



## Full wwPDB EM Validation Report

Jul 19, 2023 – 02:20 PM EDT


PDB ID : 8G4W  
EMDB ID : EMD-29732  
Title : Cryo-EM consensus structure of Escherichia coli que-PEC (paused elongation complex) RNA Polymerase plus preQ1 ligand  
Authors : Porta, J.C.; Chauvier, A.; Deb, I.; Ellinger, E.; Frank, A.T.; Meze, K.; Ohi, M.D.; Walter, N.G.  
Deposited on : 2023-02-10  
Resolution : 3.80 Å (reported)  
Based on initial model : 6ASX

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the  symbol.

The types of validation reports are described at

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

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

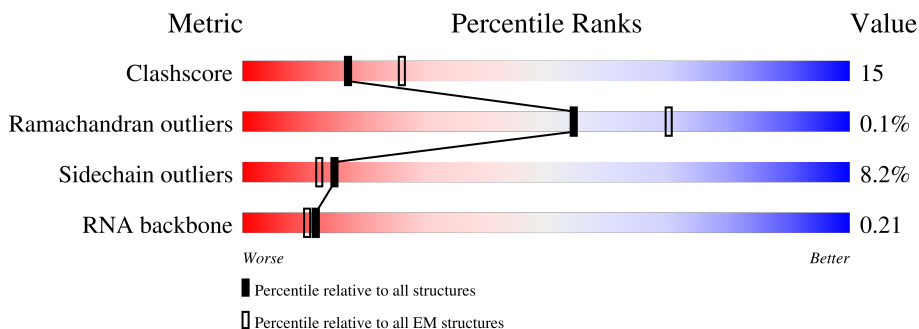
EMDB validation analysis : 0.0.1.dev50  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.34

# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.80 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
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	A	39	
2	B	31	
3	G	235	
3	H	235	
4	K	79	
5	R	47	
6	I	1340	

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Mol	Chain	Length	Quality of chain
7	J	1358	 <p>A horizontal bar chart representing the quality of chain. The bar is divided into three segments: a red segment on the left labeled '45%', a green segment in the middle labeled '63%', and a yellow segment on the right labeled '34%'. The segments are stacked horizontally, with the red segment starting from the left and the yellow segment ending at the right. There are two small black dots at the far right end of the bar.</p>

## 2 Entry composition i

There are 9 unique types of molecules in this entry. The entry contains 26842 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 DNA chain called DNA (39-mer).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	A	19	388	186	78	107	17	0	0

- Molecule 2 is a DNA chain called DNA (31-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	B	31	631	301	107	192	31	0	0

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	G	221	1708	1069	303	330	6	0	0
3	H	219	1693	1058	298	331	6	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	235	GLU	-	expression tag	UNP A0A5B9AW69
H	235	GLU	-	expression tag	UNP A0A5B9AW69

- Molecule 4 is a protein called DNA-directed RNA polymerase subunit omega.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	K	79	627	382	118	126	1	0	0

- Molecule 5 is a RNA chain called RNA (47-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	R	47	997	449	185	317	46	0	0

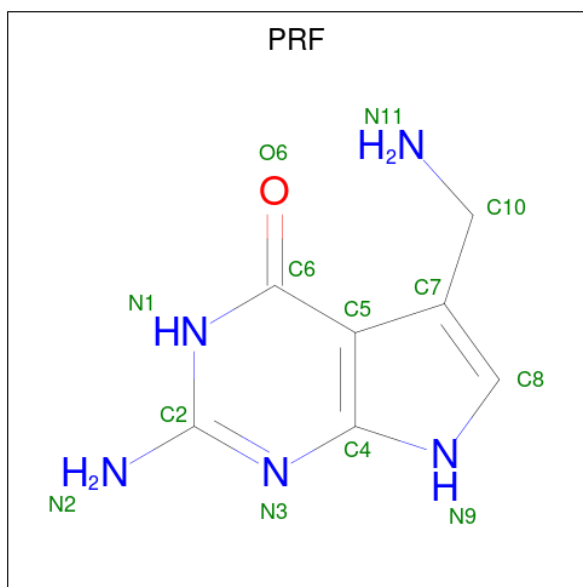
- Molecule 6 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	I	1316	10381	6514	1810	2014	43	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	J	1337	10403	6536	1856	1961	50	0	0

- Molecule 8 is 7-DEAZA-7-AMINOMETHYL-GUANINE (three-letter code: PRF) (formula: C<sub>7</sub>H<sub>9</sub>N<sub>5</sub>O) (labeled as "Ligand of Interest" by depositor).

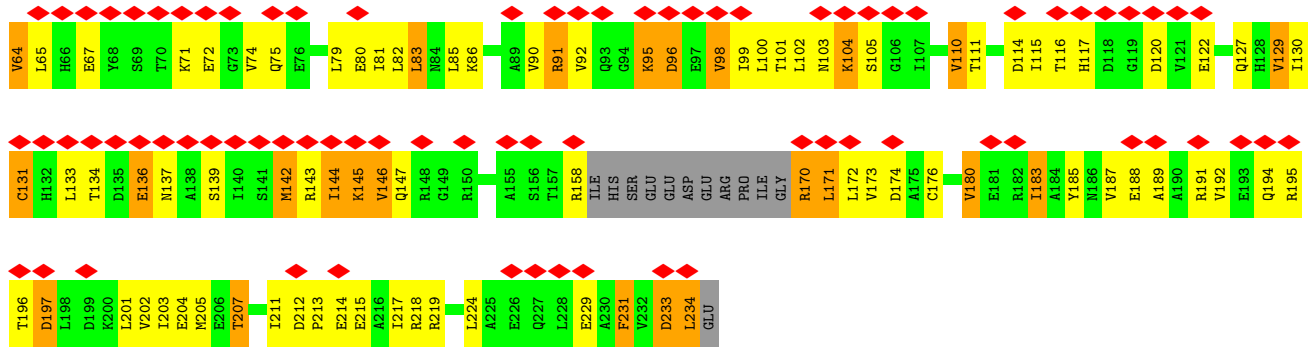


Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
8	R	1	13	7	5	1	0

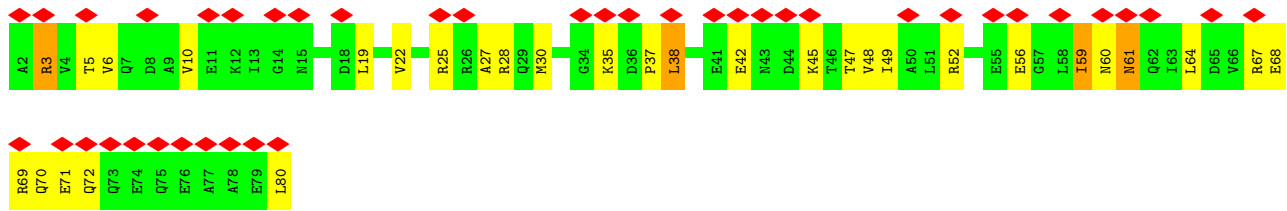
- Molecule 9 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>AltConf</b>
9	J	1	Total	Mg	0
			1	1	

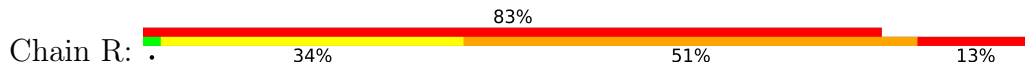




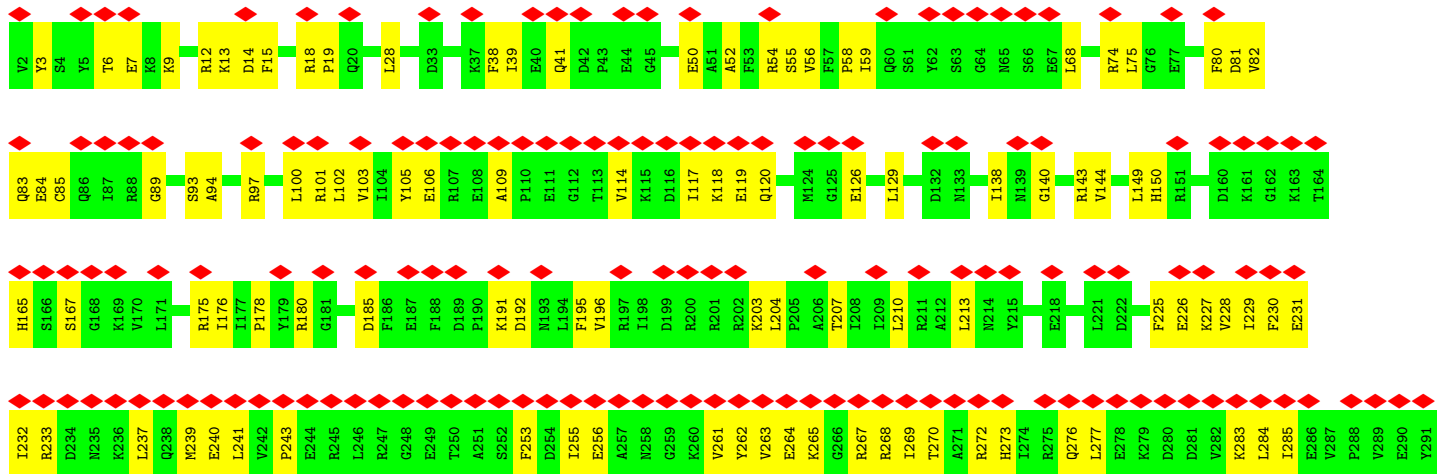
• Molecule 4: DNA-directed RNA polymerase subunit omega



• Molecule 5: RNA (47-MER)

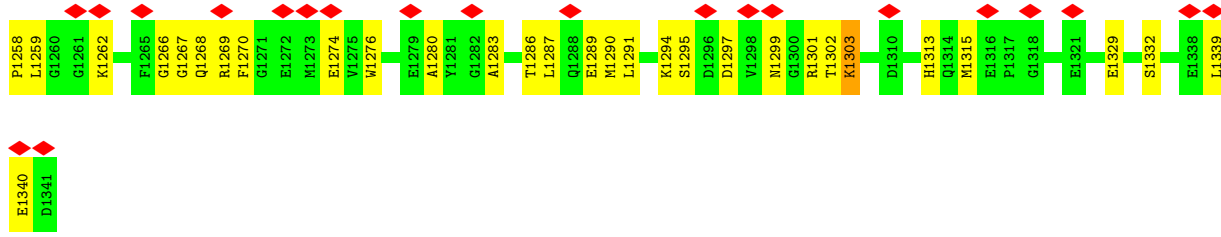


• Molecule 6: DNA-directed RNA polymerase subunit beta

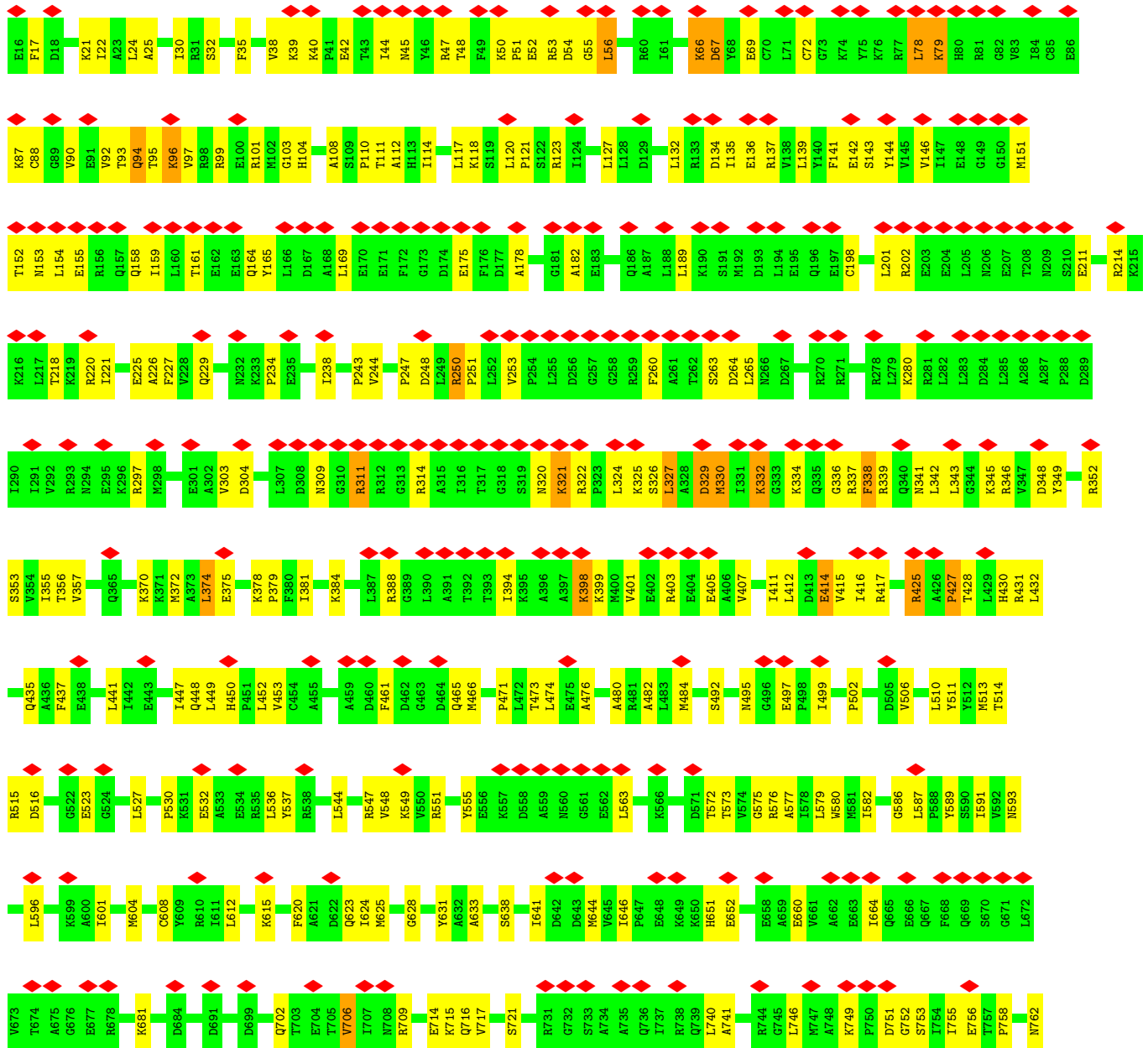




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R352	V353	D354	P355	T356	N357	D358	R359	L363	V364	E365	I366	Y367	R368	M369	N370	R371	P372	G373	E374	P375	P376	T377	R378	E379	A380	A381	E382	S383	E386	N387	L388	F389	F390	S391	E392	D393	R394	Y395	L396	L397	R402	R407	L410	R411	E412	E413	I414	E415	G416	I419	K422	D423									
D424	I425	V428	M429	K430	K431	I435	R436	M437	G438	K439	G440	E441	V442	D443	D444	I445	D446	H447	L448	R451	R452	I453	R454	E458	M459	A460	E461	M462	Q463	F464	R465	L468	V469	E472	R473	A474	V475	K476	E477	S480	L481	G482	D483	L484	D485	T486	L487	M488	Q490	D491	M492										
I493	M494	K496	A500	A501	V502	K503	E504	F505	F506	G507	S508	S509	Q510	L511	S512	Q513	D516	Q517	N518	N519	P520	I453	L521	K527	R528	R529	G536	M462	G537	L538	T539	R540	E541	R542	A543	G544	F545	E546	V547	R548	D549	V550	H551	P552	T553	H554	T555	G556	R557	V558	C559	P560	L561	E562	T563	P564					
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V652	M653	D654	V655	V660	V661	A665	S666	L667	L668	L671	E672	H673	D674	D675	R678	A679	L680	M681	N684	M685	Q686	R687	G688	Y614	V615	I616	Q618	R694	A619	N620	L623	D624	E625	E626	G627	D632	C636	K639	G640	S643	L644	F645	S646	R647	D648	Q649	V650	D651													
D728	I732	I733	I734	M737	E738	D739	E740	M741	V742	P743	G744	E745	A746	I748	D749	M752	L753	I754	K755	S759	N760	Q761	I765	N766	Q767	L768	P769	S772	L773	G774	V777	E778	R779	G780	D781	V782	D785	G786	P787	D790	E793	L794	A795	L796	G797	Q798	R801														
V802	R807	R808	E813	D814	E820	R821	V822	E825	D826	R827	T830	L836	A837	C838	R841	D842	L784	T843	R844	L845	G846	P847	E848	E849	I850	T851	D853	L854	P855	H856	V857	G858	E859	A860	R864	L865	D866	E867	S868	G869	I870	E876	R877	L878	R879	A945	E950														
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M951	Q952	L953	K954	Q955	A956	K957	K958	D959	L960	S961	E962	L964	Q965	I966	L967	G970	L971	F972	S973	R974	I975	R976	A977	V978	L979	V980	A981	G982	G983	V984	E985	A986	E987	K988	L989	D990	K991	L992	P993	R994	D995	R996	M997	L998	E999	L1000	G1001	L1002	T1003	D1004	E1005	E1006	K1007	N1009	Q1010	L1011					
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K1178	P1181	I1182	A1183	T1184	V118																																																								



• Molecule 7: DNA-directed RNA polymerase subunit beta'



F763	F764	E765	G766	L767	M768	V769	L770	F773	T776	H777	R780	K781	A784	D785	T786	A787	L788	K789	N792	S793	G794	R799	L800	V801	D802	V803	A804	O805	D806	D812	D813	C814	T816	H817	E818	M821	M822	T823	P824	V825	I826	E827	G828	G829	D830	V831	K832	E833	L835										
R836	D837	R838	V839	A845	E846	D847	V848	L849	K850	P851	G852	T853	D855	I856	L857	V858	R865	E866	Q867	D870	L871	L872	L873	L874	E875	E876	V877	D878	A879	R883	C888	D889	T890	D891	F892	C895	C898	R901	D902	R905	G906	H907	N910	K911	G912	E913	I918												
I923	G924	E925	Q929	L930	T931	M932	R933	THR	PHE	HIS	ILE	GLY	GLY	ALA	ALA	SER	ARG	ALA	ALA	ALA	ALA	GLU	S948	S949	I950	Q951	V952	K953	N954	K955	G956	S957	I958	K959	L960	S961	N962	V963	K964	S965	V966	V967	N968	S969	S970	G971	K972	L973	V974	I975	T976	S977	R978	N979	T980	E981	L982	K983	L984
I985	D986	E987	F988	G989	R990	T991	K992	E993	S994	Y995	K996	V997	F998	Y999	G1000	A1001	V1002	L1003	A1004	K1005	G1006	D1007	G1008	E1009	Q1010	V1011	A1012	G1013	G1014	E1015	T1016	V1017	A1018	N1019	W1020	D1021	P1022	H1023	T1024	M1025	P1026	V1027	I1028	T1029	E1030	V1031	S1032	G1033	F1034	V1035	R1036	F1037	T1038	D1039	M1040	I1041	D1042	G1043	G1044
T1045	I1046	T1047	R1048	Q1049	T1050	D1051	E1052	L1053	T1054	G1055	L1056	S1057	S1058	L1059	V1060	L1061	D1062	D1063	S1064	A1065	E1066	R1067	T1068	A1069	G1070	G1071	K1072	D1073	L1074	R1075	P1076	A1077	L1078	K1079	I1080	V1081	D1082	A1083	Q1084	G1085	N1086	D1087	V1088	I1089	I1090	P1091	G1092	T1093	D1094	M1095	P1096	A1097	Q1098	G1166	K1167				
A1105	I1106	V1107	Q1108	L1109	E1110	D1111	G1112	V1113	Q1114	I1115	S1116	S1117	G1118	D1119	T1120	L1121	A1122	R1123	I1124	P1125	Q1126	GLU	SER	GLY	GLY	THR	LYS	ASP	I1134	T1135	G1136	I1137	L1138	P1139	D1143	E1146	A1147	R1148	R1149	P1150	K1151	E1152	P1153	A1154	I1155	L1156	A1157	E1158	I1159	S1160	G1161	I1162	V1163	S1164	F1165	G1166	K1167		
E1168	T1169	K1170	G1171	K1172	R1173	R1174	L1175	T1178	P1179	V1180	D1181	G1182	S1183	L1184	P1185	V1186	E1187	E1188	M1189	I1190	P1191	K1192	M1193	R1194	Q1195	L1196	M1197	V1198	F1199	E1200	G1201	E1202	R1203	V1204	E1205	R1206	G1207	D1208	V1209	L1210	S1211	D1212	G1213	P1214	E1215	A1216	P1217	H1218	D1219	I1220	L1221	R1222	L1223	R1224	G1225	V1226	H1227	A1228	
V1229	T1230	R1231	E1236	V1237	Q1238	D1239	V1240	T1241	L1242	R1243	Q1244	G1245	D1250	T1253	I1256	V1257	R1258	Q1259	K1262	L1266	V1267	N1268	A1269	S1271	S1272	D1273	F1274	L1275	E1276	G1277	E1278	Q1279	V1280	E1281	Y1282	S1283	R1284	V1285	K1286	N1289	E1293	A1294	N1295	G1296	K1297	V1298	G1299	A1300	T1301										
Y1302	D1305	L1306	K1311	L1314	A1315	T1316	E1317	A1322	F1325	Q1326	E1327	R1330	E1334	V1337	A1338	G1339	K1340	R1341	D1342	E1343	L1344	R1345	G1346	L1347	K1348	E1349	M1350	V1351	I1352	V1353	G1354	R1355	L1356	I1357	Y1363	A1364	Y1365	H1366	Q1367	D1368	R1369	M1370	R1371	R1372	R1373														

