



## Full wwPDB EM Validation Report ⓘ

Sep 2, 2024 – 04:25 PM JST

PDB ID : 8XVG  
EMDB ID : EMD-38703  
Title : Structure of human NuA4/TIP60 complex  
Authors : Chen, K.; Wang, L.; Yu, Z.; Yu, J.; Ren, Y.; Wang, Q.; Xu, Y.  
Deposited on : 2024-01-15  
Resolution : 9.40 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:

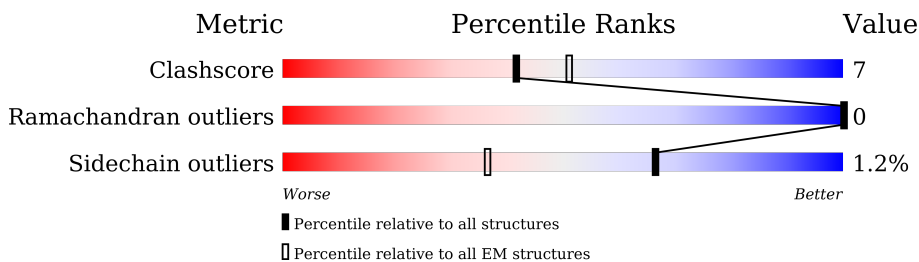
EMDB validation analysis : 0.0.1.dev112  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.38.2

# 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 9.40 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.





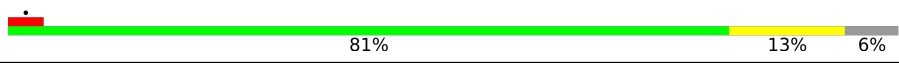



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	L	3830	
2	A	456	
2	C	456	
2	E	456	
3	B	463	
3	D	463	
3	F	463	
4	G	467	

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Mol	Chain	Length	Quality of chain
5	H	3123	
6	I	429	
6	J	429	
7	K	375	
8	M	813	
9	N	364	

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
11	ADP	A	501	-	-	X	-
11	ADP	B	501	-	-	X	-
11	ADP	C	501	-	-	X	-
11	ADP	D	501	-	-	X	-
11	ADP	E	501	-	-	X	-
11	ADP	F	501	-	-	X	-
11	ADP	I	501	-	-	X	-
11	ADP	K	401	-	-	X	-

## 2 Entry composition [i](#)

There are 11 unique types of molecules in this entry. The entry contains 98244 atoms, of which 29886 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 Isoform 2 of Transformation/transcription domain-associated protein.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
1	L	3485	56537	17940	28534	4845	5023	195	2	0

- Molecule 2 is a protein called RuvB-like 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	426	3279	2067	563	633	16	0	0
2	C	416	3210	2027	552	616	15	0	0
2	E	435	3344	2106	574	647	17	0	0

- Molecule 3 is a protein called RuvB-like 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	399	3101	1940	541	605	15	0	0
3	D	427	3315	2069	584	646	16	0	0
3	F	417	3242	2025	570	631	16	0	0

- Molecule 4 is a protein called DNA methyltransferase 1-associated protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	G	201	1717	1093	316	305	3	0	0

- Molecule 5 is a protein called Isoform 2 of E1A-binding protein p400.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
5	H	1007	9584	5237	1352	1492	1465	38	0	0

- Molecule 6 is a protein called Actin-like protein 6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	I	349	2715	1716	459	519	21	0	0
6	J	403	3139	1984	535	597	23	0	0

- Molecule 7 is a protein called ACTB protein (Fragment).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	K	350	2733	1736	458	519	20	0	0

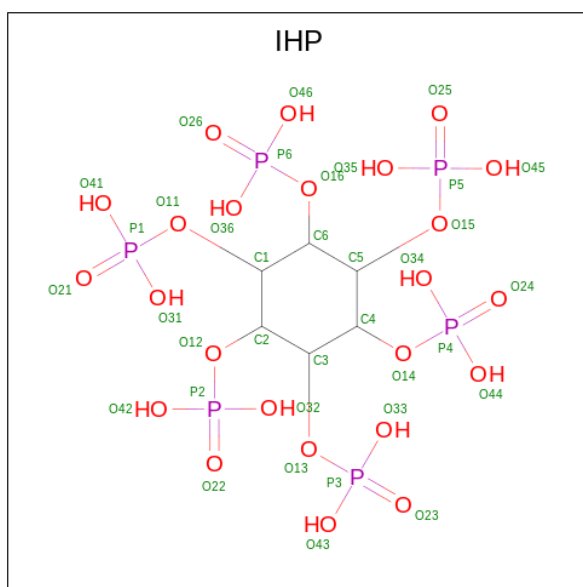
- Molecule 8 is a protein called Isoform 2 of Enhancer of polycomb homolog 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	M	106	861	541	166	149	5	0	0

- Molecule 9 is a protein called Vacuolar protein sorting-associated protein 72 homolog.

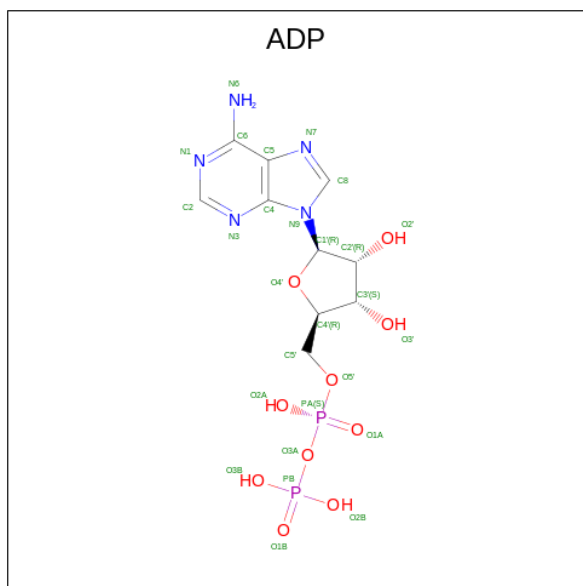
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	N	150	1188	764	213	208	3	0	0

- Molecule 10 is INOSITOL HEXAKISPHOSPHATE (three-letter code: IHP) (formula: C<sub>6</sub>H<sub>18</sub>O<sub>24</sub>P<sub>6</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
10	L	1	Total	C	O	P	0
			36	6	24	6	

- Molecule 11 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula:  $C_{10}H_{15}N_5O_{10}P_2$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
11	A	1	Total	C	N	O	P	0
			27	10	5	10	2	
11	B	1	Total	C	N	O	P	0
			27	10	5	10	2	

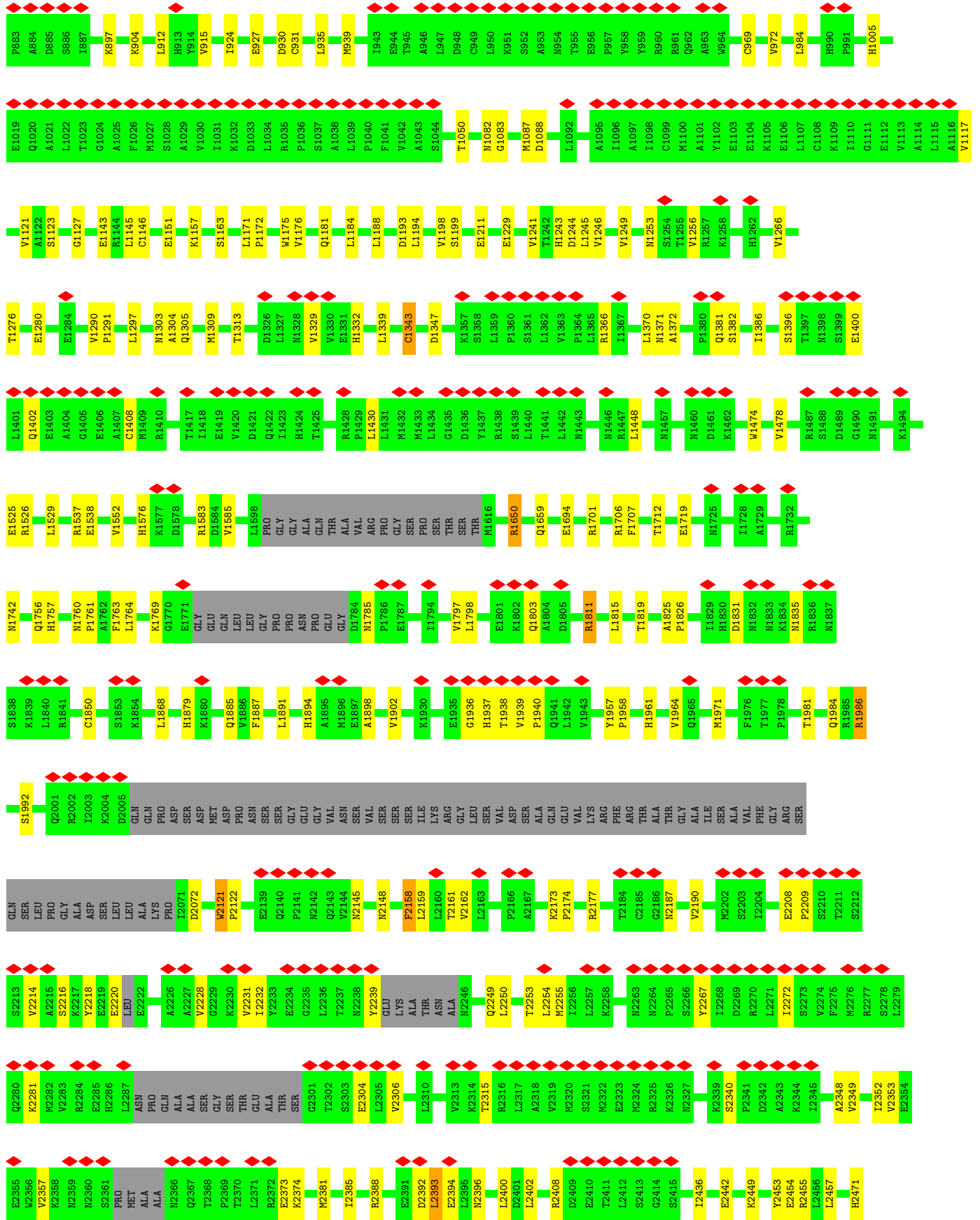
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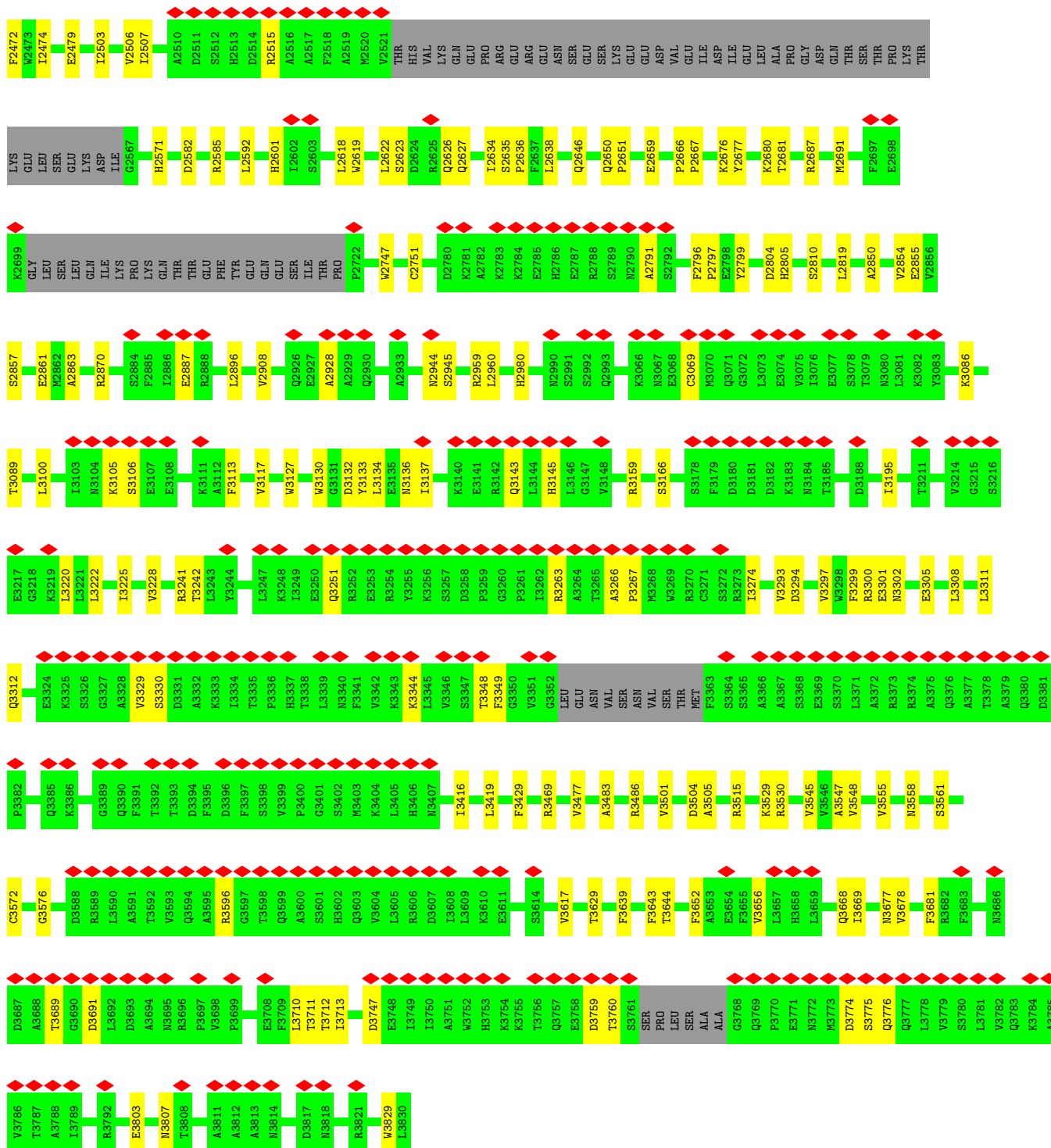
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Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
11	C	1	Total 27	C 10	N 5	O 10	P 2	0
11	D	1	Total 27	C 10	N 5	O 10	P 2	0
11	E	1	Total 27	C 10	N 5	O 10	P 2	0
11	F	1	Total 27	C 10	N 5	O 10	P 2	0
11	I	1	Total 27	C 10	N 5	O 10	P 2	0
11	J	1	Total 27	C 10	N 5	O 10	P 2	0
11	K	1	Total 27	C 10	N 5	O 10	P 2	0





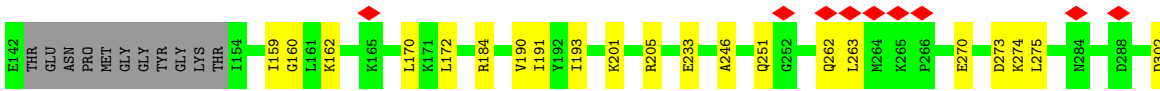




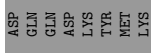
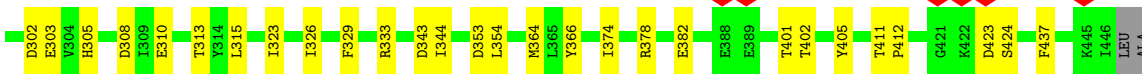
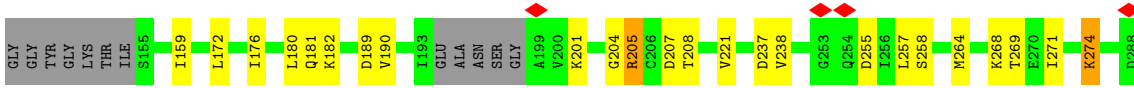
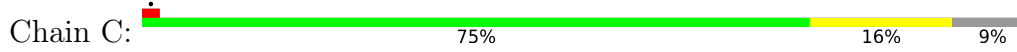
• Molecule 2: RuvB-like 1

Chain A: 79% 14% 7%

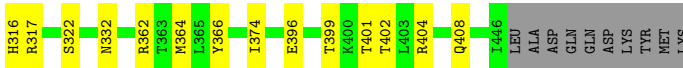
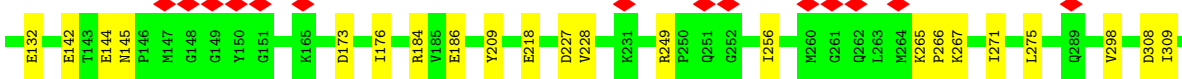
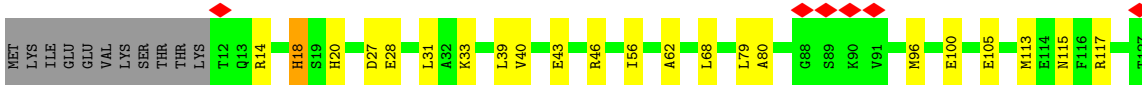
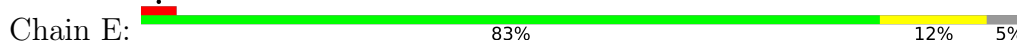




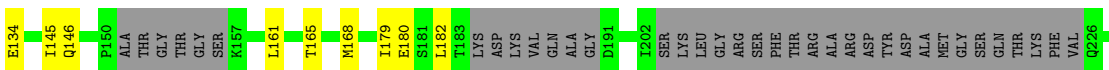
## • Molecule 2: RuvB-like 1

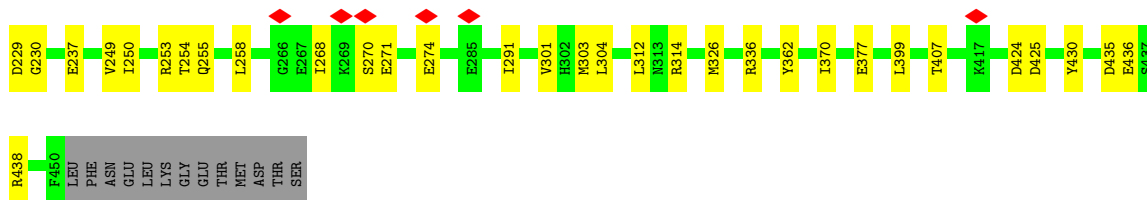


## • Molecule 2: RuvB-like 1

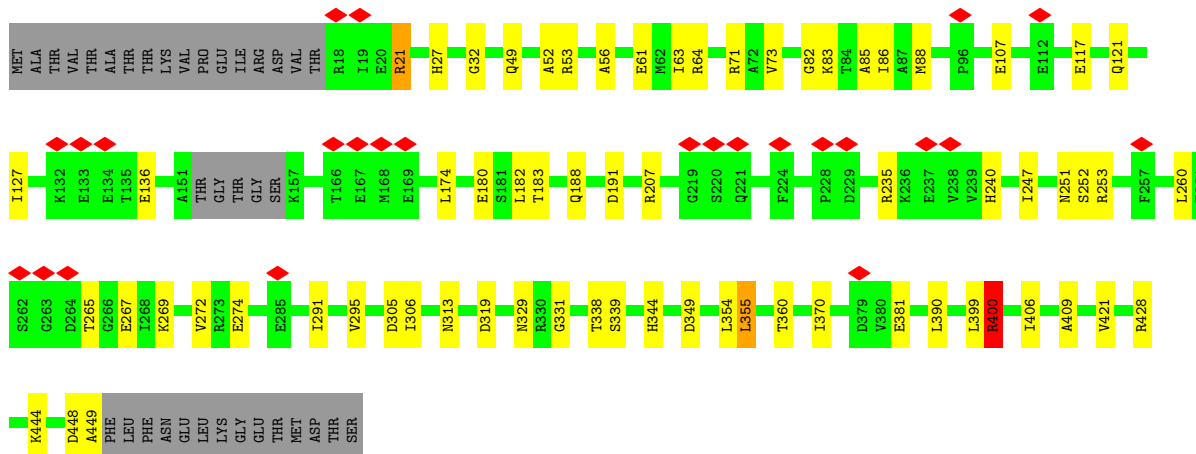
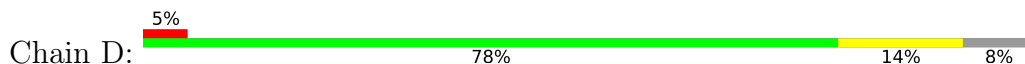


## • Molecule 3: RuvB-like 2

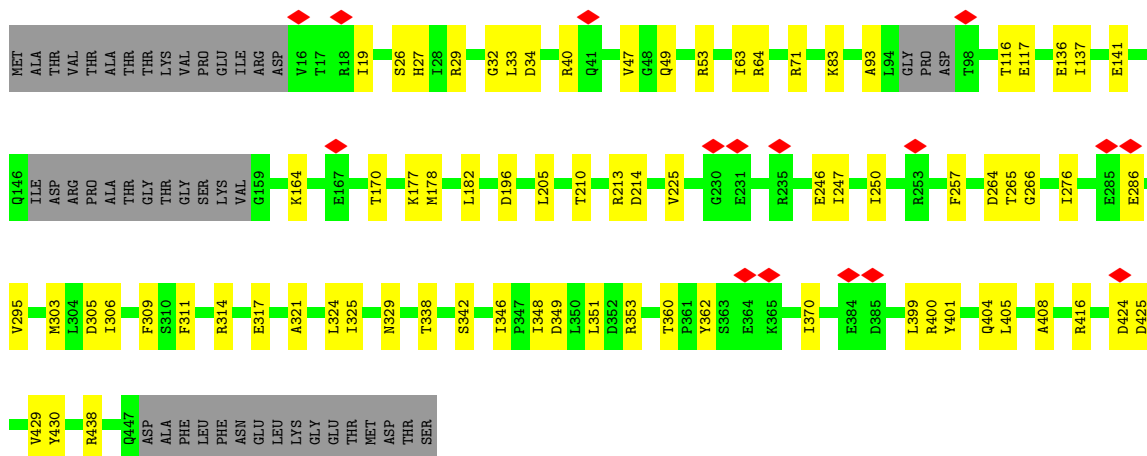
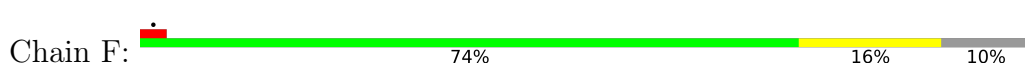




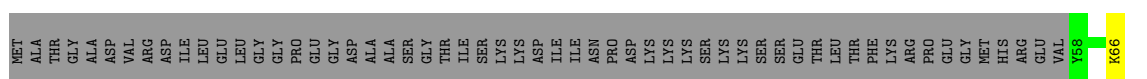
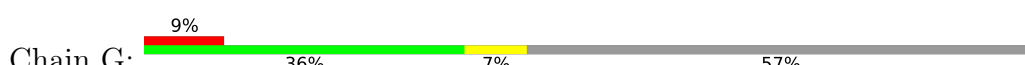
• Molecule 3: RuvB-like 2



• Molecule 3: RuvB-like 2



• Molecule 4: DNA methyltransferase 1-associated protein 1

















## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	20275	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.103	Depositor
Minimum map value	-0.056	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.027	Depositor
Map size ( $\text{\AA}$ )	533.6, 533.6, 533.6	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	2.668, 2.668, 2.668	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: ADP, IHP

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	L	0.24	0/28601	0.38	0/38709
2	A	0.24	0/3321	0.41	0/4476
2	C	0.24	0/3251	0.40	0/4380
2	E	0.24	0/3389	0.40	0/4569
3	B	0.24	0/3134	0.42	0/4219
3	D	0.24	0/3352	0.42	1/4510 (0.0%)
3	F	0.23	0/3276	0.41	0/4405
4	G	0.24	0/1759	0.38	0/2364
5	H	0.23	0/8407	0.38	0/11369
6	I	0.24	0/2771	0.41	0/3756
6	J	0.24	0/3209	0.41	0/4349
7	K	0.24	0/2792	0.39	0/3782
8	M	0.24	0/883	0.42	0/1191
9	N	0.25	0/1225	0.39	0/1669
All	All	0.24	0/69370	0.39	1/93748 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	400	ARG	NE-CZ-NH2	-5.21	117.69	120.30

There are no chirality outliers.

