



Full wwPDB EM Validation Report ⓘ

Sep 23, 2026 – 04:16 pm BST

PDB ID : 29KN / pdb_000029kn
EMDB ID : EMD-57241
Title : Composite cryo-EM map of the human DNAAF19-RUVBL1/2-DPCD complex
Authors : Wood, E.; Ochi, T.
Deposited on : 2026-03-18
Resolution : 3.37 Å (reported)
Based on initial models : ?, 29JR

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

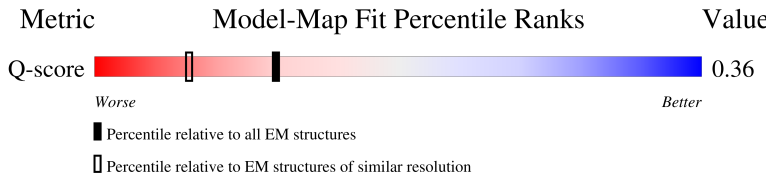
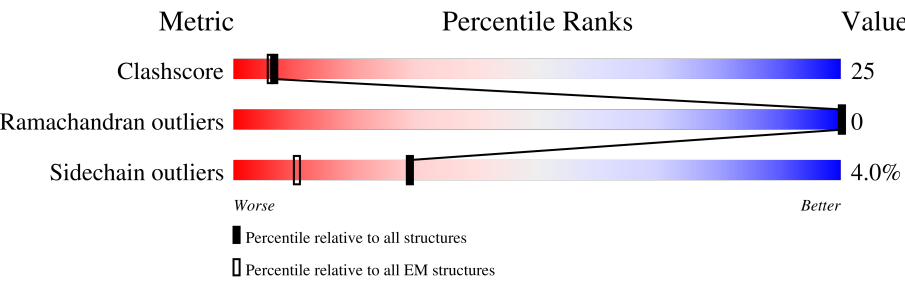
EMDB validation analysis : 0.0.1.dev133
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

1 Overall quality at a glance

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

The reported resolution of this entry is 3.37 Å.

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



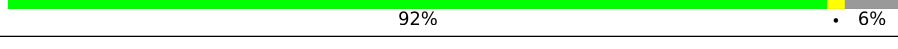
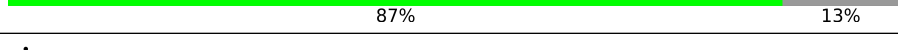
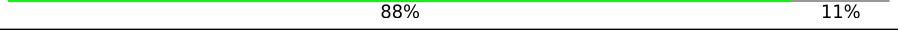
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14287 (2.87 - 3.87)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	A	456	
2	B	463	
2	C	463	
2	D	463	

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Mol	Chain	Length	Quality of chain
2	E	463	
2	F	463	
3	G	245	
4	H	205	
4	I	205	
4	J	205	
4	K	205	
4	L	205	

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
5	ADP	C	501	-	-	X	-
5	ADP	D	501	-	-	X	-
5	ADP	F	501	-	-	X	-

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 21636 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 RuvB-like 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	322	Total	C	N	O	S	0	0
			2400	1514	419	456	11		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	406	Total	C	N	O	S	0	0
			2794	1738	506	538	12		
2	C	407	Total	C	N	O	S	0	0
			2780	1734	510	524	12		
2	D	403	Total	C	N	O	S	0	0
			2758	1720	502	524	12		
2	E	388	Total	C	N	O	S	0	0
			2637	1648	481	496	12		
2	F	419	Total	C	N	O	S	0	0
			2900	1807	532	549	12		

- Molecule 3 is a protein called Dynein axonemal assembly factor 19.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	G	108	Total	C	N	O	S	0	0
			707	455	123	126	3		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	-2	GLY	-	expression tag	UNP Q8IW40
G	-1	GLY	-	expression tag	UNP Q8IW40
G	0	SER	-	expression tag	UNP Q8IW40

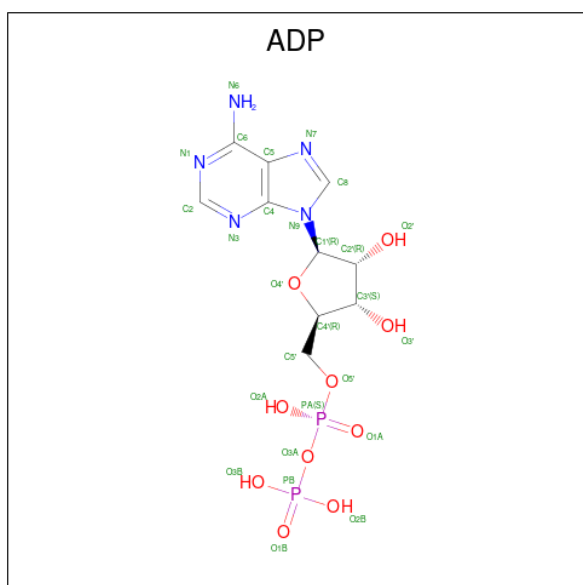
- Molecule 4 is a protein called Protein DPCD.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	H	184	Total	C	N	O	0	0
			914	546	184	184		
4	I	180	Total	C	N	O	0	0
			894	534	180	180		
4	J	192	Total	C	N	O	0	0
			951	567	192	192		
4	K	179	Total	C	N	O	0	0
			889	531	179	179		
4	L	182	Total	C	N	O	0	0
			904	540	182	182		

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
H	-1	GLY	-	expression tag	UNP Q9BVM2
H	0	SER	-	expression tag	UNP Q9BVM2
I	-1	GLY	-	expression tag	UNP Q9BVM2
I	0	SER	-	expression tag	UNP Q9BVM2
J	-1	GLY	-	expression tag	UNP Q9BVM2
J	0	SER	-	expression tag	UNP Q9BVM2
K	-1	GLY	-	expression tag	UNP Q9BVM2
K	0	SER	-	expression tag	UNP Q9BVM2
L	-1	GLY	-	expression tag	UNP Q9BVM2
L	0	SER	-	expression tag	UNP Q9BVM2

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

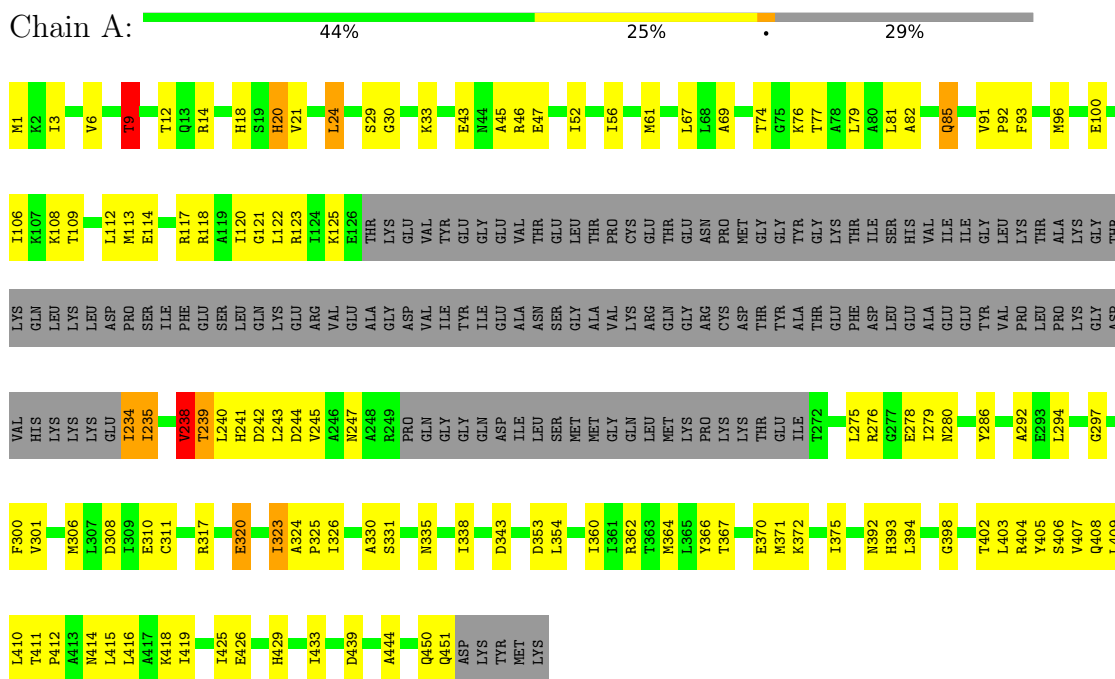


Mol	Chain	Residues	Atoms					AltConf
5	A	1	Total	C	N	O	P	0
			27	10	5	10	2	
5	C	1	Total	C	N	O	P	0
			27	10	5	10	2	
5	D	1	Total	C	N	O	P	0
			27	10	5	10	2	
5	F	1	Total	C	N	O	P	0
			27	10	5	10	2	

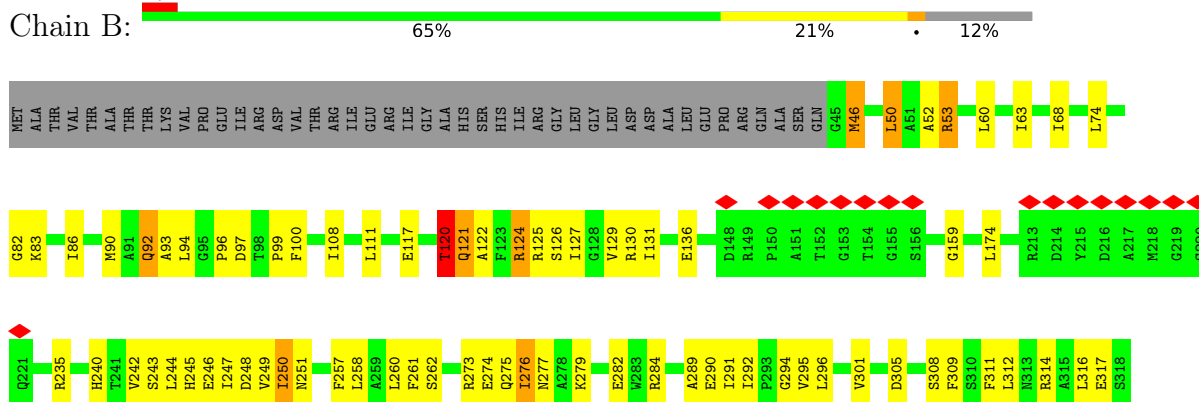
3 Residue-property plots [i](#)

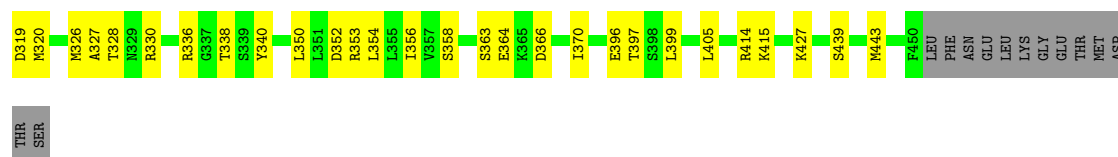
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: RuvB-like 1

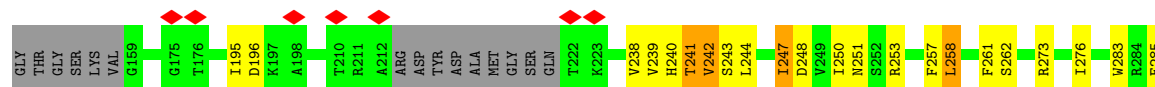
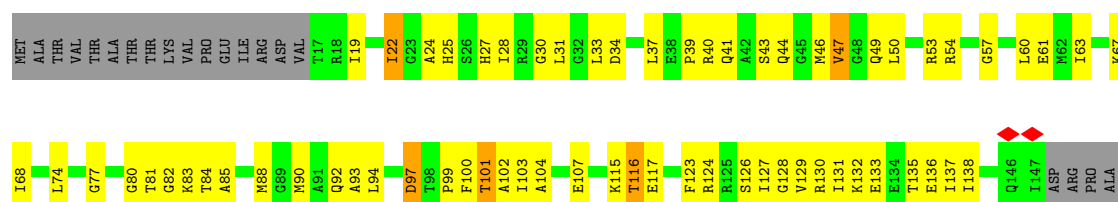


• Molecule 2: RuvB-like 2

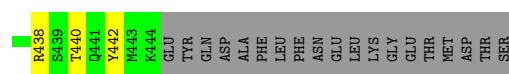
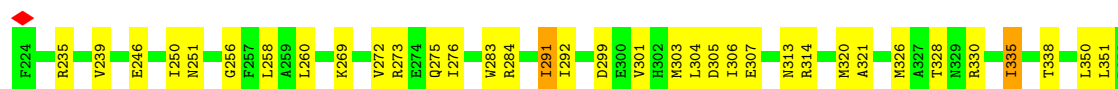
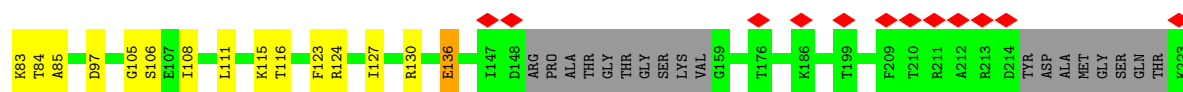
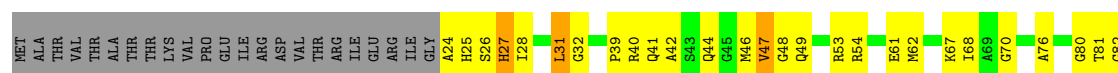




• Molecule 2: RuvB-like 2

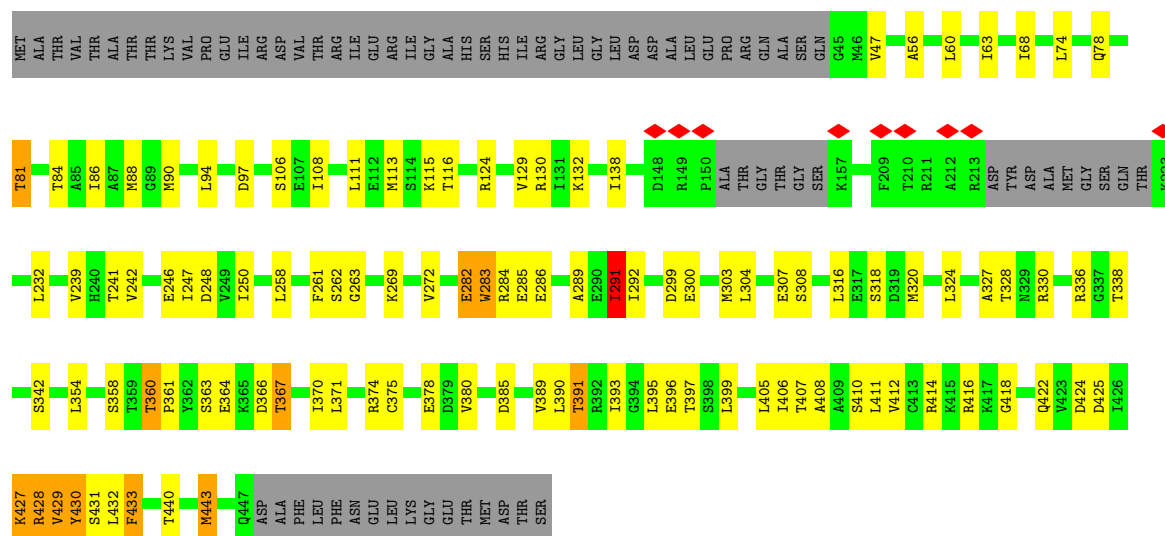


• Molecule 2: RuvB-like 2



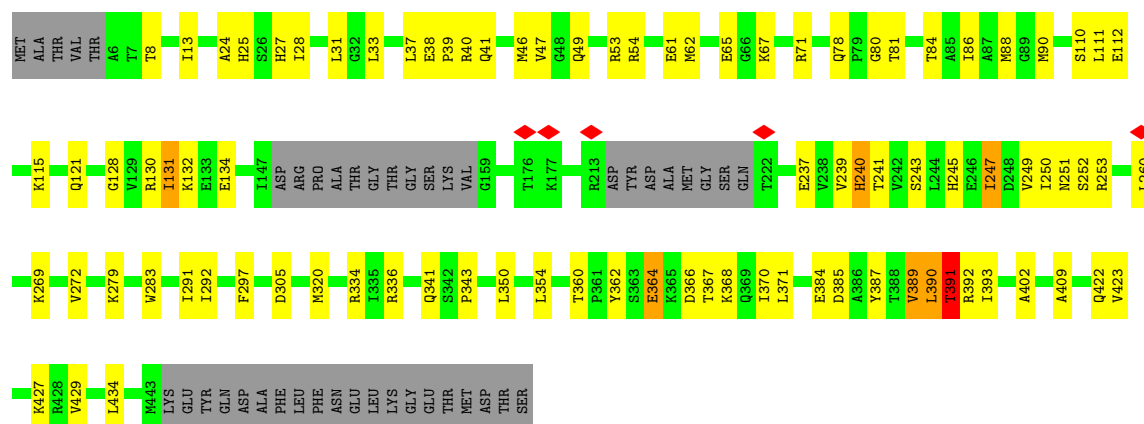
• Molecule 2: RuvB-like 2





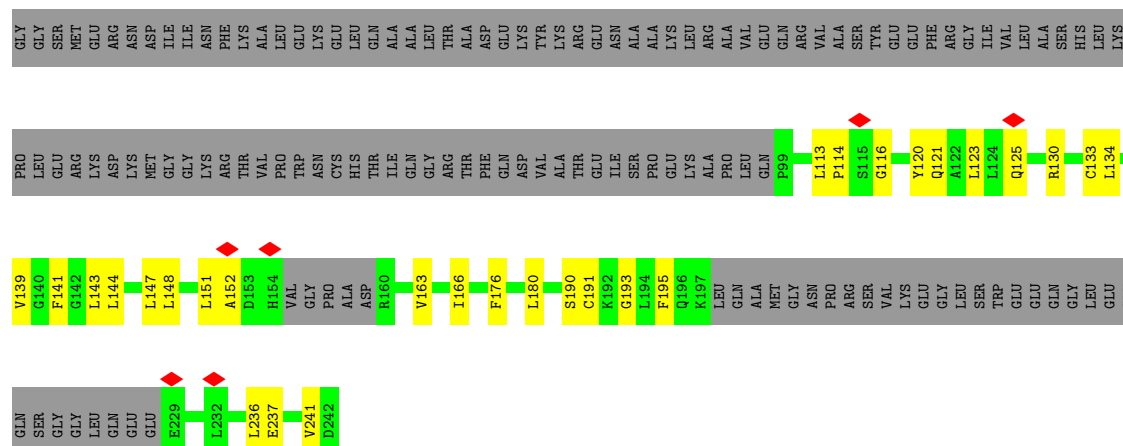
• Molecule 2: RuvB-like 2

Chain F: 71% 18% 10%

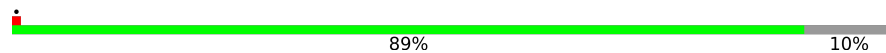
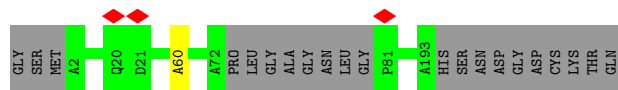


