



Full wwPDB EM Validation Report ⓘ

Jul 3, 2024 – 07:02 am BST

PDB ID : 7NFE
EMDB ID : EMD-12301
Title : Cryo-EM structure of NHEJ super-complex (monomer)
Authors : Chaplin, A.K.; Hardwick, S.W.; Kefala Stavridi, A.; Chirgadze, D.Y.; Blundell, T.L.
Deposited on : 2021-02-06
Resolution : 4.29 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.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

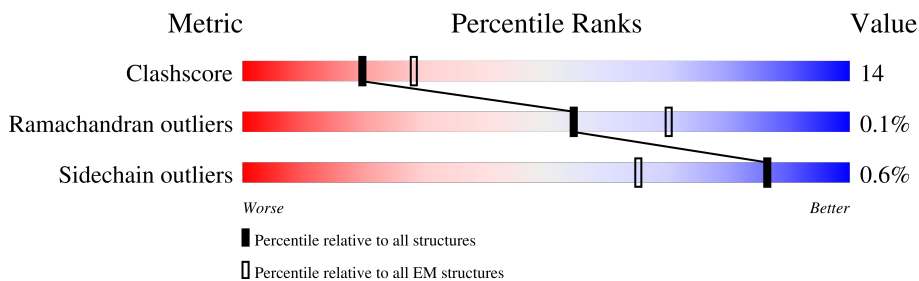
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.29 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.




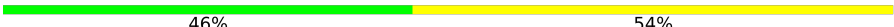
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	4156	60% 26% 14%
2	B	609	51% 26% 22%
3	C	732	46% 24% 30%
4	F	299	18% 45% 19% 36%
4	G	299	8% 44% 22% 34%
5	H	336	10% 43% 17% 40%
5	I	336	17% 41% 16% 43%
6	J	911	18% 11% 72%

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Mol	Chain	Length	Quality of chain	
7	D	24	 50%	50%
8	E	24	 46%	54%

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 44554 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 DNA-dependent protein kinase catalytic subunit,DNA-dependent protein kinase catalytic subunit,DNA-dependent protein kinase catalytic subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	3585	27806	17851	4651	5132	172	0	0

- Molecule 2 is a protein called X-ray repair cross-complementing protein 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	475	3673	2365	610	680	18	0	0

- Molecule 3 is a protein called X-ray repair cross-complementing protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	513	3999	2557	669	752	21	0	0

- Molecule 4 is a protein called Non-homologous end-joining factor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	F	190	1465	936	247	275	7	0	0
4	G	197	1502	950	253	291	8	0	0

- Molecule 5 is a protein called DNA repair protein XRCC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	H	201	1575	991	271	307	6	0	0
5	I	193	1521	958	257	300	6	0	0

- Molecule 6 is a protein called DNA ligase 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	J	258	2026	1284	345	386	11	0	0

- Molecule 7 is a DNA chain called DNA (5'-D(P*AP*AP*TP*AP*AP*AP*CP*TP*AP*AP*AP*AP*AP*CP*TP*AP*TP*TP*AP*TP*TP*AP*TP*G)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
7	D	24	493	238	92	139	24	0	0

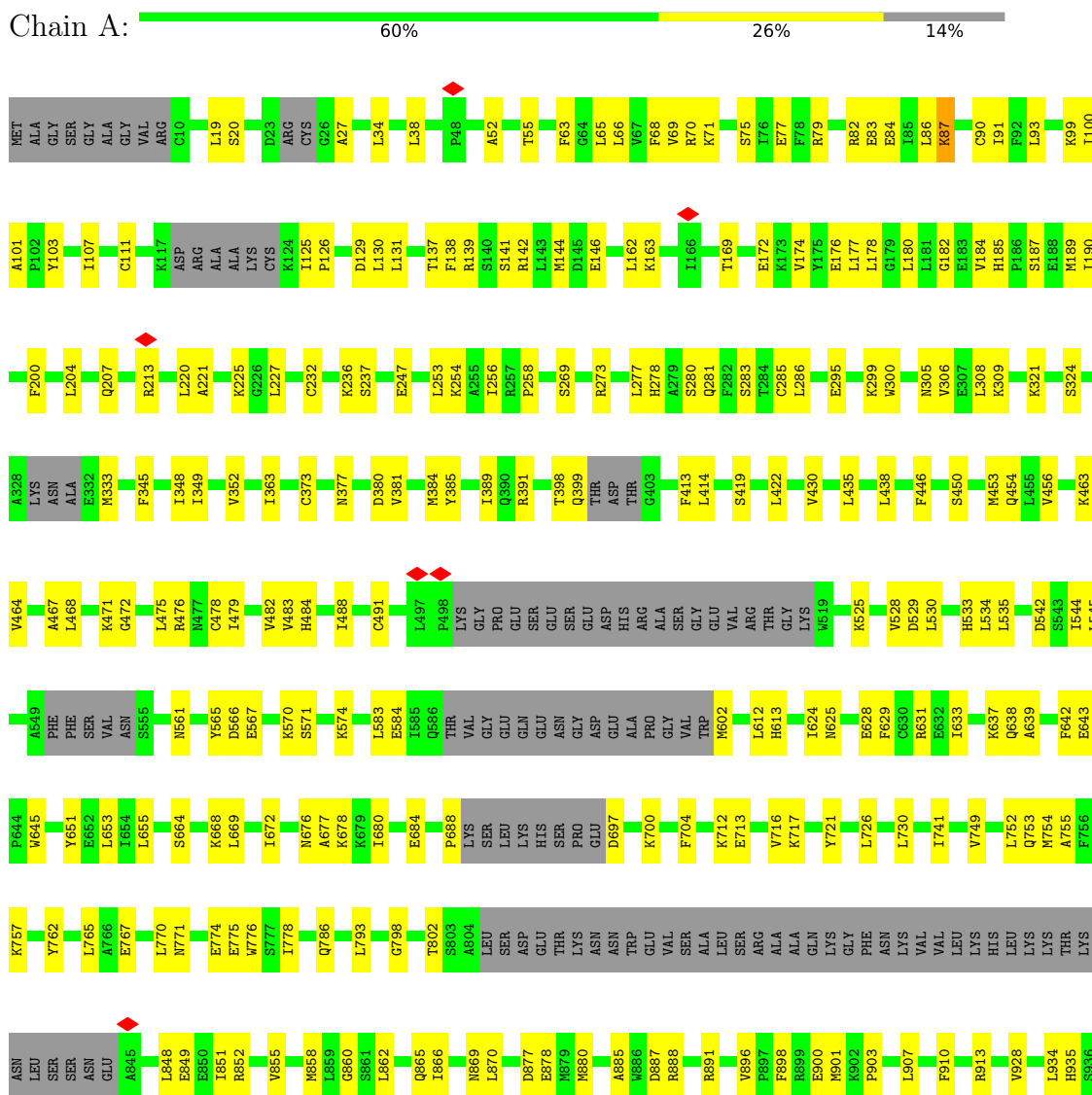
- Molecule 8 is a DNA chain called DNA (5'-D(P*TP*AP*AP*TP*AP*AP*TP*AP*GP*TP*TP*TP*TP*AP*GP*TP*TP*TP*AP*TP*TP*AP*G)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
8	E	24	494	240	81	149	24	0	0

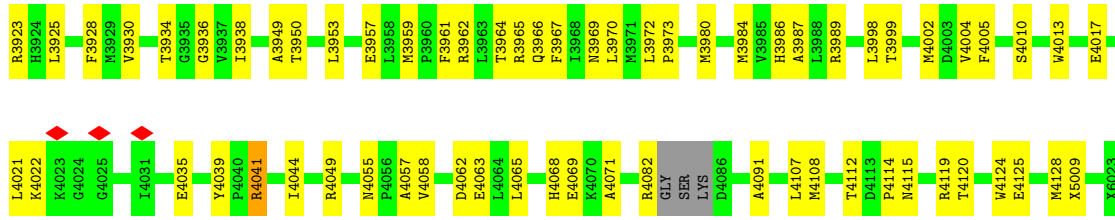
3 Residue-property plots

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

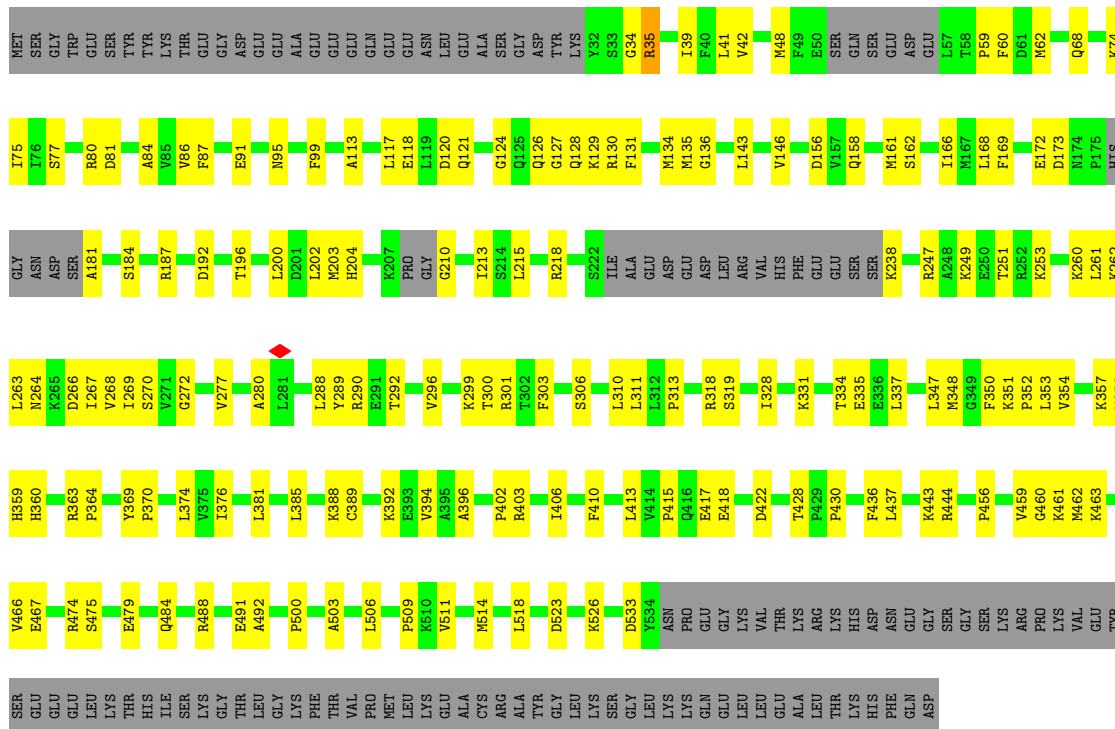
- Molecule 1: DNA-dependent protein kinase catalytic subunit,DNA-dependent protein kinase catalytic subunit,DNA-dependent protein kinase catalytic subunit



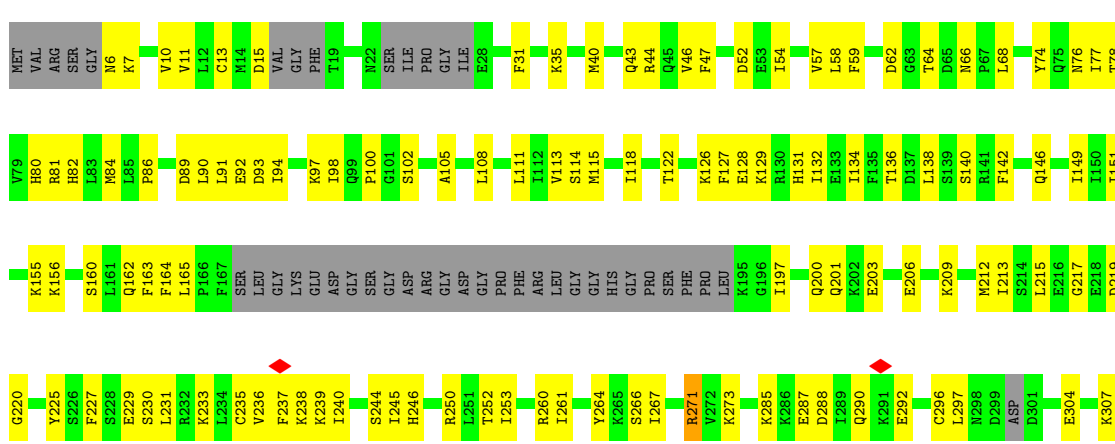
A3834	G3754	G3548	E3429	E3140	S3015	P2873	V2769	THR	H2479
P3835	G3755	D3563	ASN	V3155	S3018	P2874	R2773	ALA	L2480
E3838	E3756	D3564	ALA	P3156	N3023	C2880	R2774	ASP	Y2484
Y3839	D3757	I3568	SER	R3159	D3026	C2881	Y2775	GLY	R2485
K3845	L3758	I3569	VAL	L3160	L3027	Q2886	Y2776	ARG	D2486
K3846	R3759	D3570	ILE	L3161	N3028	R2891	H2777	SER	D2492
SER	G3760	F3571	ASP	M3162	K3029	L2892	D2782	PHE	S2495
GLY	D3761	L3572	SER	T3163	L3030	L2893	Q2783	ARG	K2500
LYS	R3762	M3573	ALA	W3164	K3031	E2894	I2785	TRP	L2501
HIS	Q3766	L3575	L3439	T3165	W3031	E2895	K2786	THR	R2502
D3851	Q3767	K3576	L3445	M3166	Q3037	R2899	H2787	VAL	K2503
A3854	Q3769	D3577	L3449	R3167	L3041	L2899	S2788	SER	D2504
Y3855	V3770	L3578	M3450	P3169	L3042	L2899	S2789	TRP	V2505
M3856	M3771	L3583	L3451	D3170	Q3054	PRO	L2790	ASP	V2505
L3857	N3772	L3588	K3455	D3174	GLY	ALA	I2791	PRO	Q2508
M3858	L3774	K3588	K3459	P3175	GLU	LEU	T2792	VAL	D2512
Y3859	C3781	R3593	E3460	M3176	ALA	PRO	Q2795	VAL	M2514
N3863	R3784	K3598	L3463	R3178	ASP	ALA	Q2799	GLN	L2517
E3866	L3786	THR	L3466	I3179	S3060	ARG	Q2800	SER	H2527
T3867	Q3787	PRO	P3486	I3182	F3064	GLN	T2803	THR	E2528
V3868	L3788	VAL	L3377	I3183	I3065	LYS	K2806	LEU	T2529
K3877	F3694	ASN	R3380	R3186	Y3082	ALA	Q2807	THR	R2530
V3878	L3695	K3604	R3381	L3190	S3083	LEU	L2808	LEU	L2531
P3879	R3696	M3605	H3384	L3197	L3086	PRO	S2814	THR	P2532
A3880	E3700	M3483	S3855	THR	L3097	P2918	K2818	ALA	D2537
D3881	G3709	R3609	S3856	PRO	D3097	R2922	E2819	GLY	R2538
L3882	K3710	E3486	E3887	LEU	K3100	W2923	M2820	GLY	L2539
L3883	P3711	S3489	A3388	PRO	Y3101	E2946	M2820	THR	L2540
K3884	L3800	V3490	V3389	GLU	Y3102	T2953	T2825	ALA	S2544
R3885	R3718	P3491	Q3390	ASP	I3103	L2957	K2829	TRP	S2547
A3886	R3718	C3492	A3391	SER	Q3104	L2962	L2832	ALA	K2549
F3887	F3722	W3493	A3392	ASN	N3105	R2862	I2832	VAL	L2550
V3888	R3725	L3625	L3396	VAL	M3113	E2967	K2885	ARG	H2553
R3889	V3726	G3626	A3406	ASP	I3117	K2839	D2839	LEU	P2547
N3890	V3727	F3627	PRO	GLN	D3118	F2840	F2840	GLN	K2549
S3891	V3728	F3628	PRO	ASP	L3121	E2990	R2842	GLY	L2550
P3894	R3733	R3629	SER	ASP	L3129	F2993	F2843	GLN	H2563
E3895	M3739	R3630	TRP	ASP	Q3130	W2994	L2844	GLN	L2563
F3897	R3739	K3631	CYS	GLY	S3131	W2994	L2844	GLN	E2564
R3901	P3735	F3632	GLY	ASP	Q3132	E2995	V2855	GLN	M2565
S3902	K3736	L3633	PRO	VAL	Q3133	L2999	C2857	GLN	T2566
E3903	R3737	F3636	ASN	GLN	L3135	K3009	I2858	ASP	S2567
H3904	R3740	G3637	A3407	PRO	T3136	C3014	D2860	THR	Y2572
K3905	D3744	K3638	A3410	ASP	L3337	L2861	L2861	LEU	F2573
A3909	E3745	E3639	I3411	GLN	T3383	Q2768	A2767	THR	P2575
Y3912	R3746	F3640	R3412	GLN	I3336			PRO	
I3913	B3841	B3641	L3416	GLU	I3337				
W3916	L3751	K3642	L3416	GLU					
	W3752	F3644	T3547	GLU					
	K3753			GLU					

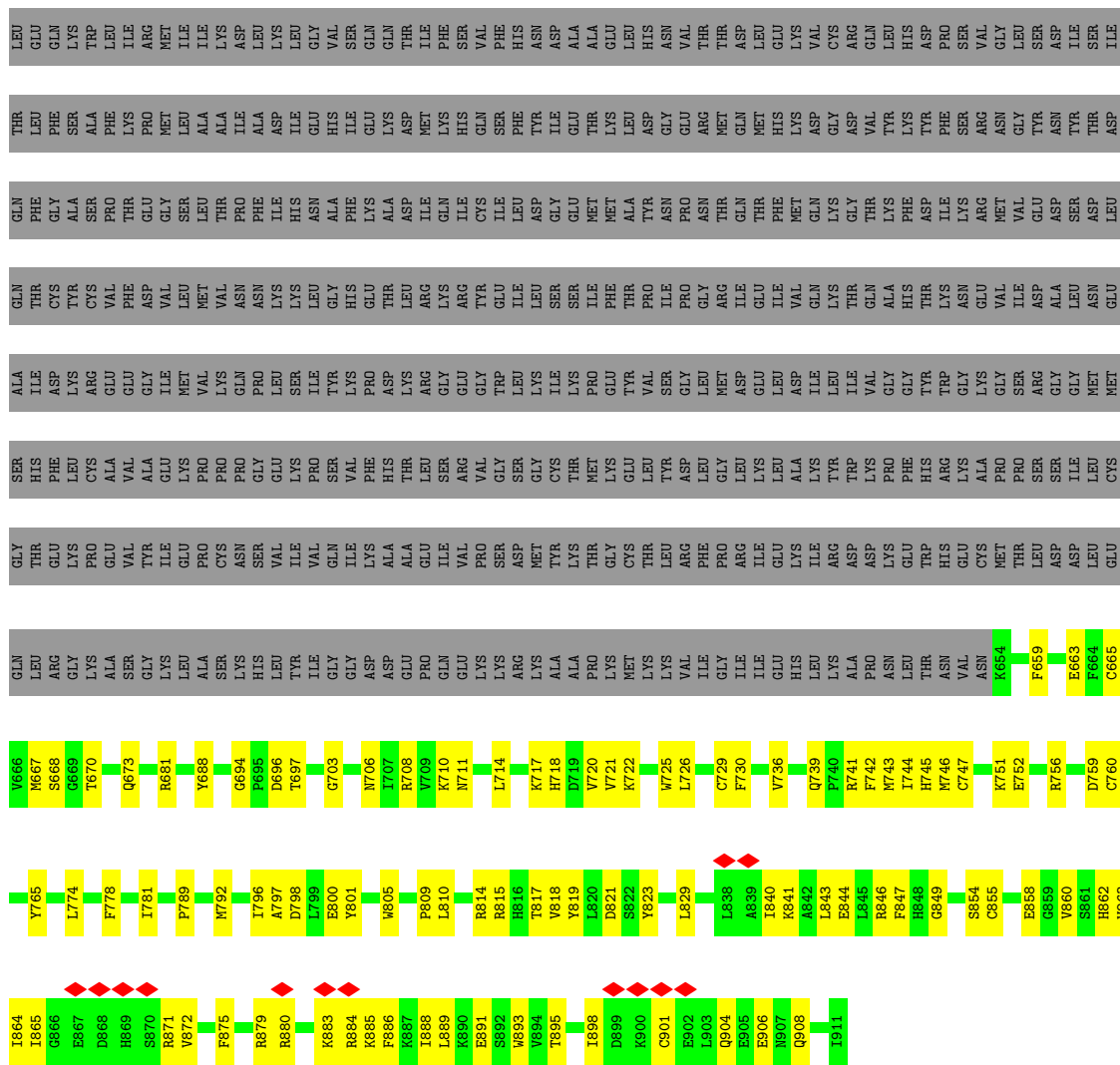


• Molecule 2: X-ray repair cross-complementing protein 6

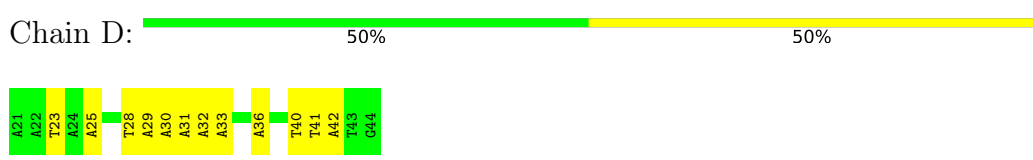


• Molecule 3: X-ray repair cross-complementing protein 5





• Molecule 7: DNA (5'-D(P*AP*AP*TP*AP*AP*AP*CP*TP*AP*AP*AP*AP*AP*CP*TP*A P*TP*TP*AP*TP*TP*AP*TP*G)-3')



