# WORLDWIDE PDB
## PROTEIN DATA BANK

# Full wwPDB EM Validation Report (i)

Mar 10, 2026 – 03:30 pm GMT

|  |  |  |
|---|---|---|
| PDB ID | : | 9RPB / pdb_00009rpb |
| EMDB ID | : | EMD-54151 |
| Title | : | a5b3 GABAAR bound to GABA, and Mb25 in a desensitized state in saposin nanodiscs, topiramate-free |
| Authors | : | Cowgill, J.; Lindahl, E.; Howard, R.J. |
| Deposited on | : | 2025-06-24 |
| Resolution | : | 3.10 Å(reported) |
| Based on initial model | : | 9HNS |

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

|  |  |  |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev132 |
| Mogul | : | 1.8.4, CSD as541be (2020) |
| MolProbity | : | 4-5-2 with Phenix2.0 |
| buster-report | : | 1.1.7 (2018) |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| EM percentile statistics | : | 202505.v01 (Using data in the EMDB archive up until May 2025) |
| MapQ | : | 1.9.13 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.48.1 |

# 1　Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.10 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.
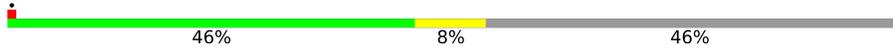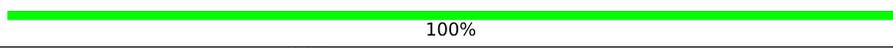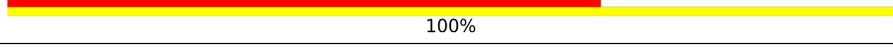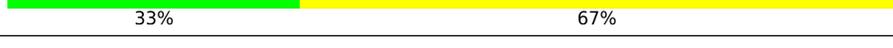
| Metric | Percentile Ranks | Value |
|---|---|---|
| Clashscore | | 7 |
| Ramachandran outliers | | 0.1% |
| Sidechain outliers | | 0 |

*Worse* ... *Better*

■ Percentile relative to all structures
▯ Percentile relative to all EM structures

| Metric | Model-Map Fit Percentile Ranks | Value |
|---|---|---|
| Q-score | | 0.497 |

*Worse* ... *Better*

■ Percentile relative to all EM structures
▯ Percentile relative to EM structures of similar resolution
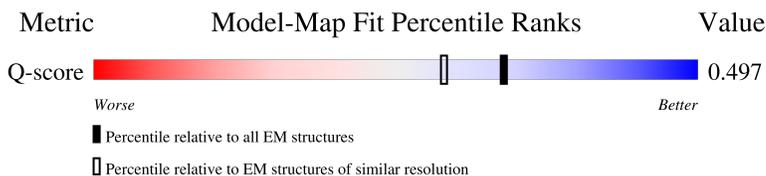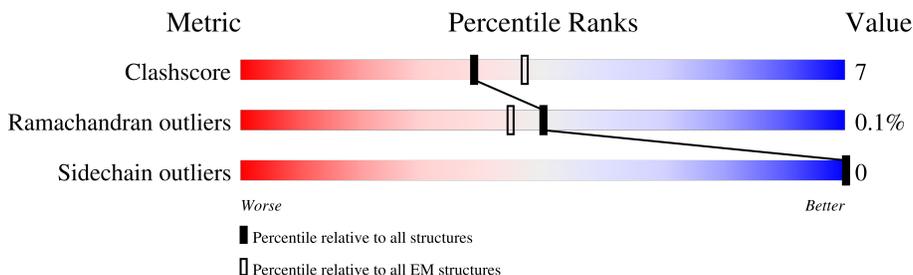
| Metric | Whole archive (#Entries) | EM structures (#Entries) | Similar EM resolution (#Entries, resolution range(Å)) |
|---|---|---|---|
| Clashscore | 210492 | 15764 | - |
| Ramachandran outliers | 207382 | 16835 | - |
| Sidechain outliers | 206894 | 16415 | - |
| Q-score | - | 25397 | 14724 ( 2.60 - 3.60 ) |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | A | 679 | 41% 9% 50% |
| 1 | D | 679 | 43% 7% 50% |
| 2 | B | 623 | 43% 10% 46% |
| 2 | C | 623 | 45% 9% 46% |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 2 | E | 623 | 46% 8% 46% |
| 3 | P | 541 | 19% 78% |
| 4 | F | 2 | 100% |
| 5 | G | 3 | 67% / 100% |
| 5 | I | 3 | 33% 67% |
| 5 | M | 3 | 33% 67% |
| 6 | H | 6 | 33% 50% 17% |
| 6 | N | 6 | 17% / 17% 83% |
| 7 | J | 3 | 33% 67% |
| 8 | K | 6 | 100% |
| 9 | L | 2 | 50% 50% |
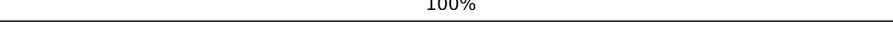
# 2 Entry composition ⓘ

There are 12 unique types of molecules in this entry. The entry contains 15127 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Green fluorescent protein,Gamma-aminobutyric acid receptor subunit alpha-5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | A | 342 | Total 2745 | C 1769 | N 454 | O 506 | S 16 | 0 | 0 |
| 1 | D | 339 | Total 2719 | C 1754 | N 451 | O 498 | S 16 | 0 | 0 |

There are 194 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
| --- | --- | --- | --- | --- | --- |
| A | -315 | MET | - | initiating methionine | UNP P42212 |
| A | -314 | ARG | - | expression tag | UNP P42212 |
| A | -313 | LYS | - | expression tag | UNP P42212 |
| A | -312 | SER | - | expression tag | UNP P42212 |
| A | -311 | PRO | - | expression tag | UNP P42212 |
| A | -310 | GLY | - | expression tag | UNP P42212 |
| A | -309 | LEU | - | expression tag | UNP P42212 |
| A | -308 | SER | - | expression tag | UNP P42212 |
| A | -307 | ASP | - | expression tag | UNP P42212 |
| A | -306 | CYS | - | expression tag | UNP P42212 |
| A | -305 | LEU | - | expression tag | UNP P42212 |
| A | -304 | TRP | - | expression tag | UNP P42212 |
| A | -303 | ALA | - | expression tag | UNP P42212 |
| A | -302 | TRP | - | expression tag | UNP P42212 |
| A | -301 | ILE | - | expression tag | UNP P42212 |
| A | -300 | LEU | - | expression tag | UNP P42212 |
| A | -299 | LEU | - | expression tag | UNP P42212 |
| A | -298 | LEU | - | expression tag | UNP P42212 |
| A | -297 | SER | - | expression tag | UNP P42212 |
| A | -296 | THR | - | expression tag | UNP P42212 |
| A | -295 | LEU | - | expression tag | UNP P42212 |
| A | -294 | THR | - | expression tag | UNP P42212 |
| A | -293 | GLY | - | expression tag | UNP P42212 |
| A | -292 | ARG | - | expression tag | UNP P42212 |
| A | -291 | SER | - | expression tag | UNP P42212 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| A | -290 | TYR | - | expression tag | UNP P42212 |
| A | -289 | GLY | - | expression tag | UNP P42212 |
| A | -288 | GLN | - | expression tag | UNP P42212 |
| A | -258 | ARG | SER | conflict | UNP P42212 |
| A | -249 | ASN | TYR | conflict | UNP P42212 |
| A | -224 | LEU | PHE | conflict | UNP P42212 |
| A | -223 | THR | SER | conflict | UNP P42212 |
| A | -208 | ARG | GLN | conflict | UNP P42212 |
| A | -189 | SER | PHE | conflict | UNP P42212 |
| A | -183 | THR | ASN | conflict | UNP P42212 |
| A | -143 | PHE | TYR | conflict | UNP P42212 |
| A | -135 | THR | MET | conflict | UNP P42212 |
| A | -125 | ALA | VAL | conflict | UNP P42212 |
| A | -117 | VAL | ILE | conflict | UNP P42212 |
| A | -82 | VAL | ALA | conflict | UNP P42212 |
| A | -49 | ALA | - | linker | UNP P42212 |
| A | -48 | ALA | - | linker | UNP P42212 |
| A | -47 | ASN | - | linker | UNP P42212 |
| A | -46 | ALA | - | linker | UNP P42212 |
| A | -45 | LEU | - | linker | UNP P42212 |
| A | -44 | ALA | - | linker | UNP P42212 |
| A | -43 | ALA | - | linker | UNP P42212 |
| A | -42 | TRP | - | linker | UNP P42212 |
| A | -41 | SER | - | linker | UNP P42212 |
| A | -40 | HIS | - | linker | UNP P42212 |
| A | -39 | PRO | - | linker | UNP P42212 |
| A | -38 | GLN | - | linker | UNP P42212 |
| A | -37 | PHE | - | linker | UNP P42212 |
| A | -36 | GLU | - | linker | UNP P42212 |
| A | -35 | LYS | - | linker | UNP P42212 |
| A | -34 | GLY | - | linker | UNP P42212 |
| A | -33 | GLY | - | linker | UNP P42212 |
| A | -32 | GLY | - | linker | UNP P42212 |
| A | -31 | SER | - | linker | UNP P42212 |
| A | -30 | GLY | - | linker | UNP P42212 |
| A | -29 | GLY | - | linker | UNP P42212 |
| A | -28 | GLY | - | linker | UNP P42212 |
| A | -27 | SER | - | linker | UNP P42212 |
| A | -26 | GLY | - | linker | UNP P42212 |
| A | -25 | GLY | - | linker | UNP P42212 |
| A | -24 | GLY | - | linker | UNP P42212 |
| A | -23 | SER | - | linker | UNP P42212 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| A | -22 | TRP | - | linker | UNP P42212 |
| A | -21 | SER | - | linker | UNP P42212 |
| A | -20 | HIS | - | linker | UNP P42212 |
| A | -19 | PRO | - | linker | UNP P42212 |
| A | -18 | GLN | - | linker | UNP P42212 |
| A | -17 | PHE | - | linker | UNP P42212 |
| A | -16 | GLU | - | linker | UNP P42212 |
| A | -15 | LYS | - | linker | UNP P42212 |
| A | -14 | SER | - | linker | UNP P42212 |
| A | -13 | SER | - | linker | UNP P42212 |
| A | -12 | SER | - | linker | UNP P42212 |
| A | -11 | ASN | - | linker | UNP P42212 |
| A | -10 | ASN | - | linker | UNP P42212 |
| A | -9 | ASN | - | linker | UNP P42212 |
| A | -8 | ASN | - | linker | UNP P42212 |
| A | -7 | ASN | - | linker | UNP P42212 |
| A | -6 | GLU | - | linker | UNP P42212 |
| A | -5 | ASN | - | linker | UNP P42212 |
| A | -4 | LEU | - | linker | UNP P42212 |
| A | -3 | TYR | - | linker | UNP P42212 |
| A | -2 | PHE | - | linker | UNP P42212 |
| A | -1 | GLN | - | linker | UNP P42212 |
| A | 0 | ALA | - | linker | UNP P42212 |
| A | 315 | SER | - | linker | UNP P31644 |
| A | 316 | GLN | - | linker | UNP P31644 |
| A | 317 | PRO | - | linker | UNP P31644 |
| A | 318 | ALA | - | linker | UNP P31644 |
| A | 319 | ARG | - | linker | UNP P31644 |
| A | 320 | ALA | - | linker | UNP P31644 |
| A | 321 | ALA | - | linker | UNP P31644 |
| D | -315 | MET | - | initiating methionine | UNP P42212 |
| D | -314 | ARG | - | expression tag | UNP P42212 |
| D | -313 | LYS | - | expression tag | UNP P42212 |
| D | -312 | SER | - | expression tag | UNP P42212 |
| D | -311 | PRO | - | expression tag | UNP P42212 |
| D | -310 | GLY | - | expression tag | UNP P42212 |
| D | -309 | LEU | - | expression tag | UNP P42212 |
| D | -308 | SER | - | expression tag | UNP P42212 |
| D | -307 | ASP | - | expression tag | UNP P42212 |
| D | -306 | CYS | - | expression tag | UNP P42212 |
| D | -305 | LEU | - | expression tag | UNP P42212 |
| D | -304 | TRP | - | expression tag | UNP P42212 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| D | -303 | ALA | - | expression tag | UNP P42212 |
| D | -302 | TRP | - | expression tag | UNP P42212 |
| D | -301 | ILE | - | expression tag | UNP P42212 |
| D | -300 | LEU | - | expression tag | UNP P42212 |
| D | -299 | LEU | - | expression tag | UNP P42212 |
| D | -298 | LEU | - | expression tag | UNP P42212 |
| D | -297 | SER | - | expression tag | UNP P42212 |
| D | -296 | THR | - | expression tag | UNP P42212 |
| D | -295 | LEU | - | expression tag | UNP P42212 |
| D | -294 | THR | - | expression tag | UNP P42212 |
| D | -293 | GLY | - | expression tag | UNP P42212 |
| D | -292 | ARG | - | expression tag | UNP P42212 |
| D | -291 | SER | - | expression tag | UNP P42212 |
| D | -290 | TYR | - | expression tag | UNP P42212 |
| D | -289 | GLY | - | expression tag | UNP P42212 |
| D | -288 | GLN | - | expression tag | UNP P42212 |
| D | -258 | ARG | SER | conflict | UNP P42212 |
| D | -249 | ASN | TYR | conflict | UNP P42212 |
| D | -224 | LEU | PHE | conflict | UNP P42212 |
| D | -223 | THR | SER | conflict | UNP P42212 |
| D | -208 | ARG | GLN | conflict | UNP P42212 |
| D | -189 | SER | PHE | conflict | UNP P42212 |
| D | -183 | THR | ASN | conflict | UNP P42212 |
| D | -143 | PHE | TYR | conflict | UNP P42212 |
| D | -135 | THR | MET | conflict | UNP P42212 |
| D | -125 | ALA | VAL | conflict | UNP P42212 |
| D | -117 | VAL | ILE | conflict | UNP P42212 |
| D | -82 | VAL | ALA | conflict | UNP P42212 |
| D | -49 | ALA | - | linker | UNP P42212 |
| D | -48 | ALA | - | linker | UNP P42212 |
| D | -47 | ASN | - | linker | UNP P42212 |
| D | -46 | ALA | - | linker | UNP P42212 |
| D | -45 | LEU | - | linker | UNP P42212 |
| D | -44 | ALA | - | linker | UNP P42212 |
| D | -43 | ALA | - | linker | UNP P42212 |
| D | -42 | TRP | - | linker | UNP P42212 |
| D | -41 | SER | - | linker | UNP P42212 |
| D | -40 | HIS | - | linker | UNP P42212 |
| D | -39 | PRO | - | linker | UNP P42212 |
| D | -38 | GLN | - | linker | UNP P42212 |
| D | -37 | PHE | - | linker | UNP P42212 |
| D | -36 | GLU | - | linker | UNP P42212 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| D | -35 | LYS | - | linker | UNP P42212 |
| D | -34 | GLY | - | linker | UNP P42212 |
| D | -33 | GLY | - | linker | UNP P42212 |
| D | -32 | GLY | - | linker | UNP P42212 |
| D | -31 | SER | - | linker | UNP P42212 |
| D | -30 | GLY | - | linker | UNP P42212 |
| D | -29 | GLY | - | linker | UNP P42212 |
| D | -28 | GLY | - | linker | UNP P42212 |
| D | -27 | SER | - | linker | UNP P42212 |
| D | -26 | GLY | - | linker | UNP P42212 |
| D | -25 | GLY | - | linker | UNP P42212 |
| D | -24 | GLY | - | linker | UNP P42212 |
| D | -23 | SER | - | linker | UNP P42212 |
| D | -22 | TRP | - | linker | UNP P42212 |
| D | -21 | SER | - | linker | UNP P42212 |
| D | -20 | HIS | - | linker | UNP P42212 |
| D | -19 | PRO | - | linker | UNP P42212 |
| D | -18 | GLN | - | linker | UNP P42212 |
| D | -17 | PHE | - | linker | UNP P42212 |
| D | -16 | GLU | - | linker | UNP P42212 |
| D | -15 | LYS | - | linker | UNP P42212 |
| D | -14 | SER | - | linker | UNP P42212 |
| D | -13 | SER | - | linker | UNP P42212 |
| D | -12 | SER | - | linker | UNP P42212 |
| D | -11 | ASN | - | linker | UNP P42212 |
| D | -10 | ASN | - | linker | UNP P42212 |
| D | -9 | ASN | - | linker | UNP P42212 |
| D | -8 | ASN | - | linker | UNP P42212 |
| D | -7 | ASN | - | linker | UNP P42212 |
| D | -6 | GLU | - | linker | UNP P42212 |
| D | -5 | ASN | - | linker | UNP P42212 |
| D | -4 | LEU | - | linker | UNP P42212 |
| D | -3 | TYR | - | linker | UNP P42212 |
| D | -2 | PHE | - | linker | UNP P42212 |
| D | -1 | GLN | - | linker | UNP P42212 |
| D | 0 | ALA | - | linker | UNP P42212 |
| D | 315 | SER | - | linker | UNP P31644 |
| D | 316 | GLN | - | linker | UNP P31644 |
| D | 317 | PRO | - | linker | UNP P31644 |
| D | 318 | ALA | - | linker | UNP P31644 |
| D | 319 | ARG | - | linker | UNP P31644 |
| D | 320 | ALA | - | linker | UNP P31644 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| D | 321 | ALA | - | linker | UNP P31644 |

- Molecule 2 is a protein called Gamma-aminobutyric acid receptor subunit beta-3,Green fluorescent protein.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 2 | B | 336 | Total 2747 | C 1796 | N 450 | O 485 | S 16 | 0 | 0 |
| 2 | C | 338 | Total 2767 | C 1812 | N 452 | O 487 | S 16 | 0 | 0 |
| 2 | E | 336 | Total 2747 | C 1797 | N 450 | O 484 | S 16 | 0 | 0 |

