



## Full wwPDB EM Validation Report ⓘ

Apr 16, 2025 – 12:12 PM JST

PDB ID : 9JH5 / pdb\_00009jh5  
EMDB ID : EMD-61472  
Title : Activation mechanism of CYSLTR2 by C16:0 ceramide  
Authors : Wang, J.L.; Ding, J.H.; Sun, J.P.; Yu, X.  
Deposited on : 2024-09-09  
Resolution : 2.76 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](mailto: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 ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev117  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.42

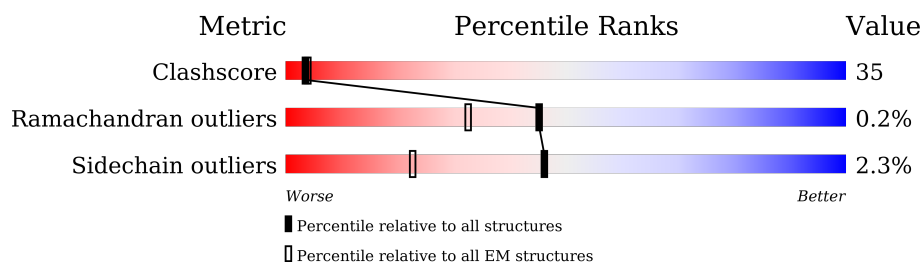
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 2.76 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)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	R	346	
2	C	59	
3	S	250	
4	A	361	
5	B	358	
6	N	151	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
7	16C	R	401	-	-	X	-
8	CLR	R	402	-	-	X	-
8	CLR	R	403	-	-	X	-

## 2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 9808 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 Cysteinyl leukotriene receptor 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	R	259	Total	C	N	O	S	0	0
			2077	1396	337	331	13		

- Molecule 2 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	55	Total	C	N	O	S	0	0
			422	264	75	80	3		

- Molecule 3 is a protein called scFv16.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	S	233	Total	C	N	O	S	0	0
			1783	1132	296	345	10		

- Molecule 4 is a protein called Guanine nucleotide-binding protein G(i) subunit alpha-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	A	236	Total	C	N	O	S	0	0
			1878	1191	336	342	9		

- Molecule 5 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	B	338	Total	C	N	O	S	0	0
			2584	1596	461	506	21		

There are 19 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-17	MET	-	initiating methionine	UNP P62873

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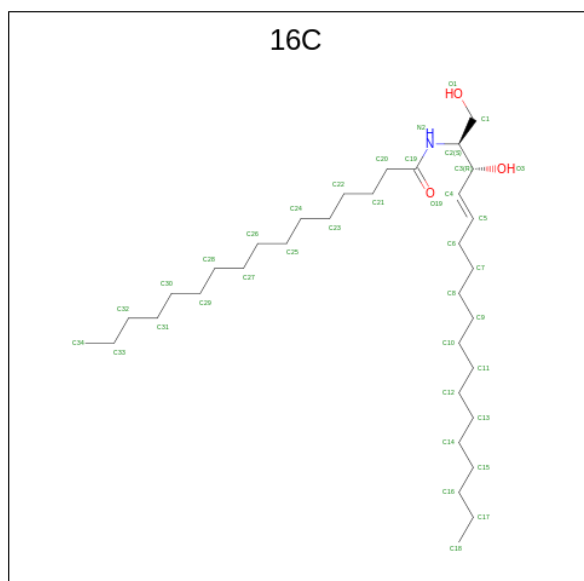
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Chain	Residue	Modelled	Actual	Comment	Reference
B	-16	HIS	-	expression tag	UNP P62873
B	-15	HIS	-	expression tag	UNP P62873
B	-14	HIS	-	expression tag	UNP P62873
B	-13	HIS	-	expression tag	UNP P62873
B	-12	HIS	-	expression tag	UNP P62873
B	-11	HIS	-	expression tag	UNP P62873
B	-10	LEU	-	expression tag	UNP P62873
B	-9	GLU	-	expression tag	UNP P62873
B	-8	VAL	-	expression tag	UNP P62873
B	-7	LEU	-	expression tag	UNP P62873
B	-6	PHE	-	expression tag	UNP P62873
B	-5	GLN	-	expression tag	UNP P62873
B	-4	GLY	-	expression tag	UNP P62873
B	-3	PRO	-	expression tag	UNP P62873
B	-2	GLY	-	expression tag	UNP P62873
B	-1	SER	-	expression tag	UNP P62873
B	0	SER	-	expression tag	UNP P62873
B	1	GLN	-	expression tag	UNP P62873

- Molecule 6 is a protein called Nb35.

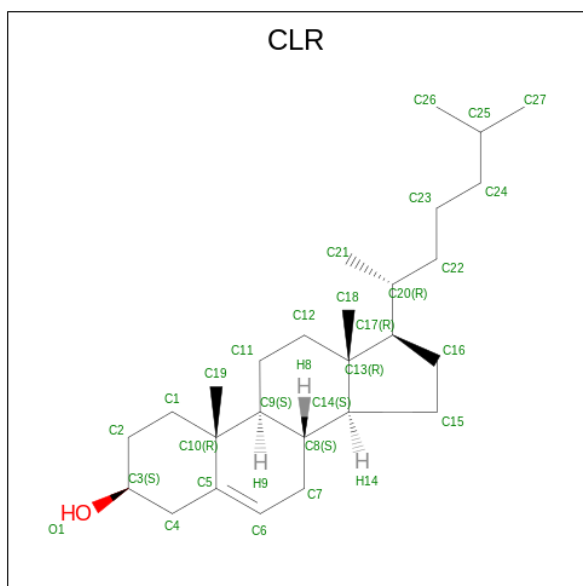
Mol	Chain	Residues	Atoms					AltConf	Trace
6	N	128	Total	C	N	O	S	0	0
			970	604	170	190	6		

- Molecule 7 is N-((E,2S,3R)-1,3-DIHYDROXYOCTADEC-4-EN-2-YL)PALMITAMIDE (CCD ID: 16C) (formula: C<sub>34</sub>H<sub>67</sub>NO<sub>3</sub>).



Mol	Chain	Residues	Atoms				AltConf
7	R	1	Total	C	N	O	0
			38	34	1	3	

- Molecule 8 is CHOLESTEROL (CCD ID: CLR) (formula:  $C_{27}H_{46}O$ ).

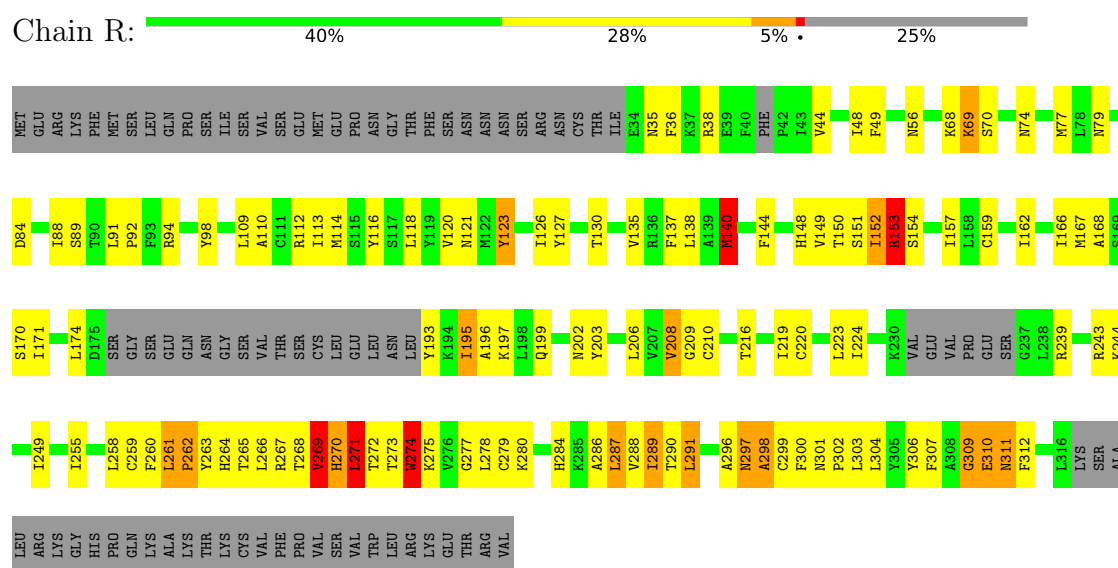


Mol	Chain	Residues	Atoms				AltConf
8	R	1	Total	C	O		0
			28	27	1		
8	R	1	Total	C	O		0
			28	27	1		

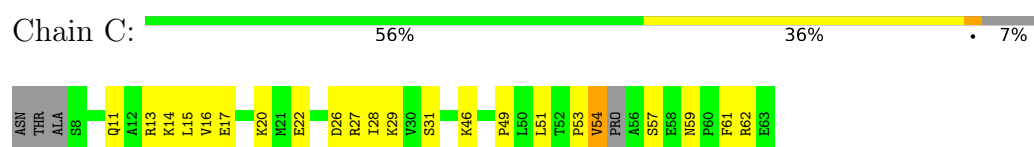
### 3 Residue-property plots

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.

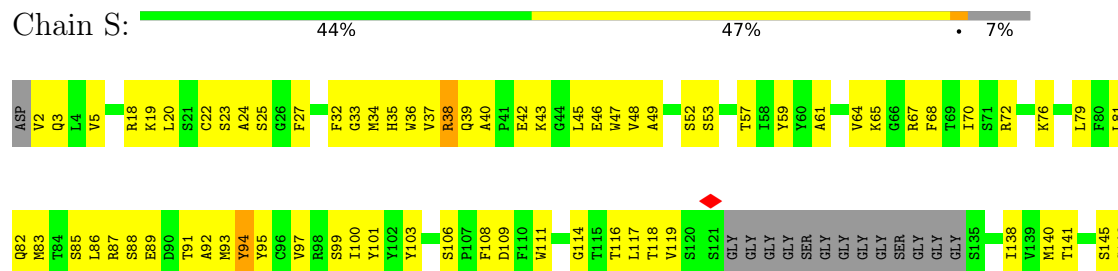
#### • Molecule 1: Cysteinyl leukotriene receptor 2



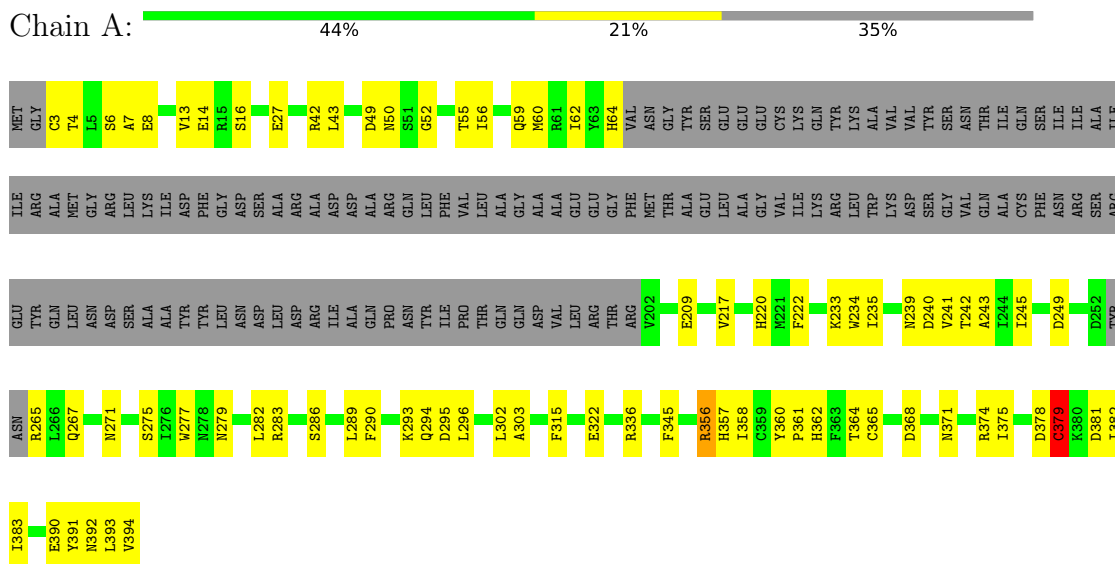
#### • Molecule 2: Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2



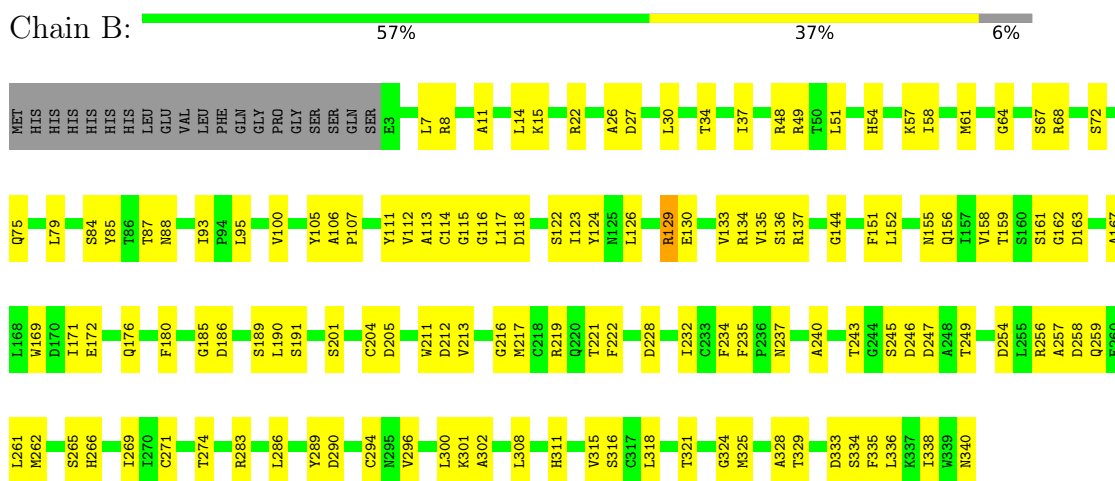
#### • Molecule 3: scFv16



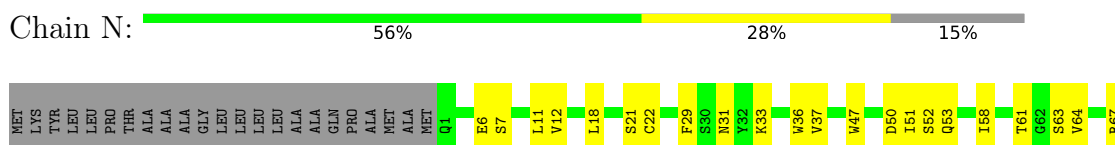
- Molecule 4: Guanine nucleotide-binding protein G(i) subunit alpha-1



- Molecule 5: Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1



- Molecule 6: Nb35





I70	S71	R72	N77	T78	L79	M83	L86	K87	P88	T91	A92	Y95	C96	F103	T104	R105	D106	S112	R118	G119	V124	T125	V126	S127	S128
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## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	177531	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 IS (4k x 4k)	Depositor
Maximum map value	21.870	Depositor
Minimum map value	-0.137	Depositor
Average map value	0.037	Depositor
Map value standard deviation	0.849	Depositor
Recommended contour level	0.9	Depositor
Map size ( $\text{\AA}$ )	209.92, 209.92, 209.92	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	0.82, 0.82, 0.82	Depositor

## 5 Model quality [i](#)

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

Bond lengths and bond angles in the following residue types are not validated in this section: CLR, 16C

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	R	0.54	4/2128 (0.2%)	0.83	10/2890 (0.3%)
2	C	0.49	1/427 (0.2%)	0.52	0/575
3	S	2.67	8/1827 (0.4%)	0.91	6/2478 (0.2%)
4	A	0.69	2/1910 (0.1%)	0.63	0/2576
5	B	0.57	0/2631	0.65	0/3570
6	N	0.54	0/990	0.56	0/1341
All	All	1.26	15/9913 (0.2%)	0.73	16/13430 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	R	0	2
3	S	0	1
5	B	0	1
All	All	0	4

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	S	94	TYR	CD1-CE1	61.13	2.31	1.39
3	S	94	TYR	CD2-CE2	56.86	2.24	1.39
3	S	94	TYR	CE2-CZ	39.75	1.90	1.38
3	S	94	TYR	CE1-CZ	39.44	1.89	1.38
3	S	94	TYR	CG-CD2	31.17	1.79	1.39
3	S	94	TYR	CG-CD1	30.33	1.78	1.39
3	S	38	ARG	CD-NE	22.56	1.84	1.46
3	S	38	ARG	NE-CZ	14.39	1.51	1.33
1	R	123	TYR	CE1-CZ	-7.29	1.29	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	381	ASP	CB-CG	-6.95	1.37	1.51
2	C	54	VAL	C-N	-6.73	1.18	1.34
1	R	123	TYR	CG-CD2	-5.72	1.31	1.39
1	R	123	TYR	CB-CG	-5.48	1.43	1.51
1	R	140	MET	C-O	-5.15	1.13	1.23
4	A	379	CYS	CB-SG	-5.05	1.73	1.81

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	S	38	ARG	CD-NE-CZ	21.71	154.00	123.60
3	S	38	ARG	NE-CZ-NH2	20.31	130.46	120.30
1	R	153	ARG	CB-CA-C	-14.94	80.53	110.40
1	R	153	ARG	N-CA-C	11.03	140.78	111.00
1	R	152	ILE	CB-CA-C	10.44	132.47	111.60
1	R	271	LEU	N-CA-C	-8.23	88.77	111.00
3	S	192	MET	CB-CA-C	-7.34	95.73	110.40
1	R	261	LEU	CA-CB-CG	-7.17	98.81	115.30
3	S	38	ARG	NE-CZ-NH1	-6.77	116.92	120.30
1	R	274	TRP	N-CA-C	6.64	128.93	111.00
3	S	38	ARG	CG-CD-NE	6.26	124.95	111.80
3	S	38	ARG	NH1-CZ-NH2	-6.16	112.63	119.40
1	R	262	PRO	CA-N-CD	-5.32	104.06	111.50
1	R	140	MET	CB-CG-SD	-5.21	96.77	112.40
1	R	123	TYR	CA-CB-CG	-5.05	103.80	113.40
1	R	309	GLY	C-N-CA	-5.03	109.13	121.70

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
5	B	85	TYR	Peptide
1	R	274	TRP	Mainchain
1	R	68	LYS	Peptide
3	S	235	TYR	Peptide

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

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

the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	R	2077	0	2165	293	0
2	C	422	0	430	21	0
3	S	1783	0	1716	154	0
4	A	1878	0	1836	76	0
5	B	2584	0	2479	102	0
6	N	970	0	932	33	0
7	R	38	0	67	102	0
8	R	56	0	91	59	0
All	All	9808	0	9716	683	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 35.