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	51824	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 ( $e^-/\text{\AA}^2$ )	62.00	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	1.135	Depositor
Minimum map value	-0.541	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.047	Depositor
Recommended contour level	0.4	Depositor
Map size ( $\text{\AA}$ )	300.0, 300.0, 300.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.0, 1.0, 1.0	Depositor

## 5 Model quality i

### 5.1 Standard geometry i

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

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	0.57	0/436	0.85	0/670
2	B	0.49	0/704	0.95	0/1084
3	G	0.27	0/1728	0.50	0/2341
3	H	0.62	0/1712	0.73	0/2320
4	K	0.59	0/629	0.68	0/847
5	R	2.95	109/1116 (9.8%)	3.01	179/1736 (10.3%)
6	I	0.34	0/10547	0.53	0/14232
7	J	0.35	0/10560	0.54	0/14257
All	All	0.70	109/27432 (0.4%)	0.86	179/37487 (0.5%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
5	R	0	13

All (109) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	R	13	G	C6-N1	12.38	1.48	1.39
5	R	18	A	N7-C5	-11.81	1.32	1.39
5	R	4	G	N7-C5	-11.62	1.32	1.39
5	R	28	A	C6-N6	11.09	1.42	1.33
5	R	4	G	N1-C2	10.81	1.46	1.37
5	R	27	A	P-O5'	-10.69	1.49	1.59
5	R	1	G	C6-N1	10.63	1.47	1.39
5	R	32	A	C6-N1	10.21	1.42	1.35
5	R	33	C	N1-C6	10.17	1.43	1.37
5	R	25	A	C5-C4	10.12	1.45	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	R	8	U	N3-C4	10.05	1.47	1.38
5	R	24	U	C4-C5	9.87	1.52	1.43
5	R	9	U	N1-C6	9.21	1.46	1.38
5	R	33	C	P-O5'	-9.08	1.50	1.59
5	R	24	U	O3'-P	-9.08	1.50	1.61
5	R	25	A	C6-N6	8.96	1.41	1.33
5	R	25	A	C6-N1	8.95	1.41	1.35
5	R	20	C	C3'-C2'	8.94	1.62	1.52
5	R	32	A	N3-C4	-8.89	1.29	1.34
5	R	21	C	N3-C4	8.81	1.40	1.33
5	R	3	A	C5'-C4'	8.59	1.61	1.51
5	R	13	G	C2'-C1'	-8.57	1.44	1.53
5	R	33	C	N3-C4	8.53	1.40	1.33
5	R	12	A	N7-C5	-8.46	1.34	1.39
5	R	7	G	N7-C5	-8.44	1.34	1.39
5	R	14	C	C5'-C4'	8.41	1.61	1.51
5	R	4	G	C2-N2	8.39	1.43	1.34
5	R	6	G	C2-N3	8.13	1.39	1.32
5	R	12	A	N9-C8	8.11	1.44	1.37
5	R	29	A	C2'-C1'	-8.07	1.44	1.53
5	R	7	G	N9-C4	8.01	1.44	1.38
5	R	18	A	C5'-C4'	7.96	1.60	1.51
5	R	30	A	C6-N6	7.86	1.40	1.33
5	R	22	U	C2-N3	7.84	1.43	1.37
5	R	17	C	C2'-C1'	7.68	1.61	1.53
5	R	6	G	N9-C4	-7.44	1.31	1.38
5	R	15	U	C5'-C4'	7.43	1.60	1.51
5	R	1	G	N1-C2	7.42	1.43	1.37
5	R	4	G	C5'-C4'	7.42	1.60	1.51
5	R	20	C	N1-C6	-7.39	1.32	1.37
5	R	13	G	C8-N7	7.35	1.35	1.30
5	R	3	A	C4'-O4'	-7.32	1.36	1.45
5	R	29	A	C5-C4	7.22	1.43	1.38
5	R	24	U	C3'-C2'	7.21	1.60	1.52
5	R	6	G	C5'-C4'	7.17	1.59	1.51
5	R	8	U	N1-C2	7.15	1.45	1.38
5	R	18	A	C6-N6	6.90	1.39	1.33
5	R	5	A	N9-C4	6.84	1.42	1.37
5	R	31	A	N7-C5	-6.84	1.35	1.39
5	R	27	A	C8-N7	-6.83	1.26	1.31
5	R	20	C	O3'-P	-6.80	1.52	1.61
5	R	2	C	N1-C6	6.80	1.41	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	R	21	C	C5'-C4'	6.79	1.59	1.51
5	R	7	G	N1-C2	6.75	1.43	1.37
5	R	8	U	C4'-O4'	6.73	1.54	1.45
5	R	9	U	N3-C4	6.47	1.44	1.38
5	R	1	G	C2-N3	6.40	1.37	1.32
5	R	14	C	P-O5'	-6.37	1.53	1.59
5	R	9	U	C2'-C1'	-6.36	1.46	1.53
5	R	30	A	N1-C2	-6.34	1.28	1.34
5	R	10	C	N3-C4	6.31	1.38	1.33
5	R	10	C	C1'-N1	6.26	1.58	1.48
5	R	10	C	C2-N3	6.18	1.40	1.35
5	R	32	A	N9-C8	6.14	1.42	1.37
5	R	18	A	C2'-C1'	-6.11	1.46	1.53
5	R	5	A	C4'-C3'	-6.08	1.46	1.53
5	R	11	U	N3-C4	6.06	1.44	1.38
5	R	19	C	P-O5'	-6.05	1.53	1.59
5	R	10	C	N1-C6	6.02	1.40	1.37
5	R	21	C	C4'-C3'	6.02	1.59	1.53
5	R	31	A	C2-N3	6.00	1.39	1.33
5	R	16	A	N1-C2	-5.98	1.28	1.34
5	R	2	C	C2'-C1'	-5.94	1.46	1.53
5	R	7	G	N9-C8	-5.94	1.33	1.37
5	R	10	C	O3'-P	-5.81	1.54	1.61
5	R	21	C	C5-C6	5.79	1.39	1.34
5	R	13	G	C2-N2	5.78	1.40	1.34
5	R	24	U	C2-N3	5.76	1.41	1.37
5	R	14	C	C4-N4	5.71	1.39	1.33
5	R	11	U	C5-C6	-5.67	1.29	1.34
5	R	25	A	N9-C8	5.63	1.42	1.37
5	R	6	G	C6-O6	-5.61	1.19	1.24
5	R	14	C	C2'-C1'	5.61	1.59	1.53
5	R	25	A	N7-C5	-5.59	1.35	1.39
5	R	30	A	C6-N1	5.51	1.39	1.35
5	R	19	C	C4-N4	5.49	1.38	1.33
5	R	20	C	C2-N3	5.47	1.40	1.35
5	R	15	U	C4'-C3'	5.46	1.59	1.53
5	R	12	A	C2'-O2'	-5.46	1.34	1.41
5	R	26	U	C5-C6	5.45	1.39	1.34
5	R	20	C	N3-C4	5.41	1.37	1.33
5	R	15	U	N1-C2	5.38	1.43	1.38
5	R	4	G	C2-N3	5.38	1.37	1.32
5	R	24	U	C2'-C1'	-5.37	1.47	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	R	18	A	N3-C4	5.31	1.38	1.34
5	R	30	A	N3-C4	-5.29	1.31	1.34
5	R	29	A	C3'-O3'	5.24	1.49	1.42
5	R	22	U	C5-C6	-5.22	1.29	1.34
5	R	27	A	C4'-O4'	-5.22	1.38	1.45
5	R	27	A	C5-C6	5.21	1.45	1.41
5	R	25	A	C5'-C4'	5.20	1.57	1.51
5	R	2	C	C2-N3	-5.18	1.31	1.35
5	R	5	A	C6-N6	5.17	1.38	1.33
5	R	8	U	C4-C5	5.12	1.48	1.43
5	R	10	C	P-O5'	-5.10	1.54	1.59
5	R	13	G	N9-C4	5.08	1.42	1.38
5	R	9	U	O3'-P	-5.07	1.55	1.61
5	R	23	C	C2-O2	5.01	1.28	1.24
5	R	19	C	O5'-C5'	5.00	1.52	1.44

All (179) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	R	18	A	N1-C6-N6	16.24	128.34	118.60
5	R	27	A	N1-C6-N6	16.08	128.25	118.60
5	R	3	A	N1-C6-N6	14.99	127.59	118.60
5	R	29	A	N1-C6-N6	14.57	127.34	118.60
5	R	14	C	N3-C4-N4	13.81	127.67	118.00
5	R	12	A	N1-C6-N6	13.79	126.87	118.60
5	R	32	A	N1-C6-N6	13.26	126.56	118.60
5	R	16	A	C5-C6-N1	-13.21	111.09	117.70
5	R	16	A	N1-C6-N6	13.02	126.41	118.60
5	R	27	A	C5-C6-N1	-12.91	111.25	117.70
5	R	14	C	N3-C4-C5	-12.30	116.98	121.90
5	R	5	A	N1-C6-N6	12.22	125.94	118.60
5	R	33	C	N3-C4-N4	11.87	126.31	118.00
5	R	29	A	C5-C6-N6	-11.79	114.27	123.70
5	R	21	C	O4'-C1'-N1	11.56	117.44	108.20
5	R	27	A	C4-C5-C6	11.28	122.64	117.00
5	R	3	A	C5-C6-N6	-11.11	114.81	123.70
5	R	6	G	N1-C6-O6	10.97	126.48	119.90
5	R	13	G	C2-N3-C4	10.90	117.35	111.90
5	R	30	A	N1-C6-N6	10.74	125.05	118.60
5	R	6	G	N9-C4-C5	10.67	109.67	105.40
5	R	18	A	C5-C6-N6	-10.35	115.42	123.70
5	R	28	A	N1-C6-N6	10.27	124.76	118.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	R	6	G	C4-C5-N7	-9.67	106.93	110.80
5	R	15	U	C6-N1-C2	-9.59	115.25	121.00
5	R	32	A	C2-N3-C4	9.45	115.32	110.60
5	R	15	U	C2-N1-C1'	9.38	128.96	117.70
5	R	13	G	N3-C4-C5	-9.38	123.91	128.60
5	R	13	G	C5-C6-O6	-9.36	122.99	128.60
5	R	22	U	C2-N3-C4	-9.24	121.46	127.00
5	R	33	C	C5-C4-N4	-9.19	113.77	120.20
5	R	8	U	C2-N3-C4	-9.18	121.49	127.00
5	R	17	C	N3-C4-C5	-9.15	118.24	121.90
5	R	31	A	C5-C6-N1	-9.14	113.13	117.70
5	R	7	G	C8-N9-C4	-9.12	102.75	106.40
5	R	20	C	N3-C4-C5	-9.07	118.27	121.90
5	R	11	U	C5-C6-N1	9.03	127.21	122.70
5	R	11	U	O4'-C1'-N1	9.03	115.42	108.20
5	R	10	C	C2-N3-C4	-8.73	115.53	119.90
5	R	13	G	N3-C4-N9	8.61	131.16	126.00
5	R	28	A	O4'-C1'-N9	8.54	115.03	108.20
5	R	32	A	C5-N7-C8	8.49	108.15	103.90
5	R	3	A	P-O5'-C5'	8.48	134.47	120.90
5	R	20	C	O4'-C1'-N1	8.42	114.94	108.20
5	R	13	G	N1-C6-O6	8.35	124.91	119.90
5	R	19	C	C5'-C4'-O4'	8.29	119.05	109.10
5	R	26	U	N1-C2-O2	-8.25	117.02	122.80
5	R	31	A	C4-C5-N7	-8.12	106.64	110.70
5	R	22	U	O4'-C1'-N1	8.04	114.63	108.20
5	R	26	U	N1-C2-N3	7.99	119.69	114.90
5	R	18	A	C4-C5-C6	7.99	120.99	117.00
5	R	2	C	N3-C4-C5	-7.80	118.78	121.90
5	R	28	A	C5-C6-N6	-7.75	117.50	123.70
5	R	28	A	N1-C2-N3	7.67	133.13	129.30
5	R	17	C	N3-C4-N4	7.66	123.36	118.00
5	R	2	C	C2-N3-C4	7.65	123.73	119.90
5	R	16	A	C4-C5-C6	7.63	120.82	117.00
5	R	29	A	N9-C4-C5	7.63	108.85	105.80
5	R	7	G	N3-C2-N2	7.62	125.24	119.90
5	R	11	U	C1'-O4'-C4'	-7.58	103.83	109.90
5	R	14	C	C2-N3-C4	7.43	123.62	119.90
5	R	32	A	C5-C6-N6	-7.39	117.78	123.70
5	R	18	A	C5-N7-C8	7.37	107.58	103.90
5	R	12	A	C5-N7-C8	7.36	107.58	103.90
5	R	29	A	C2-N3-C4	7.34	114.27	110.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	R	31	A	C5-N7-C8	7.29	107.54	103.90
5	R	2	C	O4'-C1'-N1	7.26	114.01	108.20
5	R	5	A	C5-C6-N6	-7.26	117.89	123.70
5	R	7	G	C5-C6-N1	-7.26	107.87	111.50
5	R	30	A	C5-C6-N6	-7.21	117.94	123.70
5	R	14	C	C5-C4-N4	-7.12	115.22	120.20
5	R	12	A	O4'-C1'-N9	7.10	113.88	108.20
5	R	32	A	P-O3'-C3'	7.09	128.21	119.70
5	R	6	G	C5-C6-O6	-7.07	124.36	128.60
5	R	17	C	C4-C5-C6	7.04	120.92	117.40
5	R	31	A	C2-N3-C4	-7.00	107.10	110.60
5	R	7	G	C6-C5-N7	-7.00	126.20	130.40
5	R	5	A	O4'-C1'-N9	6.99	113.80	108.20
5	R	14	C	C2-N1-C1'	6.99	126.49	118.80
5	R	1	G	C4-C5-C6	6.92	122.95	118.80
5	R	22	U	N3-C4-O4	-6.76	114.67	119.40
5	R	2	C	C6-N1-C2	-6.74	117.60	120.30
5	R	12	A	C5-C6-N6	-6.71	118.33	123.70
5	R	28	A	N7-C8-N9	-6.68	110.46	113.80
5	R	21	C	P-O3'-C3'	6.67	127.70	119.70
5	R	4	G	N1-C6-O6	6.63	123.88	119.90
5	R	10	C	N3-C4-C5	6.61	124.54	121.90
5	R	1	G	C5-C6-N1	-6.60	108.20	111.50
5	R	28	A	C2-N3-C4	-6.60	107.30	110.60
5	R	17	C	P-O5'-C5'	6.59	131.45	120.90
5	R	6	G	C4-C5-C6	6.57	122.74	118.80
5	R	7	G	N1-C6-O6	6.55	123.83	119.90
5	R	13	G	C6-C5-N7	-6.54	126.48	130.40
5	R	5	A	C2-N3-C4	-6.47	107.37	110.60
5	R	33	C	O4'-C1'-N1	6.46	113.37	108.20
5	R	18	A	N7-C8-N9	-6.45	110.58	113.80
5	R	1	G	O4'-C1'-N9	6.41	113.33	108.20
5	R	14	C	O4'-C1'-N1	6.40	113.32	108.20
5	R	31	A	C4-C5-C6	6.38	120.19	117.00
5	R	12	A	C4-C5-C6	6.35	120.18	117.00
5	R	29	A	C6-C5-N7	6.35	136.75	132.30
5	R	19	C	N1-C2-O2	6.32	122.69	118.90
5	R	28	A	C4-C5-C6	6.29	120.14	117.00
5	R	1	G	N1-C2-N3	-6.27	120.14	123.90
5	R	32	A	C5'-C4'-O4'	6.23	116.58	109.10
5	R	23	C	O4'-C1'-N1	6.11	113.09	108.20
5	R	31	A	N9-C4-C5	6.10	108.24	105.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	R	27	A	C8-N9-C4	-6.08	103.37	105.80
5	R	7	G	C4-C5-C6	6.06	122.44	118.80
5	R	21	C	C2-N3-C4	5.98	122.89	119.90
5	R	22	U	N3-C4-C5	5.96	118.17	114.60
5	R	31	A	P-O3'-C3'	5.95	126.83	119.70
5	R	19	C	C5-C6-N1	5.94	123.97	121.00
5	R	13	G	O4'-C1'-N9	5.93	112.95	108.20
5	R	27	A	N3-C4-C5	-5.93	122.65	126.80
5	R	32	A	P-O5'-C5'	5.86	130.28	120.90
5	R	33	C	N3-C4-C5	-5.84	119.56	121.90
5	R	1	G	C4-C5-N7	-5.82	108.47	110.80
5	R	12	A	C5-C6-N1	-5.82	114.79	117.70
5	R	20	C	C4'-C3'-C2'	-5.79	96.81	102.60
5	R	6	G	P-O3'-C3'	-5.77	112.78	119.70
5	R	12	A	N7-C8-N9	-5.72	110.94	113.80
5	R	31	A	C6-N1-C2	5.69	122.02	118.60
5	R	24	U	C2-N3-C4	-5.69	123.59	127.00
5	R	11	U	C6-N1-C2	-5.68	117.59	121.00
5	R	24	U	C5-C4-O4	-5.66	122.50	125.90
5	R	28	A	C5-N7-C8	5.65	106.72	103.90
5	R	5	A	N1-C2-N3	5.63	132.12	129.30
5	R	20	C	C3'-C2'-C1'	5.63	106.00	101.50
5	R	19	C	N3-C4-N4	5.62	121.93	118.00
5	R	19	C	C2-N3-C4	5.60	122.70	119.90
5	R	6	G	O4'-C1'-N9	5.59	112.67	108.20
5	R	9	U	N1-C2-O2	-5.58	118.89	122.80
5	R	26	U	C2-N3-C4	-5.58	123.65	127.00
5	R	19	C	O5'-P-OP2	5.58	117.39	110.70
5	R	13	G	C3'-C2'-C1'	5.57	105.96	101.50
5	R	19	C	C5-C4-N4	-5.56	116.31	120.20
5	R	23	C	C5-C4-N4	-5.54	116.32	120.20
5	R	23	C	N3-C4-N4	5.53	121.87	118.00
5	R	4	G	N1-C2-N3	-5.52	120.59	123.90
5	R	4	G	O4'-C1'-N9	5.52	112.62	108.20
5	R	25	A	C5-C6-N1	5.47	120.44	117.70
5	R	31	A	N1-C6-N6	5.46	121.88	118.60
5	R	29	A	C4-C5-N7	-5.45	107.97	110.70
5	R	25	A	C5-N7-C8	5.45	106.62	103.90
5	R	28	A	P-O3'-C3'	5.44	126.22	119.70
5	R	11	U	C2-N1-C1'	5.41	124.20	117.70
5	R	32	A	O4'-C1'-N9	5.40	112.52	108.20
5	R	12	A	N1-C2-N3	-5.40	126.60	129.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	R	12	A	C6-N1-C2	5.38	121.83	118.60
5	R	23	C	C4'-C3'-C2'	-5.38	97.22	102.60
5	R	4	G	C8-N9-C4	-5.38	104.25	106.40
5	R	27	A	O4'-C1'-N9	5.37	112.49	108.20
5	R	9	U	N3-C4-C5	-5.32	111.41	114.60
5	R	6	G	N3-C4-C5	-5.31	125.94	128.60
5	R	22	U	P-O5'-C5'	5.30	129.38	120.90
5	R	4	G	OP1-P-OP2	-5.30	111.66	119.60
5	R	2	C	C2-N1-C1'	5.29	124.62	118.80
5	R	15	U	C5-C6-N1	5.29	125.34	122.70
5	R	20	C	C4-C5-C6	5.28	120.04	117.40
5	R	4	G	N3-C2-N2	5.28	123.59	119.90
5	R	29	A	C8-N9-C4	-5.27	103.69	105.80
5	R	14	C	C5-C6-N1	5.25	123.63	121.00
5	R	13	G	C1'-O4'-C4'	-5.24	105.71	109.90
5	R	19	C	O4'-C1'-N1	5.21	112.37	108.20
5	R	30	A	O4'-C1'-N9	5.18	112.34	108.20
5	R	12	A	N3-C4-C5	-5.17	123.18	126.80
5	R	16	A	C6-C5-N7	-5.16	128.69	132.30
5	R	3	A	C4-C5-C6	5.14	119.57	117.00
5	R	17	C	O4'-C1'-N1	5.13	112.31	108.20
5	R	7	G	N9-C1'-C2'	-5.12	106.37	112.00
5	R	8	U	N3-C4-C5	5.12	117.67	114.60
5	R	22	U	C6-N1-C2	5.12	124.07	121.00
5	R	4	G	C5-C6-O6	-5.11	125.54	128.60
5	R	3	A	C2-N3-C4	5.08	113.14	110.60
5	R	6	G	O4'-C4'-C3'	-5.06	98.94	104.00
5	R	14	C	C6-N1-C1'	-5.05	114.73	120.80
5	R	31	A	N3-C4-N9	-5.05	123.36	127.40
5	R	25	A	C8-N9-C4	-5.05	103.78	105.80

There are no chirality outliers.

