



# Full wwPDB X-ray Structure Validation Report ⓘ

Jun 15, 2026 – 06:59 PM EDT

PDB ID : 9P64 / pdb\_00009p64  
Title : Crystal structure of hen egg white lysozyme at 300 Kelvin with Apiezon T  
Authors : Lima, L.M.T.R.; de Sa Ribeiro, F.  
Deposited on : 2025-06-18  
Resolution : 1.47 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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 ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

---

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

MolProbity : 4-5-2 with Phenix2.0  
Mogul : 2022.3.0, CSD as543be (2022)  
Xtriage (Phenix) : 2.0  
EDS : 3.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
CCP4 : 9.0.010 (Gargrove)  
Density-Fitness : 1.0.12  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

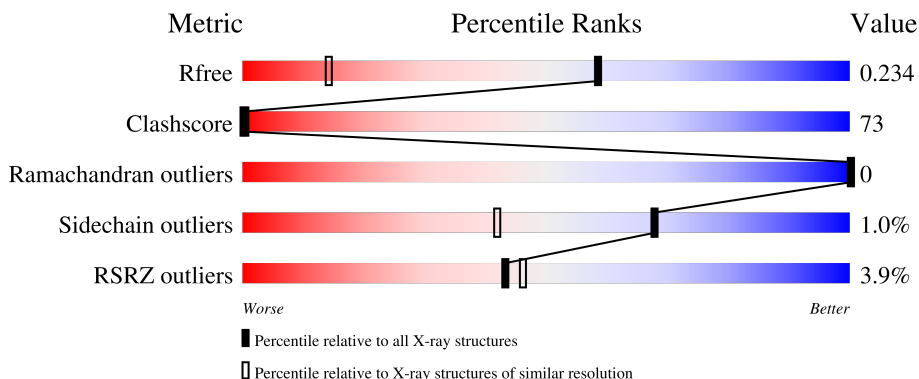
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.47 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))
$R_{free}$	180053	1756 (1.46-1.46)
Clashscore	190562	1795 (1.46-1.46)
Ramachandran outliers	187476	1776 (1.46-1.46)
Sidechain outliers	187428	1776 (1.46-1.46)
RSRZ outliers	180081	1756 (1.46-1.46)

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  $\geq 3$ , 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  $\leq 5\%$ . 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	129	

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
3	CL	A	204	-	-	X	-

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Type</b>	<b>Chain</b>	<b>Res</b>	<b>Chirality</b>	<b>Geometry</b>	<b>Clashes</b>	<b>Electron density</b>
3	CL	A	207	-	-	X	-

## 2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 1253 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 Lysozyme C.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	129	1001	613	193	185	10	0	0	0

- Molecule 2 is SODIUM ION (CCD ID: NA) (formula: Na) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Na	0	0
			1	1		

- Molecule 3 is CHLORIDE ION (CCD ID: CL) (formula: Cl) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	7	Total	Cl	0	0
			7	7		

- Molecule 4 is GLYCEROL (CCD ID: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 6 3 3	0	0
4	A	1	Total C O 6 3 3	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	232	Total O 232 232	0	0



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	79.10Å 79.10Å 38.13Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	27.45 – 1.47 27.45 – 1.47	Depositor EDS
% Data completeness (in resolution range)	96.3 (27.45-1.47) 96.3 (27.45-1.47)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.04 (at 1.47Å)	Xtrriage
Refinement program	REFMAC 5.8.0425	Depositor
R, $R_{free}$	0.176 , 0.234 0.176 , 0.234	Depositor DCC
$R_{free}$ test set	1003 reflections (4.73%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	15.6	Xtrriage
Anisotropy	0.009	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 26.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.51$ , $\langle L^2 \rangle = 0.35$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	1253	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	26.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.37% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, NA, CL

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	0.73	0/1021	1.11	4/1379 (0.3%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed( $^{\circ}$ )	Ideal( $^{\circ}$ )
1	A	18	ASP	CA-CB-CG	6.22	118.82	112.60
1	A	101	ASP	CA-CB-CG	5.89	118.49	112.60
1	A	66	ASP	CA-CB-CG	5.21	117.81	112.60
1	A	68	ARG	NE-CZ-NH2	5.17	123.85	119.20

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	45	ARG	Sidechain

### 5.2 Too-close contacts [i](#)

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	1001	0	958	137	0
2	A	1	0	0	0	0
3	A	7	0	0	6	0
4	A	12	0	16	2	0
5	A	232	0	0	138	0
All	All	1253	0	974	145	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 73.

All (145) 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:A:112:ARG:HA	5:A:424:HOH:O	1.29	1.27
1:A:76:CYS:SG	5:A:448:HOH:O	1.91	1.27
3:A:205:CL:CL	5:A:489:HOH:O	1.90	1.25
1:A:64:CYS:SG	5:A:397:HOH:O	1.91	1.25
1:A:115:CYS:SG	5:A:318:HOH:O	2.02	1.14
1:A:28:TRP:CE3	5:A:506:HOH:O	1.99	1.14
1:A:112:ARG:HB2	5:A:386:HOH:O	1.50	1.10
3:A:206:CL:CL	5:A:454:HOH:O	2.08	1.09
1:A:64:CYS:SG	5:A:403:HOH:O	2.11	1.08
1:A:78:ILE:HD11	5:A:480:HOH:O	1.59	1.02
1:A:116:LYS:HD2	5:A:424:HOH:O	1.64	0.97
1:A:94:CYS:HB3	5:A:463:HOH:O	1.61	0.97
1:A:106:ASN:HA	5:A:386:HOH:O	1.65	0.95
1:A:23:TYR:CE2	5:A:305:HOH:O	2.24	0.91
3:A:207:CL:CL	5:A:341:HOH:O	2.25	0.90
1:A:58:ILE:CD1	5:A:463:HOH:O	2.19	0.89
1:A:92:VAL:HA	5:A:459:HOH:O	1.72	0.88
3:A:204:CL:CL	5:A:511:HOH:O	2.27	0.88
1:A:80:CYS:SG	5:A:397:HOH:O	2.27	0.87
1:A:63:TRP:CZ2	5:A:450:HOH:O	2.27	0.87
1:A:105:MET:SD	5:A:333:HOH:O	2.33	0.87
1:A:63:TRP:CZ3	5:A:334:HOH:O	2.26	0.86
1:A:17:LEU:HD13	5:A:506:HOH:O	1.76	0.86
1:A:58:ILE:HD13	5:A:463:HOH:O	1.77	0.84
1:A:94:CYS:SG	5:A:480:HOH:O	2.34	0.84
1:A:77:ASN:HB3	5:A:387:HOH:O	1.78	0.83