There are no planarity outliers.

### 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	L	28003	28534	28511	302	0
2	A	3279	0	3385	55	0
2	C	3210	0	3324	76	0
2	E	3344	0	3446	60	0
3	B	3101	0	3172	51	0
3	D	3315	0	3391	60	0
3	F	3242	0	3321	70	0
4	G	1717	0	1705	25	0
5	H	8232	1352	8374	94	0
6	I	2715	0	2657	71	0
6	J	3139	0	3077	35	0
7	K	2733	0	2714	42	0
8	M	861	0	841	12	0
9	N	1188	0	1214	16	0
10	L	36	0	6	0	0
11	A	27	0	12	14	0
11	B	27	0	12	9	0
11	C	27	0	12	29	0
11	D	27	0	12	11	0
11	E	27	0	12	20	0
11	F	27	0	11	10	0
11	I	27	0	12	23	0
11	J	27	0	12	6	0
11	K	27	0	11	17	0
All	All	68358	29886	69244	903	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

All (903) 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:F:47:VAL:CG1	3:F:370:ILE:CG2	2.21	1.18
3:F:47:VAL:CG1	3:F:370:ILE:HG22	1.78	1.14
6:I:24:ARG:NH2	11:I:501:ADP:O2'	1.83	1.11
3:F:370:ILE:HD12	3:F:399:LEU:HD21	1.27	1.10
3:F:27:HIS:CE1	11:F:501:ADP:O2'	2.02	1.10
3:F:47:VAL:HG12	3:F:370:ILE:HG22	1.27	1.10
7:K:305:MET:HB2	11:K:401:ADP:C2	1.92	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:362:TYR:OH	11:B:501:ADP:N7	1.92	1.02
3:F:370:ILE:CD1	3:F:399:LEU:HD21	1.88	1.02
3:D:247:ILE:HG21	3:D:267:GLU:OE2	1.60	0.99
2:C:411:THR:OG1	2:C:412:PRO:HD3	1.63	0.98
2:C:180:LEU:HG	2:C:181:GLN:H	1.29	0.97
1:L:663:SER:HB3	1:L:709:LEU:HD13	1.44	0.97
2:A:366:TYR:OH	11:A:501:ADP:N7	1.98	0.96
2:C:374:ILE:CD1	11:C:501:ADP:N3	2.28	0.96
2:C:374:ILE:CD1	11:C:501:ADP:C4	2.51	0.94
2:C:374:ILE:HD11	11:C:501:ADP:C4	2.02	0.94
3:F:47:VAL:CG1	3:F:370:ILE:HG23	1.96	0.94
3:F:47:VAL:HG11	3:F:370:ILE:HG23	1.49	0.93
2:C:374:ILE:HD11	11:C:501:ADP:N3	1.83	0.92
1:L:3305:GLU:HG2	1:L:3483:ALA:CB	1.99	0.92
6:I:20:SER:HB2	11:I:501:ADP:N7	1.84	0.92
3:F:362:TYR:OH	11:F:501:ADP:N7	2.04	0.91
2:E:404:ARG:NH2	11:E:501:ADP:O3B	2.05	0.89
3:F:400:ARG:NH2	11:F:501:ADP:O2A	2.06	0.89
3:B:362:TYR:CZ	11:B:501:ADP:N7	2.40	0.89
3:F:362:TYR:CZ	11:F:501:ADP:N7	2.40	0.89
1:L:2635:SER:OG	1:L:2636:PRO:HD3	1.73	0.89
7:K:305:MET:HB2	11:K:401:ADP:N1	1.88	0.88
2:E:39:LEU:HD12	11:E:501:ADP:N6	1.89	0.88
3:F:47:VAL:HG11	3:F:370:ILE:CG2	2.00	0.87
1:L:924:ILE:HG13	1:L:2592:LEU:HD21	1.59	0.85
1:L:1719:GLU:HA	1:L:1764:LEU:HD13	1.58	0.85
2:C:374:ILE:HD11	11:C:501:ADP:H1'	1.58	0.84
3:D:247:ILE:CG2	3:D:267:GLU:OE2	2.25	0.84
3:F:27:HIS:HE1	11:F:501:ADP:O2'	1.56	0.83
4:G:76:THR:HG21	5:H:2190:GLU:OE1	1.78	0.83
6:I:70:ILE:CD1	6:I:102:ILE:HA	2.08	0.83
4:G:170:ARG:NH1	6:J:184:ASP:OD2	2.14	0.81
3:B:179:ILE:HD12	3:B:182:LEU:HD11	1.63	0.81
5:H:2209:MET:SD	8:M:525:ARG:NH1	2.54	0.81
2:E:362:ARG:NH1	2:E:364:MET:SD	2.53	0.80
3:F:32:GLY:O	3:F:53:ARG:NH2	2.14	0.80
7:K:160:THR:OG1	7:K:178:LEU:HB3	1.81	0.80
3:B:165:THR:OG1	3:B:168:MET:O	1.99	0.79
3:D:191:ASP:OD1	3:D:207:ARG:NH1	2.16	0.79
2:C:20:HIS:CE1	11:C:501:ADP:O2'	2.35	0.79
5:H:1891:LEU:HD22	5:H:1934:ILE:CG2	2.13	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:180:LEU:HG	2:C:181:GLN:N	1.98	0.78
5:H:1880:ARG:O	5:H:1951:THR:OG1	1.99	0.78
2:A:40:VAL:N	11:A:501:ADP:N1	2.31	0.78
1:L:3305:GLU:HG2	1:L:3483:ALA:HB3	1.64	0.78
2:A:320:GLU:OE2	2:A:357:ARG:NH1	2.16	0.78
2:C:366:TYR:OH	11:C:501:ADP:N7	2.16	0.78
2:E:374:ILE:HG12	11:E:501:ADP:C2	2.19	0.78
5:H:829:ARG:NH1	9:N:271:ASP:OD2	2.17	0.78
1:L:924:ILE:HG21	1:L:2592:LEU:HD23	1.64	0.77
7:K:157:ASP:OD1	11:K:401:ADP:O5'	2.00	0.77
2:E:96:MET:SD	2:E:115:ASN:ND2	2.56	0.77
3:F:83:LYS:N	11:F:501:ADP:O1B	2.17	0.77
1:L:103:ASN:O	1:L:144:ARG:NH2	2.18	0.76
2:C:374:ILE:HD12	11:C:501:ADP:C4	2.20	0.76
3:D:247:ILE:CG2	3:D:267:GLU:OE1	2.33	0.76
2:C:75:GLY:HA2	11:C:501:ADP:PA	2.25	0.76
5:H:1330:ARG:NH1	5:H:1958:ASP:OD1	2.19	0.76
3:F:370:ILE:CD1	3:F:399:LEU:CD2	2.63	0.76
1:L:2582:ASP:OD1	1:L:2585:ARG:NH2	2.19	0.76
1:L:3515:ARG:NH2	1:L:3747:ASP:OD2	2.19	0.76
5:H:793:GLU:OE1	8:M:461:ARG:NH1	2.20	0.75
2:C:268:LYS:O	2:C:269:THR:OG1	2.04	0.75
1:L:1831:ASP:OD1	1:L:1835:ASN:ND2	2.19	0.75
3:D:21:ARG:O	2:E:322:SER:OG	2.04	0.75
2:E:218:GLU:OE1	3:F:177:LYS:NZ	2.19	0.75
2:E:18:HIS:HB3	11:E:501:ADP:C3'	2.17	0.75
1:L:3639:PHE:HZ	1:L:3669:ILE:HD11	1.51	0.74
2:E:105:GLU:OE2	3:F:265:THR:OG1	2.02	0.74
6:I:269:VAL:O	6:I:359:SER:OG	2.04	0.74
3:B:83:LYS:HB3	11:B:501:ADP:O1B	1.87	0.74
6:I:21:TYR:CD2	11:I:501:ADP:H3'	2.23	0.73
1:L:663:SER:HB3	1:L:709:LEU:CD1	2.19	0.73
2:A:432:GLU:OE2	3:B:54:ARG:NH1	2.22	0.73
1:L:924:ILE:HG21	1:L:2592:LEU:CD2	2.19	0.72
2:E:332:ASN:ND2	3:F:349:ASP:OD2	2.22	0.72
3:B:407:THR:OG1	2:C:64:ARG:NH2	2.22	0.72
3:F:342:SER:OG	3:F:346:ILE:O	2.07	0.72
2:E:39:LEU:HD12	11:E:501:ADP:C6	2.25	0.72
6:I:70:ILE:HD12	6:I:102:ILE:HD12	1.72	0.71
6:I:70:ILE:HD12	6:I:102:ILE:HA	1.72	0.71
2:C:180:LEU:CG	2:C:181:GLN:H	2.01	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:3305:GLU:HG2	1:L:3483:ALA:HB2	1.73	0.71
9:N:198:LYS:O	9:N:202:HIS:ND1	2.17	0.70
1:L:428:ASP:OD1	1:L:429:CYS:N	2.24	0.70
3:D:247:ILE:CG2	3:D:267:GLU:CD	2.60	0.70
4:G:74:SER:O	5:H:2187:TYR:N	2.25	0.70
6:I:363:ARG:NH1	6:I:367:GLU:OE1	2.25	0.70
3:B:121:GLN:OE1	3:B:125:ARG:NH2	2.25	0.70
2:A:184:ARG:O	2:A:201:LYS:NZ	2.25	0.70
6:I:368:LEU:O	6:I:372:THR:OG1	2.10	0.70
2:E:39:LEU:CD1	11:E:501:ADP:N6	2.55	0.69
4:G:76:THR:HG22	5:H:2189:ARG:HG2	1.73	0.69
6:I:202:ILE:HG22	6:I:304:ILE:HG21	1.72	0.69
3:B:255:GLN:N	3:B:255:GLN:OE1	2.25	0.69
5:H:2331:GLU:O	5:H:2377:ARG:NH1	2.24	0.69
5:H:1049:SER:OG	5:H:1099:CYS:SG	2.51	0.69
6:I:353:GLY:HA3	11:I:501:ADP:H4'	1.74	0.69
6:I:70:ILE:O	6:I:70:ILE:HG13	1.92	0.69
5:H:1907:ARG:NH1	5:H:1909:ASP:OD2	2.26	0.69
5:H:1190:GLY:O	5:H:1196:TRP:NE1	2.26	0.69
2:C:55:LEU:O	2:C:58:SER:OG	2.05	0.68
6:I:117:LEU:O	6:I:118:HIS:ND1	2.27	0.68
2:C:374:ILE:HD12	11:C:501:ADP:N3	2.07	0.68
2:A:263:LEU:HD12	2:A:263:LEU:O	1.93	0.68
5:H:1891:LEU:HD22	5:H:1934:ILE:HG22	1.75	0.68
1:L:2680:LYS:NZ	5:H:2370:ASP:OD1	2.17	0.68
3:F:117:GLU:N	3:F:117:GLU:OE1	2.26	0.68
3:D:448:ASP:OD1	3:D:449:ALA:N	2.26	0.68
4:G:76:THR:CG2	5:H:2190:GLU:OE1	2.42	0.68
1:L:1719:GLU:HA	1:L:1764:LEU:CD1	2.24	0.67
1:L:2408:ARG:NH1	1:L:2442:GLU:OE2	2.26	0.67
2:E:374:ILE:HG12	11:E:501:ADP:N1	2.08	0.67
2:C:49:CYS:SG	2:C:83:ILE:HD11	2.35	0.67
1:L:561:THR:HG21	1:L:638:VAL:HG13	1.76	0.67
7:K:213:LYS:HZ2	11:K:401:ADP:H1'	1.60	0.67
2:A:270:GLU:HB2	2:A:275:LEU:HD23	1.77	0.67
1:L:104:GLU:N	1:L:104:GLU:OE1	2.28	0.67
1:L:1981:THR:O	1:L:1986:ARG:NH2	2.27	0.67
5:H:1734:ASP:OD1	5:H:1737:ARG:NH1	2.28	0.67
1:L:1650:ARG:NH1	1:L:1694:GLU:OE2	2.28	0.66
1:L:2187:ASN:O	1:L:2190:VAL:HG22	1.95	0.66
2:A:63:GLY:N	2:A:324:ALA:O	2.28	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:663:SER:HA	1:L:709:LEU:HD12	1.77	0.66
4:G:68:ALA:HB3	4:G:69:PRO:HD3	1.76	0.66
3:D:390:LEU:HD21	3:D:406:ILE:HG13	1.78	0.66
2:E:27:ASP:OD1	2:E:31:LEU:N	2.28	0.66
6:I:21:TYR:HB3	11:I:501:ADP:H3'	1.78	0.66
1:L:1576:HIS:O	1:L:1583:ARG:NH2	2.28	0.66
2:A:404:ARG:NH2	11:A:501:ADP:H4'	2.10	0.66
6:I:388:GLU:OE1	6:I:388:GLU:N	2.28	0.66
6:J:21:TYR:HD2	11:J:502:ADP:H3'	1.61	0.66
2:E:117:ARG:NE	2:E:275:LEU:HD11	2.11	0.66
6:I:271:ASP:O	6:I:366:ARG:NH1	2.29	0.66
5:H:2337:ASP:OD2	5:H:2396:ARG:NH2	2.28	0.65
6:J:353:GLY:HA3	11:J:502:ADP:H4'	1.78	0.65
2:A:374:ILE:HG12	11:A:501:ADP:C2	2.32	0.65
2:C:14:ARG:NH1	3:D:319:ASP:O	2.28	0.65
1:L:790:LEU:HD22	1:L:809:LEU:HD11	1.78	0.65
3:D:390:LEU:HD21	3:D:406:ILE:CG1	2.27	0.65
3:F:47:VAL:HG13	3:F:370:ILE:CG2	2.26	0.65
7:K:160:THR:HG23	7:K:180:LEU:O	1.95	0.65
6:I:71:ASP:OD1	6:I:72:THR:N	2.28	0.65
1:L:2747:TRP:O	1:L:2751:CYS:N	2.30	0.65
1:L:1211:GLU:OE2	1:L:1266:VAL:HG21	1.96	0.65
1:L:3159:ARG:NH2	1:L:3195:ILE:O	2.30	0.65
2:A:357:ARG:O	3:F:404:GLN:NE2	2.28	0.65
2:C:33:LYS:O	2:C:46:ARG:NH2	2.30	0.65
5:H:1842:GLN:O	5:H:1843:THR:OG1	2.13	0.65
5:H:1936:SER:O	5:H:1937:THR:OG1	2.13	0.65
1:L:2622:LEU:O	1:L:2627:GLN:NE2	2.28	0.65
1:L:2267:TYR:CD1	1:L:2272:ILE:HD11	2.33	0.64
4:G:95:TRP:O	7:K:121:GLN:NE2	2.30	0.64
4:G:176:ASP:O	6:J:190:GLN:NE2	2.30	0.64
5:H:1296:GLN:NE2	5:H:1333:ASN:O	2.30	0.64
1:L:793:LEU:HD11	1:L:1198:VAL:CG2	2.27	0.64
1:L:856:LEU:HD21	1:L:860:PHE:HD2	1.62	0.64
3:F:49:GLN:NE2	3:F:360:THR:O	2.30	0.64
1:L:1898:ALA:O	1:L:1902:VAL:HG22	1.98	0.64
1:L:2249:GLN:O	1:L:2253:THR:HG23	1.98	0.64
2:E:113:MET:CG	2:E:275:LEU:HD21	2.28	0.64
1:L:3105:LYS:O	1:L:3106:SER:OG	2.16	0.63
7:K:283:MET:SD	7:K:290:ARG:NH2	2.72	0.63
1:L:318:SER:O	1:L:365:TYR:OH	2.15	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:2623:SER:OG	1:L:2626:GLN:OE1	2.15	0.63
6:I:21:TYR:HB3	11:I:501:ADP:H2'	1.81	0.63
2:E:100:GLU:OE2	3:F:314:ARG:NH2	2.32	0.63
5:H:2195:MET:SD	8:M:527:ARG:NE	2.72	0.63
2:E:374:ILE:HG23	11:E:501:ADP:N3	2.14	0.63
6:I:417:GLU:N	6:I:417:GLU:OE1	2.32	0.63
6:J:43:MET:O	6:J:83:GLU:N	2.31	0.62
1:L:3545:VAL:HG22	1:L:3555:VAL:HG23	1.81	0.62
2:A:43:GLU:OE1	2:A:43:GLU:N	2.32	0.62
1:L:2454:GLU:N	1:L:2454:GLU:OE1	2.33	0.62
6:I:170:LEU:HD21	6:I:325:VAL:CG1	2.29	0.62
3:D:247:ILE:HG23	3:D:267:GLU:OE1	1.99	0.62
5:H:2021:GLN:OE1	5:H:2021:GLN:N	2.32	0.62
2:C:374:ILE:HD11	11:C:501:ADP:C1'	2.29	0.62
1:L:622:THR:O	1:L:624:ARG:NH1	2.32	0.62
6:J:264:ALA:HB2	11:J:502:ADP:O2B	1.99	0.62
3:F:264:ASP:OD1	3:F:266:GLY:N	2.33	0.62
5:H:2337:ASP:OD1	5:H:2393:ILE:HD11	2.00	0.62
1:L:1825:ALA:HB3	1:L:1826:PRO:CD	2.29	0.61
6:I:24:ARG:NH2	11:I:501:ADP:HO2'	1.92	0.61
5:H:832:ARG:NH2	9:N:271:ASP:OD1	2.33	0.61
6:I:269:VAL:HG23	6:I:357:ILE:HG21	1.80	0.61
1:L:969:CYS:HB2	1:L:2592:LEU:HD13	1.81	0.61
7:K:13:GLY:HA3	11:K:401:ADP:O2B	1.99	0.61
3:B:62:MET:SD	3:B:71:ARG:NE	2.73	0.61
2:A:162:LYS:O	2:A:205:ARG:NH2	2.34	0.61
1:L:699:GLU:N	1:L:699:GLU:OE1	2.33	0.61
1:L:598:GLN:NE2	1:L:657:TYR:OH	2.33	0.61
1:L:3302:ASN:OD1	1:L:3305:GLU:OE1	2.18	0.61
5:H:738:GLN:N	5:H:738:GLN:OE1	2.34	0.61
1:L:663:SER:CB	1:L:709:LEU:HD13	2.27	0.61
2:A:233:GLU:N	2:A:233:GLU:OE1	2.34	0.61
1:L:295:ILE:HD11	1:L:337:HIS:CB	2.31	0.60
6:I:213:MET:SD	6:I:213:MET:N	2.74	0.60
1:L:2348:ALA:O	1:L:2352:ILE:HG23	2.00	0.60
3:B:249:VAL:O	3:B:255:GLN:NE2	2.32	0.60
3:D:136:GLU:OE1	3:D:235:ARG:NH2	2.34	0.60
2:E:43:GLU:N	2:E:43:GLU:OE1	2.34	0.60
5:H:2010:GLN:O	5:H:2010:GLN:NE2	2.33	0.60
5:H:2343:ALA:HB3	5:H:2368:VAL:HG23	1.82	0.60
3:B:362:TYR:OH	11:B:501:ADP:C5	2.55	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:253:ARG:NH2	5:H:1844:THR:OG1	2.34	0.60
2:E:14:ARG:NH2	3:F:321:ALA:O	2.35	0.60
2:E:209:TYR:CE1	9:N:286:VAL:HG22	2.36	0.60
2:C:411:THR:OG1	2:C:412:PRO:CD	2.45	0.60
6:I:70:ILE:HD12	6:I:102:ILE:CD1	2.31	0.60
1:L:357:GLU:OE2	1:L:397:LEU:HD12	2.02	0.60
2:C:382:GLU:OE2	2:C:411:THR:CG2	2.50	0.59
5:H:1945:ASN:OD1	5:H:1946:LEU:N	2.35	0.59
6:I:21:TYR:CB	11:I:501:ADP:H3'	2.32	0.59
1:L:291:LEU:HD21	1:L:313:MET:SD	2.42	0.59
1:L:3711:THR:O	1:L:3712:THR:OG1	2.17	0.59
3:D:305:ASP:OD1	3:D:306:ILE:N	2.36	0.59
5:H:1784:CYS:SG	5:H:1794:ARG:NH1	2.76	0.59
1:L:2804:ASP:OD1	1:L:2805:HIS:N	2.36	0.59
1:L:3242:THR:OG1	1:L:3547:ALA:O	2.21	0.59
1:L:1894:HIS:O	1:L:1894:HIS:ND1	2.33	0.59
3:F:286:GLU:OE1	3:F:286:GLU:N	2.35	0.59
4:G:72:LEU:H	4:G:72:LEU:HD23	1.67	0.59
7:K:213:LYS:NZ	11:K:401:ADP:H1'	2.18	0.59
2:A:201:LYS:O	5:H:1823:ARG:NH1	2.35	0.59
3:D:240:HIS:ND1	5:H:1789:GLN:OE1	2.35	0.59
7:K:302:GLY:O	11:K:401:ADP:N3	2.35	0.58
9:N:335:THR:OG1	9:N:347:GLU:O	2.11	0.58
1:L:1659:GLN:OE1	1:L:1706:ARG:NH1	2.35	0.58
3:F:416:ARG:NH1	3:F:425:ASP:OD1	2.37	0.58
2:A:75:GLY:HA2	11:A:501:ADP:O2A	2.04	0.58
2:A:111:VAL:O	2:A:115:ASN:ND2	2.36	0.58
2:C:20:HIS:HE1	11:C:501:ADP:O2'	1.86	0.58
3:F:136:GLU:N	3:F:136:GLU:OE1	2.37	0.58
1:L:3711:THR:HG23	1:L:3713:ILE:HG12	1.85	0.58
1:L:2158:PHE:O	1:L:2161:THR:OG1	2.18	0.58
3:F:213:ARG:NH1	3:F:214:ASP:OD1	2.37	0.58
7:K:156:GLY:HA2	11:K:401:ADP:O1B	2.04	0.58
1:L:679:PRO:O	1:L:680:THR:OG1	2.20	0.57
1:L:1050:THR:HG21	1:L:1121:VAL:HG21	1.85	0.57
1:L:1396:SER:N	1:L:1402:GLN:OE1	2.35	0.57
1:L:1961:HIS:O	1:L:1964:VAL:HG22	2.04	0.57
5:H:2431:LEU:O	5:H:2435:THR:HG23	2.04	0.57
6:J:207:ARG:NH2	6:J:256:ASN:OD1	2.37	0.57
1:L:3301:GLU:HG2	1:L:3302:ASN:N	2.19	0.57
2:C:39:LEU:HA	11:C:501:ADP:N1	2.19	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:305:ASP:OD1	3:F:306:ILE:N	2.37	0.57
7:K:78:ASN:ND2	7:K:81:ASP:OD1	2.37	0.57
3:B:237:GLU:OE1	3:B:237:GLU:N	2.38	0.57
1:L:2626:GLN:OE1	1:L:2626:GLN:N	2.37	0.57
6:I:70:ILE:HD11	6:I:105:HIS:CB	2.34	0.57
1:L:663:SER:CA	1:L:709:LEU:CD1	2.81	0.57
1:L:1381:GLN:OE1	1:L:1381:GLN:N	2.36	0.57
1:L:1981:THR:OG1	1:L:1984:GLN:OE1	2.20	0.57
1:L:2232:ILE:CG2	1:L:2253:THR:HG22	2.35	0.57
1:L:2635:SER:OG	1:L:2636:PRO:CD	2.48	0.57
1:L:1815:LEU:O	1:L:1819:THR:HG23	2.05	0.57
2:C:20:HIS:HE1	11:C:501:ADP:C2'	2.18	0.57
2:A:134:GLU:N	2:A:160:GLY:O	2.34	0.57
9:N:306:THR:HG21	9:N:319:ILE:HG22	1.86	0.57
2:E:308:ASP:OD1	2:E:309:ILE:N	2.38	0.56
1:L:1819:THR:HG22	1:L:1868:LEU:HA	1.86	0.56
1:L:1229:GLU:OE1	1:L:1229:GLU:N	2.37	0.56
2:A:302:ASP:OD1	2:A:303:GLU:N	2.39	0.56
5:H:2369:SER:O	5:H:2373:ASN:ND2	2.39	0.56
2:C:43:GLU:N	2:C:43:GLU:OE1	2.36	0.56
1:L:1474:TRP:O	1:L:1478:VAL:HG23	2.06	0.56
2:A:313:THR:HG21	3:F:303:MET:SD	2.45	0.56
2:C:20:HIS:CE1	11:C:501:ADP:C2'	2.89	0.56
2:C:42:GLN:NE2	2:C:364:MET:O	2.37	0.56
2:E:209:TYR:HE1	9:N:286:VAL:HG22	1.71	0.56
1:L:359:ILE:O	1:L:361:ILE:N	2.39	0.56
3:F:32:GLY:O	3:F:33:LEU:HD12	2.05	0.56
5:H:1940:ARG:HD2	5:H:1942:THR:HG22	1.88	0.56
1:L:1825:ALA:HB3	1:L:1826:PRO:HD3	1.88	0.56
1:L:3106:SER:O	1:L:3133:TYR:OH	2.16	0.56
2:A:308:ASP:OD1	2:A:309:ILE:N	2.37	0.56
2:C:302:ASP:OD1	2:C:303:GLU:N	2.39	0.56
3:D:274:GLU:N	3:D:274:GLU:OE1	2.39	0.56
3:F:400:ARG:HH21	11:F:501:ADP:PA	2.28	0.56
5:H:1086:LYS:NZ	5:H:1211:ILE:O	2.38	0.56
1:L:2453:TYR:CZ	1:L:2457:LEU:HD11	2.40	0.56
1:L:2944:ASN:OD1	1:L:2945:SER:N	2.39	0.56
6:I:21:TYR:CD2	11:I:501:ADP:C3'	2.89	0.56
1:L:1971:MET:SD	1:L:1992:SER:OG	2.64	0.56
2:C:180:LEU:HD23	2:C:182:LYS:HZ2	1.71	0.55
2:C:207:ASP:OD1	2:C:208:THR:N	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:118:ARG:NE	3:B:270:SER:OG	2.39	0.55
3:F:324:LEU:HD23	3:F:325:ILE:N	2.21	0.55
6:I:300:GLU:OE1	6:I:300:GLU:N	2.37	0.55
7:K:67:LEU:HD12	7:K:67:LEU:O	2.06	0.55
3:B:229:ASP:OD1	3:B:230:GLY:N	2.38	0.55
3:D:188:GLN:N	3:D:191:ASP:OD2	2.39	0.55
1:L:1276:THR:O	1:L:1280:GLU:N	2.40	0.55
6:I:174:ALA:HB3	11:I:501:ADP:C8	2.42	0.55
1:L:2677:TYR:O	1:L:2681:THR:OG1	2.23	0.55
3:F:246:GLU:OE1	5:H:1756:ARG:NH1	2.40	0.55
2:A:20:HIS:NE2	11:A:501:ADP:O2'	2.36	0.55
3:B:435:ASP:OD1	3:B:436:GLU:N	2.40	0.55
2:C:303:GLU:OE1	2:C:305:HIS:NE2	2.39	0.55
3:D:82:GLY:HA2	11:D:501:ADP:O1A	2.06	0.55
6:I:20:SER:HG	11:I:501:ADP:HN61	1.55	0.55
4:G:81:ARG:O	9:N:288:VAL:HG22	2.07	0.55
2:C:401:THR:O	2:C:402:THR:OG1	2.22	0.54
4:G:149:ASP:OD1	4:G:150:ASP:N	2.41	0.54
6:J:81:ASN:O	6:J:245:GLN:NE2	2.39	0.54
1:L:162:TYR:HD2	1:L:241:LEU:HD13	1.72	0.54
1:L:395:LEU:HD22	1:L:426:LEU:HD11	1.89	0.54
2:A:75:GLY:N	11:A:501:ADP:O3B	2.39	0.54
3:B:268:ILE:HG22	3:B:271:GLU:HB2	1.89	0.54
6:I:407:GLN:N	6:I:407:GLN:OE1	2.40	0.54
2:E:20:HIS:NE2	11:E:501:ADP:C2	2.76	0.54
6:I:202:ILE:HD11	6:I:263:GLN:HB2	1.89	0.54
1:L:663:SER:CB	1:L:709:LEU:CD1	2.85	0.54
1:L:2392:ASP:O	1:L:2396:ASN:ND2	2.41	0.54
2:C:102:TYR:OH	2:C:308:ASP:OD1	2.25	0.54
3:F:430:TYR:O	3:F:438:ARG:NH2	2.40	0.54
6:I:70:ILE:HD11	6:I:105:HIS:HB3	1.89	0.54
6:J:38:PRO:O	6:J:70:ILE:HD11	2.07	0.54
1:L:732:LEU:HD13	1:L:732:LEU:O	2.07	0.54
1:L:2267:TYR:CE1	1:L:2272:ILE:HD11	2.43	0.54
2:C:76:LYS:HG2	11:C:501:ADP:O1B	2.06	0.54
2:E:18:HIS:HB3	11:E:501:ADP:H3'	1.88	0.54
2:E:18:HIS:HB3	11:E:501:ADP:O3'	2.08	0.54
2:E:18:HIS:CD2	11:E:501:ADP:H3'	2.43	0.54
2:E:68:LEU:HD13	2:E:79:LEU:HD11	1.89	0.54
3:B:253:ARG:O	3:B:254:THR:OG1	2.22	0.54
1:L:729:GLU:OE2	1:L:772:HIS:ND1	2.39	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:1005:HIS:CE1	1:L:1143:GLU:HG3	2.42	0.54
1:L:2340:SER:OG	1:L:2388:ARG:NH1	2.40	0.54
1:L:2453:TYR:CE2	1:L:2457:LEU:HD11	2.42	0.54
3:D:82:GLY:N	11:D:501:ADP:O3A	2.41	0.54
2:E:33:LYS:O	2:E:46:ARG:NH2	2.41	0.54
1:L:3558:ASN:OD1	1:L:3561:SER:OG	2.08	0.54
2:A:302:ASP:OD2	3:B:314:ARG:NE	2.41	0.54
7:K:196:ARG:NH1	7:K:253:GLU:OE2	2.40	0.54
2:C:374:ILE:CD1	11:C:501:ADP:HI'	2.36	0.53
1:L:3293:VAL:HG22	1:L:3548:VAL:HG21	1.89	0.53
5:H:2190:GLU:OE1	5:H:2190:GLU:N	2.41	0.53
1:L:2304:GLU:N	1:L:2304:GLU:OE1	2.41	0.53
2:C:75:GLY:HA2	11:C:501:ADP:O1A	2.08	0.53
2:E:113:MET:CG	2:E:275:LEU:CD2	2.86	0.53
4:G:240:GLN:NE2	5:H:2233:MET:SD	2.81	0.53
6:I:21:TYR:CG	11:I:501:ADP:H3'	2.44	0.53
1:L:295:ILE:HD11	1:L:337:HIS:HB2	1.91	0.53
1:L:561:THR:HG22	1:L:589:TYR:OH	2.09	0.53
1:L:3311:LEU:HD13	1:L:3416:ILE:HG12	1.90	0.53
5:H:1910:GLU:OE1	5:H:1910:GLU:N	2.42	0.53
3:F:247:ILE:HG22	3:F:276:ILE:HG13	1.90	0.53
3:F:362:TYR:HE2	11:F:501:ADP:HN61	1.57	0.53
3:F:424:ASP:OD1	3:F:425:ASP:N	2.42	0.53
1:L:294:ILE:HG22	1:L:294:ILE:O	2.08	0.53
1:L:663:SER:CA	1:L:709:LEU:HD12	2.39	0.53
1:L:1756:GLN:OE1	1:L:1757:HIS:ND1	2.41	0.53
1:L:3117:VAL:HG21	1:L:3130:TRP:CE3	2.44	0.53
1:L:3308:LEU:HD21	1:L:3419:LEU:HB3	1.91	0.53
1:L:3689:THR:OG1	1:L:3691:ASP:OD1	2.15	0.53
1:L:3803:GLU:OE1	1:L:3807:ASN:ND2	2.42	0.53
3:F:64:ARG:NH2	3:F:93:ALA:O	2.42	0.53
1:L:2471:HIS:O	1:L:2646:GLN:NE2	2.42	0.53
2:A:40:VAL:O	11:A:501:ADP:N6	2.42	0.53
3:B:133:GLU:N	3:B:133:GLU:OE1	2.42	0.53
2:E:28:GLU:OE1	2:E:28:GLU:N	2.40	0.53
3:F:34:ASP:OD1	3:F:40:ARG:NE	2.31	0.53
7:K:213:LYS:NZ	11:K:401:ADP:C1'	2.72	0.53
2:E:227:ASP:OD1	2:E:228:VAL:N	2.42	0.53
1:L:1245:LEU:O	1:L:1249:VAL:HG23	2.10	0.52
3:B:19:ILE:HG22	2:C:323:ILE:HG22	1.91	0.52
2:C:180:LEU:CG	2:C:181:GLN:N	2.67	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:H:1874:LEU:HD13	5:H:1881:VAL:HG22	1.90	0.52
3:F:401:TYR:CE2	3:F:405:LEU:HD11	2.44	0.52
2:A:262:GLN:H	3:B:258:LEU:HD11	1.74	0.52
1:L:1957:TYR:N	1:L:1958:PRO:HD3	2.24	0.52
1:L:2861:GLU:OE1	1:L:2861:GLU:N	2.42	0.52
5:H:2191:ASP:OD1	8:M:446:THR:OG1	2.12	0.52
7:K:302:GLY:HA3	11:K:401:ADP:H5'2	1.90	0.52
1:L:25:VAL:HG22	1:L:68:ARG:NH2	2.25	0.52
1:L:3774:ASP:OD2	1:L:3776:GLN:NE2	2.43	0.52
3:D:82:GLY:CA	11:D:501:ADP:O3A	2.57	0.52
2:E:113:MET:HG2	2:E:275:LEU:CD2	2.39	0.52
5:H:1090:ILE:CD1	5:H:1210:LEU:HD11	2.39	0.52
1:L:1171:LEU:HD12	1:L:1175:TRP:CZ3	2.45	0.52
1:L:3143:GLN:OE1	1:L:3145:HIS:NE2	2.43	0.52
6:J:71:ASP:OD1	6:J:72:THR:N	2.43	0.52
2:C:40:VAL:N	11:C:501:ADP:N1	2.57	0.52
2:A:105:GLU:OE1	2:A:105:GLU:N	2.41	0.52
3:D:27:HIS:NE2	11:D:501:ADP:C2	2.78	0.52
1:L:1538:GLU:OE1	1:L:1538:GLU:N	2.43	0.52
1:L:1936:GLY:O	1:L:1938:THR:HG23	2.09	0.52
3:D:85:ALA:HB2	11:D:501:ADP:O1A	2.09	0.52
7:K:13:GLY:CA	11:K:401:ADP:O2B	2.58	0.52
1:L:114:LEU:HD13	1:L:150:GLU:HB3	1.92	0.51
1:L:1371:ASN:ND2	1:L:1408:CYS:SG	2.83	0.51
2:C:353:ASP:OD1	2:C:354:LEU:N	2.43	0.51
3:D:399:LEU:HD23	11:D:501:ADP:C1'	2.41	0.51
3:D:400:ARG:CZ	11:D:501:ADP:H5'1	2.40	0.51
6:I:390:ARG:HD2	11:I:501:ADP:O3'	2.10	0.51
2:A:356:ASP:OD1	2:A:357:ARG:N	2.43	0.51
3:B:119:LEU:HD21	3:B:312:LEU:HD21	1.92	0.51
1:L:295:ILE:HD11	1:L:337:HIS:HB3	1.91	0.51
1:L:634:HIS:O	1:L:638:VAL:HG23	2.10	0.51
2:A:405:TYR:CE2	2:A:409:LEU:HD11	2.46	0.51
7:K:286:ASP:OD1	7:K:287:VAL:N	2.44	0.51
1:L:661:ARG:O	1:L:665:ASN:N	2.42	0.51
1:L:838:SER:O	1:L:842:VAL:HG13	2.10	0.51
1:L:2145:ASN:O	1:L:2148:ASN:ND2	2.43	0.51
3:D:56:ALA:HB2	3:D:86:ILE:HD11	1.93	0.51
2:E:186:GLU:OE1	2:E:186:GLU:N	2.41	0.51
3:F:370:ILE:HD11	3:F:399:LEU:CD2	2.39	0.51
4:G:260:GLU:OE1	5:H:748:ARG:NH2	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:217:ARG:HE	1:L:220:LEU:HD21	1.75	0.51
3:B:134:GLU:OE1	3:B:134:GLU:N	2.43	0.51
2:C:423:ASP:OD1	2:C:424:SER:N	2.43	0.51
2:E:132:GLU:N	2:E:132:GLU:OE1	2.44	0.51
3:F:27:HIS:NE2	11:F:501:ADP:N3	2.52	0.51
2:C:405:TYR:OH	2:C:437:PHE:O	2.28	0.51
6:J:343:GLY:O	6:J:347:SER:OG	2.29	0.51
1:L:630:GLU:OE1	1:L:630:GLU:N	2.43	0.51
2:C:40:VAL:HG12	11:C:501:ADP:C2	2.46	0.51
2:C:40:VAL:HG12	11:C:501:ADP:N1	2.26	0.51
2:E:366:TYR:CE2	11:E:501:ADP:N7	2.79	0.51
5:H:1091:ILE:HD11	5:H:1123:LEU:HD22	1.93	0.51
6:I:275:ASP:OD1	6:I:276:GLU:N	2.44	0.51
6:I:390:ARG:NH1	11:I:501:ADP:O3'	2.42	0.50
6:J:99:PHE:CE2	6:J:103:LEU:HD11	2.45	0.50
1:L:2315:THR:HG21	1:L:2352:ILE:HD12	1.92	0.50
1:L:3710:LEU:O	1:L:3711:THR:HG22	2.11	0.50
3:B:250:ILE:HG22	5:H:1364:LEU:HD12	1.93	0.50
3:D:251:ASN:HB3	3:D:267:GLU:OE1	2.11	0.50
6:J:70:ILE:HG23	6:J:70:ILE:O	2.11	0.50
7:K:302:GLY:HA3	11:K:401:ADP:C5'	2.42	0.50
1:L:705:GLU:N	1:L:705:GLU:OE1	2.44	0.50
1:L:1123:SER:O	1:L:1127:GLY:N	2.41	0.50
1:L:2619:TRP:O	1:L:2627:GLN:NE2	2.45	0.50
2:A:66:VAL:O	2:A:329:PHE:N	2.43	0.50
3:D:49:GLN:NE2	3:D:360:THR:O	2.43	0.50
3:F:250:ILE:O	3:F:250:ILE:HG22	2.12	0.50
6:I:333:VAL:HG11	6:I:345:TYR:CZ	2.46	0.50
7:K:36:GLY:O	7:K:58:ALA:N	2.44	0.50
1:L:3100:LEU:O	1:L:3100:LEU:HD23	2.11	0.50
1:L:3294:ASP:O	1:L:3297:VAL:HG12	2.12	0.50
3:B:274:GLU:OE1	3:B:274:GLU:N	2.38	0.50
1:L:915:VAL:HG22	1:L:3629:THR:O	2.12	0.50
1:L:2353:VAL:HG23	1:L:2402:LEU:HD11	1.92	0.50
1:L:2791:ALA:O	5:H:2423:GLN:NE2	2.45	0.50
5:H:1162:TYR:OH	5:H:1183:ASP:O	2.29	0.50
2:A:389:GLU:OE1	2:A:389:GLU:N	2.38	0.50
6:J:329:VAL:O	6:J:333:VAL:HG23	2.11	0.50
1:L:412:PRO:HD2	1:L:415:ILE:HD12	1.94	0.50
1:L:3299:PHE:CE2	1:L:3501:VAL:HG21	2.47	0.50
1:L:3477:VAL:HG21	1:L:3486:ARG:CZ	2.42	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:3643:PHE:HE1	1:L:3669:ILE:HD12	1.76	0.50