There are 153 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| B | 308 | SER | - | linker | UNP P28472 |
| B | 309 | GLN | - | linker | UNP P28472 |
| B | 310 | PRO | - | linker | UNP P28472 |
| B | 311 | GLY | - | linker | UNP P28472 |
| B | 312 | ARG | - | linker | UNP P28472 |
| B | 313 | ALA | - | linker | UNP P28472 |
| B | 314 | MET | - | linker | UNP P28472 |
| B | 315 | VAL | - | linker | UNP P28472 |
| B | 332 | MET | LEU | conflict | UNP P42212 |
| B | 339 | ARG | HIS | conflict | UNP P42212 |
| B | 344 | ARG | SER | conflict | UNP P42212 |
| B | 346 | VAL | GLU | conflict | UNP P42212 |
| B | 353 | HIS | TYR | conflict | UNP P42212 |
| B | 364 | SER | THR | conflict | UNP P42212 |
| B | 378 | LEU | PHE | conflict | UNP P42212 |
| B | 419 | SER | ASN | conflict | UNP P42212 |
| B | 438 | VAL | GLU | conflict | UNP P42212 |
| B | 442 | THR | ILE | conflict | UNP P42212 |
| B | 459 | MET | TYR | conflict | UNP P42212 |
| B | 461 | VAL | SER | conflict | UNP P42212 |
| B | 462 | GLY | HIS | conflict | UNP P42212 |
| B | 467 | THR | MET | conflict | UNP P42212 |
| B | 477 | ALA | VAL | conflict | UNP P42212 |
| B | 480 | GLU | LYS | conflict | UNP P42212 |
| B | 485 | VAL | ILE | conflict | UNP P42212 |
| B | 489 | GLY | SER | conflict | UNP P42212 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| B | 506 | SER | PRO | conflict | UNP P42212 |
| B | 517 | VAL | THR | conflict | UNP P42212 |
| B | 519 | VAL | SER | conflict | UNP P42212 |
| B | 520 | LYS | ALA | conflict | UNP P42212 |
| B | 538 | ARG | VAL | conflict | UNP P42212 |
| B | 545 | PRO | HIS | conflict | UNP P42212 |
| B | 553 | GLY | - | linker | UNP P42212 |
| B | 554 | ARG | - | linker | UNP P42212 |
| B | 555 | ALA | - | linker | UNP P42212 |
| B | 556 | ALA | - | linker | UNP P42212 |
| B | 584 | SER | - | expression tag | UNP P28472 |
| B | 585 | ARG | - | expression tag | UNP P28472 |
| B | 586 | GLU | - | expression tag | UNP P28472 |
| B | 587 | ASN | - | expression tag | UNP P28472 |
| B | 588 | LEU | - | expression tag | UNP P28472 |
| B | 589 | TYR | - | expression tag | UNP P28472 |
| B | 590 | PHE | - | expression tag | UNP P28472 |
| B | 591 | GLN | - | expression tag | UNP P28472 |
| B | 592 | ALA | - | expression tag | UNP P28472 |
| B | 593 | HIS | - | expression tag | UNP P28472 |
| B | 594 | HIS | - | expression tag | UNP P28472 |
| B | 595 | HIS | - | expression tag | UNP P28472 |
| B | 596 | HIS | - | expression tag | UNP P28472 |
| B | 597 | HIS | - | expression tag | UNP P28472 |
| B | 598 | HIS | - | expression tag | UNP P28472 |
| C | 308 | SER | - | linker | UNP P28472 |
| C | 309 | GLN | - | linker | UNP P28472 |
| C | 310 | PRO | - | linker | UNP P28472 |
| C | 311 | GLY | - | linker | UNP P28472 |
| C | 312 | ARG | - | linker | UNP P28472 |
| C | 313 | ALA | - | linker | UNP P28472 |
| C | 314 | MET | - | linker | UNP P28472 |
| C | 315 | VAL | - | linker | UNP P28472 |
| C | 332 | MET | LEU | conflict | UNP P42212 |
| C | 339 | ARG | HIS | conflict | UNP P42212 |
| C | 344 | ARG | SER | conflict | UNP P42212 |
| C | 346 | VAL | GLU | conflict | UNP P42212 |
| C | 353 | HIS | TYR | conflict | UNP P42212 |
| C | 364 | SER | THR | conflict | UNP P42212 |
| C | 378 | LEU | PHE | conflict | UNP P42212 |
| C | 419 | SER | ASN | conflict | UNP P42212 |
| C | 438 | VAL | GLU | conflict | UNP P42212 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| C | 442 | THR | ILE | conflict | UNP P42212 |
| C | 459 | MET | TYR | conflict | UNP P42212 |
| C | 461 | VAL | SER | conflict | UNP P42212 |
| C | 462 | GLY | HIS | conflict | UNP P42212 |
| C | 467 | THR | MET | conflict | UNP P42212 |
| C | 477 | ALA | VAL | conflict | UNP P42212 |
| C | 480 | GLU | LYS | conflict | UNP P42212 |
| C | 485 | VAL | ILE | conflict | UNP P42212 |
| C | 489 | GLY | SER | conflict | UNP P42212 |
| C | 506 | SER | PRO | conflict | UNP P42212 |
| C | 517 | VAL | THR | conflict | UNP P42212 |
| C | 519 | VAL | SER | conflict | UNP P42212 |
| C | 520 | LYS | ALA | conflict | UNP P42212 |
| C | 538 | ARG | VAL | conflict | UNP P42212 |
| C | 545 | PRO | HIS | conflict | UNP P42212 |
| C | 553 | GLY | - | linker | UNP P42212 |
| C | 554 | ARG | - | linker | UNP P42212 |
| C | 555 | ALA | - | linker | UNP P42212 |
| C | 556 | ALA | - | linker | UNP P42212 |
| C | 584 | SER | - | expression tag | UNP P28472 |
| C | 585 | ARG | - | expression tag | UNP P28472 |
| C | 586 | GLU | - | expression tag | UNP P28472 |
| C | 587 | ASN | - | expression tag | UNP P28472 |
| C | 588 | LEU | - | expression tag | UNP P28472 |
| C | 589 | TYR | - | expression tag | UNP P28472 |
| C | 590 | PHE | - | expression tag | UNP P28472 |
| C | 591 | GLN | - | expression tag | UNP P28472 |
| C | 592 | ALA | - | expression tag | UNP P28472 |
| C | 593 | HIS | - | expression tag | UNP P28472 |
| C | 594 | HIS | - | expression tag | UNP P28472 |
| C | 595 | HIS | - | expression tag | UNP P28472 |
| C | 596 | HIS | - | expression tag | UNP P28472 |
| C | 597 | HIS | - | expression tag | UNP P28472 |
| C | 598 | HIS | - | expression tag | UNP P28472 |
| E | 308 | SER | - | linker | UNP P28472 |
| E | 309 | GLN | - | linker | UNP P28472 |
| E | 310 | PRO | - | linker | UNP P28472 |
| E | 311 | GLY | - | linker | UNP P28472 |
| E | 312 | ARG | - | linker | UNP P28472 |
| E | 313 | ALA | - | linker | UNP P28472 |
| E | 314 | MET | - | linker | UNP P28472 |
| E | 315 | VAL | - | linker | UNP P28472 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| E | 332 | MET | LEU | conflict | UNP P42212 |
| E | 339 | ARG | HIS | conflict | UNP P42212 |
| E | 344 | ARG | SER | conflict | UNP P42212 |
| E | 346 | VAL | GLU | conflict | UNP P42212 |
| E | 353 | HIS | TYR | conflict | UNP P42212 |
| E | 364 | SER | THR | conflict | UNP P42212 |
| E | 378 | LEU | PHE | conflict | UNP P42212 |
| E | 419 | SER | ASN | conflict | UNP P42212 |
| E | 438 | VAL | GLU | conflict | UNP P42212 |
| E | 442 | THR | ILE | conflict | UNP P42212 |
| E | 459 | MET | TYR | conflict | UNP P42212 |
| E | 461 | VAL | SER | conflict | UNP P42212 |
| E | 462 | GLY | HIS | conflict | UNP P42212 |
| E | 467 | THR | MET | conflict | UNP P42212 |
| E | 477 | ALA | VAL | conflict | UNP P42212 |
| E | 480 | GLU | LYS | conflict | UNP P42212 |
| E | 485 | VAL | ILE | conflict | UNP P42212 |
| E | 489 | GLY | SER | conflict | UNP P42212 |
| E | 506 | SER | PRO | conflict | UNP P42212 |
| E | 517 | VAL | THR | conflict | UNP P42212 |
| E | 519 | VAL | SER | conflict | UNP P42212 |
| E | 520 | LYS | ALA | conflict | UNP P42212 |
| E | 538 | ARG | VAL | conflict | UNP P42212 |
| E | 545 | PRO | HIS | conflict | UNP P42212 |
| E | 553 | GLY | - | linker | UNP P42212 |
| E | 554 | ARG | - | linker | UNP P42212 |
| E | 555 | ALA | - | linker | UNP P42212 |
| E | 556 | ALA | - | linker | UNP P42212 |
| E | 584 | SER | - | expression tag | UNP P28472 |
| E | 585 | ARG | - | expression tag | UNP P28472 |
| E | 586 | GLU | - | expression tag | UNP P28472 |
| E | 587 | ASN | - | expression tag | UNP P28472 |
| E | 588 | LEU | - | expression tag | UNP P28472 |
| E | 589 | TYR | - | expression tag | UNP P28472 |
| E | 590 | PHE | - | expression tag | UNP P28472 |
| E | 591 | GLN | - | expression tag | UNP P28472 |
| E | 592 | ALA | - | expression tag | UNP P28472 |
| E | 593 | HIS | - | expression tag | UNP P28472 |
| E | 594 | HIS | - | expression tag | UNP P28472 |
| E | 595 | HIS | - | expression tag | UNP P28472 |
| E | 596 | HIS | - | expression tag | UNP P28472 |
| E | 597 | HIS | - | expression tag | UNP P28472 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| E | 598 | HIS | - | expression tag | UNP P28472 |

- Molecule 3 is a protein called Outer membrane protein.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 3 | P | 120 | 931 | 588 | 159 | 180 | 4 | 0 | 0 |

There are 320 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| P | -18 | MET | - | initiating methionine | UNP B5Z8H1 |
| P | -17 | LYS | - | expression tag | UNP B5Z8H1 |
| P | -16 | LYS | - | expression tag | UNP B5Z8H1 |
| P | -15 | ILE | - | expression tag | UNP B5Z8H1 |
| P | -14 | TRP | - | expression tag | UNP B5Z8H1 |
| P | -13 | LEU | - | expression tag | UNP B5Z8H1 |
| P | -12 | ALA | - | expression tag | UNP B5Z8H1 |
| P | -11 | LEU | - | expression tag | UNP B5Z8H1 |
| P | -10 | ALA | - | expression tag | UNP B5Z8H1 |
| P | -9 | GLY | - | expression tag | UNP B5Z8H1 |
| P | -8 | LEU | - | expression tag | UNP B5Z8H1 |
| P | -7 | VAL | - | expression tag | UNP B5Z8H1 |
| P | -6 | LEU | - | expression tag | UNP B5Z8H1 |
| P | -5 | ALA | - | expression tag | UNP B5Z8H1 |
| P | -4 | PHE | - | expression tag | UNP B5Z8H1 |
| P | -3 | SER | - | expression tag | UNP B5Z8H1 |
| P | -2 | ALA | - | expression tag | UNP B5Z8H1 |
| P | -1 | SER | - | expression tag | UNP B5Z8H1 |
| P | 0 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 1 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 2 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 3 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 4 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 5 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 6 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 7 | SER | - | expression tag | UNP B5Z8H1 |
| P | 8 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 9 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 10 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 11 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 12 | VAL | - | expression tag | UNP B5Z8H1 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| P | 234 | THR | PRO | conflict | UNP B5Z8H1 |
| P | 235 | TYR | PHE | conflict | UNP B5Z8H1 |
| P | 236 | GLU | ARG | conflict | UNP B5Z8H1 |
| P | 237 | GLN | ASN | conflict | UNP B5Z8H1 |
| P | 238 | LEU | MET | conflict | UNP B5Z8H1 |
| P | 239 | SER | GLY | conflict | UNP B5Z8H1 |
| P | 240 | ARG | MET | conflict | UNP B5Z8H1 |
| P | 241 | LEU | ILE | conflict | UNP B5Z8H1 |
| P | 242 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 243 | THR | - | expression tag | UNP B5Z8H1 |
| P | 244 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 245 | ASP | - | expression tag | UNP B5Z8H1 |
| P | 246 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 247 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 248 | THR | - | expression tag | UNP B5Z8H1 |
| P | 249 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 250 | SER | - | expression tag | UNP B5Z8H1 |
| P | 251 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 252 | THR | - | expression tag | UNP B5Z8H1 |
| P | 253 | SER | - | expression tag | UNP B5Z8H1 |
| P | 254 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 255 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 256 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 257 | ILE | - | expression tag | UNP B5Z8H1 |
| P | 258 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 259 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 260 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 261 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 262 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 263 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 264 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 265 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 266 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 267 | ARG | - | expression tag | UNP B5Z8H1 |
| P | 268 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 269 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 270 | THR | - | expression tag | UNP B5Z8H1 |
| P | 271 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 272 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 273 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 274 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 275 | THR | - | expression tag | UNP B5Z8H1 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| P | 276 | THR | - | expression tag | UNP B5Z8H1 |
| P | 277 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 278 | SER | - | expression tag | UNP B5Z8H1 |
| P | 279 | PRO | - | expression tag | UNP B5Z8H1 |
| P | 280 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 281 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 282 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 283 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 284 | THR | - | expression tag | UNP B5Z8H1 |
| P | 285 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 286 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 287 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 288 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 289 | ARG | - | expression tag | UNP B5Z8H1 |
| P | 290 | SER | - | expression tag | UNP B5Z8H1 |
| P | 291 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 292 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 293 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 294 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 295 | TRP | - | expression tag | UNP B5Z8H1 |
| P | 296 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 297 | SER | - | expression tag | UNP B5Z8H1 |
| P | 298 | MET | - | expression tag | UNP B5Z8H1 |
| P | 299 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 300 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 301 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 302 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 303 | ILE | - | expression tag | UNP B5Z8H1 |
| P | 304 | CYS | - | expression tag | UNP B5Z8H1 |
| P | 305 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 306 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 307 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 308 | THR | - | expression tag | UNP B5Z8H1 |
| P | 309 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 310 | SER | - | expression tag | UNP B5Z8H1 |
| P | 311 | PRO | - | expression tag | UNP B5Z8H1 |
| P | 312 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 313 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 314 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 315 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 316 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 317 | LYS | - | expression tag | UNP B5Z8H1 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:-----:|:-------:|:--------:|:------:|:-------:|:---------:|
| P | 318 | ASP | - | expression tag | UNP B5Z8H1 |
| P | 319 | PHE | - | expression tag | UNP B5Z8H1 |
| P | 320 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 321 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 322 | THR | - | expression tag | UNP B5Z8H1 |
| P | 323 | ASP | - | expression tag | UNP B5Z8H1 |
| P | 324 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 325 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 326 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 327 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 328 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 329 | THR | - | expression tag | UNP B5Z8H1 |
| P | 330 | THR | - | expression tag | UNP B5Z8H1 |
| P | 331 | ILE | - | expression tag | UNP B5Z8H1 |
| P | 332 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 333 | CYS | - | expression tag | UNP B5Z8H1 |
| P | 334 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 335 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 336 | SER | - | expression tag | UNP B5Z8H1 |
| P | 337 | THR | - | expression tag | UNP B5Z8H1 |
| P | 338 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 339 | SER | - | expression tag | UNP B5Z8H1 |
| P | 340 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 341 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 342 | THR | - | expression tag | UNP B5Z8H1 |
| P | 343 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 344 | SER | - | expression tag | UNP B5Z8H1 |
| P | 345 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 346 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 347 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 348 | THR | - | expression tag | UNP B5Z8H1 |
| P | 349 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 350 | THR | - | expression tag | UNP B5Z8H1 |
| P | 351 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 352 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 353 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 354 | ASP | - | expression tag | UNP B5Z8H1 |
| P | 355 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 356 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 357 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 358 | SER | - | expression tag | UNP B5Z8H1 |
| P | 359 | LEU | - | expression tag | UNP B5Z8H1 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:-----:|:-------:|:--------:|:------:|:--------------:|:-------------:|
| P | 360 | SER | - | expression tag | UNP B5Z8H1 |
| P | 361 | ILE | - | expression tag | UNP B5Z8H1 |
| P | 362 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 363 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 364 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 365 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 366 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 367 | ILE | - | expression tag | UNP B5Z8H1 |
| P | 368 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 369 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 370 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 371 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 372 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 373 | ILE | - | expression tag | UNP B5Z8H1 |
| P | 374 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 375 | SER | - | expression tag | UNP B5Z8H1 |
| P | 376 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 377 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 378 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 379 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 380 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 381 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 382 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 383 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 384 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 385 | PRO | - | expression tag | UNP B5Z8H1 |
| P | 386 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 387 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 388 | SER | - | expression tag | UNP B5Z8H1 |
| P | 389 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 390 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 391 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 392 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 393 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 394 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 395 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 396 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 397 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 398 | THR | - | expression tag | UNP B5Z8H1 |
| P | 399 | THR | - | expression tag | UNP B5Z8H1 |
| P | 400 | SER | - | expression tag | UNP B5Z8H1 |
| P | 401 | LYS | - | expression tag | UNP B5Z8H1 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| P | 402 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 403 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 404 | SER | - | expression tag | UNP B5Z8H1 |
| P | 405 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 406 | ARG | - | expression tag | UNP B5Z8H1 |
| P | 407 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 408 | SER | - | expression tag | UNP B5Z8H1 |
| P | 409 | CYS | - | expression tag | UNP B5Z8H1 |
| P | 410 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 411 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 412 | SER | - | expression tag | UNP B5Z8H1 |
| P | 413 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 414 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 415 | THR | - | expression tag | UNP B5Z8H1 |
| P | 416 | PHE | - | expression tag | UNP B5Z8H1 |
| P | 417 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 418 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 419 | PRO | - | expression tag | UNP B5Z8H1 |
| P | 420 | ILE | - | expression tag | UNP B5Z8H1 |
| P | 421 | MET | - | expression tag | UNP B5Z8H1 |
| P | 422 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 423 | TRP | - | expression tag | UNP B5Z8H1 |
| P | 424 | PHE | - | expression tag | UNP B5Z8H1 |
| P | 425 | ARG | - | expression tag | UNP B5Z8H1 |
| P | 426 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 427 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 428 | PRO | - | expression tag | UNP B5Z8H1 |
| P | 429 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 430 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 431 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 432 | ARG | - | expression tag | UNP B5Z8H1 |
| P | 433 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 434 | PHE | - | expression tag | UNP B5Z8H1 |
| P | 435 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 436 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 437 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 438 | ILE | - | expression tag | UNP B5Z8H1 |
| P | 439 | SER | - | expression tag | UNP B5Z8H1 |
| P | 440 | TRP | - | expression tag | UNP B5Z8H1 |
| P | 441 | SER | - | expression tag | UNP B5Z8H1 |
| P | 442 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 443 | GLY | - | expression tag | UNP B5Z8H1 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| P | 444 | SER | - | expression tag | UNP B5Z8H1 |
| P | 445 | THR | - | expression tag | UNP B5Z8H1 |
| P | 446 | SER | - | expression tag | UNP B5Z8H1 |
| P | 447 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 448 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 449 | ASP | - | expression tag | UNP B5Z8H1 |
| P | 450 | SER | - | expression tag | UNP B5Z8H1 |
| P | 451 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 452 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 453 | ASP | - | expression tag | UNP B5Z8H1 |
| P | 454 | ARG | - | expression tag | UNP B5Z8H1 |
| P | 455 | PHE | - | expression tag | UNP B5Z8H1 |
| P | 456 | THR | - | expression tag | UNP B5Z8H1 |
| P | 457 | ILE | - | expression tag | UNP B5Z8H1 |
| P | 458 | SER | - | expression tag | UNP B5Z8H1 |
| P | 459 | ARG | - | expression tag | UNP B5Z8H1 |
| P | 460 | ASP | - | expression tag | UNP B5Z8H1 |
| P | 461 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 462 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 463 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 464 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 465 | THR | - | expression tag | UNP B5Z8H1 |
| P | 466 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 467 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 468 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 469 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 470 | MET | - | expression tag | UNP B5Z8H1 |
| P | 471 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 472 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 473 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 474 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 475 | PRO | - | expression tag | UNP B5Z8H1 |
| P | 476 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 477 | ASP | - | expression tag | UNP B5Z8H1 |
| P | 478 | THR | - | expression tag | UNP B5Z8H1 |
| P | 479 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 480 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 481 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 482 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 483 | CYS | - | expression tag | UNP B5Z8H1 |
| P | 484 | ALA | - | expression tag | UNP B5Z8H1 |
| P | 485 | ALA | - | expression tag | UNP B5Z8H1 |