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:116:LYS:HB2	5:A:424:HOH:O	1.81	0.80
1:A:23:TYR:HB3	5:A:304:HOH:O	1.82	0.79
1:A:25:LEU:HD23	5:A:515:HOH:O	1.81	0.79
1:A:62:TRP:HB3	5:A:450:HOH:O	1.81	0.79
1:A:98:ILE:HG22	5:A:336:HOH:O	1.82	0.79
3:A:207:CL:CL	5:A:502:HOH:O	2.40	0.77
1:A:58:ILE:HB	5:A:307:HOH:O	1.87	0.75
1:A:17:LEU:HD23	5:A:335:HOH:O	1.86	0.75
1:A:63:TRP:HE3	5:A:306:HOH:O	1.68	0.74
1:A:27:ASN:HB2	5:A:304:HOH:O	1.86	0.74
1:A:55:ILE:HD12	1:A:56:LEU:HG	1.69	0.74
1:A:99:VAL:CG2	5:A:305:HOH:O	2.35	0.73
1:A:124:ILE:HD12	5:A:515:HOH:O	1.87	0.73
1:A:94:CYS:SG	5:A:327:HOH:O	2.48	0.72
1:A:5:ARG:HG3	5:A:493:HOH:O	1.89	0.72
1:A:75:LEU:C	5:A:306:HOH:O	2.32	0.72
1:A:95:ALA:O	5:A:301:HOH:O	2.06	0.71
1:A:17:LEU:CD1	5:A:506:HOH:O	2.37	0.71
1:A:56:LEU:HD13	5:A:481:HOH:O	1.90	0.71
1:A:114:ARG:HB2	5:A:303:HOH:O	1.92	0.70
1:A:63:TRP:CE2	5:A:450:HOH:O	2.45	0.69
1:A:97:LYS:O	5:A:302:HOH:O	2.09	0.68
1:A:75:LEU:HD13	5:A:492:HOH:O	1.94	0.68
1:A:59:ASN:ND2	1:A:61:ARG:H	1.91	0.68
1:A:63:TRP:CE3	5:A:334:HOH:O	2.46	0.67
1:A:98:ILE:HG23	5:A:476:HOH:O	1.92	0.67
1:A:96:LYS:CE	5:A:335:HOH:O	2.43	0.67
1:A:76:CYS:N	5:A:306:HOH:O	2.29	0.66
1:A:105:MET:N	5:A:305:HOH:O	2.28	0.65
1:A:94:CYS:SG	5:A:384:HOH:O	2.53	0.65
1:A:40:THR:HG21	5:A:309:HOH:O	1.97	0.65
4:A:209:GOL:H12	5:A:394:HOH:O	1.96	0.64
1:A:116:LYS:CD	5:A:424:HOH:O	2.36	0.64
1:A:96:LYS:HE2	5:A:335:HOH:O	1.98	0.64
1:A:116:LYS:CB	5:A:424:HOH:O	2.43	0.64
1:A:121:GLN:HA	5:A:325:HOH:O	1.97	0.64
1:A:97:LYS:HB3	5:A:448:HOH:O	1.98	0.63
1:A:26:GLY:HA3	5:A:325:HOH:O	1.99	0.63
1:A:12:MET:SD	5:A:396:HOH:O	2.55	0.63
1:A:124:ILE:CD1	5:A:515:HOH:O	2.46	0.63
1:A:59:ASN:ND2	1:A:61:ARG:HB3	2.14	0.63

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:58:ILE:HG22	5:A:403:HOH:O	2.00	0.62
1:A:94:CYS:C	5:A:327:HOH:O	2.43	0.61
1:A:17:LEU:HD11	5:A:459:HOH:O	2.00	0.61
1:A:83:LEU:HD13	5:A:307:HOH:O	2.01	0.60
1:A:114:ARG:NH2	5:A:308:HOH:O	2.34	0.60
1:A:78:ILE:CD1	5:A:480:HOH:O	2.32	0.60
4:A:210:GOL:H32	5:A:450:HOH:O	2.01	0.60
1:A:116:LYS:HE2	5:A:460:HOH:O	2.02	0.59
1:A:13:LYS:HE3	5:A:320:HOH:O	2.02	0.59
1:A:17:LEU:CD2	5:A:335:HOH:O	2.47	0.59
1:A:28:TRP:CD1	5:A:304:HOH:O	2.55	0.59
1:A:75:LEU:CB	5:A:306:HOH:O	2.52	0.58
1:A:23:TYR:CZ	5:A:305:HOH:O	2.48	0.57
1:A:3:PHE:HE1	5:A:309:HOH:O	1.86	0.57
1:A:28:TRP:HH2	5:A:301:HOH:O	1.88	0.56
1:A:17:LEU:CD1	5:A:513:HOH:O	2.53	0.56
1:A:58:ILE:HD12	5:A:463:HOH:O	1.92	0.56
1:A:3:PHE:CE1	5:A:309:HOH:O	2.53	0.56
1:A:55:ILE:HG22	5:A:470:HOH:O	2.05	0.56
1:A:125:ARG:HB3	5:A:367:HOH:O	2.06	0.56
1:A:98:ILE:CD1	5:A:327:HOH:O	2.54	0.55
1:A:38:PHE:HZ	5:A:493:HOH:O	1.89	0.55
1:A:129:LEU:HD11	5:A:471:HOH:O	2.06	0.55
1:A:31:ALA:HA	5:A:358:HOH:O	2.07	0.55
1:A:17:LEU:HG	5:A:335:HOH:O	2.06	0.54
1:A:76:CYS:CB	5:A:480:HOH:O	2.56	0.54
1:A:35:GLU:HG3	5:A:368:HOH:O	2.07	0.54
1:A:58:ILE:HD13	5:A:327:HOH:O	2.07	0.54
1:A:40:THR:HA	1:A:55:ILE:HG23	1.90	0.53
1:A:95:ALA:C	5:A:301:HOH:O	2.49	0.53
1:A:96:LYS:HE3	5:A:335:HOH:O	2.05	0.53
1:A:123:TRP:HE3	5:A:493:HOH:O	1.90	0.53
1:A:12:MET:HB3	5:A:513:HOH:O	2.09	0.52
1:A:60:SER:HB3	5:A:397:HOH:O	2.09	0.52
1:A:99:VAL:HG22	5:A:305:HOH:O	2.06	0.52
1:A:29:VAL:HG23	5:A:396:HOH:O	2.10	0.52
1:A:75:LEU:HB2	5:A:306:HOH:O	2.09	0.52
1:A:17:LEU:CG	5:A:335:HOH:O	2.58	0.51
1:A:124:ILE:HG12	5:A:325:HOH:O	2.11	0.51
1:A:79:PRO:HB3	5:A:454:HOH:O	2.12	0.50
1:A:108:TRP:CD1	5:A:368:HOH:O	2.64	0.50