3:B:145:ILE:HG22	3:B:146:GLN:N	2.26	0.50
3:D:32:GLY:O	3:D:53:ARG:NH2	2.42	0.50
3:F:408:ALA:HB3	3:F:429:VAL:HG11	1.93	0.50
5:H:1975:GLY:O	5:H:1980:ILE:HG21	2.12	0.50
1:L:1400:GLU:OE1	1:L:1400:GLU:N	2.43	0.49
3:B:180:GLU:OE1	3:B:180:GLU:N	2.41	0.49
3:F:170:THR:HG23	9:N:302:ARG:H	1.77	0.49
7:K:302:GLY:O	11:K:401:ADP:C2	2.65	0.49
3:D:21:ARG:HB2	2:E:62:ALA:HB2	1.94	0.49
2:E:117:ARG:HG3	2:E:275:LEU:HD11	1.95	0.49
3:B:45:GLY:O	11:B:501:ADP:C2	2.65	0.49
6:I:21:TYR:HD2	11:I:501:ADP:O3'	1.95	0.49
6:J:169:ILE:N	6:J:169:ILE:HD12	2.27	0.49
1:L:101:PRO:O	1:L:102:THR:HG23	2.12	0.49
1:L:1184:LEU:HD22	1:L:1241:VAL:HG13	1.93	0.49
2:E:142:GLU:OE2	5:H:2160:TRP:NE1	2.45	0.49
4:G:69:PRO:N	4:G:70:PRO:CD	2.76	0.49
1:L:317:LEU:HD22	1:L:331:LEU:HD21	1.93	0.49
3:B:29:ARG:NH2	3:B:377:GLU:OE1	2.44	0.49
5:H:1104:TRP:O	5:H:1107:HIS:NE2	2.44	0.49
5:H:2382:SER:OG	5:H:2383:LYS:N	2.45	0.49
7:K:180:LEU:O	7:K:180:LEU:HD12	2.12	0.49
1:L:97:ILE:HG23	1:L:135:ILE:HD13	1.93	0.49
6:J:182:VAL:HG12	6:J:187:VAL:HG22	1.95	0.49
7:K:178:LEU:HD21	7:K:180:LEU:HD11	1.93	0.49
2:A:404:ARG:NH2	11:A:501:ADP:O3'	2.38	0.49
2:E:79:LEU:HD12	2:E:80:ALA:N	2.27	0.49
5:H:2356:ILE:HG13	5:H:2357:VAL:N	2.28	0.49
7:K:282:ILE:HG21	7:K:294:TYR:CZ	2.48	0.49
1:L:2810:SER:OG	1:L:2819:LEU:HD21	2.13	0.49
3:B:45:GLY:O	11:B:501:ADP:H2	1.96	0.49
3:D:260:LEU:O	2:E:271:ILE:HG22	2.12	0.49
6:I:21:TYR:HD2	11:I:501:ADP:C3'	2.26	0.49
1:L:159:LYS:HG2	1:L:241:LEU:HD11	1.95	0.49
2:E:173:ASP:O	2:E:176:ILE:HG22	2.13	0.49
5:H:841:ILE:HD13	6:I:403:LEU:HD11	1.94	0.49
6:I:174:ALA:HB2	11:I:501:ADP:H5'1	1.94	0.49
9:N:282:ARG:NH1	9:N:283:PRO:O	2.46	0.49
1:L:357:GLU:O	1:L:359:ILE:N	2.46	0.48
1:L:859:ASP:OD1	1:L:860:PHE:N	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:2857:SER:O	1:L:2857:SER:OG	2.32	0.48
5:H:2369:SER:OG	5:H:2381:SER:OG	2.29	0.48
6:I:169:ILE:HD12	6:I:169:ILE:N	2.28	0.48
1:L:2507:ILE:HG22	1:L:2507:ILE:O	2.13	0.48
2:A:131:TYR:N	2:A:193:ILE:O	2.45	0.48
2:C:374:ILE:HD11	11:C:501:ADP:N9	2.26	0.48
2:E:56:ILE:HD13	2:E:298:VAL:HG21	1.94	0.48
2:E:113:MET:SD	2:E:275:LEU:HD21	2.53	0.48
1:L:1347:ASP:OD1	1:L:1366:ARG:NH2	2.46	0.48
3:D:117:GLU:OE1	3:D:121:GLN:NE2	2.47	0.48
3:F:250:ILE:HD11	5:H:1756:ARG:HG3	1.94	0.48
3:B:145:ILE:HG22	3:B:146:GLN:H	1.79	0.48
3:F:178:MET:O	3:F:182:LEU:HD23	2.14	0.48
6:I:350:VAL:O	6:I:389:ARG:NH1	2.45	0.48
1:L:2228:VAL:HA	1:L:2231:VAL:HG12	1.95	0.48
1:L:2634:ILE:O	1:L:2638:LEU:N	2.44	0.48
2:A:426:GLU:N	2:A:426:GLU:OE1	2.47	0.48
2:C:315:LEU:HD21	2:C:329:PHE:CZ	2.48	0.48
1:L:2250:LEU:HD22	1:L:2306:VAL:HG11	1.96	0.48
5:H:1960:ASN:N	5:H:1964:ASP:OD1	2.39	0.48
6:I:170:LEU:HD21	6:I:325:VAL:HG13	1.94	0.48
1:L:1181:GLN:NE2	1:L:1244:ASP:OD2	2.46	0.48
2:A:273:ASP:OD1	2:A:274:LYS:N	2.47	0.48
2:C:105:GLU:N	2:C:105:GLU:OE1	2.47	0.48
1:L:3639:PHE:CZ	1:L:3669:ILE:HD11	2.39	0.48
2:C:176:ILE:O	2:C:176:ILE:HG22	2.14	0.48
1:L:1797:VAL:HG22	1:L:1798:LEU:HD23	1.96	0.47
1:L:3251:GLN:NE2	1:L:3263:ARG:O	2.44	0.47
3:B:129:VAL:HG22	3:B:291:ILE:HG22	1.96	0.47
5:H:1898:LEU:O	5:H:1902:TYR:N	2.47	0.47
6:I:174:ALA:CB	11:I:501:ADP:C8	2.97	0.47
3:B:362:TYR:CE2	11:B:501:ADP:N7	2.82	0.47
3:F:26:SER:O	3:F:29:ARG:NH1	2.47	0.47
5:H:1781:LEU:O	5:H:1783:ARG:NH1	2.45	0.47
2:C:76:LYS:HG2	11:C:501:ADP:PB	2.54	0.47
2:C:255:ASP:OD1	2:C:258:SER:N	2.42	0.47
3:F:264:ASP:OD1	3:F:265:THR:N	2.46	0.47
6:J:354:ASN:O	6:J:357:ILE:HG12	2.15	0.47
1:L:790:LEU:CD2	1:L:809:LEU:HD11	2.44	0.47
1:L:2254:LEU:HD23	1:L:2255:MET:N	2.29	0.47
3:F:317:GLU:OE2	3:F:353:ARG:NH1	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:445:LEU:HB3	1:L:564:ILE:HG22	1.96	0.47
3:F:309:PHE:CZ	3:F:346:ILE:HG22	2.50	0.47
5:H:2237:THR:HG23	5:H:2237:THR:O	2.15	0.47
5:H:2389:TYR:O	5:H:2393:ILE:HG13	2.13	0.47
7:K:37:ARG:O	7:K:66:THR:OG1	2.30	0.47
1:L:550:VAL:O	1:L:554:VAL:HG23	2.13	0.47
2:C:76:LYS:CG	11:C:501:ADP:O1B	2.63	0.47
3:D:331:GLY:O	3:D:344:HIS:N	2.40	0.47
1:L:235:MET:SD	1:L:296:ARG:NH2	2.81	0.47
1:L:655:VAL:N	1:L:656:PRO:HD2	2.30	0.47
1:L:3617:VAL:HG11	1:L:3829:TRP:CD1	2.49	0.47
3:B:34:ASP:OD1	3:B:40:ARG:NE	2.47	0.47
3:B:161:LEU:HD13	3:B:182:LEU:HD13	1.97	0.47
3:B:424:ASP:OD1	3:B:425:ASP:N	2.48	0.47
6:J:178:THR:HG22	6:J:180:ILE:HG13	1.97	0.47
1:L:1937:HIS:ND1	1:L:1939:VAL:HG13	2.30	0.47
1:L:3299:PHE:CD2	1:L:3501:VAL:HG21	2.50	0.47
1:L:3774:ASP:OD1	1:L:3775:SER:N	2.47	0.47
1:L:1525:GLU:O	1:L:1529:LEU:N	2.48	0.47
1:L:1719:GLU:OE1	1:L:1764:LEU:HD21	2.14	0.47
1:L:2666:PRO:N	1:L:2667:PRO:CD	2.77	0.47
2:C:204:GLY:O	2:C:205:ARG:NE	2.43	0.47
5:H:774:SER:OG	5:H:777:ASP:OD1	2.10	0.47
5:H:1799:ILE:O	5:H:1799:ILE:HG22	2.15	0.47
1:L:3266:ALA:HB3	1:L:3267:PRO:HD3	1.97	0.47
1:L:3311:LEU:HD13	1:L:3416:ILE:CG1	2.44	0.47
2:A:190:VAL:C	2:A:191:ILE:HD12	2.35	0.47
5:H:2336:GLU:OE2	5:H:2380:ARG:NH2	2.48	0.47
1:L:373:PRO:HB3	1:L:415:ILE:HD11	1.96	0.46
2:C:123:ARG:NE	2:C:237:ASP:OD2	2.44	0.46
4:G:123:ASP:OD1	4:G:124:TYR:N	2.46	0.46
6:I:180:ILE:HG23	6:I:187:VAL:HG13	1.98	0.46
7:K:270:GLU:N	7:K:270:GLU:OE1	2.48	0.46
1:L:1938:THR:O	1:L:1939:VAL:C	2.53	0.46
2:E:374:ILE:HG23	11:E:501:ADP:C2	2.49	0.46
6:J:337:ASP:OD1	6:J:338:ILE:N	2.48	0.46
1:L:678:ASN:OD1	1:L:681:THR:OG1	2.26	0.46
1:L:850:GLU:HA	1:L:853:VAL:HG12	1.97	0.46
3:D:370:ILE:HG23	11:D:501:ADP:C2	2.50	0.46
3:D:381:GLU:N	3:D:381:GLU:OE1	2.48	0.46
5:H:1273:LYS:O	5:H:1276:VAL:HG22	2.14	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:709:LEU:HD23	1:L:713:LEU:CD1	2.46	0.46
1:L:2799:TYR:CD2	5:H:2426:THR:HG21	2.50	0.46
6:I:158:THR:O	6:I:162:ASN:ND2	2.43	0.46
1:L:467:ILE:HD12	1:L:605:VAL:HG11	1.97	0.46
1:L:1313:THR:HG22	1:L:1372:ALA:HA	1.97	0.46
2:E:18:HIS:HD2	11:E:501:ADP:H5'2	1.80	0.46
5:H:1090:ILE:HD12	5:H:1210:LEU:HD11	1.97	0.46
5:H:2200:GLU:O	8:M:522:LYS:NZ	2.49	0.46
6:I:269:VAL:HG23	6:I:357:ILE:CG2	2.44	0.46
1:L:228:LEU:HG	1:L:229:PRO:HD3	1.98	0.46
1:L:3225:ILE:HA	1:L:3228:VAL:HG12	1.98	0.46
5:H:1889:LEU:HD22	5:H:1889:LEU:H	1.81	0.46
1:L:106:LEU:O	1:L:110:THR:OG1	2.32	0.46
2:A:404:ARG:HH21	11:A:501:ADP:H4'	1.79	0.46
2:C:28:GLU:OE1	2:C:28:GLU:N	2.45	0.46
2:C:257:LEU:HD13	5:H:1829:LEU:HD23	1.96	0.46
2:C:271:ILE:HG23	2:C:274:LYS:H	1.80	0.46
3:D:400:ARG:NH2	11:D:501:ADP:H5'1	2.31	0.46
7:K:287:VAL:HG12	7:K:288:ASP:N	2.31	0.46
9:N:349:LEU:N	9:N:350:PRO:HD2	2.30	0.46
1:L:3572:CYS:O	1:L:3576:GLY:N	2.48	0.46
2:A:159:ILE:HB	2:A:170:LEU:HD11	1.97	0.46
5:H:785:TRP:NE1	8:M:459:VAL:O	2.49	0.46
7:K:305:MET:CB	11:K:401:ADP:N1	2.71	0.46
9:N:357:LEU:HD23	9:N:359:GLN:N	2.31	0.46
1:L:930:ASP:OD2	1:L:931:CYS:N	2.49	0.46
1:L:1811:ARG:NH2	1:L:1850:CYS:SG	2.89	0.46
1:L:2850:ALA:O	1:L:2854:VAL:HG23	2.16	0.46
1:L:3222:LEU:HD12	1:L:3274:ILE:HD12	1.97	0.46
3:B:301:VAL:HG21	3:B:326:MET:SD	2.55	0.46
2:E:396:GLU:O	2:E:399:THR:OG1	2.28	0.46
1:L:3311:LEU:HD12	1:L:3312:GLN:N	2.31	0.45
1:L:3668:GLN:N	1:L:3677:ASN:O	2.45	0.45
2:A:246:ALA:O	2:A:251:GLN:NE2	2.49	0.45
4:G:164:SER:HA	4:G:174:ILE:HD11	1.96	0.45
5:H:1217:ASN:O	5:H:1218:THR:OG1	2.30	0.45
2:A:405:TYR:CZ	2:A:409:LEU:HD11	2.51	0.45
4:G:232:ARG:NH2	8:M:406:ARG:O	2.49	0.45
7:K:213:LYS:HZ2	11:K:401:ADP:C1'	2.26	0.45
1:L:448:MET:O	1:L:451:VAL:HG22	2.16	0.45
1:L:2121:TRP:N	1:L:2122:PRO:CD	2.79	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:119:LEU:HD21	3:B:312:LEU:CD2	2.45	0.45
3:B:370:ILE:HG21	3:B:399:LEU:HD21	1.98	0.45
6:I:170:LEU:N	6:I:349:ILE:O	2.46	0.45
6:J:200:ASP:OD1	6:J:201:PHE:N	2.49	0.45
6:J:387:VAL:HG12	6:J:387:VAL:O	2.16	0.45
7:K:205:GLU:O	7:K:209:VAL:HG23	2.16	0.45
1:L:1253:ASN:HB3	1:L:1256:VAL:HG22	1.98	0.45
1:L:3086:LYS:O	1:L:3089:THR:OG1	2.24	0.45
2:C:122:LEU:N	2:C:238:VAL:O	2.45	0.45
2:C:343:ASP:OD1	2:C:344:ILE:N	2.49	0.45
6:J:176:HIS:HE1	11:J:502:ADP:N6	2.15	0.45
1:L:1193:ASP:O	1:L:3469:ARG:NH1	2.45	0.45
1:L:1760:ASN:HB2	1:L:1761:PRO:HD3	1.99	0.45
1:L:3652:PHE:CE1	1:L:3656:VAL:HG21	2.52	0.45
3:B:108:ILE:HD13	3:B:304:LEU:HD22	1.99	0.45
3:D:251:ASN:OD1	3:D:252:SER:N	2.50	0.45
2:E:39:LEU:CD1	11:E:501:ADP:C6	2.96	0.45
1:L:281:ILE:O	1:L:285:ILE:HG23	2.16	0.45
2:A:39:LEU:HA	11:A:501:ADP:N1	2.32	0.45
5:H:1940:ARG:O	5:H:1941:THR:OG1	2.30	0.45
6:I:358:GLN:O	6:I:359:SER:OG	2.35	0.45
1:L:390:LEU:HD12	1:L:395:LEU:HD21	1.99	0.45
1:L:1343:CYS:HB2	1:L:1370:LEU:HD22	1.99	0.45
3:B:22:ILE:HD12	3:B:22:ILE:N	2.32	0.45
2:E:366:TYR:OH	11:E:501:ADP:N7	2.42	0.45
6:I:353:GLY:HA3	11:I:501:ADP:C4'	2.42	0.45
1:L:2340:SER:O	1:L:2388:ARG:NH1	2.43	0.45
1:L:3348:THR:HG23	1:L:3349:PHE:N	2.31	0.45
3:B:249:VAL:O	3:B:249:VAL:HG12	2.17	0.45
3:D:61:GLU:OE1	3:D:64:ARG:NH2	2.45	0.45
2:E:265:LYS:N	2:E:266:PRO:CD	2.80	0.45
6:I:269:VAL:HG22	6:I:305:PRO:HB3	1.98	0.45
1:L:336:LYS:O	1:L:340:THR:OG1	2.34	0.44
2:C:205:ARG:HB3	2:C:221:VAL:HG22	1.99	0.44
2:E:18:HIS:O	2:E:18:HIS:ND1	2.46	0.44
2:E:401:THR:OG1	2:E:402:THR:N	2.50	0.44
7:K:156:GLY:CA	11:K:401:ADP:O1B	2.65	0.44
1:L:2796:PHE:N	1:L:2797:PRO:HD2	2.31	0.44
1:L:2177:ARG:NH2	1:L:2220:GLU:OE2	2.48	0.44
1:L:2506:VAL:O	1:L:2515:ARG:NH1	2.50	0.44
1:L:2959:ARG:O	1:L:2960:LEU:HD12	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:3329:VAL:O	1:L:3330:SER:HB3	2.18	0.44
2:E:408:GLN:O	3:F:71:ARG:NH2	2.50	0.44
9:N:349:LEU:N	9:N:350:PRO:CD	2.80	0.44
1:L:1005:HIS:CD2	1:L:3429:PHE:HZ	2.36	0.44
1:L:2159:LEU:HA	1:L:2162:VAL:HG12	2.00	0.44
1:L:3117:VAL:HG21	1:L:3130:TRP:HE3	1.82	0.44
2:E:18:HIS:HD2	11:E:501:ADP:H3'	1.83	0.44
6:I:21:TYR:HB3	11:I:501:ADP:C3'	2.46	0.44
8:M:407:LYS:NZ	8:M:408:ALA:O	2.51	0.44
8:M:447:VAL:HB	8:M:448:PRO:HD3	1.99	0.44
1:L:1825:ALA:CB	1:L:1826:PRO:CD	2.96	0.44
3:B:250:ILE:HD11	5:H:1360:ILE:O	2.18	0.44
3:D:247:ILE:HG21	3:D:267:GLU:CD	2.27	0.44
6:I:21:TYR:CD2	11:I:501:ADP:O3'	2.68	0.44
5:H:1799:ILE:N	5:H:1800:PRO:HD3	2.33	0.44
5:H:1950:ASP:HB3	5:H:1980:ILE:HG22	2.00	0.44
7:K:374:CYS:SG	7:K:375:PHE:N	2.91	0.44
1:L:671:VAL:HG12	1:L:675:PHE:CE2	2.51	0.44
1:L:2232:ILE:HG21	1:L:2253:THR:HG22	1.98	0.44
1:L:3301:GLU:HG2	1:L:3302:ASN:H	1.83	0.44
3:D:313:ASN:ND2	3:D:349:ASP:OD2	2.51	0.44
3:F:348:ILE:HD13	3:F:351:LEU:HD12	2.00	0.44
5:H:1265:GLN:N	5:H:1266:PRO:HD2	2.33	0.44
6:I:77:VAL:HG23	6:I:77:VAL:O	2.18	0.44
1:L:561:THR:HG22	1:L:589:TYR:CE1	2.53	0.44
2:A:42:GLN:HG3	2:A:45:ALA:HB3	2.00	0.44
3:D:127:ILE:CG2	3:D:291:ILE:HD11	2.48	0.44
3:F:405:LEU:CD2	3:F:429:VAL:HG12	2.48	0.44
5:H:2007:VAL:HG12	5:H:2008:ALA:N	2.32	0.44
8:M:416:HIS:O	8:M:416:HIS:ND1	2.50	0.44
1:L:73:LEU:C	1:L:73:LEU:HD12	2.38	0.44
1:L:295:ILE:HD12	1:L:338:ILE:HG13	1.99	0.44
2:A:24:LEU:HD21	2:A:49:CYS:CB	2.48	0.44
2:A:76:LYS:HG2	11:A:501:ADP:PB	2.58	0.44
3:B:430:TYR:O	3:B:438:ARG:NH1	2.51	0.44
1:L:228:LEU:N	1:L:229:PRO:CD	2.81	0.43
1:L:2887:GLU:OE1	1:L:2887:GLU:N	2.45	0.43
2:C:172:LEU:HD21	2:C:176:ILE:HG21	2.00	0.43
3:F:47:VAL:HG13	3:F:370:ILE:HG23	1.93	0.43
1:L:1172:PRO:O	1:L:1176:VAL:HG13	2.18	0.43
2:A:404:ARG:NH2	11:A:501:ADP:C4'	2.79	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:H:1789:GLN:O	5:H:1794:ARG:NH2	2.51	0.43
6:I:151:LEU:N	6:I:151:LEU:HD23	2.33	0.43
1:L:824:LEU:N	1:L:825:PRO:CD	2.81	0.43
1:L:2855:GLU:OE1	1:L:2870:ARG:NH2	2.45	0.43
6:I:175:THR:OG1	11:I:501:ADP:N6	2.52	0.43
6:J:41:ILE:HG22	6:J:70:ILE:HB	1.99	0.43
7:K:282:ILE:HG21	7:K:294:TYR:CE2	2.54	0.43
1:L:969:CYS:HA	1:L:972:VAL:HG22	1.99	0.43
3:B:47:VAL:H	11:B:501:ADP:HN62	1.65	0.43
2:C:77:THR:N	11:C:501:ADP:O1B	2.33	0.43
2:C:138:LEU:HD12	2:C:159:ILE:HG22	2.00	0.43
3:D:355:LEU:HD12	3:D:355:LEU:O	2.18	0.43
5:H:1046:ASN:ND2	5:H:1064:ASP:OD1	2.52	0.43
1:L:561:THR:HG21	1:L:638:VAL:CG1	2.45	0.43
1:L:663:SER:N	1:L:709:LEU:CD1	2.82	0.43
1:L:3132:ASP:O	1:L:3136:ASN:ND2	2.46	0.43
2:A:326:ILE:HD12	2:A:326:ILE:N	2.33	0.43
2:C:75:GLY:HA2	11:C:501:ADP:O3A	2.18	0.43
3:D:83:LYS:H	11:D:501:ADP:PB	2.41	0.43
3:F:205:LEU:HD12	3:F:225:VAL:HB	2.01	0.43
7:K:23:GLY:N	7:K:344:SER:OG	2.50	0.43
8:M:427:SER:O	8:M:431:GLY:N	2.46	0.43
1:L:125:ASN:ND2	1:L:128:ASN:OD1	2.52	0.43
3:B:303:MET:HG3	2:C:313:THR:HG21	2.01	0.43
2:C:326:ILE:HD12	2:C:326:ILE:N	2.34	0.43
2:E:20:HIS:HE1	11:E:501:ADP:O2'	2.01	0.43
4:G:80:TYR:O	4:G:84:LYS:N	2.52	0.43
5:H:1947:VAL:HG11	5:H:1950:ASP:OD1	2.18	0.43
6:I:128:ASN:ND2	6:I:129:THR:O	2.51	0.43
6:J:223:ILE:N	6:J:223:ILE:HD12	2.33	0.43
7:K:303:THR:HG22	7:K:303:THR:O	2.19	0.43
8:M:432:GLY:C	8:M:433:LEU:HD23	2.39	0.43
1:L:558:LYS:HA	1:L:638:VAL:HG22	2.01	0.43
1:L:1087:MET:SD	1:L:1088:ASP:N	2.92	0.43
1:L:3299:PHE:HD2	1:L:3501:VAL:HG11	1.84	0.43
2:A:40:VAL:H	11:A:501:ADP:N6	2.16	0.43
1:L:106:LEU:HD11	1:L:139:LEU:HG	2.00	0.43
1:L:453:VAL:HG23	1:L:592:LEU:HA	2.00	0.43
1:L:3617:VAL:HG11	1:L:3829:TRP:HD1	1.83	0.43
2:C:40:VAL:H	11:C:501:ADP:HN62	1.67	0.43
3:F:137:ILE:HD13	3:F:196:ASP:HB3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:H:1731:TYR:CE2	5:H:1735:LEU:HD11	2.53	0.43
6:I:21:TYR:HB3	11:I:501:ADP:C2'	2.47	0.43
1:L:1290:VAL:HB	1:L:1291:PRO:HD3	2.00	0.43
1:L:3134:LEU:HA	1:L:3137:ILE:HG22	2.01	0.43
2:A:323:ILE:HG22	3:F:19:ILE:HG22	2.01	0.43
3:D:174:LEU:HD13	3:D:182:LEU:HD12	2.01	0.43
7:K:214:GLU:HB2	11:K:401:ADP:N6	2.34	0.43
1:L:1243:HIS:O	1:L:1246:VAL:HG22	2.19	0.43
1:L:1382:SER:O	1:L:1386:ILE:HD13	2.19	0.43
2:A:135:VAL:CG2	2:A:191:ILE:HD13	2.48	0.43
2:C:310:GLU:OE1	2:C:310:GLU:N	2.44	0.43
2:E:144:GLU:OE1	2:E:145:ASN:N	2.52	0.43
5:H:1199:VAL:HG12	5:H:1199:VAL:O	2.19	0.43
6:I:103:LEU:HD23	6:I:144:TYR:CE1	2.54	0.43
9:N:357:LEU:HD23	9:N:359:GLN:H	1.83	0.43
1:L:340:THR:HG22	1:L:340:THR:O	2.19	0.42
1:L:1117:VAL:O	1:L:1121:VAL:HG22	2.18	0.42
2:C:20:HIS:CE1	11:C:501:ADP:H2'	2.53	0.42
5:H:2356:ILE:HG13	5:H:2357:VAL:H	1.85	0.42
1:L:423:LEU:O	1:L:427:VAL:HG23	2.19	0.42
1:L:427:VAL:HG21	1:L:560:ILE:HG12	2.00	0.42
1:L:2349:VAL:O	1:L:2352:ILE:HG12	2.19	0.42
1:L:2863:ALA:HB1	1:L:2896:LEU:HD13	2.01	0.42
1:L:3504:ASP:O	1:L:3505:ALA:HB3	2.18	0.42
3:D:338:THR:OG1	3:D:339:SER:N	2.52	0.42
4:G:78:GLN:OE1	4:G:79:GLY:N	2.52	0.42
1:L:984:LEU:HD13	1:L:2503:ILE:HG21	1.99	0.42
1:L:1329:VAL:HG13	1:L:1332:HIS:H	1.84	0.42
1:L:1430:LEU:HD21	1:L:1448:LEU:HD12	2.01	0.42
3:D:63:ILE:HD13	3:D:295:VAL:HG21	2.00	0.42
3:D:180:GLU:O	3:D:183:THR:OG1	2.32	0.42
3:D:390:LEU:HD21	3:D:406:ILE:HG12	2.02	0.42
4:G:153:THR:HG23	4:G:156:GLU:H	1.84	0.42
6:I:151:LEU:HD23	6:I:151:LEU:H	1.84	0.42
1:L:1082:ASN:OD1	1:L:1083:GLY:N	2.46	0.42
2:C:189:ASP:OD1	2:C:190:VAL:N	2.53	0.42
2:C:315:LEU:HD23	2:C:354:LEU:HD11	2.01	0.42
4:G:174:ILE:O	4:G:178:TYR:N	2.52	0.42
1:L:663:SER:N	1:L:709:LEU:HD11	2.34	0.42
1:L:984:LEU:CD1	1:L:2503:ILE:HG21	2.50	0.42
1:L:2650:GLN:HB3	1:L:2651:PRO:HD3	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:24:LEU:HD21	2:A:49:CYS:HB2	2.00	0.42
6:I:41:ILE:N	6:I:85:ILE:O	2.45	0.42
6:I:73:ASN:O	6:I:77:VAL:HG22	2.19	0.42
6:J:156:VAL:HG23	6:J:187:VAL:HG23	2.00	0.42
9:N:306:THR:HG22	9:N:323:TYR:HB2	2.01	0.42
1:L:238:LEU:HD13	1:L:241:LEU:HD12	2.01	0.42
1:L:3113:PHE:O	1:L:3117:VAL:HG23	2.20	0.42
6:J:24:ARG:NH1	11:J:502:ADP:O2'	2.53	0.42
3:F:306:ILE:HD13	3:F:338:THR:CG2	2.49	0.42
6:J:334:GLY:O	6:J:341:ARG:NH2	2.52	0.42
1:L:239:TYR:CZ	1:L:243:ILE:HD11	2.54	0.42
1:L:3643:PHE:CE1	1:L:3669:ILE:HD12	2.55	0.42
2:E:256:ILE:O	2:E:256:ILE:HG22	2.19	0.42
2:E:265:LYS:O	2:E:267:LYS:N	2.49	0.42
1:L:348:ILE:N	1:L:349:PRO:HD2	2.33	0.42
1:L:1309:MET:SD	1:L:1339:LEU:HD21	2.60	0.42
1:L:2381:MET:O	1:L:2385:ILE:HG22	2.19	0.42
3:D:247:ILE:HG23	3:D:272:VAL:HG11	2.02	0.42
3:F:210:THR:HG22	3:F:210:THR:O	2.20	0.42
3:D:253:ARG:NH2	5:H:1843:THR:O	2.53	0.42
5:H:2226:LEU:HD13	5:H:2226:LEU:O	2.20	0.42
2:A:26:LEU:HD12	2:A:30:GLY:O	2.18	0.41
3:D:82:GLY:HA2	11:D:501:ADP:PA	2.60	0.41
3:F:141:GLU:N	3:F:164:LYS:O	2.51	0.41
5:H:846:SER:OG	9:N:205:ARG:NH2	2.53	0.41
1:L:1887:PHE:CE2	1:L:1891:LEU:HD11	2.55	0.41
1:L:2072:ASP:N	1:L:2072:ASP:OD1	2.53	0.41
2:A:33:LYS:O	2:A:46:ARG:NH1	2.53	0.41
2:A:170:LEU:C	2:A:170:LEU:HD12	2.39	0.41
2:E:40:VAL:H	11:E:501:ADP:HN62	1.67	0.41
4:G:72:LEU:HD21	5:H:796:TRP:HB2	2.02	0.41
6:I:317:LEU:N	6:I:317:LEU:HD23	2.35	0.41
1:L:1297:LEU:O	1:L:1305:GLN:NE2	2.53	0.41
1:L:3644:THR:HG22	1:L:3710:LEU:HD22	2.01	0.41
1:L:1803:GLN:HA	1:L:1803:GLN:OE1	2.21	0.41
1:L:2216:SER:HG	1:L:2218:TYR:HE1	1.68	0.41
1:L:3678:VAL:HG21	1:L:3681:PHE:CD2	2.56	0.41
3:D:107:GLU:OE2	2:E:317:ARG:NH2	2.49	0.41
6:J:21:TYR:CD2	11:J:502:ADP:H3'	2.48	0.41
1:L:462:TYR:CZ	1:L:1712:THR:HG21	2.55	0.41
1:L:1151:GLU:O	1:L:1157:LYS:NZ	2.45	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:2214:VAL:HG12	1:L:2214:VAL:O	2.20	0.41
1:L:3344:LYS:O	1:L:3348:THR:HG22	2.20	0.41
5:H:794:ARG:NH1	6:J:31:ASP:OD1	2.53	0.41
5:H:2008:ALA:O	5:H:2012:ASN:OD1	2.38	0.41
6:I:387:VAL:HG22	6:I:387:VAL:O	2.21	0.41
6:J:269:VAL:HG22	6:J:305:PRO:CB	2.51	0.41
1:L:1050:THR:HG21	1:L:1121:VAL:CG2	2.48	0.41
1:L:1552:VAL:HG11	1:L:1585:VAL:CG2	2.50	0.41
1:L:2479:GLU:OE2	1:L:2601:HIS:NE2	2.53	0.41
2:C:76:LYS:N	11:C:501:ADP:O1B	2.54	0.41
4:G:114:TRP:NE1	7:K:117:GLU:OE1	2.48	0.41
5:H:1090:ILE:HD11	5:H:1210:LEU:HD11	2.02	0.41
6:I:171:ASP:OD1	6:I:172:SER:N	2.54	0.41
1:L:1937:HIS:O	1:L:1938:THR:OG1	2.29	0.41
1:L:2239:TYR:O	1:L:2281:LYS:NZ	2.45	0.41
5:H:2187:TYR:O	5:H:2188:THR:OG1	2.29	0.41
6:I:70:ILE:HD11	6:I:105:HIS:HB2	2.02	0.41
6:I:103:LEU:HD23	6:I:144:TYR:CZ	2.56	0.41
6:J:423:CYS:O	6:J:427:LYS:N	2.49	0.41
2:A:27:ASP:OD1	2:A:31:LEU:N	2.54	0.41
2:C:333:ARG:HH22	3:D:306:ILE:HD11	1.86	0.41
2:C:411:THR:HG21	3:D:71:ARG:HH21	1.86	0.41
3:D:247:ILE:HG23	3:D:272:VAL:CG1	2.51	0.41
7:K:178:LEU:CD2	7:K:180:LEU:HD11	2.51	0.41
1:L:557:VAL:O	1:L:561:THR:HG23	2.21	0.41
1:L:1171:LEU:HB3	1:L:1172:PRO:HD2	2.03	0.41
1:L:1957:TYR:N	1:L:1958:PRO:CD	2.84	0.41
1:L:2928:ALA:HB1	1:L:2980:HIS:NE2	2.35	0.41
3:B:33:LEU:O	3:B:40:ARG:NH2	2.53	0.41
3:D:49:GLN:HG3	3:D:52:ALA:HB3	2.02	0.41
3:F:47:VAL:HG12	3:F:370:ILE:CG2	2.04	0.41
3:F:400:ARG:NH2	11:F:501:ADP:PA	2.91	0.41
1:L:877:TRP:CD2	1:L:2908:VAL:HG21	2.56	0.41
1:L:1184:LEU:HG	1:L:1188:LEU:HD23	2.03	0.41
1:L:1366:ARG:O	1:L:1370:LEU:HD23	2.21	0.41
1:L:2400:LEU:HD13	1:L:2436:ILE:HG21	2.02	0.41
3:B:27:HIS:HE1	11:B:501:ADP:O2'	2.04	0.41
3:D:73:VAL:HG22	3:D:355:LEU:HD11	2.03	0.41
3:D:121:GLN:NE2	3:D:265:THR:OG1	2.54	0.41
3:F:116:THR:HG23	3:F:311:PHE:CE1	2.56	0.41
4:G:105:ARG:NH2	6:J:410:TRP:O	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:137:ILE:HD11	1:L:220:LEU:HD12	2.04	0.40
1:L:1194:LEU:HD12	1:L:1199:SER:HB2	2.02	0.40
1:L:2449:LYS:O	1:L:2455:ARG:NE	2.51	0.40
3:B:249:VAL:O	3:B:250:ILE:HD13	2.21	0.40
3:D:329:ASN:O	3:D:329:ASN:ND2	2.54	0.40
3:D:354:LEU:HD12	3:D:354:LEU:C	2.42	0.40
5:H:1777:LEU:N	5:H:1777:LEU:HD22	2.36	0.40
6:I:10:GLU:N	6:I:10:GLU:OE1	2.54	0.40
7:K:219:VAL:HG23	7:K:306:TYR:HB3	2.02	0.40
1:L:1303:ASN:OD1	1:L:1304:ALA:N	2.54	0.40
1:L:1386:ILE:N	1:L:1386:ILE:HD12	2.35	0.40
3:F:63:ILE:HD13	3:F:295:VAL:CG2	2.51	0.40
6:J:267:LEU:HD12	6:J:301:ARG:O	2.22	0.40
1:L:143:PHE:CD1	1:L:228:LEU:HD13	2.57	0.40
1:L:1309:MET:O	1:L:1313:THR:HG23	2.20	0.40
1:L:2208:GLU:N	1:L:2209:PRO:HD2	2.37	0.40
1:L:2357:VAL:HG12	1:L:2374:LYS:HD3	2.04	0.40
1:L:2472:PHE:CE2	1:L:2474:ILE:HD11	2.56	0.40
1:L:2659:GLU:OE2	1:L:2687:ARG:NE	2.46	0.40
6:J:108:LYS:HG2	6:J:109:MET:CE	2.52	0.40
7:K:190:MET:HG3	7:K:209:VAL:HG11	2.03	0.40
1:L:935:LEU:HD11	1:L:2618:LEU:HD23	2.02	0.40
1:L:3241:ARG:NH1	1:L:3548:VAL:O	2.54	0.40
1:L:3759:ASP:OD1	1:L:3760:THR:HG23	2.21	0.40
3:B:336:ARG:NH2	2:C:310:GLU:OE2	2.44	0.40
3:D:409:ALA:HB1	3:D:421:VAL:HG11	2.02	0.40
3:F:83:LYS:NZ	3:F:329:ASN:OD1	2.44	0.40
4:G:237:THR:OG1	4:G:238:PRO:HD3	2.21	0.40
6:I:11:VAL:HG12	6:I:11:VAL:O	2.22	0.40
6:J:226:LYS:NZ	7:K:319:ALA:O	2.49	0.40
1:L:719:GLY:O	1:L:722:SER:OG	2.33	0.40
1:L:1145:LEU:HD13	1:L:1163:SER:HB2	2.03	0.40
1:L:1939:VAL:O	1:L:1940:PRO:C	2.59	0.40
1:L:2173:LYS:N	1:L:2174:PRO:CD	2.84	0.40
1:L:2393:LEU:HD12	1:L:2394:GLU:N	2.36	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	L	3453/3830 (90%)	3332 (96%)	121 (4%)	0	100	100
2	A	422/456 (92%)	410 (97%)	12 (3%)	0	100	100
2	C	410/456 (90%)	394 (96%)	16 (4%)	0	100	100
2	E	433/456 (95%)	419 (97%)	14 (3%)	0	100	100
3	B	391/463 (84%)	374 (96%)	17 (4%)	0	100	100
3	D	423/463 (91%)	406 (96%)	17 (4%)	0	100	100
3	F	411/463 (89%)	397 (97%)	14 (3%)	0	100	100
4	G	197/467 (42%)	187 (95%)	10 (5%)	0	100	100
5	H	987/3123 (32%)	937 (95%)	50 (5%)	0	100	100
6	I	341/429 (80%)	326 (96%)	15 (4%)	0	100	100
6	J	399/429 (93%)	377 (94%)	22 (6%)	0	100	100
7	K	346/375 (92%)	335 (97%)	11 (3%)	0	100	100
8	M	102/813 (12%)	97 (95%)	5 (5%)	0	100	100
9	N	144/364 (40%)	129 (90%)	15 (10%)	0	100	100
All	All	8459/12587 (67%)	8120 (96%)	339 (4%)	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	L	3112/3396 (92%)	3064 (98%)	48 (2%)	60	75
2	A	360/387 (93%)	359 (100%)	1 (0%)	91	92
2	C	353/387 (91%)	348 (99%)	5 (1%)	62	75
2	E	367/387 (95%)	363 (99%)	4 (1%)	70	80
3	B	338/390 (87%)	338 (100%)	0	100	100
3	D	359/390 (92%)	352 (98%)	7 (2%)	52	69
3	F	352/390 (90%)	351 (100%)	1 (0%)	91	92
4	G	179/400 (45%)	177 (99%)	2 (1%)	70	80
5	H	902/2634 (34%)	893 (99%)	9 (1%)	73	82
6	I	299/364 (82%)	295 (99%)	4 (1%)	65	77
6	J	343/364 (94%)	339 (99%)	4 (1%)	67	78
7	K	297/318 (93%)	297 (100%)	0	100	100
8	M	91/718 (13%)	90 (99%)	1 (1%)	70	80
9	N	130/312 (42%)	127 (98%)	3 (2%)	45	64
All	All	7482/10837 (69%)	7393 (99%)	89 (1%)	66	78