All (683) 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)
3:S:94:TYR:CG	3:S:94:TYR:CD1	1.78	1.69
3:S:94:TYR:CG	3:S:94:TYR:CD2	1.79	1.68
8:R:402:CLR:C23	8:R:403:CLR:H262	1.15	1.63
1:R:286:ALA:CB	1:R:289:ILE:HD11	1.28	1.62
1:R:202:ASN:CB	7:R:401:16C:H212	1.25	1.61
3:S:94:TYR:CZ	3:S:94:TYR:CE1	1.89	1.59
1:R:195:ILE:HG21	7:R:401:16C:C34	1.30	1.58
3:S:94:TYR:CZ	3:S:94:TYR:CE2	1.90	1.57
1:R:286:ALA:CA	1:R:289:ILE:HD11	1.23	1.56
1:R:195:ILE:CG2	7:R:401:16C:H343	1.23	1.56
1:R:195:ILE:HG13	7:R:401:16C:C32	1.30	1.55
1:R:271:LEU:CB	7:R:401:16C:H232	1.04	1.52
1:R:195:ILE:CG1	7:R:401:16C:H321	1.32	1.51
1:R:271:LEU:HB2	7:R:401:16C:C23	1.36	1.49
1:R:166:ILE:HD11	7:R:401:16C:C18	1.39	1.49
1:R:166:ILE:CD1	7:R:401:16C:C18	1.94	1.45
1:R:202:ASN:CG	7:R:401:16C:H212	1.36	1.45
1:R:284:HIS:ND1	1:R:287:LEU:CD1	1.80	1.44
8:R:402:CLR:C23	8:R:403:CLR:C26	1.95	1.42
1:R:202:ASN:HB2	7:R:401:16C:C21	1.45	1.41
1:R:216:THR:OG1	8:R:403:CLR:C27	1.66	1.39
1:R:286:ALA:CA	1:R:289:ILE:CD1	1.81	1.39
1:R:284:HIS:ND1	1:R:287:LEU:HD11	1.07	1.39
3:S:38:ARG:NE	3:S:38:ARG:CD	1.84	1.37

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:270:HIS:CE1	7:R:401:16C:H252	1.58	1.37
3:S:38:ARG:NE	3:S:94:TYR:CE2	1.87	1.36
3:S:38:ARG:NE	3:S:94:TYR:CD2	1.90	1.35
1:R:271:LEU:CB	7:R:401:16C:C23	1.92	1.33
1:R:284:HIS:CE1	1:R:287:LEU:CD1	2.12	1.32
8:R:402:CLR:H231	8:R:403:CLR:C26	1.52	1.32
1:R:216:THR:CB	8:R:403:CLR:C27	2.06	1.32
1:R:270:HIS:CE1	7:R:401:16C:C25	2.13	1.32
3:S:38:ARG:NE	3:S:94:TYR:CZ	1.98	1.32
1:R:195:ILE:CG1	7:R:401:16C:C32	1.93	1.30
1:R:271:LEU:HB2	7:R:401:16C:C22	1.60	1.30
1:R:166:ILE:CD1	7:R:401:16C:H183	1.57	1.28
1:R:203:TYR:CE1	1:R:271:LEU:HD21	1.66	1.28
1:R:286:ALA:HA	1:R:289:ILE:CD1	1.30	1.28
1:R:284:HIS:CE1	1:R:287:LEU:HD11	1.67	1.26
1:R:203:TYR:CD1	1:R:271:LEU:HD21	1.70	1.25
1:R:220:CYS:SG	8:R:402:CLR:H262	1.77	1.25
3:S:94:TYR:CD2	3:S:94:TYR:CE2	2.24	1.23
3:S:38:ARG:NE	3:S:94:TYR:CG	2.08	1.22
3:S:38:ARG:NE	3:S:94:TYR:CE1	2.08	1.22
3:S:38:ARG:NE	3:S:94:TYR:CD1	2.09	1.20
1:R:202:ASN:CB	7:R:401:16C:C21	2.10	1.19
3:S:94:TYR:CD1	3:S:94:TYR:CE1	2.31	1.19
7:R:401:16C:H262	7:R:401:16C:H302	1.25	1.16
8:R:402:CLR:H232	8:R:403:CLR:H231	1.14	1.13
1:R:195:ILE:HG21	7:R:401:16C:C33	1.79	1.12
1:R:166:ILE:HD11	7:R:401:16C:H181	1.25	1.11
1:R:216:THR:HA	8:R:403:CLR:C27	1.81	1.10
1:R:270:HIS:HA	1:R:273:THR:H	1.05	1.10
1:R:216:THR:HG23	8:R:403:CLR:H273	1.27	1.10
1:R:202:ASN:CG	7:R:401:16C:C21	2.18	1.10
1:R:216:THR:CA	8:R:403:CLR:C27	2.31	1.09
1:R:220:CYS:SG	8:R:402:CLR:C26	2.39	1.09
1:R:284:HIS:CE1	1:R:287:LEU:HD13	1.85	1.09
1:R:286:ALA:HB1	1:R:289:ILE:HD11	1.16	1.09
1:R:202:ASN:HB3	1:R:271:LEU:HD22	1.09	1.09
8:R:402:CLR:H232	8:R:403:CLR:H262	1.27	1.07
1:R:267:ARG:HH22	7:R:401:16C:H12	1.00	1.07
3:S:38:ARG:CD	3:S:94:TYR:CE1	2.38	1.07
1:R:271:LEU:CA	7:R:401:16C:H232	1.84	1.06
1:R:195:ILE:CG1	7:R:401:16C:H322	1.86	1.06

