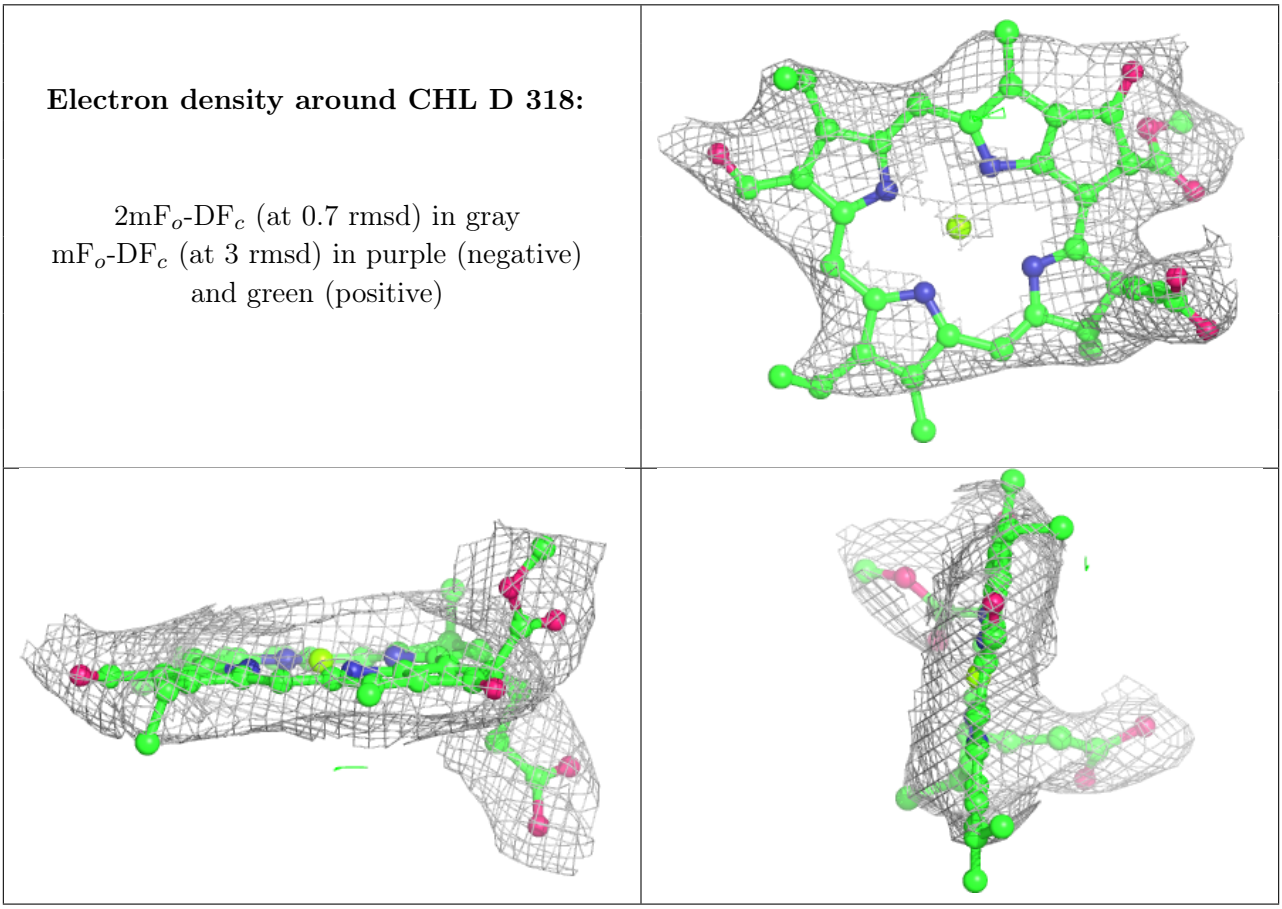
**Electron density around 0IE F 302:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



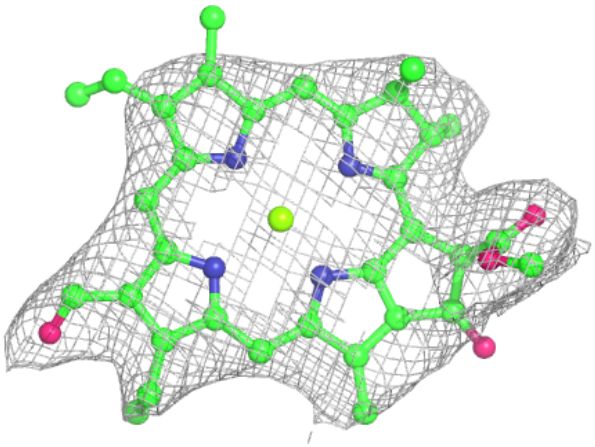
**Electron density around CHL D 318:**

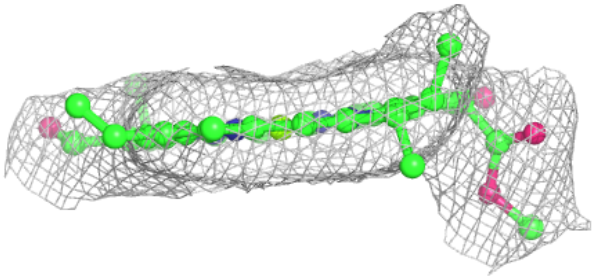
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

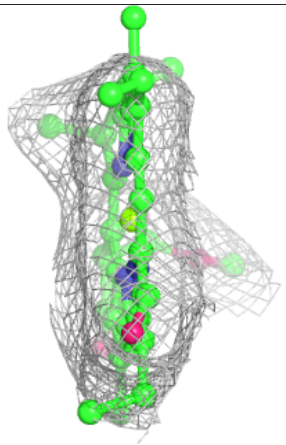


**Electron density around CHL A 318:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

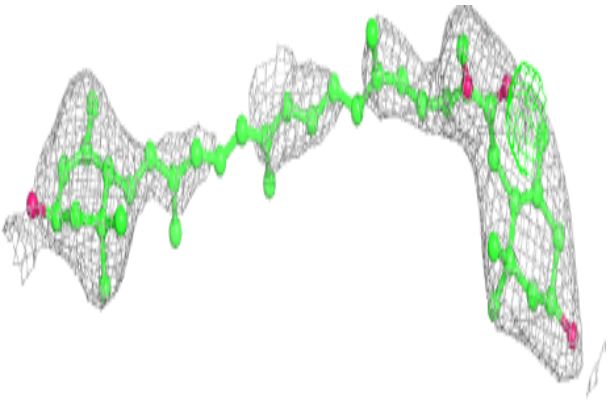


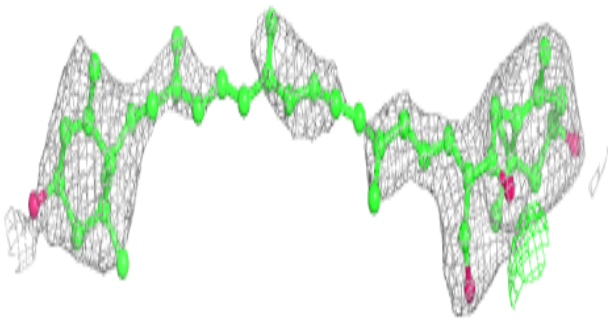


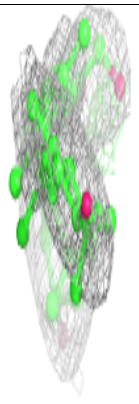


**Electron density around 0IE E 302:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

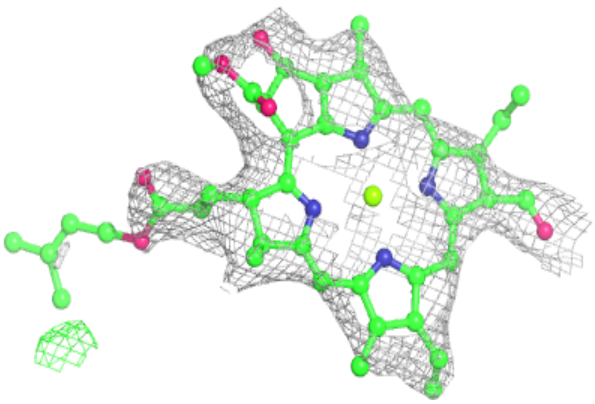


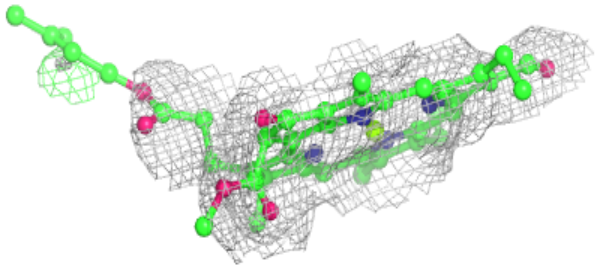


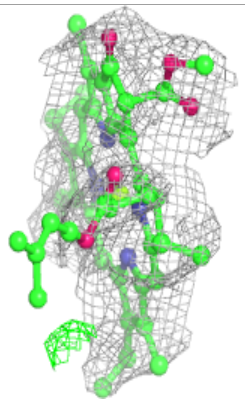


**Electron density around CHL B 311:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

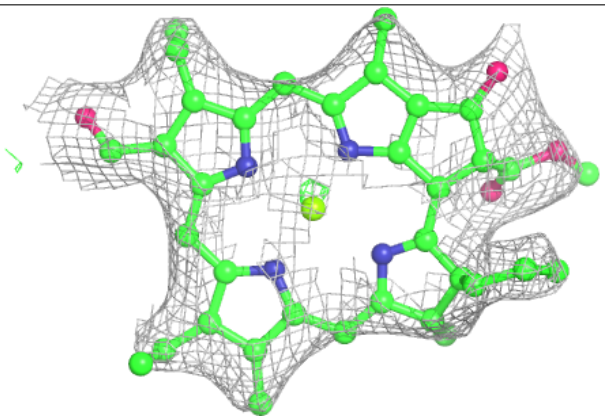


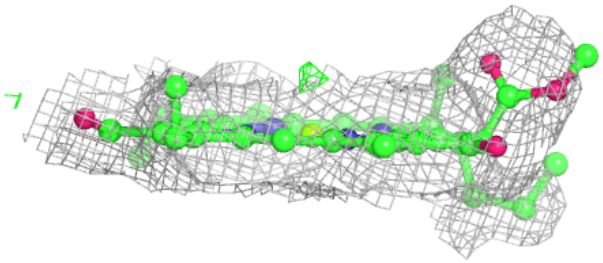


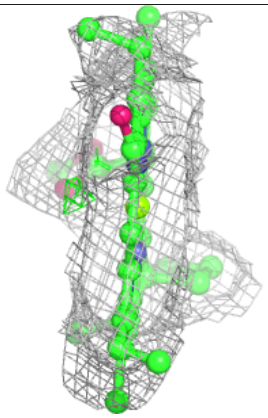


**Electron density around CHL C 310:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

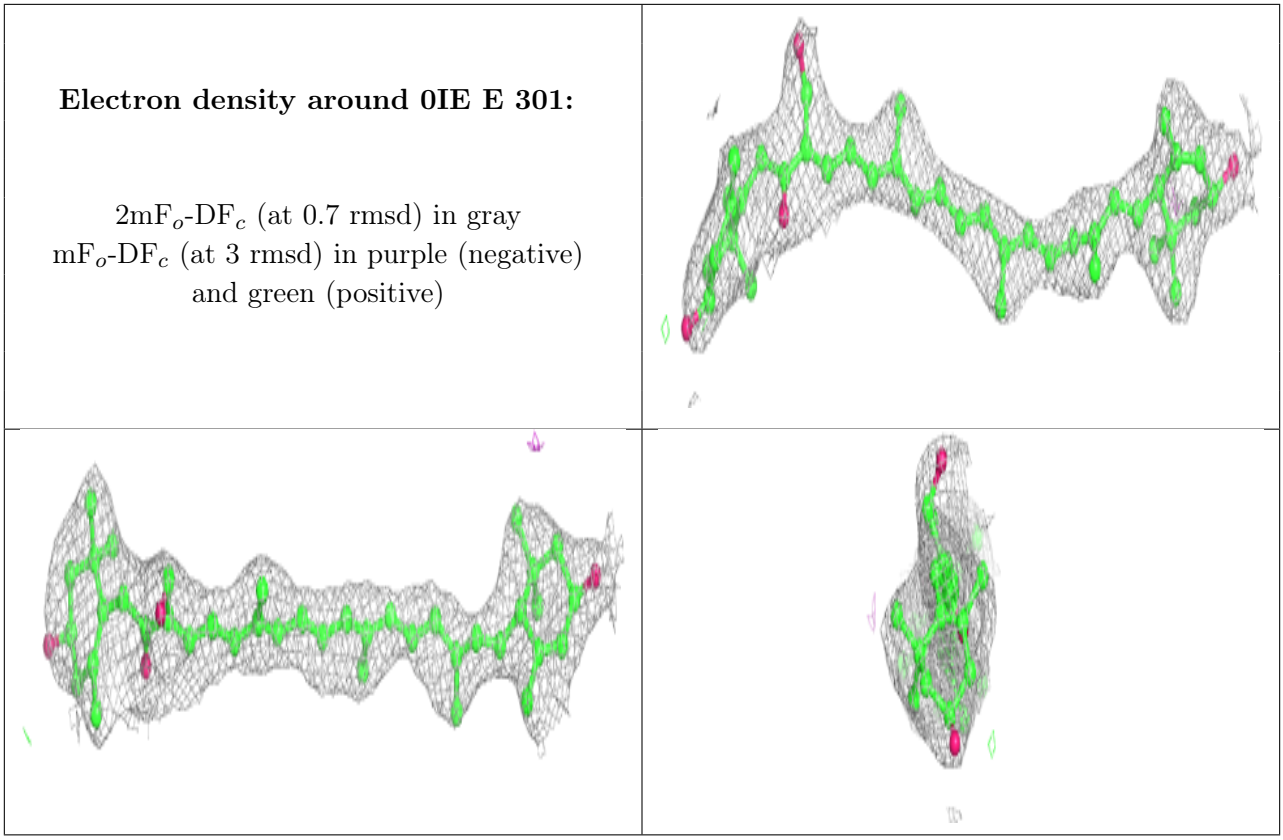






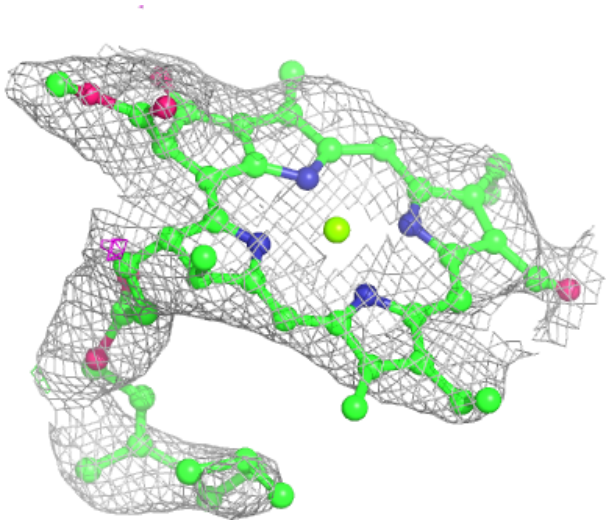
**Electron density around 0IE E 301:**

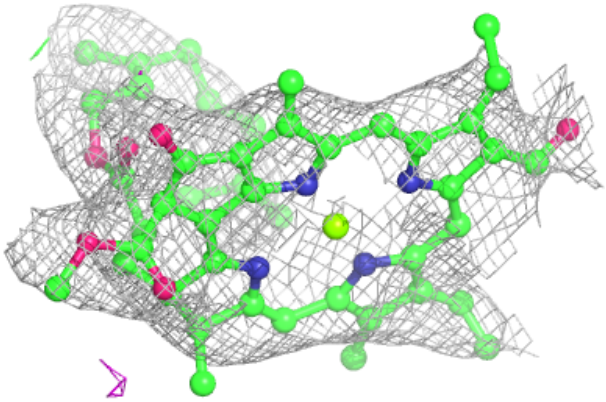
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

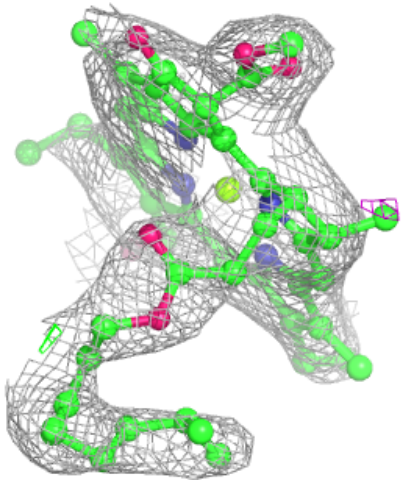


**Electron density around CHL C 312:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

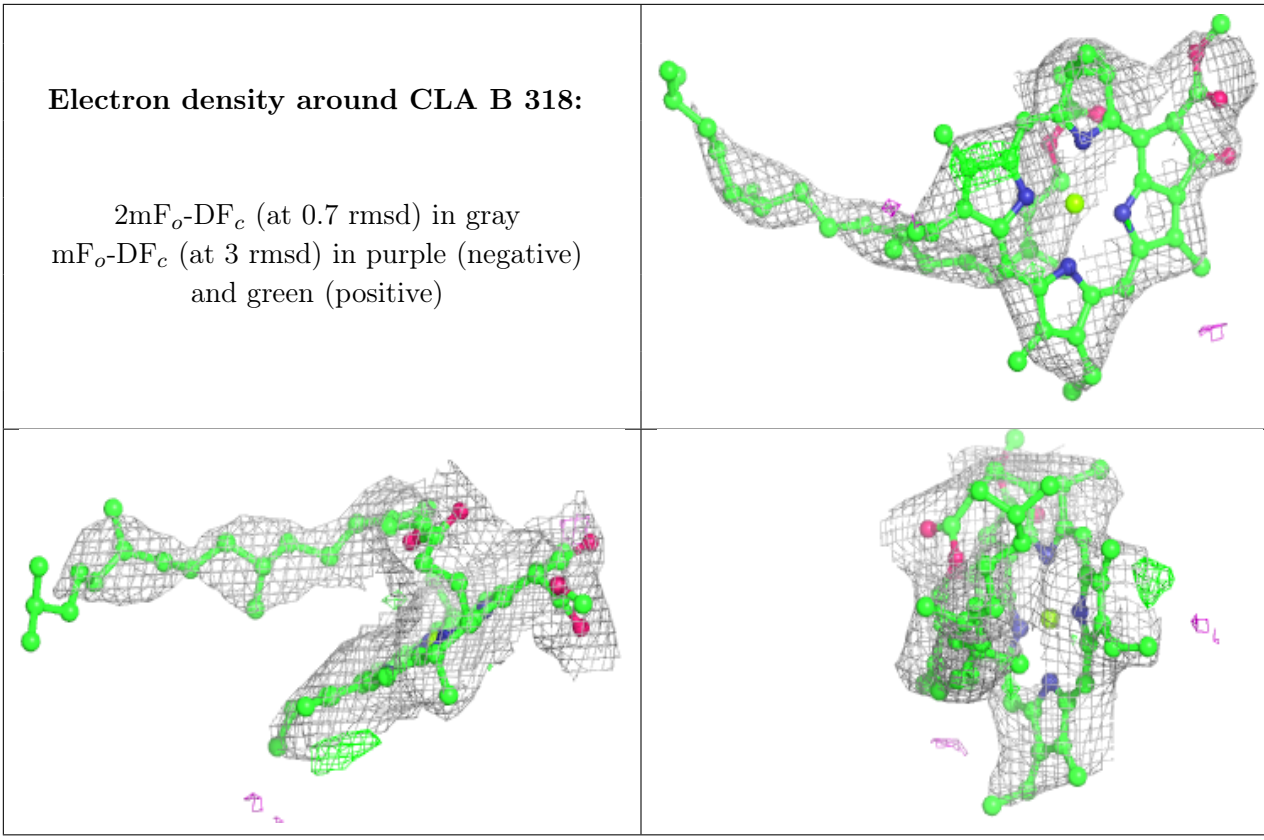






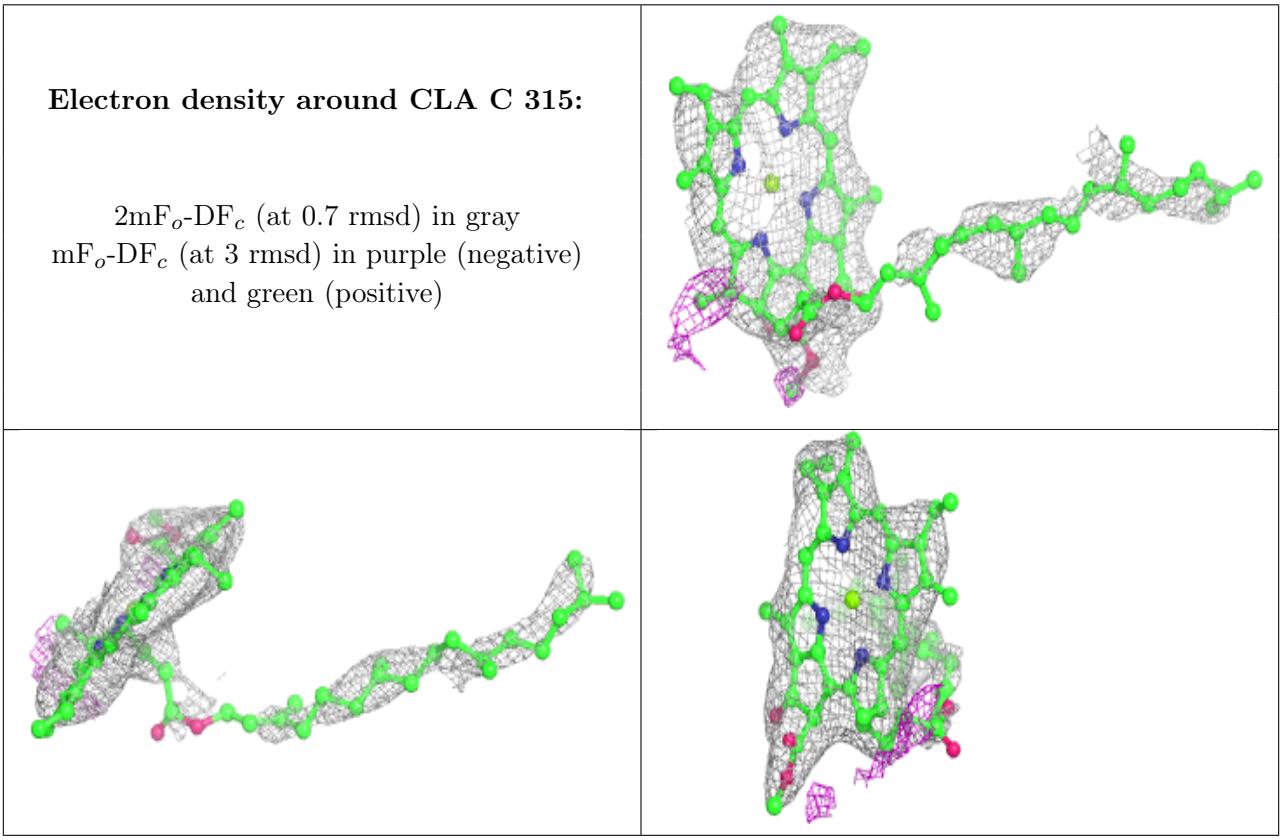
**Electron density around CLA B 318:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



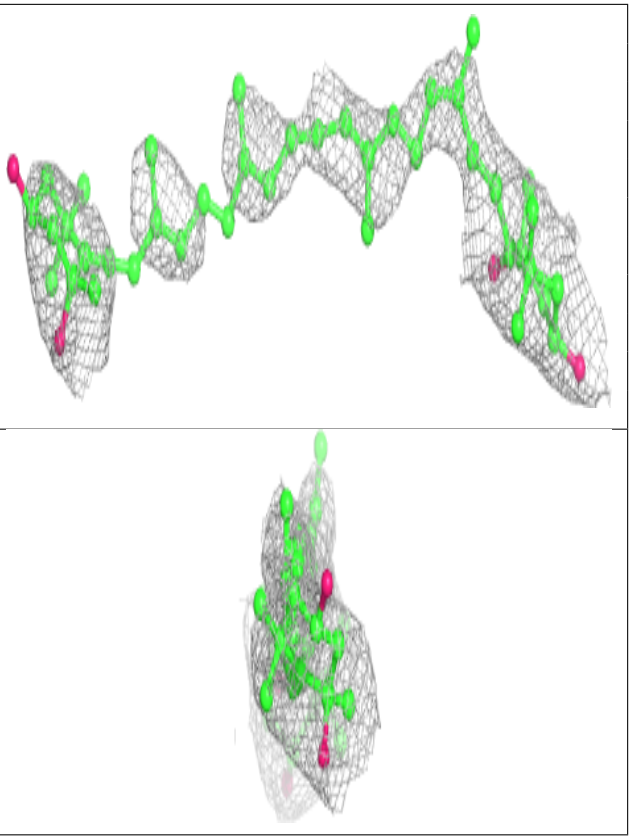
**Electron density around CLA C 315:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