• Molecule 8: DNA (5'-D(P*TP*AP*AP*TP*AP*AP*TP*AP*GP*TP*TP*TP*TP*TP*AP*G P*TP*TP*TP*AP*TP*TP*AP*G)-3')



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	45943	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	46.8	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	130000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.753	Depositor
Minimum map value	-0.224	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.018	Depositor
Recommended contour level	0.175	Depositor
Map size (Å)	704.16003, 704.16003, 704.16003	wwPDB
Map dimensions	540, 540, 540	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.304, 1.304, 1.304	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.25	0/28219	0.46	1/38230 (0.0%)
2	B	0.25	0/3740	0.48	0/5053
3	C	0.25	0/4075	0.47	0/5509
4	F	0.24	0/1488	0.48	0/2015
4	G	0.24	0/1522	0.51	0/2064
5	H	0.24	0/1602	0.47	0/2159
5	I	0.24	0/1546	0.47	0/2082
6	J	0.24	0/2073	0.46	0/2807
7	D	0.43	0/554	0.88	0/852
8	E	0.56	0/552	1.09	0/851
All	All	0.26	0/45371	0.49	1/61622 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	2277	LEU	CA-CB-CG	5.12	127.07	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	27806	0	27233	715	0
2	B	3673	0	3652	124	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	C	3999	0	3899	136	0
4	F	1465	0	1432	47	0
4	G	1502	0	1439	61	0
5	H	1575	0	1514	57	0
5	I	1521	0	1440	46	0
6	J	2026	0	1895	72	0
7	D	493	0	273	11	0
8	E	494	0	278	15	0
All	All	44554	0	43055	1205	0