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:263:TYR:HD1	1:R:290:THR:HG21	1.22	1.04
1:R:286:ALA:CB	1:R:289:ILE:CD1	2.19	1.04
1:R:195:ILE:HG12	7:R:401:16C:C32	1.89	1.03
8:R:402:CLR:C23	8:R:403:CLR:H231	1.88	1.02
3:S:38:ARG:CZ	3:S:94:TYR:CE1	2.42	1.02
1:R:203:TYR:CE1	1:R:271:LEU:CD2	2.41	1.02
3:S:38:ARG:CD	3:S:94:TYR:CD1	2.42	1.02
1:R:216:THR:CG2	8:R:403:CLR:C27	2.37	1.02
8:R:402:CLR:H121	8:R:402:CLR:H212	1.40	1.01
1:R:166:ILE:HD11	7:R:401:16C:H182	1.38	1.01
1:R:202:ASN:HB2	7:R:401:16C:C22	1.90	1.01
1:R:286:ALA:HA	1:R:289:ILE:HD13	1.04	1.01
1:R:203:TYR:CZ	1:R:271:LEU:HD11	1.95	1.01
1:R:202:ASN:HD21	1:R:267:ARG:NH1	1.58	1.00
1:R:270:HIS:C	1:R:272:THR:N	2.10	1.00
3:S:38:ARG:CZ	3:S:94:TYR:CD1	2.43	1.00
1:R:193:TYR:O	1:R:195:ILE:HD13	1.61	1.00
1:R:193:TYR:O	1:R:195:ILE:CD1	2.10	0.99
1:R:166:ILE:HD13	7:R:401:16C:H183	1.03	0.99
1:R:202:ASN:ND2	7:R:401:16C:H212	1.77	0.98
1:R:271:LEU:HB3	7:R:401:16C:H232	1.02	0.98
1:R:216:THR:HG23	8:R:403:CLR:C27	1.93	0.98
1:R:202:ASN:CB	1:R:271:LEU:HD22	1.94	0.97
1:R:284:HIS:CG	1:R:287:LEU:CD1	2.46	0.96
1:R:216:THR:HA	8:R:403:CLR:H271	1.44	0.96
1:R:270:HIS:HE1	7:R:401:16C:C25	1.61	0.95
1:R:267:ARG:NH2	7:R:401:16C:H12	1.82	0.94
1:R:153:ARG:O	1:R:157:ILE:HG13	1.67	0.94
1:R:195:ILE:CG2	7:R:401:16C:C34	2.10	0.94
1:R:216:THR:CG2	8:R:403:CLR:H273	1.97	0.94
1:R:286:ALA:HB1	1:R:289:ILE:CD1	1.90	0.94
1:R:271:LEU:HB2	7:R:401:16C:H221	1.46	0.94
4:A:374:ARG:O	4:A:378:ASP:OD1	1.86	0.93
1:R:270:HIS:CE1	7:R:401:16C:H251	2.00	0.93
1:R:271:LEU:HA	7:R:401:16C:H241	1.50	0.93
1:R:195:ILE:CB	7:R:401:16C:H321	1.99	0.92
1:R:195:ILE:HG23	7:R:401:16C:H343	1.49	0.92
1:R:202:ASN:ND2	7:R:401:16C:C21	2.32	0.91
1:R:69:LYS:HD3	1:R:74:ASN:HB2	1.52	0.91
3:S:38:ARG:HD3	3:S:94:TYR:CD1	2.06	0.90
1:R:123:TYR:CG	7:R:401:16C:H101	2.07	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:263:TYR:HD1	1:R:290:THR:CG2	1.86	0.89
7:R:401:16C:H302	7:R:401:16C:C26	2.02	0.89
1:R:263:TYR:CZ	1:R:267:ARG:NE	2.39	0.89
1:R:270:HIS:C	1:R:272:THR:H	1.49	0.89
1:R:202:ASN:HB2	7:R:401:16C:H212	1.02	0.88
8:R:402:CLR:H162	8:R:402:CLR:H242	1.56	0.87
3:S:38:ARG:CD	3:S:94:TYR:CZ	2.57	0.87
6:N:112:SER:O	6:N:118:ARG:NH2	2.08	0.86
1:R:126:ILE:HG13	1:R:260:PHE:HE2	1.39	0.86
1:R:270:HIS:HB3	1:R:274:TRP:CE3	2.10	0.86
1:R:219:ILE:HG22	8:R:402:CLR:H271	1.56	0.86
8:R:402:CLR:H152	8:R:403:CLR:H11	1.57	0.86
1:R:202:ASN:HB3	1:R:271:LEU:CD2	2.01	0.85
3:S:38:ARG:HD3	3:S:94:TYR:CE1	2.10	0.85
1:R:195:ILE:CG2	7:R:401:16C:H321	2.07	0.85
3:S:38:ARG:CZ	3:S:94:TYR:CZ	2.58	0.85
1:R:126:ILE:CG1	1:R:260:PHE:HE2	1.90	0.84
1:R:148:HIS:CD2	4:A:391:TYR:OH	2.31	0.84
8:R:402:CLR:H232	8:R:403:CLR:C26	1.81	0.84
4:A:360:TYR:CB	4:A:378:ASP:OD2	2.26	0.84
5:B:159:THR:HG1	5:B:169:TRP:HE1	1.23	0.83
3:S:38:ARG:CZ	3:S:94:TYR:CG	2.62	0.83
5:B:204:CYS:HA	5:B:228:ASP:HB2	1.61	0.83
8:R:402:CLR:C22	8:R:403:CLR:C26	2.56	0.83
1:R:263:TYR:CD1	1:R:290:THR:CG2	2.62	0.82
2:C:29:LYS:NZ	5:B:27:ASP:OD1	2.13	0.82
5:B:58:ILE:O	5:B:316:SER:OG	1.98	0.82
1:R:166:ILE:HD13	7:R:401:16C:C18	1.82	0.82
1:R:149:VAL:O	1:R:150:THR:OG1	1.98	0.82
1:R:284:HIS:HD1	1:R:287:LEU:HD11	1.02	0.82
1:R:270:HIS:HA	1:R:273:THR:N	1.90	0.82
2:C:61:PHE:HE1	5:B:84:SER:O	1.63	0.82
8:R:403:CLR:H183	8:R:403:CLR:H222	1.61	0.81
5:B:212:ASP:HB2	5:B:219:ARG:HD3	1.61	0.81
4:A:3:CYS:SG	4:A:4:THR:N	2.53	0.81
1:R:202:ASN:ND2	1:R:267:ARG:NH1	2.29	0.80
3:S:52:SER:O	3:S:72:ARG:NH1	2.14	0.80
4:A:360:TYR:HB3	4:A:378:ASP:OD2	1.82	0.80
1:R:69:LYS:HG3	1:R:70:SER:H	1.47	0.80
1:R:195:ILE:HG12	7:R:401:16C:H322	1.53	0.80
7:R:401:16C:H262	7:R:401:16C:C30	2.08	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:272:THR:HG23	1:R:273:THR:HG23	1.63	0.80
1:R:114:MET:O	1:R:118:LEU:HB2	1.80	0.79
5:B:271:CYS:HB2	5:B:290:ASP:HB2	1.64	0.79
1:R:126:ILE:CG1	1:R:260:PHE:CE2	2.65	0.79
1:R:203:TYR:CE1	1:R:271:LEU:HD11	2.18	0.79
1:R:203:TYR:CE1	1:R:271:LEU:CG	2.64	0.79
1:R:275:LYS:HD2	7:R:401:16C:H331	1.62	0.78
5:B:51:LEU:HD23	5:B:87:THR:HG23	1.66	0.78
8:R:402:CLR:H232	8:R:403:CLR:C23	2.06	0.78
3:S:48:VAL:HG12	3:S:49:ALA:H	1.47	0.77
1:R:263:TYR:CD1	1:R:290:THR:HG21	2.12	0.77
1:R:271:LEU:HB3	7:R:401:16C:C23	1.84	0.77
5:B:162:GLY:HA2	5:B:186:ASP:HB2	1.66	0.77
8:R:402:CLR:H212	8:R:402:CLR:C12	2.13	0.77
3:S:38:ARG:NH2	3:S:94:TYR:CD1	2.53	0.76
5:B:30:LEU:HD12	5:B:261:LEU:HB3	1.67	0.76
1:R:220:CYS:SG	8:R:402:CLR:H261	2.26	0.76
8:R:402:CLR:H192	8:R:402:CLR:O1	1.84	0.76
5:B:325:MET:O	5:B:340:ASN:ND2	2.19	0.76
3:S:38:ARG:CD	3:S:94:TYR:CG	2.69	0.75
1:R:270:HIS:HB3	1:R:274:TRP:CZ3	2.20	0.75
1:R:195:ILE:CG2	7:R:401:16C:C33	2.57	0.75
8:R:402:CLR:C20	8:R:402:CLR:H272	2.16	0.75
2:C:57:SER:O	2:C:62:ARG:NH1	2.20	0.74
8:R:402:CLR:H20	8:R:402:CLR:C25	2.17	0.74
5:B:30:LEU:HD22	5:B:262:MET:HE3	1.70	0.74
3:S:38:ARG:NH2	3:S:94:TYR:CE1	2.54	0.74
8:R:402:CLR:H20	8:R:402:CLR:H25	1.68	0.74
1:R:270:HIS:CA	1:R:273:THR:H	1.94	0.73
1:R:288:VAL:HG13	1:R:291:LEU:HD11	1.70	0.73
4:A:315:PHE:O	4:A:336:ARG:NH1	2.21	0.73
3:S:38:ARG:CZ	3:S:94:TYR:CD2	2.71	0.73
1:R:261:LEU:HD12	1:R:261:LEU:N	2.04	0.73
1:R:202:ASN:HB2	7:R:401:16C:H221	1.68	0.73
1:R:166:ILE:CD1	7:R:401:16C:H182	2.04	0.72
1:R:170:SER:OG	7:R:401:16C:H71	1.88	0.72
3:S:38:ARG:HD2	3:S:94:TYR:CZ	2.22	0.72
8:R:402:CLR:H242	8:R:402:CLR:C16	2.18	0.72
8:R:402:CLR:H20	8:R:402:CLR:C27	2.20	0.72
3:S:38:ARG:CZ	3:S:94:TYR:CE2	2.72	0.72
7:R:401:16C:C18	7:R:401:16C:H141	2.20	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:R:402:CLR:H232	8:R:403:CLR:H263	1.71	0.71
3:S:32:PHE:O	3:S:72:ARG:NH2	2.23	0.71
6:N:118:ARG:HG2	6:N:119:GLY:H	1.53	0.71
8:R:402:CLR:C23	8:R:403:CLR:H263	2.17	0.71
1:R:271:LEU:CB	7:R:401:16C:C22	2.50	0.71
1:R:202:ASN:CB	7:R:401:16C:C22	2.60	0.71
1:R:123:TYR:CB	7:R:401:16C:H101	2.20	0.71
1:R:271:LEU:HA	7:R:401:16C:C24	2.20	0.71
3:S:38:ARG:CD	3:S:94:TYR:CE2	2.73	0.70
6:N:7:SER:HB2	6:N:21:SER:HB3	1.72	0.70
1:R:202:ASN:HB2	7:R:401:16C:C20	2.21	0.70
4:A:209:GLU:OE2	4:A:220:HIS:NE2	2.24	0.70
3:S:35:HIS:NE2	3:S:101:TYR:OH	2.24	0.70
3:S:38:ARG:O	3:S:46:GLU:N	2.19	0.70
1:R:202:ASN:CB	7:R:401:16C:H221	2.21	0.70
1:R:223:LEU:HD11	8:R:402:CLR:C18	2.22	0.70
1:R:199:GLN:OE1	1:R:271:LEU:HD12	1.92	0.70
1:R:202:ASN:OD1	1:R:268:THR:HG22	1.91	0.70
1:R:271:LEU:CB	7:R:401:16C:H221	2.20	0.70
5:B:137:ARG:NE	5:B:171:ILE:O	2.24	0.70
1:R:48:ILE:HD12	1:R:296:ALA:HA	1.74	0.69
1:R:275:LYS:HD2	7:R:401:16C:C33	2.21	0.69
1:R:195:ILE:CG2	7:R:401:16C:C32	2.70	0.69
5:B:294:CYS:HB2	5:B:308:LEU:HB2	1.74	0.69
8:R:402:CLR:H221	8:R:403:CLR:C26	2.22	0.69
1:R:275:LYS:HZ3	1:R:275:LYS:HB2	1.58	0.69
2:C:22:GLU:O	2:C:27:ARG:NH2	2.25	0.69
5:B:54:HIS:NE2	5:B:72:SER:OG	2.24	0.69
1:R:270:HIS:HB2	1:R:274:TRP:H	1.58	0.69
8:R:402:CLR:H272	8:R:402:CLR:H20	1.72	0.69
1:R:270:HIS:CB	1:R:274:TRP:CE3	2.76	0.68
3:S:226:VAL:HG22	3:S:244:LYS:HB3	1.74	0.68
3:S:38:ARG:CD	3:S:94:TYR:CD2	2.77	0.68
1:R:126:ILE:HG12	1:R:260:PHE:CE2	2.28	0.68
1:R:263:TYR:OH	1:R:267:ARG:NE	2.23	0.68
1:R:70:SER:OG	4:A:390:GLU:OE1	2.10	0.68
1:R:203:TYR:HE1	1:R:271:LEU:CD2	2.05	0.68
1:R:270:HIS:HE1	7:R:401:16C:C26	2.06	0.67
3:S:111:TRP:CE3	3:S:185:PRO:HG2	2.30	0.67
5:B:152:LEU:HD12	5:B:156:GLN:HB3	1.77	0.67
3:S:169:ASN:ND2	3:S:173:TYR:OH	2.23	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:267:ARG:NH2	7:R:401:16C:O19	2.28	0.66
8:R:402:CLR:H231	8:R:403:CLR:H262	0.66	0.66
1:R:203:TYR:CZ	1:R:271:LEU:CD1	2.76	0.66
1:R:219:ILE:CG2	8:R:402:CLR:H271	2.26	0.66
1:R:271:LEU:HD12	1:R:271:LEU:O	1.96	0.66
1:R:195:ILE:HG22	7:R:401:16C:H343	1.64	0.66
3:S:35:HIS:HE2	3:S:101:TYR:HH	1.41	0.65
1:R:148:HIS:HD2	4:A:391:TYR:OH	1.77	0.65
1:R:195:ILE:HG13	7:R:401:16C:H322	1.49	0.65
1:R:263:TYR:CD1	1:R:290:THR:HG23	2.31	0.65
1:R:260:PHE:HD1	1:R:260:PHE:H	1.44	0.65
3:S:178:LEU:HB2	3:S:188:LEU:HD11	1.79	0.65
6:N:47:TRP:HZ2	6:N:50:ASP:HB2	1.61	0.65
1:R:216:THR:HA	8:R:403:CLR:H273	1.78	0.65
1:R:264:HIS:O	1:R:267:ARG:HG2	1.96	0.64
5:B:113:ALA:HB2	5:B:123:ILE:HD13	1.79	0.64
4:A:368:ASP:HB3	4:A:371:ASN:HD21	1.61	0.64
1:R:210:CYS:HB3	1:R:264:HIS:HD1	1.62	0.64
4:A:368:ASP:OD2	4:A:374:ARG:NH1	2.24	0.64
1:R:166:ILE:CD1	7:R:401:16C:H181	1.97	0.64
4:A:375:ILE:O	4:A:379:CYS:HB2	1.98	0.64
1:R:170:SER:OG	7:R:401:16C:C7	2.46	0.64
8:R:402:CLR:C15	8:R:403:CLR:H11	2.27	0.64
2:C:29:LYS:HD3	2:C:31:SER:H	1.62	0.64
5:B:232:ILE:HG22	5:B:243:THR:HG22	1.80	0.63
6:N:11:LEU:HD23	6:N:125:THR:HB	1.78	0.63
1:R:203:TYR:CE1	1:R:271:LEU:CD1	2.81	0.63
3:S:106:SER:OG	3:S:109:ASP:OD2	2.15	0.63
1:R:297:ASN:O	1:R:300:PHE:N	2.32	0.63
6:N:63:SER:O	6:N:67:ARG:NH2	2.30	0.63
3:S:38:ARG:HG2	3:S:94:TYR:HA	1.78	0.63
1:R:284:HIS:NE2	1:R:287:LEU:HD13	2.13	0.63
5:B:245:SER:OG	5:B:246:ASP:N	2.32	0.63
7:R:401:16C:H182	7:R:401:16C:H141	1.79	0.62
1:R:202:ASN:ND2	7:R:401:16C:H211	2.15	0.62
5:B:34:THR:HG21	5:B:300:LEU:HD12	1.80	0.62
1:R:195:ILE:HG13	7:R:401:16C:H321	0.66	0.62
1:R:275:LYS:HB2	1:R:275:LYS:NZ	2.11	0.62
5:B:217:MET:SD	5:B:219:ARG:NH1	2.73	0.62
3:S:3:GLN:NE2	3:S:25:SER:OG	2.33	0.62
8:R:403:CLR:H222	8:R:403:CLR:C18	2.28	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:216:THR:CA	8:R:403:CLR:H271	2.15	0.61
1:R:275:LYS:CD	7:R:401:16C:H331	2.29	0.61
1:R:270:HIS:NE2	7:R:401:16C:H252	2.11	0.61
4:A:283:ARG:HA	4:A:357:HIS:NE2	2.15	0.61
6:N:51:ILE:HD12	6:N:58:ILE:HG12	1.82	0.61
5:B:95:LEU:HD13	5:B:100:VAL:HG11	1.82	0.61
6:N:47:TRP:CZ2	6:N:50:ASP:HB2	2.35	0.61
1:R:297:ASN:O	1:R:299:CYS:N	2.34	0.61
1:R:202:ASN:ND2	7:R:401:16C:O19	2.34	0.60
3:S:39:GLN:HB3	3:S:93:MET:HB3	1.83	0.60
3:S:174:LEU:HD11	3:S:229:CYS:SG	2.41	0.60
4:A:249:ASP:OD1	4:A:293:LYS:HG3	2.01	0.60
2:C:61:PHE:CE1	5:B:84:SER:O	2.51	0.60
5:B:112:VAL:HG23	5:B:124:TYR:HB2	1.83	0.60
1:R:135:VAL:HG12	4:A:391:TYR:HE2	1.66	0.60
1:R:270:HIS:HE1	7:R:401:16C:H251	1.47	0.60
2:C:54:VAL:HG11	2:C:59:ASN:N	2.17	0.60
3:S:88:SER:HA	3:S:119:VAL:HG11	1.83	0.60
3:S:38:ARG:HH22	3:S:117:LEU:HD21	1.66	0.60
1:R:109:LEU:HD12	1:R:112:ARG:HH11	1.66	0.60
1:R:210:CYS:SG	1:R:264:HIS:ND1	2.74	0.60
4:A:267:GLN:O	4:A:271:ASN:ND2	2.35	0.60
1:R:297:ASN:HA	1:R:300:PHE:HD2	1.67	0.60
1:R:302:PRO:HA	1:R:306:TYR:CE1	2.37	0.59
3:S:235:TYR:HE1	4:A:7:ALA:HB1	1.66	0.59
1:R:223:LEU:CD1	8:R:402:CLR:C18	2.81	0.59
1:R:259:CYS:HB2	1:R:260:PHE:HD1	1.66	0.59
5:B:180:PHE:CE2	5:B:216:GLY:HA2	2.38	0.59
3:S:20:LEU:HD22	3:S:38:ARG:NH1	2.18	0.59
1:R:195:ILE:CG1	7:R:401:16C:C33	2.77	0.59
1:R:270:HIS:CA	1:R:272:THR:H	2.14	0.59
1:R:77:MET:CE	4:A:392:ASN:ND2	2.66	0.58
1:R:309:GLY:HA2	4:A:394:VAL:O	2.04	0.58
3:S:230:MET:HE2	3:S:239:PHE:CZ	2.37	0.58
1:R:137:PHE:CD2	8:R:402:CLR:H263	2.38	0.58
1:R:195:ILE:HG21	7:R:401:16C:H343	0.73	0.58
3:S:38:ARG:HG3	3:S:48:VAL:HG21	1.86	0.58
5:B:144:GLY:O	5:B:161:SER:OG	2.22	0.58
1:R:255:ILE:HD12	1:R:304:LEU:HD21	1.86	0.58
1:R:171:ILE:HA	1:R:174:LEU:HD13	1.86	0.57
3:S:174:LEU:HD12	3:S:230:MET:O	2.03	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:277:TRP:CZ2	4:A:357:HIS:HB3	2.38	0.57
1:R:49:PHE:HA	1:R:88:ILE:HD11	1.86	0.57
1:R:149:VAL:C	1:R:150:THR:OG1	2.39	0.57
1:R:274:TRP:HB2	1:R:279:CYS:HB3	1.85	0.57
1:R:126:ILE:HD11	1:R:260:PHE:CD2	2.40	0.57
1:R:195:ILE:HG13	7:R:401:16C:C31	2.24	0.57
4:A:360:TYR:CG	4:A:378:ASP:OD2	2.56	0.57
1:R:144:PHE:CD2	4:A:217:VAL:HG21	2.40	0.57
1:R:216:THR:OG1	8:R:403:CLR:C25	2.51	0.57
8:R:402:CLR:C20	8:R:402:CLR:C25	2.83	0.57
3:S:47:TRP:NE1	3:S:237:LEU:HD12	2.20	0.56
6:N:83:MET:HE2	6:N:86:LEU:HD21	1.87	0.56
1:R:268:THR:O	1:R:269:VAL:C	2.41	0.56
3:S:167:HIS:ND1	3:S:168:SER:N	2.53	0.56
2:C:28:ILE:HD13	5:B:256:ARG:HB3	1.86	0.56
3:S:18:ARG:N	3:S:83:MET:O	2.27	0.56
4:A:289:LEU:HD11	4:A:345:PHE:HB3	1.88	0.56
1:R:223:LEU:HD11	8:R:402:CLR:H183	1.88	0.56
1:R:135:VAL:HG12	4:A:391:TYR:CE2	2.41	0.56
6:N:53:GLN:NE2	6:N:104:THR:O	2.35	0.56
1:R:271:LEU:CA	7:R:401:16C:C23	2.65	0.56
3:S:34:MET:HB3	3:S:79:LEU:HD21	1.87	0.56
1:R:36:PHE:HA	1:R:284:HIS:CE1	2.41	0.55
5:B:51:LEU:HD11	5:B:338:ILE:HD11	1.88	0.55
1:R:123:TYR:N	1:R:123:TYR:CD1	2.71	0.55
1:R:79:ASN:HD21	1:R:159:CYS:HB2	1.71	0.55
1:R:167:MET:O	1:R:171:ILE:HG23	2.06	0.55
1:R:206:LEU:HA	1:R:210:CYS:SG	2.46	0.55
3:S:40:ALA:HB1	3:S:43:LYS:HE2	1.88	0.55
3:S:173:TYR:CE2	4:A:8:GLU:HG3	2.40	0.55
1:R:284:HIS:CD2	1:R:287:LEU:HD13	2.42	0.55
1:R:297:ASN:O	1:R:298:ALA:C	2.42	0.55
1:R:267:ARG:HH22	7:R:401:16C:C1	1.95	0.55
6:N:36:TRP:HD1	6:N:70:ILE:HD12	1.72	0.55
1:R:135:VAL:CG1	4:A:391:TYR:HE2	2.19	0.55
3:S:145:SER:O	3:S:244:LYS:N	2.33	0.55
4:A:49:ASP:OD1	4:A:265:ARG:NH2	2.40	0.55
5:B:30:LEU:HD21	5:B:300:LEU:HD13	1.89	0.54
1:R:203:TYR:CE1	1:R:271:LEU:HG	2.42	0.54
3:S:47:TRP:CG	3:S:237:LEU:HB2	2.42	0.54
4:A:243:ALA:HA	4:A:286:SER:O	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:109:LEU:HD12	1:R:112:ARG:NH1	2.23	0.54
1:R:153:ARG:O	1:R:157:ILE:CG1	2.51	0.54
3:S:59:TYR:HD2	3:S:235:TYR:CG	2.24	0.54
5:B:129:ARG:O	5:B:129:ARG:NH1	2.40	0.54
5:B:247:ASP:OD1	5:B:247:ASP:N	2.39	0.54
3:S:24:ALA:HB1	3:S:27:PHE:CE1	2.42	0.54
1:R:267:ARG:O	7:R:401:16C:H251	2.08	0.54
2:C:16:VAL:HG21	5:B:7:LEU:HD11	1.89	0.54
7:R:401:16C:C18	7:R:401:16C:C14	2.85	0.54
3:S:53:SER:HA	3:S:72:ARG:HH12	1.73	0.54
5:B:245:SER:OG	5:B:247:ASP:OD1	2.19	0.54
6:N:22:CYS:HB3	6:N:79:LEU:HB3	1.89	0.54
8:R:402:CLR:C12	8:R:402:CLR:C21	2.85	0.54
8:R:402:CLR:H221	8:R:403:CLR:H261	1.90	0.54
3:S:187:LEU:HD21	3:S:190:TYR:HD2	1.72	0.54
1:R:210:CYS:CB	1:R:264:HIS:HD1	2.20	0.54
3:S:19:LYS:NZ	3:S:82:GLN:OE1	2.25	0.53
3:S:111:TRP:CZ3	3:S:185:PRO:HG2	2.43	0.53
1:R:216:THR:CA	8:R:403:CLR:H273	2.29	0.53
3:S:47:TRP:CE2	3:S:237:LEU:HD12	2.43	0.53
6:N:72:ARG:HB3	6:N:79:LEU:HD12	1.91	0.53
1:R:274:TRP:CB	1:R:279:CYS:HB3	2.39	0.53
5:B:26:ALA:HB2	5:B:259:GLN:NE2	2.22	0.53
1:R:263:TYR:CE1	1:R:267:ARG:HB3	2.44	0.53
