



Full wwPDB EM Validation Report ⓘ

Nov 9, 2022 – 03:47 AM JST

PDB ID : 6ID0
EMDB ID : EMD-9646
Title : Cryo-EM structure of a human intron lariat spliceosome prior to Prp43 loaded (ILS1 complex) at 2.9 angstrom resolution
Authors : Zhang, X.; Zhan, X.; Yan, C.; Shi, Y.
Deposited on : 2018-09-07
Resolution : 2.90 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.dev43
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) : 2.31.2

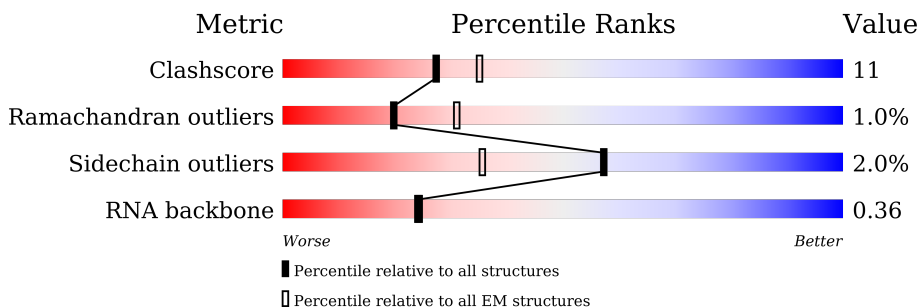
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.90 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.



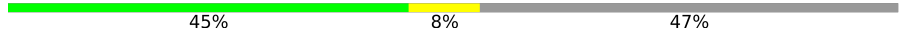


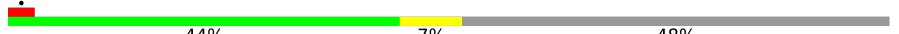


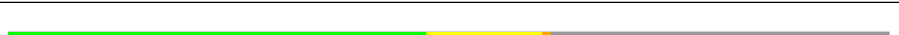
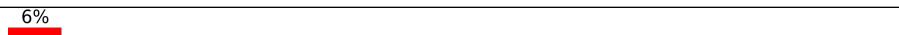
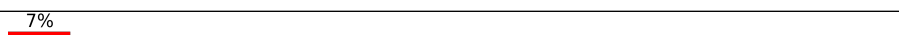
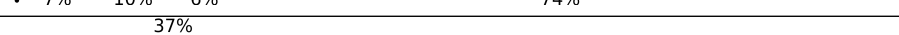
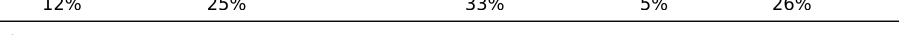
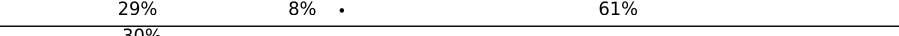













Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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 ≥ 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	2335	
2	B	117	
3	C	972	
4	E	357	
5	F	107	
6	J	848	
7	L	802	

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Mol	Chain	Length	Quality of chain
8	M	243	
9	N	144	
10	O	420	
11	P	229	
12	R	536	
13	S	166	
14	T	514	
15	W	579	
16	G	272	
17	H	188	
18	U	894	
19	I	855	
20	a	126	
20	h	126	
21	b	231	
21	i	231	
22	c	119	
22	j	119	
23	d	118	
23	k	118	
24	f	86	
24	m	86	
25	e	92	
25	l	92	
26	g	76	

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Mol	Chain	Length	Quality of chain
26	n	76	
27	q	504	
27	r	504	
27	s	504	
27	t	504	
28	K	225	
29	o	255	
30	p	225	
31	Q	1485	
32	y	301	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
34	GTP	C	1500	-	-	X	-

2 Entry composition [i](#)

There are 36 unique types of molecules in this entry. The entry contains 78004 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 Pre-mRNA-processing-splicing factor 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1981	16477	10621	2883	2902	71	0	0

- Molecule 2 is a RNA chain called U5snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	B	98	2060	923	341	698	98	0	0

- Molecule 3 is a protein called 116 kDa U5 small nuclear ribonucleoprotein component.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	888	7022	4494	1172	1322	34	0	0

- Molecule 4 is a protein called U5 small nuclear ribonucleoprotein 40 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	E	303	2366	1487	415	451	13	0	0

- Molecule 5 is a RNA chain called U6snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	F	97	2075	928	381	669	97	0	0

- Molecule 6 is a protein called Crooked neck-like protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	J	556	3758	2344	705	703	6	0	0

- Molecule 7 is a protein called Cell division cycle 5-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	L	475	3237	1985	627	619	6	0	0

- Molecule 8 is a protein called Pre-mRNA-splicing factor SYF2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	M	130	1098	684	204	208	2	0	0

- Molecule 9 is a protein called Protein BUD31 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	N	143	1184	746	217	209	12	0	0

- Molecule 10 is a protein called Pre-mRNA-splicing factor RBM22.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	O	290	2340	1469	415	436	20	0	0

- Molecule 11 is a protein called Spliceosome-associated protein CWC15 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	P	118	985	601	194	188	2	0	0

- Molecule 12 is a protein called SNW domain-containing protein 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	N	O	P	S		
12	R	272	2165	1357	393	401	2	12	0	0

- Molecule 13 is a protein called Peptidyl-prolyl cis-trans isomerase-like 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	S	159	1236	787	215	227	7	0	0

- Molecule 14 is a protein called Pleiotropic regulator 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	T	317	Total	C	N	O	S	0	0
			2496	1574	453	461	8		

- Molecule 15 is a protein called Pre-mRNA-processing factor 17.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	W	509	Total	C	N	O	S	0	0
			3008	1833	568	603	4		

- Molecule 16 is a RNA chain called pre-mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	G	70	Total	C	N	O	P	0	0
			1246	549	158	469	70		

- Molecule 17 is a RNA chain called U2snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	H	140	Total	C	N	O	P	0	0
			2968	1327	511	990	140		

- Molecule 18 is a protein called CWF19-like protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	U	347	Total	C	N	O	S	0	0
			2864	1817	496	529	22		

- Molecule 19 is a protein called Pre-mRNA-splicing factor SYF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	I	568	Total	C	N	O	S	0	0
			2822	1683	569	569	1		

- Molecule 20 is a protein called Small nuclear ribonucleoprotein Sm D3.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	a	81	Total	C	N	O	0	0
			399	237	81	81		
20	h	81	Total	C	N	O	0	0
			398	236	81	81		

- Molecule 21 is a protein called Small nuclear ribonucleoprotein-associated protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	b	86	Total	C	N	O	0	0
			424	252	86	86		
21	i	86	Total	C	N	O	0	0
			424	252	86	86		

- Molecule 22 is a protein called Small nuclear ribonucleoprotein Sm D1.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	c	82	Total	C	N	O	0	0
			406	242	82	82		
22	j	82	Total	C	N	O	0	0
			406	242	82	82		

- Molecule 23 is a protein called Small nuclear ribonucleoprotein Sm D2.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	d	97	Total	C	N	O	0	0
			480	286	97	97		
23	k	85	Total	C	N	O	0	0
			422	252	85	85		

- Molecule 24 is a protein called Small nuclear ribonucleoprotein F.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	f	74	Total	C	N	O	0	0
			361	213	74	74		
24	m	74	Total	C	N	O	0	0
			361	213	74	74		

- Molecule 25 is a protein called Small nuclear ribonucleoprotein E.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	e	79	Total	C	N	O	0	0
			391	233	79	79		
25	l	79	Total	C	N	O	0	0
			391	233	79	79		

- Molecule 26 is a protein called Small nuclear ribonucleoprotein G.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	g	74	Total	C	N	O	0	0
			363	215	74	74		

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
26	n	67	329	195	67	67	0	0

- Molecule 27 is a protein called Pre-mRNA-processing factor 19.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
27	q	132	659	395	132	132	0	0
27	r	131	654	392	131	131	0	0
27	s	67	335	201	67	67	0	0
27	t	67	335	201	67	67	0	0

- Molecule 28 is a protein called Pre-mRNA-splicing factor SPF27.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
28	K	152	757	453	152	152	0	0

- Molecule 29 is a protein called U2 small nuclear ribonucleoprotein A'.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
29	o	162	804	480	162	162	0	0

- Molecule 30 is a protein called U2 small nuclear ribonucleoprotein B'.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
30	p	94	464	276	94	94	0	0

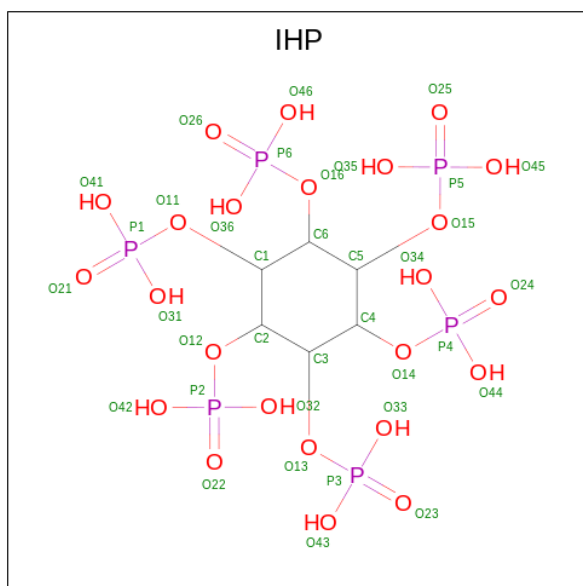
- Molecule 31 is a protein called RNA helicase aquarius.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
31	Q	1322	6562	3918	1322	1322	4	0

- Molecule 32 is a protein called Peptidyl-prolyl cis-trans isomerase E.

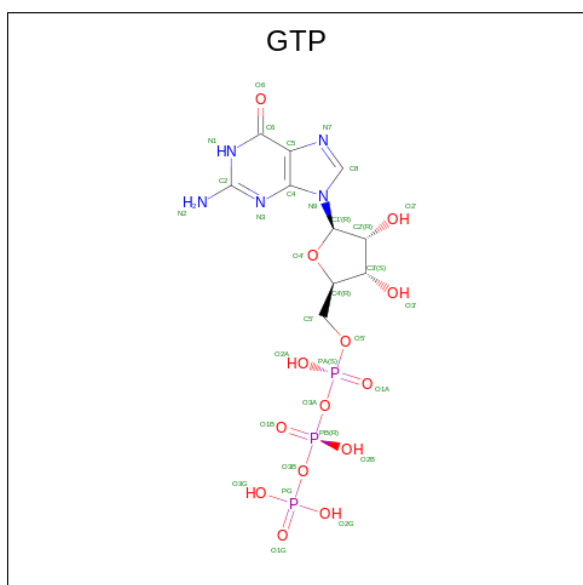
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
32	y	79	390	232	79	79	0	0

- Molecule 33 is INOSITOL HEXAKISPHOSPHATE (three-letter code: IHP) (formula: $C_6H_{18}O_{24}P_6$).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
33	A	1	36	6	24	6	0

- Molecule 34 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
34	C	1	32	10	5	14	3	0

- Molecule 35 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
35	C	1	1	1	0
35	F	6	6	6	0