*Continued on next page...*

*Continued from previous page...*

| Chain | Residue | Modelled | Actual | Comment | Reference |
|:---:|:---:|:---:|:---:|:---:|:---:|
| P | 486 | LYS | - | expression tag | UNP B5Z8H1 |
| P | 487 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 488 | ARG | - | expression tag | UNP B5Z8H1 |
| P | 489 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 490 | SER | - | expression tag | UNP B5Z8H1 |
| P | 491 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 492 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 493 | LEU | - | expression tag | UNP B5Z8H1 |
| P | 494 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 495 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 496 | PRO | - | expression tag | UNP B5Z8H1 |
| P | 497 | THR | - | expression tag | UNP B5Z8H1 |
| P | 498 | ASN | - | expression tag | UNP B5Z8H1 |
| P | 499 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 500 | ASP | - | expression tag | UNP B5Z8H1 |
| P | 501 | TYR | - | expression tag | UNP B5Z8H1 |
| P | 502 | TRP | - | expression tag | UNP B5Z8H1 |
| P | 503 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 504 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 505 | GLY | - | expression tag | UNP B5Z8H1 |
| P | 506 | THR | - | expression tag | UNP B5Z8H1 |
| P | 507 | GLN | - | expression tag | UNP B5Z8H1 |
| P | 508 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 509 | THR | - | expression tag | UNP B5Z8H1 |
| P | 510 | VAL | - | expression tag | UNP B5Z8H1 |
| P | 511 | SER | - | expression tag | UNP B5Z8H1 |
| P | 512 | SER | - | expression tag | UNP B5Z8H1 |
| P | 513 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 514 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 515 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 516 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 517 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 518 | HIS | - | expression tag | UNP B5Z8H1 |
| P | 519 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 520 | PRO | - | expression tag | UNP B5Z8H1 |
| P | 521 | GLU | - | expression tag | UNP B5Z8H1 |
| P | 522 | ALA | - | expression tag | UNP B5Z8H1 |

- Molecule 4 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 4 | F | 2 | Total 28 | C 16 | N 2 | O 10 | 0 | 0 |

- Molecule 5 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.
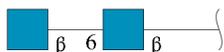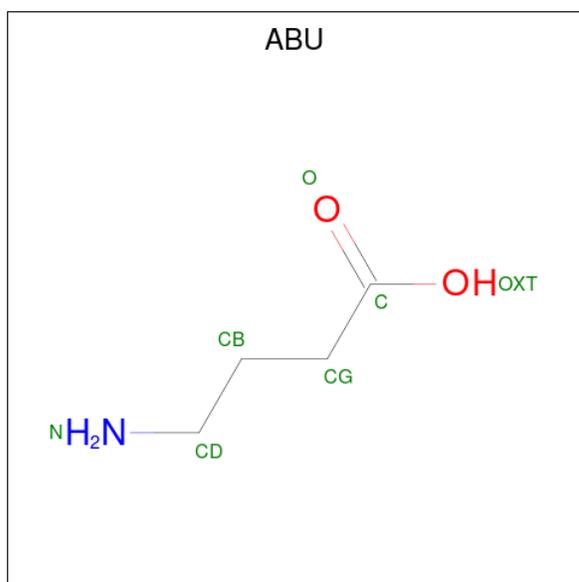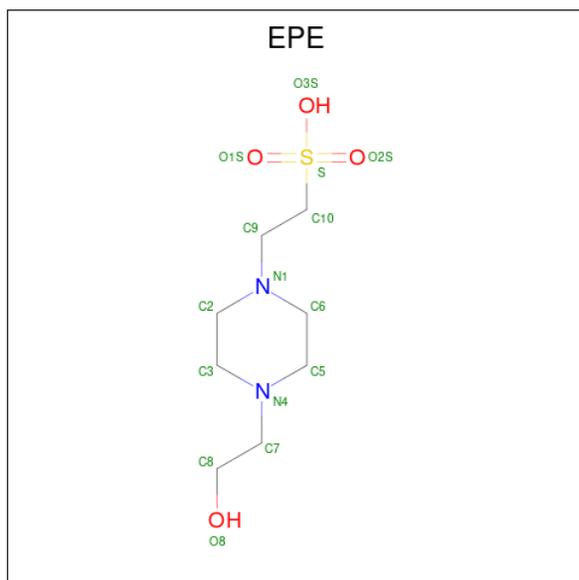


| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 5 | G | 3 | Total 39 | C 22 | N 2 | O 15 | 0 | 0 |
| 5 | I | 3 | Total 39 | C 22 | N 2 | O 15 | 0 | 0 |
| 5 | M | 3 | Total 39 | C 22 | N 2 | O 15 | 0 | 0 |

- Molecule 6 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.
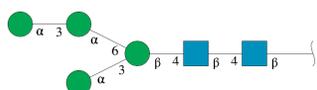


| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 6 | H | 6 | Total 72 | C 40 | N 2 | O 30 | 0 | 0 |
| 6 | N | 6 | Total 72 | C 40 | N 2 | O 30 | 0 | 0 |

- Molecule 7 is an oligosaccharide called beta-D-mannopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 7 | J | 3 | Total 39 | C 22 | N 2 | O 15 | 0 | 0 |

- Molecule 8 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-alpha-D-mannopyran ose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.
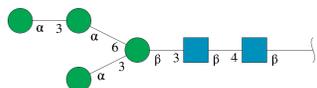


| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 8 | K | 6 | Total 72 | C 40 | N 2 | O 30 | 0 | 0 |

- Molecule 9 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-6)-2-a cetamido-2-deoxy-beta-D-glucopyranose.



| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|
| 9 | L | 2 | Total 28 | C 16 | N 2 | O 10 | 0 | 0 |

- Molecule 10 is GAMMA-AMINO-BUTANOIC ACID (CCD ID: ABU) (formula: $C_4H_9NO_2$) (labeled as "Ligand of Interest" by depositor).

**ABU**



| Mol | Chain | Residues | Atoms | | | | AltConf |
|---|---|---|---|---|---|---|---|
| 10 | B | 1 | Total<br>7 | C<br>4 | N<br>1 | O<br>2 | 0 |
| 10 | E | 1 | Total<br>7 | C<br>4 | N<br>1 | O<br>2 | 0 |

- Molecule 11 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (CCD ID: EPE) (formula: $C_8H_{18}N_2O_4S$).

**EPE**



| Mol | Chain | Residues | Atoms | | | | | AltConf |
|---|---|---|---|---|---|---|---|---|
| 11 | C | 1 | Total<br>15 | C<br>8 | N<br>2 | O<br>4 | S<br>1 | 0 |

- Molecule 12 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



| Mol | Chain | Residues | Atoms | | | | AltConf |
|-----|-------|----------|-------|---|---|---|---------|
| 12 | D | 1 | Total | C | N | O | 0 |
| | | | 14 | 8 | 1 | 5 | |

# 3    Residue-property plots ⓘ

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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: Green fluorescent protein,Gamma-aminobutyric acid receptor subunit alpha-5

Chain A:



• Molecule 1: Green fluorescent protein,Gamma-aminobutyric acid receptor subunit alpha-5

Chain D:

THR ALA ASP LYS GLN LYS ASN ASN GLY ILE LYS ALA ASN PHE LYS ILE ARG HIS ASN VAL GLU ASP GLY SER VAL GLN LEU ALA ASP HIS TYR GLN GLN ASN THR PRO ILE GLY ASP GLY PRO VAL LEU LEU PRO ASP ASN HIS TYR LEU SER THR GLN SER VAL LEU SER LYS ASP PRO ASN

GLU LYS ARG ASP HIS MET VAL LEU LEU PHE VAL THR ALA ALA GLY ILE THR HIS GLY MET ASP GLU LEU TYR LYS ALA ALA ALA LEU GLU ALA ALA TRP SER HIS PRO GLN PHE GLU LYS GLY GLY SER GLY GLY GLY SER GLY GLY SER SER TRP SER HIS PRO GLN PHE GLU

LYS SER ASN ASN ASN ASN ASN GLU ASN LEU TYR PHE GLN ALA MET PRO THR SER SER VAL LYS ASP GLU GLU THR N11 T18 R19 D29 N30 R31 T41 R69 R76 L88 N89 N90 I91 L92 T115 T116 K119 L120 L121 R122 L123 E124 D125 D126 T132

M133 F148 P149 M150 D151 A152 H153 Y164 V169 W173 G176 T209 Y212 M215 L234 P235 C236 I237 I241 L242 S243 S246 N250 R257 F260 T264 R276 N277 S278 L279 P280 K281 A287 F306 V309 Q316 PRO ALA ARG A320

D327 A347 T348 Y349 L350 N351 R352 GLU PRO VAL ILE LYS GLY ALA ALA SER PRO LYS

• Molecule 2: Gamma-aminobutyric acid receptor subunit beta-3,Green fluorescent protein

Chain B:  43%  10%  46%

MET TRP GLY LEU ALA GLY GLY ARG LEU PHE GLY ILE PHE SER ALA PRO VAL LEU VAL ALA VAL VAL CYS ALA GLN SER VAL ASN ASP P6 G7 N8 M9 I44 D48 E52 D84 N85 R86 V87 A88 T96 V109 T110 V111 K112 M115 I116 L125 I130

M138 R142 Y143 P144 L145 Q148 T151 E155 Y159 T160 T161 I164 E165 F166 V175 I181 R192 A204 L210 S211 Q224 M227 P228 I232 T233 N243 S247 A248 A249 R250 V251 I255 T256 T257 V258 L259 T260 M261 T262 N265 T266

H267 L268 R269 E270 T271 L272 P273 K274 I275 P276 Y277 A280 L285 V290 L294 Y299 F306 Q309 PRO GLY ARG ALA MET VAL SER GLY GLU GLU LEU PHE THR GLY VAL VAL PRO ILE LEU VAL GLU LEU ASP GLY ASP VAL ASN GLY ARG LYS PHE SER VAL SER VAL ARG

GLY VAL GLY GLU GLY ASP ALA THR ILE PHE PHE LYS ASP ASP GLY SER LYS THR LEU LYS PHE ILE CYS THR SER GLY LYS LEU PRO VAL PRO TRP PRO THR LEU VAL THR LEU SER TYR GLY VAL GLN CYS PHE SER ARG TYR PRO ASP HIS MET LYS GLN HIS ASP PHE PHE LYS SER ALA MET PRO GLU

GLY TYR VAL GLN GLU ARG THR ILE PHE PHE LYS ASP ASP GLY SER ASP GLY SER TYR LYS THR ARG ALA GLU VAL LYS PHE GLU GLY ASP THR LEU VAL ASN ARG ILE GLU LEU LYS GLY THR ASP PHE LYS GLU ASP GLY ASN ILE LEU GLY HIS LYS LEU GLU TYR ASN MET ASN VAL GLY ASN VAL

TYR ILE THR ALA ASP LYS GLN LYS ASN GLY ILE LYS ALA ASN PHE GLU ILE ARG HIS ASN VAL GLU ASP GLY GLY VAL GLN LEU ALA ASP HIS TYR GLN GLN ASN THR PRO ILE GLY ASP GLY PRO VAL LEU LEU PRO ASP ASN HIS TYR LEU SER THR GLN SER VAL LEU SER LYS ASP

PRO ASN GLU LYS ARG ASP HIS MET VAL LEU LEU GLU PHE ARG THR ALA ALA GLY ILE THR HIS GLY MET ASP GLU LEU TYR LYS G553 F570 N574 W578 Y581 S584 ARG GLU ASN LEU TYR PHE GLN GLN ALA HIS HIS HIS HIS HIS HIS

• Molecule 2: Gamma-aminobutyric acid receptor subunit beta-3,Green fluorescent protein

Chain C:  45%  9%  46%

MET TRP GLY LEU ALA GLY GLY ARG LEU PHE GLY ILE PHE SER ALA PRO VAL LEU VAL ALA VAL VAL CYS ALA GLN SER VAL ASN P6 L20 M40 D43 D56 Y66 T96 N100 T110 V111 D121 G122 T123 V124 L125 D139 L140 R141 R142 Y143

• Molecule 2: Gamma-aminobutyric acid receptor subunit beta-3,Green fluorescent protein

Chain E:

46%      8%      46%

• Molecule 3: Outer membrane protein

Chain P:

19%    •    78%

ILE LEU ILE ALA LYS SER SER SER ASN GLY GLY THR ASN ALA ASN THR PRO SER TRP GLN THR ALA GLY GLY LYS ASN SER CYS ALA THR PHE GLY ALA GLU PHE SER ALA SER ASP MET ILE ASN ASN ALA GLN LYS ILE VAL GLU GLN THR GLN GLU LEU SER ALA

ASN GLN PRO LYS ASN ILE THR GLN PRO HIS ASN LEU ASN ASN LEU ASN ASN SER PRO SER SER LEU THR LEU ALA LEU GLN LYS MET LEU LYS ASN ALA GLN SER GLN ALA GLU LEU ILE LEU LYS LEU ALA ASN GLN VAL GLU ASP PHE ASN LYS LEU LEU SER GLY HIS LEU LYS ASP TYR ILE

GLY LYS CYS ASP SER ALA ILE SER ALA ASN MET THR MET GLN ASN GLN LYS ASN ASN TRP GLY ASN GLY CYS ALA GLY VAL GLU GLU THR GLN SER LEU LEU LYS THR SER ALA ASP PHE ASN GLN ASN THR PRO GLN ILE GLN ALA ASN LEU ALA ASN THR LEU

ILE GLN GLU GLY LEU ASN THR TYR GLU GLN LEU SER ARG LEU THR LEU ASP ASN GLY THR ASN SER THR SER GLN ALA ASN GLN ILE ASN ALA VAL ASN ASN LEU ASN ALA ARG ALA LYS THR LEU ALA GLY THR THR ASN SER PRO TYR GLN ALA THR LEU LEU

ALA LEU ARG SER VAL LEU GLY LEU TRP ASN SER MET GLY TYR ALA VAL ILE CYS GLY GLY TYR THR LYS SER PRO GLY GLU ASN GLY LYS ASP PHE HIS TYR THR ASP GLU GLY ASN GLY THR THR ILE ASN CYS GLY SER SER THR ASN GLY THR HIS SER TYR ASN

GLY THR ASN THR LEU LYS ALA ASP LYS ASN VAL SER LEU SER ILE GLU GLN GLN TYR GLU LYS ILE HIS GLU ALA TYR GLN ILE LEU SER LYS ALA LEU GLU GLN ALA GLY GLU LEU ALA PRO LEU ASN ASN SER LYS GLY LEU GLU LEU GLU ALA HIS VAL THR THR SER LYS TYR **G403 S404 L405 R406**



• Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-gluc opyranose

Chain F:



• Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-ac etamido-2-deoxy-beta-D-glucopyranose

Chain G:



• Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-ac etamido-2-deoxy-beta-D-glucopyranose

Chain I:



• Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-ac etamido-2-deoxy-beta-D-glucopyranose

Chain M:

• Molecule 6: alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyran ose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetam ido-2-deoxy-beta-D-glucopyranose

Chain H: 
33% 50% 17%

NAG1 NAG2 BMA3 MAN4 MAN5 MAN6

• Molecule 6: alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyran ose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetam ido-2-deoxy-beta-D-glucopyranose

17%

Chain N: 
17% 83%

NAG1 NAG2 BMA3 MAN4 MAN5 MAN6

• Molecule 7: beta-D-mannopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-ac etamido-2-deoxy-beta-D-glucopyranose

Chain J: 
33% 67%

NAG1 NAG2 BMA3

• Molecule 8: alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyran ose-(1-3)]beta-D-mannopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetam ido-2-deoxy-beta-D-glucopyranose

Chain K: 
100%

NAG1 NAG2 BMA3 MAN4 MAN5 MAN6
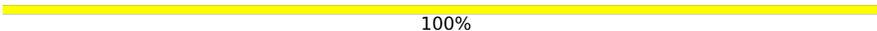
• Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-6)-2-acetamido-2-deoxy-beta-D-gluc opyranose

Chain L: 
50% 50%

NAG1 NAG2

# 4   Experimental information   ⓘ

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 96876 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope | TFS KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose $(e^-/\text{Å}^2)$ | 50 | Depositor |
| Minimum defocus (nm) | 600 | Depositor |
| Maximum defocus (nm) | 1800 | Depositor |
| Magnification | Not provided | |
| Image detector | GATAN K3 BIOCONTINUUM (6k x 4k) | Depositor |
| Maximum map value | 36.189 | Depositor |
| Minimum map value | -23.614 | Depositor |
| Average map value | 0.000 | Depositor |
| Map value standard deviation | 1.000 | Depositor |
| Recommended contour level | 3 | Depositor |
| Map size (Å) | 286.0, 286.0, 286.0 | wwPDB |
| Map dimensions | 440, 440, 440 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 0.65, 0.65, 0.65 | Depositor |

# 5　Model quality ⓘ

## 5.1　Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: ABU, NAG, MAN, BMA, EPE

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 | 0.15 | 0/2813 | 0.45 | 0/3826 |
| 1 | D | 0.14 | 0/2786 | 0.43 | 0/3788 |
| 2 | B | 0.15 | 0/2820 | 0.44 | 0/3835 |
| 2 | C | 0.15 | 0/2841 | 0.46 | 0/3863 |
| 2 | E | 0.14 | 0/2820 | 0.44 | 0/3834 |
| 3 | P | 0.16 | 0/954 | 0.44 | 0/1292 |
| All | All | 0.15 | 0/15034 | 0.44 | 0/20438 |

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 | 2745 | 0 | 2719 | 51 | 0 |
| 1 | D | 2719 | 0 | 2700 | 35 | 0 |
| 2 | B | 2747 | 0 | 2737 | 48 | 0 |
| 2 | C | 2767 | 0 | 2762 | 42 | 0 |
| 2 | E | 2747 | 0 | 2742 | 44 | 0 |
| 3 | P | 931 | 0 | 879 | 14 | 0 |
| 4 | F | 28 | 0 | 25 | 0 | 0 |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 5 | G | 39 | 0 | 34 | 1 | 0 |
| 5 | I | 39 | 0 | 34 | 0 | 0 |
| 5 | M | 39 | 0 | 34 | 0 | 0 |
| 6 | H | 72 | 0 | 61 | 2 | 0 |
| 6 | N | 72 | 0 | 61 | 1 | 0 |
| 7 | J | 39 | 0 | 34 | 0 | 0 |
| 8 | K | 72 | 0 | 61 | 0 | 0 |
| 9 | L | 28 | 0 | 25 | 0 | 0 |
| 10 | B | 7 | 0 | 0 | 1 | 0 |
| 10 | E | 7 | 0 | 0 | 0 | 0 |
| 11 | C | 15 | 0 | 18 | 0 | 0 |
| 12 | D | 14 | 0 | 13 | 0 | 0 |
| All | All | 15127 | 0 | 14939 | 213 | 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 7.