• Molecule 3: Dynein axonemal assembly factor 19

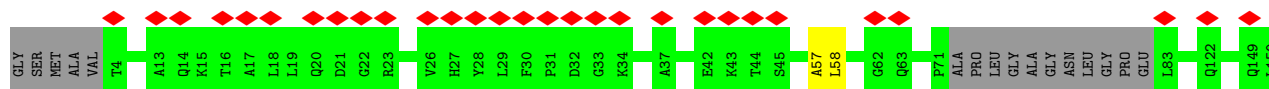
Chain G: 32% 12% 56%



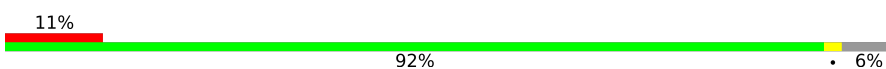
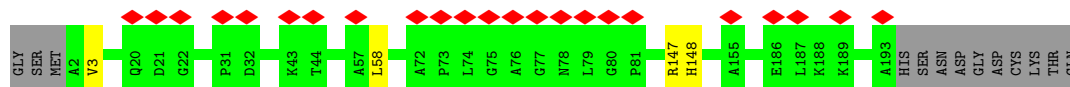
● Molecule 4: Protein DPCD

Chain H:  89% 10%

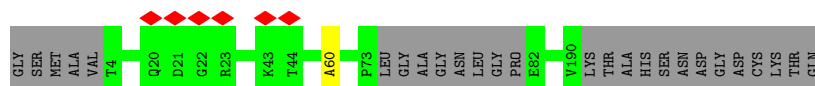
● Molecule 4: Protein DPCD

Chain I:  22% 87% 12%

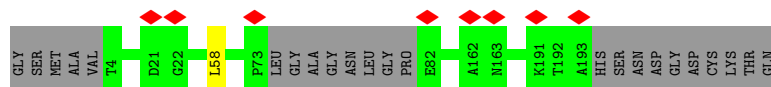
● Molecule 4: Protein DPCD

Chain J:  11% 92% 6%

● Molecule 4: Protein DPCD

Chain K:  87% 13%

● Molecule 4: Protein DPCD

Chain L:  88% 11%

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	363543	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50.56	Depositor
Minimum defocus (nm)	900	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	29.020	Depositor
Minimum map value	-9.931	Depositor
Average map value	0.004	Depositor
Map value standard deviation	1.055	Depositor
Recommended contour level	5	Depositor
Map size ($\text{\AA}$)	340.4, 340.4, 340.4	wwPDB
Map dimensions	230, 230, 230	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.48, 1.48, 1.48	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: ADP

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.64	3/2427 (0.1%)	0.91	5/3285 (0.2%)
2	B	0.70	3/2823 (0.1%)	0.98	11/3834 (0.3%)
2	C	0.60	0/2809	0.90	8/3820 (0.2%)
2	D	0.68	1/2786 (0.0%)	1.04	13/3788 (0.3%)
2	E	0.65	1/2663 (0.0%)	0.94	13/3623 (0.4%)
2	F	0.53	3/2930 (0.1%)	0.73	2/3982 (0.1%)
3	G	0.67	0/717	1.01	0/979
4	H	0.64	0/912	1.05	0/1270
4	I	0.60	0/892	1.00	0/1242
4	J	0.65	0/950	1.05	0/1323
4	K	0.60	0/887	1.01	0/1235
4	L	0.64	0/902	1.04	0/1256
All	All	0.63	11/21698 (0.1%)	0.95	52/29637 (0.2%)

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	393	ILE	C-O	-8.11	1.14	1.24
1	A	239	THR	C-O	-7.63	1.14	1.23
2	B	121	GLN	C-O	-6.99	1.16	1.24
1	A	323	ILE	C-O	-6.69	1.17	1.24
2	B	124	ARG	C-O	-6.67	1.16	1.24
2	F	391	THR	C-O	-6.66	1.16	1.24
1	A	238	VAL	C-O	-6.64	1.17	1.24
2	F	364	GLU	C-O	-6.51	1.16	1.24
2	B	247	ILE	C-O	-5.70	1.17	1.24
2	F	390	LEU	C-O	-5.17	1.18	1.24
2	E	391	THR	C-O	-5.17	1.18	1.24

All (52) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	136	GLU	CA-C-N	-10.33	110.38	123.19
2	D	136	GLU	C-N-CA	-10.33	110.38	123.19
2	D	391	THR	CA-CB-OG1	-10.11	94.43	109.60
2	E	391	THR	CB-CA-C	-10.01	95.17	110.88
2	B	248	ASP	CB-CA-C	-9.55	94.61	110.85
1	A	20	HIS	CA-CB-CG	-9.43	104.37	113.80
2	B	120	THR	CA-CB-OG1	-8.39	97.01	109.60
2	C	242	VAL	N-CA-C	-7.63	99.76	109.30
2	C	97	ASP	CA-CB-CG	-7.46	105.14	112.60
1	A	407	VAL	CB-CA-C	-6.99	103.03	111.97
2	B	127	ILE	CA-C-N	-6.79	111.52	121.30
2	B	127	ILE	C-N-CA	-6.79	111.52	121.30
2	D	440	THR	CA-CB-OG1	-6.69	99.57	109.60
2	E	282	GLU	CA-C-N	-6.67	111.84	120.65
2	E	282	GLU	C-N-CA	-6.67	111.84	120.65
2	E	428	ARG	CB-CA-C	-6.56	100.57	110.88
2	D	388	THR	CA-CB-OG1	-6.55	99.77	109.60
2	F	240	HIS	CA-C-N	-6.47	113.06	122.19
2	F	240	HIS	C-N-CA	-6.47	113.06	122.19
1	A	239	THR	CB-CA-C	-6.32	98.84	109.65
2	E	283	TRP	N-CA-C	-6.09	104.33	110.97
1	A	85	GLN	CB-CA-C	-5.97	101.50	110.88
2	D	442	TYR	CB-CA-C	-5.92	101.83	110.96
2	E	427	LYS	N-CA-C	-5.86	104.89	111.28
2	D	442	TYR	CA-C-N	5.81	128.34	120.38
2	D	442	TYR	C-N-CA	5.81	128.34	120.38
2	E	291	ILE	CA-C-O	-5.78	115.04	121.23
2	B	92	GLN	CB-CA-C	-5.77	101.22	110.79
2	C	101	THR	CB-CA-C	-5.74	99.21	109.71
2	E	367	THR	CA-CB-OG1	-5.72	101.01	109.60
2	B	126	SER	CA-C-N	-5.62	115.57	122.93
2	B	126	SER	C-N-CA	-5.62	115.57	122.93
2	D	403	ILE	CA-C-N	5.56	128.00	120.38
2	D	403	ILE	C-N-CA	5.56	128.00	120.38
1	A	9	THR	CA-CB-OG1	-5.52	101.32	109.60
2	B	247	ILE	CA-C-O	-5.49	115.34	121.05
2	E	360	THR	CB-CA-C	5.49	116.77	108.86
2	B	53	ARG	CB-CA-C	5.46	120.13	110.85
2	C	251	ASN	CB-CA-C	-5.28	101.80	110.72
2	C	241	THR	CA-C-N	-5.27	113.82	120.98
2	C	241	THR	C-N-CA	-5.27	113.82	120.98
2	C	253	ARG	CB-CA-C	-5.21	110.55	116.54
2	D	27	HIS	N-CA-C	5.21	116.95	111.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	432	LEU	CA-C-N	-5.20	115.77	123.05
2	E	432	LEU	C-N-CA	-5.20	115.77	123.05
2	B	121	GLN	CA-C-O	-5.18	115.06	120.55
2	E	430	TYR	N-CA-C	-5.15	105.56	111.07
2	C	22	ILE	N-CA-CB	5.14	119.72	111.23
2	D	397	THR	CB-CA-C	-5.14	105.22	114.52
2	E	433	PHE	CB-CA-C	-5.05	101.91	110.19
2	B	250	ILE	CA-C-O	-5.01	115.20	120.57
2	D	387	TYR	CA-C-O	-5.01	115.24	120.55

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2400	0	2441	206	0
2	B	2794	0	2525	136	0
2	C	2780	0	2528	233	0
2	D	2758	0	2510	185	0
2	E	2637	0	2385	138	0
2	F	2900	0	2671	141	0
3	G	707	0	620	39	0
4	H	914	0	403	2	0
4	I	894	0	389	7	0
4	J	951	0	424	8	0
4	K	889	0	386	1	0
4	L	904	0	395	3	0
5	A	27	0	12	5	0
5	C	27	0	12	26	0
5	D	27	0	12	28	0
5	F	27	0	12	20	0
All	All	21636	0	17725	974	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 25.

All (974) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:27:HIS:HE1	5:D:501:ADP:C2	1.20	1.58
1:A:375:ILE:HD13	1:A:394:LEU:CD2	1.37	1.52
1:A:364:MET:CE	3:G:141:PHE:HE1	1.27	1.46
4:J:3:VAL:CB	4:J:148:HIS:HA	1.45	1.45
1:A:364:MET:HE3	3:G:141:PHE:CE1	1.49	1.44
2:D:27:HIS:CE1	5:D:501:ADP:C2	2.06	1.43
1:A:18:HIS:CE1	1:A:81:LEU:HD22	1.51	1.41
2:C:258:LEU:CD1	2:C:261:PHE:HB2	1.53	1.39
2:D:27:HIS:HE1	5:D:501:ADP:N3	1.23	1.36
1:A:364:MET:CE	3:G:141:PHE:CE1	2.06	1.36
2:D:27:HIS:CE1	5:D:501:ADP:N3	1.90	1.35
2:D:420:GLU:O	2:D:422:GLN:NE2	1.58	1.34
2:E:364:GLU:CD	2:E:395:LEU:HD11	1.53	1.33
1:A:247:ASN:OD1	1:A:279:ILE:HD11	1.19	1.33
2:F:80:GLY:HA2	5:F:501:ADP:O2A	1.19	1.32
2:D:401:TYR:CE1	2:D:435:ASP:HB3	1.64	1.31
1:A:18:HIS:HE1	1:A:81:LEU:CD2	1.41	1.31
2:B:46:MET:SD	2:B:53:ARG:HD3	1.71	1.30
2:C:39:PRO:HD3	2:C:54:ARG:CG	1.64	1.25
3:G:120:TYR:CE1	3:G:151:LEU:HA	1.73	1.24
2:E:364:GLU:CD	2:E:395:LEU:CD1	2.11	1.24
1:A:375:ILE:CD1	1:A:394:LEU:CD2	2.17	1.23
2:E:364:GLU:OE2	2:E:395:LEU:HD13	1.39	1.22
2:F:385:ASP:OD2	2:F:423:VAL:HG21	1.31	1.22
3:G:163:VAL:O	3:G:166:ILE:HG13	1.34	1.22
2:C:39:PRO:HG3	2:C:50:LEU:O	1.33	1.21
2:F:33:LEU:HD22	2:F:38:GLU:C	1.64	1.21
2:F:385:ASP:OD2	2:F:423:VAL:CG2	1.87	1.20
1:A:244:ASP:OD1	1:A:279:ILE:HG21	1.43	1.19
1:A:1:MET:CA	1:A:247:ASN:HD21	1.55	1.18
2:E:411:LEU:CD1	2:E:414:ARG:HH22	1.56	1.18
2:D:115:LYS:NZ	2:D:305:ASP:OD2	1.76	1.18
2:F:370:ILE:HD11	5:F:501:ADP:C4	1.80	1.17
1:A:419:ILE:CD1	2:F:37:LEU:HD22	1.75	1.14
2:F:33:LEU:CD2	2:F:39:PRO:HA	1.78	1.14
1:A:247:ASN:OD1	1:A:279:ILE:CD1	1.96	1.13
1:A:280:ASN:OD1	2:B:258:LEU:HD22	1.48	1.13
2:D:420:GLU:HG3	2:D:422:GLN:HE22	1.02	1.13
2:E:364:GLU:OE1	2:E:395:LEU:CD1	1.96	1.13
2:D:32:GLY:N	2:D:44:GLN:OE1	1.82	1.13

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:364:GLU:OE1	2:E:395:LEU:HD11	1.50	1.12
2:E:364:GLU:OE2	2:E:395:LEU:CD1	1.96	1.11
2:D:115:LYS:NZ	2:D:305:ASP:CG	2.07	1.11
1:A:1:MET:N	1:A:247:ASN:ND2	1.99	1.11
2:B:60:LEU:CD2	2:B:93:ALA:HB1	1.81	1.10
2:C:258:LEU:HD11	2:C:261:PHE:CB	1.81	1.10
2:B:60:LEU:HD21	2:B:93:ALA:HB1	1.29	1.10
2:D:28:ILE:HD11	2:D:85:ALA:CB	1.81	1.09
2:F:33:LEU:HD23	2:F:39:PRO:HA	1.16	1.09
1:A:375:ILE:CD1	1:A:394:LEU:HD21	1.81	1.09
2:F:33:LEU:CD2	2:F:39:PRO:CA	2.32	1.08
2:E:47:VAL:HG21	2:E:370:ILE:HG22	1.29	1.07
2:F:38:GLU:OE1	2:F:54:ARG:HD2	1.53	1.07
2:C:39:PRO:CD	2:C:54:ARG:HG2	1.84	1.07
2:D:67:LYS:HE3	2:E:407:THR:HG23	1.33	1.07
2:D:115:LYS:HZ1	2:D:305:ASP:CG	1.61	1.06
2:D:400:ARG:NH2	5:D:501:ADP:O2A	1.88	1.06
2:B:131:ILE:HG21	2:B:240:HIS:CE1	1.90	1.06
2:C:132:LYS:CB	2:C:238:VAL:O	2.04	1.06
2:D:67:LYS:CE	2:E:407:THR:HG23	1.84	1.06
2:D:420:GLU:HG3	2:D:422:GLN:NE2	1.71	1.06
2:C:127:ILE:O	2:C:244:LEU:HG	1.56	1.06
2:C:283:TRP:CZ2	4:I:58:LEU:HA	1.90	1.06
2:F:370:ILE:HD11	5:F:501:ADP:N3	1.71	1.05
4:J:3:VAL:CA	4:J:147:ARG:O	2.04	1.05
2:C:50:LEU:O	2:C:54:ARG:NH2	1.89	1.05
2:D:25:HIS:NE2	2:D:84:THR:HG23	1.71	1.05
2:D:28:ILE:CD1	2:D:85:ALA:HB1	1.86	1.05
2:D:24:ALA:N	2:D:374:ARG:NH1	2.05	1.04
2:D:46:MET:HG2	2:D:53:ARG:HD2	1.37	1.04
1:A:117:ARG:C	1:A:241:HIS:HB2	1.84	1.03
2:D:24:ALA:N	2:D:374:ARG:HH11	1.54	1.03
2:F:65:GLU:OE1	2:F:67:LYS:HG2	1.58	1.03
3:G:120:TYR:HE1	3:G:151:LEU:HA	0.91	1.03
4:J:3:VAL:CB	4:J:148:HIS:CA	2.37	1.03
1:A:375:ILE:HD13	1:A:394:LEU:HD22	1.35	1.03
1:A:324:ALA:HB2	2:B:261:PHE:CZ	1.93	1.02
2:C:27:HIS:HE1	5:C:501:ADP:C2	1.78	1.02
2:E:411:LEU:CD1	2:E:414:ARG:NH2	2.21	1.02
2:B:308:SER:O	2:B:312:LEU:HD13	1.58	1.01
4:J:3:VAL:HA	4:J:147:ARG:O	1.58	1.01