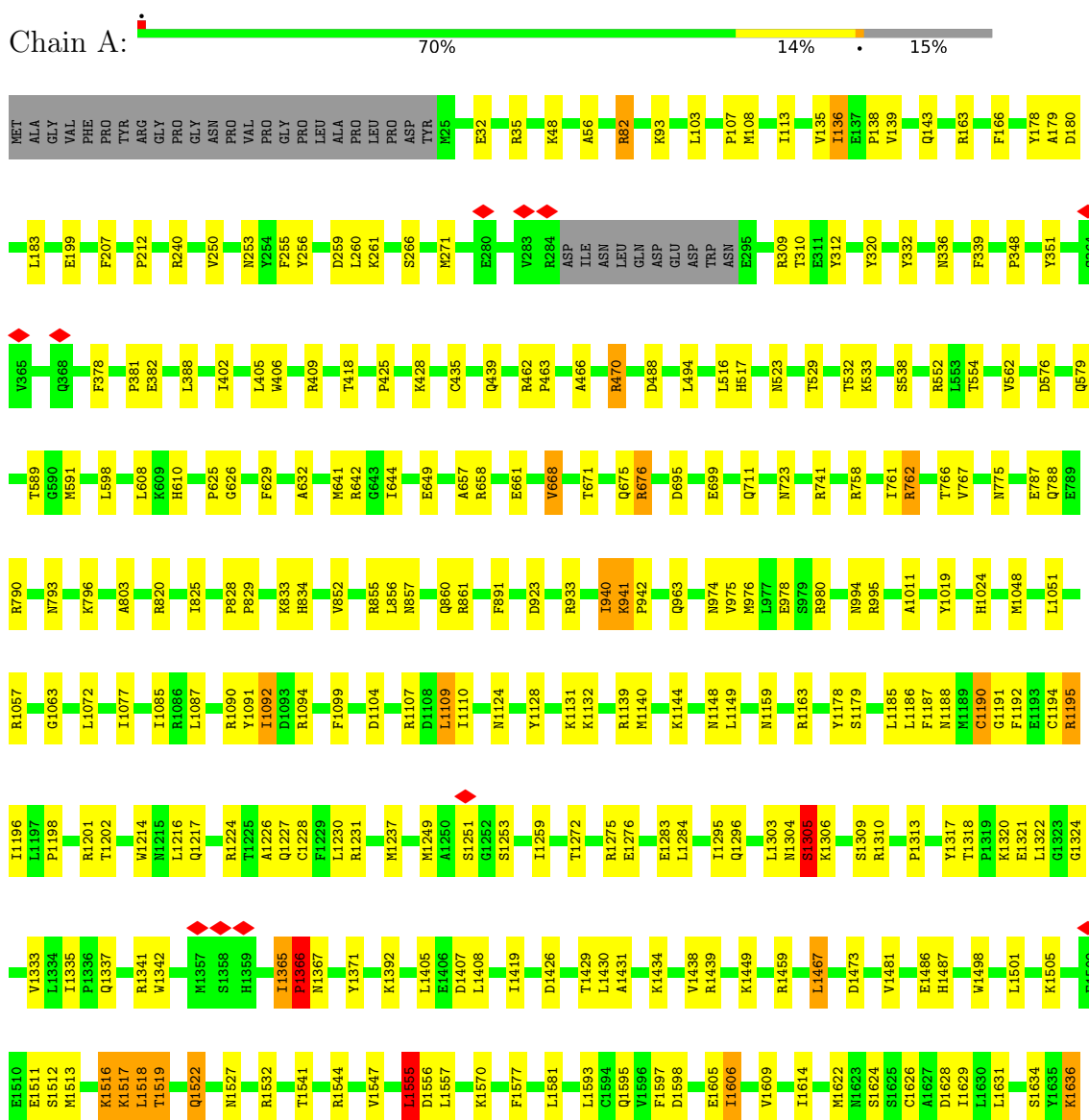
- Molecule 36 is ZINC ION (three-letter code: ZN) (formula: Zn).

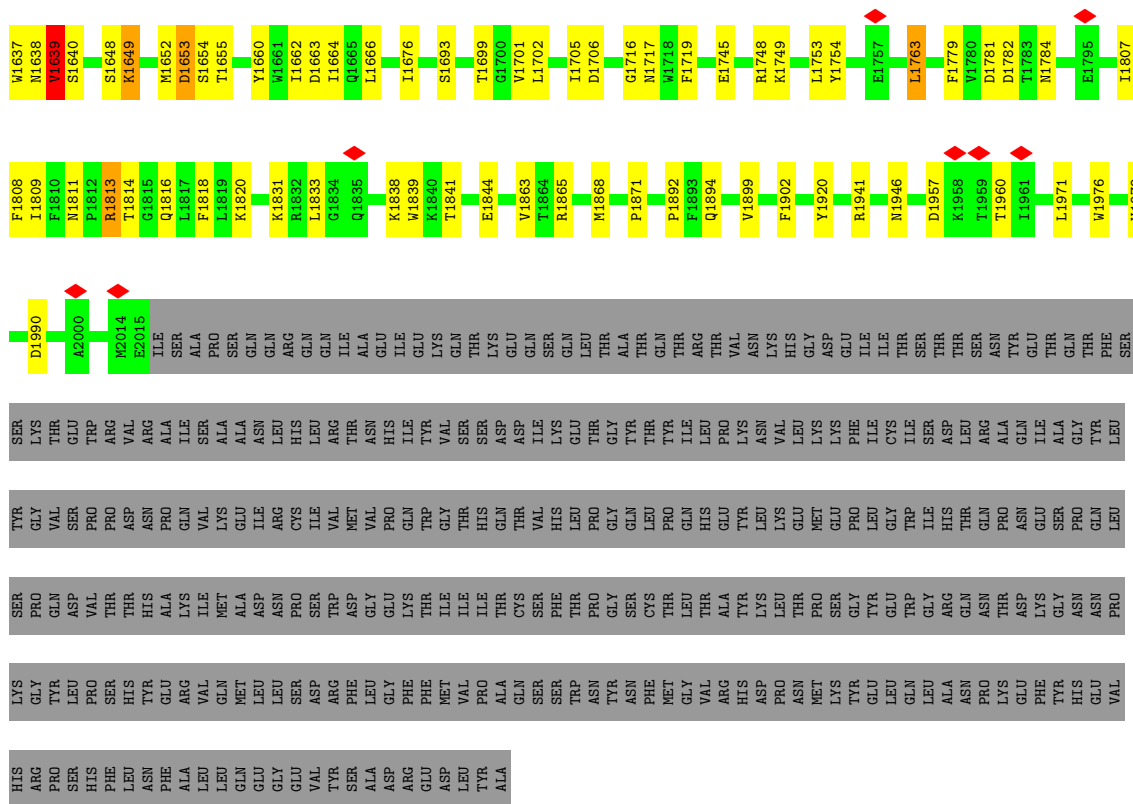
Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
36	N	3	3	3	0
36	O	3	3	3	0
36	U	1	1	1	0

3 Residue-property plots

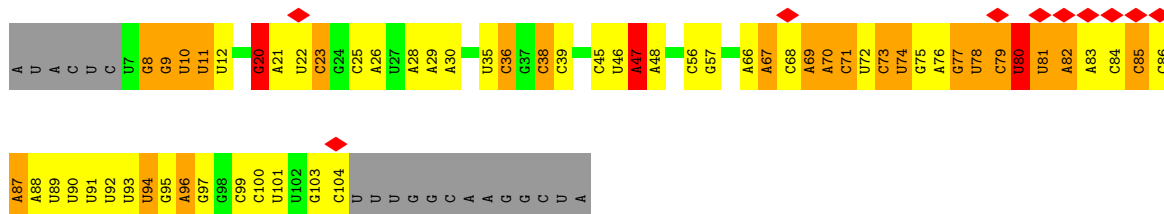
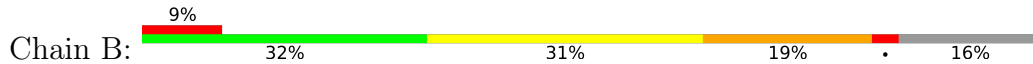
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Pre-mRNA-processing-splicing factor 8