All (13) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
5	R	1	G	Sidechain
5	R	10	C	Sidechain
5	R	12	A	Sidechain
5	R	13	G	Sidechain
5	R	19	C	Sidechain
5	R	21	C	Sidechain
5	R	23	C	Sidechain

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Mol	Chain	Res	Type	Group
5	R	24	U	Sidechain
5	R	30	A	Sidechain
5	R	31	A	Sidechain
5	R	4	G	Sidechain
5	R	7	G	Sidechain
5	R	9	U	Sidechain

## 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	388	0	216	11	0
2	B	631	0	352	13	0
3	G	1708	0	1752	53	0
3	H	1693	0	1727	66	0
4	K	627	0	634	10	0
5	R	997	0	511	10	0
6	I	10381	0	10391	321	0
7	J	10403	0	10636	374	0
8	R	13	0	9	0	0
9	J	1	0	0	0	0
All	All	26842	0	26228	792	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 15.

All (792) 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:H:16:ILE:CG2	3:H:26:VAL:HG13	1.63	1.25
7:J:1048:ARG:HG2	7:J:1059:LEU:CD2	1.68	1.21
7:J:1048:ARG:CG	7:J:1059:LEU:CD2	2.19	1.19
7:J:118:LYS:CE	7:J:136:GLU:OE2	1.90	1.19
6:I:1294:LYS:HG2	7:J:348:ASP:OD1	1.44	1.15
7:J:118:LYS:HE2	7:J:136:GLU:OE2	0.99	1.15
7:J:1048:ARG:CG	7:J:1059:LEU:HD23	1.79	1.09

