Full wwPDB EM Validation Report ⓘ

Apr 14, 2025 – 04:15 pm BST

PDB ID	:	9GA4 / pdb_00009ga4
EMDB ID	:	EMD-51173
Title	:	MtUvrA2UvrB2 bound to damaged oligonucleotide
Authors	:	Genta, M.; Capelli, R.; Ferrara, G.; Rizzi, M.; Rossi, F.; Jeruzalmi, D.; Bolognesi, M.; Chaves-Sanjuan, A.; Miggiano, R.
Deposited on	:	2024-07-26
Resolution	:	3.70 Å(reported)

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

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

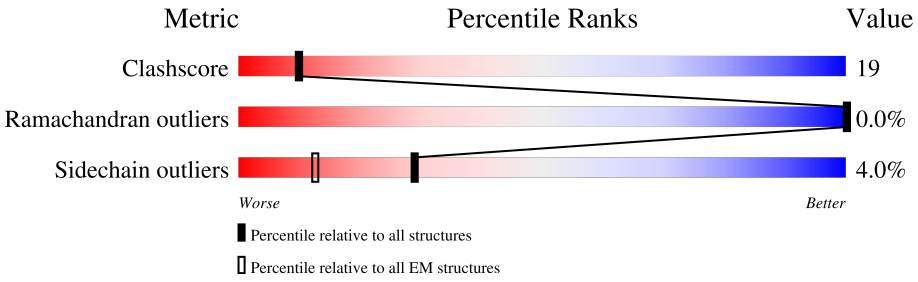
EMDB validation analysis	:	0.0.1.dev117
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	: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

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.70 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 >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	993	19% 56% 34% · 8%
1	B	993	15% 55% 35% · 8%
2	C	720	33% 51% 29% · 18%
2	D	720	24% 50% 30% · 18%
3	E	42	19% 40% 48% 12%
3	F	42	10% 52% 36% 12%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 24900 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 UvrABC system protein A.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	912	Total	C	N	O	S	0	0
			7031	4403	1270	1338	20		
1	B	913	Total	C	N	O	S	0	0
			7035	4408	1269	1338	20		

There are 42 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-20	MET	-	initiating methionine	UNP P9WQK7
A	-19	GLY	-	expression tag	UNP P9WQK7
A	-18	HIS	-	expression tag	UNP P9WQK7
A	-17	HIS	-	expression tag	UNP P9WQK7
A	-16	HIS	-	expression tag	UNP P9WQK7
A	-15	HIS	-	expression tag	UNP P9WQK7
A	-14	HIS	-	expression tag	UNP P9WQK7
A	-13	HIS	-	expression tag	UNP P9WQK7
A	-12	HIS	-	expression tag	UNP P9WQK7
A	-11	HIS	-	expression tag	UNP P9WQK7
A	-10	HIS	-	expression tag	UNP P9WQK7
A	-9	HIS	-	expression tag	UNP P9WQK7
A	-8	SER	-	expression tag	UNP P9WQK7
A	-7	SER	-	expression tag	UNP P9WQK7
A	-6	GLY	-	expression tag	UNP P9WQK7
A	-5	HIS	-	expression tag	UNP P9WQK7
A	-4	ILE	-	expression tag	UNP P9WQK7
A	-3	GLU	-	expression tag	UNP P9WQK7
A	-2	GLY	-	expression tag	UNP P9WQK7
A	-1	ARG	-	expression tag	UNP P9WQK7
A	0	HIS	-	expression tag	UNP P9WQK7
B	-20	MET	-	initiating methionine	UNP P9WQK7
B	-19	GLY	-	expression tag	UNP P9WQK7
B	-18	HIS	-	expression tag	UNP P9WQK7
B	-17	HIS	-	expression tag	UNP P9WQK7
B	-16	HIS	-	expression tag	UNP P9WQK7

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-15	HIS	-	expression tag	UNP P9WQK7
B	-14	HIS	-	expression tag	UNP P9WQK7
B	-13	HIS	-	expression tag	UNP P9WQK7
B	-12	HIS	-	expression tag	UNP P9WQK7
B	-11	HIS	-	expression tag	UNP P9WQK7
B	-10	HIS	-	expression tag	UNP P9WQK7
B	-9	HIS	-	expression tag	UNP P9WQK7
B	-8	SER	-	expression tag	UNP P9WQK7
B	-7	SER	-	expression tag	UNP P9WQK7
B	-6	GLY	-	expression tag	UNP P9WQK7
B	-5	HIS	-	expression tag	UNP P9WQK7
B	-4	ILE	-	expression tag	UNP P9WQK7
B	-3	GLU	-	expression tag	UNP P9WQK7
B	-2	GLY	-	expression tag	UNP P9WQK7
B	-1	ARG	-	expression tag	UNP P9WQK7
B	0	HIS	-	expression tag	UNP P9WQK7

- Molecule 2 is a protein called UvrABC system protein B.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	589	Total	C	N	O	S	0	0
			4660	2920	821	904	15		
2	D	591	Total	C	N	O	S	0	0
			4675	2930	823	906	16		

There are 44 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-22	MET	-	initiating methionine	UNP P9WFC7
C	-21	GLY	-	expression tag	UNP P9WFC7
C	-20	HIS	-	expression tag	UNP P9WFC7
C	-19	HIS	-	expression tag	UNP P9WFC7
C	-18	HIS	-	expression tag	UNP P9WFC7
C	-17	HIS	-	expression tag	UNP P9WFC7
C	-16	HIS	-	expression tag	UNP P9WFC7
C	-15	HIS	-	expression tag	UNP P9WFC7
C	-14	HIS	-	expression tag	UNP P9WFC7
C	-13	HIS	-	expression tag	UNP P9WFC7
C	-12	HIS	-	expression tag	UNP P9WFC7
C	-11	HIS	-	expression tag	UNP P9WFC7
C	-10	SER	-	expression tag	UNP P9WFC7
C	-9	SER	-	expression tag	UNP P9WFC7

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-8	GLY	-	expression tag	UNP P9WFC7
C	-7	HIS	-	expression tag	UNP P9WFC7
C	-6	ILE	-	expression tag	UNP P9WFC7
C	-5	GLU	-	expression tag	UNP P9WFC7
C	-4	GLY	-	expression tag	UNP P9WFC7
C	-3	ARG	-	expression tag	UNP P9WFC7
C	-2	HIS	-	expression tag	UNP P9WFC7
C	-1	MET	-	expression tag	UNP P9WFC7
D	-20	MET	-	initiating methionine	UNP P9WFC7
D	-19	GLY	-	expression tag	UNP P9WFC7
D	-18	HIS	-	expression tag	UNP P9WFC7
D	-17	HIS	-	expression tag	UNP P9WFC7
D	-16	HIS	-	expression tag	UNP P9WFC7
D	-15	HIS	-	expression tag	UNP P9WFC7
D	-14	HIS	-	expression tag	UNP P9WFC7
D	-13	HIS	-	expression tag	UNP P9WFC7
D	-12	HIS	-	expression tag	UNP P9WFC7
D	-11	HIS	-	expression tag	UNP P9WFC7
D	-10	HIS	-	expression tag	UNP P9WFC7
D	-9	HIS	-	expression tag	UNP P9WFC7
D	-8	SER	-	expression tag	UNP P9WFC7
D	-7	SER	-	expression tag	UNP P9WFC7
D	-6	GLY	-	expression tag	UNP P9WFC7
D	-5	HIS	-	expression tag	UNP P9WFC7
D	-4	ILE	-	expression tag	UNP P9WFC7
D	-3	GLU	-	expression tag	UNP P9WFC7
D	-2	GLY	-	expression tag	UNP P9WFC7
D	-1	ARG	-	expression tag	UNP P9WFC7
D	0	HIS	-	expression tag	UNP P9WFC7
D	1	MET	-	expression tag	UNP P9WFC7

- Molecule 3 is a DNA chain called DNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	E	37	Total	C	N	O	P	0	0
			747	357	131	222	37		
3	F	37	Total	C	N	O	P	0	0
			748	357	134	220	37		

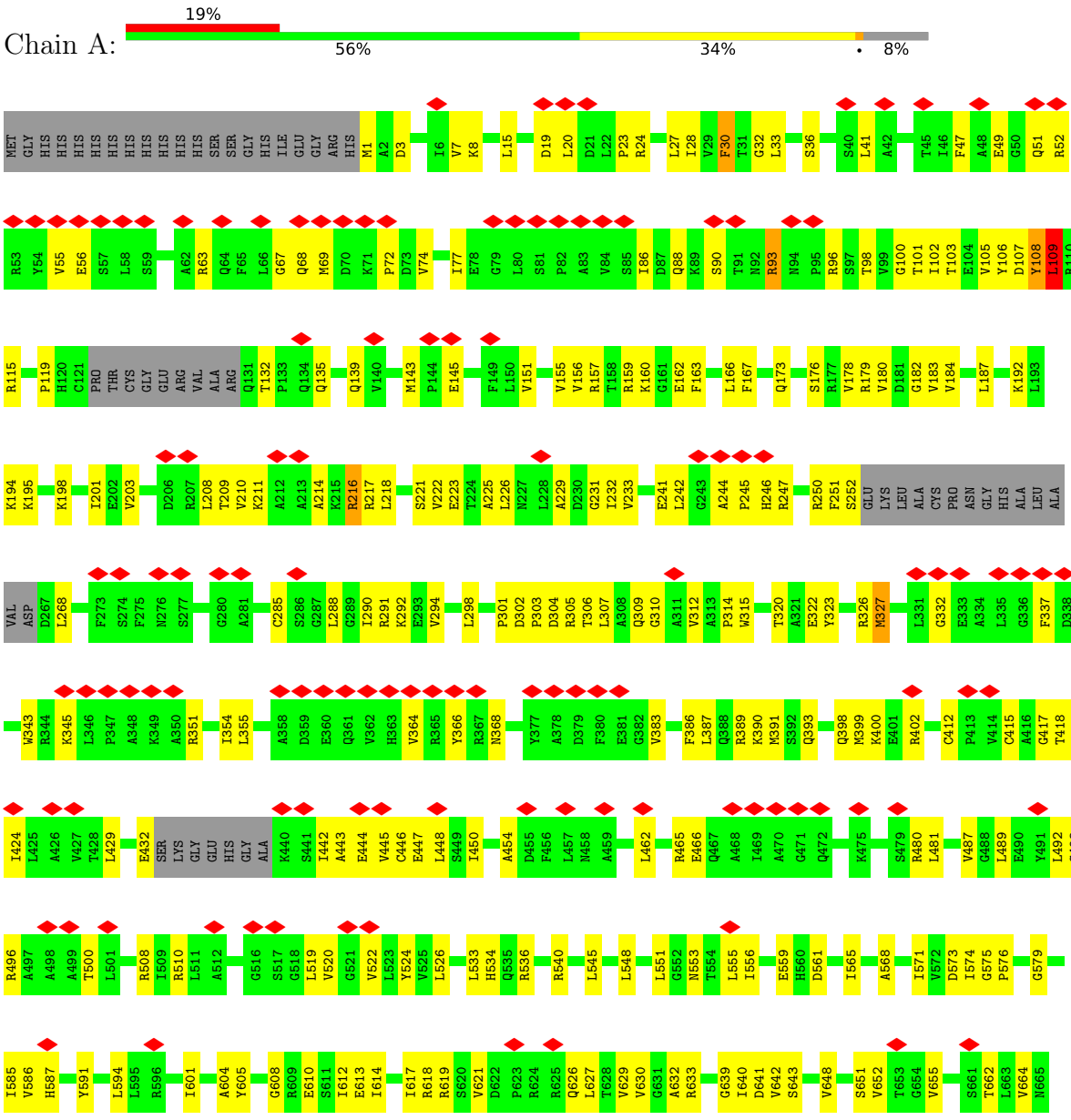
- Molecule 4 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

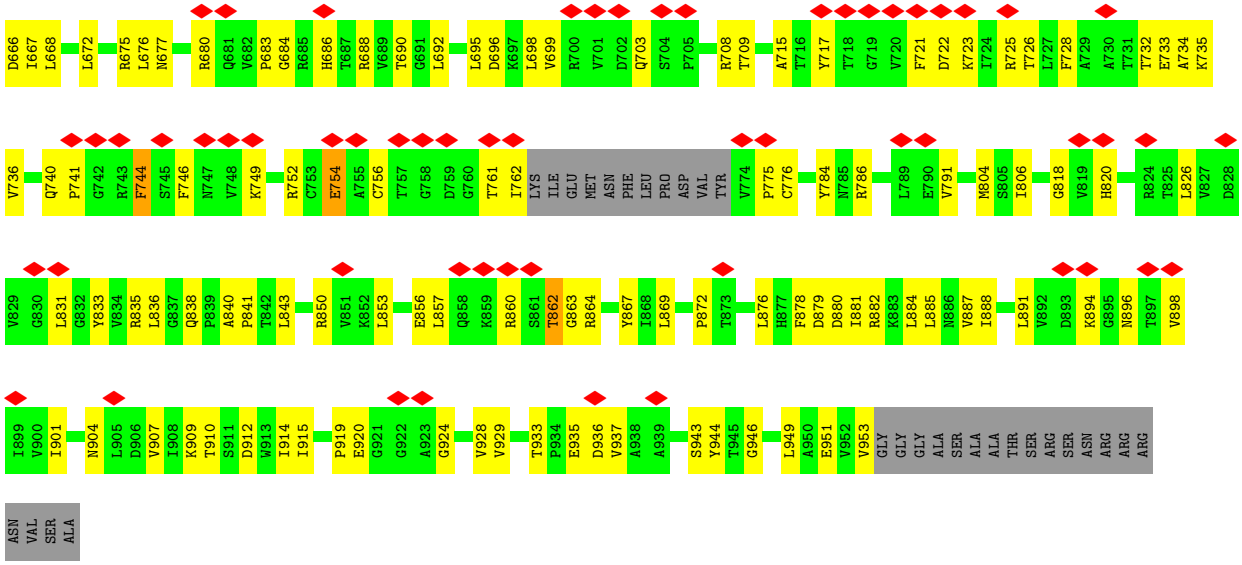
Mol	Chain	Residues	Atoms	AltConf
4	A	2	Total Zn 2 2	0
4	B	2	Total Zn 2 2	0

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.