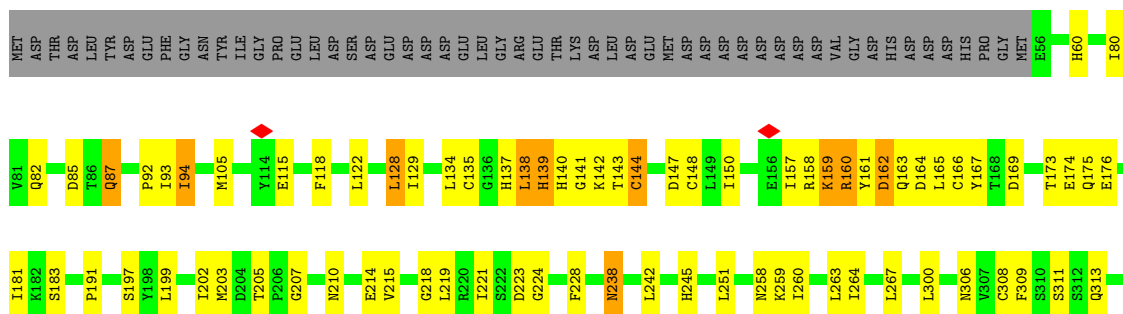


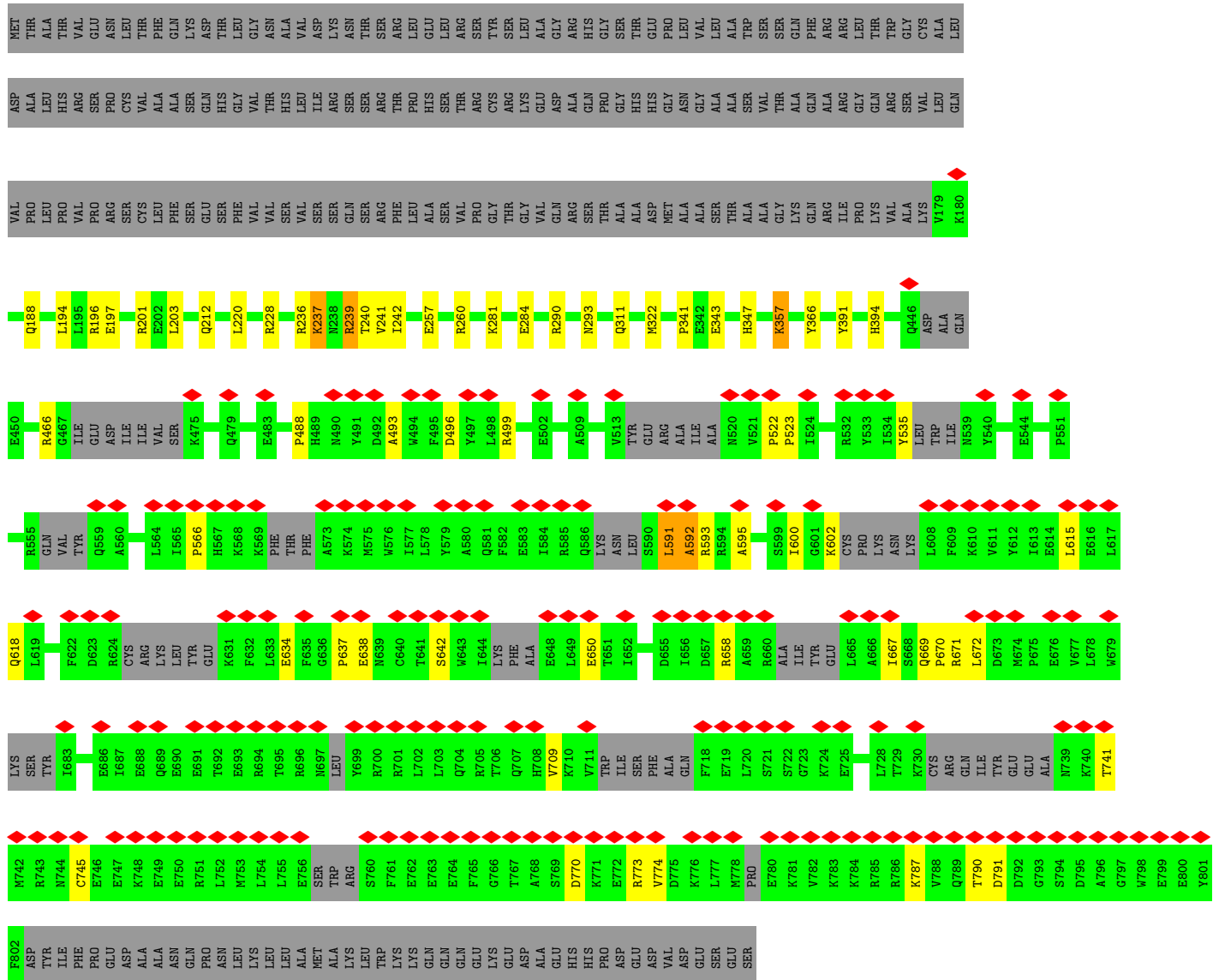


• Molecule 2: U5snRNA

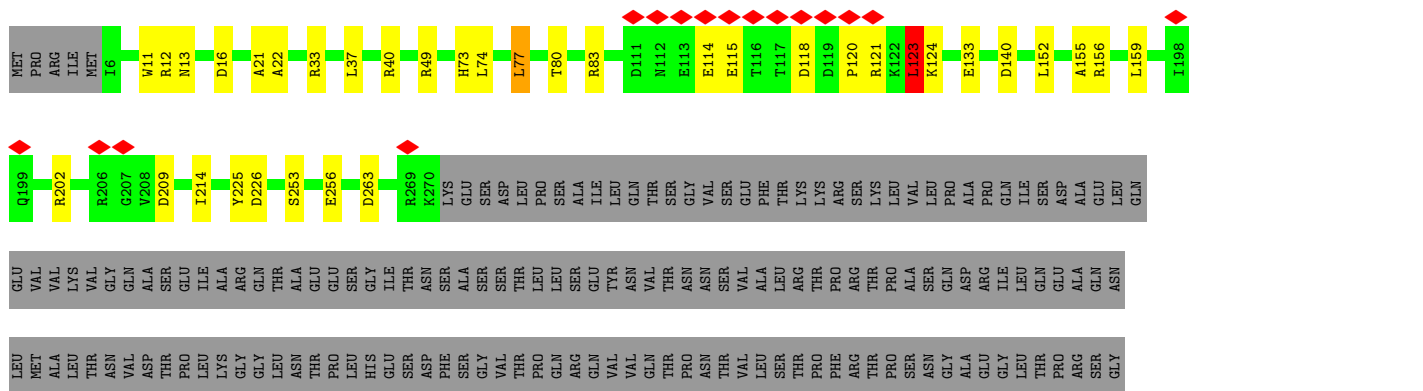


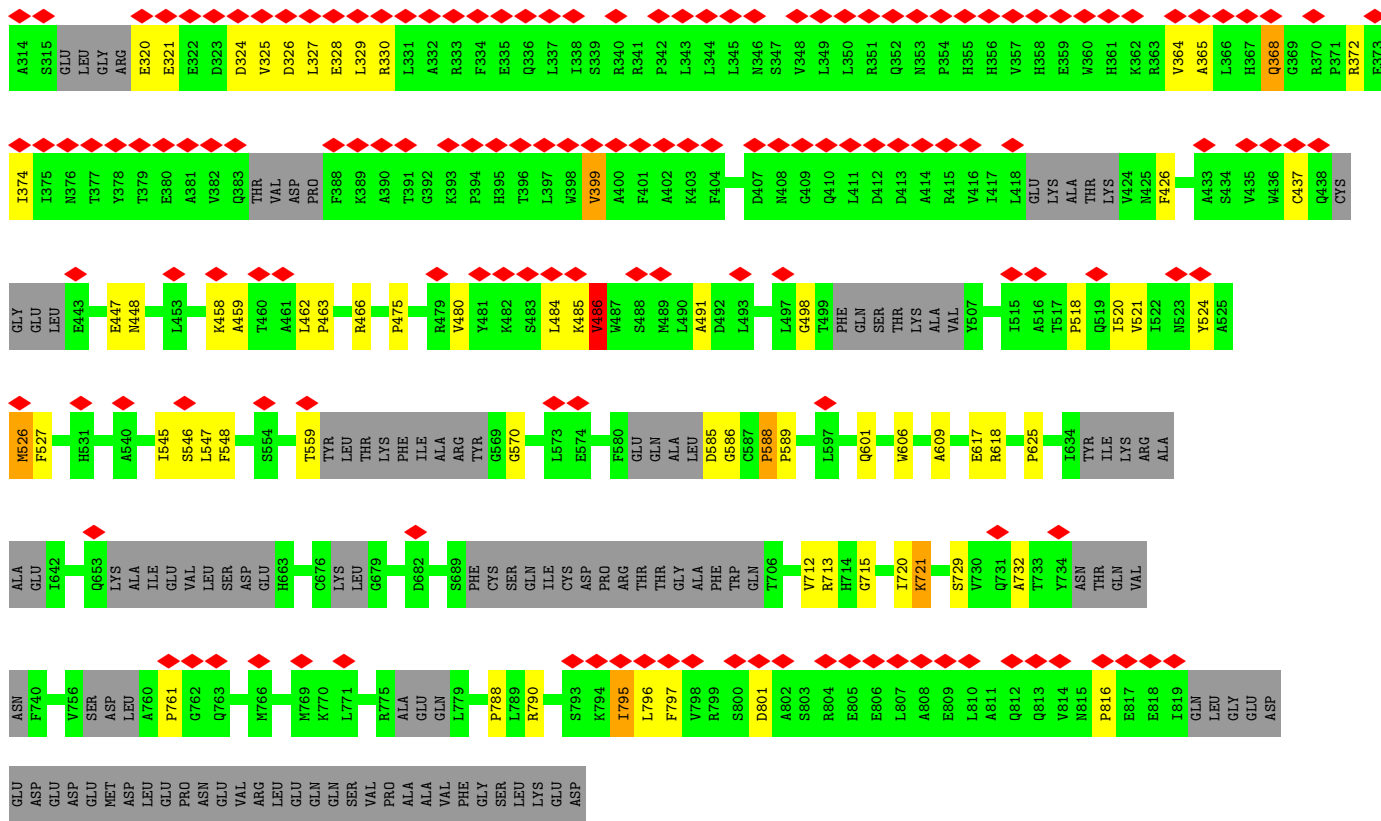
• Molecule 3: 116 kDa U5 small nuclear ribonucleoprotein component



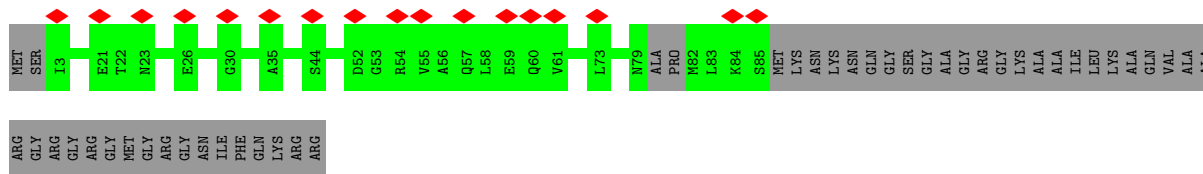


● Molecule 7: Cell division cycle 5-like protein

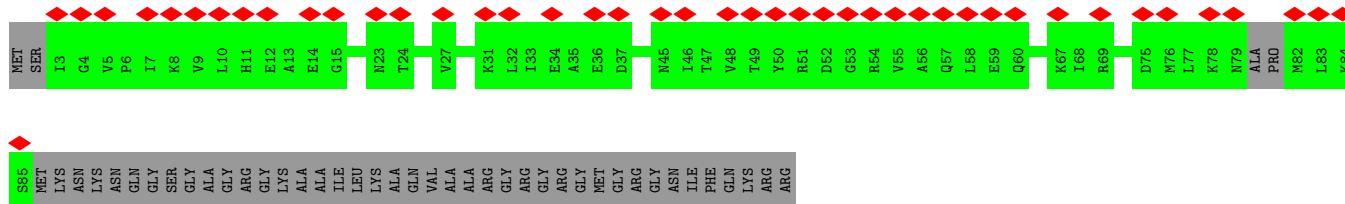




• Molecule 20: Small nuclear ribonucleoprotein Sm D3

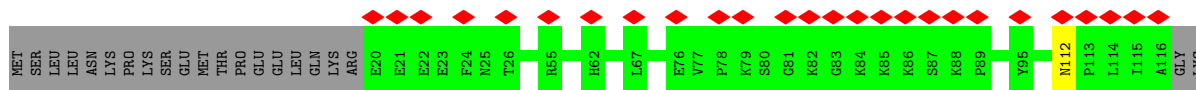
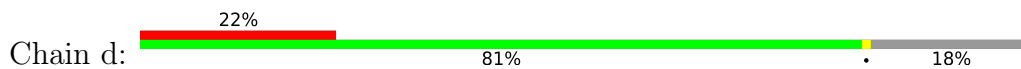


• Molecule 20: Small nuclear ribonucleoprotein Sm D3

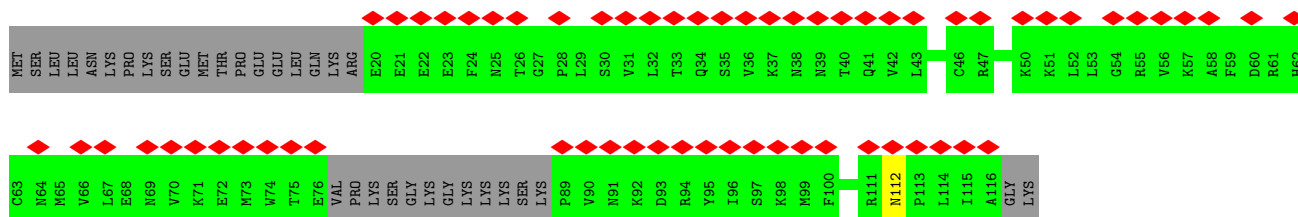


• Molecule 21: Small nuclear ribonucleoprotein-associated protein

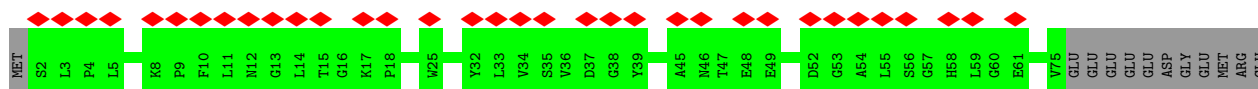
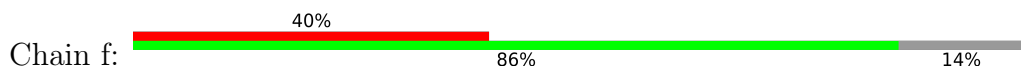




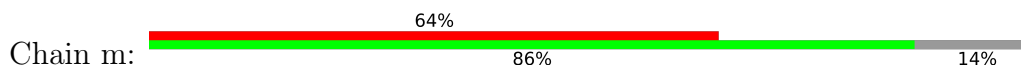
• Molecule 23: Small nuclear ribonucleoprotein Sm D2



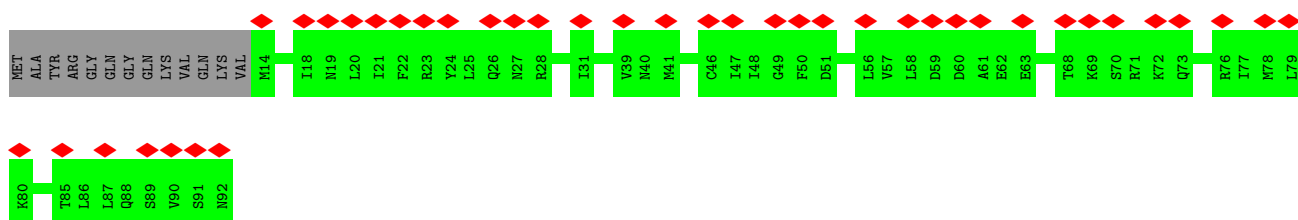
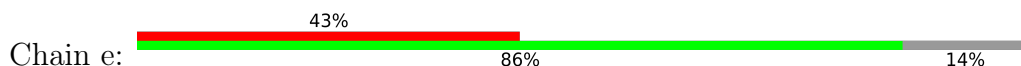
• Molecule 24: Small nuclear ribonucleoprotein F



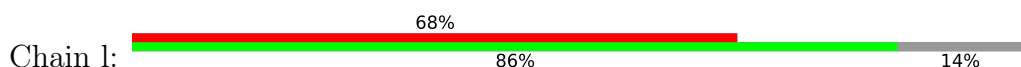
• Molecule 24: Small nuclear ribonucleoprotein F