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:305:ASP:O	2:B:309:PHE:CD2	2.14	1.00
3:G:152:ALA:CB	3:G:190:SER:HB2	1.90	1.00
2:C:100:PHE:HD1	2:C:295:VAL:HG21	1.23	1.00
2:C:258:LEU:HD11	2:C:261:PHE:HB2	1.02	1.00
1:A:419:ILE:HD13	2:F:37:LEU:HD22	1.44	0.99
1:A:1:MET:H3	1:A:247:ASN:ND2	1.56	0.99
2:C:100:PHE:HD1	2:C:295:VAL:CG2	1.74	0.99
2:D:401:TYR:CE1	2:D:435:ASP:CB	2.46	0.98
2:F:33:LEU:HD22	2:F:38:GLU:O	1.60	0.98
2:D:401:TYR:CD1	2:D:435:ASP:HB3	1.97	0.98
2:E:411:LEU:HD12	2:E:414:ARG:HH22	1.28	0.97
1:A:375:ILE:HD13	1:A:394:LEU:HD21	0.97	0.97
2:C:39:PRO:CD	2:C:54:ARG:CG	2.40	0.97
2:C:129:VAL:CG1	2:C:289:ALA:HB1	1.93	0.96
1:A:419:ILE:HD12	2:F:37:LEU:HD22	1.44	0.96
2:D:41:GLN:O	2:D:48:GLY:N	1.97	0.96
2:D:383:SER:O	2:D:386:ALA:HB3	1.65	0.95
1:A:1:MET:CA	1:A:247:ASN:ND2	2.29	0.95
2:C:39:PRO:CG	2:C:54:ARG:CZ	2.43	0.95
2:C:133:GLU:CB	4:I:57:ALA:HB3	1.96	0.95
1:A:74:THR:O	1:A:366:TYR:CE2	2.19	0.94
2:F:80:GLY:CA	5:F:501:ADP:O2A	2.13	0.94
2:D:67:LYS:CE	2:E:407:THR:CG2	2.45	0.94
2:D:115:LYS:NZ	2:D:305:ASP:OD1	1.99	0.93
2:D:382:MET:HE3	2:D:386:ALA:HB1	1.49	0.93
2:F:84:THR:HG22	2:F:297:PHE:CE2	2.03	0.93
2:D:32:GLY:CA	2:D:44:GLN:OE1	2.15	0.93
2:C:27:HIS:HE1	5:C:501:ADP:H2	1.03	0.93
2:C:127:ILE:CG2	2:C:244:LEU:HD11	1.97	0.93
2:D:81:THR:HA	2:D:362:TYR:HE2	1.29	0.93
2:B:320:MET:HG3	2:C:257:PHE:CZ	2.04	0.93
2:B:130:ARG:HG3	2:B:290:GLU:HG3	1.47	0.93
2:C:49:GLN:HG3	2:C:362:TYR:CE1	2.03	0.92
2:C:127:ILE:CG2	2:C:244:LEU:CD1	2.46	0.92
2:C:103:ILE:HB	2:C:107:GLU:OE1	1.70	0.92
2:D:67:LYS:HE3	2:E:411:LEU:HD11	1.51	0.92
2:D:401:TYR:CD1	2:D:435:ASP:CB	2.53	0.92
2:B:46:MET:SD	2:B:53:ARG:CD	2.57	0.92
1:A:74:THR:O	1:A:366:TYR:HE2	1.52	0.92
2:F:370:ILE:HD11	5:F:501:ADP:C2	2.05	0.91
2:D:76:ALA:HB1	2:E:443:MET:HE1	1.49	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:244:ASP:OD1	1:A:279:ILE:CG2	2.18	0.91
2:B:130:ARG:CG	2:B:290:GLU:H	1.83	0.91
2:C:49:GLN:CG	2:C:362:TYR:CE1	2.54	0.91
2:D:67:LYS:CE	2:E:411:LEU:HD11	2.01	0.91
2:E:47:VAL:CG2	2:E:370:ILE:HG22	2.02	0.90
3:G:152:ALA:HB2	3:G:190:SER:HB2	1.51	0.90
2:C:129:VAL:HG12	2:C:289:ALA:HB1	1.53	0.90
2:D:27:HIS:CE1	5:D:501:ADP:H2	1.70	0.90
2:B:305:ASP:O	2:B:309:PHE:HD2	1.53	0.90
2:B:320:MET:HG3	2:C:257:PHE:CE1	2.07	0.90
2:D:46:MET:CG	2:D:53:ARG:HD2	2.02	0.90
2:B:131:ILE:HG21	2:B:240:HIS:HE1	1.26	0.90
2:E:410:SER:OG	2:E:414:ARG:NH1	2.04	0.90
2:C:39:PRO:CG	2:C:50:LEU:O	2.19	0.89
2:F:33:LEU:HD22	2:F:39:PRO:N	1.87	0.89
2:C:127:ILE:HG21	2:C:244:LEU:HD11	1.54	0.89
1:A:402:THR:HG23	1:A:405:TYR:H	1.38	0.89
2:C:416:ARG:NH1	2:C:425:ASP:OD1	2.05	0.89
2:C:130:ARG:HB2	2:C:292:ILE:HD11	1.53	0.89
2:D:28:ILE:HD11	2:D:85:ALA:HB1	0.92	0.89
2:C:39:PRO:HD3	2:C:54:ARG:HG2	0.91	0.88
1:A:113:MET:HE1	2:B:262:SER:C	1.99	0.88
2:D:32:GLY:HA2	2:D:44:GLN:OE1	1.74	0.88
1:A:18:HIS:CE1	1:A:81:LEU:CD2	2.30	0.88
1:A:406:SER:O	1:A:409:LEU:HB3	1.74	0.88
2:B:120:THR:O	2:B:124:ARG:HG2	1.72	0.88
2:C:67:LYS:HD3	2:D:407:THR:CG2	2.03	0.88
2:C:100:PHE:CD1	2:C:295:VAL:CG2	2.57	0.88
1:A:364:MET:HE3	3:G:141:PHE:HE1	0.85	0.87
1:A:1:MET:HA	1:A:247:ASN:HD21	1.37	0.87
2:C:39:PRO:HD2	2:C:54:ARG:NE	1.90	0.87
2:C:49:GLN:HG3	2:C:362:TYR:OH	1.74	0.87
1:A:324:ALA:HB2	2:B:261:PHE:HZ	1.33	0.86
2:C:132:LYS:CB	2:C:239:VAL:HG12	2.05	0.86
2:E:116:THR:CG2	2:F:111:LEU:HB3	2.03	0.86
1:A:120:ILE:O	1:A:240:LEU:HB2	1.75	0.86
2:C:46:MET:HG3	5:C:501:ADP:HN62	1.41	0.86
1:A:30:GLY:CA	2:B:415:LYS:HE2	2.05	0.86
2:C:46:MET:HG3	5:C:501:ADP:N6	1.91	0.86
2:C:24:ALA:HA	2:C:374:ARG:NH2	1.89	0.85
1:A:120:ILE:O	1:A:240:LEU:CB	2.25	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:128:GLY:HA2	2:F:243:SER:HA	1.56	0.85
2:C:67:LYS:HD3	2:D:407:THR:HG23	1.58	0.85
3:G:163:VAL:O	3:G:166:ILE:CG1	2.23	0.85
2:C:39:PRO:CD	2:C:54:ARG:NE	2.40	0.85
2:C:39:PRO:HG2	2:C:54:ARG:CZ	2.06	0.85
2:E:411:LEU:HD12	2:E:414:ARG:NH2	1.87	0.85
2:F:33:LEU:HD23	2:F:39:PRO:CA	2.00	0.85
2:E:258:LEU:HD12	2:E:258:LEU:O	1.76	0.84
2:E:411:LEU:HG	2:E:414:ARG:NH2	1.91	0.84
1:A:125:LYS:HA	1:A:235:ILE:HD12	1.59	0.84
2:B:129:VAL:HG12	2:B:291:ILE:CD1	2.07	0.84
2:B:277:ASN:ND2	2:C:258:LEU:HG	1.91	0.84
2:C:127:ILE:HB	2:C:244:LEU:HD12	1.59	0.84
2:F:385:ASP:O	2:F:389:VAL:HG23	1.76	0.84
1:A:247:ASN:CG	1:A:279:ILE:HD11	2.01	0.84
1:A:394:LEU:HG	1:A:409:LEU:HD23	1.59	0.84
2:C:49:GLN:HG3	2:C:362:TYR:CZ	2.13	0.84
2:B:60:LEU:HD21	2:B:93:ALA:CB	2.07	0.83
2:D:130:ARG:HG3	2:D:239:VAL:CG2	2.07	0.83
2:E:411:LEU:HD11	2:E:414:ARG:HH22	1.44	0.83
2:C:27:HIS:CE1	5:C:501:ADP:H2	1.93	0.83
2:F:47:VAL:O	5:F:501:ADP:N6	2.12	0.82
1:A:364:MET:HE1	3:G:141:PHE:CE1	2.14	0.82
2:E:132:LYS:HA	2:E:239:VAL:HA	1.60	0.82
2:F:370:ILE:CD1	5:F:501:ADP:C2	2.63	0.82
2:C:28:ILE:HD13	2:C:85:ALA:HB1	1.61	0.82
1:A:317:ARG:NH2	2:B:260:LEU:HD21	1.94	0.82
1:A:364:MET:HE1	3:G:141:PHE:CZ	2.15	0.82
2:D:31:LEU:O	2:D:53:ARG:NH1	2.12	0.82
1:A:364:MET:CE	3:G:141:PHE:CZ	2.63	0.81
2:C:39:PRO:HG3	2:C:54:ARG:HG3	1.61	0.81
2:B:314:ARG:HB3	2:B:314:ARG:NH1	1.94	0.81
2:E:47:VAL:HG21	2:E:370:ILE:CG2	2.09	0.81
2:E:411:LEU:HG	2:E:414:ARG:HH21	1.44	0.81
2:F:37:LEU:HD21	2:F:61:GLU:OE1	1.80	0.81
2:C:28:ILE:CD1	2:C:85:ALA:HB1	2.10	0.81
2:B:136:GLU:CB	2:B:235:ARG:HA	2.11	0.81
2:C:60:LEU:HD21	2:C:93:ALA:HB1	1.63	0.80
2:B:130:ARG:NH2	2:B:292:ILE:HD11	1.96	0.80
2:B:60:LEU:CD2	2:B:93:ALA:CB	2.60	0.80
2:C:100:PHE:CD1	2:C:295:VAL:HG23	2.17	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:97:ASP:OD2	2:E:130:ARG:NH2	2.15	0.80
2:C:283:TRP:CH2	4:I:58:LEU:HA	2.17	0.80
2:E:367:THR:HG23	2:E:391:THR:HG23	1.63	0.80
2:F:385:ASP:OD2	2:F:423:VAL:HG22	1.81	0.80
1:A:1:MET:CB	1:A:247:ASN:OD1	2.30	0.80
2:D:62:MET:HE2	2:E:407:THR:HG22	1.63	0.80
1:A:364:MET:HE2	3:G:141:PHE:HE1	1.43	0.79
2:B:308:SER:O	2:B:312:LEU:CD1	2.31	0.79
2:C:24:ALA:HA	2:C:374:ARG:HH22	1.46	0.79
2:C:127:ILE:HG21	2:C:244:LEU:CD1	2.08	0.79
2:C:247:ILE:CG2	2:C:276:ILE:HD12	2.12	0.79
2:E:411:LEU:CG	2:E:414:ARG:NH2	2.44	0.79
2:F:38:GLU:HG3	2:F:39:PRO:HD2	1.62	0.79
2:D:382:MET:HG2	2:D:421:VAL:HB	1.65	0.79
2:B:63:ILE:HG21	2:B:94:LEU:HD21	1.64	0.79
2:C:413:CYS:SG	2:C:416:ARG:NH2	2.56	0.79
2:D:81:THR:HA	2:D:362:TYR:CE2	2.16	0.79
4:J:3:VAL:CB	4:J:147:ARG:O	2.31	0.79
2:B:130:ARG:HB2	2:B:289:ALA:CB	2.13	0.79
2:C:132:LYS:CA	2:C:238:VAL:O	2.30	0.79
2:D:49:GLN:NE2	2:D:362:TYR:CZ	2.50	0.79
1:A:20:HIS:H	1:A:20:HIS:CD2	1.97	0.78
2:B:130:ARG:HG2	2:B:290:GLU:H	1.48	0.78
2:C:46:MET:HG2	2:C:53:ARG:HD3	1.66	0.78
1:A:1:MET:N	1:A:247:ASN:HD21	1.72	0.78
2:B:314:ARG:HB3	2:B:314:ARG:CZ	2.14	0.78
2:C:49:GLN:CG	2:C:362:TYR:HE1	1.93	0.78
1:A:402:THR:CG2	1:A:405:TYR:CB	2.61	0.78
2:C:136:GLU:O	2:C:196:ASP:HA	1.83	0.78
2:D:46:MET:HA	5:D:501:ADP:N1	1.99	0.78
1:A:114:GLU:HG2	1:A:241:HIS:NE2	1.98	0.78
2:C:131:ILE:HG23	2:C:240:HIS:CD2	2.18	0.78
2:B:274:GLU:OE2	2:C:262:SER:HB3	1.83	0.77
2:D:49:GLN:NE2	2:D:362:TYR:OH	2.17	0.77
1:A:275:LEU:O	1:A:278:GLU:HG2	1.84	0.77
2:D:46:MET:HG2	2:D:53:ARG:CD	2.14	0.77
2:B:60:LEU:HD22	2:B:93:ALA:HB1	1.66	0.77
2:B:96:PRO:O	2:B:97:ASP:OD1	2.02	0.76
2:D:81:THR:H	5:D:501:ADP:PB	2.08	0.76
2:B:129:VAL:HG12	2:B:291:ILE:HD12	1.68	0.76
2:B:276:ILE:HD13	2:B:276:ILE:N	2.00	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:392:ARG:NH1	2:F:392:ARG:HB2	2.01	0.76
2:E:291:ILE:HB	2:E:320:MET:HE2	1.67	0.76
1:A:275:LEU:HG	1:A:278:GLU:OE2	1.86	0.76
2:E:390:LEU:O	2:E:393:ILE:HG22	1.85	0.76
3:G:152:ALA:HB1	3:G:190:SER:HB2	1.66	0.76
2:D:67:LYS:HE3	2:E:411:LEU:CD1	2.15	0.75
2:F:37:LEU:CD2	2:F:61:GLU:OE1	2.34	0.75
2:F:390:LEU:HD11	2:F:402:ALA:HB1	1.69	0.75
2:B:352:ASP:OD1	2:C:400:ARG:NE	2.19	0.75
2:F:33:LEU:O	2:F:40:ARG:NH1	2.19	0.75
2:D:115:LYS:HZ2	2:D:305:ASP:CG	1.83	0.75
2:C:49:GLN:HG2	2:C:362:TYR:CE1	2.22	0.75
2:F:132:LYS:CB	2:F:239:VAL:HG12	2.16	0.75
1:A:402:THR:CG2	1:A:405:TYR:HB3	2.16	0.74
2:D:47:VAL:H	5:D:501:ADP:N6	1.85	0.74
2:E:242:VAL:CG1	2:E:247:ILE:HD11	2.16	0.74
2:F:33:LEU:HD22	2:F:39:PRO:CA	2.17	0.74
2:C:22:ILE:O	2:C:22:ILE:HD12	1.88	0.74
2:C:137:ILE:HA	2:C:195:ILE:O	1.87	0.74
2:C:301:VAL:HG21	2:C:326:MET:HG2	1.69	0.74
2:D:368:LYS:HE2	2:D:372:ARG:HH21	1.53	0.74
2:C:60:LEU:CD2	2:C:93:ALA:HB1	2.18	0.74
2:F:389:VAL:HG21	2:F:423:VAL:HG13	1.70	0.73
2:C:258:LEU:HD12	2:C:261:PHE:HB2	1.68	0.73
2:F:33:LEU:CD2	2:F:38:GLU:O	2.35	0.73
2:F:40:ARG:O	2:F:53:ARG:NH2	2.21	0.73
1:A:394:LEU:C	1:A:394:LEU:HD23	2.13	0.73
2:B:131:ILE:CG2	2:B:240:HIS:CE1	2.70	0.73
2:B:363:SER:OG	2:B:366:ASP:OD2	2.06	0.73
2:C:63:ILE:HG21	2:C:94:LEU:HD13	1.70	0.73
1:A:1:MET:CB	1:A:247:ASN:ND2	2.51	0.73
2:F:41:GLN:HE21	2:F:41:GLN:HA	1.52	0.73
1:A:123:ARG:O	1:A:123:ARG:HG3	1.88	0.73
2:B:277:ASN:HD21	2:C:258:LEU:HG	1.49	0.73
2:C:132:LYS:CB	2:C:239:VAL:CG1	2.65	0.73
1:A:1:MET:CB	1:A:247:ASN:HD21	2.02	0.73
2:B:130:ARG:HB2	2:B:289:ALA:HB1	1.69	0.73
2:C:27:HIS:CE1	5:C:501:ADP:C2	2.71	0.72
2:C:127:ILE:CB	2:C:244:LEU:HD12	2.19	0.72
2:F:49:GLN:HE22	2:F:360:THR:H	1.35	0.72
2:D:67:LYS:NZ	2:E:411:LEU:HD11	2.04	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:413:CYS:HB2	2:D:425:ASP:OD1	1.90	0.72
2:C:132:LYS:HA	2:C:238:VAL:O	1.89	0.72
1:A:113:MET:CE	2:B:262:SER:C	2.63	0.72
2:F:283:TRP:CZ2	4:L:58:LEU:CB	2.72	0.72
2:D:40:ARG:N	2:D:40:ARG:HD2	2.05	0.72
2:D:46:MET:HG2	2:D:53:ARG:NH1	2.05	0.72
2:D:67:LYS:HD2	2:E:407:THR:CG2	2.20	0.72
2:C:129:VAL:HG11	2:C:289:ALA:HB1	1.72	0.71
1:A:375:ILE:CD1	1:A:394:LEU:HD22	2.04	0.71
2:F:38:GLU:OE1	2:F:54:ARG:CD	2.36	0.71
2:C:39:PRO:CG	2:C:54:ARG:HG3	2.20	0.71
2:D:27:HIS:NE2	5:D:501:ADP:N3	2.39	0.71
2:E:364:GLU:OE1	2:E:395:LEU:HD12	1.89	0.71
2:B:124:ARG:NH1	2:B:273:ARG:HD3	2.05	0.71
2:B:159:GLY:O	2:B:174:LEU:CB	2.39	0.70
2:C:127:ILE:CG2	2:C:244:LEU:HD12	2.21	0.70
1:A:18:HIS:O	1:A:18:HIS:ND1	2.25	0.70
2:D:47:VAL:H	5:D:501:ADP:HN62	1.38	0.70
2:C:25:HIS:HE1	2:C:84:THR:HB	1.56	0.70
1:A:324:ALA:CB	2:B:261:PHE:CZ	2.72	0.70
2:F:132:LYS:HA	2:F:239:VAL:HA	1.74	0.70
1:A:117:ARG:O	1:A:241:HIS:HB2	1.91	0.70
1:A:310:GLU:HB3	2:B:111:LEU:HB2	1.74	0.70
2:F:33:LEU:HD21	2:F:39:PRO:HB3	1.72	0.70
2:E:242:VAL:HG11	2:E:247:ILE:HD11	1.72	0.69
2:C:39:PRO:HG3	2:C:54:ARG:CZ	2.22	0.69
2:D:39:PRO:HD2	2:D:54:ARG:HE	1.58	0.69
2:D:46:MET:HG2	2:D:53:ARG:HH11	1.56	0.69
1:A:1:MET:CB	1:A:247:ASN:CG	2.66	0.69
2:D:67:LYS:HE2	2:E:407:THR:CG2	2.21	0.69
2:C:100:PHE:CD1	2:C:295:VAL:HG21	2.16	0.69
2:C:104:ALA:H	2:C:107:GLU:CD	2.01	0.69
2:C:28:ILE:CD1	2:C:85:ALA:CB	2.71	0.69
2:C:258:LEU:HD12	2:C:258:LEU:O	1.92	0.69
2:B:260:LEU:O	2:B:260:LEU:HD22	1.93	0.69
2:C:127:ILE:HG22	2:C:244:LEU:HD11	1.73	0.68
1:A:3:ILE:HD12	1:A:3:ILE:O	1.92	0.68
1:A:320:GLU:HA	1:A:320:GLU:OE1	1.93	0.68
2:B:99:PRO:HG2	2:B:294:GLY:HA3	1.75	0.68
1:A:18:HIS:HE1	1:A:81:LEU:HD22	0.59	0.68
1:A:419:ILE:HD12	2:F:37:LEU:CD2	2.19	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:247:ILE:O	2:C:250:ILE:HG22	1.94	0.68
2:F:132:LYS:CA	2:F:239:VAL:HG12	2.23	0.68
2:C:80:GLY:N	5:C:501:ADP:O2B	2.26	0.68
2:D:67:LYS:CD	2:E:407:THR:HG23	2.24	0.68
1:A:113:MET:CE	2:B:262:SER:O	2.42	0.68
2:B:320:MET:CG	2:C:257:PHE:CE1	2.77	0.68
1:A:375:ILE:HG23	1:A:410:LEU:HD11	1.75	0.68
2:B:117:GLU:O	2:B:121:GLN:HG3	1.94	0.68
2:C:258:LEU:CD1	2:C:261:PHE:CB	2.49	0.68
2:B:260:LEU:O	2:B:260:LEU:HD13	1.93	0.67
2:C:30:GLY:N	2:C:44:GLN:HB3	2.09	0.67
2:D:307:GLU:HB3	2:E:111:LEU:HG	1.74	0.67
2:E:307:GLU:HB3	2:F:111:LEU:HG	1.76	0.67
2:B:320:MET:HG3	2:C:257:PHE:HZ	1.58	0.67
2:C:33:LEU:HD23	2:C:39:PRO:HA	1.76	0.67
1:A:33:LYS:O	1:A:46:ARG:NH2	2.26	0.67
1:A:394:LEU:HD13	1:A:410:LEU:HD21	1.75	0.67
2:D:372:ARG:HD3	2:D:387:TYR:CZ	2.30	0.67
2:B:320:MET:CG	2:C:257:PHE:HE1	2.08	0.67
2:C:131:ILE:HG23	2:C:240:HIS:NE2	2.08	0.67
1:A:234:ILE:HD12	1:A:234:ILE:O	1.95	0.67
2:D:321:ALA:HA	2:E:261:PHE:CZ	2.30	0.66
1:A:402:THR:CG2	1:A:405:TYR:HB2	2.25	0.66
2:C:25:HIS:CE1	2:C:84:THR:HB	2.30	0.66
2:F:110:SER:OG	2:F:112:GLU:OE1	2.14	0.66
1:A:324:ALA:HB2	2:B:261:PHE:CE2	2.31	0.66
2:C:97:ASP:OD2	2:C:97:ASP:N	2.29	0.66
2:C:250:ILE:O	2:C:250:ILE:HG13	1.96	0.66
2:C:81:THR:O	2:C:362:TYR:CE2	2.49	0.65
2:F:49:GLN:NE2	2:F:360:THR:O	2.29	0.65
2:E:407:THR:O	2:E:411:LEU:HD13	1.96	0.65
2:D:326:MET:HE1	2:D:350:LEU:HD21	1.79	0.65
2:E:283:TRP:O	2:E:284:ARG:C	2.38	0.65
1:A:324:ALA:CB	2:B:261:PHE:HZ	2.07	0.65
2:C:362:TYR:OH	5:C:501:ADP:N7	2.30	0.65
2:D:67:LYS:CD	2:E:407:THR:CG2	2.74	0.65
1:A:238:VAL:HG21	1:A:243:LEU:HD21	1.79	0.65
2:F:38:GLU:CG	2:F:39:PRO:HD2	2.26	0.65
1:A:118:ARG:N	1:A:241:HIS:HB2	2.11	0.65
2:B:243:SER:HB2	2:B:246:GLU:HB2	1.78	0.65
2:C:364:GLU:OE1	2:C:364:GLU:N	2.30	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:422:GLN:OE1	2:F:422:GLN:N	2.30	0.65
2:C:127:ILE:HG22	2:C:244:LEU:CD1	2.26	0.64
2:C:137:ILE:HA	2:C:196:ASP:HA	1.78	0.64
2:E:47:VAL:CG2	2:E:370:ILE:CG2	2.72	0.64
2:D:108:ILE:HD12	2:D:304:LEU:HD22	1.79	0.64
2:D:130:ARG:HB2	2:D:292:ILE:HD11	1.77	0.64
2:E:106:SER:HB3	2:E:303:MET:HE3	1.79	0.64
2:E:115:LYS:NZ	2:E:308:SER:OG	2.29	0.64
2:D:360:THR:HB	2:D:361:PRO:HD2	1.79	0.64
2:D:401:TYR:CZ	2:D:435:ASP:HB3	2.31	0.64
2:F:33:LEU:CD2	2:F:39:PRO:N	2.55	0.64
2:B:130:ARG:HB2	2:B:289:ALA:CA	2.26	0.64
2:D:81:THR:N	5:D:501:ADP:O3A	2.29	0.64
2:D:313:ASN:OD1	2:D:353:ARG:NH2	2.30	0.64
2:B:305:ASP:HA	2:B:336:ARG:HB2	1.80	0.64
2:C:39:PRO:HD2	2:C:54:ARG:HE	1.59	0.64
2:D:430:TYR:CZ	2:D:438:ARG:NH1	2.66	0.64