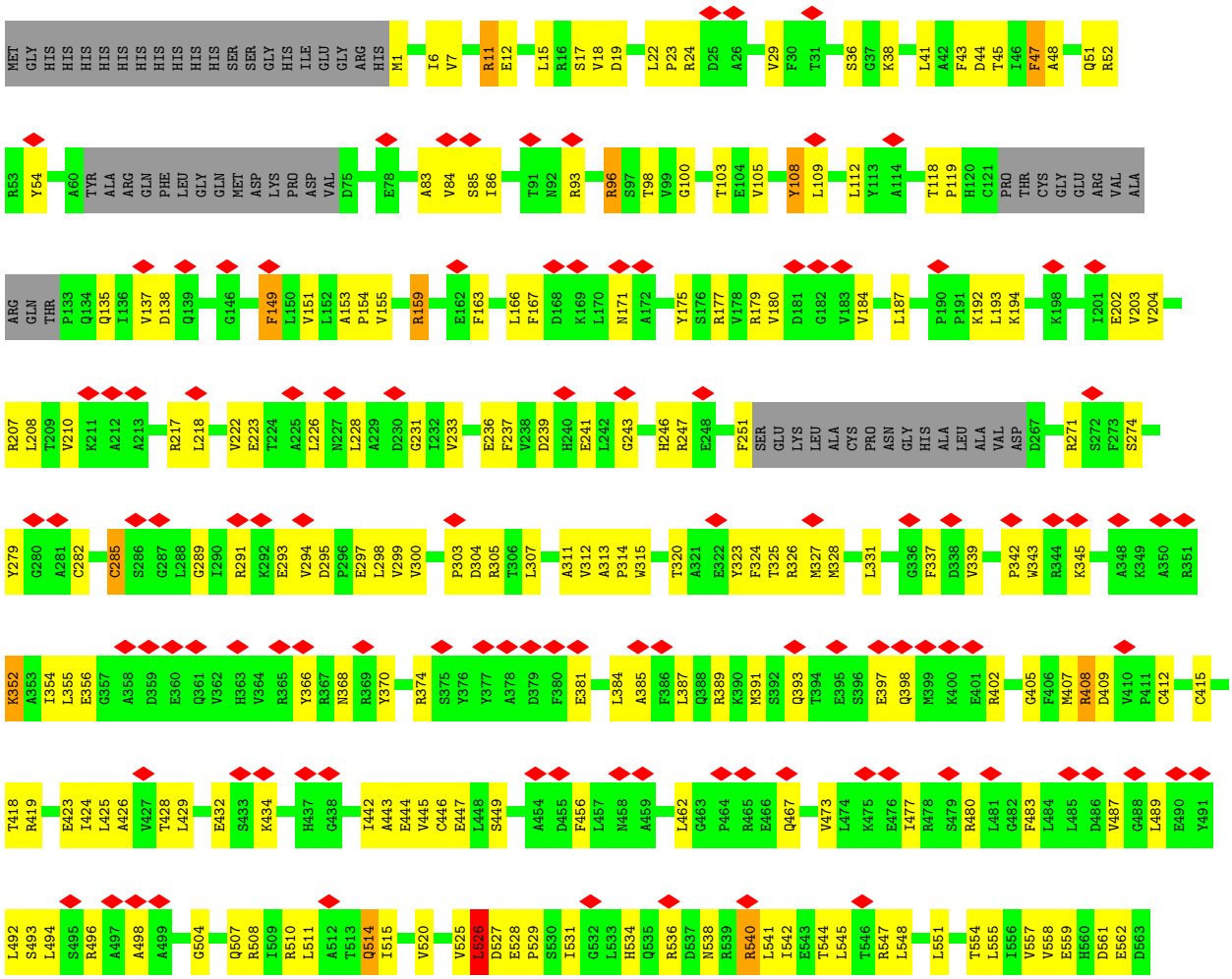
- Molecule 1: UvrABC system protein A

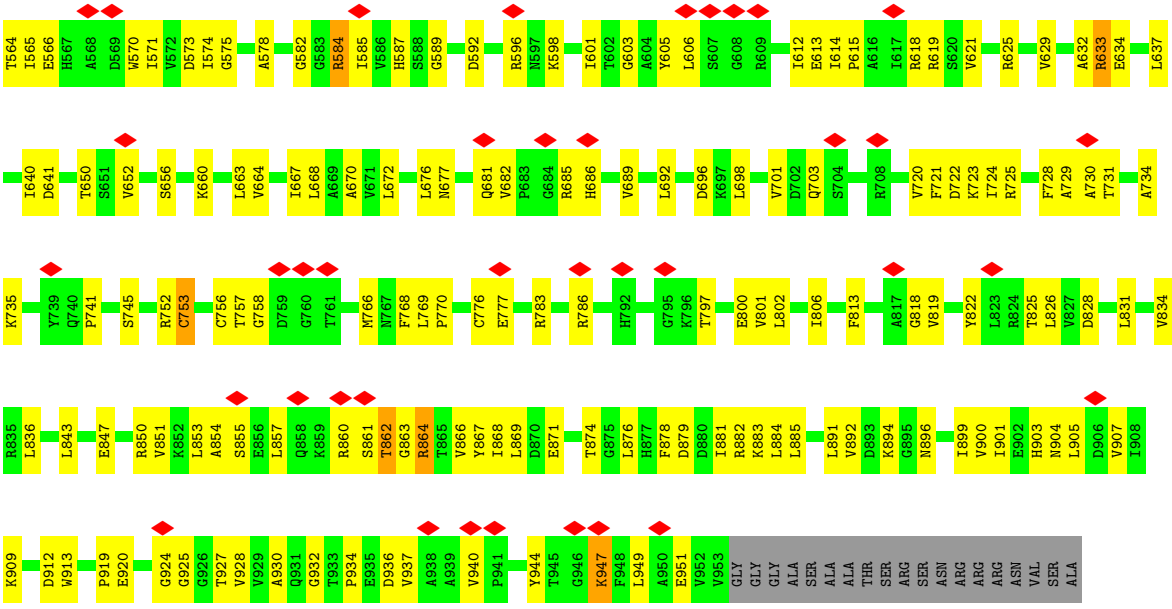




• Molecule 1: UvrABC system protein A

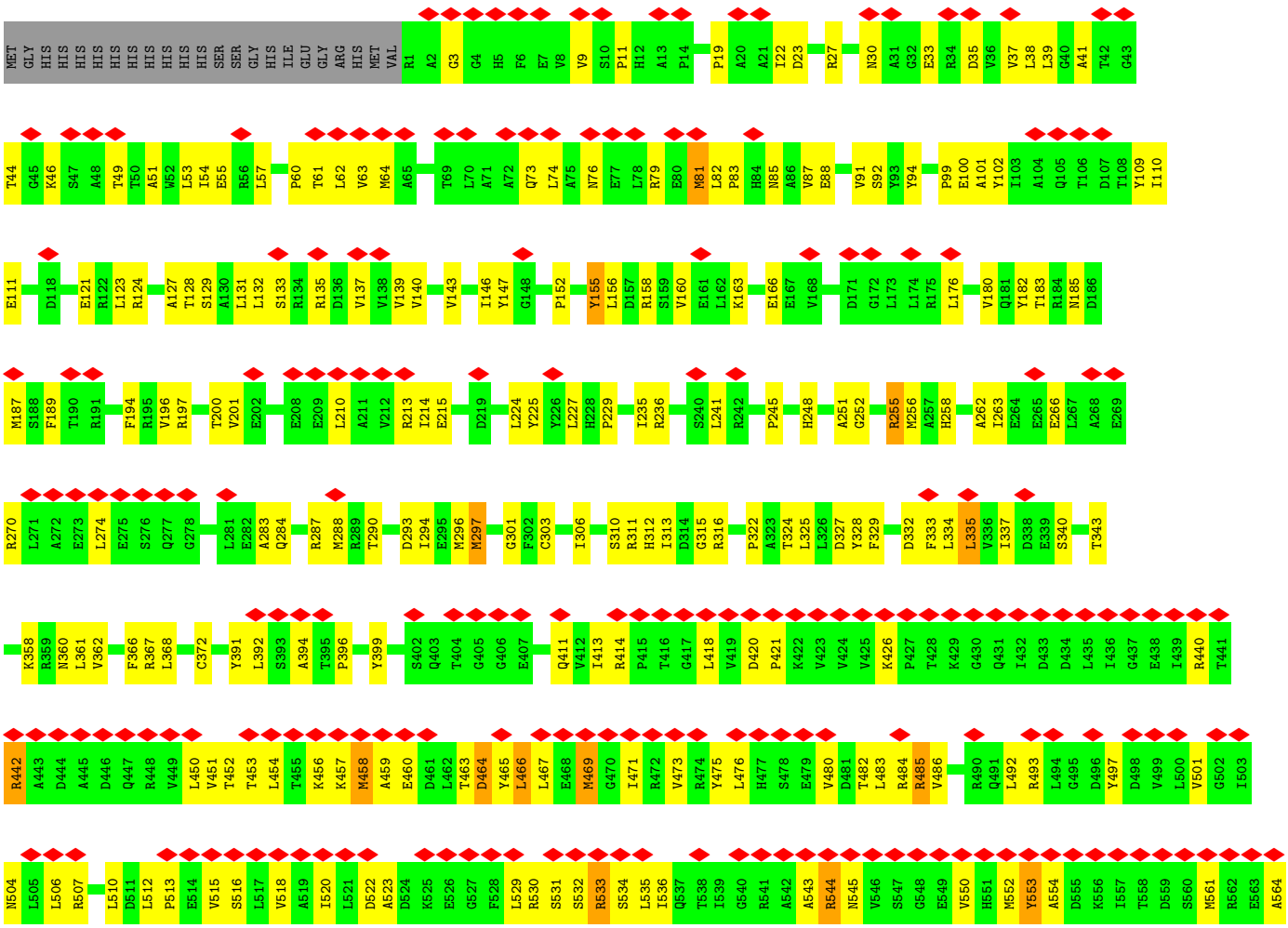
Chain B:

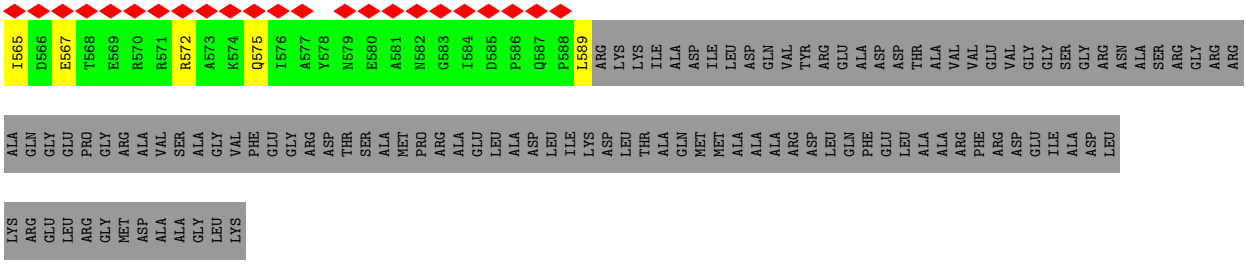




• Molecule 2: UvrABC system protein B

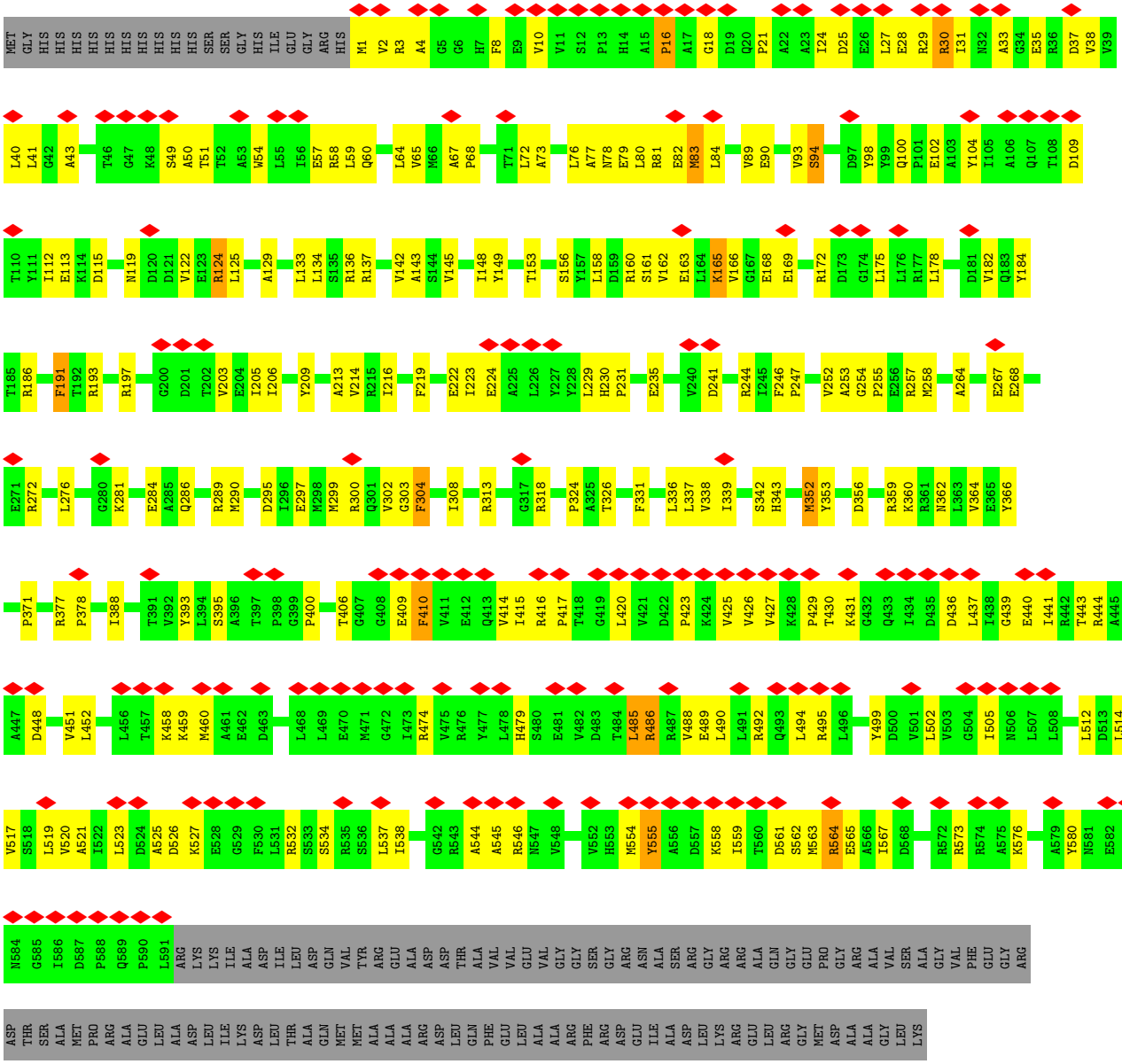
Chain C:





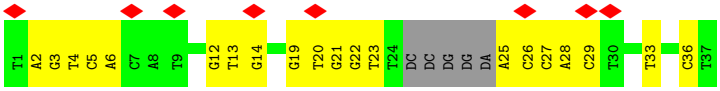
• Molecule 2: UvrABC system protein B

Chain D:



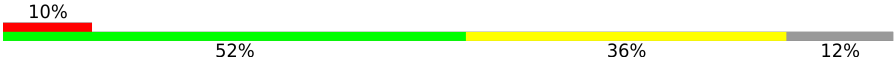
• Molecule 3: DNA

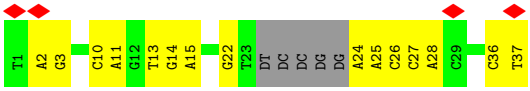
Chain E:



• Molecule 3: DNA

Chain F:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	110916	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.930	Depositor
Minimum map value	-0.395	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.036	Depositor
Recommended contour level	0.22	Depositor
Map size (Å)	336.0, 336.0, 336.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.84, 0.84, 0.84	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.30	2/7151 (0.0%)	0.66	6/9687 (0.1%)
1	B	0.25	0/7157	0.57	2/9695 (0.0%)
2	C	0.25	0/4742	0.58	2/6432 (0.0%)
2	D	0.84	1/4757 (0.0%)	0.70	4/6452 (0.1%)
3	E	0.54	0/835	0.96	0/1283
3	F	0.51	0/837	0.92	0/1286
All	All	0.45	3/25479 (0.0%)	0.65	14/34835 (0.0%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	16	PRO	N-CD	55.53	2.25	1.47
1	A	119	PRO	CB-CG	-9.92	1.00	1.50
1	A	119	PRO	CG-CD	-8.38	1.23	1.50

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	16	PRO	CA-N-CD	-25.82	75.35	111.50
2	D	16	PRO	N-CD-CG	-19.78	73.53	103.20
1	A	119	PRO	CB-CG-CD	18.84	179.96	106.50
1	A	119	PRO	N-CD-CG	-18.61	75.29	103.20
1	A	119	PRO	CA-CB-CG	-15.30	74.93	104.00
1	A	109	LEU	CA-CB-CG	6.70	130.70	115.30
1	A	862	THR	C-N-CA	6.29	135.51	122.30
1	B	862	THR	C-N-CA	6.12	135.15	122.30
2	D	485	LEU	CA-CB-CG	5.66	128.31	115.30
2	D	352	MET	CG-SD-CE	5.62	109.20	100.20
1	B	526	LEU	CA-CB-CG	5.59	128.15	115.30
1	A	119	PRO	CA-N-CD	-5.41	103.93	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	335	LEU	CA-CB-CG	5.36	127.64	115.30
2	C	466	LEU	CA-CB-CG	5.10	127.03	115.30

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	A	7031	0	7053	255	0
1	B	7035	0	7059	291	0
2	C	4660	0	4628	167	0
2	D	4675	0	4646	205	0
3	E	747	0	415	27	0
3	F	748	0	414	19	0
4	A	2	0	0	0	0
4	B	2	0	0	0	0
All	All	24900	0	24215	938	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 19.

All (938) 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:E:22:DG:H21	3:F:25:DA:N6	1.46	1.14
2:C:214:ILE:HG22	2:C:224:LEU:HD22	1.29	1.13
1:B:689:VAL:HG22	1:B:692:LEU:HD11	1.34	1.09
1:B:326:ARG:HG3	1:B:327:MET:HE2	1.34	1.06
1:B:326:ARG:HG3	1:B:327:MET:CE	1.86	1.05
1:A:326:ARG:HG3	1:A:327:MET:HE3	1.33	1.04
2:D:485:LEU:HG	2:D:486:ARG:NH1	1.70	1.04
2:C:214:ILE:HG22	2:C:224:LEU:CD2	1.89	1.03
3:E:22:DG:N2	3:F:25:DA:H62	1.56	1.00
2:D:427:VAL:HG22	2:D:554:MET:CE	1.90	0.99