• Molecule 25: Small nuclear ribonucleoprotein E



• Molecule 25: Small nuclear ribonucleoprotein E



P781	H782	H783	H784	P785	H786	H787	H788	P789	H790	P791	H792	H793	H794	H795	H796	H797	H798	H799	I800	H801	H802	H803	H804	H805	H806	H807	H808	H809	H810	H811	H812	H813	H814	H815	H816	H817	H818	H819	H820	H821	H822	H823	H824	H825	H826	H827	H828	H829	H830	H831	H832	H833	H834	H835	H836	H837	H838	H839	H840	H841	H842	H843	H844	H845	H846	H847	H848	H849	H850	H851	H852	H853	H854	H855	H856	H857	H858	H859	H860	H861	H862	H863	H864	H865	H866	H867	H868	H869	H870	H871	H872	H873	H874	H875	H876	H877	H878	H879	H880	H881	H882	H883	H884	H885	H886	H887	H888	H889	H890	H891	H892	H893	H894	H895	H896	H897	H898	H899	H900	H901	H902	H903	H904	H905	H906	H907	H908	H909	H910	H911	H912	H913	H914	H915	H916	H917	H918	H919	H920	H921	H922	H923	H924	H925	H926	H927	H928	H929	H930	H931	H932	H933	H934	H935	H936	H937	H938	H939	H940	H941	H942	H943	H944	H945	H946	H947	H948	H949	H950	H951	H952	H953	H954	H955	H956	H957	H958	H959	H960	H961	H962	H963	H964	H965	H966	H967	H968	H969	H970	H971	H972	H973	H974	H975	H976	H977	H978	H979	H980	H981	H982	H983	H984	H985	H986	H987	H988	H989	H990	H991	H992	H993	H994	H995	H996	H997	H998	H999	I1000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
I461	R462	Q463	S464	L465	E466	D467	F468	G469	H470	I471	L472	K473	M474	N475	P476	Q477	R478	S479	T480	V481	W482	X483	Y484	Z485	G500	G501	V502	F503	F504	G505	G506	W507	A508	R509	P510	M511	Q512	P513	I514	V515	A516	F517	T518	V519	V520	E521	A522	A523	K524	P525	N526	I527	G528	E529	N530	W531	P532	T533	R534	V535	R536	A537	D538	V539	T540	R481	R482	Q483	S484	L485	E486	D487	F488	G489	H490	I491	L492	K493	M494	N495	P496	Q497	R498	S499	T500	V501	W502	X503	Y504	Z505	G506	G507	V508	F509	F510	G511	G512	W513	A514	R515	P516	M517	Q518	P519	I520	V521	A522	F523	T524	V525	A526	F527	T528	V529	A530	F531	T532	V533	A534	F535	T536	V537	A538	F539	T540	V541	A542	F543	T544	V545	A546	F547	T548	V549	A550	F551	T552	V553	A554	F555	T556	V557	A558	F559	T560	V561	A562	F563	T564	V565	A566	F567	T568	V569	A570	F571	T572	V573	A574	F575	T576	V577	A578	F579	T580	V581	A582	F583	T584	V585	A586	F587	T588	V589	A590	F591	T592	V593	A594	F595	T596	V597	A598	F599	T600	V601	A602	F603	T604	V605	A606	F607	T608	V609	A610	F611	T612	V613	A614	F615	T616	V617	A618	F619	T620	V621	A622	F623	T624	V625	A626	F627	T628	V629	A630	F631	T632	V633	A634	F635	T636	V637	A638	F639	T640	V641	A642	F643	T644	V645	A646	F647	T648	V649	A650	F651	T652	V653	A654	F655	T656	V657	A658	F659	T660	V661	A662	F663	T664	V665	A666	F667	T668	V669	A670	F671	T672	V673	A674	F675	T676	V677	A678	F679	T680	V681	A682	F683	T684	V685	A686	F687	T688	V689	A690	F691	T692	V693	A694	F695	T696	V697	A698	F699	T700	V701	A702	F703	T704	V705	A706	F707	T708	V709	A710	F711	T712	V713	A714	F715	T716	V717	A718	F719	T720	V721	A722	F723	T724	V725	A726	F727	T728	V729	A730	F731	T732	V733	A734	F735	T736	V737	A738	F739	T740	V741	A742	F743	T744	V745	A746	F747	T748	V749	A750	F751	T752	V753	A754	F755	T756	V757	A758	F759	T760	V761	A762	F763	T764	V765	A766	F767	T768	V769	A770	F771	T772	V773	A774	F775	T776	V777	A778	F779	T780	V781	A782	F783	T784	V785	A786	F787	T788	V789	A790	F791	T792	V793	A794	F795	T796	V797	A798	F799	T800	V801	A802	F803	T804	V805	A806	F807	T808	V809	A810	F811	T812	V813	A814	F815	T816	V817	A818	F819	T820	V821	A822	F823	T824	V825	A826	F827	T828	V829	A830	F831	T832	V833	A834	F835	T836	V837	A838	F839	T840	V841	A842	F843	T844	V845	A846	F847	T848	V849	A850	F851	T852	V853	A854	F855	T856	V857	A858	F859	T860	V861	A862	F863	T864	V865	A866	F867	T868	V869	A870	F871	T872	V873	A874	F875	T876	V877	A878	F879	T880	V881	A882	F883	T884	V885	A886	F887	T888	V889	A890	F891	T892	V893	A894	F895	T896	V897	A898	F899	T900	V901	A902	F903	T904	V905	A906	F907	T908	V909	A910	F911	T912	V913	A914	F915	T916	V917	A918	F919	T920	V921	A922	F923	T924	V925	A926	F927	T928	V929	A930	F931	T932	V933	A934	F935	T936	V937	A938	F939	T940	V941	A942	F943	T944	V945	A946	F947	T948	V949	A950	F951	T952	V953	A954	F955	T956	V957	A958	F959	T960	V961	A962	F963	T964	V965	A966	F967	T968	V969	A970	F971	T972	V973	A974	F975	T976	V977	A978	F979	T980	V981	A982	F983	T984	V985	A986	F987	T988	V989	A990	F991	T992	V993	A994	F995	T996	V997	A998	F999	T1000	V1001	A1002	F1003	T1004	V1005	A1006	F1007	T1008	V1009	A1010	F1011	T1012	V1013	A1014	F1015	T1016	V1017	A1018	F1019	T1020	V1021	A1022	F1023	T1024	V1025	A1026	F1027	T1028	V1029	A1030	F1031	T1032	V1033	A1034	F1035	T1036	V1037	A1038	F1039	T1040	V1041	A1042	F1043	T1044	V1045	A1046	F1047	T1048	V1049	A1050	F1051	T1052	V1053	A1054	F1055	T1056	V1057	A1058	F1059	T1060	V1061	A1062	F1063	T1064	V1065	A1066	F1067	T1068	V1069	A1070	F1071	T1072	V1073	A1074	F1075	T1076	V1077	A1078	F1079	T1080	V1081	A1082	F1083	T1084	V1085	A1086	F1087	T1088	V1089	A1090	F1091	T1092	V1093	A1094	F1095	T1096	V1097	A1098	F1099	T1100	V1101	A1102	F1103	T1104	V1105	A1106	F1107	T1108	V1109	A1110	F1111	T1112	V1113	A1114	F1115	T1116	V1117	A1118	F1119	T1120	V1121	A1122	F1123	T1124	V1125	A1126	F1127	T1128	V1129	A1130	F1131	T1132	V1133	A1134	F1135	T1136	V1137	A1138	F1139	T1140	V1141	A1142	F1143	T1144	V1145	A1146	F1147	T1148	V1149	A1150	F1151	T1152	V1153	A1154	F1155	T1156	V1157	A1158	F1159	T1160	V1161	A1162	F1163	T1164	V1165	A1166	F1167	T1168	V1169	A1170	F1171	T1172	V1173	A1174	F1175	T1176	V1177	A1178	F1179	T1180	V1181	A1182	F1183	T1184	V1185	A1186	F1187	T1188	V1189	A1190	F1191	T1192	V1193	A1194	F1195	T1196	V1197	A1198	F1199	T1200	V1201	A1202	F1203	T1204	V1205	A1206	F1207	T1208	V1209	A1210	F1211	T1212	V1213	A1214	F1215	T1216	V1217	A1218	F1219	T1220	V1221	A1222	F1223	T1224	V1225	A1226	F1227	T1228	V1229	A1230	F1231	T1232	V1233	A1234	F1235	T1236	V1237	A1238	F1239	T1240	V1241	A1242	F1243	T1244	V1245	A1246	F1247	T1248	V1249	A1250	F1251	T1252	V1253	A1254	F1255	T1256	V1257	A1258	F1259	T1260	V1261	A1262	F1263	T1264	V1265	A1266	F1267	T1268	V1269	A1270	F1271	T1272	V1273	A1274	F1275	T1276	V1277	A1278	F1279	T1280	V1281	A1282	F1283	T1284	V1285	A1286	F1287	T1288	V1289	A1290	F1291	T1292	V1293	A1294	F1295	T1296	V1297	A1298	F1299	T1300	V1301	A1302	F1303	T1304	V1305	A1306	F1307	T1308	V1309	A1310	F1311	T1312	V1313	A1314	F1315	T1316	V1317	A1318	F1319	T1320	V1321	A1322	F1323	T1324	V1325	A1326	F1327	T1328	V1329	A1330	F1331	T1332	V1333	A1334	F1335	T1336	V1337	A1338	F1339	T1340	V1341	A1342	F1343	T1344	V1345	A1346	F1347	T1348	V1349	A1350	F1351	T1352	V1353	A1354	F1355	T1356	V1357	A1358	F1359	T1360	V1361	A1362	F1363	T1364	V1365	A1366	F1367	T1368	V1369	A1370	F1371	T1372	V1373	A1374	F1375	T1376	V1377	A1378	F1379	T1380	V1381	A1382	F1383	T1384	V1385	A1386	F1387	T1388	V1389	A1390	F1391	T1392	V1393	A1394	F1395	T1396	V1397	A1398	F1399	T1400	V1401	A1402	F1403	T1404	V1405	A1406	F1407	T1408	V1409	A1410	F1411	T1412	V1413	A1414	F1415	T1416	V1417	A1418	F1419	T1420	V1421	A1422	F1423	T1424	V1425	A1426	F1427	T1428	V1429	A1430	F1431	T1432	V1433	A1434	F1435	T1436	V1437	A1438	F1439	T1440	V1441	A1442	F1443	T1444	V1445	A1446	F1447	T1448	V1449	A1450	F1451	T1452	V1453	A1454	F1455	T1456	V1457	A1458	F1459	T1460	V1461	A1462	F1463	T1464	V1465	A1466	F1467	T1468	V1469	A1470	F1471	T1472	V1473	A1474	F1475	T1476	V1477	A1478	F1479	T1480	V1481	A1482	F1483	T1484	V1485	A1486	F1487	T1488	V1489	A1490	F1491	T1492	V1493	A1494	F1495	T1496	V1497	A1498	F1499	T1500	V1501	A1502	F1503	T1504	V1505	A1506	F1507	T1508	V1509	A1510	F1511	T1512	V1513	A1514	F1515	T1516	V1517	A1518	F1519	T1520	V1521	A1522	F1523	T1524	V1525	A1526	F1527	T1528	V1529	A1530	F1531	T1532	V1533	A1534	F1535	T1536	V1537	A1538	F1539	T1540	V1541	A1542	F1543	T1544	V1545	A1546	F1547	T1548	V1549	A1550	F1551	T1552	V1553	A1554	F1555	T1556	V1557	A1558	F1559	T1560	V1561	A1562	F1563	T1564	V1565	A1566	F1567	T1568	V1569	A1570	F1571	T1572	V1573	A1574	F1575	T1576	V1577	A1578	F1579	T1580	V1581	A1582	F1583	T1584	V1585	A1586	F1587	T1588	V1589	A1590	F1591	T1592	V1593	A1594	F1595	T1596	V1597	A1598	F1599	T1600	V1601	A1602	F1603	T1604	V1605	A1606	F1607	T1608	V1609	A1610	F1611	T1612	V1613	A1614	F1615	T1616	V1617	A1618	F1619	T1620	V1621	A1622	F1623	T1624	V1625	A1626	F1627	T1628	V1629	A1630	F1631	T1632	V1633	A1634	F1635	T1636	V1637	A1638	F1639	T164

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	390072	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	45	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.543	Depositor
Minimum map value	-0.239	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.009	Depositor
Recommended contour level	0.025	Depositor
Map size (\AA)	535.2, 535.2, 535.2	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.338, 1.338, 1.338	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: IHP, ZN, GTP, SEP, MG

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	0.41	0/16926	0.64	9/22947 (0.0%)
2	B	0.54	1/2296 (0.0%)	1.09	15/3569 (0.4%)
3	C	0.33	0/7181	0.65	3/9758 (0.0%)
4	E	0.32	0/2420	0.64	1/3281 (0.0%)
5	F	0.64	0/2323	1.14	11/3619 (0.3%)
6	J	0.43	0/3802	0.59	6/5162 (0.1%)
7	L	0.35	0/3267	0.61	9/4418 (0.2%)
8	M	0.33	0/1119	0.59	1/1497 (0.1%)
9	N	0.99	6/1210 (0.5%)	0.74	0/1622
10	O	0.39	0/2390	0.62	3/3227 (0.1%)
11	P	0.36	0/1000	0.58	0/1330
12	R	0.38	0/2186	0.71	4/2937 (0.1%)
13	S	0.33	0/1268	0.61	2/1714 (0.1%)
14	T	0.55	1/2562 (0.0%)	0.74	0/3492
15	W	0.47	0/3038	0.72	3/4171 (0.1%)
16	G	0.74	5/1378 (0.4%)	1.46	31/2133 (1.5%)
17	H	0.81	20/3308 (0.6%)	1.37	64/5135 (1.2%)
18	U	0.37	0/2928	0.71	4/3928 (0.1%)
19	I	0.34	0/2803	0.58	11/3870 (0.3%)
20	a	0.47	0/397	0.62	0/549
20	h	0.47	0/396	0.61	0/547
21	b	0.51	0/423	0.72	0/587
21	i	0.50	0/423	0.73	0/587
22	c	0.57	0/405	0.73	0/563
22	j	0.57	0/405	0.73	0/563
23	d	0.69	0/479	0.85	0/666
23	k	0.70	0/420	0.85	0/583
24	f	0.75	0/360	0.81	0/497
24	m	0.75	0/360	0.81	0/497
25	e	0.65	0/390	0.80	0/542
25	l	0.64	0/390	0.80	0/542
26	g	0.54	0/362	0.71	0/501

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
26	n	0.53	0/327	0.72	0/451
27	q	0.35	0/658	0.58	3/919 (0.3%)
27	r	0.33	0/653	0.56	2/912 (0.2%)
27	s	0.26	0/334	0.37	0/466
27	t	0.31	0/334	0.38	0/466
28	K	0.39	1/753 (0.1%)	0.53	3/1046 (0.3%)
29	o	0.64	0/803	1.49	5/1119 (0.4%)
30	p	0.62	0/463	1.27	0/643
31	Q	0.21	0/6565	0.42	0/9143
32	y	0.25	0/389	0.62	0/540
All	All	0.46	34/79894 (0.0%)	0.76	190/110739 (0.2%)