All (89) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	L	85	PRO
1	L	119	ARG
1	L	290	PHE
1	L	320	CYS
1	L	358	SER
1	L	368	ARG
1	L	371	LEU
1	L	402	PHE
1	L	456	PHE
1	L	535	LYS
1	L	624	ARG
1	L	645	LEU
1	L	778	GLU
1	L	897	LYS
1	L	904	LYS
1	L	912	LEU
1	L	927	GLU
1	L	939	MET
1	L	1146	CYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	L	1343	CYS
1	L	1526	ARG
1	L	1537	ARG
1	L	1650	ARG
1	L	1701	ARG
1	L	1707	PHE
1	L	1742	ASN
1	L	1763	PHE
1	L	1769	LYS
1	L	1785	ASN
1	L	1811	ARG
1	L	1879	HIS
1	L	1885	GLN
1	L	1986	ARG
1	L	2121	TRP
1	L	2158	PHE
1	L	2373	GLU
1	L	2393	LEU
1	L	2571	HIS
1	L	2676	LYS
1	L	2691	MET
1	L	3069	CYS
1	L	3127	TRP
1	L	3166	SER
1	L	3220	LEU
1	L	3300	ARG
1	L	3529	LYS
1	L	3530	ARG
1	L	3596	ARG
2	A	172	LEU
2	C	201	LYS
2	C	205	ARG
2	C	264	MET
2	C	274	LYS
2	C	378	ARG
3	D	21	ARG
3	D	88	MET
3	D	269	LYS
3	D	355	LEU
3	D	400	ARG
3	D	428	ARG
3	D	444	LYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	E	18	HIS
2	E	184	ARG
2	E	249	ARG
2	E	316	HIS
3	F	257	PHE
4	G	66	LYS
4	G	226	ARG
5	H	776	TRP
5	H	1200	PHE
5	H	1749	TRP
5	H	1928	ARG
5	H	1976	ARG
5	H	2010	GLN
5	H	2279	ARG
5	H	2389	TYR
5	H	2396	ARG
6	I	130	ARG
6	I	204	MET
6	I	210	PHE
6	I	213	MET
6	J	22	THR
6	J	230	ARG
6	J	302	LEU
6	J	363	ARG
8	M	433	LEU
9	N	181	GLU
9	N	282	ARG
9	N	314	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (54) such sidechains are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	L	51	ASN
1	L	245	ASN
1	L	463	GLN
1	L	598	GLN
1	L	604	GLN
1	L	619	ASN
1	L	621	GLN
1	L	844	GLN
1	L	1056	GLN
1	L	1269	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	L	1287	GLN
1	L	1371	ASN
1	L	1671	ASN
1	L	2513	HIS
1	L	2627	GLN
1	L	2650	GLN
1	L	2695	GLN
1	L	2828	HIS
1	L	2906	HIS
1	L	3295	GLN
1	L	3406	HIS
1	L	3480	HIS
1	L	3492	HIS
1	L	3827	HIS
2	A	18	HIS
3	B	49	GLN
3	B	302	HIS
2	C	13	GLN
2	C	20	HIS
3	D	121	GLN
3	D	302	HIS
2	E	42	GLN
2	E	115	ASN
2	E	241	HIS
2	E	254	GLN
2	E	373	GLN
3	F	27	HIS
3	F	226	GLN
5	H	792	GLN
5	H	1261	HIS
5	H	1858	GLN
5	H	2010	GLN
5	H	2373	ASN
5	H	2384	GLN
5	H	2387	ASN
5	H	2428	HIS
6	I	128	ASN
6	I	205	GLN
6	I	383	ASN
6	J	190	GLN
6	J	251	HIS
7	K	12	ASN