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:427:VAL:CG2	2:D:554:MET:CE	2.40	0.99
2:D:16:PRO:HD2	2:D:54:TRP:CZ3	1.99	0.97
2:D:427:VAL:CG2	2:D:554:MET:HE2	1.96	0.95
1:A:106:TYR:HD1	1:A:109:LEU:HD11	1.32	0.94
2:D:485:LEU:HG	2:D:486:ARG:HH11	1.25	0.94
1:A:728:PHE:CE2	1:A:791:VAL:CG1	2.52	0.91
2:D:427:VAL:HG22	2:D:554:MET:HE2	1.47	0.91
1:B:326:ARG:CG	1:B:327:MET:HE2	2.00	0.90
1:A:728:PHE:CE2	1:A:791:VAL:HG12	2.05	0.90
1:A:672:LEU:O	1:A:676:LEU:HB3	1.71	0.90
3:E:22:DG:H21	3:F:25:DA:H62	0.89	0.89
3:E:25:DA:H62	3:F:22:DG:H21	1.21	0.89
1:B:756:CYS:SG	1:B:776:CYS:HB2	2.12	0.89
2:D:102:GLU:HA	2:D:112:ILE:O	1.73	0.88
1:B:531:ILE:HD11	1:B:703:GLN:HB2	1.57	0.86
2:D:16:PRO:CD	2:D:16:PRO:N	2.25	0.86
2:D:286:GLN:O	2:D:290:MET:HE3	1.75	0.85
2:D:16:PRO:HD2	2:D:54:TRP:CH2	2.11	0.84
3:E:25:DA:H62	3:F:22:DG:N2	1.76	0.84
1:A:312:VAL:HG12	1:A:314:PRO:HD2	1.61	0.83
2:D:16:PRO:CD	2:D:54:TRP:CZ3	2.62	0.83
1:A:857:LEU:HD23	1:A:891:LEU:HD12	1.61	0.82
1:A:106:TYR:O	1:A:109:LEU:HD12	1.79	0.82
2:C:252:GLY:O	2:C:256:MET:HE2	1.80	0.81
1:A:629:VAL:O	1:A:641:ASP:HA	1.81	0.81
2:D:427:VAL:HG23	2:D:554:MET:CE	2.11	0.80
2:D:427:VAL:CG2	2:D:554:MET:HE3	2.11	0.80
2:C:284:GLN:O	2:C:288:MET:HE3	1.82	0.79
2:C:54:ILE:HG12	2:C:61:THR:HG21	1.65	0.79
2:D:352:MET:HE2	2:D:356:ASP:HB2	1.64	0.79
3:E:25:DA:N6	3:F:22:DG:H21	1.81	0.79
1:B:689:VAL:HG22	1:B:692:LEU:CD1	2.12	0.78
1:B:86:ILE:HD13	1:B:526:LEU:HB3	1.65	0.77
1:A:106:TYR:CD1	1:A:109:LEU:HD11	2.18	0.77
1:B:108:TYR:CD1	1:B:109:LEU:HD22	2.20	0.77
1:B:108:TYR:OH	1:B:473:VAL:CG1	2.33	0.77
2:D:299:MET:HA	2:D:303:GLY:HA2	1.68	0.76
1:B:11:ARG:HB3	1:B:17:SER:H	1.49	0.76
2:D:219:PHE:HB2	2:D:224:GLU:HB2	1.67	0.76
2:D:425:VAL:HG11	2:D:567:ILE:HG23	1.67	0.76
1:B:326:ARG:HE	1:B:327:MET:CE	2.00	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:451:VAL:HB	2:C:501:VAL:HG12	1.68	0.75
1:B:757:THR:HG22	1:B:757:THR:O	1.84	0.74
2:D:427:VAL:HG22	2:D:554:MET:HE3	1.66	0.74
2:C:420:ASP:HB2	2:C:572:ARG:HB2	1.67	0.74
1:B:725:ARG:HG3	1:B:741:PRO:HB2	1.68	0.74
2:D:255:PRO:HA	2:D:258:MET:HG2	1.68	0.74
1:B:672:LEU:HB2	1:B:698:LEU:HD22	1.68	0.74
1:B:429:LEU:HB2	1:B:442:ILE:HG12	1.69	0.73
2:D:485:LEU:CG	2:D:486:ARG:HH11	2.01	0.73
2:D:80:LEU:HB2	2:D:89:VAL:HG11	1.70	0.72
2:D:104:TYR:HD2	2:D:362:ASN:HB3	1.54	0.72
1:A:208:LEU:HD21	1:A:217:ARG:HD2	1.72	0.72
1:B:434:LYS:HG2	1:B:456:PHE:HB3	1.72	0.72
1:A:1:MET:HE1	1:B:6:ILE:HD11	1.72	0.72
1:A:652:VAL:HG11	1:A:664:VAL:HG21	1.72	0.71
2:D:16:PRO:HD2	2:D:54:TRP:CE3	2.25	0.71
1:A:232:ILE:HG13	1:A:252:SER:HA	1.72	0.71
1:B:511:LEU:HD11	1:B:545:LEU:HD21	1.73	0.71
1:B:601:ILE:HG12	1:B:879:ASP:HB2	1.72	0.71
2:C:466:LEU:HG	2:C:473:VAL:HG11	1.71	0.71
1:B:511:LEU:HA	1:B:514:GLN:HE21	1.56	0.70
1:A:462:LEU:HD11	1:A:466:GLU:H	1.56	0.70
1:A:672:LEU:HB2	1:A:698:LEU:HD13	1.73	0.70
1:B:689:VAL:CG2	1:B:692:LEU:HD11	2.20	0.70
1:A:132:THR:HG23	1:A:135:GLN:H	1.57	0.69
1:B:282:CYS:SG	1:B:415:CYS:HB3	2.32	0.69
1:B:312:VAL:HG12	1:B:314:PRO:HD2	1.72	0.69
2:C:100:GLU:HA	2:C:110:ILE:O	1.92	0.69
2:D:444:ARG:HG3	2:D:519:LEU:HD11	1.74	0.69
1:B:153:ALA:HA	1:B:204:VAL:HG13	1.74	0.69
2:C:200:THR:HG23	2:C:215:GLU:HG2	1.75	0.69
3:E:36:DC:H42	3:F:13:DT:H3	1.39	0.69
2:D:485:LEU:CG	2:D:486:ARG:NH1	2.54	0.69
2:D:27:LEU:HD12	2:D:30:ARG:HH21	1.58	0.68
1:B:696:ASP:OD1	1:B:864:ARG:NH1	2.26	0.68
1:B:177:ARG:HB3	1:B:204:VAL:HB	1.74	0.68
1:B:326:ARG:CG	1:B:327:MET:CE	2.66	0.68
2:D:43:ALA:HB2	2:D:414:VAL:HG13	1.75	0.68
1:A:733:GLU:HG3	1:A:791:VAL:HA	1.75	0.68
2:C:152:PRO:HB3	2:C:328:TYR:HA	1.76	0.68
1:A:840:ALA:HA	1:A:843:LEU:HG	1.75	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:756:CYS:SG	1:A:776:CYS:HB2	2.33	0.68
1:B:98:THR:HG23	1:B:100:GLY:H	1.56	0.68
2:D:429:PRO:HB3	2:D:431:LYS:NZ	2.09	0.67
2:D:430:THR:H	2:D:431:LYS:NZ	1.91	0.67
1:B:640:ILE:HG21	1:B:927:THR:HA	1.76	0.67
2:C:99:PRO:O	2:C:110:ILE:HD12	1.94	0.67
2:C:57:LEU:HD12	2:C:334:LEU:HD22	1.76	0.67
1:A:179:ARG:HD2	1:A:184:VAL:HG22	1.76	0.67
1:B:432:GLU:HG2	1:B:462:LEU:HD11	1.76	0.67
2:D:486:ARG:H	2:D:486:ARG:HD2	1.59	0.67
1:A:1:MET:CE	1:B:6:ILE:HD11	2.25	0.67
1:B:108:TYR:OH	1:B:473:VAL:HG13	1.93	0.67
1:B:869:LEU:HB2	1:B:900:VAL:HG23	1.77	0.66
1:A:307:LEU:HD11	1:A:315:TRP:HZ3	1.61	0.66
1:A:32:GLY:HA2	1:A:601:ILE:HD11	1.77	0.66
1:B:326:ARG:NE	1:B:327:MET:CE	2.58	0.66
2:C:132:LEU:HD22	2:C:156:LEU:HD22	1.78	0.66
1:A:568:ALA:HB3	1:A:571:ILE:HG12	1.78	0.65
2:D:554:MET:N	2:D:554:MET:SD	2.69	0.65
3:E:22:DG:H2'	3:E:23:DT:H71	1.78	0.65
2:D:134:LEU:HB3	2:D:158:LEU:HD22	1.79	0.65
1:A:752:ARG:HH21	1:A:754:GLU:HA	1.62	0.65
2:C:482:THR:HA	2:C:485:ARG:CZ	2.27	0.65
1:A:307:LEU:HD13	1:A:343:TRP:HZ2	1.62	0.65
1:B:304:ASP:HA	1:B:342:PRO:HB3	1.77	0.65
1:A:756:CYS:HA	1:A:762:ILE:HD11	1.79	0.65
1:B:443:ALA:HB1	1:B:447:GLU:HB2	1.78	0.64
2:D:512:LEU:HB3	2:D:514:LEU:HD11	1.79	0.64
1:A:677:ASN:HD21	1:A:698:LEU:H	1.45	0.64
1:A:49:GLU:HG2	1:A:77:ILE:HB	1.78	0.64
1:B:573:ASP:H	1:B:587:HIS:HB3	1.62	0.64
2:C:287:ARG:HB3	2:C:288:MET:HE2	1.79	0.64
1:B:12:GLU:H	1:B:15:LEU:HB3	1.63	0.64
1:A:145:GLU:OE1	1:A:210:VAL:HG12	1.97	0.64
1:A:443:ALA:HB1	1:A:447:GLU:HB2	1.79	0.64
2:C:235:ILE:HG22	2:C:236:ARG:HD2	1.79	0.64
2:D:563:MET:O	2:D:567:ILE:HG12	1.98	0.64
1:B:850:ARG:HH21	1:B:884:LEU:HD22	1.62	0.63
1:A:306:THR:HG23	1:A:688:ARG:HH22	1.63	0.63
1:A:545:LEU:HG	1:A:555:LEU:HD13	1.79	0.63
1:A:735:LYS:HD3	2:C:183:THR:HG22	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:124:ARG:HB2	2:D:193:ARG:HH22	1.63	0.63
1:A:105:VAL:HG12	1:A:480:ARG:HE	1.64	0.63
1:A:884:LEU:O	1:A:888:ILE:HG12	1.98	0.63
1:B:175:TYR:HB2	1:B:187:LEU:HD22	1.80	0.63
1:B:860:ARG:HG3	1:B:862:THR:HG23	1.79	0.63
1:A:576:PRO:HD3	1:A:586:VAL:HB	1.81	0.63
2:C:287:ARG:HB3	2:C:288:MET:CE	2.29	0.63
2:C:421:PRO:HD3	2:C:543:ALA:HB2	1.81	0.63
1:B:155:VAL:HG22	1:B:202:GLU:HB3	1.81	0.63
2:D:525:ALA:HA	2:D:532:ARG:HD3	1.79	0.63
1:B:508:ARG:HD3	1:B:541:LEU:HD22	1.80	0.62
1:A:559:GLU:HG3	1:A:561:ASP:H	1.63	0.62
1:A:105:VAL:O	1:A:109:LEU:HG	1.99	0.62
1:B:652:VAL:HG11	1:B:664:VAL:HG21	1.80	0.62
2:C:79:ARG:HG2	2:C:87:VAL:HB	1.82	0.62
1:A:55:VAL:HG22	1:A:68:GLN:HG3	1.79	0.62
1:A:242:LEU:H	1:A:242:LEU:HD23	1.64	0.62
1:A:52:ARG:HH12	1:A:74:VAL:H	1.46	0.62
1:B:515:ILE:HD11	1:B:545:LEU:HD13	1.81	0.62
2:C:158:ARG:HH22	2:C:252:GLY:HA2	1.64	0.62
2:C:413:ILE:HA	2:C:575:GLN:HG2	1.81	0.62
2:C:442:ARG:HH21	2:C:516:SER:HB3	1.64	0.62
1:B:528:GLU:OE2	1:B:874:THR:HG23	1.99	0.62
2:C:210:LEU:HA	2:C:229:PRO:HD3	1.81	0.62
1:B:108:TYR:HD1	1:B:109:LEU:HD22	1.65	0.62
2:D:94:SER:HB3	2:D:122:VAL:HG13	1.82	0.62
2:D:426:VAL:O	2:D:554:MET:CE	2.47	0.62
1:A:640:ILE:HG12	1:A:928:VAL:H	1.65	0.62
2:D:286:GLN:O	2:D:290:MET:HG2	2.00	0.61
2:D:474:ARG:HD2	2:D:499:TYR:HA	1.82	0.61
1:A:102:ILE:HD12	1:A:510:ARG:HH12	1.64	0.61
2:D:16:PRO:CD	2:D:54:TRP:CH2	2.82	0.61
2:D:289:ARG:HB3	2:D:290:MET:CE	2.30	0.61
2:D:289:ARG:HB3	2:D:290:MET:HE2	1.82	0.61
2:C:38:LEU:HD11	2:C:411:GLN:HG2	1.82	0.61
2:C:450:LEU:HB3	2:C:518:VAL:HG23	1.82	0.61
2:D:429:PRO:CB	2:D:431:LYS:HZ3	2.14	0.61
2:C:9:VAL:HG22	2:C:83:PRO:HD3	1.82	0.61
1:A:534:HIS:HB2	1:A:655:VAL:HA	1.82	0.61
1:B:652:VAL:HG22	1:B:660:LYS:HD2	1.82	0.61
2:D:81:ARG:HH21	2:D:90:GLU:HA	1.65	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:100:GLN:HB3	2:D:115:ASP:HB3	1.82	0.61
2:C:311:ARG:HG3	2:C:316:ARG:HG3	1.82	0.61
1:B:108:TYR:CD1	1:B:112:LEU:HD13	2.35	0.61
3:E:20:DT:H2"	3:E:21:DG:H5'	1.83	0.61
1:A:160:LYS:HB3	1:A:198:LYS:HD2	1.82	0.61
1:B:293:GLU:HB2	1:B:409:ASP:HA	1.82	0.61
1:A:304:ASP:HB3	1:A:688:ARG:HB2	1.82	0.60
1:B:730:ALA:HA	1:B:735:LYS:HE2	1.82	0.60
2:C:11:PRO:HB2	2:C:589:LEU:HB3	1.82	0.60
2:C:463:THR:HG22	2:C:501:VAL:HG21	1.83	0.60
1:B:885:LEU:HD21	1:B:907:VAL:HG13	1.83	0.60
2:C:294:ILE:HA	2:C:297:MET:SD	2.41	0.60
1:A:320:THR:HA	1:A:323:TYR:HB2	1.82	0.60
1:A:728:PHE:HE2	1:A:791:VAL:CG1	2.09	0.60
2:D:253:ALA:HA	2:D:257:ARG:HD3	1.83	0.60
2:C:459:ALA:O	2:C:463:THR:HG23	2.02	0.60
1:A:728:PHE:HE2	1:A:791:VAL:HB	1.67	0.60
2:C:284:GLN:O	2:C:288:MET:HG2	2.00	0.60
1:A:7:VAL:O	1:A:19:ASP:HA	2.02	0.60
1:A:309:GLN:HE22	1:A:692:LEU:HB2	1.67	0.60
1:A:728:PHE:CE2	1:A:791:VAL:HG11	2.36	0.60
1:B:326:ARG:HH11	1:B:366:TYR:HB2	1.67	0.60
1:B:108:TYR:OH	1:B:473:VAL:HG12	2.01	0.59
2:D:77:ALA:HB2	2:D:142:VAL:HG11	1.84	0.59
2:D:161:SER:HB3	2:D:244:ARG:HH12	1.66	0.59
2:C:201:VAL:HB	2:C:214:ILE:HG13	1.84	0.59
1:A:209:THR:HG23	1:A:211:LYS:HD3	1.83	0.59
1:A:919:PRO:HG3	1:A:929:VAL:HG11	1.83	0.59
2:D:247:PRO:HG2	2:D:252:VAL:HG13	1.84	0.59
1:B:177:ARG:HD2	1:B:207:ARG:HG2	1.83	0.59
1:B:698:LEU:HD11	1:B:868:ILE:HG12	1.85	0.59
1:B:640:ILE:HD12	1:B:928:VAL:HG23	1.85	0.59
1:A:761:THR:HG22	1:A:775:PRO:HB3	1.85	0.59
1:A:826:LEU:O	1:A:826:LEU:HD12	2.03	0.59
2:D:213:ALA:HB3	2:D:229:LEU:O	2.02	0.59
2:D:486:ARG:HD2	2:D:486:ARG:N	2.17	0.59
1:A:454:ALA:HA	1:A:481:LEU:HD13	1.84	0.59
2:C:101:ALA:HB3	2:C:110:ILE:HD11	1.83	0.59
2:D:339:ILE:HB	2:D:393:TYR:HA	1.83	0.59
1:A:885:LEU:HD11	1:A:907:VAL:HA	1.85	0.59
1:B:108:TYR:CE1	1:B:112:LEU:HD11	2.38	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:226:LEU:HD22	1:B:231:GLY:HA2	1.83	0.59
1:B:326:ARG:NE	1:B:327:MET:HE1	2.17	0.59
3:E:22:DG:N2	3:F:25:DA:N6	2.27	0.58
2:D:430:THR:N	2:D:431:LYS:HZ3	2.00	0.58
1:A:51:GLN:O	1:A:55:VAL:HG12	2.03	0.58
1:B:7:VAL:O	1:B:19:ASP:HA	2.03	0.58
2:C:102:TYR:HB3	2:C:360:ASN:HB3	1.85	0.58
2:C:213:ARG:HH12	2:C:227:LEU:HB2	1.69	0.58
1:A:15:LEU:HD11	1:A:41:LEU:HD13	1.86	0.58
1:A:909:LYS:HB2	1:A:949:LEU:HD22	1.85	0.58
1:B:108:TYR:CZ	1:B:477:ILE:HG12	2.38	0.58
1:B:919:PRO:HD2	1:B:925:GLY:HA2	1.84	0.58
2:C:466:LEU:HA	2:C:469:MET:SD	2.42	0.58
2:D:494:LEU:HD21	2:D:502:LEU:HD11	1.86	0.58
1:A:52:ARG:HD3	1:A:72:PRO:HG2	1.86	0.58
1:B:108:TYR:CE1	1:B:112:LEU:CD1	2.87	0.58
2:D:313:ARG:HG3	2:D:318:ARG:HG3	1.84	0.58
1:A:173:GLN:HA	2:D:197:ARG:NH1	2.18	0.58
1:A:642:VAL:HG13	1:A:915:ILE:HG21	1.86	0.58
2:C:358:LYS:HD3	2:C:372:CYS:HA	1.85	0.58
1:A:108:TYR:HD2	1:A:480:ARG:HH22	1.52	0.57
1:A:156:VAL:HG12	1:A:159:ARG:HB2	1.85	0.57
1:B:721:PHE:HA	1:B:724:ILE:HB	1.86	0.57
1:A:632:ALA:HA	1:A:686:HIS:HA	1.85	0.57
1:A:879:ASP:O	1:A:882:ARG:HG3	2.04	0.57
1:B:326:ARG:HH22	1:B:374:ARG:HB3	1.68	0.57
1:A:162:GLU:H	1:A:195:LYS:HA	1.69	0.57
2:D:25:ASP:O	2:D:29:ARG:HG2	2.03	0.57
2:D:156:SER:HA	2:D:160:ARG:HG3	1.87	0.57
1:B:293:GLU:HG2	1:B:405:GLY:HA2	1.87	0.57
2:D:76:LEU:O	2:D:80:LEU:HG	2.04	0.57
1:B:559:GLU:HG3	1:B:561:ASP:H	1.69	0.57
1:B:934:PRO:HA	1:B:937:VAL:HG12	1.87	0.57
1:A:876:LEU:HB3	1:A:880:ASP:HB2	1.87	0.57
1:A:621:VAL:HG12	1:A:648:VAL:HG11	1.86	0.57
2:C:513:PRO:HA	2:C:544:ARG:NH1	2.19	0.57
1:A:290:ILE:HB	1:A:419:ARG:HH12	1.70	0.56
1:A:721:PHE:HD2	1:A:725:ARG:HH21	1.51	0.56
2:D:436:ASP:O	2:D:440:GLU:HG2	2.05	0.56
1:B:299:VAL:HB	1:B:408:ARG:HH12	1.70	0.56
1:B:381:GLU:HG3	1:B:385:ALA:HB3	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:479:HIS:HA	2:D:505:ILE:HD12	1.87	0.56
1:A:489:LEU:HD21	1:A:508:ARG:HB3	1.88	0.56
1:B:154:PRO:HD2	1:B:204:VAL:HA	1.87	0.56
1:B:656:SER:HB3	1:B:660:LYS:HE3	1.87	0.56
2:D:51:THR:HA	2:D:54:TRP:CE3	2.40	0.56
1:A:225:ALA:HB3	1:A:233:VAL:HG12	1.88	0.56
1:B:429:LEU:HD13	1:B:442:ILE:HA	1.88	0.56
2:D:439:GLY:O	2:D:443:THR:HG23	2.06	0.56
2:C:270:ARG:HH21	2:C:274:LEU:HG	1.69	0.56
1:A:176:SER:H	1:A:187:LEU:HD12	1.70	0.56
1:A:699:VAL:HG11	1:A:856:GLU:HB3	1.87	0.56
1:A:27:LEU:HD13	1:A:545:LEU:HD11	1.88	0.56
1:A:178:VAL:HA	1:A:203:VAL:HG23	1.88	0.56
2:C:64:MET:HB3	2:C:337:ILE:HG23	1.88	0.56
2:D:162:VAL:HG21	2:D:178:LEU:HD22	1.88	0.56
2:D:452:LEU:HG	2:D:517:VAL:HG21	1.88	0.56
1:A:56:GLU:HA	1:A:68:GLN:HE21	1.71	0.56
2:D:31:ILE:HD13	2:D:38:VAL:HG21	1.88	0.56
1:A:548:LEU:HB3	1:A:553:ASN:HD21	1.71	0.55
2:D:16:PRO:HD3	2:D:54:TRP:CZ3	2.40	0.55
2:C:340:SER:HA	2:C:343:THR:HB	1.87	0.55
2:D:8:PHE:H	2:D:60:GLN:HE22	1.54	0.55
2:D:474:ARG:HB3	2:D:499:TYR:HB2	1.88	0.55
1:B:154:PRO:HB3	1:B:233:VAL:HG23	1.88	0.55
1:B:892:VAL:HA	1:B:896:ASN:HB2	1.87	0.55
2:C:492:LEU:HD13	2:C:512:LEU:HD13	1.88	0.55
2:C:458:MET:CE	2:C:458:MET:H	2.19	0.55
1:A:98:THR:HG23	1:A:100:GLY:H	1.71	0.55
1:A:421:LYS:H	1:A:424:ILE:HD11	1.71	0.55
1:A:548:LEU:HD23	1:A:551:LEU:HD12	1.89	0.55
1:A:740:GLN:HE21	2:C:185:ASN:HA	1.71	0.55
1:A:891:LEU:HA	1:A:894:LYS:HB2	1.89	0.55
2:C:121:GLU:HA	2:C:124:ARG:HD3	1.88	0.55
1:A:98:THR:HG22	1:A:101:THR:HG23	1.88	0.55
1:A:728:PHE:HD2	1:A:744:PHE:CE2	2.24	0.55
1:B:489:LEU:HD13	1:B:492:LEU:HD22	1.88	0.55
2:C:49:THR:O	2:C:53:LEU:HG	2.07	0.55
1:B:204:VAL:HG11	1:B:207:ARG:HH21	1.72	0.55
1:B:48:ALA:HB1	1:B:52:ARG:HH21	1.71	0.55
1:B:387:LEU:HG	1:B:407:MET:HG2	1.89	0.55
1:B:515:ILE:HG12	1:B:548:LEU:HD13	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:430:THR:H	2:D:431:LYS:HZ3	1.52	0.55
2:D:485:LEU:C	2:D:486:ARG:HH11	2.10	0.55
1:B:871:GLU:HG2	1:B:901:ILE:HG22	1.88	0.54
2:C:531:SER:H	2:C:533:ARG:CZ	2.20	0.54
1:A:3:ASP:HB2	1:A:24:ARG:HB2	1.89	0.54
1:A:399:MET:HA	1:A:402:ARG:HB2	1.89	0.54
1:A:920:GLU:HB2	1:A:924:GLY:HA3	1.89	0.54
2:C:131:LEU:HD23	2:C:132:LEU:HG	1.89	0.54
2:C:132:LEU:HD13	2:C:156:LEU:HB2	1.89	0.54
1:B:352:LYS:O	1:B:356:GLU:HG3	2.07	0.54
1:B:692:LEU:HD12	1:B:692:LEU:H	1.72	0.54
2:D:437:LEU:O	2:D:441:ILE:HG22	2.08	0.54
1:B:445:VAL:HA	1:B:494:LEU:HB3	1.88	0.54
2:D:426:VAL:O	2:D:554:MET:HE2	2.07	0.54
1:A:232:ILE:HD11	1:A:250:ARG:CZ	2.37	0.54
1:B:303:PRO:HB3	1:B:343:TRP:HB2	1.88	0.54
2:C:51:ALA:HA	2:C:54:ILE:HD12	1.89	0.54
1:A:322:GLU:O	1:A:326:ARG:HG2	2.08	0.54
1:A:103:THR:HG23	1:A:105:VAL:HG13	1.89	0.54
1:A:223:GLU:HA	1:A:226:LEU:HB2	1.90	0.54
1:A:412:CYS:HB2	1:A:417:GLY:HA2	1.89	0.54
1:B:633:ARG:HE	1:B:685:ARG:HD2	1.73	0.54
2:C:552:MET:CE	2:C:554:ALA:HB2	2.37	0.54