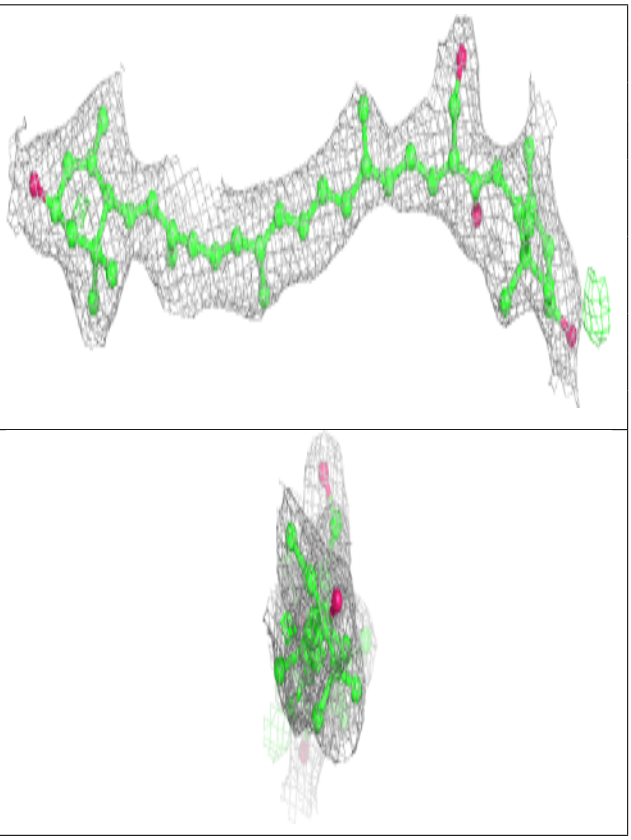
**Electron density around NEX C 303:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



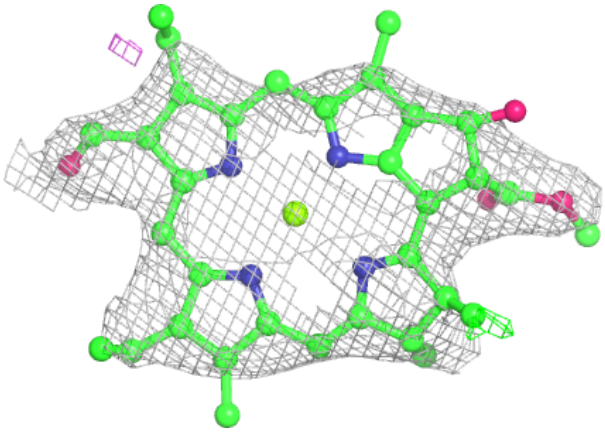
**Electron density around 0IE D 301:**

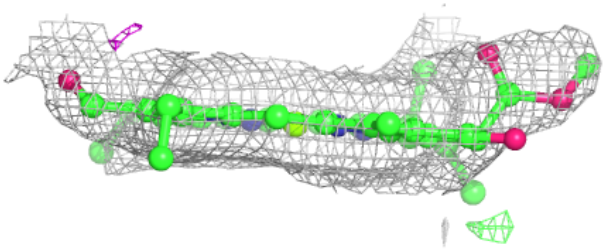
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

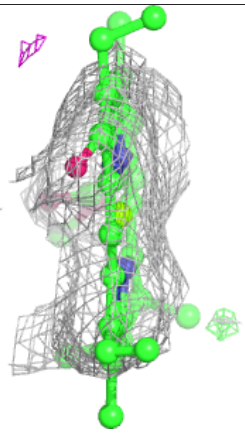


**Electron density around CHL F 308:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

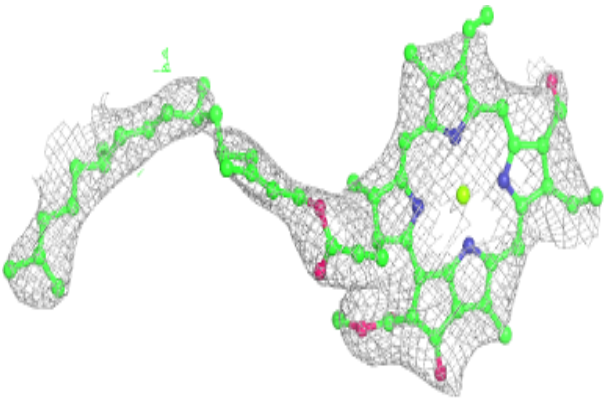


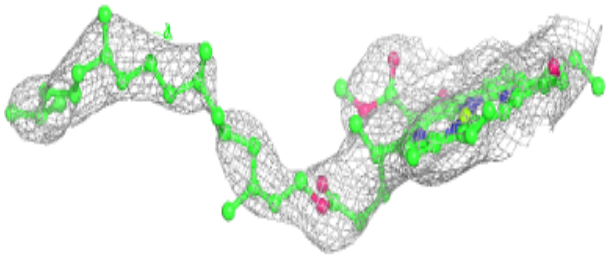


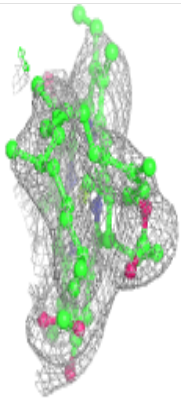


**Electron density around CHL D 305:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

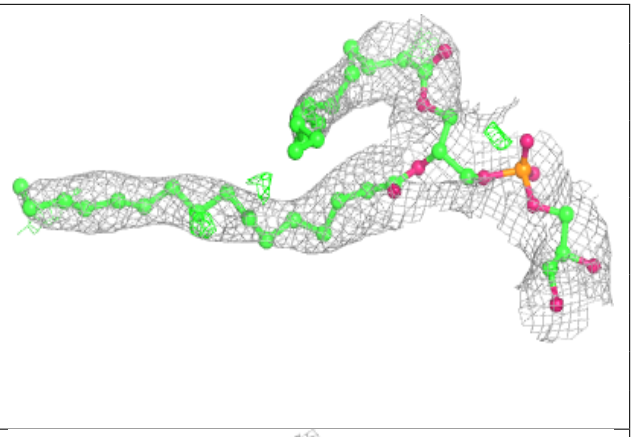


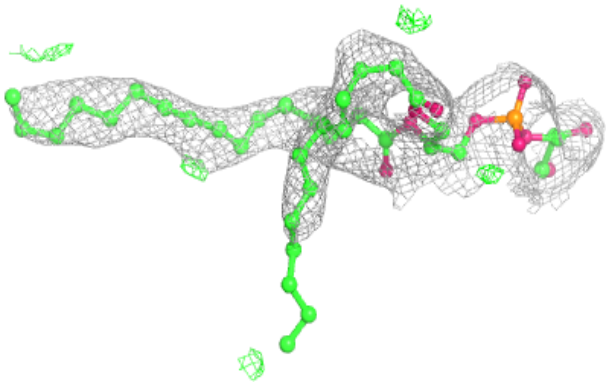


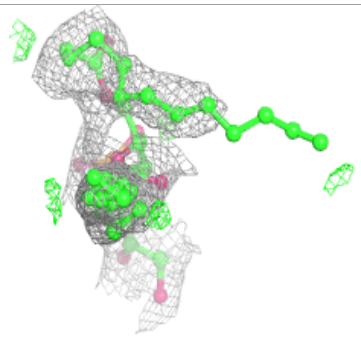


**Electron density around LHG D 319:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

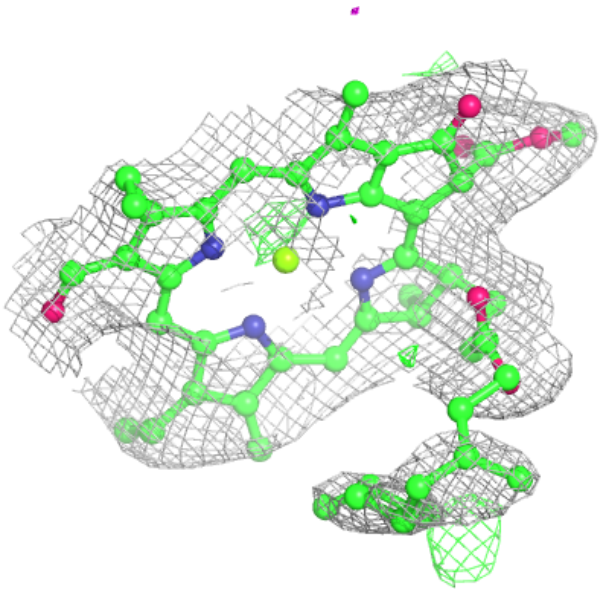


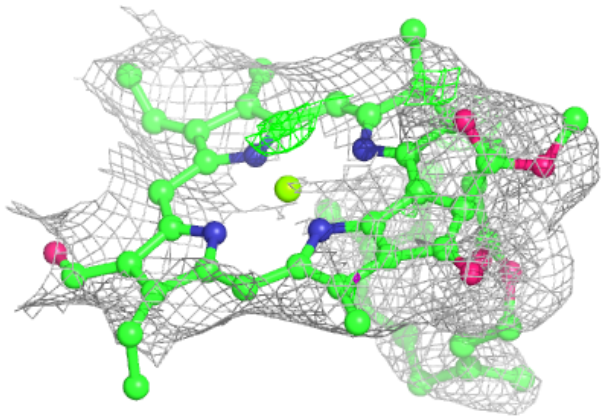


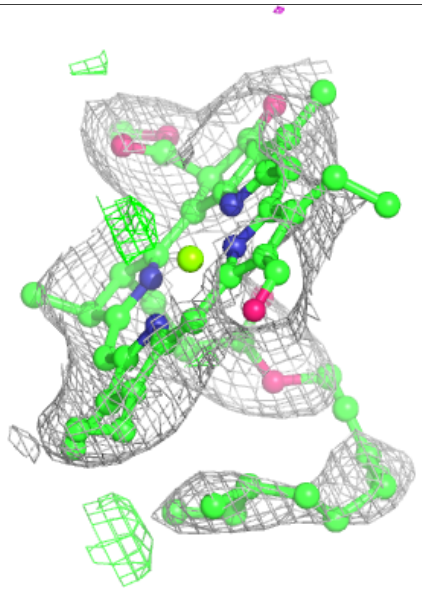


**Electron density around CHL B 313:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

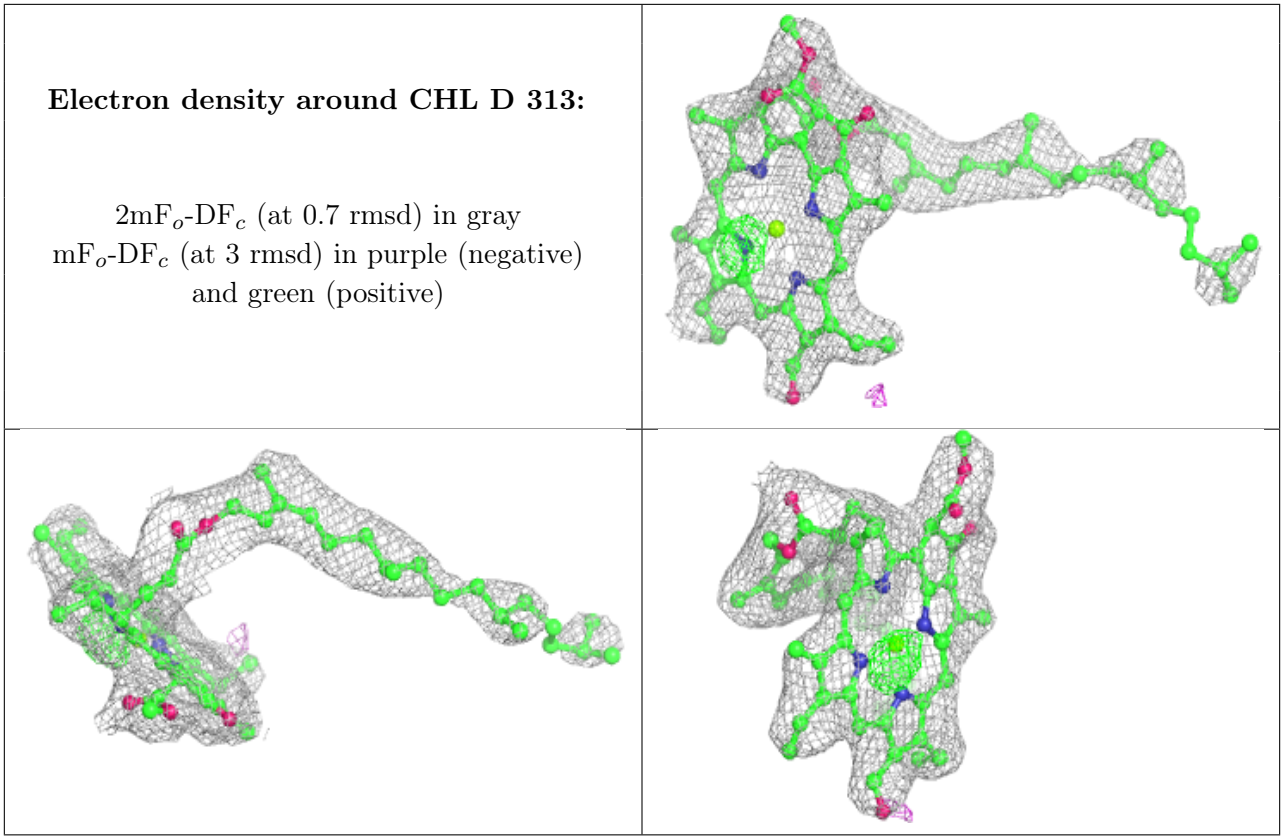






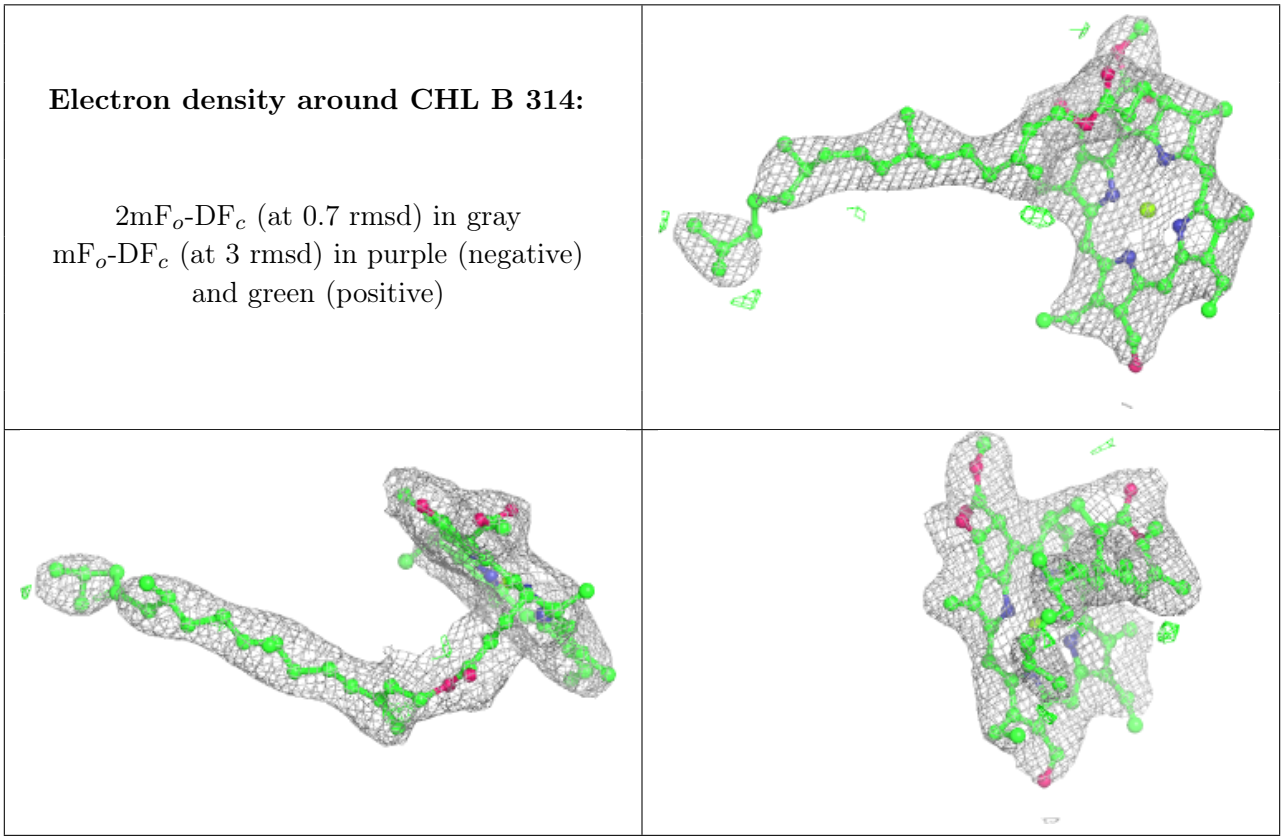
**Electron density around CHL D 313:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



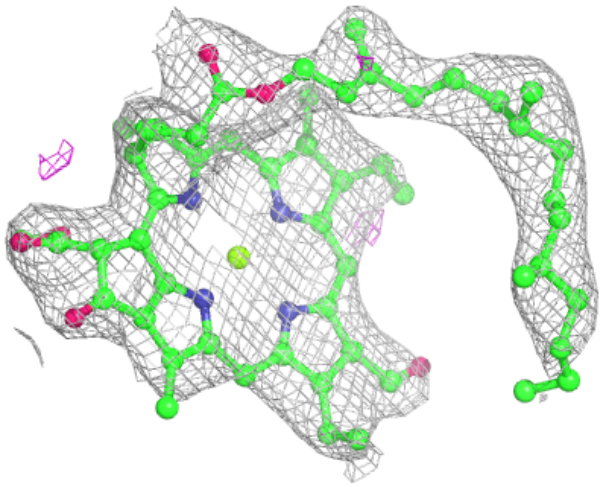
**Electron density around CHL B 314:**

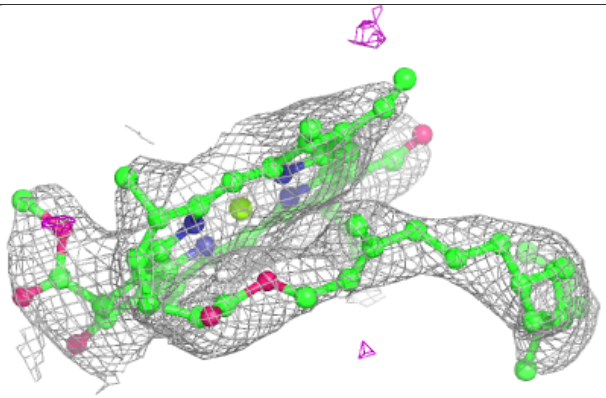
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

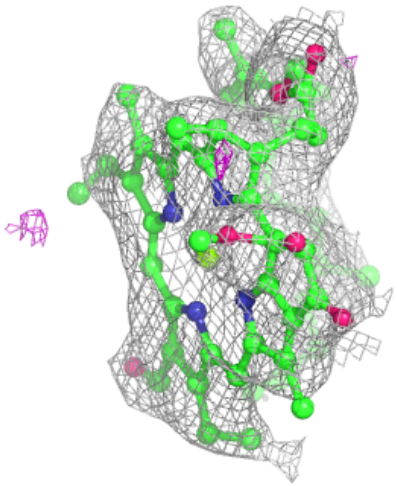


**Electron density around CHL E 305:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

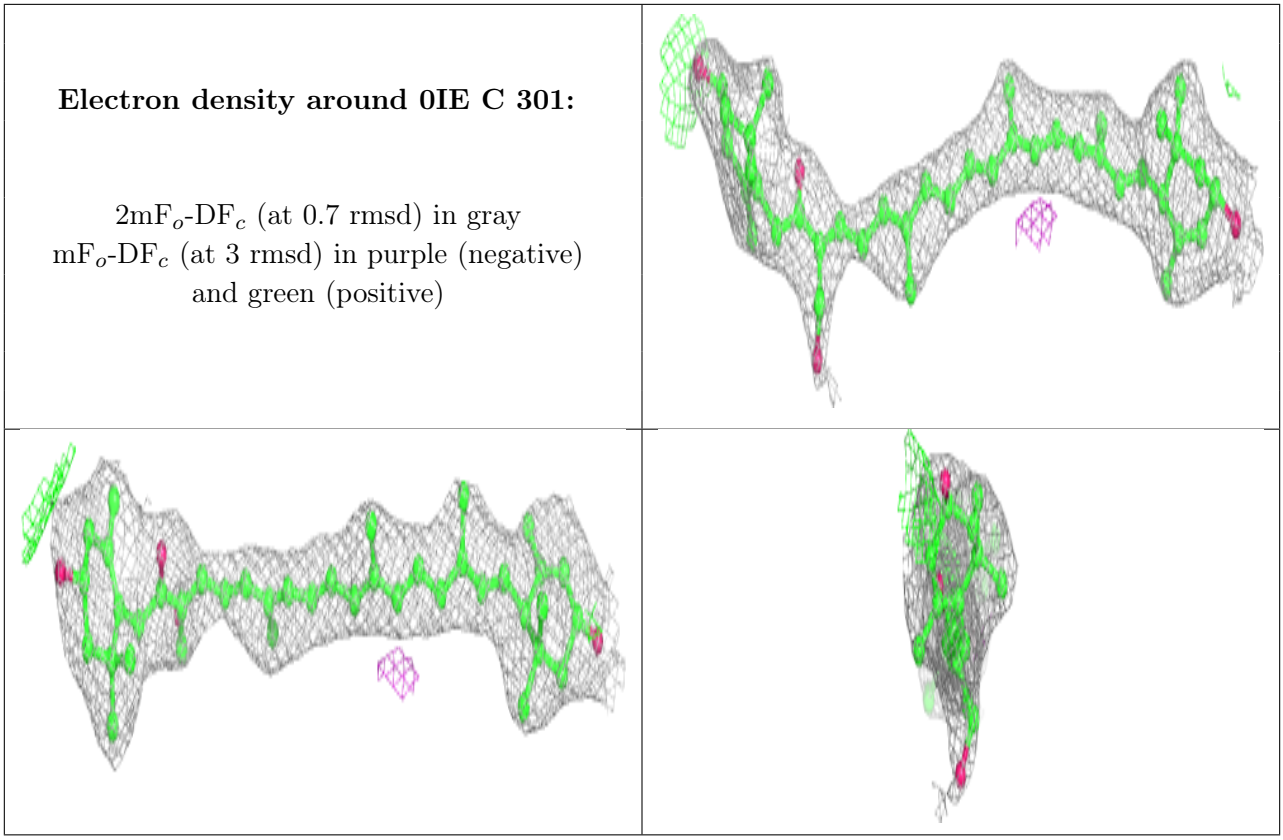






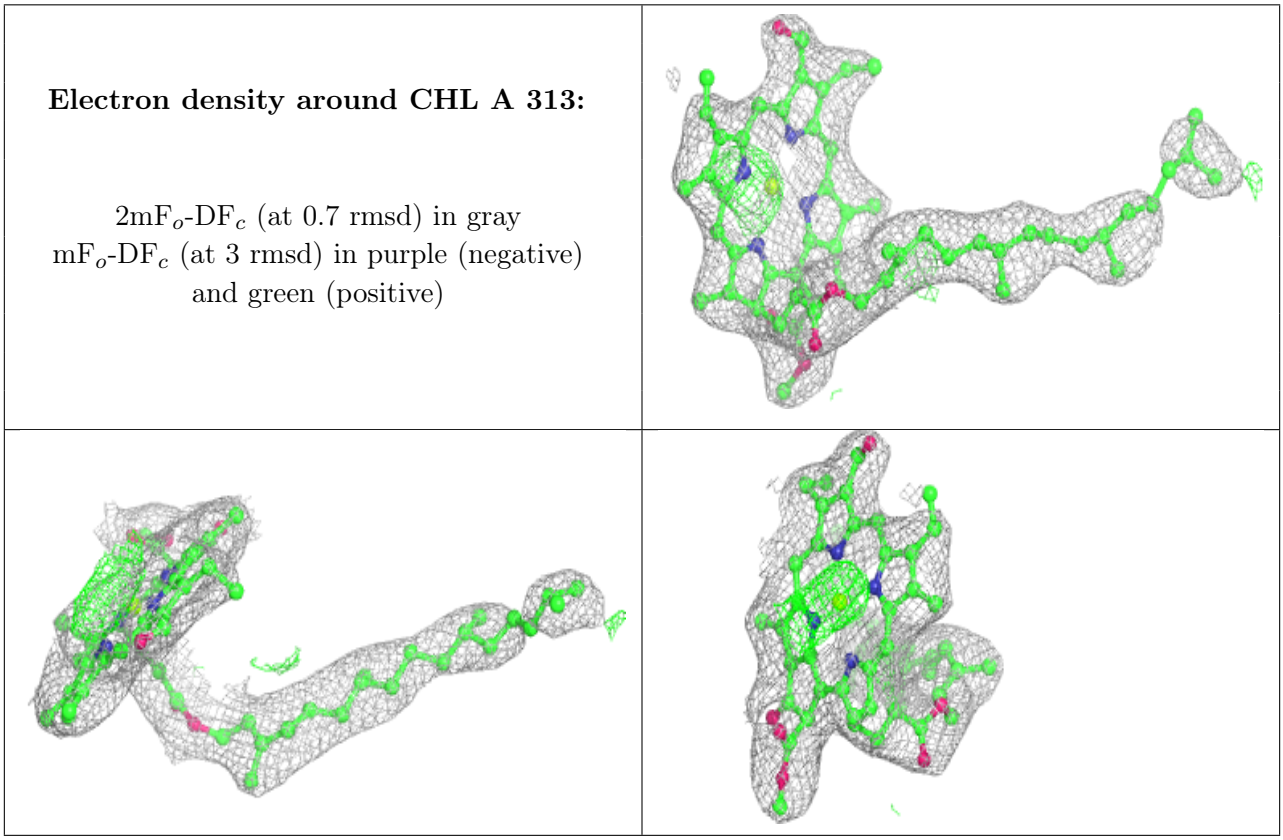
**Electron density around 0IE C 301:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