3:S:91:THR:HB	3:S:118:THR:HA	1.89	0.53
2:C:16:VAL:HG12	5:B:11:ALA:HB2	1.91	0.53
8:R:402:CLR:C22	8:R:402:CLR:H272	2.37	0.53
1:R:197:LYS:HA	1:R:197:LYS:HE2	1.91	0.53
1:R:260:PHE:N	1:R:260:PHE:CD1	2.72	0.53
3:S:172:THR:HB	3:S:192:MET:SD	2.48	0.53
3:S:22:CYS:HB3	3:S:79:LEU:HB2	1.91	0.52
3:S:165:LEU:O	3:S:172:THR:HG23	2.09	0.52
3:S:189:ILE:HG22	3:S:195:LEU:HA	1.91	0.52
1:R:195:ILE:HG23	7:R:401:16C:H321	1.90	0.52
3:S:2:VAL:HB	5:B:129:ARG:NH2	2.24	0.52
3:S:93:MET:SD	3:S:116:THR:HB	2.49	0.52
1:R:199:GLN:O	1:R:271:LEU:CD1	2.57	0.52
1:R:203:TYR:HE1	1:R:271:LEU:CG	2.19	0.52
1:R:195:ILE:CD1	1:R:195:ILE:N	2.73	0.52
3:S:39:GLN:HA	3:S:45:LEU:HA	1.92	0.52
1:R:144:PHE:HE1	4:A:383:ILE:HG13	1.75	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:202:ASN:ND2	1:R:267:ARG:HH12	2.07	0.52
1:R:267:ARG:CZ	7:R:401:16C:O19	2.58	0.52
2:C:61:PHE:HA	5:B:49:ARG:NH2	2.25	0.52
4:A:243:ALA:HB2	4:A:382:ILE:HD12	1.90	0.52
5:B:318:LEU:HD23	5:B:329:THR:HG22	1.92	0.52
1:R:56:ASN:ND2	1:R:84:ASP:HB3	2.25	0.52
3:S:35:HIS:CE1	3:S:101:TYR:HH	2.28	0.52
3:S:39:GLN:O	3:S:92:ALA:HB1	2.09	0.52
5:B:67:SER:HB3	5:B:321:THR:HB	1.91	0.52
1:R:195:ILE:HG12	7:R:401:16C:C33	2.39	0.52
8:R:402:CLR:H162	8:R:402:CLR:C24	2.36	0.52
3:S:61:ALA:HB3	3:S:64:VAL:HG12	1.92	0.52
1:R:271:LEU:HD13	7:R:401:16C:H221	1.93	0.51
3:S:94:TYR:O	3:S:114:GLY:HA3	2.10	0.51
1:R:270:HIS:CE1	7:R:401:16C:C26	2.87	0.51
5:B:155:ASN:OD1	5:B:172:GLU:HG2	2.10	0.51
1:R:126:ILE:HD11	1:R:260:PHE:HD2	1.74	0.51
3:S:39:GLN:HG3	3:S:45:LEU:HB3	1.91	0.51
4:A:267:GLN:HE21	6:N:61:THR:HA	1.75	0.51
4:A:286:SER:HB2	4:A:382:ILE:CD1	2.41	0.51
6:N:88:PRO:HA	6:N:126:VAL:HG21	1.91	0.51
1:R:223:LEU:HD11	8:R:402:CLR:H182	1.92	0.51
3:S:37:VAL:O	3:S:95:TYR:N	2.43	0.51
4:A:365:CYS:H	4:A:368:ASP:HB2	1.76	0.51
5:B:51:LEU:HB2	5:B:336:LEU:HB2	1.92	0.51
3:S:5:VAL:O	3:S:23:SER:N	2.42	0.51
5:B:262:MET:SD	5:B:302:ALA:HB2	2.50	0.51
1:R:287:LEU:HD12	1:R:288:VAL:HG23	1.92	0.51
6:N:51:ILE:HG21	6:N:79:LEU:HD11	1.92	0.51
5:B:167:ALA:HB1	5:B:176:GLN:HG2	1.93	0.51
1:R:195:ILE:HG21	7:R:401:16C:H331	1.85	0.50
1:R:284:HIS:CG	1:R:287:LEU:HD13	2.34	0.50
3:S:38:ARG:HG2	3:S:94:TYR:CG	2.46	0.50
4:A:239:ASN:OD1	4:A:240:ASP:N	2.44	0.50
5:B:333:ASP:O	5:B:334:SER:OG	2.25	0.50
1:R:261:LEU:N	1:R:261:LEU:CD1	2.73	0.50
3:S:42:GLU:C	3:S:43:LYS:HD3	2.31	0.50
1:R:244:LYS:HB3	4:A:394:VAL:HG23	1.92	0.50
3:S:187:LEU:HD21	3:S:190:TYR:CD2	2.46	0.50
1:R:140:MET:N	1:R:140:MET:SD	2.83	0.50
1:R:306:TYR:HB2	1:R:312:PHE:CG	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:61:PHE:HB2	5:B:340:ASN:OD1	2.12	0.50
3:S:32:PHE:CD1	3:S:100:ILE:HB	2.46	0.50
4:A:43:LEU:HD13	4:A:245:ILE:HD11	1.93	0.50
5:B:64:GLY:HA2	5:B:105:TYR:CD2	2.47	0.50
5:B:87:THR:O	5:B:87:THR:HG22	2.11	0.50
1:R:89:SER:O	1:R:92:PRO:HD2	2.12	0.50
4:A:294:GLN:HB2	4:A:365:CYS:SG	2.52	0.50
1:R:77:MET:HE1	4:A:392:ASN:ND2	2.26	0.50
4:A:16:SER:O	4:A:27:GLU:HG2	2.11	0.50
6:N:91:THR:HA	6:N:124:VAL:HG23	1.94	0.50
3:S:47:TRP:CD2	3:S:237:LEU:HB2	2.47	0.50
1:R:278:LEU:H	1:R:278:LEU:HD23	1.76	0.49
5:B:37:ILE:HG23	5:B:301:LYS:HE3	1.94	0.49
5:B:185:GLY:H	5:B:205:ASP:HB3	1.76	0.49
1:R:69:LYS:HG3	1:R:70:SER:N	2.23	0.49
2:C:15:LEU:HD22	5:B:8:ARG:HH12	1.77	0.49
3:S:158:SER:HB3	3:S:213:THR:HB	1.93	0.49
5:B:106:ALA:HB2	5:B:111:TYR:HB2	1.94	0.49
6:N:83:MET:HB3	6:N:86:LEU:HD21	1.93	0.49
1:R:249:ILE:HD11	4:A:393:LEU:HD21	1.94	0.49
3:S:160:ARG:HE	3:S:211:ALA:HB2	1.78	0.49
6:N:31:ASN:ND2	6:N:103:PHE:HE1	2.10	0.49
7:R:401:16C:O1	7:R:401:16C:H4	2.13	0.49
3:S:141:THR:O	3:S:160:ARG:N	2.42	0.49
2:C:16:VAL:O	2:C:20:LYS:HG3	2.12	0.49
5:B:124:TYR:CE1	5:B:135:VAL:HG22	2.47	0.49
1:R:284:HIS:ND1	1:R:287:LEU:CG	2.60	0.49
7:R:401:16C:H183	7:R:401:16C:C14	2.41	0.48
1:R:303:LEU:O	1:R:307:PHE:HB3	2.13	0.48
4:A:279:ASN:HB3	4:A:282:LEU:HB2	1.95	0.48
5:B:189:SER:HB3	5:B:232:ILE:HG12	1.95	0.48
6:N:51:ILE:HG12	6:N:72:ARG:HG2	1.95	0.48
3:S:35:HIS:HB2	3:S:97:VAL:HG13	1.94	0.48
1:R:268:THR:HA	1:R:271:LEU:HD23	1.96	0.48
3:S:36:TRP:HD1	3:S:70:ILE:HD12	1.78	0.48
4:A:286:SER:HB2	4:A:382:ILE:HD13	1.96	0.48
3:S:57:THR:OG1	4:A:14:GLU:OE2	2.30	0.48
4:A:59:GLN:O	4:A:62:ILE:HG22	2.14	0.48
5:B:204:CYS:HA	5:B:228:ASP:CB	2.38	0.48
1:R:151:SER:O	1:R:152:ILE:C	2.52	0.48
3:S:140:MET:HB2	3:S:239:PHE:O	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:202:ASN:HD21	1:R:267:ARG:HH11	1.51	0.48
3:S:20:LEU:O	3:S:81:LEU:HB2	2.14	0.48
3:S:38:ARG:CG	3:S:94:TYR:CG	2.97	0.48
5:B:123:ILE:O	5:B:136:SER:N	2.44	0.47
5:B:269:ILE:HG21	5:B:289:TYR:HE2	1.79	0.47
1:R:77:MET:HE1	4:A:392:ASN:HD21	1.79	0.47
1:R:38:ARG:O	1:R:98:TYR:OH	2.24	0.47
1:R:199:GLN:O	1:R:271:LEU:HD11	2.14	0.47
3:S:91:THR:HG21	3:S:119:VAL:HB	1.97	0.47
5:B:180:PHE:HB3	5:B:211:TRP:CZ3	2.50	0.47
5:B:68:ARG:O	5:B:84:SER:HB3	2.15	0.47
5:B:274:THR:HG21	5:B:316:SER:HA	1.96	0.47
1:R:264:HIS:N	1:R:264:HIS:CD2	2.80	0.47
3:S:94:TYR:CD1	3:S:94:TYR:CB	2.83	0.47
1:R:310:GLU:O	1:R:311:ASN:C	2.51	0.47
1:R:77:MET:CE	4:A:392:ASN:HD21	2.27	0.47
3:S:61:ALA:O	3:S:65:LYS:HB2	2.15	0.47
3:S:70:ILE:HG13	3:S:81:LEU:HD11	1.97	0.47
3:S:165:LEU:HD23	3:S:233:LEU:HD12	1.96	0.47
4:A:283:ARG:HD2	4:A:356:ARG:HH21	1.79	0.47
1:R:123:TYR:CB	7:R:401:16C:C10	2.92	0.47
1:R:271:LEU:CA	7:R:401:16C:C24	2.90	0.47
3:S:157:ILE:O	3:S:213:THR:OG1	2.21	0.47
3:S:167:HIS:CD2	4:A:6:SER:HB3	2.49	0.47
1:R:267:ARG:NH1	7:R:401:16C:O19	2.48	0.47
1:R:270:HIS:HE1	7:R:401:16C:H261	1.79	0.47
3:S:35:HIS:HB2	3:S:97:VAL:CG1	2.45	0.47
4:A:52:GLY:O	4:A:55:THR:OG1	2.27	0.47
5:B:240:ALA:HA	5:B:254:ASP:HA	1.97	0.47
1:R:263:TYR:CZ	1:R:267:ARG:CD	2.99	0.46
3:S:40:ALA:HB3	3:S:43:LYS:HB2	1.97	0.46
3:S:68:PHE:HB2	3:S:82:GLN:O	2.14	0.46
4:A:60:MET:O	4:A:64:HIS:N	2.43	0.46
5:B:158:VAL:HG12	5:B:190:LEU:HD21	1.96	0.46
1:R:162:ILE:O	1:R:166:ILE:HG12	2.15	0.46
1:R:219:ILE:CG2	8:R:402:CLR:C27	2.93	0.46
3:S:180:ARG:HH11	3:S:183:GLN:NE2	2.14	0.46
3:S:67:ARG:HE	3:S:85:SER:HB3	1.80	0.46
1:R:79:ASN:HD21	1:R:159:CYS:CB	2.29	0.46
4:A:357:HIS:O	4:A:358:ILE:HD13	2.15	0.46
3:S:191:ARG:O	3:S:192:MET:HG2	2.14	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:N:52:SER:OG	6:N:53:GLN:N	2.48	0.46
1:R:203:TYR:HE1	1:R:271:LEU:HG	1.79	0.46
1:R:275:LYS:CE	7:R:401:16C:H331	2.46	0.46
3:S:146:SER:OG	3:S:246:GLU:OE1	2.28	0.46
3:S:180:ARG:HB2	3:S:183:GLN:HE21	1.81	0.46
4:A:234:TRP:HB2	5:B:117:LEU:HD11	1.98	0.46
1:R:127:TYR:HA	1:R:130:THR:HG22	1.98	0.46
4:A:362:HIS:ND1	4:A:374:ARG:HD2	2.31	0.46
3:S:59:TYR:CD2	3:S:235:TYR:CG	3.03	0.46
3:S:165:LEU:HD11	3:S:231:GLN:HB3	1.98	0.46
3:S:38:ARG:CG	3:S:94:TYR:CD2	2.99	0.46
4:A:289:LEU:HB2	4:A:361:PRO:HA	1.97	0.46
5:B:235:PHE:HD2	5:B:237:ASN:H	1.64	0.46
5:B:294:CYS:SG	5:B:315:VAL:HG11	2.56	0.46
1:R:274:TRP:CG	1:R:279:CYS:HB3	2.51	0.45
5:B:48:ARG:HG3	5:B:340:ASN:OD1	2.16	0.45
3:S:176:TRP:CD2	3:S:214:LEU:HD22	2.52	0.45
5:B:222:PHE:HE2	5:B:258:ASP:HA	1.81	0.45
3:S:217:SER:HB3	3:S:218:ARG:HH21	1.81	0.45
3:S:220:GLU:OE2	3:S:222:GLU:HB2	2.16	0.45
4:A:368:ASP:HB3	4:A:371:ASN:ND2	2.30	0.45
3:S:169:ASN:HB2	3:S:171:ASN:OD1	2.16	0.45
1:R:195:ILE:HG23	7:R:401:16C:C34	2.23	0.45
1:R:271:LEU:CG	7:R:401:16C:H221	2.46	0.45
5:B:249:THR:HG22	5:B:265:SER:HB3	1.98	0.45
6:N:33:LYS:HG3	6:N:52:SER:HA	1.98	0.45
1:R:44:VAL:O	1:R:48:ILE:HG12	2.16	0.45
1:R:114:MET:HA	1:R:118:LEU:HD23	1.98	0.45
1:R:116:TYR:CD2	1:R:174:LEU:HA	2.51	0.45
3:S:38:ARG:NH1	3:S:94:TYR:CE2	2.84	0.45
3:S:97:VAL:HG21	3:S:108:PHE:CD1	2.52	0.45
5:B:286:LEU:HG	5:B:296:VAL:HG22	1.98	0.45
3:S:172:THR:HG21	3:S:212:PHE:HZ	1.82	0.45
1:R:296:ALA:O	1:R:299:CYS:HB3	2.17	0.44
3:S:171:ASN:OD1	3:S:171:ASN:N	2.49	0.44
3:S:173:TYR:HE2	4:A:8:GLU:HG3	1.82	0.44
5:B:113:ALA:HA	5:B:122:SER:O	2.16	0.44
6:N:91:THR:HG22	6:N:126:VAL:HG13	1.99	0.44
5:B:134:ARG:NH1	5:B:136:SER:HA	2.32	0.44
5:B:217:MET:SD	5:B:219:ARG:HD2	2.58	0.44
5:B:283:ARG:O	5:B:283:ARG:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:N:29:PHE:HB2	6:N:77:ASN:OD1	2.18	0.44
5:B:26:ALA:HB2	5:B:259:GLN:HE21	1.82	0.44
1:R:91:LEU:HA	1:R:94:ARG:HH11	1.83	0.44
1:R:265:THR:O	1:R:269:VAL:HG12	2.18	0.44
4:A:302:LEU:HD12	4:A:303:ALA:HB2	1.98	0.44
1:R:202:ASN:HD22	7:R:401:16C:C21	2.27	0.44
1:R:273:THR:O	1:R:277:GLY:N	2.51	0.44
5:B:100:VAL:HA	5:B:116:GLY:HA3	1.99	0.44
6:N:118:ARG:HG2	6:N:119:GLY:N	2.29	0.44
4:A:290:PHE:HE2	4:A:371:ASN:HB3	1.83	0.44
5:B:107:PRO:HD3	5:B:151:PHE:HB2	1.98	0.44
1:R:79:ASN:ND2	1:R:159:CYS:SG	2.91	0.44
1:R:120:VAL:HG11	1:R:167:MET:SD	2.57	0.44
1:R:126:ILE:HG12	1:R:260:PHE:CD2	2.53	0.44
2:C:11:GLN:HA	2:C:14:LYS:HG2	1.99	0.44
4:A:293:LYS:HD2	4:A:296:LEU:HD12	1.99	0.44
1:R:123:TYR:HB2	7:R:401:16C:H101	1.99	0.43
1:R:137:PHE:CE2	8:R:402:CLR:H263	2.52	0.43
4:A:233:LYS:HA	4:A:233:LYS:HD3	1.88	0.43
6:N:51:ILE:HB	6:N:70:ILE:HG12	2.00	0.43
3:S:165:LEU:HA	3:S:233:LEU:HD11	2.00	0.43
1:R:110:ALA:HA	1:R:113:ILE:HG22	2.00	0.43
5:B:11:ALA:O	5:B:15:LYS:HG2	2.18	0.43
3:S:202:ARG:NH1	3:S:223:ASP:OD2	2.51	0.43
5:B:14:LEU:HD23	5:B:14:LEU:HA	1.87	0.43
5:B:30:LEU:HB3	5:B:262:MET:HE2	2.00	0.43
5:B:49:ARG:HB2	5:B:338:ILE:HD13	2.00	0.43
4:A:279:ASN:O	4:A:283:ARG:HG3	2.19	0.43
5:B:72:SER:HB3	5:B:336:LEU:HD11	2.00	0.43
1:R:208:VAL:CG1	1:R:209:GLY:N	2.82	0.43
3:S:76:LYS:HB3	3:S:76:LYS:HE3	1.84	0.43
3:S:103:TYR:CZ	5:B:68:ARG:HD3	2.53	0.43
3:S:207:GLY:HA2	3:S:212:PHE:CB	2.49	0.43
3:S:220:GLU:CD	3:S:222:GLU:H	2.21	0.43
6:N:61:THR:HG22	6:N:64:VAL:HG22	2.01	0.43
6:N:86:LEU:HD23	6:N:86:LEU:HA	1.90	0.43
1:R:199:GLN:OE1	1:R:271:LEU:CD1	2.65	0.43
3:S:176:TRP:CE2	3:S:214:LEU:HD22	2.53	0.43
4:A:42:ARG:O	4:A:241:VAL:HB	2.18	0.43
4:A:50:ASN:OD1	4:A:50:ASN:N	2.52	0.43
5:B:57:LYS:HE3	5:B:75:GLN:HG3	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:S:214:LEU:H	3:S:214:LEU:HD23	1.84	0.43
6:N:92:ALA:O	6:N:124:VAL:HG22	2.19	0.43
3:S:173:TYR:CD2	4:A:8:GLU:HG3	2.54	0.43
1:R:239:ARG:HD3	1:R:243:ARG:HE	1.84	0.42
1:R:259:CYS:HB2	1:R:260:PHE:CD1	2.52	0.42
5:B:201:SER:HB3	5:B:211:TRP:HE1	1.84	0.42
3:S:27:PHE:HA	5:B:130:GLU:OE1	2.19	0.42
3:S:27:PHE:HA	5:B:130:GLU:OE2	2.19	0.42
3:S:33:GLY:N	3:S:99:SER:O	2.51	0.42
5:B:213:VAL:O	5:B:213:VAL:HG13	2.19	0.42
3:S:22:CYS:SG	3:S:23:SER:N	2.92	0.42
3:S:138:ILE:O	3:S:238:THR:HG21	2.19	0.42
1:R:301:ASN:N	1:R:302:PRO:HD2	2.35	0.42
3:S:160:ARG:NE	3:S:211:ALA:HB2	2.33	0.42
4:A:13:VAL:HG22	5:B:88:ASN:HD21	1.84	0.42
5:B:191:SER:O	5:B:234:PHE:HE2	2.03	0.42
3:S:36:TRP:CD1	3:S:70:ILE:HD12	2.54	0.42
2:C:49:PRO:HG2	5:B:324:GLY:O	2.19	0.42
1:R:138:LEU:HD23	1:R:138:LEU:HA	1.94	0.42
1:R:265:THR:HG23	1:R:266:LEU:HD12	2.00	0.42
1:R:288:VAL:HA	1:R:291:LEU:HD21	2.02	0.42
1:R:297:ASN:C	1:R:299:CYS:N	2.72	0.42
8:R:402:CLR:C20	8:R:402:CLR:C27	2.85	0.42
8:R:403:CLR:H111	8:R:403:CLR:H182	1.43	0.42
3:S:157:ILE:HG12	3:S:243:THR:OG1	2.19	0.42
4:A:43:LEU:HD23	4:A:242:THR:O	2.19	0.42
5:B:311:HIS:HE1	5:B:335:PHE:O	2.02	0.42
1:R:258:LEU:HA	1:R:258:LEU:HD12	1.68	0.42
1:R:263:TYR:CE1	1:R:267:ARG:HD2	2.54	0.42
7:R:401:16C:O1	7:R:401:16C:C4	2.68	0.42
3:S:178:LEU:HD12	3:S:227:TYR:CE2	2.55	0.42
3:S:165:LEU:HD21	3:S:231:GLN:HB2	2.01	0.41
3:S:175:TYR:HB2	3:S:230:MET:HB3	2.02	0.41
4:A:295:ASP:N	4:A:295:ASP:OD1	2.52	0.41
5:B:118:ASP:OD1	5:B:118:ASP:N	2.50	0.41
5:B:161:SER:HB3	5:B:163:ASP:OD1	2.20	0.41
6:N:12:VAL:HG11	6:N:18:LEU:HB2	2.02	0.41
1:R:74:ASN:HD22	1:R:77:MET:HE3	1.85	0.41
1:R:195:ILE:CG2	1:R:196:ALA:N	2.83	0.41
1:R:311:ASN:HD22	1:R:311:ASN:HA	1.67	0.41
3:S:157:ILE:HD11	3:S:243:THR:HG21	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:N:37:VAL:HG23	6:N:95:TYR:HB2	2.02	0.41
1:R:210:CYS:SG	1:R:264:HIS:CE1	3.14	0.41
3:S:48:VAL:HG12	3:S:49:ALA:N	2.25	0.41
2:C:54:VAL:CB	2:C:59:ASN:HB3	2.51	0.41
3:S:67:ARG:HH21	3:S:86:LEU:H	1.69	0.41
4:A:235:ILE:HG12	4:A:282:LEU:HD11	2.03	0.41
4:A:275:SER:HA	6:N:106:ASP:HB2	2.02	0.41
4:A:290:PHE:HB3	4:A:364:THR:HG21	2.03	0.41
1:R:127:TYR:O	1:R:130:THR:HG22	2.21	0.41
1:R:270:HIS:HB2	1:R:274:TRP:CE3	2.55	0.41
5:B:61:MET:CE	5:B:328:ALA:HB3	2.50	0.41
1:R:275:LYS:NZ	1:R:275:LYS:CB	2.73	0.41
3:S:47:TRP:HB2	3:S:237:LEU:O	2.20	0.41
4:A:220:HIS:CD2	4:A:222:PHE:CZ	3.09	0.41
5:B:114:CYS:SG	5:B:115:GLY:N	2.94	0.41
5:B:254:ASP:OD2	5:B:257:ALA:HB3	2.20	0.41
6:N:6:GLU:OE2	6:N:96:CYS:N	2.41	0.41
1:R:249:ILE:HG12	4:A:393:LEU:HD11	2.02	0.41
2:C:26:ASP:N	2:C:26:ASP:OD1	2.53	0.41
3:S:34:MET:CB	3:S:79:LEU:HD21	2.50	0.41
3:S:87:ARG:O	3:S:89:GLU:N	2.53	0.41
5:B:22:ARG:NH2	5:B:221:THR:O	2.54	0.41
5:B:137:ARG:NH2	5:B:172:GLU:O	2.54	0.41
1:R:168:ALA:HA	1:R:171:ILE:HG12	2.03	0.41
7:R:401:16C:H12	7:R:401:16C:O19	2.21	0.41
5:B:79:LEU:HB2	5:B:93:ILE:HB	2.02	0.41
3:S:47:TRP:CE2	3:S:48:VAL:O	2.74	0.41
4:A:382:ILE:HD13	4:A:382:ILE:HG21	1.71	0.41
2:C:51:LEU:O	2:C:53:PRO:HD3	2.21	0.40
3:S:108:PHE:HE2	3:S:232:HIS:CD2	2.39	0.40
1:R:263:TYR:CE2	1:R:267:ARG:NE	2.88	0.40
2:C:13:ARG:O	2:C:17:GLU:HG2	2.22	0.40
3:S:179:GLN:O	3:S:225:GLY:HA3	2.20	0.40
4:A:50:ASN:O	4:A:293:LYS:NZ	2.53	0.40
5:B:84:SER:O	5:B:84:SER:OG	2.32	0.40
5:B:126:LEU:HA	5:B:133:VAL:HG22	2.02	0.40
5:B:266:HIS:HB3	5:B:269:ILE:CD1	2.51	0.40
2:C:54:VAL:HB	2:C:59:ASN:HB3	2.03	0.40
4:A:322:GLU:OE1	4:A:322:GLU:N	2.55	0.40
5:B:311:HIS:NE2	5:B:329:THR:OG1	2.54	0.40
1:R:220:CYS:O	1:R:224:ILE:HG13	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:S:38:ARG:NH1	3:S:94:TYR:CD2	2.90	0.40
3:S:237:LEU:HD23	3:S:237:LEU:HA	1.88	0.40
4:A:56:ILE:HG22	4:A:60:MET:CE	2.52	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	R	251/346 (72%)	220 (88%)	28 (11%)	3 (1%)	11	19
2	C	53/59 (90%)	50 (94%)	3 (6%)	0	100	100
3	S	229/250 (92%)	173 (76%)	56 (24%)	0	100	100
4	A	230/361 (64%)	212 (92%)	18 (8%)	0	100	100
5	B	336/358 (94%)	306 (91%)	30 (9%)	0	100	100
6	N	126/151 (83%)	106 (84%)	20 (16%)	0	100	100
All	All	1225/1525 (80%)	1067 (87%)	155 (13%)	3 (0%)	45	63