1:A:156:VAL:HB	1:A:201:ILE:HB	1.88	0.53
2:C:453:THR:HG22	2:C:454:LEU:H	1.73	0.53
2:D:352:MET:CE	2:D:356:ASP:HB2	2.35	0.53
1:A:728:PHE:CD2	1:A:744:PHE:CE2	2.96	0.53
2:C:61:THR:HA	2:C:334:LEU:O	2.08	0.53
1:A:93:ARG:HH21	1:A:96:ARG:NH2	2.05	0.53
1:A:226:LEU:HD22	1:A:231:GLY:HA2	1.91	0.53
1:A:728:PHE:CD2	1:A:791:VAL:HG11	2.43	0.53
1:B:326:ARG:HE	1:B:327:MET:HE2	1.73	0.53
1:B:299:VAL:HG11	1:B:355:LEU:HD21	1.90	0.53
1:B:731:THR:HB	1:B:734:ALA:HB3	1.89	0.53
1:B:802:LEU:HG	1:B:836:LEU:HD23	1.91	0.53
2:C:533:ARG:HD2	2:C:534:SER:H	1.72	0.53
2:D:41:LEU:HD23	2:D:410:PHE:CD1	2.43	0.53
2:C:297:MET:HA	2:C:301:GLY:H	1.74	0.53
2:C:532:SER:O	2:C:536:ILE:HG13	2.08	0.53
3:E:5:DC:H5'	2:D:149:TYR:HD2	1.72	0.53
1:A:88:GLN:HE22	1:A:90:SER:HB2	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:179:ARG:H	1:B:203:VAL:HA	1.73	0.53
2:D:353:TYR:HA	2:D:378:PRO:HG2	1.91	0.53
1:B:237:PHE:HE1	1:B:247:ARG:HG2	1.74	0.53
1:B:320:THR:HA	1:B:323:TYR:HB2	1.91	0.53
1:B:825:THR:HG21	1:B:855:SER:HA	1.90	0.53
1:B:504:GLY:O	1:B:508:ARG:HG2	2.09	0.53
1:B:531:ILE:CD1	1:B:703:GLN:HB2	2.34	0.53
2:D:452:LEU:HB2	2:D:520:VAL:HG23	1.91	0.53
1:A:162:GLU:H	1:A:195:LYS:HD3	1.73	0.52
1:B:445:VAL:HG13	1:B:494:LEU:HD12	1.91	0.52
2:C:82:LEU:HD22	2:C:85:ASN:HB2	1.89	0.52
2:D:168:GLU:HG2	2:D:223:ILE:HD11	1.91	0.52
1:B:135:GLN:HA	1:B:138:ASP:HB2	1.92	0.52
2:D:209:TYR:CE2	2:D:246:PHE:HB2	2.44	0.52
1:B:22:LEU:HD12	1:B:23:PRO:HD2	1.92	0.52
2:C:44:THR:HG22	2:C:414:ARG:HG3	1.91	0.52
2:D:2:VAL:HB	2:D:158:LEU:HD21	1.92	0.52
2:D:342:SER:H	2:D:395:SER:HB2	1.75	0.52
1:B:237:PHE:CE1	1:B:247:ARG:HG2	2.45	0.52
3:E:19:DG:H8	3:E:19:DG:H5"	1.74	0.52
2:D:295:ASP:HA	2:D:299:MET:HE3	1.91	0.52
1:A:298:LEU:HA	1:A:301:PRO:HG3	1.91	0.52
1:A:853:LEU:HA	1:A:856:GLU:HB2	1.91	0.52
1:B:429:LEU:HD11	1:B:434:LYS:HD3	1.90	0.52
2:C:180:VAL:HB	2:C:245:PRO:HA	1.92	0.52
2:C:316:ARG:NE	2:C:322:PRO:HA	2.25	0.52
2:C:506:LEU:HA	2:C:510:LEU:HD12	1.91	0.52
2:D:268:GLU:HG2	2:D:371:PRO:HD2	1.91	0.52
2:D:573:ARG:HA	2:D:576:LYS:HG2	1.91	0.52
1:A:303:PRO:HA	1:A:343:TRP:HB2	1.92	0.52
1:A:445:VAL:HG23	1:A:494:LEU:HD22	1.92	0.52
1:A:728:PHE:HE2	1:A:791:VAL:CB	2.23	0.52
1:B:291:ARG:HD2	1:B:291:ARG:N	2.25	0.52
2:D:431:LYS:HD3	2:D:431:LYS:N	2.25	0.52
1:A:723:LYS:NZ	1:A:818:GLY:HA3	2.24	0.52
1:A:863:GLY:O	1:A:896:ASN:HA	2.10	0.52
1:B:192:LYS:HD3	1:B:194:LYS:HE2	1.91	0.51
1:B:527:ASP:HA	1:B:558:VAL:HB	1.92	0.51
1:B:944:TYR:O	1:B:947:LYS:HG3	2.10	0.51
2:D:3:ARG:HB3	2:D:137:ARG:HB2	1.92	0.51
1:A:429:LEU:HD22	1:A:442:ILE:HD13	1.90	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:8:PHE:HB2	2:D:57:GLU:HA	1.92	0.51
2:D:67:ALA:HB3	2:D:73:ALA:HB2	1.92	0.51
2:D:337:LEU:HD22	2:D:388:ILE:HD12	1.92	0.51
2:D:415:ILE:HD11	2:D:580:TYR:HB3	1.93	0.51
1:B:930:ALA:HB1	1:B:937:VAL:HA	1.92	0.51
2:C:310:SER:HA	2:C:313:ILE:HD12	1.92	0.51
1:A:208:LEU:HD11	1:A:217:ARG:HB3	1.92	0.51
1:B:528:GLU:CD	1:B:874:THR:HG23	2.31	0.51
1:B:167:PHE:HZ	1:B:180:VAL:HG11	1.75	0.51
1:B:289:GLY:HA2	1:B:419:ARG:CZ	2.40	0.51
1:B:542:ILE:HA	1:B:545:LEU:HD23	1.92	0.51
1:A:155:VAL:HG12	1:A:229:ALA:HB2	1.92	0.51
1:B:41:LEU:HD12	1:B:45:THR:HG21	1.92	0.51
1:B:108:TYR:CD1	1:B:112:LEU:CD1	2.93	0.51
2:D:10:VAL:HG13	2:D:83:MET:HB3	1.93	0.51
2:D:492:ARG:HH21	2:D:495:ARG:HD3	1.76	0.51
1:A:387:LEU:O	1:A:391:MET:CE	2.58	0.51
1:B:526:LEU:HD12	1:B:557:VAL:HA	1.91	0.51
1:B:571:ILE:H	1:B:589:GLY:HA2	1.76	0.51
1:B:613:GLU:OE1	1:B:909:LYS:HE2	2.11	0.51
1:B:672:LEU:O	1:B:676:LEU:CB	2.59	0.51
2:C:460:GLU:O	2:C:464:ASP:OD1	2.29	0.51
2:D:28:GLU:HA	2:D:31:ILE:HG22	1.92	0.51
2:D:145:VAL:O	2:D:148:ILE:HG12	2.11	0.51
2:D:160:ARG:HD2	2:D:254:GLY:H	1.76	0.51
3:F:24:DA:H2"	3:F:25:DA:C8	2.46	0.51
2:D:514:LEU:H	2:D:546:ARG:NH1	2.08	0.51
1:A:429:LEU:HD12	1:A:432:GLU:HB2	1.94	0.50
1:B:24:ARG:HG2	1:B:554:THR:HG21	1.93	0.50
1:B:323:TYR:CZ	1:B:368:ASN:HB3	2.46	0.50
2:D:486:ARG:N	2:D:486:ARG:CD	2.74	0.50
1:A:761:THR:HA	1:A:775:PRO:HA	1.93	0.50
1:A:887:VAL:O	1:A:891:LEU:HG	2.11	0.50
2:D:426:VAL:C	2:D:554:MET:CE	2.80	0.50
1:A:302:ASP:HA	1:A:686:HIS:O	2.11	0.50
1:A:695:LEU:HD13	1:A:864:ARG:NH1	2.27	0.50
1:B:108:TYR:OH	1:B:477:ILE:HG12	2.11	0.50
1:B:222:VAL:HG23	1:B:233:VAL:HG21	1.94	0.50
1:B:384:LEU:HD23	1:B:408:ARG:HE	1.76	0.50
1:B:853:LEU:HD21	1:B:869:LEU:HD22	1.93	0.50
2:D:81:ARG:HG3	2:D:89:VAL:HB	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:521:ALA:HB1	2:D:555:TYR:HE2	1.77	0.50
2:D:30:ARG:HH12	2:D:38:VAL:HG22	1.75	0.50
2:D:352:MET:CE	2:D:352:MET:O	2.60	0.50
2:C:91:VAL:O	2:C:124:ARG:HD2	2.12	0.50
2:C:255:ARG:HB3	2:C:256:MET:CE	2.41	0.50
1:B:721:PHE:HE2	1:B:745:SER:HA	1.76	0.50
1:A:107:ASP:O	1:A:111:LEU:HG	2.12	0.50
1:A:208:LEU:HD13	1:A:218:LEU:HD12	1.93	0.50
1:A:652:VAL:HG13	1:A:901:ILE:HG13	1.92	0.50
1:B:38:LYS:HE2	1:B:558:VAL:HG13	1.94	0.50
1:B:729:ALA:HB2	1:B:741:PRO:HB3	1.93	0.50
1:B:753:CYS:SG	1:B:756:CYS:HB2	2.52	0.50
2:D:534:SER:O	2:D:538:ILE:HG12	2.12	0.50
1:A:630:VAL:HG12	1:A:641:ASP:HB2	1.94	0.50
1:B:300:VAL:HG13	1:B:311:ALA:HB1	1.93	0.50
1:B:668:LEU:O	1:B:672:LEU:HG	2.12	0.50
1:A:519:LEU:HD22	1:A:522:VAL:HB	1.94	0.49
1:A:536:ARG:HE	1:A:944:TYR:HB3	1.77	0.49
1:B:108:TYR:CD1	1:B:108:TYR:C	2.86	0.49
1:B:223:GLU:O	1:B:226:LEU:HB2	2.12	0.49
1:B:565:ILE:O	1:B:566:GLU:HG2	2.12	0.49
1:B:797:THR:HG23	1:B:800:GLU:H	1.77	0.49
2:C:41:ALA:HA	2:C:394:ALA:HA	1.94	0.49
2:C:129:SER:O	2:C:133:SER:HB3	2.12	0.49
2:D:30:ARG:HH22	2:D:31:ILE:HD13	1.77	0.49
2:D:485:LEU:HA	2:D:488:VAL:HG12	1.94	0.49
1:A:355:LEU:HA	1:A:383:VAL:HG22	1.94	0.49
1:A:450:ILE:HD12	1:A:492:LEU:HB3	1.94	0.49
2:C:414:ARG:HG2	2:C:418:LEU:HD12	1.94	0.49
2:C:457:LYS:HG3	2:C:458:MET:HE1	1.94	0.49
2:D:79:GLU:O	2:D:83:MET:SD	2.70	0.49
2:D:104:TYR:HE1	2:D:109:ASP:HA	1.77	0.49
2:D:485:LEU:C	2:D:486:ARG:NH1	2.66	0.49
1:A:33:LEU:HD11	1:A:831:LEU:HD21	1.95	0.49
1:B:487:VAL:HG22	1:B:541:LEU:HA	1.92	0.49
2:C:333:PHE:HZ	2:C:335:LEU:HD23	1.78	0.49
1:B:592:ASP:O	1:B:596:ARG:HG2	2.12	0.49
2:C:46:LYS:HB3	2:C:392:LEU:HD21	1.93	0.49
2:C:63:VAL:HB	2:C:140:VAL:HA	1.94	0.49
2:C:214:ILE:CG2	2:C:224:LEU:HD22	2.21	0.49
2:C:518:VAL:HG12	2:C:550:VAL:HG12	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:703:GLN:HE22	1:A:850:ARG:HH22	1.60	0.49
1:B:237:PHE:CD1	1:B:246:HIS:HA	2.46	0.49
1:B:670:ALA:HA	1:B:681:GLN:HE21	1.77	0.49
1:B:752:ARG:NH1	1:B:758:GLY:H	2.10	0.49
2:D:353:TYR:HE1	2:D:377:ARG:HD2	1.77	0.49
1:B:511:LEU:HA	1:B:514:GLN:NE2	2.26	0.49
2:C:251:ALA:HB3	2:C:256:MET:HE3	1.94	0.49
1:B:603:GLY:HA2	1:B:606:LEU:HB2	1.94	0.49
1:B:806:ILE:HD12	1:B:806:ILE:H	1.77	0.49
2:C:61:THR:HG22	2:C:334:LEU:HB3	1.94	0.49
2:C:124:ARG:HE	2:C:248:HIS:HE1	1.60	0.49
1:B:634:GLU:HB3	1:B:637:LEU:HD23	1.93	0.49
2:C:263:ILE:HD13	2:C:294:ILE:HD12	1.94	0.49
1:A:208:LEU:HD21	1:A:217:ARG:HH11	1.77	0.49
1:B:163:PHE:HB3	1:B:166:LEU:HB3	1.95	0.49
2:C:426:LYS:O	2:C:553:TYR:HA	2.12	0.49
1:A:806:ILE:HD13	1:A:826:LEU:HD23	1.95	0.48
2:C:19:PRO:O	2:C:23:ASP:OD2	2.31	0.48
2:C:456:LYS:O	2:C:460:GLU:HG2	2.13	0.48
1:B:36:SER:HB2	1:B:578:ALA:HA	1.95	0.48
1:B:398:GLN:HB3	3:F:28:DA:OP2	2.13	0.48
2:C:532:SER:HA	2:C:535:LEU:HD23	1.95	0.48
3:E:12:DG:H2'	3:E:13:DT:H71	1.95	0.48
1:A:67:GLY:O	1:A:69:MET:HE2	2.12	0.48
1:A:327:MET:HB3	1:A:364:VAL:HG11	1.95	0.48
1:A:115:ARG:HH21	1:A:466:GLU:HA	1.78	0.48
2:C:143:VAL:O	2:C:146:ILE:HG12	2.13	0.48
2:D:119:ASN:HB3	2:D:122:VAL:HB	1.95	0.48
2:D:356:ASP:HA	2:D:359:ARG:HG2	1.95	0.48
1:A:23:PRO:HD2	1:A:28:ILE:HG13	1.95	0.48
2:D:281:LYS:HB3	2:D:284:GLU:HB2	1.94	0.48
2:D:523:LEU:HG	2:D:555:TYR:CD2	2.49	0.48
1:A:604:ALA:O	1:A:608:GLY:HA2	2.13	0.48
1:A:699:VAL:HB	1:A:867:TYR:HD1	1.78	0.48
1:B:307:LEU:HB3	1:B:339:VAL:HG13	1.96	0.48
1:B:534:HIS:CE1	1:B:536:ARG:HB2	2.49	0.48
1:B:573:ASP:N	1:B:587:HIS:HB3	2.29	0.48
1:B:766:MET:HB3	1:B:768:PHE:CE2	2.48	0.48
2:D:163:GLU:HB2	2:D:244:ARG:HD2	1.96	0.48
1:A:285:CYS:HA	1:A:291:ARG:HH22	1.78	0.48
1:A:715:ALA:HB2	1:A:836:LEU:HD12	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:752:ARG:NH2	1:B:757:THR:HA	2.29	0.48
2:C:333:PHE:CE2	2:C:335:LEU:HB3	2.49	0.48
2:C:476:LEU:HD12	2:C:480:VAL:HG21	1.95	0.48
1:A:108:TYR:HA	1:A:111:LEU:HD12	1.95	0.48
1:B:570:TRP:CE3	1:B:589:GLY:HA3	2.49	0.48
1:B:615:PRO:HD2	1:B:912:ASP:HB3	1.95	0.48
2:C:101:ALA:H	2:C:110:ILE:HG13	1.79	0.48
1:B:233:VAL:HG13	1:B:251:PHE:HB2	1.95	0.48
1:B:326:ARG:HG3	1:B:327:MET:SD	2.52	0.48
1:B:407:MET:CE	1:B:408:ARG:NH1	2.77	0.48
1:B:857:LEU:HB3	1:B:891:LEU:HD22	1.96	0.47
3:F:14:DG:H2"	3:F:15:DA:H5'	1.96	0.47
1:A:726:THR:HA	1:A:741:PRO:HG3	1.96	0.47
2:C:266:GLU:HG3	2:C:312:HIS:CE1	2.50	0.47
2:D:65:VAL:HG13	2:D:142:VAL:HG23	1.96	0.47
2:D:78:ASN:O	2:D:82:GLU:HG3	2.14	0.47
2:D:490:LEU:O	2:D:494:LEU:HG	2.14	0.47
1:A:629:VAL:HG12	1:A:642:VAL:HB	1.95	0.47
1:A:733:GLU:HG2	1:A:734:ALA:N	2.29	0.47
1:A:933:THR:HG22	1:A:935:GLU:H	1.78	0.47
1:B:864:ARG:HA	1:B:896:ASN:HA	1.96	0.47
2:C:51:ALA:O	2:C:55:GLU:HG3	2.14	0.47
2:C:88:GLU:HG3	2:C:127:ALA:HA	1.96	0.47
2:D:486:ARG:HH11	2:D:486:ARG:N	2.13	0.47
1:A:605:TYR:HB2	1:A:878:PHE:HB2	1.96	0.47
1:A:626:GLN:HE21	1:A:643:SER:HB2	1.79	0.47
1:B:208:LEU:HD11	1:B:217:ARG:HB3	1.96	0.47
2:C:361:LEU:HA	2:C:366:PHE:HD2	1.79	0.47
2:D:16:PRO:HD2	2:D:54:TRP:CZ2	2.47	0.47
1:A:418:THR:HG21	1:A:442:ILE:HG22	1.95	0.47
1:A:904:ASN:HB3	1:A:907:VAL:HG22	1.96	0.47
1:B:228:LEU:HD23	2:C:197:ARG:HH12	1.80	0.47
2:D:90:GLU:HG3	2:D:129:ALA:HB2	1.96	0.47
1:A:326:ARG:HD3	1:A:366:TYR:HB2	1.97	0.47
1:A:327:MET:H	1:A:327:MET:CE	2.28	0.47
1:B:402:ARG:HE	1:B:682:VAL:HG22	1.79	0.47
1:B:692:LEU:HD12	1:B:692:LEU:N	2.30	0.47
2:C:241:LEU:HD12	2:C:241:LEU:HA	1.80	0.47
2:C:544:ARG:NH2	2:C:545:ASN:HD22	2.12	0.47
3:E:21:DG:H2"	3:E:22:DG:H8	1.78	0.47
2:D:40:LEU:HB2	2:D:393:TYR:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:862:THR:N	1:A:863:GLY:HA2	2.30	0.47
1:A:872:PRO:HB2	1:A:881:ILE:HG12	1.97	0.47
1:B:769:LEU:HD12	1:B:770:PRO:HD2	1.97	0.47
2:D:49:SER:HB3	2:D:76:LEU:HD22	1.96	0.47
2:D:486:ARG:O	2:D:489:GLU:HG3	2.14	0.47
1:B:51:GLN:HA	1:B:54:TYR:CD1	2.50	0.47
1:B:650:THR:HG23	1:B:899:ILE:HG23	1.97	0.47
3:E:2:DA:H2"	3:E:3:DG:N7	2.30	0.47
2:D:30:ARG:HG2	2:D:30:ARG:O	2.13	0.47
2:D:423:PRO:HD3	2:D:545:ALA:HA	1.97	0.47
1:B:483:PHE:HE1	1:B:547:ARG:HD2	1.79	0.47
2:C:62:LEU:HD13	2:C:325:LEU:HD23	1.97	0.47
2:C:92:SER:HB3	2:C:94:TYR:HD2	1.80	0.47
1:A:7:VAL:HB	1:A:20:LEU:HD23	1.96	0.46
1:A:8:LYS:HE2	1:A:8:LYS:HB2	1.59	0.46
2:C:311:ARG:HB2	2:C:316:ARG:NH2	2.31	0.46
2:D:297:GLU:O	2:D:300:ARG:HG2	2.15	0.46
2:D:485:LEU:HG	2:D:486:ARG:HD2	1.97	0.46
1:A:756:CYS:SG	1:A:776:CYS:HB3	2.49	0.46
1:B:862:THR:H	1:B:863:GLY:HA2	1.79	0.46
3:E:27:DC:H2'	3:E:28:DA:C8	2.50	0.46
1:B:672:LEU:O	1:B:676:LEU:HB3	2.14	0.46
2:C:160:VAL:HG21	2:C:176:LEU:HD23	1.97	0.46
2:D:30:ARG:NH1	2:D:38:VAL:HG22	2.31	0.46
2:D:299:MET:SD	2:D:299:MET:N	2.87	0.46
1:B:822:TYR:O	1:B:826:LEU:HD23	2.15	0.46
2:C:3:GLY:HA2	2:C:135:ARG:HB3	1.97	0.46
2:C:564:ALA:O	2:C:567:GLU:HG3	2.15	0.46
2:D:295:ASP:HA	2:D:299:MET:CE	2.44	0.46
2:D:426:VAL:C	2:D:554:MET:HE2	2.35	0.46
1:B:510:ARG:HA	1:B:510:ARG:CZ	2.46	0.46
1:B:632:ALA:O	1:B:637:LEU:HB3	2.16	0.46
1:B:698:LEU:HA	1:B:866:VAL:O	2.16	0.46
2:D:562:SER:O	2:D:565:GLU:HG3	2.15	0.46
1:A:290:ILE:HD11	1:A:292:LYS:HG2	1.97	0.46
2:C:139:VAL:HB	2:C:329:PHE:HZ	1.81	0.46
2:C:196:VAL:HG12	2:C:201:VAL:HG22	1.98	0.46
2:D:50:ALA:HB1	2:D:54:TRP:CZ2	2.51	0.46
1:A:93:ARG:HH21	1:A:96:ARG:HH21	1.62	0.46
1:B:105:VAL:HG12	1:B:480:ARG:HH21	1.81	0.46
1:B:407:MET:HE2	1:B:408:ARG:NH1	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:614:ILE:HD11	1:B:934:PRO:HG2	1.97	0.46
2:C:483:LEU:HA	2:C:486:VAL:HG12	1.97	0.46
1:A:668:LEU:O	1:A:672:LEU:HD12	2.16	0.46
1:B:511:LEU:HD22	1:B:541:LEU:HD11	1.97	0.46
1:B:663:LEU:HA	1:B:667:ILE:HD11	1.96	0.46
2:C:452:THR:HG22	2:C:520:ILE:HA	1.97	0.46
2:D:33:ALA:HB3	2:D:35:GLU:OE1	2.15	0.46
1:A:651:SER:HB3	1:A:914:ILE:HD13	1.98	0.46
2:C:37:VAL:HA	2:C:391:TYR:HB2	1.97	0.46
2:C:73:GLN:HA	2:C:76:ASN:HD21	1.80	0.46
2:C:81:MET:SD	2:C:82:LEU:HG	2.56	0.46
2:C:189:PHE:HE1	2:C:194:PHE:HA	1.80	0.46
2:D:523:LEU:HG	2:D:555:TYR:HD2	1.80	0.46
1:A:487:VAL:HG13	1:A:540:ARG:HH22	1.81	0.46
1:B:108:TYR:CZ	1:B:477:ILE:CG1	2.99	0.46
1:B:179:ARG:N	1:B:203:VAL:HA	2.31	0.46
1:B:876:LEU:HD13	1:B:881:ILE:HG12	1.98	0.46
2:C:367:ARG:HD3	2:C:367:ARG:HA	1.71	0.46
2:C:413:ILE:HG23	2:C:575:GLN:HA	1.97	0.46
2:C:480:VAL:HG13	2:C:484:ARG:HH11	1.81	0.46
2:D:93:VAL:HG23	2:D:143:ALA:HB1	1.97	0.46
2:D:485:LEU:CB	2:D:486:ARG:HH11	2.28	0.46
1:B:331:LEU:HG	1:B:337:PHE:HE1	1.81	0.45
2:C:73:GLN:HA	2:C:76:ASN:ND2	2.31	0.45
2:C:466:LEU:O	2:C:466:LEU:HD12	2.16	0.45
2:D:352:MET:O	2:D:352:MET:HE3	2.16	0.45
1:A:151:VAL:HG11	1:A:221:SER:HB2	1.97	0.45
1:B:29:VAL:HG22	1:B:557:VAL:HB	1.96	0.45
1:B:299:VAL:HG23	1:B:312:VAL:HG13	1.99	0.45
1:B:701:VAL:HG11	1:B:853:LEU:HD22	1.98	0.45
1:B:723:LYS:HE2	1:B:818:GLY:O	2.16	0.45
2:C:467:LEU:HB3	2:C:473:VAL:HG22	1.98	0.45
3:E:2:DA:H2"	3:E:3:DG:C8	2.51	0.45
2:D:302:VAL:HG23	2:D:303:GLY:N	2.31	0.45
1:A:106:TYR:O	1:A:109:LEU:CD1	2.58	0.45
1:B:159:ARG:HB3	1:B:163:PHE:CZ	2.52	0.45
1:B:613:GLU:OE1	1:B:613:GLU:HA	2.17	0.45
1:A:294:VAL:HB	1:A:500:THR:HG21	1.99	0.45
1:A:640:ILE:HG21	1:A:928:VAL:H	1.81	0.45
1:B:51:GLN:HA	1:B:54:TYR:CE1	2.50	0.45
1:B:108:TYR:O	1:B:112:LEU:HD13	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:544:ARG:HH22	2:C:545:ASN:HD22	1.63	0.45
3:F:25:DA:H2'	3:F:26:DC:O4'	2.16	0.45
1:A:157:ARG:CZ	1:A:250:ARG:HH22	2.30	0.45
1:A:244:ALA:HB3	1:A:247:ARG:HA	1.99	0.45
1:B:93:ARG:HB2	1:B:498:ALA:HB1	1.97	0.45
1:B:325:THR:HA	1:B:328:MET:HG3	1.98	0.45
1:B:826:LEU:HD13	1:B:851:VAL:HG21	1.99	0.45
2:C:176:LEU:O	2:C:180:VAL:HG13	2.17	0.45