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:1048:ARG:HG2	7:J:1059:LEU:HD23	1.28	1.09
7:J:375:GLU:HA	7:J:378:LYS:HE3	1.12	1.08
3:H:16:ILE:HG23	3:H:26:VAL:CG1	1.82	1.08
7:J:1048:ARG:CG	7:J:1059:LEU:HD21	1.84	1.06
3:H:41:ASN:ND2	3:H:45:ARG:NH1	2.09	1.00
7:J:114:ILE:HD11	7:J:118:LYS:HD2	1.43	0.99
7:J:348:ASP:OD2	7:J:349:TYR:CE2	2.17	0.97
7:J:1048:ARG:HG3	7:J:1059:LEU:CD2	1.90	0.97
6:I:1257:GLN:CG	6:I:1258:PRO:HD3	1.95	0.96
7:J:375:GLU:CA	7:J:378:LYS:HE3	1.94	0.96
3:H:16:ILE:HG23	3:H:26:VAL:HG13	0.98	0.96
3:H:41:ASN:HD21	3:H:45:ARG:NH1	1.63	0.95
7:J:375:GLU:HA	7:J:378:LYS:CE	1.94	0.95
7:J:251:PRO:HB2	7:J:253:VAL:HG22	1.48	0.94
3:H:22:THR:CG2	3:H:207:THR:O	2.18	0.92
3:H:22:THR:HG23	3:H:207:THR:O	1.70	0.90
6:I:850:ILE:HG21	6:I:1048:LYS:NZ	1.86	0.90
6:I:1294:LYS:CG	7:J:348:ASP:OD1	2.22	0.87
3:H:26:VAL:HG21	3:H:217:ILE:HD13	1.57	0.87
7:J:1048:ARG:HG3	7:J:1059:LEU:HD21	1.50	0.87
6:I:1257:GLN:HG3	6:I:1258:PRO:HD3	1.57	0.85
7:J:263:SER:O	7:J:264:ASP:OD1	1.95	0.84
3:H:41:ASN:ND2	3:H:45:ARG:CZ	2.40	0.84
7:J:506:VAL:HG23	7:J:628:GLY:HA3	1.61	0.82
6:I:1257:GLN:HG2	6:I:1258:PRO:HD3	1.63	0.80
4:K:25:ARG:NH1	4:K:61:ASN:HD21	1.81	0.79
3:G:232:VAL:HA	3:H:218:ARG:HD2	1.63	0.79
5:R:45:C:H2'	5:R:46:G:H8	1.48	0.78
6:I:253:PHE:HA	6:I:265:LYS:HD2	1.65	0.78
3:G:91:ARG:NH2	3:G:209:GLY:O	2.17	0.77
7:J:44:ILE:HG22	7:J:51:PRO:HA	1.66	0.77
6:I:1257:GLN:NE2	7:J:348:ASP:HB3	2.00	0.77
7:J:814:CYS:SG	7:J:890:THR:OG1	2.44	0.74
6:I:598:VAL:HG23	6:I:627:GLY:HA3	1.69	0.74
7:J:1368:ASP:O	7:J:1372:ARG:HG3	1.87	0.73
7:J:349:TYR:HE1	7:J:379:PRO:HG2	1.54	0.73
6:I:1072:ASN:ND2	6:I:1111:GLN:OE1	2.21	0.73
7:J:591:ILE:HD12	7:J:604:MET:HG3	1.71	0.73
6:I:560:PRO:HB2	7:J:776:THR:HG21	1.70	0.73
5:R:45:C:H2'	5:R:46:G:C8	2.24	0.73
7:J:348:ASP:CG	7:J:349:TYR:CD2	2.63	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:195:PHE:HD2	6:I:203:LYS:HE2	1.55	0.72
7:J:582:ILE:HD12	7:J:623:GLN:HB3	1.72	0.72
6:I:1212:LEU:HD22	6:I:1225:VAL:HG11	1.72	0.71
2:B:23:DG:OP1	6:I:143:ARG:NH2	2.23	0.70
3:H:16:ILE:HG22	3:H:26:VAL:HG13	1.69	0.70
6:I:1030:GLU:CG	6:I:1034:ARG:HE	2.05	0.70
7:J:1067:ARG:HE	7:J:1072:LYS:HA	1.56	0.70
6:I:317:LEU:HD11	6:I:335:THR:HG21	1.74	0.70
6:I:1253:LEU:HD22	7:J:251:PRO:HG3	1.74	0.70
7:J:1158:GLU:HA	7:J:1223:LEU:HD11	1.74	0.69
7:J:99:ARG:HB3	7:J:248:ASP:HB2	1.75	0.69
7:J:348:ASP:CG	7:J:349:TYR:CE2	2.65	0.69
3:G:61:ILE:HB	3:G:64:VAL:HG12	1.74	0.69
6:I:557:ARG:NH1	6:I:611:GLU:OE1	2.23	0.69
7:J:1035:VAL:HG12	7:J:1078:LEU:HD21	1.74	0.69
3:G:60:GLU:OE1	3:G:143:ARG:NH2	2.25	0.69
3:H:41:ASN:ND2	3:H:45:ARG:HH12	1.89	0.69
6:I:551:HIS:HD2	6:I:552:PRO:HD2	1.56	0.69
3:H:86:LYS:HG2	3:H:176:CYS:HB2	1.74	0.69
6:I:102:LEU:HD23	6:I:118:LYS:HD3	1.76	0.68
7:J:848:VAL:HB	7:J:858:VAL:HB	1.76	0.68
3:H:212:ASP:HB2	3:H:215:GLU:HG2	1.75	0.67
7:J:889:ASP:O	7:J:1286:LYS:NZ	2.27	0.67
7:J:1178:THR:HB	7:J:1185:PRO:HB3	1.77	0.67
2:B:26:DA:H8	2:B:27:DG:H2'	1.58	0.67
7:J:1032:SER:OG	7:J:1114:GLN:NE2	2.27	0.67
7:J:1281:GLU:HB2	7:J:1284:ARG:HG3	1.76	0.67
7:J:348:ASP:OD2	7:J:349:TYR:HE2	1.74	0.67
6:I:302:ILE:HA	6:I:309:LEU:HA	1.77	0.67
7:J:247:PRO:HG3	7:J:250:ARG:HH21	1.58	0.67
7:J:514:THR:HG21	7:J:596:LEU:HD12	1.77	0.67
6:I:727:VAL:HG11	6:I:772:SER:HA	1.77	0.67
6:I:1257:GLN:HG3	6:I:1258:PRO:CD	2.23	0.67
6:I:1313:HIS:HB2	7:J:474:LEU:HD12	1.77	0.67
7:J:1109:LEU:HD22	7:J:1115:ILE:HG12	1.77	0.66
3:H:26:VAL:HG21	3:H:217:ILE:CD1	2.25	0.66
7:J:1135:THR:HG21	7:J:1139:PRO:HB2	1.78	0.66
6:I:836:LEU:HB3	6:I:918:LEU:HD21	1.78	0.66
6:I:808:ASN:H	7:J:633:ALA:HB2	1.60	0.66
3:H:41:ASN:HD22	3:H:45:ARG:NH2	1.92	0.65
6:I:180:ARG:NH2	6:I:396:ASP:OD2	2.29	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:185:TYR:HB2	3:G:201:LEU:HD11	1.79	0.65
6:I:55:SER:OG	6:I:465:ARG:NH1	2.29	0.65
6:I:454:ARG:HG2	6:I:458:GLU:HB3	1.78	0.65
3:G:45:ARG:NH2	6:I:1084:ASP:OD1	2.30	0.65
6:I:681:MET:SD	6:I:1073:LYS:NZ	2.68	0.65
3:G:102:LEU:HD12	3:G:115:ILE:HG12	1.78	0.65
6:I:552:PRO:HA	7:J:773:PHE:HE2	1.62	0.65
6:I:933:VAL:HG13	6:I:1050:VAL:HG22	1.79	0.65
7:J:955:LYS:HG2	7:J:1012:ALA:HA	1.79	0.65
6:I:798:GLN:OE1	6:I:827:ARG:NH1	2.30	0.64
7:J:799:ARG:HG2	7:J:1325:PHE:HE1	1.63	0.64
7:J:1238:GLN:HB3	7:J:1242:ARG:HE	1.63	0.64
7:J:144:TYR:HB3	7:J:178:ALA:HB1	1.79	0.64
6:I:448:LEU:H	6:I:553:THR:HG21	1.62	0.64
6:I:989:LEU:HD22	6:I:997:TRP:HD1	1.63	0.64
7:J:127:LEU:O	7:J:220:ARG:NH2	2.30	0.64
6:I:801:ARG:HB3	6:I:1095:ASP:H	1.62	0.64
7:J:515:ARG:HH22	7:J:717:VAL:HG22	1.61	0.64
7:J:948:SER:N	7:J:1020:TRP:O	2.31	0.64
7:J:824:PRO:HD3	7:J:835:LEU:HB2	1.80	0.63
3:G:145:LYS:NZ	3:G:147:GLN:OE1	2.30	0.63
3:G:12:ARG:H	3:G:30:PRO:HD2	1.64	0.63
7:J:749:LYS:HZ2	7:J:753:SER:HB3	1.62	0.63
7:J:1089:LEU:HA	7:J:1096:PRO:HA	1.80	0.63
6:I:41:GLN:NE2	6:I:50:GLU:OE1	2.31	0.62
7:J:225:GLU:O	7:J:229:GLN:NE2	2.32	0.62
7:J:1081:VAL:HG12	7:J:1087:ASP:HA	1.80	0.62
6:I:551:HIS:CD2	6:I:552:PRO:HD2	2.34	0.62
7:J:1356:LEU:O	7:J:1366:HIS:NE2	2.28	0.62
7:J:247:PRO:HA	7:J:250:ARG:HE	1.65	0.62
7:J:975:ILE:HG21	7:J:980:THR:HG21	1.81	0.61
3:G:104:LYS:HG2	3:G:110:VAL:HG12	1.82	0.61
3:H:16:ILE:CG2	3:H:26:VAL:CG1	2.56	0.61
6:I:9:LYS:HG2	6:I:1171:ARG:HD3	1.82	0.61
6:I:850:ILE:HG21	6:I:1048:LYS:HZ1	1.64	0.61
3:H:41:ASN:HD22	3:H:45:ARG:CZ	2.11	0.61
3:G:91:ARG:NH1	3:G:210:THR:O	2.34	0.61
6:I:283:LYS:HG3	6:I:284:LEU:HD12	1.82	0.61
6:I:106:GLU:HB2	6:I:109:ALA:HB3	1.81	0.61
6:I:402:ARG:HD3	6:I:416:GLY:H	1.66	0.61
7:J:374:LEU:O	7:J:378:LYS:HG3	2.01	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:646:SER:HB3	6:I:649:GLN:HG3	1.82	0.60
7:J:151:MET:HB2	7:J:175:GLU:HG2	1.83	0.60
3:G:58:GLU:OE1	3:G:170:ARG:NH2	2.29	0.60
3:G:167:PRO:HD2	3:G:170:ARG:HD3	1.82	0.60
5:R:42:A:O3'	6:I:510:GLN:NE2	2.34	0.60
6:I:559:CYS:HB2	6:I:662:SER:HB3	1.83	0.60
7:J:370:LYS:HA	7:J:441:LEU:HD22	1.83	0.60
7:J:1075:ARG:HH21	7:J:1200:GLU:HB3	1.66	0.60
6:I:1257:GLN:NE2	7:J:348:ASP:CB	2.65	0.60
7:J:114:ILE:HD11	7:J:118:LYS:CD	2.27	0.60
7:J:120:LEU:HD12	7:J:1330:ARG:HD3	1.82	0.60
7:J:21:LYS:NZ	7:J:22:ILE:O	2.35	0.60
7:J:892:PHE:HB3	7:J:1345:ARG:HH12	1.65	0.60
6:I:1223:ARG:HH22	7:J:721:SER:N	1.99	0.59
7:J:339:ARG:HA	7:J:343:LEU:HD12	1.83	0.59
7:J:983:LYS:HA	7:J:994:SER:HA	1.84	0.59
6:I:228:VAL:HG13	6:I:337:PHE:HB2	1.82	0.59
6:I:240:GLU:HA	6:I:284:LEU:HA	1.83	0.59
6:I:1294:LYS:CB	7:J:348:ASP:OD1	2.49	0.59
7:J:586:GLY:HA3	7:J:612:LEU:HD21	1.84	0.59
7:J:664:ILE:HD12	7:J:681:LYS:HE2	1.84	0.59
6:I:850:ILE:HG21	6:I:1048:LYS:HZ3	1.67	0.59
6:I:50:GLU:OE2	6:I:54:ARG:NH2	2.34	0.59
6:I:1251:TYR:HB3	6:I:1257:GLN:HA	1.84	0.59
7:J:789:LYS:HE2	7:J:931:THR:HA	1.85	0.59
7:J:901:ARG:HD3	7:J:906:GLY:HA2	1.83	0.59
6:I:19:PRO:HA	6:I:1156:ARG:HD3	1.85	0.59
6:I:93:SER:HB2	6:I:126:GLU:HG2	1.85	0.59
6:I:521:LEU:HD22	6:I:667:LEU:HD12	1.84	0.59
6:I:660:VAL:HG13	6:I:661:VAL:HG13	1.84	0.59
7:J:911:LYS:HE2	7:J:1363:TYR:HE2	1.67	0.59
6:I:681:MET:O	6:I:685:MET:HG2	2.03	0.58
3:G:29:GLU:HB3	3:G:30:PRO:HD3	1.85	0.58
3:G:97:GLU:HB2	3:G:145:LYS:HE2	1.85	0.58
4:K:37:PRO:HB3	4:K:49:ILE:HG21	1.86	0.58
7:J:1024:THR:HG23	7:J:1026:PRO:HD3	1.86	0.58
3:G:102:LEU:HB3	3:G:142:MET:HG2	1.85	0.58
7:J:384:LYS:O	7:J:388:ARG:HG2	2.02	0.58
7:J:544:LEU:HD11	7:J:631:TYR:HD1	1.68	0.58
7:J:1100:PHE:HB2	7:J:1200:GLU:HB2	1.85	0.58
7:J:1199:PHE:HB3	7:J:1202:GLU:HB2	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:694:ARG:O	6:I:798:GLN:NE2	2.36	0.58
3:H:18:GLN:OE1	3:H:20:SER:N	2.07	0.58
7:J:329:ASP:HA	7:J:332:LYS:HE2	1.85	0.58
6:I:348:SER:O	6:I:352:ARG:HG2	2.04	0.57
6:I:1005:GLU:H	6:I:1008:GLN:HB2	1.68	0.57
6:I:1340:GLU:HG2	7:J:1341:ARG:HH22	1.69	0.57
7:J:814:CYS:SG	7:J:895:CYS:HB2	2.44	0.57
6:I:12:ARG:HG3	6:I:1181:PRO:HB2	1.85	0.57
3:H:41:ASN:HD22	3:H:45:ARG:NH1	2.01	0.57
5:R:41:C:H2'	5:R:42:A:C8	2.40	0.57
6:I:692:THR:HA	6:I:830:THR:HG22	1.87	0.57
7:J:537:TYR:CZ	7:J:544:LEU:HG	2.40	0.57
5:R:41:C:H2'	5:R:42:A:H8	1.69	0.57
6:I:105:TYR:HA	6:I:114:VAL:HA	1.87	0.57
6:I:870:ILE:HG21	6:I:931:VAL:HG11	1.86	0.57
6:I:975:ILE:HG23	6:I:979:LEU:HD22	1.86	0.57
7:J:660:GLU:O	7:J:664:ILE:HG12	2.04	0.57
6:I:233:ARG:H	6:I:237:LEU:HA	1.70	0.57
7:J:572:THR:HG21	7:J:589:TYR:HE2	1.69	0.57
7:J:576:ARG:NH1	7:J:593:ASN:O	2.38	0.57
6:I:1257:GLN:HE22	7:J:348:ASP:CG	2.07	0.57
7:J:108:ALA:HB2	7:J:280:LYS:HG3	1.86	0.57
7:J:527:LEU:HD22	7:J:548:VAL:HG21	1.86	0.57
7:J:646:ILE:HD11	7:J:764:ARG:HD3	1.87	0.57
7:J:1263:LYS:HD2	7:J:1279:GLN:HG2	1.85	0.57
6:I:594:VAL:HG22	6:I:599:VAL:HA	1.86	0.57
7:J:1062:LEU:O	7:J:1067:ARG:NH1	2.35	0.57
6:I:850:ILE:HG21	6:I:1048:LYS:CE	2.34	0.57
6:I:979:LEU:HG	6:I:989:LEU:HD13	1.85	0.57
7:J:825:VAL:HG12	7:J:833:GLU:HB2	1.86	0.57
3:H:23:HIS:HE1	3:H:204:GLU:HB3	1.70	0.56
6:I:1246:ARG:HH21	6:I:1249:GLY:N	2.03	0.56
6:I:1313:HIS:HB3	7:J:473:THR:HA	1.86	0.56
7:J:146:VAL:HG12	7:J:178:ALA:HB2	1.85	0.56
6:I:339:ASN:O	6:I:343:HIS:N	2.37	0.56
6:I:444:ASP:HB3	6:I:447:HIS:HB2	1.86	0.56
6:I:268:ARG:NH1	6:I:269:ILE:O	2.37	0.56
7:J:134:ASP:OD1	7:J:137:ARG:NH2	2.39	0.56
7:J:375:GLU:HG2	7:J:378:LYS:HE3	1.87	0.56
7:J:502:PRO:HB3	7:J:506:VAL:CG1	2.34	0.56
5:R:44:A:OP2	6:I:540:ARG:NH2	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:973:LEU:HB2	7:J:1003:LEU:HB3	1.87	0.56
6:I:94:ALA:HB2	6:I:129:LEU:HD11	1.87	0.56
7:J:1198:VAL:HG23	7:J:1210:ILE:HA	1.86	0.56
7:J:826:ILE:HG21	7:J:993:GLU:HA	1.88	0.56
7:J:826:ILE:HG22	7:J:828:GLY:H	1.70	0.56
3:G:231:PHE:HE2	3:H:39:LEU:HD23	1.71	0.56
7:J:201:LEU:HD11	7:J:220:ARG:HH11	1.71	0.56
7:J:506:VAL:HG21	7:J:625:MET:HA	1.88	0.56
6:I:207:THR:HA	6:I:210:LEU:HD12	1.88	0.56
6:I:265:LYS:O	6:I:267:ARG:NH1	2.39	0.56
3:H:144:ILE:HG22	3:H:146:VAL:HG22	1.88	0.55
7:J:161:THR:O	7:J:165:TYR:N	2.32	0.55
6:I:176:ILE:HD11	6:I:428:VAL:HG11	1.89	0.55
6:I:319:LEU:HD23	6:I:322:LEU:HD12	1.89	0.55
3:G:54:CYS:SG	3:G:92:VAL:HG22	2.46	0.55
6:I:453:ILE:HD12	6:I:587:LEU:HD21	1.89	0.55
6:I:613:ASN:OD1	6:I:614:TYR:N	2.39	0.55
2:B:29:DA:H2'	2:B:30:DC:H5'	1.88	0.55
6:I:1287:LEU:HD23	7:J:1357:ILE:HD13	1.89	0.55
7:J:965:SER:HB2	7:J:975:ILE:HG12	1.89	0.55
3:G:23:HIS:HB3	3:G:206:GLU:HA	1.87	0.55
6:I:303:ASP:HB3	6:I:310:ILE:HD11	1.88	0.55
6:I:1289:GLU:HG2	6:I:1294:LYS:HD2	1.89	0.55
7:J:895:CYS:HB3	7:J:898:CYS:HB2	1.88	0.55
3:G:71:LYS:NZ	3:G:139:SER:O	2.37	0.55
6:I:226:GLU:HG2	6:I:337:PHE:HB3	1.88	0.55
6:I:231:GLU:OE2	6:I:332:ARG:NH1	2.39	0.55
6:I:1253:LEU:HD22	7:J:251:PRO:CG	2.37	0.55
3:G:180:VAL:HG12	3:G:207:THR:HG22	1.88	0.54
6:I:255:ILE:N	6:I:263:VAL:O	2.37	0.54
6:I:1291:LEU:HD11	7:J:1351:VAL:HG13	1.89	0.54
7:J:751:ASP:OD1	7:J:752:GLY:N	2.39	0.54
7:J:1046:ILE:HG22	7:J:1062:LEU:H	1.72	0.54
7:J:1062:LEU:HB2	7:J:1067:ARG:HB3	1.89	0.54
7:J:1153:PRO:O	7:J:1194:ARG:NH1	2.40	0.54
6:I:230:PHE:HB2	6:I:333:ILE:HB	1.89	0.54
6:I:1030:GLU:HG2	6:I:1034:ARG:HE	1.73	0.54
7:J:374:LEU:O	7:J:378:LYS:CG	2.55	0.54
6:I:520:PRO:HG3	6:I:714:VAL:HG11	1.88	0.54
7:J:572:THR:HG21	7:J:589:TYR:CE2	2.42	0.54
7:J:1042:ASP:O	7:J:1047:THR:HG22	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:H:105:SER:HB2	3:H:139:SER:HA	1.89	0.54
3:H:189:ALA:HB1	3:H:197:ASP:HB2	1.88	0.54
7:J:338:PHE:HA	7:J:342:LEU:HD12	1.89	0.54
7:J:381:ILE:HD11	7:J:412:LEU:HD13	1.89	0.54
7:J:112:ALA:HA	7:J:238:ILE:HA	1.90	0.54
7:J:826:ILE:HG13	7:J:831:VAL:HA	1.88	0.54
3:G:192:VAL:HG21	3:G:198:LEU:HD12	1.90	0.54
7:J:480:ALA:HA	7:J:484:MET:HB2	1.90	0.54
6:I:138:ILE:HD12	6:I:143:ARG:HD2	1.89	0.54
7:J:348:ASP:OD1	7:J:349:TYR:CD2	2.61	0.54
4:K:27:ALA:HB1	7:J:474:LEU:HD23	1.90	0.54
6:I:256:GLU:HB3	6:I:261:VAL:HG22	1.90	0.54
6:I:617:ALA:HB2	6:I:650:VAL:HG21	1.90	0.54
6:I:727:VAL:HG23	6:I:732:ILE:HG12	1.90	0.54
6:I:975:ILE:HA	6:I:1011:LEU:HD22	1.89	0.54
7:J:511:TYR:OH	7:J:515:ARG:NH1	2.41	0.54
3:G:11:PRO:HG2	3:H:231:PHE:HZ	1.74	0.53
6:I:6:THR:HA	6:I:9:LYS:HE2	1.90	0.53
3:H:98:VAL:HA	3:H:146:VAL:HG23	1.89	0.53
7:J:226:ALA:HB1	7:J:1338:ALA:HA	1.89	0.53
7:J:646:ILE:HD12	7:J:762:ASN:ND2	2.24	0.53
6:I:243:PRO:HB3	6:I:277:LEU:HB3	1.90	0.53
6:I:518:ASN:HB2	6:I:761:GLN:HG3	1.91	0.53
6:I:1030:GLU:OE2	6:I:1034:ARG:HD2	2.08	0.53
7:J:1099:TYR:HB3	7:J:1199:PHE:HZ	1.74	0.53
7:J:956:GLY:HA3	7:J:984:LEU:HD21	1.90	0.53
3:G:184:ALA:HB2	6:I:1091:GLY:HA3	1.90	0.53
7:J:338:PHE:CZ	7:J:1352:ILE:HG12	2.44	0.53
3:G:13:LEU:HB3	3:G:16:ILE:HD11	1.91	0.53
6:I:12:ARG:NH2	6:I:793:GLU:OE1	2.31	0.53
6:I:807:TRP:CZ2	6:I:1216:ARG:HD2	2.44	0.53
7:J:870:ASP:O	7:J:874:GLU:HG2	2.09	0.53
7:J:1253:ILE:O	7:J:1257:VAL:HG23	2.08	0.53
6:I:89:GLY:HA2	6:I:140:GLY:HA3	1.91	0.53
6:I:519:ASN:ND2	6:I:796:LEU:HD22	2.24	0.53
6:I:821:ARG:HB2	6:I:1082:ILE:HD12	1.90	0.53
7:J:851:PRO:HD3	7:J:877:VAL:HG22	1.91	0.53
7:J:962:ASN:OD1	7:J:964:LYS:NZ	2.42	0.53
6:I:934:PHE:O	6:I:1048:LYS:HG3	2.10	0.52
6:I:83:GLN:NE2	6:I:84:GLU:HG3	2.25	0.52
6:I:101:ARG:HG3	6:I:119:GLU:HB2	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:102:LEU:O	6:I:118:LYS:N	2.41	0.52
6:I:1030:GLU:O	6:I:1034:ARG:HG3	2.09	0.52
6:I:1339:LEU:HD23	7:J:17:PHE:CD1	2.44	0.52
7:J:114:ILE:HA	7:J:117:LEU:HB3	1.91	0.52
6:I:81:ASP:OD2	6:I:82:VAL:N	2.38	0.52
6:I:301:TYR:O	6:I:310:ILE:N	2.41	0.52
7:J:114:ILE:HD13	7:J:304:ASP:OD2	2.09	0.52
3:G:107:ILE:HD11	6:I:773:LEU:HD22	1.91	0.52
7:J:1025:MET:HB2	7:J:1124:ILE:HB	1.91	0.52
7:J:17:PHE:O	7:J:1369:ARG:NH2	2.43	0.52
3:G:109:PRO:HA	3:G:132:HIS:HA	1.92	0.52
6:I:838:CYS:SG	6:I:884:VAL:HG11	2.50	0.52
6:I:997:TRP:HE1	6:I:1002:LEU:HB2	1.75	0.52
2:B:19:DT:H2'	2:B:20:DG:C8	2.45	0.52
7:J:375:GLU:HG2	7:J:378:LYS:CE	2.40	0.52
7:J:513:MET:SD	7:J:579:LEU:HB2	2.50	0.52
3:G:222:THR:HG21	3:H:233:ASP:HB2	1.91	0.52
6:I:192:ASP:HB3	6:I:346:TYR:HD1	1.75	0.52
6:I:1242:LYS:HD2	7:J:465:GLN:HE22	1.74	0.51
7:J:337:ARG:HG2	7:J:341:ASN:HD21	1.76	0.51
7:J:1050:THR:HA	7:J:1057:SER:HA	1.92	0.51
3:G:31:LEU:HD13	3:G:36:GLY:HA2	1.91	0.51
5:R:37:G:H22	6:I:1259:LEU:HD11	1.75	0.51
6:I:561:ILE:HD13	6:I:661:VAL:HG12	1.92	0.51
7:J:375:GLU:HA	7:J:378:LYS:HG3	1.93	0.51
7:J:930:LEU:HG	7:J:1244:GLN:HG3	1.92	0.51
1:A:28:DG:H5''	7:J:1148:ARG:NH1	2.25	0.51
3:H:111:THR:HA	3:H:129:VAL:HA	1.92	0.51
7:J:123:ARG:HG2	7:J:1337:VAL:HG21	1.92	0.51
6:I:700:VAL:HG13	6:I:1069:ARG:HH22	1.75	0.51
7:J:964:LYS:HG2	7:J:977:SER:HB2	1.93	0.51
6:I:232:ILE:HA	6:I:237:LEU:HG	1.93	0.51
6:I:714:VAL:HB	6:I:787:PRO:HD2	1.93	0.51
6:I:359:ARG:HG2	6:I:363:LEU:HD13	1.93	0.51
7:J:651:HIS:CE1	7:J:652:GLU:HG3	2.46	0.51
3:H:21:SER:O	3:H:213:PRO:CD	2.59	0.51
6:I:822:VAL:HG13	6:I:827:ARG:HB2	1.93	0.51
7:J:799:ARG:HG2	7:J:1325:PHE:CE1	2.43	0.51
7:J:1263:LYS:NZ	7:J:1315:ALA:O	2.38	0.51
3:H:41:ASN:ND2	3:H:45:ARG:NH2	2.57	0.50
6:I:705:GLU:HB3	6:I:794:LEU:H	1.76	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:865:HIS:ND1	7:J:867:GLN:OE1	2.43	0.50
7:J:865:HIS:HA	7:J:901:ARG:HH21	1.76	0.50
6:I:1246:ARG:HH21	6:I:1249:GLY:H	1.60	0.50
6:I:1140:LYS:O	6:I:1143:GLU:HG3	2.10	0.50
6:I:1315:MET:HB2	7:J:473:THR:HG21	1.93	0.50
3:H:56:VAL:HB	3:H:147:GLN:HB3	1.93	0.50
6:I:13:LYS:HD3	6:I:1149:TYR:HA	1.92	0.50
7:J:132:LEU:O	7:J:135:ILE:N	2.45	0.50
7:J:816:THR:O	7:J:883:ARG:NH1	2.44	0.50
6:I:262:TYR:HB3	6:I:276:GLN:HE22	1.76	0.50
6:I:448:LEU:HD21	6:I:587:LEU:HD12	1.94	0.50
7:J:375:GLU:CB	7:J:378:LYS:HE3	2.41	0.50
7:J:1045:THR:HG21	7:J:1067:ARG:HB2	1.93	0.50
3:H:11:PRO:HB3	3:H:31:LEU:HG	1.94	0.50
6:I:149:LEU:HD11	6:I:451:ARG:HB3	1.94	0.50
6:I:838:CYS:SG	6:I:1050:VAL:HB	2.52	0.50
7:J:1036:ARG:HH12	7:J:1112:GLY:HA2	1.75	0.50
7:J:1048:ARG:HE	7:J:1059:LEU:HD21	1.77	0.50
6:I:68:LEU:HD11	6:I:100:LEU:HB3	1.94	0.50
6:I:144:VAL:HG11	6:I:527:LYS:HA	1.94	0.50
4:K:25:ARG:HH12	4:K:61:ASN:HD21	1.60	0.49
7:J:1206:ARG:NH1	7:J:1223:LEU:O	2.45	0.49
7:J:1267:VAL:N	7:J:1301:THR:O	2.45	0.49
7:J:1271:SER:OG	7:J:1298:VAL:O	2.22	0.49
3:G:59:VAL:HG22	3:G:144:ILE:HG22	1.94	0.49
3:G:100:LEU:HD21	3:G:121:VAL:HG11	1.93	0.49
6:I:1257:GLN:HB3	6:I:1301:ARG:CZ	2.42	0.49
7:J:135:ILE:O	7:J:139:LEU:HD23	2.12	0.49
7:J:189:LEU:HB3	7:J:234:PRO:HB2	1.93	0.49
1:A:31:DA:C8	1:A:32:DT:H72	2.47	0.49
6:I:866:ASP:OD1	6:I:869:GLY:N	2.45	0.49
7:J:35:PHE:HB3	7:J:101:ARG:HH21	1.77	0.49
7:J:334:LYS:HE3	7:J:339:ARG:HH12	1.77	0.49
7:J:118:LYS:HE2	7:J:136:GLU:CD	2.10	0.49
7:J:1021:ASP:HB3	7:J:1024:THR:HG22	1.93	0.49
6:I:678:ARG:HD3	6:I:1106:ARG:HB3	1.95	0.49
6:I:1297:ASP:H	6:I:1301:ARG:HD3	1.78	0.49
7:J:948:SER:N	7:J:1022:PRO:HD3	2.27	0.49
7:J:1166:GLY:N	7:J:1174:ARG:O	2.45	0.49
3:G:81:ILE:HG12	3:G:131:CYS:HB3	1.93	0.49
6:I:178:PRO:HB3	6:I:395:TYR:CZ	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:353:SER:HB3	7:J:447:ILE:HG13	1.95	0.49
7:J:587:LEU:HD21	7:J:608:CYS:HA	1.94	0.49
7:J:1031:VAL:HG23	7:J:1080:ILE:HG21	1.94	0.49
6:I:13:LYS:HB3	6:I:1182:ILE:HD13	1.93	0.49
6:I:618:GLN:HE22	7:J:770:LEU:HB2	1.78	0.49
6:I:600:THR:HG22	6:I:602:GLU:HG2	1.95	0.49
3:G:61:ILE:HD13	3:G:142:MET:HB3	1.95	0.49
6:I:519:ASN:HD21	6:I:796:LEU:HD22	1.78	0.49
6:I:1294:LYS:HB3	7:J:348:ASP:OD1	2.11	0.49
6:I:1332:SER:HA	7:J:243:PRO:HB2	1.94	0.49
7:J:227:PHE:CE1	7:J:1337:VAL:HG13	2.47	0.49
7:J:620:PHE:CZ	7:J:624:ILE:HD11	2.48	0.49
6:I:661:VAL:HB	6:I:665:ALA:HB3	1.94	0.48
6:I:1119:MET:HG3	6:I:1204:LEU:HD13	1.95	0.48
7:J:94:GLN:HB3	7:J:96:LYS:HG2	1.95	0.48
7:J:907:HIS:NE2	7:J:910:ASN:OD1	2.46	0.48
7:J:1042:ASP:OD1	7:J:1043:GLY:N	2.46	0.48
6:I:1283:ALA:HB2	7:J:484:MET:HE1	1.94	0.48
6:I:746:ALA:H	6:I:974:ARG:HH22	1.62	0.48
6:I:411:ARG:NH2	6:I:424:ASP:OD1	2.45	0.48
3:G:18:GLN:NE2	3:G:20:SER:O	2.32	0.48
6:I:232:ILE:O	6:I:331:LYS:NZ	2.47	0.48
6:I:1211:ARG:NH1	6:I:1213:TYR:OH	2.46	0.48
7:J:247:PRO:HG3	7:J:250:ARG:NH2	2.28	0.48
7:J:321:LYS:HA	7:J:321:LYS:HD2	1.47	0.48
7:J:555:TYR:HB3	7:J:563:LEU:HD22	1.95	0.48