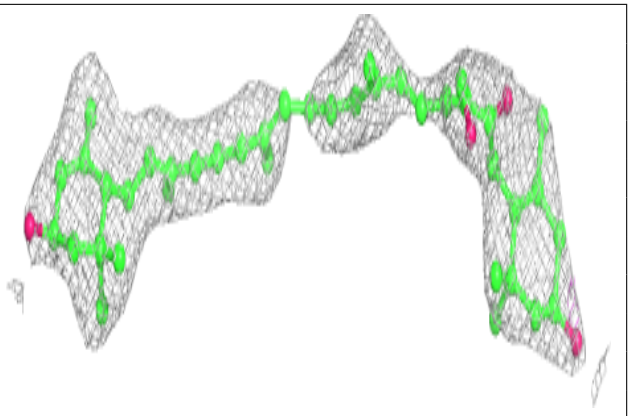
**Electron density around CHL A 313:**

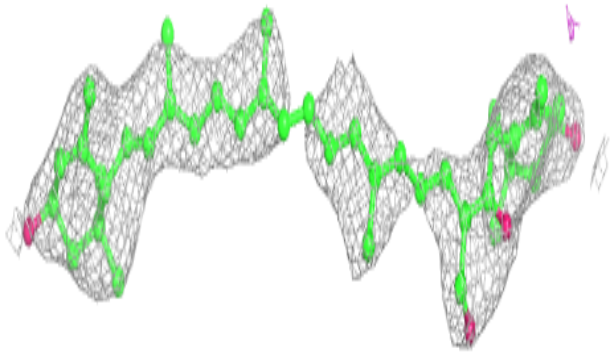
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



**Electron density around 0IE C 302:**

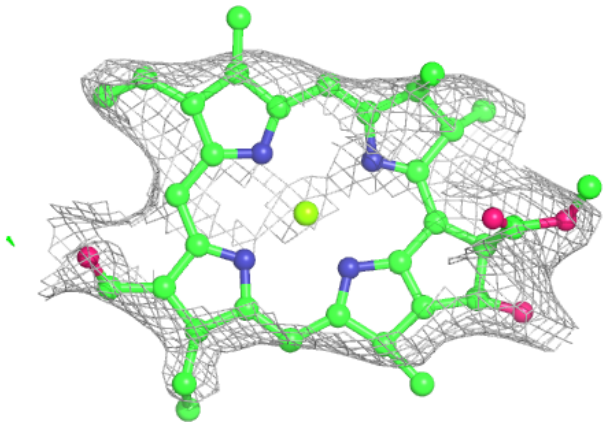
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

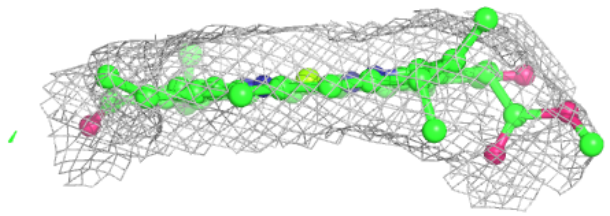


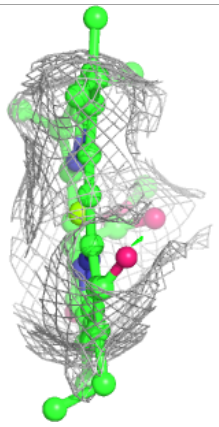


**Electron density around CHL D 309:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

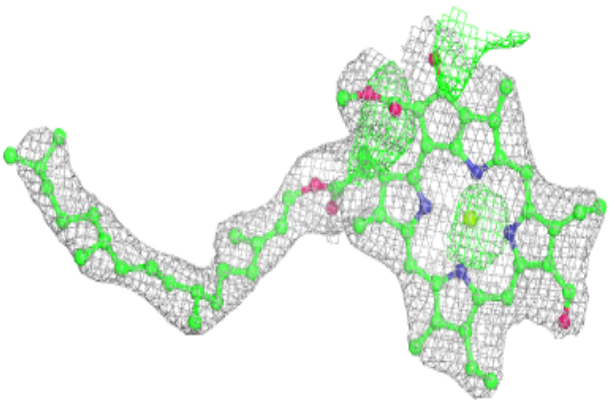


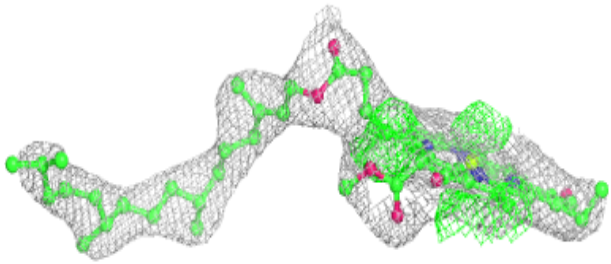


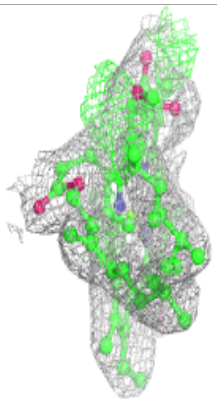


**Electron density around CHL F 304:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

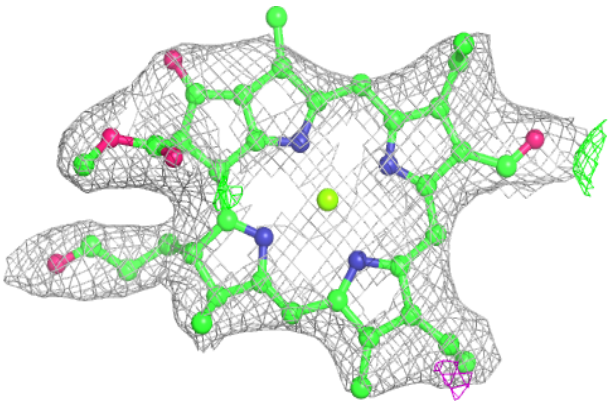


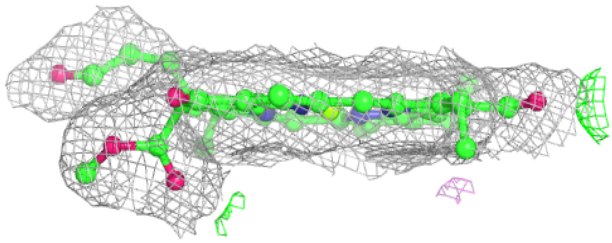


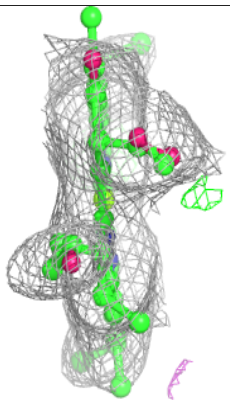


**Electron density around CHL D 310:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

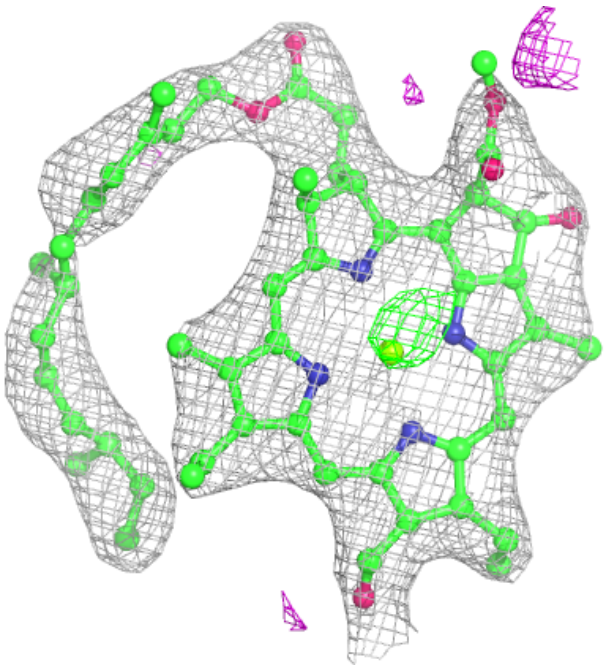


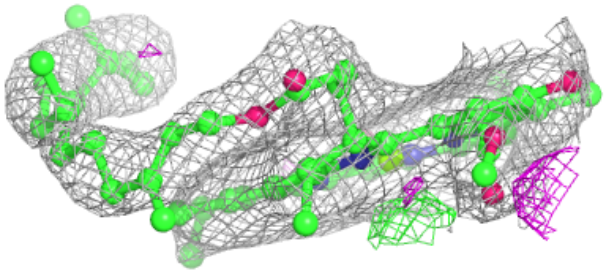


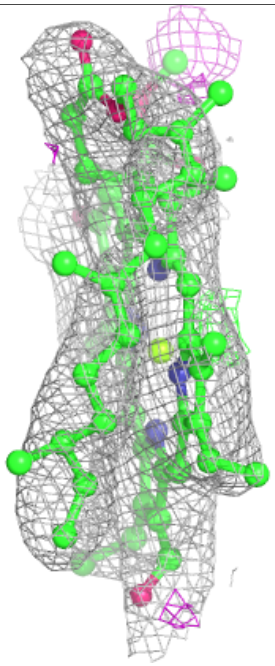


**Electron density around CHL D 311:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

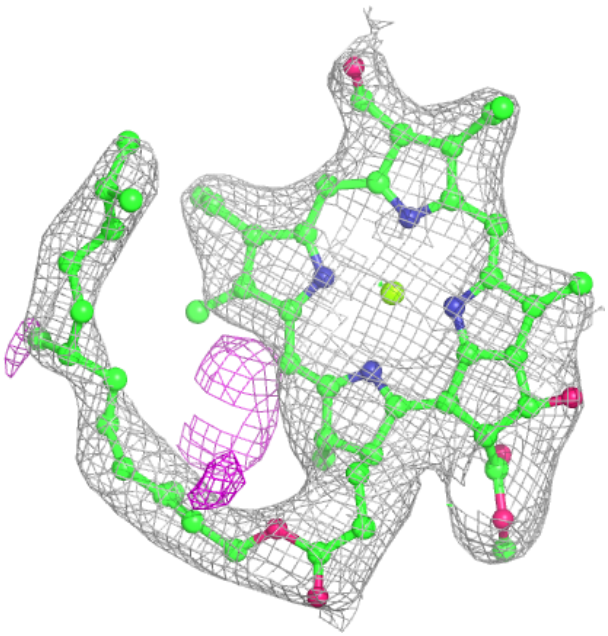


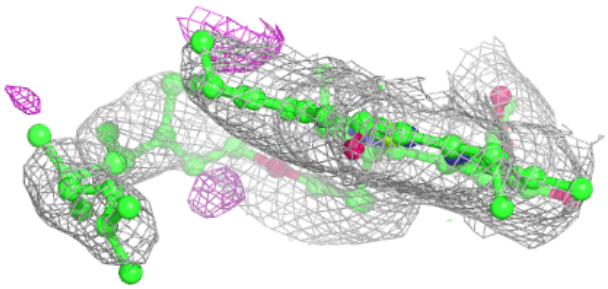


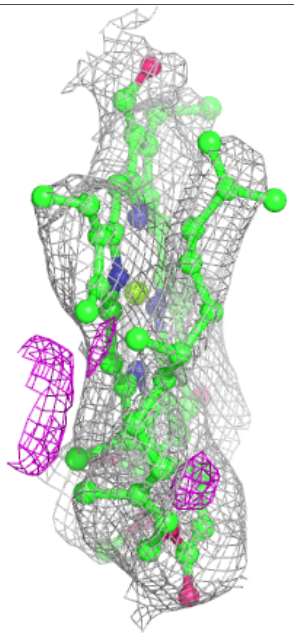


**Electron density around CHL F 310:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

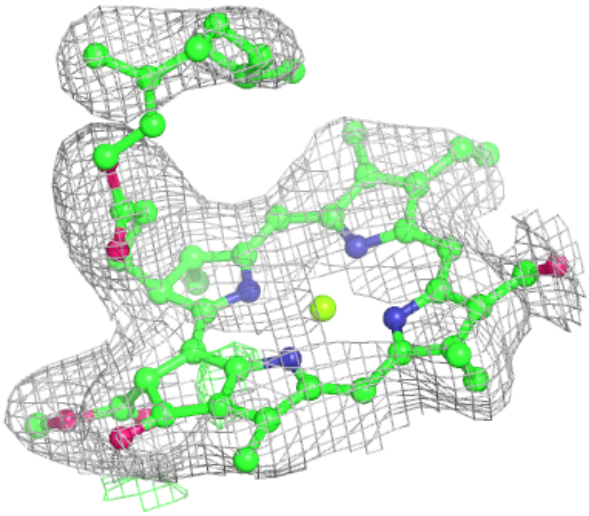


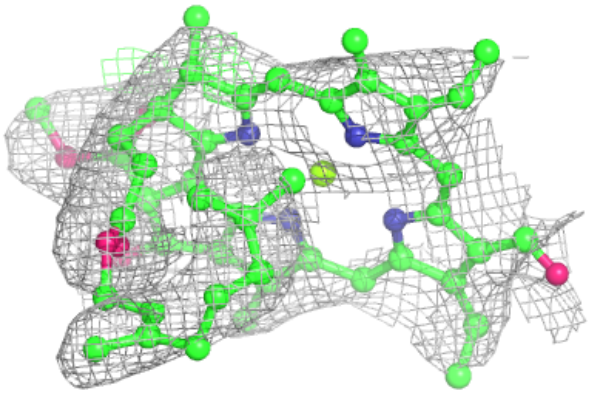


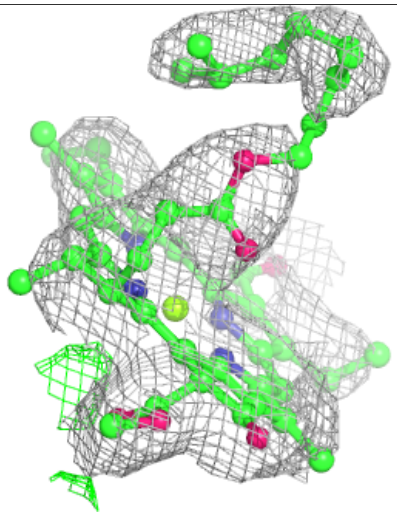


**Electron density around CHL F 311:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

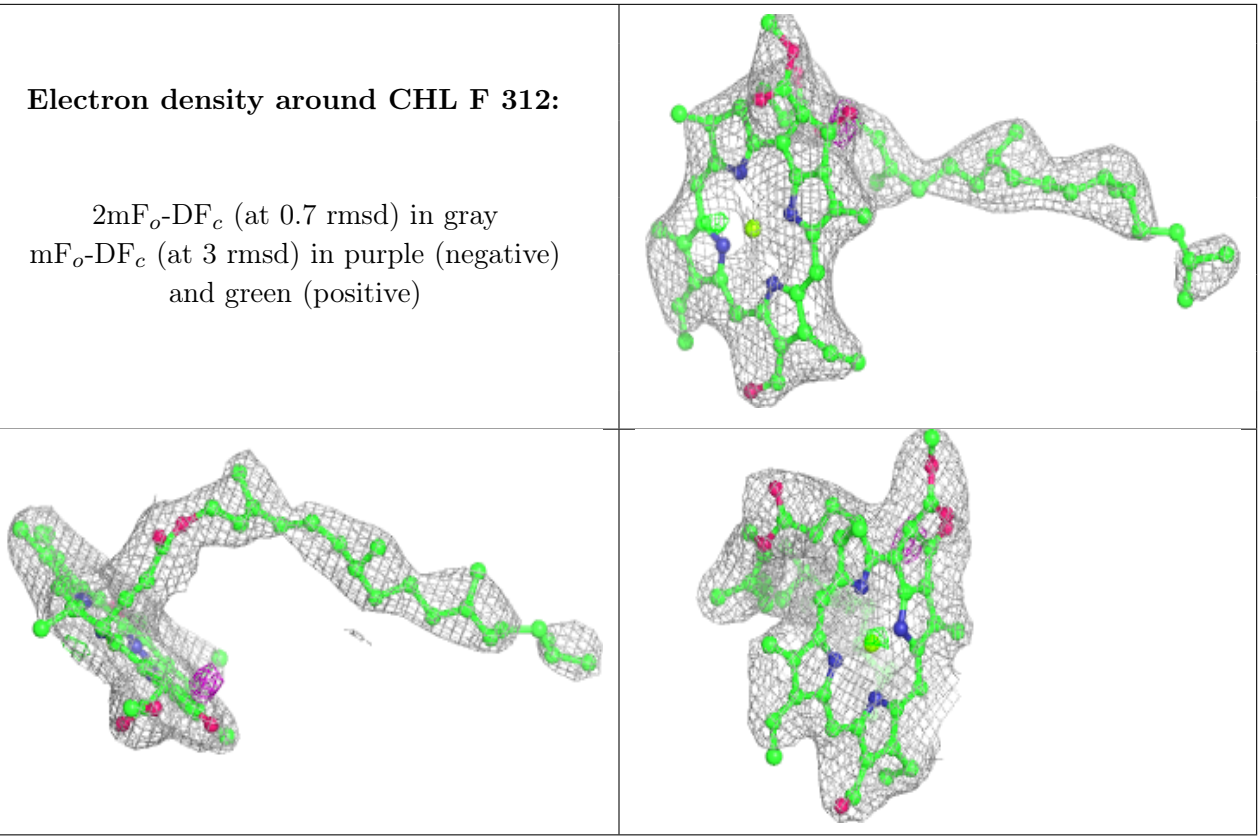






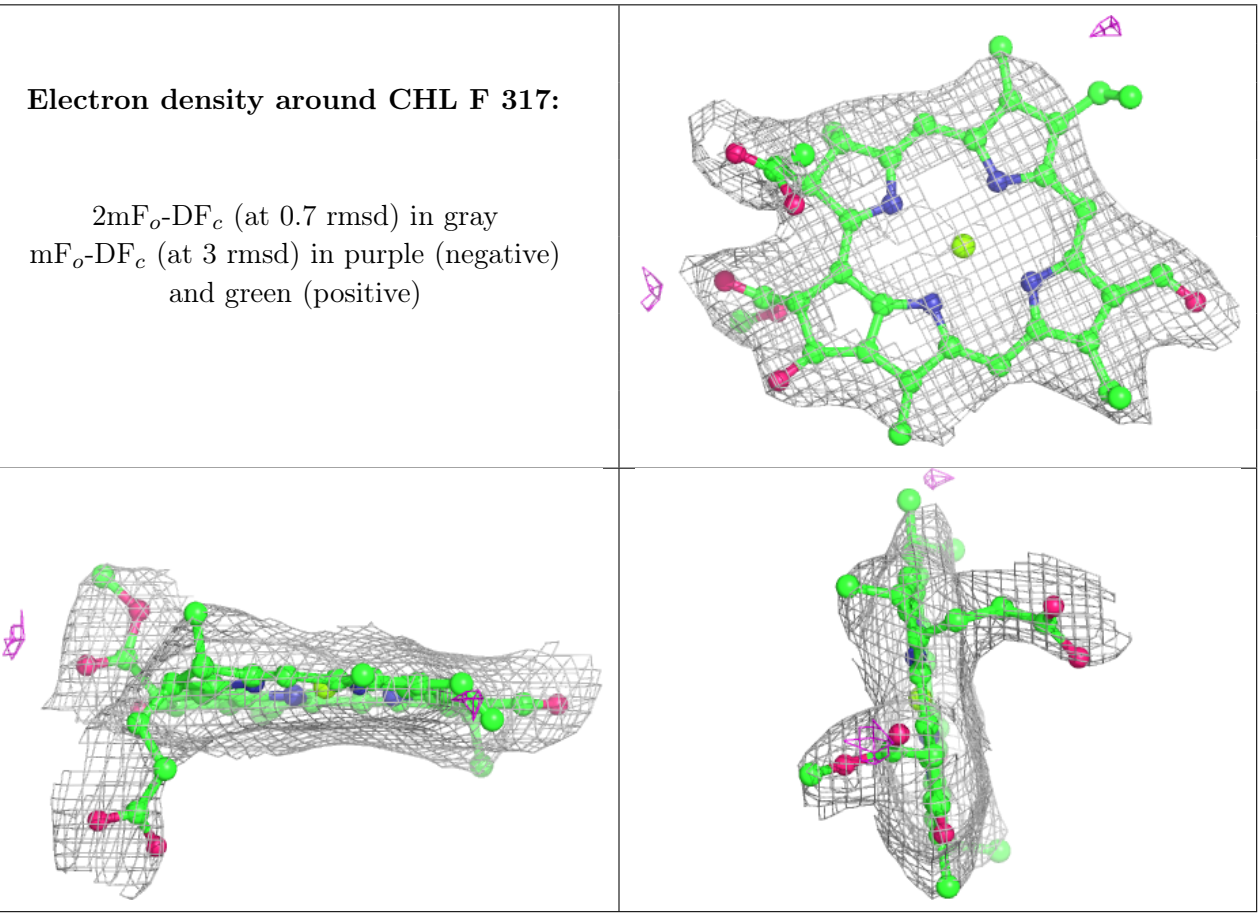
**Electron density around CHL F 312:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



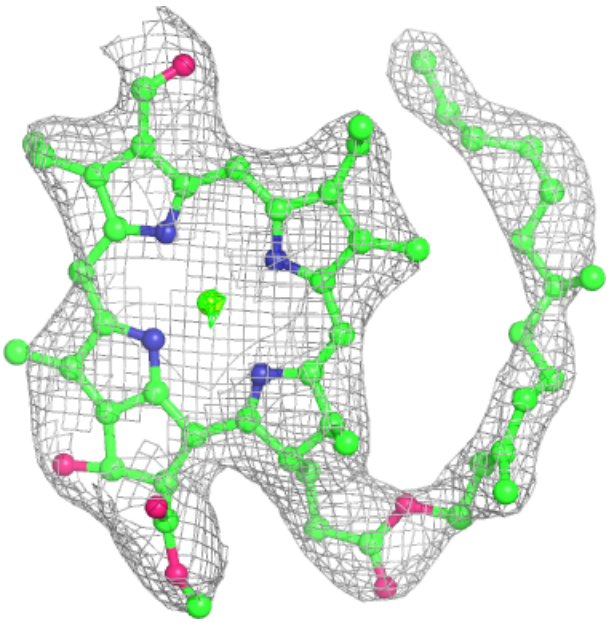
**Electron density around CHL F 317:**

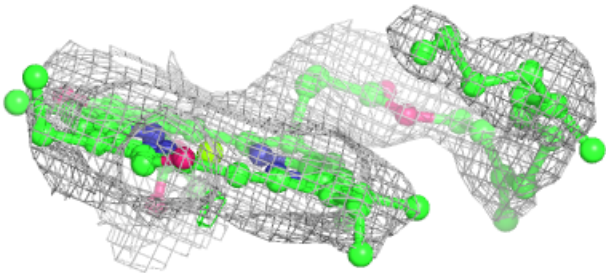
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