2:F:78:GLN:O	2:F:81:THR:OG1	2.13	0.64
2:B:130:ARG:HB2	2:B:289:ALA:HA	1.78	0.63
1:A:122:LEU:HD11	1:A:292:ALA:HB1	1.79	0.63
2:F:368:LYS:NZ	2:F:384:GLU:OE2	2.31	0.63
2:F:25:HIS:NE2	5:F:501:ADP:H3'	2.13	0.63
2:C:33:LEU:CD1	2:C:57:GLY:HA3	2.29	0.63
2:D:28:ILE:CD1	2:D:85:ALA:O	2.47	0.63
1:A:76:LYS:HZ2	1:A:331:SER:C	2.05	0.63
2:F:41:GLN:HA	2:F:41:GLN:NE2	2.13	0.63
2:C:39:PRO:HG3	2:C:54:ARG:NH2	2.13	0.63
2:C:82:GLY:N	5:C:501:ADP:O2A	2.31	0.63
2:E:367:THR:CG2	2:E:391:THR:HG23	2.28	0.63
2:F:46:MET:HE1	2:F:86:ILE:HD13	1.81	0.63
2:C:50:LEU:C	2:C:54:ARG:NH2	2.55	0.63
2:E:405:LEU:HD22	2:E:429:VAL:CG1	2.28	0.63
2:D:420:GLU:O	2:D:420:GLU:HG3	1.98	0.62
1:A:118:ARG:HA	1:A:241:HIS:HB3	1.80	0.62
2:B:317:GLU:OE1	2:B:317:GLU:HA	1.97	0.62
2:D:123:PHE:CD1	2:E:261:PHE:HE2	2.18	0.62
2:B:83:LYS:HE3	2:B:327:ALA:HB1	1.82	0.62
2:C:39:PRO:CG	2:C:54:ARG:NE	2.62	0.62
2:D:82:GLY:H	5:D:501:ADP:PA	2.22	0.62
2:E:56:ALA:O	2:E:60:LEU:HD23	2.00	0.62
2:B:370:ILE:HG21	2:B:399:LEU:HD21	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:130:ARG:HD3	2:D:239:VAL:HG21	1.82	0.62
2:D:426:ILE:O	2:D:426:ILE:HG22	1.98	0.62
2:C:370:ILE:HD11	5:C:501:ADP:N3	2.15	0.62
2:D:428:ARG:O	2:D:432:LEU:HG	1.99	0.62
2:E:390:LEU:O	2:E:393:ILE:CG2	2.48	0.62
3:G:120:TYR:CE1	3:G:151:LEU:HD23	2.35	0.62
1:A:394:LEU:CD1	1:A:410:LEU:CD2	2.78	0.62
2:C:39:PRO:CG	2:C:54:ARG:CG	2.77	0.62
2:D:27:HIS:NE2	5:D:501:ADP:O2'	2.32	0.62
2:D:130:ARG:CG	2:D:239:VAL:CG2	2.78	0.62
2:D:401:TYR:CD1	2:D:435:ASP:HB2	2.34	0.62
2:E:360:THR:CG2	2:E:361:PRO:HD2	2.30	0.62
2:C:416:ARG:O	2:C:416:ARG:HG2	2.00	0.61
2:E:283:TRP:O	2:E:286:GLU:N	2.29	0.61
1:A:402:THR:HG23	1:A:405:TYR:N	2.14	0.61
2:C:100:PHE:HA	2:C:295:VAL:HG23	1.81	0.61
2:C:47:VAL:O	5:C:501:ADP:N6	2.33	0.61
2:D:28:ILE:HD12	2:D:85:ALA:O	2.01	0.61
1:A:402:THR:HG23	1:A:405:TYR:HB3	1.82	0.61
2:D:25:HIS:CD2	2:D:85:ALA:HA	2.36	0.61
2:D:62:MET:HE2	2:E:407:THR:CG2	2.29	0.61
2:D:403:ILE:O	2:D:406:ILE:HG13	2.00	0.61
2:C:123:PHE:O	2:C:127:ILE:HG13	2.01	0.61
1:A:30:GLY:HA2	2:B:415:LYS:HE2	1.81	0.61
1:A:96:MET:HE2	1:A:301:VAL:HG22	1.82	0.61
1:A:402:THR:HG23	1:A:405:TYR:CB	2.29	0.61
2:B:243:SER:HB2	2:B:246:GLU:H	1.66	0.61
2:C:46:MET:HA	5:C:501:ADP:N1	2.15	0.61
2:E:63:ILE:HD13	2:E:68:ILE:HG21	1.83	0.61
1:A:30:GLY:HA3	2:B:415:LYS:HE2	1.82	0.60
1:A:372:LYS:HD3	1:A:392:ASN:HA	1.83	0.60
1:A:402:THR:HG22	1:A:405:TYR:HB3	1.83	0.60
2:D:130:ARG:HG3	2:D:239:VAL:HG22	1.83	0.60
2:C:27:HIS:CD2	2:C:374:ARG:HD3	2.36	0.60
2:F:37:LEU:HD12	2:F:37:LEU:N	2.16	0.60
1:A:244:ASP:HA	1:A:279:ILE:HG13	1.83	0.60
2:F:370:ILE:HD11	5:F:501:ADP:C5	2.35	0.60
1:A:74:THR:C	1:A:366:TYR:HE2	2.09	0.60
2:E:390:LEU:HD21	2:E:406:ILE:HD11	1.83	0.60
2:D:25:HIS:CE1	2:D:84:THR:HG23	2.37	0.60
2:C:63:ILE:HD13	2:C:68:ILE:HG21	1.84	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:136:GLU:O	2:C:196:ASP:CA	2.49	0.60
2:C:242:VAL:HG23	2:C:242:VAL:O	2.02	0.60
2:D:272:VAL:O	2:D:276:ILE:HG13	2.02	0.60
2:E:393:ILE:HD11	2:E:430:TYR:CD1	2.37	0.60
1:A:112:LEU:HD11	1:A:311:CYS:HB3	1.83	0.59
2:C:88:MET:O	2:C:92:GLN:HG2	2.02	0.59
2:D:382:MET:SD	2:D:421:VAL:HG11	2.42	0.59
1:A:6:VAL:HG23	1:A:6:VAL:O	2.02	0.59
2:C:129:VAL:HG22	2:C:291:ILE:HA	1.83	0.59
2:C:129:VAL:HG22	2:C:291:ILE:HG13	1.84	0.59
2:B:314:ARG:O	2:B:317:GLU:HB2	2.01	0.59
2:B:316:LEU:O	2:B:316:LEU:HD12	2.01	0.59
2:F:84:THR:HG22	2:F:297:PHE:CZ	2.37	0.59
1:A:317:ARG:NH2	2:B:260:LEU:CD2	2.65	0.59
1:A:362:ARG:HD3	1:A:364:MET:HE2	1.82	0.59
2:D:47:VAL:N	5:D:501:ADP:HN62	2.01	0.59
3:G:139:VAL:HG11	3:G:144:LEU:HB2	1.85	0.59
1:A:108:LYS:HB2	2:B:111:LEU:HD11	1.84	0.59
1:A:414:ASN:HA	1:A:425:ILE:HD11	1.85	0.59
2:C:49:GLN:HG2	2:C:362:TYR:HE1	1.59	0.59
1:A:74:THR:O	1:A:366:TYR:CZ	2.56	0.59
2:C:138:ILE:N	2:C:195:ILE:O	2.34	0.59
2:E:108:ILE:HD11	2:E:304:LEU:HD22	1.84	0.59
1:A:76:LYS:HB2	5:A:501:ADP:O2B	2.03	0.59
2:D:400:ARG:CZ	5:D:501:ADP:O2A	2.50	0.59
2:E:241:THR:O	2:E:241:THR:HG22	2.02	0.59
2:F:130:ARG:HD2	2:F:239:VAL:HG21	1.85	0.59
1:A:117:ARG:O	1:A:241:HIS:N	2.36	0.58
3:G:241:VAL:HG12	3:G:241:VAL:O	2.02	0.58
1:A:394:LEU:CD1	1:A:410:LEU:HD21	2.31	0.58
2:B:52:ALA:HB2	2:B:358:SER:O	2.03	0.58
2:E:405:LEU:HD22	2:E:429:VAL:HG13	1.86	0.58
2:B:130:ARG:CG	2:B:290:GLU:N	2.61	0.58
2:F:370:ILE:CD1	5:F:501:ADP:C4	2.71	0.58
2:C:124:ARG:HH21	2:C:248:ASP:CG	2.12	0.58
2:D:25:HIS:NE2	2:D:85:ALA:N	2.52	0.58
1:A:14:ARG:NH2	1:A:100:GLU:OE2	2.27	0.58
1:A:81:LEU:CD1	1:A:93:PHE:CE2	2.87	0.58
2:C:49:GLN:HG3	2:C:362:TYR:HE1	1.55	0.58
2:C:389:VAL:HG21	2:C:423:VAL:HG13	1.85	0.58
2:C:39:PRO:HG3	2:C:54:ARG:CG	2.32	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:284:ARG:HA	2:E:289:ALA:O	2.04	0.57
1:A:77:THR:OG1	5:A:501:ADP:O2A	2.19	0.57
2:C:28:ILE:HD13	2:C:85:ALA:CB	2.32	0.57
2:C:81:THR:N	5:C:501:ADP:O2B	2.36	0.57
2:D:82:GLY:HA2	5:D:501:ADP:H5'2	1.86	0.57
2:D:67:LYS:HZ1	2:E:411:LEU:HD11	1.67	0.57
2:C:99:PRO:CB	2:C:126:SER:O	2.52	0.57
2:E:299:ASP:HA	2:E:327:ALA:HB3	1.86	0.57
2:E:358:SER:HB2	2:F:434:LEU:HD11	1.86	0.57
3:G:148:LEU:HD13	3:G:191:CYS:HB2	1.87	0.57
1:A:91:VAL:HG12	1:A:297:GLY:HA2	1.87	0.57
1:A:20:HIS:CD2	1:A:20:HIS:N	2.72	0.57
2:C:283:TRP:CZ2	4:I:58:LEU:CA	2.80	0.57
3:G:113:LEU:HD23	3:G:113:LEU:H	1.70	0.57
1:A:76:LYS:HE2	1:A:330:ALA:HB1	1.87	0.57
1:A:323:ILE:O	1:A:324:ALA:C	2.47	0.57
1:A:412:PRO:CB	1:A:433:ILE:HD12	2.35	0.57
2:C:247:ILE:HG22	2:C:276:ILE:HD12	1.87	0.57
2:D:67:LYS:HD2	2:E:407:THR:HG21	1.87	0.57
2:D:61:GLU:HG2	2:E:411:LEU:HD23	1.87	0.56
4:J:3:VAL:N	4:J:147:ARG:O	2.38	0.56
2:C:131:ILE:CG2	2:C:240:HIS:CD2	2.87	0.56
2:D:25:HIS:CD2	2:D:85:ALA:CA	2.88	0.56
2:F:132:LYS:HA	2:F:239:VAL:HG12	1.87	0.56
2:B:328:THR:HG22	2:B:330:ARG:H	1.70	0.56
2:C:27:HIS:HD2	2:C:374:ARG:CD	2.18	0.56
2:D:123:PHE:HB3	2:E:261:PHE:HD2	1.69	0.56
2:E:258:LEU:O	2:E:258:LEU:CD1	2.51	0.56
2:C:25:HIS:CD2	5:C:501:ADP:H2'	2.41	0.56
2:C:128:GLY:HA2	2:C:243:SER:HA	1.87	0.56
2:D:116:THR:HG22	2:E:111:LEU:HB3	1.87	0.56
2:C:63:ILE:HG21	2:C:94:LEU:CD1	2.34	0.56
2:D:424:ASP:OD1	2:D:425:ASP:N	2.38	0.56
2:C:370:ILE:HD11	5:C:501:ADP:C4	2.41	0.56
2:F:283:TRP:CE2	4:L:58:LEU:CB	2.89	0.56
2:C:37:LEU:HD11	2:C:61:GLU:HG3	1.88	0.56
2:C:133:GLU:CB	4:I:57:ALA:CB	2.81	0.56
2:C:135:THR:CB	2:C:238:VAL:CB	2.83	0.56
2:C:320:MET:HE2	2:C:320:MET:HA	1.86	0.56
2:C:362:TYR:CZ	5:C:501:ADP:N7	2.74	0.56
2:C:370:ILE:CD1	5:C:501:ADP:C4	2.89	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:30:GLY:CA	2:C:44:GLN:HB3	2.36	0.56
2:F:33:LEU:CD2	2:F:39:PRO:CB	2.84	0.56
2:F:283:TRP:NE1	4:L:58:LEU:HA	2.21	0.56
1:A:12:THR:HG23	1:A:12:THR:O	2.04	0.56
2:E:116:THR:HG21	2:F:111:LEU:HB3	1.88	0.56
2:E:360:THR:HG23	2:E:361:PRO:HD2	1.88	0.56
2:B:124:ARG:HB2	2:B:245:HIS:HB2	1.88	0.55
2:C:49:GLN:CG	2:C:362:TYR:CZ	2.85	0.55
2:E:318:SER:HB2	2:F:260:LEU:HD22	1.87	0.55
2:C:28:ILE:HD11	2:C:85:ALA:HB1	1.86	0.55
2:E:385:ASP:O	2:E:389:VAL:HG12	2.06	0.55
2:F:33:LEU:HA	2:F:38:GLU:O	2.07	0.55
2:B:316:LEU:HD23	2:B:353:ARG:NH2	2.21	0.55
2:C:362:TYR:CE2	5:C:501:ADP:C8	2.94	0.55
1:A:76:LYS:NZ	1:A:331:SER:O	2.39	0.55
2:F:65:GLU:CD	2:F:67:LYS:HZ2	2.15	0.55
2:C:247:ILE:HG21	2:C:276:ILE:HD12	1.87	0.55
2:E:396:GLU:OE1	2:E:396:GLU:HA	2.05	0.55
1:A:406:SER:O	1:A:409:LEU:CB	2.52	0.55
2:E:86:ILE:O	2:E:90:MET:HG3	2.05	0.55
2:B:244:LEU:HD12	2:C:258:LEU:HD21	1.88	0.55
2:C:31:LEU:HD11	2:C:90:MET:HA	1.89	0.55
2:D:67:LYS:HE3	2:E:407:THR:CG2	2.16	0.55
2:B:130:ARG:HG3	2:B:290:GLU:N	2.21	0.55
2:D:80:GLY:H	5:D:501:ADP:PB	2.30	0.55
2:F:38:GLU:CD	2:F:39:PRO:HD2	2.31	0.55
2:E:412:VAL:HG11	2:E:428:ARG:CD	2.37	0.54
2:E:412:VAL:HG11	2:E:428:ARG:HD2	1.88	0.54
1:A:18:HIS:CE1	1:A:81:LEU:HD23	2.38	0.54
1:A:82:ALA:O	1:A:85:GLN:HB2	2.07	0.54
1:A:364:MET:HE1	3:G:141:PHE:HZ	1.70	0.54
2:D:301:VAL:HG21	2:D:326:MET:HG2	1.89	0.54
1:A:76:LYS:NZ	1:A:331:SER:C	2.66	0.54
2:D:385:ASP:HB2	2:D:423:VAL:HG23	1.89	0.54
2:E:86:ILE:HD12	2:E:86:ILE:H	1.71	0.54
1:A:117:ARG:O	1:A:241:HIS:CB	2.56	0.54
1:A:240:LEU:HD21	2:B:258:LEU:HD21	1.88	0.54
2:C:39:PRO:HG2	2:C:54:ARG:NH1	2.22	0.54
2:E:262:SER:OG	2:E:263:GLY:N	2.39	0.54
2:F:130:ARG:HD3	2:F:241:THR:HG22	1.90	0.54
2:E:132:LYS:CB	2:E:239:VAL:HG12	2.38	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:33:LEU:HD21	2:F:39:PRO:CB	2.37	0.54
1:A:3:ILE:HD11	1:A:286:TYR:OH	2.07	0.54
2:B:311:PHE:CD1	2:B:311:PHE:C	2.85	0.54
2:D:328:THR:HG22	2:D:330:ARG:H	1.72	0.54
2:F:392:ARG:HB2	2:F:392:ARG:HH11	1.72	0.54
1:A:412:PRO:HB3	1:A:433:ILE:HD12	1.89	0.54
1:A:419:ILE:CG2	2:F:61:GLU:OE2	2.56	0.54
2:C:387:TYR:O	2:C:391:THR:HG22	2.08	0.54
2:E:370:ILE:HD11	2:E:399:LEU:HD21	1.90	0.54
2:D:401:TYR:CE1	2:D:435:ASP:CA	2.91	0.53
2:F:38:GLU:HG3	2:F:39:PRO:CD	2.35	0.53
2:C:362:TYR:HE2	5:C:501:ADP:C8	2.26	0.53
2:F:24:ALA:O	5:F:501:ADP:O3'	2.24	0.53
2:B:250:ILE:HG21	4:H:60:ALA:HB2	1.90	0.53
2:C:130:ARG:HA	2:C:240:HIS:O	2.08	0.53
2:D:284:ARG:HD2	2:D:291:ILE:HD11	1.90	0.53
1:A:335:ASN:OD1	1:A:335:ASN:O	2.26	0.53
2:B:131:ILE:HG13	2:B:240:HIS:ND1	2.23	0.53
2:F:80:GLY:N	5:F:501:ADP:O3B	2.41	0.53
2:D:28:ILE:CD1	2:D:85:ALA:CA	2.87	0.53
2:D:25:HIS:HD2	2:D:85:ALA:HA	1.73	0.53
2:B:326:MET:HE1	2:B:350:LEU:HD21	1.91	0.53
2:C:99:PRO:HB2	2:C:126:SER:O	2.08	0.53
1:A:122:LEU:HD23	1:A:243:LEU:HD11	1.90	0.53
2:B:320:MET:HG2	2:C:257:PHE:HE1	1.74	0.53
2:D:28:ILE:CD1	2:D:85:ALA:C	2.82	0.53
1:A:118:ARG:HA	1:A:241:HIS:CB	2.38	0.53
2:B:124:ARG:HH21	2:B:244:LEU:HB3	1.74	0.53
2:C:137:ILE:CA	2:C:195:ILE:O	2.55	0.53
2:D:46:MET:CG	2:D:53:ARG:NH1	2.72	0.53
3:G:120:TYR:CD1	3:G:151:LEU:HD23	2.43	0.53
1:A:419:ILE:HD12	2:F:37:LEU:HD13	1.91	0.52
2:B:60:LEU:CD1	2:B:93:ALA:HB3	2.38	0.52
2:B:130:ARG:HG3	2:B:290:GLU:H	1.67	0.52
2:C:49:GLN:CG	2:C:362:TYR:OH	2.53	0.52
2:D:130:ARG:CG	2:D:239:VAL:HG21	2.39	0.52
1:A:67:LEU:HD23	1:A:360:ILE:HG13	1.91	0.52
1:A:74:THR:O	1:A:366:TYR:OH	2.28	0.52
1:A:375:ILE:CG2	1:A:410:LEU:HD11	2.39	0.52
2:D:83:LYS:HG3	5:D:501:ADP:O1B	2.10	0.52
2:B:364:GLU:OE2	2:B:364:GLU:N	2.41	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:39:PRO:CD	2:C:54:ARG:CD	2.87	0.52
2:C:435:ASP:OD1	2:C:435:ASP:N	2.40	0.52
2:D:351:LEU:HD12	2:D:354:LEU:HD22	1.92	0.52
2:E:307:GLU:OE1	2:E:307:GLU:N	2.34	0.52
2:C:137:ILE:CA	2:C:196:ASP:HA	2.40	0.52
2:E:338:THR:HG23	2:F:336:ARG:NH1	2.24	0.52
2:F:392:ARG:HB2	2:F:392:ARG:CZ	2.40	0.52
1:A:113:MET:HE2	2:B:262:SER:O	2.09	0.52
2:B:257:PHE:CD1	2:B:257:PHE:C	2.85	0.52
2:C:34:ASP:HB3	2:C:40:ARG:NH2	2.25	0.52
2:D:136:GLU:HA	2:D:235:ARG:N	2.25	0.52
2:E:116:THR:HG22	2:F:111:LEU:CB	2.40	0.52
2:F:25:HIS:HB2	2:F:88:MET:HE2	1.92	0.52
3:G:120:TYR:HE1	3:G:151:LEU:CA	1.87	0.52
1:A:360:ILE:HG21	2:B:439:SER:HB2	1.90	0.51
2:F:33:LEU:CA	2:F:38:GLU:O	2.58	0.51
1:A:120:ILE:O	1:A:240:LEU:HB3	2.08	0.51
1:A:408:GLN:NE2	2:F:71:ARG:HE	2.09	0.51
2:C:117:GLU:CD	2:C:273:ARG:HH22	2.17	0.51
2:B:130:ARG:CG	2:B:290:GLU:HG3	2.32	0.51
2:C:362:TYR:CE2	5:C:501:ADP:N7	2.78	0.51
2:D:413:CYS:CB	2:D:425:ASP:OD1	2.58	0.51
2:F:115:LYS:HZ1	2:F:305:ASP:CG	2.18	0.51
1:A:275:LEU:HA	1:A:278:GLU:HG2	1.93	0.51
2:B:122:ALA:HB1	2:B:296:LEU:HD11	1.93	0.51
2:C:131:ILE:O	2:C:240:HIS:CE1	2.63	0.51
2:F:387:TYR:O	2:F:391:THR:HG23	2.11	0.51
1:A:120:ILE:O	1:A:240:LEU:N	2.40	0.51
1:A:122:LEU:HD13	1:A:294:LEU:HD12	1.92	0.51
2:F:362:TYR:OH	5:F:501:ADP:N7	2.31	0.51
1:A:242:ASP:HA	1:A:245:VAL:HG12	1.93	0.51
1:A:411:THR:HG22	2:F:62:MET:HE2	1.92	0.51
2:B:60:LEU:HD11	2:B:93:ALA:HB3	1.93	0.51
2:D:46:MET:CB	2:D:53:ARG:NH1	2.73	0.51
1:A:371:MET:HG3	1:A:403:LEU:HD13	1.92	0.50
2:C:27:HIS:CD2	2:C:374:ARG:CD	2.94	0.50
2:C:283:TRP:HZ2	4:I:58:LEU:HA	1.67	0.50
2:C:305:ASP:OD1	2:C:308:SER:OG	2.23	0.50
2:F:49:GLN:HE22	2:F:360:THR:N	2.06	0.50
1:A:394:LEU:CD1	1:A:410:LEU:HD23	2.41	0.50
1:A:412:PRO:HB2	1:A:433:ILE:HG21	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:130:ARG:CG	2:C:239:VAL:HB	2.40	0.50
2:B:124:ARG:NH2	2:B:244:LEU:HB3	2.26	0.50
2:C:60:LEU:CD2	2:C:93:ALA:CB	2.88	0.50
2:C:99:PRO:HB2	2:C:294:GLY:HA3	1.93	0.50
2:D:46:MET:HB3	2:D:53:ARG:NH1	2.26	0.50
2:E:363:SER:O	2:E:366:ASP:N	2.45	0.50
2:C:258:LEU:HD12	2:C:258:LEU:C	2.35	0.50
2:C:283:TRP:CH2	4:I:58:LEU:CA	2.91	0.50
2:E:246:GLU:O	2:E:250:ILE:HG23	2.12	0.50
2:D:40:ARG:N	2:D:40:ARG:CD	2.73	0.50
2:D:291:ILE:H	2:D:291:ILE:HD12	1.77	0.50
2:D:306:ILE:HD11	2:E:106:SER:HB2	1.94	0.50
2:B:319:ASP:N	2:B:319:ASP:OD1	2.44	0.50
2:C:116:THR:HG22	2:D:111:LEU:HD13	1.92	0.50
1:A:9:THR:CG2	1:A:118:ARG:NH1	2.75	0.50
2:D:388:THR:HA	2:D:391:THR:HG22	1.94	0.50
1:A:43:GLU:O	1:A:47:GLU:HG3	2.12	0.49
1:A:343:ASP:N	1:A:343:ASP:OD1	2.45	0.49
2:B:396:GLU:OE2	2:B:396:GLU:HA	2.12	0.49
2:C:28:ILE:HD11	2:C:85:ALA:CB	2.40	0.49
2:C:39:PRO:CG	2:C:54:ARG:NH2	2.71	0.49
2:C:44:GLN:OE1	2:C:44:GLN:HA	2.12	0.49
2:F:38:GLU:CD	2:F:39:PRO:CD	2.85	0.49
1:A:240:LEU:HD21	2:B:258:LEU:CD2	2.42	0.49
1:A:402:THR:HG22	1:A:405:TYR:CB	2.40	0.49
1:A:415:LEU:O	1:A:419:ILE:HG23	2.12	0.49
1:A:24:LEU:O	1:A:46:ARG:NH1	2.45	0.49
1:A:419:ILE:HD12	2:F:37:LEU:CG	2.42	0.49
2:B:290:GLU:O	2:B:291:ILE:HD13	2.13	0.49
2:C:306:ILE:HD11	2:D:106:SER:HB2	1.95	0.49
2:D:68:ILE:HG13	2:D:68:ILE:O	2.12	0.49
2:D:321:ALA:HA	2:E:261:PHE:HZ	1.77	0.49
1:A:371:MET:CG	1:A:403:LEU:HD13	2.43	0.49
2:B:244:LEU:CD1	2:C:258:LEU:HD21	2.43	0.49
2:D:67:LYS:CD	2:E:407:THR:HG21	2.42	0.49