6:I:297:VAL:HA	6:I:335:THR:HG22	1.95	0.48
7:J:161:THR:HB	7:J:164:GLN:HB2	1.95	0.48
7:J:355:ILE:HD11	7:J:466:MET:HG3	1.96	0.48
6:I:732:ILE:HD11	6:I:769:PRO:HB3	1.94	0.48
6:I:56:VAL:HG11	6:I:468:LEU:HB3	1.96	0.48
7:J:375:GLU:CG	7:J:378:LYS:HE3	2.43	0.48
6:I:954:LYS:O	6:I:958:LYS:HG3	2.13	0.48
6:I:1027:LYS:HA	6:I:1027:LYS:HD3	1.61	0.48
3:H:47:LEU:HD13	3:H:180:VAL:HG11	1.96	0.47
7:J:388:ARG:HG3	7:J:411:ILE:HD11	1.95	0.47
5:R:40:C:H2'	5:R:41:C:C6	2.50	0.47
6:I:3:TYR:HB3	6:I:7:GLU:HB3	1.96	0.47
7:J:1155:ILE:HB	7:J:1210:ILE:HB	1.96	0.47
7:J:1344:LEU:O	7:J:1345:ARG:HG2	2.14	0.47
3:G:11:PRO:HG2	3:H:231:PHE:CZ	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:352:ARG:HH21	7:J:465:GLN:HB2	1.79	0.47
7:J:878:ASP:OD1	7:J:879:ALA:N	2.47	0.47
6:I:1077:SER:HA	7:J:356:THR:HG23	1.96	0.47
6:I:1166:ASP:OD1	6:I:1167:GLU:N	2.46	0.47
7:J:338:PHE:CE2	7:J:1352:ILE:HG12	2.48	0.47
7:J:348:ASP:OD1	7:J:349:TYR:HD2	1.97	0.47
7:J:1203:ARG:NH2	7:J:1205:GLU:OE2	2.48	0.47
7:J:398:LYS:HE2	7:J:398:LYS:HB2	1.77	0.47
3:H:130:ILE:HG21	3:H:142:MET:HA	1.97	0.47
7:J:132:LEU:HD12	7:J:135:ILE:HB	1.97	0.47
7:J:198:CYS:SG	7:J:202:ARG:NH1	2.88	0.47
7:J:432:LEU:HD13	7:J:499:ILE:HG12	1.97	0.47
2:B:18:DG:OP2	7:J:346:ARG:NH2	2.48	0.47
3:H:41:ASN:HD22	3:H:45:ARG:HH22	1.60	0.47
3:H:59:VAL:HB	3:H:143:ARG:HD2	1.96	0.47
6:I:52:ALA:HA	6:I:465:ARG:HH12	1.80	0.47
6:I:213:LEU:HB3	6:I:422:LYS:HD3	1.97	0.47
6:I:753:LEU:HB3	6:I:767:GLN:HB3	1.97	0.47
6:I:802:VAL:HG21	6:I:1230:MET:HB3	1.96	0.47
7:J:111:THR:HG21	7:J:303:VAL:HB	1.95	0.47
4:K:6:VAL:HG11	7:J:482:ALA:HA	1.96	0.47
6:I:28:LEU:HD22	6:I:527:LYS:HD2	1.96	0.47
7:J:510:LEU:HD11	7:J:624:ILE:HG23	1.96	0.47
7:J:865:HIS:CE1	7:J:867:GLN:HB2	2.50	0.47
3:G:11:PRO:HB3	3:G:31:LEU:HG	1.97	0.47
7:J:152:THR:HG23	7:J:175:GLU:HG3	1.96	0.47
7:J:502:PRO:HB3	7:J:506:VAL:HG13	1.96	0.47
7:J:1048:ARG:HG2	7:J:1059:LEU:CG	2.42	0.47
7:J:1327:GLU:OE1	7:J:1330:ARG:NH2	2.48	0.47
1:A:33:DT:H2''	1:A:34:DC:H2'	1.96	0.47
6:I:1047:LEU:H	6:I:1047:LEU:HG	1.55	0.47
6:I:1268:GLN:HG3	7:J:352:ARG:HG3	1.96	0.47
7:J:847:ASP:OD1	7:J:847:ASP:O	2.33	0.47
7:J:1175:LEU:HD22	7:J:1190:ILE:HD11	1.97	0.47
3:G:219:ARG:O	3:G:222:THR:OG1	2.27	0.46
7:J:218:THR:HA	7:J:221:ILE:HG22	1.97	0.46
7:J:137:ARG:HH21	7:J:159:ILE:HG12	1.79	0.46
7:J:741:ALA:O	7:J:762:ASN:ND2	2.30	0.46
7:J:1063:ASP:O	7:J:1067:ARG:HG2	2.16	0.46
7:J:1173:ARG:HH21	7:J:1190:ILE:HG21	1.80	0.46
6:I:690:VAL:HG13	6:I:830:THR:HG21	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:537:TYR:CE1	7:J:544:LEU:HG	2.51	0.46
7:J:806:ASP:OD1	7:J:1259:GLN:NE2	2.48	0.46
7:J:1259:GLN:HA	7:J:1262:ARG:HG3	1.97	0.46
3:H:54:CYS:HB2	3:H:92:VAL:HA	1.96	0.46
6:I:1280:ALA:HB1	7:J:918:ILE:HG12	1.97	0.46
7:J:104:HIS:HA	7:J:243:PRO:HA	1.97	0.46
6:I:473:ARG:O	6:I:477:GLU:HG2	2.16	0.46
6:I:545:PHE:CZ	7:J:788:LEU:HD22	2.51	0.46
7:J:356:THR:HB	7:J:448:GLN:HG2	1.97	0.46
1:A:33:DT:H2''	1:A:34:DC:H5'	1.98	0.46
3:H:115:ILE:HG21	3:H:144:ILE:HG12	1.97	0.46
6:I:270:THR:OG1	6:I:273:HIS:ND1	2.35	0.46
6:I:423:ASP:OD1	6:I:424:ASP:N	2.49	0.46
7:J:66:LYS:HA	7:J:66:LYS:HD3	1.55	0.46
7:J:601:ILE:HD11	7:J:624:ILE:HG21	1.98	0.46
3:H:102:LEU:HD23	3:H:102:LEU:HA	1.80	0.46
6:I:459:MET:SD	6:I:511:LEU:HD13	2.56	0.46
7:J:850:LYS:HB3	7:J:855:ASP:HB2	1.98	0.46
7:J:891:ASP:HB3	7:J:1283:SER:HB2	1.97	0.46
6:I:1070:HIS:ND1	6:I:1114:GLU:OE1	2.47	0.46
6:I:1303:LYS:HD2	6:I:1303:LYS:HA	1.51	0.46
3:G:89:ALA:HB1	3:G:124:VAL:HB	1.99	0.46
3:H:185:TYR:HB2	3:H:201:LEU:HD11	1.98	0.46
6:I:13:LYS:HZ1	6:I:1155:VAL:HG11	1.80	0.46
6:I:356:THR:HG21	6:I:365:GLU:HG3	1.98	0.46
6:I:596:ASP:OD1	6:I:597:GLY:N	2.44	0.46
6:I:1258:PRO:HG2	7:J:346:ARG:C	2.37	0.46
7:J:1198:VAL:HG12	7:J:1199:PHE:O	2.16	0.46
3:G:64:VAL:HG21	3:G:78:ILE:HG13	1.97	0.45
6:I:6:THR:HG23	6:I:781:ASP:OD2	2.17	0.45
6:I:472:GLU:HA	6:I:475:VAL:HG12	1.97	0.45
6:I:636:CYS:HB2	6:I:645:PHE:HD2	1.80	0.45
6:I:935:THR:HG21	6:I:941:LYS:HD2	1.98	0.45
7:J:265:LEU:HD11	7:J:327:LEU:HG	1.97	0.45
7:J:437:PHE:CZ	7:J:453:VAL:HG11	2.52	0.45
3:G:106:GLY:HA2	3:G:136:GLU:HA	1.97	0.45
6:I:425:ILE:O	6:I:429:MET:HG3	2.16	0.45
6:I:615:VAL:HG13	6:I:650:VAL:HA	1.98	0.45
6:I:1225:VAL:HG13	6:I:1227:VAL:HG23	1.98	0.45
2:B:6:DA:H2''	2:B:7:DA:C8	2.51	0.45
6:I:989:LEU:HD22	6:I:997:TRP:CD1	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:688:GLN:HB2	6:I:1235:LEU:HD22	1.98	0.45
6:I:772:SER:OG	6:I:773:LEU:N	2.49	0.45
6:I:1002:LEU:HB3	6:I:1008:GLN:HE21	1.81	0.45
6:I:1137:GLU:HG3	6:I:1139:ALA:H	1.80	0.45
7:J:330:MET:O	7:J:336:GLY:HA2	2.16	0.45
7:J:1155:ILE:HG22	7:J:1210:ILE:HD12	1.99	0.45
6:I:590:PRO:HG2	6:I:655:VAL:HG11	1.97	0.45
7:J:549:LYS:HE3	7:J:549:LYS:HB3	1.70	0.45
7:J:52:GLU:HB3	7:J:55:GLY:HA3	1.97	0.45
3:G:56:VAL:HG12	3:G:146:VAL:HG22	1.97	0.45
7:J:141:PHE:HB2	7:J:297:ARG:NE	2.32	0.45
7:J:253:VAL:HG12	7:J:260:PHE:CZ	2.52	0.45
1:A:12:DC:H2''	1:A:13:DC:C6	2.51	0.45
3:H:170:ARG:HB2	3:H:171:LEU:H	1.51	0.45
6:I:15:PHE:CD2	6:I:1190:ALA:HB2	2.52	0.45
6:I:519:ASN:ND2	6:I:689:ALA:HB3	2.32	0.45
6:I:554:HIS:HD2	6:I:558:VAL:HB	1.82	0.45
6:I:1132:LEU:HD23	6:I:1132:LEU:HA	1.83	0.45
6:I:1276:TRP:CD2	7:J:801:VAL:HG11	2.52	0.45
3:G:182:ARG:HB3	3:G:206:GLU:HB3	1.99	0.45
5:R:40:C:H2'	5:R:41:C:H6	1.82	0.45
6:I:1257:GLN:HG2	6:I:1295:SER:HA	1.98	0.45
7:J:137:ARG:HG2	7:J:142:GLU:OE1	2.17	0.45
7:J:1106:ILE:O	7:J:1123:ARG:NH2	2.50	0.45
3:H:105:SER:HA	3:H:110:VAL:HG11	1.98	0.44
6:I:820:GLU:HG2	6:I:1079:ILE:HG22	2.00	0.44
7:J:341:ASN:O	7:J:345:LYS:HG3	2.17	0.44
2:B:17:DC:C2	2:B:18:DG:C8	3.05	0.44
3:G:54:CYS:HB2	3:G:90:VAL:O	2.16	0.44
5:R:46:G:H2'	5:R:47:A:C8	2.52	0.44
6:I:1030:GLU:HG2	6:I:1034:ARG:NE	2.31	0.44
6:I:1122:LYS:HG2	6:I:1229:TYR:CE2	2.52	0.44
7:J:532:GLU:O	7:J:536:LEU:HD23	2.18	0.44
7:J:999:TYR:HE2	7:J:1027:VAL:HG22	1.82	0.44
7:J:1146:GLU:OE2	7:J:1148:ARG:NH2	2.50	0.44
7:J:1160:SER:O	7:J:1179:PRO:HB3	2.17	0.44
7:J:1167:LYS:HE3	7:J:1170:LYS:HB3	1.98	0.44
1:A:36:DG:H1'	1:A:37:DA:C8	2.52	0.44
2:B:17:DC:H5'	6:I:1269:ARG:HD3	1.98	0.44
6:I:348:SER:HA	6:I:351:LEU:HD12	1.99	0.44
6:I:697:LYS:HD2	6:I:1181:PRO:HG3	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:I:801:ARG:HD2	6:I:1229:TYR:HE1	1.82	0.44
6:I:1113:LEU:HD13	7:J:641:ILE:HG13	1.99	0.44
7:J:375:GLU:HA	7:J:378:LYS:CD	2.45	0.44
7:J:992:LYS:HA	7:J:992:LYS:HD3	1.82	0.44
7:J:1046:ILE:HB	7:J:1061:VAL:HA	1.99	0.44
1:A:31:DA:H4'	7:J:120:LEU:O	2.17	0.44
6:I:560:PRO:HG2	6:I:561:ILE:HD12	2.00	0.44
6:I:801:ARG:HA	6:I:1229:TYR:CD1	2.52	0.44
6:I:979:LEU:HD12	6:I:979:LEU:HA	1.72	0.44
7:J:984:LEU:N	7:J:993:GLU:O	2.44	0.44
6:I:297:VAL:HB	6:I:317:LEU:HD21	1.98	0.44
7:J:437:PHE:HZ	7:J:453:VAL:HG11	1.83	0.44
7:J:596:LEU:HD23	7:J:596:LEU:HA	1.83	0.44
7:J:835:LEU:O	7:J:839:VAL:HG12	2.16	0.44
7:J:1227:HIS:O	7:J:1231:ARG:HG3	2.16	0.44
6:I:14:ASP:HB3	6:I:1157:GLN:HG3	2.00	0.44
6:I:80:PHE:HB2	6:I:85:CYS:SG	2.58	0.44
6:I:175:ARG:NH1	6:I:185:ASP:OD2	2.50	0.44
6:I:431:LYS:O	6:I:435:ILE:HG12	2.17	0.44
6:I:618:GLN:HG3	6:I:620:ASN:H	1.82	0.44
6:I:988:LYS:HA	6:I:988:LYS:HD3	1.45	0.44
7:J:1094:ASP:OD1	7:J:1095:MET:N	2.50	0.44
6:I:297:VAL:HG12	6:I:315:MET:O	2.17	0.44
7:J:311:ARG:HA	7:J:311:ARG:HD2	1.45	0.44
3:H:136:GLU:H	3:H:136:GLU:HG3	1.43	0.44
4:K:38:LEU:H	4:K:38:LEU:HG	1.58	0.44
7:J:78:LEU:HD12	7:J:79:LYS:H	1.82	0.44
4:K:3:ARG:HH22	7:J:615:LYS:HD2	1.82	0.44
6:I:120:GLN:HE21	6:I:489:PRO:HD2	1.83	0.44
6:I:1117:LEU:HD12	6:I:1195:ILE:HG12	2.00	0.44
7:J:746:LEU:HD23	7:J:758:PRO:HB3	2.00	0.44
7:J:1158:GLU:OE1	7:J:1223:LEU:HD21	2.18	0.44
1:A:27:DA:H4'	1:A:28:DG:OP1	2.18	0.43
1:A:35:DA:H2''	1:A:36:DG:N7	2.32	0.43
2:B:19:DT:H5''	6:I:1262:LYS:HB2	2.00	0.43
3:H:85:LEU:HB3	3:H:145:LYS:HE2	2.00	0.43
6:I:196:VAL:N	6:I:204:LEU:O	2.44	0.43
6:I:951:MET:O	6:I:955:GLN:HG3	2.17	0.43
6:I:996:ARG:HD2	6:I:996:ARG:HA	1.32	0.43
6:I:1286:THR:O	6:I:1290:MET:HG3	2.18	0.43
7:J:357:VAL:HG22	7:J:461:PHE:CE2	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:845:ALA:HA	7:J:883:ARG:HG3	1.99	0.43
7:J:957:SER:N	7:J:985:ILE:O	2.50	0.43
7:J:1221:LEU:HD13	7:J:1229:VAL:HG11	1.99	0.43
3:G:112:ALA:HB3	3:G:126:PRO:HA	2.00	0.43
6:I:587:LEU:HD23	6:I:587:LEU:HA	1.83	0.43
6:I:1257:GLN:NE2	7:J:348:ASP:CG	2.71	0.43
7:J:24:LEU:HD12	7:J:25:ALA:H	1.83	0.43
7:J:1169:THR:HG22	7:J:1173:ARG:HB2	2.01	0.43
6:I:103:VAL:HG12	6:I:117:ILE:HG22	2.00	0.43
7:J:530:PRO:HB3	7:J:577:ALA:O	2.18	0.43
7:J:749:LYS:HB3	7:J:755:ILE:HD11	2.00	0.43
6:I:303:ASP:OD2	6:I:305:SER:OG	2.35	0.43
6:I:617:ALA:N	6:I:652:TYR:O	2.36	0.43
7:J:1347:LEU:HD12	7:J:1357:ILE:HB	2.01	0.43
3:G:45:ARG:HH12	3:H:37:HIS:HB3	1.84	0.43
3:G:118:ASP:HB2	3:G:121:VAL:HG12	2.00	0.43
3:H:234:LEU:HD13	3:H:234:LEU:HA	1.84	0.43
6:I:39:ILE:HB	6:I:75:LEU:HD11	2.00	0.43
6:I:239:MET:SD	6:I:241:LEU:HB2	2.59	0.43
6:I:264:GLU:HB2	6:I:267:ARG:HG3	2.00	0.43
6:I:500:ALA:O	6:I:504:GLU:HG3	2.19	0.43
6:I:807:TRP:CH2	6:I:1216:ARG:HD2	2.53	0.43
7:J:110:PRO:O	7:J:182:ALA:HB3	2.18	0.43
7:J:1075:ARG:NH1	7:J:1165:PHE:H	2.16	0.43
1:A:29:DA:H2'	1:A:30:DG:C8	2.53	0.43
3:H:47:LEU:H	3:H:47:LEU:HG	1.74	0.43
7:J:375:GLU:HA	7:J:378:LYS:CG	2.49	0.43
7:J:471:PRO:HB3	7:J:476:ALA:HB1	2.01	0.43
7:J:523:GLU:OE1	7:J:547:ARG:N	2.52	0.43
7:J:1227:HIS:HB3	7:J:1231:ARG:NH1	2.33	0.43
7:J:1238:GLN:O	7:J:1242:ARG:N	2.40	0.43
7:J:1348:LYS:O	7:J:1352:ILE:HD12	2.18	0.43
2:B:23:DG:H2'	2:B:24:DT:C6	2.53	0.43
3:G:68:TYR:OH	6:I:1057:LYS:HE3	2.18	0.43
6:I:350:THR:O	6:I:354:ASP:N	2.49	0.43
6:I:1270:PHE:CE1	6:I:1274:GLU:HB3	2.53	0.43
7:J:127:LEU:HD22	7:J:227:PHE:HE2	1.84	0.43
7:J:959:LYS:HD2	7:J:959:LYS:HA	1.84	0.43
3:H:96:ASP:O	3:H:147:GLN:HA	2.19	0.43
6:I:165:HIS:CG	6:I:167:SER:HG	2.36	0.43
6:I:312:ALA:H	6:I:315:MET:HE1	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:740:LEU:O	7:J:762:ASN:HB2	2.19	0.43
6:I:101:ARG:HA	6:I:119:GLU:HA	2.01	0.43
6:I:273:HIS:O	6:I:276:GLN:HG3	2.18	0.43
6:I:1042:LEU:HD23	6:I:1042:LEU:HA	1.85	0.43
7:J:1353:VAL:HG11	7:J:1355:ARG:HE	1.84	0.43
3:H:58:GLU:HG3	3:H:173:VAL:H	1.84	0.43
6:I:777:VAL:HG13	6:I:781:ASP:HB3	2.00	0.43
6:I:1252:SER:OG	6:I:1253:LEU:N	2.52	0.43
7:J:66:LYS:HB3	7:J:69:GLU:HG3	2.01	0.43
7:J:155:GLU:OE2	7:J:158:GLN:HB2	2.17	0.43
7:J:414:GLU:HG2	7:J:417:ARG:HH21	1.84	0.43
7:J:441:LEU:HD23	7:J:441:LEU:HA	1.81	0.43
7:J:832:LYS:HG2	7:J:1242:ARG:HD2	2.00	0.43
4:K:22:VAL:HG23	4:K:64:LEU:HD12	2.01	0.42
6:I:850:ILE:HD12	6:I:850:ILE:HA	1.86	0.42
6:I:1225:VAL:HG23	7:J:638:SER:HB2	2.01	0.42
7:J:375:GLU:HG2	7:J:378:LYS:NZ	2.34	0.42
7:J:547:ARG:HA	7:J:573:THR:HA	2.01	0.42
6:I:150:HIS:CG	6:I:454:ARG:HH21	2.37	0.42
7:J:450:HIS:O	7:J:453:VAL:HG12	2.19	0.42
6:I:765:ILE:HD13	6:I:787:PRO:HG3	2.01	0.42
7:J:1218:HIS:ND1	7:J:1306:LEU:HB3	2.34	0.42
6:I:74:ARG:NH2	6:I:97:ARG:HG3	2.34	0.42
6:I:233:ARG:HH21	6:I:331:LYS:HD3	1.85	0.42
6:I:957:LYS:HG3	6:I:1029:LEU:HD11	2.01	0.42
7:J:785:ASP:OD2	7:J:789:LYS:HE3	2.19	0.42
2:B:27:DG:H2''	2:B:28:DG:OP1	2.19	0.42
3:G:95:LYS:NZ	3:G:120:ASP:OD2	2.30	0.42
3:H:82:LEU:HD13	3:H:173:VAL:HG22	2.02	0.42
3:H:95:LYS:H	3:H:95:LYS:HG3	1.62	0.42
3:H:104:LYS:HB2	3:H:104:LYS:HE2	1.95	0.42
6:I:102:LEU:HB3	6:I:118:LYS:HB2	2.01	0.42
6:I:513:GLN:OE1	6:I:529:ARG:NH2	2.53	0.42
6:I:643:SER:OG	7:J:756:GLU:OE2	2.38	0.42
7:J:30:ILE:HG12	7:J:243:PRO:HG3	2.02	0.42
7:J:67:ASP:HB2	7:J:95:THR:H	1.84	0.42
6:I:295:LYS:HB2	6:I:317:LEU:HD12	2.00	0.42
6:I:591:TYR:CD2	6:I:606:LEU:HD12	2.54	0.42
6:I:618:GLN:HG2	7:J:768:ASN:HD21	1.84	0.42
6:I:978:VAL:HB	6:I:1011:LEU:HD11	2.01	0.42
7:J:582:ILE:HG23	7:J:623:GLN:HB3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:706:VAL:HG22	7:J:715:LYS:HD3	2.01	0.42
6:I:225:PHE:HZ	6:I:345:PRO:HA	1.84	0.42
6:I:1101:LEU:O	6:I:1104:PRO:HD2	2.19	0.42
7:J:1064:SER:OG	7:J:1067:ARG:NH2	2.52	0.42
7:J:1109:LEU:HD23	7:J:1113:VAL:HG12	2.01	0.42
3:H:81:ILE:HG12	3:H:131:CYS:HB2	2.02	0.42
6:I:229:ILE:HD13	6:I:334:GLU:OE2	2.20	0.42
7:J:165:TYR:CZ	7:J:169:LEU:HD11	2.54	0.42
7:J:449:LEU:HB2	7:J:466:MET:HE1	2.02	0.42
7:J:502:PRO:HB3	7:J:506:VAL:HG11	2.00	0.42
7:J:888:CYS:HB3	7:J:898:CYS:SG	2.60	0.42
7:J:976:THR:HG23	7:J:999:TYR:HE1	1.85	0.42
6:I:225:PHE:CZ	6:I:345:PRO:HA	2.54	0.42
7:J:544:LEU:O	7:J:575:GLY:N	2.49	0.42
6:I:6:THR:HG21	6:I:782:VAL:HG22	2.02	0.42
6:I:465:ARG:O	6:I:469:VAL:HG13	2.20	0.42
6:I:1028:LYS:HB3	6:I:1028:LYS:HE2	1.39	0.42
6:I:1127:LYS:HD2	6:I:1202:GLY:HA2	2.02	0.42
6:I:1192:GLU:OE1	7:J:764:ARG:NH1	2.52	0.42
7:J:425:ARG:HD3	7:J:427:PRO:HD2	2.01	0.42
7:J:530:PRO:HG2	7:J:580:TRP:HD1	1.85	0.42
7:J:931:THR:H	7:J:1244:GLN:NE2	2.18	0.42
7:J:1364:ALA:O	7:J:1367:GLN:HG3	2.19	0.42
4:K:3:ARG:HD2	4:K:3:ARG:HA	1.28	0.41
6:I:138:ILE:HD13	6:I:506:PHE:HB3	2.01	0.41
6:I:668:ILE:HB	6:I:671:LEU:HD12	2.01	0.41
6:I:686:GLN:HE21	6:I:1069:ARG:HG2	1.85	0.41
6:I:870:ILE:HD12	6:I:1050:VAL:HG11	2.01	0.41
7:J:495:ASN:OD1	7:J:497:GLU:HB2	2.20	0.41
6:I:545:PHE:CE2	7:J:788:LEU:HD22	2.56	0.41
6:I:1196:LYS:HD3	6:I:1206:THR:O	2.20	0.41
7:J:72:CYS:H	7:J:88:CYS:HB3	1.85	0.41
7:J:375:GLU:CA	7:J:378:LYS:HG3	2.50	0.41
7:J:923:ILE:HD12	7:J:1256:ILE:HG13	2.02	0.41
7:J:974:VAL:HA	7:J:1001:ALA:O	2.21	0.41
3:G:53:GLY:HA3	3:G:177:TYR:O	2.20	0.41
3:G:133:LEU:HA	3:G:133:LEU:HD23	1.79	0.41
3:H:55:ALA:HA	3:H:145:LYS:HB3	2.02	0.41
3:H:91:ARG:HE	3:H:91:ARG:HB2	1.54	0.41
6:I:447:HIS:HA	6:I:551:HIS:ND1	2.34	0.41
6:I:1022:LYS:HD2	6:I:1022:LYS:HA	1.58	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:143:SER:HB2	7:J:159:ILE:HD11	2.03	0.41
7:J:857:LEU:HG	7:J:858:VAL:HG23	2.01	0.41
7:J:1236:GLU:O	7:J:1240:VAL:HG23	2.20	0.41
3:G:110:VAL:HG23	3:G:130:ILE:HB	2.03	0.41
3:H:214:GLU:HA	3:H:217:ILE:HD12	2.03	0.41
6:I:97:ARG:HA	6:I:97:ARG:HD3	1.75	0.41
6:I:165:HIS:CE1	6:I:167:SER:HG	2.35	0.41
7:J:1154:ALA:HB1	7:J:1209:VAL:HG23	2.03	0.41
3:H:47:LEU:CD1	3:H:183:ILE:HG21	2.51	0.41
6:I:38:PHE:HD1	6:I:461:GLU:HG3	1.85	0.41
6:I:881:ASP:O	6:I:920:VAL:HG23	2.20	0.41
6:I:1244:HIS:NE2	6:I:1266:GLY:O	2.53	0.41
7:J:786:THR:HA	7:J:789:LYS:HD2	2.02	0.41
7:J:804:ALA:HA	7:J:1259:GLN:HG3	2.02	0.41
7:J:824:PRO:HD3	7:J:835:LEU:HD13	2.03	0.41
7:J:966:VAL:HB	7:J:1028:ILE:HD12	2.02	0.41
2:B:19:DT:OP1	6:I:1262:LYS:N	2.54	0.41
3:G:48:LEU:HG	3:G:183:ILE:HD12	2.02	0.41
3:H:21:SER:O	3:H:213:PRO:HD3	2.21	0.41
3:H:23:HIS:CE1	3:H:204:GLU:HB3	2.54	0.41
1:A:26:DA:H4'	1:A:27:DA:OP1	2.20	0.41
3:H:43:LEU:O	3:H:47:LEU:HG	2.21	0.41
3:H:61:ILE:HG12	3:H:64:VAL:HG23	2.03	0.41
6:I:521:LEU:HD23	6:I:686:GLN:HB3	2.03	0.41
6:I:759:SER:OG	6:I:765:ILE:HG12	2.20	0.41
6:I:960:LEU:HD13	6:I:1029:LEU:HA	2.02	0.41
6:I:1185:PRO:HD2	6:I:1189:GLY:HA2	2.03	0.41
6:I:1267:GLY:O	7:J:346:ARG:NH1	2.54	0.41
6:I:1283:ALA:HB1	6:I:1286:THR:OG1	2.20	0.41
7:J:492:SER:HB3	7:J:499:ILE:HD13	2.02	0.41
7:J:516:ASP:OD1	7:J:516:ASP:N	2.54	0.41
7:J:644:MET:HE2	7:J:764:ARG:HB2	2.02	0.41
7:J:1037:PHE:CZ	7:J:1059:LEU:HD13	2.55	0.41
7:J:1048:ARG:CA	7:J:1059:LEU:HD23	2.51	0.41
7:J:1266:ILE:HA	7:J:1302:TYR:HA	2.02	0.41
7:J:1282:TYR:HA	7:J:1285:VAL:HG12	2.03	0.41
6:I:272:ARG:HH21	6:I:276:GLN:N	2.18	0.41
6:I:704:MET:O	6:I:708:VAL:HG23	2.21	0.41
6:I:718:ALA:N	6:I:781:ASP:O	2.53	0.41
6:I:870:ILE:HB	6:I:944:ARG:HG2	2.03	0.41
7:J:38:VAL:HG11	7:J:56:LEU:HA	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:480:ALA:HA	7:J:484:MET:HG2	2.02	0.41
7:J:499:ILE:HD12	7:J:499:ILE:HA	1.96	0.41
7:J:580:TRP:CE3	7:J:589:TYR:HD1	2.38	0.41
7:J:849:LEU:HD23	7:J:849:LEU:H	1.86	0.41
7:J:952:VAL:HG13	7:J:1014:GLY:H	1.86	0.41
3:G:88:LEU:HG	3:G:90:VAL:HG23	2.01	0.41
3:H:46:ILE:HG13	3:H:224:LEU:HD13	2.02	0.41
3:H:83:LEU:HB3	7:J:551:ARG:HH21	1.86	0.41
6:I:18:ARG:NE	6:I:620:ASN:HA	2.36	0.41
6:I:68:LEU:HD13	6:I:102:LEU:HB2	2.03	0.41
6:I:550:VAL:HG13	7:J:777:HIS:ND1	2.35	0.41
7:J:127:LEU:HD23	7:J:189:LEU:HD22	2.03	0.41
7:J:211:GLU:HA	7:J:214:ARG:HB2	2.03	0.41
7:J:544:LEU:HD11	7:J:631:TYR:CD1	2.52	0.41
7:J:1099:TYR:HB3	7:J:1199:PHE:CZ	2.55	0.41
6:I:324:LYS:O	6:I:327:GLN:NE2	2.54	0.41
6:I:538:LEU:HD22	6:I:547:VAL:HG11	2.01	0.41
6:I:699:LEU:HD12	6:I:699:LEU:HA	1.81	0.41
6:I:1329:GLU:OE2	7:J:330:MET:HB2	2.21	0.41
7:J:1306:LEU:HD12	7:J:1306:LEU:HA	1.89	0.41
6:I:191:LYS:HE2	6:I:191:LYS:HB2	1.96	0.40
6:I:241:LEU:HB3	6:I:285:ILE:HD12	2.03	0.40
6:I:667:LEU:HD23	6:I:667:LEU:HA	1.85	0.40
6:I:1339:LEU:HD23	7:J:17:PHE:CG	2.57	0.40
7:J:120:LEU:HB2	7:J:121:PRO:HD3	2.03	0.40
7:J:450:HIS:CE1	7:J:452:LEU:HB2	2.56	0.40
7:J:1311:LYS:HA	7:J:1311:LYS:HD3	1.91	0.40
3:H:83:LEU:HD12	3:H:83:LEU:HA	1.75	0.40
6:I:178:PRO:HA	6:I:397:LEU:HD23	2.02	0.40
6:I:551:HIS:H	6:I:554:HIS:CE1	2.40	0.40
6:I:560:PRO:HB2	7:J:776:THR:CG2	2.46	0.40
6:I:702:THR:HA	6:I:1184:THR:O	2.22	0.40
6:I:976:ARG:HH12	6:I:989:LEU:HB2	1.86	0.40
2:B:4:DT:H2''	2:B:5:DG:O4'	2.21	0.40
4:K:59:ILE:HD13	4:K:59:ILE:HA	1.74	0.40
6:I:473:ARG:O	6:I:476:LYS:HG2	2.22	0.40
6:I:1086:PRO:HB2	6:I:1212:LEU:HD21	2.04	0.40
7:J:103:GLY:C	7:J:244:VAL:HG12	2.41	0.40
7:J:153:ASN:OD1	7:J:154:LEU:N	2.55	0.40
7:J:355:ILE:HG22	7:J:461:PHE:HE1	1.87	0.40
7:J:563:LEU:HA	7:J:563:LEU:HD23	1.84	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:J:641:ILE:HD13	7:J:641:ILE:HA	1.89	0.40
7:J:1172:LYS:HZ1	7:J:1191:PRO:HG3	1.86	0.40
7:J:1195:GLN:NE2	7:J:1196:LEU:O	2.55	0.40
6:I:227:LYS:HD2	6:I:334:GLU:HB3	2.04	0.40
7:J:384:LYS:HG3	7:J:415:VAL:HG12	2.03	0.40
7:J:770:LEU:HA	7:J:770:LEU:HD23	1.88	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	
3	G	217/235 (92%)	212 (98%)	5 (2%)	0	100	100
3	H	215/235 (92%)	204 (95%)	9 (4%)	2 (1%)	17	54
4	K	77/79 (98%)	75 (97%)	2 (3%)	0	100	100
6	I	1312/1340 (98%)	1271 (97%)	40 (3%)	1 (0%)	51	83
7	J	1331/1358 (98%)	1293 (97%)	37 (3%)	1 (0%)	51	83
All	All	3152/3247 (97%)	3055 (97%)	93 (3%)	4 (0%)	54	83

