Full wwPDB EM Validation Report

Mar 25, 2026 – 11:57 AM UTC

PDB ID	:	9KDH / pdb_00009kdh
EMDB ID	:	EMD-62276
Title	:	Cryo-EM structure of LIPID-mediated dimer of human norepinephrine transporter NET in the presence of Vanoxerine in an inward-open state at resolution of 2.52 angstrom
Authors	:	Zhang, H.; Xu, E.H.; Jiang, Y.
Deposited on	:	2024-11-03
Resolution	:	2.52 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

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

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

The following versions of software and data (see references (1)) were used in the production of this report:

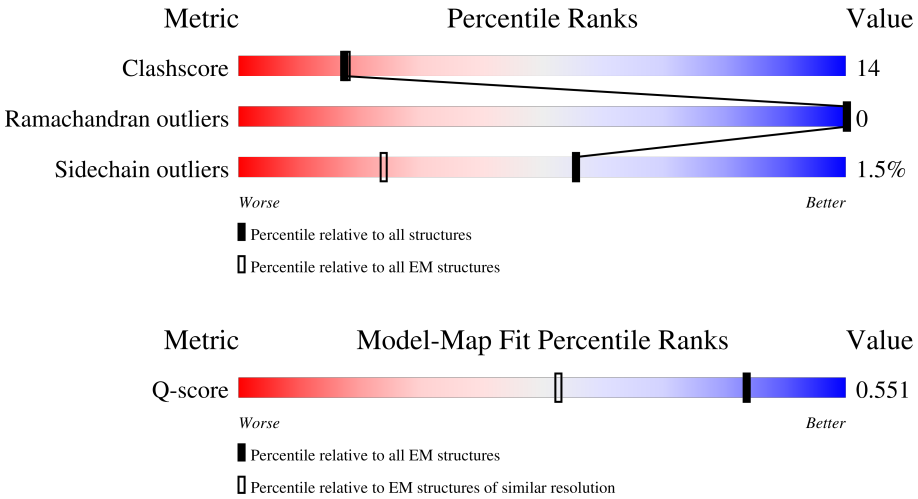
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data 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)	:	2.49

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.52 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	7226 (2.02 - 3.02)

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	629	72% 17% 11%
1	B	629	72% 17% 11%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 9470 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.

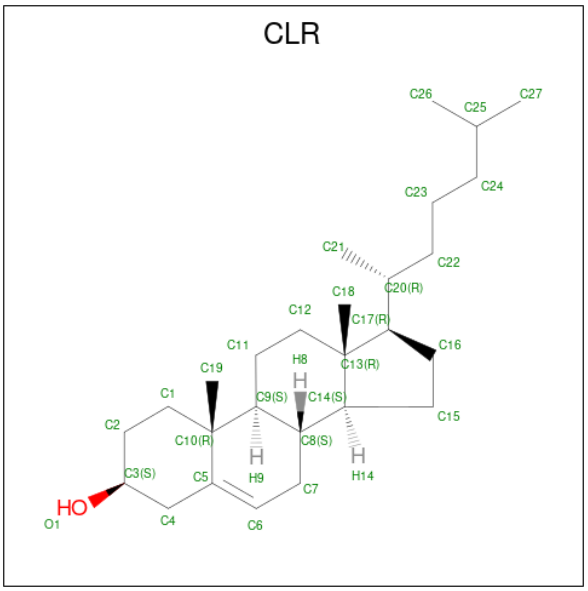
- Molecule 1 is a protein called Sodium-dependent noradrenaline transporter.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	562	Total 4470	C 2992	N 700	O 758	S 20	0	0
1	B	562	Total 4470	C 2992	N 700	O 758	S 20	0	0

There are 24 discrepancies between the modelled and reference sequences:

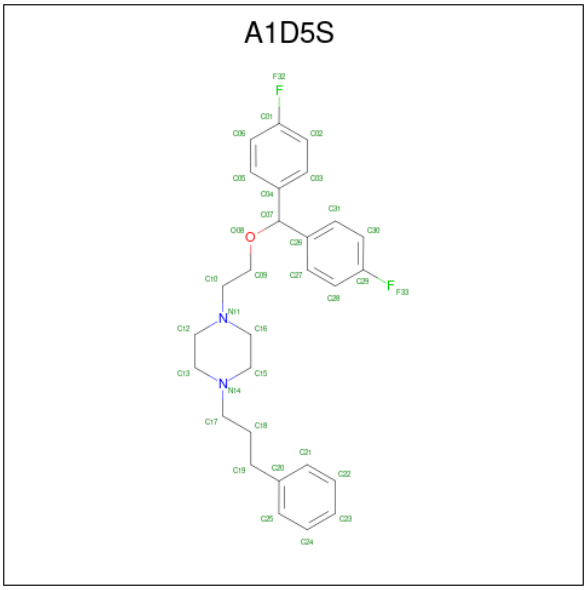
Chain	Residue	Modelled	Actual	Comment	Reference
A	-11	MET	-	initiating methionine	UNP P23975
A	-10	ASP	-	expression tag	UNP P23975
A	-9	TYR	-	expression tag	UNP P23975
A	-8	LYS	-	expression tag	UNP P23975
A	-7	ASP	-	expression tag	UNP P23975
A	-6	ASP	-	expression tag	UNP P23975
A	-5	ASP	-	expression tag	UNP P23975
A	-4	ASP	-	expression tag	UNP P23975
A	-3	LYS	-	expression tag	UNP P23975
A	-2	GLY	-	expression tag	UNP P23975
A	-1	SER	-	expression tag	UNP P23975
A	0	GLY	-	expression tag	UNP P23975
B	-11	MET	-	initiating methionine	UNP P23975
B	-10	ASP	-	expression tag	UNP P23975
B	-9	TYR	-	expression tag	UNP P23975
B	-8	LYS	-	expression tag	UNP P23975
B	-7	ASP	-	expression tag	UNP P23975
B	-6	ASP	-	expression tag	UNP P23975
B	-5	ASP	-	expression tag	UNP P23975
B	-4	ASP	-	expression tag	UNP P23975
B	-3	LYS	-	expression tag	UNP P23975
B	-2	GLY	-	expression tag	UNP P23975
B	-1	SER	-	expression tag	UNP P23975
B	0	GLY	-	expression tag	UNP P23975

- Molecule 2 is CHOLESTEROL (CCD ID: CLR) (formula: $C_{27}H_{46}O$).



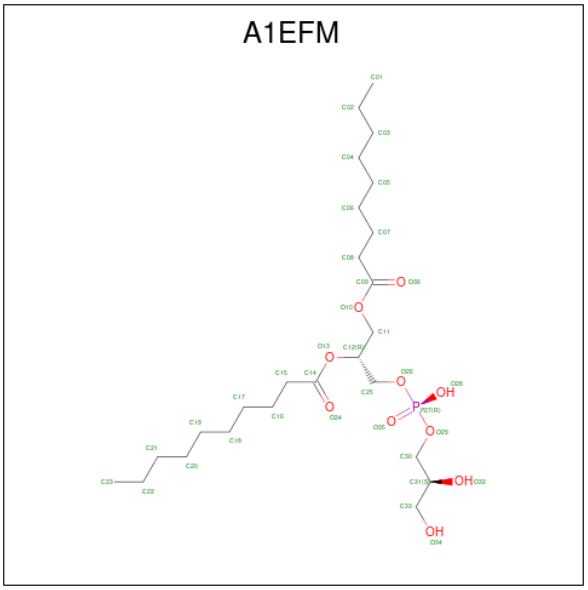
Mol	Chain	Residues	Atoms	AltConf
2	A	1	Total C O 28 27 1	0
2	A	1	Total C O 28 27 1	0
2	A	1	Total C O 28 27 1	0
2	A	1	Total C O 28 27 1	0
2	A	1	Total C O 28 27 1	0
2	A	1	Total C O 28 27 1	0
2	A	1	Total C O 28 27 1	0
2	B	1	Total C O 28 27 1	0
2	B	1	Total C O 28 27 1	0
2	B	1	Total C O 28 27 1	0
2	B	1	Total C O 28 27 1	0
2	B	1	Total C O 28 27 1	0
2	B	1	Total C O 28 27 1	0
2	B	1	Total C O 28 27 1	0

- Molecule 3 is Vanoxerine (CCD ID: A1D5S) (formula: $C_{28}H_{32}F_2N_2O$).



Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	F	N	O	0
			33	28	2	2	1	
3	B	1	Total	C	F	N	O	0
			33	28	2	2	1	

- Molecule 4 is [(2 {R})-1-[[(2 {S})-2,3-bis(oxidanyl)propoxy]-oxidanyl-phosphoryl]oxy-3-nonanoyloxy-propan-2-yl] decanoate (CCD ID: A1EFM) (formula: $C_{25}H_{49}O_{10}P$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total	C	O	P	0
			36	25	10	1	
4	B	1	Total	C	O	P	0
			36	25	10	1	

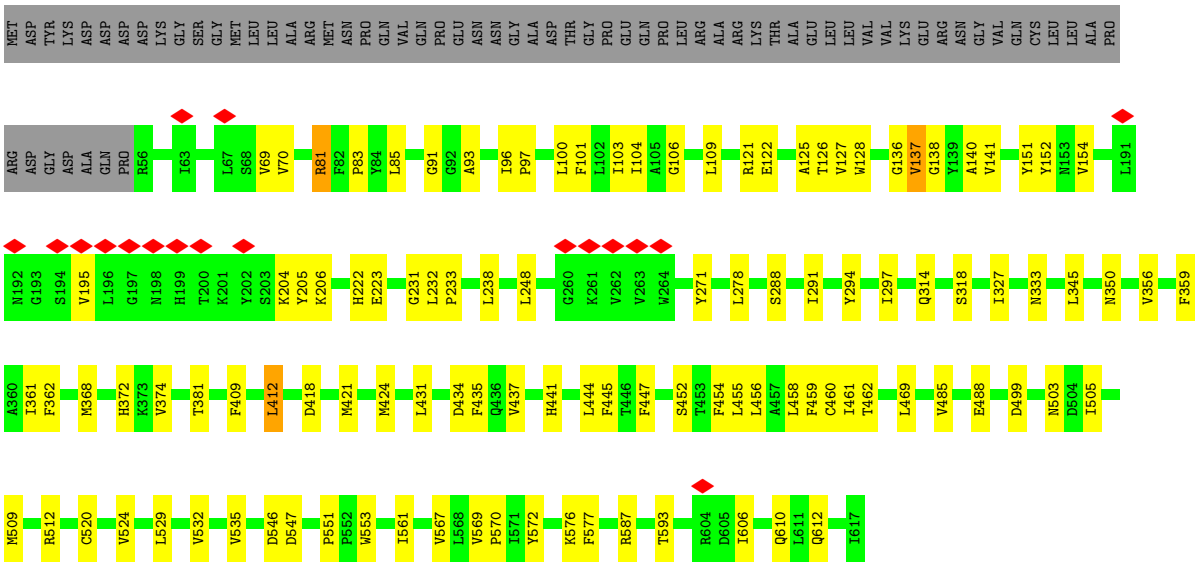
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and 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: Sodium-dependent noradrenaline transporter

Chain A:

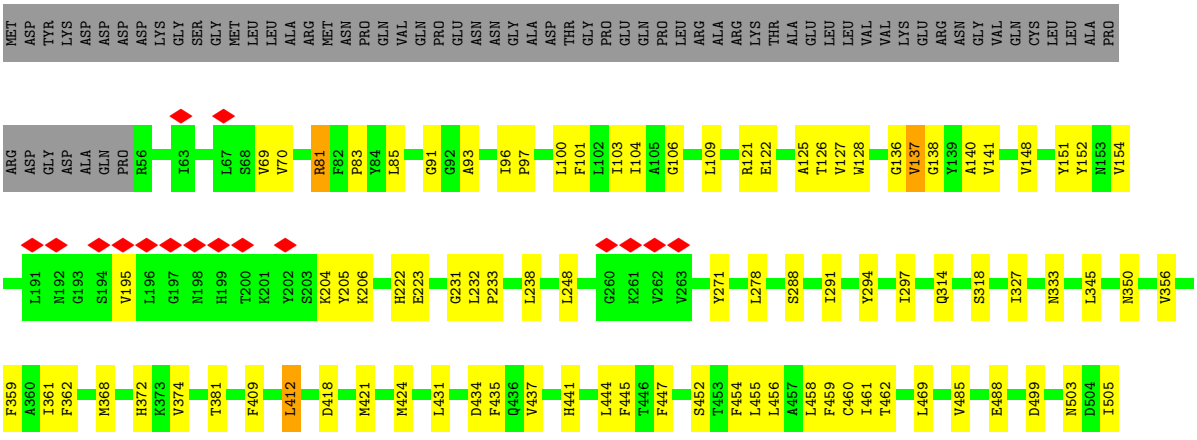


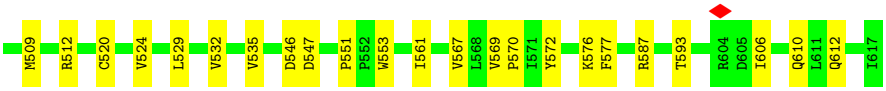


• Molecule 1: Sodium-dependent noradrenaline transporter

Chain B:






M509
R512
C520
V524
L529
V532
V535
D546
D547
P551
P552
W553
I561
V567
L568
V569
P570
I571
Y572
K576
F577
R587
T593
R604
D605
I606
Q610
L611
Q612
I617

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	200579	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 ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	3.006	Depositor
Minimum map value	-2.077	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.082	Depositor
Recommended contour level	0.2	Depositor
Map size (Å)	233.6, 233.6, 233.6	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.73, 0.73, 0.73	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: A1EFM, A1D5S, CLR

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	0.36	0/4615	0.50	0/6298
1	B	0.36	0/4615	0.50	0/6298
All	All	0.36	0/9230	0.50	0/12596

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	4470	0	4423	113	0
1	B	4470	0	4423	114	0
2	A	196	0	322	79	0
2	B	196	0	322	78	0
3	A	33	0	0	0	0
3	B	33	0	0	1	0
4	A	36	0	0	3	0
4	B	36	0	0	3	0
All	All	9470	0	9490	257	0