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Mol	Chain	Res	Type
7	K	88	HIS
7	K	92	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

10 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
11	ADP	A	501	-	24,29,29	0.93	1 (4%)	29,45,45	1.59	5 (17%)
11	ADP	F	501	-	24,29,29	1.07	1 (4%)	29,45,45	1.70	5 (17%)
10	IHP	L	3901	-	36,36,36	0.74	0	54,60,60	1.41	7 (12%)
11	ADP	K	401	-	24,29,29	0.94	1 (4%)	29,45,45	1.64	5 (17%)
11	ADP	B	501	-	24,29,29	1.04	2 (8%)	29,45,45	1.47	3 (10%)
11	ADP	C	501	-	24,29,29	0.93	1 (4%)	29,45,45	1.61	4 (13%)
11	ADP	I	501	-	24,29,29	1.08	2 (8%)	29,45,45	1.52	4 (13%)
11	ADP	E	501	-	24,29,29	1.00	1 (4%)	29,45,45	1.56	6 (20%)
11	ADP	D	501	-	24,29,29	0.98	1 (4%)	29,45,45	1.54	4 (13%)
11	ADP	J	502	-	24,29,29	0.96	1 (4%)	29,45,45	1.41	5 (17%)

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
11	ADP	A	501	-	-	5/12/32/32	0/3/3/3
11	ADP	F	501	-	-	4/12/32/32	0/3/3/3
10	IHP	L	3901	-	-	6/30/54/54	0/1/1/1
11	ADP	K	401	-	-	4/12/32/32	0/3/3/3
11	ADP	B	501	-	-	5/12/32/32	0/3/3/3
11	ADP	C	501	-	-	3/12/32/32	0/3/3/3
11	ADP	I	501	-	-	4/12/32/32	0/3/3/3
11	ADP	E	501	-	-	6/12/32/32	0/3/3/3
11	ADP	D	501	-	-	5/12/32/32	0/3/3/3
11	ADP	J	502	-	-	4/12/32/32	0/3/3/3

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	F	501	ADP	C5-C4	3.00	1.48	1.40
11	B	501	ADP	C5-C4	2.75	1.48	1.40
11	I	501	ADP	C5-C4	2.72	1.48	1.40
11	C	501	ADP	C5-C4	2.61	1.47	1.40
11	K	401	ADP	C5-C4	2.49	1.47	1.40
11	A	501	ADP	C5-C4	2.48	1.47	1.40
11	D	501	ADP	C5-C4	2.47	1.47	1.40
11	J	502	ADP	C5-C4	2.45	1.47	1.40
11	E	501	ADP	C5-C4	2.38	1.47	1.40
11	B	501	ADP	O4'-C1'	2.05	1.43	1.41
11	I	501	ADP	C2-N3	2.05	1.35	1.32

All (48) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	F	501	ADP	C4-C5-N7	-4.61	104.60	109.40
11	D	501	ADP	PA-O3A-PB	-4.46	117.52	132.83
11	C	501	ADP	PA-O3A-PB	-4.19	118.45	132.83
11	K	401	ADP	PA-O3A-PB	-4.00	119.10	132.83
11	A	501	ADP	PA-O3A-PB	-3.95	119.28	132.83
11	B	501	ADP	C4-C5-N7	-3.94	105.29	109.40
11	E	501	ADP	PA-O3A-PB	-3.92	119.38	132.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	F	501	ADP	PA-O3A-PB	-3.86	119.57	132.83
11	I	501	ADP	C3'-C2'-C1'	3.53	106.30	100.98
11	B	501	ADP	PA-O3A-PB	-3.50	120.82	132.83
11	K	401	ADP	C4-C5-N7	-3.40	105.85	109.40
11	I	501	ADP	PA-O3A-PB	-3.36	121.30	132.83
11	E	501	ADP	N3-C2-N1	-3.29	123.53	128.68
11	A	501	ADP	N3-C2-N1	-3.17	123.72	128.68
11	A	501	ADP	C3'-C2'-C1'	3.16	105.73	100.98
11	J	502	ADP	N3-C2-N1	-3.12	123.80	128.68
10	L	3901	IHP	O14-C4-C3	3.07	115.93	108.69
11	C	501	ADP	N3-C2-N1	-3.06	123.90	128.68
11	J	502	ADP	PA-O3A-PB	-3.04	122.39	132.83
11	F	501	ADP	C3'-C2'-C1'	3.00	105.50	100.98
11	D	501	ADP	N3-C2-N1	-2.93	124.10	128.68
11	D	501	ADP	C4-C5-N7	-2.91	106.37	109.40
11	I	501	ADP	N3-C2-N1	-2.89	124.16	128.68
11	B	501	ADP	N3-C2-N1	-2.84	124.24	128.68
10	L	3901	IHP	O14-C4-C5	2.80	115.30	108.69
11	K	401	ADP	O3'-C3'-C4'	-2.80	102.94	111.05
10	L	3901	IHP	C6-C5-C4	2.78	116.50	110.41
11	K	401	ADP	N3-C2-N1	-2.73	124.42	128.68
11	C	501	ADP	C3'-C2'-C1'	2.73	105.08	100.98
11	J	502	ADP	C3'-C2'-C1'	2.72	105.08	100.98
11	E	501	ADP	C5'-C4'-C3'	-2.70	105.05	115.18
10	L	3901	IHP	C5-C4-C3	-2.70	104.51	110.41
11	I	501	ADP	C4-C5-N7	-2.63	106.66	109.40
11	D	501	ADP	C3'-C2'-C1'	2.58	104.86	100.98
11	J	502	ADP	C4-C5-N7	-2.56	106.73	109.40
10	L	3901	IHP	C6-C1-C2	2.55	116.00	110.41
11	A	501	ADP	C4-C5-N7	-2.44	106.85	109.40
11	F	501	ADP	N3-C2-N1	-2.44	124.86	128.68
11	J	502	ADP	C2'-C3'-C4'	2.38	107.27	102.64
10	L	3901	IHP	C5-C6-C1	2.35	115.55	110.41
11	C	501	ADP	C4-C5-N7	-2.33	106.97	109.40
11	E	501	ADP	C4-C5-N7	-2.33	106.97	109.40
11	E	501	ADP	C2'-C3'-C4'	2.27	107.06	102.64
10	L	3901	IHP	O15-P5-O25	-2.18	100.96	109.39
11	F	501	ADP	C5-C6-N6	2.17	123.65	120.35
11	E	501	ADP	C3'-C2'-C1'	2.16	104.22	100.98
11	K	401	ADP	O3B-PB-O2B	2.04	115.44	107.64
11	A	501	ADP	C2-N1-C6	2.03	122.22	118.75

There are no chirality outliers.

All (46) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	A	501	ADP	O4'-C4'-C5'-O5'
11	B	501	ADP	C5'-O5'-PA-O1A
11	B	501	ADP	C5'-O5'-PA-O2A
11	C	501	ADP	C5'-O5'-PA-O1A
11	C	501	ADP	C5'-O5'-PA-O2A
11	D	501	ADP	C5'-O5'-PA-O3A
11	E	501	ADP	C5'-O5'-PA-O1A
11	E	501	ADP	C5'-O5'-PA-O2A
11	E	501	ADP	O4'-C4'-C5'-O5'
11	F	501	ADP	C5'-O5'-PA-O3A
11	I	501	ADP	C5'-O5'-PA-O2A
11	I	501	ADP	C5'-O5'-PA-O3A
11	J	502	ADP	C5'-O5'-PA-O3A
11	K	401	ADP	C5'-O5'-PA-O1A
11	K	401	ADP	C5'-O5'-PA-O2A
11	D	501	ADP	O4'-C4'-C5'-O5'
11	D	501	ADP	C3'-C4'-C5'-O5'
11	E	501	ADP	C3'-C4'-C5'-O5'
11	F	501	ADP	O4'-C4'-C5'-O5'
11	F	501	ADP	C3'-C4'-C5'-O5'
10	L	3901	IHP	C4-C3-O13-P3
11	I	501	ADP	PA-O3A-PB-O3B
11	J	502	ADP	PA-O3A-PB-O3B
10	L	3901	IHP	C1-O11-P1-O41
11	A	501	ADP	C5'-O5'-PA-O3A
11	D	501	ADP	C5'-O5'-PA-O1A
11	F	501	ADP	C5'-O5'-PA-O1A
11	J	502	ADP	C5'-O5'-PA-O2A
11	D	501	ADP	C4'-C5'-O5'-PA
11	B	501	ADP	O4'-C4'-C5'-O5'
11	E	501	ADP	PB-O3A-PA-O2A
10	L	3901	IHP	C4-O14-P4-O24
11	A	501	ADP	C3'-C4'-C5'-O5'
11	K	401	ADP	O4'-C4'-C5'-O5'
11	A	501	ADP	PA-O3A-PB-O2B
11	B	501	ADP	PA-O3A-PB-O2B
10	L	3901	IHP	C1-O11-P1-O31
10	L	3901	IHP	C2-O12-P2-O42
10	L	3901	IHP	C3-O13-P3-O33
11	B	501	ADP	C5'-O5'-PA-O3A
11	C	501	ADP	C5'-O5'-PA-O3A
11	E	501	ADP	C5'-O5'-PA-O3A