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
1	A	0	16
3	C	0	6
4	E	0	1
5	F	0	1
6	J	0	1
9	N	0	1
12	R	0	8
14	T	0	5
15	W	0	3
16	G	0	5
17	H	0	1
18	U	0	6
23	d	0	1
23	k	0	1
All	All	0	56

All (34) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	N	137	CYS	CB-SG	-11.04	1.63	1.82
9	N	119	CYS	CB-SG	-8.86	1.67	1.82
9	N	142	CYS	CB-SG	-8.41	1.68	1.82
9	N	101	CYS	CB-SG	-8.37	1.68	1.82
17	H	77	C	C1'-N1	7.34	1.59	1.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
14	T	306	CYS	CB-SG	-7.20	1.70	1.82
17	H	74	U	C1'-N1	6.92	1.59	1.48
17	H	91	U	C1'-N1	6.90	1.59	1.48
17	H	92	U	C1'-N1	6.88	1.59	1.48
16	G	5	G	N3-C4	6.87	1.40	1.35
2	B	103	G	C1'-N9	-6.87	1.37	1.46
17	H	60	U	C1'-N1	6.87	1.59	1.48
17	H	72	U	C1'-N1	6.86	1.59	1.48
17	H	58	U	C1'-N1	6.84	1.59	1.48
17	H	89	U	C1'-N1	6.77	1.58	1.48
9	N	102	CYS	CB-SG	-6.64	1.71	1.82
17	H	35	A	O3'-P	-6.51	1.53	1.61
17	H	97	G	C1'-N9	-6.44	1.37	1.46
17	H	84	C	C1'-N1	6.32	1.58	1.48
17	H	73	C	C1'-N1	6.32	1.58	1.48
17	H	78	C	C1'-N1	6.29	1.58	1.48
17	H	71	C	C1'-N1	6.20	1.58	1.48
17	H	148	C	C1'-N1	6.20	1.58	1.48
17	H	67	C	C1'-N1	6.12	1.57	1.48
16	G	137	C	C1'-N1	5.96	1.57	1.48
9	N	117	CYS	CB-SG	-5.47	1.73	1.81
16	G	139	U	C1'-N1	5.41	1.56	1.48
17	H	41	U	C1'-N1	5.40	1.56	1.48
17	H	37	U	C1'-N1	5.38	1.56	1.48
16	G	134	U	C1'-N1	5.37	1.56	1.48
16	G	136	U	C1'-N1	5.37	1.56	1.48
17	H	39	U	C1'-N1	5.37	1.56	1.48
17	H	43	U	C1'-N1	5.34	1.56	1.48
28	K	186	VAL	CA-CB	-5.12	1.44	1.54

All (190) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	G	147	C	O5'-P-OP1	-13.09	93.92	105.70
16	G	5	G	N3-C4-C5	-12.87	122.16	128.60
16	G	17	U	N1-C2-O2	9.52	129.47	122.80
16	G	2	U	N1-C1'-C2'	9.23	126.00	114.00
16	G	17	U	N3-C2-O2	-8.73	116.09	122.20
2	B	38	C	N1-C2-O2	8.71	124.12	118.90
18	U	809	ASP	CB-CG-OD1	8.45	125.90	118.30
16	G	17	U	C2-N1-C1'	8.36	127.73	117.70
16	G	1	G	N3-C4-C5	-8.32	124.44	128.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	G	4	A	N1-C6-N6	-8.15	113.71	118.60
16	G	142	U	O4'-C1'-N1	7.76	114.41	108.20
16	G	7	G	C6-C5-N7	-7.74	125.76	130.40
2	B	38	C	C2-N1-C1'	7.63	127.19	118.80
1	A	1109	LEU	CA-CB-CG	7.46	132.46	115.30
2	B	38	C	N3-C2-O2	-7.38	116.73	121.90
16	G	7	G	C4-C5-C6	-7.36	114.39	118.80
12	R	132	LEU	CA-CB-CG	7.34	132.18	115.30
5	F	26	U	N3-C2-O2	-7.31	117.08	122.20
15	W	278	LYS	CB-CA-C	-7.31	95.78	110.40
17	H	77	C	OP2-P-O3'	7.28	121.21	105.20
18	U	792	SER	C-N-CA	7.28	139.89	121.70
17	H	113	G	OP2-P-O3'	7.26	121.17	105.20
17	H	114	A	OP2-P-O3'	7.25	121.15	105.20
17	H	81	G	OP2-P-O3'	7.24	121.12	105.20
17	H	58	U	OP2-P-O3'	7.23	121.11	105.20
17	H	88	A	OP2-P-O3'	7.23	121.11	105.20
17	H	59	A	OP2-P-O3'	7.22	121.08	105.20
17	H	84	C	OP2-P-O3'	7.21	121.07	105.20
17	H	90	A	OP2-P-O3'	7.21	121.07	105.20
17	H	91	U	OP2-P-O3'	7.21	121.07	105.20
17	H	57	A	OP2-P-O3'	7.21	121.07	105.20
17	H	89	U	OP2-P-O3'	7.21	121.05	105.20
17	H	72	U	OP2-P-O3'	7.20	121.05	105.20
17	H	78	C	OP2-P-O3'	7.20	121.05	105.20
17	H	80	A	OP2-P-O3'	7.19	121.03	105.20
17	H	73	C	OP2-P-O3'	7.18	121.01	105.20
17	H	79	G	OP2-P-O3'	7.16	120.94	105.20
17	H	83	A	OP2-P-O3'	7.16	120.94	105.20
17	H	71	C	OP2-P-O3'	7.15	120.94	105.20
17	H	74	U	OP2-P-O3'	7.15	120.93	105.20
17	H	56	A	OP2-P-O3'	7.14	120.92	105.20
16	G	147	C	C2'-C3'-O3'	7.12	125.17	109.50
5	F	61	C	C5-C6-N1	7.12	124.56	121.00
2	B	36	C	N1-C2-O2	7.09	123.15	118.90
16	G	1	G	N3-C4-N9	7.08	130.25	126.00
17	H	82	G	OP2-P-O3'	7.07	120.76	105.20
5	F	52	U	N3-C2-O2	-6.91	117.36	122.20
12	R	268	LEU	CA-CB-CG	6.88	131.12	115.30
2	B	104	C	C2'-C3'-O3'	-6.84	94.44	109.50
17	H	88	A	O3'-P-O5'	-6.84	91.00	104.00
17	H	82	G	O3'-P-O5'	-6.84	91.01	104.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	36	C	C2-N1-C1'	6.83	126.31	118.80
17	H	73	C	O3'-P-O5'	-6.82	91.03	104.00
17	H	78	C	O3'-P-O5'	-6.82	91.04	104.00
17	H	72	U	O3'-P-O5'	-6.81	91.05	104.00
17	H	71	C	O3'-P-O5'	-6.80	91.08	104.00
17	H	80	A	O3'-P-O5'	-6.80	91.08	104.00
17	H	84	C	O3'-P-O5'	-6.80	91.08	104.00
17	H	83	A	O3'-P-O5'	-6.80	91.09	104.00
17	H	113	G	O3'-P-O5'	-6.79	91.09	104.00
1	A	1763	LEU	CA-CB-CG	6.79	130.91	115.30
17	H	57	A	O3'-P-O5'	-6.79	91.10	104.00
17	H	79	G	O3'-P-O5'	-6.79	91.11	104.00
17	H	77	C	O3'-P-O5'	-6.78	91.12	104.00
17	H	59	A	O3'-P-O5'	-6.77	91.13	104.00
17	H	89	U	O3'-P-O5'	-6.77	91.14	104.00
17	H	74	U	O3'-P-O5'	-6.76	91.15	104.00
17	H	81	G	O3'-P-O5'	-6.76	91.16	104.00
17	H	114	A	O3'-P-O5'	-6.75	91.18	104.00
17	H	90	A	O3'-P-O5'	-6.75	91.18	104.00
17	H	56	A	O3'-P-O5'	-6.74	91.20	104.00
17	H	91	U	O3'-P-O5'	-6.73	91.21	104.00
17	H	58	U	O3'-P-O5'	-6.71	91.25	104.00
17	H	155	C	P-O3'-C3'	6.69	127.73	119.70
2	B	20	G	C4-N9-C1'	6.65	135.15	126.50
27	q	46	PRO	N-CA-CB	6.63	111.26	103.30
15	W	279	LYS	N-CA-C	-6.60	93.19	111.00
16	G	1	G	C2-N3-C4	6.58	115.19	111.90
28	K	90	PRO	N-CA-CB	6.58	111.19	103.30
5	F	52	U	N1-C2-O2	6.50	127.35	122.80
27	r	46	PRO	N-CA-CB	6.46	111.05	103.30
17	H	13	C	N1-C2-O2	6.46	122.77	118.90
3	C	758	LEU	CA-CB-CG	6.45	130.14	115.30
16	G	4	A	C6-C5-N7	6.45	136.81	132.30
12	R	171	LEU	CA-CB-CG	6.44	130.12	115.30
27	q	60	PRO	N-CA-CB	6.40	110.98	103.30
16	G	7	G	C4-C5-N7	-6.34	108.26	110.80
28	K	78	PRO	N-CA-CB	6.34	110.91	103.30
19	I	589	PRO	N-CA-CB	6.33	110.90	103.30
16	G	3	A	N9-C1'-C2'	6.32	122.22	114.00
29	o	5	THR	N-CA-CB	-6.29	98.34	110.30
19	I	475	PRO	N-CA-CB	6.23	110.78	103.30
19	I	162	PRO	N-CA-CB	6.19	110.73	103.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	H	30	A	C4'-C3'-O3'	-6.18	96.41	109.40
7	L	558	PRO	N-CA-CB	6.15	110.68	103.30
19	I	177	PRO	N-CA-CB	6.14	110.67	103.30
18	U	818	LEU	CA-CB-CG	6.09	129.30	115.30
7	L	77	LEU	CA-CB-CG	6.07	129.25	115.30
7	L	546	PRO	N-CA-CB	6.06	110.57	103.30
16	G	16	G	P-O3'-C3'	6.03	126.93	119.70
19	I	788	PRO	N-CA-CB	6.03	110.53	103.30
3	C	87	GLN	CA-CB-CG	6.02	126.64	113.40
17	H	32	U	C1'-C2'-O2'	6.01	128.62	110.60
3	C	105	MET	CA-CB-CG	6.00	123.50	113.30
19	I	160	PRO	N-CA-CB	6.00	110.50	103.30
6	J	523	PRO	N-CA-CB	6.00	110.50	103.30
6	J	637	PRO	N-CA-CB	5.96	110.45	103.30
1	A	1467	LEU	CA-CB-CG	5.93	128.93	115.30
7	L	563	PRO	N-CA-CB	5.92	110.40	103.30
17	H	172	C	P-O3'-C3'	5.92	126.80	119.70
27	r	19	PRO	N-CA-CB	5.92	110.40	103.30
7	L	594	PRO	N-CA-CB	5.91	110.39	103.30
27	q	19	PRO	N-CA-CB	5.88	110.36	103.30
17	H	13	C	C2-N1-C1'	5.87	125.25	118.80
19	I	816	PRO	N-CA-CB	5.86	110.33	103.30
6	J	488	PRO	N-CA-CB	5.85	110.32	103.30
29	o	27	ARG	CB-CA-C	-5.83	98.73	110.40
7	L	548	PRO	N-CA-CB	5.83	110.29	103.30
5	F	26	U	C2-N1-C1'	5.82	124.69	117.70
19	I	518	PRO	N-CA-CB	5.81	110.27	103.30
1	A	941	LYS	N-CA-C	5.81	126.68	111.00
10	O	150	LEU	CA-CB-CG	5.81	128.66	115.30
7	L	564	PRO	N-CA-CB	5.79	110.25	103.30
6	J	566	PRO	N-CA-CB	5.77	110.22	103.30
2	B	20	G	C8-N9-C1'	-5.76	119.51	127.00
6	J	522	PRO	N-CA-CB	5.75	110.20	103.30
17	H	35	A	O4'-C1'-N9	5.75	112.80	108.20
17	H	156	U	P-O3'-C3'	-5.73	112.82	119.70
2	B	36	C	N3-C2-O2	-5.73	117.89	121.90
7	L	620	PRO	N-CA-CB	5.71	110.15	103.30
18	U	820	TYR	CA-CB-CG	5.70	124.23	113.40
8	M	168	LEU	CA-CB-CG	5.68	128.38	115.30
17	H	13	C	C6-N1-C2	-5.68	118.03	120.30
2	B	20	G	O4'-C1'-N9	5.68	112.75	108.20
16	G	142	U	C4'-C3'-O3'	5.67	124.35	113.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	R	86	LEU	CA-CB-CG	5.67	128.33	115.30
2	B	47	A	O4'-C1'-N9	5.62	112.70	108.20
16	G	147	C	C5'-C4'-O4'	5.61	115.83	109.10
5	F	52	U	C2-N1-C1'	5.58	124.39	117.70
19	I	588	PRO	N-CA-CB	5.58	109.99	103.30
16	G	4	A	C5-C6-N6	5.57	128.16	123.70
29	o	58	ASP	N-CA-CB	-5.56	100.59	110.60
16	G	17	U	C5-C6-N1	5.55	125.48	122.70
19	I	761	PRO	N-CA-CB	5.53	109.93	103.30
17	H	14	C	N1-C2-O2	5.52	122.21	118.90
5	F	26	U	N1-C2-O2	5.49	126.65	122.80
28	K	93	SER	N-CA-CB	-5.49	102.27	110.50
7	L	123	LEU	CA-CB-CG	5.47	127.89	115.30
19	I	625	PRO	N-CA-CB	5.45	109.84	103.30
17	H	31	G	C3'-C2'-C1'	-5.43	97.15	101.50
16	G	9	C	C5-C6-N1	5.41	123.71	121.00
13	S	27	LEU	CA-CB-CG	5.41	127.73	115.30
16	G	146	C	P-O3'-C3'	-5.41	113.21	119.70
16	G	147	C	OP1-P-OP2	5.41	127.71	119.60
1	A	260	LEU	CA-CB-CG	5.39	127.71	115.30
2	B	38	C	C6-N1-C1'	-5.37	114.36	120.80
13	S	106	ASP	CB-CG-OD1	5.37	123.13	118.30
16	G	6	A	N9-C1'-C2'	5.34	120.95	114.00
2	B	38	C	C6-N1-C2	-5.32	118.17	120.30
29	o	47	ILE	N-CA-CB	5.32	123.03	110.80
17	H	156	U	OP2-P-O3'	5.31	116.87	105.20
16	G	3	A	C2'-C3'-O3'	5.30	122.17	113.70
5	F	50	A	P-O3'-C3'	5.27	126.02	119.70
16	G	146	C	O3'-P-O5'	5.25	113.98	104.00
17	H	13	C	N3-C2-O2	-5.25	118.22	121.90
5	F	45	A	N3-C4-N9	5.24	131.59	127.40
1	A	1305	SER	C-N-CA	5.23	134.77	121.70
2	B	23	C	N1-C2-O2	5.22	122.03	118.90
1	A	1640	SER	C-N-CA	5.21	134.73	121.70
16	G	9	C	C6-N1-C2	-5.21	118.22	120.30
17	H	157	G	P-O5'-C5'	-5.19	112.60	120.90
17	H	156	U	C4'-C3'-C2'	5.18	107.78	102.60
17	H	160	A	P-O5'-C5'	-5.18	112.61	120.90
17	H	157	G	O4'-C1'-N9	-5.18	104.06	108.20
5	F	33	G	P-O3'-C3'	5.14	125.87	119.70
10	O	193	LEU	CA-CB-CG	5.14	127.13	115.30
17	H	176	G	OP1-P-OP2	-5.14	111.89	119.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1304	ASN	C-N-CA	5.11	134.47	121.70
4	E	81	LEU	CA-CB-CG	5.11	127.04	115.30
17	H	160	A	C4'-C3'-C2'	-5.08	97.52	102.60
16	G	17	U	C6-N1-C1'	-5.08	114.09	121.20
2	B	80	U	C2'-C3'-O3'	5.07	121.81	113.70
16	G	141	C	N1-C1'-C2'	5.06	120.58	114.00
6	J	220	LEU	CA-CB-CG	5.06	126.94	115.30
5	F	45	A	C4-N9-C1'	5.04	135.37	126.30
10	O	15	TRP	CA-CB-CG	5.01	123.21	113.70
17	H	13	C	C5-C6-N1	5.01	123.50	121.00
1	A	1303	LEU	C-N-CA	5.00	134.21	121.70
15	W	279	LYS	N-CA-CB	5.00	119.61	110.60
29	o	99	SER	N-CA-CB	-5.00	103.00	110.50