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	H	30	PRO
3	H	90	VAL
6	I	58	PRO
7	J	427	PRO

### 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	
3	G	189/202 (94%)	188 (100%)	1 (0%)	88	94
3	H	188/202 (93%)	102 (54%)	86 (46%)	0	0
4	K	67/67 (100%)	43 (64%)	24 (36%)	0	1
6	I	1135/1155 (98%)	1084 (96%)	51 (4%)	27	57
7	J	1122/1134 (99%)	1062 (95%)	60 (5%)	22	54
All	All	2701/2760 (98%)	2479 (92%)	222 (8%)	15	40

All (222) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	G	150	ARG
3	H	6	THR
3	H	9	LEU
3	H	10	LYS
3	H	13	LEU
3	H	14	VAL
3	H	16	ILE
3	H	18	GLN
3	H	19	VAL
3	H	20	SER
3	H	26	VAL
3	H	27	THR
3	H	28	LEU
3	H	31	LEU
3	H	33	ARG
3	H	37	HIS
3	H	43	LEU
3	H	45	ARG
3	H	47	LEU
3	H	48	LEU
3	H	50	SER
3	H	51	MET
3	H	54	CYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
3	H	59	VAL
3	H	60	GLU
3	H	62	ASP
3	H	64	VAL
3	H	65	LEU
3	H	67	GLU
3	H	71	LYS
3	H	72	GLU
3	H	74	VAL
3	H	75	GLN
3	H	79	LEU
3	H	80	GLU
3	H	83	LEU
3	H	91	ARG
3	H	95	LYS
3	H	96	ASP
3	H	98	VAL
3	H	99	ILE
3	H	100	LEU
3	H	101	THR
3	H	103	ASN
3	H	104	LYS
3	H	110	VAL
3	H	114	ASP
3	H	116	THR
3	H	117	HIS
3	H	120	ASP
3	H	122	GLU
3	H	127	GLN
3	H	129	VAL
3	H	131	CYS
3	H	133	LEU
3	H	134	THR
3	H	136	GLU
3	H	137	ASN
3	H	142	MET
3	H	144	ILE
3	H	145	LYS
3	H	146	VAL
3	H	158	ARG
3	H	170	ARG
3	H	171	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
3	H	172	LEU
3	H	174	ASP
3	H	180	VAL
3	H	183	ILE
3	H	187	VAL
3	H	188	GLU
3	H	191	ARG
3	H	192	VAL
3	H	194	GLN
3	H	195	ARG
3	H	196	THR
3	H	197	ASP
3	H	202	VAL
3	H	203	ILE
3	H	205	MET
3	H	207	THR
3	H	211	ILE
3	H	219	ARG
3	H	229	GLU
3	H	231	PHE
3	H	233	ASP
3	H	234	LEU
4	K	3	ARG
4	K	5	THR
4	K	10	VAL
4	K	19	LEU
4	K	28	ARG
4	K	30	MET
4	K	35	LYS
4	K	38	LEU
4	K	42	GLU
4	K	45	LYS
4	K	47	THR
4	K	48	VAL
4	K	52	ARG
4	K	56	GLU
4	K	59	ILE
4	K	60	ASN
4	K	61	ASN
4	K	67	ARG
4	K	68	GLU
4	K	69	ARG

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
4	K	70	GLN
4	K	71	GLU
4	K	72	GLN
4	K	80	LEU
6	I	59	ILE
6	I	563	THR
6	I	568	ASN
6	I	572	ILE
6	I	734	ILE
6	I	739	ASP
6	I	740	GLU
6	I	748	ILE
6	I	843	THR
6	I	845	LEU
6	I	935	THR
6	I	941	LYS
6	I	950	GLU
6	I	953	LEU
6	I	960	LEU
6	I	964	LEU
6	I	967	LEU
6	I	974	ARG
6	I	975	ILE
6	I	978	VAL
6	I	979	LEU
6	I	980	VAL
6	I	987	GLU
6	I	988	LYS
6	I	992	LEU
6	I	994	ARG
6	I	995	ASP
6	I	996	ARG
6	I	997	TRP
6	I	998	LEU
6	I	1000	LEU
6	I	1005	GLU
6	I	1006	GLU
6	I	1007	LYS
6	I	1009	ASN
6	I	1013	GLN
6	I	1019	ASP
6	I	1021	LEU

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
6	I	1022	LYS
6	I	1026	GLU
6	I	1027	LYS
6	I	1028	LYS
6	I	1029	LEU
6	I	1030	GLU
6	I	1032	LYS
6	I	1035	LYS
6	I	1046	VAL
6	I	1047	LEU
6	I	1299	ASN
6	I	1302	THR
6	I	1303	LYS
7	J	32	SER
7	J	39	LYS
7	J	40	LYS
7	J	42	GLU
7	J	45	ASN
7	J	47	ARG
7	J	48	THR
7	J	50	LYS
7	J	53	ARG
7	J	54	ASP
7	J	56	LEU
7	J	66	LYS
7	J	67	ASP
7	J	78	LEU
7	J	79	LYS
7	J	87	LYS
7	J	90	VAL
7	J	92	VAL
7	J	93	THR
7	J	94	GLN
7	J	96	LYS
7	J	97	VAL
7	J	250	ARG
7	J	309	ASN
7	J	311	ARG
7	J	314	ARG
7	J	320	ASN
7	J	321	LYS
7	J	322	ARG

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
7	J	324	LEU
7	J	325	LYS
7	J	326	SER
7	J	327	LEU
7	J	329	ASP
7	J	330	MET
7	J	332	LYS
7	J	338	PHE
7	J	372	MET
7	J	374	LEU
7	J	394	ILE
7	J	398	LYS
7	J	399	LYS
7	J	401	VAL
7	J	403	ARG
7	J	405	GLU
7	J	407	VAL
7	J	414	GLU
7	J	416	ILE
7	J	425	ARG
7	J	428	THR
7	J	430	HIS
7	J	431	ARG
7	J	435	GLN
7	J	702	GLN
7	J	706	VAL
7	J	709	ARG
7	J	714	GLU
7	J	716	GLN
7	J	1045	THR
7	J	1046	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
3	H	23	HIS
3	H	41	ASN
3	H	84	ASN
4	K	61	ASN
6	I	120	GLN
6	I	618	GLN
6	I	620	ASN

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
6	I	1268	GLN
7	J	229	GLN
7	J	424	ASN
7	J	465	GLN
7	J	1114	GLN

### 5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
5	R	47/47 (100%)	27 (57%)	2 (4%)

All (27) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
5	R	2	C
5	R	3	A
5	R	8	U
5	R	9	U
5	R	10	C
5	R	13	G
5	R	14	C
5	R	15	U
5	R	16	A
5	R	17	C
5	R	18	A
5	R	25	A
5	R	26	U
5	R	27	A
5	R	28	A
5	R	30	A
5	R	31	A
5	R	32	A
5	R	33	C
5	R	34	U
5	R	35	A
5	R	36	A
5	R	37	G
5	R	38	G
5	R	39	A
5	R	42	A
5	R	47	A



All (2) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
5	R	1	G
5	R	15	U

## 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](#)

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z  > 2$	Counts	RMSZ	# $ Z  > 2$
8	PRF	R	101	-	13,14,14	0.87	1 (7%)	9,20,20	1.43	2 (22%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	PRF	R	101	-	-	0/0/2/2	0/2/2/2

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	R	101	PRF	C5-C6	-2.18	1.42	1.47

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	R	101	PRF	C5-C6-N1	-2.66	113.10	115.36
8	R	101	PRF	C10-C7-C8	2.62	132.25	126.96

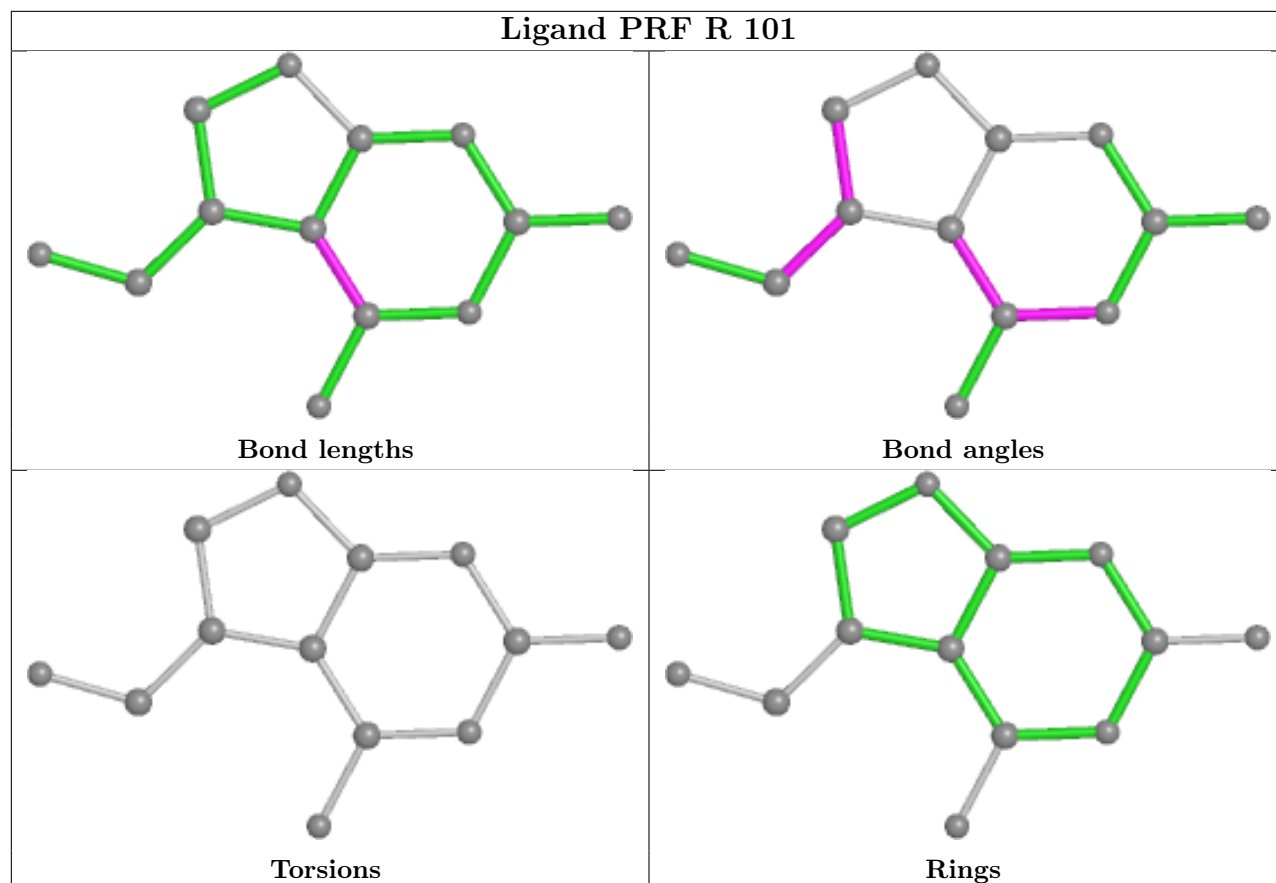
There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

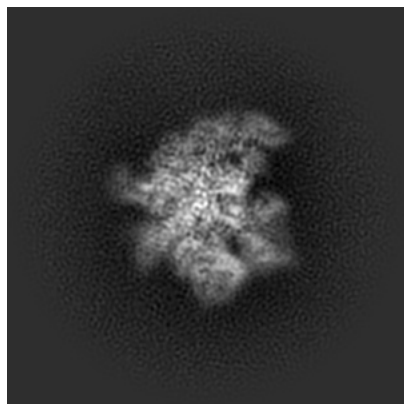
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-29732. These allow visual inspection of the internal detail of the map and identification of artifacts.