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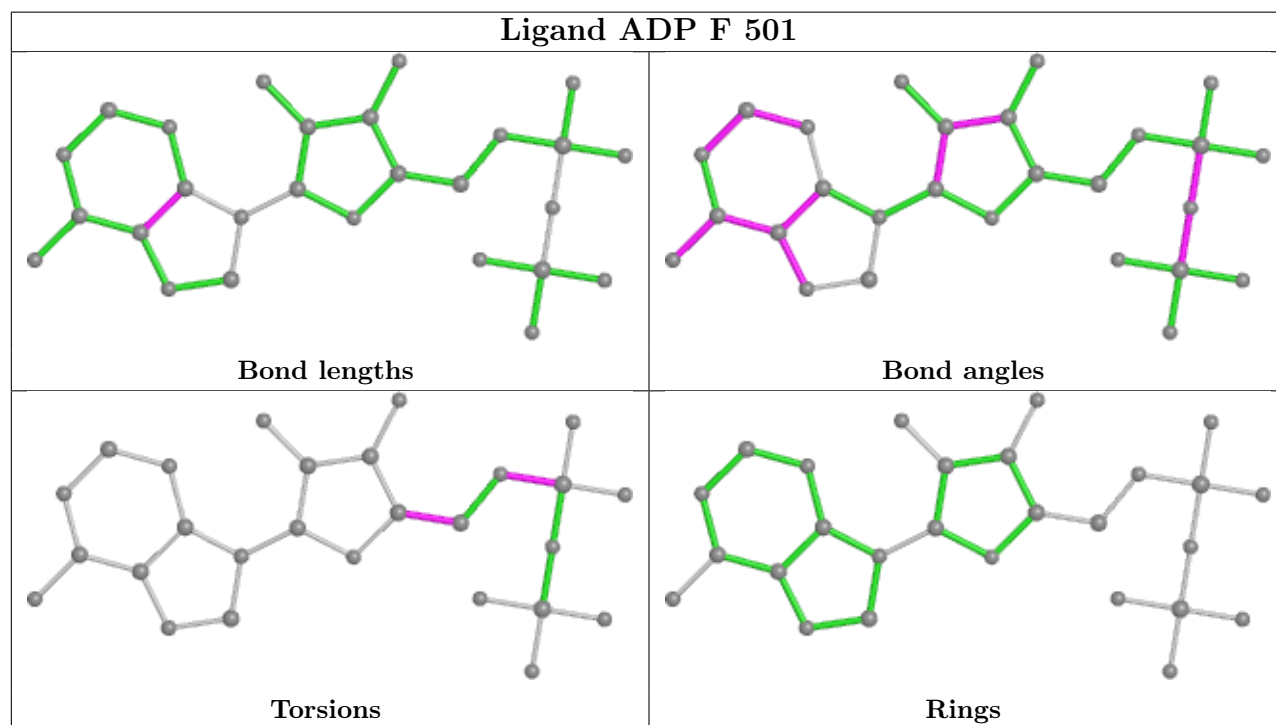
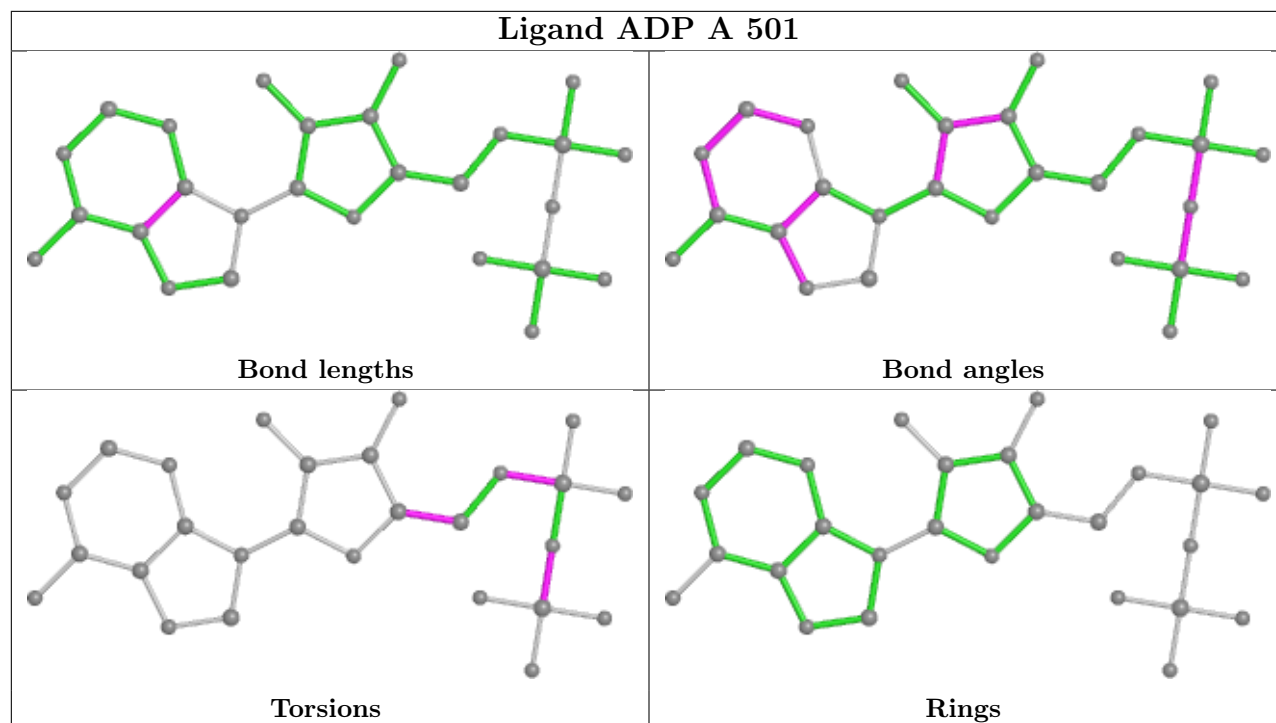
Mol	Chain	Res	Type	Atoms
11	K	401	ADP	C5'-O5'-PA-O3A
11	A	501	ADP	C5'-O5'-PA-O1A
11	I	501	ADP	O4'-C4'-C5'-O5'
11	J	502	ADP	O4'-C4'-C5'-O5'

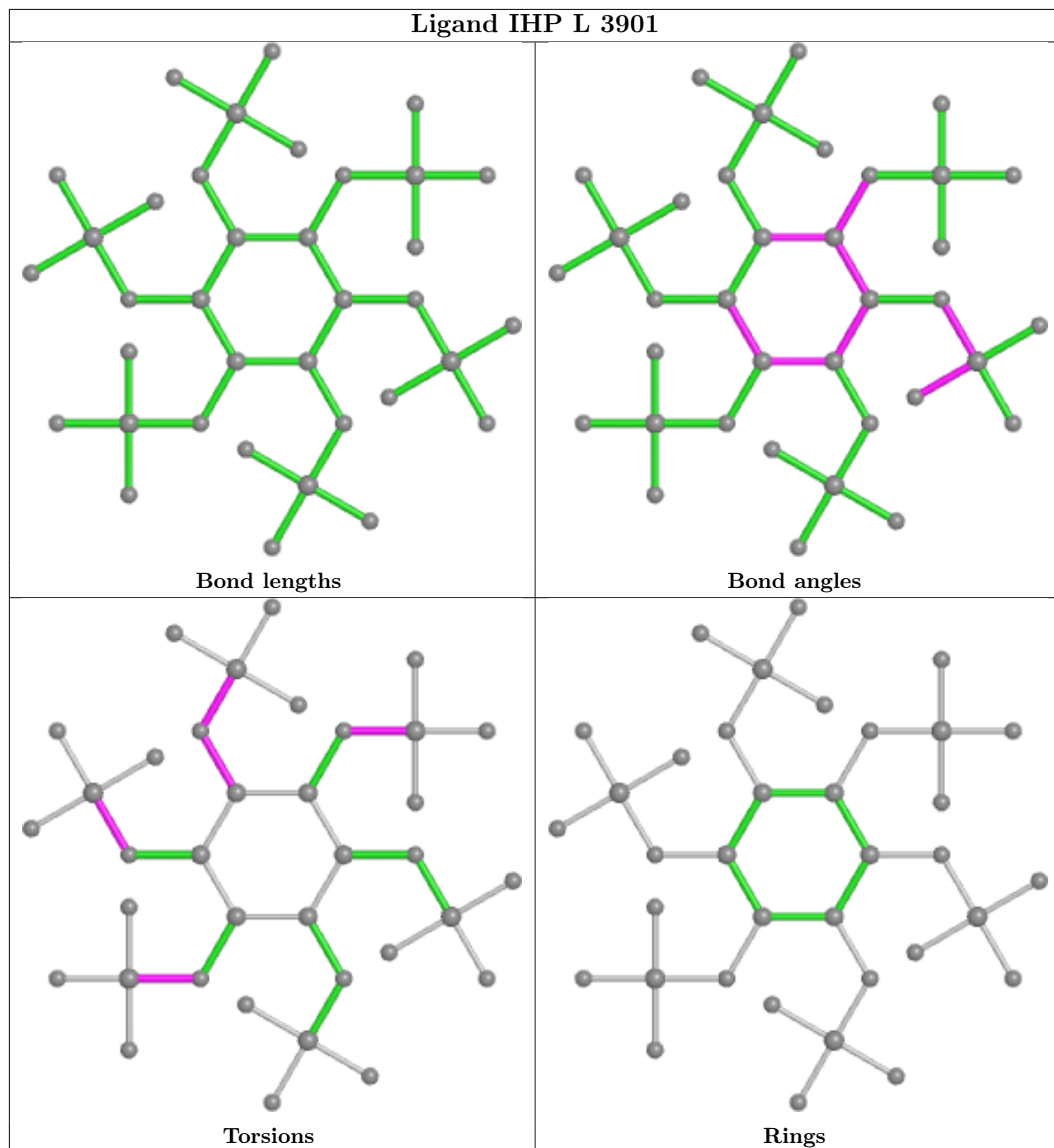
There are no ring outliers.

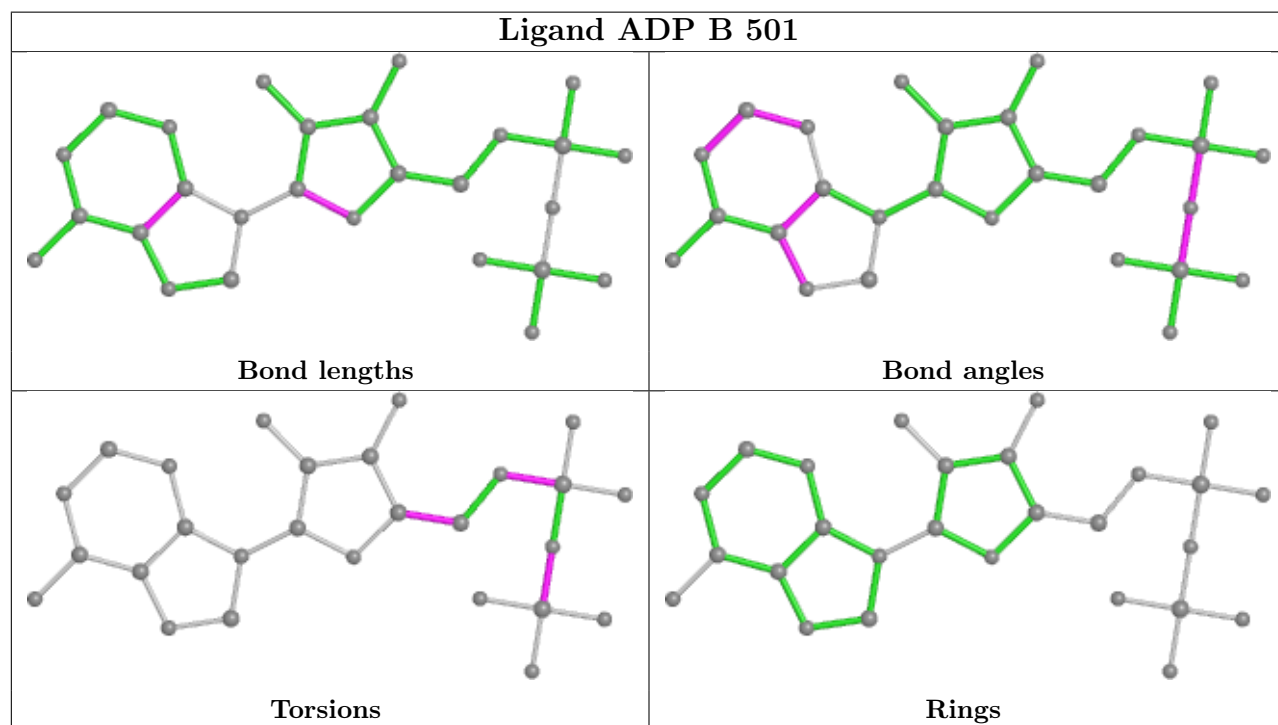
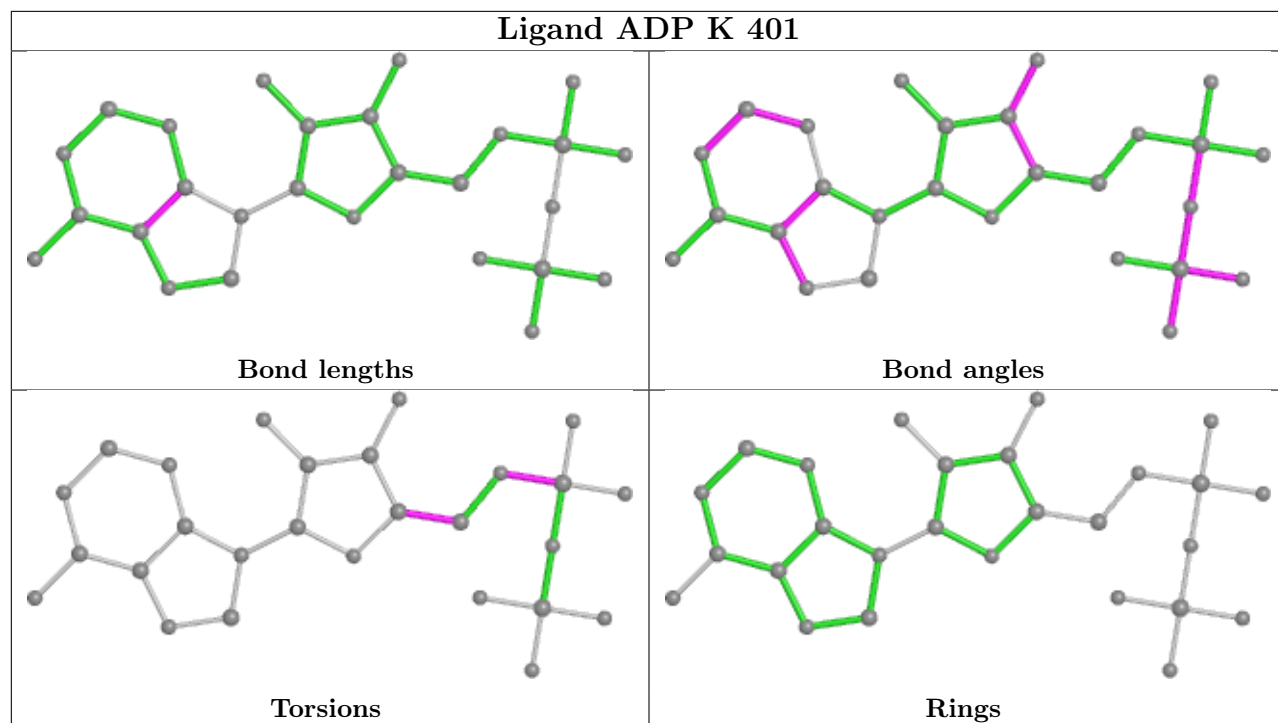
9 monomers are involved in 139 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	A	501	ADP	14	0
11	F	501	ADP	10	0
11	K	401	ADP	17	0
11	B	501	ADP	9	0
11	C	501	ADP	29	0
11	I	501	ADP	23	0
11	E	501	ADP	20	0
11	D	501	ADP	11	0
11	J	502	ADP	6	0

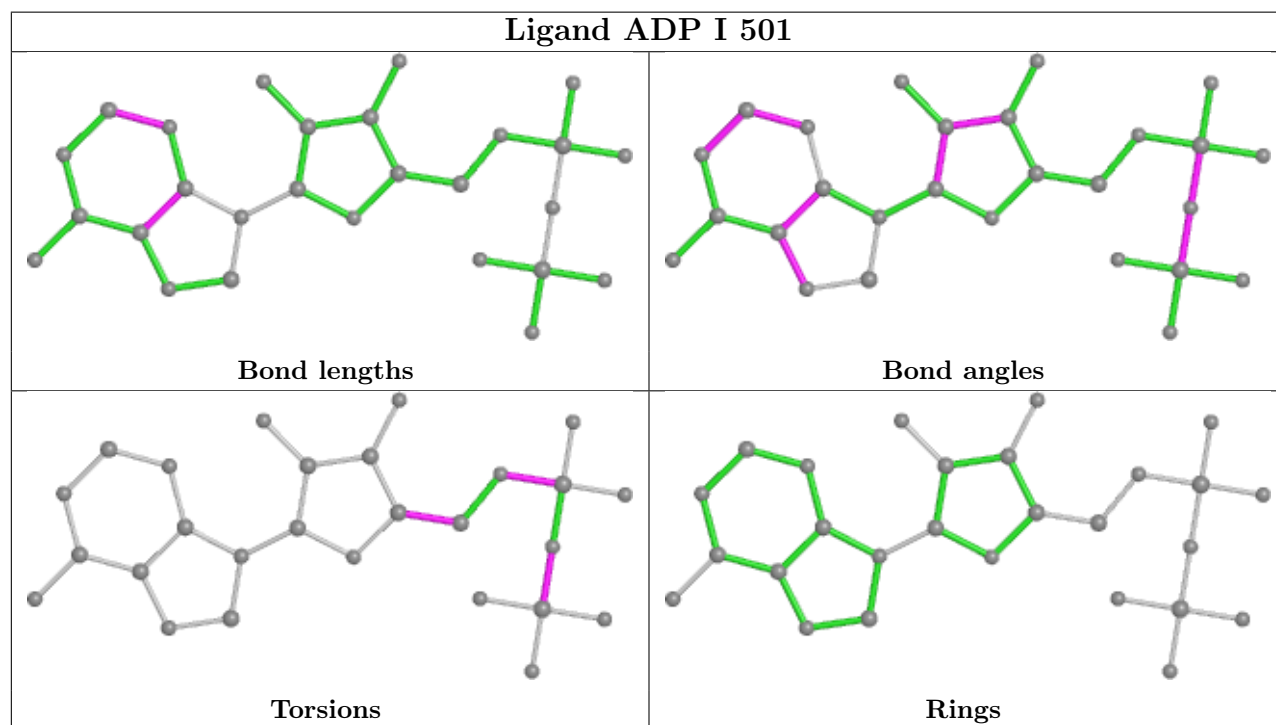
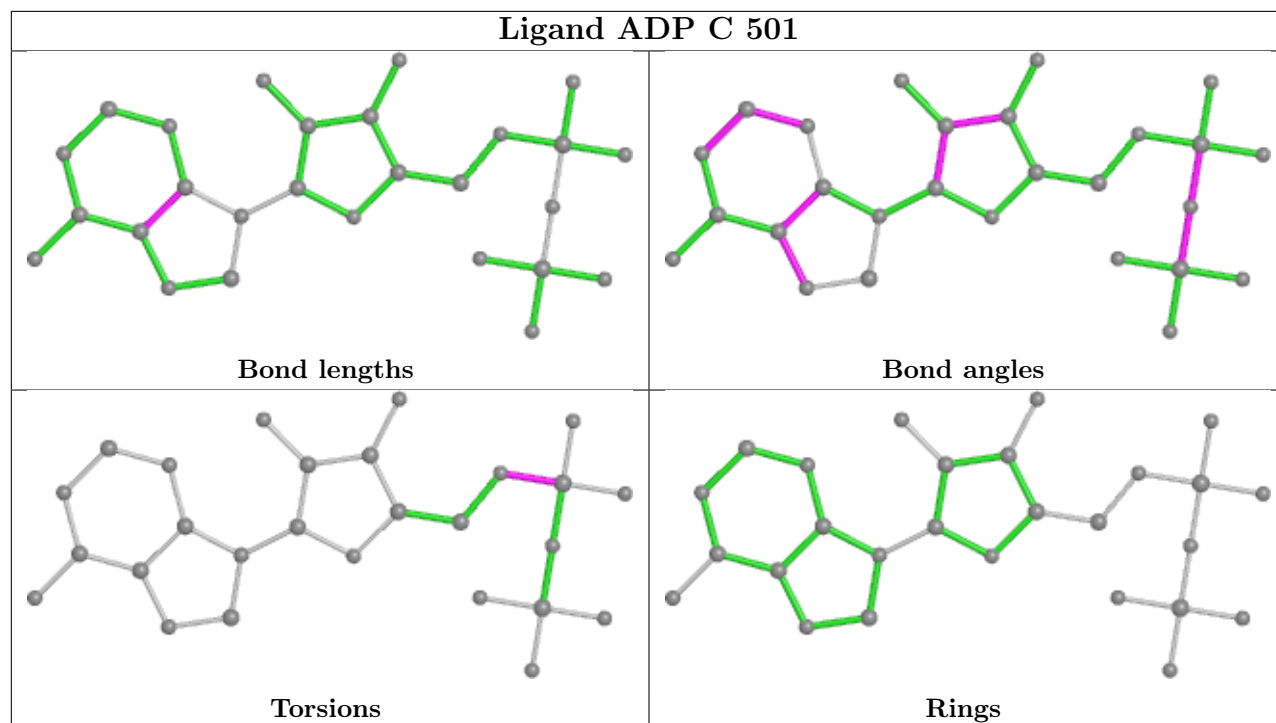
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

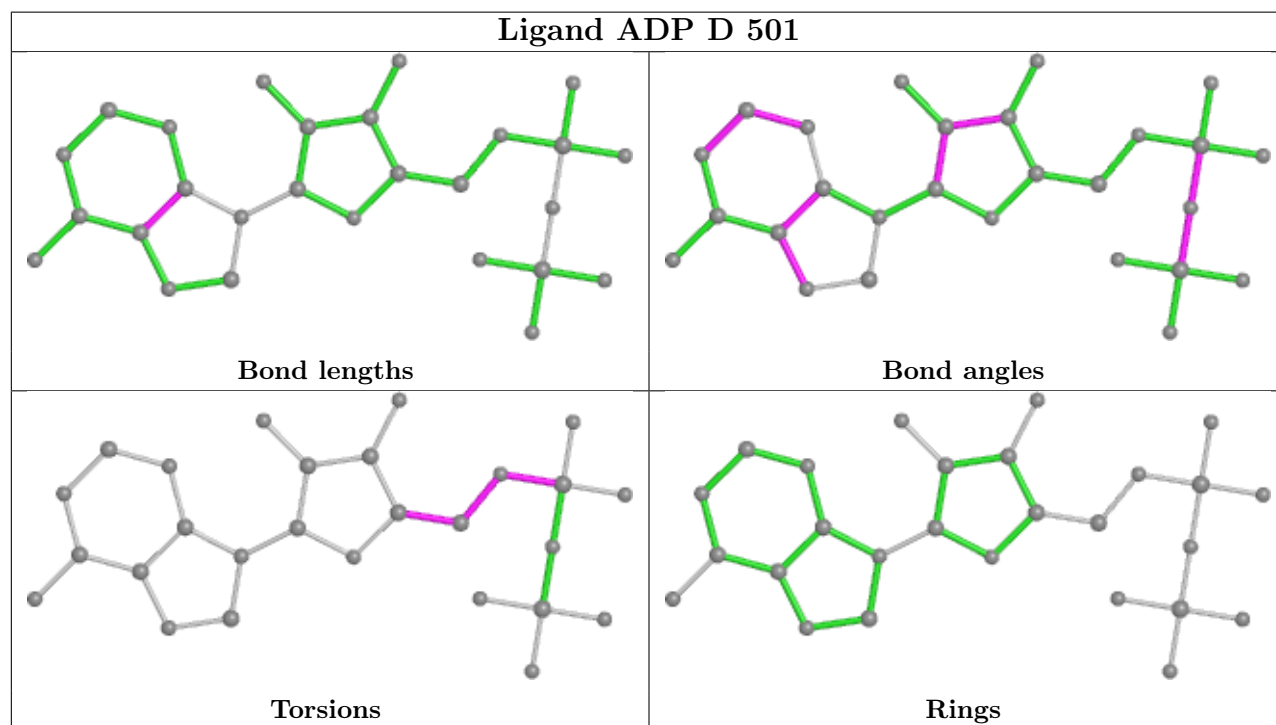
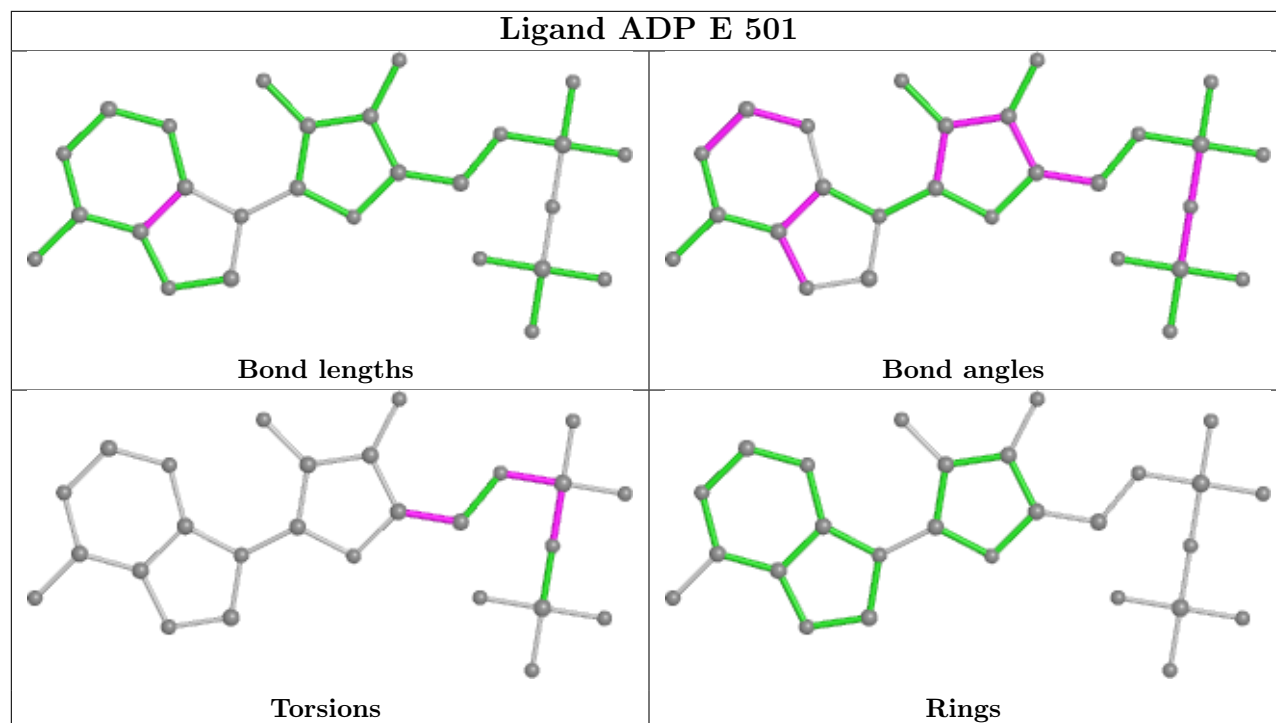