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:99:VAL:HG23	5:A:305:HOH:O	2.07	0.50
1:A:63:TRP:CE3	5:A:306:HOH:O	2.52	0.49
1:A:98:ILE:HD12	5:A:327:HOH:O	2.13	0.48
1:A:105:MET:CE	5:A:333:HOH:O	2.62	0.48
1:A:38:PHE:HA	5:A:470:HOH:O	2.14	0.47
1:A:17:LEU:HD13	5:A:513:HOH:O	2.10	0.47
1:A:28:TRP:CH2	5:A:301:HOH:O	2.55	0.47
1:A:97:LYS:CB	5:A:448:HOH:O	2.58	0.47
1:A:28:TRP:HB2	5:A:396:HOH:O	2.14	0.47
1:A:12:MET:SD	5:A:513:HOH:O	2.61	0.46
1:A:98:ILE:HG13	5:A:334:HOH:O	2.15	0.46
1:A:110:ALA:O	5:A:303:HOH:O	2.20	0.46
1:A:28:TRP:CB	5:A:513:HOH:O	2.63	0.45
1:A:86:SER:HA	5:A:309:HOH:O	2.16	0.45
1:A:101:ASP:HB2	5:A:302:HOH:O	2.16	0.45
1:A:55:ILE:CG2	5:A:470:HOH:O	2.63	0.45
1:A:5:ARG:HB2	5:A:489:HOH:O	2.16	0.44
1:A:17:LEU:HD12	5:A:513:HOH:O	2.17	0.44
1:A:59:ASN:ND2	1:A:61:ARG:CB	2.79	0.44
1:A:63:TRP:CH2	5:A:450:HOH:O	2.66	0.44
1:A:28:TRP:CG	5:A:333:HOH:O	2.71	0.43
1:A:45:ARG:NE	1:A:68:ARG:NH2	2.66	0.43
1:A:94:CYS:CB	5:A:480:HOH:O	2.64	0.43
1:A:112:ARG:HD2	5:A:440:HOH:O	2.19	0.42
1:A:31:ALA:N	5:A:318:HOH:O	2.52	0.42
1:A:58:ILE:HG21	5:A:384:HOH:O	2.19	0.42
3:A:204:CL:CL	5:A:325:HOH:O	2.59	0.42
1:A:76:CYS:HB2	5:A:480:HOH:O	2.16	0.42
1:A:111:TRP:HD1	5:A:318:HOH:O	2.03	0.42
1:A:15:HIS:HB3	1:A:92:VAL:HG11	2.02	0.41
1:A:104:GLY:C	5:A:305:HOH:O	2.63	0.41
1:A:84:LEU:HD13	5:A:461:HOH:O	2.21	0.40
1:A:111:TRP:HE3	5:A:386:HOH:O	2.03	0.40
1:A:127:CYS:CB	5:A:471:HOH:O	2.69	0.40
1:A:99:VAL:HA	5:A:336:HOH:O	2.19	0.40
1:A:62:TRP:HD1	5:A:469:HOH:O	2.02	0.40
1:A:94:CYS:HB2	5:A:480:HOH:O	2.19	0.40

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	127/129 (98%)	125 (98%)	2 (2%)	0	100	100

There are no Ramachandran outliers to report.

### 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	105/105 (100%)	104 (99%)	1 (1%)	68	42

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	55	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	15	HIS
1	A	44	ASN
1	A	46	ASN
1	A	59	ASN
1	A	65	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 oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 10 ligands modelled in this entry, 8 are monoatomic - leaving 2 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	GOL	A	210	-	5,5,5	0.09	0	5,5,5	0.27	0
4	GOL	A	209	-	5,5,5	0.13	0	5,5,5	0.35	0

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	GOL	A	210	-	-	0/4/4/4	-
4	GOL	A	209	-	-	1/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	209	GOL	O1-C1-C2-O2

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	210	GOL	1	0
4	A	209	GOL	1	0

## 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 [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	129/129 (100%)	0.19	5 (3%) 43 46	10, 17, 34, 45	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	71	GLY	2.5
1	A	62	TRP	2.3
1	A	102	GLY	2.2
1	A	61	ARG	2.2
1	A	55	ILE	2.0

### 6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

### 6.3 Carbohydrates [i](#)

There are no oligosaccharides 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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
4	GOL	A	210	6/6	0.34	0.22	103,104,107,113	0
3	CL	A	206	1/1	0.69	0.17	62,62,62,62	0