2:C:270:ARG:HD3	2:C:362:VAL:HG13	1.98	0.45
1:A:493:SER:HB3	1:A:496:ARG:HD3	1.99	0.45
1:B:137:VAL:HG12	1:B:218:LEU:HD11	1.99	0.45
1:B:425:LEU:HD12	1:B:426:ALA:N	2.32	0.45
1:B:634:GLU:N	1:B:637:LEU:HB2	2.31	0.45
1:B:913:TRP:CZ2	1:B:932:GLY:HA2	2.51	0.45
2:C:263:ILE:HG21	2:C:294:ILE:HG13	1.99	0.45
2:C:464:ASP:HA	2:C:467:LEU:HG	1.99	0.45
1:A:241:GLU:HG2	1:A:245:PRO:O	2.17	0.45
1:B:237:PHE:HB3	1:B:239:ASP:CG	2.37	0.45
1:B:510:ARG:HG2	1:B:510:ARG:HH11	1.82	0.45
2:C:19:PRO:O	2:C:22:ILE:HG22	2.17	0.45
2:C:132:LEU:HB3	2:C:156:LEU:HD13	1.98	0.45
2:D:28:GLU:HG3	2:D:58:ARG:CZ	2.47	0.45
2:D:417:PRO:HA	2:D:580:TYR:HE2	1.82	0.45
1:B:108:TYR:O	1:B:112:LEU:CD1	2.65	0.45
1:B:315:TRP:CD1	1:B:324:PHE:HD2	2.33	0.45
1:B:507:GLN:HG2	1:B:529:PRO:HB2	1.99	0.45
2:D:41:LEU:HB2	2:D:410:PHE:HE1	1.81	0.45
1:A:310:GLY:HA3	1:A:675:ARG:HG3	1.99	0.45
2:D:3:ARG:HH21	2:D:133:LEU:HD22	1.82	0.45
1:A:305:ARG:HH22	1:A:309:GLN:HB3	1.81	0.44
1:A:327:MET:HE3	1:A:327:MET:H	1.83	0.44
1:B:241:GLU:HG2	1:B:243:GLY:H	1.82	0.44
1:B:492:LEU:HG	1:B:496:ARG:HD2	1.98	0.44
1:B:721:PHE:HE1	1:B:802:LEU:HD11	1.82	0.44
2:C:263:ILE:HG13	2:C:312:HIS:CD2	2.52	0.44
2:D:68:PRO:HD2	2:D:72:LEU:HD23	1.99	0.44
2:D:427:VAL:CA	2:D:554:MET:HE2	2.48	0.44
1:A:216:ARG:HH22	2:D:172:ARG:HB2	1.82	0.44
1:B:179:ARG:HG3	1:B:184:VAL:HG22	1.98	0.44
1:B:634:GLU:H	1:B:637:LEU:HB2	1.82	0.44
2:C:293:ASP:O	2:C:297:MET:SD	2.74	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:456:LYS:H	2:C:456:LYS:HG2	1.62	0.44
1:A:139:GLN:HB2	1:A:251:PHE:HZ	1.83	0.44
2:C:512:LEU:HD23	2:C:515:VAL:HB	1.99	0.44
3:E:26:DC:H3'	3:E:27:DC:C6	2.52	0.44
1:A:63:ARG:HA	1:A:63:ARG:HD3	1.77	0.44
1:A:662:THR:HA	1:A:666:ASP:HB3	1.99	0.44
1:B:291:ARG:HD2	1:B:291:ARG:H	1.81	0.44
1:B:337:PHE:HZ	1:B:354:ILE:HD13	1.83	0.44
1:B:514:GLN:OE1	1:B:515:ILE:HG13	2.17	0.44
3:E:4:DT:H2'	3:E:5:DC:C2	2.52	0.44
2:D:230:HIS:HB3	2:D:235:GLU:H	1.83	0.44
2:D:451:VAL:C	2:D:452:LEU:HD23	2.37	0.44
1:A:322:GLU:H	1:A:322:GLU:HG2	1.60	0.44
1:A:680:ARG:HD3	3:F:14:DG:H5'	2.00	0.44
2:D:80:LEU:O	2:D:84:LEU:HB2	2.17	0.44
2:D:134:LEU:HD13	2:D:158:LEU:HB2	1.98	0.44
1:A:241:GLU:HG2	1:A:246:HIS:HA	1.97	0.44
1:A:610:GLU:HB2	1:A:882:ARG:HD3	1.99	0.44
1:A:614:ILE:HB	1:A:910:THR:HG23	1.99	0.44
1:A:617:ILE:HG22	1:A:619:ARG:H	1.83	0.44
1:B:167:PHE:HE2	1:B:193:LEU:HD11	1.82	0.44
1:B:194:LYS:HA	1:B:194:LYS:HD3	1.83	0.44
1:B:559:GLU:HG2	1:B:564:THR:HG21	2.00	0.44
1:B:857:LEU:HG	1:B:867:TYR:CE2	2.52	0.44
1:A:33:LEU:HB3	1:A:880:ASP:OD2	2.18	0.44
2:C:529:LEU:C	2:C:533:ARG:HH12	2.21	0.44
2:D:205:ILE:HG22	2:D:214:VAL:HB	2.00	0.44
2:D:343:HIS:CE1	2:D:400:PRO:HD3	2.53	0.44
1:A:290:ILE:HD13	1:A:446:CYS:HB3	2.00	0.44
1:A:672:LEU:HB3	1:A:676:LEU:HD22	2.00	0.44
1:B:96:ARG:HH12	3:F:28:DA:H8	1.65	0.44
1:B:511:LEU:HG	1:B:514:GLN:NE2	2.33	0.44
2:C:504:ASN:ND2	3:F:2:DA:H4'	2.32	0.44
1:A:444:GLU:HB3	1:A:445:VAL:H	1.59	0.44
1:B:629:VAL:HG13	1:B:629:VAL:O	2.18	0.44
1:B:905:LEU:HD11	1:B:949:LEU:HA	1.98	0.44
2:C:33:GLU:HG3	2:C:35:ASP:H	1.82	0.44
2:D:459:LYS:H	2:D:459:LYS:HD2	1.83	0.44
1:A:33:LEU:HA	1:A:876:LEU:HA	1.99	0.43
1:A:389:ARG:O	1:A:393:GLN:HB3	2.18	0.43
1:A:618:ARG:HE	1:A:912:ASP:HA	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:722:ASP:HA	1:A:725:ARG:HD2	1.98	0.43
1:B:18:VAL:HG11	1:B:585:ILE:HD11	2.00	0.43
1:B:511:LEU:HD21	1:B:544:THR:OG1	2.18	0.43
2:D:160:ARG:HE	2:D:257:ARG:HD2	1.83	0.43
1:A:522:VAL:HG13	1:A:524:TYR:CE1	2.53	0.43
1:A:740:GLN:NE2	2:C:185:ASN:HA	2.32	0.43
1:B:149:PHE:H	1:B:210:VAL:HG11	1.83	0.43
2:C:492:LEU:HB3	2:C:497:TYR:OH	2.18	0.43
2:D:425:VAL:HG12	2:D:554:MET:HE1	2.00	0.43
1:B:723:LYS:HZ3	1:B:819:VAL:HG12	1.83	0.43
2:D:104:TYR:CD2	2:D:362:ASN:HB3	2.44	0.43
2:D:264:ALA:O	2:D:267:GLU:HG3	2.18	0.43
1:B:83:ALA:HB1	1:B:525:VAL:HG22	1.99	0.43
1:B:307:LEU:HD11	1:B:312:VAL:HG23	2.00	0.43
1:B:528:GLU:HG3	1:B:559:GLU:OE1	2.19	0.43
1:B:831:LEU:HD11	1:B:847:GLU:HG3	2.00	0.43
2:C:544:ARG:HG2	2:C:544:ARG:O	2.19	0.43
2:D:254:GLY:O	2:D:258:MET:SD	2.76	0.43
2:D:559:ILE:HG23	2:D:563:MET:HB2	2.00	0.43
2:D:561:ASP:HA	2:D:564:ARG:CZ	2.49	0.43
1:B:368:ASN:HD21	1:B:370:TYR:HB2	1.83	0.43
1:B:677:ASN:HD21	1:B:698:LEU:H	1.65	0.43
2:C:214:ILE:HG22	2:C:224:LEU:HD23	1.91	0.43
2:C:561:MET:SD	2:C:565:ILE:HD12	2.58	0.43
2:D:169:GLU:HG3	2:D:222:GLU:HB2	1.99	0.43
1:A:167:PHE:HE1	1:A:178:VAL:HG21	1.83	0.43
1:A:835:ARG:HG2	1:A:838:GLN:HB2	2.00	0.43
1:B:297:GLU:H	1:B:297:GLU:HG3	1.67	0.43
1:B:575:GLY:HA2	1:B:582:GLY:O	2.19	0.43
1:B:894:LYS:HE3	1:B:894:LYS:HB3	1.81	0.43
2:C:100:GLU:HG3	2:C:111:GLU:HA	2.01	0.43
2:C:132:LEU:HD12	2:C:155:TYR:CE2	2.53	0.43
2:C:270:ARG:HE	2:C:274:LEU:HG	1.84	0.43
2:D:4:ALA:H	2:D:136:ARG:HA	1.84	0.43
1:A:30:PHE:CZ	1:A:556:ILE:HD12	2.54	0.43
1:B:355:LEU:HD23	1:B:355:LEU:HA	1.82	0.43
1:B:402:ARG:HD2	1:B:402:ARG:HA	1.80	0.43
1:B:494:LEU:HA	1:B:496:ARG:NH1	2.33	0.43
1:B:728:PHE:HZ	1:B:801:VAL:HG11	1.82	0.43
2:C:523:ALA:HB1	2:C:530:ARG:HD2	2.01	0.43
1:A:179:ARG:HE	1:A:182:GLY:HA2	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:840:ALA:N	1:A:841:PRO:HD2	2.34	0.43
2:D:133:LEU:HD23	2:D:133:LEU:HA	1.79	0.43
2:D:165:LYS:HD2	2:D:166:VAL:O	2.19	0.43
2:D:352:MET:HE3	2:D:356:ASP:N	2.33	0.43
1:A:389:ARG:HH22	1:A:390:LYS:HD3	1.84	0.43
1:A:721:PHE:O	1:A:725:ARG:HG3	2.19	0.43
1:B:828:ASP:O	1:B:883:LYS:HB3	2.19	0.43
1:B:854:ALA:HA	1:B:857:LEU:HD13	2.01	0.43
2:C:290:THR:HG21	2:C:368:LEU:HD21	2.00	0.43
1:A:937:VAL:HG22	1:A:946:GLY:HA3	2.01	0.43
2:C:163:LYS:HG2	2:C:166:GLU:HB3	2.01	0.43
2:D:59:LEU:HD12	2:D:336:LEU:HD22	2.00	0.43
1:A:232:ILE:HG13	1:A:252:SER:CA	2.47	0.42
1:A:387:LEU:HB3	1:A:391:MET:CE	2.48	0.42
1:B:84:VAL:HG23	1:B:86:ILE:HD11	2.01	0.42
1:B:103:THR:OG1	1:B:105:VAL:HG22	2.19	0.42
1:B:493:SER:O	1:B:496:ARG:HD3	2.19	0.42
1:B:605:TYR:HB2	1:B:878:PHE:CD2	2.53	0.42
1:B:629:VAL:O	1:B:641:ASP:HA	2.19	0.42
1:B:722:ASP:O	1:B:725:ARG:HG2	2.19	0.42
2:C:79:ARG:HH22	2:C:123:LEU:HD22	1.84	0.42
1:A:36:SER:HB2	1:A:575:GLY:HA3	2.01	0.42
1:A:412:CYS:HB3	1:A:415:CYS:SG	2.59	0.42
3:E:6:DA:H4'	2:D:308:ILE:HG22	1.99	0.42
3:F:2:DA:H2'	3:F:3:DG:C6	2.54	0.42
2:D:203:VAL:HB	2:D:216:ILE:HG13	2.01	0.42
1:B:315:TRP:HD1	1:B:324:PHE:HD2	1.67	0.42
2:D:525:ALA:HB2	2:D:532:ARG:HH11	1.84	0.42
1:A:163:PHE:HD1	1:A:166:LEU:HB2	1.84	0.42
1:A:391:MET:HA	1:A:400:LYS:HB2	2.01	0.42
1:A:732:THR:O	1:A:736:VAL:HG22	2.20	0.42
1:A:909:LYS:NZ	1:A:953:VAL:HA	2.34	0.42
1:B:511:LEU:HD22	1:B:541:LEU:CD1	2.48	0.42
1:B:584:ARG:C	1:B:585:ILE:HD13	2.39	0.42
1:B:621:VAL:HG12	1:B:625:ARG:HG2	2.01	0.42
1:B:43:PHE:O	1:B:47:PHE:HD2	2.02	0.42
2:D:18:GLY:O	2:D:21:PRO:HD2	2.19	0.42
2:D:175:LEU:O	2:D:178:LEU:HG	2.20	0.42
1:A:232:ILE:HD11	1:A:250:ARG:NH2	2.34	0.42
1:A:288:LEU:H	1:A:419:ARG:HG3	1.85	0.42
1:B:118:THR:HA	1:B:119:PRO:HD3	1.93	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:449:SER:HB2	1:B:493:SER:HA	2.02	0.42
1:B:720:VAL:HA	1:B:723:LYS:HZ1	1.84	0.42
2:C:109:TYR:CE2	2:C:111:GLU:HG3	2.54	0.42
2:C:266:GLU:HG3	2:C:312:HIS:HE1	1.85	0.42
2:C:274:LEU:HB3	2:C:283:ALA:HB2	2.01	0.42
2:C:303:CYS:SG	2:C:306:ILE:HB	2.59	0.42
2:D:16:PRO:HG3	2:D:24:ILE:HD13	2.02	0.42
2:D:191:PHE:CZ	2:D:206:ILE:HG13	2.54	0.42
1:A:831:LEU:HD22	1:A:833:TYR:CE1	2.55	0.42
1:B:285:CYS:HB3	1:B:412:CYS:SG	2.60	0.42
2:D:362:ASN:O	2:D:366:TYR:HB2	2.19	0.42
2:D:429:PRO:CB	2:D:431:LYS:NZ	2.73	0.42
1:A:444:GLU:O	1:A:448:LEU:HB2	2.20	0.42
1:B:323:TYR:CD2	1:B:374:ARG:HD2	2.54	0.42
2:D:205:ILE:HD12	2:D:205:ILE:HA	1.83	0.42
2:D:416:ARG:HD2	2:D:420:LEU:HB2	2.01	0.42
1:A:180:VAL:O	1:A:183:VAL:HG12	2.20	0.42
1:A:608:GLY:C	1:A:610:GLU:H	2.22	0.42
1:A:786:ARG:HA	1:A:786:ARG:HD2	1.87	0.42
1:B:298:LEU:HD23	1:B:685:ARG:HG3	2.00	0.42
1:B:520:VAL:HG22	1:B:551:LEU:HB3	2.02	0.42
2:D:65:VAL:HG23	2:D:338:VAL:HB	2.01	0.42
2:D:182:VAL:HG23	2:D:184:TYR:CD1	2.54	0.42
2:D:313:ARG:HB2	2:D:318:ARG:NH2	2.35	0.42
1:A:301:PRO:O	1:A:303:PRO:HD3	2.20	0.42
1:A:354:ILE:HD12	1:A:354:ILE:HA	1.84	0.42
1:A:612:ILE:HG22	1:A:613:GLU:H	1.84	0.42
1:A:826:LEU:HD12	1:A:826:LEU:C	2.40	0.42
1:B:864:ARG:CD	1:B:864:ARG:H	2.33	0.42
2:C:74:LEU:HD12	2:C:74:LEU:HA	1.85	0.42
2:C:255:ARG:HB3	2:C:256:MET:HE1	2.01	0.42
2:D:423:PRO:HG3	2:D:544:ALA:HB3	2.02	0.42
1:A:67:GLY:O	1:A:68:GLN:HB2	2.19	0.41
1:A:667:ILE:HA	1:A:683:PRO:O	2.20	0.41
1:B:29:VAL:HB	1:B:571:ILE:HG12	2.02	0.41
1:B:326:ARG:NH1	1:B:366:TYR:H	2.18	0.41
2:C:39:LEU:HD13	2:C:396:PRO:HG3	2.01	0.41
2:D:37:ASP:HB3	2:D:406:THR:HG22	2.01	0.41
2:D:406:THR:HB	2:D:409:GLU:HG3	2.01	0.41
2:D:499:TYR:HE2	2:D:502:LEU:HG	1.85	0.41
1:A:211:LYS:HG2	1:A:214:ALA:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:573:ASP:HB3	1:A:587:HIS:HB3	2.01	0.41
1:A:749:LYS:HD2	1:A:749:LYS:HA	1.78	0.41
1:B:38:LYS:HB3	1:B:574:ILE:HB	2.01	0.41
1:B:108:TYR:OH	1:B:477:ILE:CG1	2.68	0.41
1:B:424:ILE:O	1:B:428:THR:HG23	2.19	0.41
1:B:720:VAL:HG22	1:B:822:TYR:CD2	2.55	0.41
2:C:457:LYS:HG3	2:C:458:MET:CE	2.49	0.41
2:C:483:LEU:H	2:C:483:LEU:HD23	1.85	0.41
2:D:527:LYS:HB3	2:D:527:LYS:HE3	1.82	0.41
1:A:301:PRO:HG2	1:A:684:GLY:O	2.20	0.41
1:A:627:LEU:HD22	1:A:690:THR:O	2.21	0.41
1:A:696:ASP:HB2	1:A:860:ARG:NH1	2.35	0.41
1:B:271:ARG:NH1	1:B:423:GLU:HB2	2.35	0.41
1:B:327:MET:SD	1:B:327:MET:N	2.94	0.41
2:C:180:VAL:HG23	2:C:182:TYR:HD1	1.85	0.41
1:B:612:ILE:HD11	1:B:882:ARG:HG2	2.02	0.41
1:B:724:ILE:HD13	1:B:724:ILE:HA	1.89	0.41
1:B:920:GLU:HB3	1:B:924:GLY:HA3	2.03	0.41
3:E:13:DT:H2"	3:E:14:DG:O4'	2.20	0.41
1:A:86:ILE:HB	1:A:526:LEU:HG	2.02	0.41
1:A:520:VAL:HG12	1:A:551:LEU:HB3	2.03	0.41
1:B:305:ARG:HH12	1:B:692:LEU:HD22	1.85	0.41
2:C:152:PRO:HG3	2:C:327:ASP:O	2.21	0.41
3:E:19:DG:H2'	3:E:20:DT:O4'	2.20	0.41
2:D:339:ILE:HG21	2:D:342:SER:HB2	2.02	0.41
1:A:222:VAL:HG22	1:A:233:VAL:HG21	2.02	0.41
1:A:723:LYS:HZ2	1:A:818:GLY:HA3	1.85	0.41
1:B:274:SER:HB2	1:B:279:TYR:HB2	2.03	0.41
1:B:389:ARG:NH1	1:B:393:GLN:HG2	2.36	0.41
1:B:720:VAL:HG22	1:B:822:TYR:HD2	1.86	0.41
1:B:843:LEU:HD23	1:B:843:LEU:HA	1.69	0.41
1:A:176:SER:HA	1:A:187:LEU:HB2	2.02	0.41
1:A:878:PHE:HA	1:A:881:ILE:HD12	2.02	0.41
1:B:387:LEU:HB3	1:B:391:MET:HE1	2.03	0.41
2:D:64:LEU:HB2	2:D:331:PHE:CE2	2.55	0.41
1:A:323:TYR:CE1	1:A:368:ASN:HB3	2.56	0.41
1:A:383:VAL:HA	1:A:386:PHE:HB3	2.02	0.41
1:A:574:ILE:HD12	1:A:585:ILE:HA	2.03	0.41
1:A:831:LEU:HD23	1:A:831:LEU:HA	1.92	0.41
1:A:869:LEU:HD23	1:A:898:VAL:HG13	2.03	0.41
1:B:179:ARG:HB2	1:B:204:VAL:HG23	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:294:VAL:HG22	1:B:295:ASP:HA	2.02	0.41
2:D:102:GLU:HG3	2:D:113:GLU:HA	2.01	0.41
1:A:98:THR:HG23	1:A:100:GLY:N	2.35	0.41
1:A:332:GLY:HA2	1:A:337:PHE:CZ	2.56	0.41
1:A:465:ARG:HD3	1:A:465:ARG:HA	1.90	0.41
1:A:579:GLY:HA3	1:A:833:TYR:HB2	2.03	0.41
1:A:591:TYR:CE1	1:A:594:LEU:HD22	2.56	0.41
1:B:313:ALA:HB3	1:B:314:PRO:HD3	2.03	0.41
1:B:384:LEU:CD2	1:B:408:ARG:HE	2.33	0.41
1:B:397:GLU:CD	3:F:27:DC:H5"	2.41	0.41
1:B:562:GLU:HG2	1:B:878:PHE:HZ	1.85	0.41
2:C:27:ARG:HA	2:C:30:ASN:ND2	2.36	0.41
2:C:88:GLU:CG	2:C:127:ALA:HA	2.51	0.41
2:C:358:LYS:HB3	2:C:372:CYS:SG	2.61	0.41
2:C:454:LEU:HD21	2:C:522:ASP:HB3	2.02	0.41
2:C:512:LEU:HD12	2:C:513:PRO:HD2	2.03	0.41
3:E:3:DG:N2	2:D:352:MET:SD	2.94	0.41
3:E:21:DG:H2"	3:E:22:DG:C8	2.56	0.41
3:F:10:DC:H2"	3:F:11:DA:C8	2.55	0.41
3:F:36:DC:H4'	3:F:37:DT:OP1	2.21	0.41
2:D:28:GLU:O	2:D:31:ILE:HG22	2.21	0.41
2:D:81:ARG:NH2	2:D:125:LEU:HD13	2.36	0.41
2:D:206:ILE:HD11	2:D:231:PRO:HB3	2.01	0.41
2:D:272:ARG:HE	2:D:276:LEU:HG	1.86	0.41
2:D:324:PRO:O	2:D:326:THR:HG23	2.21	0.41
2:D:429:PRO:HB3	2:D:431:LYS:HZ1	1.81	0.41
1:A:709:THR:O	1:A:840:ALA:HB3	2.21	0.41
1:B:326:ARG:CD	1:B:327:MET:CE	2.99	0.41
1:B:444:GLU:HB3	1:B:445:VAL:H	1.60	0.41
1:B:538:ASN:C	1:B:540:ARG:H	2.24	0.41
1:B:860:ARG:HG3	1:B:862:THR:CG2	2.46	0.41
2:C:60:PRO:HA	2:C:137:VAL:O	2.21	0.41
2:C:213:ARG:CZ	2:C:225:TYR:HB2	2.51	0.41
2:C:467:LEU:HA	2:C:471:ILE:O	2.21	0.41
2:D:302:VAL:HG21	2:D:304:PHE:CE1	2.56	0.41
2:D:534:SER:HA	2:D:537:LEU:HD12	2.03	0.41
1:A:303:PRO:HB3	1:A:351:ARG:NH1	2.35	0.40
1:A:632:ALA:N	1:A:639:GLY:HA2	2.36	0.40
1:B:831:LEU:HD12	1:B:834:VAL:HG21	2.03	0.40
2:C:262:ALA:HB3	2:C:312:HIS:HB3	2.03	0.40
2:D:153:THR:HG23	2:D:257:ARG:HH22	1.85	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:194:LYS:HA	1:A:194:LYS:HD3	1.93	0.40
1:A:398:GLN:OE1	3:E:28:DA:H3'	2.21	0.40
1:A:752:ARG:NH2	1:A:754:GLU:HA	2.33	0.40
1:B:534:HIS:ND1	1:B:536:ARG:HB2	2.36	0.40
2:D:425:VAL:CG1	2:D:567:ILE:HG23	2.46	0.40
2:D:526:ASP:HB2	2:D:558:LYS:HG3	2.04	0.40
1:A:1:MET:HE3	1:B:6:ILE:CD1	2.51	0.40
1:A:162:GLU:N	1:A:195:LYS:HA	2.35	0.40
1:B:149:PHE:CZ	1:B:151:VAL:HB	2.56	0.40
1:B:418:THR:HG22	1:B:446:CYS:SG	2.62	0.40
1:B:429:LEU:HA	1:B:432:GLU:HB2	2.02	0.40
1:B:614:ILE:HG23	1:B:912:ASP:HB3	2.02	0.40
2:C:57:LEU:HD23	2:C:57:LEU:HA	1.87	0.40
2:C:128:THR:HG21	2:C:248:HIS:CD2	2.56	0.40
3:E:33:DT:H6	3:E:33:DT:H2'	1.77	0.40
1:A:933:THR:HG22	1:A:935:GLU:N	2.36	0.40
1:B:826:LEU:HD22	1:B:851:VAL:HG11	2.04	0.40
2:C:258:HIS:NE2	2:C:315:GLY:HA2	2.37	0.40
2:D:27:LEU:HD13	2:D:40:LEU:HD11	2.04	0.40
1:A:508:ARG:HE	1:A:533:LEU:HD23	1.85	0.40
1:A:561:ASP:O	1:A:565:ILE:HG13	2.22	0.40
1:B:930:ALA:HB2	1:B:940:VAL:HB	2.04	0.40
2:C:322:PRO:O	2:C:324:THR:HG23	2.22	0.40
2:C:440:ARG:HA	2:C:440:ARG:NE	2.36	0.40
3:E:29:DC:H6	3:E:29:DC:H2'	1.64	0.40
2:D:360:LYS:O	2:D:364:VAL:HB	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	902/993 (91%)	823 (91%)	79 (9%)	0	100	100
1	B	905/993 (91%)	850 (94%)	55 (6%)	0	100	100
2	C	587/720 (82%)	573 (98%)	14 (2%)	0	100	100
2	D	589/720 (82%)	558 (95%)	30 (5%)	1 (0%)	44	72
All	All	2983/3426 (87%)	2804 (94%)	178 (6%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	94	SER