2:D:123:PHE:HB3	2:E:261:PHE:CD2	2.46	0.49
2:D:382:MET:HB3	2:D:386:ALA:HB1	1.95	0.49
2:B:100:PHE:CD1	2:B:100:PHE:C	2.89	0.49
2:C:25:HIS:HD2	5:C:501:ADP:H2'	1.77	0.49
2:D:251:ASN:HD21	2:D:275:GLN:HE21	1.61	0.49
2:F:65:GLU:OE1	2:F:67:LYS:CG	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:190:SER:O	3:G:193:GLY:N	2.46	0.49
2:E:250:ILE:HD12	4:K:60:ALA:HB2	1.94	0.49
2:F:37:LEU:O	2:F:54:ARG:NH1	2.46	0.49
1:A:1:MET:N	1:A:247:ASN:HD22	2.04	0.49
2:B:82:GLY:O	2:B:86:ILE:HD12	2.13	0.49
2:D:256:GLY:C	2:D:258:LEU:H	2.20	0.49
2:F:37:LEU:N	2:F:37:LEU:CD1	2.75	0.49
5:A:501:ADP:O1A	5:A:501:ADP:H4'	2.12	0.49
2:E:78:GLN:O	2:E:81:THR:OG1	2.25	0.49
1:A:85:GLN:OE1	1:A:85:GLN:HA	2.11	0.48
1:A:394:LEU:HD13	1:A:410:LEU:CD2	2.43	0.48
2:C:129:VAL:CG2	2:C:291:ILE:HG13	2.43	0.48
2:C:27:HIS:HD2	2:C:374:ARG:HD2	1.78	0.48
2:B:124:ARG:NH1	2:B:273:ARG:CD	2.76	0.48
2:C:19:ILE:CG1	2:C:102:ALA:HB3	2.43	0.48
2:C:241:THR:O	2:C:241:THR:OG1	2.22	0.48
2:E:378:GLU:O	2:E:380:VAL:HG23	2.13	0.48
1:A:74:THR:H	5:A:501:ADP:PB	2.36	0.48
1:A:77:THR:HG22	1:A:300:PHE:CE2	2.48	0.48
2:B:284:ARG:NH1	2:B:320:MET:HE3	2.29	0.48
1:A:45:ALA:HB1	1:A:79:LEU:HD13	1.95	0.48
2:B:63:ILE:HG12	2:B:68:ILE:HG21	1.95	0.48
1:A:81:LEU:HD13	1:A:93:PHE:CE2	2.49	0.48
1:A:394:LEU:CD2	1:A:394:LEU:C	2.85	0.48
2:E:47:VAL:HB	2:E:370:ILE:CG2	2.44	0.48
1:A:419:ILE:HD12	2:F:37:LEU:HB2	1.95	0.48
2:B:130:ARG:HE	2:B:290:GLU:CD	2.22	0.48
2:D:400:ARG:NE	5:D:501:ADP:O2A	2.47	0.48
1:A:3:ILE:HG12	1:A:286:TYR:OH	2.13	0.48
2:C:115:LYS:NZ	2:C:305:ASP:OD2	2.43	0.48
2:F:130:ARG:HB2	2:F:292:ILE:HD13	1.96	0.48
2:B:74:LEU:HB2	2:B:354:LEU:HD23	1.96	0.48
2:B:251:ASN:N	2:B:251:ASN:HD22	2.11	0.48
2:D:25:HIS:HE1	5:D:501:ADP:H5'1	1.79	0.48
2:F:25:HIS:CD2	5:F:501:ADP:O2'	2.67	0.48
1:A:317:ARG:CZ	2:B:260:LEU:CD2	2.92	0.48
2:B:414:ARG:HB2	2:B:414:ARG:CZ	2.44	0.48
2:E:371:LEU:HD13	2:E:390:LEU:HG	1.96	0.48
2:F:370:ILE:CD1	5:F:501:ADP:C5	2.96	0.48
1:A:18:HIS:O	1:A:18:HIS:CG	2.66	0.47
2:F:31:LEU:O	2:F:53:ARG:NH1	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:350:LEU:O	2:F:354:LEU:HD13	2.13	0.47
2:B:305:ASP:O	2:B:309:PHE:CE2	2.64	0.47
2:C:409:ALA:HA	2:C:429:VAL:HG21	1.96	0.47
2:D:81:THR:N	5:D:501:ADP:O2B	2.41	0.47
2:D:82:GLY:N	5:D:501:ADP:O3A	2.45	0.47
1:A:81:LEU:CD1	1:A:93:PHE:CD2	2.98	0.47
1:A:398:GLY:HA3	1:A:406:SER:HB3	1.95	0.47
2:D:67:LYS:CE	2:E:407:THR:HG21	2.40	0.47
2:C:25:HIS:NE2	5:C:501:ADP:H5'2	2.30	0.47
2:C:47:VAL:N	5:C:501:ADP:HN62	2.13	0.47
2:D:283:TRP:CH2	4:J:58:LEU:HA	2.49	0.47
2:E:116:THR:CG2	2:F:111:LEU:CB	2.82	0.47
2:F:25:HIS:HD2	5:F:501:ADP:O2'	1.96	0.47
1:A:297:GLY:H	1:A:325:PRO:HB3	1.79	0.47
2:D:374:ARG:HE	2:D:374:ARG:HA	1.80	0.47
2:E:425:ASP:OD1	2:E:425:ASP:N	2.48	0.47
2:B:245:HIS:ND1	2:B:245:HIS:C	2.73	0.47
2:C:67:LYS:CD	2:D:407:THR:CG2	2.87	0.47
2:D:260:LEU:HD12	2:D:260:LEU:H	1.80	0.47
2:D:382:MET:CG	2:D:421:VAL:HB	2.42	0.47
2:F:27:HIS:CE1	2:F:28:ILE:HD11	2.49	0.47
2:F:38:GLU:CG	2:F:39:PRO:CD	2.90	0.47
3:G:148:LEU:HD13	3:G:191:CYS:SG	2.54	0.47
2:E:292:ILE:O	2:E:292:ILE:HG13	2.14	0.47
1:A:69:ALA:HB1	2:B:443:MET:HE3	1.95	0.47
2:B:314:ARG:NH1	2:B:314:ARG:CB	2.73	0.47
2:F:8:THR:HA	2:F:251:ASN:HD21	1.79	0.47
2:F:305:ASP:HA	2:F:336:ARG:HB2	1.97	0.47
2:D:256:GLY:C	2:D:258:LEU:N	2.70	0.47
3:G:120:TYR:CE1	3:G:151:LEU:CA	2.69	0.47
2:E:116:THR:HG22	2:F:111:LEU:HB3	1.90	0.46
2:F:252:SER:OG	2:F:253:ARG:N	2.48	0.46
1:A:92:PRO:HB3	1:A:239:THR:HG22	1.96	0.46
2:B:316:LEU:HD23	2:B:353:ARG:HH21	1.80	0.46
2:C:47:VAL:H	5:C:501:ADP:N6	2.13	0.46
2:C:127:ILE:HB	2:C:244:LEU:CD1	2.39	0.46
1:A:362:ARG:CD	1:A:364:MET:HE2	2.45	0.46
2:D:26:SER:HB3	2:D:374:ARG:HH22	1.80	0.46
2:D:130:ARG:CD	2:D:239:VAL:HG21	2.45	0.46
3:G:123:LEU:HD22	3:G:147:LEU:CD1	2.45	0.46
2:D:338:THR:HG22	2:E:336:ARG:NH1	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:393:HIS:ND1	1:A:393:HIS:C	2.73	0.46
1:A:450:GLN:OE1	2:F:78:GLN:NE2	2.24	0.46
2:C:99:PRO:O	2:C:294:GLY:HA3	2.15	0.46
2:C:132:LYS:CB	2:C:239:VAL:HG13	2.45	0.46
2:C:374:ARG:HE	2:C:403:ILE:CD1	2.29	0.46
3:G:120:TYR:CE1	3:G:151:LEU:CD2	2.98	0.46
3:G:121:GLN:O	3:G:125:GLN:N	2.38	0.46
1:A:244:ASP:OD1	1:A:279:ILE:CB	2.62	0.46
1:A:353:ASP:OD1	1:A:354:LEU:N	2.48	0.46
2:C:297:PHE:CZ	2:C:327:ALA:HB2	2.51	0.46
2:C:363:SER:O	2:C:367:THR:OG1	2.31	0.46
2:B:60:LEU:HD22	2:B:93:ALA:CB	2.36	0.46
2:B:257:PHE:CD1	2:B:257:PHE:O	2.69	0.46
2:C:39:PRO:CD	2:C:54:ARG:CZ	2.90	0.46
1:A:394:LEU:HD23	1:A:394:LEU:O	2.16	0.45
1:A:411:THR:HB	1:A:412:PRO:HD3	1.98	0.45
2:C:298:ILE:O	2:C:301:VAL:HG23	2.17	0.45
2:C:370:ILE:CD1	5:C:501:ADP:N3	2.79	0.45
2:F:25:HIS:CD2	5:F:501:ADP:C2'	2.99	0.45
3:G:141:PHE:HB2	3:G:143:LEU:HD21	1.97	0.45
1:A:418:LYS:HE2	1:A:418:LYS:HB2	1.78	0.45
2:D:41:GLN:O	2:D:47:VAL:HA	2.16	0.45
2:D:335:ILE:HG23	2:D:338:THR:OG1	2.16	0.45
2:D:49:GLN:NE2	2:D:362:TYR:CE1	2.84	0.45
2:D:124:ARG:HD2	2:E:261:PHE:O	2.16	0.45
2:E:47:VAL:CB	2:E:370:ILE:CG2	2.94	0.45
2:F:8:THR:HG23	2:F:251:ASN:HD21	1.82	0.45
2:F:334:ARG:HA	2:F:341:GLN:HA	1.98	0.45
1:A:109:THR:HB	2:B:111:LEU:HD21	1.99	0.45
2:B:100:PHE:O	2:B:100:PHE:CG	2.70	0.45
1:A:3:ILE:CD1	1:A:286:TYR:OH	2.64	0.45
1:A:426:GLU:H	1:A:429:HIS:HD2	1.64	0.45
2:C:382:MET:HE2	2:C:382:MET:HB3	1.83	0.45
2:D:81:THR:O	2:D:362:TYR:OH	2.34	0.45
2:E:299:ASP:OD1	2:E:300:GLU:N	2.50	0.45
2:D:81:THR:OG1	5:D:501:ADP:O2B	2.34	0.45
3:G:195:PHE:CZ	3:G:241:VAL:HB	2.52	0.45
2:C:24:ALA:O	2:C:374:ARG:NH1	2.50	0.45
2:E:360:THR:HG22	2:E:361:PRO:HD2	1.99	0.45
2:F:364:GLU:O	2:F:366:ASP:N	2.50	0.45
3:G:148:LEU:HD13	3:G:191:CYS:CB	2.47	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:60:LEU:HD21	2:C:93:ALA:CB	2.41	0.44
2:C:397:THR:OG1	2:C:398:SER:N	2.50	0.44
2:E:424:ASP:O	2:E:428:ARG:HB2	2.17	0.44
2:F:367:THR:O	2:F:370:ILE:HG22	2.17	0.44
4:J:3:VAL:CB	4:J:147:ARG:C	2.90	0.44
2:D:70:GLY:O	2:D:353:ARG:HD2	2.17	0.44
1:A:108:LYS:NZ	1:A:308:ASP:OD2	2.50	0.44
1:A:275:LEU:C	1:A:278:GLU:HG2	2.42	0.44
1:A:276:ARG:O	1:A:280:ASN:ND2	2.39	0.44
2:B:129:VAL:CG2	2:B:242:VAL:HG23	2.48	0.44
2:D:67:LYS:HE2	2:E:407:THR:HG21	1.99	0.44
2:E:60:LEU:HD21	2:E:90:MET:HA	2.00	0.44
2:F:269:LYS:O	2:F:272:VAL:HG12	2.18	0.44
1:A:123:ARG:O	1:A:123:ARG:CG	2.58	0.44
1:A:317:ARG:CZ	2:B:260:LEU:HD21	2.47	0.44
2:B:50:LEU:HD23	2:B:50:LEU:HA	1.54	0.44
2:B:338:THR:HG22	2:B:340:TYR:H	1.82	0.44
2:C:99:PRO:O	2:C:295:VAL:N	2.48	0.44
2:C:127:ILE:CB	2:C:244:LEU:CD1	2.89	0.44
2:E:390:LEU:HD21	2:E:406:ILE:CD1	2.48	0.44
3:G:114:PRO:C	3:G:116:GLY:N	2.74	0.44
3:G:134:LEU:HD12	3:G:134:LEU:HA	1.80	0.44
1:A:408:GLN:HG2	1:A:408:GLN:O	2.17	0.44
2:C:50:LEU:O	2:C:54:ARG:HG3	2.18	0.44
2:E:90:MET:HE2	2:E:90:MET:HB3	1.92	0.44
2:E:283:TRP:O	2:E:285:GLU:N	2.51	0.44
2:F:130:ARG:HD2	2:F:239:VAL:CG2	2.48	0.44
2:F:370:ILE:HD12	5:F:501:ADP:C2	2.51	0.44
1:A:52:ILE:O	1:A:56:ILE:HG12	2.18	0.44
2:E:269:LYS:HB2	2:E:272:VAL:HG12	2.00	0.44
2:B:92:GLN:HA	2:B:92:GLN:OE1	2.17	0.43
2:F:247:ILE:HA	2:F:250:ILE:HG22	2.00	0.43
2:B:250:ILE:CG2	4:H:60:ALA:HB2	2.47	0.43
2:E:328:THR:HG22	2:E:330:ARG:H	1.83	0.43
1:A:9:THR:HG21	1:A:118:ARG:NH1	2.34	0.43
2:C:40:ARG:HE	2:C:43:SER:HB2	1.83	0.43
2:D:82:GLY:HA2	5:D:501:ADP:C5'	2.48	0.43
2:E:408:ALA:HB1	2:E:433:PHE:HE2	1.83	0.43
2:E:74:LEU:HB2	2:E:354:LEU:HD13	1.99	0.43
2:F:131:ILE:O	2:F:240:HIS:N	2.43	0.43
2:E:405:LEU:HD13	2:E:429:VAL:HG12	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:176:PHE:CE2	3:G:180:LEU:HD11	2.53	0.43
2:D:127:ILE:HD11	2:E:261:PHE:CD2	2.54	0.43
2:D:246:GLU:O	2:D:250:ILE:HG23	2.19	0.43
3:G:163:VAL:HA	3:G:166:ILE:HG12	2.00	0.43
1:A:9:THR:CG2	1:A:118:ARG:HH11	2.32	0.43
1:A:61:MET:O	1:A:61:MET:HG3	2.19	0.43
2:B:131:ILE:HD11	2:B:242:VAL:HG21	2.01	0.43
2:C:34:ASP:N	2:C:34:ASP:OD1	2.51	0.43
2:D:31:LEU:O	2:D:53:ARG:CZ	2.64	0.43
2:B:124:ARG:HH11	2:B:273:ARG:HD3	1.79	0.43
2:C:101:THR:HG22	2:C:103:ILE:HG23	2.00	0.43
1:A:412:PRO:HB2	1:A:433:ILE:HD12	2.01	0.42
2:C:33:LEU:HD11	2:C:57:GLY:HA3	2.01	0.42
2:C:132:LYS:HA	2:C:239:VAL:HA	2.01	0.42
2:D:314:ARG:HH12	2:E:113:MET:CE	2.31	0.42
2:F:25:HIS:CD2	5:F:501:ADP:C3'	3.03	0.42
2:F:27:HIS:CE1	2:F:28:ILE:CD1	3.02	0.42
1:A:444:ALA:HB2	2:F:343:PRO:HB3	2.01	0.42
2:B:125:ARG:HA	2:B:243:SER:HB3	2.00	0.42
2:C:60:LEU:HD22	2:C:93:ALA:HB1	1.98	0.42
2:D:371:LEU:HD13	2:D:390:LEU:HB3	2.01	0.42
2:E:416:ARG:C	2:E:418:GLY:H	2.28	0.42
1:A:74:THR:O	1:A:74:THR:HG22	2.18	0.42
2:D:338:THR:HG22	2:E:336:ARG:HH12	1.84	0.42
2:F:31:LEU:HD23	2:F:31:LEU:HA	1.87	0.42
2:E:78:GLN:OE1	2:E:78:GLN:HA	2.19	0.42
1:A:411:THR:HG22	2:F:62:MET:CE	2.49	0.42
2:C:77:GLY:O	2:C:83:LYS:NZ	2.49	0.42
2:C:371:LEU:HD23	2:C:371:LEU:HA	1.78	0.42
2:F:33:LEU:CB	2:F:38:GLU:O	2.67	0.42
2:C:127:ILE:HG21	2:C:244:LEU:HD12	1.90	0.42
2:E:138:ILE:HA	2:E:232:LEU:O	2.19	0.42
2:F:427:LYS:HA	2:F:427:LYS:HD3	1.71	0.42
2:C:61:GLU:HB3	2:D:411:LEU:HD12	2.02	0.42
2:C:99:PRO:HD2	2:C:293:PRO:O	2.19	0.42
2:D:25:HIS:CD2	2:D:85:ALA:N	2.88	0.42
2:F:27:HIS:HE1	5:F:501:ADP:C2	2.38	0.42
1:A:121:GLY:HA2	1:A:239:THR:HA	2.02	0.42
1:A:416:LEU:HD22	1:A:433:ILE:HG12	2.01	0.42
2:C:316:LEU:O	2:C:316:LEU:HD23	2.20	0.42
2:E:84:THR:O	2:E:88:MET:HG3	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:9:THR:O	1:A:9:THR:HG22	2.20	0.41
2:C:24:ALA:HA	2:C:374:ARG:CZ	2.47	0.41
2:C:27:HIS:HD2	2:C:374:ARG:HD3	1.79	0.41
2:E:258:LEU:O	2:E:262:SER:HB3	2.20	0.41
2:F:291:ILE:HG21	2:F:320:MET:HE2	2.01	0.41
1:A:238:VAL:O	1:A:238:VAL:CG2	2.66	0.41
2:D:320:MET:HE2	2:D:320:MET:HB3	1.75	0.41
2:D:372:ARG:HD3	2:D:387:TYR:OH	2.20	0.41
1:A:235:ILE:HD12	1:A:235:ILE:HA	1.93	0.41
1:A:405:TYR:CE1	1:A:439:ASP:HB3	2.55	0.41
2:B:275:GLN:O	2:B:279:LYS:HG3	2.20	0.41
2:C:250:ILE:O	2:C:250:ILE:CG1	2.67	0.41
2:C:428:ARG:NH1	2:C:428:ARG:HB2	2.35	0.41
2:E:124:ARG:HH21	2:E:248:ASP:CG	2.27	0.41
2:F:409:ALA:HA	2:F:429:VAL:HG21	2.00	0.41
2:B:129:VAL:HG12	2:B:291:ILE:HD13	1.97	0.41
2:B:131:ILE:HG12	2:B:240:HIS:O	2.20	0.41
2:D:385:ASP:CB	2:D:423:VAL:CG2	2.98	0.41
3:G:236:LEU:HD12	3:G:237:GLU:N	2.35	0.41
2:C:299:ASP:OD2	2:C:300:GLU:N	2.47	0.41
2:D:269:LYS:HE2	2:D:269:LYS:HB2	1.79	0.41
2:E:116:THR:CG2	2:F:111:LEU:HD13	2.50	0.41
2:E:282:GLU:O	2:E:283:TRP:C	2.57	0.41
2:E:316:LEU:HD12	2:E:316:LEU:HA	1.85	0.41
2:F:38:GLU:OE1	2:F:38:GLU:HA	2.20	0.41
2:D:41:GLN:NE2	2:D:366:ASP:OD1	2.43	0.41
2:D:80:GLY:N	5:D:501:ADP:PB	2.92	0.41
2:D:382:MET:HB3	2:D:386:ALA:CB	2.50	0.41
2:E:129:VAL:O	2:E:241:THR:HA	2.21	0.41
2:F:37:LEU:HD12	2:F:37:LEU:H	1.84	0.41
1:A:367:THR:OG1	1:A:370:GLU:HG2	2.20	0.41
2:C:47:VAL:H	5:C:501:ADP:HN62	1.67	0.41
3:G:130:ARG:HA	3:G:133:CYS:SG	2.60	0.41
2:D:385:ASP:HB3	2:D:423:VAL:HG21	2.02	0.41
2:E:94:LEU:HA	2:E:94:LEU:HD23	1.86	0.41
2:E:242:VAL:HG11	2:E:247:ILE:CD1	2.46	0.41
2:F:134:GLU:HA	2:F:237:GLU:HA	2.02	0.41
1:A:451:GLN:HG3	2:F:78:GLN:HE22	1.86	0.41
2:C:41:GLN:HA	2:C:41:GLN:OE1	2.20	0.41
2:C:44:GLN:C	2:C:46:MET:H	2.28	0.41
2:D:28:ILE:HD12	2:D:85:ALA:CA	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:46:MET:HG2	2:D:53:ARG:CZ	2.51	0.41
2:E:390:LEU:C	2:E:393:ILE:HG22	2.44	0.41
2:F:86:ILE:O	2:F:90:MET:HG3	2.21	0.41
2:F:131:ILE:O	2:F:239:VAL:HA	2.20	0.41
2:F:279:LYS:HD2	2:F:279:LYS:HA	1.74	0.41
3:G:152:ALA:CB	3:G:190:SER:CB	2.81	0.41
1:A:29:SER:C	2:B:415:LYS:HE3	2.46	0.41
1:A:419:ILE:HD12	2:F:37:LEU:CD1	2.51	0.41
2:B:74:LEU:HD23	2:B:356:ILE:HG12	2.03	0.41
2:C:74:LEU:HD22	2:C:356:ILE:HD12	2.02	0.41
2:C:336:ARG:HE	2:C:336:ARG:HB3	1.65	0.41
2:D:47:VAL:O	5:D:501:ADP:N6	2.54	0.41
1:A:56:ILE:HD12	1:A:326:ILE:HG21	2.03	0.40
1:A:404:ARG:HH21	5:A:501:ADP:PA	2.44	0.40
2:C:60:LEU:HD22	2:C:93:ALA:CB	2.51	0.40
2:C:405:LEU:HD12	2:C:405:LEU:HA	1.83	0.40
2:F:121:GLN:OE1	2:F:245:HIS:NE2	2.55	0.40
2:B:130:ARG:CB	2:B:289:ALA:HA	2.47	0.40
2:C:128:GLY:CA	2:C:243:SER:HA	2.51	0.40
2:D:25:HIS:CE1	5:D:501:ADP:H5'1	2.56	0.40
2:D:272:VAL:O	2:D:275:GLN:HG2	2.22	0.40
1:A:306:MET:HE2	1:A:306:MET:HB2	1.87	0.40
2:B:243:SER:HB2	2:B:246:GLU:CB	2.49	0.40
2:D:368:LYS:HE3	2:D:387:TYR:CB	2.51	0.40
1:A:419:ILE:HG21	2:F:61:GLU:OE1	2.21	0.40
2:E:374:ARG:O	2:E:374:ARG:HG3	2.19	0.40
2:E:427:LYS:HD2	2:E:427:LYS:HA	1.84	0.40
1:A:320:GLU:OE1	1:A:320:GLU:CA	2.68	0.40
2:B:74:LEU:HD12	2:B:326:MET:HB2	2.03	0.40
2:D:42:ALA:HA	2:D:47:VAL:HA	2.03	0.40
2:D:105:GLY:N	2:D:299:ASP:O	2.54	0.40
2:D:368:LYS:HG3	2:D:387:TYR:HB3	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	316/456 (69%)	304 (96%)	12 (4%)	0	100	100
2	B	404/463 (87%)	388 (96%)	16 (4%)	0	100	100
2	C	401/463 (87%)	380 (95%)	21 (5%)	0	100	100
2	D	397/463 (86%)	386 (97%)	11 (3%)	0	100	100
2	E	382/463 (82%)	371 (97%)	11 (3%)	0	100	100
2	F	413/463 (89%)	394 (95%)	19 (5%)	0	100	100
3	G	102/245 (42%)	96 (94%)	6 (6%)	0	100	100
4	H	180/205 (88%)	179 (99%)	1 (1%)	0	100	100
4	I	176/205 (86%)	175 (99%)	1 (1%)	0	100	100
4	J	190/205 (93%)	186 (98%)	4 (2%)	0	100	100
4	K	175/205 (85%)	174 (99%)	1 (1%)	0	100	100
4	L	178/205 (87%)	177 (99%)	1 (1%)	0	100	100
All	All	3314/4041 (82%)	3210 (97%)	104 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	254/387 (66%)	245 (96%)	9 (4%)	32	56
2	B	237/390 (61%)	224 (94%)	13 (6%)	19	46
2	C	236/390 (60%)	225 (95%)	11 (5%)	23	50
2	D	236/390 (60%)	228 (97%)	8 (3%)	32	58
2	E	221/390 (57%)	210 (95%)	11 (5%)	22	48
2	F	253/390 (65%)	245 (97%)	8 (3%)	34	59