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	R	298	ALA
1	R	69	LYS
1	R	269	VAL

### 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	R	225/314 (72%)	207 (92%)	18 (8%)	10	18
2	C	44/48 (92%)	43 (98%)	1 (2%)	45	67
3	S	195/203 (96%)	194 (100%)	1 (0%)	86	92
4	A	197/316 (62%)	195 (99%)	2 (1%)	73	84
5	B	278/299 (93%)	277 (100%)	1 (0%)	89	93
6	N	104/121 (86%)	103 (99%)	1 (1%)	73	84
All	All	1043/1301 (80%)	1019 (98%)	24 (2%)	46	67

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	R	35	ASN
1	R	121	ASN
1	R	140	MET
1	R	153	ARG
1	R	154	SER
1	R	195	ILE
1	R	208	VAL
1	R	262	PRO
1	R	269	VAL
1	R	270	HIS
1	R	271	LEU
1	R	280	LYS
1	R	287	LEU
1	R	289	ILE
1	R	291	LEU
1	R	297	ASN
1	R	310	GLU
1	R	311	ASN
2	C	46	LYS
3	S	231	GLN
4	A	356	ARG
4	A	379	CYS
5	B	129	ARG
6	N	105	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	R	79	ASN
1	R	148	HIS
1	R	202	ASN
1	R	270	HIS
1	R	311	ASN
3	S	3	GLN
3	S	183	GLN

### 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 ⓘ

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry ⓘ

3 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	$\# Z  > 2$
7	16C	R	401	-	36,37,37	0.81	1 (2%)	37,39,39	1.91	6 (16%)
8	CLR	R	402	-	31,31,31	1.51	5 (16%)	48,48,48	3.11	19 (39%)
8	CLR	R	403	-	31,31,31	1.62	7 (22%)	48,48,48	3.26	28 (58%)

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
7	16C	R	401	-	-	25/40/40/40	-
8	CLR	R	402	-	-	6/10/68/68	0/4/4/4
8	CLR	R	403	-	-	10/10/68/68	0/4/4/4

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	R	402	CLR	C13-C17	-4.27	1.46	1.55
8	R	402	CLR	C20-C17	-4.02	1.47	1.54
8	R	403	CLR	C10-C9	-3.69	1.49	1.56
8	R	403	CLR	C11-C9	-3.58	1.47	1.53
8	R	403	CLR	C19-C10	-3.23	1.49	1.54
8	R	403	CLR	C10-C5	-2.82	1.47	1.52
7	R	401	16C	C3-C4	2.72	1.54	1.50
8	R	402	CLR	C18-C13	-2.49	1.50	1.54
8	R	402	CLR	C12-C13	-2.42	1.49	1.54
8	R	403	CLR	C1-C10	-2.34	1.49	1.54
8	R	403	CLR	C8-C14	-2.33	1.49	1.53
8	R	403	CLR	C12-C13	-2.16	1.50	1.54
8	R	402	CLR	C13-C14	-2.09	1.51	1.55

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	R	402	CLR	C14-C8-C9	-10.00	95.70	109.09
8	R	403	CLR	C12-C11-C9	-7.68	99.81	113.11
8	R	402	CLR	C21-C20-C22	-7.44	98.70	110.36
8	R	403	CLR	C8-C7-C6	-6.72	103.08	112.73
8	R	403	CLR	C11-C12-C13	-6.23	102.09	112.78
8	R	402	CLR	C10-C9-C8	6.22	122.07	112.73
8	R	403	CLR	C7-C6-C5	-5.73	114.50	125.06
8	R	402	CLR	C21-C20-C17	-5.65	104.27	112.92
7	R	401	16C	O19-C19-C20	-5.42	112.11	122.02
8	R	403	CLR	C16-C17-C20	-5.31	103.93	112.15
8	R	403	CLR	C10-C5-C6	-5.17	114.99	122.90
8	R	402	CLR	C22-C20-C17	-5.09	99.78	110.28
8	R	402	CLR	C13-C14-C8	-4.93	107.08	114.38
8	R	403	CLR	C3-C4-C5	-4.92	103.68	112.03
8	R	403	CLR	C11-C9-C8	-4.89	104.71	111.75
8	R	402	CLR	C13-C17-C20	-4.88	111.84	119.49
7	R	401	16C	C2-N2-C19	4.75	131.49	123.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	R	401	16C	C20-C19-N2	4.65	123.89	115.83
8	R	402	CLR	C7-C8-C14	4.58	117.55	110.91
8	R	402	CLR	C15-C14-C13	4.35	109.08	103.84
8	R	402	CLR	C11-C12-C13	-4.32	105.38	112.78
8	R	403	CLR	C1-C2-C3	4.28	115.96	110.47
8	R	403	CLR	C9-C10-C5	-4.26	102.97	109.65
8	R	403	CLR	C12-C13-C17	4.07	122.67	116.57
8	R	403	CLR	C17-C13-C14	-4.03	95.30	100.07
8	R	403	CLR	C11-C9-C10	-4.03	107.78	113.08
8	R	402	CLR	C7-C8-C9	3.89	114.43	109.71
8	R	403	CLR	C4-C5-C10	3.63	121.25	116.42
8	R	403	CLR	C13-C17-C20	3.62	125.15	119.49
8	R	403	CLR	C16-C15-C14	-3.44	98.32	105.13
7	R	401	16C	C3-C2-N2	3.43	116.23	110.01
7	R	401	16C	C3-C4-C5	-3.29	117.46	124.79
8	R	402	CLR	C3-C4-C5	-3.22	106.56	112.03
8	R	403	CLR	O1-C3-C2	-3.14	102.17	110.16
8	R	403	CLR	C19-C10-C5	3.10	113.35	108.34
8	R	403	CLR	C7-C8-C14	3.08	115.38	110.91
8	R	403	CLR	C21-C20-C17	3.03	117.56	112.92
8	R	403	CLR	C1-C10-C5	2.97	114.18	108.75
8	R	402	CLR	C12-C13-C17	-2.95	112.16	116.57
8	R	403	CLR	C22-C20-C17	2.90	116.28	110.28
8	R	402	CLR	C15-C14-C8	2.86	123.79	119.08
7	R	401	16C	C1-C2-N2	2.83	113.78	109.27
8	R	403	CLR	C13-C14-C8	2.66	118.32	114.38
8	R	402	CLR	C8-C7-C6	-2.61	108.98	112.73
8	R	403	CLR	C10-C9-C8	2.58	116.60	112.73
8	R	403	CLR	C18-C13-C12	-2.33	106.91	110.59
8	R	403	CLR	C21-C20-C22	-2.23	106.87	110.36
8	R	402	CLR	C1-C10-C9	2.19	111.79	108.73
8	R	402	CLR	C16-C17-C20	2.18	115.53	112.15
8	R	403	CLR	C4-C5-C6	2.18	123.74	120.61
8	R	402	CLR	C9-C10-C5	-2.14	106.30	109.65
8	R	402	CLR	C19-C10-C1	-2.14	106.06	109.43
8	R	403	CLR	C19-C10-C1	-2.01	106.25	109.43

There are no chirality outliers.