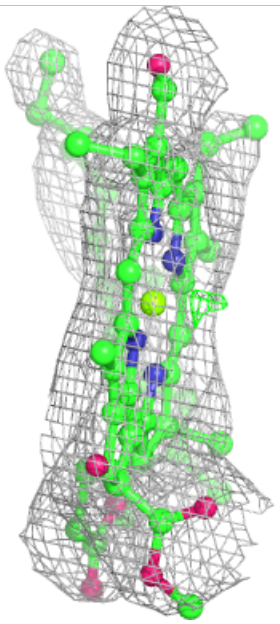


**Electron density around CHL A 311:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

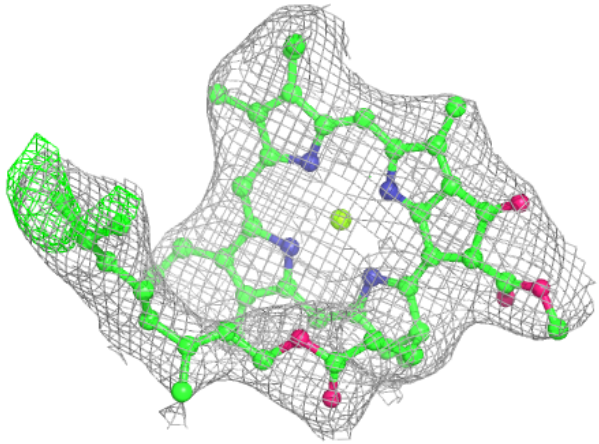


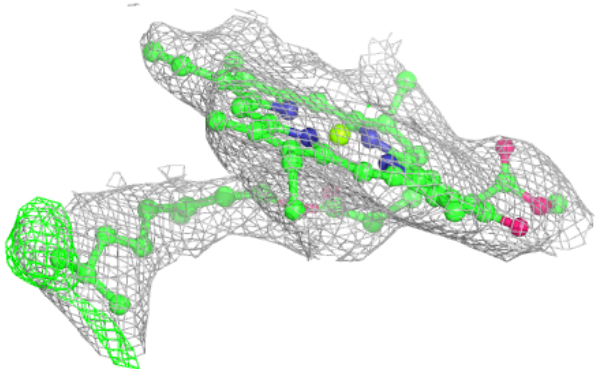


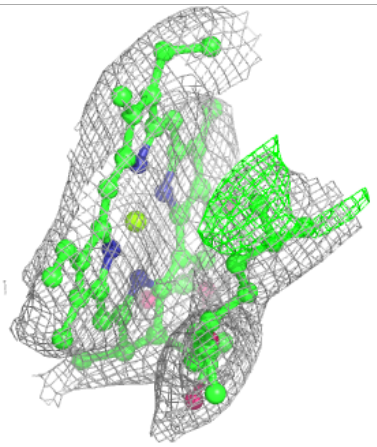


**Electron density around CLA A 314:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

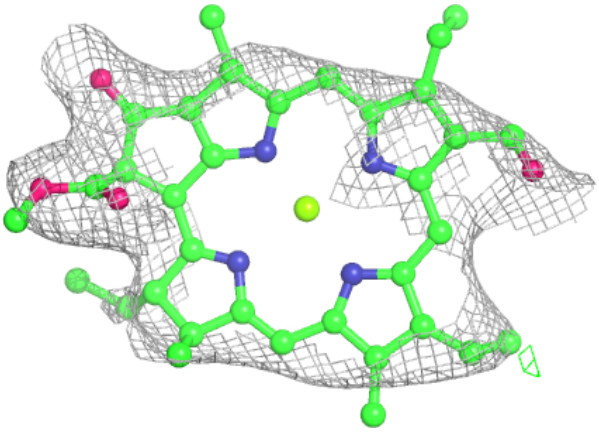


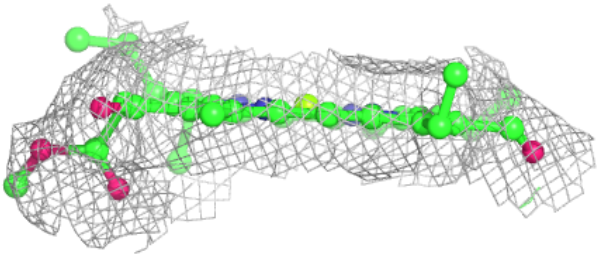


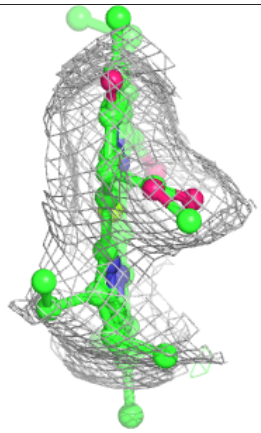


**Electron density around CHL A 309:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

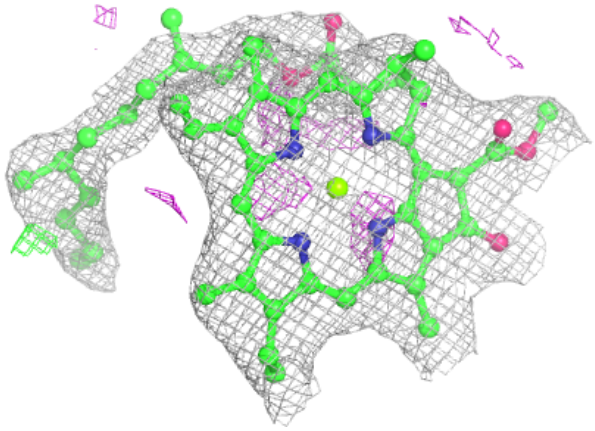


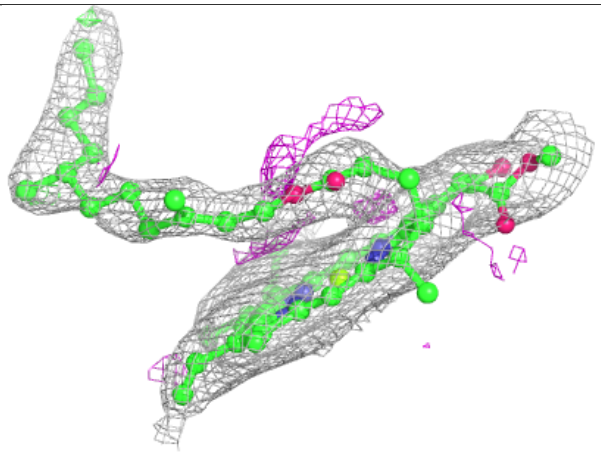


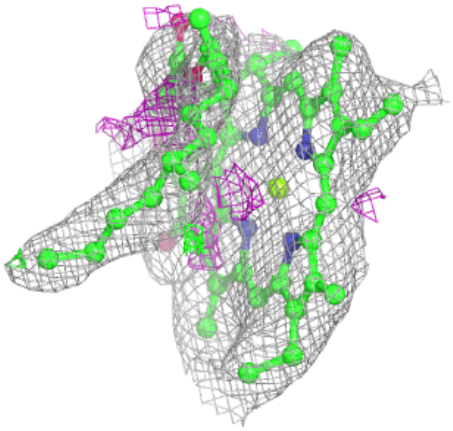


**Electron density around CLA B 315:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

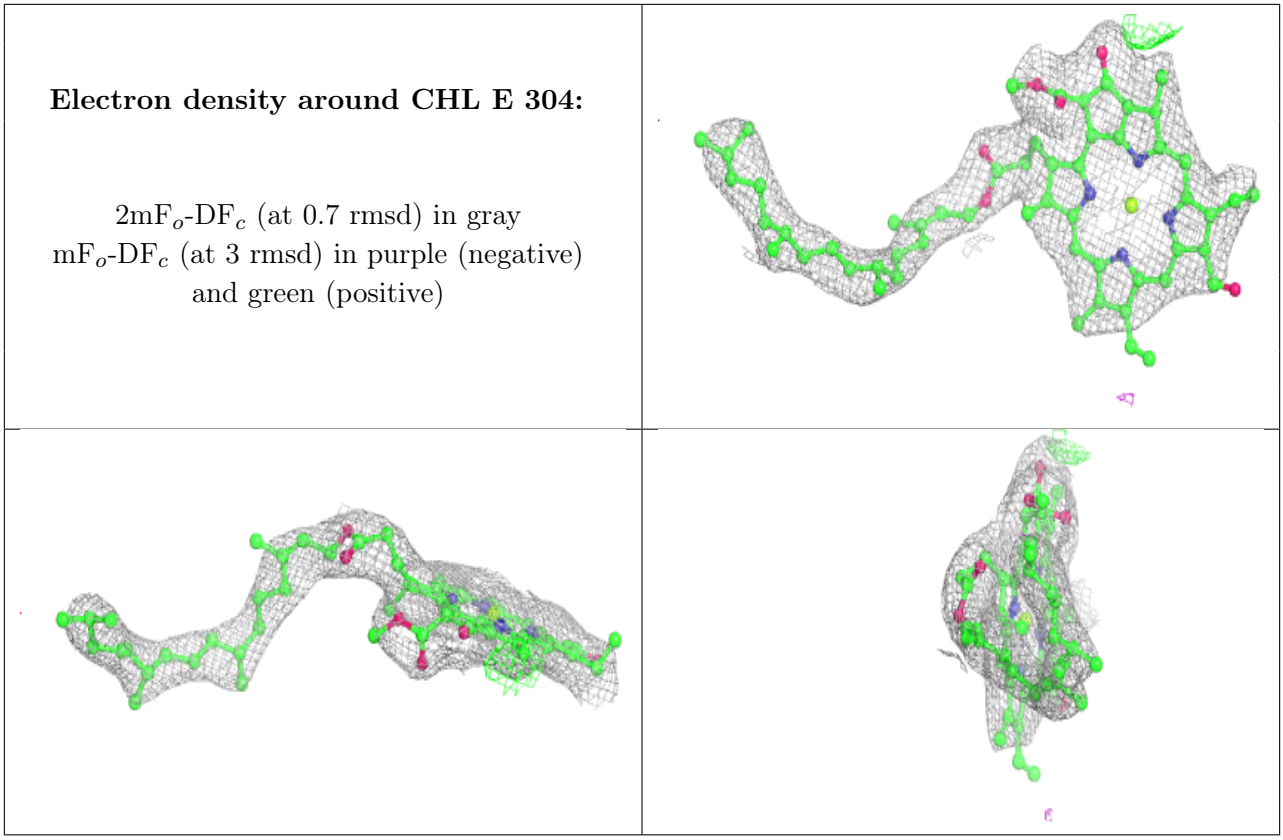






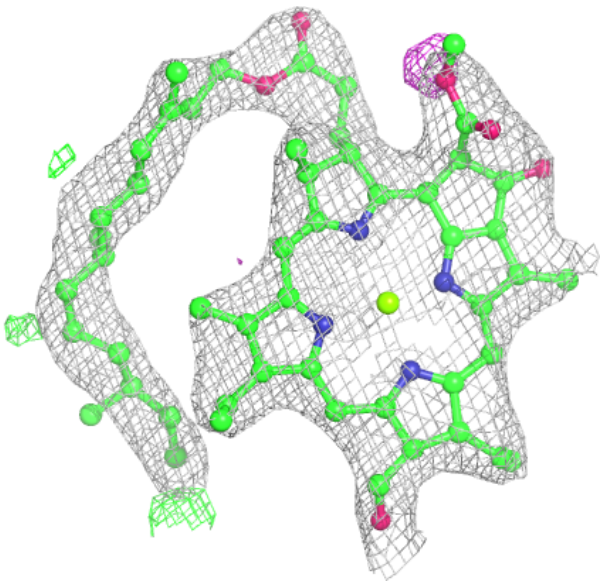
**Electron density around CHL E 304:**

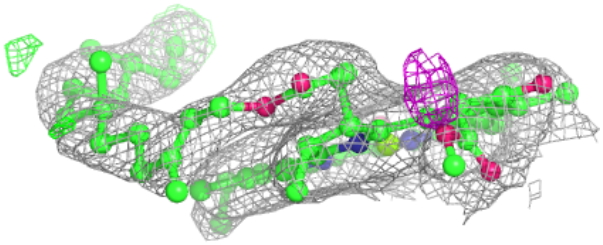
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