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	G	55/202 (27%)	55 (100%)	0	100	100
All	All	1492/2539 (59%)	1432 (96%)	60 (4%)	29	53

All (60) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	THR
1	A	21	VAL
1	A	24	LEU
1	A	106	ILE
1	A	234	ILE
1	A	235	ILE
1	A	238	VAL
1	A	320	GLU
1	A	338	ILE
2	B	46	MET
2	B	50	LEU
2	B	90	MET
2	B	108	ILE
2	B	120	THR
2	B	249	VAL
2	B	276	ILE
2	B	282	GLU
2	B	295	VAL
2	B	301	VAL
2	B	397	THR
2	B	405	LEU
2	B	427	LYS
2	C	47	VAL
2	C	116	THR
2	C	247	ILE
2	C	258	LEU
2	C	285	GLU
2	C	292	ILE
2	C	301	VAL
2	C	366	ASP
2	C	393	ILE
2	C	405	LEU
2	C	406	ILE
2	D	31	LEU
2	D	47	VAL
2	D	97	ASP

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Mol	Chain	Res	Type
2	D	273	ARG
2	D	291	ILE
2	D	303	MET
2	D	335	ILE
2	D	395	LEU
2	E	81	THR
2	E	291	ILE
2	E	324	LEU
2	E	342	SER
2	E	375	CYS
2	E	397	THR
2	E	422	GLN
2	E	429	VAL
2	E	431	SER
2	E	440	THR
2	E	443	MET
2	F	13	ILE
2	F	131	ILE
2	F	247	ILE
2	F	249	VAL
2	F	371	LEU
2	F	389	VAL
2	F	391	THR
2	F	393	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (28) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	18	HIS
1	A	20	HIS
1	A	236	GLN
1	A	247	ASN
1	A	316	HIS
1	A	373	GLN
1	A	392	ASN
1	A	408	GLN
1	A	429	HIS
2	B	251	ASN
2	B	277	ASN
2	C	27	HIS
2	C	245	HIS
2	C	251	ASN

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Mol	Chain	Res	Type
2	C	422	GLN
2	D	49	GLN
2	D	275	GLN
2	E	121	GLN
2	E	344	HIS
2	F	25	HIS
2	F	27	HIS
2	F	41	GLN
2	F	49	GLN
2	F	240	HIS
2	F	251	ASN
2	F	313	ASN
2	F	404	GLN
3	G	179	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](#)

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	ADP	A	501	-	27,29,29	0.67	0	42,45,45	1.13	2 (4%)
5	ADP	D	501	-	27,29,29	0.55	0	42,45,45	0.97	2 (4%)
5	ADP	F	501	-	27,29,29	0.41	0	42,45,45	0.61	0
5	ADP	C	501	-	27,29,29	0.58	0	42,45,45	1.10	1 (2%)

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
5	ADP	A	501	-	-	2/16/32/32	0/3/3/3
5	ADP	D	501	-	-	2/16/32/32	0/3/3/3
5	ADP	F	501	-	-	0/16/32/32	0/3/3/3
5	ADP	C	501	-	-	6/16/32/32	0/3/3/3

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	501	ADP	PA-O3A-PB	-5.33	114.52	132.83
5	C	501	ADP	PA-O3A-PB	-5.00	115.67	132.83
5	D	501	ADP	PA-O3A-PB	-3.05	122.36	132.83
5	D	501	ADP	C2'-C3'-C4'	-2.46	97.86	102.64
5	A	501	ADP	C2'-C3'-C4'	-2.06	98.65	102.64

There are no chirality outliers.

All (10) torsion outliers are listed below:

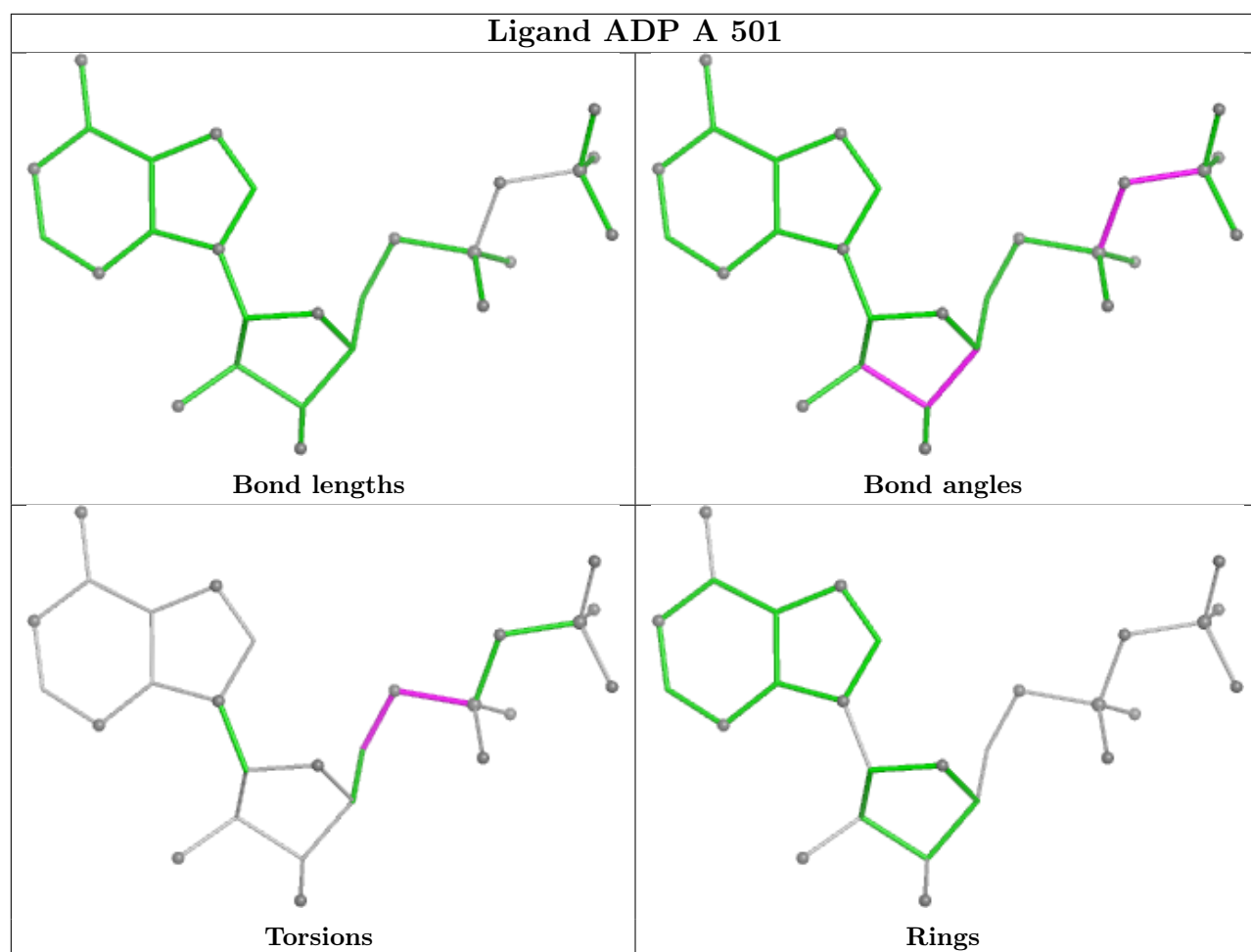
Mol	Chain	Res	Type	Atoms
5	C	501	ADP	C5'-O5'-PA-O2A
5	C	501	ADP	C5'-O5'-PA-O3A
5	D	501	ADP	C5'-O5'-PA-O2A
5	D	501	ADP	C5'-O5'-PA-O3A
5	A	501	ADP	C4'-C5'-O5'-PA
5	C	501	ADP	C4'-C5'-O5'-PA
5	C	501	ADP	C2'-C1'-N9-C8
5	C	501	ADP	C2'-C1'-N9-C4
5	C	501	ADP	C3'-C4'-C5'-O5'
5	A	501	ADP	C5'-O5'-PA-O1A