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

All (1205) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3365:SER:HB3	1:A:3376:GLY:HA3	1.61	0.82
2:B:337:LEU:HD11	3:C:490:LEU:HA	1.67	0.77
4:G:128:PRO:O	4:G:132:SER:HB2	1.85	0.77
6:J:814:ARG:HD2	6:J:849:GLY:H	1.50	0.77
4:G:132:SER:HB3	4:G:137:ARG:HH21	1.51	0.76
5:I:5:ILE:HA	5:I:21:GLN:HA	1.68	0.76
1:A:901:MET:HG2	1:A:903:PRO:HD3	1.67	0.75
1:A:3728:VAL:HG22	1:A:3736:LYS:HG2	1.69	0.75
1:A:3727:THR:HB	1:A:3737:ARG:HB3	1.68	0.75
3:C:44:ARG:HD2	3:C:238:LYS:HB3	1.67	0.75
1:A:1184:ARG:NH1	1:A:1265:GLU:OE1	2.20	0.75
1:A:1257:LEU:HA	1:A:1260:LEU:HD12	1.67	0.74
1:A:2480:ILE:O	1:A:2484:TYR:HB2	1.86	0.74
2:B:269:ILE:HD11	2:B:381:LEU:HD23	1.69	0.74
1:A:3361:GLU:HB3	1:A:3366:SER:HA	1.69	0.73
1:A:1724:MET:HG2	1:A:1768:ARG:HD3	1.68	0.73
3:C:77:ILE:HG21	3:C:113:VAL:HG21	1.70	0.73
4:G:44:VAL:HA	4:G:125:LEU:HD23	1.72	0.72
1:A:1098:GLN:HG3	1:A:1151:ARG:HB3	1.71	0.72
1:A:793:LEU:HB3	1:A:870:LEU:HA	1.72	0.71
4:G:106:LEU:HB3	4:G:121:PHE:HB2	1.72	0.71
1:A:2449:VAL:HG23	1:A:2452:ARG:HH12	1.55	0.71
5:H:18:HIS:HD2	5:H:36:LEU:HD21	1.54	0.70
5:I:32:PHE:HE1	5:I:74:LEU:HB3	1.56	0.70
3:C:58:LEU:HB2	3:C:78:THR:HB	1.74	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:G:55:SER:OG	4:G:59:LYS:NZ	2.25	0.69
4:G:147:GLN:HB3	4:G:151:ARG:NH1	2.07	0.69
1:A:2133:LEU:HD11	1:A:2171:LEU:HD22	1.74	0.69
1:A:2428:ASP:HB3	1:A:2431:ARG:HB2	1.74	0.69
1:A:2893:LEU:HD11	1:A:2922:ARG:HB3	1.75	0.69
4:G:126:ALA:HB3	4:G:131:VAL:HG21	1.75	0.69
3:C:10:VAL:HG22	3:C:131:HIS:HB2	1.74	0.69
1:A:1361:LYS:O	1:A:1365:ASN:N	2.23	0.68
4:F:136:ILE:HA	4:G:136:ILE:HG23	1.75	0.68
5:I:141:ASN:O	5:I:145:GLN:NE2	2.26	0.68
3:C:408:ALA:HB1	3:C:419:LEU:HD21	1.76	0.68
1:A:3183:ILE:HD12	1:A:3238:MET:HE2	1.75	0.68
1:A:306:VAL:HA	1:A:309:LYS:HE2	1.75	0.68
3:C:391:ALA:HB3	3:C:408:ALA:HB3	1.76	0.68
4:G:45:TRP:H	4:G:125:LEU:HB3	1.60	0.67
5:I:18:HIS:HB3	5:I:36:LEU:HD11	1.76	0.67
1:A:1624:GLN:O	1:A:1627:LYS:NZ	2.27	0.67
2:B:444:ARG:NH1	3:C:244:SER:OG	2.27	0.67
1:A:3416:LEU:HD23	1:A:3449:LYS:HZ2	1.58	0.67
4:G:161:ASP:O	4:G:165:GLN:NE2	2.28	0.67
5:H:141:ASN:ND2	5:I:141:ASN:OD1	2.27	0.67
2:B:204:HIS:NE2	2:B:210:GLY:O	2.23	0.66
2:B:396:ALA:HB3	2:B:413:LEU:HB2	1.77	0.66
4:G:147:GLN:HB3	4:G:151:ARG:HH12	1.60	0.66
1:A:213:ARG:HD2	2:B:335:GLU:HG2	1.77	0.66
3:C:151:ILE:HD11	3:C:215:LEU:HB2	1.76	0.66
1:A:4041:ARG:HA	1:A:4044:ILE:HG22	1.76	0.66
1:A:1285:GLU:HG3	1:A:1287:GLN:HG2	1.78	0.66
1:A:3466:PRO:HB2	1:A:4004:VAL:HG11	1.77	0.66
3:C:44:ARG:NH2	3:C:236:VAL:O	2.22	0.66
5:H:37:THR:HA	5:H:42:ALA:HA	1.78	0.66
1:A:352:VAL:HG11	1:A:1735:ARG:HG2	1.77	0.66
1:A:1379:PRO:HB2	1:A:1384:PHE:HB3	1.78	0.66
5:H:7:ARG:HE	5:I:131:LEU:HB2	1.60	0.66
1:A:1831:CYS:SG	1:A:1832:SER:N	2.70	0.65
1:A:3894:PRO:O	1:A:3895:GLU:HG3	1.96	0.65
1:A:2447:LYS:HG2	1:A:2449:VAL:HG12	1.77	0.65
3:C:44:ARG:HD3	3:C:238:LYS:HE3	1.78	0.65
4:F:18:LEU:HD11	4:F:23:LEU:HD12	1.78	0.65
2:B:523:ASP:HA	2:B:526:LYS:HE2	1.79	0.65
3:C:111:LEU:HB3	3:C:115:MET:HE1	1.79	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:76:LEU:O	4:F:81:ARG:NH2	2.31	0.64
1:A:3492:CYS:HB3	1:A:3711:PRO:HD3	1.77	0.64
1:A:1453:SER:O	1:A:1457:GLN:NE2	2.30	0.64
2:B:261:LEU:HB3	2:B:269:ILE:HB	1.78	0.64
5:H:43:TRP:HB3	5:H:113:LEU:HB3	1.79	0.64
1:A:566:ASP:OD1	1:A:645:TRP:NE1	2.28	0.64
1:A:3302:LYS:HE2	1:A:3363:SER:HB2	1.80	0.64
4:F:149:GLN:NE2	4:G:194:MET:SD	2.67	0.64
1:A:2894:GLU:HG3	1:A:3973:PRO:HG3	1.80	0.64
3:C:66:ASN:ND2	3:C:74:TYR:O	2.30	0.63
5:H:17:THR:O	5:H:18:HIS:ND1	2.30	0.63
1:A:1180:GLN:HB2	1:A:1183:CYS:HB2	1.80	0.63
1:A:2962:ARG:HA	1:A:3989:ARG:HH12	1.62	0.63
6:J:792:MET:HA	6:J:796:ILE:HB	1.79	0.63
1:A:1437:TYR:HD1	1:A:1503:LEU:HD21	1.63	0.63
1:A:1889:VAL:O	1:A:1909:ASN:N	2.31	0.63
2:B:296:VAL:HG12	3:C:297:LEU:HD23	1.81	0.63
8:E:31:DT:H2"	8:E:32:DT:C4	2.34	0.63
2:B:218:ARG:HB3	4:G:178:ARG:HH12	1.63	0.63
1:A:3766:GLN:OE1	1:A:3769:GLN:NE2	2.32	0.63
3:C:327:ASP:OD1	6:J:711:ASN:ND2	2.31	0.63
1:A:1366:THR:O	1:A:1369:MET:HB3	1.98	0.63
3:C:15:ASP:HB3	3:C:136:THR:HA	1.81	0.62
1:A:1766:LEU:O	1:A:1822:ARG:NH1	2.33	0.62
1:A:2165:LEU:HG	1:A:2169:LEU:HD23	1.80	0.62
1:A:3625:LEU:O	1:A:3630:ARG:NH1	2.32	0.62
3:C:165:LEU:O	3:C:227:PHE:N	2.33	0.62
4:F:128:PRO:HG3	4:G:44:VAL:H	1.62	0.62
1:A:529:ASP:O	1:A:533:HIS:ND1	2.29	0.62
2:B:260:LYS:HZ3	2:B:270:SER:HB3	1.65	0.62
1:A:1789:GLY:O	1:A:1794:GLN:NE2	2.33	0.62
5:H:42:ALA:HB2	5:H:119:PRO:HB3	1.82	0.62
5:I:36:LEU:HB3	5:I:43:TRP:HB2	1.80	0.62
1:A:1769:GLU:O	1:A:1822:ARG:NH1	2.26	0.61
3:C:212:MET:HB3	3:C:220:GLY:HA3	1.81	0.61
5:I:4:LYS:O	5:I:22:VAL:N	2.31	0.61
1:A:2197:THR:HG22	1:A:5009:UNK:HA	1.82	0.61
1:A:3480:LEU:HD21	1:A:3510:GLN:HB3	1.82	0.61
4:F:2:GLU:HG3	4:F:46:HIS:HB2	1.82	0.61
1:A:3445:LEU:O	1:A:3449:LYS:HG2	2.00	0.61
1:A:896:VAL:HB	1:A:903:PRO:HG2	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:I:11:VAL:HG22	5:I:87:ASN:HB3	1.83	0.61
5:I:179:ARG:NH2	6:J:781:ILE:O	2.32	0.61
1:A:65:LEU:O	1:A:69:VAL:N	2.23	0.61
4:F:128:PRO:HB3	4:G:44:VAL:HG23	1.82	0.61
1:A:978:GLN:HE21	1:A:979:VAL:HG13	1.64	0.61
1:A:2574:ASN:O	1:A:2787:HIS:ND1	2.33	0.61
1:A:1389:VAL:HG22	1:A:1390:GLN:H	1.64	0.61
1:A:3327:ASN:HB2	1:A:3388:ALA:HB2	1.82	0.61
4:F:158:HIS:NE2	4:F:184:PHE:O	2.32	0.61
1:A:258:PRO:HG2	3:C:551:GLN:HG2	1.82	0.61
1:A:1475:LEU:HD13	1:A:1527:ARG:HG3	1.83	0.61
3:C:346:CYS:SG	3:C:347:LYS:N	2.74	0.61
1:A:1102:GLU:HG2	1:A:1154:PRO:HA	1.83	0.60
4:G:62:ASN:HB2	4:G:65:LEU:HB2	1.82	0.60
1:A:2563:LEU:HD12	1:A:2795:GLN:HB2	1.83	0.60
1:A:1662:ASN:ND2	1:A:1701:SER:O	2.34	0.60
2:B:181:ALA:N	2:B:184:SER:HG	1.98	0.60
1:A:2529:THR:OG1	1:A:2530:ARG:NH1	2.35	0.60
1:A:3593:ARG:NH1	1:A:3664:ASN:OD1	2.34	0.60
1:A:3657:SER:OG	1:A:3660:ASN:ND2	2.34	0.60
2:B:303:PHE:HA	2:B:311:LEU:H	1.66	0.60
1:A:1741:ASP:O	1:A:1745:LYS:HG2	2.02	0.60
4:G:18:LEU:HA	4:G:95:PHE:HB2	1.82	0.60
1:A:65:LEU:HA	1:A:68:PHE:HB2	1.84	0.60
1:A:672:ILE:O	1:A:676:ASN:ND2	2.34	0.60
1:A:1432:CYS:HB2	1:A:1486:LEU:HD21	1.84	0.60
1:A:1809:ASP:HB3	1:A:1811:ARG:HH12	1.65	0.60
1:A:2538:ARG:HG2	1:A:2565:MET:SD	2.41	0.60
6:J:670:THR:H	6:J:703:GLY:HA3	1.66	0.60
1:A:3796:MET:H	1:A:3801:GLY:HA2	1.67	0.60
1:A:247:GLU:HG2	1:A:285:CYS:HB3	1.83	0.59
1:A:3140:GLU:OE2	1:A:3167:ARG:NH1	2.35	0.59
1:A:3480:LEU:HD23	1:A:3513:ALA:HB2	1.82	0.59
1:A:3789:ARG:HG2	1:A:3938:ILE:HG12	1.84	0.59
2:B:351:LYS:NZ	3:C:477:PHE:O	2.35	0.59
1:A:419:SER:HA	1:A:422:LEU:HD12	1.85	0.59
1:A:2373:PRO:O	1:A:2377:ARG:NH1	2.35	0.59
1:A:1175:HIS:HB3	1:A:1178:ARG:HE	1.67	0.59
1:A:1724:MET:HA	1:A:1768:ARG:HH11	1.66	0.59
1:A:3134:ALA:HB2	1:A:3182:ILE:HG22	1.83	0.59
2:B:289:TYR:HD2	2:B:292:THR:H	1.51	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:10:VAL:HB	3:C:54:ILE:HG22	1.84	0.59
5:I:140:LYS:HA	5:I:143:HIS:NE2	2.18	0.59
1:A:1899:VAL:HB	1:A:1911:LEU:HD13	1.85	0.59
2:B:263:LEU:HA	2:B:347:LEU:HB3	1.85	0.59
5:H:158:VAL:HG12	5:I:158:VAL:HG12	1.84	0.59
1:A:877:ASP:HA	1:A:880:MET:HG2	1.85	0.59
1:A:928:VAL:HG21	1:A:2769:VAL:HG22	1.84	0.59
1:A:678:LYS:NZ	1:A:775:GLU:OE1	2.35	0.59
1:A:3359:ILE:HA	1:A:3362:LEU:HB2	1.83	0.59
1:A:3755:GLY:N	1:A:3799:ARG:O	2.36	0.59
4:G:17:GLN:NE2	4:G:18:LEU:O	2.35	0.59
4:F:208:LYS:HE2	4:G:144:LEU:HD13	1.83	0.58
5:I:42:ALA:HB2	5:I:119:PRO:HA	1.84	0.58
1:A:1528:LEU:HD11	1:A:1571:LEU:HD21	1.85	0.58
2:B:350:PHE:HE2	3:C:458:ILE:HG12	1.66	0.58
3:C:81:ARG:HG3	3:C:90:LEU:HD11	1.85	0.58
1:A:472:GLY:O	1:A:476:ARG:NH1	2.35	0.58
1:A:1622:ILE:HA	1:A:1625:HIS:CE1	2.39	0.58
2:B:488:ARG:HH12	2:B:503:ALA:H	1.52	0.58
3:C:122:THR:HA	3:C:127:PHE:HE2	1.69	0.58
1:A:1751:GLU:O	1:A:1754:GLN:NE2	2.28	0.58
1:A:3857:LEU:HA	1:A:3860:LYS:HB2	1.85	0.58
2:B:369:TYR:OH	3:C:436:SER:O	2.20	0.58
3:C:496:HIS:NE2	3:C:503:GLU:HB3	2.18	0.58
4:G:61:LEU:HD13	4:G:120:ASN:HD21	1.68	0.58
1:A:111:CYS:HB2	1:A:130:LEU:HD22	1.86	0.58
4:F:137:ARG:O	4:F:141:GLY:N	2.37	0.58
5:I:175:ASP:OD1	5:I:176:LEU:N	2.37	0.58
1:A:1346:THR:HG21	1:A:1401:ASN:HB3	1.86	0.58
1:A:1696:LEU:O	1:A:1699:PHE:N	2.37	0.58
3:C:402:ASN:HD21	7:D:25:DA:H3'	1.67	0.58
1:A:3240:MET:SD	1:A:3275:SER:OG	2.62	0.58
1:A:1820:VAL:O	1:A:1825:LEU:N	2.32	0.57
1:A:3813:LYS:HB2	1:A:3925:LEU:HB3	1.86	0.57
1:A:3863:ASN:HB3	1:A:3866:GLU:HG2	1.86	0.57
4:F:175:ILE:HG22	4:F:177:ASP:H	1.69	0.57
1:A:1181:THR:HG22	1:A:1184:ARG:HH12	1.69	0.57
1:A:3744:ASP:O	1:A:3746:ARG:NH1	2.36	0.57
2:B:288:LEU:O	3:C:311:ILE:N	2.32	0.57
1:A:2277:LEU:HA	1:A:2280:VAL:HG22	1.86	0.57
1:A:3878:VAL:O	1:A:3965:ARG:NH1	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:410:PRO:HA	3:C:419:LEU:HA	1.86	0.57
6:J:904:GLN:OE1	6:J:908:GLN:NE2	2.37	0.57
1:A:2325:LEU:HD23	1:A:2328:ARG:HH12	1.69	0.57
2:B:48:MET:HB2	2:B:59:PRO:HB2	1.87	0.57
1:A:534:LEU:O	1:A:561:ASN:ND2	2.36	0.57
1:A:1826:THR:O	1:A:1830:HIS:ND1	2.31	0.57
3:C:406:GLY:HA3	3:C:421:TYR:HE1	1.68	0.57
6:J:865:ILE:HG13	6:J:888:ILE:HG23	1.87	0.57
1:A:1844:VAL:O	1:A:1848:ILE:HG12	2.04	0.57
4:G:29:ILE:HG21	4:G:76:LEU:HB3	1.87	0.57
5:I:38:ASP:OD1	5:I:41:SER:N	2.37	0.57
6:J:747:CYS:O	6:J:751:LYS:N	2.36	0.57
1:A:2349:LEU:HB3	1:A:2360:PHE:HE1	1.70	0.57
2:B:187:ARG:HE	4:G:175:ILE:HG21	1.70	0.57
1:A:1179:PRO:HB3	1:A:1259:LEU:HD23	1.86	0.57
1:A:3867:THR:OG1	1:A:4119:ARG:NH2	2.37	0.57
4:F:39:SER:HB2	4:F:44:VAL:HA	1.86	0.57
1:A:163:LYS:H	2:B:301:ARG:HB2	1.69	0.57
2:B:75:ILE:HD11	3:C:317:GLY:HA3	1.86	0.57
2:B:251:THR:HA	3:C:431:ARG:HH12	1.69	0.57
2:B:533:ASP:OD1	3:C:250:ARG:NH2	2.33	0.57
2:B:352:PRO:HA	2:B:394:VAL:HA	1.86	0.56
1:A:3700:GLU:HA	1:A:3718:ARG:HA	1.87	0.56
1:A:3868:VAL:HG22	1:A:4114:PRO:HB2	1.85	0.56
1:A:450:SER:O	1:A:454:GLN:N	2.31	0.56
1:A:1769:GLU:HB2	1:A:1772:HIS:CD2	2.39	0.56
6:J:817:THR:OG1	6:J:884:ARG:NH2	2.38	0.56
4:F:14:ALA:H	4:F:26:LYS:HB3	1.70	0.56
4:F:57:ARG:HH22	4:F:120:ASN:HB2	1.70	0.56
4:G:56:GLN:O	4:G:60:GLU:HG3	2.06	0.56
1:A:1733:THR:HG23	1:A:1736:PHE:H	1.70	0.56
1:A:3159:ARG:HA	1:A:3162:ASN:ND2	2.21	0.56
3:C:105:ALA:O	3:C:140:SER:OG	2.24	0.56
6:J:879:ARG:HH21	6:J:880:ARG:HH12	1.54	0.56
2:B:166:ILE:HB	2:B:200:LEU:HD13	1.88	0.56
3:C:64:THR:HG22	3:C:76:ASN:H	1.71	0.56
1:A:4062:ASP:HA	1:A:4065:LEU:HD12	1.88	0.56
5:H:168:ALA:HB3	6:J:810:LEU:HD21	1.87	0.56
5:I:6:SER:O	5:I:20:LEU:N	2.38	0.56
1:A:278:HIS:HB3	1:A:281:GLN:HG3	1.88	0.56
1:A:913:ARG:O	1:A:913:ARG:NH1	2.37	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3627:ALA:N	1:A:3682:GLU:O	2.38	0.56
1:A:2957:LEU:HD21	1:A:2993:PHE:HZ	1.70	0.55
1:A:3751:LEU:N	1:A:3803:ILE:O	2.36	0.55
1:A:862:LEU:O	1:A:3133:GLN:NE2	2.35	0.55
1:A:3757:ASP:OD1	1:A:3759:ARG:NH1	2.39	0.55
2:B:363:ARG:HG3	2:B:364:PRO:HD2	1.87	0.55
3:C:94:ILE:HA	3:C:98:ILE:HD13	1.88	0.55
1:A:321:LYS:O	1:A:324:SER:OG	2.24	0.55
1:A:3798:SER:OG	1:A:3799:ARG:NH1	2.38	0.55
1:A:3855:TYR:O	1:A:3858:MET:HG3	2.06	0.55
2:B:168:LEU:HB3	2:B:202:LEU:HD12	1.88	0.55
1:A:139:ARG:HH21	1:A:182:GLY:H	1.52	0.55
2:B:42:VAL:HG22	2:B:169:PHE:HB2	1.89	0.55
3:C:393:VAL:O	3:C:406:GLY:N	2.39	0.55
1:A:256:ILE:HG22	1:A:258:PRO:HD3	1.89	0.55
1:A:1802:TYR:OH	1:A:1846:ASP:OD2	2.23	0.55
1:A:3014:CYS:HA	1:A:3018:SER:HB2	1.89	0.55
1:A:1813:SER:HB3	1:A:1936:ARG:HH22	1.72	0.55
1:A:2387:PRO:HD3	1:A:2418:LYS:HD2	1.89	0.55
6:J:801:TYR:HB2	6:J:815:ARG:NH2	2.21	0.55
6:J:823:TYR:OH	6:J:854:SER:OG	2.25	0.55
1:A:172:GLU:HG2	1:A:220:LEU:HD12	1.87	0.55
1:A:1483:LEU:O	1:A:1487:VAL:HG22	2.06	0.55
1:A:1709:GLU:HG3	1:A:1712:ARG:HE	1.71	0.55
2:B:59:PRO:HA	2:B:62:MET:SD	2.47	0.54
4:G:160:LYS:O	4:G:164:ILE:HG12	2.08	0.54
1:A:1233:SER:HB3	1:A:3695:LEU:HD23	1.90	0.54
1:A:1942:CYS:O	1:A:1946:ASN:ND2	2.40	0.54
1:A:4049:ARG:NH2	1:A:4062:ASP:OD2	2.39	0.54
3:C:31:PHE:CG	3:C:100:PRO:HG3	2.42	0.54
5:I:30:SER:HA	5:I:52:ILE:HG13	1.89	0.54
6:J:726:LEU:O	6:J:730:PHE:N	2.36	0.54
1:A:3101:TYR:O	1:A:3104:GLN:HG3	2.08	0.54
3:C:450:GLN:HG3	3:C:536:LEU:HD22	1.88	0.54
4:G:59:LYS:HA	4:G:66:THR:HA	1.88	0.54
6:J:844:GLU:HB3	6:J:898:ILE:HD12	1.89	0.54
1:A:2544:SER:HA	1:A:2842:ARG:HH22	1.73	0.54
1:A:3819:THR:HA	1:A:3889:ARG:HH12	1.73	0.54
1:A:1009:LEU:O	1:A:1013:ILE:HG12	2.07	0.54
4:G:27:VAL:HB	4:G:36:LEU:HA	1.89	0.54
4:G:29:ILE:HG23	4:G:34:TYR:HB3	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:20:SER:HB2	1:A:69:VAL:HG21	1.90	0.54
1:A:865:GLN:HG3	1:A:866:ILE:HD12	1.89	0.54
1:A:2271:SER:HA	1:A:2274:ILE:HD12	1.89	0.54
2:B:156:ASP:O	2:B:158:GLN:NE2	2.38	0.54
1:A:3226:ASP:OD2	1:A:3229:SER:OG	2.25	0.54
2:B:350:PHE:CE2	3:C:458:ILE:HG12	2.43	0.54
2:B:402:PRO:HD2	2:B:406:ILE:HG21	1.89	0.54
3:C:450:GLN:NE2	3:C:536:LEU:O	2.33	0.54
5:H:36:LEU:HB3	5:H:43:TRP:HB2	1.90	0.54
1:A:3916:TRP:CE2	1:A:4107:LEU:HD21	2.43	0.54
6:J:818:VAL:HG12	6:J:862:HIS:HB2	1.90	0.54
1:A:741:ILE:HG21	1:A:776:TRP:CE2	2.44	0.53
1:A:1607:GLU:HG3	1:A:1611:GLN:HB2	1.90	0.53
1:A:2371:PHE:HD2	1:A:2374:LEU:HG	1.73	0.53
3:C:296:CYS:HA	3:C:304:GLU:HA	1.88	0.53
5:H:36:LEU:O	5:H:43:TRP:N	2.31	0.53
8:E:31:DT:H2''	8:E:32:DT:C5	2.43	0.53
1:A:721:TYR:HB2	1:A:726:LEU:HD13	1.91	0.53
2:B:352:PRO:HB2	2:B:354:VAL:HG22	1.90	0.53
5:H:7:ARG:HG2	5:I:131:LEU:HD12	1.90	0.53
6:J:872:VAL:HA	6:J:875:PHE:HD2	1.73	0.53
1:A:1868:THR:HA	1:A:1871:MET:HE2	1.91	0.53
2:B:303:PHE:H	3:C:290:GLN:HE22	1.57	0.53
1:A:3880:ALA:HA	1:A:3966:GLN:HE22	1.74	0.53
3:C:240:ILE:HD12	3:C:273:LYS:HZ3	1.72	0.53
6:J:710:LYS:O	6:J:714:LEU:N	2.37	0.53
1:A:754:MET:HA	1:A:757:LYS:HG2	1.90	0.53
1:A:767:GLU:O	1:A:771:ASN:ND2	2.41	0.53
1:A:2225:HIS:ND1	1:A:2226:PRO:O	2.42	0.53
1:A:2540:LEU:HD13	1:A:2835:LYS:HD3	1.89	0.53
1:A:583:LEU:HB3	1:A:612:LEU:HD22	1.90	0.53
1:A:1175:HIS:HA	1:A:1228:GLY:HA2	1.89	0.53
1:A:1697:PRO:HG2	1:A:1749:ALA:HB1	1.91	0.53
1:A:3883:LEU:HD23	1:A:3970:LEU:HB2	1.91	0.53
2:B:410:PHE:HB3	2:B:437:LEU:HD12	1.90	0.53
5:H:38:ASP:OD1	5:H:41:SER:N	2.41	0.53
5:H:140:LYS:HA	5:H:143:HIS:CE1	2.44	0.53
7:D:41:DT:H1'	7:D:42:DA:C8	2.43	0.53
1:A:1151:ARG:NH2	1:A:1163:LEU:O	2.28	0.53
1:A:2260:PHE:HB2	1:A:2306:ASN:HD21	1.74	0.53
1:A:3858:MET:SD	1:A:4119:ARG:HB2	2.49	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:J:809:PRO:HB2	6:J:901:CYS:HB3	1.91	0.53
1:A:935:HIS:ND1	1:A:987:LEU:HD22	2.23	0.53
1:A:567:GLU:HA	1:A:570:LYS:HG2	1.90	0.53
1:A:1549:SER:OG	1:A:1550:VAL:N	2.42	0.53
6:J:823:TYR:O	6:J:871:ARG:NH2	2.39	0.53
1:A:1191:PHE:O	1:A:1195:VAL:HG23	2.09	0.52
1:A:3660:ASN:OD1	1:A:3661:ASP:N	2.42	0.52
3:C:7:LYS:HB3	3:C:128:GLU:H	1.74	0.52
6:J:722:LYS:HE2	6:J:742:PHE:HA	1.90	0.52
1:A:860:GLY:HA3	1:A:3136:THR:HG21	1.91	0.52
3:C:513:TRP:O	3:C:517:ASN:ND2	2.37	0.52
1:A:169:THR:HG21	8:E:21:DA:H5'	1.90	0.52
1:A:380:ASP:O	1:A:384:MET:HG2	2.09	0.52
1:A:1825:LEU:HD21	1:A:1875:LYS:HB3	1.92	0.52
1:A:3616:ALA:O	1:A:3629:ARG:NH2	2.42	0.52
2:B:303:PHE:HB2	2:B:310:LEU:HA	1.91	0.52
1:A:349:ILE:O	1:A:391:ARG:NH2	2.42	0.52
1:A:1098:GLN:HG2	1:A:1152:ARG:HG3	1.90	0.52
1:A:1264:LEU:HD21	1:A:1341:ILE:HA	1.91	0.52
1:A:1829:TRP:O	1:A:1883:ARG:NH2	2.43	0.52
1:A:3328:ILE:HD11	1:A:3412:ALA:HB2	1.90	0.52
1:A:3781:CYS:HB2	1:A:3786:LEU:HD12	1.91	0.52
1:A:4082:ARG:HH21	1:A:4091:ALA:HA	1.75	0.52
4:F:57:ARG:NH2	4:F:120:ASN:HB2	2.24	0.52
1:A:1281:VAL:HG13	1:A:1282:LEU:HG	1.92	0.52
2:B:331:LYS:O	2:B:334:THR:N	2.43	0.52
4:F:186:GLU:HA	4:F:189:PHE:HB3	1.91	0.52
8:E:17:DT:H2''	8:E:18:DA:C4	2.45	0.52
1:A:3813:LYS:HE2	1:A:3817:LEU:HD11	1.92	0.52
4:G:36:LEU:HG	4:G:38:VAL:HG13	1.92	0.52
1:A:295:GLU:HB3	1:A:299:LYS:NZ	2.25	0.52
1:A:1039:TRP:O	1:A:1043:GLN:N	2.42	0.52
1:A:3266:SER:HA	1:A:3272:TRP:HB3	1.92	0.52
4:G:110:SER:H	4:G:117:PHE:HB3	1.74	0.52
5:H:8:ILE:HB	5:H:86:PHE:CG	2.44	0.52
5:I:163:GLU:O	6:J:846:ARG:NH2	2.43	0.52
6:J:720:VAL:HB	6:J:745:HIS:HB3	1.92	0.52
1:A:1926:ASN:HB2	1:A:1974:ASN:HD21	1.75	0.52
5:H:130:CYS:O	5:H:133:THR:OG1	2.25	0.52
5:H:180:PHE:HB2	6:J:774:LEU:HD21	1.91	0.52
5:I:48:SER:OG	5:I:49:GLU:N	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2773:ARG:HG3	1:A:2775:TYR:H	1.74	0.52
1:A:3897:PHE:CE2	1:A:3901:ARG:HD2	2.45	0.52
2:B:91:GLU:H	2:B:136:GLY:HA3	1.75	0.52
5:H:28:LEU:HA	5:H:71:ARG:HH21	1.75	0.52
1:A:1058:SER:HA	1:A:1061:LYS:HE2	1.91	0.51
1:A:1064:TYR:HA	1:A:1106:ILE:HG21	1.92	0.51
1:A:2395:THR:OG1	1:A:2431:ARG:NH1	2.43	0.51
1:A:1657:SER:OG	1:A:1660:SER:OG	2.22	0.51
1:A:2474:TYR:HD2	1:A:2517:LEU:HD11	1.74	0.51
1:A:19:LEU:HD22	1:A:34:LEU:HA	1.93	0.51
1:A:1667:SER:OG	1:A:1667:SER:O	2.28	0.51
1:A:1772:HIS:CE1	1:A:1773:VAL:HG13	2.45	0.51
2:B:95:ASN:HD21	2:B:99:PHE:H	1.58	0.51
6:J:798:ASP:HA	6:J:801:TYR:HB3	1.92	0.51
1:A:2501:LEU:O	1:A:2505:VAL:HG22	2.11	0.51
1:A:3809:THR:OG1	1:A:3930:VAL:O	2.29	0.51
1:A:3380:ARG:O	1:A:3384:HIS:ND1	2.44	0.51
8:E:30:DT:H2'	8:E:31:DT:H72	1.93	0.51
1:A:269:SER:HB3	1:A:308:LEU:HD23	1.92	0.51
1:A:3819:THR:HG23	1:A:3889:ARG:HH12	1.76	0.51
2:B:456:PRO:HA	2:B:459:VAL:HG22	1.92	0.51
1:A:934:LEU:HA	1:A:937:MET:HG2	1.93	0.51
1:A:2839:ASP:O	1:A:2842:ARG:HG2	2.10	0.51
4:F:2:GLU:N	4:F:47:GLU:O	2.44	0.51
4:F:3:GLU:HG2	4:F:4:LEU:H	1.76	0.51
4:F:204:ILE:O	4:F:208:LYS:NZ	2.43	0.51
3:C:40:MET:O	3:C:43:GLN:HG2	2.11	0.51
3:C:62:ASP:OD1	3:C:102:SER:N	2.41	0.51
5:H:88:PHE:HA	5:H:95:PHE:HA	1.93	0.51
1:A:1097:GLU:HB2	1:A:1151:ARG:HD3	1.92	0.51
1:A:2379:MET:SD	1:A:2379:MET:N	2.83	0.51
1:A:2094:MET:HA	1:A:2097:LEU:HD12	1.92	0.51
1:A:4013:TRP:CE2	1:A:4035:GLU:HB2	2.46	0.51
2:B:350:PHE:HB3	2:B:394:VAL:HB	1.92	0.51
7:D:23:DT:H3	8:E:33:DA:H2	1.59	0.51
7:D:36:DA:N6	8:E:22:DG:H1	2.09	0.51
1:A:1694:THR:HB	1:A:1745:LYS:HB3	1.93	0.50
1:A:3159:ARG:HA	1:A:3162:ASN:HD21	1.76	0.50
3:C:315:ARG:NE	3:C:317:GLY:O	2.44	0.50
6:J:792:MET:SD	6:J:796:ILE:HD12	2.50	0.50
1:A:798:GLY:O	1:A:802:THR:OG1	2.24	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1148:ALA:O	1:A:1162:SER:OG	2.29	0.50
1:A:1519:PHE:HB3	1:A:1570:GLU:OE1	2.11	0.50
1:A:1169:VAL:HG21	1:A:1198:LEU:HD21	1.93	0.50
1:A:1675:TYR:CE1	1:A:1696:LEU:HG	2.45	0.50
1:A:1818:SER:HA	1:A:1821:ASP:HB2	1.93	0.50
1:A:4017:GLU:O	1:A:4021:LEU:HG	2.11	0.50
3:C:44:ARG:HG3	3:C:235:CYS:SG	2.52	0.50
6:J:746:MET:O	6:J:751:LYS:NZ	2.42	0.50
1:A:2145:PHE:CZ	1:A:2149:LEU:HD11	2.46	0.50