*Continued on next page...*

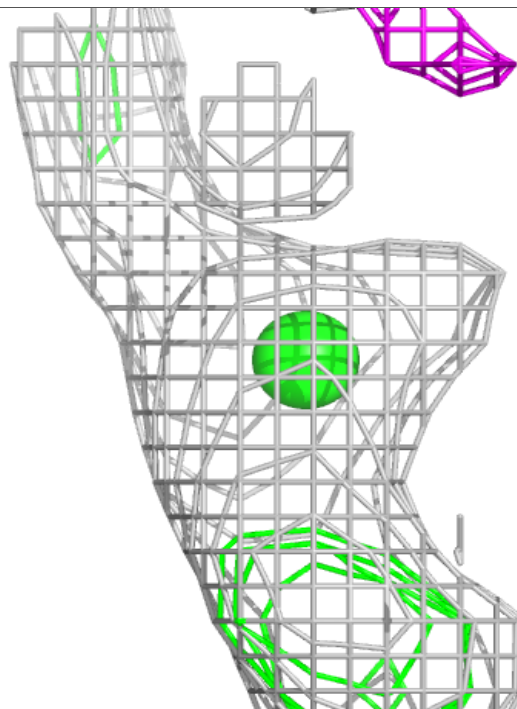
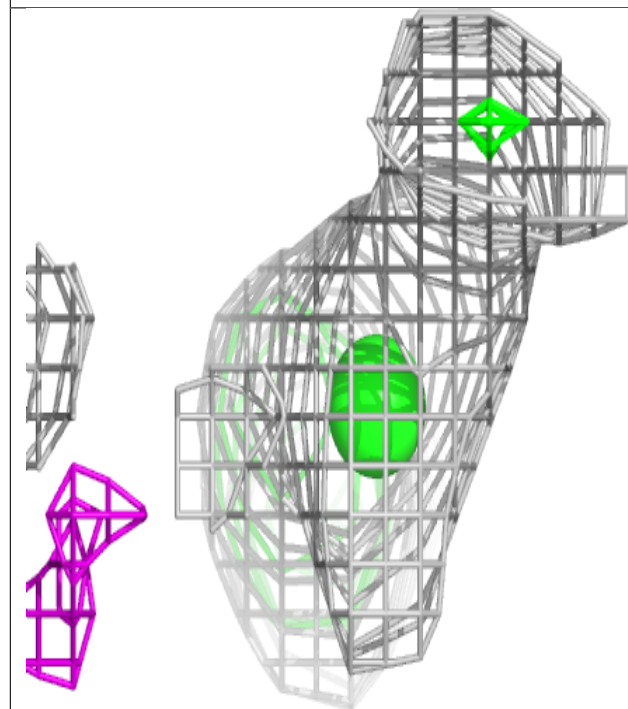
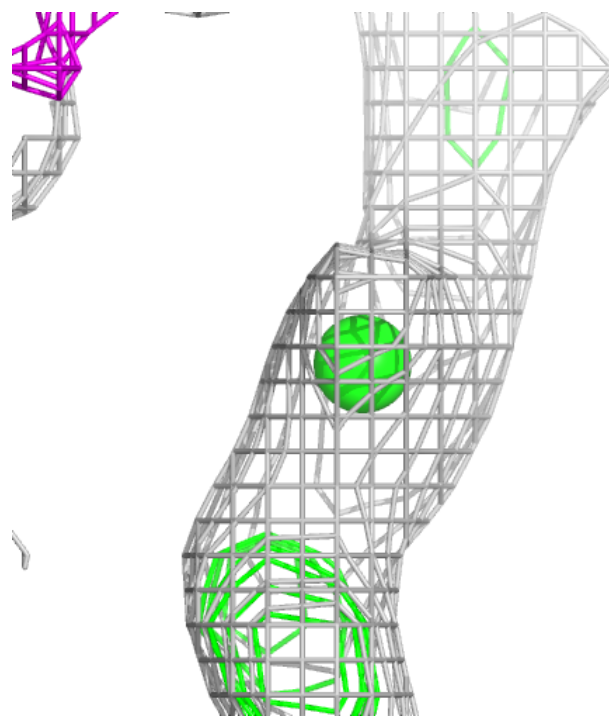
*Continued from previous page...*

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
4	GOL	A	209	6/6	0.75	0.16	74,78,80,83	0
3	CL	A	205	1/1	0.80	0.28	53,53,53,53	0
3	CL	A	208	1/1	0.89	0.17	50,50,50,50	0
3	CL	A	207	1/1	0.92	0.22	48,48,48,48	0
3	CL	A	202	1/1	0.97	0.08	23,23,23,23	0
3	CL	A	204	1/1	0.97	0.19	29,29,29,29	0
3	CL	A	203	1/1	0.98	0.14	29,29,29,29	0
2	NA	A	201	1/1	0.99	0.06	17,17,17,17	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.