There are no chirality outliers.

All (56) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1019	TYR	Peptide
1	A	107	PRO	Peptide
1	A	1091	TYR	Peptide
1	A	1190	CYS	Peptide
1	A	1305	SER	Peptide
1	A	135	VAL	Peptide
1	A	1366	PRO	Peptide
1	A	1555	LEU	Peptide
1	A	1606	ILE	Peptide
1	A	1638	ASN	Peptide
1	A	1639	VAL	Peptide
1	A	1653	ASP	Peptide
1	A	1763	LEU	Peptide
1	A	1920	TYR	Peptide
1	A	320	TYR	Peptide
1	A	940	ILE	Peptide
3	C	359	LYS	Peptide
3	C	440	SER	Peptide
3	C	559	ILE	Peptide
3	C	560	VAL	Peptide
3	C	823	ALA	Peptide
3	C	93	ILE	Peptide
4	E	192	ASN	Peptide
5	F	41	A	Sidechain

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Mol	Chain	Res	Type	Group
16	G	142	U	Sidechain
16	G	2	U	Sidechain
16	G	5	G	Sidechain
16	G	6	A	Sidechain
16	G	7	G	Sidechain
17	H	33	G	Sidechain
6	J	357	LYS	Peptide
9	N	3	LYS	Peptide
12	R	125	MET	Peptide
12	R	167	ALA	Peptide
12	R	168	ALA	Peptide
12	R	184	GLN	Peptide
12	R	185	GLY	Peptide
12	R	186	VAL	Peptide
12	R	189	ASN	Peptide
12	R	316	GLU	Peptide
14	T	342	GLU	Peptide
14	T	404	SER	Peptide
14	T	405	PHE	Peptide
14	T	495	ALA	Peptide
14	T	497	GLU	Peptide
18	U	542	ASP	Peptide
18	U	578	MET	Peptide
18	U	647	ARG	Peptide
18	U	792	SER	Peptide
18	U	809	ASP	Peptide
18	U	818	LEU	Peptide
15	W	148	VAL	Peptide
15	W	204	ASP	Peptide
15	W	76	VAL	Peptide
23	d	112	ASN	Peptide
23	k	112	ASN	Peptide

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	16477	0	16462	234	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	2060	0	1044	79	0
3	C	7022	0	7047	163	0
4	E	2366	0	2303	70	0
5	F	2075	0	1048	43	0
6	J	3758	0	2888	46	0
7	L	3237	0	2680	38	0
8	M	1098	0	1082	16	0
9	N	1184	0	1189	11	0
10	O	2340	0	2316	45	0
11	P	985	0	965	14	0
12	R	2165	0	2214	36	0
13	S	1236	0	1210	28	0
14	T	2496	0	2446	46	0
15	W	3008	0	1977	60	0
16	G	1246	0	631	212	0
17	H	2968	0	1504	256	0
18	U	2864	0	2814	80	0
19	I	2822	0	1319	64	0
20	a	399	0	173	0	0
20	h	398	0	172	0	0
21	b	424	0	179	0	0
21	i	424	0	179	0	0
22	c	406	0	170	0	0
22	j	406	0	170	0	0
23	d	480	0	200	0	0
23	k	422	0	175	0	0
24	f	361	0	158	0	0
24	m	361	0	158	0	0
25	e	391	0	163	0	0
25	l	391	0	163	0	0
26	g	363	0	160	0	0
26	n	329	0	138	0	0
27	q	659	0	296	0	0
27	r	654	0	294	0	0
27	s	335	0	168	0	0
27	t	335	0	168	0	0
28	K	757	0	338	18	0
29	o	804	0	350	0	0
30	p	464	0	205	0	0
31	Q	6562	0	2836	2	0
32	y	390	0	190	0	0
33	A	36	0	6	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
34	C	32	0	12	22	0
35	C	1	0	0	0	0
35	F	6	0	0	0	0
36	N	3	0	0	0	0
36	O	3	0	0	0	0
36	U	1	0	0	0	0
All	All	78004	0	60360	1359	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 11.

All (1359) 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)
19:I:437:CYS:CB	19:I:447:GLU:CB	1.98	1.42
5:F:44:G:N2	16:G:3:A:C2	1.84	1.38
18:U:546:VAL:HG21	18:U:665:HIS:CE1	1.56	1.38
5:F:44:G:N2	16:G:3:A:H2	1.14	1.36
5:F:41:A:N6	16:G:6:A:H61	1.17	1.34
17:H:34:U:H2'	17:H:35:A:C8	1.66	1.28
4:E:55:LEU:HD11	4:E:341:ILE:CD1	1.62	1.27
16:G:148:U:N3	17:H:30:A:N1	1.79	1.27
5:F:41:A:H61	16:G:6:A:N6	1.31	1.26
1:A:532:THR:OG1	16:G:3:A:C5'	1.84	1.25
17:H:153:A:H2'	17:H:154:C:C5'	1.70	1.21
16:G:151:C:H2'	16:G:152:C:C6	1.74	1.21
16:G:133:A:O2'	16:G:134:U:C6	1.86	1.21
17:H:179:C:O2'	17:H:180:G:H5'	1.44	1.18
19:I:462:LEU:CB	19:I:466:ARG:CB	2.21	1.17
19:I:790:ARG:CB	19:I:801:ASP:CB	2.23	1.16
16:G:143:U:O4	17:H:34:U:N3	1.77	1.15
1:A:861:ARG:NH1	17:H:29:A:H5'	1.59	1.15
19:I:364:VAL:C	19:I:372:ARG:CB	2.16	1.14
1:A:532:THR:HB	16:G:3:A:H3'	1.14	1.13
6:J:773:ARG:CB	6:J:790:THR:CB	2.26	1.13
3:C:139:HIS:HA	34:C:1500:GTP:O3B	1.45	1.13
4:E:61:LEU:HD13	4:E:352:TYR:CZ	1.83	1.13
1:A:532:THR:OG1	16:G:3:A:H5'	1.41	1.12
1:A:532:THR:HB	16:G:3:A:C3'	1.78	1.12
17:H:156:U:H6	17:H:156:U:H5''	1.10	1.12
17:H:179:C:C2'	17:H:180:G:H5'	1.80	1.11