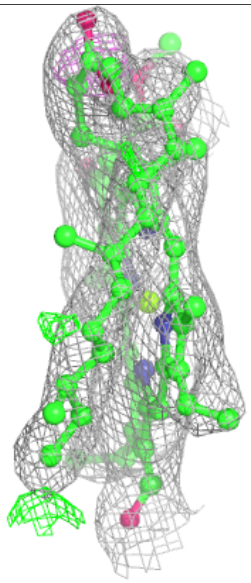


**Electron density around CHL B 312:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

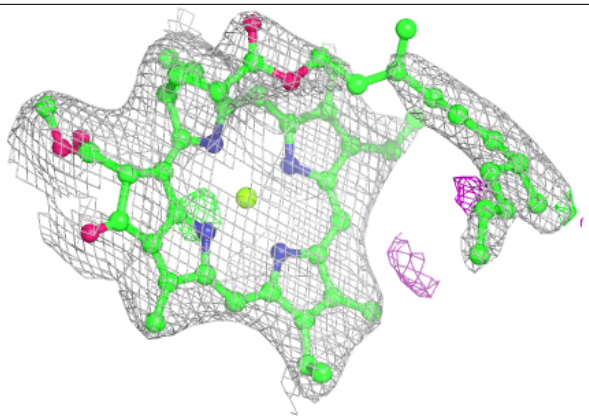


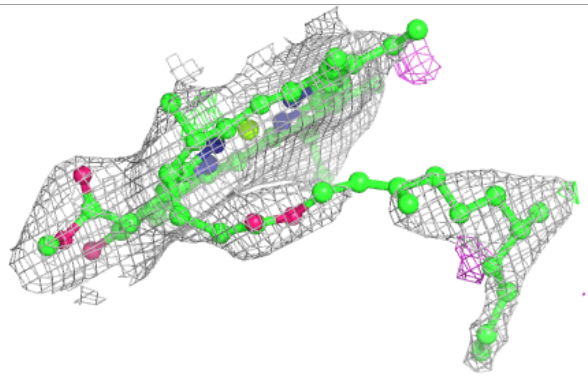


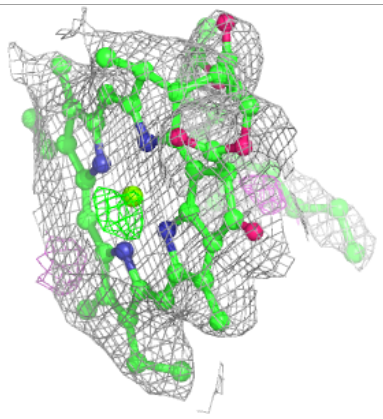


**Electron density around CLA D 314:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

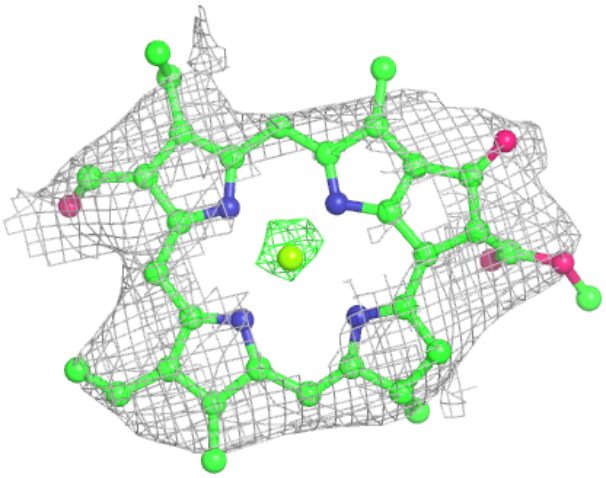


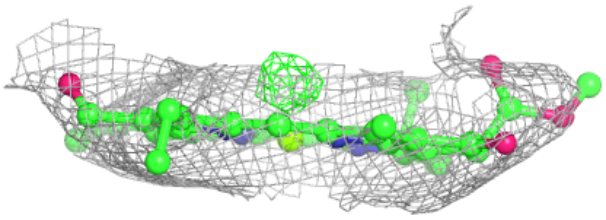


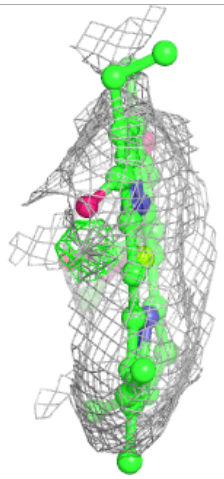


**Electron density around CHL E 308:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

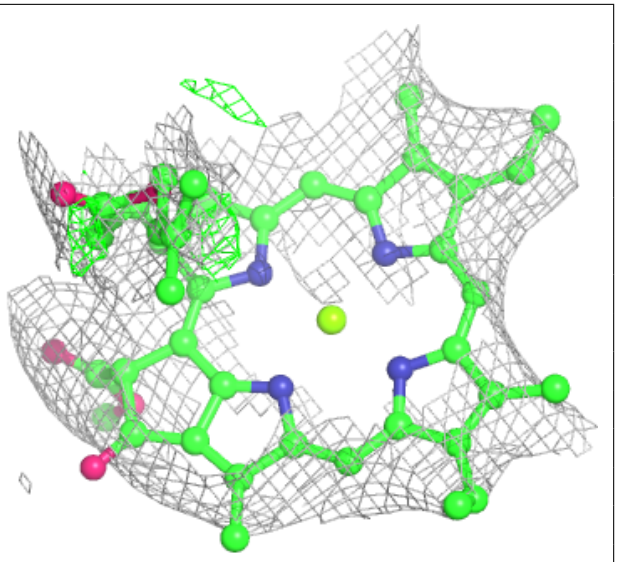


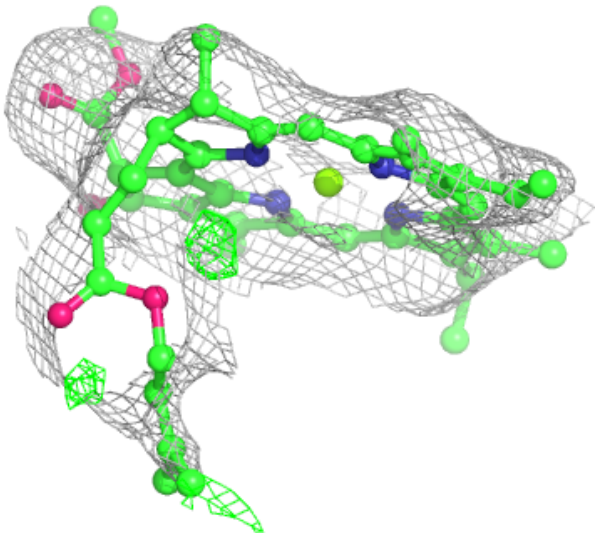


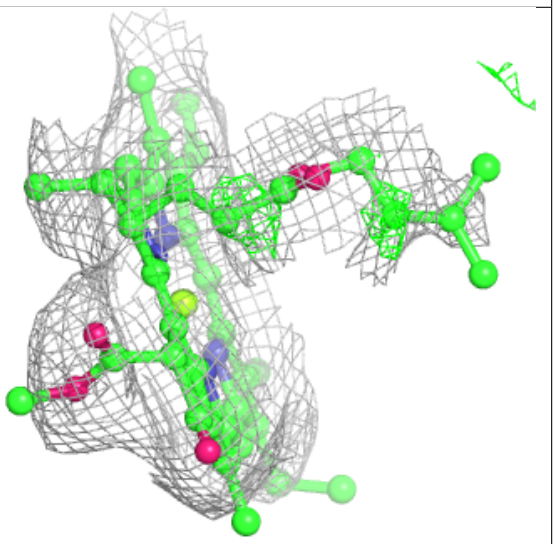


**Electron density around CLA E 307:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

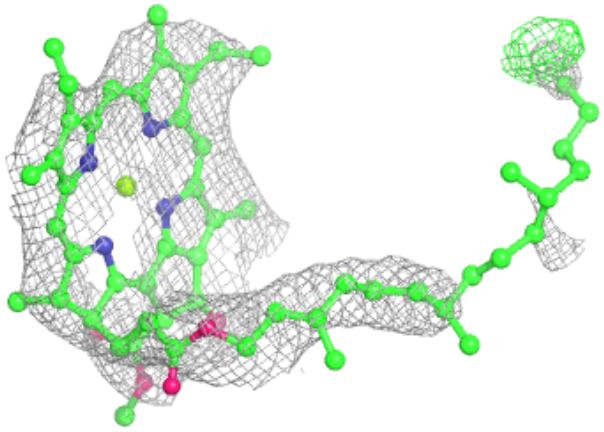


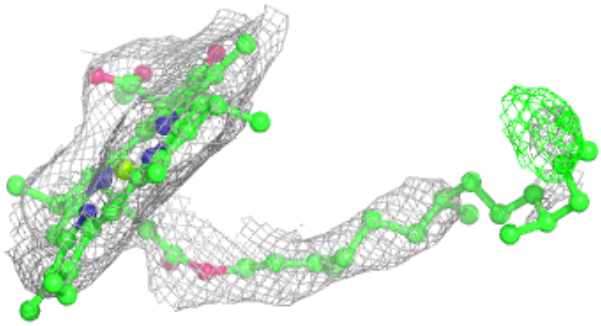


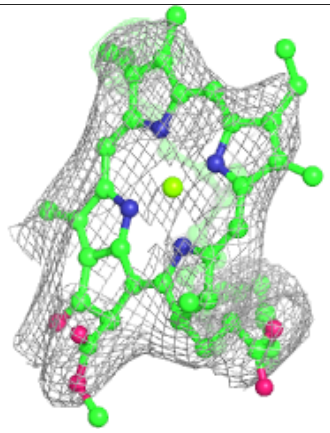


**Electron density around CLA E 314:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

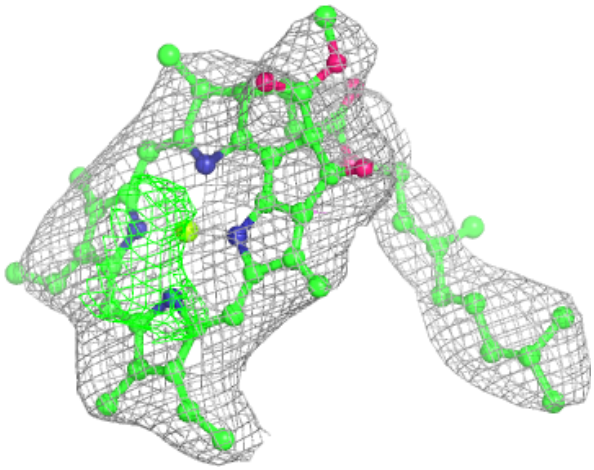


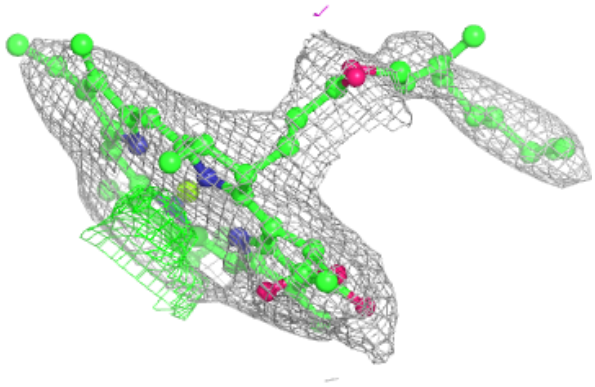


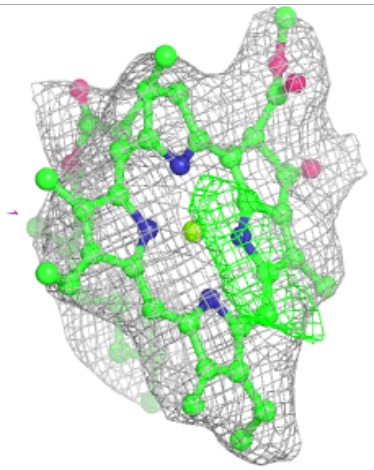


**Electron density around CLA F 314:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

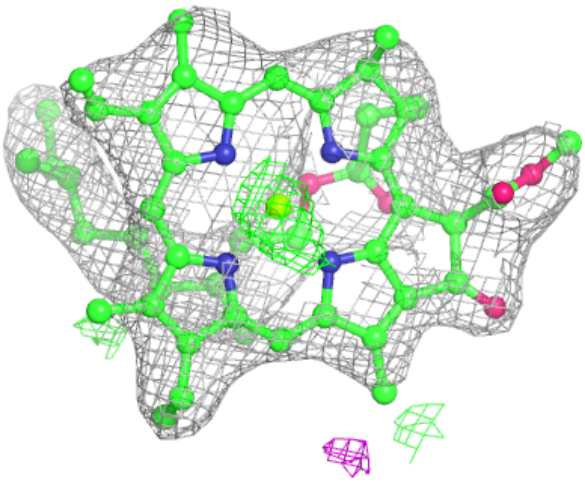


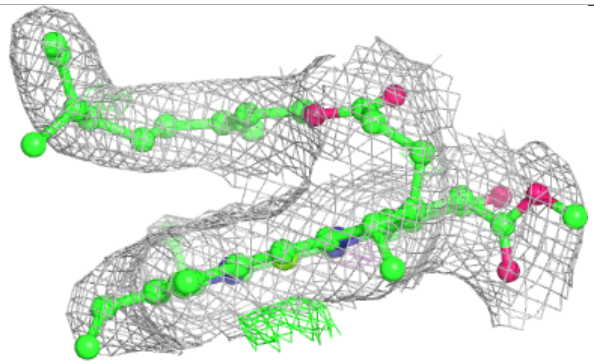


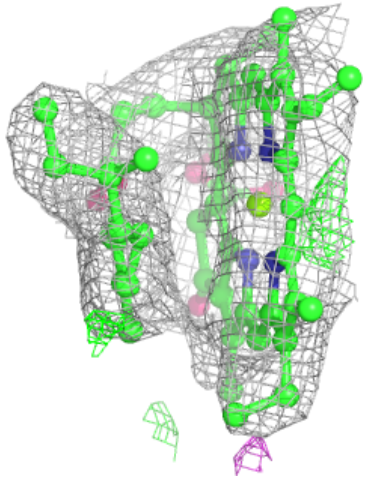


**Electron density around CLA F 316:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

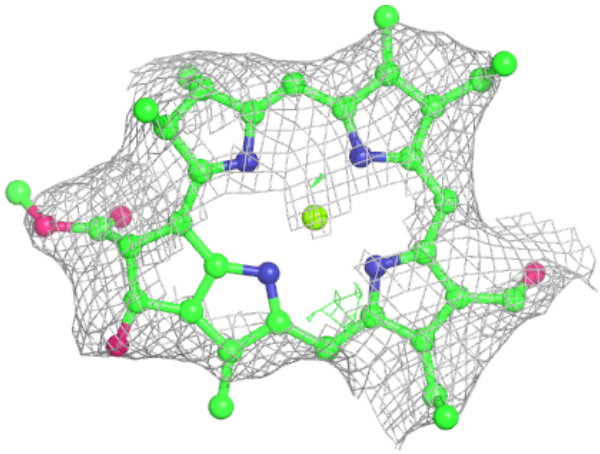


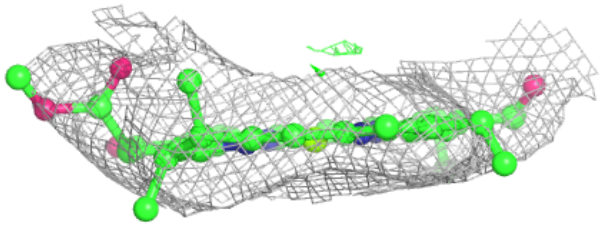


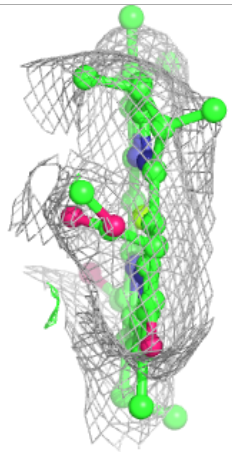


**Electron density around CHL C 309:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

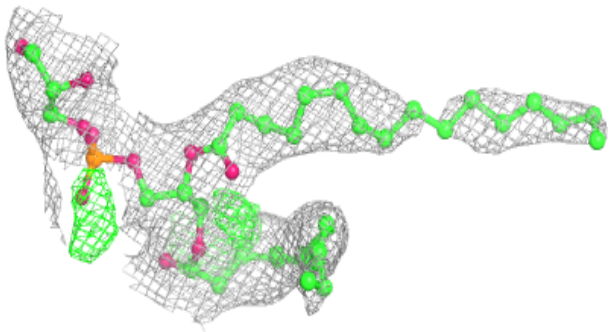


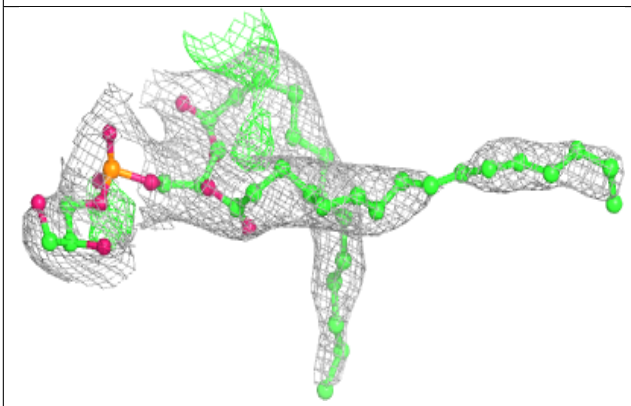


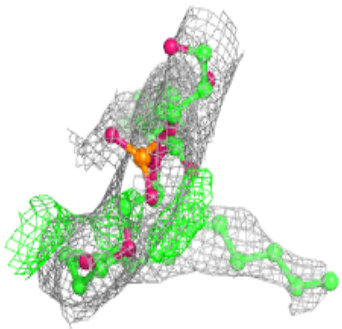


**Electron density around LHG B 320:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

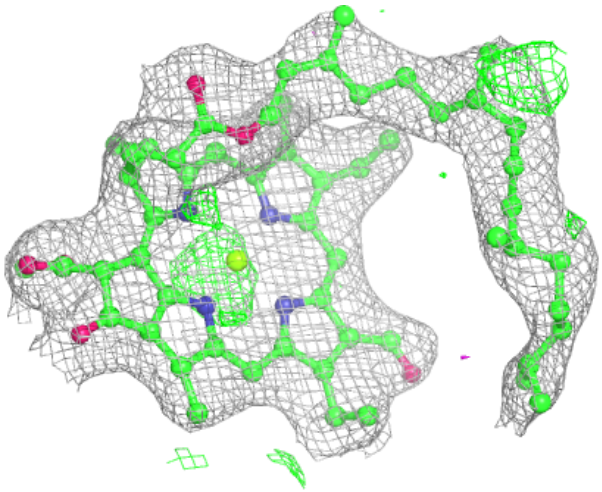


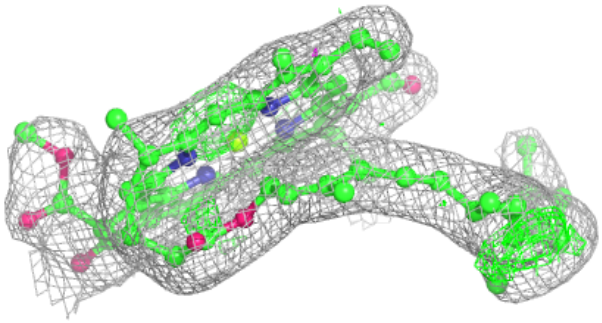


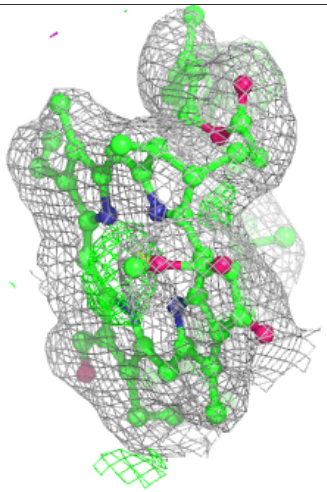


**Electron density around CHL F 305:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

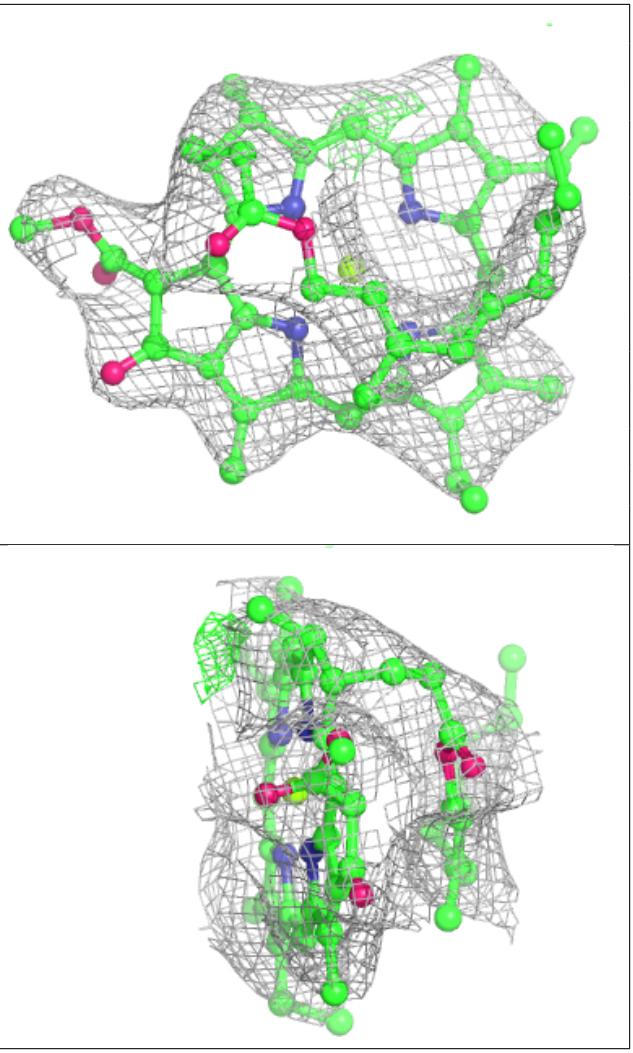






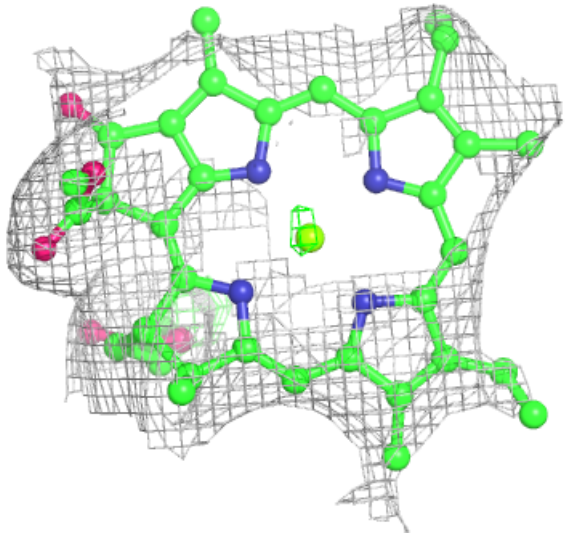
**Electron density around CLA A 317:**

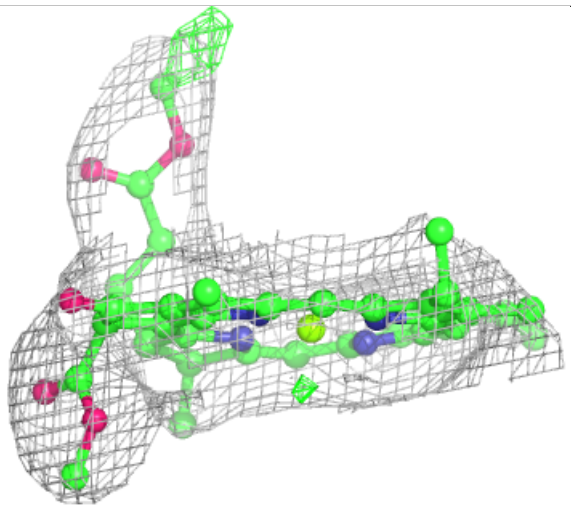
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



**Electron density around CLA B 309:**

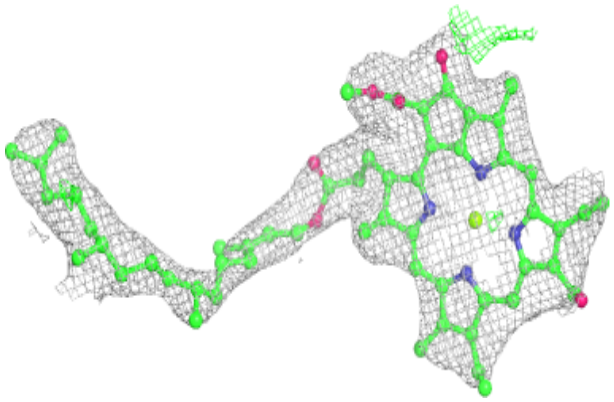
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

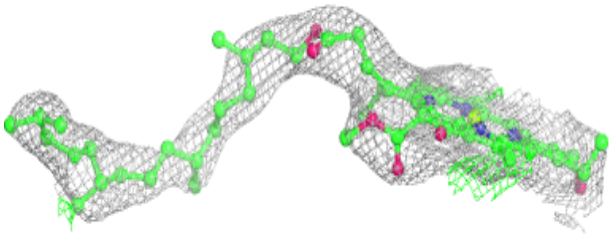


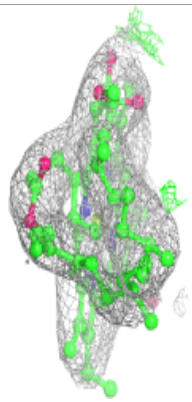


**Electron density around CHL A 305:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

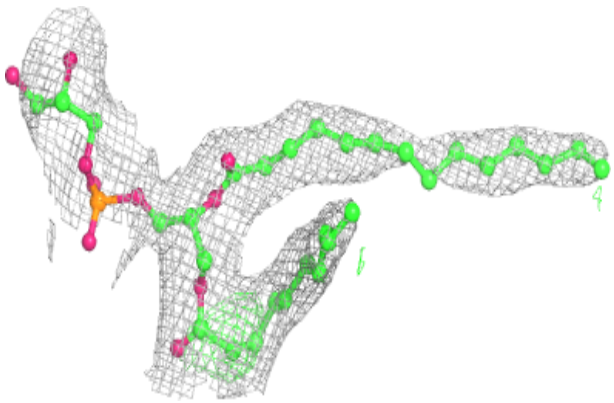


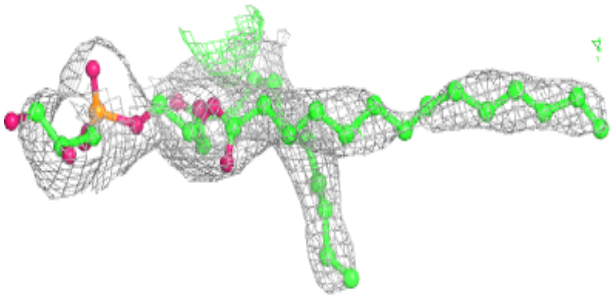


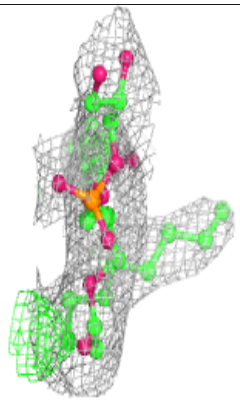


**Electron density around LHG E 318:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

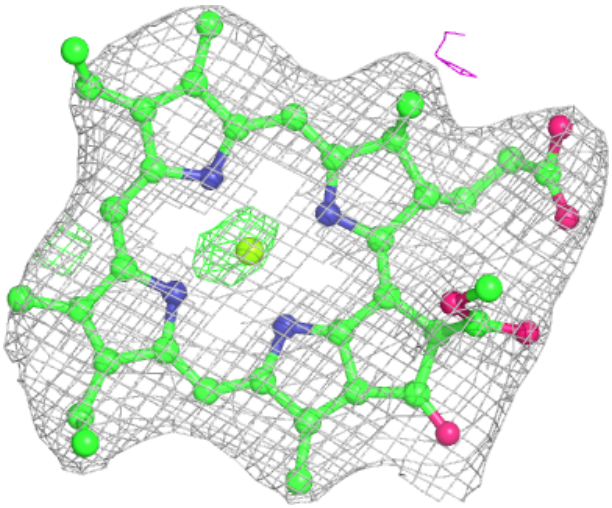


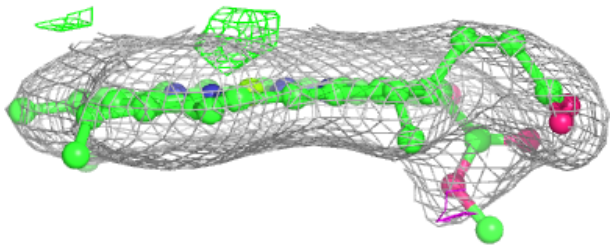


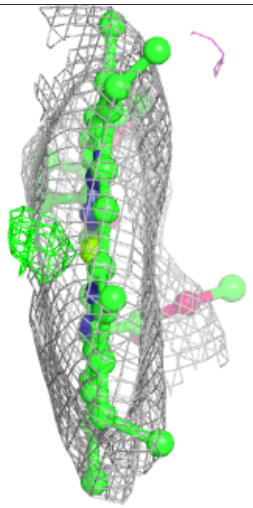


**Electron density around CLA B 317:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

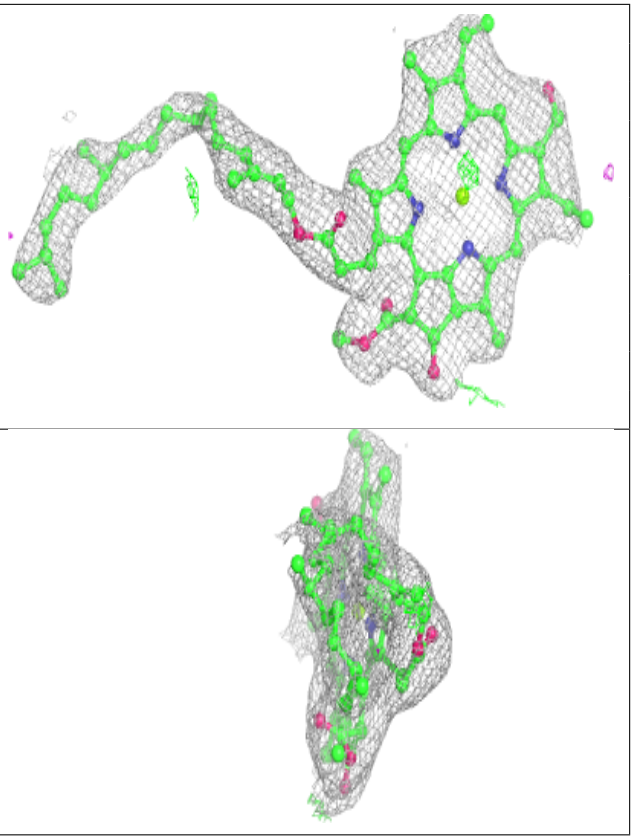






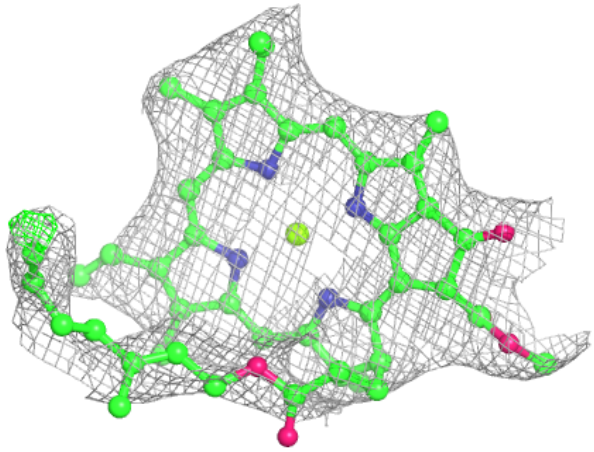
**Electron density around CHL C 305:**

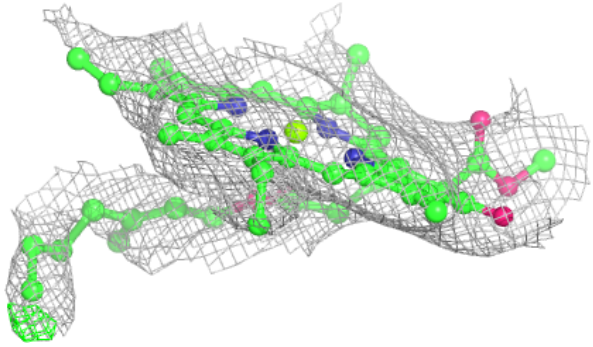
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