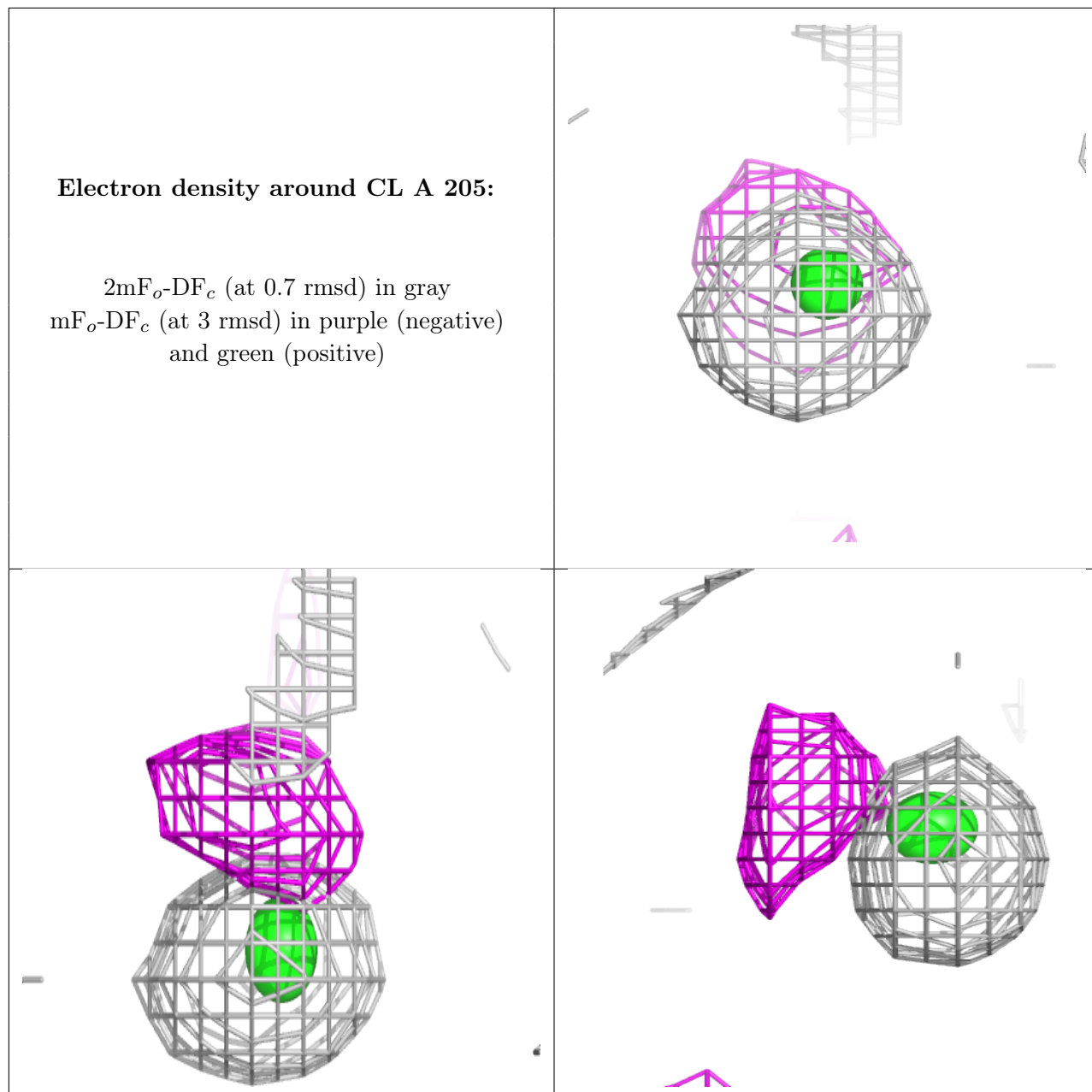
**Electron density around CL A 206:**

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



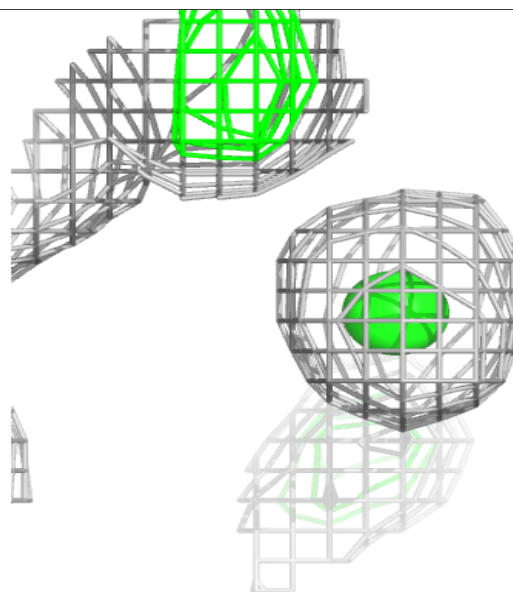
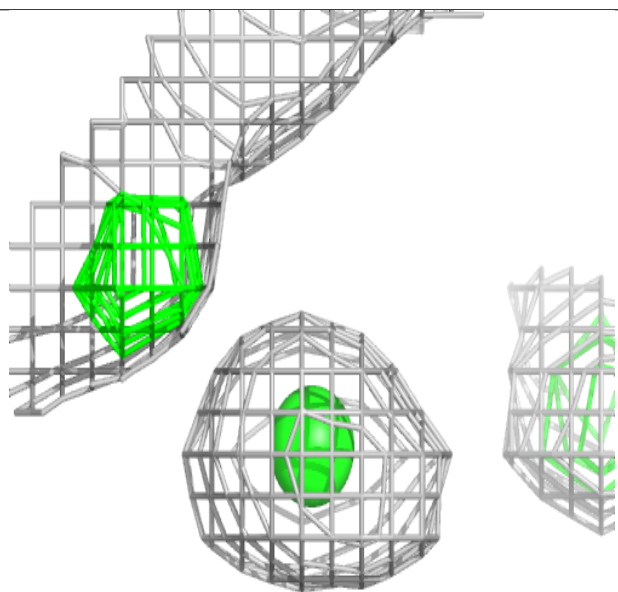
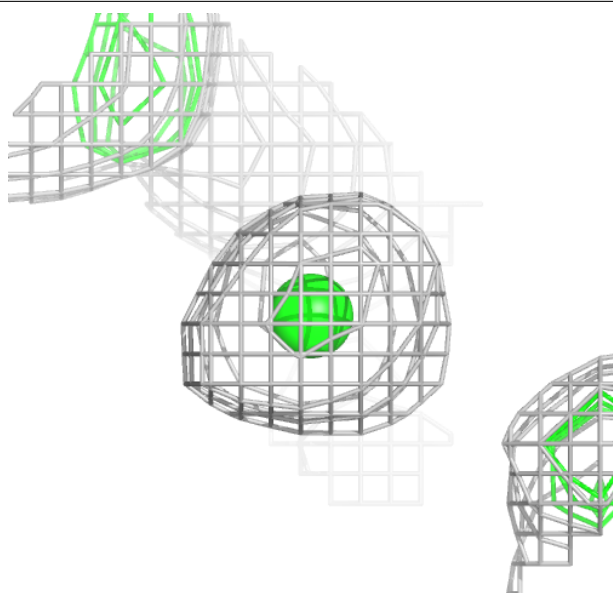
**Electron density around CL A 205:**