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1512:SER:OG	16:G:148:U:OP2	1.68	1.11
5:F:44:G:N1	16:G:3:A:N1	1.99	1.10
16:G:151:C:C2	16:G:152:C:C5	2.38	1.10
2:B:74:U:H5	2:B:76:A:N6	1.49	1.10
17:H:179:C:H2'	17:H:180:G:H8	1.13	1.10
3:C:142:LYS:HG3	3:C:228:PHE:CD2	1.86	1.10
17:H:153:A:H2'	17:H:154:C:H5'	1.15	1.09
17:H:35:A:O2'	17:H:36:G:C8	2.04	1.08
5:F:43:A:H2	16:G:4:A:N1	1.48	1.08
16:G:132:G:P	16:G:133:A:OP1	2.12	1.08
18:U:550:ARG:HB3	18:U:660:LYS:HD3	1.29	1.08
17:H:153:A:C2'	17:H:154:C:H5'	1.83	1.07
1:A:855:ARG:HH22	1:A:1518:LEU:CD1	1.66	1.07
6:J:658:ARG:HA	6:J:667:ILE:CB	1.85	1.05
16:G:129:G:H4'	16:G:130:A:OP1	1.52	1.05
16:G:145:U:H3	17:H:33:G:N2	1.55	1.05
2:B:11:U:H6	2:B:11:U:H5'	1.18	1.05
4:E:55:LEU:CD1	4:E:341:ILE:CD1	2.35	1.04
1:A:533:LYS:NZ	16:G:5:G:OP2	1.90	1.04
16:G:148:U:O4	17:H:30:A:N6	1.92	1.03
1:A:532:THR:OG1	16:G:3:A:H5''	1.56	1.02
4:E:55:LEU:CD1	4:E:341:ILE:HD13	1.90	1.01
1:A:1517:LYS:HE2	1:A:1517:LYS:HA	1.44	1.00
17:H:54:U:H2'	17:H:55:U:H6	1.24	0.99
19:I:374:ILE:CB	31:Q:357:ALA:HB3	1.91	0.99
18:U:546:VAL:CG2	18:U:665:HIS:CE1	2.45	0.99
6:J:773:ARG:CB	6:J:787:LYS:HA	1.93	0.99
10:O:236:VAL:O	10:O:269:CYS:HA	1.62	0.99
17:H:92:U:H2'	17:H:93:A:C8	1.98	0.98
2:B:74:U:C5	2:B:76:A:N6	2.31	0.98
2:B:66:A:H5''	2:B:67:A:OP2	1.62	0.98
1:A:1522:GLN:HE22	18:U:622:ALA:HB1	1.27	0.97
16:G:151:C:H3'	16:G:152:C:C5	2.00	0.97
17:H:34:U:C2'	17:H:35:A:C8	2.47	0.96
17:H:54:U:O2'	17:H:55:U:H5'	1.66	0.96
16:G:151:C:C2'	16:G:152:C:C5	2.49	0.96
3:C:158:ARG:C	3:C:159:LYS:HD2	1.85	0.96
4:E:55:LEU:HD11	4:E:341:ILE:HD13	0.97	0.95
3:C:139:HIS:HB2	34:C:1500:GTP:H5''	1.48	0.95
6:J:212:GLN:HG2	15:W:508:ALA:HB1	1.49	0.95
17:H:156:U:H5''	17:H:156:U:C6	2.02	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:G:151:C:C4	16:G:152:C:N4	2.34	0.95
5:F:43:A:C2	16:G:4:A:N1	2.35	0.94
17:H:56:A:N6	17:H:92:U:C4	2.35	0.94
11:P:13:ARG:HH21	11:P:13:ARG:HG3	1.32	0.94
16:G:27:U:O2'	16:G:28:A:O5'	1.86	0.94
3:C:143:THR:CG2	34:C:1500:GTP:O1A	2.16	0.94
3:C:143:THR:HG22	34:C:1500:GTP:O1B	1.68	0.93
5:F:41:A:N6	16:G:6:A:N6	1.98	0.93
16:G:151:C:C5	16:G:152:C:N4	2.37	0.93
17:H:70:C:H2'	17:H:71:C:H6	1.33	0.93
16:G:151:C:H2'	16:G:152:C:C5	2.03	0.92
17:H:30:A:O2'	17:H:31:G:OP2	1.86	0.92
16:G:145:U:H3	17:H:33:G:H22	1.09	0.92
1:A:532:THR:CB	16:G:3:A:H3'	1.99	0.92
16:G:132:G:O2'	16:G:133:A:C8	2.22	0.91
17:H:27:U:O2'	17:H:28:C:H5'	1.70	0.91
17:H:34:U:O2'	17:H:35:A:O4'	1.89	0.91
3:C:139:HIS:HB2	34:C:1500:GTP:C5'	2.00	0.91
17:H:179:C:H2'	17:H:180:G:C8	2.05	0.90
3:C:142:LYS:HG3	3:C:228:PHE:HD2	1.31	0.90
17:H:33:G:OP1	18:U:666:ARG:NE	2.04	0.90
16:G:5:G:C2	16:G:6:A:N7	2.40	0.90
17:H:54:U:H2'	17:H:55:U:C6	2.06	0.90
3:C:143:THR:HG22	34:C:1500:GTP:O1A	1.71	0.90
1:A:855:ARG:HH22	1:A:1518:LEU:HD11	1.35	0.90
16:G:27:U:C2'	16:G:28:A:O5'	2.19	0.90
28:K:127:MET:O	28:K:131:GLY:N	2.03	0.90
16:G:151:C:H2'	16:G:152:C:H6	1.32	0.89
19:I:485:LYS:O	19:I:486:VAL:HG13	1.73	0.89
17:H:35:A:O2'	17:H:36:G:H8	1.52	0.89
1:A:861:ARG:HH11	17:H:29:A:H5'	1.38	0.89
1:A:855:ARG:NH2	1:A:1518:LEU:HD11	1.87	0.88
16:G:143:U:O4	17:H:34:U:C4	2.25	0.88
17:H:33:G:P	18:U:666:ARG:HE	1.96	0.88
19:I:448:ASN:CB	19:I:491:ALA:HB1	2.04	0.88
12:R:232:SEP:HB2	12:R:233:PRO:CD	2.02	0.88
16:G:151:C:C2'	16:G:152:C:C6	2.55	0.88
19:I:364:VAL:O	19:I:372:ARG:CB	2.22	0.88
3:C:158:ARG:O	3:C:159:LYS:HD2	1.73	0.88
17:H:109:C:O2'	17:H:110:A:H5'	1.74	0.88
19:I:325:VAL:O	19:I:328:GLU:CB	2.22	0.88