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

All (257) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:456:LEU:CD1	2:B:704:CLR:H273	1.61	1.30
1:A:456:LEU:CD1	2:A:706:CLR:H273	1.61	1.29
1:B:447:PHE:CD1	2:B:702:CLR:H213	1.74	1.21
1:A:447:PHE:CD1	2:A:704:CLR:H213	1.75	1.20
1:B:456:LEU:HD11	2:B:704:CLR:C27	1.77	1.14
1:A:456:LEU:HD11	2:A:706:CLR:C27	1.77	1.13
1:B:447:PHE:CE1	2:B:702:CLR:H17	1.93	1.04
1:A:456:LEU:HD11	2:A:706:CLR:H273	1.04	1.03
1:B:456:LEU:HD11	2:B:704:CLR:H273	1.04	1.03
1:A:447:PHE:CE1	2:A:704:CLR:H17	1.93	1.03
1:B:561:ILE:HD11	2:B:704:CLR:H181	1.41	1.03
1:A:561:ILE:HD11	2:A:706:CLR:H181	1.41	1.02
1:A:447:PHE:HD1	2:A:704:CLR:H213	1.30	0.90
1:B:447:PHE:HD1	2:B:702:CLR:H213	1.29	0.89
2:A:701:CLR:H17	2:B:708:CLR:H17	1.54	0.88
1:B:447:PHE:CE1	2:B:702:CLR:H213	2.10	0.87
1:B:447:PHE:HE1	2:B:702:CLR:H17	1.40	0.86
1:A:447:PHE:CE1	2:A:704:CLR:H213	2.10	0.86
1:A:447:PHE:HE1	2:A:704:CLR:H17	1.39	0.86
1:B:452:SER:HB3	2:B:701:CLR:H273	1.58	0.86
1:B:447:PHE:CD1	2:B:702:CLR:C21	2.59	0.86
1:A:447:PHE:CD1	2:A:704:CLR:C21	2.59	0.85
1:A:452:SER:HB3	2:A:703:CLR:H273	1.58	0.84
1:B:447:PHE:HD1	2:B:702:CLR:C21	1.91	0.84
1:B:459:PHE:CE2	2:B:705:CLR:H151	2.14	0.83
1:A:233:PRO:HD2	2:A:708:CLR:H72	1.61	0.83
1:B:561:ILE:CD1	2:B:704:CLR:H181	2.07	0.83
1:A:561:ILE:CD1	2:A:706:CLR:H181	2.08	0.82
1:A:459:PHE:CE2	2:A:707:CLR:H151	2.14	0.82
1:A:447:PHE:HD1	2:A:704:CLR:C21	1.91	0.81
1:B:233:PRO:HD2	2:B:706:CLR:H72	1.61	0.81
1:A:231:GLY:O	2:A:707:CLR:H41	1.83	0.79
1:B:231:GLY:O	2:B:705:CLR:H41	1.83	0.78
1:A:456:LEU:HD13	2:A:706:CLR:H273	1.66	0.78
1:B:456:LEU:HD13	2:B:704:CLR:H273	1.66	0.78
1:A:569:VAL:HB	1:A:570:PRO:HD3	1.69	0.75
2:A:701:CLR:H221	2:B:708:CLR:H213	1.70	0.74
1:B:238:LEU:HD22	2:B:706:CLR:H193	1.70	0.74
1:B:569:VAL:HB	1:B:570:PRO:HD3	1.69	0.73
2:A:701:CLR:H213	2:B:708:CLR:H221	1.69	0.73

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:204:LYS:HG3	1:B:546:ASP:HB3	1.70	0.73
1:B:154:VAL:HG21	1:B:460:CYS:HB2	1.71	0.72
1:A:238:LEU:HD22	2:A:708:CLR:H193	1.71	0.72
1:A:204:LYS:HG3	1:A:546:ASP:HB3	1.70	0.72
1:A:447:PHE:CZ	2:A:705:CLR:H162	2.25	0.72
1:B:447:PHE:CZ	2:B:703:CLR:H162	2.26	0.71
1:A:154:VAL:HG21	1:A:460:CYS:HB2	1.72	0.70
1:A:447:PHE:CE2	2:A:705:CLR:H162	2.26	0.70
1:A:204:LYS:HD2	1:A:381:THR:HA	1.75	0.69
1:B:447:PHE:CE2	2:B:703:CLR:H162	2.26	0.69
1:B:204:LYS:HD2	1:B:381:THR:HA	1.75	0.68
1:B:238:LEU:HD22	2:B:706:CLR:C19	2.25	0.66
1:A:238:LEU:HD22	2:A:708:CLR:C19	2.26	0.65
1:B:437:VAL:HG11	2:B:701:CLR:H21	1.79	0.65
1:B:81:ARG:HB3	1:B:314:GLN:HE22	1.63	0.64
1:A:81:ARG:HB3	1:A:314:GLN:HE22	1.63	0.64
1:B:444:LEU:HD21	2:B:701:CLR:H72	1.81	0.63
1:A:318:SER:HB2	1:A:350:ASN:HD21	1.65	0.62
1:A:437:VAL:HG11	2:A:703:CLR:H21	1.79	0.62
1:A:232:LEU:HB3	2:A:708:CLR:H6	1.81	0.62
1:B:452:SER:HB3	2:B:701:CLR:C27	2.29	0.62
1:A:444:LEU:HD21	2:A:703:CLR:H72	1.81	0.61
1:B:232:LEU:HB3	2:B:706:CLR:H6	1.81	0.61
1:B:444:LEU:CD2	2:B:701:CLR:H8	2.31	0.61
1:A:444:LEU:CD2	2:A:703:CLR:H8	2.31	0.61
1:A:456:LEU:CD1	2:A:706:CLR:C27	2.53	0.61
1:B:318:SER:HB2	1:B:350:ASN:HD21	1.65	0.60
1:A:452:SER:HB3	2:A:703:CLR:C27	2.29	0.60
1:B:278:LEU:HD11	1:B:356:VAL:HB	1.83	0.60
2:A:701:CLR:H14	2:B:708:CLR:H122	1.85	0.59
1:A:278:LEU:HD11	1:A:356:VAL:HB	1.83	0.58
2:A:701:CLR:H122	2:B:708:CLR:H14	1.85	0.58
1:A:83:PRO:HB3	1:A:361:ILE:HG13	1.86	0.58
2:B:705:CLR:H191	2:B:706:CLR:H151	1.86	0.58
2:A:707:CLR:H191	2:A:708:CLR:H151	1.86	0.58
1:A:137:VAL:HG12	1:A:569:VAL:HG13	1.86	0.58
1:B:137:VAL:HG12	1:B:569:VAL:HG13	1.86	0.58
1:A:447:PHE:CZ	2:A:705:CLR:C16	2.86	0.57
1:A:505:ILE:HG23	1:A:509:MET:HE3	1.86	0.57
1:A:85:LEU:HD12	1:A:314:GLN:HE21	1.68	0.57
1:B:505:ILE:HG23	1:B:509:MET:HE3	1.86	0.57

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:233:PRO:HB3	1:B:461:ILE:HG13	1.86	0.57
1:B:103:ILE:HG13	1:B:104:ILE:HG23	1.86	0.57
1:B:447:PHE:CZ	2:B:703:CLR:C16	2.87	0.57
1:B:520:CYS:HA	1:B:524:VAL:HB	1.87	0.57
1:A:103:ILE:HG13	1:A:104:ILE:HG23	1.87	0.56
1:A:127:VAL:HG11	1:A:327:ILE:HD13	1.87	0.56
1:B:85:LEU:HD12	1:B:314:GLN:HE21	1.68	0.56
1:A:233:PRO:HB3	1:A:461:ILE:HG13	1.86	0.56
1:B:83:PRO:HB3	1:B:361:ILE:HG13	1.86	0.56
1:B:447:PHE:CD1	2:B:702:CLR:H17	2.40	0.56
1:B:127:VAL:HG11	1:B:327:ILE:HD13	1.87	0.56
1:B:137:VAL:HG12	1:B:569:VAL:HG22	1.88	0.56
1:A:452:SER:HA	2:A:703:CLR:H271	1.88	0.56
1:B:452:SER:HA	2:B:701:CLR:H271	1.88	0.56
1:A:137:VAL:HG12	1:A:569:VAL:HG22	1.88	0.56
1:A:520:CYS:HA	1:A:524:VAL:HB	1.87	0.55
1:B:437:VAL:HG11	2:B:701:CLR:C2	2.35	0.55
1:A:137:VAL:O	1:A:140:ALA:HB3	2.07	0.55
1:A:418:ASP:HA	1:A:421:MET:HE3	1.89	0.55
1:B:456:LEU:HD13	2:B:704:CLR:H231	1.89	0.55
1:A:437:VAL:HG11	2:A:703:CLR:C2	2.36	0.55
1:B:137:VAL:O	1:B:140:ALA:HB3	2.07	0.54
2:A:703:CLR:H12	2:B:708:CLR:H161	1.90	0.54
1:B:418:ASP:HA	1:B:421:MET:HE3	1.89	0.54
1:B:458:LEU:HD13	2:B:706:CLR:H162	1.90	0.54
1:A:456:LEU:HD13	2:A:706:CLR:H231	1.89	0.54
2:A:701:CLR:H161	2:B:701:CLR:H12	1.90	0.54
1:A:447:PHE:HE1	2:A:704:CLR:C17	2.15	0.53
1:B:447:PHE:CE1	2:B:703:CLR:H161	2.44	0.53
1:B:577:PHE:O	1:B:587:ARG:NH2	2.40	0.53
1:A:447:PHE:CE1	2:A:705:CLR:H161	2.43	0.53
1:A:458:LEU:HD13	2:A:708:CLR:H162	1.90	0.53
1:A:206:LYS:NZ	1:A:547:ASP:OD2	2.42	0.53
1:B:456:LEU:HD21	2:B:705:CLR:H25	1.91	0.53
2:A:703:CLR:H261	2:A:707:CLR:H273	1.91	0.52
1:B:121:ARG:NH2	1:B:333:ASN:O	2.42	0.52
1:B:238:LEU:CD2	2:B:706:CLR:H193	2.38	0.52
1:A:238:LEU:CD2	2:A:708:CLR:H193	2.38	0.52
1:A:409:PHE:HA	1:A:412:LEU:CD2	2.40	0.52
1:A:434:ASP:OD1	4:A:709:A1EFM:C33	2.57	0.52
1:B:456:LEU:CD1	2:B:704:CLR:C27	2.53	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:701:CLR:H261	2:B:705:CLR:H273	1.91	0.52
1:A:447:PHE:CZ	2:A:705:CLR:H222	2.44	0.52
2:A:701:CLR:C16	2:B:701:CLR:H12	2.39	0.52
2:A:703:CLR:H71	4:B:707:A1EFM:O10	2.10	0.52
1:B:532:VAL:HA	1:B:535:VAL:HG22	1.92	0.52
1:A:456:LEU:HD21	2:A:707:CLR:H25	1.90	0.52
1:B:409:PHE:HA	1:B:412:LEU:CD2	2.40	0.52
1:B:434:ASP:OD1	4:B:707:A1EFM:C33	2.58	0.52
1:B:447:PHE:CE1	2:B:702:CLR:C21	2.90	0.52
1:B:441:HIS:CE1	2:B:701:CLR:H42	2.44	0.52
1:B:447:PHE:CZ	2:B:703:CLR:H222	2.44	0.52
1:A:441:HIS:CE1	2:A:703:CLR:H42	2.45	0.52
4:A:709:A1EFM:O10	2:B:701:CLR:H71	2.10	0.52
2:A:703:CLR:H12	2:B:708:CLR:C16	2.39	0.52
1:B:233:PRO:HA	1:B:462:THR:HA	1.92	0.51
1:B:447:PHE:HE1	2:B:702:CLR:C17	2.15	0.51
2:B:705:CLR:H183	2:B:706:CLR:H241	1.93	0.51
1:A:577:PHE:O	1:A:587:ARG:NH2	2.40	0.51
2:A:707:CLR:H183	2:A:708:CLR:H241	1.93	0.51
1:A:121:ARG:NH2	1:A:333:ASN:O	2.42	0.51
1:B:128:TRP:HZ2	1:B:488:GLU:HG2	1.76	0.51
1:A:205:TYR:HE2	1:A:372:HIS:HB3	1.76	0.51
1:A:233:PRO:HA	1:A:462:THR:HA	1.92	0.51
1:A:532:VAL:HA	1:A:535:VAL:HG22	1.92	0.51
1:A:567:VAL:C	1:A:570:PRO:HD2	2.36	0.51
1:B:206:LYS:NZ	1:B:547:ASP:OD2	2.42	0.51
1:A:447:PHE:CD1	2:A:704:CLR:H17	2.41	0.51
1:B:567:VAL:C	1:B:570:PRO:HD2	2.36	0.50
1:A:128:TRP:HZ2	1:A:488:GLU:HG2	1.76	0.50
1:A:409:PHE:HA	1:A:412:LEU:HD23	1.94	0.49
1:B:101:PHE:O	1:B:106:GLY:N	2.37	0.49
1:B:593:THR:HG21	1:B:606:ILE:HD12	1.95	0.49
1:B:205:TYR:HE2	1:B:372:HIS:HB3	1.76	0.49
1:A:455:LEU:HD22	2:A:708:CLR:H242	1.95	0.49
1:B:125:ALA:HA	1:B:138:GLY:HA3	1.94	0.49
1:A:125:ALA:HA	1:A:138:GLY:HA3	1.94	0.48
1:A:593:THR:HG21	1:A:606:ILE:HD12	1.95	0.48
1:A:610:GLN:NE2	1:A:612:GLN:OE1	2.46	0.48
2:A:704:CLR:H9	2:A:705:CLR:H14	1.94	0.48
1:B:409:PHE:HA	1:B:412:LEU:HD23	1.94	0.48
1:B:455:LEU:HD22	2:B:706:CLR:H242	1.95	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:702:CLR:H9	2:B:703:CLR:H14	1.94	0.48
1:B:610:GLN:NE2	1:B:612:GLN:OE1	2.46	0.47
1:A:447:PHE:CE1	2:A:704:CLR:C21	2.90	0.47
1:B:503:ASN:OD1	1:B:512:ARG:NH2	2.47	0.47
1:A:503:ASN:OD1	1:A:512:ARG:NH2	2.47	0.47
1:A:248:LEU:HD21	1:A:424:MET:HG3	1.97	0.47
1:B:444:LEU:HD23	2:B:701:CLR:H8	1.97	0.47
1:B:368:MET:O	1:B:372:HIS:ND1	2.42	0.46
1:A:70:VAL:HB	1:A:271:TYR:HE2	1.80	0.46
1:B:70:VAL:HB	1:B:271:TYR:HE2	1.80	0.46
1:B:96:ILE:HB	1:B:97:PRO:HD3	1.98	0.46
1:B:431:LEU:HD12	1:B:445:PHE:HZ	1.80	0.46
1:B:69:VAL:HG11	1:B:345:LEU:HD23	1.98	0.46
1:B:454:PHE:O	1:B:458:LEU:HG	2.16	0.46
1:A:437:VAL:CG1	2:A:703:CLR:H22	2.46	0.46
1:A:96:ILE:HB	1:A:97:PRO:HD3	1.98	0.46
1:A:291:ILE:HG23	1:A:359:PHE:CE1	2.51	0.46
2:A:706:CLR:H6	2:B:705:CLR:H12	1.98	0.46
1:B:459:PHE:CE2	2:B:705:CLR:C15	2.95	0.46
1:B:291:ILE:HG23	1:B:359:PHE:CE1	2.51	0.45
1:B:437:VAL:CG1	2:B:701:CLR:H22	2.46	0.45
1:A:431:LEU:HD12	1:A:445:PHE:HZ	1.80	0.45
1:A:444:LEU:HD23	2:A:703:CLR:H8	1.97	0.45
1:A:151:TYR:HB2	1:A:469:LEU:HG	1.99	0.45
1:B:248:LEU:HD21	1:B:424:MET:HG3	1.97	0.45
1:A:69:VAL:HG11	1:A:345:LEU:HD23	1.98	0.45
1:A:454:PHE:O	1:A:458:LEU:HG	2.16	0.45
1:A:109:LEU:HD11	1:A:529:LEU:HD11	1.99	0.44
2:A:707:CLR:H12	2:B:704:CLR:H6	1.98	0.44
1:A:101:PHE:O	1:A:106:GLY:N	2.37	0.44
1:A:222:HIS:CE1	1:A:223:GLU:HG3	2.53	0.44
2:A:701:CLR:H222	2:A:701:CLR:H162	1.78	0.44
1:B:151:TYR:HB2	1:B:469:LEU:HG	1.99	0.44
1:B:551:PRO:HB2	1:B:553:TRP:CD1	2.53	0.44
1:B:572:TYR:HE1	4:B:707:A1EFM:C25	2.31	0.44
1:A:100:LEU:O	1:A:104:ILE:HG12	2.18	0.43
1:A:444:LEU:HD23	2:A:703:CLR:H191	2.00	0.43
1:A:551:PRO:HB2	1:A:553:TRP:CD1	2.53	0.43
1:B:222:HIS:CE1	1:B:223:GLU:HG3	2.53	0.43
1:B:109:LEU:HD11	1:B:529:LEU:HD11	1.99	0.43
1:B:100:LEU:O	1:B:104:ILE:HG12	2.18	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:288:SER:HA	1:B:291:ILE:HD12	2.01	0.43
1:A:572:TYR:HE1	4:A:709:A1EFM:C25	2.31	0.43
2:B:704:CLR:H261	2:B:705:CLR:H261	2.00	0.43
2:A:701:CLR:H71	2:B:701:CLR:H122	2.01	0.43
1:A:138:GLY:O	1:A:141:VAL:HG22	2.19	0.43
1:A:447:PHE:HE1	2:A:704:CLR:H221	1.84	0.43
1:B:447:PHE:HE1	2:B:702:CLR:H221	1.84	0.43
1:A:444:LEU:HD21	2:A:703:CLR:C7	2.49	0.42
1:A:455:LEU:CD1	2:A:707:CLR:H241	2.49	0.42
1:A:459:PHE:CE2	2:A:707:CLR:C15	2.95	0.42
2:A:706:CLR:H261	2:A:707:CLR:H261	2.00	0.42
1:B:444:LEU:HD23	2:B:701:CLR:H191	2.00	0.42
1:A:93:ALA:HA	1:A:297:ILE:HG23	2.02	0.42
1:B:455:LEU:CD1	2:B:705:CLR:H241	2.49	0.42
1:B:93:ALA:HA	1:B:297:ILE:HG23	2.02	0.42
1:B:138:GLY:O	1:B:141:VAL:HG22	2.19	0.42
2:A:703:CLR:H122	2:B:708:CLR:H71	2.01	0.42
1:B:459:PHE:CZ	2:B:705:CLR:H151	2.55	0.42
1:A:288:SER:HA	1:A:291:ILE:HD12	2.01	0.41
1:B:91:GLY:HA3	1:B:362:PHE:CZ	2.55	0.41
1:A:91:GLY:HA3	1:A:362:PHE:CZ	2.55	0.41
1:A:368:MET:O	1:A:372:HIS:ND1	2.42	0.41
1:B:294:TYR:HB2	1:B:362:PHE:CG	2.55	0.41
2:A:701:CLR:H122	2:B:708:CLR:H122	2.02	0.41
1:B:444:LEU:HD21	2:B:701:CLR:C7	2.49	0.41
1:A:459:PHE:CZ	2:A:707:CLR:H151	2.55	0.41
1:B:437:VAL:HG12	2:B:701:CLR:H22	2.02	0.41
1:B:447:PHE:CE1	2:B:703:CLR:C16	3.04	0.41
1:A:485:VAL:HG23	1:A:529:LEU:HD13	2.03	0.41
1:B:485:VAL:HG23	1:B:529:LEU:HD13	2.03	0.41
1:A:294:TYR:HB2	1:A:362:PHE:CG	2.55	0.41
1:A:447:PHE:CE1	2:A:705:CLR:C16	3.03	0.41
1:A:455:LEU:HB3	2:A:707:CLR:H222	2.03	0.41
2:A:703:CLR:H9	2:B:708:CLR:H151	2.03	0.41
1:A:455:LEU:CD2	2:A:708:CLR:H242	2.51	0.41
2:A:704:CLR:H122	2:A:705:CLR:H151	2.03	0.41
1:A:136:GLY:HA3	1:A:572:TYR:CB	2.51	0.41
1:A:553:TRP:CE3	2:B:705:CLR:H21	2.56	0.41
2:A:707:CLR:H21	1:B:553:TRP:CE3	2.56	0.41
1:B:435:PHE:CD2	2:B:708:CLR:H181	2.56	0.41
1:B:455:LEU:CD2	2:B:706:CLR:H242	2.50	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:499:ASP:OD1	1:B:499:ASP:N	2.54	0.41
2:B:702:CLR:H122	2:B:703:CLR:H151	2.03	0.41
1:A:233:PRO:HD2	2:A:708:CLR:C7	2.42	0.40
1:A:122:GLU:HB3	1:A:126:THR:OG1	2.21	0.40
1:A:437:VAL:HG12	2:A:703:CLR:H22	2.03	0.40
1:A:435:PHE:CD2	2:A:701:CLR:H181	2.56	0.40
1:B:437:VAL:CG1	2:B:701:CLR:C2	2.99	0.40
1:B:136:GLY:HA3	1:B:572:TYR:CB	2.51	0.40
1:A:499:ASP:OD1	1:A:499:ASP:N	2.54	0.40
1:B:122:GLU:HB3	1:B:126:THR:OG1	2.21	0.40
1:B:148:VAL:HG11	3:B:709:A1D5S:C20	2.52	0.40
1:B:452:SER:CB	2:B:701:CLR:C27	2.99	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	560/629 (89%)	551 (98%)	9 (2%)	0	100	100
1	B	560/629 (89%)	551 (98%)	9 (2%)	0	100	100
All	All	1120/1258 (89%)	1102 (98%)	18 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	467/529 (88%)	460 (98%)	7 (2%)	57 79
1	B	467/529 (88%)	460 (98%)	7 (2%)	57 79
All	All	934/1058 (88%)	920 (98%)	14 (2%)	55 79