All (213) 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) |
|--------|--------|--------------------------|-------------------|
| 2:E:263:THR:HG23 | 2:E:267:HIS:CE1 | 1.85 | 1.11 |
| 1:A:133:MET:HE1 | 2:E:110:THR:HG23 | 1.57 | 0.86 |
| 2:E:263:THR:CG2 | 2:E:267:HIS:CE1 | 2.58 | 0.86 |
| 1:D:115:THR:O | 1:D:116:THR:HG23 | 1.81 | 0.80 |
| 1:D:124:GLU:N | 1:D:124:GLU:OE1 | 2.17 | 0.76 |
| 2:B:112:LYS:NZ | 5:G:2:NAG:O7 | 2.22 | 0.71 |
| 1:A:347:ALA:O | 1:A:351:ASN:ND2 | 2.25 | 0.68 |
| 3:P:405:LEU:HD23 | 3:P:406:ARG:N | 2.10 | 0.66 |
| 2:E:144:PRO:HD3 | 2:E:281:ILE:HG23 | 1.78 | 0.66 |
| 1:A:205:ILE:HD13 | 1:A:214:ILE:HD11 | 1.78 | 0.65 |
| 1:A:251:ARG:NH1 | 1:A:313:THR:OG1 | 2.30 | 0.65 |
| 1:D:348:THR:HG23 | 1:D:349:TYR:HD1 | 1.60 | 0.65 |
| 2:B:233:THR:HG21 | 2:B:570:PHE:CE2 | 2.32 | 0.63 |
| 1:A:256:ALA:HB1 | 2:B:251:VAL:HG21 | 1.80 | 0.63 |
| 2:E:574:ASN:OD1 | 2:E:578:TRP:NE1 | 2.31 | 0.62 |
| 2:B:142:ARG:O | 2:B:145:LEU:N | 2.31 | 0.62 |
| 1:A:109:SER:HB2 | 2:E:109:VAL:HG22 | 1.81 | 0.62 |
| 2:B:280:ALA:HB2 | 2:B:581:TYR:CE2 | 2.35 | 0.61 |
| 2:C:139:ASP:OD1 | 2:C:141:ARG:NH2 | 2.33 | 0.61 |
| 2:E:280:ALA:HB2 | 2:E:581:TYR:HE2 | 1.66 | 0.61 |
| 2:C:66:TYR:CZ | 2:C:125:LEU:HD13 | 2.36 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:246:SER:O | 1:D:257:ARG:NE | 2.34 | 0.61 |
| 2:C:293:PHE:CE1 | 2:C:297:LEU:HD11 | 2.36 | 0.60 |
| 1:D:90:ASN:ND2 | 1:D:119:LYS:O | 2.35 | 0.60 |
| 2:B:44:ILE:HG21 | 2:B:181:ILE:HD11 | 1.84 | 0.60 |
| 2:B:574:ASN:OD1 | 2:B:578:TRP:NE1 | 2.35 | 0.59 |
| 2:C:143:TYR:HB3 | 2:C:144:PRO:HD3 | 1.83 | 0.59 |
| 2:E:271:THR:C | 2:E:272:LEU:HD12 | 2.27 | 0.59 |
| 2:C:224:GLN:O | 2:C:268:LEU:HD21 | 2.02 | 0.58 |
| 1:A:8:ASP:O | 1:A:13:ASN:ND2 | 2.34 | 0.58 |
| 2:E:142:ARG:NH2 | 2:E:145:LEU:O | 2.37 | 0.58 |
| 2:E:242:ILE:O | 2:E:250:ARG:NH2 | 2.34 | 0.58 |
| 2:B:142:ARG:NH1 | 2:B:581:TYR:O | 2.37 | 0.58 |
| 1:D:120:LEU:HD13 | 2:E:158:GLY:HA2 | 1.85 | 0.58 |
| 2:E:66:TYR:CZ | 2:E:125:LEU:HD13 | 2.38 | 0.58 |
| 1:A:215:MET:HE2 | 1:A:215:MET:HA | 1.85 | 0.58 |
| 1:D:120:LEU:HD11 | 1:D:122:ARG:HE | 1.67 | 0.58 |
| 2:B:262:THR:O | 2:B:265:ASN:OD1 | 2.21 | 0.57 |
| 1:A:314:LYS:NZ | 2:E:243:ASN:HB2 | 2.20 | 0.57 |
| 2:B:233:THR:HG21 | 2:B:570:PHE:CD2 | 2.40 | 0.57 |
| 2:E:280:ALA:HB2 | 2:E:581:TYR:CE2 | 2.41 | 0.56 |
| 1:A:133:MET:CE | 2:E:110:THR:HG23 | 2.34 | 0.55 |
| 1:A:15:THR:O | 1:A:18:THR:HG22 | 2.07 | 0.55 |
| 1:A:115:THR:HG23 | 2:B:96:THR:O | 2.06 | 0.54 |
| 1:D:306:PHE:HA | 1:D:309:VAL:HG12 | 1.89 | 0.54 |
| 3:P:447:TYR:OH | 3:P:457:ILE:N | 2.39 | 0.54 |
| 2:E:40:MET:HG3 | 2:E:208:LEU:HD12 | 1.88 | 0.54 |
| 2:B:159:TYR:HB2 | 2:B:164:ILE:HD12 | 1.88 | 0.54 |
| 2:B:267:HIS:CD2 | 2:B:267:HIS:O | 2.60 | 0.54 |
| 1:A:336:VAL:O | 1:A:340:THR:HG23 | 2.08 | 0.54 |
| 1:A:310:ASN:O | 1:A:314:LYS:HB2 | 2.08 | 0.53 |
| 2:E:143:TYR:O | 2:E:280:ALA:HB3 | 2.08 | 0.53 |
| 2:B:255:ILE:O | 2:B:259:LEU:HD13 | 2.07 | 0.53 |
| 2:C:283:MET:HA | 2:C:283:MET:HE2 | 1.89 | 0.53 |
| 1:A:250:ASN:OD1 | 1:A:253:SER:N | 2.39 | 0.53 |
| 2:B:143:TYR:O | 2:B:280:ALA:HB3 | 2.10 | 0.52 |
| 2:C:179:GLU:OE2 | 2:C:191:HIS:ND1 | 2.42 | 0.52 |
| 2:C:142:ARG:NH1 | 2:C:581:TYR:O | 2.43 | 0.52 |
| 2:B:138:MET:HB3 | 2:B:148:GLN:OE1 | 2.09 | 0.52 |
| 2:E:290:VAL:O | 2:E:294:LEU:HD23 | 2.09 | 0.52 |
| 3:P:472:ASN:OD1 | 3:P:474:LYS:NZ | 2.42 | 0.51 |
| 1:A:46:ASP:OD2 | 1:A:69:ARG:NH1 | 2.38 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:287:ALA:HB2 | 1:D:349:TYR:HE2 | 1.75 | 0.51 |
| 2:B:224:GLN:OE1 | 2:C:269:ARG:NH2 | 2.44 | 0.51 |
| 1:D:260:PHE:CE1 | 2:E:255:ILE:HD13 | 2.46 | 0.51 |
| 1:A:69:ARG:HG2 | 1:A:132:THR:HG23 | 1.93 | 0.50 |
| 1:D:348:THR:HG23 | 1:D:349:TYR:CD1 | 2.44 | 0.50 |
| 1:A:92:LEU:HB3 | 1:A:96:ILE:HD12 | 1.93 | 0.50 |
| 2:B:211:SER:HB2 | 6:H:1:NAG:H82 | 1.93 | 0.50 |
| 2:C:302:VAL:HG12 | 2:C:558:ILE:HG21 | 1.93 | 0.50 |
| 1:A:75:GLU:O | 1:A:78:ARG:NH2 | 2.44 | 0.50 |
| 2:B:115:MET:HE3 | 2:B:125:LEU:CD2 | 2.42 | 0.50 |
| 2:C:144:PRO:HD2 | 2:C:280:ALA:HB3 | 1.94 | 0.50 |
| 2:E:263:THR:CG2 | 2:E:267:HIS:ND1 | 2.75 | 0.50 |
| 2:E:213:ARG:HG3 | 6:N:1:NAG:H81 | 1.92 | 0.50 |
| 2:C:66:TYR:CE1 | 2:C:125:LEU:HD13 | 2.47 | 0.50 |
| 1:A:314:LYS:HZ1 | 2:E:243:ASN:HB2 | 1.77 | 0.49 |
| 2:C:110:THR:O | 2:C:111:VAL:HG13 | 2.13 | 0.49 |
| 2:E:243:ASN:ND2 | 2:E:245:ASP:OD2 | 2.43 | 0.49 |
| 2:B:52:GLU:OE1 | 2:B:52:GLU:N | 2.46 | 0.49 |
| 1:D:243:SER:OG | 1:D:264:THR:HG21 | 2.13 | 0.49 |
| 2:C:286:MET:SD | 2:C:286:MET:C | 2.96 | 0.48 |
| 2:C:96:THR:HG22 | 2:C:166:PHE:HZ | 1.77 | 0.48 |
| 2:C:251:VAL:HG23 | 2:C:299:TYR:CE2 | 2.49 | 0.48 |
| 1:A:265:VAL:HG11 | 2:E:235:LEU:HD12 | 1.96 | 0.48 |
| 1:D:88:LEU:HD13 | 1:D:92:LEU:CD2 | 2.44 | 0.48 |
| 2:B:84:ASP:O | 2:B:87:VAL:HG12 | 2.14 | 0.48 |
| 2:B:272:LEU:HB2 | 2:B:273:PRO:HD2 | 1.96 | 0.48 |
| 1:A:33:ARG:HG3 | 1:A:34:PRO:HD2 | 1.95 | 0.48 |
| 2:B:160:THR:HG22 | 2:B:161:THR:N | 2.29 | 0.48 |
| 2:B:265:ASN:OD1 | 2:B:266:THR:N | 2.47 | 0.48 |
| 2:C:110:THR:O | 2:C:111:VAL:CG1 | 2.62 | 0.48 |
| 1:A:17:PHE:CZ | 1:A:83:MET:HG2 | 2.50 | 0.47 |
| 2:B:249:ALA:HB1 | 2:C:251:VAL:HG21 | 1.96 | 0.47 |
| 1:A:133:MET:HE1 | 2:E:110:THR:CG2 | 2.39 | 0.47 |
| 1:A:310:ASN:OD1 | 1:A:314:LYS:HE3 | 2.13 | 0.47 |
| 1:D:41:THR:HG23 | 1:D:41:THR:O | 2.14 | 0.47 |
| 3:P:469:GLU:HA | 3:P:469:GLU:OE1 | 2.15 | 0.47 |
| 1:A:109:SER:CB | 2:E:109:VAL:HG13 | 2.43 | 0.47 |
| 1:D:281:LYS:HG3 | 1:D:281:LYS:O | 2.13 | 0.47 |
| 1:D:69:ARG:HG2 | 1:D:132:THR:HG23 | 1.96 | 0.47 |
| 2:E:146:ASP:OD2 | 2:E:148:GLN:NE2 | 2.38 | 0.47 |
| 2:C:290:VAL:O | 2:C:294:LEU:HD23 | 2.15 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:85:ASN:ND2 | 2:B:112:LYS:O | 2.48 | 0.46 |
| 2:B:257:THR:O | 2:B:260:THR:HG22 | 2.14 | 0.46 |
| 2:E:257:THR:HG22 | 2:E:292:VAL:HG11 | 1.97 | 0.46 |
| 2:C:227:MET:HB3 | 2:C:228:PRO:HD3 | 1.98 | 0.46 |
| 1:D:164:TYR:HB3 | 1:D:169:VAL:HG23 | 1.97 | 0.46 |
| 1:A:196:MET:HE3 | 1:A:196:MET:HA | 1.97 | 0.46 |
| 2:C:261:MET:HE1 | 2:C:288:CYS:HB3 | 1.97 | 0.46 |
| 2:E:101:ASP:O | 2:E:101:ASP:OD1 | 2.34 | 0.46 |
| 2:E:144:PRO:CD | 2:E:281:ILE:HG23 | 2.46 | 0.46 |
| 3:P:480:VAL:HG23 | 3:P:480:VAL:O | 2.16 | 0.46 |
| 2:C:580:TYR:HD1 | 2:C:581:TYR:HD1 | 1.65 | 0.45 |
| 2:E:146:ASP:OD1 | 2:E:146:ASP:N | 2.49 | 0.45 |
| 2:C:166:PHE:HB3 | 2:C:208:LEU:HD11 | 1.98 | 0.45 |
| 3:P:431:GLU:H | 3:P:431:GLU:CD | 2.25 | 0.45 |
| 1:A:114:MET:HE1 | 2:B:130:ILE:HG12 | 1.99 | 0.45 |
| 2:B:88:ALA:HB2 | 2:B:116:ILE:HD11 | 1.99 | 0.45 |
| 2:B:255:ILE:HA | 2:B:258:VAL:HG22 | 1.99 | 0.45 |
| 2:C:40:MET:HG3 | 2:C:208:LEU:HD12 | 1.99 | 0.45 |
| 3:P:440:TRP:O | 3:P:441:SER:OG | 2.25 | 0.45 |
| 2:B:164:ILE:HG21 | 2:B:166:PHE:CE1 | 2.52 | 0.45 |
| 3:P:2:VAL:HG21 | 3:P:418:TYR:HD2 | 1.82 | 0.45 |
| 2:C:56:ASP:OD1 | 2:C:56:ASP:C | 2.60 | 0.44 |
| 2:B:262:THR:O | 2:B:266:THR:HG23 | 2.17 | 0.44 |
| 2:B:109:VAL:O | 2:B:111:VAL:N | 2.50 | 0.44 |
| 1:A:256:ALA:O | 1:A:260:PHE:CD2 | 2.71 | 0.44 |
| 1:A:300:PHE:CD2 | 1:A:304:ILE:HD11 | 2.53 | 0.44 |
| 1:A:294:VAL:HG21 | 1:A:341:PHE:CE1 | 2.53 | 0.44 |
| 1:D:250:ASN:ND2 | 2:E:307:PHE:CG | 2.86 | 0.44 |
| 2:C:190:GLU:OE2 | 2:C:192:ARG:NH1 | 2.50 | 0.44 |
| 1:D:148:PHE:HB3 | 1:D:149:PRO:HD3 | 1.99 | 0.44 |
| 1:A:78:ARG:HH21 | 1:A:78:ARG:HG3 | 1.83 | 0.44 |
| 2:C:142:ARG:O | 2:C:145:LEU:N | 2.51 | 0.44 |
| 1:D:150:MET:SD | 1:D:349:TYR:HB3 | 2.57 | 0.44 |
| 1:D:237:ILE:O | 1:D:241:ILE:HG12 | 2.18 | 0.44 |
| 2:C:43:ASP:OD1 | 2:C:176:THR:OG1 | 2.35 | 0.43 |
| 1:D:18:THR:HG23 | 1:D:19:ARG:N | 2.33 | 0.43 |
| 2:B:155:GLU:OE2 | 10:B:601:ABU:N | 2.51 | 0.43 |
| 2:B:228:PRO:O | 2:B:232:ILE:HG12 | 2.18 | 0.43 |
| 2:B:247:SER:HA | 2:B:299:TYR:OH | 2.18 | 0.43 |
| 1:D:115:THR:O | 1:D:116:THR:CG2 | 2.61 | 0.43 |
| 2:E:554:ARG:O | 2:E:558:ILE:HG12 | 2.19 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:P:488:ARG:HH21 | 3:P:488:ARG:HG3 | 1.83 | 0.43 |
| 2:E:247:SER:HA | 2:E:299:TYR:OH | 2.19 | 0.43 |
| 2:B:164:ILE:HG22 | 2:B:165:GLU:N | 2.34 | 0.43 |
| 1:A:13:ASN:O | 1:A:16:ILE:HG22 | 2.19 | 0.43 |
| 1:A:256:ALA:O | 1:A:259:VAL:HG22 | 2.19 | 0.43 |
| 2:C:96:THR:HG22 | 2:C:166:PHE:CZ | 2.53 | 0.43 |
| 2:E:301:PHE:O | 2:E:305:ILE:HG12 | 2.18 | 0.43 |
| 1:A:115:THR:C | 1:A:116:THR:HG23 | 2.43 | 0.43 |
| 2:C:20:LEU:HD12 | 1:D:31:ARG:NH2 | 2.33 | 0.43 |
| 3:P:406:ARG:HD2 | 3:P:406:ARG:C | 2.44 | 0.43 |
| 2:B:151:THR:HG22 | 2:B:211:SER:CB | 2.48 | 0.43 |
| 2:C:281:ILE:HG23 | 2:C:282:ASP:N | 2.34 | 0.43 |
| 1:D:173:TRP:CE2 | 1:D:215:MET:HE3 | 2.54 | 0.43 |
| 2:B:290:VAL:O | 2:B:294:LEU:HD13 | 2.18 | 0.43 |
| 2:C:179:GLU:HA | 2:C:179:GLU:OE1 | 2.19 | 0.43 |
| 2:E:190:GLU:OE1 | 2:E:213:ARG:NH2 | 2.38 | 0.43 |
| 1:A:49:VAL:HA | 1:A:66:VAL:HG12 | 2.01 | 0.43 |
| 1:D:29:ASP:O | 1:D:76:ARG:NH2 | 2.51 | 0.43 |
| 1:D:148:PHE:CE2 | 1:D:279:LEU:HD11 | 2.53 | 0.43 |
| 1:D:347:ALA:O | 1:D:351:ASN:ND2 | 2.48 | 0.43 |
| 1:A:306:PHE:O | 1:A:309:VAL:HG12 | 2.18 | 0.42 |
| 1:A:310:ASN:O | 1:A:313:THR:HG22 | 2.19 | 0.42 |
| 2:C:121:ASP:OD2 | 2:C:123:THR:OG1 | 2.29 | 0.42 |
| 2:B:175:VAL:HG21 | 2:B:210:LEU:HD13 | 2.00 | 0.42 |
| 2:B:192:ARG:NH2 | 6:H:1:NAG:H83 | 2.34 | 0.42 |
| 3:P:5:VAL:HG13 | 3:P:5:VAL:O | 2.19 | 0.42 |
| 1:A:101:THR:HB | 1:A:171:TYR:OH | 2.18 | 0.42 |
| 2:E:180:ARG:HD2 | 2:E:180:ARG:O | 2.19 | 0.42 |
| 1:A:13:ASN:OD1 | 1:A:17:PHE:CE2 | 2.72 | 0.42 |
| 1:A:292:ILE:HG22 | 1:A:296:TYR:CE2 | 2.55 | 0.42 |
| 1:D:152:ALA:O | 1:D:153:HIS:ND1 | 2.52 | 0.42 |
| 1:A:148:PHE:CD1 | 1:A:279:LEU:HD21 | 2.54 | 0.42 |
| 2:C:251:VAL:CG2 | 2:C:299:TYR:HE2 | 2.33 | 0.42 |
| 2:E:66:TYR:CE2 | 2:E:125:LEU:HD13 | 2.54 | 0.42 |
| 2:B:161:THR:HG23 | 2:B:204:ALA:O | 2.20 | 0.42 |
| 1:A:174:THR:HG23 | 1:A:175:ASN:N | 2.33 | 0.42 |
| 1:A:109:SER:HB3 | 2:E:109:VAL:HG13 | 2.01 | 0.41 |
| 1:A:16:ILE:O | 1:A:20:ILE:HG13 | 2.20 | 0.41 |
| 1:A:314:LYS:HZ1 | 2:E:243:ASN:CB | 2.33 | 0.41 |
| 2:C:228:PRO:O | 2:C:232:ILE:HG12 | 2.20 | 0.41 |
| 1:A:148:PHE:HB3 | 1:A:149:PRO:HD3 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:265:ASN:OD1 | 2:B:266:THR:HG23 | 2.20 | 0.41 |
| 1:D:149:PRO:HG2 | 1:D:150:MET:HE3 | 2.01 | 0.41 |
| 2:B:8:ASN:OD1 | 2:B:9:MET:N | 2.54 | 0.41 |
| 2:B:243:ASN:HB2 | 2:C:307:PHE:HD2 | 1.85 | 0.41 |
| 2:B:275:ILE:HG13 | 2:B:277:TYR:CE1 | 2.56 | 0.41 |
| 2:C:275:ILE:HG21 | 2:C:277:TYR:CZ | 2.55 | 0.41 |
| 1:D:126:ASP:OD1 | 1:D:126:ASP:C | 2.62 | 0.41 |
| 2:E:263:THR:HG22 | 2:E:267:HIS:ND1 | 2.34 | 0.41 |
| 2:B:258:VAL:HG23 | 2:B:259:LEU:HD12 | 2.02 | 0.41 |
| 2:C:306:PHE:CE2 | 2:C:307:PHE:CE1 | 3.09 | 0.41 |
| 2:E:85:ASN:OD1 | 2:E:86:ARG:N | 2.53 | 0.41 |
| 1:A:45:THR:HG22 | 1:A:46:ASP:N | 2.35 | 0.41 |
| 1:D:260:PHE:CD1 | 2:E:255:ILE:HD13 | 2.56 | 0.41 |
| 2:C:100:ASN:HD22 | 2:C:153:GLU:HG2 | 1.86 | 0.41 |
| 2:C:561:TRP:O | 2:C:565:VAL:HG23 | 2.21 | 0.41 |
| 3:P:418:TYR:CE2 | 3:P:501:TYR:HE2 | 2.39 | 0.41 |
| 2:C:299:TYR:HA | 2:C:302:VAL:HG22 | 2.02 | 0.41 |
| 1:D:234:LEU:N | 1:D:235:PRO:HD2 | 2.36 | 0.41 |
| 3:P:507:GLN:OE1 | 3:P:509:THR:OG1 | 2.30 | 0.41 |
| 1:A:115:THR:O | 1:A:116:THR:OG1 | 2.31 | 0.40 |
| 1:A:259:VAL:O | 1:A:263:THR:HG23 | 2.21 | 0.40 |
| 1:D:132:THR:HG22 | 1:D:133:MET:N | 2.36 | 0.40 |
| 2:B:227:MET:HB3 | 2:B:228:PRO:HD3 | 2.04 | 0.40 |
| 3:P:455:PHE:N | 3:P:455:PHE:CD1 | 2.90 | 0.40 |
| 2:E:261:MET:HE2 | 2:E:264:ILE:HD11 | 2.03 | 0.40 |
| 1:A:301:SER:O | 1:A:305:GLU:HG2 | 2.21 | 0.40 |
| 2:C:185:GLN:HA | 2:C:185:GLN:OE1 | 2.22 | 0.40 |
| 1:D:209:THR:OG1 | 1:D:212:TYR:OH | 2.22 | 0.40 |