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



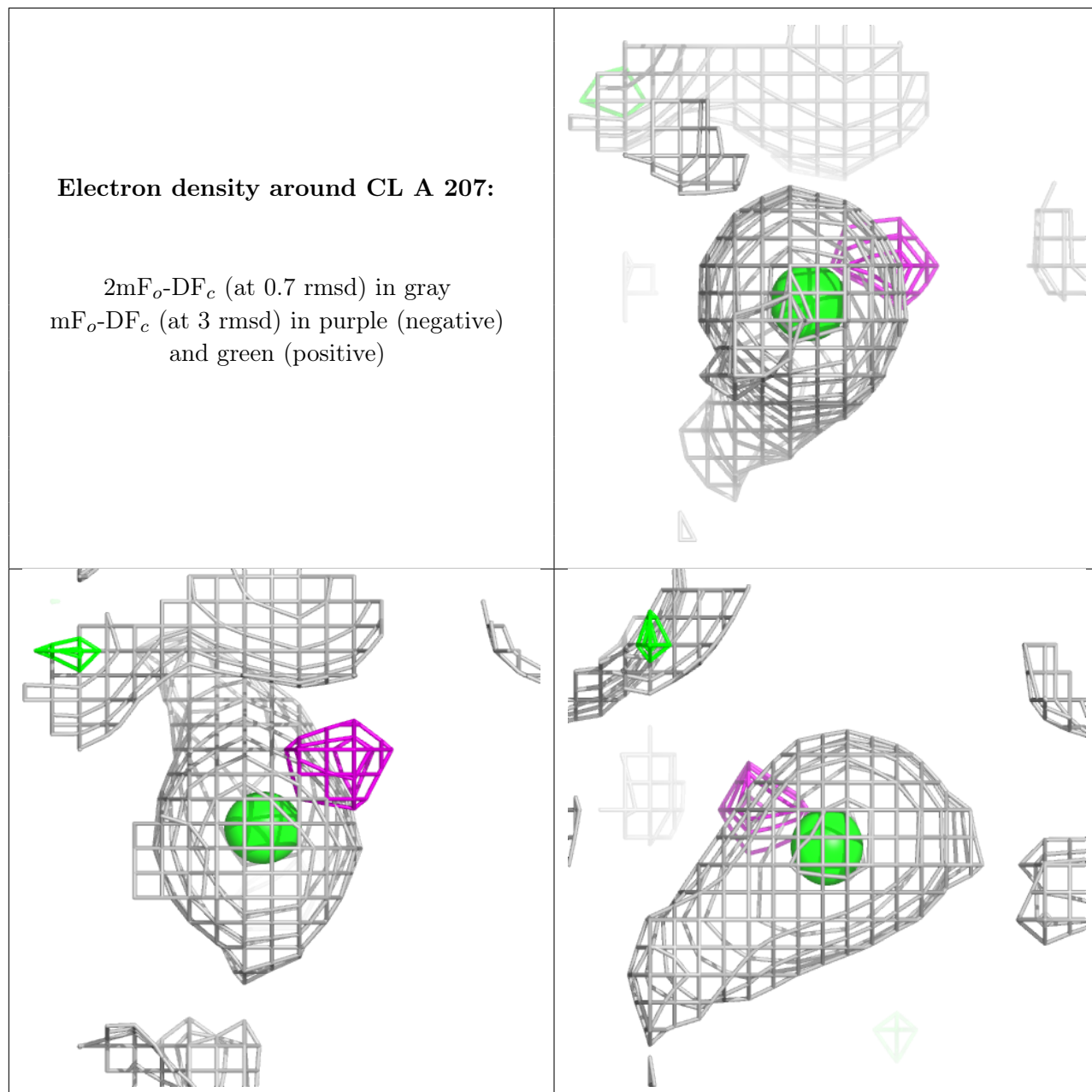
**Electron density around CL A 208:**

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



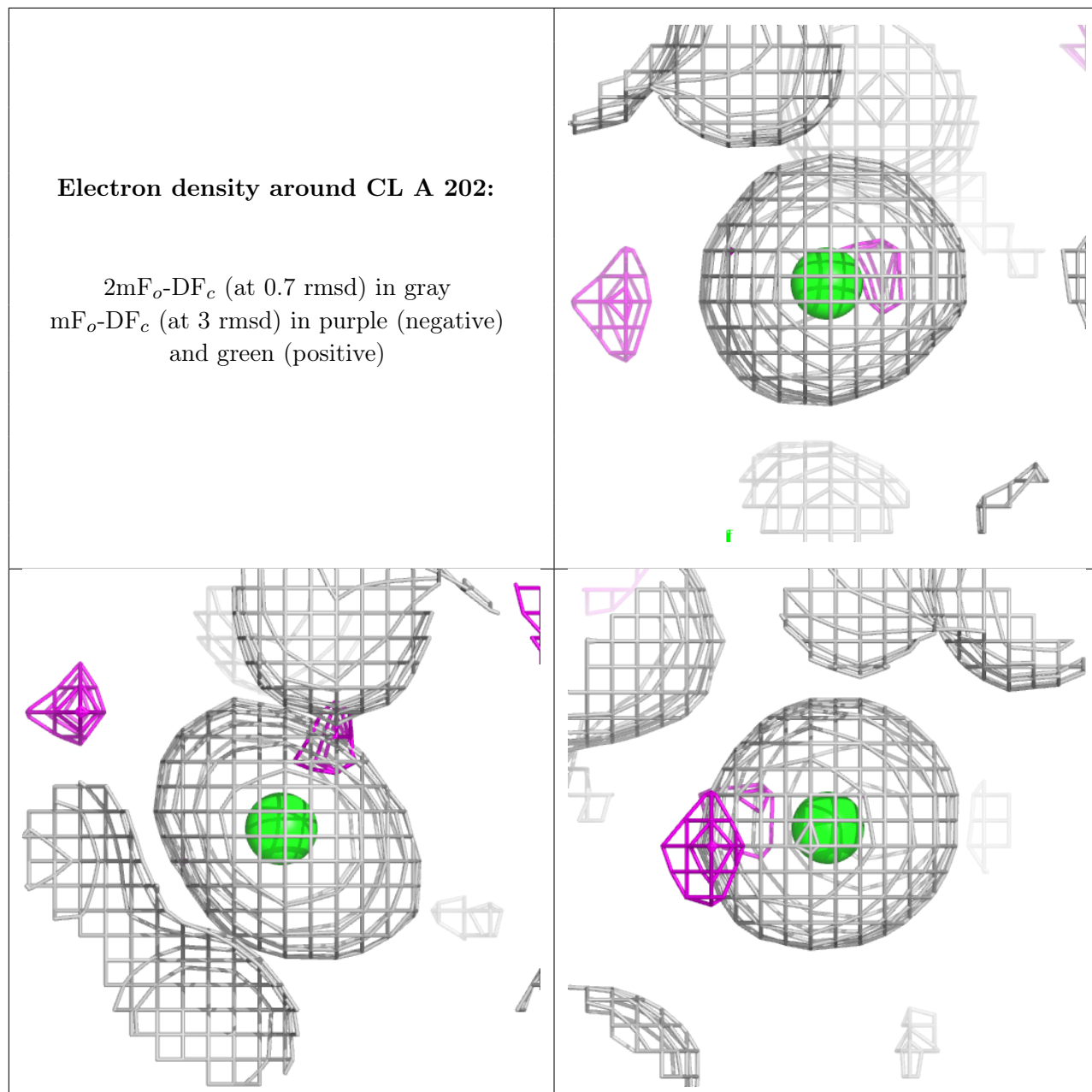