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	81	ARG
1	A	137	VAL
1	A	152	TYR
1	A	195	VAL
1	A	374	VAL
1	A	412	LEU
1	A	576	LYS
1	B	81	ARG
1	B	137	VAL
1	B	152	TYR
1	B	195	VAL
1	B	374	VAL
1	B	412	LEU
1	B	576	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	89	ASN
1	A	170	ASN
1	A	184	ASN
1	A	234	GLN
1	A	280	HIS
1	A	314	GLN
1	A	337	ASN
1	A	350	ASN
1	A	507	GLN
1	A	539	ASN
1	A	610	GLN
1	A	612	GLN
1	B	89	ASN
1	B	170	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	184	ASN
1	B	222	HIS
1	B	314	GLN
1	B	337	ASN
1	B	350	ASN
1	B	539	ASN
1	B	610	GLN
1	B	612	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

18 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	$\#\|Z\| > 2$
2	CLR	A	706	-	31,31,31	0.29	0	48,48,48	0.39	0
2	CLR	B	702	-	31,31,31	0.27	0	48,48,48	0.40	0
2	CLR	B	701	-	31,31,31	0.29	0	48,48,48	0.43	0
2	CLR	A	703	-	31,31,31	0.29	0	48,48,48	0.43	0
2	CLR	A	705	-	31,31,31	0.27	0	48,48,48	0.41	0
2	CLR	A	708	-	31,31,31	0.28	0	48,48,48	0.38	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	A1D5S	A	702	-	36,36,36	0.49	0	47,47,47	0.39	0
3	A1D5S	B	709	-	36,36,36	0.49	0	47,47,47	0.39	0
2	CLR	A	707	-	31,31,31	0.27	0	48,48,48	0.40	0
2	CLR	B	703	-	31,31,31	0.27	0	48,48,48	0.41	0
2	CLR	B	705	-	31,31,31	0.27	0	48,48,48	0.39	0
2	CLR	A	704	-	31,31,31	0.27	0	48,48,48	0.40	0
2	CLR	B	706	-	31,31,31	0.28	0	48,48,48	0.38	0
2	CLR	B	708	-	31,31,31	0.35	0	48,48,48	0.53	0
4	A1EFM	A	709	-	35,35,35	1.04	4 (11%)	38,41,41	1.06	2 (5%)
2	CLR	B	704	-	31,31,31	0.29	0	48,48,48	0.39	0
4	A1EFM	B	707	-	35,35,35	1.04	4 (11%)	38,41,41	1.06	2 (5%)
2	CLR	A	701	-	31,31,31	0.34	0	48,48,48	0.53	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	CLR	A	706	-	-	1/10/68/68	0/4/4/4
2	CLR	B	702	-	-	0/10/68/68	0/4/4/4
2	CLR	B	701	-	-	4/10/68/68	0/4/4/4
2	CLR	A	703	-	-	4/10/68/68	0/4/4/4
2	CLR	A	705	-	-	4/10/68/68	0/4/4/4
2	CLR	A	708	-	-	6/10/68/68	0/4/4/4
3	A1D5S	A	702	-	-	11/20/30/30	0/4/4/4
3	A1D5S	B	709	-	-	11/20/30/30	0/4/4/4
2	CLR	A	707	-	-	4/10/68/68	0/4/4/4
2	CLR	B	703	-	-	4/10/68/68	0/4/4/4
2	CLR	B	705	-	-	4/10/68/68	0/4/4/4
2	CLR	A	704	-	-	0/10/68/68	0/4/4/4
2	CLR	B	706	-	-	6/10/68/68	0/4/4/4
2	CLR	B	708	-	-	0/10/68/68	0/4/4/4
4	A1EFM	A	709	-	-	17/40/40/40	-
2	CLR	B	704	-	-	1/10/68/68	0/4/4/4
4	A1EFM	B	707	-	-	17/40/40/40	-
2	CLR	A	701	-	-	0/10/68/68	0/4/4/4

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	709	A1EFM	O13-C12	-2.72	1.40	1.46
4	B	707	A1EFM	O13-C12	-2.72	1.40	1.46
4	A	709	A1EFM	O10-C09	2.32	1.40	1.33
4	B	707	A1EFM	O10-C09	2.32	1.40	1.33
4	B	707	A1EFM	O10-C11	-2.26	1.40	1.45
4	A	709	A1EFM	O10-C11	-2.23	1.40	1.45
4	B	707	A1EFM	O13-C14	2.18	1.40	1.34
4	A	709	A1EFM	O13-C14	2.16	1.40	1.34

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	709	A1EFM	O13-C14-C15	4.23	120.64	111.48
4	B	707	A1EFM	O13-C14-C15	4.22	120.61	111.48
4	A	709	A1EFM	O10-C09-C08	2.61	119.80	111.83
4	B	707	A1EFM	O10-C09-C08	2.61	119.80	111.83

There are no chirality outliers.

All (94) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	702	A1D5S	C26-C07-O08-C09
3	A	702	A1D5S	C04-C07-O08-C09
3	B	709	A1D5S	C26-C07-O08-C09
3	B	709	A1D5S	C04-C07-O08-C09
4	A	709	A1EFM	C25-O26-P27-O28
4	A	709	A1EFM	C25-O26-P27-O29
4	A	709	A1EFM	C30-O29-P27-O35
4	B	707	A1EFM	C25-O26-P27-O28
4	B	707	A1EFM	C25-O26-P27-O29
4	B	707	A1EFM	C30-O29-P27-O35
3	A	702	A1D5S	C18-C17-N14-C15
3	B	709	A1D5S	C18-C17-N14-C15
4	A	709	A1EFM	C08-C09-O10-C11
4	B	707	A1EFM	C08-C09-O10-C11
3	A	702	A1D5S	C09-C10-N11-C16
3	B	709	A1D5S	C09-C10-N11-C16
4	A	709	A1EFM	O36-C09-O10-C11
4	B	707	A1EFM	O36-C09-O10-C11
2	A	708	CLR	C17-C20-C22-C23
2	B	706	CLR	C17-C20-C22-C23
3	A	702	A1D5S	N14-C17-C18-C19

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
3	B	709	A1D5S	N14-C17-C18-C19
3	A	702	A1D5S	C18-C17-N14-C13
3	B	709	A1D5S	C18-C17-N14-C13
2	A	705	CLR	C13-C17-C20-C22
2	A	708	CLR	C13-C17-C20-C22
2	B	706	CLR	C13-C17-C20-C22
4	A	709	A1EFM	C30-C31-C33-O34
4	B	707	A1EFM	C30-C31-C33-O34
2	B	703	CLR	C13-C17-C20-C22
4	A	709	A1EFM	C15-C14-O13-C12
4	B	707	A1EFM	C15-C14-O13-C12
4	A	709	A1EFM	O24-C14-O13-C12
4	B	707	A1EFM	O24-C14-O13-C12
4	B	707	A1EFM	C05-C06-C07-C08
4	A	709	A1EFM	C05-C06-C07-C08
2	A	707	CLR	C13-C17-C20-C22
2	B	705	CLR	C13-C17-C20-C22
3	A	702	A1D5S	C17-C18-C19-C20
3	B	709	A1D5S	C17-C18-C19-C20
3	A	702	A1D5S	C09-C10-N11-C12
3	B	709	A1D5S	C09-C10-N11-C12
2	A	705	CLR	C16-C17-C20-C21
2	B	703	CLR	C16-C17-C20-C21
2	A	705	CLR	C13-C17-C20-C21
2	B	703	CLR	C13-C17-C20-C21
3	B	709	A1D5S	O08-C09-C10-N11
2	A	708	CLR	C21-C20-C22-C23
2	B	706	CLR	C21-C20-C22-C23
3	A	702	A1D5S	O08-C09-C10-N11
2	A	708	CLR	C13-C17-C20-C21
2	B	706	CLR	C13-C17-C20-C21
2	A	708	CLR	C16-C17-C20-C21
2	B	706	CLR	C16-C17-C20-C21
2	A	707	CLR	C13-C17-C20-C21
2	B	705	CLR	C13-C17-C20-C21
2	A	707	CLR	C16-C17-C20-C21
2	B	705	CLR	C16-C17-C20-C21
2	A	708	CLR	C16-C17-C20-C22
2	B	706	CLR	C16-C17-C20-C22
2	A	705	CLR	C16-C17-C20-C22
2	B	703	CLR	C16-C17-C20-C22
2	A	707	CLR	C16-C17-C20-C22

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
2	B	705	CLR	C16-C17-C20-C22
4	A	709	A1EFM	C18-C19-C20-C21
4	B	707	A1EFM	C18-C19-C20-C21
4	A	709	A1EFM	C03-C04-C05-C06
4	B	707	A1EFM	C03-C04-C05-C06
2	A	703	CLR	C13-C17-C20-C21
2	B	701	CLR	C13-C17-C20-C21
2	A	703	CLR	C13-C17-C20-C22
2	B	701	CLR	C13-C17-C20-C22
4	A	709	A1EFM	C25-O26-P27-O35
4	B	707	A1EFM	C25-O26-P27-O35
2	A	703	CLR	C16-C17-C20-C22
2	B	701	CLR	C16-C17-C20-C22
4	A	709	A1EFM	O32-C31-C33-O34
4	B	707	A1EFM	O32-C31-C33-O34
2	B	704	CLR	C17-C20-C22-C23
2	A	706	CLR	C17-C20-C22-C23
2	A	703	CLR	C16-C17-C20-C21
2	B	701	CLR	C16-C17-C20-C21
4	A	709	A1EFM	O29-C30-C31-C33
4	B	707	A1EFM	O29-C30-C31-C33
4	A	709	A1EFM	C16-C17-C18-C19
4	B	707	A1EFM	C16-C17-C18-C19
3	A	702	A1D5S	C05-C04-C07-C26
3	B	709	A1D5S	C05-C04-C07-C26
3	A	702	A1D5S	C03-C04-C07-C26
3	B	709	A1D5S	C03-C04-C07-C26
4	A	709	A1EFM	C07-C08-C09-O10
4	B	707	A1EFM	C07-C08-C09-O10
4	A	709	A1EFM	C14-C15-C16-C17
4	B	707	A1EFM	C14-C15-C16-C17

There are no ring outliers.