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	753/815 (92%)	729 (97%)	24 (3%)	34	57
1	B	753/815 (92%)	715 (95%)	38 (5%)	20	47
2	C	503/602 (84%)	482 (96%)	21 (4%)	25	51
2	D	505/602 (84%)	488 (97%)	17 (3%)	32	56
All	All	2514/2834 (89%)	2414 (96%)	100 (4%)	29	52

All (100) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	30	PHE
1	A	47	PHE
1	A	93	ARG
1	A	108	TYR
1	A	109	LEU
1	A	113	TYR
1	A	143	MET
1	A	192	LYS
1	A	216	ARG
1	A	268	LEU

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Mol	Chain	Res	Type
1	A	327	MET
1	A	345	LYS
1	A	633	ARG
1	A	708	ARG
1	A	717	TYR
1	A	744	PHE
1	A	746	PHE
1	A	754	GLU
1	A	784	TYR
1	A	804	MET
1	A	820	HIS
1	A	936	ASP
1	A	943	SER
1	A	951	GLU
1	B	1	MET
1	B	11	ARG
1	B	44	ASP
1	B	47	PHE
1	B	85	SER
1	B	96	ARG
1	B	108	TYR
1	B	149	PHE
1	B	159	ARG
1	B	171	ASN
1	B	236	GLU
1	B	285	CYS
1	B	345	LYS
1	B	352	LYS
1	B	408	ARG
1	B	467	GLN
1	B	514	GLN
1	B	526	LEU
1	B	540	ARG
1	B	555	LEU
1	B	584	ARG
1	B	598	LYS
1	B	618	ARG
1	B	619	ARG
1	B	633	ARG
1	B	686	HIS
1	B	753	CYS
1	B	777	GLU