1:A:3451:LEU:HD13	1:A:3486:GLU:HB2	1.94	0.50
3:C:58:LEU:N	3:C:78:THR:O	2.37	0.50
5:H:43:TRP:HH2	5:H:90:LYS:HE3	1.76	0.50
1:A:2547:SER:HB3	1:A:2550:ILE:HG12	1.94	0.50
1:A:3845:LYS:HD2	1:A:3846:MET:HG2	1.92	0.50
4:F:26:LYS:HD3	4:F:37:LEU:HD12	1.94	0.50
4:G:66:THR:N	5:H:57:ASP:OD2	2.45	0.50
1:A:180:LEU:O	1:A:185:HIS:NE2	2.44	0.50
1:A:752:LEU:HD22	1:A:776:TRP:CZ3	2.46	0.50
1:A:1258:ASP:HA	1:A:1261:LEU:HD12	1.93	0.50
1:A:1338:VAL:O	1:A:1342:MET:HG2	2.12	0.50
1:A:1725:GLN:OE1	1:A:1726:SER:N	2.44	0.50
1:A:2500:LYS:HA	1:A:2503:LYS:HZ2	1.77	0.50
2:B:264:ASN:ND2	2:B:266:ASP:OD1	2.44	0.50
4:F:154:ALA:O	4:F:158:HIS:ND1	2.45	0.50
4:G:104:LEU:HD21	4:G:106:LEU:HD13	1.92	0.50
5:H:140:LYS:HA	5:H:143:HIS:ND1	2.26	0.50
1:A:221:ALA:O	1:A:225:LYS:HG2	2.11	0.50
1:A:1920:TYR:HA	1:A:1923:PHE:CE1	2.47	0.50
1:A:2461:PHE:HA	1:A:2464:HIS:HE2	1.76	0.50
3:C:342:VAL:HG12	3:C:393:VAL:HG13	1.94	0.50
4:G:213:ASN:O	4:G:220:ALA:N	2.45	0.50
6:J:752:GLU:O	6:J:756:ARG:N	2.44	0.50
5:H:176:LEU:HA	5:H:179:ARG:HD2	1.93	0.50
6:J:843:LEU:O	6:J:847:PHE:N	2.45	0.50
1:A:602:MET:O	1:A:1087:ARG:NH1	2.39	0.50
4:F:36:LEU:HG	4:F:38:VAL:H	1.77	0.50
4:G:58:ALA:HB1	4:G:67:ALA:HB3	1.93	0.50
6:J:819:TYR:HB2	6:J:860:VAL:HG13	1.93	0.50
1:A:137:THR:O	1:A:141:SER:N	2.38	0.49
1:A:1700:THR:O	1:A:1703:THR:OG1	2.26	0.49
1:A:2567:SER:HA	1:A:2572:TYR:CG	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2839:ASP:HA	1:A:2842:ARG:HE	1.77	0.49
1:A:3156:PRO:O	1:A:3159:ARG:HG3	2.12	0.49
2:B:126:GLN:HA	2:B:129:LYS:HG2	1.93	0.49
3:C:6:ASN:ND2	3:C:128:GLU:OE1	2.41	0.49
6:J:864:ILE:HD12	6:J:893:TRP:HB3	1.93	0.49
1:A:3658:ASP:OD1	1:A:3658:ASP:N	2.45	0.49
2:B:460:GLY:HA2	2:B:463:LYS:HE3	1.94	0.49
1:A:542:ASP:HA	1:A:545:LEU:HG	1.94	0.49
1:A:684:GLU:OE1	1:A:684:GLU:N	2.43	0.49
1:A:2105:HIS:CE1	1:A:2156:VAL:HA	2.48	0.49
1:A:2859:GLN:NE2	1:A:2880:CYS:SG	2.80	0.49
1:A:1093:GLU:HA	1:A:1096:VAL:HB	1.94	0.49
1:A:1363:LEU:O	1:A:1367:HIS:ND1	2.27	0.49
2:B:348:MET:SD	3:C:518:PRO:HD3	2.53	0.49
4:G:54:VAL:HA	4:G:119:TRP:CZ3	2.47	0.49
5:H:55:GLU:HA	5:H:58:ASP:HB2	1.93	0.49
1:A:2102:LYS:O	1:A:2106:ARG:HG2	2.12	0.49
2:B:290:ARG:HD2	3:C:309:ASP:HA	1.94	0.49
2:B:300:THR:OG1	3:C:292:GLU:O	2.26	0.49
2:B:417:GLU:O	2:B:428:THR:OG1	2.29	0.49
4:F:13:TRP:HB3	4:F:215:GLN:NE2	2.27	0.49
5:I:18:HIS:NE2	5:I:38:ASP:HB3	2.28	0.49
1:A:373:CYS:SG	1:A:381:VAL:HG22	2.52	0.49
1:A:713:GLU:HB2	1:A:717:LYS:HE3	1.95	0.49
1:A:774:GLU:HG2	1:A:858:MET:SD	2.53	0.49
1:A:3490:VAL:HG21	1:A:3493:TRP:CE3	2.48	0.49
2:B:488:ARG:HH12	2:B:503:ALA:N	2.10	0.49
3:C:13:CYS:HB3	3:C:59:PHE:HE2	1.78	0.49
3:C:93:ASP:HB3	3:C:97:LYS:HD2	1.94	0.49
6:J:720:VAL:HG12	6:J:744:ILE:HD12	1.95	0.49
1:A:141:SER:O	1:A:141:SER:OG	2.28	0.49
1:A:3455:LYS:HA	1:A:3491:PRO:HB3	1.94	0.49
1:A:3640:PHE:O	1:A:3644:PHE:HB3	2.13	0.49
2:B:124:GLY:O	2:B:128:GLN:N	2.45	0.49
3:C:219:ASP:OD1	3:C:219:ASP:N	2.45	0.49
4:F:43:GLN:HG2	4:G:128:PRO:HB2	1.93	0.49
6:J:694:GLY:O	6:J:718:HIS:NE2	2.45	0.49
1:A:2269:ASP:CG	1:A:2270:ASN:H	2.16	0.49
1:A:3617:LEU:HB2	1:A:3632:PHE:HE2	1.78	0.49
2:B:261:LEU:HD23	2:B:269:ILE:HD12	1.95	0.49
2:B:422:ASP:OD1	2:B:422:ASP:N	2.44	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:762:TYR:HD2	1:A:765:LEU:HG	1.78	0.49
1:A:1014:LEU:O	1:A:1018:VAL:HG12	2.13	0.49
1:A:2219:LEU:O	1:A:2223:VAL:N	2.45	0.49
1:A:3183:ILE:HG23	1:A:3238:MET:CE	2.43	0.49
5:H:172:LEU:O	5:H:176:LEU:HG	2.13	0.49
6:J:841:LYS:HD3	6:J:864:ILE:HB	1.95	0.49
1:A:176:GLU:HA	1:A:227:LEU:HB2	1.95	0.48
1:A:2365:ASN:HA	1:A:2368:THR:HG22	1.94	0.48
1:A:3980:MET:SD	1:A:3980:MET:N	2.86	0.48
6:J:725:TRP:NE1	6:J:736:VAL:O	2.32	0.48
1:A:27:ALA:HB1	1:A:77:GLU:HG3	1.95	0.48
1:A:3161:LEU:O	1:A:3165:THR:HG23	2.13	0.48
3:C:285:LYS:HB2	3:C:287:GLU:OE1	2.13	0.48
4:F:4:LEU:HD12	4:F:28:PHE:HB3	1.93	0.48
5:H:18:HIS:HB3	5:H:36:LEU:HD11	1.94	0.48
7:D:40:DT:H5"	7:D:41:DT:C4	2.48	0.48
1:A:2443:MET:SD	1:A:2476:ILE:HG23	2.53	0.48
1:A:3759:ARG:HH21	1:A:4010:SER:HA	1.78	0.48
1:A:3835:PRO:HG3	1:A:3877:LYS:HB3	1.94	0.48
6:J:829:LEU:HD11	6:J:855:CYS:HB3	1.95	0.48
1:A:139:ARG:NH2	1:A:182:GLY:H	2.10	0.48
1:A:1377:CYS:SG	1:A:1378:GLU:N	2.86	0.48
1:A:3367:SER:HB2	1:A:3372:LYS:HE3	1.94	0.48
1:A:3964:THR:H	1:A:3967:PHE:HD2	1.62	0.48
3:C:13:CYS:HB3	3:C:59:PHE:CE2	2.49	0.48
3:C:131:HIS:ND1	3:C:160:SER:OG	2.46	0.48
3:C:250:ARG:HG2	3:C:260:ARG:HD3	1.95	0.48
4:F:28:PHE:HB2	4:F:35:ALA:HB3	1.96	0.48
6:J:759:ASP:HB3	6:J:765:TYR:CZ	2.48	0.48
1:A:1933:LEU:O	1:A:1937:ARG:N	2.43	0.48
3:C:44:ARG:CD	3:C:238:LYS:HE3	2.44	0.48
1:A:1069:HIS:CG	1:A:1074:LYS:HD2	2.48	0.48
1:A:1949:ILE:HG23	1:A:2100:LEU:HD22	1.94	0.48
2:B:203:MET:HB2	2:B:238:LYS:HZ2	1.79	0.48
2:B:357:LYS:HG3	2:B:360:HIS:CE1	2.49	0.48
3:C:457:LEU:O	3:C:461:MET:HG2	2.14	0.48
4:G:178:ARG:HH21	4:G:179:LEU:HD11	1.79	0.48
1:A:363:ILE:HD12	1:A:413:PHE:HA	1.96	0.48
1:A:1052:SER:O	1:A:1056:THR:N	2.47	0.48
1:A:1132:ASP:HB3	1:A:1136:ARG:HH21	1.78	0.48
1:A:1765:VAL:HA	1:A:1768:ARG:NE	2.28	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3284:SER:HB2	1:A:3301:LEU:HD21	1.94	0.48
1:A:3821:SER:OG	1:A:3823:GLU:OE1	2.29	0.48
6:J:739:GLN:OE1	6:J:741:ARG:NH2	2.47	0.48
1:A:84:GLU:O	1:A:87:LYS:HG3	2.14	0.48
1:A:232:CYS:HB3	1:A:278:HIS:CE1	2.49	0.48
1:A:1112:ALA:O	1:A:1180:GLN:NE2	2.47	0.48
1:A:1568:ASN:OD1	1:A:1569:THR:N	2.46	0.48
1:A:1616:LEU:O	1:A:1620:THR:HG23	2.14	0.48
1:A:1766:LEU:HD13	1:A:1778:PHE:CD2	2.49	0.48
1:A:3583:LEU:HB3	1:A:3733:ARG:HH11	1.79	0.48
1:A:3759:ARG:O	1:A:3763:ARG:HG2	2.14	0.48
5:H:178:LYS:HA	5:H:181:ILE:HD12	1.95	0.48
1:A:3082:TYR:O	1:A:3086:LEU:HG	2.14	0.48
4:F:59:LYS:HG2	4:F:66:THR:HB	1.96	0.48
1:A:885:ALA:O	1:A:888:ARG:NH2	2.47	0.48
1:A:2562:LEU:O	1:A:2566:THR:HG23	2.14	0.48
1:A:2814:SER:O	1:A:2818:LYS:HG2	2.14	0.48
2:B:357:LYS:O	2:B:358:LYS:HG2	2.14	0.48
1:A:237:SER:OG	1:A:280:SER:O	2.29	0.47
1:A:483:VAL:HG21	1:A:567:GLU:HG2	1.96	0.47
1:A:2461:PHE:HA	1:A:2464:HIS:NE2	2.29	0.47
1:A:542:ASP:N	1:A:542:ASP:OD1	2.44	0.47
1:A:566:ASP:OD2	1:A:570:LYS:NZ	2.42	0.47
1:A:631:ARG:HD3	1:A:668:LYS:HB3	1.96	0.47
1:A:2425:ARG:HH11	1:A:2457:PRO:HB2	1.79	0.47
3:C:338:LYS:HB3	3:C:398:ASP:HA	1.95	0.47
4:F:43:GLN:HB3	4:F:131:VAL:HG21	1.96	0.47
1:A:399:GLN:OE1	1:A:1744:LYS:NZ	2.48	0.47
1:A:2429:ASP:OD1	1:A:2429:ASP:N	2.48	0.47
6:J:659:PHE:CZ	6:J:729:CYS:HB3	2.49	0.47
1:A:1586:SER:HA	1:A:1593:VAL:HG21	1.96	0.47
1:A:1603:GLN:HE22	1:A:1606:ARG:HH22	1.61	0.47
1:A:2415:LEU:HB3	1:A:2420:PHE:HB3	1.96	0.47
1:A:2773:ARG:HD2	1:A:2789:SER:HB2	1.96	0.47
1:A:3175:PRO:HG2	1:A:3178:ILE:HG12	1.95	0.47
1:A:3784:ARG:HH12	1:A:3986:HIS:CD2	2.32	0.47
3:C:200:GLN:O	3:C:203:GLU:HG2	2.13	0.47
5:H:144:LEU:HD11	5:I:145:GLN:OE1	2.15	0.47
1:A:896:VAL:N	1:A:903:PRO:O	2.40	0.47
1:A:1225:GLU:HB3	1:A:1236:LEU:HB2	1.95	0.47
1:A:2425:ARG:NH1	1:A:2457:PRO:O	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:492:ALA:HB2	2:B:500:PRO:HD3	1.95	0.47
4:F:53:VAL:O	4:F:57:ARG:HB2	2.14	0.47
1:A:254:LYS:O	1:A:300:TRP:NE1	2.42	0.47
1:A:645:TRP:CZ3	1:A:1505:LEU:HD13	2.50	0.47
1:A:651:TYR:CZ	1:A:655:LEU:HD11	2.49	0.47
1:A:770:LEU:HD11	1:A:858:MET:HG3	1.96	0.47
1:A:982:GLN:OE1	1:A:2589:TYR:OH	2.20	0.47
1:A:1568:ASN:HA	1:A:1600:MET:HE1	1.97	0.47
1:A:1783:ARG:HG2	1:A:1830:HIS:CD2	2.49	0.47
1:A:2320:ALA:HB1	1:A:2367:VAL:HB	1.95	0.47
1:A:2589:TYR:HD1	1:A:2777:HIS:CE1	2.33	0.47
1:A:3298:LEU:HD11	1:A:3336:ILE:HG22	1.97	0.47
1:A:3389:VAL:O	1:A:3393:GLU:HG2	2.14	0.47
2:B:74:LYS:HD2	2:B:81:ASP:HB2	1.96	0.47
2:B:202:LEU:O	2:B:238:LYS:NZ	2.45	0.47
2:B:262:LYS:HA	2:B:268:VAL:HG12	1.95	0.47
2:B:523:ASP:OD1	2:B:523:ASP:N	2.48	0.47
3:C:292:GLU:N	3:C:292:GLU:OE1	2.47	0.47
3:C:400:ARG:NH2	8:E:33:DA:O4'	2.48	0.47
4:F:136:ILE:HG12	4:G:136:ILE:HD13	1.97	0.47
6:J:893:TRP:HA	6:J:904:GLN:HB2	1.96	0.47
1:A:453:MET:HA	1:A:456:VAL:HG22	1.96	0.47
1:A:1675:TYR:CD1	1:A:1696:LEU:HG	2.50	0.47
1:A:1834:ASP:OD1	1:A:1834:ASP:N	2.47	0.47
1:A:2527:HIS:HD2	1:A:2529:THR:H	1.63	0.47
2:B:272:GLY:N	2:B:369:TYR:O	2.38	0.47
3:C:52:ASP:N	3:C:52:ASP:OD1	2.48	0.47
3:C:266:SER:OG	3:C:363:LYS:HG2	2.15	0.47
5:I:188:LYS:HD2	5:I:191:ILE:HD12	1.96	0.47
1:A:75:SER:O	1:A:79:ARG:N	2.48	0.47
1:A:1560:TYR:O	1:A:1564:SER:OG	2.22	0.47
1:A:1748:ASP:OD1	1:A:1749:ALA:N	2.48	0.47
1:A:2792:THR:OG1	1:A:2793:PRO:HD3	2.15	0.47
1:A:3113:ASN:O	1:A:3117:ILE:HG13	2.15	0.47
2:B:42:VAL:HB	2:B:87:PHE:CE1	2.49	0.47
1:A:90:CYS:HA	1:A:93:LEU:HG	1.96	0.47
3:C:54:ILE:HG12	3:C:86:PRO:HG3	1.97	0.47
3:C:108:LEU:HD22	3:C:146:GLN:HB2	1.96	0.47
6:J:800:GLU:O	6:J:805:TRP:N	2.46	0.47
1:A:1195:VAL:HG11	1:A:1204:PRO:HA	1.97	0.46
1:A:3772:ASN:ND2	1:A:3788:LEU:O	2.42	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:4039:TYR:HB3	1:A:4041:ARG:HD3	1.98	0.46
5:H:130:CYS:HB3	5:I:130:CYS:HB3	1.97	0.46
1:A:998:ASN:HB3	1:A:1044:ILE:HG13	1.96	0.46
1:A:3118:ASP:HB3	1:A:3121:LEU:HG	1.97	0.46
2:B:280:ALA:N	3:C:429:ASP:OD1	2.48	0.46
2:B:369:TYR:CD1	2:B:370:PRO:HD2	2.51	0.46
3:C:13:CYS:HA	3:C:57:VAL:O	2.15	0.46
3:C:132:ILE:O	3:C:162:GLN:N	2.34	0.46
1:A:3700:GLU:OE1	1:A:3700:GLU:N	2.48	0.46
1:A:571:SER:HA	1:A:574:LYS:HE2	1.97	0.46
1:A:1614:GLN:OE1	1:A:1614:GLN:N	2.48	0.46
1:A:3459:ASN:O	1:A:3463:LEU:HG	2.15	0.46
3:C:246:HIS:HB3	3:C:264:TYR:CZ	2.51	0.46
6:J:667:MET:SD	6:J:668:SER:N	2.89	0.46
1:A:3761:ASP:HB2	1:A:3793:VAL:HG11	1.96	0.46
2:B:34:GLY:O	2:B:253:LYS:NZ	2.49	0.46
3:C:7:LYS:HG2	3:C:126:LYS:O	2.16	0.46
1:A:385:TYR:O	1:A:389:ILE:HG12	2.16	0.46
1:A:2967:GLU:OE1	1:A:2967:GLU:N	2.45	0.46
1:A:3735:PRO:HB3	1:A:3753:LYS:HD3	1.97	0.46
2:B:48:MET:HG2	2:B:60:PHE:HB2	1.97	0.46
3:C:43:GLN:HA	3:C:46:VAL:HG22	1.96	0.46
6:J:792:MET:O	6:J:797:ALA:N	2.46	0.46
1:A:100:ILE:HD12	1:A:141:SER:HA	1.98	0.46
1:A:629:PHE:O	1:A:633:ILE:HG12	2.16	0.46
1:A:3571:PHE:CE2	1:A:3575:LEU:HD11	2.51	0.46
3:C:342:VAL:HG12	3:C:393:VAL:HG22	1.97	0.46
1:A:430:VAL:HG11	1:A:1640:GLU:HB2	1.97	0.46
1:A:565:TYR:HE1	1:A:642:PHE:HB2	1.81	0.46
2:B:35:ARG:N	2:B:162:SER:H	2.14	0.46
3:C:164:PHE:CD2	3:C:225:TYR:HB2	2.51	0.46
3:C:213:ILE:HA	3:C:217:GLY:HA2	1.97	0.46
4:G:220:ALA:O	4:G:224:GLN:HG2	2.16	0.46
1:A:1111:LEU:HB2	1:A:1127:CYS:SG	2.56	0.46
1:A:1285:GLU:OE2	1:A:1286:ALA:N	2.45	0.46
1:A:2891:ARG:O	1:A:2895:GLU:HG2	2.15	0.46
1:A:2893:LEU:HD21	1:A:2922:ARG:O	2.16	0.46
1:A:3083:SER:OG	1:A:3102:TYR:O	2.34	0.46
3:C:542:ALA:O	3:C:545:LYS:NZ	2.49	0.46
5:H:89:SER:OG	5:H:94:TYR:O	2.33	0.46
6:J:759:ASP:OD1	6:J:760:CYS:N	2.41	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:749:VAL:O	1:A:753:GLN:HG3	2.16	0.46
1:A:3495:PHE:HB3	1:A:3502:MET:CE	2.45	0.46
4:G:54:VAL:HA	4:G:119:TRP:HZ3	1.79	0.46
5:I:190:LYS:HE3	5:I:194:LEU:HD11	1.98	0.46
8:E:30:DT:C6	8:E:31:DT:H72	2.51	0.46
1:A:87:LYS:O	1:A:91:ILE:HG12	2.16	0.45
1:A:305:ASN:O	1:A:309:LYS:HG3	2.16	0.45
1:A:1260:LEU:HD13	1:A:1297:PHE:CE1	2.51	0.45
1:A:1297:PHE:HA	1:A:1301:ILE:HG12	1.98	0.45
1:A:1475:LEU:HD23	1:A:1475:LEU:H	1.81	0.45
1:A:3131:SER:O	1:A:3135:LEU:HG	2.17	0.45
1:A:3854:ALA:O	1:A:3858:MET:N	2.49	0.45
1:A:4115:ASN:OD1	1:A:4119:ARG:NE	2.36	0.45
2:B:35:ARG:O	2:B:162:SER:N	2.49	0.45
2:B:77:SER:HA	2:B:249:LYS:O	2.17	0.45
3:C:156:LYS:HA	3:C:156:LYS:HD3	1.66	0.45
3:C:271:ARG:H	3:C:271:ARG:HD3	1.81	0.45
4:G:34:TYR:H	4:G:49:VAL:HG21	1.81	0.45
5:I:140:LYS:HA	5:I:143:HIS:CD2	2.51	0.45
1:A:99:LYS:HD2	1:A:99:LYS:HA	1.75	0.45
1:A:2531:LEU:HG	1:A:2538:ARG:NE	2.31	0.45
1:A:2575:PRO:HA	1:A:2786:LYS:HA	1.97	0.45
1:A:2860:ASP:OD1	1:A:2861:ILE:N	2.49	0.45
1:A:2923:TRP:CD2	1:A:2946:GLU:HG3	2.51	0.45
2:B:403:ARG:NH1	7:D:31:DA:O3'	2.49	0.45
3:C:47:PHE:HZ	3:C:495:LEU:HB2	1.81	0.45
3:C:357:MET:HE2	3:C:425:PRO:HB3	1.98	0.45
4:F:160:LYS:NZ	4:G:183:PRO:HA	2.32	0.45
5:H:179:ARG:HB3	6:J:805:TRP:CZ2	2.51	0.45
7:D:29:DA:H2''	7:D:30:DA:C8	2.51	0.45
1:A:468:LEU:HB3	1:A:479:ILE:HD11	1.99	0.45
1:A:491:CYS:HA	1:A:625:ASN:HD22	1.81	0.45
1:A:1454:ALA:O	1:A:1458:LEU:HG	2.17	0.45
1:A:3839:TYR:OH	1:A:4120:THR:O	2.33	0.45
1:A:4013:TRP:NE1	1:A:4017:GLU:OE2	2.50	0.45
3:C:89:ASP:O	3:C:92:GLU:HG2	2.16	0.45
3:C:151:ILE:O	3:C:155:LYS:HG2	2.16	0.45
5:H:36:LEU:N	5:H:43:TRP:O	2.44	0.45
5:I:22:VAL:HG11	5:I:75:LEU:HA	1.99	0.45
6:J:863:VAL:HG23	6:J:886:PHE:HB2	1.98	0.45
8:E:33:DA:H2'	8:E:34:DT:C5	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1260:LEU:HD13	1:A:1297:PHE:CZ	2.51	0.45
1:A:1760:GLU:O	1:A:1764:GLU:HG2	2.16	0.45
1:A:3588:TRP:HE1	1:A:3610:TYR:HA	1.82	0.45
1:A:3886:ALA:O	1:A:3890:MET:HG2	2.16	0.45
1:A:4055:ASN:ND2	1:A:4057:ALA:HB3	2.31	0.45
3:C:146:GLN:HB3	3:C:149:ILE:HD11	1.97	0.45
1:A:697:ASP:HB2	1:A:700:LYS:HG3	1.97	0.45
1:A:2424:MET:HG2	1:A:2461:PHE:CZ	2.52	0.45
1:A:2532:PRO:HB2	1:A:2537:ASP:OD1	2.16	0.45
1:A:3490:VAL:HG21	1:A:3493:TRP:CD2	2.52	0.45
4:G:117:PHE:CZ	4:G:119:TRP:HB2	2.51	0.45
1:A:977:ASP:O	1:A:981:ARG:HG2	2.17	0.45
1:A:1400:VAL:HG12	1:A:1404:LYS:HZ3	1.80	0.45
1:A:1896:ILE:HG22	1:A:1899:VAL:HG13	1.99	0.45
1:A:2412:TYR:O	1:A:2416:LYS:HG2	2.16	0.45
1:A:3097:ASP:N	1:A:3097:ASP:OD1	2.49	0.45
2:B:247:ARG:NH1	2:B:491:GLU:OE1	2.49	0.45
2:B:318:ARG:NH2	2:B:331:LYS:HE3	2.32	0.45
2:B:385:LEU:O	2:B:389:CYS:N	2.46	0.45
3:C:206:GLU:HA	3:C:209:LYS:HG2	1.98	0.45
5:I:36:LEU:N	5:I:43:TRP:O	2.46	0.45
8:E:25:DT:H2''	8:E:26:DT:H5''	1.99	0.45
1:A:1101:PHE:HD2	1:A:1163:LEU:HD12	1.82	0.45
1:A:1215:GLU:HB2	1:A:1219:PHE:CD2	2.52	0.45
1:A:2130:HIS:HE1	1:A:2164:TRP:HA	1.82	0.45
1:A:2880:CYS:HB3	1:A:2886:GLN:HA	1.99	0.45
1:A:3949:ALA:HB1	1:A:3953:LEU:HD12	1.99	0.45
2:B:134:MET:HG3	2:B:135:MET:HE2	1.99	0.45
3:C:35:LYS:NZ	3:C:98:ILE:O	2.48	0.45
4:G:68:PRO:HG2	5:H:106:PHE:HE1	1.81	0.45
6:J:665:CYS:HB2	6:J:697:THR:HG21	1.98	0.45
1:A:639:ALA:HB1	1:A:642:PHE:HB3	1.99	0.45
1:A:1095:LEU:HB3	1:A:1099:PHE:CE2	2.52	0.45
1:A:2773:ARG:HE	1:A:2774:SER:N	2.14	0.45
1:A:3253:SER:HA	1:A:3256:MET:SD	2.56	0.45
1:A:3860:LYS:HA	1:A:3860:LYS:HD3	1.45	0.45
3:C:206:GLU:HA	3:C:209:LYS:HE3	1.98	0.45
3:C:495:LEU:HD12	3:C:495:LEU:HA	1.74	0.45
5:I:59:MET:O	5:I:59:MET:HG2	2.17	0.45
1:A:478:CYS:O	1:A:482:VAL:HG23	2.17	0.45
1:A:770:LEU:O	1:A:774:GLU:HG3	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:900:GLU:N	1:A:900:GLU:OE1	2.49	0.45
1:A:1239:PRO:HG2	1:A:1243:TYR:HE2	1.81	0.45
1:A:1457:GLN:HA	1:A:1460:ARG:HD3	1.98	0.45
1:A:1763:THR:HA	1:A:1766:LEU:HB3	1.99	0.45
1:A:3298:LEU:HD22	1:A:3333:THR:HG23	1.99	0.45
1:A:3455:LYS:NZ	1:A:3489:SER:O	2.24	0.45
1:A:4115:ASN:O	1:A:4119:ARG:HG2	2.17	0.45
1:A:52:ALA:HA	1:A:55:THR:HG22	1.98	0.45
1:A:345:PHE:HA	1:A:348:ILE:HG12	1.99	0.45
1:A:1102:GLU:OE1	1:A:1152:ARG:NH2	2.50	0.45
1:A:1324:PRO:HB2	1:A:1325:GLN:H	1.62	0.45
1:A:2098:THR:C	1:A:2102:LYS:HZ2	2.20	0.45
1:A:3389:VAL:O	1:A:3393:GLU:N	2.50	0.45
3:C:40:MET:O	3:C:44:ARG:HG2	2.17	0.45
5:H:179:ARG:NH1	6:J:805:TRP:HB3	2.32	0.45
1:A:1082:PHE:HA	1:A:1085:ILE:HG12	1.99	0.44
1:A:1399:CYS:O	1:A:1403:MET:HG2	2.17	0.44
1:A:1776:GLU:HA	1:A:1779:GLN:HG2	1.99	0.44
1:A:2321:GLU:O	1:A:2325:LEU:HG	2.17	0.44
2:B:289:TYR:CE1	3:C:309:ASP:HB3	2.53	0.44
3:C:363:LYS:HD2	3:C:418:CYS:SG	2.57	0.44
3:C:543:LYS:HD3	3:C:545:LYS:HZ3	1.82	0.44
5:H:47:VAL:HG11	5:H:52:ILE:HD12	1.99	0.44
5:H:94:TYR:CE2	5:H:96:PHE:HB3	2.52	0.44
5:H:158:VAL:HG22	6:J:840:ILE:HD11	2.00	0.44
1:A:467:ALA:O	1:A:471:LYS:NZ	2.40	0.44
1:A:624:ILE:O	1:A:628:GLU:HG2	2.17	0.44
1:A:2820:MET:SD	1:A:2829:LYS:HG2	2.57	0.44
2:B:374:LEU:O	3:C:540:ILE:HG13	2.18	0.44
5:H:131:LEU:HD23	5:H:131:LEU:HA	1.79	0.44
1:A:475:LEU:O	1:A:479:ILE:HD13	2.17	0.44
1:A:1115:HIS:CE1	1:A:1181:THR:H	2.35	0.44
1:A:1871:MET:HG2	1:A:1940:TYR:HA	2.00	0.44
1:A:3174:ASP:HB3	1:A:3179:TRP:HE1	1.82	0.44
4:F:158:HIS:CE1	4:F:184:PHE:HB3	2.52	0.44
4:G:105:ILE:HD11	4:G:120:ASN:ND2	2.33	0.44
1:A:1215:GLU:HB2	1:A:1219:PHE:HD2	1.81	0.44
1:A:2424:MET:HG2	1:A:2461:PHE:HZ	1.82	0.44
1:A:2486:ASP:N	1:A:2486:ASP:OD1	2.50	0.44
1:A:2787:HIS:O	1:A:2791:ILE:HG12	2.18	0.44
1:A:3499:ILE:HA	1:A:3502:MET:HE2	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3570:ASP:OD2	1:A:3686:TRP:NE1	2.50	0.44
1:A:3880:ALA:HB2	1:A:3965:ARG:CZ	2.48	0.44
2:B:131:PHE:CE1	2:B:135:MET:HG3	2.52	0.44
5:H:22:VAL:HG23	5:H:34:ILE:HA	2.00	0.44
5:I:18:HIS:HE2	5:I:38:ASP:HB3	1.83	0.44
1:A:535:LEU:HD13	1:A:565:TYR:HD2	1.82	0.44
1:A:3923:ARG:HB3	1:A:3928:PHE:HE1	1.83	0.44
3:C:118:ILE:O	3:C:122:THR:HG23	2.17	0.44
6:J:696:ASP:OD1	6:J:696:ASP:N	2.50	0.44
6:J:721:VAL:HG22	6:J:743:MET:SD	2.57	0.44
1:A:849:GLU:HA	1:A:852:ARG:HD3	1.99	0.44
1:A:851:ILE:O	1:A:855:VAL:HG23	2.17	0.44
1:A:2454:LEU:O	1:A:2458:VAL:HG23	2.18	0.44
1:A:2799:GLN:OE1	1:A:2800:ARG:NH1	2.50	0.44
6:J:663:GLU:OE2	6:J:697:THR:OG1	2.30	0.44
1:A:162:LEU:HD21	2:B:299:LYS:HB3	2.00	0.44
1:A:1637:SER:O	1:A:1642:LYS:NZ	2.42	0.44
1:A:2474:TYR:OH	1:A:2512:ASP:OD2	2.24	0.44
1:A:2825:THR:O	1:A:2829:LYS:HG3	2.17	0.44
1:A:3029:LYS:HA	1:A:3064:PHE:HE1	1.82	0.44
1:A:3897:PHE:CZ	1:A:3901:ARG:HD2	2.53	0.44
2:B:118:GLU:O	2:B:121:GLN:HG2	2.18	0.44
3:C:86:PRO:HB3	3:C:90:LEU:HD23	2.00	0.44
4:F:24:LEU:N	4:F:38:VAL:HA	2.33	0.44
1:A:189:MET:SD	1:A:189:MET:N	2.91	0.44
2:B:418:GLU:HB3	2:B:430:PRO:HD3	1.99	0.44
7:D:32:DA:H2''	7:D:33:DA:C8	2.53	0.44
1:A:1403:MET:HB3	1:A:1463:LEU:HD12	1.99	0.44
1:A:1471:GLN:OE1	1:A:1477:HIS:N	2.51	0.44
2:B:68:GLN:HE22	2:B:120:ASP:HA	1.82	0.44
5:I:69:GLU:HG3	5:I:106:PHE:HZ	1.83	0.44
5:I:71:ARG:HE	5:I:75:LEU:HD11	1.83	0.44
1:A:79:ARG:O	1:A:83:GLU:HG2	2.18	0.43
1:A:273:ARG:O	1:A:277:LEU:HG	2.17	0.43
1:A:1009:LEU:HD13	1:A:1036:PHE:CE2	2.53	0.43
1:A:1142:HIS:CG	1:A:1197:LEU:HD12	2.53	0.43
1:A:2125:TRP:O	1:A:2129:LEU:HG	2.18	0.43
1:A:2460:GLU:OE1	1:A:2460:GLU:N	2.50	0.43
1:A:3771:MET:HE2	1:A:3774:ILE:HD12	2.00	0.43
3:C:465:LYS:N	3:C:474:GLU:O	2.47	0.43
5:H:10:LEU:HD21	5:H:18:HIS:HB2	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:877:ASP:OD1	1:A:878:GLU:N	2.49	0.43
1:A:907:LEU:HA	1:A:910:PHE:HD2	1.83	0.43
1:A:1857:LYS:NZ	1:A:1860:GLU:HG3	2.32	0.43
1:A:1876:ILE:HA	1:A:1879:VAL:HG22	2.00	0.43
1:A:2466:SER:O	1:A:2467:THR:OG1	2.33	0.43
1:A:2492:ASP:N	1:A:2492:ASP:OD1	2.51	0.43
2:B:35:ARG:HB2	2:B:161:MET:HE1	1.99	0.43