17 monomers are involved in 147 short contacts:

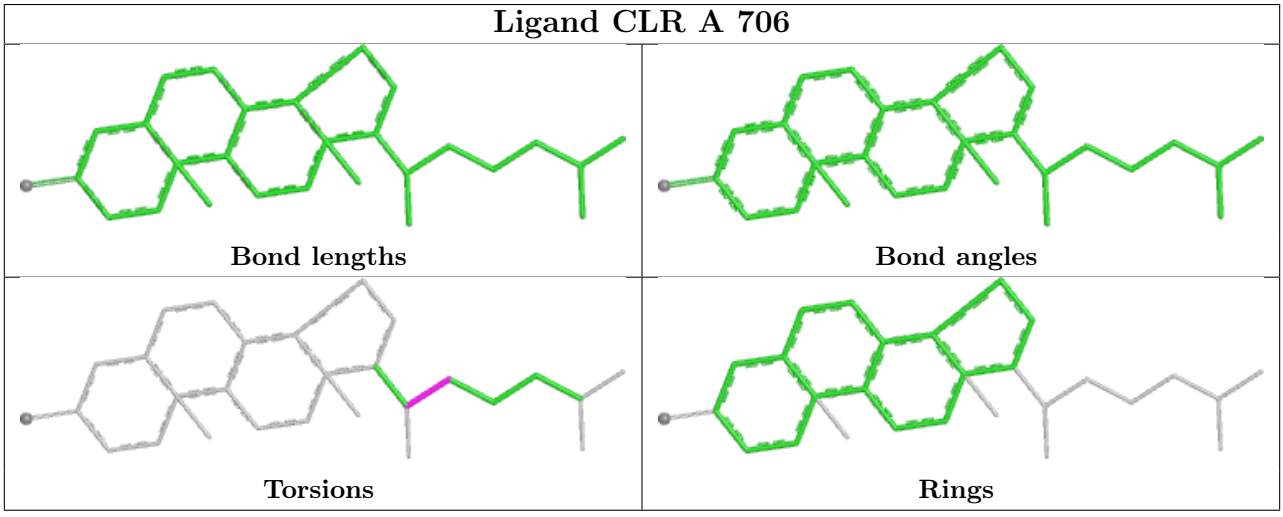
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	706	CLR	10	0
2	B	702	CLR	13	0
2	B	701	CLR	20	0
2	A	703	CLR	19	0
2	A	705	CLR	8	0
2	A	708	CLR	11	0

Continued on next page...

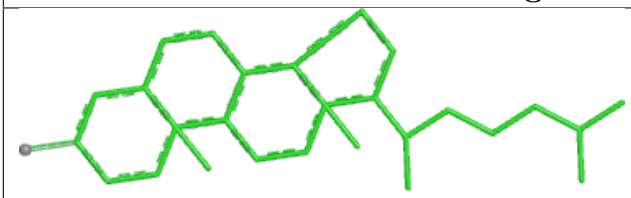
Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	709	A1D5S	1	0
2	A	707	CLR	13	0
2	B	703	CLR	8	0
2	B	705	CLR	12	0
2	A	704	CLR	13	0
2	B	706	CLR	10	0
2	B	708	CLR	11	0
4	A	709	A1EFM	3	0
2	B	704	CLR	10	0
4	B	707	A1EFM	3	0
2	A	701	CLR	11	0

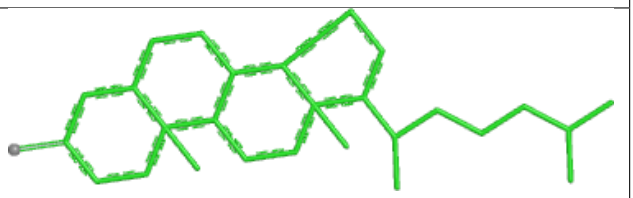
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.