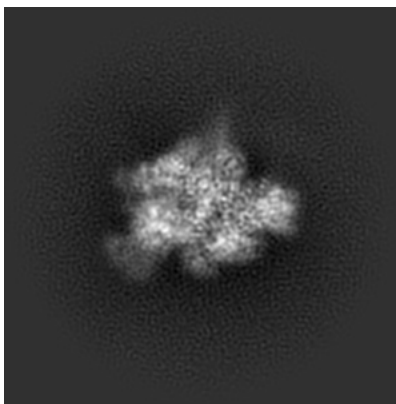
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

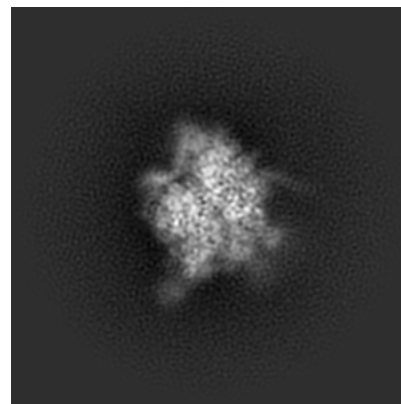
#### 6.1.1 Primary map



X

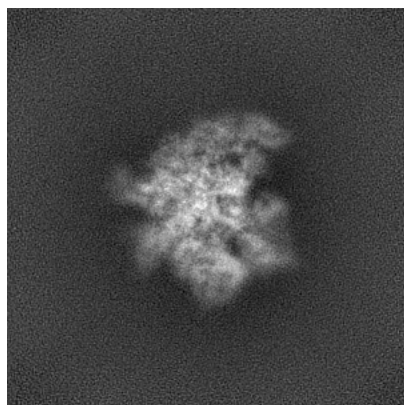


Y

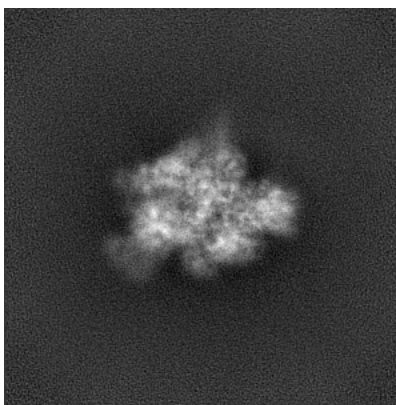


Z

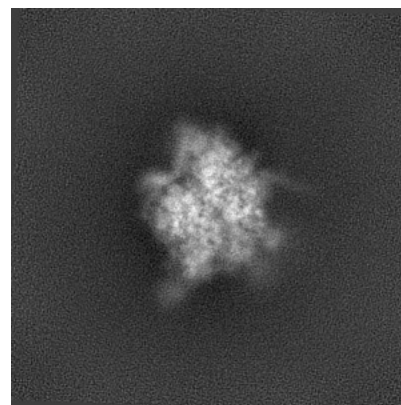
#### 6.1.2 Raw map



X



Y

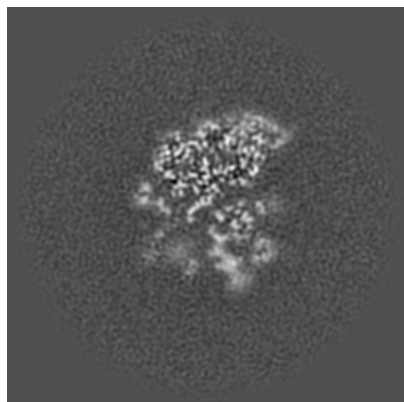


Z

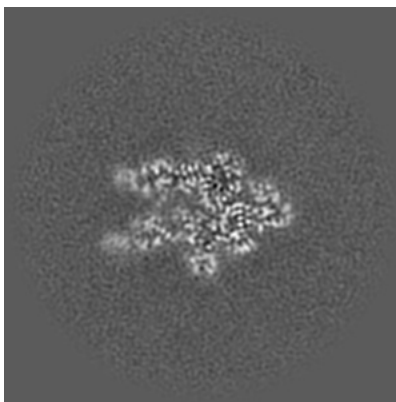
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

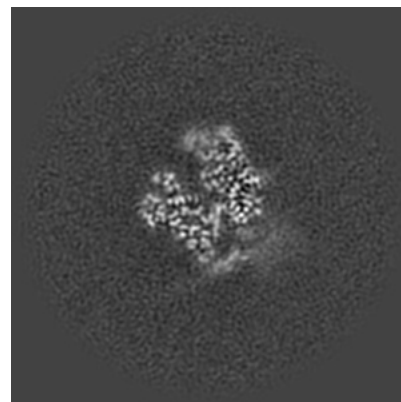
### 6.2.1 Primary map



X Index: 150

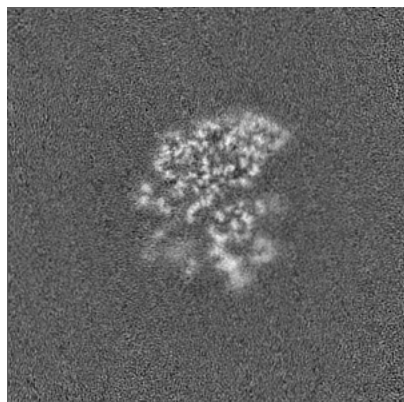


Y Index: 150

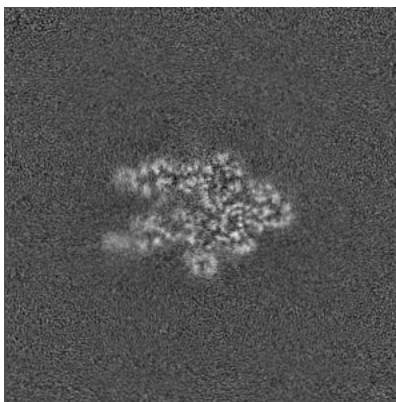


Z Index: 150

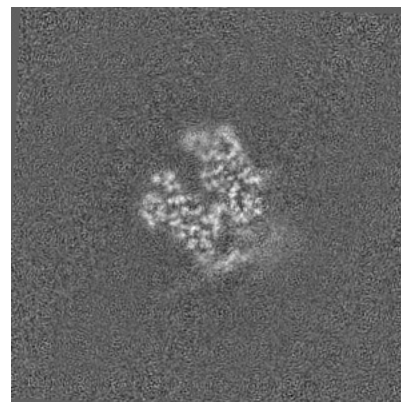
### 6.2.2 Raw map



X Index: 150



Y Index: 150

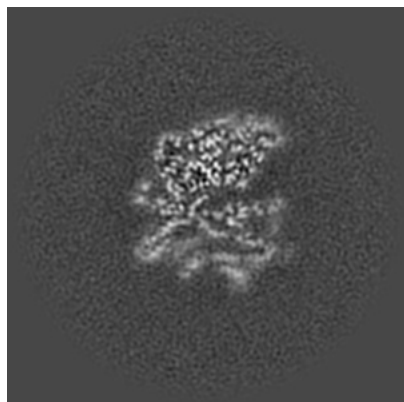


Z Index: 150

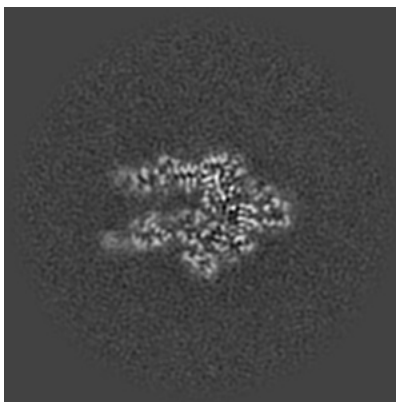
The images above show central slices of the map in three orthogonal directions.

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

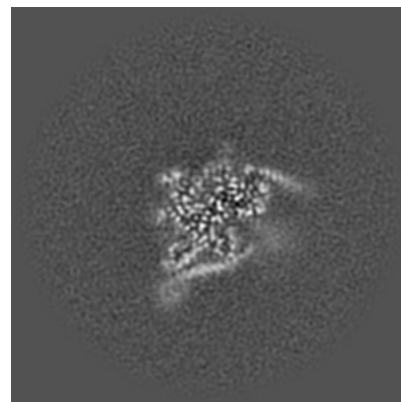
### 6.3.1 Primary map



X Index: 146

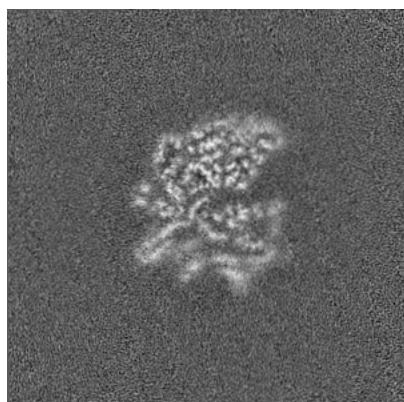


Y Index: 148

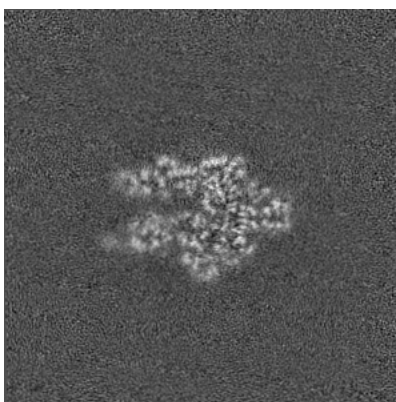


Z Index: 165

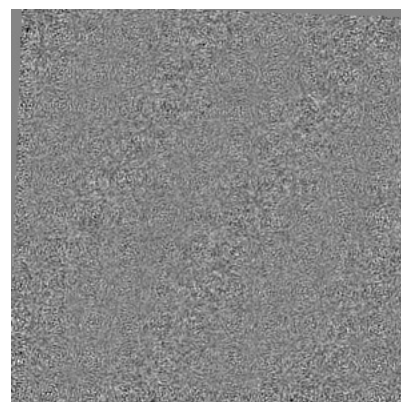
### 6.3.2 Raw map



X Index: 146



Y Index: 147

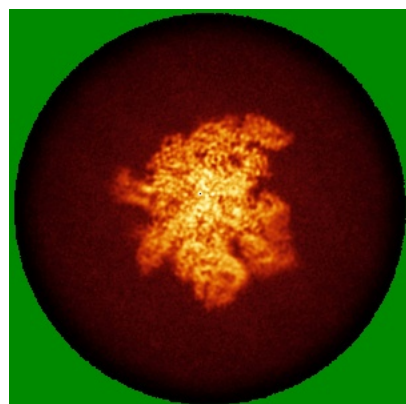


Z Index: 297

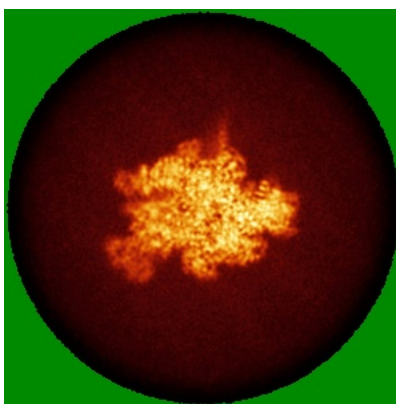
The images above show the largest variance slices of the map in three orthogonal directions.

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

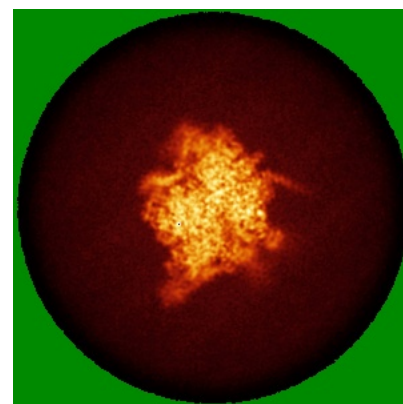
### 6.4.1 Primary map



X

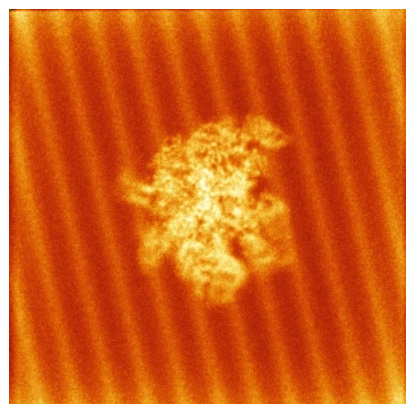


Y

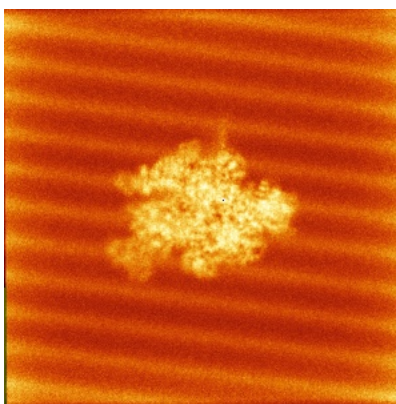


Z

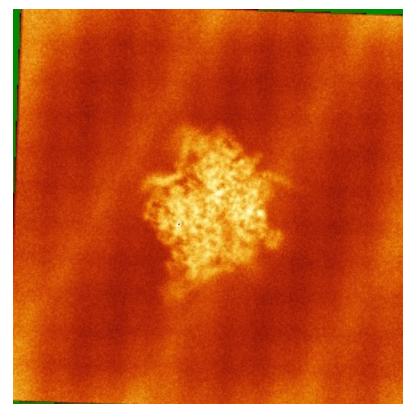
### 6.4.2 Raw map



X



Y

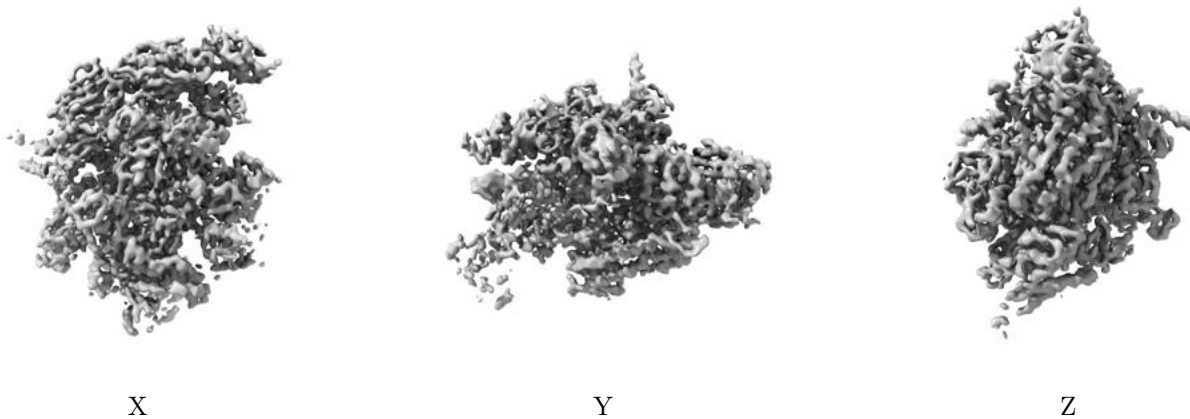


Z

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.

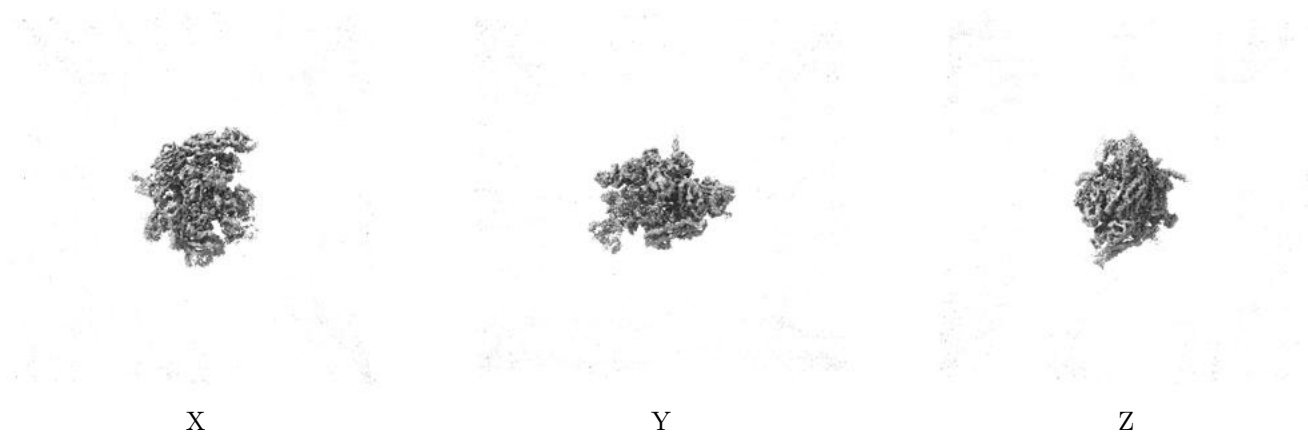
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.4. 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](#)

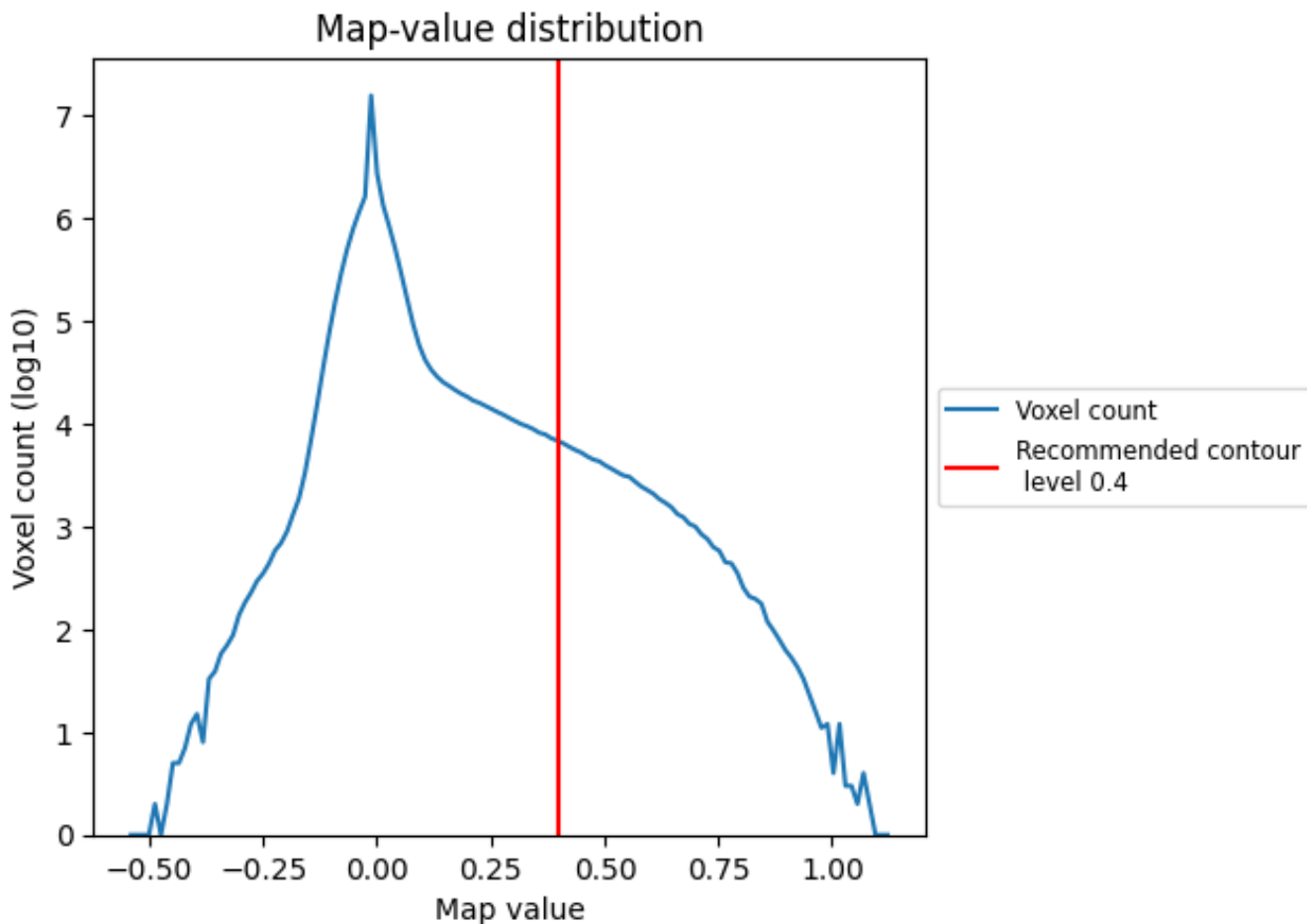
This section was not generated. No masks/segmentation were deposited.