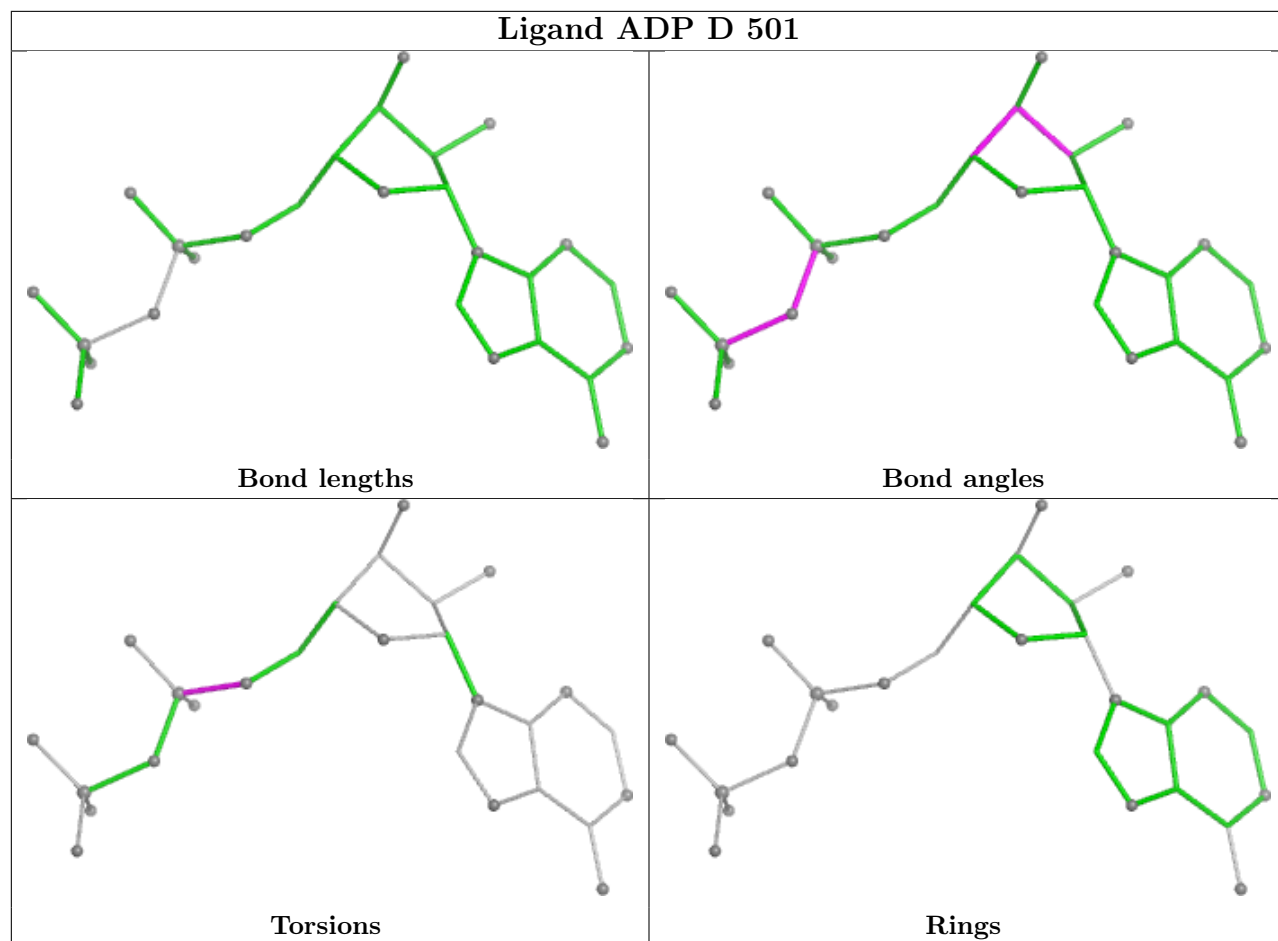
There are no ring outliers.

4 monomers are involved in 79 short contacts:

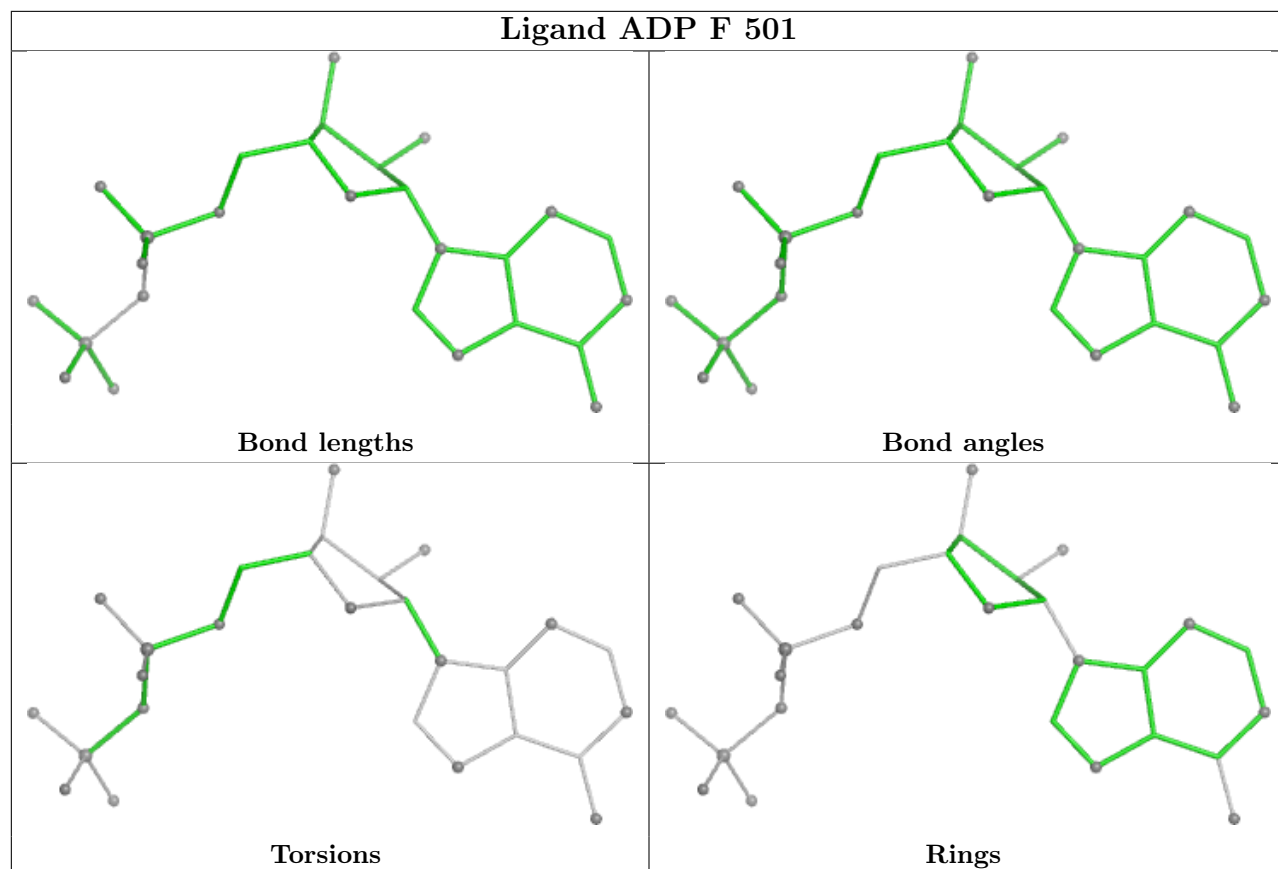
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	501	ADP	5	0
5	D	501	ADP	28	0
5	F	501	ADP	20	0
5	C	501	ADP	26	0

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.

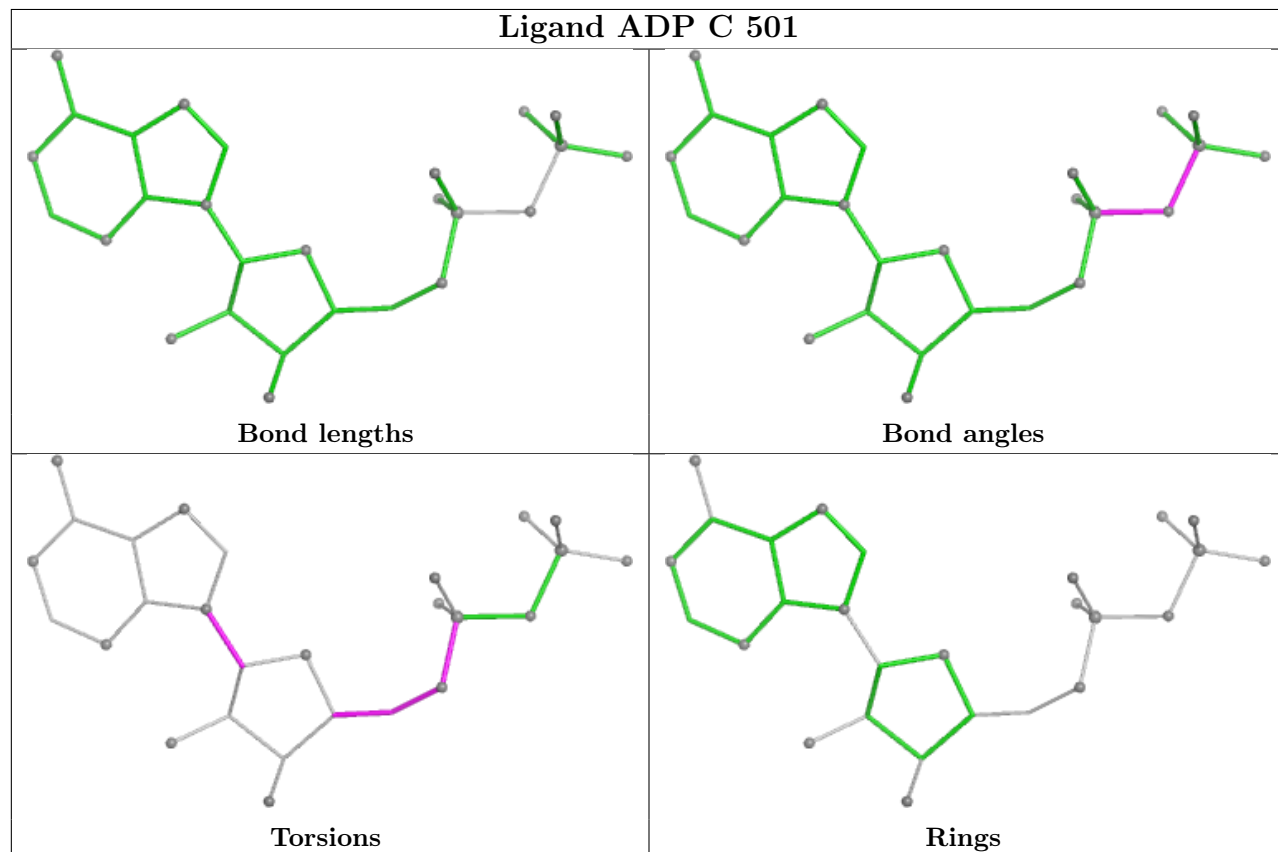




Ligand ADP F 501



Ligand ADP C 501



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.

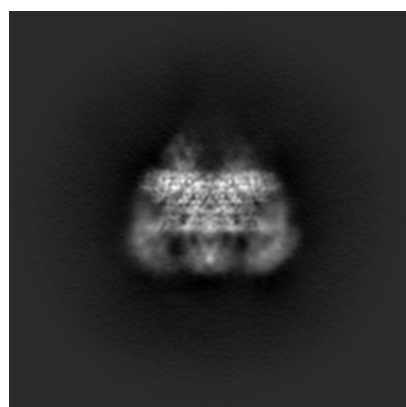
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-57241. These allow visual inspection of the internal detail of the map and identification of artifacts.

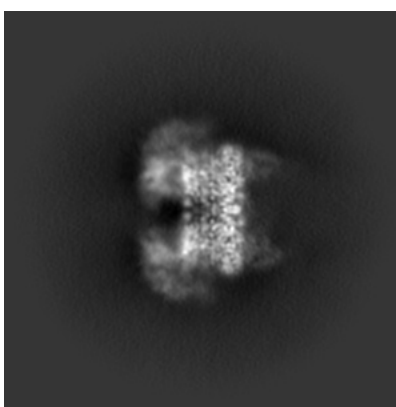
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

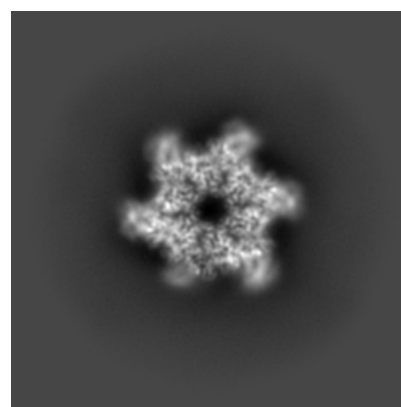
6.1.1 Primary map



X



Y

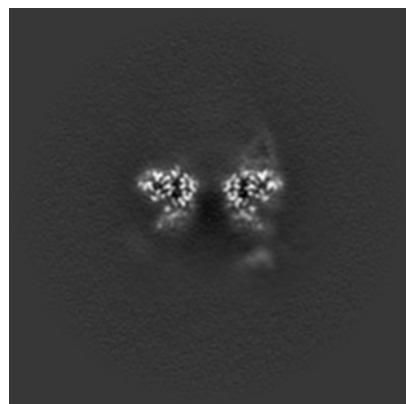


Z

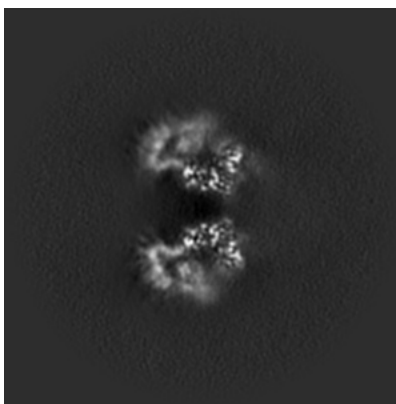
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

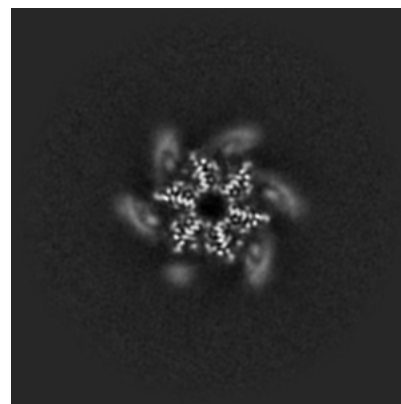
6.2.1 Primary map



X Index: 115



Y Index: 115

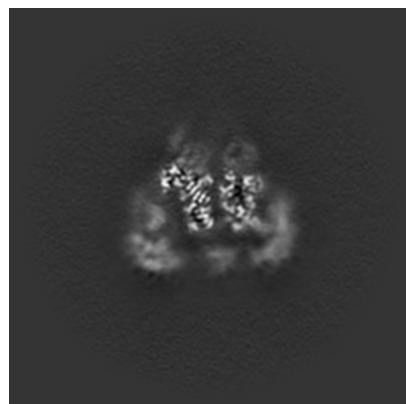


Z Index: 115

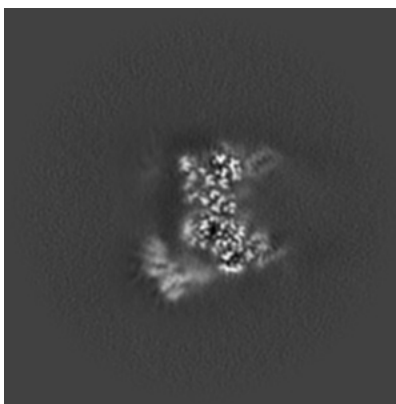
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

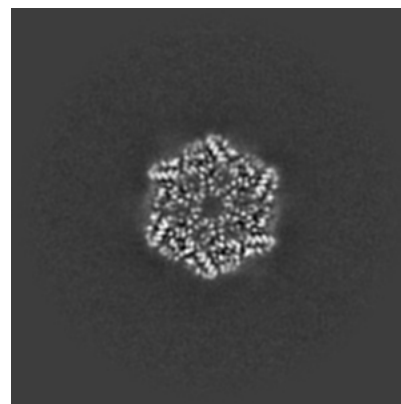
6.3.1 Primary map



X Index: 136



Y Index: 103

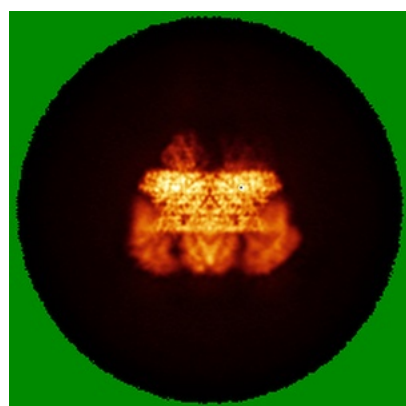


Z Index: 128

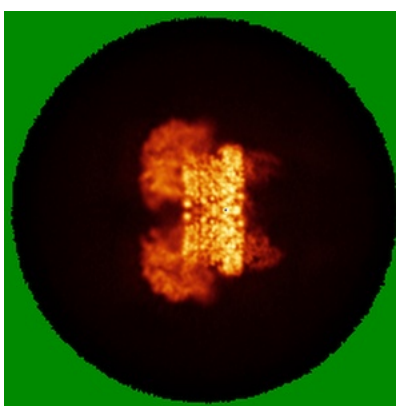
The images above show the largest variance slices of the map in three orthogonal directions.