All (41) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	R	401	16C	C1-C2-N2-C19

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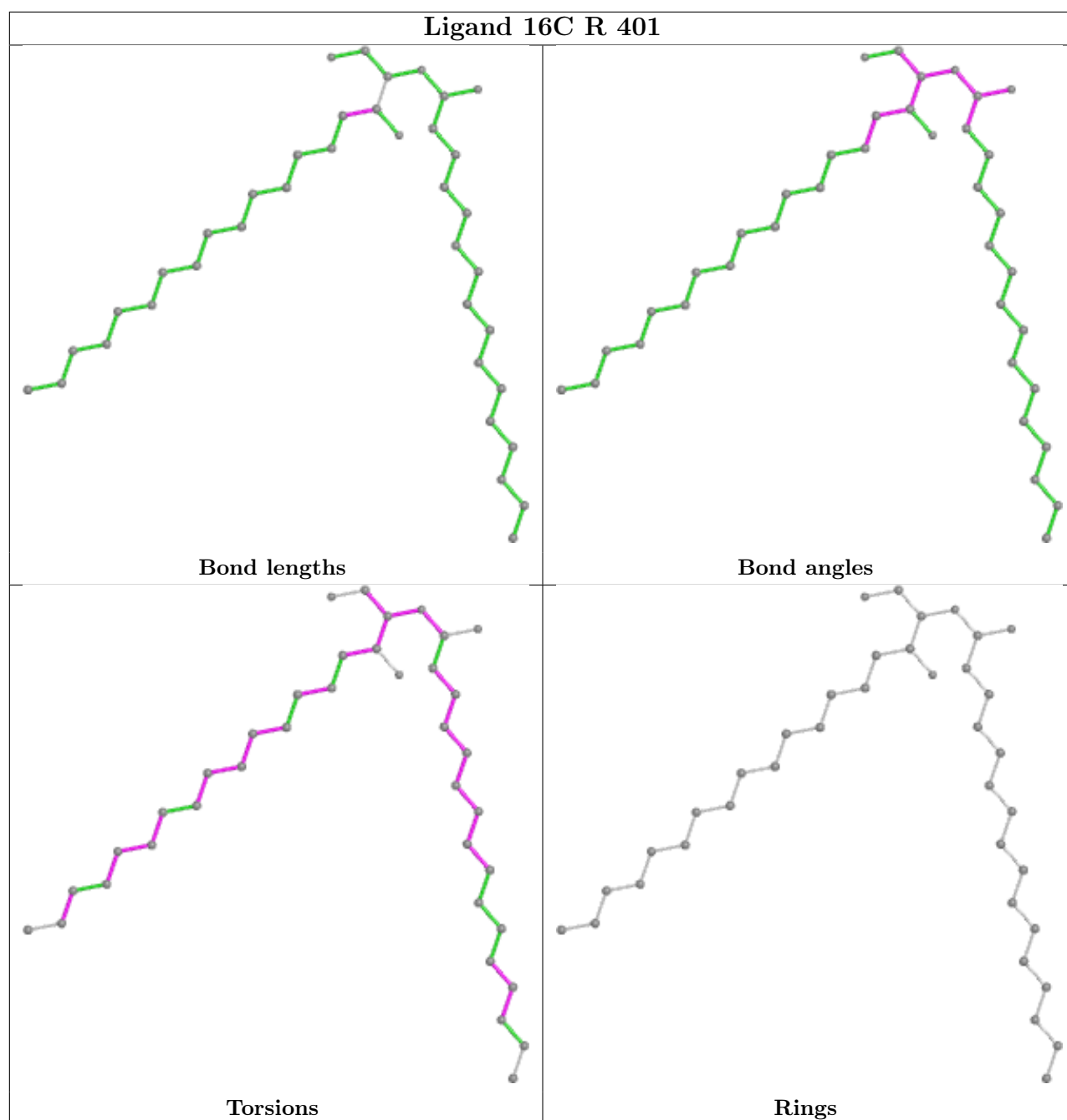
Mol	Chain	Res	Type	Atoms
7	R	401	16C	C1-C2-C3-C4
7	R	401	16C	C1-C2-C3-O3
8	R	403	CLR	C13-C17-C20-C21
8	R	403	CLR	C13-C17-C20-C22
8	R	403	CLR	C16-C17-C20-C21
8	R	403	CLR	C16-C17-C20-C22
8	R	403	CLR	C17-C20-C22-C23
8	R	402	CLR	C20-C22-C23-C24
8	R	402	CLR	C17-C20-C22-C23
8	R	402	CLR	C21-C20-C22-C23
8	R	403	CLR	C20-C22-C23-C24
8	R	403	CLR	C21-C20-C22-C23
8	R	403	CLR	C23-C24-C25-C27
7	R	401	16C	C23-C24-C25-C26
7	R	401	16C	C7-C8-C9-C10
7	R	401	16C	C11-C10-C9-C8
7	R	401	16C	C13-C14-C15-C16
7	R	401	16C	C24-C25-C26-C27
7	R	401	16C	C21-C22-C23-C24
7	R	401	16C	C30-C31-C32-C33
8	R	403	CLR	C22-C23-C24-C25
7	R	401	16C	C9-C10-C11-C12
7	R	401	16C	C19-C20-C21-C22
8	R	402	CLR	C23-C24-C25-C26
7	R	401	16C	C20-C21-C22-C23
7	R	401	16C	C25-C26-C27-C28
8	R	403	CLR	C23-C24-C25-C26
7	R	401	16C	C6-C7-C8-C9
7	R	401	16C	C11-C12-C13-C14
8	R	402	CLR	C23-C24-C25-C27
7	R	401	16C	C15-C16-C17-C18
7	R	401	16C	C29-C30-C31-C32
7	R	401	16C	C12-C13-C14-C15
7	R	401	16C	C22-C23-C24-C25
7	R	401	16C	C2-C3-C4-C5
7	R	401	16C	C4-C5-C6-C7
7	R	401	16C	O1-C1-C2-N2
7	R	401	16C	O19-C19-N2-C2
8	R	402	CLR	C13-C17-C20-C21
7	R	401	16C	N2-C2-C3-C4

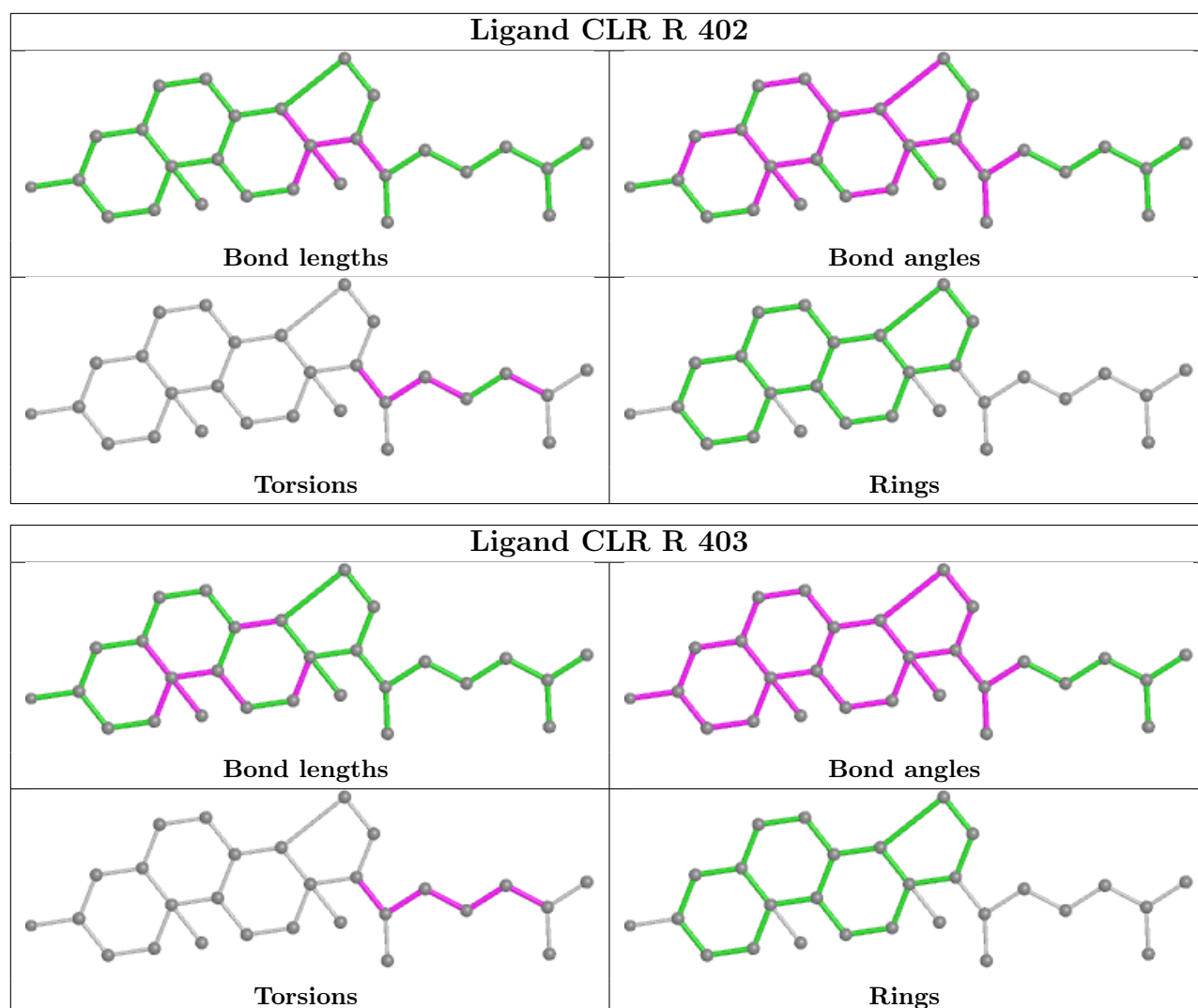
There are no ring outliers.

3 monomers are involved in 161 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	R	401	16C	102	0
8	R	402	CLR	43	0
8	R	403	CLR	32	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 than 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.





## 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.

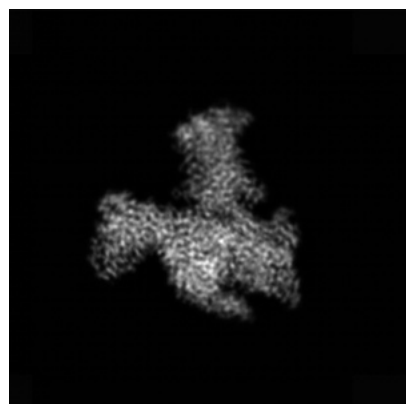
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-61472. These allow visual inspection of the internal detail of the map and identification of artifacts.

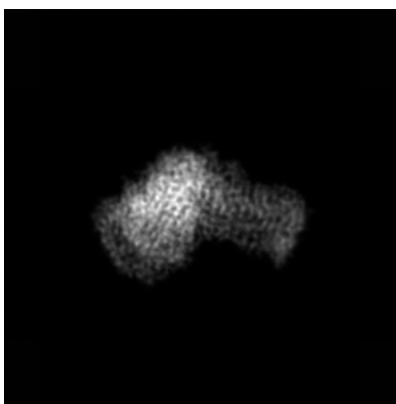
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

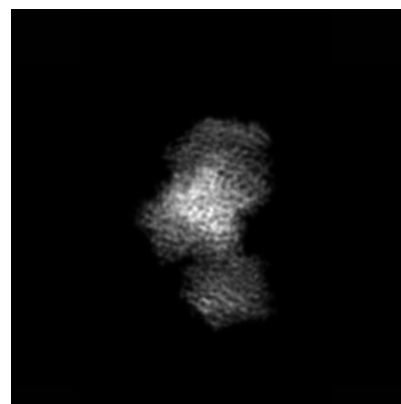
#### 6.1.1 Primary map



X

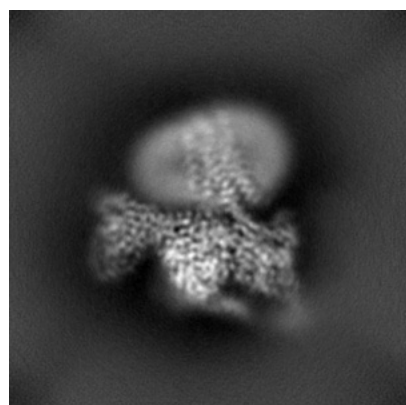


Y

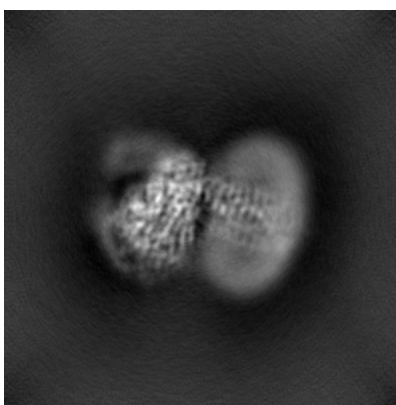


Z

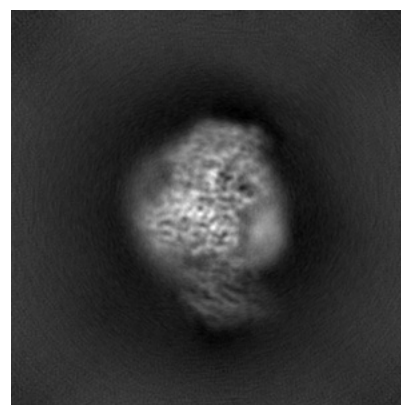
#### 6.1.2 Raw map



X



Y

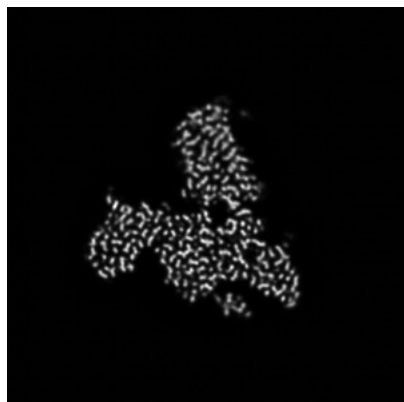


Z

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

## 6.2 Central slices [i](#)

### 6.2.1 Primary map



X Index: 128

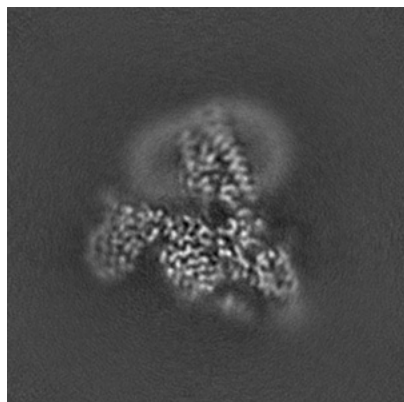


Y Index: 128

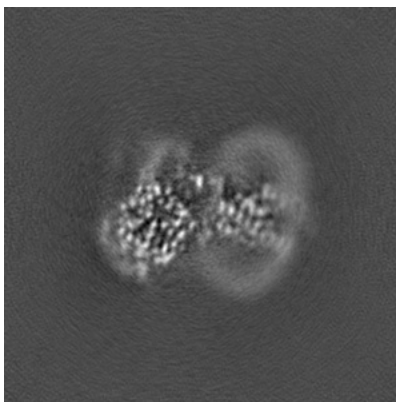


Z Index: 128

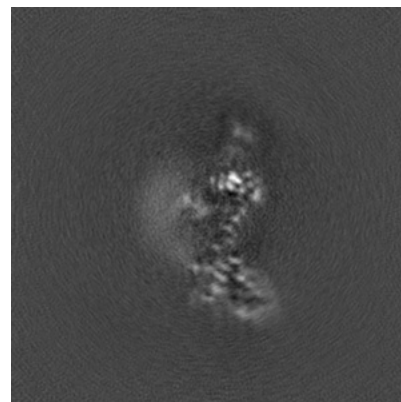
### 6.2.2 Raw map



X Index: 128



Y Index: 128



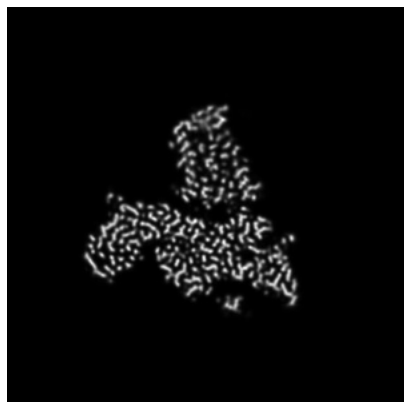
Z Index: 128

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: 131

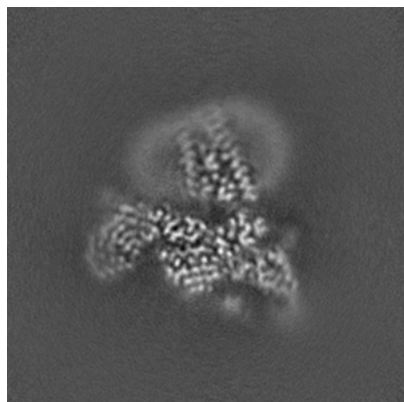


Y Index: 126

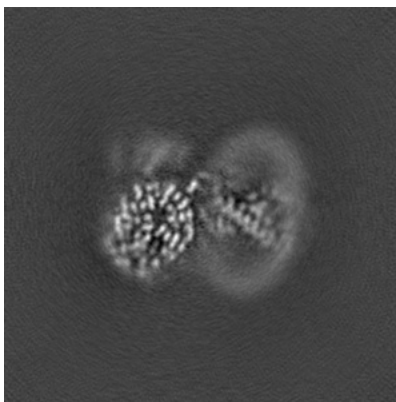


Z Index: 106

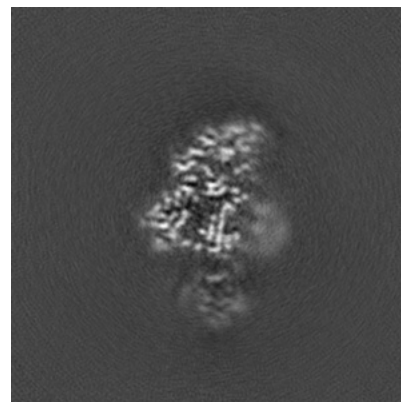
### 6.3.2 Raw map



X Index: 130



Y Index: 125



Z Index: 98

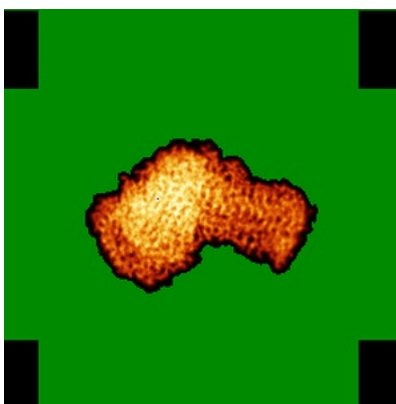
The images above show the largest variance slices of the map in three orthogonal directions.