## 7 Map analysis [i](#)

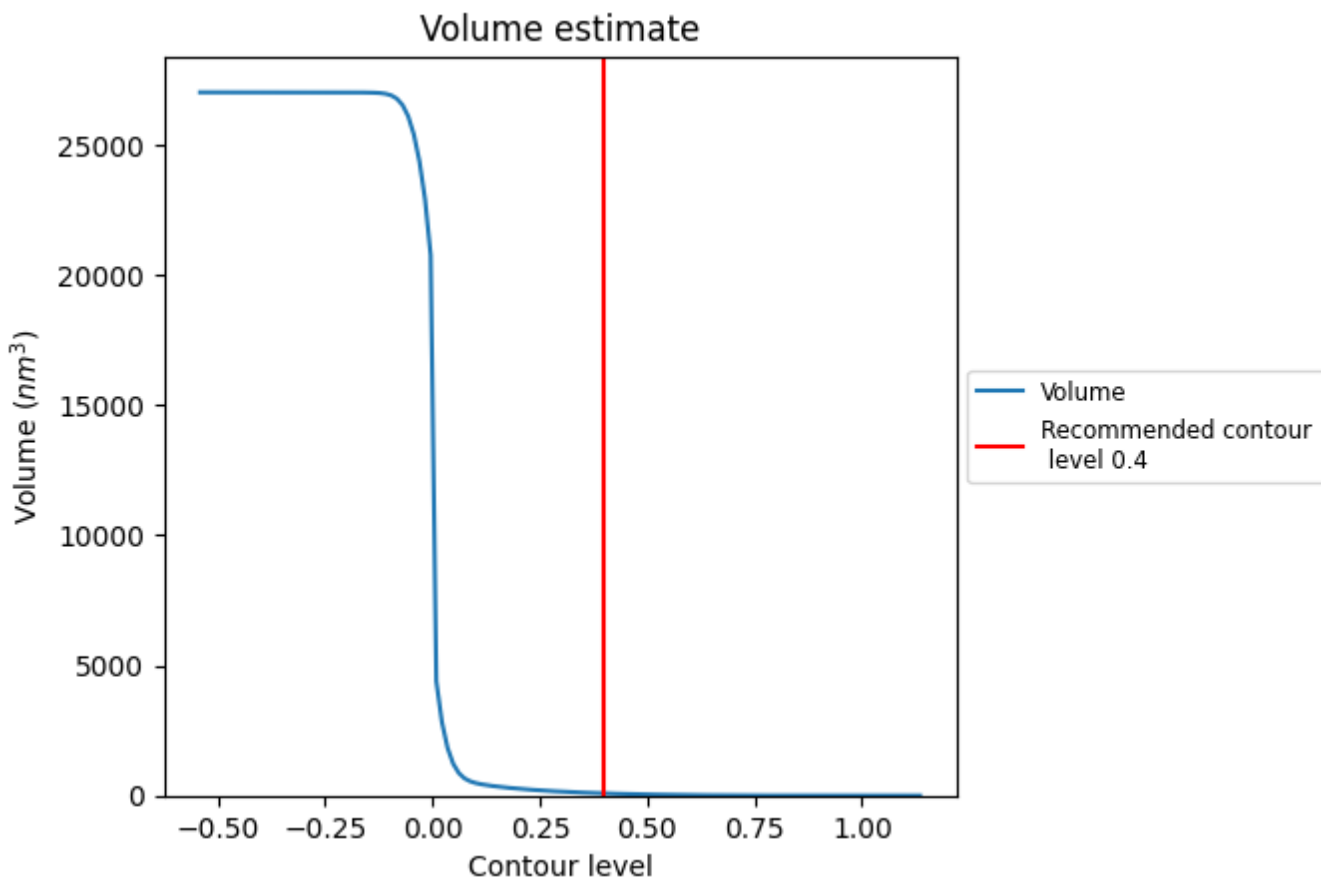
This section contains the results of statistical analysis of the map.

### 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.

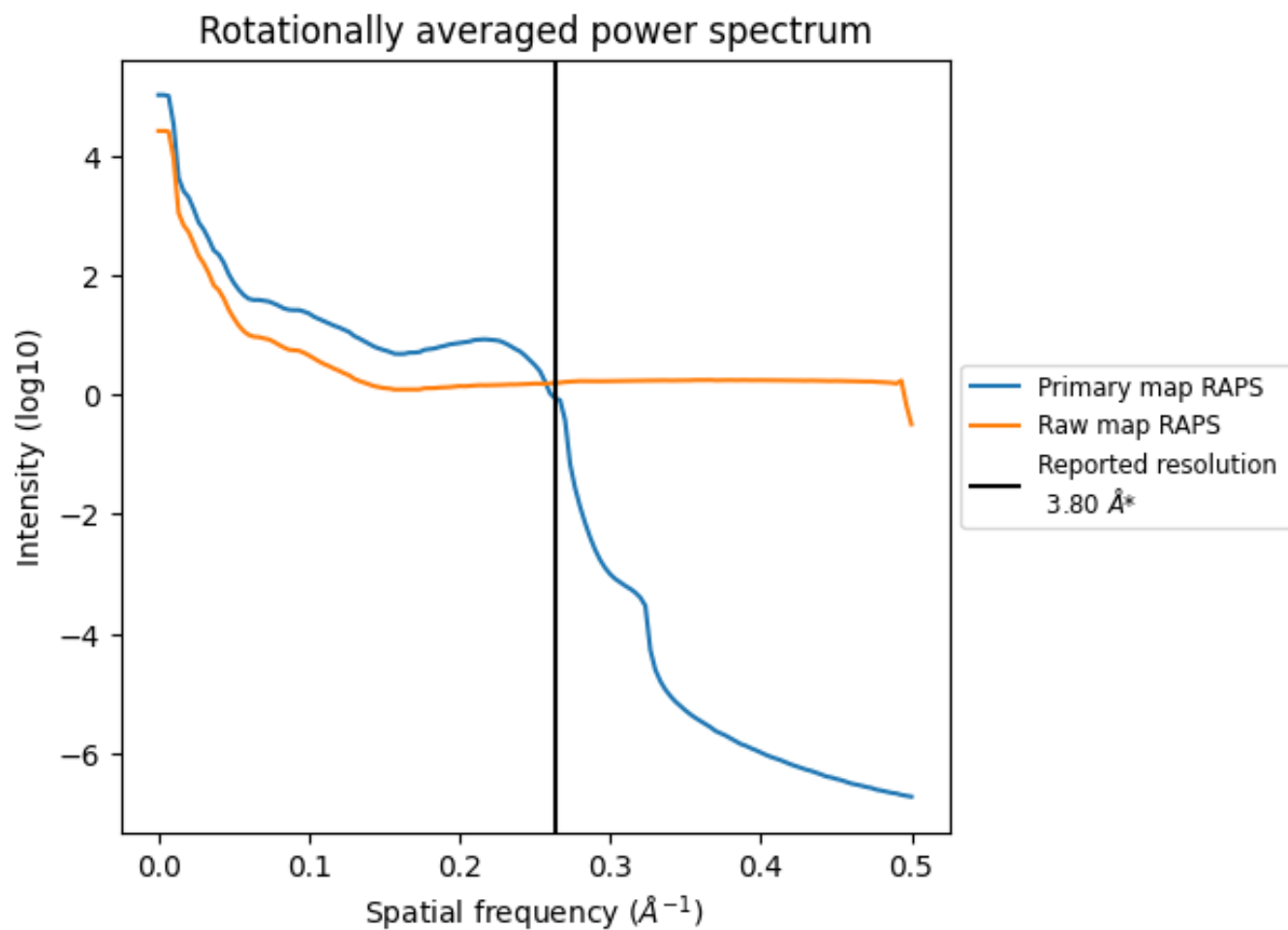
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 84 nm<sup>3</sup>; this corresponds to an approximate mass of 76 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](#)

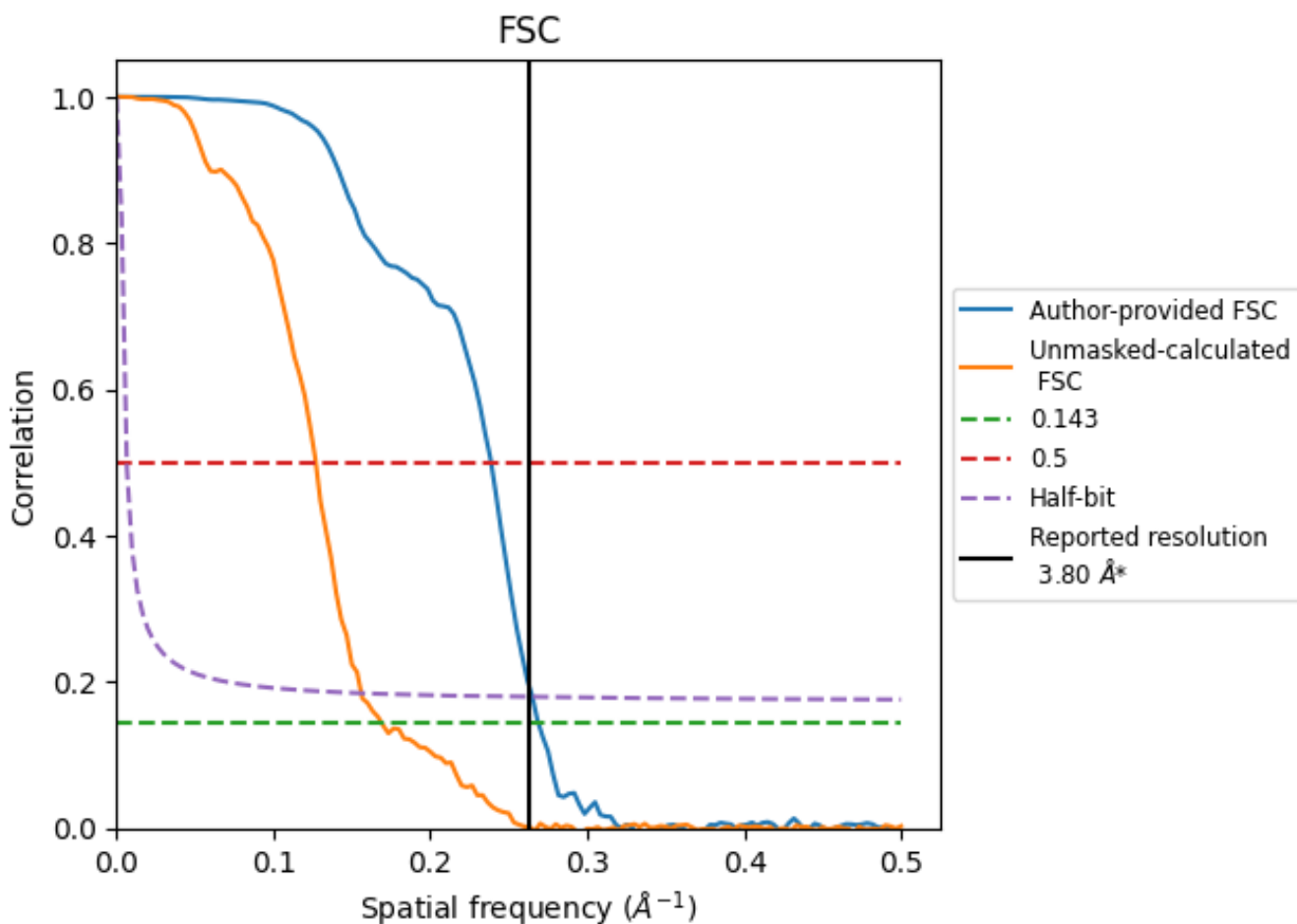


\*Reported resolution corresponds to spatial frequency of 0.263 Å<sup>-1</sup>

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

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.263 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

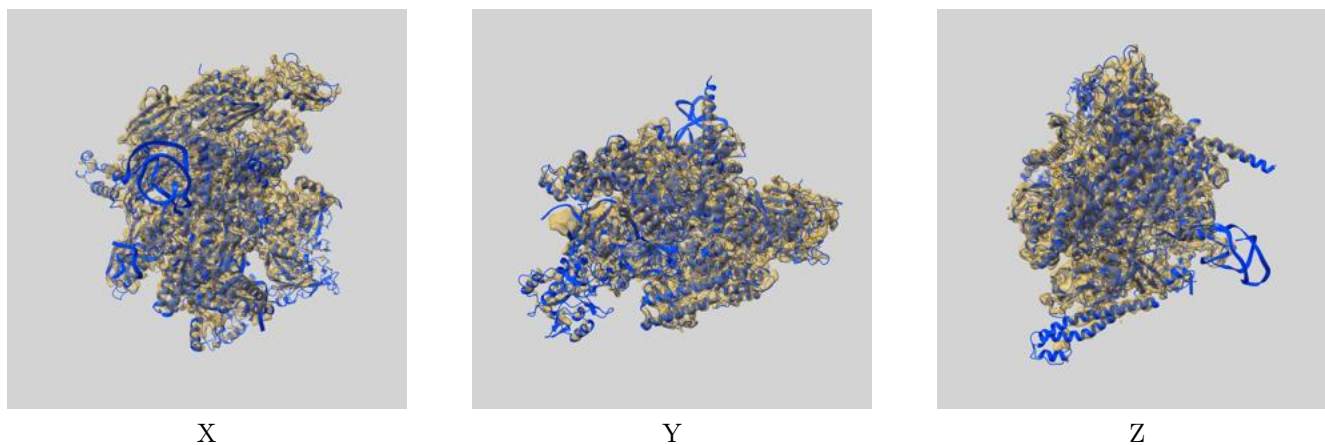
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.72	4.19	3.77
Unmasked-calculated*	5.91	7.87	6.41

\*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 5.91 differs from the reported value 3.8 by more than 10 %

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

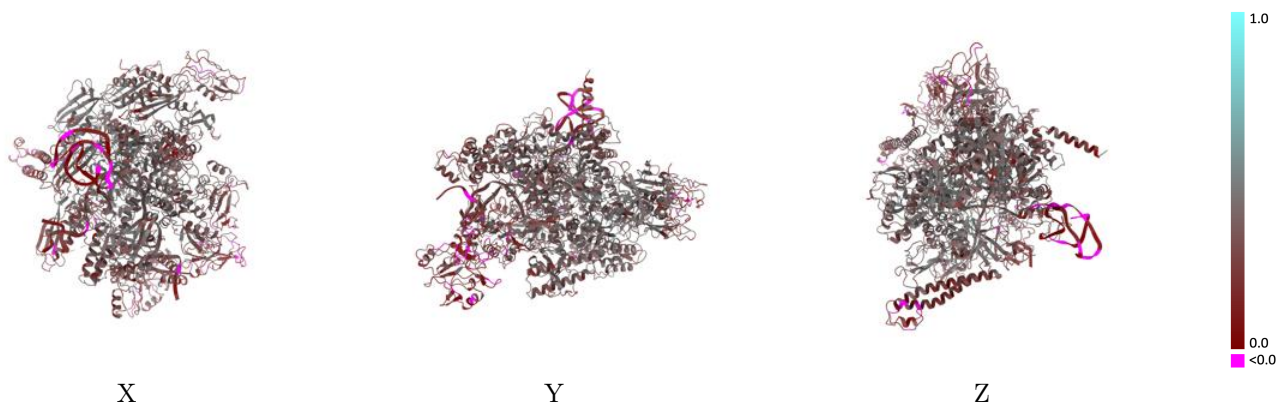
This section contains information regarding the fit between EMDB map EMD-29732 and PDB model 8G4W. Per-residue inclusion information can be found in section [3](#) on page [7](#).

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



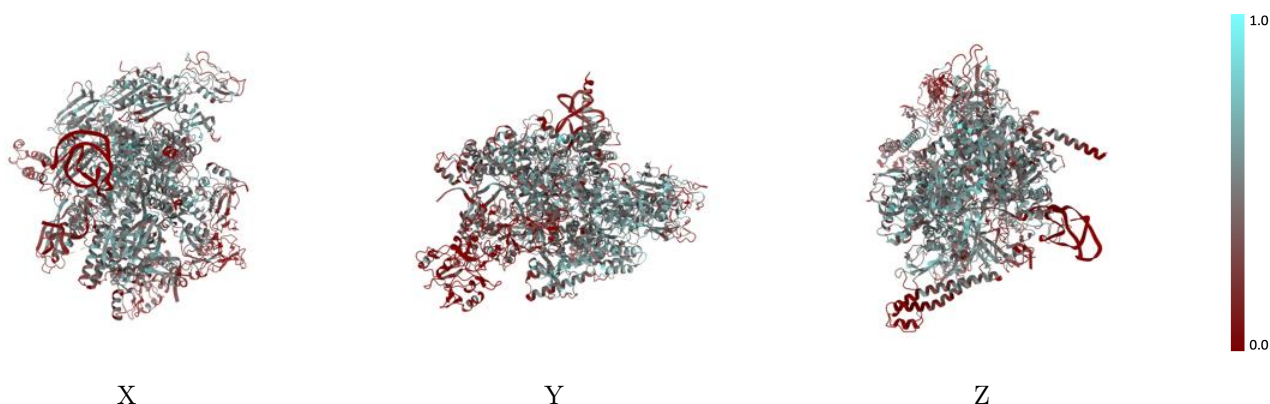
The images above show the 3D surface view of the map at the recommended contour level 0.4 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



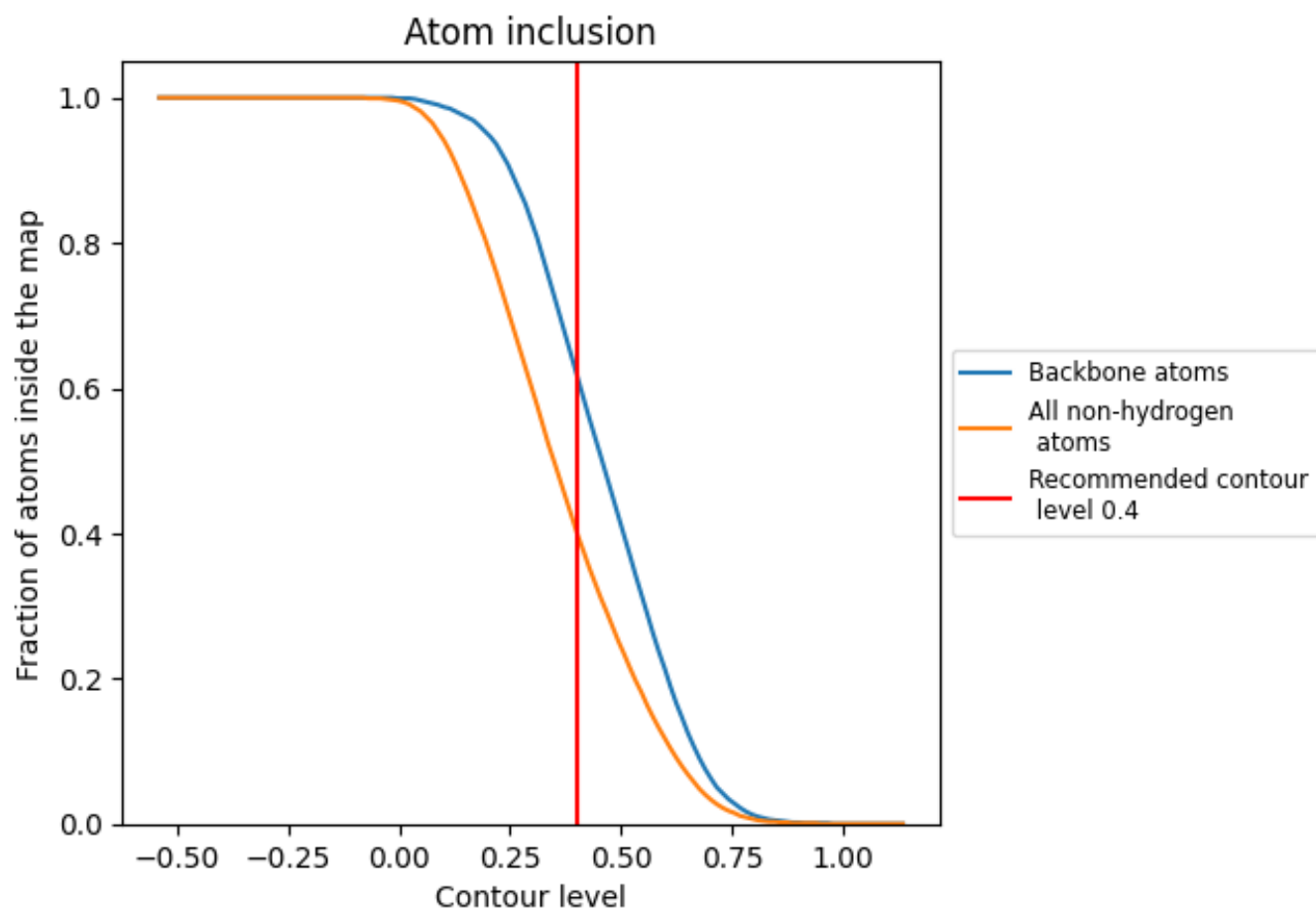
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.4).

## 9.4 Atom inclusion [i](#)





















At the recommended contour level, 62% of all backbone atoms, 40% of all non-hydrogen atoms, are inside the map.



## 9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.4020	 0.3380
A	 0.4200	 0.2700
B	 0.4470	 0.2870
G	 0.5080	 0.4040
H	 0.3990	 0.3080
I	 0.4160	 0.3580
J	 0.3970	 0.3410
K	 0.3630	 0.3290
R	 0.1210	 0.1030