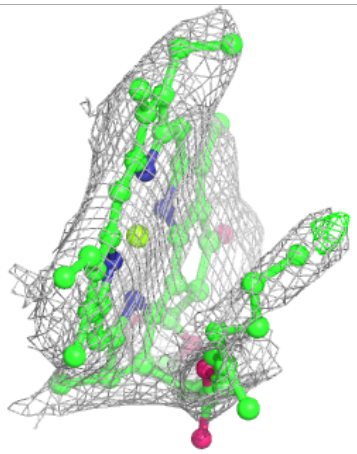


**Electron density around CLA C 314:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

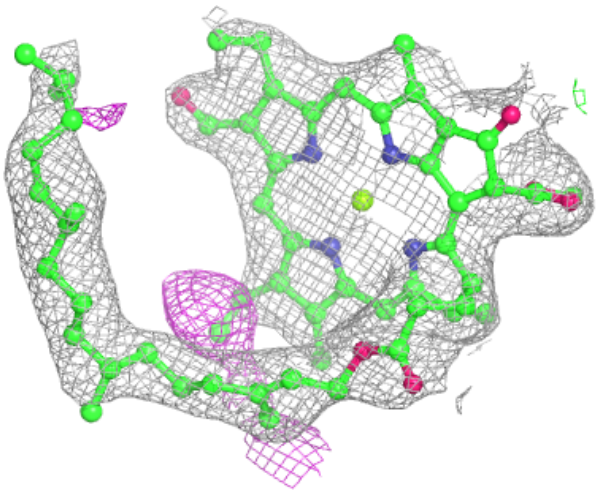


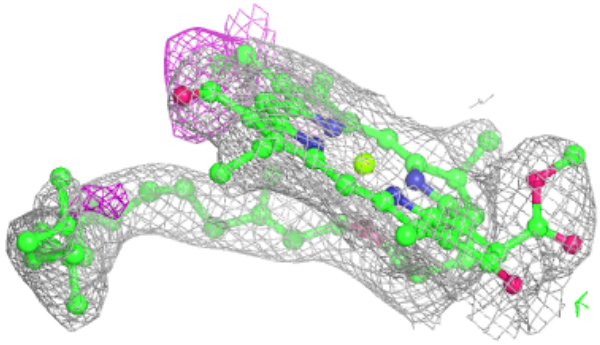


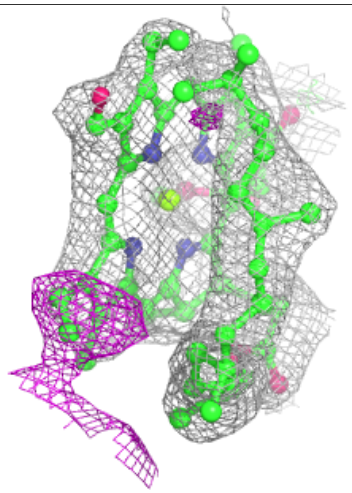


**Electron density around CHL C 306:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

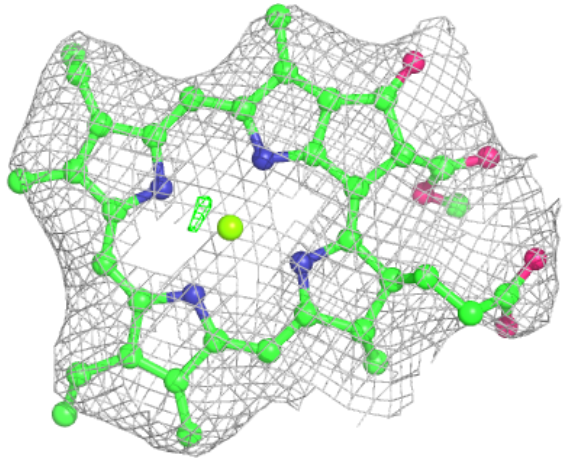


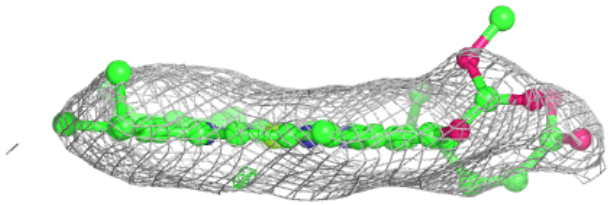


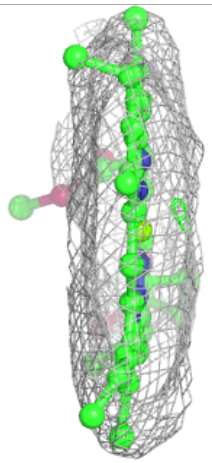


**Electron density around CLA C 316:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

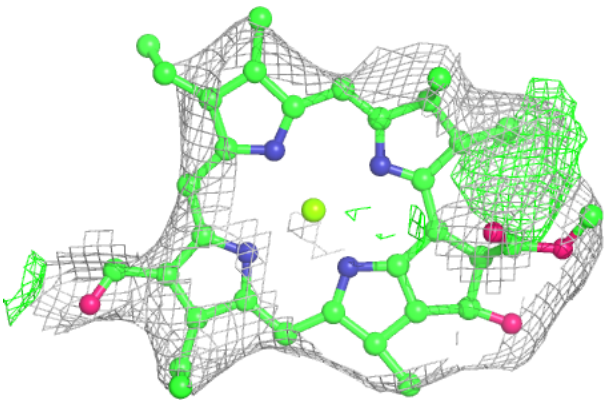


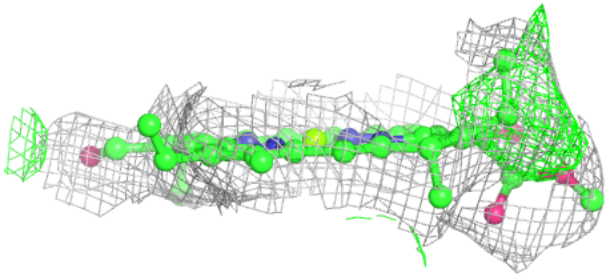


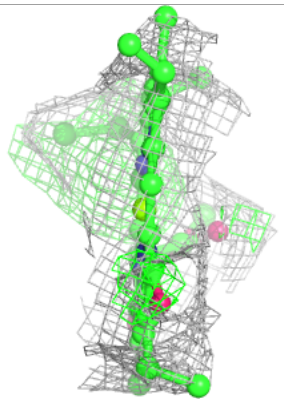


**Electron density around CHL E 309:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

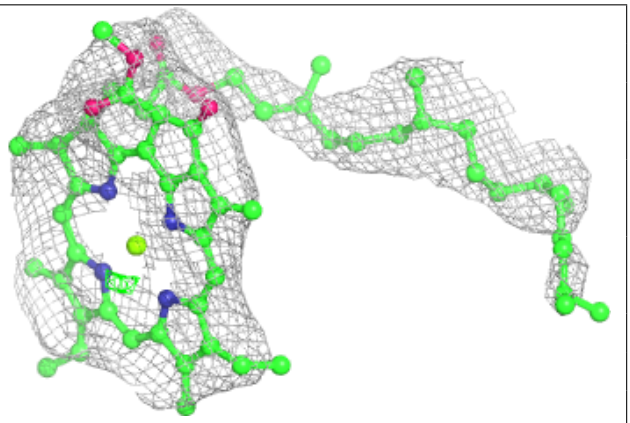


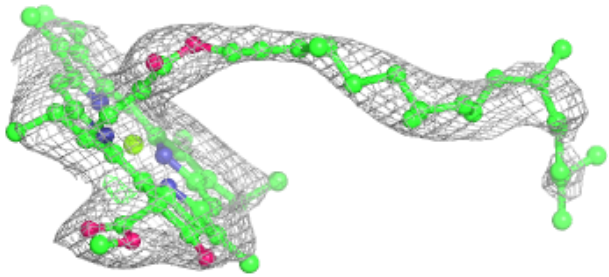


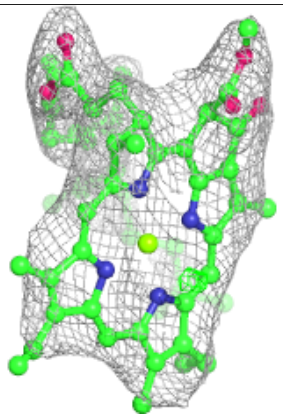


**Electron density around CLA D 315:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

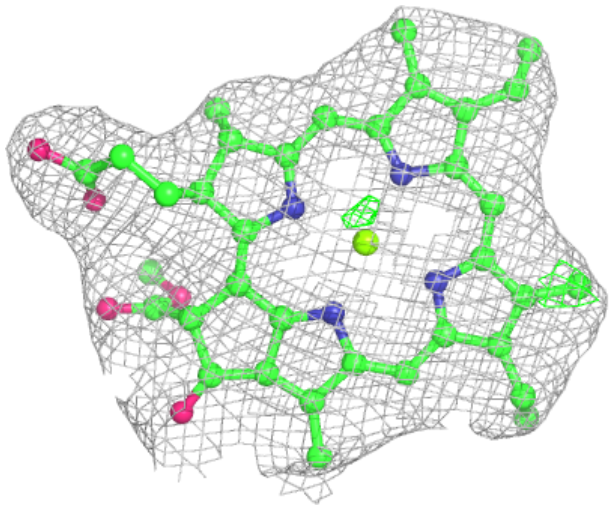


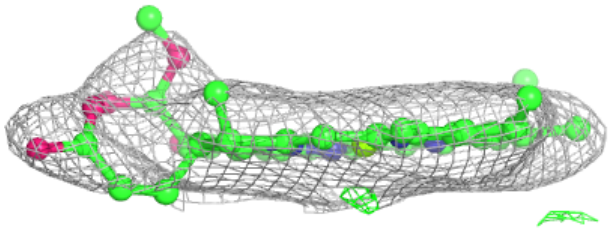


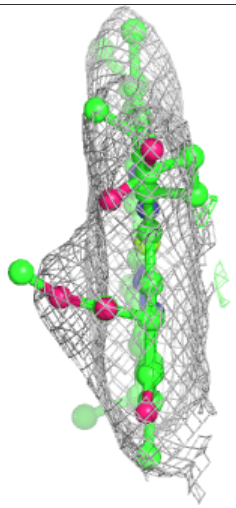


**Electron density around CLA D 316:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

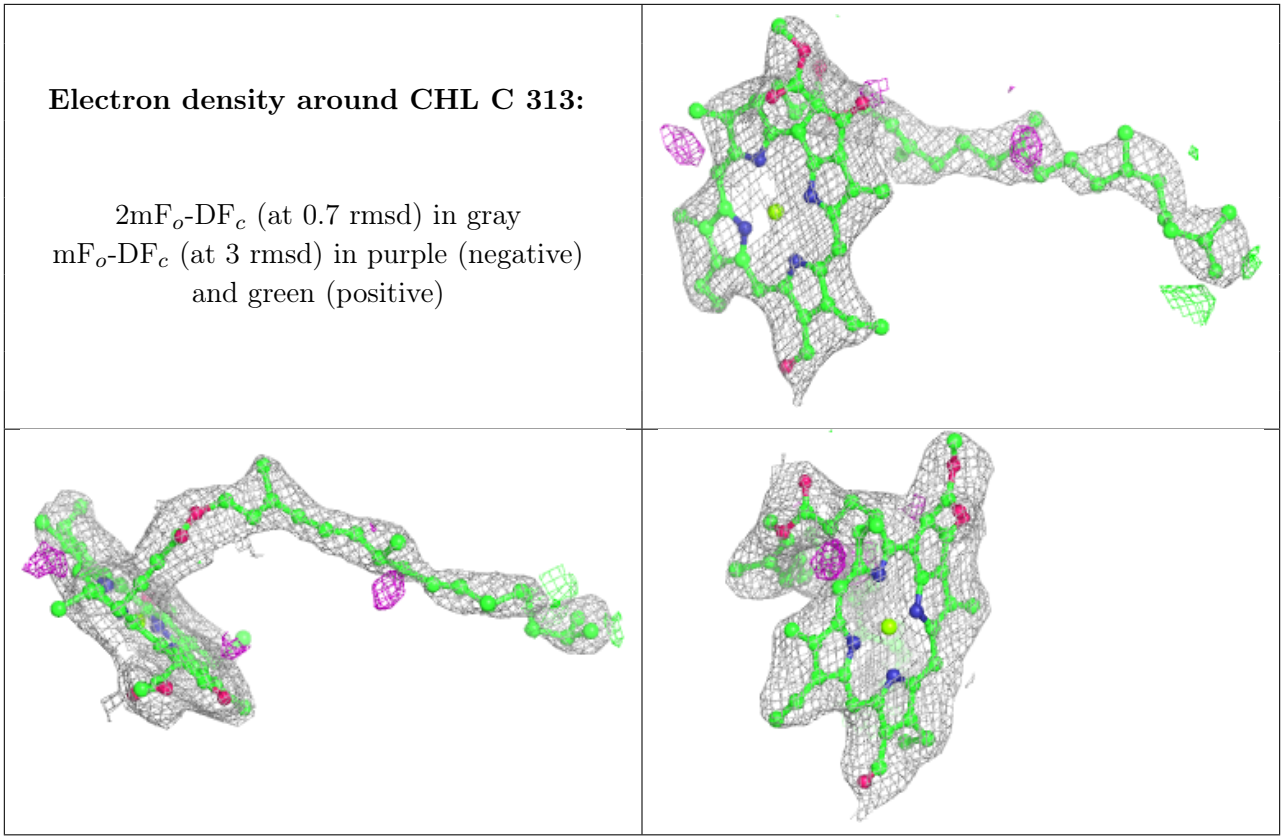






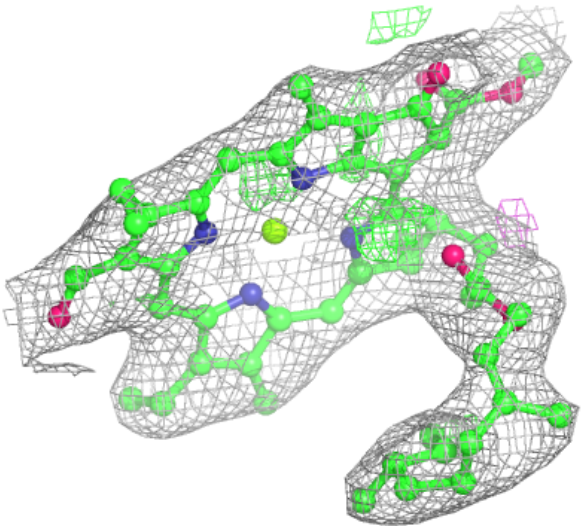
**Electron density around CHL C 313:**

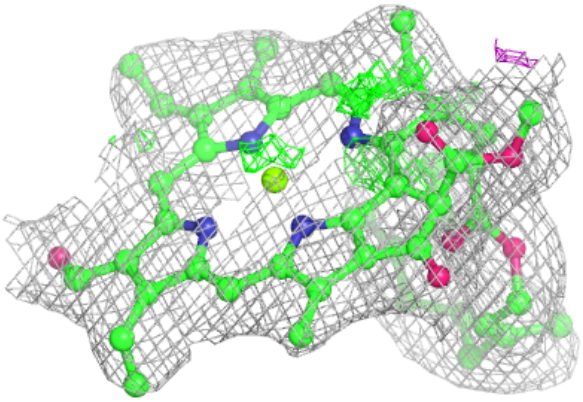
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

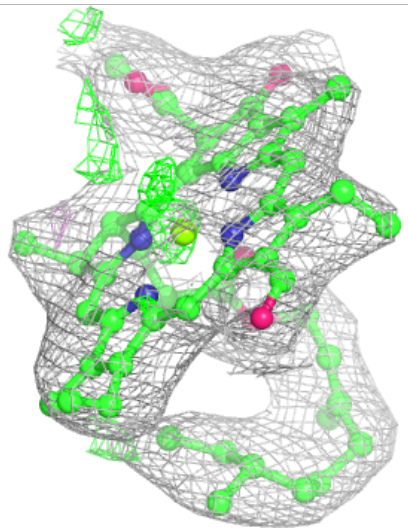


**Electron density around CHL D 312:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

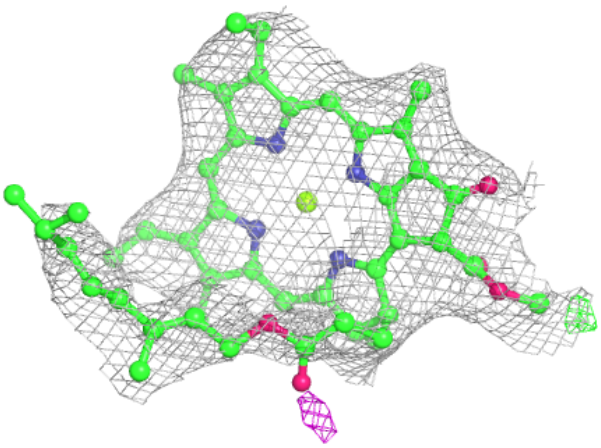


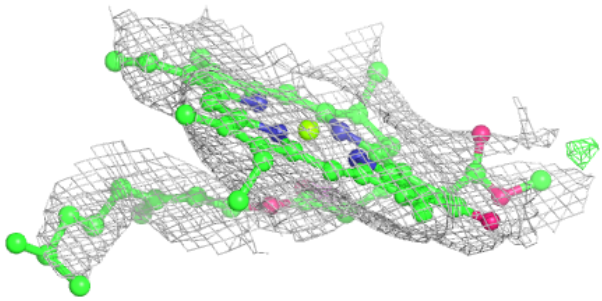


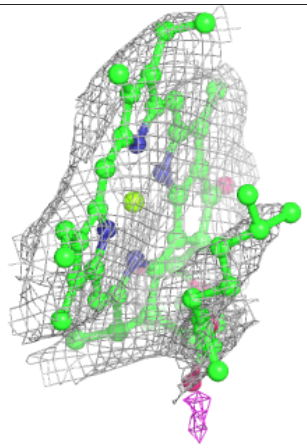


**Electron density around CLA E 313:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

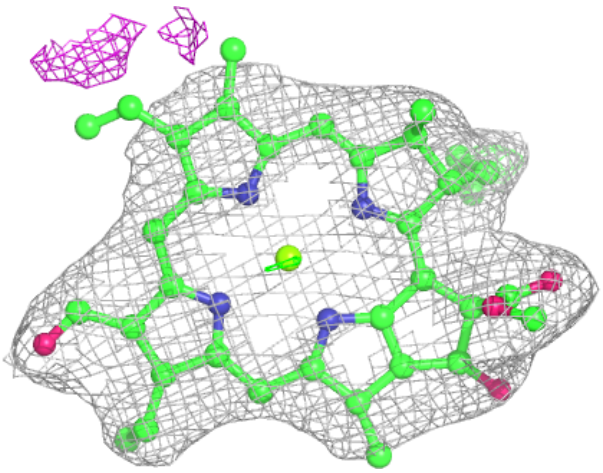


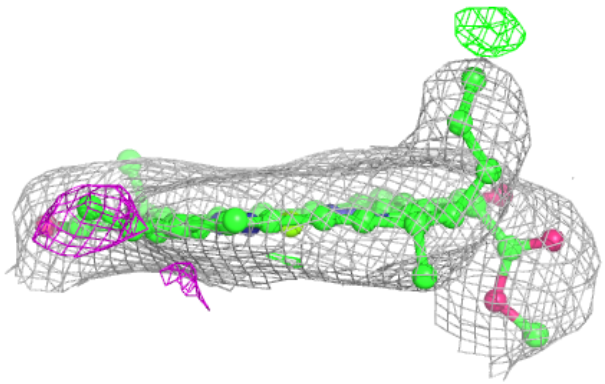




**Electron density around CHL C 318:**

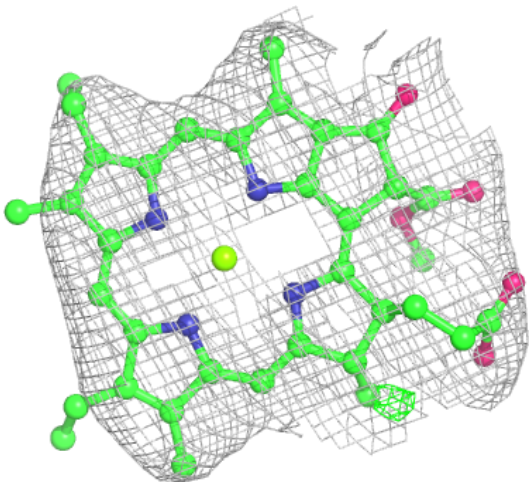
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

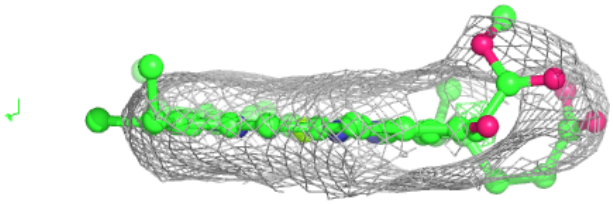


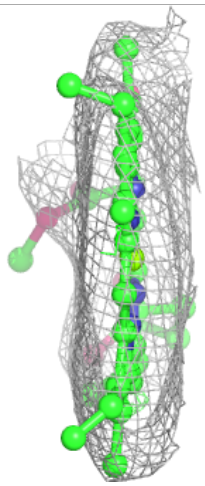


**Electron density around CLA E 315:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

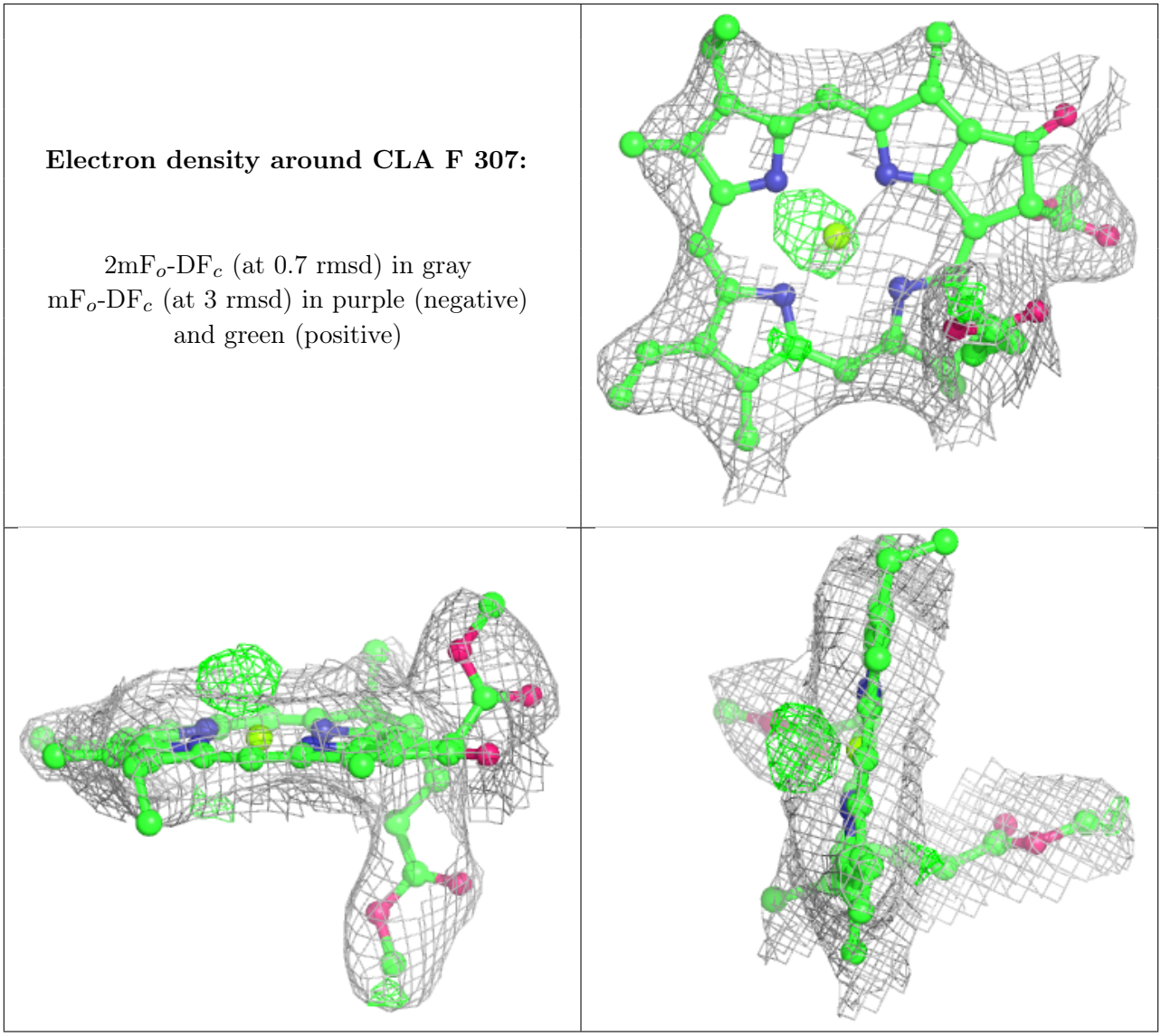






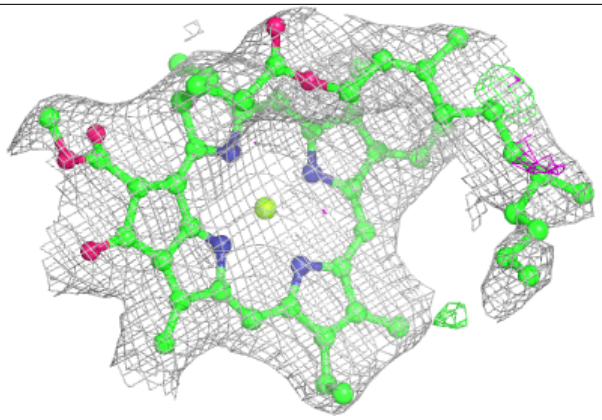
**Electron density around CLA F 307:**

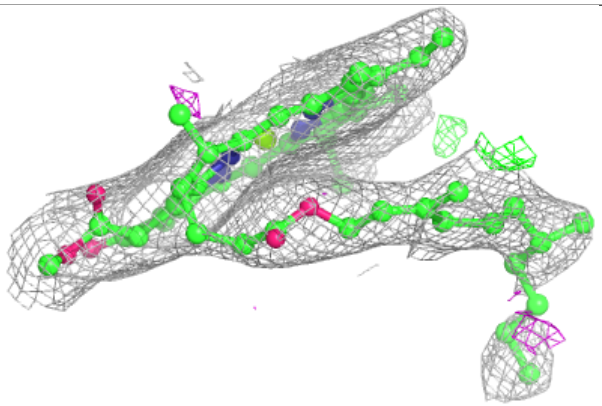
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