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Mol	Chain	Res	Type
1	B	783	ARG
1	B	786	ARG
1	B	813	PHE
1	B	861	SER
1	B	864	ARG
1	B	903	HIS
1	B	904	ASN
1	B	936	ASP
1	B	947	LYS
1	B	951	GLU
2	C	81	MET
2	C	147	TYR
2	C	155	TYR
2	C	187	MET
2	C	255	ARG
2	C	296	MET
2	C	297	MET
2	C	332	ASP
2	C	399	TYR
2	C	442	ARG
2	C	458	MET
2	C	464	ASP
2	C	465	TYR
2	C	469	MET
2	C	475	TYR
2	C	485	ARG
2	C	493	ARG
2	C	507	ARG
2	C	533	ARG
2	C	544	ARG
2	C	553	TYR
2	D	1	MET
2	D	30	ARG
2	D	83	MET
2	D	98	TYR
2	D	124	ARG
2	D	165	LYS
2	D	186	ARG
2	D	191	PHE
2	D	241	ASP
2	D	304	PHE
2	D	410	PHE

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Mol	Chain	Res	Type
2	D	448	ASP
2	D	458	LYS
2	D	460	MET
2	D	486	ARG
2	D	555	TYR
2	D	564	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	88	GLN
1	A	309	GLN
1	A	535	GLN
1	A	560	HIS
1	A	626	GLN
1	A	677	ASN
1	A	686	HIS
1	A	703	GLN
1	A	889	ASN
1	A	903	HIS
1	B	458	ASN
1	B	514	GLN
1	B	560	HIS
2	C	58	GLN
2	C	98	GLN
2	C	312	HIS
2	C	360	ASN
2	D	100	GLN
2	D	250	HIS
2	D	260	HIS
2	D	362	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)

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

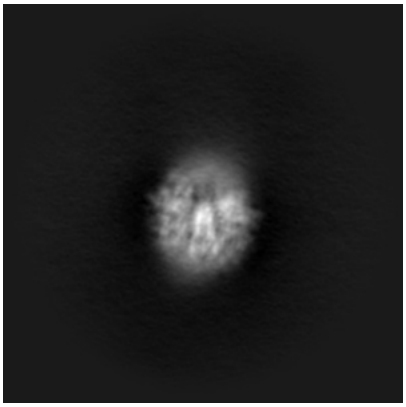
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-51173. These allow visual inspection of the internal detail of the map and identification of artifacts.

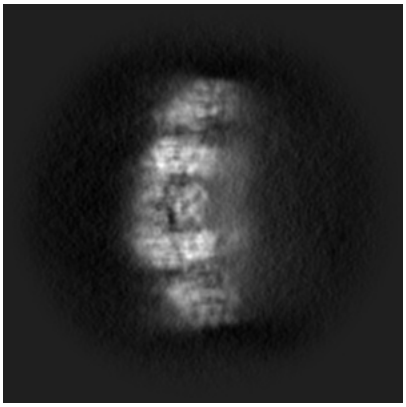
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

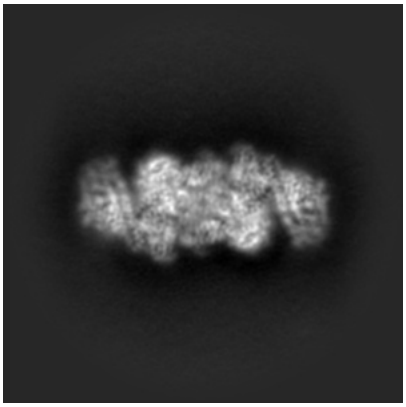
6.1.1 Primary map



X



Y

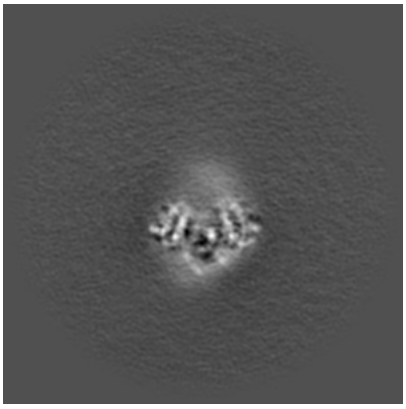


Z

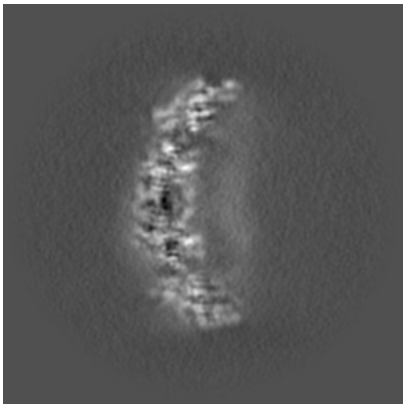
The images above show the map projected in three orthogonal directions.

6.2 Central slices

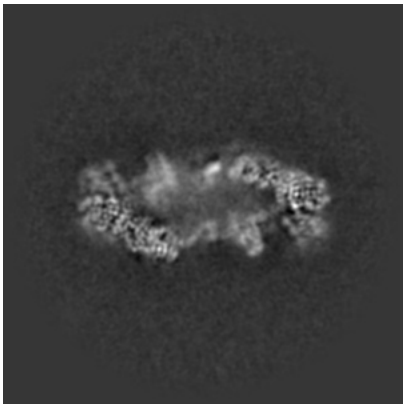
6.2.1 Primary map



X Index: 200



Y Index: 200

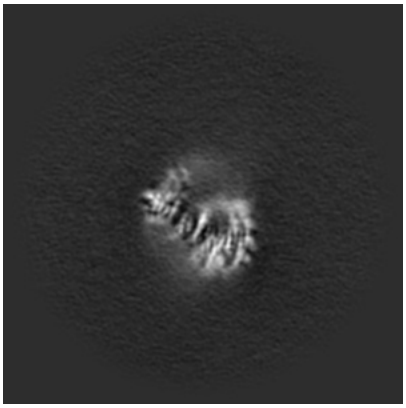


Z Index: 200

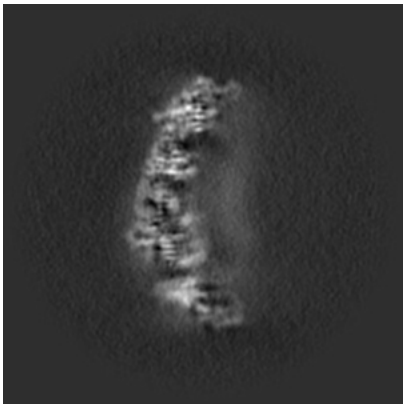
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

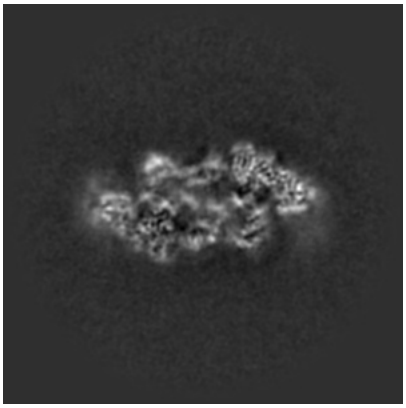
6.3.1 Primary map



X Index: 161



Y Index: 206

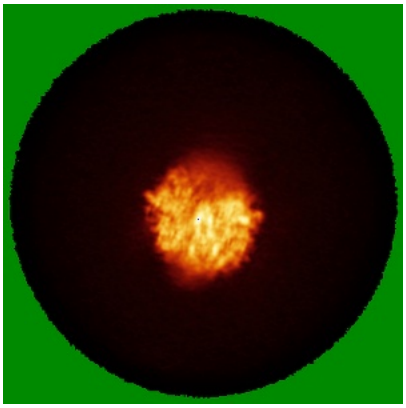


Z Index: 184

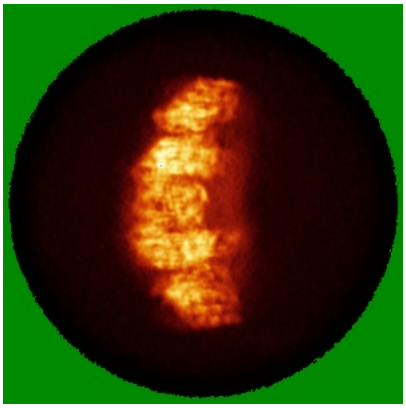
The images above show the largest variance slices of the map in three orthogonal directions.