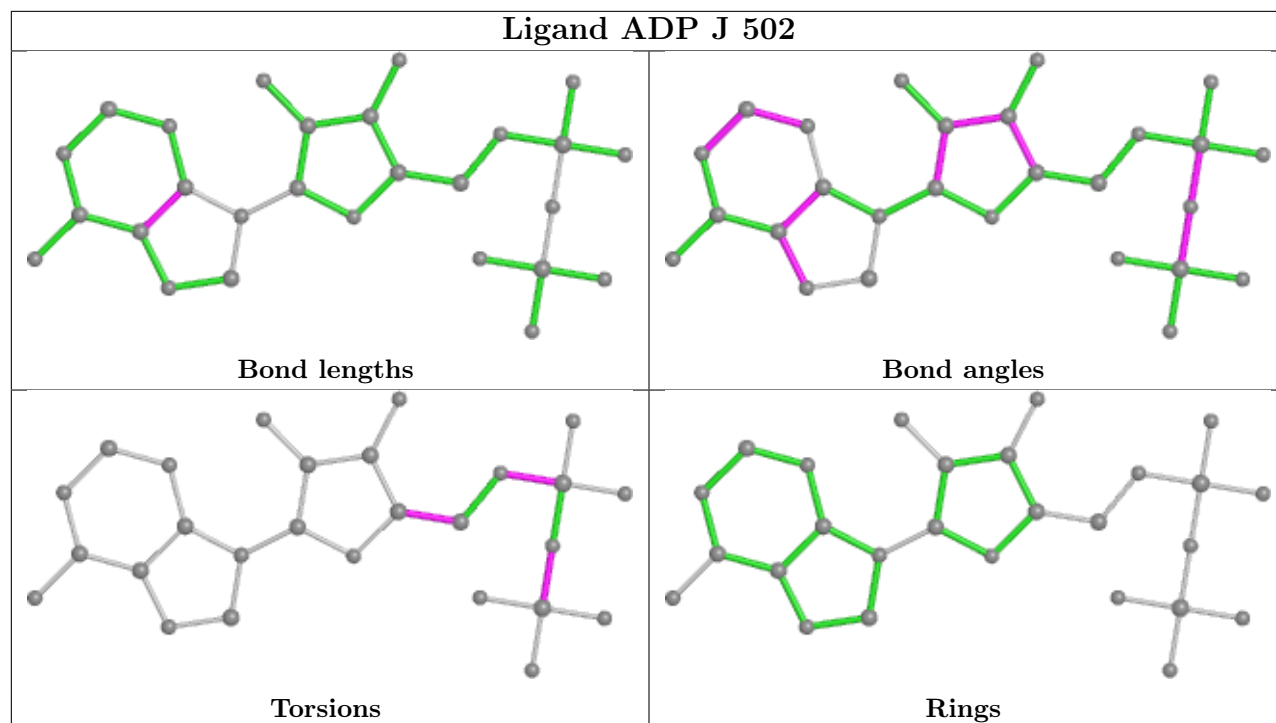












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

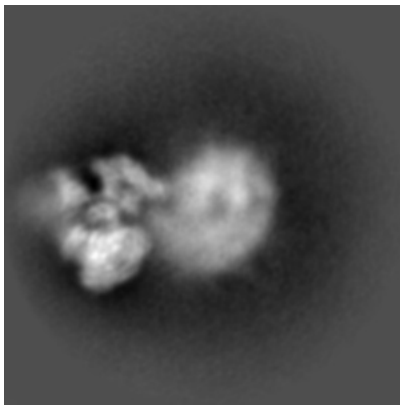
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-38703. These allow visual inspection of the internal detail of the map and identification of artifacts.

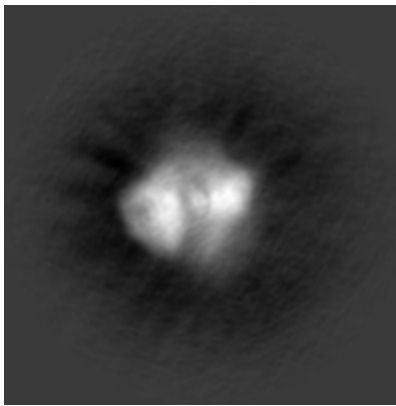
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

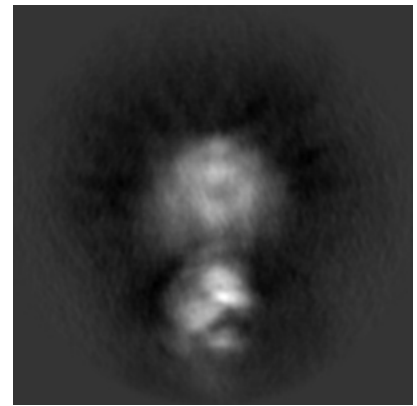
#### 6.1.1 Primary map



X

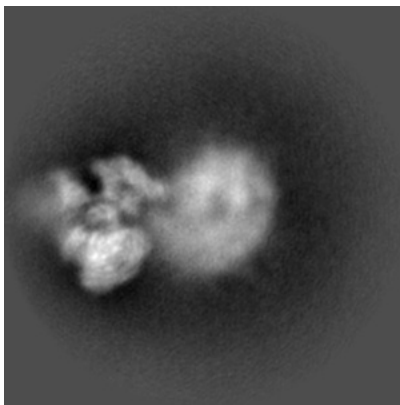


Y

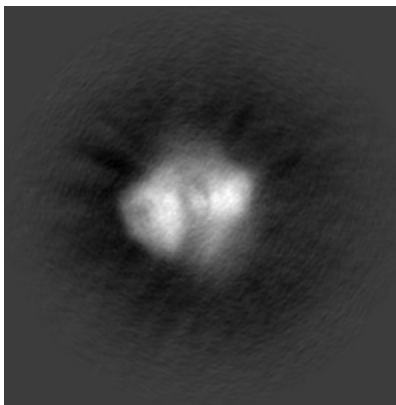


Z

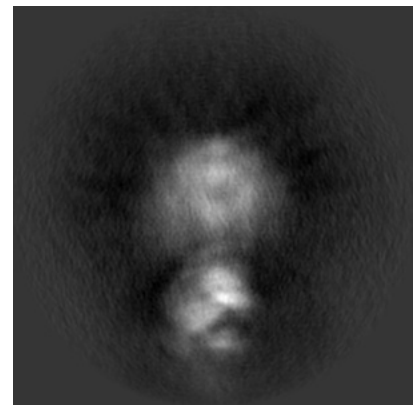
#### 6.1.2 Raw map



X



Y

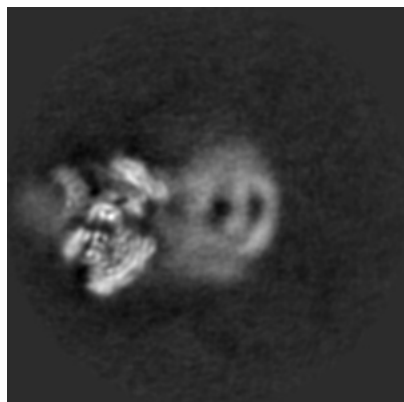


Z

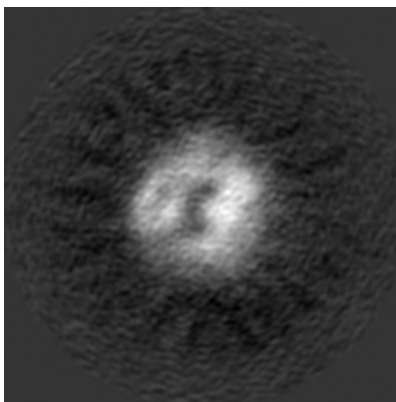
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

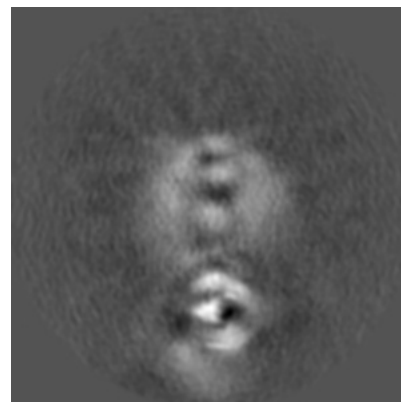
### 6.2.1 Primary map



X Index: 100

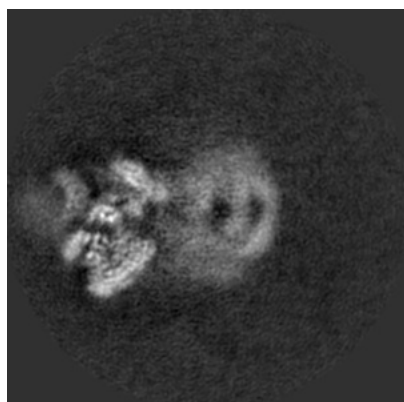


Y Index: 100

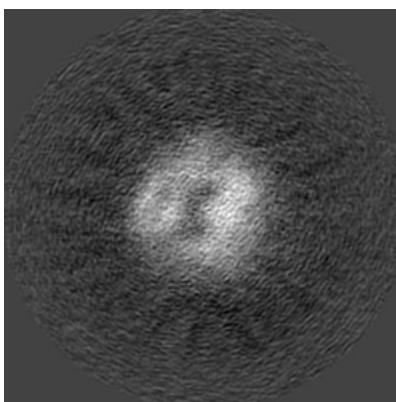


Z Index: 100

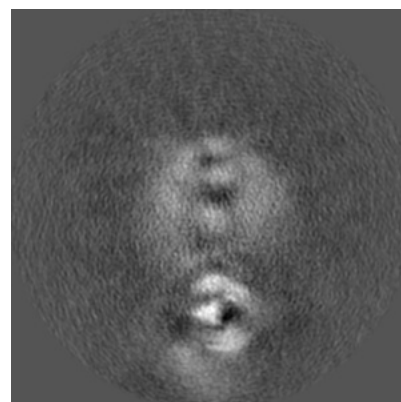
### 6.2.2 Raw map



X Index: 100



Y Index: 100

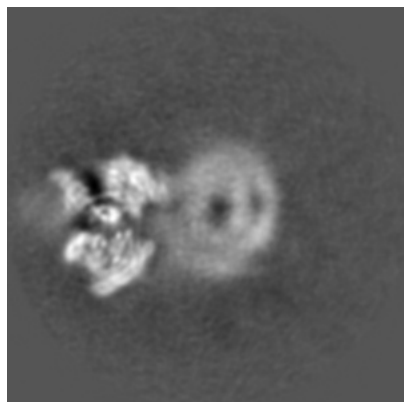


Z Index: 100

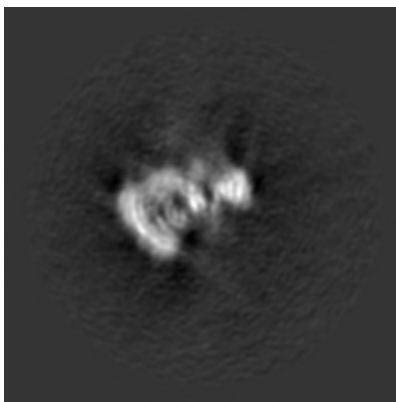
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

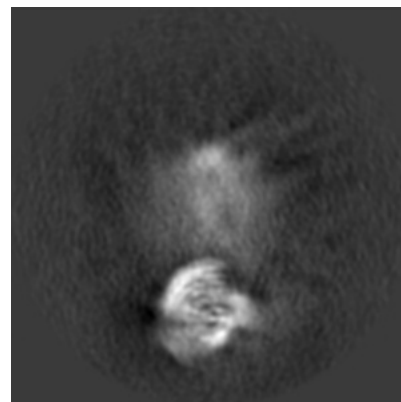
### 6.3.1 Primary map



X Index: 104

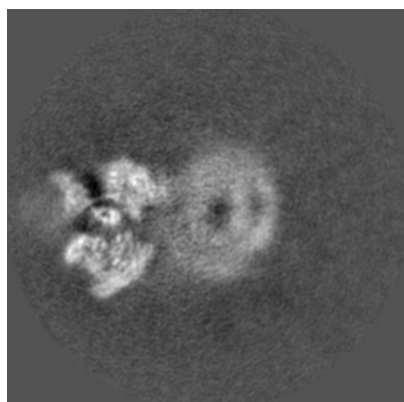


Y Index: 52

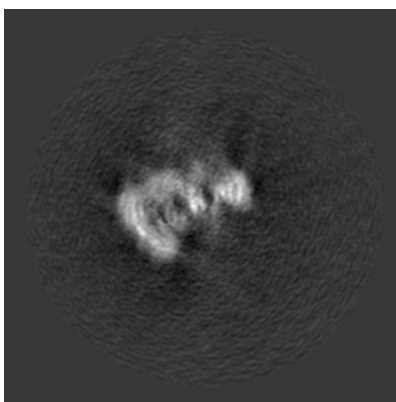


Z Index: 82

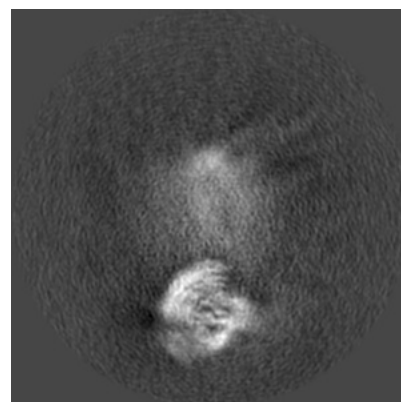
### 6.3.2 Raw map



X Index: 104



Y Index: 52

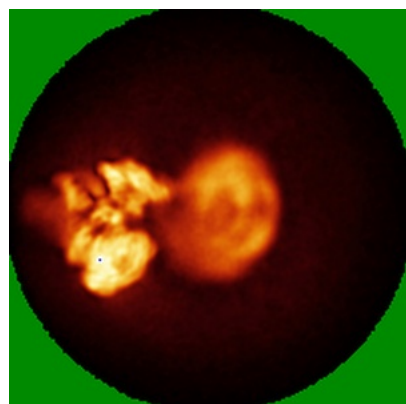


Z Index: 81

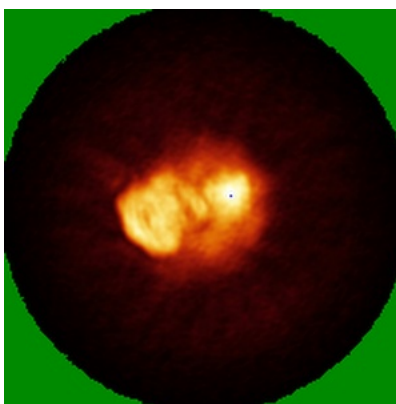
The images above show the largest variance slices of the map in three orthogonal directions.

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

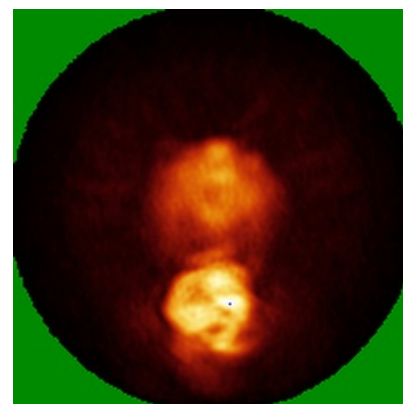
### 6.4.1 Primary map



X

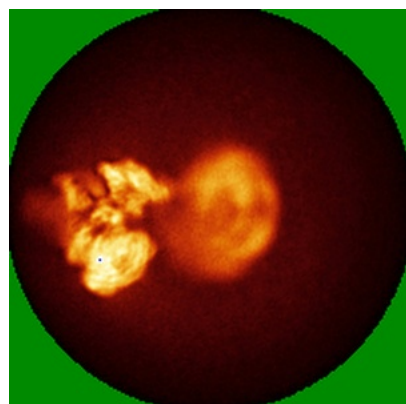


Y

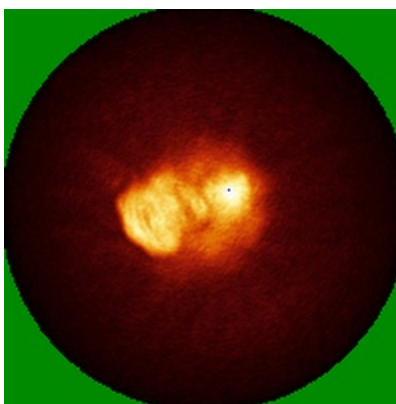


Z

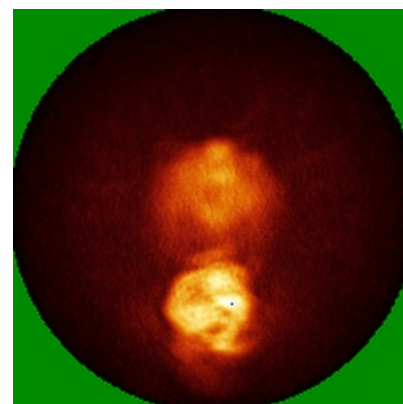
### 6.4.2 Raw map



X



Y

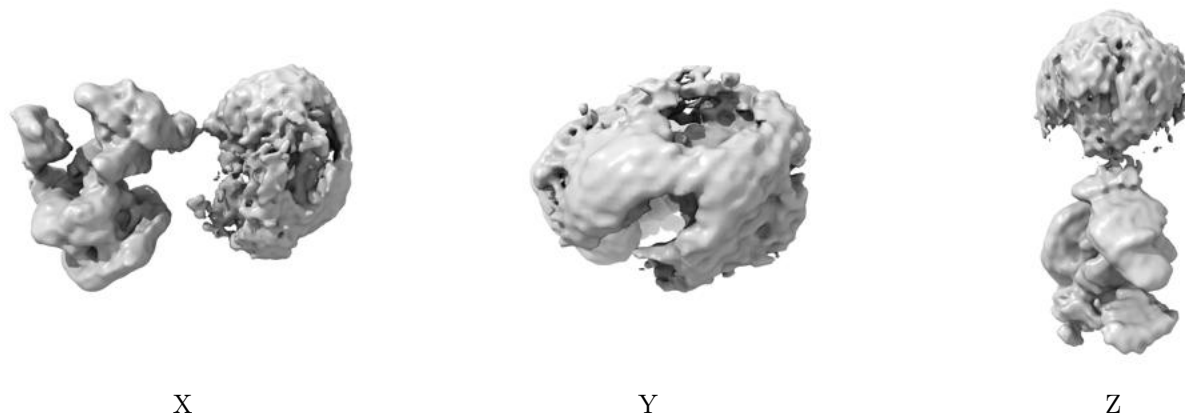


Z

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.

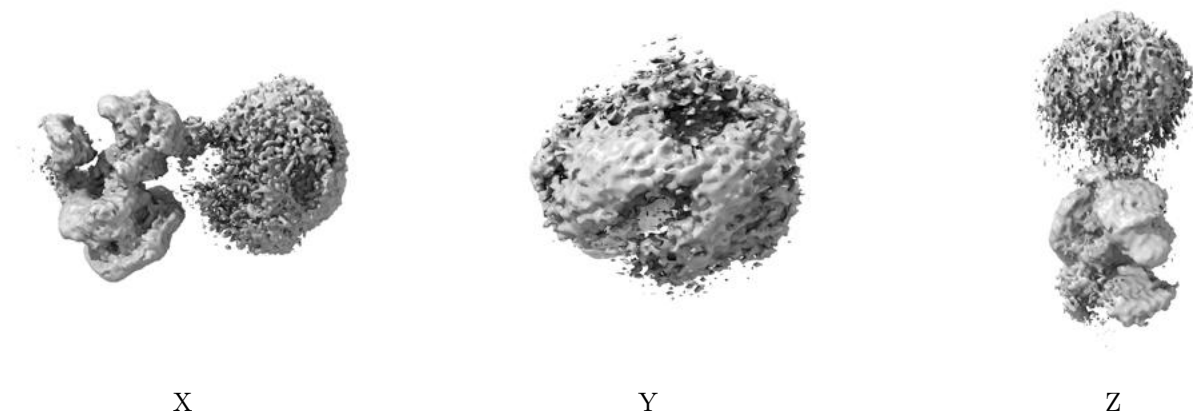
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.027. 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](#)

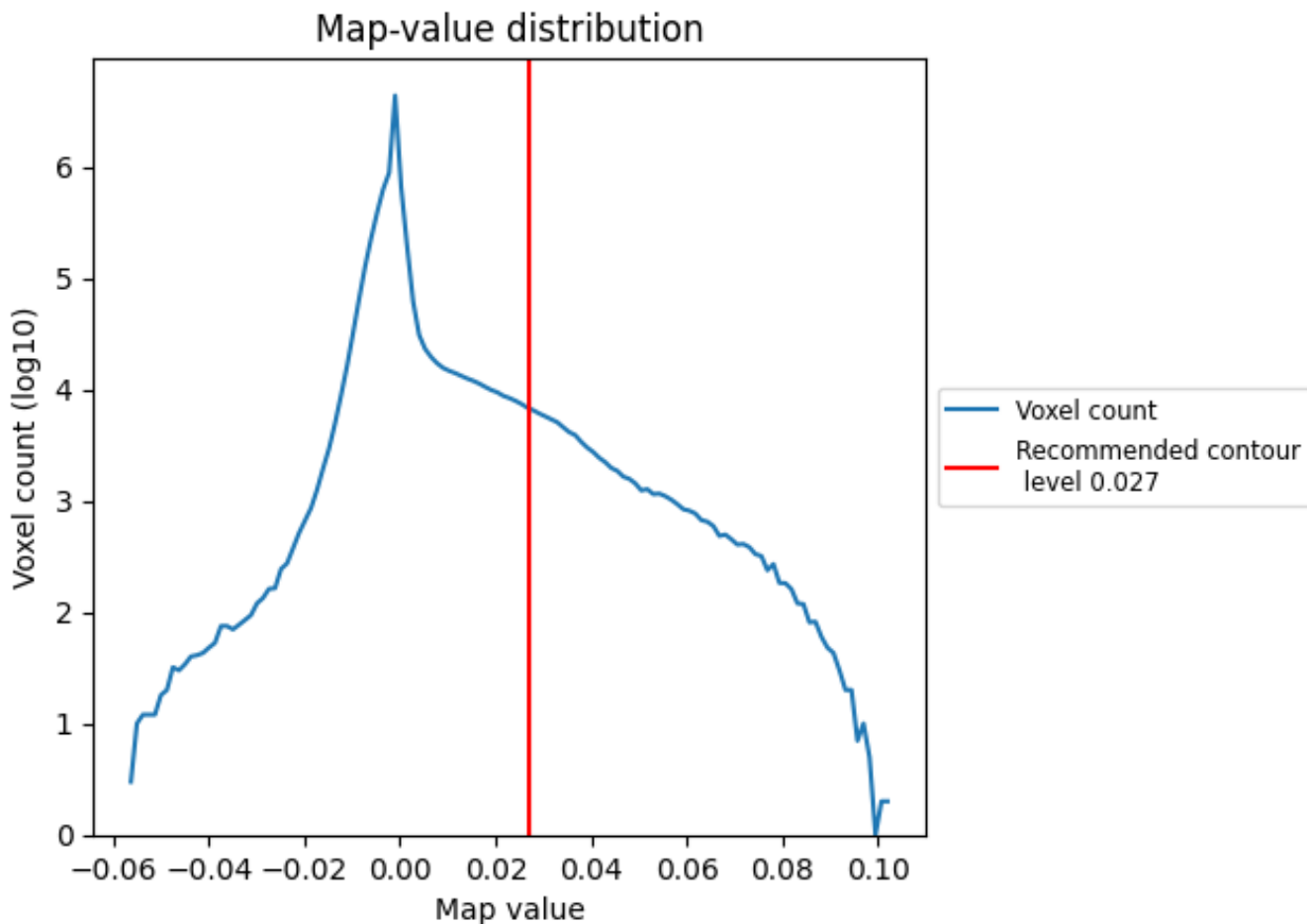
This section was not generated. No masks/segmentation were deposited.