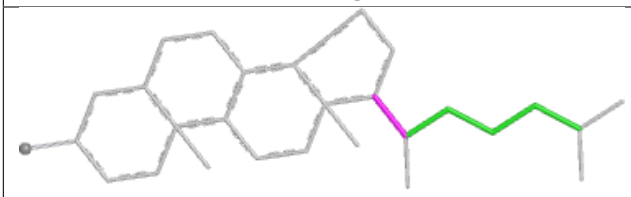
Ligand CLR B 701



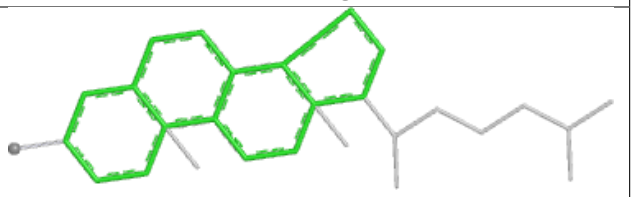
Bond lengths



Bond angles

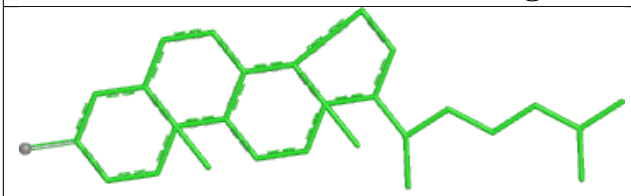


Torsions

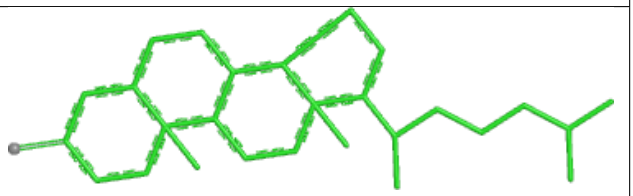


Rings

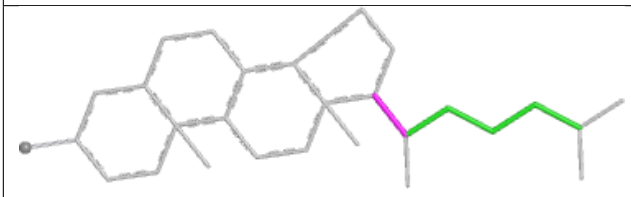
Ligand CLR A 703



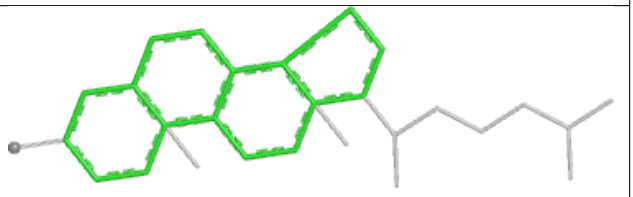
Bond lengths



Bond angles

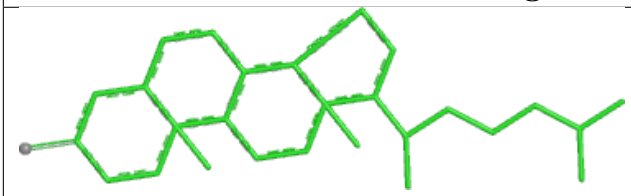


Torsions

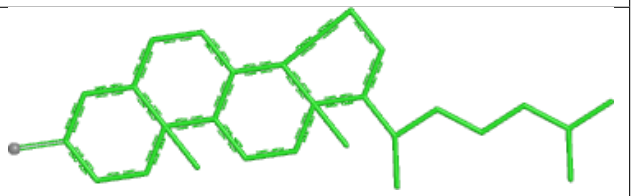


Rings

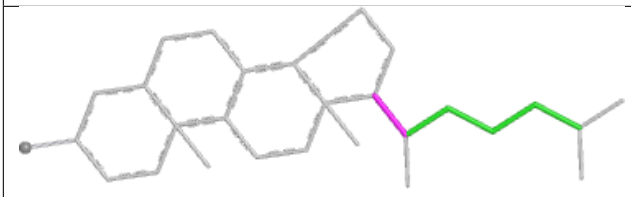
Ligand CLR A 705



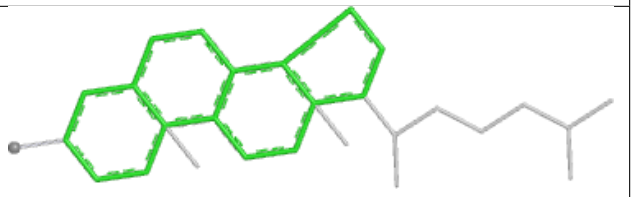
Bond lengths



Bond angles

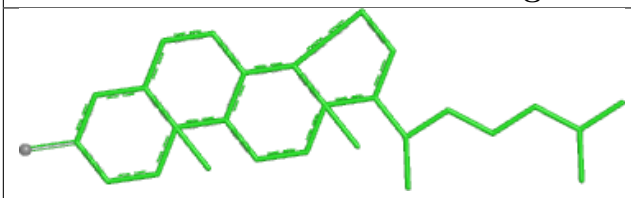


Torsions

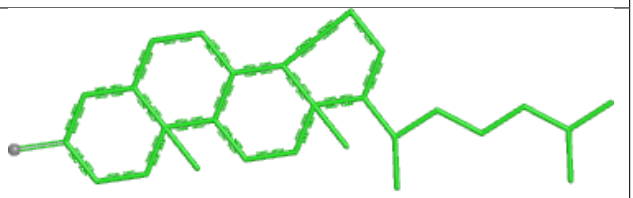


Rings

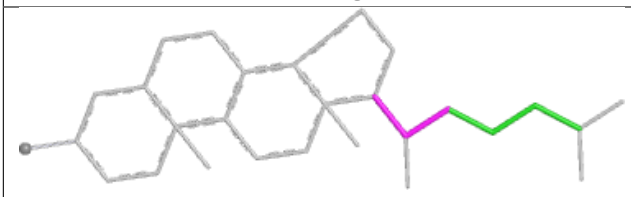
Ligand CLR A 708



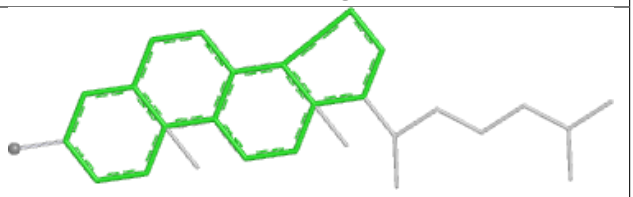
Bond lengths



Bond angles

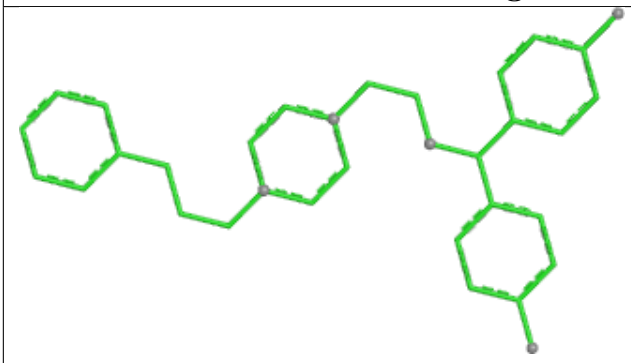


Torsions

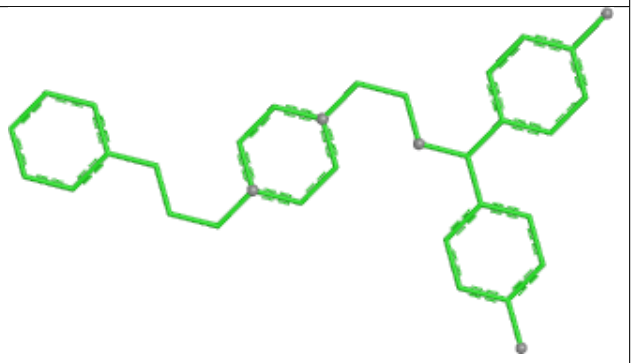


Rings

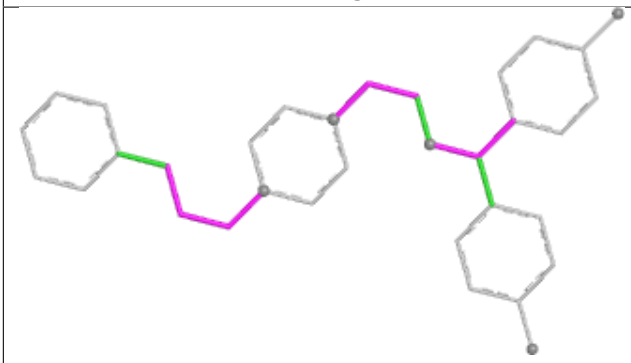
Ligand A1D5S A 702



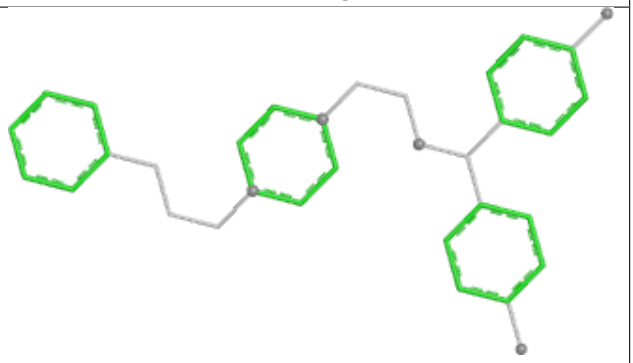
Bond lengths



Bond angles

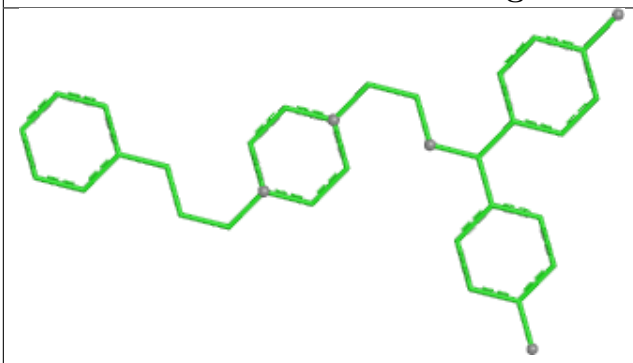


Torsions

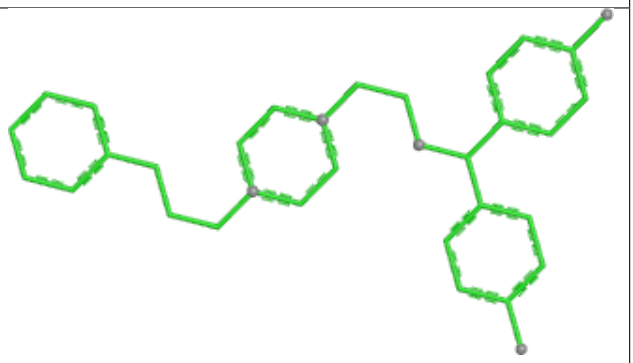


Rings

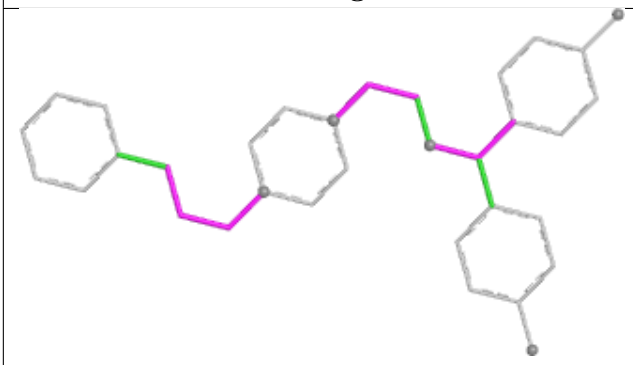
Ligand A1D5S B 709



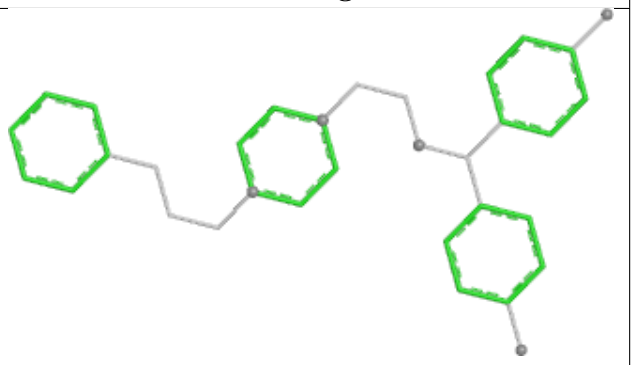
Bond lengths



Bond angles

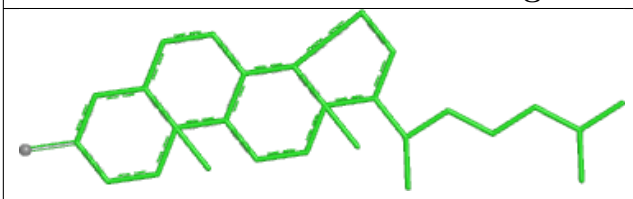


Torsions

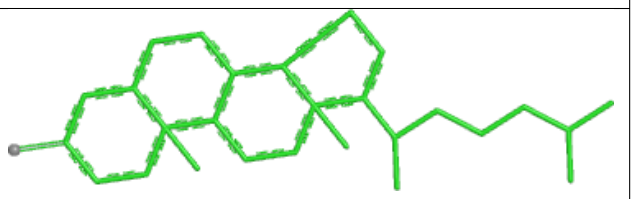


Rings

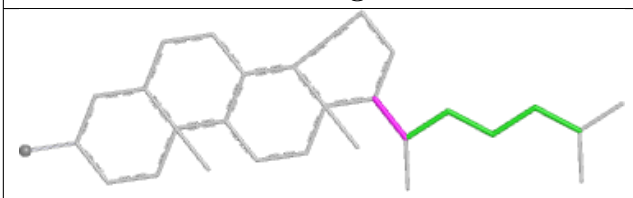
Ligand CLR A 707



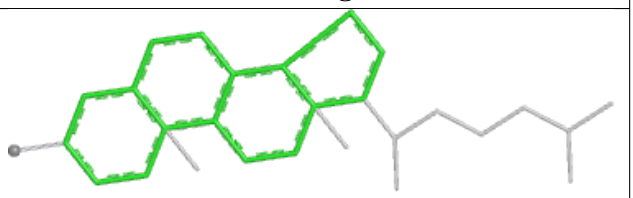
Bond lengths



Bond angles

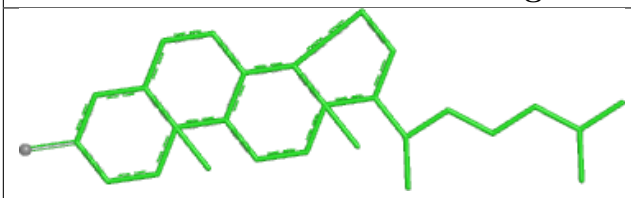


Torsions

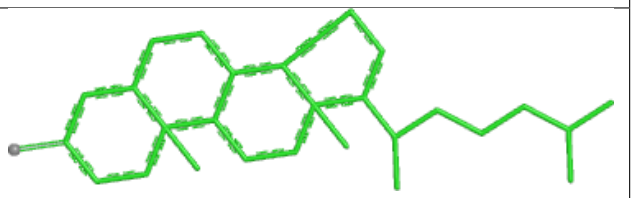


Rings

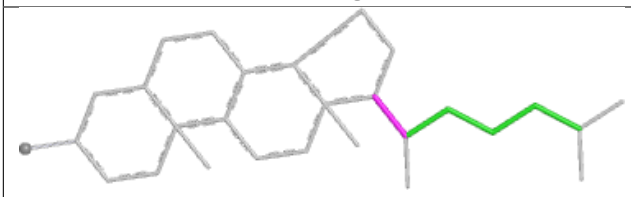
Ligand CLR B 703



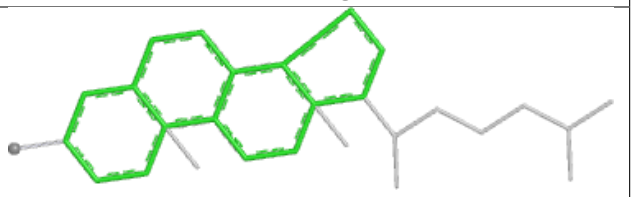
Bond lengths



Bond angles

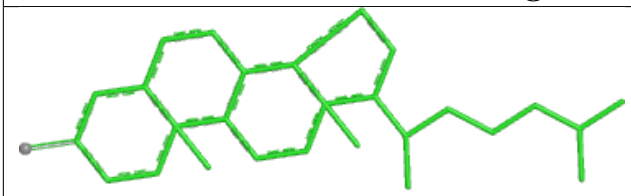


Torsions

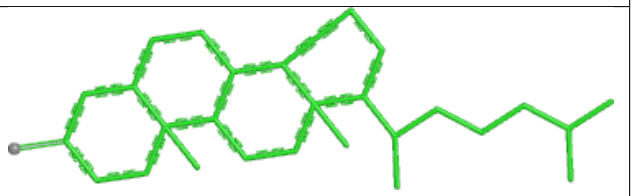


Rings

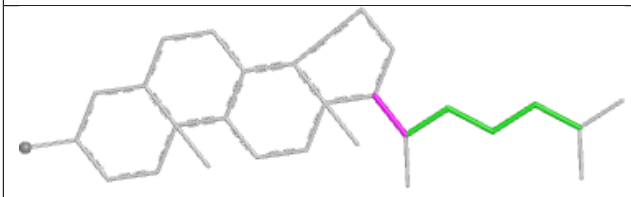
Ligand CLR B 705



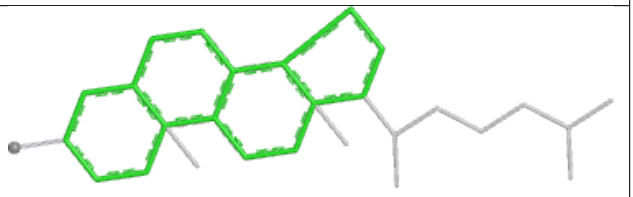
Bond lengths



Bond angles

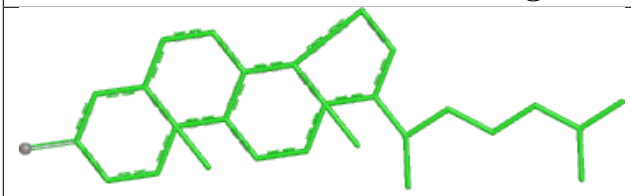


Torsions

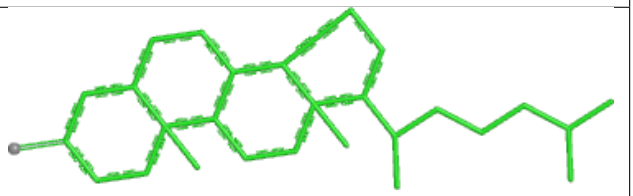


Rings

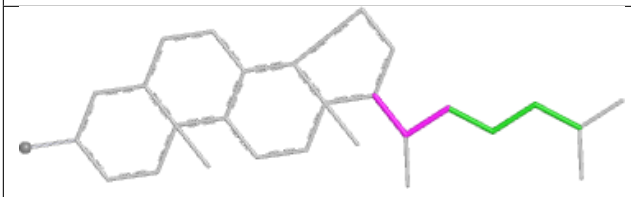
Ligand CLR B 706



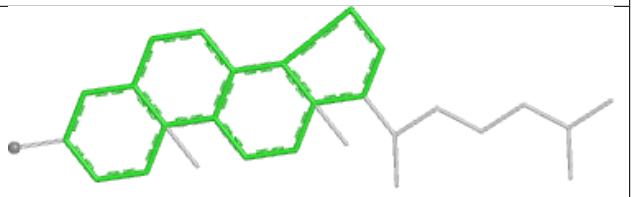
Bond lengths