6:J:809:PRO:HG2	6:J:810:LEU:HD12	1.99	0.43
6:J:821:ASP:OD2	6:J:871:ARG:NH1	2.50	0.43
1:A:484:HIS:CE1	1:A:488:ILE:HD11	2.53	0.43
1:A:913:ARG:HD2	1:A:913:ARG:HA	1.71	0.43
1:A:1413:ASP:OD1	1:A:1414:ILE:N	2.48	0.43
1:A:1824:LEU:O	1:A:1828:LEU:HD23	2.19	0.43
1:A:1860:GLU:OE1	1:A:1861:SER:N	2.52	0.43
1:A:2773:ARG:HH11	1:A:2785:ILE:HB	1.84	0.43
1:A:3588:TRP:CG	1:A:3613:MET:HG3	2.53	0.43
1:A:3828:TYR:HA	1:A:3835:PRO:HD2	2.00	0.43
1:A:3959:MET:HG3	1:A:4124:TRP:CZ2	2.54	0.43
5:H:5:ILE:HG12	5:H:126:LEU:HG	2.00	0.43
5:I:30:SER:OG	5:I:49:GLU:OE1	2.29	0.43
6:J:663:GLU:HA	6:J:688:TYR:HB3	1.99	0.43
1:A:898:PHE:HB2	1:A:901:MET:O	2.18	0.43
1:A:913:ARG:NE	1:A:2803:ILE:HD11	2.32	0.43
1:A:1413:ASP:O	1:A:1417:THR:HG23	2.19	0.43
1:A:1779:GLN:OE1	1:A:1826:THR:HG21	2.18	0.43
1:A:1985:LYS:HD2	1:A:2183:HIS:HB2	2.00	0.43
1:A:2553:HIS:O	1:A:2557:LEU:HG	2.17	0.43
1:A:3129:LEU:O	1:A:3132:VAL:HG12	2.17	0.43
2:B:462:MET:O	2:B:466:VAL:HG12	2.19	0.43
1:A:887:ASP:OD1	1:A:887:ASP:N	2.50	0.43
1:A:1568:ASN:ND2	1:A:1603:GLN:HE21	2.16	0.43
1:A:1627:LYS:HA	1:A:1670:GLU:OE2	2.18	0.43
1:A:2475:ASN:HA	1:A:2478:MET:HG2	1.99	0.43
1:A:3155:VAL:HG22	1:A:3156:PRO:HD3	2.01	0.43
1:A:3544:ASP:OD1	1:A:3548:GLY:N	2.51	0.43
1:A:3722:PHE:HD1	1:A:3740:ILE:HG12	1.83	0.43
1:A:4055:ASN:O	1:A:4058:VAL:HG12	2.18	0.43
2:B:143:LEU:HA	2:B:146:VAL:HG22	2.01	0.43
3:C:203:GLU:HA	3:C:206:GLU:HG3	2.00	0.43
3:C:245:ILE:HD12	3:C:245:ILE:HA	1.90	0.43
3:C:267:ILE:H	3:C:361:VAL:HB	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:584:GLU:N	1:A:613:HIS:O	2.39	0.43
1:A:1051:LYS:HA	1:A:1054:VAL:HG12	1.99	0.43
1:A:1255:CYS:O	1:A:1259:LEU:HG	2.17	0.43
1:A:1428:ILE:HG12	1:A:1451:VAL:HG11	2.00	0.43
1:A:2500:LYS:HA	1:A:2503:LYS:NZ	2.33	0.43
1:A:3164:TRP:O	1:A:3186:ARG:NH1	2.52	0.43
1:A:3638:LYS:O	1:A:3642:LYS:HG2	2.18	0.43
1:A:3821:SER:O	1:A:3825:LYS:HG3	2.19	0.43
1:A:3879:PRO:HG2	1:A:3882:LEU:HD21	2.01	0.43
3:C:543:LYS:HD3	3:C:543:LYS:HA	1.85	0.43
4:F:44:VAL:H	4:F:131:VAL:HG22	1.83	0.43
6:J:889:LEU:HD11	6:J:906:GLU:HG2	2.00	0.43
1:A:38:LEU:HB3	1:A:84:GLU:HG2	2.01	0.43
1:A:200:PHE:CE1	1:A:227:LEU:HD21	2.53	0.43
1:A:463:LYS:HG3	1:A:544:ILE:HG21	2.01	0.43
1:A:677:ALA:HA	1:A:680:ILE:HG12	2.00	0.43
1:A:2223:VAL:O	1:A:2223:VAL:HG13	2.19	0.43
1:A:3451:LEU:HD11	1:A:3483:MET:HA	2.01	0.43
3:C:80:HIS:O	3:C:81:ARG:HD2	2.18	0.43
1:A:138:PHE:O	1:A:142:ARG:HG2	2.19	0.43
1:A:913:ARG:HE	1:A:2803:ILE:HD11	1.83	0.43
1:A:1849:ASP:HA	1:A:1852:LYS:HG2	1.99	0.43
1:A:2544:SER:HA	1:A:2842:ARG:NH2	2.34	0.43
1:A:3301:LEU:HA	1:A:3304:VAL:HG22	2.00	0.43
1:A:3627:ALA:HA	1:A:3630:ARG:HB2	2.00	0.43
2:B:173:ASP:OD1	2:B:173:ASP:N	2.52	0.43
2:B:266:ASP:OD1	2:B:267:ILE:N	2.52	0.43
2:B:479:GLU:HB3	3:C:427:MET:HG3	2.01	0.43
2:B:509:PRO:HB3	3:C:343:LEU:HA	2.00	0.43
3:C:225:TYR:HB3	3:C:230:SER:OG	2.19	0.43
5:H:117:GLU:OE1	5:H:117:GLU:N	2.51	0.43
1:A:1102:GLU:O	1:A:1106:ILE:HG12	2.19	0.43
1:A:1474:ASP:OD1	1:A:1474:ASP:N	2.52	0.43
1:A:1623:LEU:HD13	1:A:1661:PHE:CG	2.52	0.43
1:A:1661:PHE:HA	1:A:1665:HIS:HB2	2.00	0.43
1:A:1780:SER:HB2	1:A:1784:ARG:HH12	1.82	0.43
1:A:3259:LEU:O	1:A:3276:TRP:NE1	2.35	0.43
1:A:3891:SER:O	1:A:3891:SER:OG	2.34	0.43
1:A:3913:ILE:HD13	1:A:3987:ALA:HB3	2.01	0.43
2:B:192:ASP:O	2:B:196:THR:HG23	2.18	0.43
2:B:463:LYS:HG2	3:C:387:LEU:HD11	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:474:ARG:HD2	2:B:474:ARG:HA	1.69	0.43
1:A:1055:ASN:O	1:A:1059:LEU:HD23	2.19	0.43
1:A:1960:LYS:C	1:A:1962:TYR:H	2.22	0.43
1:A:2514:ASN:OD1	1:A:2517:LEU:N	2.40	0.43
1:A:2586:PHE:CD1	1:A:2782:ASP:HB2	2.54	0.43
1:A:2832:ILE:O	1:A:2835:LYS:HG3	2.18	0.43
1:A:2962:ARG:HA	1:A:3989:ARG:NH1	2.30	0.43
1:A:2995:GLU:O	1:A:2999:LEU:HG	2.19	0.43
1:A:3139:GLN:O	1:A:3139:GLN:NE2	2.52	0.43
1:A:4002:MET:O	1:A:4005:PHE:HB3	2.18	0.43
2:B:357:LYS:O	2:B:359:HIS:ND1	2.52	0.43
4:F:54:VAL:HG22	4:F:119:TRP:CH2	2.54	0.43
1:A:225:LYS:HE2	1:A:253:LEU:HD22	2.01	0.42
1:A:688:PRO:HG3	1:A:704:PHE:HE2	1.84	0.42
1:A:865:GLN:H	1:A:3169:PRO:HA	1.84	0.42
1:A:1465:HIS:CE1	1:A:1476:HIS:HE1	2.37	0.42
1:A:2452:ARG:NH2	1:A:2453:GLU:OE2	2.52	0.42
1:A:3361:GLU:N	1:A:3361:GLU:OE1	2.52	0.42
1:A:4065:LEU:HA	1:A:4069:GLU:HB2	2.00	0.42
5:I:43:TRP:HD1	5:I:93:CYS:SG	2.42	0.42
6:J:789:PRO:HA	6:J:792:MET:HE2	2.01	0.42
8:E:21:DA:C8	8:E:21:DA:H5"	2.54	0.42
1:A:525:LYS:O	1:A:528:VAL:HG22	2.19	0.42
1:A:1056:THR:O	1:A:1059:LEU:HG	2.19	0.42
1:A:2578:GLU:HA	1:A:2784:GLN:HG3	2.00	0.42
1:A:3014:CYS:SG	1:A:3015:SER:N	2.92	0.42
1:A:3101:TYR:O	1:A:3105:ASN:ND2	2.52	0.42
1:A:3669:LYS:HA	1:A:3672:LYS:HD2	1.99	0.42
2:B:474:ARG:HH11	2:B:475:SER:H	1.67	0.42
4:F:210:PHE:N	4:F:215:GLN:HB3	2.34	0.42
1:A:1178:ARG:HH22	1:A:1183:CYS:HB3	1.84	0.42
1:A:1597:LEU:O	1:A:1601:LEU:HG	2.19	0.42
1:A:1948:ALA:O	1:A:1952:ILE:HG12	2.18	0.42
1:A:2189:ILE:O	1:A:2192:THR:OG1	2.29	0.42
1:A:3636:PHE:CE2	1:A:3640:PHE:HB2	2.54	0.42
1:A:3912:CYS:HB3	1:A:3961:PHE:CG	2.55	0.42
2:B:95:ASN:ND2	2:B:99:PHE:H	2.16	0.42
3:C:7:LYS:O	3:C:129:LYS:N	2.52	0.42
3:C:365:PHE:CE1	3:C:418:CYS:HB3	2.53	0.42
4:G:34:TYR:H	4:G:49:VAL:HG11	1.83	0.42
5:H:168:ALA:HB1	6:J:810:LEU:HD11	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:J:673:GLN:HG2	6:J:681:ARG:HH22	1.82	0.42
1:A:2953:THR:HG1	1:A:2994:TRP:HE1	1.66	0.42
1:A:3337:ILE:HG23	1:A:3377:LEU:HD13	2.01	0.42
2:B:127:GLY:HA2	2:B:130:ARG:HG2	2.01	0.42
2:B:277:VAL:HG21	3:C:357:MET:HE3	2.01	0.42
4:F:175:ILE:HG13	4:G:167:TYR:HE1	1.82	0.42
6:J:711:ASN:HA	6:J:714:LEU:HB2	2.00	0.42
8:E:35:DT:H6	8:E:35:DT:H2'	1.63	0.42
1:A:172:GLU:OE1	1:A:172:GLU:N	2.42	0.42
1:A:1261:LEU:HD22	1:A:1340:ARG:HG3	2.01	0.42
1:A:1482:GLU:O	1:A:1486:LEU:HB2	2.19	0.42
1:A:1791:CYS:O	1:A:1795:VAL:HG23	2.18	0.42
1:A:2168:LEU:HD11	1:A:2189:ILE:HG23	2.01	0.42
1:A:2873:PRO:HG3	1:A:2922:ARG:NH1	2.34	0.42
1:A:3176:MET:HE3	1:A:3179:TRP:HB2	2.01	0.42
3:C:381:ILE:HB	3:C:410:PRO:HB3	2.02	0.42
4:F:157:LEU:HD21	4:G:157:LEU:HB2	2.02	0.42
4:F:179:LEU:HD13	4:G:159:MET:SD	2.60	0.42
4:G:45:TRP:HB3	4:G:123:CYS:HB3	2.01	0.42
4:G:132:SER:HA	4:G:136:ILE:HB	2.01	0.42
1:A:1253:THR:O	1:A:1257:LEU:HG	2.18	0.42
1:A:1899:VAL:HB	1:A:1911:LEU:HD22	2.01	0.42
1:A:2215:LEU:O	1:A:2219:LEU:HG	2.20	0.42
1:A:2411:LEU:O	1:A:2415:LEU:HG	2.20	0.42
1:A:2537:ASP:HA	1:A:2540:LEU:HB3	2.02	0.42
1:A:2855:VAL:O	1:A:2859:GLN:HG3	2.20	0.42
1:A:3617:LEU:O	1:A:3633:ILE:HG12	2.19	0.42
1:A:3772:ASN:OD1	1:A:3788:LEU:N	2.53	0.42
1:A:3820:MET:HG3	1:A:3824:GLU:OE1	2.20	0.42
2:B:353:LEU:HD11	2:B:415:PRO:HD2	2.01	0.42
4:F:76:LEU:HD13	4:F:117:PHE:HB2	2.01	0.42
4:G:61:LEU:HD23	4:G:118:TYR:HB3	2.01	0.42
5:H:169:LYS:HB2	5:I:169:LYS:HG3	2.02	0.42
6:J:706:ASN:OD1	6:J:708:ARG:HG2	2.19	0.42
6:J:717:LYS:HG3	6:J:718:HIS:CE1	2.55	0.42
1:A:125:ILE:HB	1:A:126:PRO:HD3	2.02	0.42
1:A:414:LEU:HD11	1:A:464:VAL:HG11	2.02	0.42
1:A:1235:ILE:HD12	1:A:1238:GLN:O	2.20	0.42
1:A:2358:ASP:OD1	1:A:2358:ASP:N	2.53	0.42
1:A:2794:LEU:HD21	1:A:2808:LEU:HD13	2.02	0.42
1:A:3969:ASN:HD22	1:A:3972:LEU:HD13	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:514:MET:SD	2:B:518:LEU:HD23	2.60	0.42
3:C:406:GLY:HA2	3:C:424:LEU:H	1.85	0.42
5:H:7:ARG:NE	5:I:128:CYS:HA	2.35	0.42
1:A:236:LYS:HE2	1:A:236:LYS:HB2	1.83	0.42
1:A:491:CYS:HA	1:A:625:ASN:ND2	2.34	0.42
1:A:1539:SER:HB2	1:A:1552:HIS:CD2	2.54	0.42
1:A:1920:TYR:O	1:A:1924:THR:OG1	2.31	0.42
1:A:2145:PHE:O	1:A:2149:LEU:HG	2.20	0.42
1:A:2257:PHE:CE1	1:A:2299:TYR:HA	2.54	0.42
1:A:3037:GLN:O	1:A:3041:LEU:HG	2.20	0.42
1:A:3386:SER:O	1:A:3390:GLN:OE1	2.38	0.42
1:A:3537:SER:HA	1:A:3540:TYR:CG	2.54	0.42
2:B:247:ARG:HB3	2:B:484:GLN:HE22	1.85	0.42
2:B:463:LYS:O	2:B:467:GLU:HG2	2.19	0.42
5:H:42:ALA:H	5:H:116:VAL:HG22	1.85	0.42
1:A:131:LEU:HD22	1:A:177:LEU:HG	2.01	0.42
1:A:174:VAL:HA	1:A:177:LEU:HB2	2.02	0.42
1:A:793:LEU:HD22	1:A:869:ASN:HB2	2.01	0.42
1:A:1366:THR:HB	1:A:1370:ARG:HH12	1.83	0.42
1:A:2970:LYS:HE3	1:A:2970:LYS:HB3	1.92	0.42
1:A:3407:ALA:O	1:A:3410:ILE:HG12	2.19	0.42
1:A:3474:ARG:HE	1:A:3474:ARG:HB2	1.67	0.42
1:A:3950:THR:HG23	1:A:3957:GLU:H	1.85	0.42
2:B:113:ALA:O	2:B:117:LEU:HG	2.20	0.42
2:B:215:LEU:HA	2:B:218:ARG:HE	1.85	0.42
3:C:91:LEU:HD21	3:C:499:LEU:HD11	2.00	0.42
5:I:28:LEU:O	5:I:71:ARG:NH1	2.52	0.42
5:I:189:THR:O	5:I:192:ARG:HG3	2.20	0.42
6:J:879:ARG:O	6:J:885:LYS:NZ	2.49	0.42
6:J:889:LEU:HD13	6:J:893:TRP:CD1	2.55	0.42
1:A:1165:LEU:O	1:A:1169:VAL:HG23	2.20	0.42
1:A:3023:ASN:HB2	1:A:3031:TRP:CH2	2.55	0.42
1:A:3100:LYS:HA	1:A:3103:ILE:HG22	2.01	0.42
1:A:3350:GLU:OE1	1:A:3350:GLU:N	2.53	0.42
1:A:3544:ASP:OD1	1:A:3547:THR:N	2.51	0.42
2:B:41:LEU:HD12	2:B:86:VAL:O	2.20	0.42
4:F:130:LEU:O	4:F:134:HIS:HB2	2.20	0.42
4:G:113:SER:O	4:G:113:SER:OG	2.36	0.42
7:D:28:DT:H2"	7:D:29:DA:C8	2.55	0.42
1:A:187:SER:HA	1:A:190:ILE:HB	2.02	0.41
1:A:2325:LEU:HD22	1:A:2328:ARG:HH22	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:39:ILE:HG22	2:B:84:ALA:HB3	2.02	0.41
2:B:509:PRO:HB2	2:B:511:VAL:HG12	2.02	0.41
5:H:20:LEU:HD23	5:H:74:LEU:HA	2.01	0.41
1:A:82:ARG:O	1:A:86:LEU:HD23	2.20	0.41
1:A:200:PHE:CE2	1:A:227:LEU:HD11	2.55	0.41
1:A:435:LEU:O	1:A:438:LEU:HG	2.20	0.41
1:A:446:PHE:CE2	1:A:530:LEU:HB2	2.54	0.41
1:A:529:ASP:OD1	1:A:529:ASP:N	2.52	0.41
1:A:1092:GLU:OE2	1:A:1094:SER:OG	2.38	0.41
1:A:1101:PHE:CD2	1:A:1163:LEU:HD12	2.55	0.41
1:A:1212:LEU:HD13	1:A:1220:LEU:HD22	2.02	0.41
1:A:1527:ARG:HH12	1:A:1531:LEU:HG	1.86	0.41
1:A:1739:TYR:O	1:A:1743:MET:HG2	2.20	0.41
1:A:2227:LYS:O	1:A:2230:VAL:HG12	2.20	0.41
1:A:2300:PHE:CD1	1:A:2341:LEU:HD21	2.55	0.41
1:A:3588:TRP:CD1	1:A:3613:MET:HB2	2.55	0.41
1:A:3605:ASN:HA	1:A:3608:LYS:HG2	2.02	0.41
4:F:3:GLU:HG2	4:F:4:LEU:N	2.34	0.41
4:F:34:TYR:HD2	4:F:36:LEU:HB3	1.85	0.41
4:G:50:ASP:O	4:G:54:VAL:HG23	2.20	0.41
5:I:140:LYS:HD2	5:I:143:HIS:NE2	2.36	0.41
6:J:670:THR:N	6:J:703:GLY:HA3	2.33	0.41
1:A:71:LYS:HE3	1:A:71:LYS:HB2	1.78	0.41
1:A:778:ILE:HD13	1:A:778:ILE:HA	1.91	0.41
1:A:848:LEU:HA	1:A:851:ILE:HD12	2.01	0.41
1:A:1092:GLU:O	1:A:1096:VAL:HG23	2.20	0.41
1:A:1487:VAL:HG11	1:A:1515:LEU:HD21	2.00	0.41
1:A:3027:LEU:HD13	1:A:3064:PHE:HB2	2.02	0.41
1:A:3903:HIS:HE1	1:A:3936:GLY:HA2	1.86	0.41
2:B:319:SER:HB3	2:B:328:ILE:HA	2.01	0.41
2:B:388:LYS:NZ	3:C:451:LEU:HB3	2.34	0.41
4:G:190:LEU:HA	4:G:194:MET:HG2	2.02	0.41
5:I:69:GLU:HA	5:I:72:LYS:HG2	2.01	0.41
1:A:63:PHE:O	1:A:66:LEU:HB2	2.21	0.41
1:A:1596:VAL:O	1:A:1600:MET:HG2	2.20	0.41
1:A:1862:THR:O	1:A:1866:GLN:OE1	2.39	0.41
1:A:2840:PHE:O	1:A:2844:LEU:HG	2.21	0.41
1:A:3353:GLU:HG2	1:A:3356:ALA:H	1.86	0.41
1:A:3572:ILE:HA	1:A:3575:LEU:HD12	2.03	0.41
1:A:3578:LEU:O	1:A:3736:LYS:HE3	2.19	0.41
1:A:4013:TRP:NE1	1:A:4035:GLU:HB2	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:247:ARG:HA	2:B:247:ARG:HD2	1.87	0.41
2:B:360:HIS:CE1	2:B:443:LYS:HE2	2.56	0.41
2:B:479:GLU:HA	3:C:426:PHE:HB3	2.01	0.41
4:F:135:LEU:C	4:F:138:PRO:HD2	2.40	0.41
4:G:71:ALA:HB2	5:H:106:PHE:HZ	1.84	0.41
6:J:858:GLU:OE1	6:J:883:LYS:N	2.49	0.41
1:A:19:LEU:HB3	1:A:34:LEU:HD13	2.03	0.41
1:A:565:TYR:CE1	1:A:642:PHE:HB2	2.56	0.41
1:A:570:LYS:HB3	1:A:645:TRP:CH2	2.55	0.41
1:A:786:GLN:OE1	1:A:786:GLN:N	2.49	0.41
1:A:1089:PHE:HE1	1:A:1099:PHE:HD2	1.68	0.41
1:A:1186:LYS:HD2	1:A:1186:LYS:HA	1.82	0.41
1:A:1212:LEU:HA	1:A:1215:GLU:HG2	2.03	0.41
1:A:2094:MET:HB3	1:A:2145:PHE:HE1	1.84	0.41
1:A:3026:ASP:OD1	1:A:3026:ASP:N	2.53	0.41
1:A:3061:LEU:O	1:A:3065:ILE:HG12	2.19	0.41
1:A:3163:THR:O	1:A:3167:ARG:HG3	2.21	0.41
1:A:3828:TYR:HD1	1:A:3835:PRO:HD2	1.85	0.41
2:B:301:ARG:NH1	2:B:313:PRO:HD3	2.35	0.41
3:C:134:ILE:HB	3:C:163:PHE:HD1	1.85	0.41
3:C:402:ASN:ND2	7:D:25:DA:H3'	2.34	0.41
4:G:108:VAL:O	4:G:108:VAL:HG13	2.21	0.41
5:H:154:ASP:O	5:H:158:VAL:HG23	2.20	0.41
6:J:891:GLU:HB3	6:J:895:THR:HB	2.02	0.41
1:A:574:LYS:HB2	1:A:574:LYS:HE3	1.86	0.41
1:A:1430:GLU:O	1:A:1434:VAL:HG13	2.20	0.41
1:A:2133:LEU:HD23	1:A:2164:TRP:HZ3	1.85	0.41
1:A:2259:LYS:HE2	1:A:2259:LYS:HB2	1.91	0.41
1:A:3232:ARG:NH2	1:A:3268:THR:OG1	2.54	0.41
1:A:3494:GLN:HA	1:A:3709:GLY:HA2	2.01	0.41
1:A:3758:LEU:HD13	1:A:3801:GLY:HA3	2.03	0.41
1:A:570:LYS:O	1:A:574:LYS:HG3	2.20	0.41
1:A:639:ALA:O	1:A:643:GLU:N	2.54	0.41
1:A:865:GLN:HB3	1:A:3170:ASP:HB2	2.02	0.41
1:A:2251:ILE:HD11	1:A:2285:LEU:HD13	2.01	0.41
1:A:3298:LEU:HD13	1:A:3337:ILE:HB	2.02	0.41
1:A:3330:LEU:HD23	1:A:3384:HIS:CD2	2.55	0.41
1:A:3347:CYS:SG	1:A:3348:LEU:N	2.93	0.41
1:A:3856:MET:N	1:A:3856:MET:SD	2.94	0.41
3:C:82:HIS:CE1	3:C:84:MET:HB3	2.55	0.41
5:H:191:ILE:HD13	6:J:765:TYR:CD1	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:100:ILE:HB	1:A:141:SER:HB2	2.01	0.41
1:A:101:ALA:HA	1:A:144:MET:HG3	2.02	0.41
1:A:637:LYS:HD3	1:A:638:GLN:O	2.21	0.41
1:A:664:SER:O	1:A:668:LYS:HG3	2.21	0.41
1:A:3460:GLU:H	1:A:3460:GLU:CD	2.24	0.41
2:B:35:ARG:HD2	2:B:80:ARG:NE	2.36	0.41
3:C:11:VAL:HG21	3:C:114:SER:HB2	2.03	0.41
3:C:197:ILE:HB	3:C:201:GLN:HB2	2.03	0.41
3:C:261:ILE:HA	3:C:366:ALA:HA	2.02	0.41
4:F:46:HIS:NE2	4:F:127:SER:HB2	2.36	0.41
5:I:154:ASP:O	5:I:158:VAL:HG23	2.21	0.41
1:A:86:LEU:HD12	1:A:129:ASP:HB2	2.03	0.41
1:A:174:VAL:O	1:A:178:LEU:HG	2.21	0.41
1:A:295:GLU:HB3	1:A:299:LYS:HZ3	1.86	0.41
1:A:653:LEU:HD11	1:A:669:LEU:HG	2.03	0.41
1:A:712:LYS:O	1:A:716:VAL:HG23	2.21	0.41
1:A:1032:CYS:O	1:A:1035:GLU:HG2	2.21	0.41
1:A:1260:LEU:HD22	1:A:1293:ALA:HB1	2.03	0.41
1:A:1419:LEU:O	1:A:1423:ILE:N	2.49	0.41
1:A:1572:LEU:HA	1:A:1575:LEU:HD21	2.03	0.41
1:A:1608:ARG:HA	1:A:1611:GLN:O	2.21	0.41
1:A:1817:GLN:HG3	1:A:1821:ASP:OD2	2.20	0.41
1:A:2086:ASP:O	1:A:2090:ARG:NE	2.50	0.41
1:A:2368:THR:HG21	1:A:2400:VAL:HG22	2.03	0.41
1:A:2447:LYS:HE2	1:A:2447:LYS:HB2	1.96	0.41
1:A:3324:ARG:HB3	1:A:3391:ALA:HB3	2.02	0.41
1:A:3583:LEU:HD13	1:A:3733:ARG:HD2	2.02	0.41
1:A:3771:MET:CE	1:A:3998:LEU:HD13	2.51	0.41
1:A:3858:MET:HE3	1:A:3858:MET:HB2	1.84	0.41
2:B:363:ARG:HB3	2:B:436:PHE:CD1	2.56	0.41
3:C:138:LEU:HA	3:C:142:PHE:HE2	1.85	0.41
3:C:164:PHE:CD2	3:C:231:LEU:HD22	2.56	0.41
3:C:443:LYS:HG3	3:C:444:TYR:CD2	2.56	0.41
5:H:10:LEU:HD11	5:H:18:HIS:CG	2.55	0.41
6:J:865:ILE:N	6:J:889:LEU:O	2.45	0.41
1:A:204:LEU:O	1:A:207:GLN:N	2.53	0.41
1:A:398:THR:HG23	1:A:399:GLN:HG2	2.03	0.41
1:A:1713:VAL:HA	1:A:1716:GLN:NE2	2.36	0.41
1:A:1923:PHE:HA	1:A:1941:HIS:HD2	1.85	0.41
1:A:2098:THR:HA	1:A:2101:VAL:HG22	2.03	0.41
1:A:2274:ILE:HA	1:A:2277:LEU:CD2	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3885:ARG:HA	1:A:3888:VAL:HB	2.03	0.41
1:A:4022:LYS:HE2	1:A:4022:LYS:HB2	1.92	0.41
1:A:4055:ASN:HD21	1:A:4057:ALA:HB3	1.86	0.41
5:H:17:THR:HB	5:I:124:ARG:CG	2.50	0.41
1:A:377:ASN:O	1:A:381:VAL:HG23	2.21	0.40
1:A:1793:THR:O	1:A:1797:LEU:HG	2.22	0.40
1:A:3104:GLN:NE2	1:A:3105:ASN:OD1	2.54	0.40
1:A:3233:SER:HA	1:A:3272:TRP:HZ2	1.86	0.40
1:A:3573:ASN:O	1:A:3577:GLN:HG2	2.21	0.40
1:A:3962:ARG:HD2	1:A:3962:ARG:HA	1.93	0.40
1:A:3999:THR:HG23	1:A:4044:ILE:HD11	2.03	0.40
2:B:461:LYS:HE3	2:B:461:LYS:HB3	1.96	0.40
3:C:68:LEU:HD12	3:C:68:LEU:HA	1.96	0.40
6:J:668:SER:O	6:J:670:THR:HG23	2.21	0.40
6:J:879:ARG:HE	6:J:880:ARG:NH1	2.19	0.40
7:D:40:DT:O2	8:E:18:DA:H8	2.04	0.40
1:A:146:GLU:HB2	1:A:184:VAL:H	1.85	0.40
1:A:283:SER:O	1:A:286:LEU:HG	2.21	0.40
1:A:730:LEU:HD13	1:A:755:ALA:HB2	2.03	0.40
1:A:1050:GLU:C	1:A:1053:PRO:HD2	2.42	0.40
1:A:2990:GLU:HG2	1:A:2994:TRP:CE2	2.56	0.40
1:A:3274:VAL:HG13	1:A:3315:TYR:CD1	2.56	0.40
1:A:3909:ALA:HB1	1:A:3984:MET:HE3	2.02	0.40
3:C:236:VAL:HG13	3:C:237:PHE:HD1	1.86	0.40
3:C:307:LYS:O	3:C:310:ILE:HG12	2.21	0.40
4:F:26:LYS:HG2	4:F:37:LEU:HB2	2.04	0.40
4:G:34:TYR:N	4:G:49:VAL:HG11	2.37	0.40
4:G:75:HIS:HB2	5:H:102:LYS:HZ3	1.86	0.40
4:G:128:PRO:O	4:G:132:SER:CB	2.61	0.40
1:A:65:LEU:O	1:A:69:VAL:HG22	2.21	0.40
1:A:2185:MET:O	1:A:2189:ILE:HG12	2.22	0.40
1:A:2367:VAL:O	1:A:2371:PHE:N	2.50	0.40
1:A:2508:GLN:HG2	1:A:2549:LYS:HD2	2.03	0.40
1:A:2818:LYS:HD3	1:A:2818:LYS:HA	1.83	0.40
1:A:3190:LEU:HB2	1:A:3235:LYS:HE3	2.02	0.40
1:A:3771:MET:HE3	1:A:3998:LEU:HD13	2.03	0.40
1:A:3903:HIS:ND1	1:A:3934:THR:O	2.55	0.40
2:B:41:LEU:HD23	2:B:168:LEU:HD13	2.03	0.40
2:B:376:ILE:HG12	3:C:540:ILE:HG12	2.03	0.40
2:B:506:LEU:O	3:C:343:LEU:HD22	2.22	0.40
4:G:54:VAL:HG22	4:G:119:TRP:CH2	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:H:7:ARG:NH2	5:I:132:ASP:OD1	2.53	0.40
1:A:1642:LYS:HA	1:A:1645:VAL:HG12	2.03	0.40
1:A:1923:PHE:HA	1:A:1941:HIS:CD2	2.57	0.40
1:A:2231:PHE:O	1:A:2235:LEU:HG	2.21	0.40
1:A:2342:CYS:HB2	1:A:2374:LEU:HD21	2.03	0.40
1:A:2438:ILE:O	1:A:2442:MET:HG3	2.21	0.40
1:A:3369:ASP:O	1:A:3373:VAL:HG23	2.21	0.40
1:A:3493:TRP:HZ3	1:A:3520:GLU:HB3	1.85	0.40
1:A:3834:ALA:O	1:A:3838:GLU:N	2.39	0.40
1:A:4068:HIS:HB3	1:A:4071:ALA:HB3	2.04	0.40
2:B:350:PHE:HD1	2:B:396:ALA:HA	1.86	0.40
4:F:128:PRO:HG3	4:G:44:VAL:N	2.32	0.40
5:H:18:HIS:HA	5:H:37:THR:O	2.22	0.40
5:H:137:ASN:HB3	5:I:137:ASN:HB3	2.02	0.40
5:I:70:LEU:O	5:I:74:LEU:HB2	2.21	0.40
1:A:103:TYR:O	1:A:107:ILE:HG12	2.22	0.40
1:A:1716:GLN:HA	1:A:1719:VAL:HG22	2.03	0.40
1:A:2310:VAL:HB	1:A:2359:LYS:NZ	2.37	0.40
1:A:2492:ASP:O	1:A:2495:SER:N	2.53	0.40
1:A:2773:ARG:HE	1:A:2774:SER:H	1.68	0.40
1:A:2806:LYS:HG3	1:A:2857:CYS:SG	2.61	0.40
1:A:3609:MET:O	1:A:3612:ARG:HG3	2.21	0.40
1:A:3950:THR:HB	1:A:4063:GLU:OE2	2.22	0.40
1:A:4108:MET:O	1:A:4112:THR:HG22	2.22	0.40
1:A:4125:GLU:HB3	1:A:4128:MET:HG2	2.04	0.40
2:B:172:GLU:HG3	2:B:213:ILE:HG21	2.03	0.40
2:B:306:SER:N	3:C:288:ASP:OD1	2.54	0.40
2:B:392:LYS:HB2	2:B:394:VAL:HG22	2.04	0.40
3:C:312:GLN:HG2	3:C:325:LYS:NZ	2.36	0.40
5:H:177:TYR:HE1	6:J:778:PHE:HD2	1.69	0.40
5:I:44:THR:N	5:I:114:GLU:O	2.55	0.40
8:E:22:DG:C5	8:E:23:DT:C4	3.10	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	3483/4156 (84%)	3321 (95%)	160 (5%)	2 (0%)	51	85
2	B	465/609 (76%)	440 (95%)	25 (5%)	0	100	100
3	C	503/732 (69%)	479 (95%)	23 (5%)	1 (0%)	47	81
4	F	174/299 (58%)	159 (91%)	15 (9%)	0	100	100
4	G	183/299 (61%)	164 (90%)	19 (10%)	0	100	100
5	H	199/336 (59%)	192 (96%)	7 (4%)	0	100	100
5	I	189/336 (56%)	178 (94%)	11 (6%)	0	100	100
6	J	256/911 (28%)	237 (93%)	19 (7%)	0	100	100
All	All	5452/7678 (71%)	5170 (95%)	279 (5%)	3 (0%)	54	85