## 7 Map analysis [i](#)

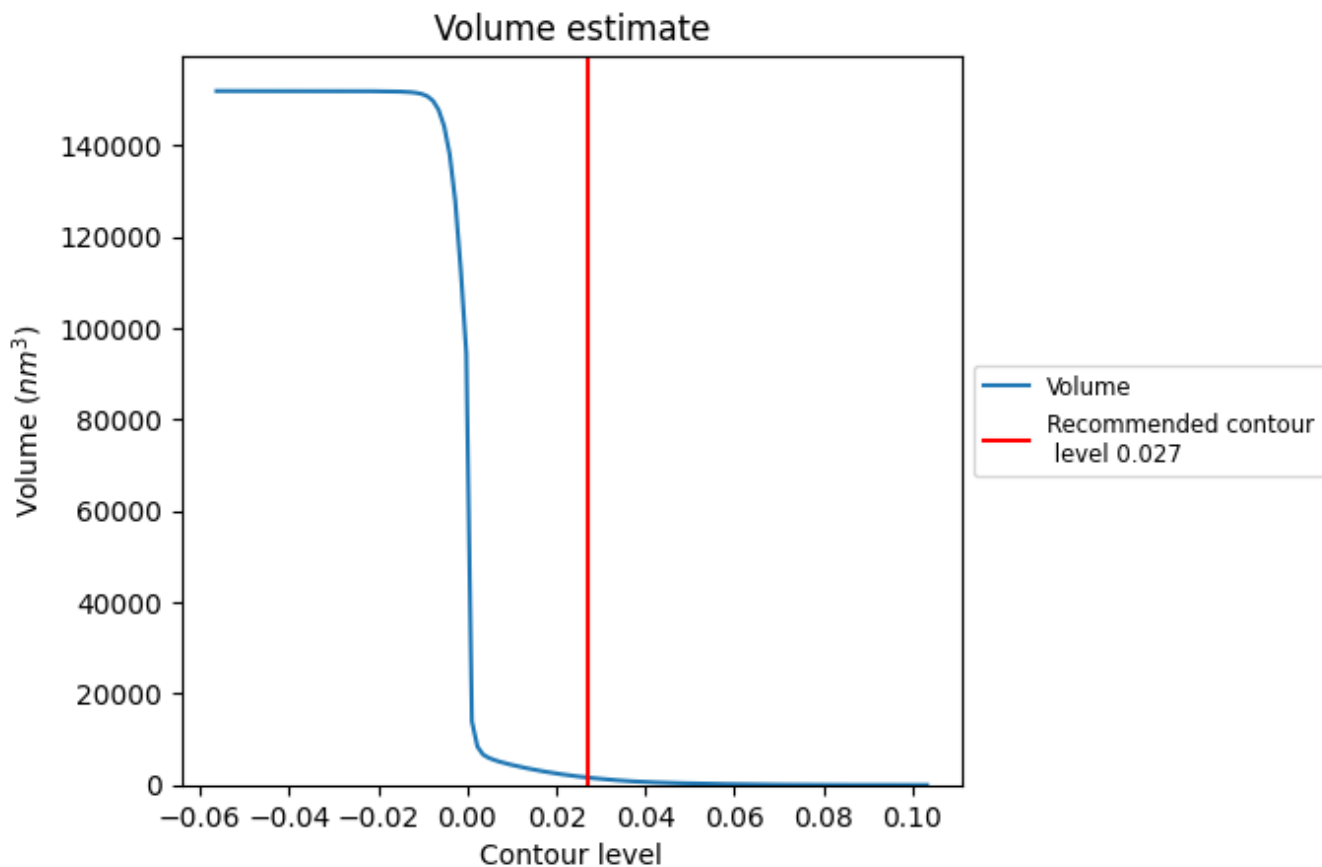
This section contains the results of statistical analysis of the map.

### 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.

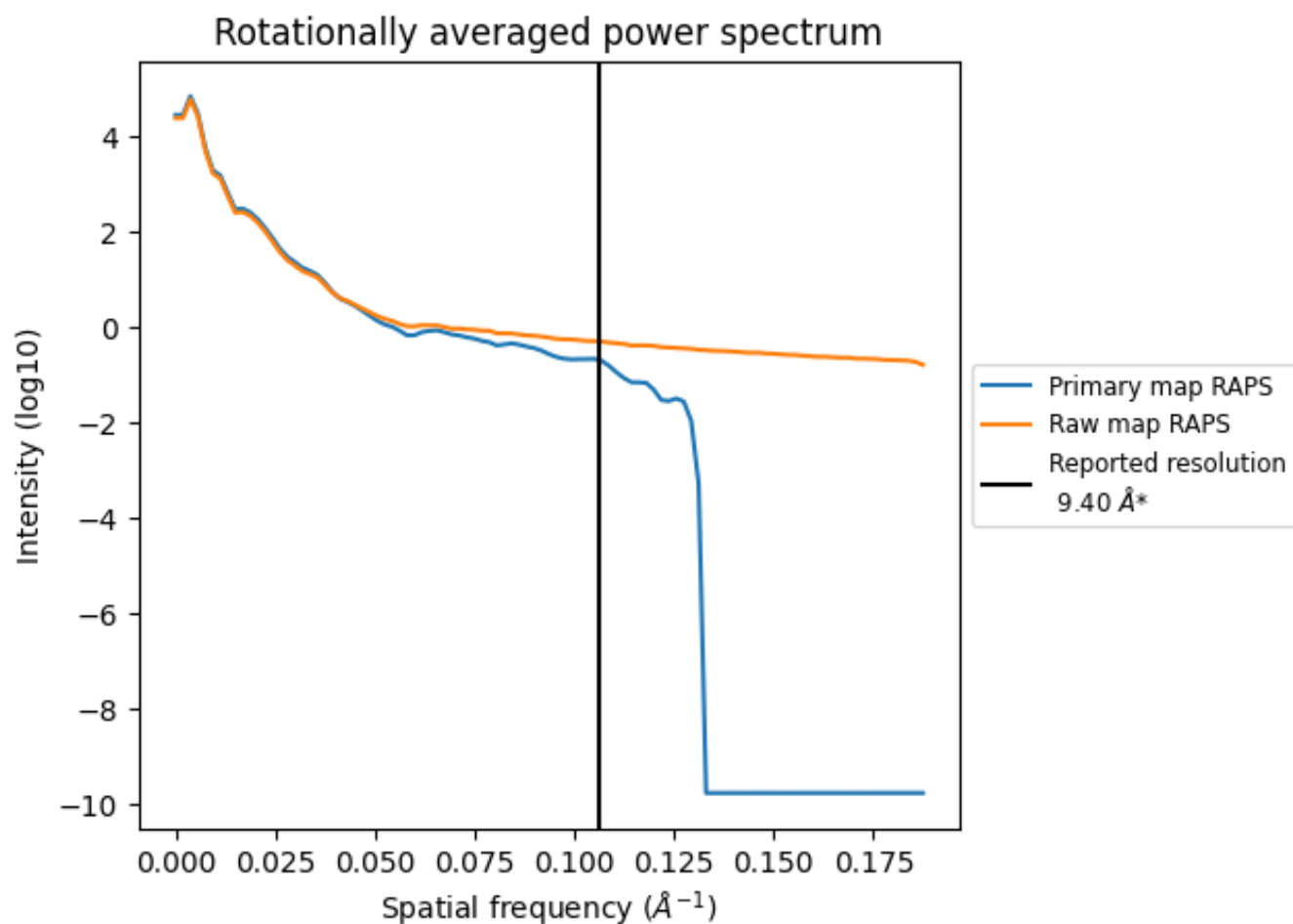
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1627 nm<sup>3</sup>; this corresponds to an approximate mass of 1470 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 [\(i\)](#)

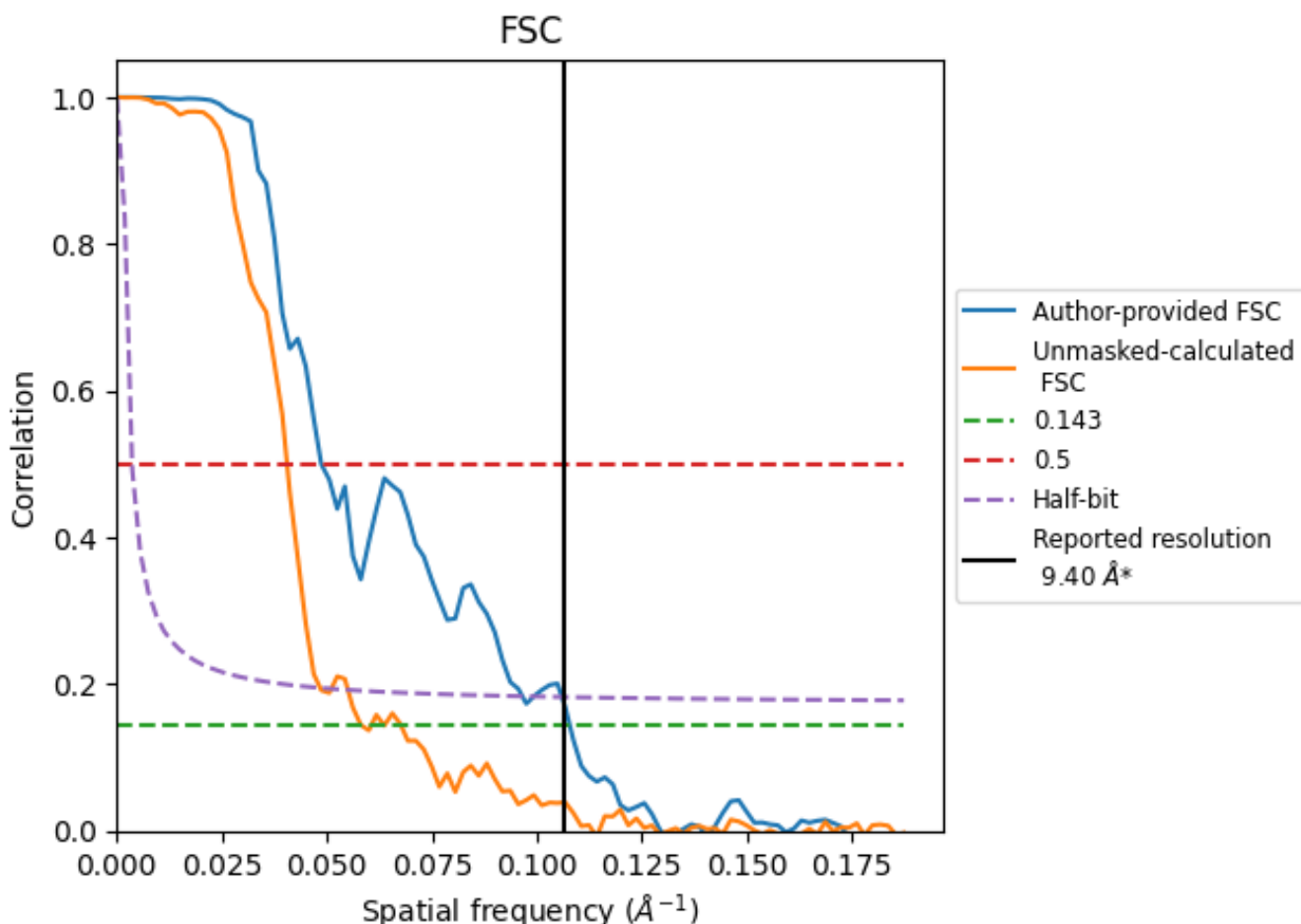


\*Reported resolution corresponds to spatial frequency of 0.106 Å<sup>-1</sup>

## 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 0.106 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

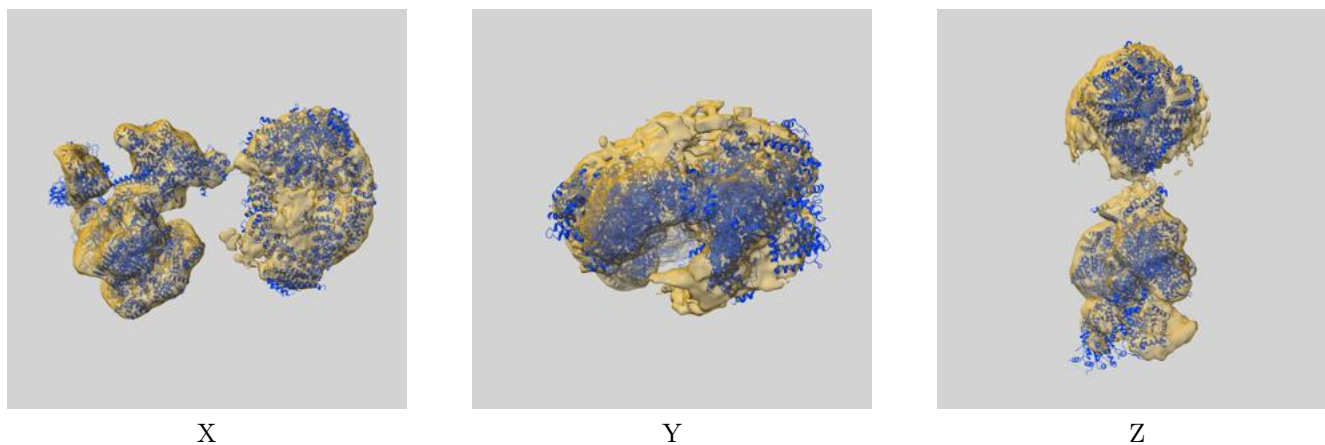
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	9.40	-	-
Author-provided FSC curve	9.27	20.53	10.36
Unmasked-calculated*	17.15	24.69	20.66

\*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 17.15 differs from the reported value 9.4 by more than 10 %

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

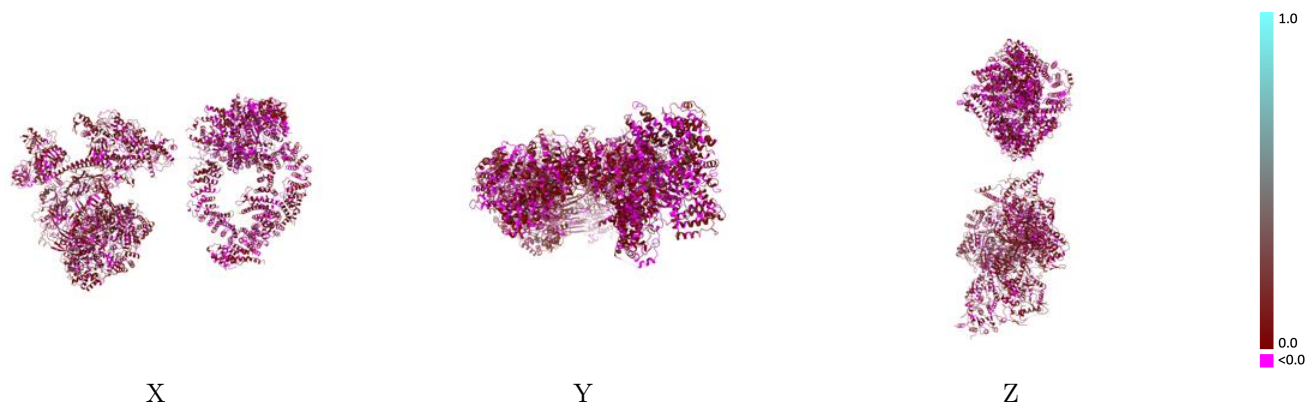
This section contains information regarding the fit between EMDB map EMD-38703 and PDB model 8XVG. Per-residue inclusion information can be found in section [3](#) on page [8](#).

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



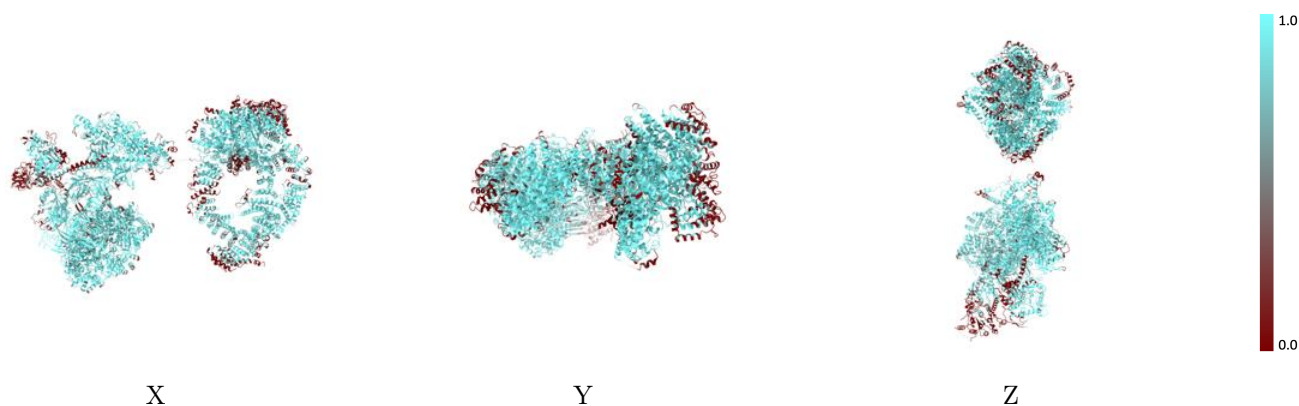
The images above show the 3D surface view of the map at the recommended contour level 0.027 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



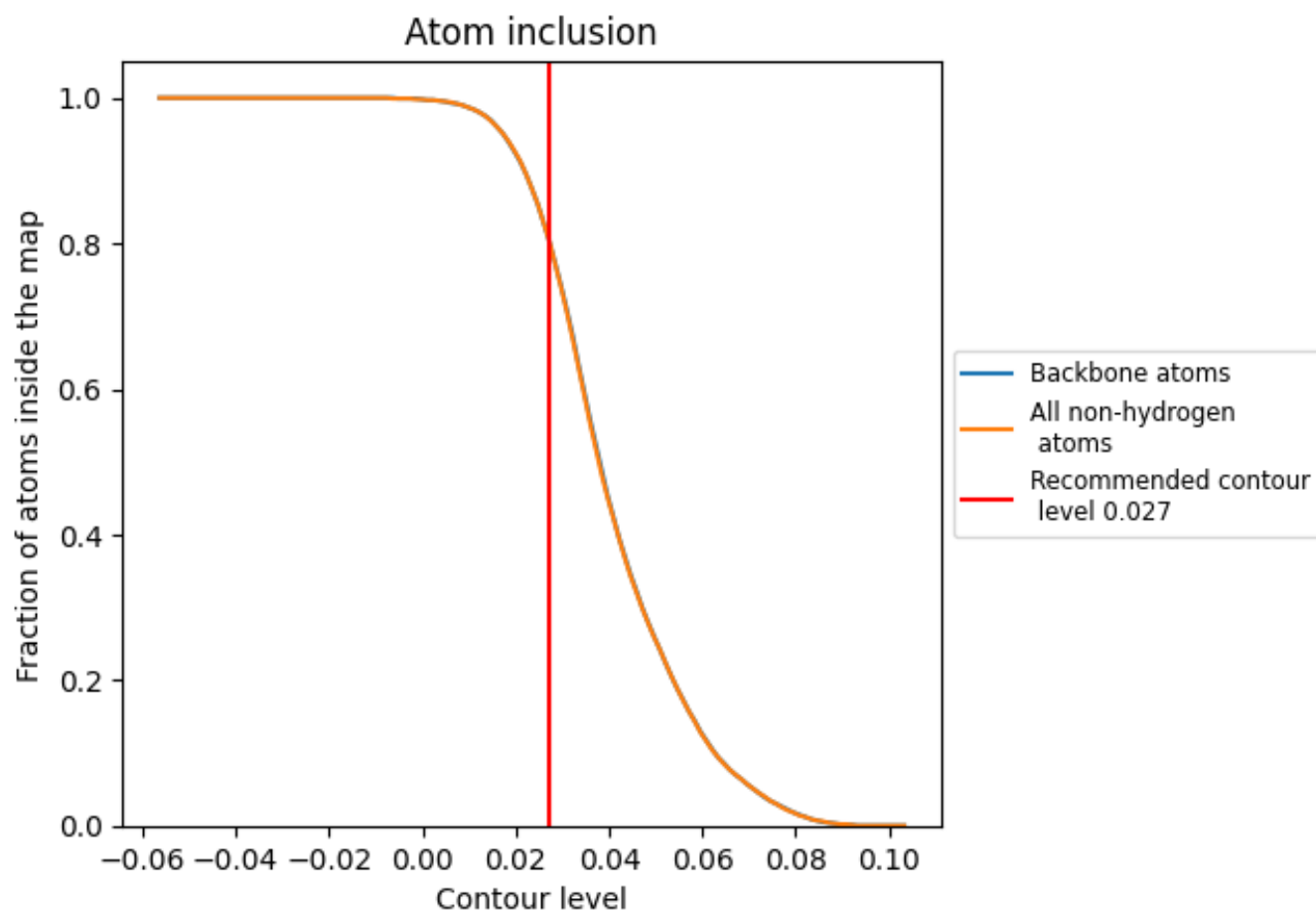
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.027).

## 9.4 Atom inclusion [i](#)

































At the recommended contour level, 81% of all backbone atoms, 81% 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 (0.027) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8080	 0.0570
A	 0.9450	 0.0660
B	 0.9550	 0.0760
C	 0.9550	 0.0880
D	 0.9200	 0.0760
E	 0.9240	 0.0890
F	 0.9290	 0.0720
G	 0.7670	 0.0670
H	 0.6090	 0.0650
I	 0.6700	 0.0730
J	 0.9520	 0.0760
K	 0.8810	 0.0750
L	 0.7780	 0.0340
M	 0.8720	 0.0700
N	 0.6310	 0.0620