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

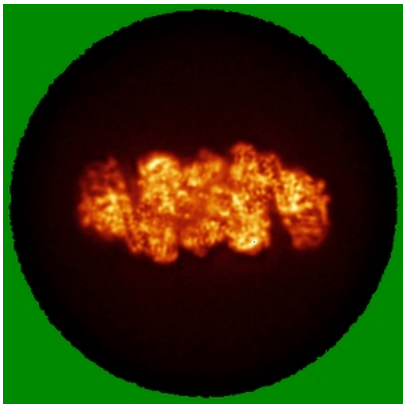
6.4.1 Primary map



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

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.22. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

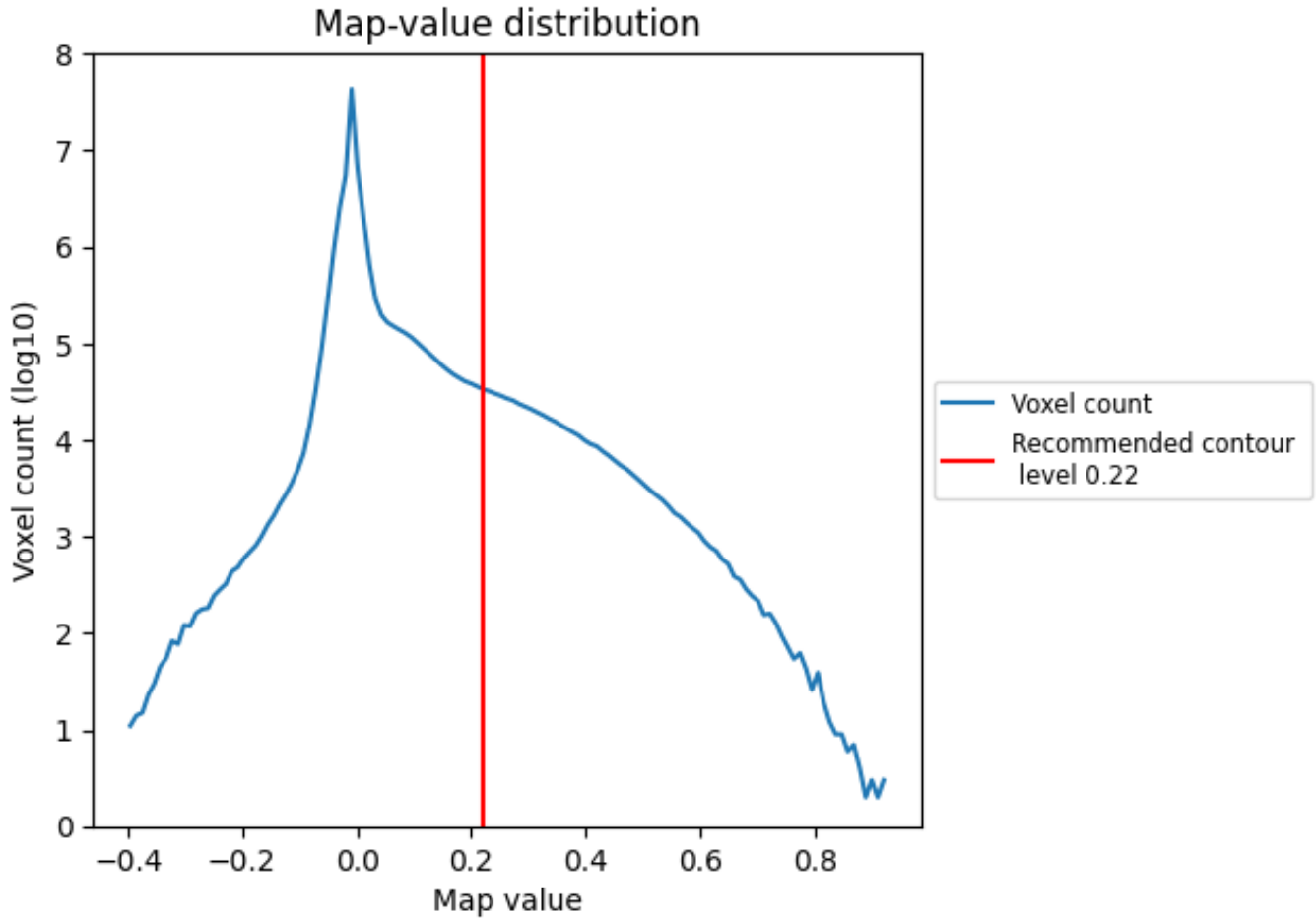
6.6 Mask visualisation (i)

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

7 Map analysis

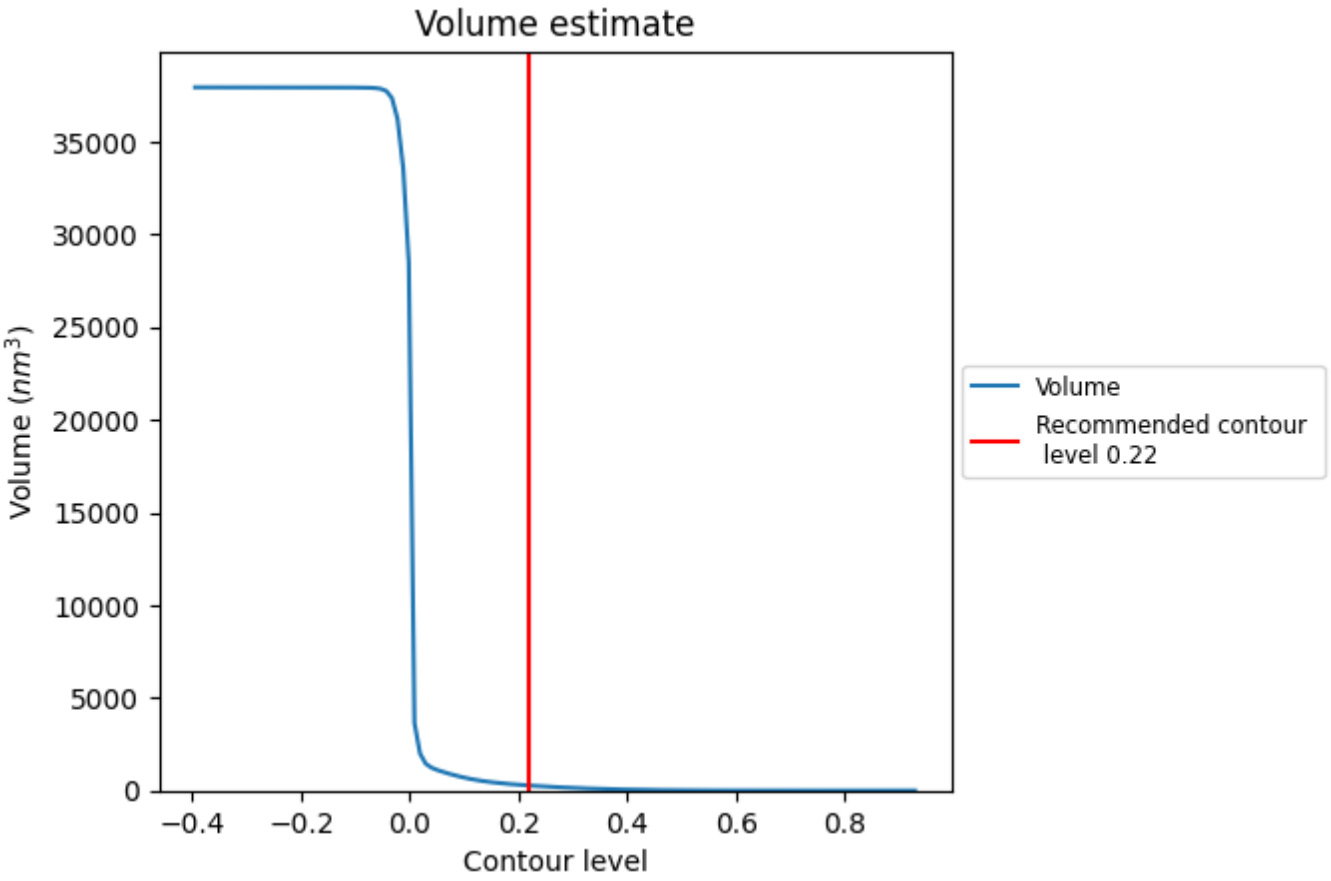
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

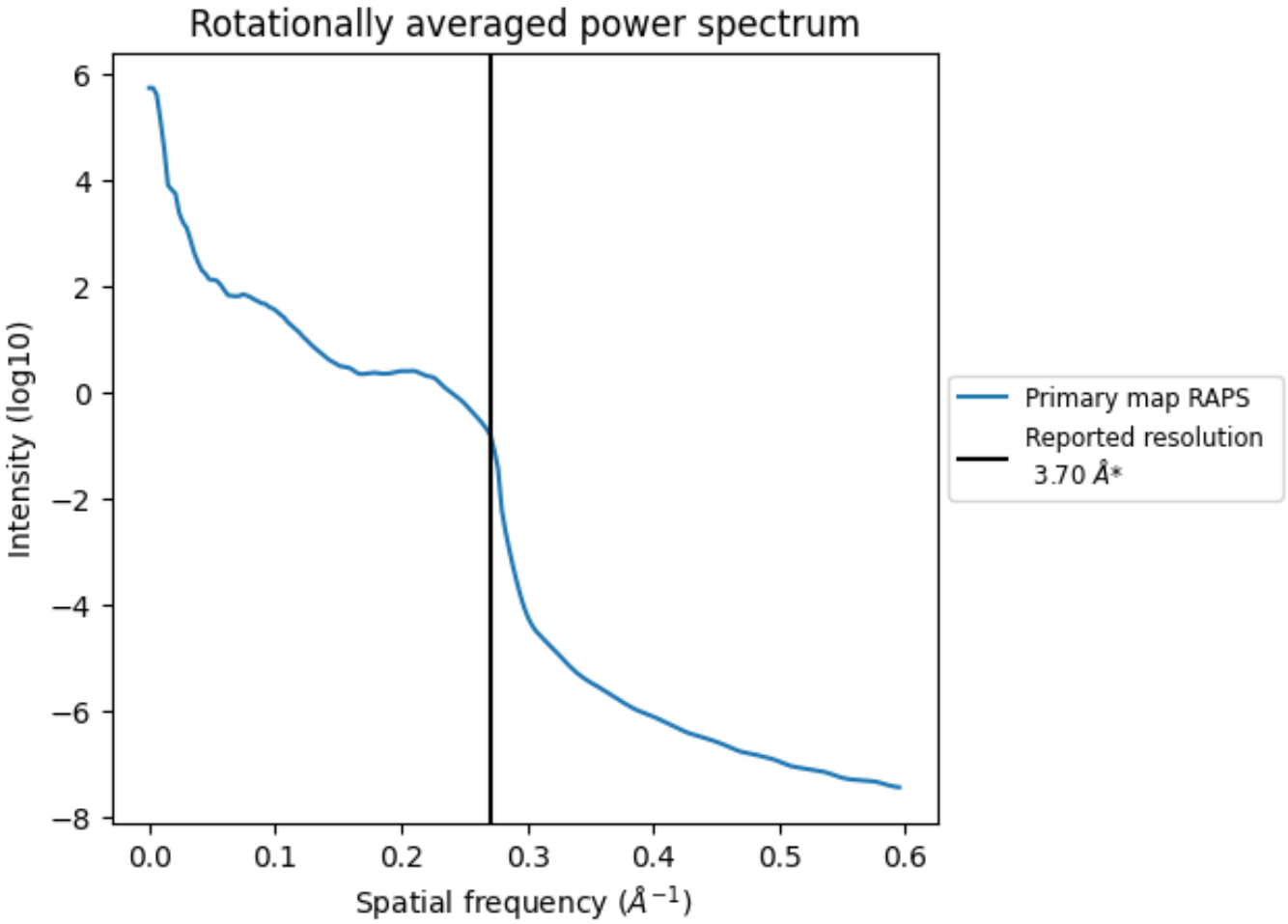
7.2 Volume estimate



The volume at the recommended contour level is 273 nm^3; this corresponds to an approximate mass of 247 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 0.270 $Å^{-1}$

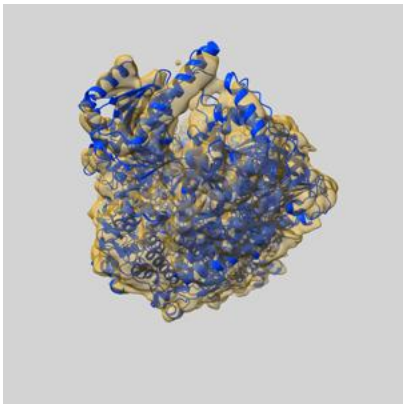
8 Fourier-Shell correlation

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

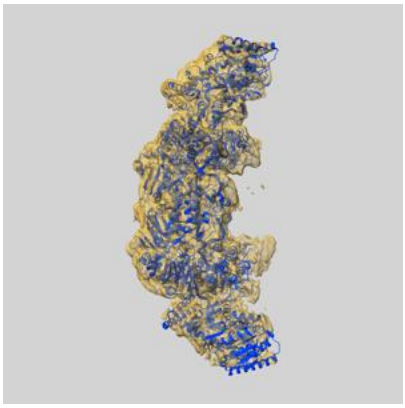
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-51173 and PDB model 9GA4. Per-residue inclusion information can be found in section 3 on page 7.

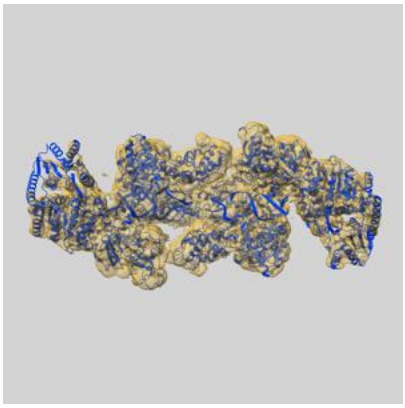
9.1 Map-model overlay



X



Y



Z

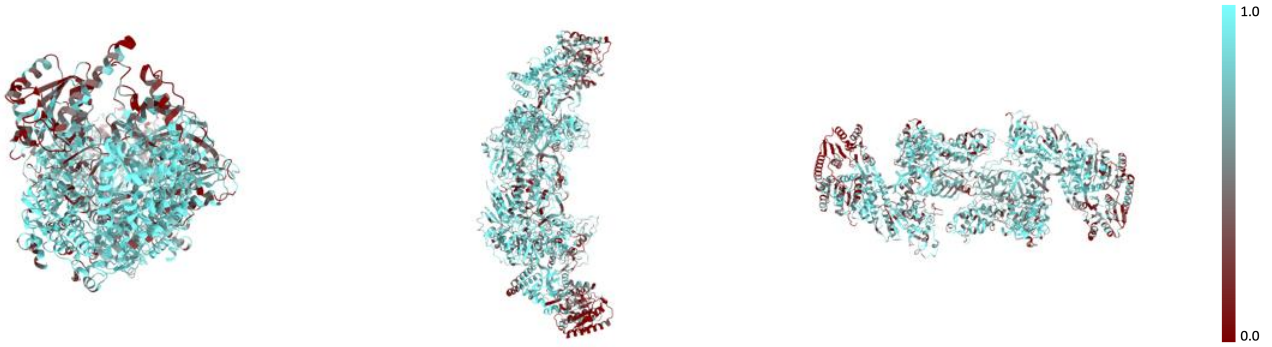
The images above show the 3D surface view of the map at the recommended contour level 0.22 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model (i)

X Y Z

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

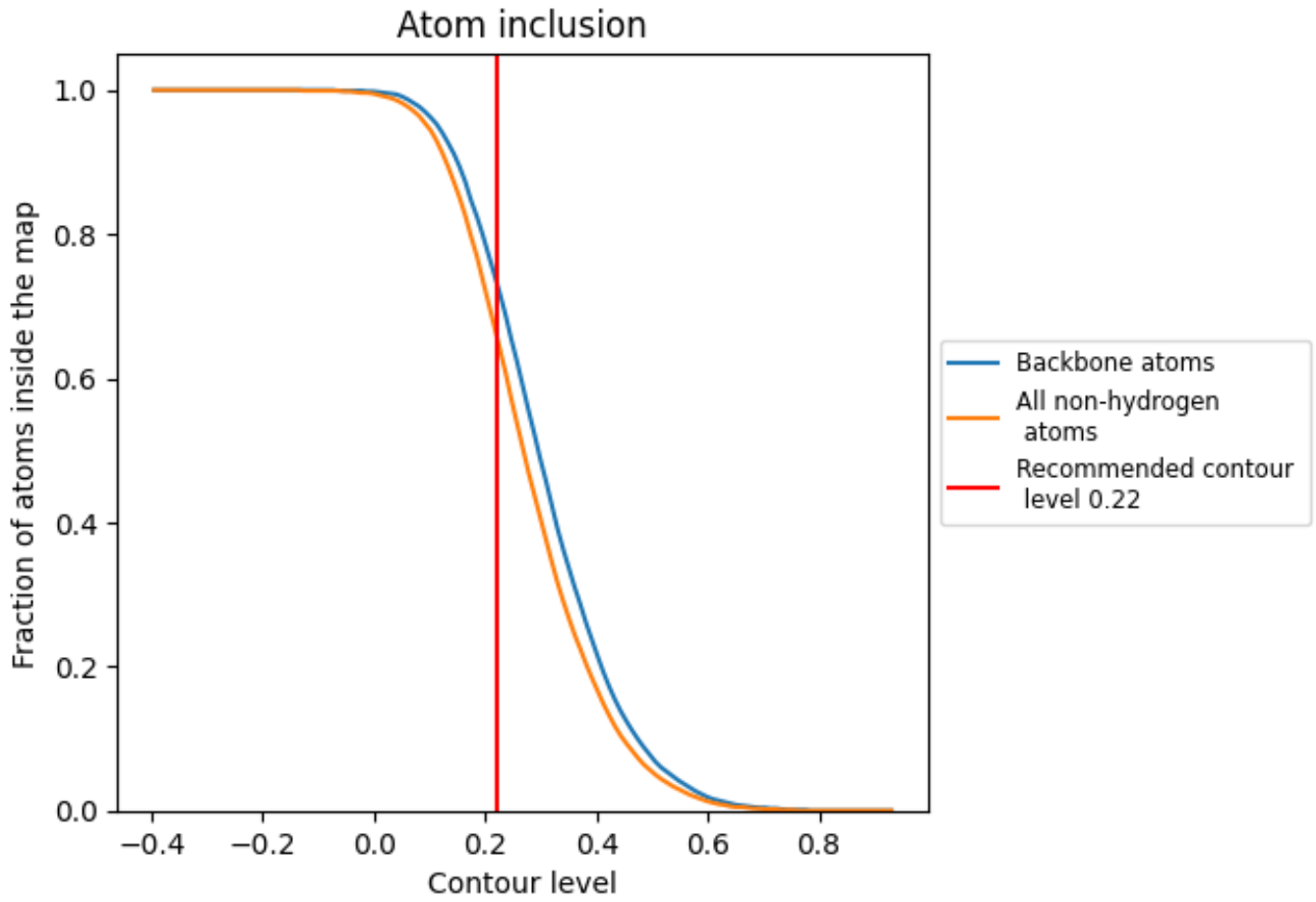
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.22).

9.4 Atom inclusion (i)



At the recommended contour level, 74% of all backbone atoms, 66% 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 (0.22) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6610	0.1800
A	0.6970	0.1820
B	0.7320	0.1680
C	0.5290	0.1990
D	0.6230	0.1840
E	0.6590	0.1440
F	0.7170	0.1580