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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 | 338/679 (50%) | 331 (98%) | 6 (2%) | 1 (0%) | 37 | 68 |
| 1 | D | 335/679 (49%) | 324 (97%) | 11 (3%) | 0 | 100 | 100 |
| 2 | B | 332/623 (53%) | 327 (98%) | 5 (2%) | 0 | 100 | 100 |
| 2 | C | 334/623 (54%) | 324 (97%) | 10 (3%) | 0 | 100 | 100 |
| 2 | E | 332/623 (53%) | 326 (98%) | 6 (2%) | 0 | 100 | 100 |
| 3 | P | 116/541 (21%) | 113 (97%) | 3 (3%) | 0 | 100 | 100 |
| All | All | 1787/3768 (47%) | 1745 (98%) | 41 (2%) | 1 (0%) | 50 | 79 |

All (1) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 116 | THR |

### 5.3.2　Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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 | 306/589 (52%) | 306 (100%) | 0 | 100 | 100 |
| 1 | D | 302/589 (51%) | 302 (100%) | 0 | 100 | 100 |
| 2 | B | 300/544 (55%) | 300 (100%) | 0 | 100 | 100 |
| 2 | C | 302/544 (56%) | 302 (100%) | 0 | 100 | 100 |
| 2 | E | 300/544 (55%) | 300 (100%) | 0 | 100 | 100 |
| 3 | P | 96/443 (22%) | 96 (100%) | 0 | 100 | 100 |
| All | All | 1606/3253 (49%) | 1606 (100%) | 0 | 100 | 100 |

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 218 | HIS |
| 2 | B | 64 | GLN |

*Continued on next page...*

WORLDWIDE
wwPDB
PROTEIN DATA BANK

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | B | 191 | HIS |
| 2 | B | 267 | HIS |
| 2 | C | 185 | GLN |
| 1 | D | 42 | GLN |
| 1 | D | 218 | HIS |
| 1 | D | 220 | HIS |
| 2 | E | 303 | ASN |
| 3 | P | 464 | ASN |

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates ⓘ

34 monosaccharides are modelled in this entry.

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 | NAG | F | 1 | 4,1 | 14,14,15 | 0.75 | 0 | 17,19,21 | 0.89 | 0 |
| 4 | NAG | F | 2 | 4 | 14,14,15 | 0.72 | 0 | 17,19,21 | 0.88 | 0 |
| 5 | NAG | G | 1 | 5,1 | 14,14,15 | 0.62 | 0 | 17,19,21 | 1.46 | 3 (17%) |
| 5 | NAG | G | 2 | 5 | 14,14,15 | 0.76 | 0 | 17,19,21 | 0.91 | 0 |
| 5 | BMA | G | 3 | 5 | 11,11,12 | 0.80 | 0 | 15,15,17 | 1.99 | 1 (6%) |
| 6 | NAG | H | 1 | 2,6 | 14,14,15 | 0.77 | 0 | 17,19,21 | 1.04 | 1 (5%) |
| 6 | NAG | H | 2 | 6 | 14,14,15 | 0.68 | 0 | 17,19,21 | 0.98 | 0 |
| 6 | BMA | H | 3 | 6 | 11,11,12 | 0.82 | 0 | 15,15,17 | 1.88 | 3 (20%) |
| 6 | MAN | H | 4 | 6 | 11,11,12 | 0.69 | 0 | 15,15,17 | 1.16 | 1 (6%) |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | #\|Z\| > 2 | Counts | RMSZ | #\|Z\| > 2 |
| 6 | MAN | H | 5 | 6 | 11,11,12 | 0.69 | 0 | 15,15,17 | 1.17 | 1 (6%) |
| 6 | MAN | H | 6 | 6 | 11,11,12 | 0.76 | 0 | 15,15,17 | 0.91 | 0 |
| 5 | NAG | I | 1 | 2,5 | 14,14,15 | 0.75 | 0 | 17,19,21 | 1.00 | 1 (5%) |
| 5 | NAG | I | 2 | 5 | 14,14,15 | 0.72 | 0 | 17,19,21 | 0.85 | 0 |
| 5 | BMA | I | 3 | 5 | 11,11,12 | 0.82 | 0 | 15,15,17 | 1.72 | 1 (6%) |
| 7 | NAG | J | 1 | 2,7 | 14,14,15 | 0.79 | 0 | 17,19,21 | 0.97 | 1 (5%) |
| 7 | NAG | J | 2 | 7 | 14,14,15 | 0.76 | 0 | 17,19,21 | 0.84 | 0 |
| 7 | BMA | J | 3 | 7 | 11,11,12 | 0.83 | 0 | 15,15,17 | 1.75 | 1 (6%) |
| 8 | NAG | K | 1 | 2,8 | 14,14,15 | 0.65 | 0 | 17,19,21 | 2.57 | 5 (29%) |
| 8 | NAG | K | 2 | 8 | 14,14,15 | 0.80 | 0 | 17,19,21 | 0.90 | 1 (5%) |
| 8 | BMA | K | 3 | 8 | 11,11,12 | 0.77 | 0 | 15,15,17 | 2.15 | 3 (20%) |
| 8 | MAN | K | 4 | 8 | 11,11,12 | 0.68 | 0 | 15,15,17 | 1.51 | 2 (13%) |
| 8 | MAN | K | 5 | 8 | 11,11,12 | 0.72 | 0 | 15,15,17 | 1.01 | 1 (6%) |
| 8 | MAN | K | 6 | 8 | 11,11,12 | 0.72 | 0 | 15,15,17 | 1.03 | 1 (6%) |
| 9 | NAG | L | 1 | 9,1 | 14,14,15 | 0.68 | 0 | 17,19,21 | 0.96 | 1 (5%) |
| 9 | NAG | L | 2 | 9 | 14,14,15 | 0.70 | 0 | 17,19,21 | 0.81 | 0 |
| 5 | NAG | M | 1 | 2,5 | 14,14,15 | 0.75 | 0 | 17,19,21 | 0.95 | 1 (5%) |
| 5 | NAG | M | 2 | 5 | 14,14,15 | 0.74 | 0 | 17,19,21 | 1.00 | 0 |
| 5 | BMA | M | 3 | 5 | 11,11,12 | 0.78 | 0 | 15,15,17 | 2.02 | 1 (6%) |
| 6 | NAG | N | 1 | 2,6 | 14,14,15 | 0.77 | 0 | 17,19,21 | 1.01 | 0 |
| 6 | NAG | N | 2 | 6 | 14,14,15 | 0.71 | 0 | 17,19,21 | 0.92 | 0 |
| 6 | BMA | N | 3 | 6 | 11,11,12 | 0.78 | 0 | 15,15,17 | 1.89 | 4 (26%) |
| 6 | MAN | N | 4 | 6 | 11,11,12 | 0.68 | 0 | 15,15,17 | 1.16 | 1 (6%) |
| 6 | MAN | N | 5 | 6 | 11,11,12 | 0.72 | 0 | 15,15,17 | 1.05 | 1 (6%) |
| 6 | MAN | N | 6 | 6 | 11,11,12 | 0.70 | 0 | 15,15,17 | 1.12 | 1 (6%) |

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 | NAG | F | 1 | 4,1 | - | 1/6/23/26 | 0/1/1/1 |
| 4 | NAG | F | 2 | 4 | - | 0/6/23/26 | 0/1/1/1 |
| 5 | NAG | G | 1 | 5,1 | - | 1/6/23/26 | 0/1/1/1 |
| 5 | NAG | G | 2 | 5 | - | 0/6/23/26 | 0/1/1/1 |
| 5 | BMA | G | 3 | 5 | - | 0/2/19/22 | 0/1/1/1 |
| 6 | NAG | H | 1 | 2,6 | - | 2/6/23/26 | 0/1/1/1 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|----------|-------|
| 6 | NAG | H | 2 | 6 | - | 0/6/23/26 | 0/1/1/1 |
| 6 | BMA | H | 3 | 6 | - | 0/2/19/22 | 0/1/1/1 |
| 6 | MAN | H | 4 | 6 | - | 0/2/19/22 | 0/1/1/1 |
| 6 | MAN | H | 5 | 6 | - | 1/2/19/22 | 0/1/1/1 |
| 6 | MAN | H | 6 | 6 | - | 1/2/19/22 | 0/1/1/1 |
| 5 | NAG | I | 1 | 2,5 | - | 0/6/23/26 | 0/1/1/1 |
| 5 | NAG | I | 2 | 5 | - | 1/6/23/26 | 0/1/1/1 |
| 5 | BMA | I | 3 | 5 | - | 0/2/19/22 | 0/1/1/1 |
| 7 | NAG | J | 1 | 2,7 | - | 0/6/23/26 | 0/1/1/1 |
| 7 | NAG | J | 2 | 7 | - | 0/6/23/26 | 0/1/1/1 |
| 7 | BMA | J | 3 | 7 | - | 1/2/19/22 | 0/1/1/1 |
| 8 | NAG | K | 1 | 2,8 | - | 0/6/23/26 | 0/1/1/1 |
| 8 | NAG | K | 2 | 8 | - | 0/6/23/26 | 0/1/1/1 |
| 8 | BMA | K | 3 | 8 | - | 1/2/19/22 | 0/1/1/1 |
| 8 | MAN | K | 4 | 8 | - | 1/2/19/22 | 0/1/1/1 |
| 8 | MAN | K | 5 | 8 | - | 0/2/19/22 | 0/1/1/1 |
| 8 | MAN | K | 6 | 8 | - | 0/2/19/22 | 0/1/1/1 |
| 9 | NAG | L | 1 | 9,1 | - | 1/6/23/26 | 0/1/1/1 |
| 9 | NAG | L | 2 | 9 | - | 1/6/23/26 | 0/1/1/1 |
| 5 | NAG | M | 1 | 2,5 | - | 1/6/23/26 | 0/1/1/1 |
| 5 | NAG | M | 2 | 5 | - | 2/6/23/26 | 0/1/1/1 |
| 5 | BMA | M | 3 | 5 | - | 0/2/19/22 | 0/1/1/1 |
| 6 | NAG | N | 1 | 2,6 | - | 0/6/23/26 | 0/1/1/1 |
| 6 | NAG | N | 2 | 6 | - | 0/6/23/26 | 0/1/1/1 |
| 6 | BMA | N | 3 | 6 | - | 0/2/19/22 | 0/1/1/1 |
| 6 | MAN | N | 4 | 6 | - | 0/2/19/22 | 0/1/1/1 |
| 6 | MAN | N | 5 | 6 | - | 0/2/19/22 | 0/1/1/1 |
| 6 | MAN | N | 6 | 6 | - | 0/2/19/22 | 0/1/1/1 |

There are no bond length outliers.