Bond angles

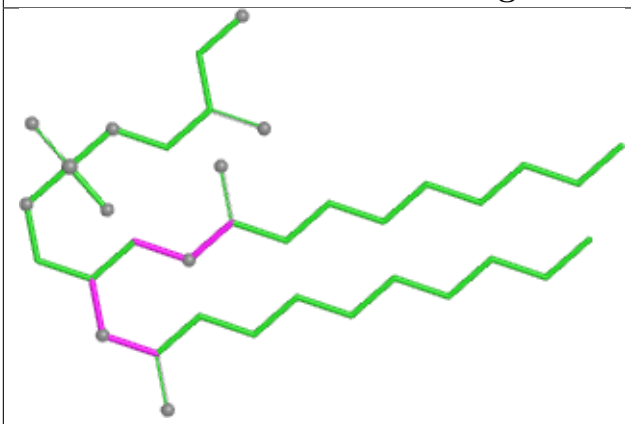


Torsions

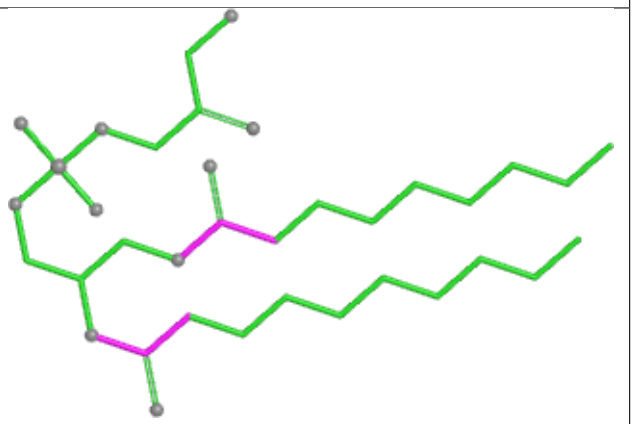


Rings

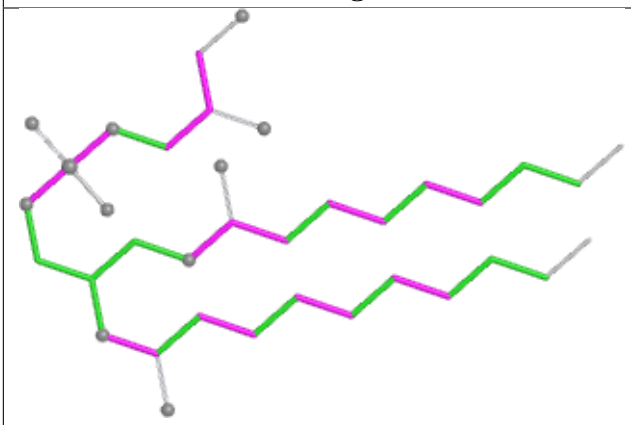
Ligand A1EFM A 709



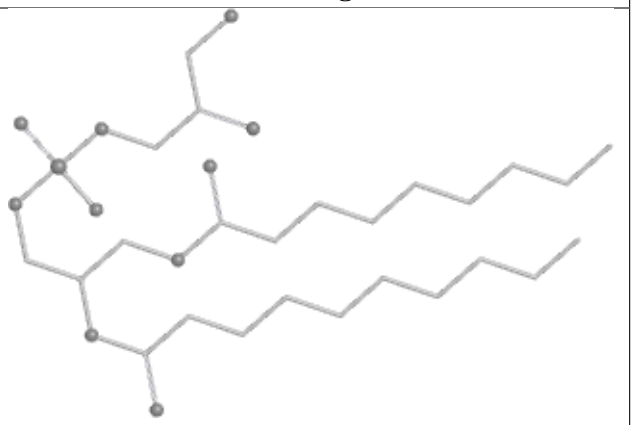
Bond lengths



Bond angles

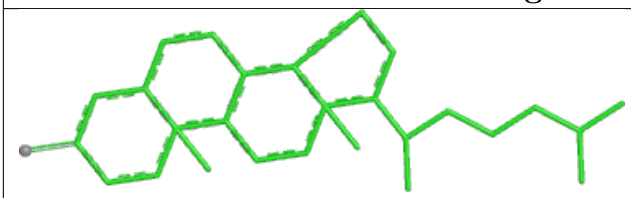


Torsions

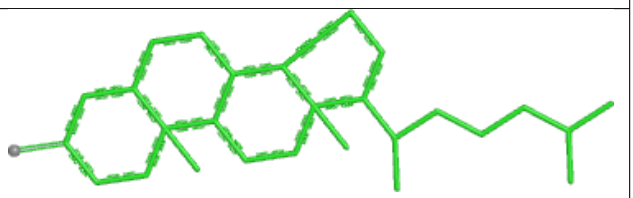


Rings

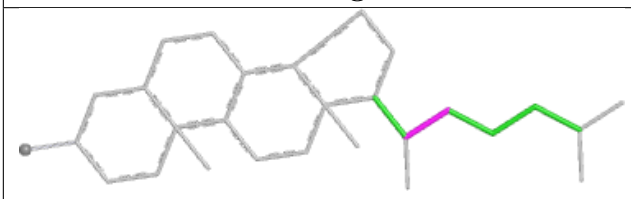
Ligand CLR B 704



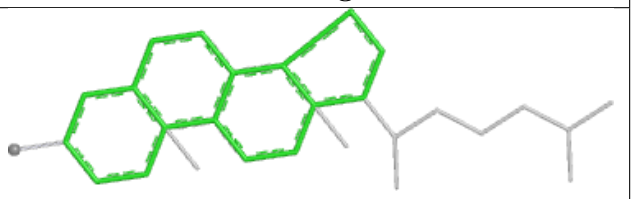
Bond lengths



Bond angles

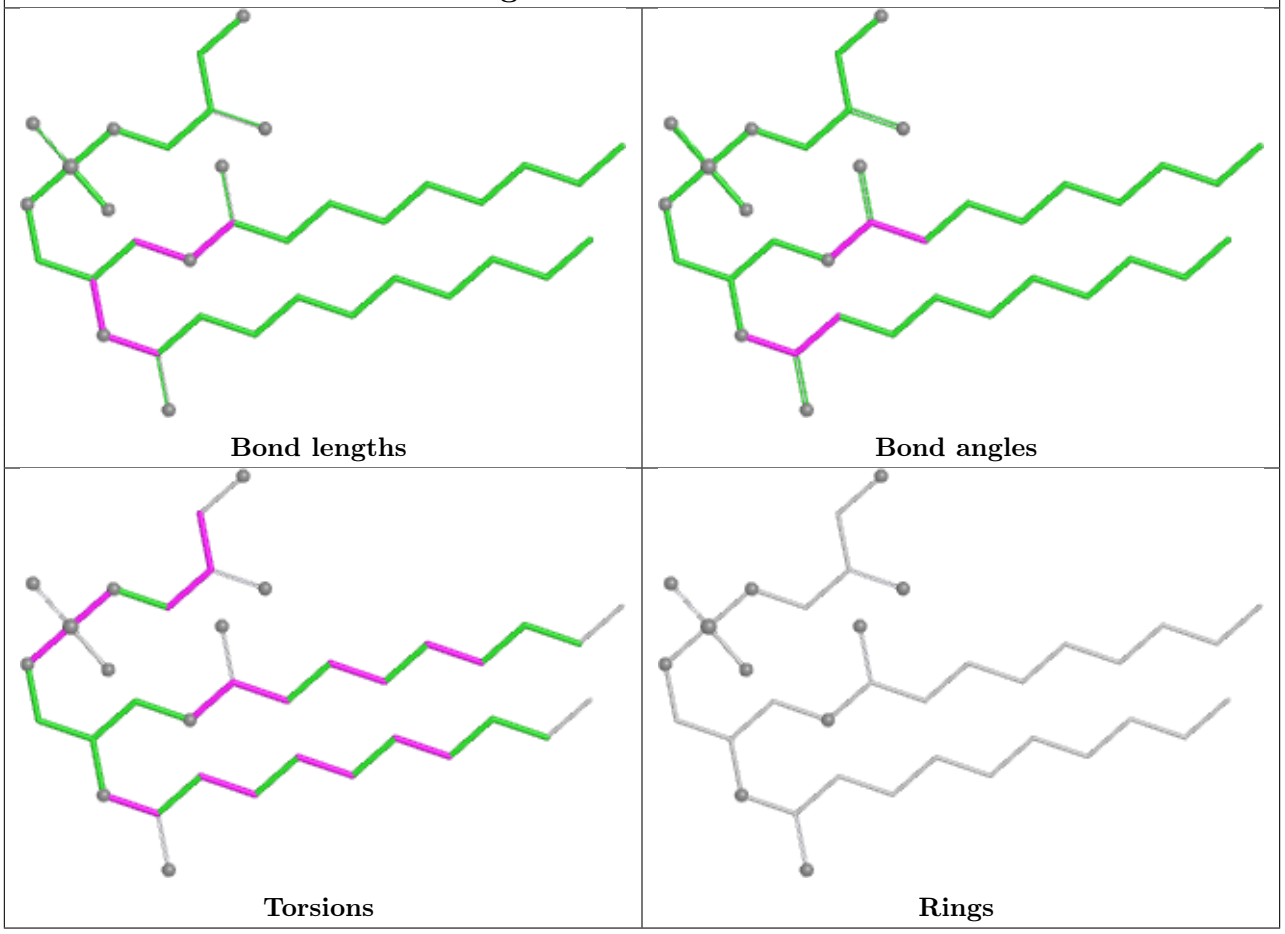


Torsions



Rings

Ligand A1EFM B 707



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

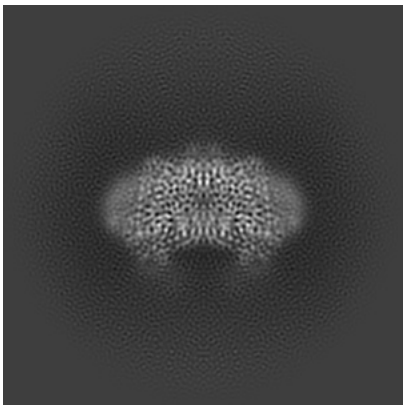
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-62276. These allow visual inspection of the internal detail of the map and identification of artifacts.

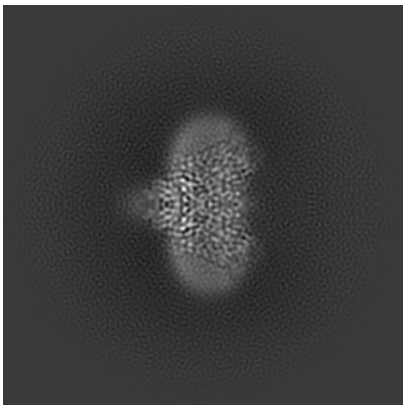
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

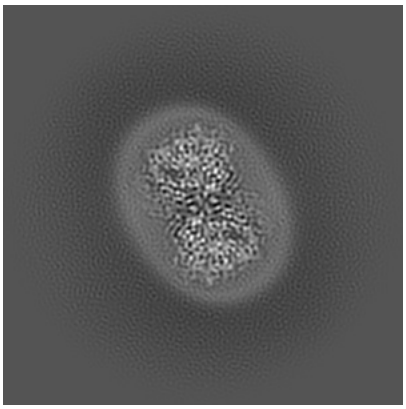
6.1.1 Primary map



X

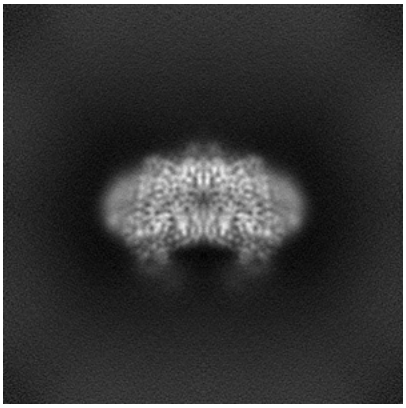


Y

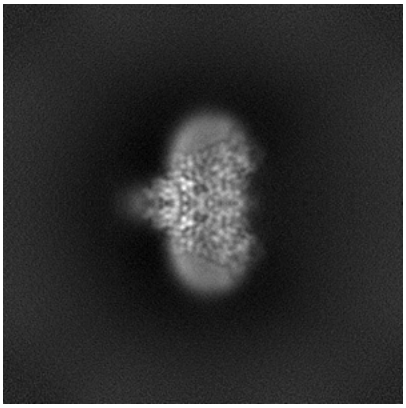


Z

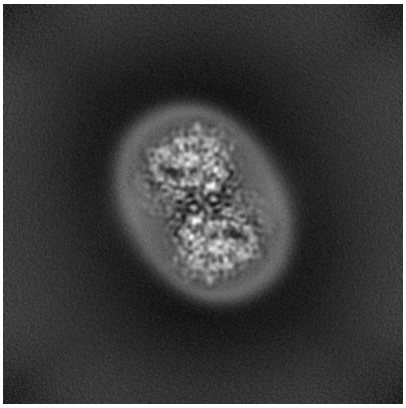
6.1.2 Raw map



X



Y

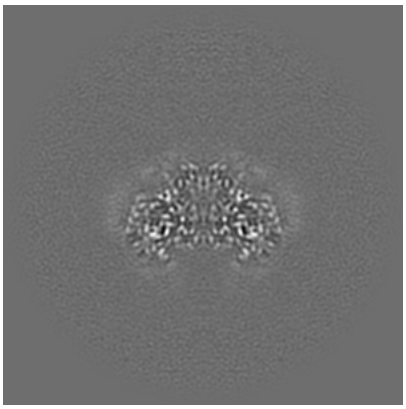


Z

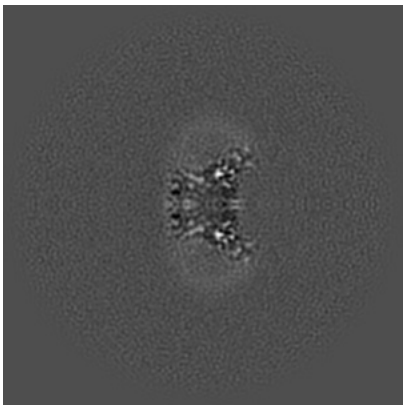
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

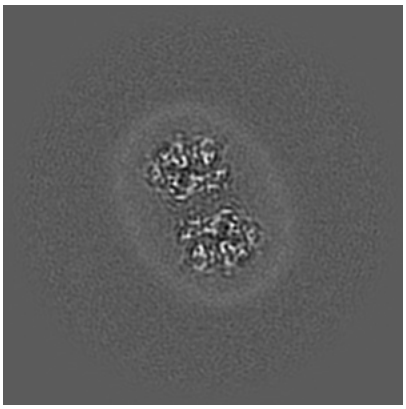
6.2.1 Primary map



X Index: 160

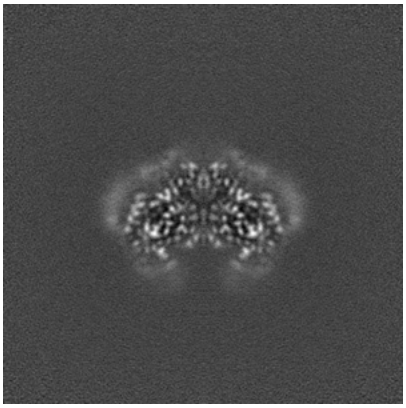


Y Index: 160

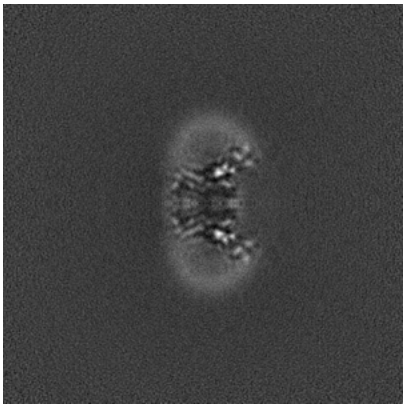


Z Index: 160

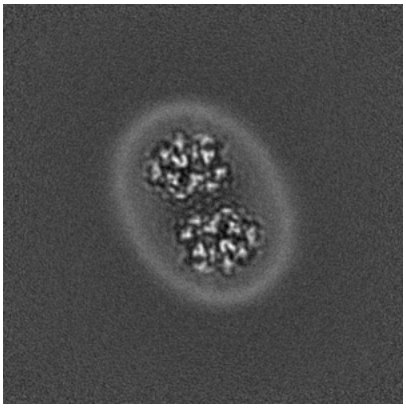
6.2.2 Raw map



X Index: 160



Y Index: 160

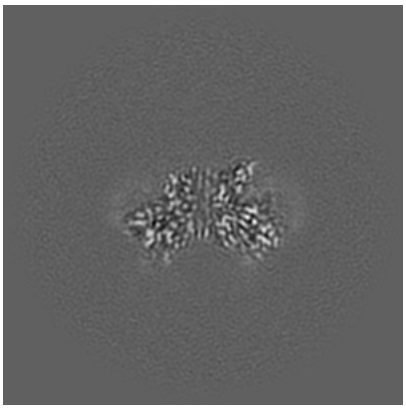


Z Index: 160

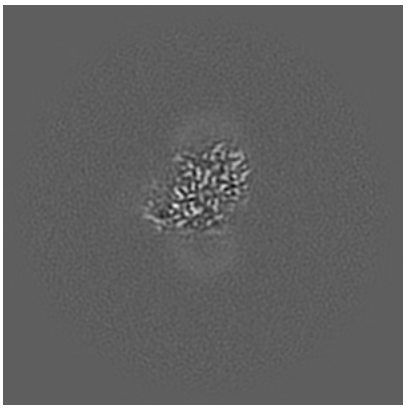
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

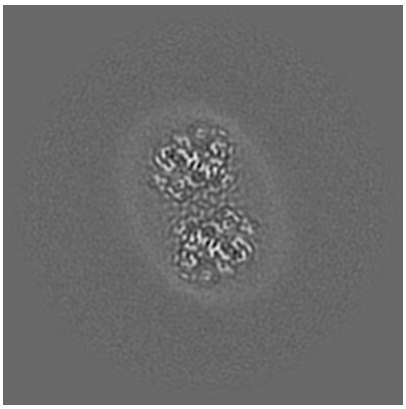
6.3.1 Primary map



X Index: 149

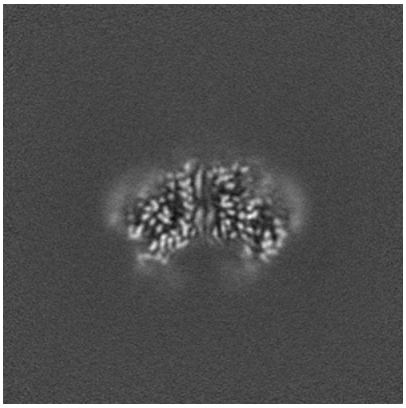


Y Index: 130

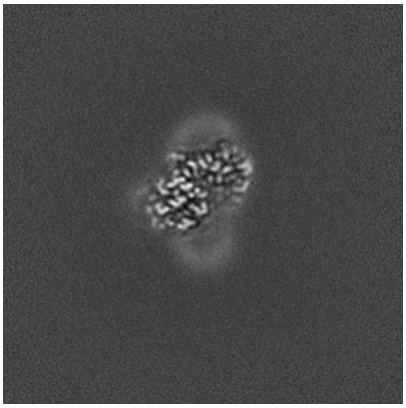


Z Index: 150

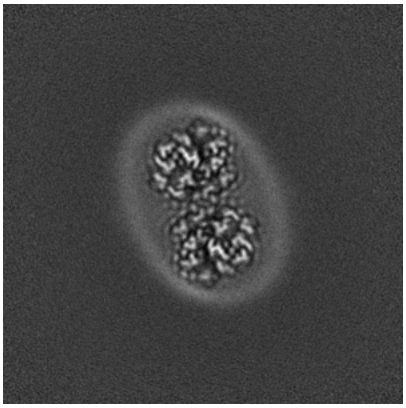
6.3.2 Raw map



X Index: 153



Y Index: 121

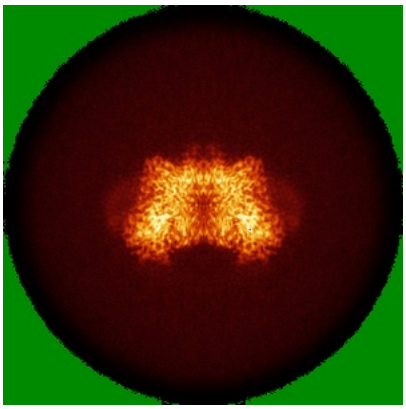


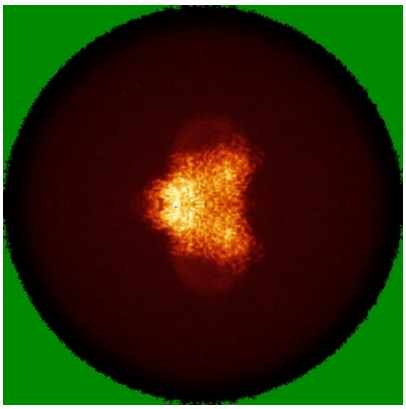
Z Index: 149

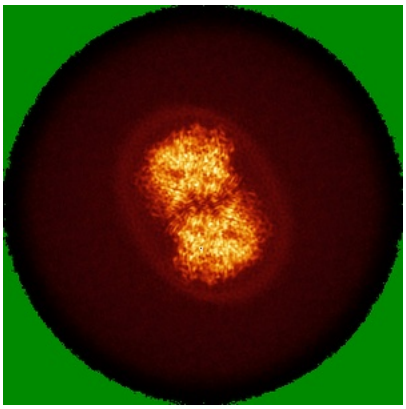
The images above show the largest variance slices of the map in three orthogonal directions.