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

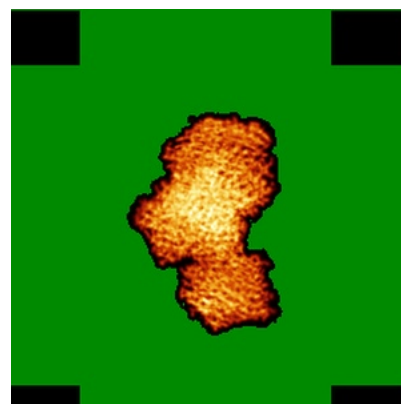
### 6.4.1 Primary map



X

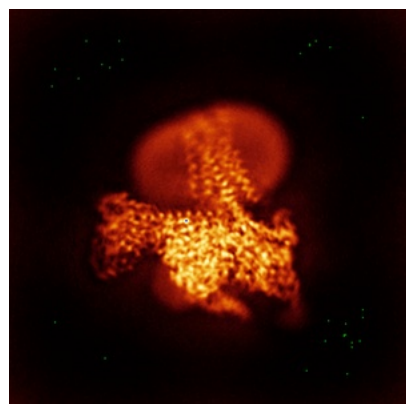


Y

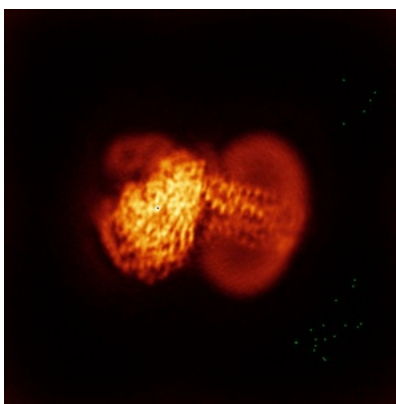


Z

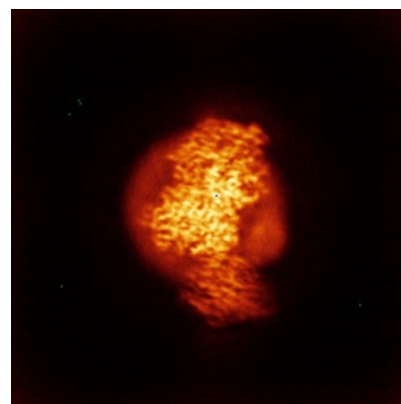
### 6.4.2 Raw map



X



Y

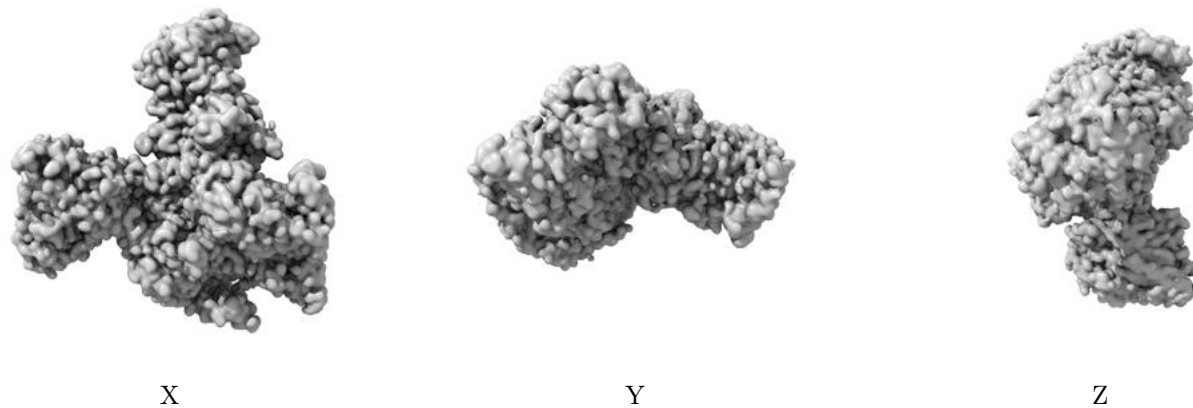


Z

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.

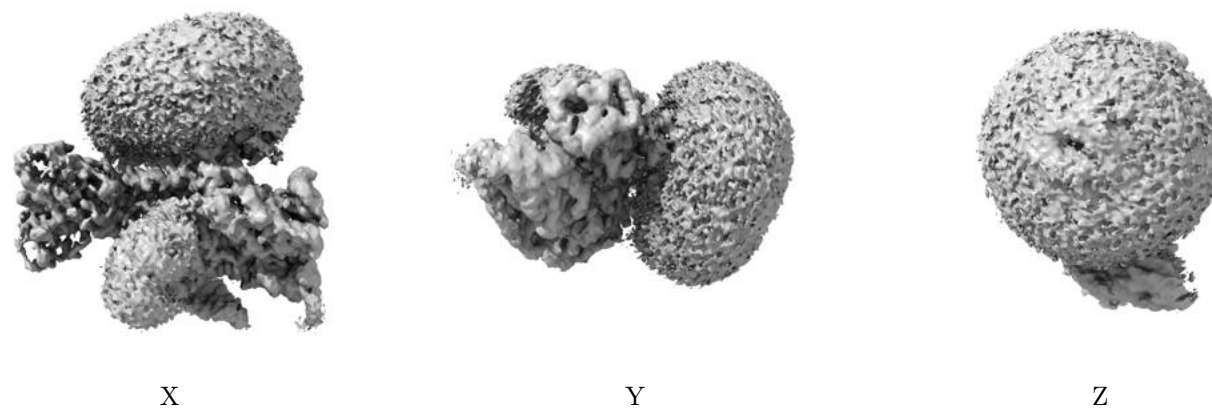
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.9. 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



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.

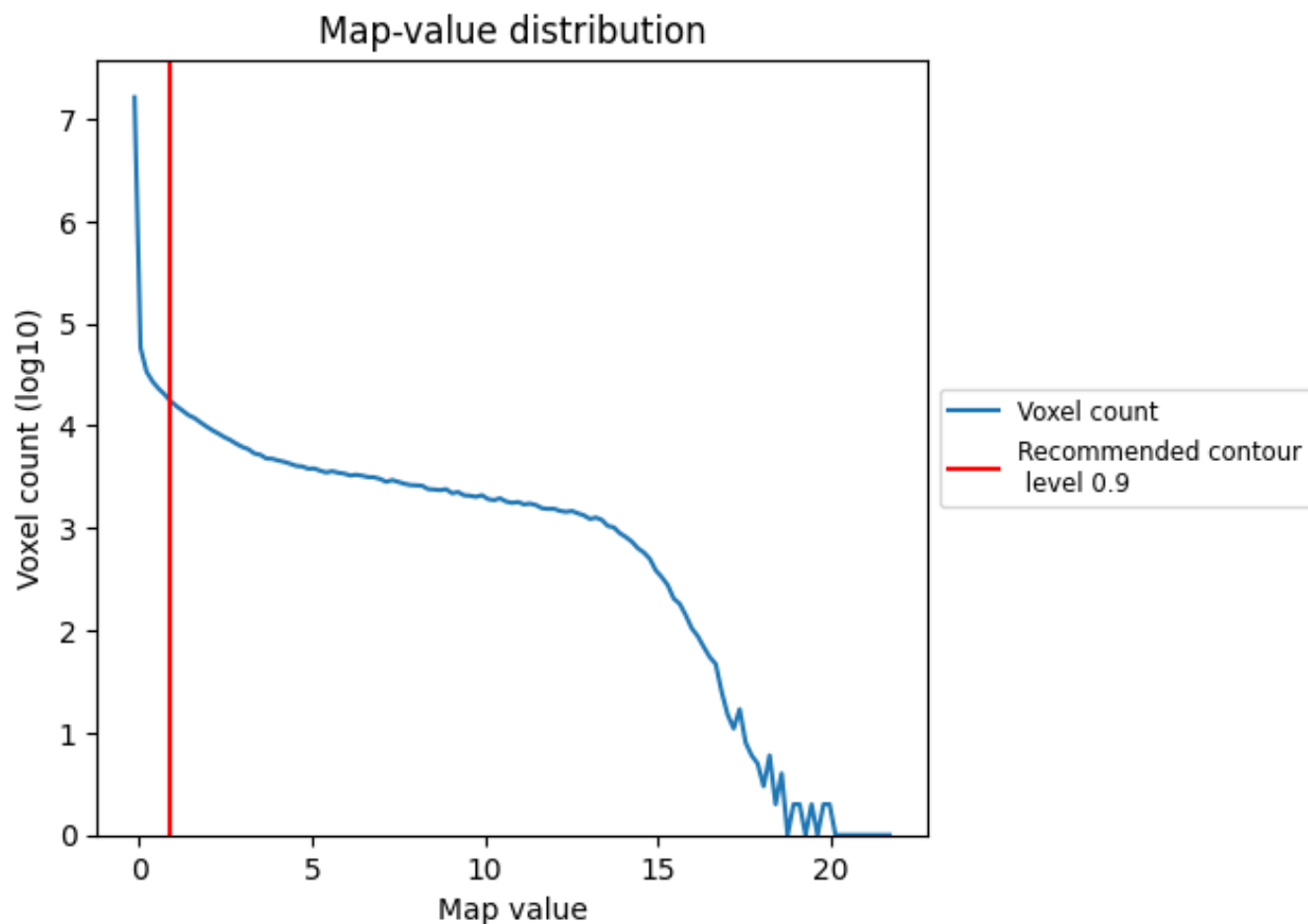
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

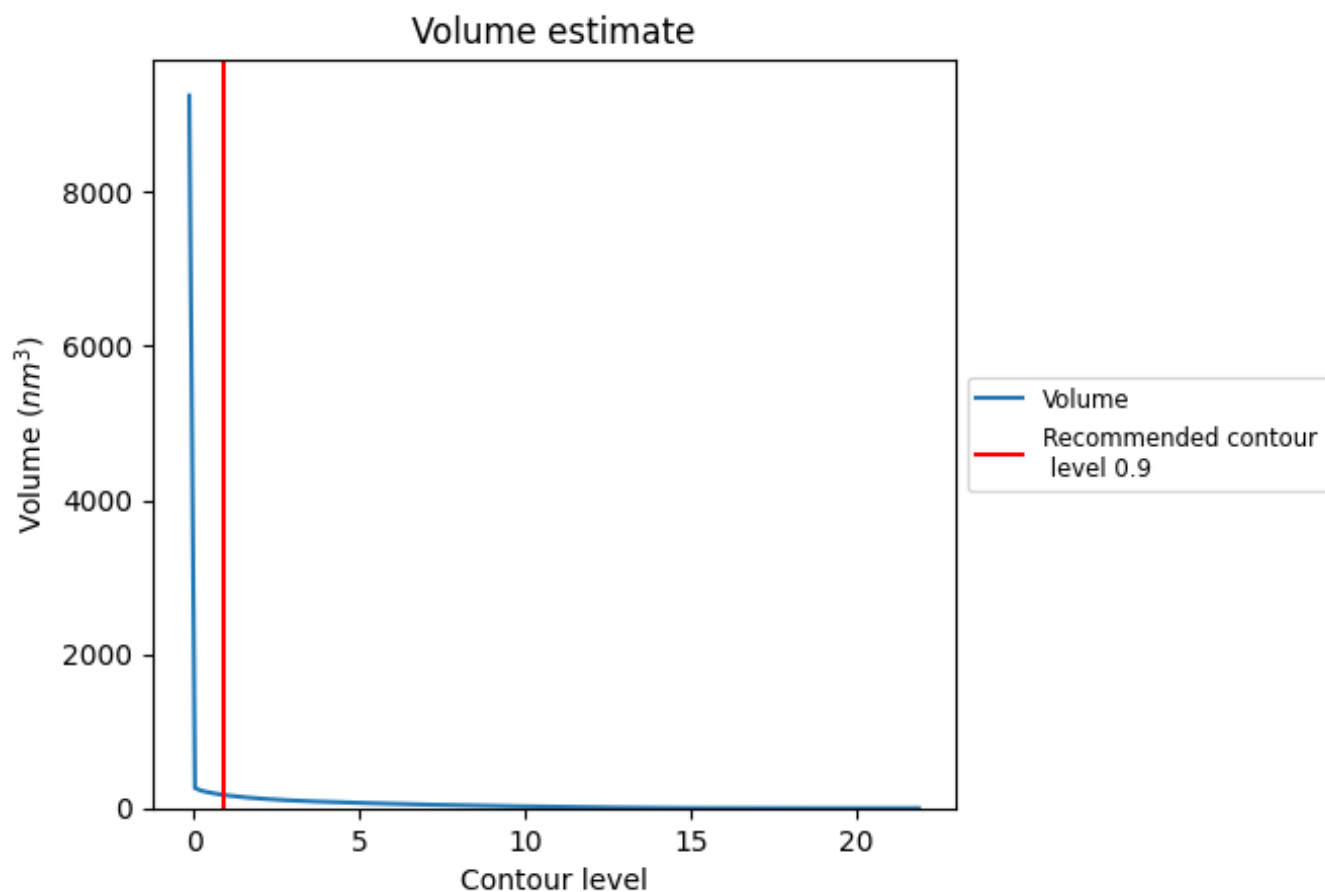
This section contains the results of statistical analysis of the map.