All (37) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|-----|-------|-----|------|-------|---|----------------|-------------|
| 8 | K | 1 | NAG | C1-O5-C5 | 8.59 | 123.83 | 112.19 |
| 5 | M | 3 | BMA | C1-O5-C5 | 6.59 | 121.12 | 112.19 |
| 5 | G | 3 | BMA | C1-O5-C5 | 6.53 | 121.04 | 112.19 |
| 8 | K | 3 | BMA | C1-O5-C5 | 6.20 | 120.59 | 112.19 |
| 7 | J | 3 | BMA | C1-O5-C5 | 5.18 | 119.21 | 112.19 |
| 6 | H | 3 | BMA | C1-O5-C5 | 5.11 | 119.12 | 112.19 |
| 6 | N | 3 | BMA | C1-O5-C5 | 5.08 | 119.08 | 112.19 |
| 5 | I | 3 | BMA | C1-O5-C5 | 4.88 | 118.81 | 112.19 |
| 8 | K | 3 | BMA | O3-C3-C4 | 3.93 | 119.43 | 110.35 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 8 | K | 4 | MAN | C1-O5-C5 | 3.58 | 117.04 | 112.19 |
| 5 | G | 1 | NAG | C4-C3-C2 | -3.57 | 105.79 | 111.02 |
| 6 | N | 4 | MAN | C1-O5-C5 | 3.38 | 116.77 | 112.19 |
| 6 | H | 5 | MAN | C1-O5-C5 | 3.37 | 116.76 | 112.19 |
| 6 | N | 6 | MAN | C1-O5-C5 | 3.20 | 116.53 | 112.19 |
| 6 | H | 4 | MAN | C1-O5-C5 | 3.18 | 116.50 | 112.19 |
| 8 | K | 1 | NAG | O5-C1-C2 | 3.15 | 116.25 | 111.29 |
| 8 | K | 1 | NAG | C4-C3-C2 | -3.03 | 106.58 | 111.02 |
| 8 | K | 4 | MAN | O3-C3-C4 | 2.95 | 117.16 | 110.35 |
| 6 | N | 3 | BMA | O3-C3-C4 | 2.88 | 117.01 | 110.35 |
| 8 | K | 1 | NAG | O4-C4-C5 | 2.86 | 116.39 | 109.30 |
| 6 | H | 3 | BMA | C3-C4-C5 | 2.81 | 115.26 | 110.24 |
| 6 | N | 5 | MAN | C1-O5-C5 | 2.65 | 115.78 | 112.19 |
| 8 | K | 6 | MAN | C1-O5-C5 | 2.55 | 115.65 | 112.19 |
| 5 | G | 1 | NAG | C2-N2-C7 | 2.47 | 126.42 | 122.90 |
| 5 | I | 1 | NAG | O5-C1-C2 | -2.47 | 107.39 | 111.29 |
| 8 | K | 5 | MAN | C1-O5-C5 | 2.46 | 115.52 | 112.19 |
| 5 | M | 1 | NAG | C1-O5-C5 | 2.34 | 115.36 | 112.19 |
| 8 | K | 1 | NAG | C3-C4-C5 | -2.32 | 106.09 | 110.24 |
| 5 | G | 1 | NAG | O4-C4-C5 | 2.30 | 115.02 | 109.30 |
| 6 | N | 3 | BMA | C1-C2-C3 | -2.27 | 106.88 | 109.67 |
| 6 | H | 3 | BMA | O4-C4-C3 | -2.24 | 105.16 | 110.35 |
| 8 | K | 2 | NAG | C1-O5-C5 | 2.23 | 115.22 | 112.19 |
| 9 | L | 1 | NAG | C1-O5-C5 | 2.18 | 115.14 | 112.19 |
| 8 | K | 3 | BMA | O3-C3-C2 | -2.13 | 105.92 | 109.99 |
| 6 | N | 3 | BMA | O5-C5-C6 | 2.10 | 110.49 | 107.20 |
| 6 | H | 1 | NAG | C4-C3-C2 | 2.06 | 114.04 | 111.02 |
| 7 | J | 1 | NAG | O5-C1-C2 | -2.04 | 108.06 | 111.29 |

There are no chirality outliers.

All (15) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 6 | H | 1 | NAG | O5-C5-C6-O6 |
| 6 | H | 1 | NAG | C4-C5-C6-O6 |
| 5 | G | 1 | NAG | C1-C2-N2-C7 |
| 8 | K | 4 | MAN | O5-C5-C6-O6 |
| 6 | H | 5 | MAN | O5-C5-C6-O6 |
| 9 | L | 1 | NAG | O5-C5-C6-O6 |
| 5 | M | 1 | NAG | O5-C5-C6-O6 |
| 6 | H | 6 | MAN | O5-C5-C6-O6 |
| 7 | J | 3 | BMA | O5-C5-C6-O6 |

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| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------|
| 5 | I | 2 | NAG | C3-C2-N2-C7 |
| 5 | M | 2 | NAG | C3-C2-N2-C7 |
| 4 | F | 1 | NAG | C4-C5-C6-O6 |
| 9 | L | 2 | NAG | C4-C5-C6-O6 |
| 5 | M | 2 | NAG | C4-C5-C6-O6 |
| 8 | K | 3 | BMA | O5-C5-C6-O6 |

There are no ring outliers.

3 monomers are involved in 4 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 6 | H | 1 | NAG | 2 | 0 |
| 5 | G | 2 | NAG | 1 | 0 |
| 6 | N | 1 | NAG | 1 | 0 |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

## Oligosaccharide Chain F


Bond lengths


Bond angles


Torsions


Rings

## Oligosaccharide Chain G



Bond lengths



Bond angles



Torsions



Rings

## Oligosaccharide Chain I



Bond lengths



Bond angles



Torsions



Rings

## Oligosaccharide Chain M



Bond lengths



Bond angles



Torsions



Rings

## Oligosaccharide Chain H



Bond lengths



Bond angles



Torsions



Rings

## Oligosaccharide Chain N



Bond lengths



Bond angles



Torsions



Rings

## Oligosaccharide Chain J



Bond lengths



Bond angles



Torsions



Rings

## Oligosaccharide Chain K



Bond lengths



Bond angles



Torsions



Rings

## Oligosaccharide Chain L



Bond lengths



Bond angles



Torsions



Rings

## 5.6 Ligand geometry ⓘ

4 ligands are modelled in this entry.

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 | $\#|Z| > 2$ |
| 10 | ABU | E | 601 | - | 6,6,6 | 1.01 | 0 | 6,6,6 | 1.18 | 1 (16%) |
| 11 | EPE | C | 601 | - | 15,15,15 | 0.81 | 1 (6%) | 18,20,20 | 0.75 | 0 |
| 10 | ABU | B | 601 | - | 6,6,6 | 1.03 | 0 | 6,6,6 | 1.17 | 1 (16%) |
| 12 | NAG | D | 401 | 1 | 14,14,15 | 0.76 | 0 | 17,19,21 | 1.03 | 1 (5%) |

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 |
|-----|------|-------|-----|------|---------|----------|-------|
| 10 | ABU | E | 601 | - | - | 0/4/4/4 | - |
| 11 | EPE | C | 601 | - | - | 1/9/19/19 | 0/1/1/1 |
| 10 | ABU | B | 601 | - | - | 2/4/4/4 | - |
| 12 | NAG | D | 401 | 1 | - | 1/6/23/26 | 0/1/1/1 |

All (1) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|------|-------------|----------|
| 11 | C | 601 | EPE | C10-S | 2.23 | 1.80 | 1.77 |

All (3) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|-----|-------|-----|------|-------|-------|----------------|-------------|
| 12 | D | 401 | NAG | O5-C1-C2 | -2.64 | 107.12 | 111.29 |
| 10 | E | 601 | ABU | O-C-CG | -2.26 | 115.81 | 123.08 |
| 10 | B | 601 | ABU | O-C-CG | -2.22 | 115.95 | 123.08 |

There are no chirality outliers.

All (4) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------|
| 11 | C | 601 | EPE | N4-C7-C8-O8 |
| 12 | D | 401 | NAG | O5-C5-C6-O6 |
| 10 | B | 601 | ABU | OXT-C-CG-CB |
| 10 | B | 601 | ABU | O-C-CG-CB |

There are no ring outliers.

1 monomer is involved in 1 short contact:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 10 | B | 601 | ABU | 1 | 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 ABU E 601**

Bond lengths　　　　　Bond angles

Torsions　　　　　Rings

**Ligand ABU B 601**


Bond lengths


Bond angles


Torsions


Rings
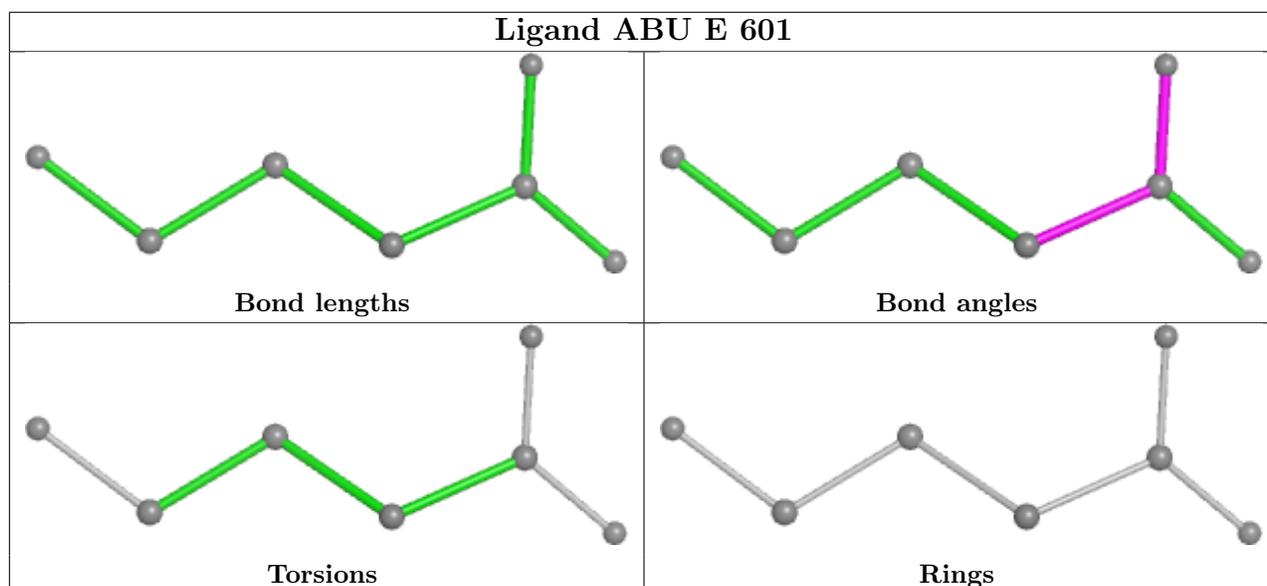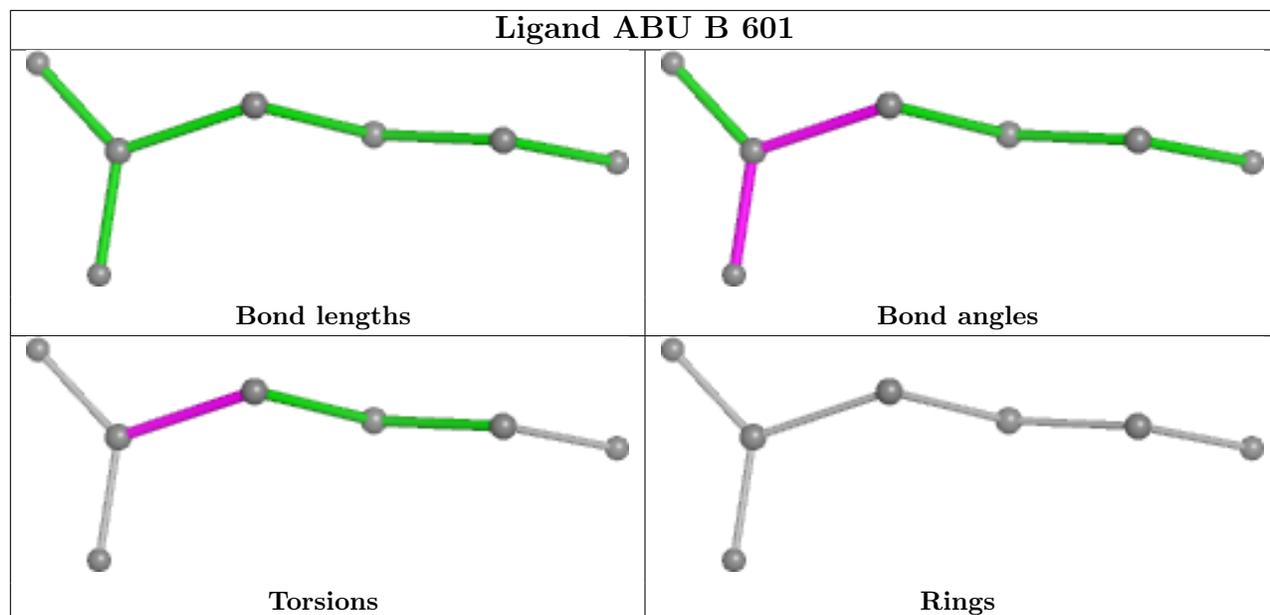
## 5.7 Other polymers ⓘ

There are no such residues in this entry.

## 5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

# 6   Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-54151. These allow visual inspection of the internal detail of the map and identification of artifacts.

Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

## 6.1   Orthogonal projections ⓘ
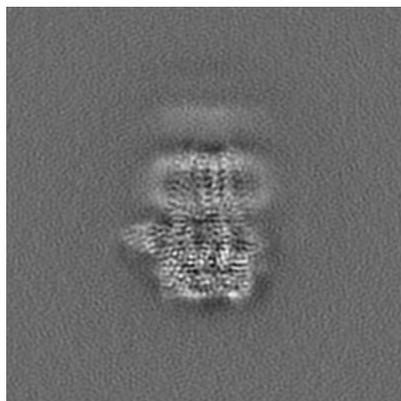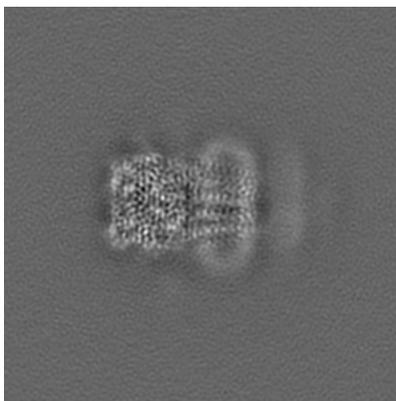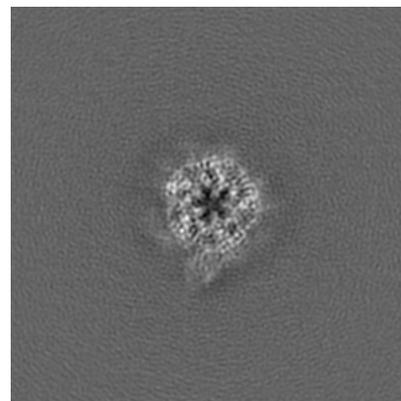
### 6.1.1   Primary map



X         Y         Z

### 6.1.2   Raw map



X         Y         Z
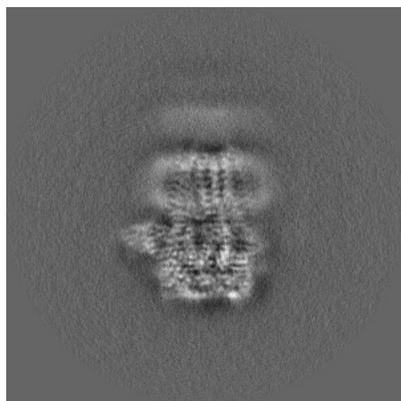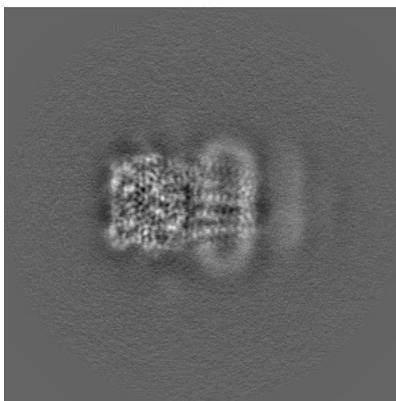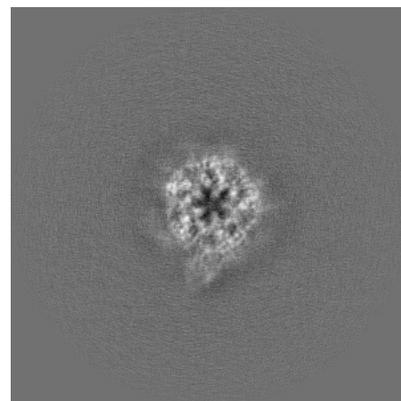
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices ⓘ
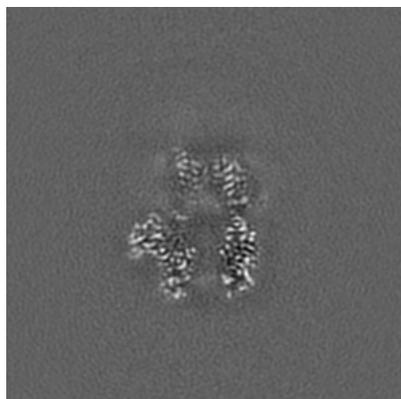
### 6.2.1 Primary map
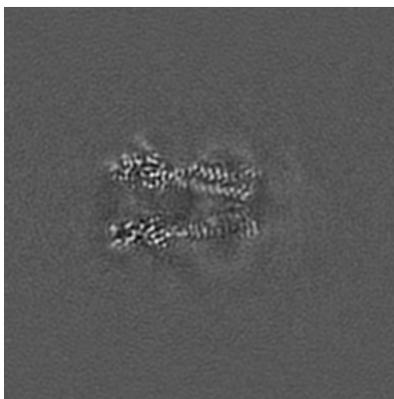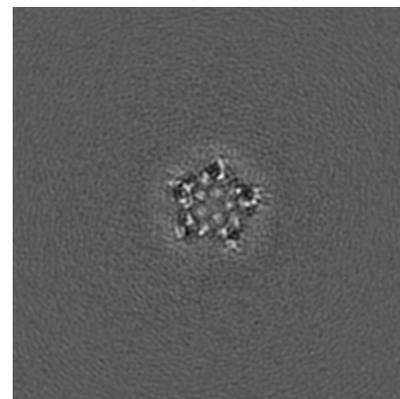


X Index: 220      Y Index: 220      Z Index: 220

### 6.2.2 Raw map
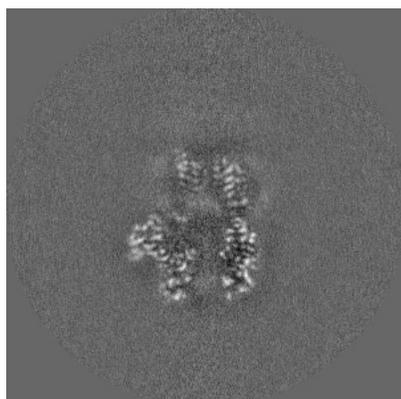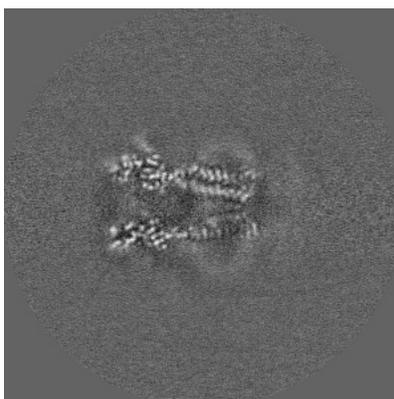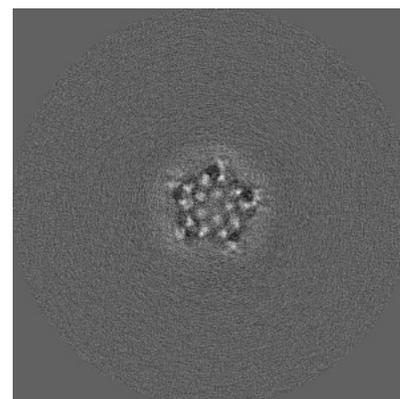


X Index: 220      Y Index: 220      Z Index: 220

The images above show central slices of the map in three orthogonal directions.