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

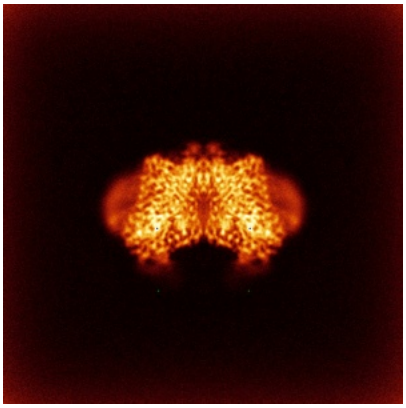
6.4.1 Primary map

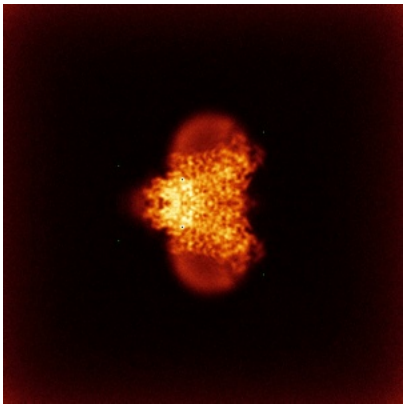

X

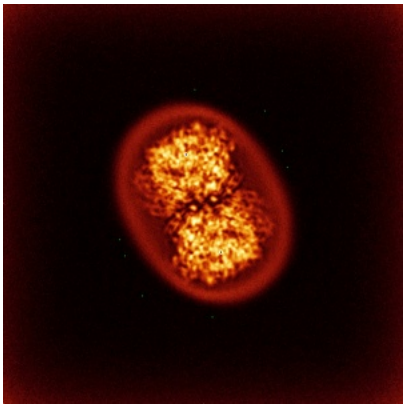

Y


Z

6.4.2 Raw map


X

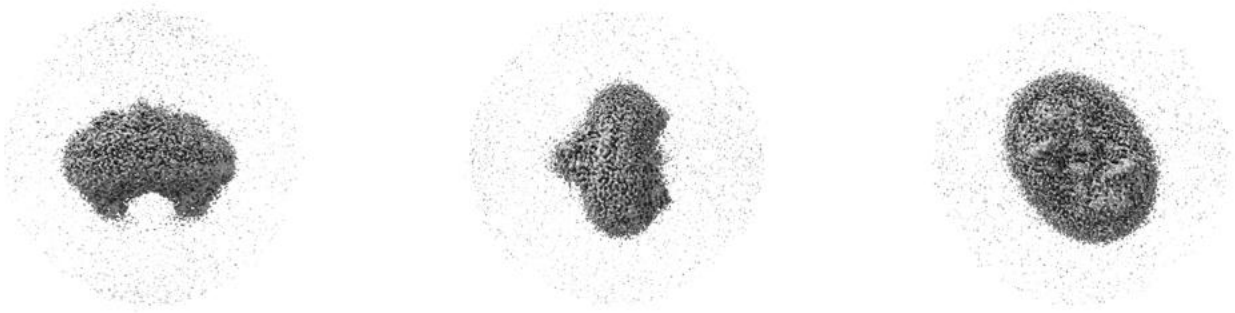

Y


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 0.2. 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.

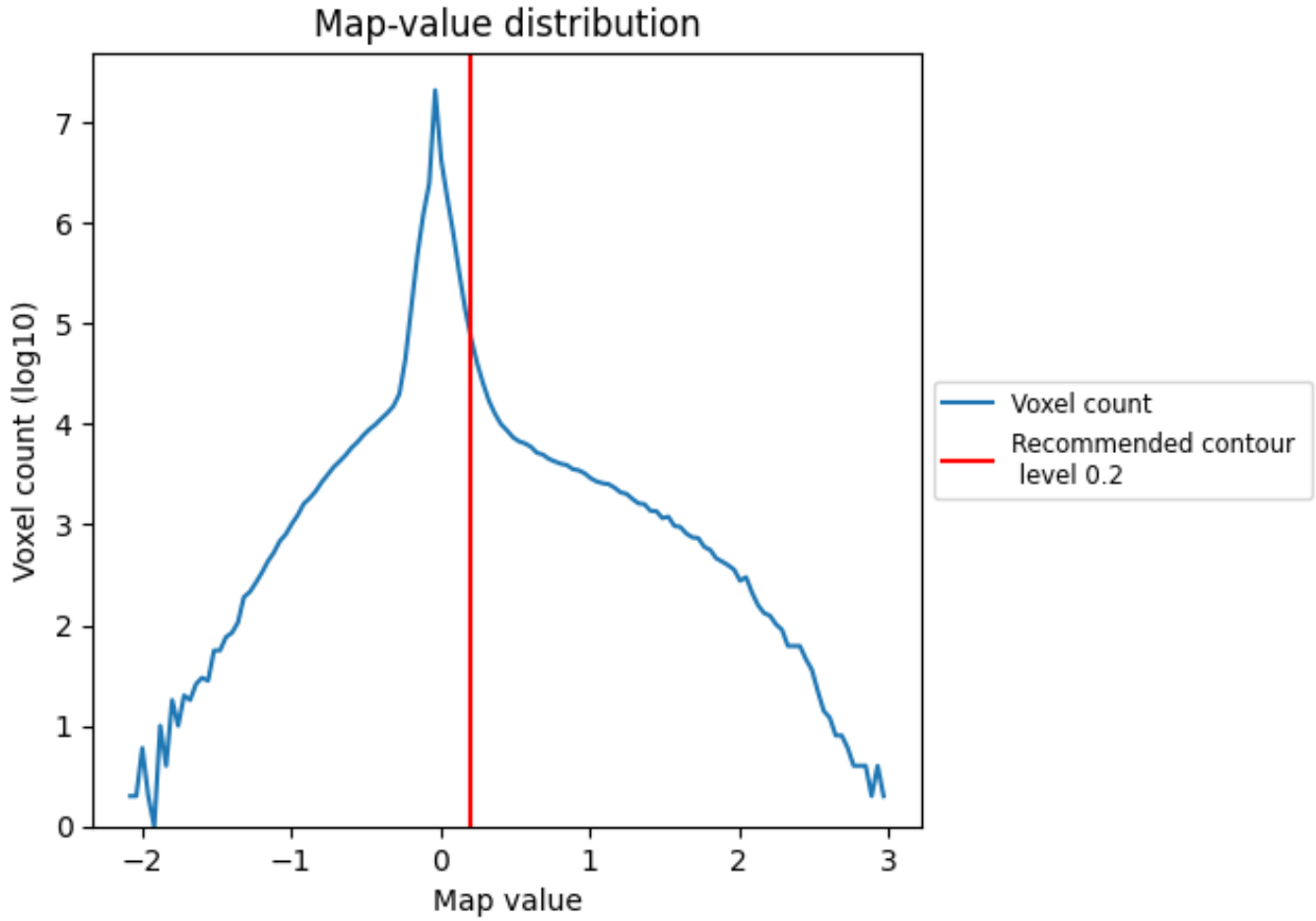
6.6 Mask visualisation (i)

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

7 Map analysis

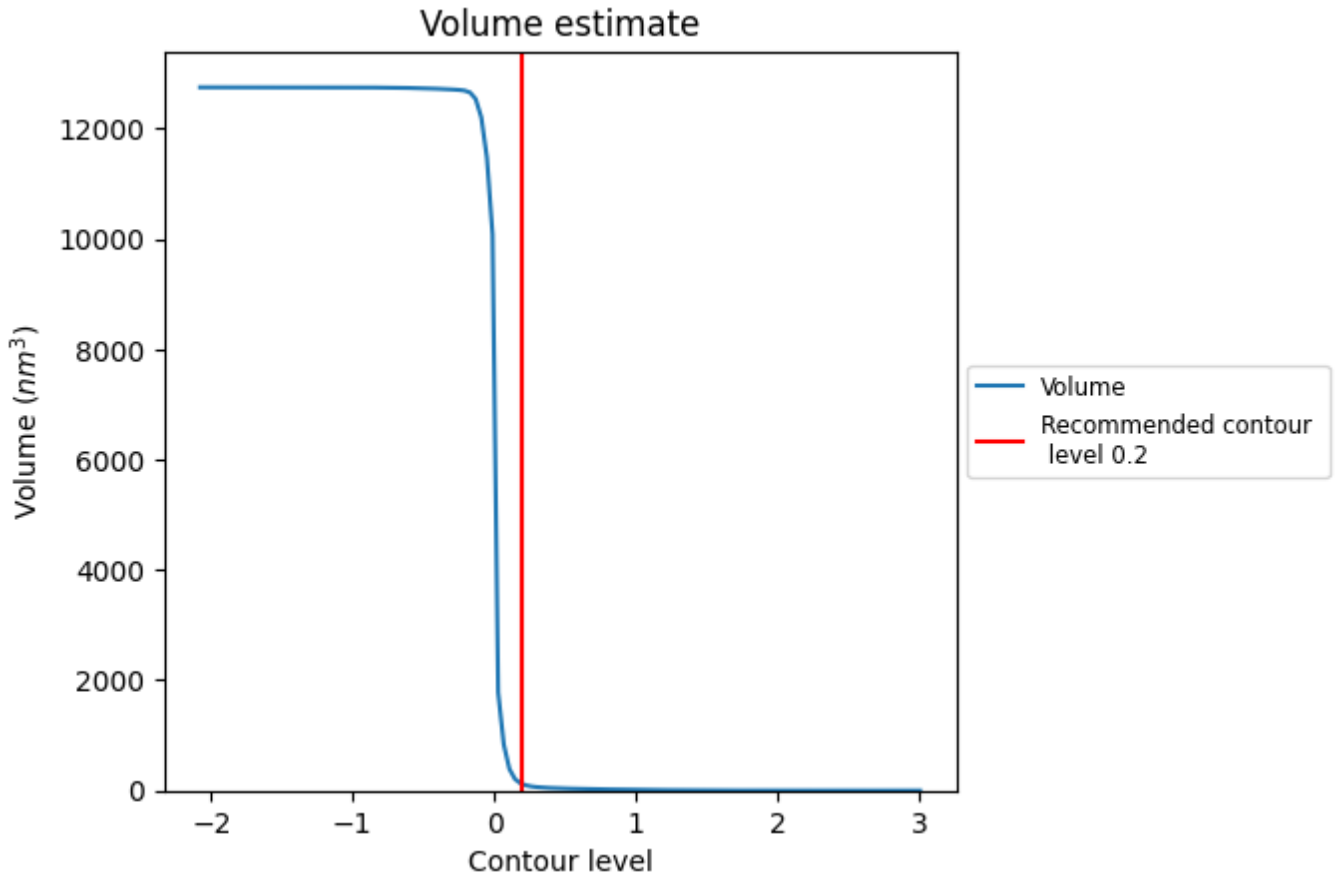
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

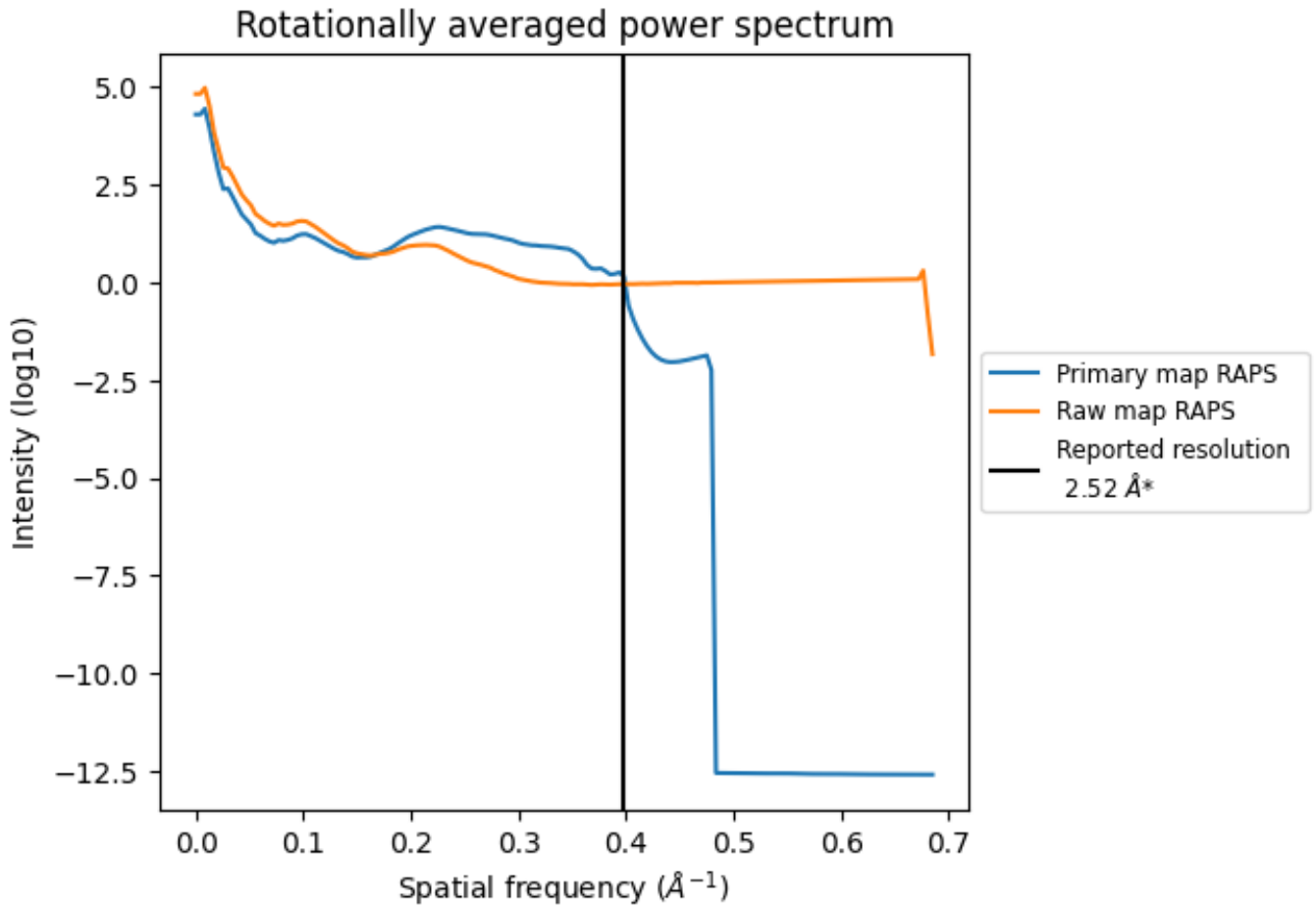
7.2 Volume estimate



The volume at the recommended contour level is 117 nm^3; this corresponds to an approximate mass of 106 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 (i)