**Electron density around CL A 207:**

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



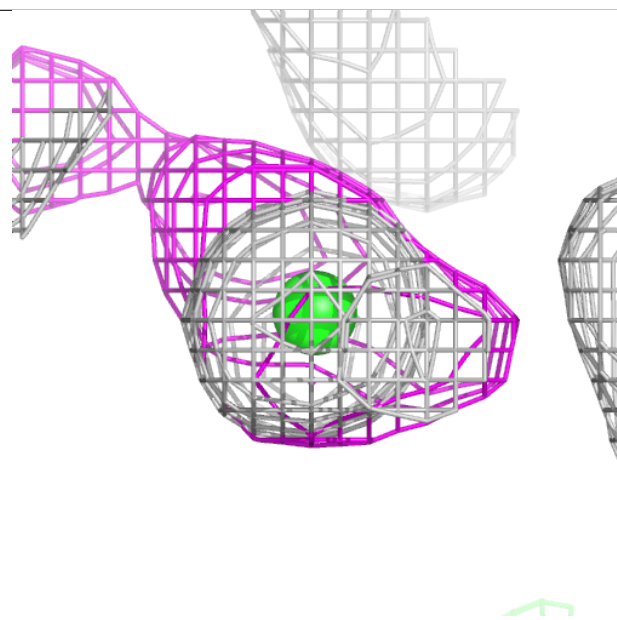
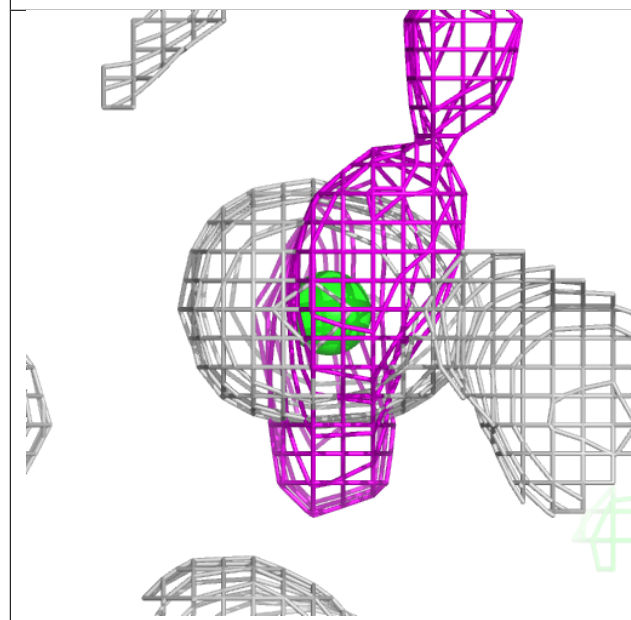
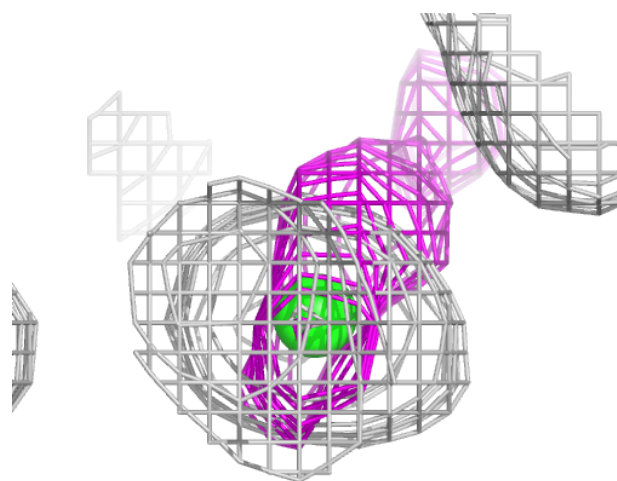
**Electron density around CL A 202:**