## 6.3   Largest variance slices ⓘ

### 6.3.1   Primary map
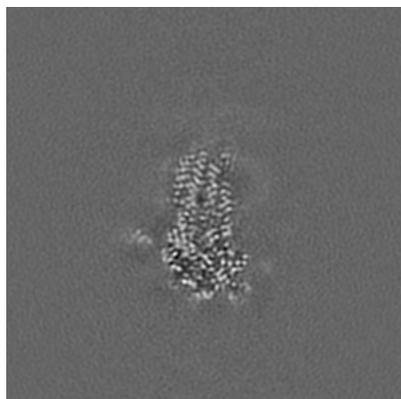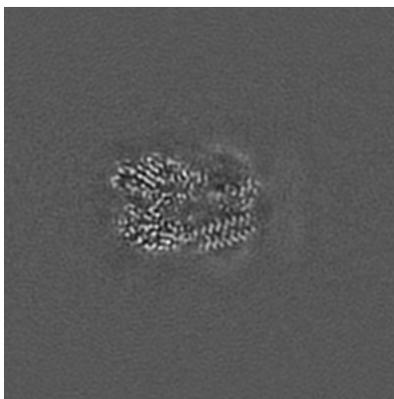


| X Index: 194 | Y Index: 240 | Z Index: 164 |
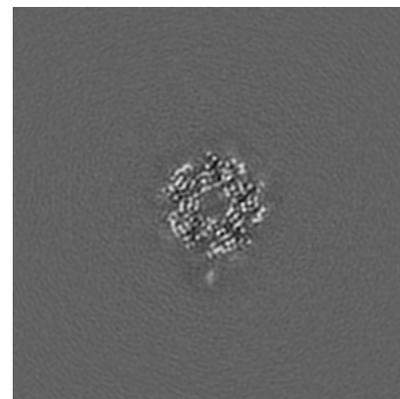
### 6.3.2   Raw map
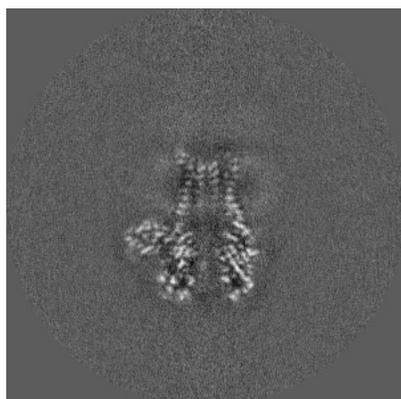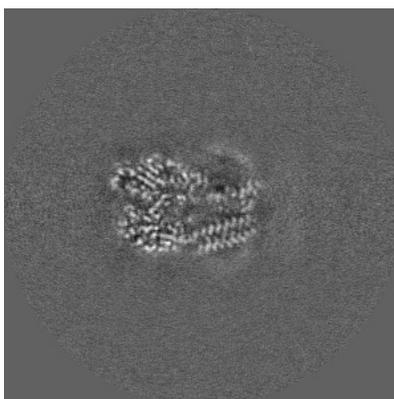


| X Index: 213 | Y Index: 240 | Z Index: 165 |
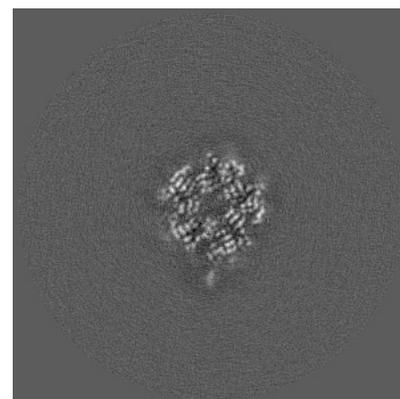
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) ⓘ

### 6.4.1 Primary map
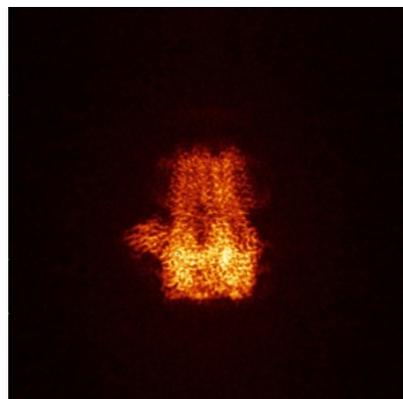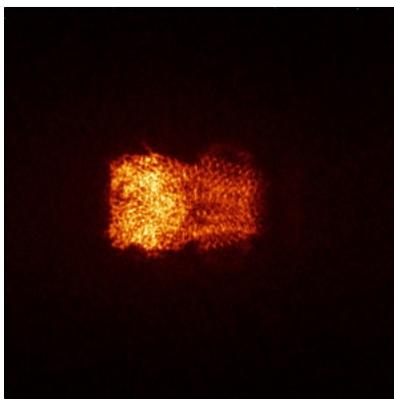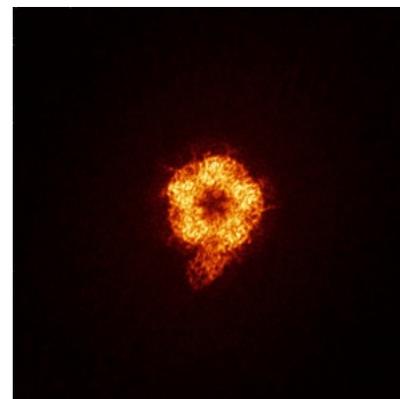


| X | Y | Z |

### 6.4.2 Raw map



| X | Y | Z |
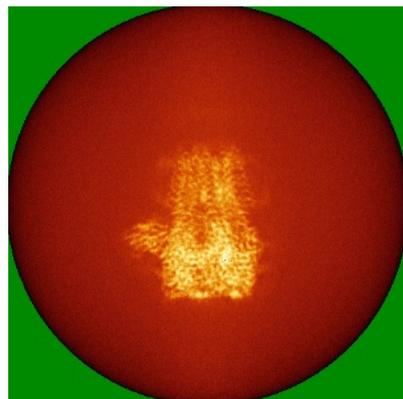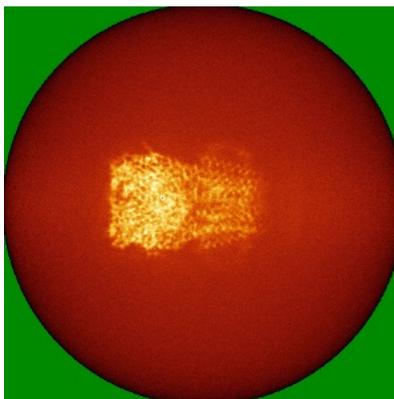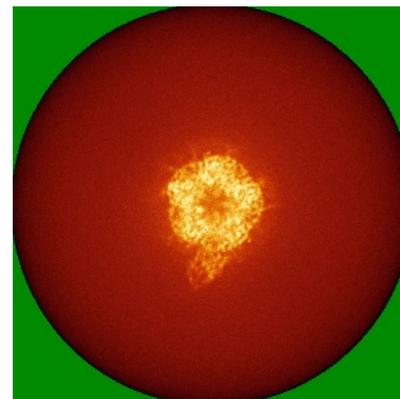
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views (i)

### 6.5.1 Primary map



| X | Y | Z |
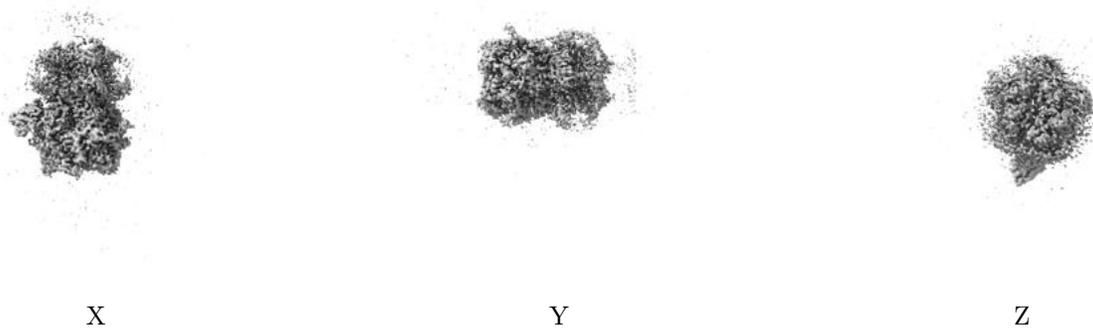
The images above show the 3D surface view of the map at the recommended contour level 3.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



| X | Y | Z |
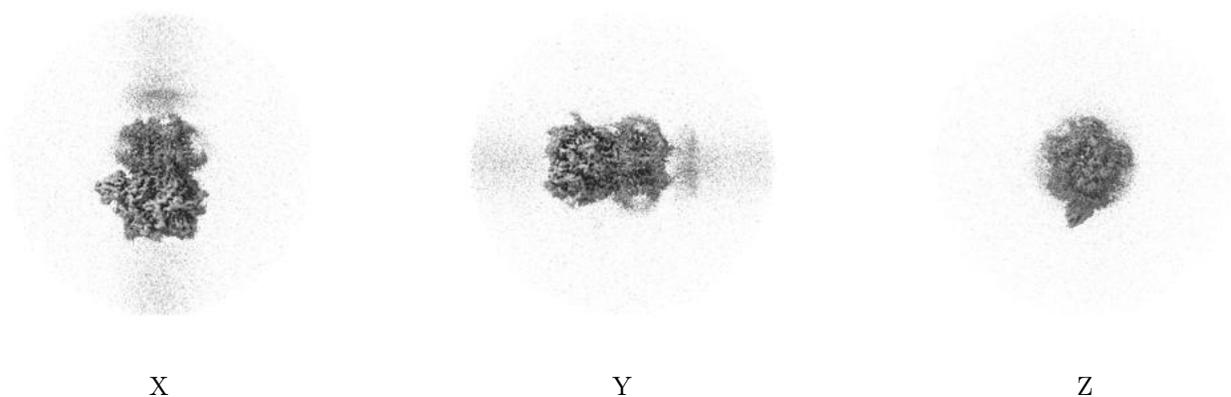
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

## 6.6 Mask visualisation (i)

This section was not generated. No masks/segmentation were deposited.

# 7 Map analysis (i)

This section contains the results of statistical analysis of the map.

## 7.1 Map-value distribution (i)
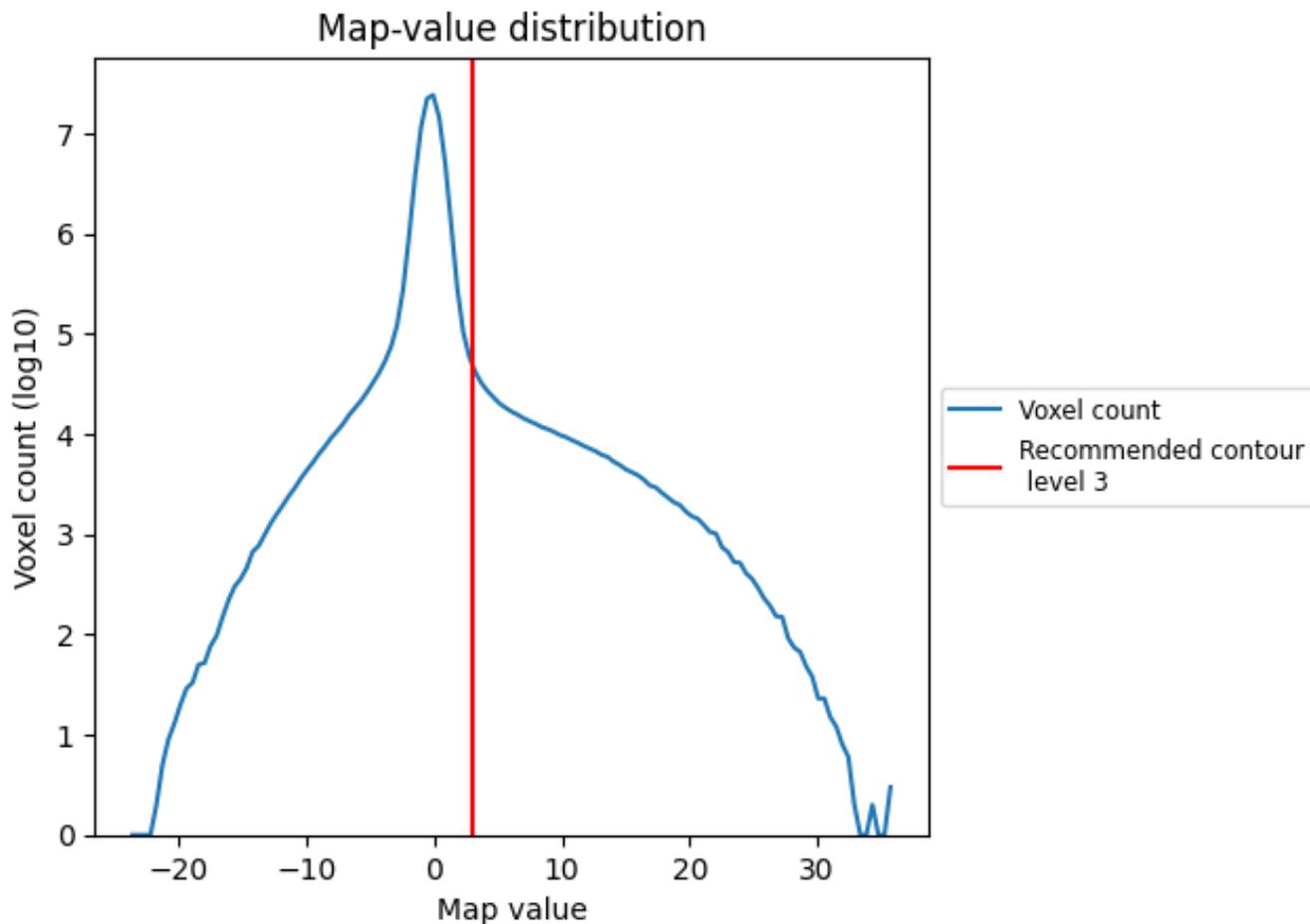


The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

## 7.2　Volume estimate ⓘ
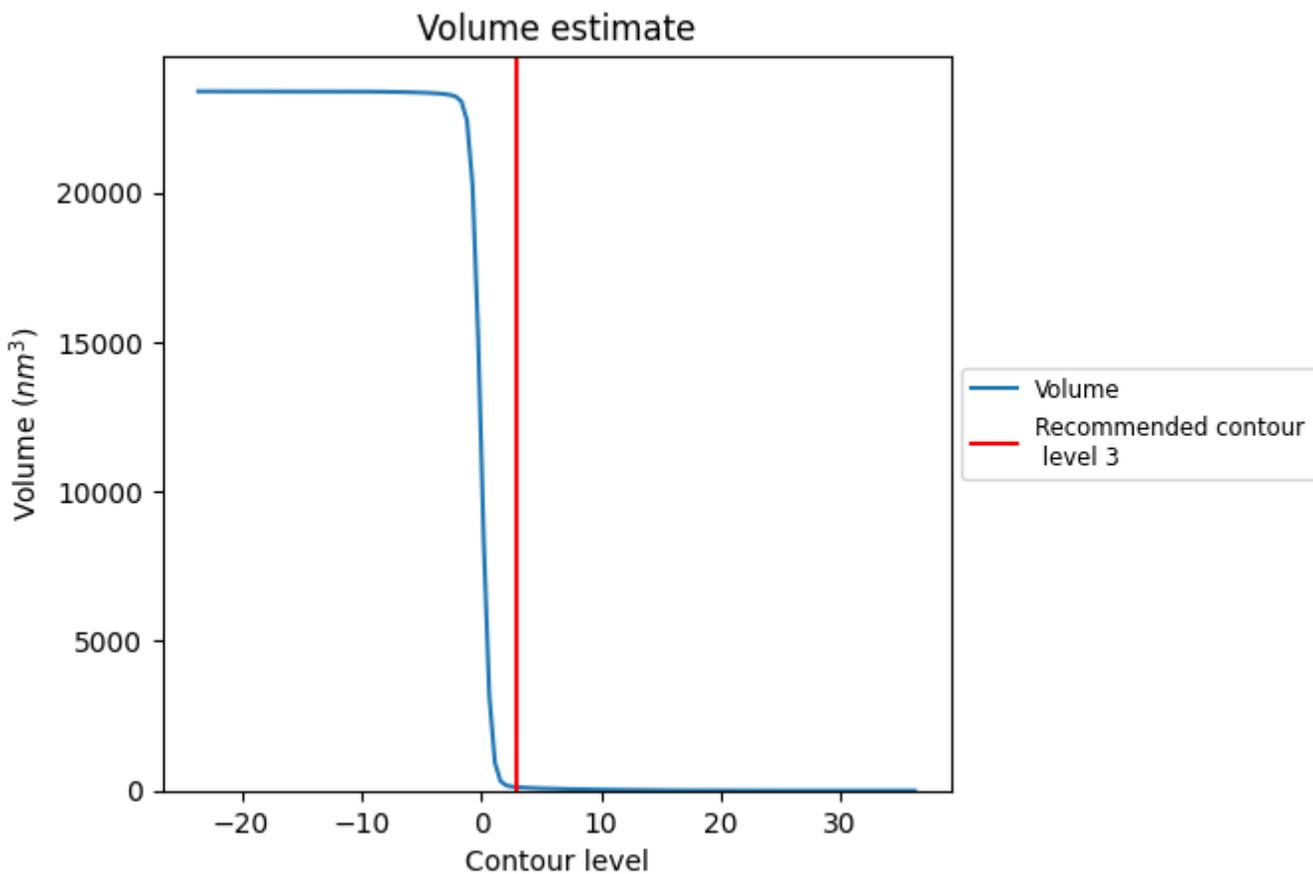


The volume at the recommended contour level is 115 nm$^3$; this corresponds to an approximate mass of 104 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