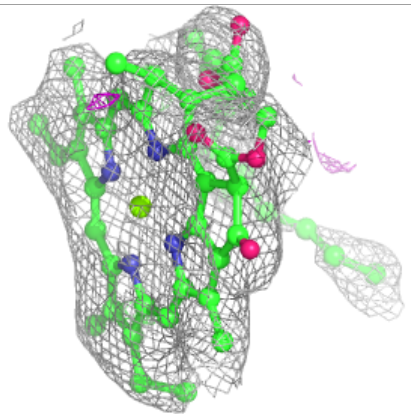


**Electron density around CLA F 313:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

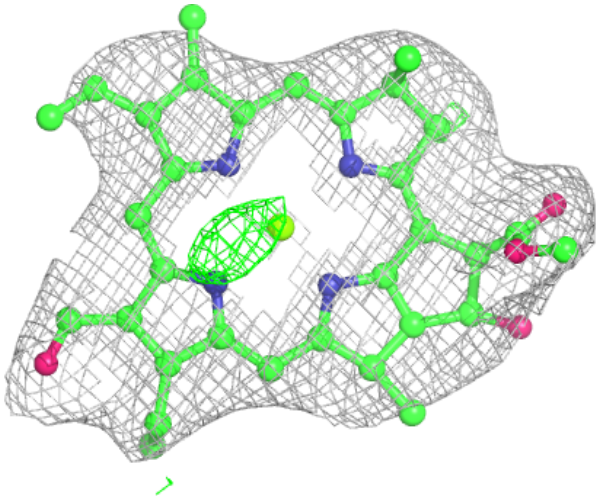


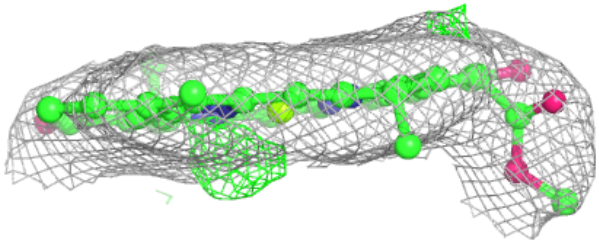


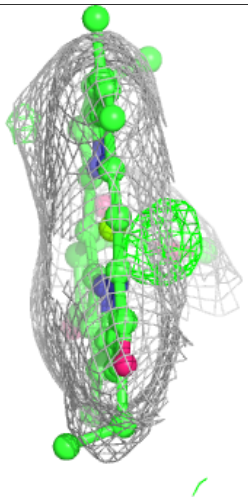


**Electron density around CHL E 317:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

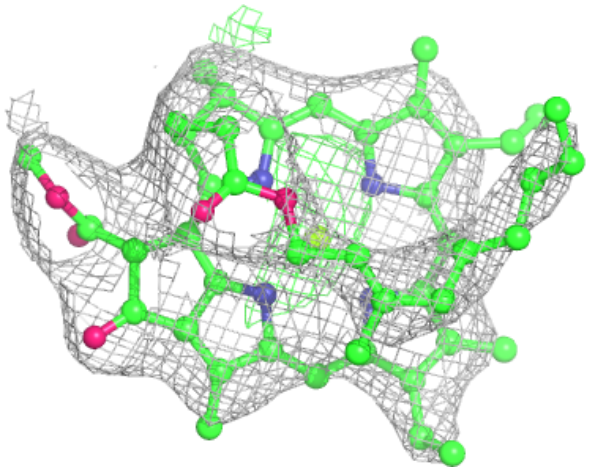


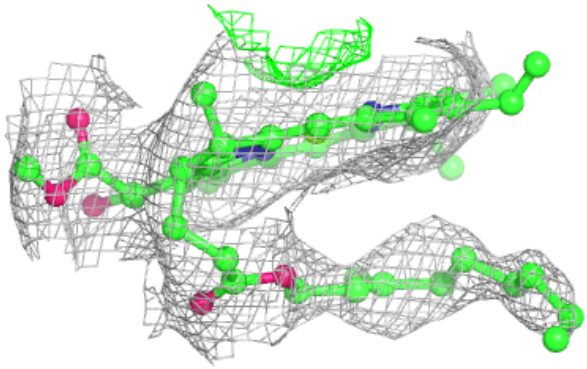


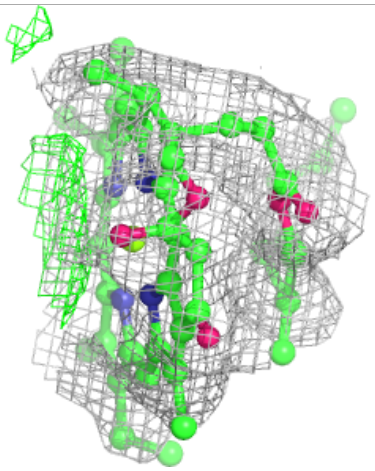


**Electron density around CLA E 316:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

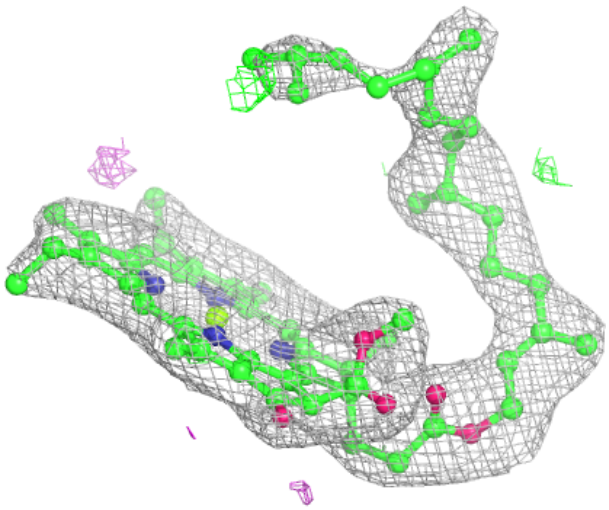


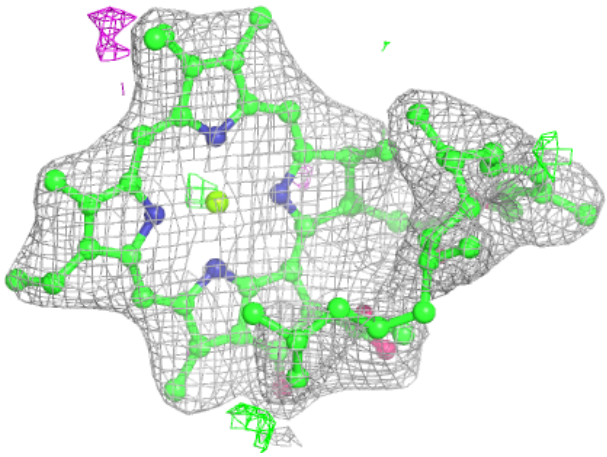


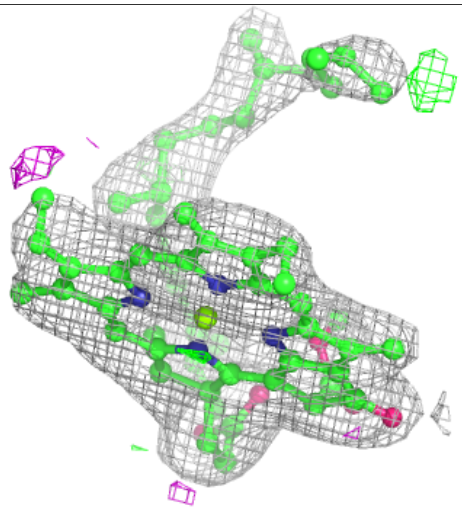


**Electron density around CLA F 306:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

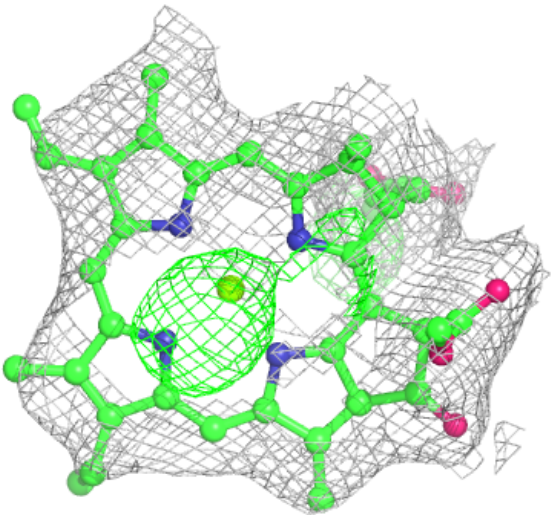


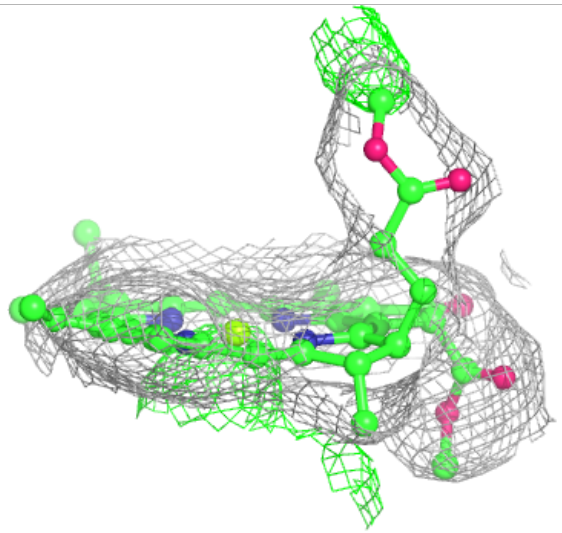


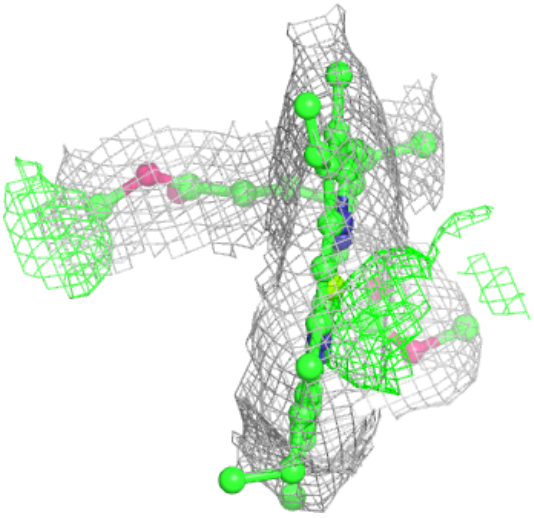


**Electron density around CLA C 308:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

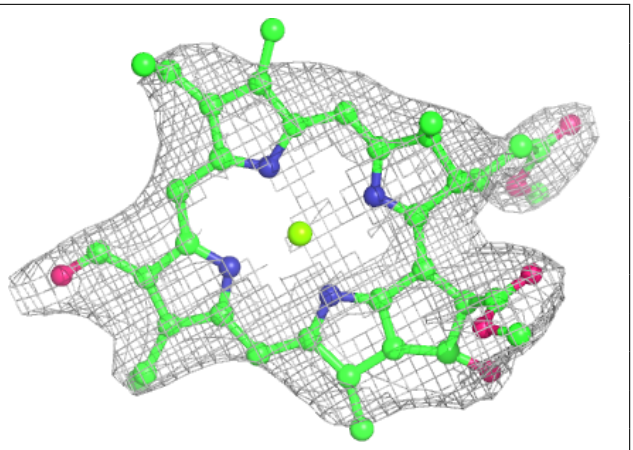


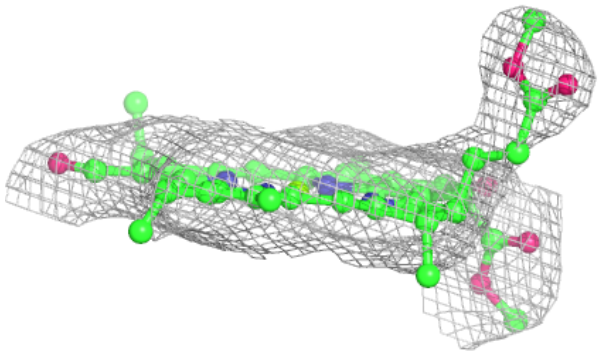


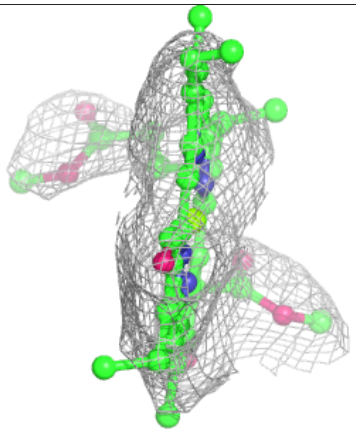


**Electron density around CHL B 319:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

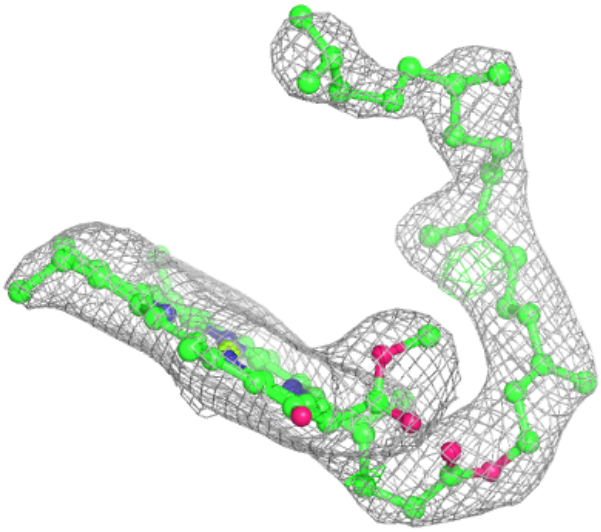


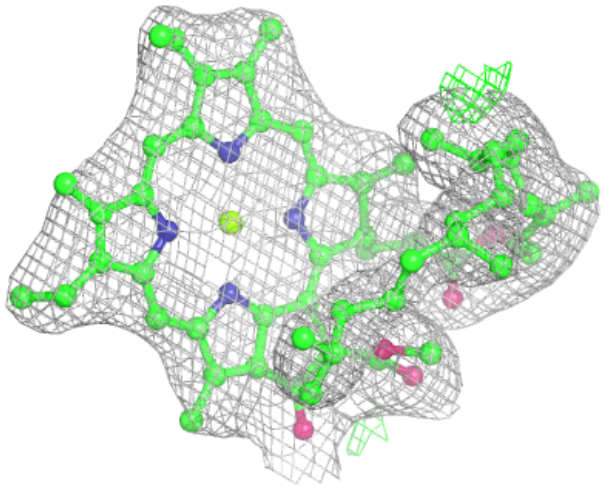


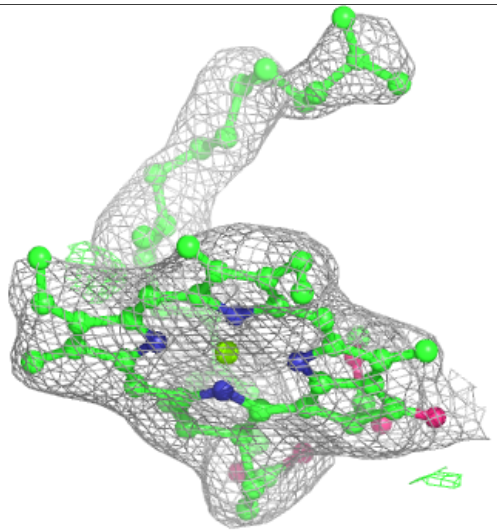


**Electron density around CLA E 306:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

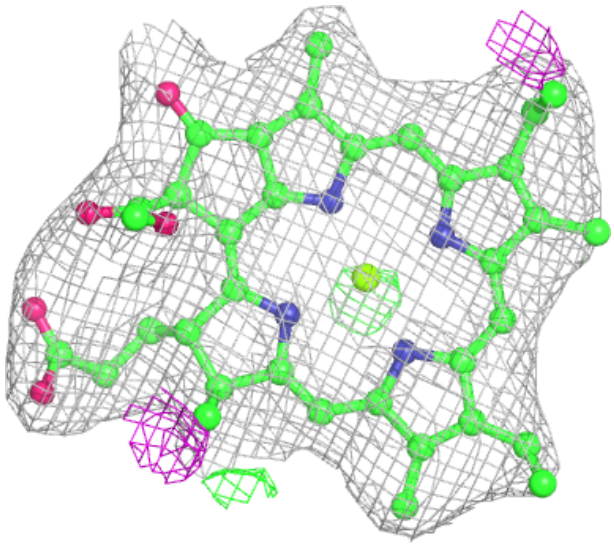


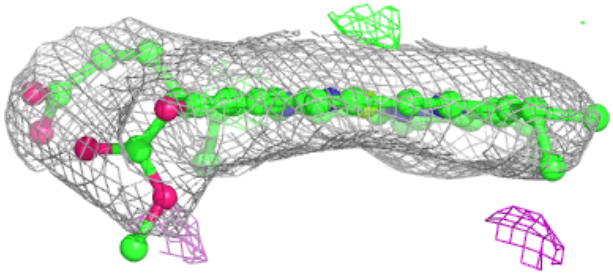


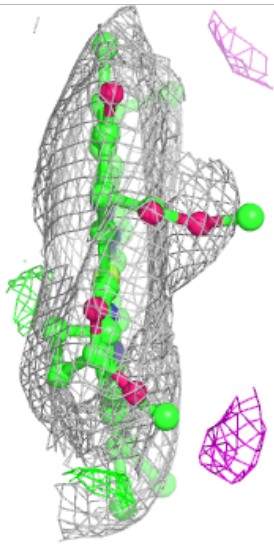


**Electron density around CLA F 315:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

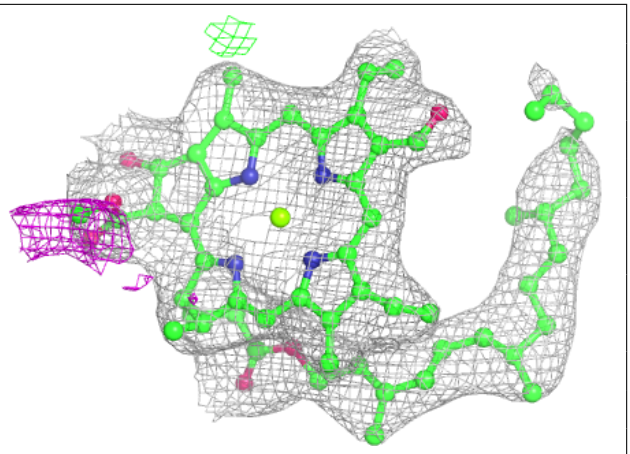


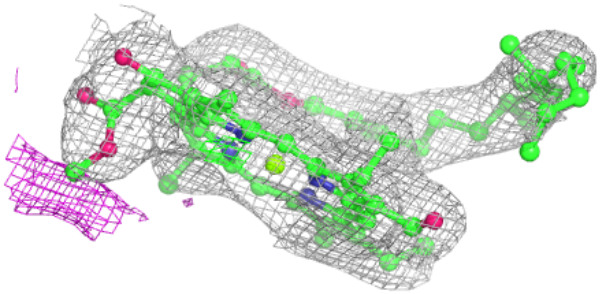


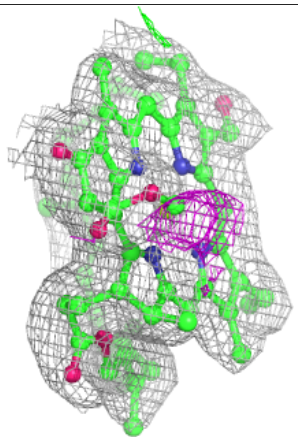


**Electron density around CHL B 307:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

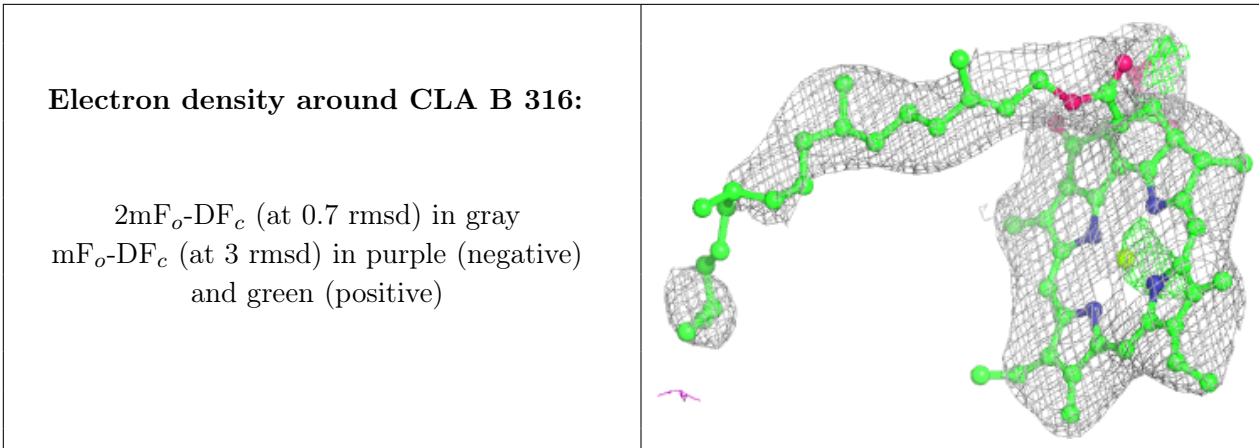






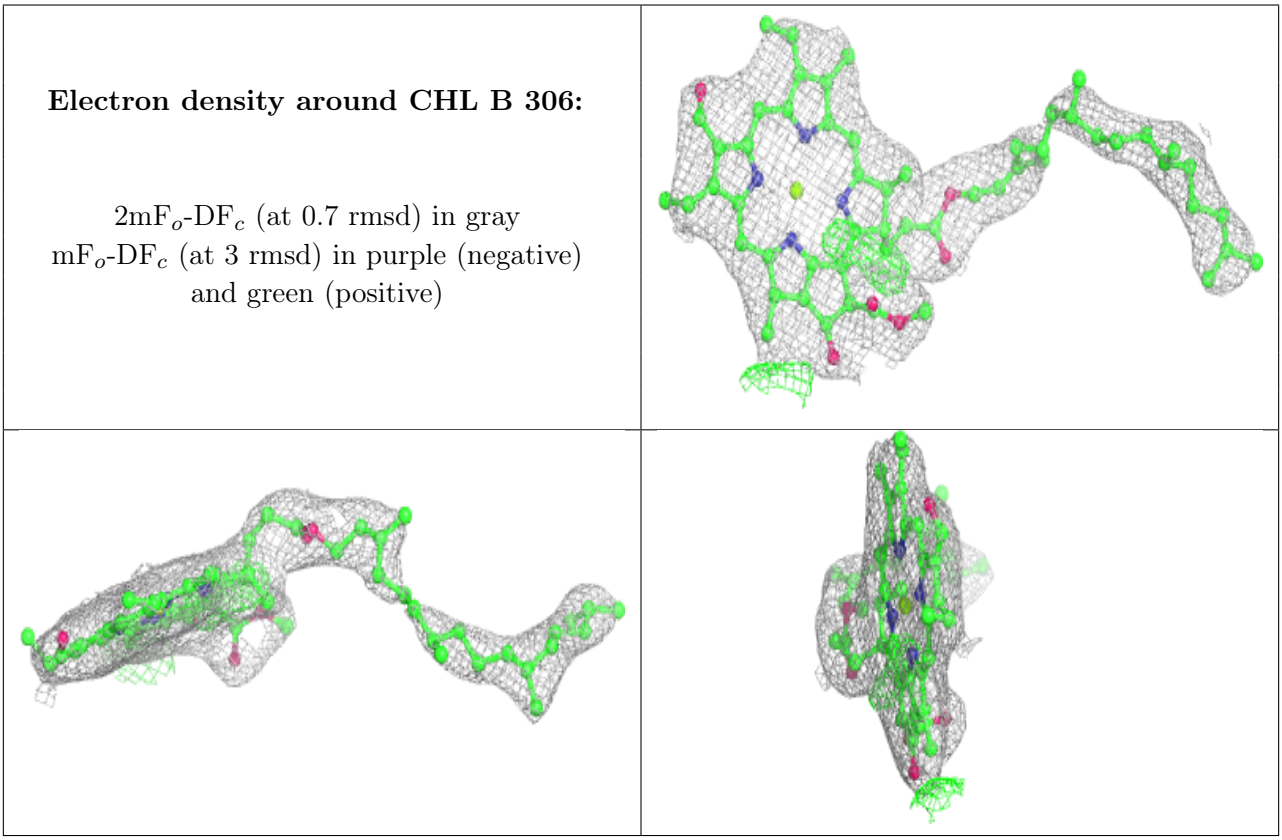
**Electron density around CLA B 316:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