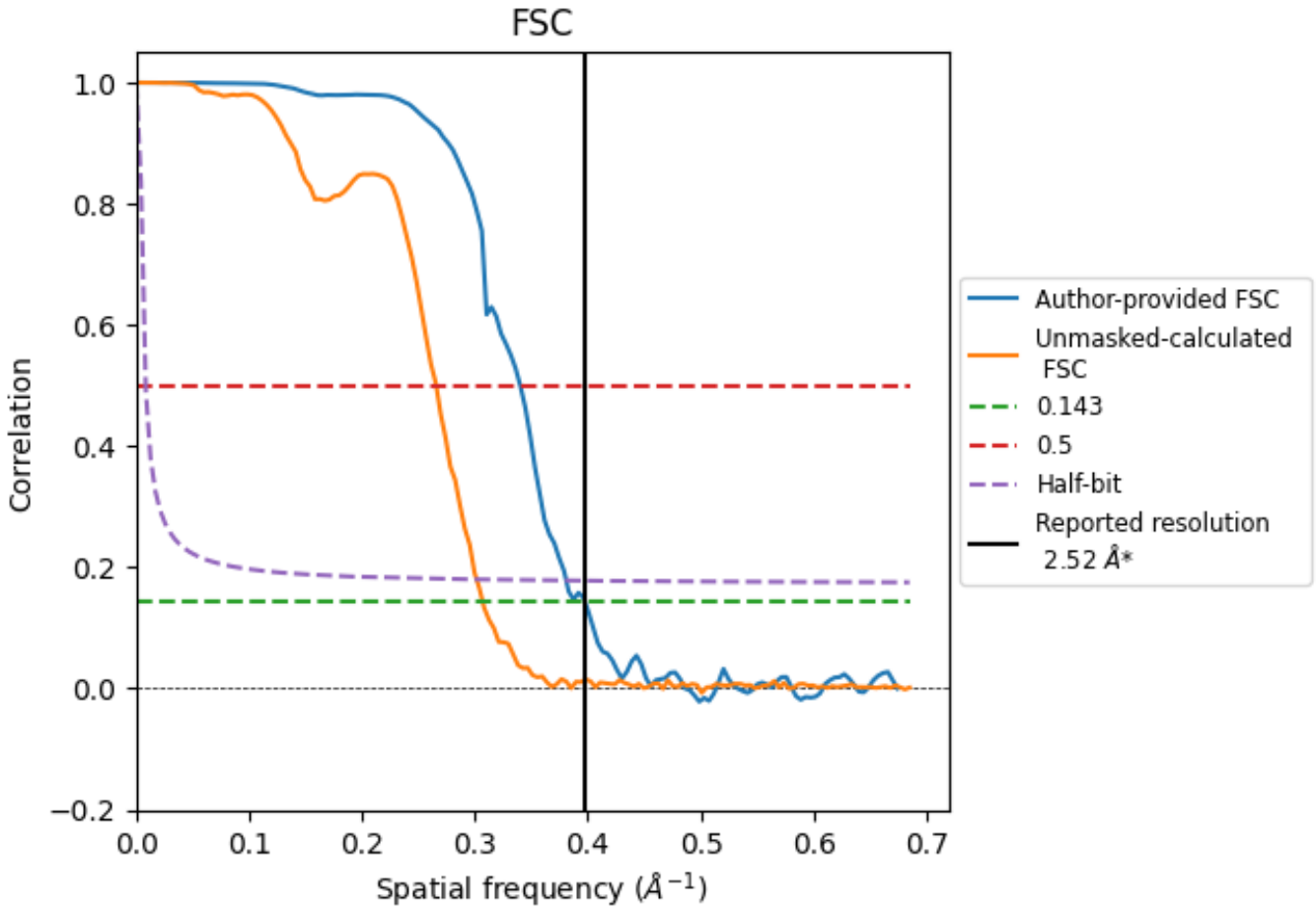


*Reported resolution corresponds to spatial frequency of 0.397 $Å^{-1}$

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 0.397 Å^{-1}

8.2 Resolution estimates (i)

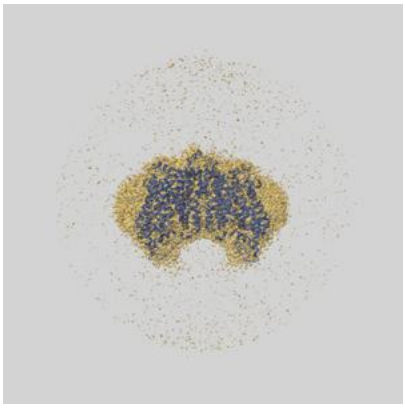
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.52	-	-
Author-provided FSC curve	2.52	2.94	2.63
Unmasked-calculated*	3.26	3.76	3.32

*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 3.26 differs from the reported value 2.52 by more than 10 %

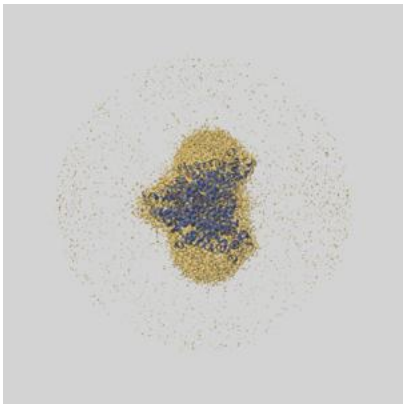
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-62276 and PDB model 9KDH. Per-residue inclusion information can be found in section 3 on page 7.

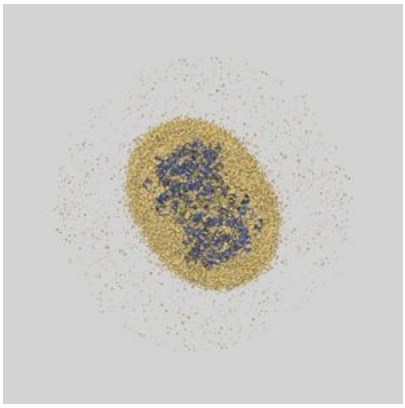
9.1 Map-model overlay



X



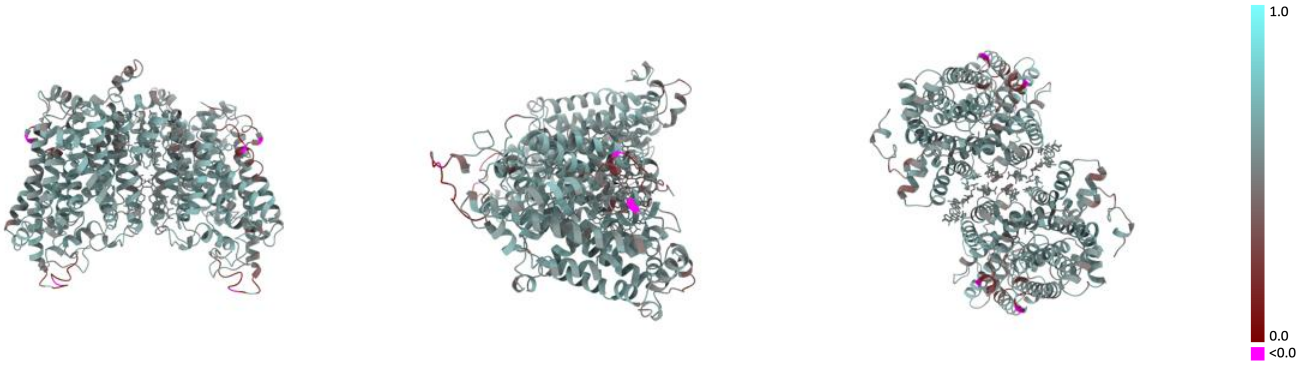
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.2 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.

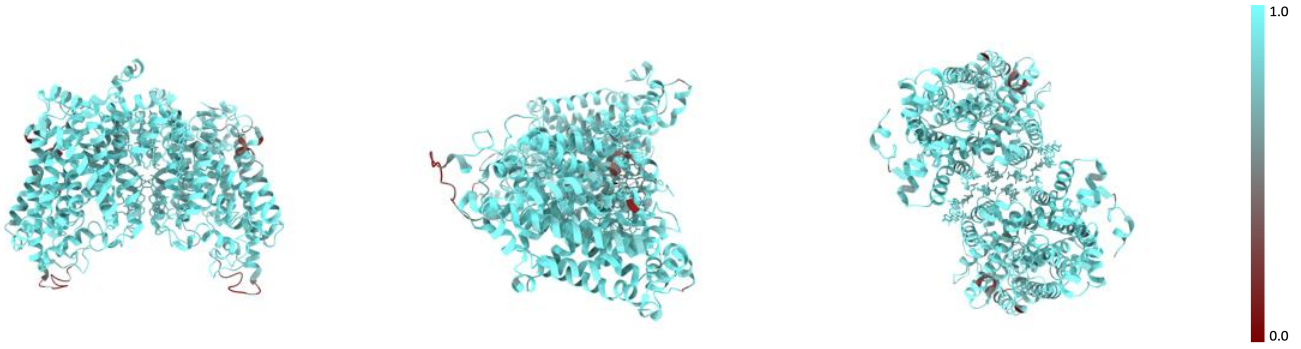
9.2 Q-score mapped to coordinate model (i)



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.

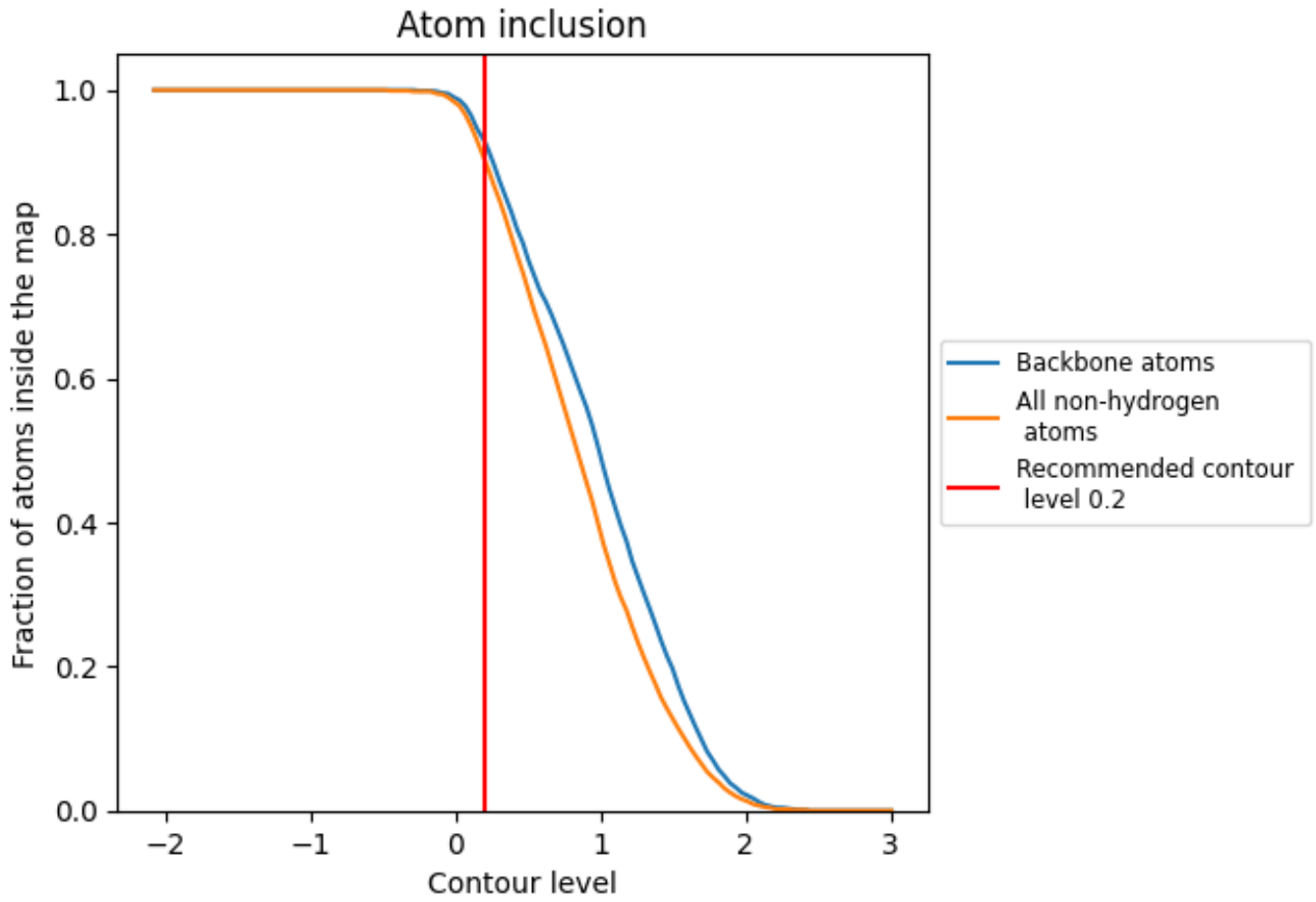
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.2).

9.4 Atom inclusion (i)



At the recommended contour level, 93% of all backbone atoms, 90% 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 (0.2) and Q-score for the entire model and for each chain.



Chain	Atom inclusion	Q-score
All	0.9030	0.5510
A	0.9020	0.5510
B	0.9040	0.5500