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

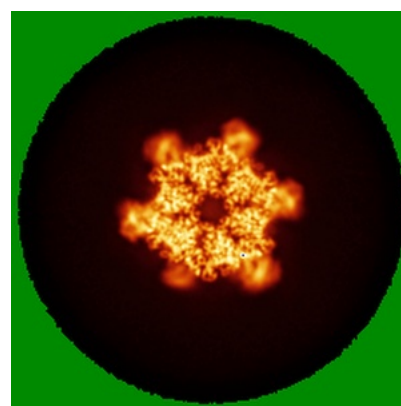
6.4.1 Primary map



X



Y

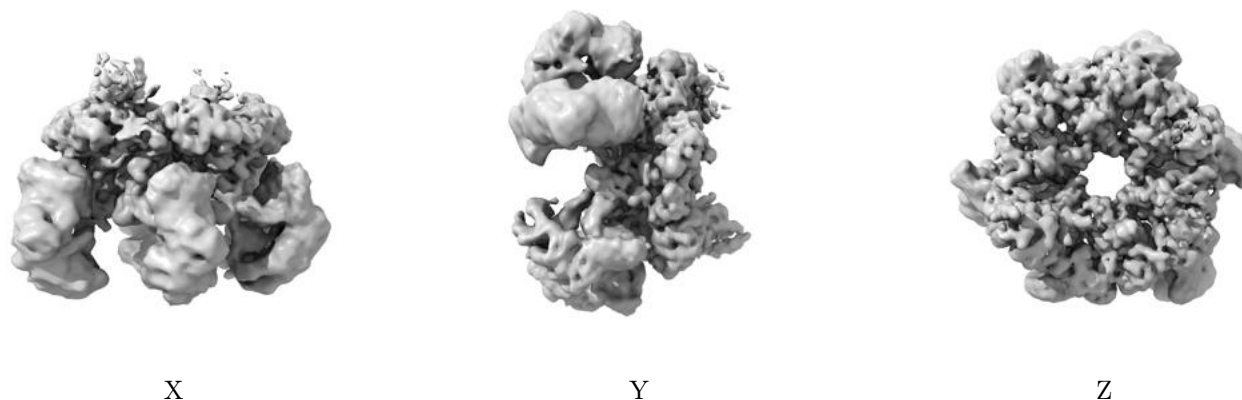


Z

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 5.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

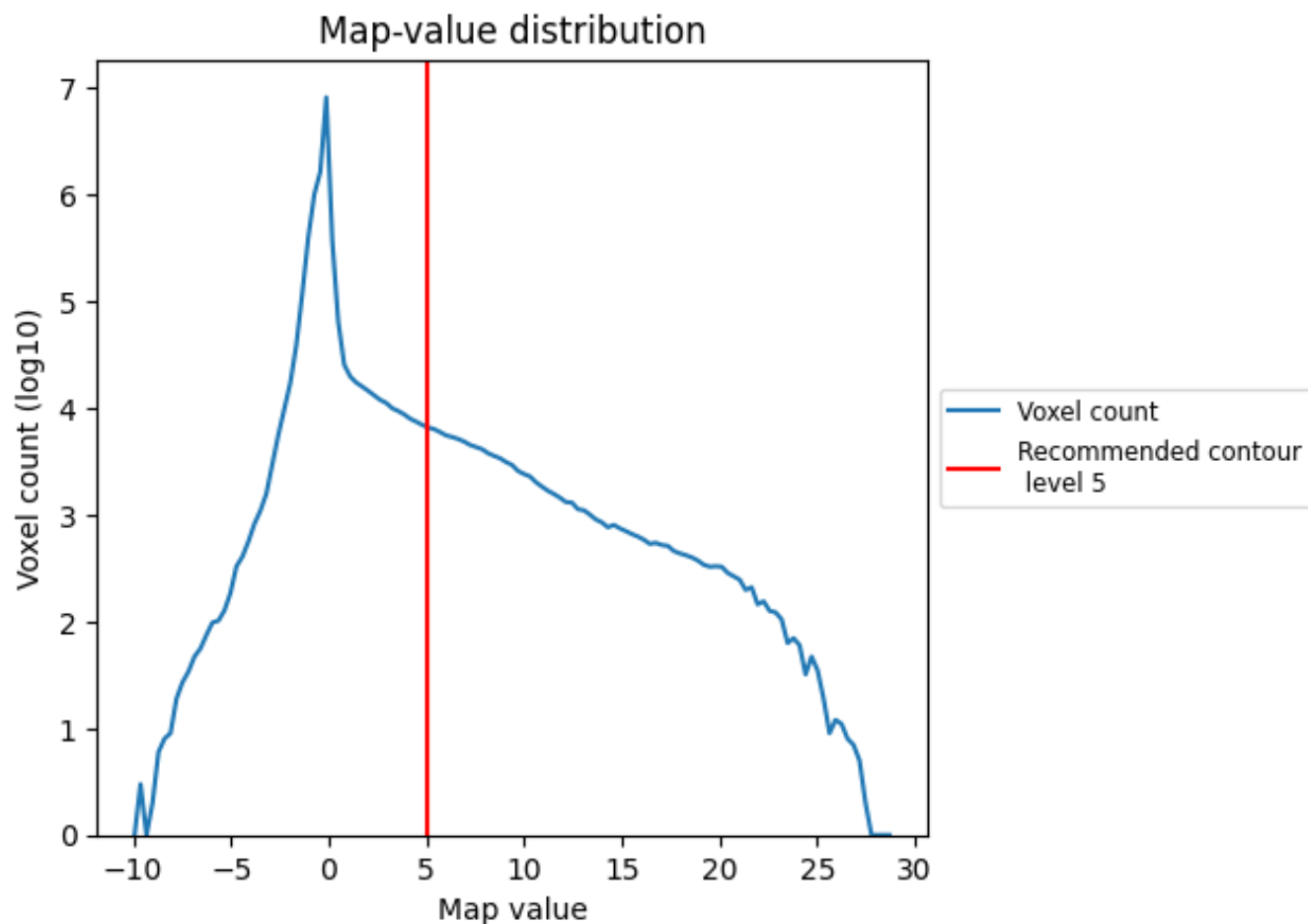
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

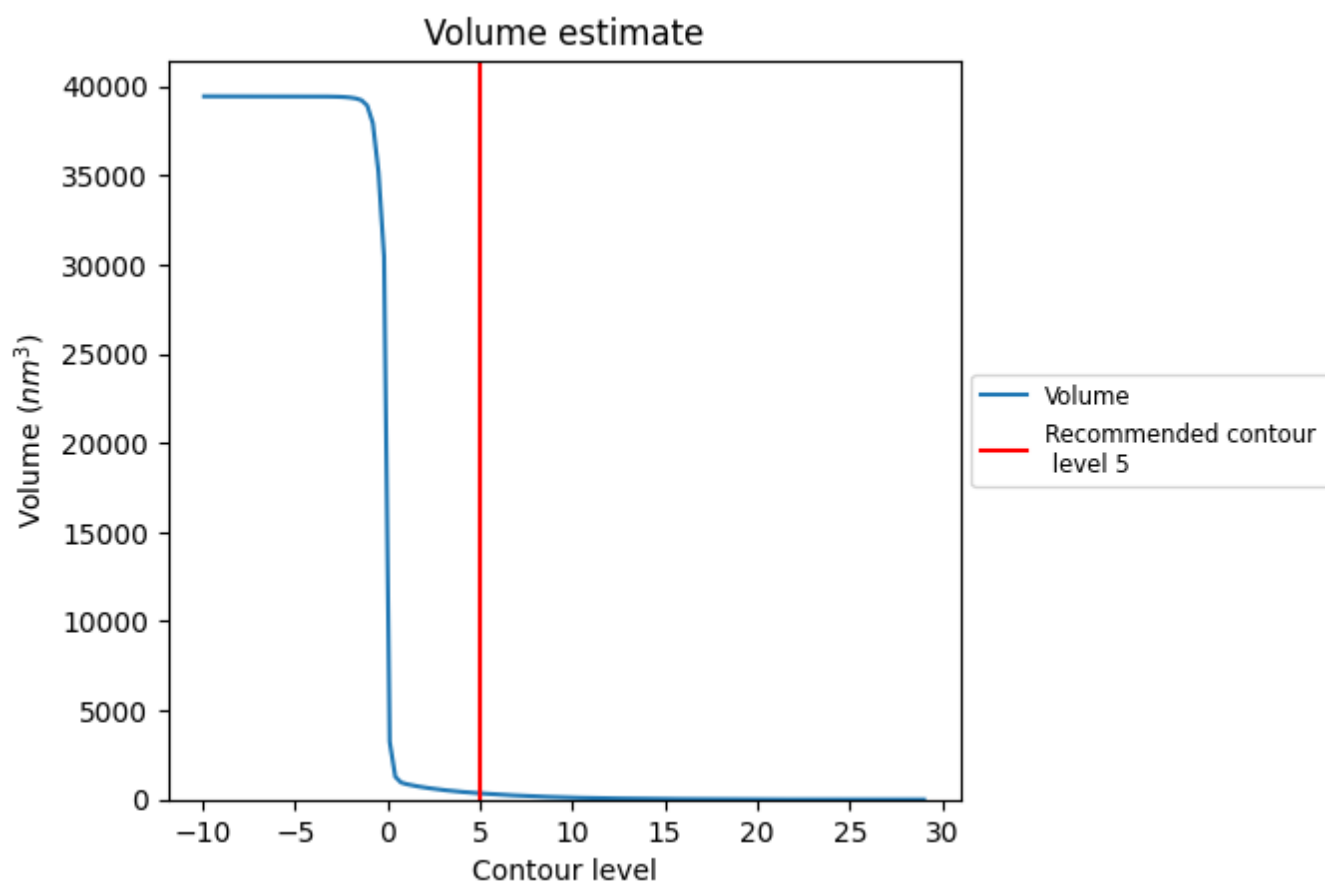
This section contains the results of statistical analysis of the map.

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.

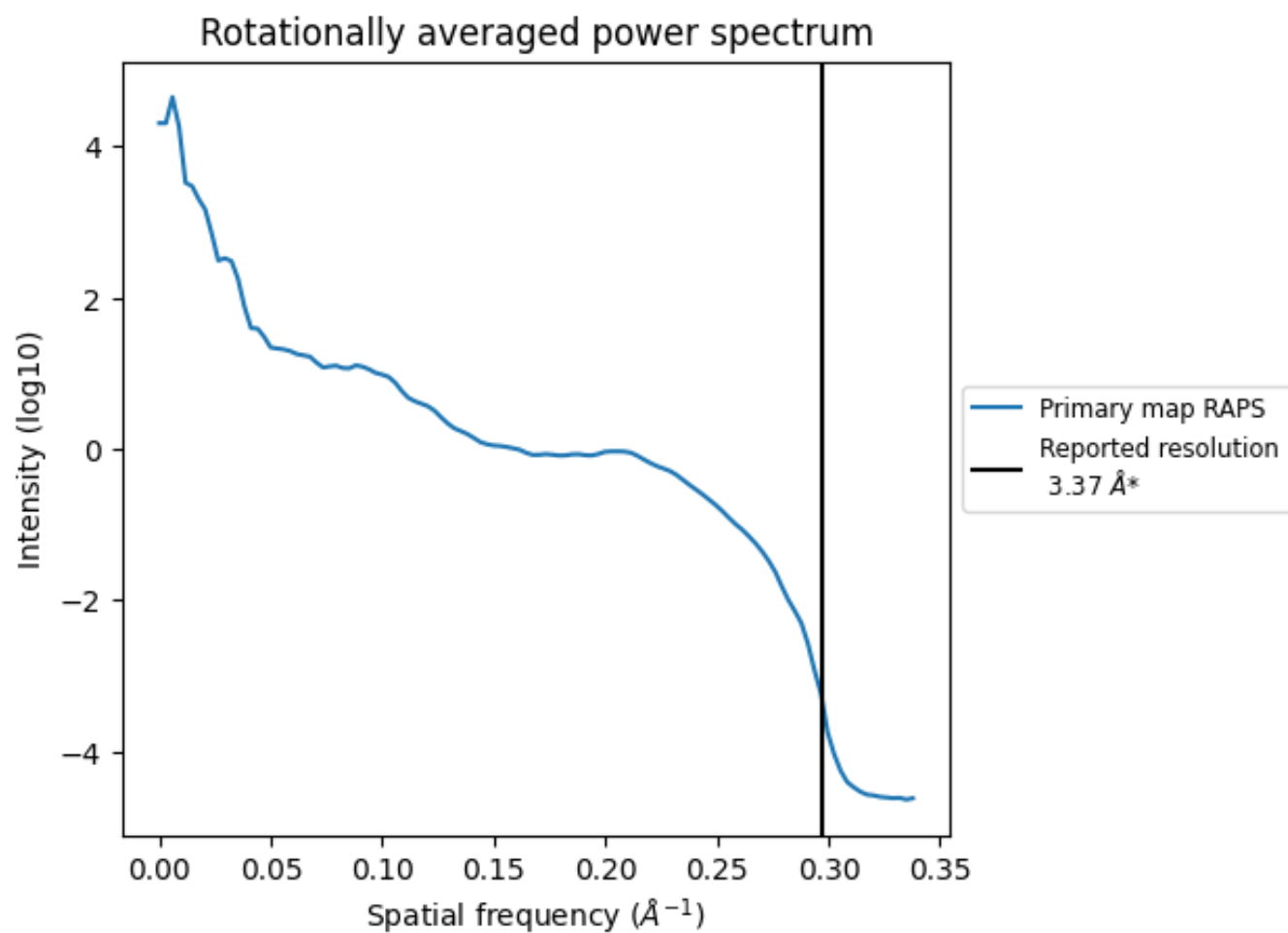
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 350 nm^3 ; this corresponds to an approximate mass of 316 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 0.297 Å⁻¹

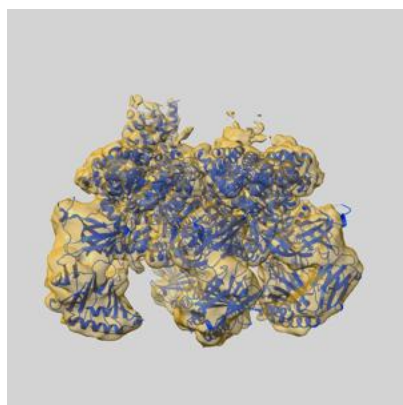
8 Fourier-Shell correlation ⓘ

This section was not generated. No FSC curve or half-maps provided.

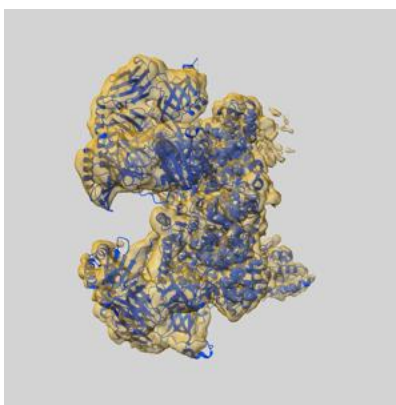
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-57241 and PDB model 29KN. Per-residue inclusion information can be found in section 3 on page 7.

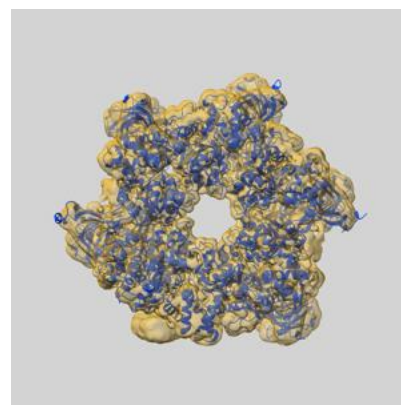
9.1 Map-model overlay [i](#)



X



Y



Z

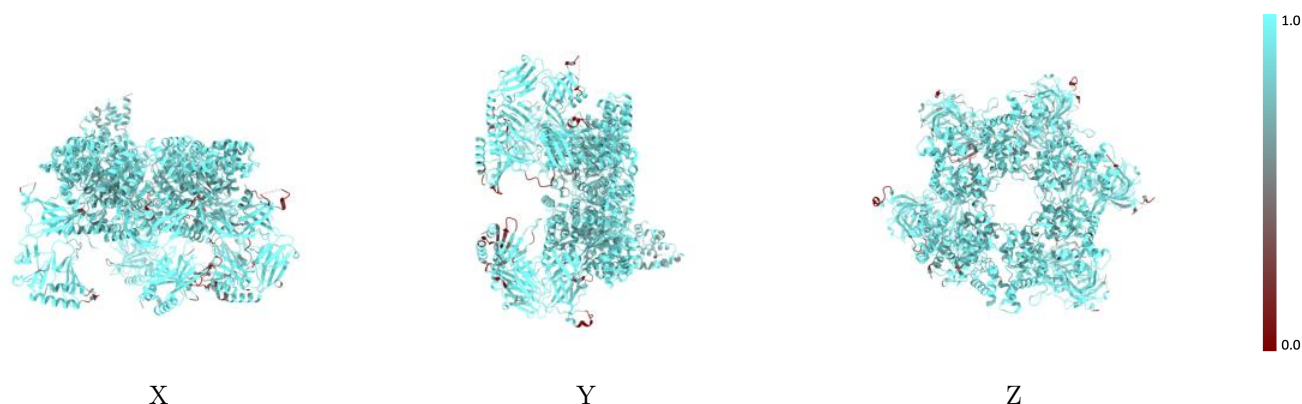
The images above show the 3D surface view of the map at the recommended contour level 5.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



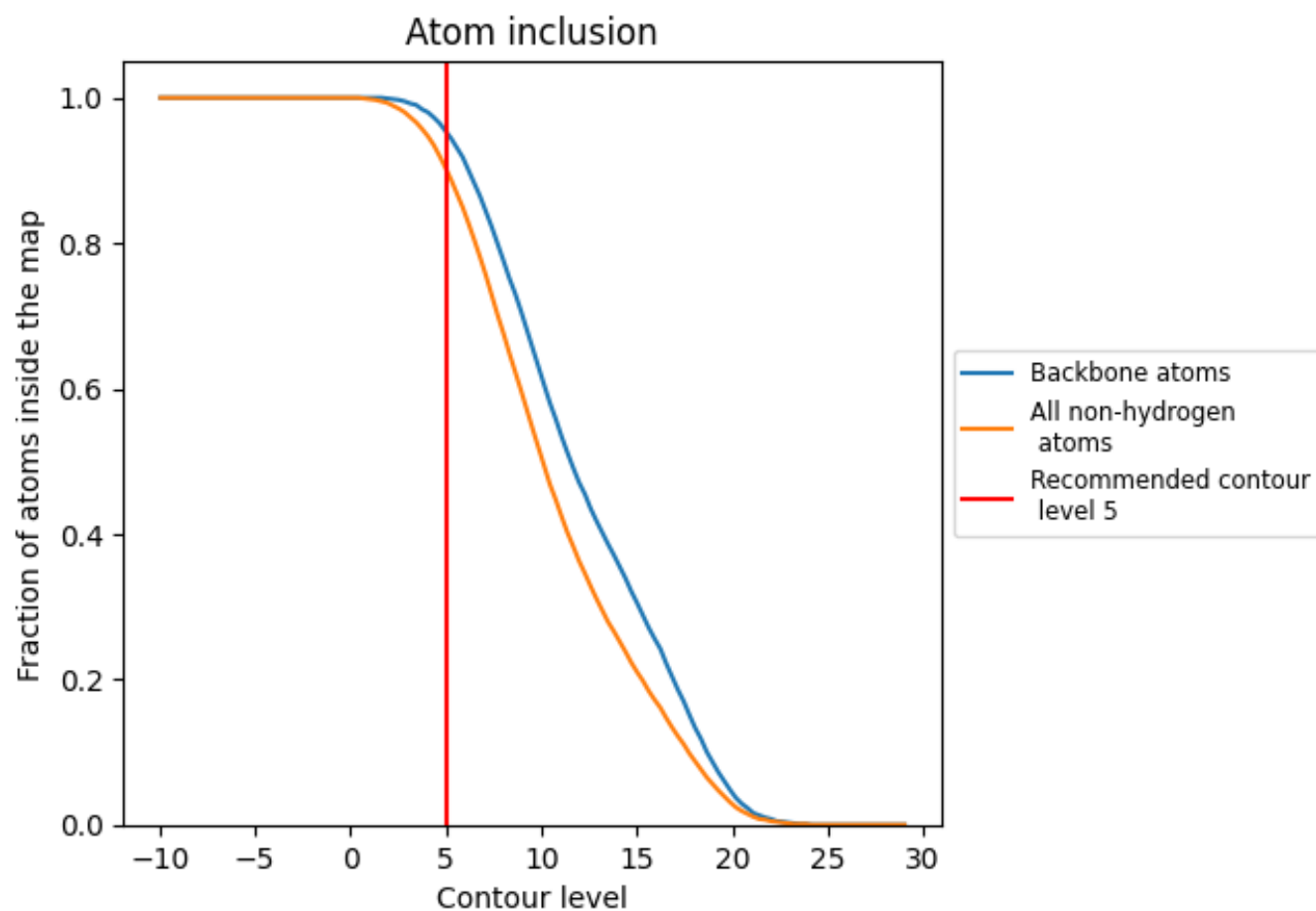
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



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 (5).

9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 90% 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 (5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9030	0.3600
A	0.9120	0.4260
B	0.9070	0.3910
C	0.9100	0.3800
D	0.8940	0.3780
E	0.9190	0.3970
F	0.9330	0.4080
G	0.8090	0.3540
H	0.9750	0.2950
I	0.7300	0.1640
J	0.8380	0.2010
K	0.9360	0.2630
L	0.9360	0.2340

1.0

0.0

<0.0