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



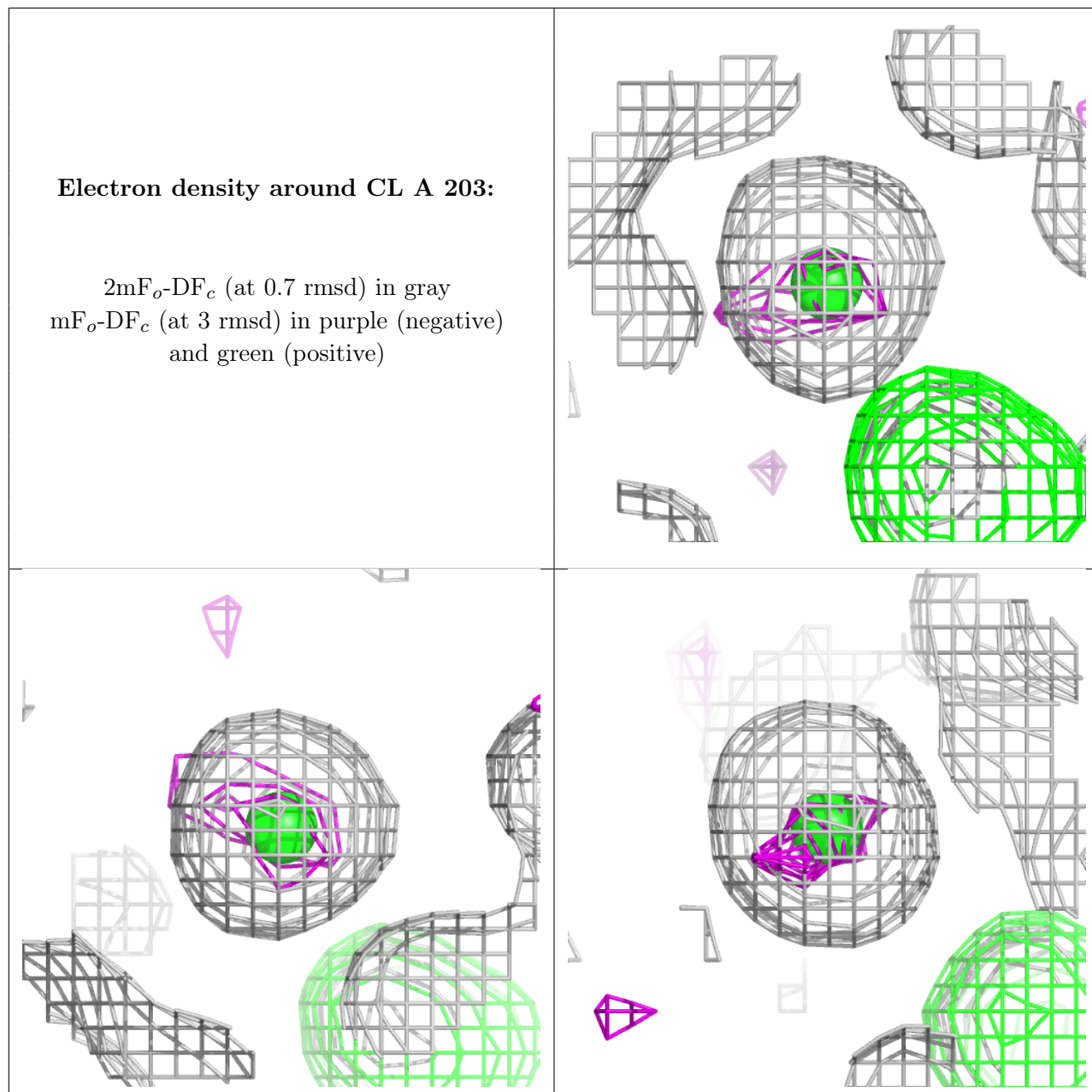
**Electron density around CL A 204:**

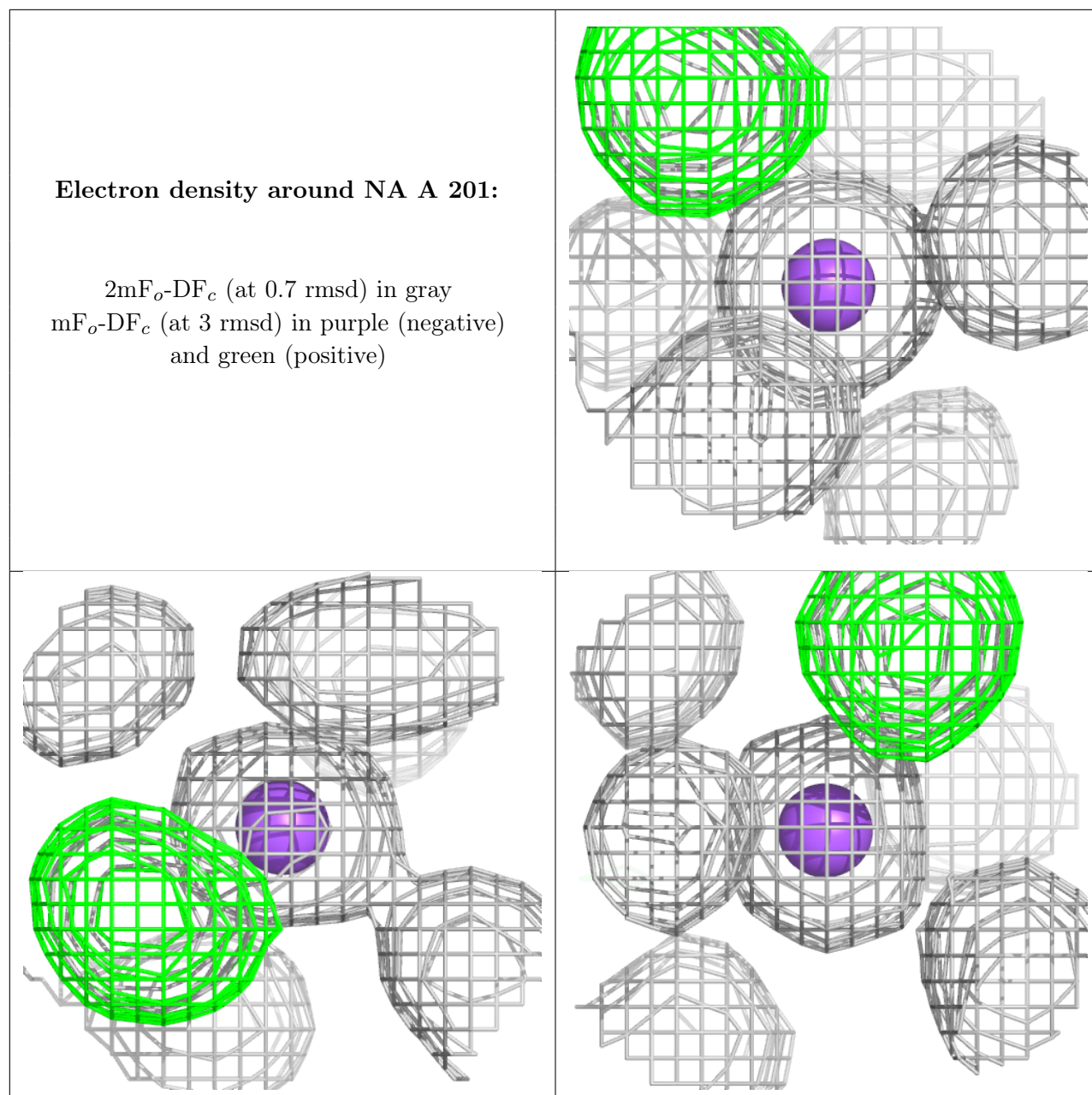
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around CL A 203:**

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





## 6.5 Other polymers [i](#)

There are no such residues in this entry.