### 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.

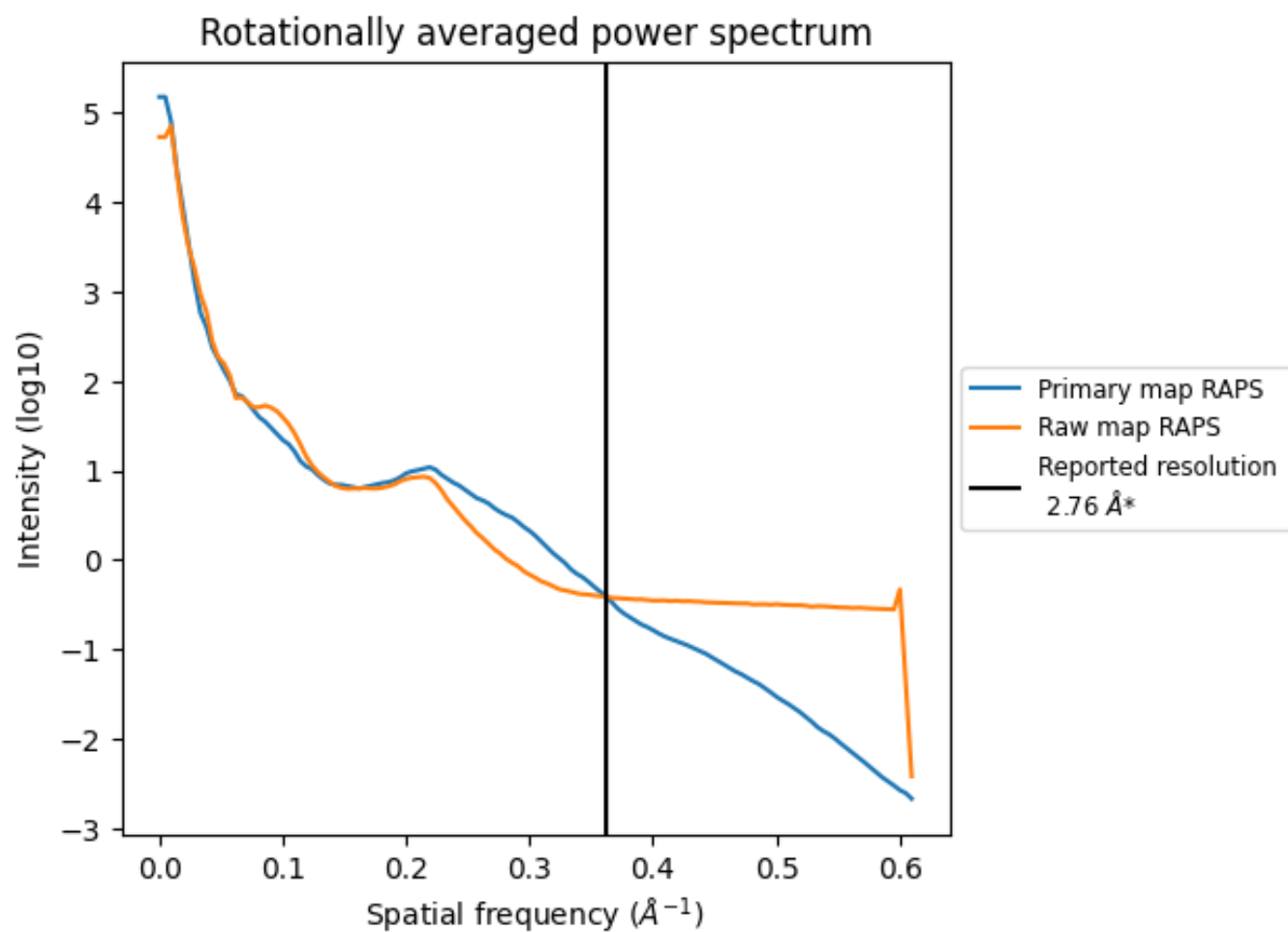
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 172  $\text{nm}^3$ ; this corresponds to an approximate mass of 155 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 ⓘ

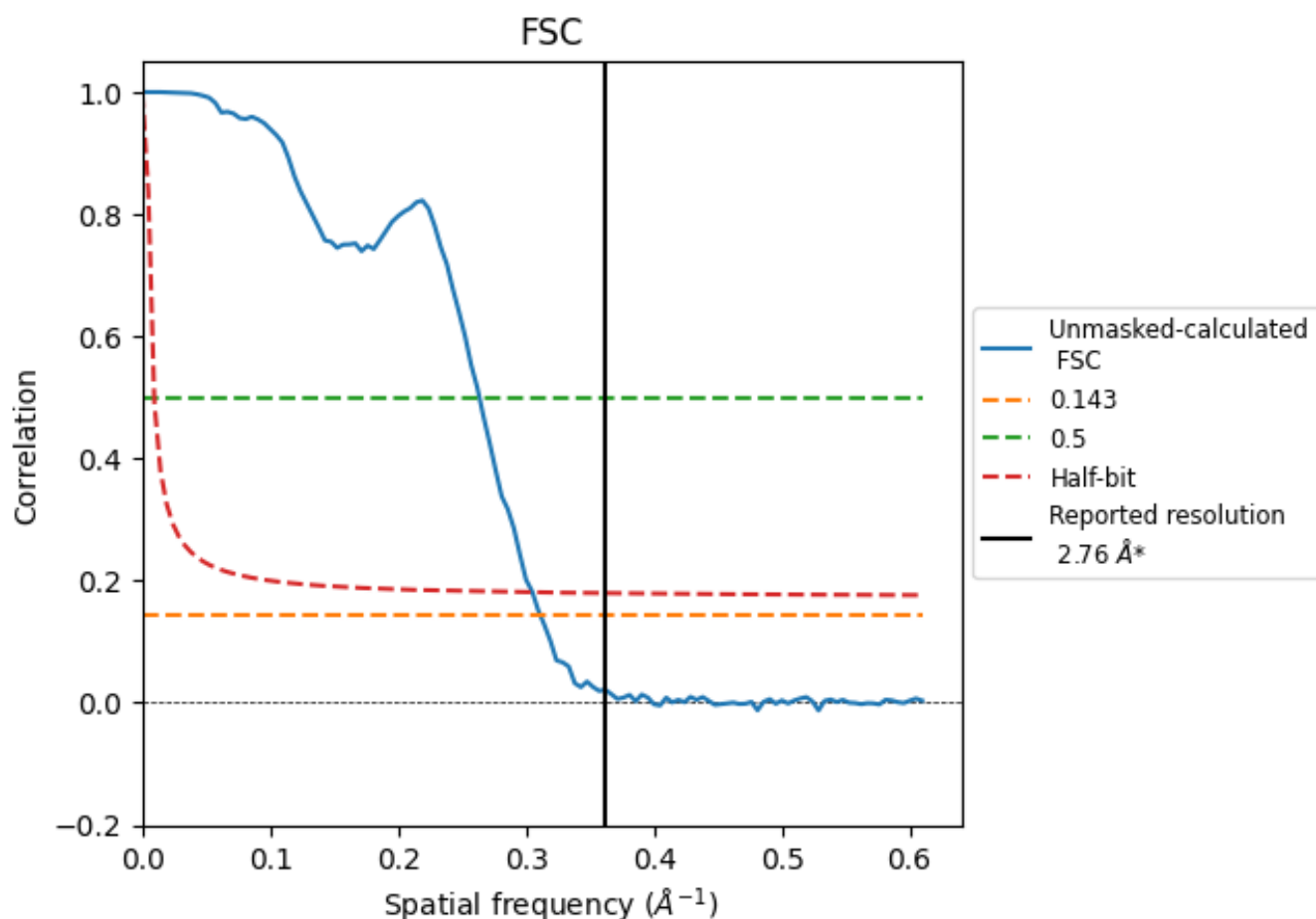


\*Reported resolution corresponds to spatial frequency of 0.362 Å⁻¹

## 8 Fourier-Shell correlation [i](#)

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 [i](#)



\*Reported resolution corresponds to spatial frequency of  $0.362 \text{ \AA}^{-1}$

## 8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.76	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.21	3.79	3.28

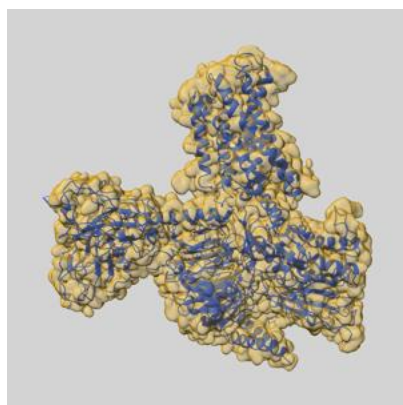
\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.21 differs from the reported value 2.76 by more than 10 %



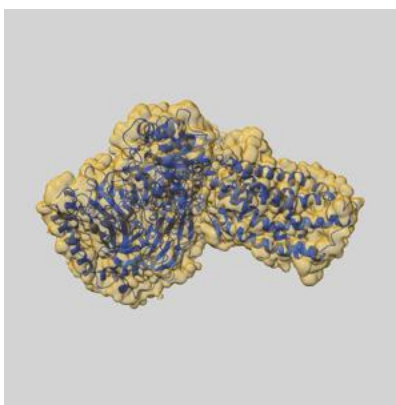
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-61472 and PDB model 9JH5. Per-residue inclusion information can be found in section [3](#) on page [7](#).

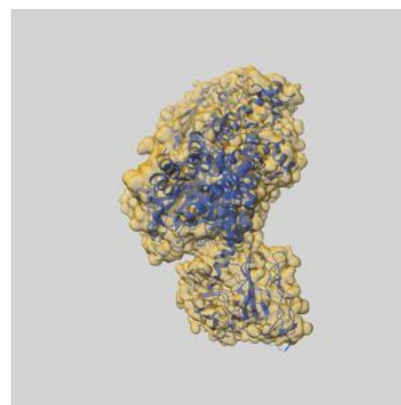
### 9.1 Map-model overlay [i](#)



X



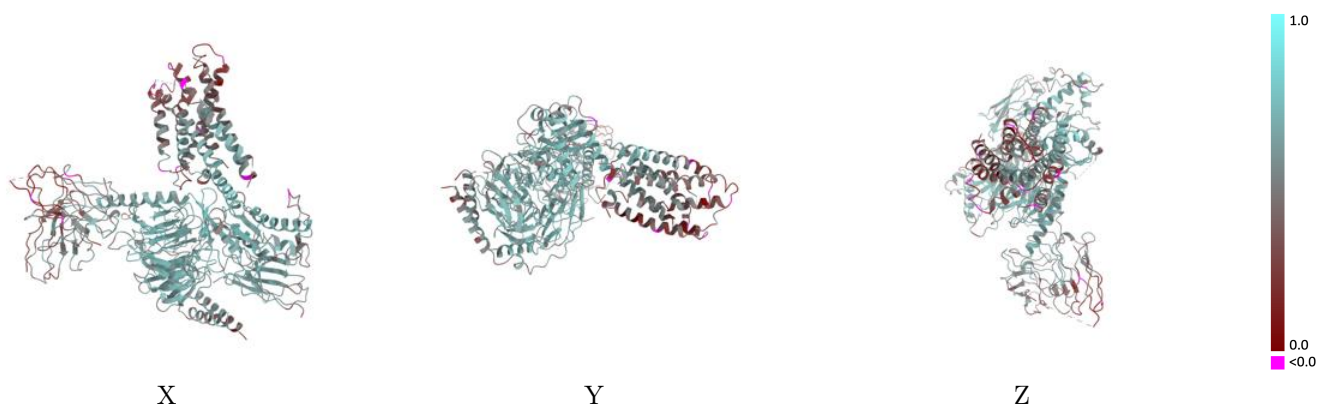
Y



Z

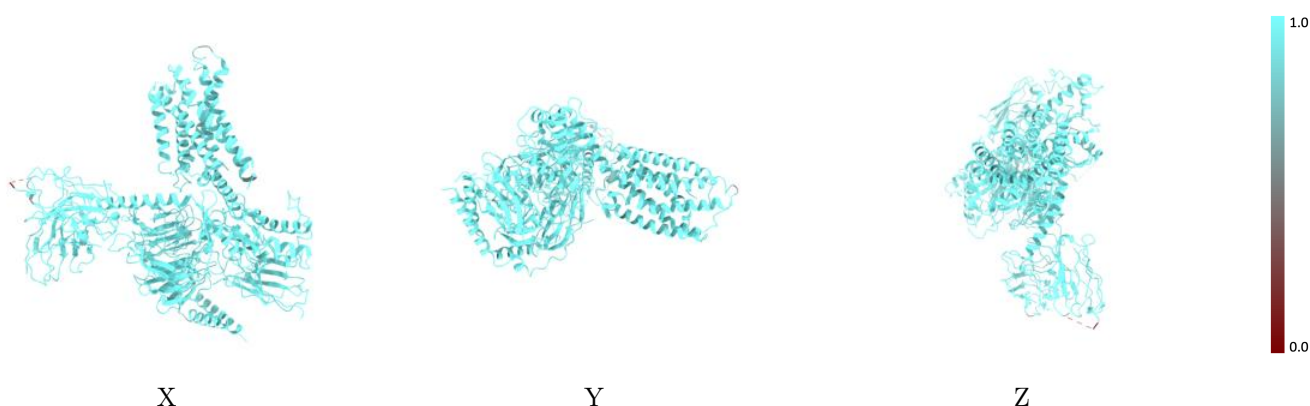
The images above show the 3D surface view of the map at the recommended contour level 0.9 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



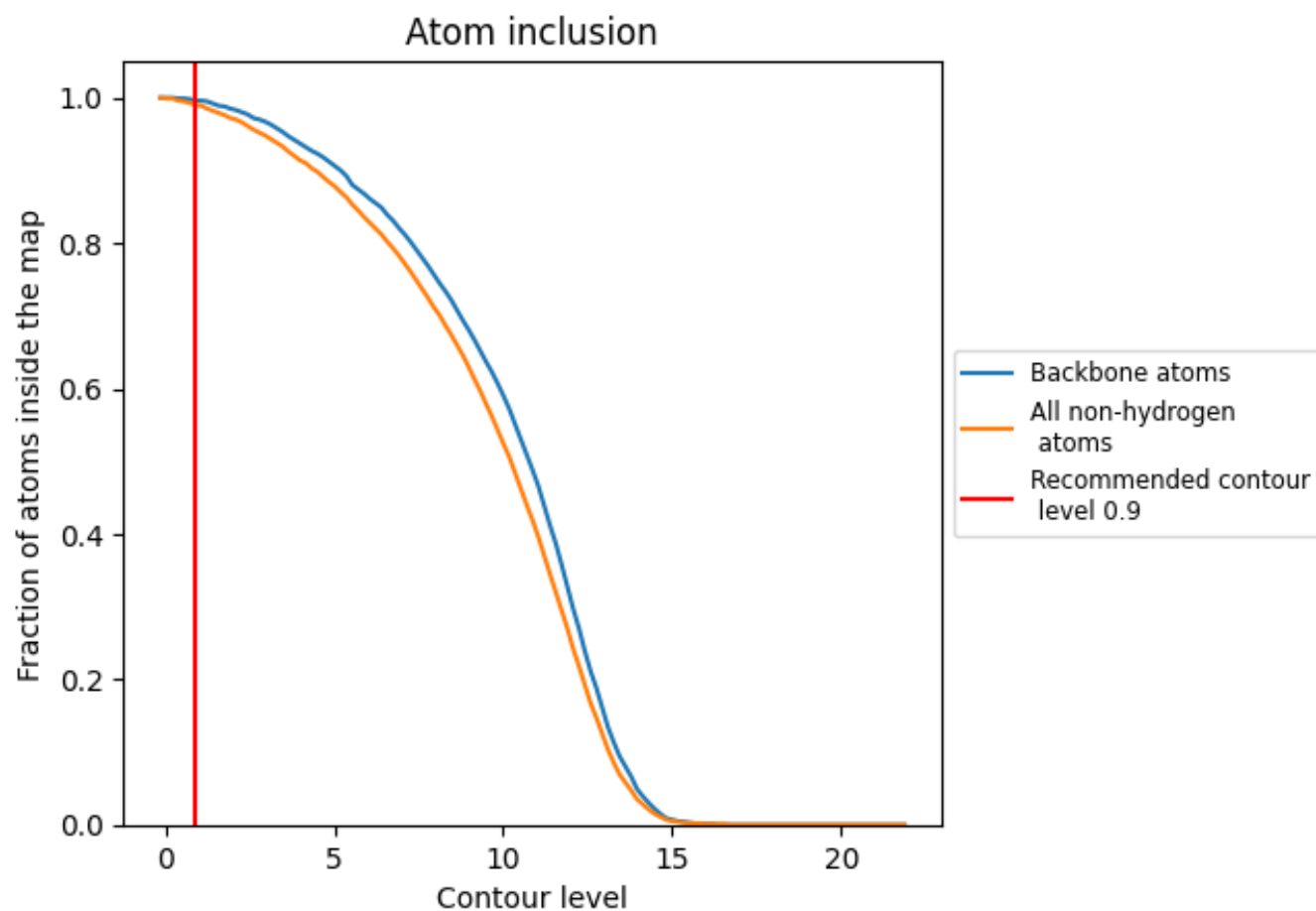
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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](#)



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 (0.9).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 100% of all backbone atoms, 99% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.9) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div><div></div>0.9900</div>	<div><div></div>0.5280</div>
A	<div><div></div>0.9980</div>	<div><div></div>0.6100</div>
B	<div><div></div>0.9970</div>	<div><div></div>0.6220</div>
C	<div><div></div>0.9810</div>	<div><div></div>0.5380</div>
N	<div><div></div>0.9970</div>	<div><div></div>0.5890</div>
R	<div><div></div>0.9890</div>	<div><div></div>0.3990</div>
S	<div><div></div>0.9720</div>	<div><div></div>0.4290</div>

1.0

0.0

<0.0