## 7.3　Rotationally averaged power spectrum　ⓘ
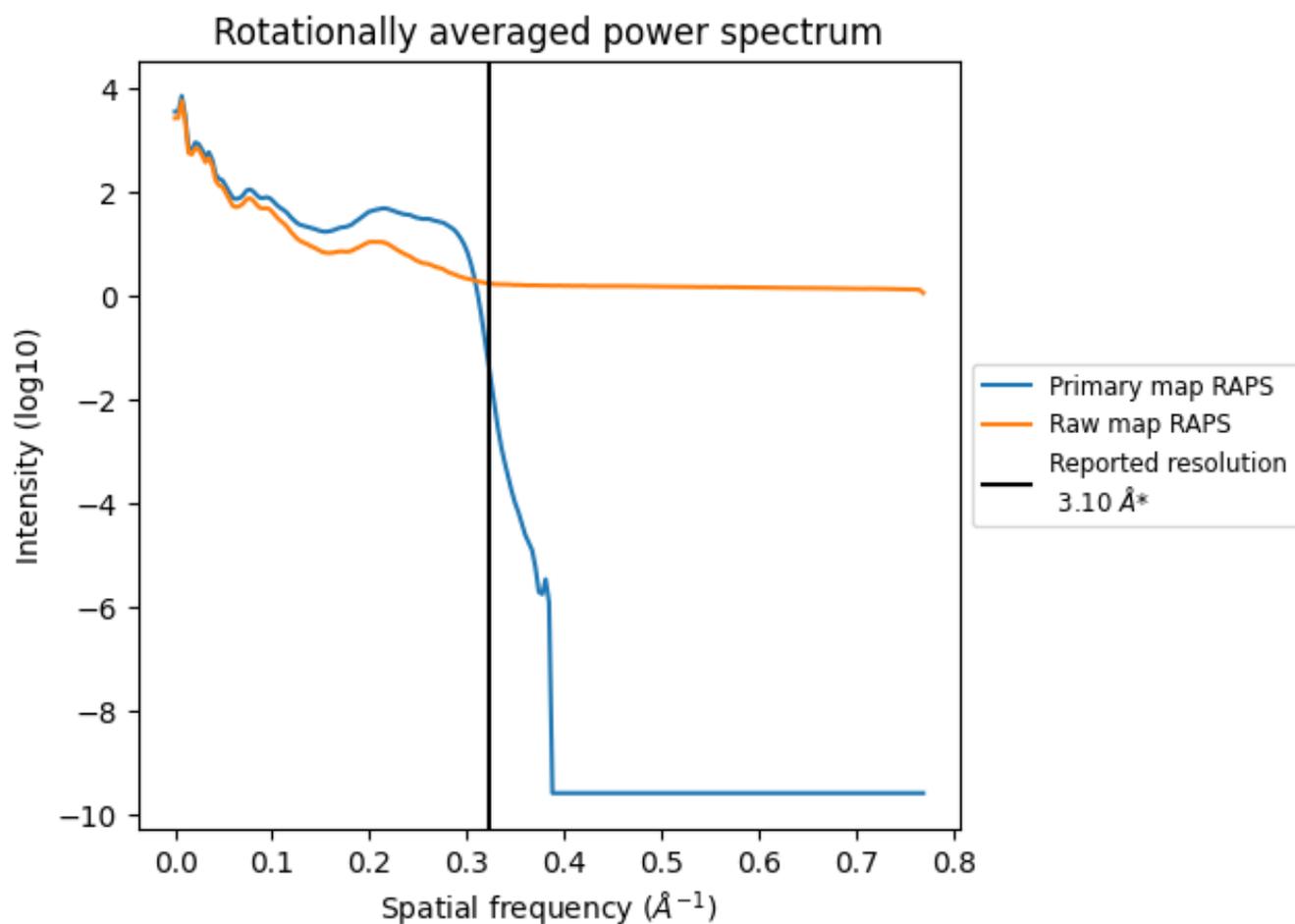


*Reported resolution corresponds to spatial frequency of 0.323 Å$^{-1}$

# 8　Fourier-Shell correlation ⓘ

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

## 8.1　FSC ⓘ
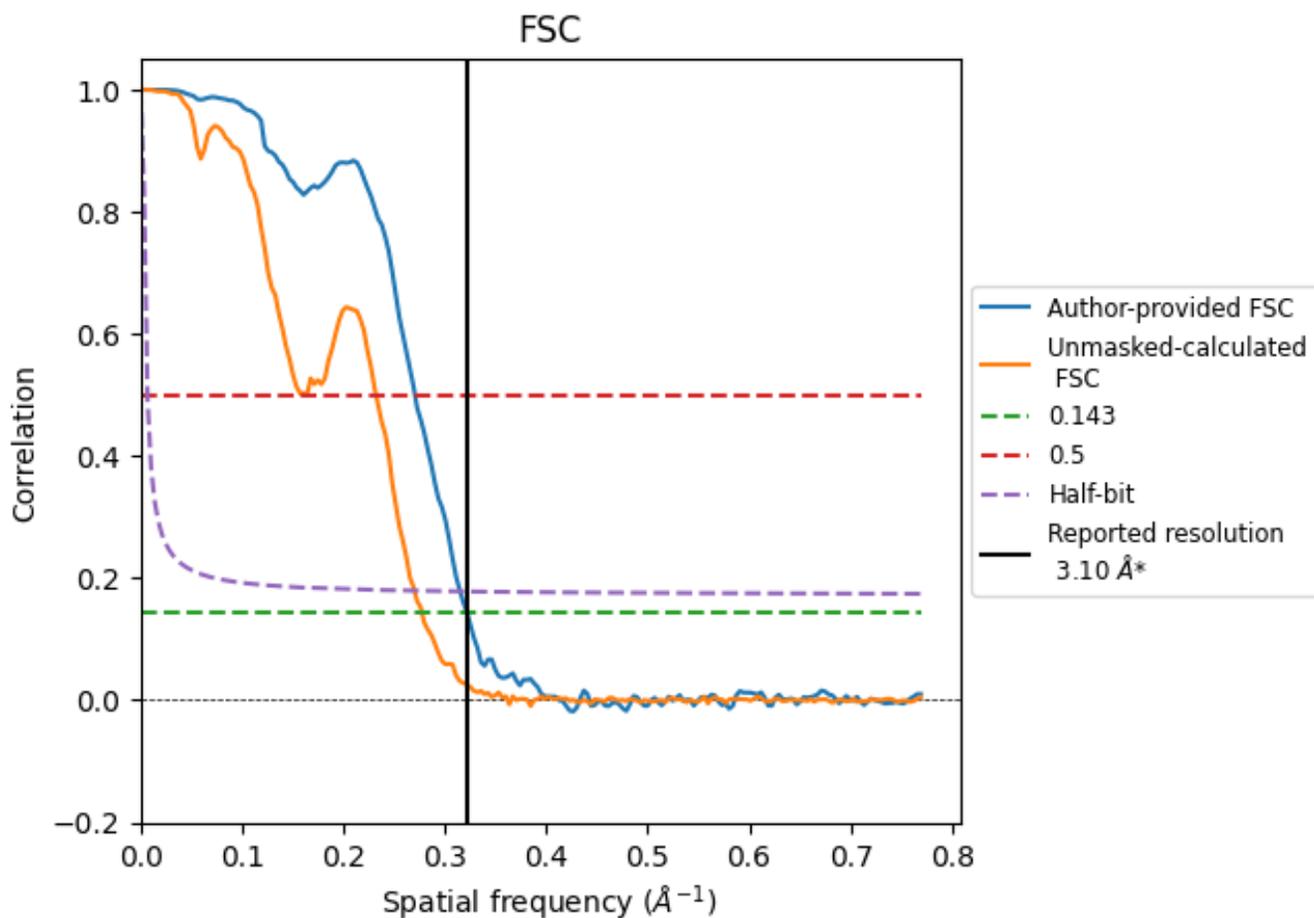


*Reported resolution corresponds to spatial frequency of 0.323 Å$^{-1}$

## 8.2   Resolution estimates ⓘ

| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---|---|---|---|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 3.10 | - | - |
| Author-provided FSC curve | 3.11 | 3.70 | 3.17 |
| Unmasked-calculated* | 3.60 | 4.31 | 3.70 |

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.60 differs from the reported value 3.1 by more than 10 %

# 9　Map-model fit　ⓘ

This section contains information regarding the fit between EMDB map EMD-54151 and PDB model 9RPB. Per-residue inclusion information can be found in section 3 on page 25.

## 9.1　Map-model overlay　ⓘ



X　　　　　　　　　　　　　Y　　　　　　　　　　　　　Z
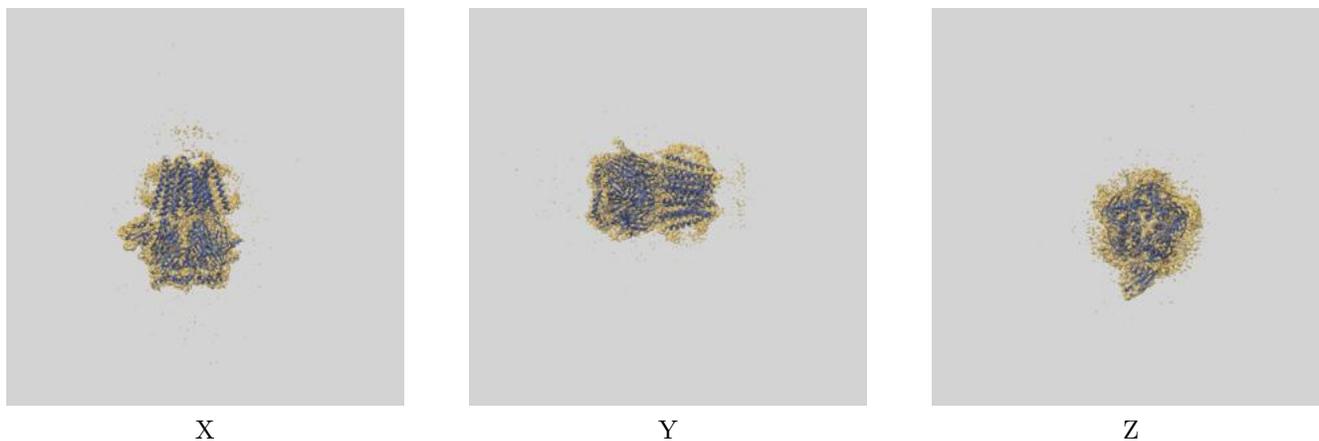
The images above show the 3D surface view of the map at the recommended contour level 3.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model (i)



X Y Z
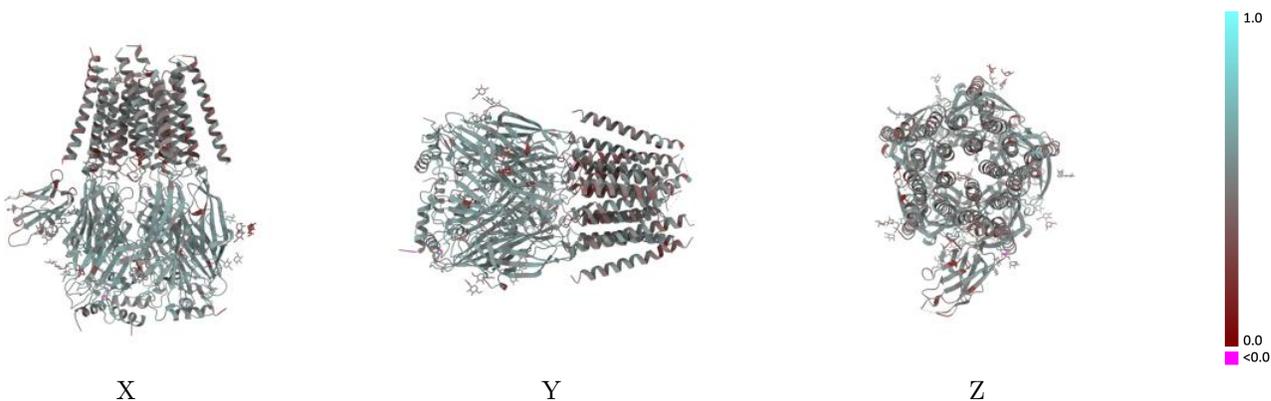
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model (i)



X Y Z
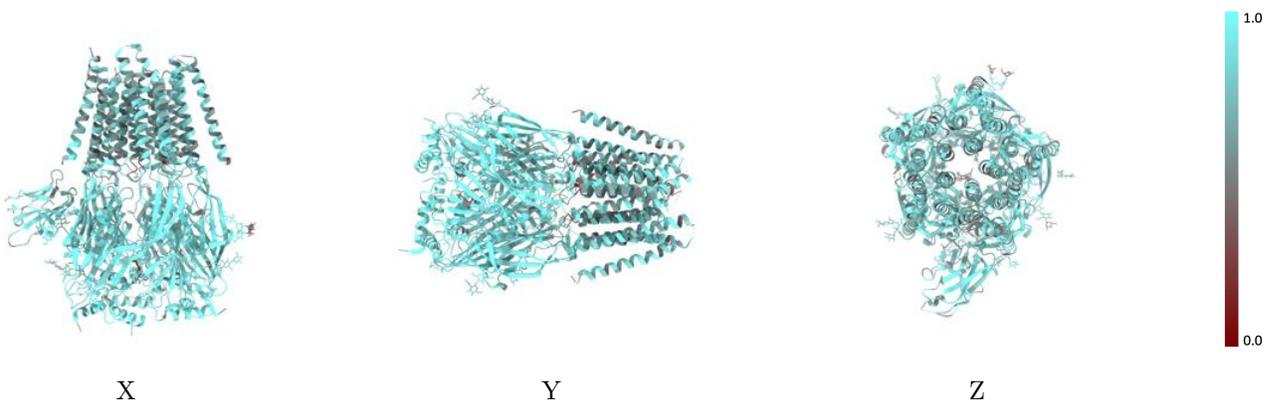
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (3).

## 9.4 Atom inclusion ⓘ
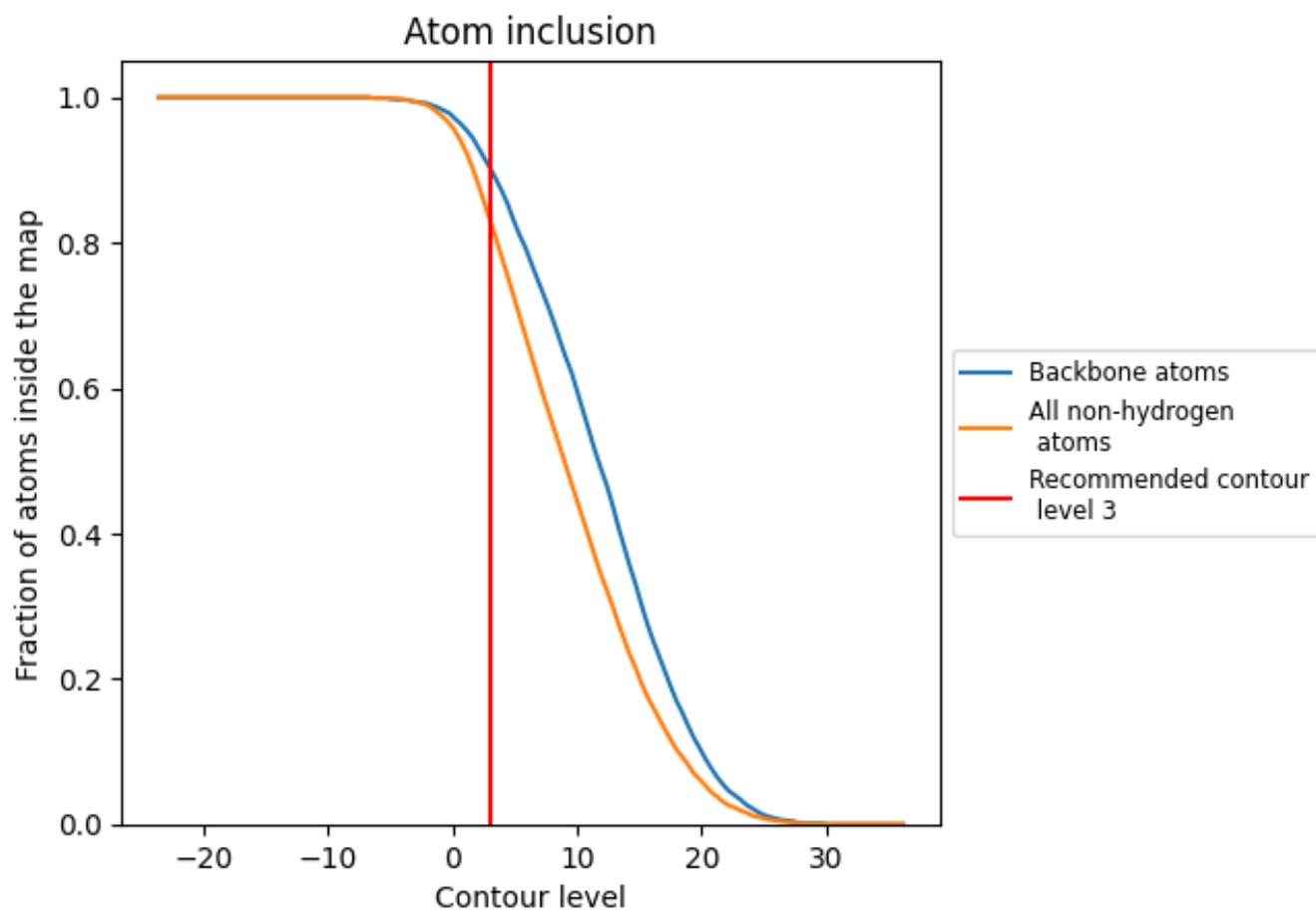


At the recommended contour level, 90% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

## 9.5   Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (3) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|:-----:|:--------------:|:-------:|
| All | 0.8310 | 0.4970 |
| A | 0.8360 | 0.5030 |
| B | 0.8290 | 0.5020 |
| C | 0.8290 | 0.5070 |
| D | 0.8340 | 0.4980 |
| E | 0.8510 | 0.5040 |
| F | 0.7860 | 0.4290 |
| G | 0.2820 | 0.2360 |
| H | 0.7920 | 0.4580 |
| I | 0.7690 | 0.4250 |
| J | 0.6920 | 0.3970 |
| K | 0.9030 | 0.4740 |
| L | 0.6790 | 0.4050 |
| M | 0.8460 | 0.4500 |
| N | 0.7640 | 0.3790 |
| P | 0.7990 | 0.4470 |

1.0

0.0
<0.0