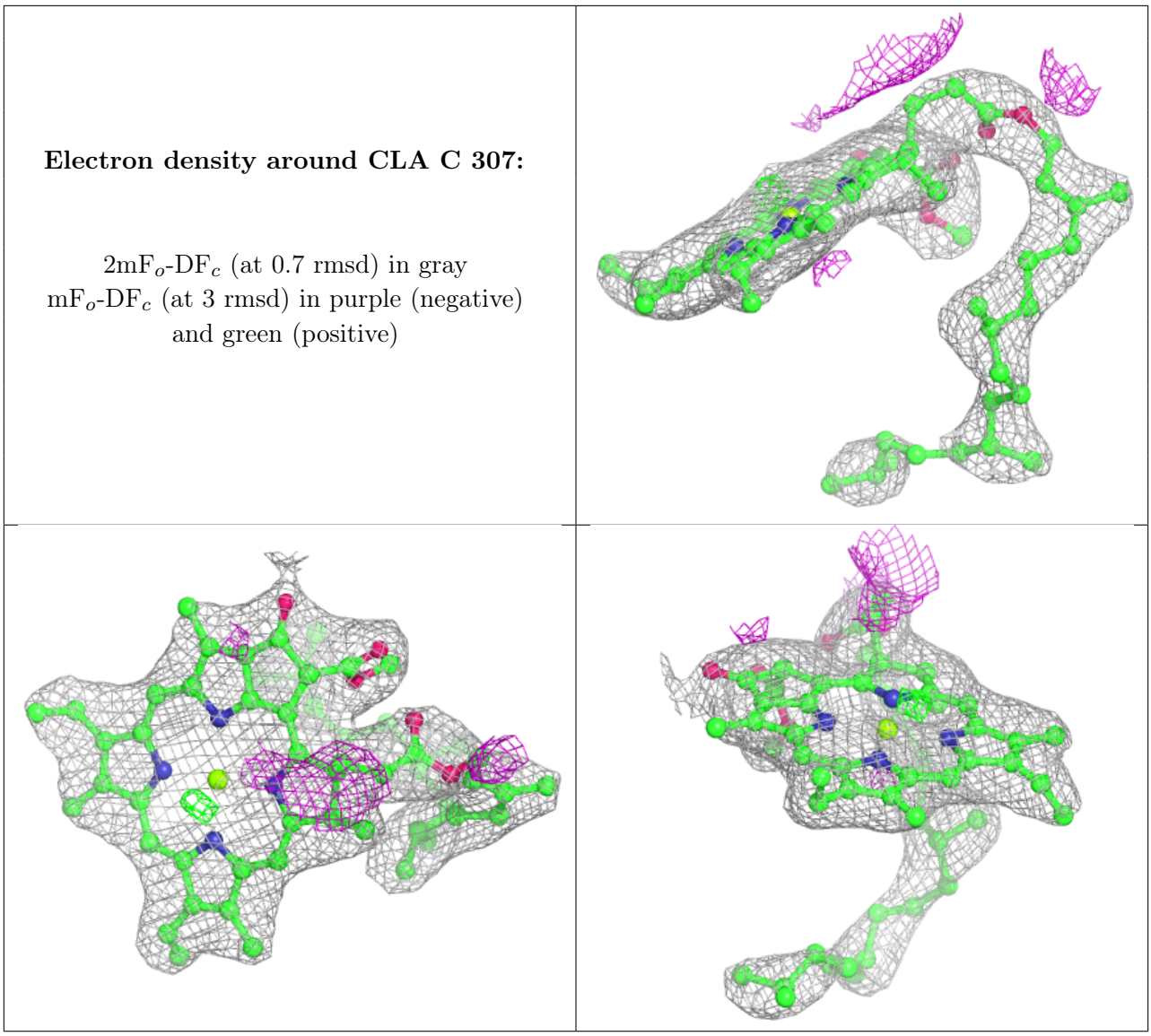
**Electron density around CHL B 306:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



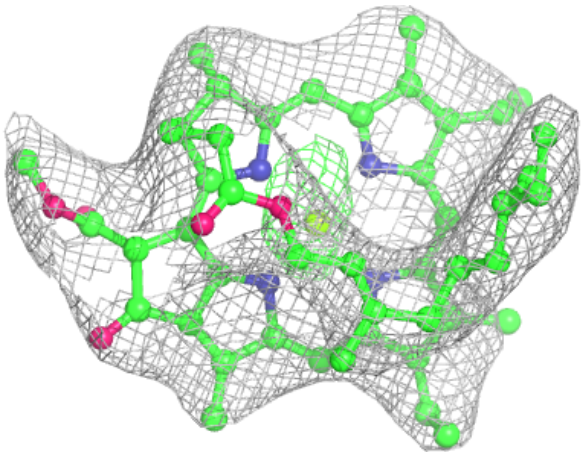
**Electron density around CLA C 307:**

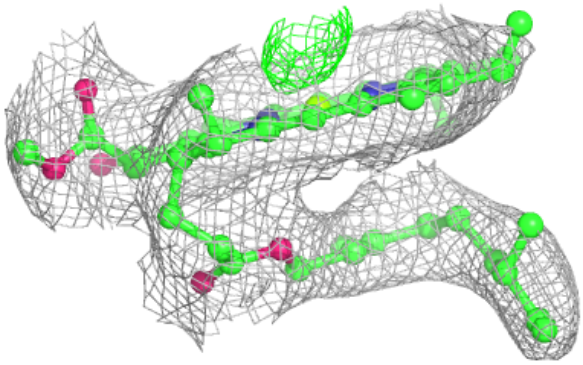
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

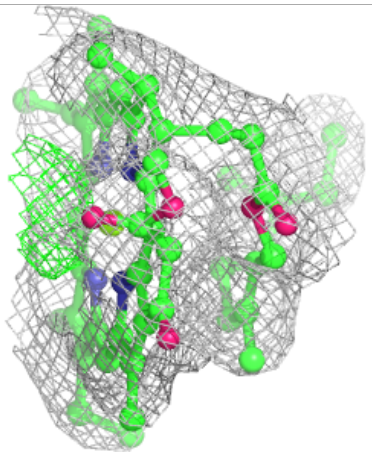


**Electron density around CLA C 317:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

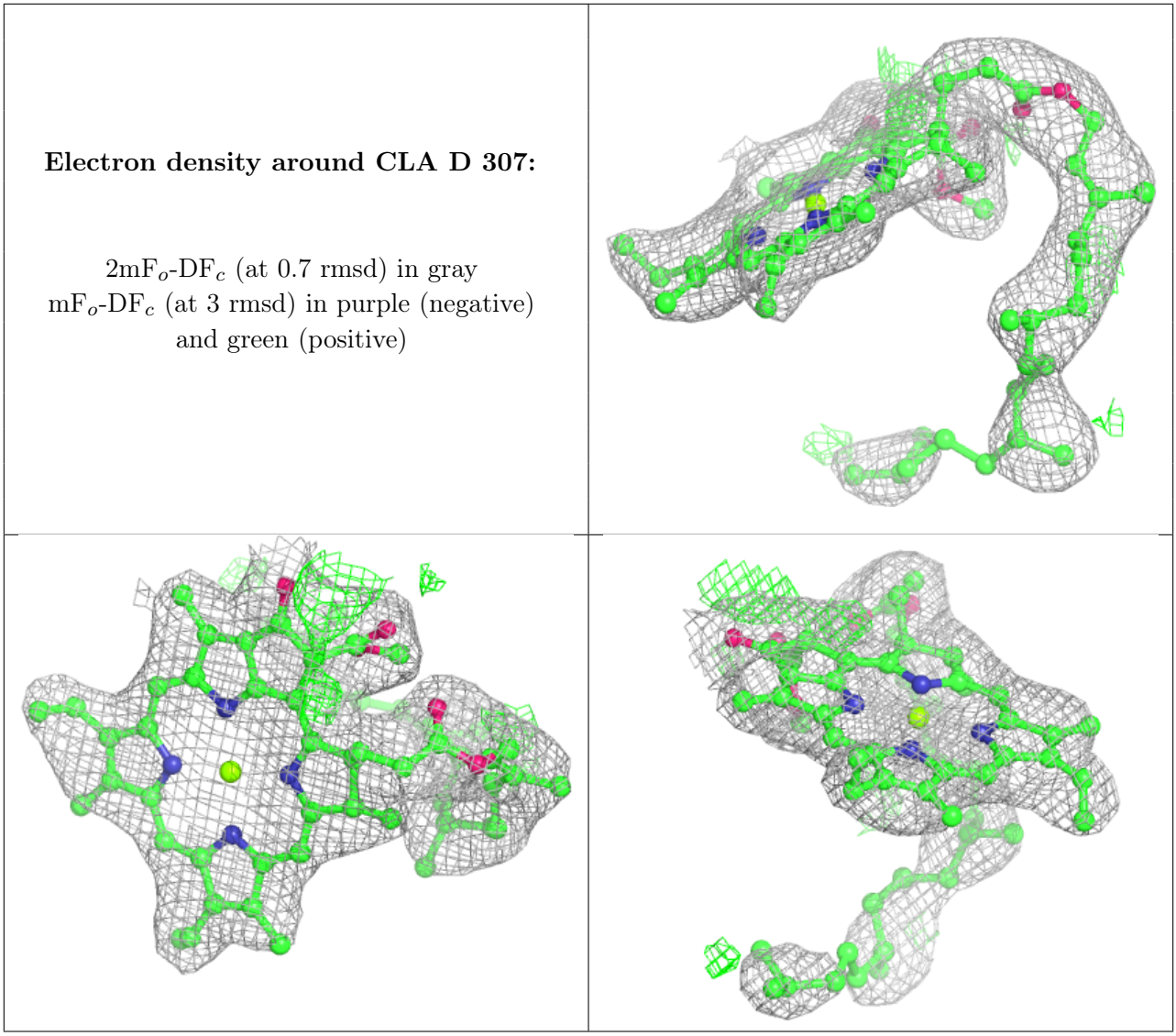






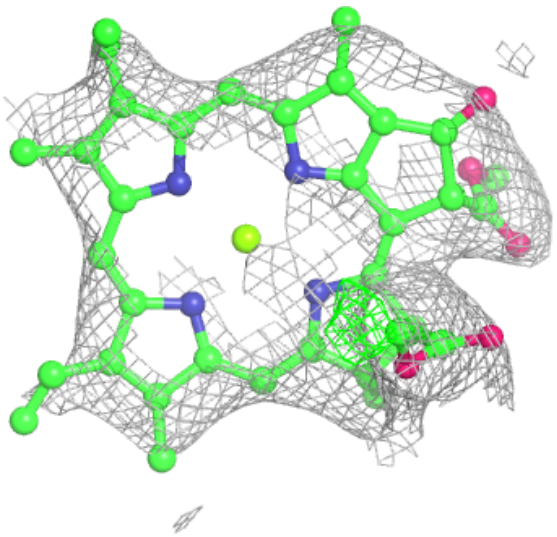
**Electron density around CLA D 307:**

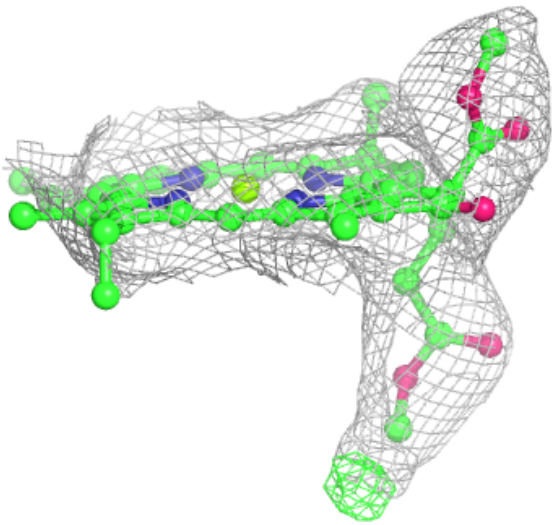
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

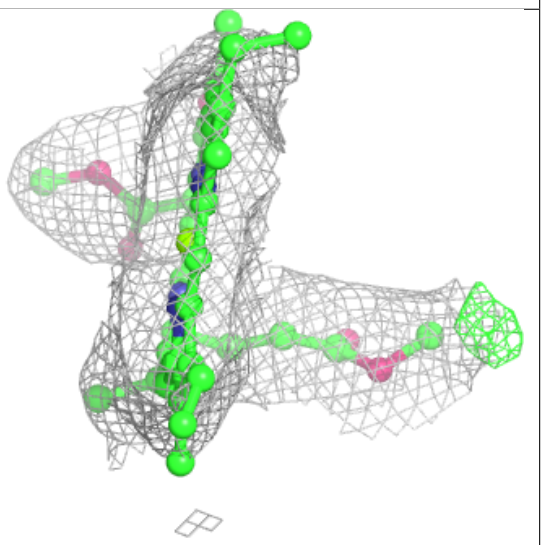


**Electron density around CLA D 308:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

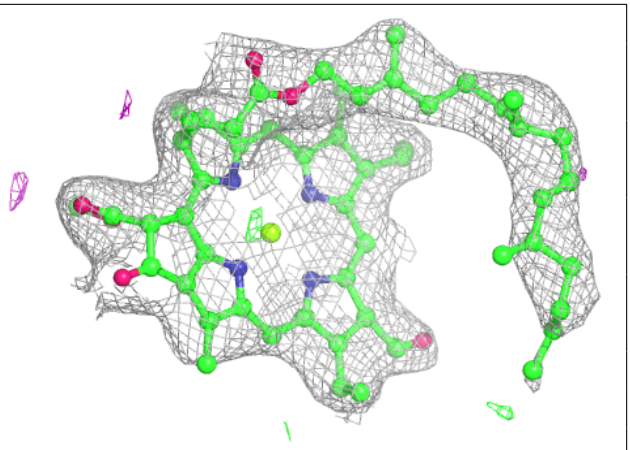


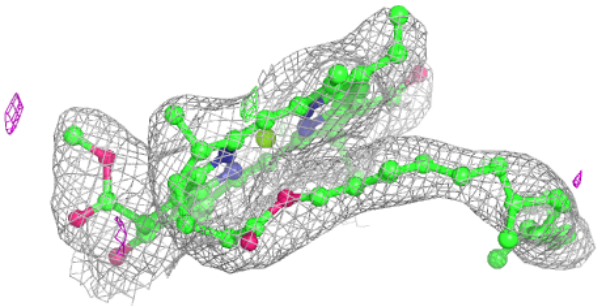


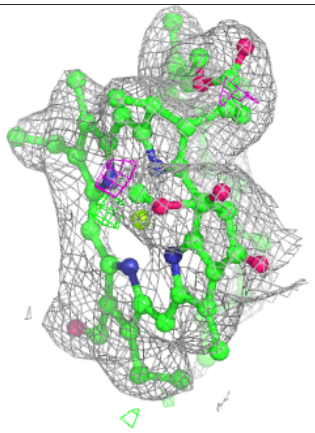


**Electron density around CHL A 306:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

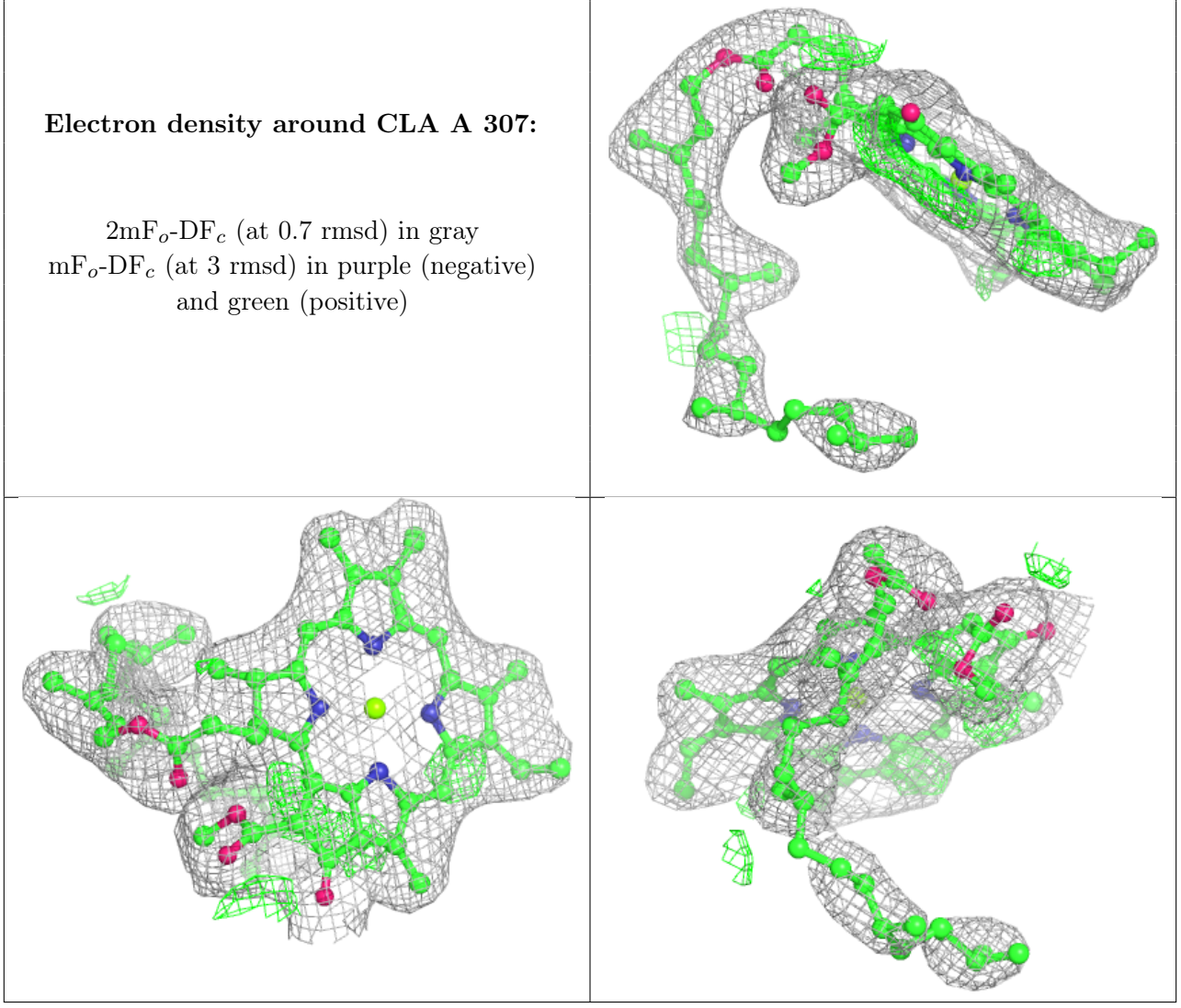






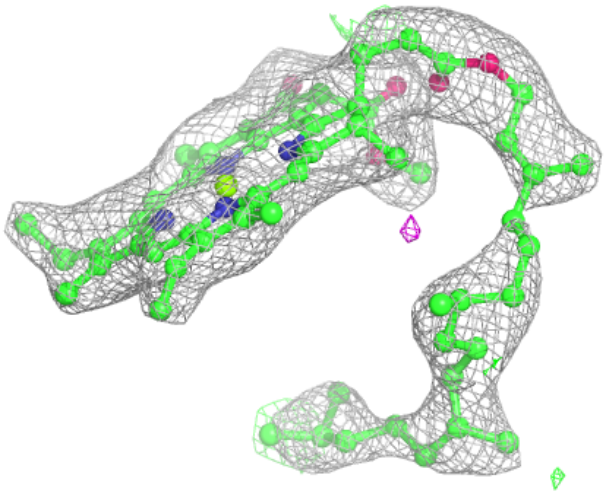
**Electron density around CLA A 307:**

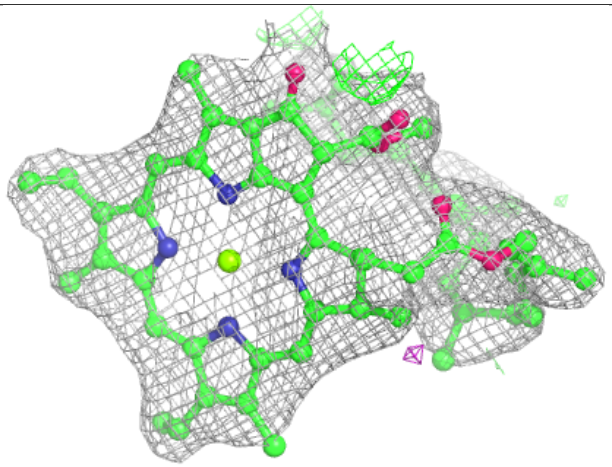
$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

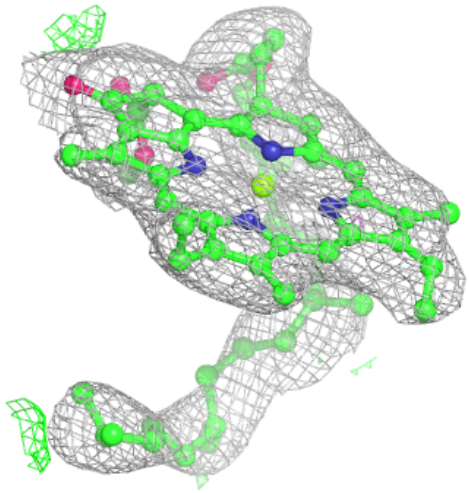


**Electron density around CLA B 308:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)

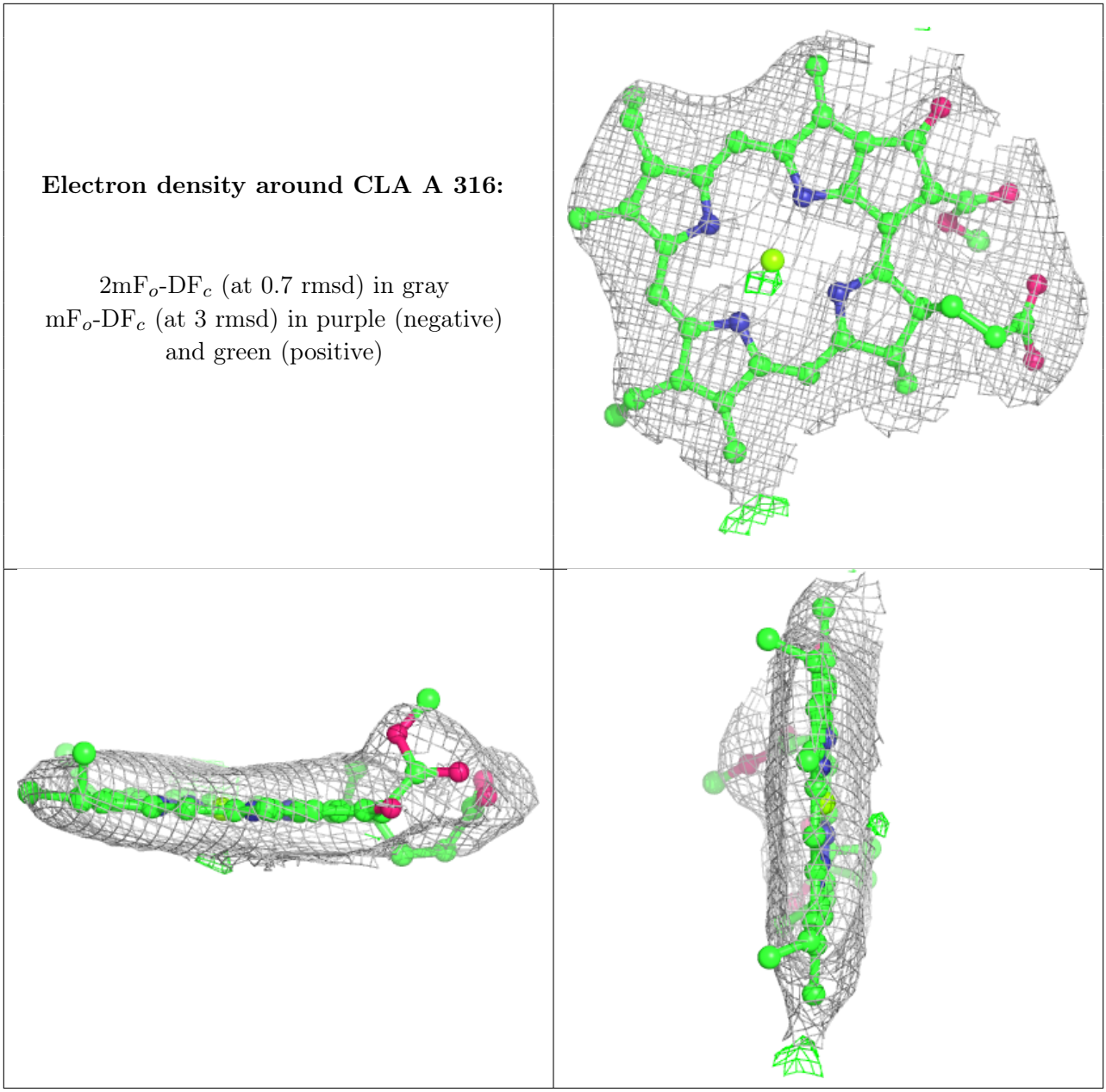






**Electron density around CLA A 316:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



## 6.5 Other polymers

There are no such residues in this entry.