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	333	MET
1	A	3563	ASP
3	C	229	GLU

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	2961/3671 (81%)	2942 (99%)	19 (1%)	86	92
2	B	392/548 (72%)	391 (100%)	1 (0%)	92	95
3	C	428/649 (66%)	423 (99%)	5 (1%)	71	84
4	F	157/262 (60%)	156 (99%)	1 (1%)	86	92
4	G	159/262 (61%)	159 (100%)	0	100	100
5	H	166/303 (55%)	166 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	I	161/303 (53%)	161 (100%)	0	100	100
6	J	212/808 (26%)	212 (100%)	0	100	100
All	All	4636/6806 (68%)	4610 (99%)	26 (1%)	86	92

All (26) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	70	ARG
1	A	87	LYS
1	A	891	ARG
1	A	1146	ASN
1	A	1537	VAL
1	A	1955	VAL
1	A	2207	LYS
1	A	2835	LYS
1	A	3009	LYS
1	A	3568	ILE
1	A	3696	ARG
1	A	3710	LYS
1	A	3725	ARG
1	A	3784	ARG
1	A	3845	LYS
1	A	3856	MET
1	A	3858	MET
1	A	3860	LYS
1	A	4041	ARG
2	B	35	ARG
3	C	233	LYS
3	C	239	LYS
3	C	252	THR
3	C	253	ILE
3	C	271	ARG
4	F	109	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	771	ASN
1	A	978	GLN
1	A	1603	GLN

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Mol	Chain	Res	Type
1	A	2130	HIS
1	A	2348	GLN
1	A	2527	HIS
1	A	3104	GLN
1	A	3863	ASN
2	B	360	HIS
3	C	402	ASN
3	C	411	HIS
4	G	165	GLN
5	H	137	ASN
5	H	141	ASN
5	I	137	ASN
5	I	145	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	4128:MET	C	5009:UNK	N	97.03
1	A	5016:UNK	C	6004:UNK	N	48.85

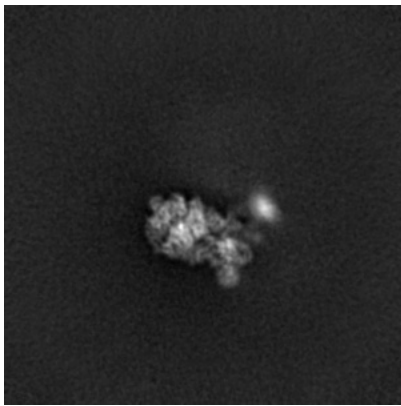
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-12301. These allow visual inspection of the internal detail of the map and identification of artifacts.

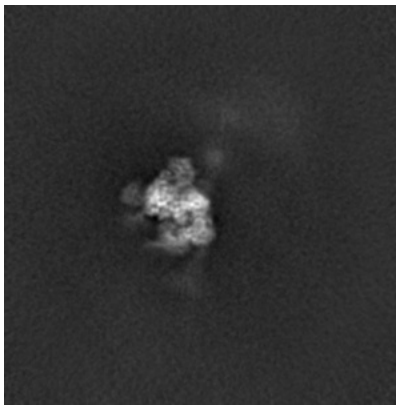
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

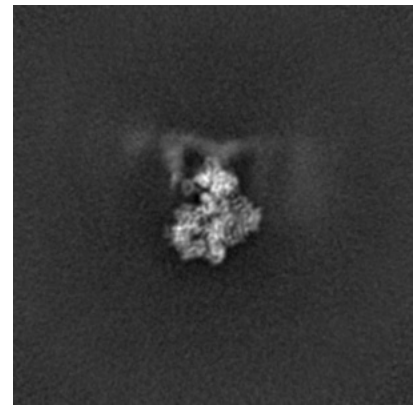
6.1.1 Primary map



X

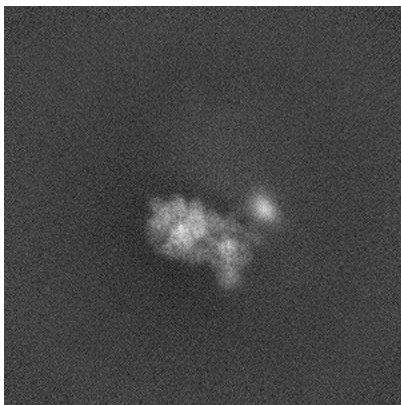


Y



Z

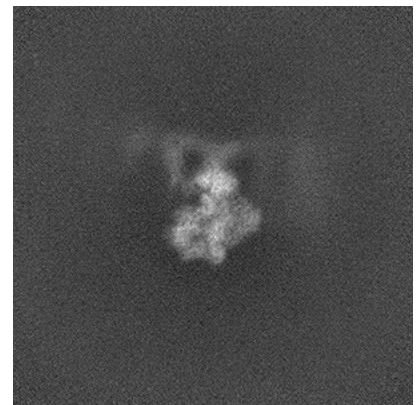
6.1.2 Raw map



X



Y

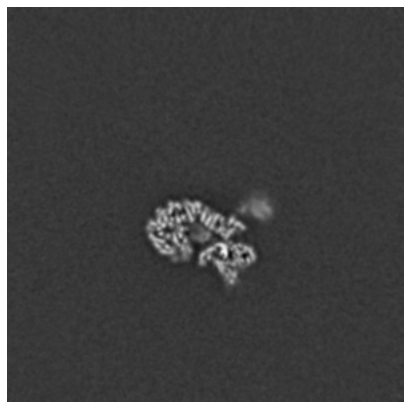


Z

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

6.2 Central slices [i](#)

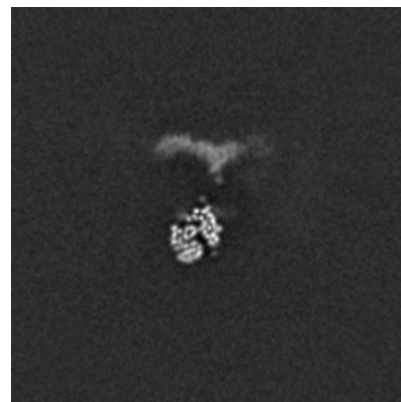
6.2.1 Primary map



X Index: 270

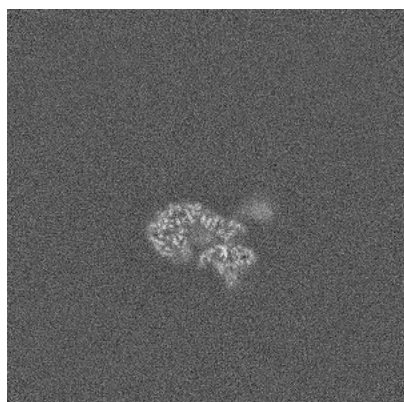


Y Index: 270

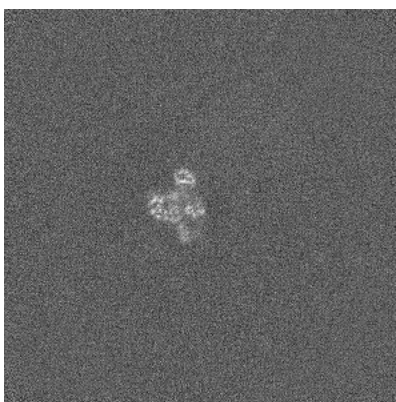


Z Index: 270

6.2.2 Raw map



X Index: 270



Y Index: 270

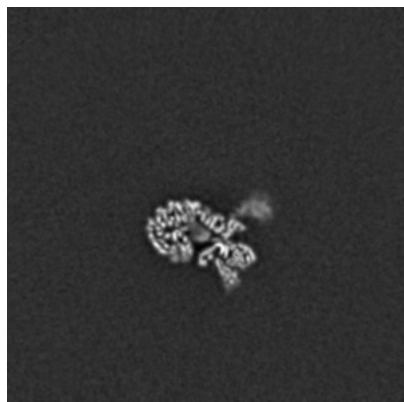


Z Index: 270

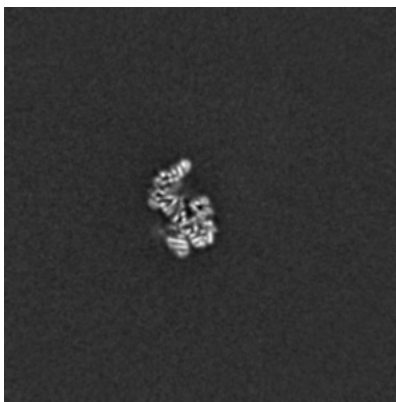
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

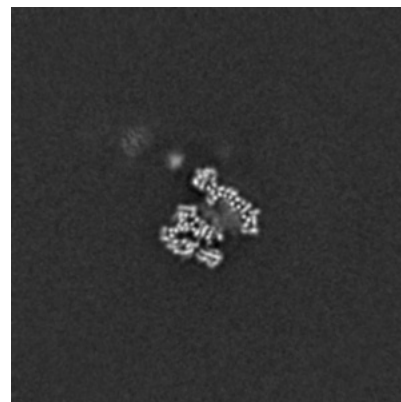
6.3.1 Primary map



X Index: 272

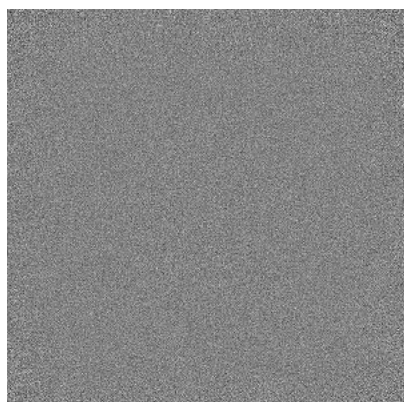


Y Index: 238

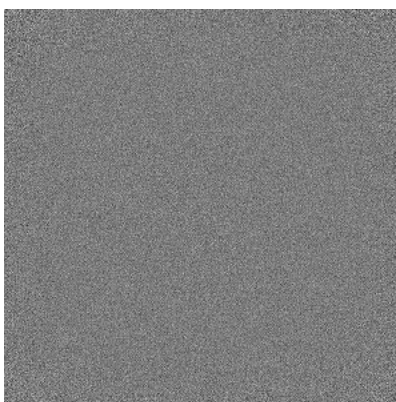


Z Index: 241

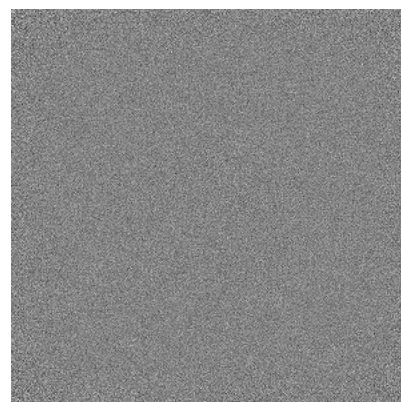
6.3.2 Raw map



X Index: 0



Y Index: 0



Z Index: 0

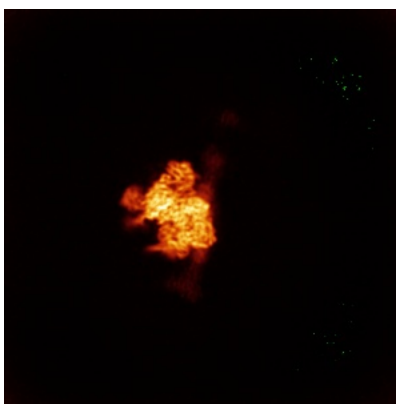
The images above show the largest variance slices of the map in three orthogonal directions.

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

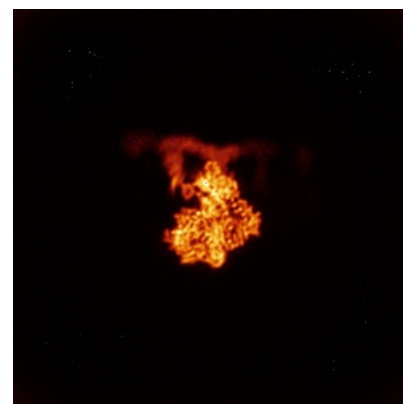
6.4.1 Primary map



X

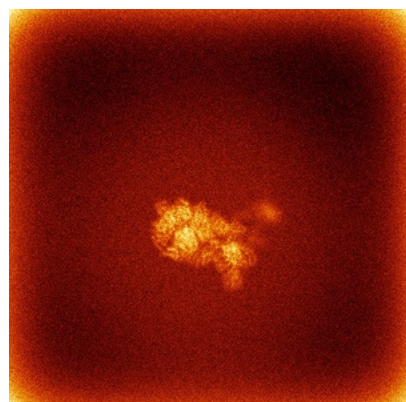


Y

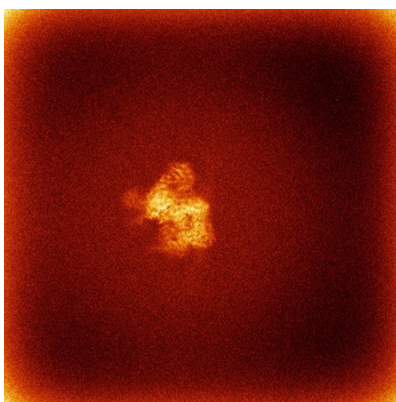


Z

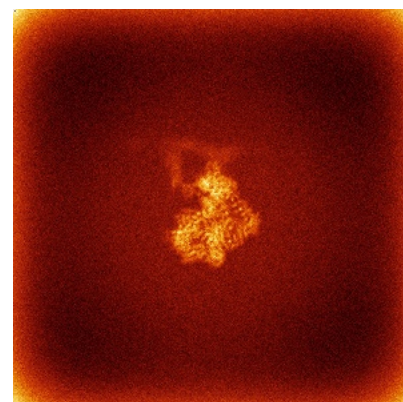
6.4.2 Raw map



X



Y

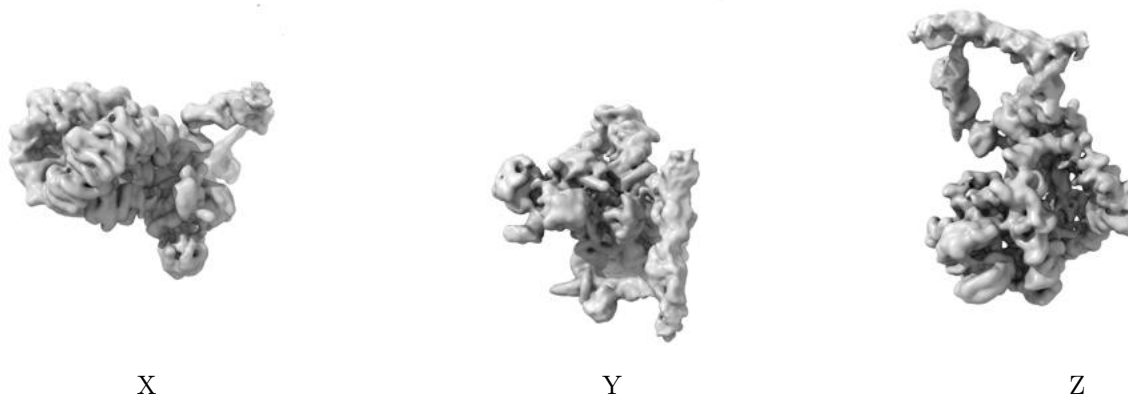


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

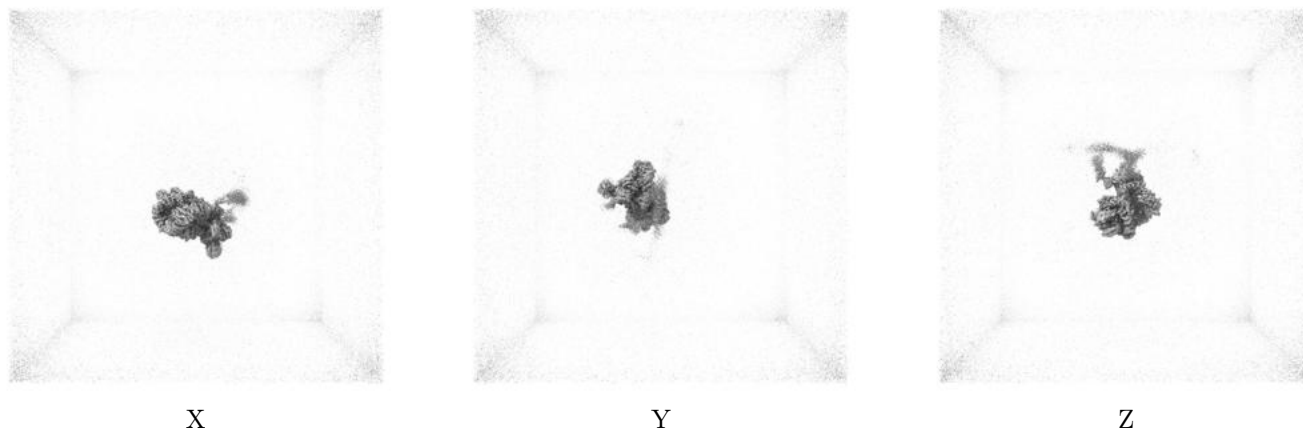
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.175. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

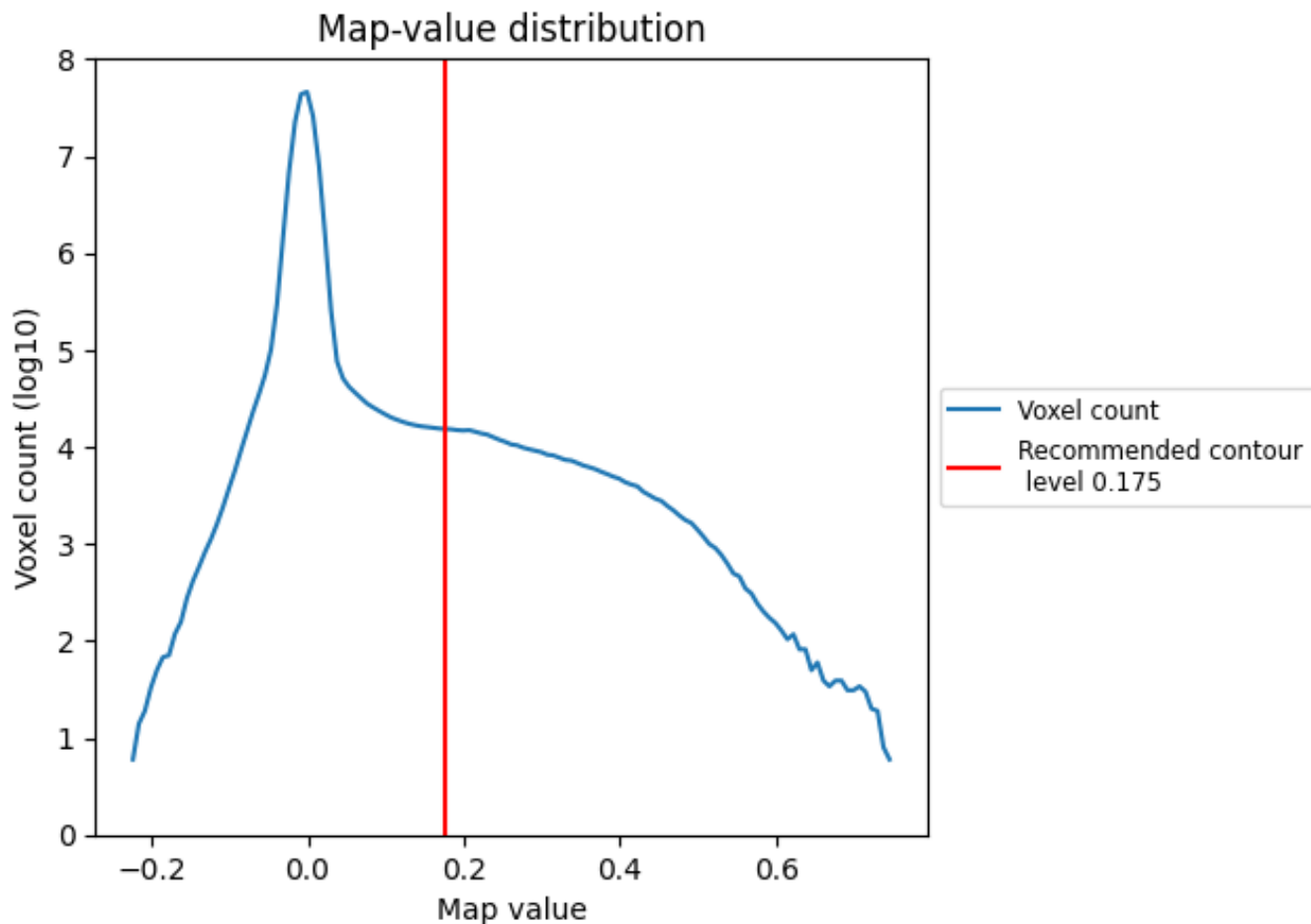
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

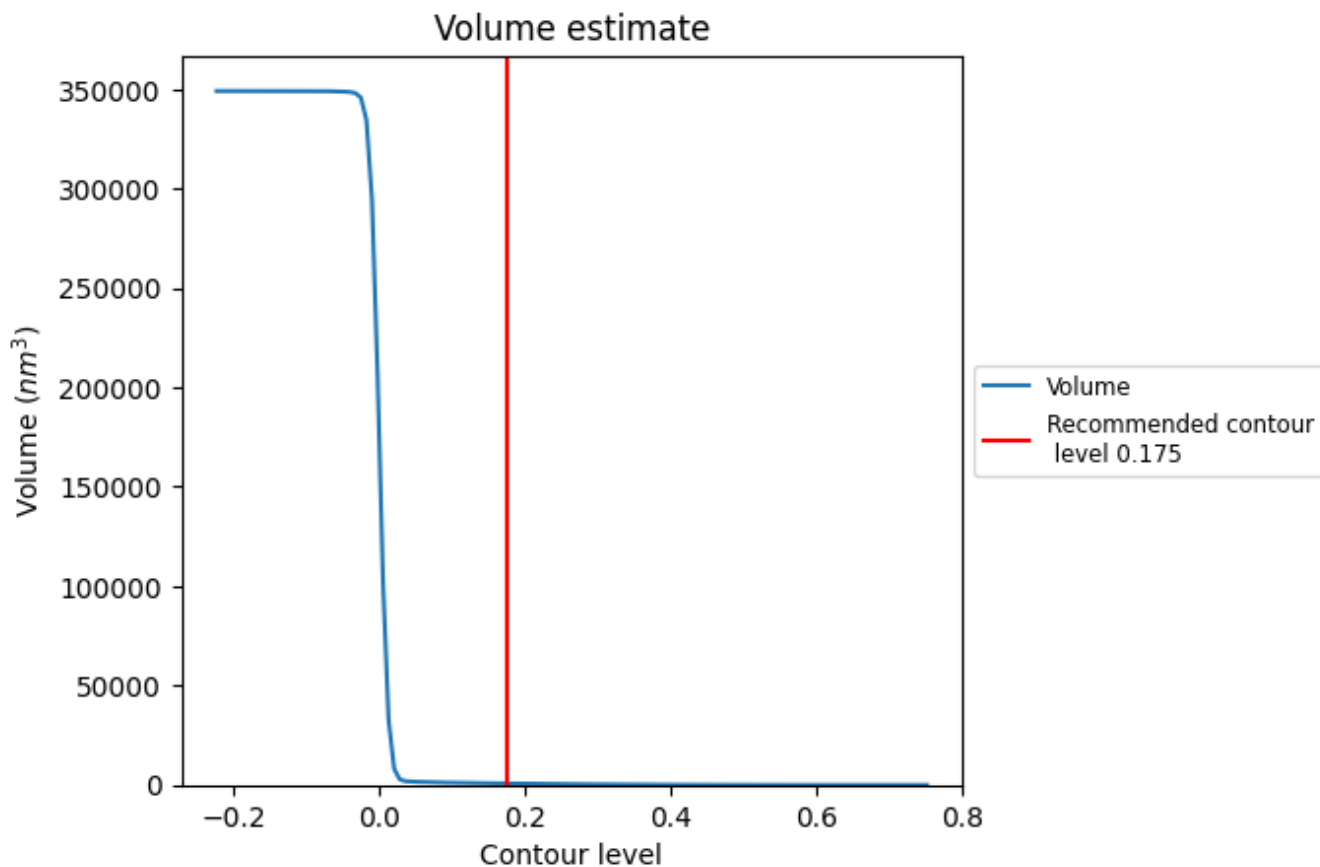
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

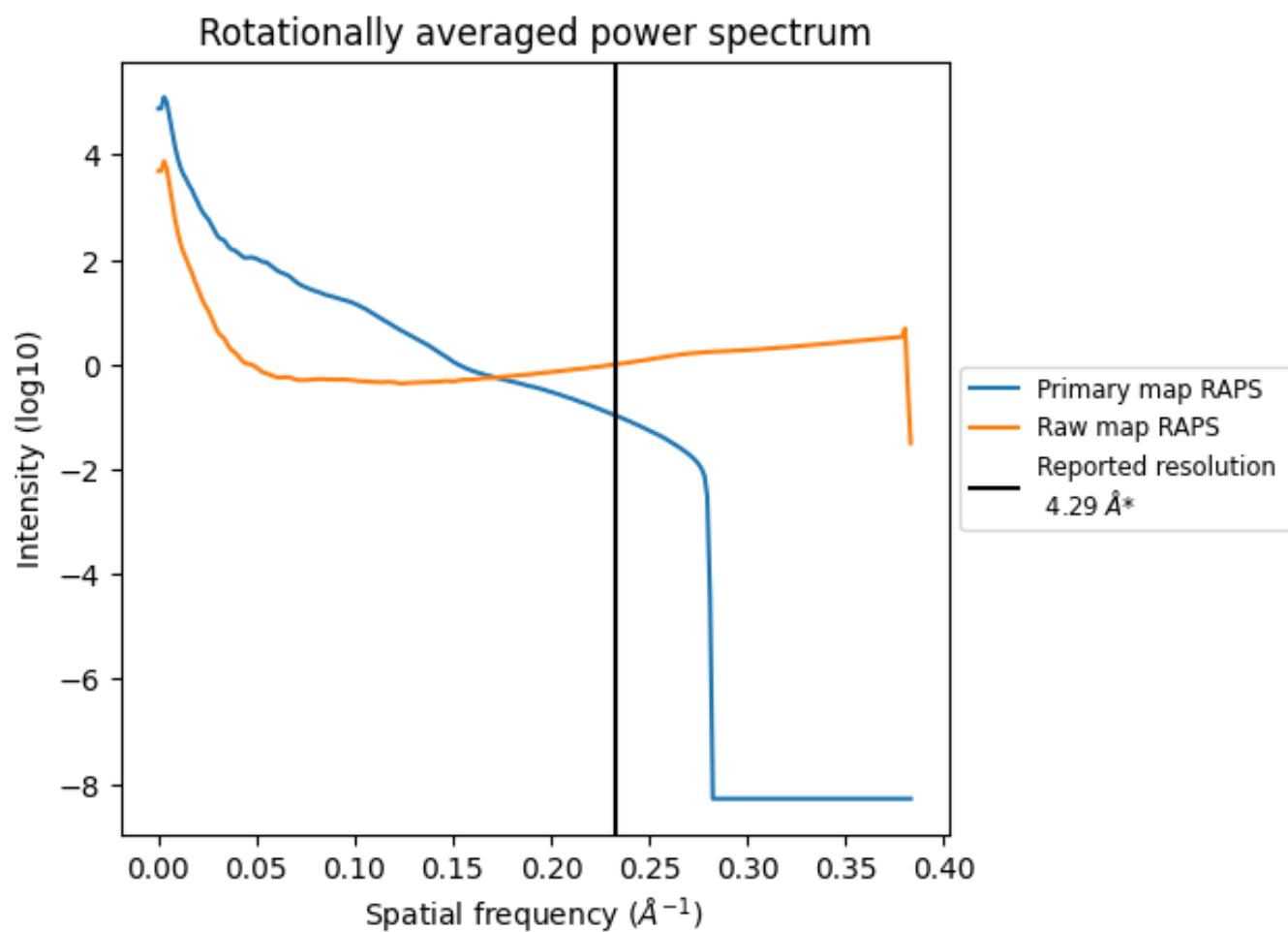
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 758 nm^3 ; this corresponds to an approximate mass of 685 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](#)

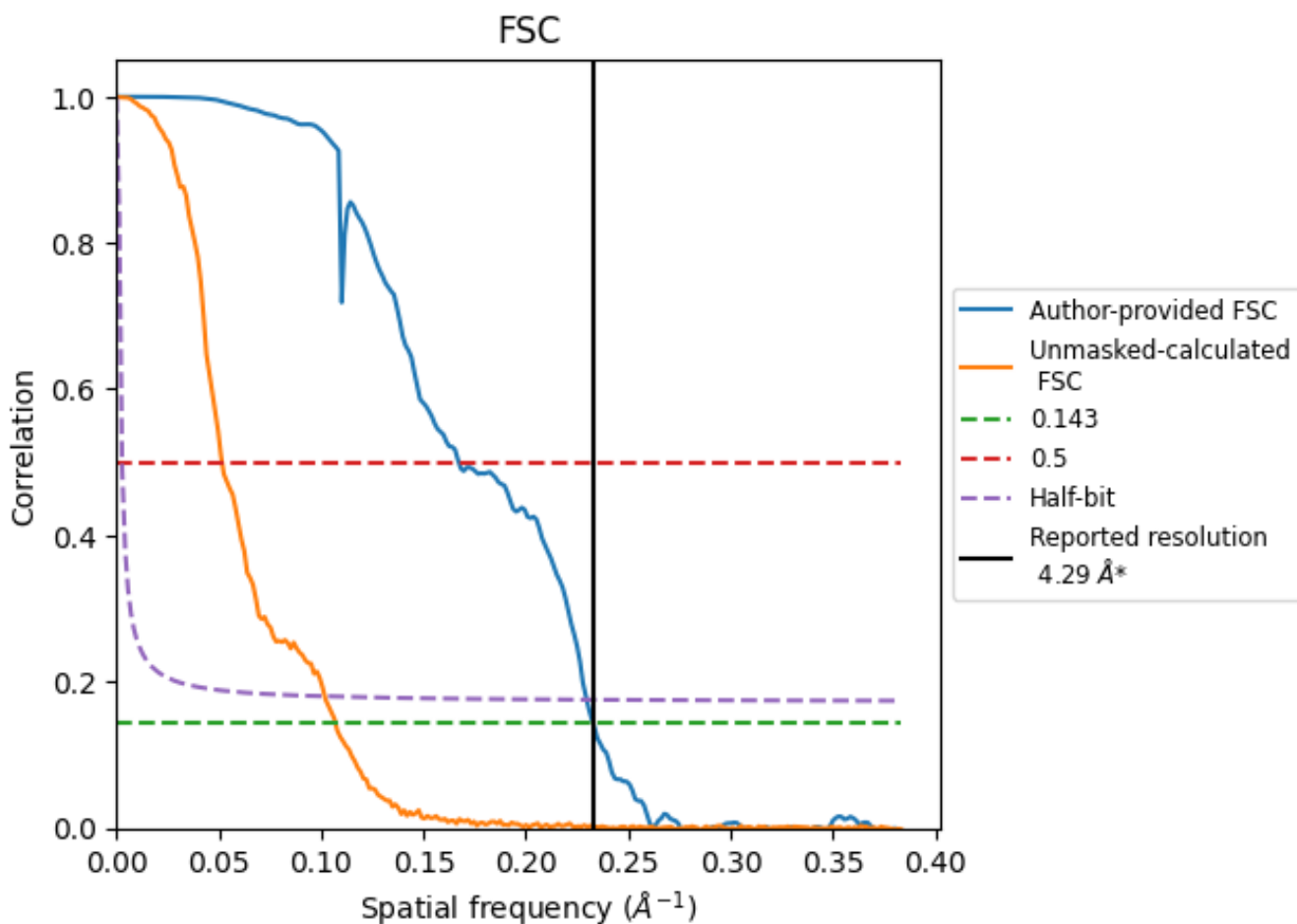


*Reported resolution corresponds to spatial frequency of 0.233 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.233 Å⁻¹

8.2 Resolution estimates [i](#)

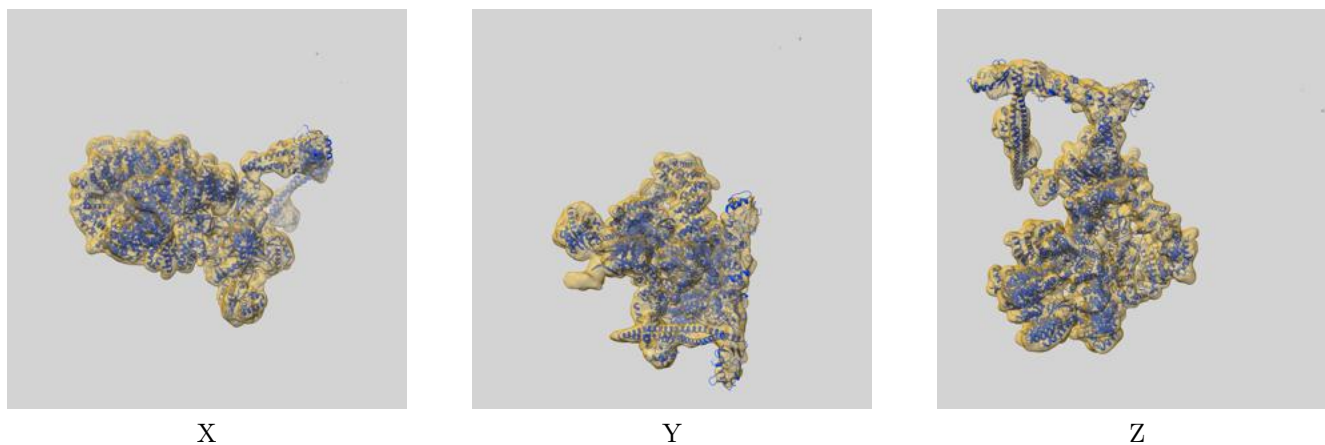
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.29	-	-
Author-provided FSC curve	4.29	5.98	4.35
Unmasked-calculated*	9.34	19.38	9.81

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 9.34 differs from the reported value 4.29 by more than 10 %

9 Map-model fit [i](#)

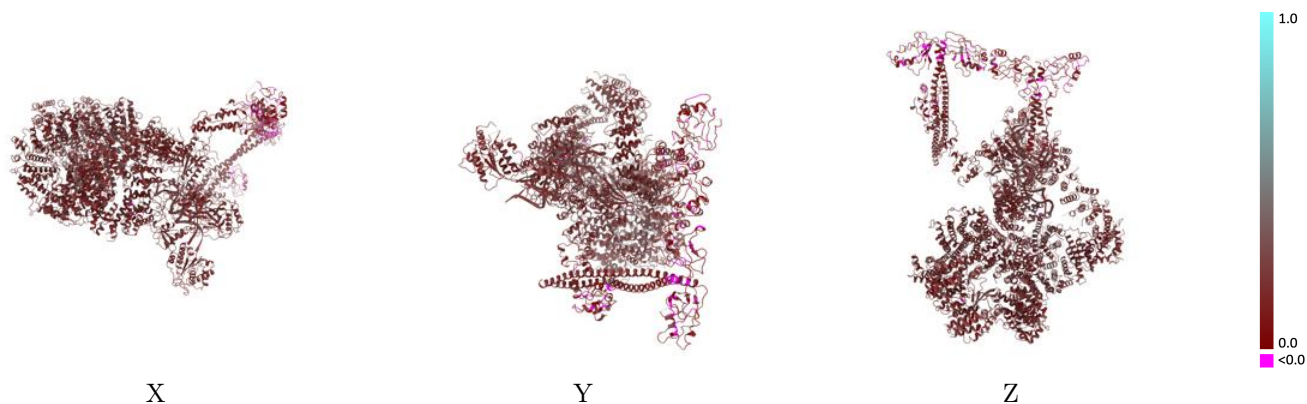
This section contains information regarding the fit between EMDB map EMD-12301 and PDB model 7NFE. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay [i](#)



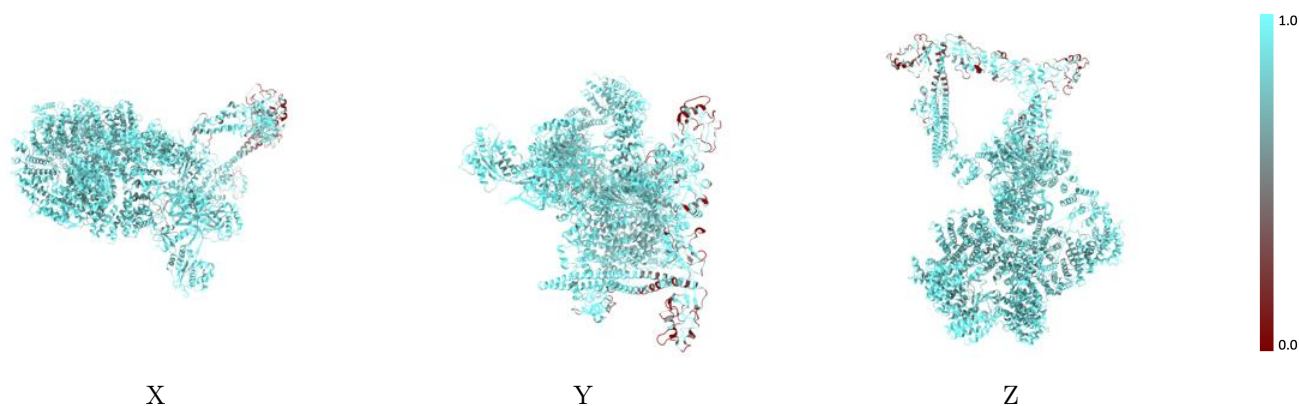
The images above show the 3D surface view of the map at the recommended contour level 0.175 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



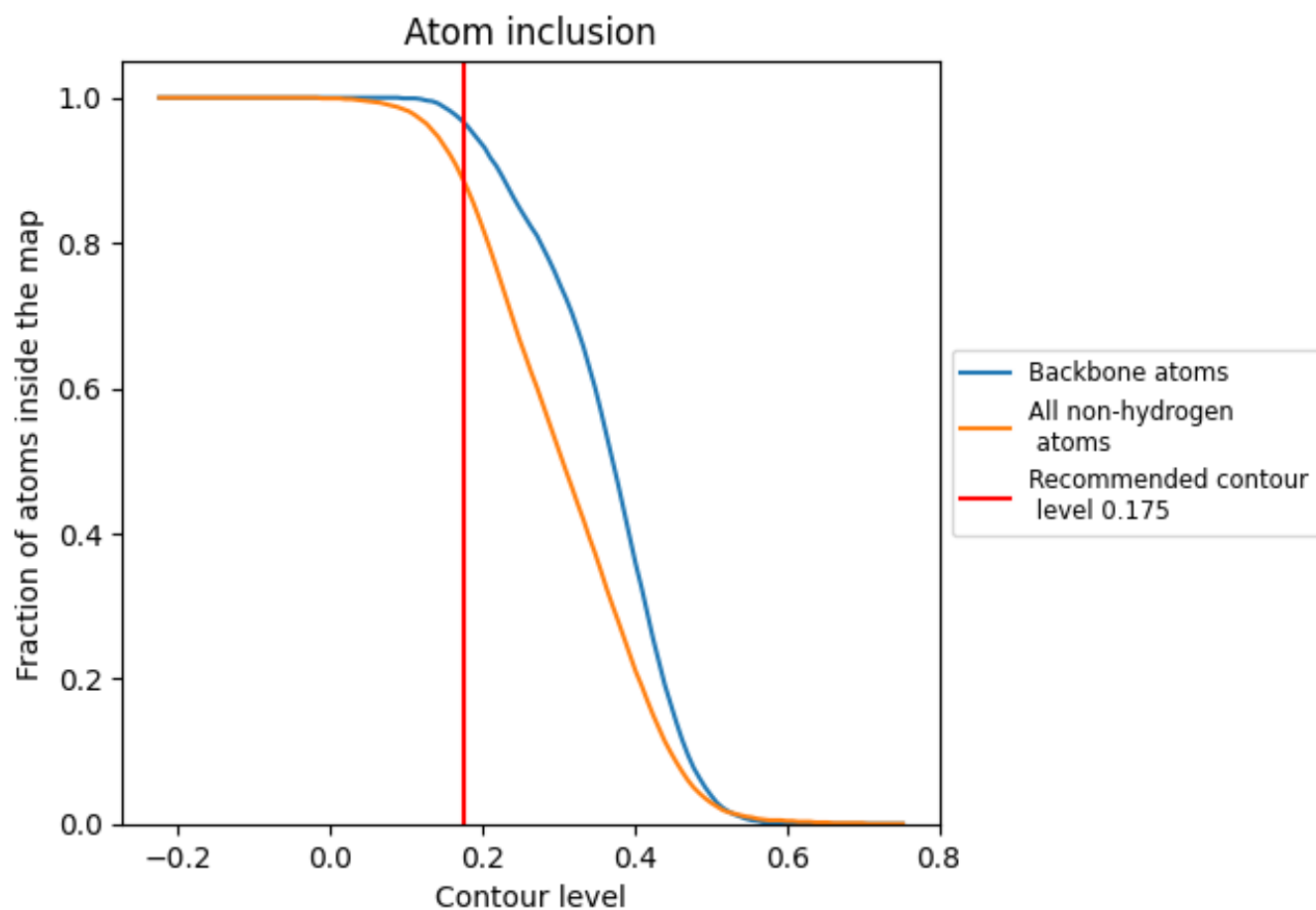
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.175).























9.4 Atom inclusion [i](#)



At the recommended contour level, 97% of all backbone atoms, 89% 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 (0.175) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8870	 0.2030
A	 0.9110	 0.2140
B	 0.9100	 0.2270
C	 0.9210	 0.2180
D	 0.9820	 0.2580
E	 0.9920	 0.2600
F	 0.6520	 0.1300
G	 0.8050	 0.1390
H	 0.7620	 0.1350
I	 0.6490	 0.1360
J	 0.8950	 0.1560