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:11:U:H5'	2:B:11:U:C6	2.07	0.87
19:I:459:ALA:HB1	19:I:498:GLY:O	1.73	0.87
17:H:179:C:C2	17:H:180:G:N7	2.43	0.87
12:R:232:SEP:HB2	12:R:233:PRO:HD2	1.56	0.87
16:G:147:C:N3	17:H:31:G:N1	2.20	0.87
17:H:154:C:O2	17:H:176:G:N2	2.07	0.87
3:C:143:THR:CG2	34:C:1500:GTP:PA	2.63	0.87
19:I:520:ILE:O	19:I:524:TYR:CB	2.23	0.87
1:A:1517:LYS:HA	1:A:1517:LYS:CE	2.00	0.86
19:I:520:ILE:O	19:I:524:TYR:N	2.06	0.86
4:E:62:LEU:HB3	4:E:93:TRP:HZ3	1.41	0.86
16:G:151:C:C2	16:G:152:C:C4	2.63	0.85
16:G:5:G:C5	16:G:6:A:C8	2.64	0.85
1:A:533:LYS:HD2	16:G:4:A:H5''	1.57	0.85
16:G:5:G:C4	16:G:6:A:C8	2.64	0.85
16:G:151:C:C3'	16:G:152:C:C5	2.58	0.85
17:H:156:U:H6	17:H:156:U:C5'	1.88	0.85
16:G:140:A:O2'	16:G:141:C:OP2	1.94	0.85
16:G:151:C:C3'	16:G:152:C:H5	1.89	0.85
16:G:146:C:HO2'	16:G:147:C:P	2.00	0.85
3:C:144:CYS:SG	3:C:165:LEU:HD12	2.17	0.84
18:U:550:ARG:CB	18:U:660:LYS:HD3	2.07	0.84
2:B:80:U:H2'	2:B:80:U:OP1	1.77	0.84
19:I:365:ALA:N	19:I:372:ARG:CB	2.40	0.84
18:U:551:THR:HG22	18:U:664:GLU:OE1	1.78	0.83
19:I:448:ASN:CB	19:I:491:ALA:CB	2.55	0.83
16:G:129:G:C4'	16:G:130:A:OP1	2.25	0.83
3:C:144:CYS:CB	3:C:165:LEU:HD12	2.08	0.83
16:G:133:A:N6	17:H:43:U:O4	2.12	0.83
5:F:41:A:N1	16:G:6:A:N1	2.27	0.83
2:B:66:A:H2'	2:B:67:A:O4'	1.78	0.83
4:E:55:LEU:CD1	4:E:341:ILE:HD11	2.06	0.83
5:F:44:G:C2	16:G:3:A:N1	2.46	0.83
17:H:42:G:H2'	17:H:43:U:C6	2.14	0.82
17:H:153:A:C2'	17:H:154:C:C5'	2.51	0.82
17:H:56:A:N6	17:H:91:U:H3	1.77	0.82
19:I:255:LEU:O	19:I:258:LEU:N	2.12	0.82
1:A:855:ARG:HH22	1:A:1518:LEU:HD12	1.44	0.82
1:A:861:ARG:NH1	17:H:29:A:C5'	2.42	0.82
17:H:179:C:O2'	17:H:180:G:C5'	2.26	0.82
17:H:153:A:H2'	17:H:154:C:H5''	1.62	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:I:521:VAL:O	19:I:527:PHE:CB	2.27	0.82
1:A:861:ARG:HH11	17:H:29:A:C5'	1.93	0.82
3:C:137:HIS:HA	3:C:238:ASN:HB3	1.61	0.82
18:U:546:VAL:HG21	18:U:665:HIS:NE2	1.93	0.82
16:G:133:A:O2'	16:G:134:U:H6	1.59	0.81
1:A:1513:MET:CE	1:A:1517:LYS:HD2	2.11	0.81
3:C:139:HIS:HA	34:C:1500:GTP:PB	2.19	0.81
17:H:70:C:H2'	17:H:71:C:C6	2.15	0.81
16:G:151:C:N1	16:G:152:C:C5	2.49	0.80
1:A:855:ARG:NH2	1:A:1518:LEU:CD1	2.44	0.80
17:H:179:C:C2	17:H:180:G:C8	2.69	0.79
3:C:160:ARG:O	3:C:160:ARG:NH1	2.15	0.79
15:W:277:PRO:CB	15:W:578:TRP:C	2.51	0.79
17:H:27:U:C2'	17:H:28:C:H5'	2.12	0.79
16:G:147:C:O2	17:H:31:G:N2	2.15	0.79
18:U:560:VAL:HG11	18:U:660:LYS:HZ3	1.47	0.79
17:H:50:C:H5''	17:H:50:C:H6	1.48	0.78
1:A:532:THR:CB	16:G:3:A:C5'	2.61	0.78
16:G:5:G:N3	16:G:6:A:C8	2.50	0.78
16:G:132:G:OP2	16:G:133:A:OP1	2.00	0.78
16:G:147:C:N4	17:H:31:G:O6	2.15	0.78
16:G:151:C:H3'	16:G:152:C:H5	1.41	0.78
18:U:550:ARG:HB3	18:U:660:LYS:CD	2.12	0.78
2:B:11:U:H6	2:B:11:U:C5'	1.96	0.78
4:E:61:LEU:CD1	4:E:352:TYR:CE2	2.66	0.78
10:O:159:ARG:HD3	16:G:20:A:OP1	1.84	0.78
4:E:62:LEU:HB3	4:E:93:TRP:CZ3	2.19	0.77
17:H:179:C:O2	17:H:180:G:C8	2.37	0.77
16:G:6:A:N6	16:G:7:G:C6	2.53	0.77
17:H:34:U:H2'	17:H:35:A:N7	2.00	0.77
28:K:126:LEU:O	28:K:130:HIS:N	2.16	0.77
4:E:61:LEU:CD1	4:E:352:TYR:CZ	2.67	0.77
18:U:546:VAL:HG11	18:U:665:HIS:CE1	2.20	0.77
17:H:177:A:H5''	17:H:178:A:OP1	1.84	0.76
2:B:66:A:H3'	2:B:67:A:H5''	1.66	0.76
16:G:145:U:H3	17:H:33:G:H1	1.18	0.76
16:G:132:G:OP1	16:G:133:A:OP1	2.02	0.76
17:H:56:A:H61	17:H:91:U:H3	1.33	0.76
6:J:669:GLN:O	6:J:670:PRO:C	2.21	0.76
16:G:132:G:O2'	16:G:133:A:N7	2.19	0.75
12:R:235:ARG:HG2	12:R:235:ARG:HH11	1.48	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:H:56:A:N6	17:H:92:U:N3	2.35	0.75
1:A:532:THR:CB	16:G:3:A:H5'	2.16	0.75
2:B:8:G:N3	2:B:8:G:H2'	2.00	0.75
2:B:66:A:C5'	2:B:67:A:OP2	2.34	0.75
5:F:20:A:O2'	9:N:120:ARG:NH2	2.21	0.74
1:A:1513:MET:HE2	1:A:1517:LYS:HD2	1.67	0.74
3:C:143:THR:HG23	34:C:1500:GTP:O1A	1.86	0.74
28:K:131:GLY:O	28:K:135:TRP:N	2.21	0.74
16:G:150:U:O2'	16:G:151:C:H5''	1.87	0.74
5:F:41:A:H61	16:G:6:A:H61	0.75	0.74
19:I:720:ILE:O	19:I:721:LYS:CB	2.34	0.74
16:G:145:U:C2	17:H:33:G:N2	2.54	0.74
19:I:545:ILE:O	19:I:547:LEU:N	2.20	0.74
6:J:493:ALA:HB1	6:J:499:ARG:CB	2.18	0.74
17:H:179:C:H2'	17:H:180:G:H5'	1.66	0.74
1:A:1833:LEU:HD13	18:U:668:LEU:HD21	1.70	0.74
4:E:55:LEU:N	4:E:55:LEU:HD13	2.03	0.73
16:G:132:G:OP1	16:G:132:G:H4'	1.88	0.73
6:J:642:SER:CB	6:J:650:GLU:HA	2.17	0.73
1:A:179:ALA:O	1:A:183:LEU:HB2	1.89	0.73
16:G:151:C:N3	16:G:152:C:C4	2.57	0.73
28:K:126:LEU:O	28:K:130:HIS:CB	2.36	0.73
17:H:92:U:H2'	17:H:93:A:H8	1.52	0.73
5:F:41:A:H62	16:G:6:A:H61	1.35	0.73
19:I:545:ILE:C	19:I:547:LEU:H	1.91	0.73
4:E:55:LEU:HD13	4:E:55:LEU:H	1.54	0.72
3:C:137:HIS:O	3:C:207:GLY:O	2.05	0.72
5:F:44:G:C2	16:G:3:A:C2	2.76	0.72
3:C:690:GLU:O	3:C:788:LYS:HB3	1.88	0.72
15:W:491:GLN:O	15:W:493:ARG:N	2.21	0.72
10:O:26:THR:HG21	10:O:159:ARG:HH21	1.55	0.71
2:B:74:U:C5	2:B:76:A:C6	2.77	0.71
17:H:43:U:O2'	17:H:44:U:C6	2.43	0.71
2:B:87:A:N3	2:B:87:A:H3'	2.06	0.71
2:B:96:A:C6	2:B:97:G:C5	2.78	0.71
16:G:145:U:N3	17:H:33:G:N1	2.29	0.71
15:W:277:PRO:CB	15:W:578:TRP:O	2.39	0.71
28:K:120:ARG:O	28:K:124:LEU:N	2.21	0.71
16:G:145:U:O2	17:H:33:G:N2	2.23	0.71
3:C:143:THR:HG22	34:C:1500:GTP:PA	2.27	0.70
17:H:154:C:H2'	17:H:155:C:C6	2.26	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:K:135:TRP:O	28:K:136:LYS:CB	2.38	0.70
3:C:141:GLY:N	34:C:1500:GTP:O2B	2.24	0.70
16:G:27:U:H2'	16:G:28:A:O5'	1.91	0.70
10:O:159:ARG:CG	16:G:20:A:OP1	2.39	0.70
16:G:143:U:C6	16:G:143:U:H5''	2.27	0.70
16:G:147:C:C2	17:H:31:G:N2	2.56	0.70
19:I:585:ASP:O	19:I:588:PRO:N	2.25	0.70
4:E:61:LEU:HD13	4:E:352:TYR:CE2	2.24	0.70
1:A:1811:ASN:HD22	1:A:1816:GLN:HB3	1.55	0.70
4:E:162:ARG:HH21	4:E:203:ASP:HB3	1.56	0.70
6:J:496:ASP:CB	6:J:535:TYR:HA	2.21	0.70
1:A:1522:GLN:NE2	18:U:622:ALA:HB1	2.04	0.70
3:C:139:HIS:CA	34:C:1500:GTP:O3B	2.33	0.70
4:E:259:VAL:HB	4:E:277:PHE:HB2	1.74	0.70
16:G:145:U:N3	17:H:33:G:N2	2.23	0.70
1:A:1570:LYS:HE2	18:U:637:ASP:HB3	1.74	0.69
4:E:266:PRO:HG2	7:L:785:GLN:CB	2.22	0.69
16:G:146:C:O2'	16:G:147:C:P	2.48	0.69
11:P:13:ARG:HG3	11:P:13:ARG:NH2	2.00	0.69
18:U:548:LEU:HD22	18:U:661:ALA:HB1	1.74	0.69
18:U:678:CYS:SG	18:U:765:HIS:HE1	2.15	0.69
1:A:980:ARG:HG2	1:A:1094:ARG:HG2	1.75	0.69
15:W:466:ALA:CB	15:W:512:CYS:O	2.41	0.69
28:K:127:MET:O	28:K:131:GLY:CA	2.41	0.69
10:O:159:ARG:CD	16:G:20:A:OP1	2.41	0.68
1:A:942:PRO:HB2	1:A:1438:VAL:HG22	1.74	0.68
2:B:81:U:O2'	2:B:82:A:OP2	2.11	0.68
16:G:5:G:H4'	16:G:5:G:OP1	1.94	0.68
4:E:55:LEU:O	4:E:55:LEU:HD22	1.94	0.68
6:J:669:GLN:O	6:J:672:LEU:N	2.26	0.68
17:H:55:U:C4	17:H:93:A:N1	2.62	0.68
2:B:10:U:OP2	2:B:10:U:H6	1.78	0.67
5:F:40:U:H3	16:G:7:G:H22	1.42	0.67
10:O:262:THR:HB	10:O:271:PHE:HB2	1.76	0.67
16:G:6:A:C4	16:G:7:G:C8	2.83	0.67
16:G:147:C:N4	17:H:31:G:N1	2.42	0.67
19:I:484:LEU:O	19:I:486:VAL:HG22	1.93	0.67
16:G:147:C:N4	17:H:31:G:H1	1.92	0.67
17:H:166:G:H2'	17:H:166:G:N3	2.09	0.67
19:I:790:ARG:CB	19:I:797:PHE:O	2.42	0.67
15:W:474:LYS:HA	15:W:490:ALA:HB3	1.75	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:U:673:GLU:OE2	18:U:682:SER:HB3	1.95	0.67
3:C:140:HIS:N	34:C:1500:GTP:O2B	2.27	0.67
17:H:34:U:HO2'	17:H:35:A:C1'	2.09	0.67
1:A:1662:ILE:HA	1:A:1701:VAL:O	1.94	0.66
17:H:156:U:C6	17:H:156:U:C5'	2.72	0.66
19:I:790:ARG:CB	19:I:801:ASP:CA	2.74	0.66
18:U:673:GLU:OE1	18:U:673:GLU:HA	1.93	0.66
3:C:144:CYS:SG	3:C:165:LEU:CD1	2.83	0.66
2:B:96:A:O2'	2:B:97:G:H5'	1.95	0.66
3:C:159:LYS:HD2	3:C:159:LYS:N	1.96	0.66
17:H:75:A:H61	17:H:77:C:H42	1.43	0.66
18:U:656:ASN:O	18:U:660:LYS:HE3	1.96	0.66
4:E:90:ILE:HB	4:E:105:LEU:HB2	1.78	0.66
2:B:96:A:C6	2:B:97:G:C6	2.84	0.66
17:H:153:A:C3'	17:H:154:C:H5'	2.24	0.66
17:H:150:U:H6	17:H:150:U:O5'	1.77	0.65
18:U:868:SER:HB2	18:U:872:GLN:H	1.61	0.65
16:G:147:C:N3	17:H:31:G:C2	2.63	0.65
17:H:34:U:O2'	17:H:35:A:C5'	2.44	0.65
18:U:656:ASN:O	18:U:660:LYS:HB3	1.95	0.65
17:H:151:C:H2'	17:H:152:G:C8	2.31	0.65
13:S:56:ILE:HG12	13:S:62:ILE:HG23	1.79	0.65
17:H:57:A:N6	17:H:91:U:N3	2.45	0.65
19:I:448:ASN:CB	19:I:491:ALA:HB2	2.26	0.65
1:A:761:ILE:HD12	1:A:775:ASN:HD22	1.61	0.65
17:H:43:U:O2'	17:H:44:U:C5	2.48	0.65
17:H:67:C:H42	17:H:85:A:H61	1.44	0.65
1:A:1214:TRP:HB2	1:A:1228:CYS:HB3	1.78	0.64
16:G:145:U:O4	17:H:33:G:O6	2.16	0.64
1:A:1629:ILE:HG22	1:A:1662:ILE:HG12	1.79	0.64
15:W:97:ASN:HD21	15:W:100:ARG:HH21	1.45	0.64
19:I:485:LYS:C	19:I:486:VAL:HG22	2.18	0.64
16:G:19:G:O2'	16:G:20:A:H5'	1.98	0.64
2:B:74:U:H5	2:B:76:A:H61	1.45	0.64
19:I:545:ILE:C	19:I:547:LEU:N	2.51	0.64
2:B:76:A:O2'	2:B:77:G:H5''	1.97	0.64
3:C:144:CYS:CA	3:C:165:LEU:HD12	2.27	0.64
16:G:125:C:O2'	16:G:126:C:H2'	1.98	0.64
3:C:678:THR:HG21	3:C:807:GLN:HB3	1.80	0.64
1:A:533:LYS:HD2	16:G:4:A:C5'	2.27	0.63
1:A:855:ARG:CZ	1:A:1518:LEU:HD11	2.28	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:M:165:ASN:HD22	12:R:95:LYS:HA	1.63	0.63
14:T:216:ASN:HD21	14:T:472:GLN:H	1.46	0.63
2:B:9:G:H4'	2:B:9:G:OP1	1.97	0.63
17:H:33:G:OP1	18:U:666:ARG:NH2	2.31	0.63
18:U:560:VAL:HG11	18:U:660:LYS:NZ	2.13	0.63
28:K:127:MET:O	28:K:131:GLY:HA3	1.97	0.63
15:W:264:ASN:O	15:W:267:SER:CB	2.46	0.63
17:H:33:G:P	18:U:666:ARG:NE	2.68	0.63
3:C:160:ARG:HH11	3:C:160:ARG:CG	2.11	0.63
1:A:1839:TRP:NE1	18:U:557:VAL:O	2.31	0.63
3:C:210:ASN:HB3	3:C:636:TYR:HB2	1.80	0.63
14:T:314:ILE:HD12	14:T:324:HIS:HB2	1.80	0.63
17:H:50:C:H5''	17:H:50:C:C6	2.33	0.63
17:H:67:C:H2'	17:H:68:G:H8	1.63	0.63
17:H:154:C:H2'	17:H:155:C:H6	1.62	0.63
1:A:1313:PRO:HG2	1:A:1335:ILE:HG22	1.81	0.63
10:O:15:TRP:HE1	11:P:26:LEU:HB2	1.64	0.63
4:E:219:VAL:HB	4:E:229:TYR:HB2	1.81	0.62
13:S:15:TYR:HB2	13:S:163:TYR:HB2	1.79	0.62
16:G:151:C:C4	16:G:152:C:C4	2.86	0.62
17:H:55:U:H2'	17:H:56:A:H8	1.63	0.62
18:U:539:GLU:OE2	18:U:662:ILE:CG1	2.47	0.62
4:E:158:TYR:OH	4:E:161:ARG:NH1	2.32	0.62
6:J:239:ARG:CG	6:J:239:ARG:HH11	2.12	0.62
12:R:235:ARG:HH11	12:R:235:ARG:CG	2.12	0.62
15:W:463:SER:O	15:W:480:SER:HA	1.98	0.62
1:A:1144:LYS:HE2	1:A:1148:ASN:HD21	1.64	0.62
4:E:274:VAL:HG12	4:E:275:LYS:HG3	1.81	0.62
10:O:233:THR:HA	10:O:272:ILE:O	1.99	0.62
16:G:151:C:C2'	16:G:152:C:H5	2.00	0.62
18:U:620:ARG:NH2	18:U:643:LYS:O	2.33	0.62
6:J:741:THR:O	6:J:745:CYS:CB	2.47	0.62
6:J:228:ARG:NH2	6:J:257:GLU:OE1	2.32	0.62
7:L:764:PRO:O	7:L:765:ARG:CB	2.48	0.62
16:G:143:U:C4	17:H:34:U:N3	2.49	0.62
19:I:559:THR:CB	19:I:570:GLY:HA3	2.30	0.62
1:A:610:HIS:NE2	33:A:3000:IHP:O33	2.31	0.62
3:C:523:GLN:NE2	3:C:525:CYS:SG	2.73	0.62
1:A:1809:ILE:HB	1:A:1818:PHE:HB2	1.80	0.62
1:A:1838:LYS:HG2	1:A:1871:PRO:HG2	1.82	0.62
16:G:145:U:O4	17:H:33:G:C6	2.53	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:U:663:ALA:HA	18:U:666:ARG:NH1	2.14	0.62
10:O:240:GLY:HA3	10:O:296:ARG:HH12	1.63	0.62
10:O:34:ILE:HB	12:R:197:ILE:HG12	1.81	0.61
18:U:576:ARG:HH22	18:U:647:ARG:HD3	1.65	0.61
18:U:658:ARG:O	18:U:662:ILE:HB	1.99	0.61
16:G:144:A:H4'	16:G:145:U:H3'	1.82	0.61
17:H:112:G:H2'	17:H:113:G:H8	1.65	0.61
6:J:658:ARG:CA	6:J:667:ILE:CB	2.71	0.61
16:G:4:A:H8	16:G:4:A:OP1	1.84	0.61
16:G:6:A:C5	16:G:7:G:N7	2.69	0.61
19:I:399:VAL:HG13	19:I:399:VAL:O	2.00	0.61
19:I:795:ILE:HG22	19:I:795:ILE:O	1.99	0.61
17:H:54:U:C4	17:H:93:A:N1	2.69	0.61
3:C:157:ILE:HG23	3:C:158:ARG:HG2	1.83	0.61
17:H:148:C:C2'	17:H:149:A:H5'	2.30	0.61
19:I:365:ALA:HA	19:I:372:ARG:CB	2.31	0.61
1:A:113:ILE:HG21	9:N:6:ARG:HE	1.66	0.61
1:A:199:GLU:O	1:A:240:ARG:NH2	2.33	0.61
1:A:532:THR:HB	16:G:3:A:C4'	2.30	0.61
10:O:92:LEU:HD11	10:O:151:ALA:HA	1.82	0.61
10:O:182:ARG:NH1	10:O:184:GLU:OE2	2.34	0.61
15:W:280:GLN:HA	15:W:577:LEU:O	2.00	0.61
15:W:290:GLY:CA	15:W:571:TRP:O	2.49	0.61
6:J:241:VAL:HG12	6:J:241:VAL:O	2.00	0.61
13:S:83:GLU:HA	13:S:106:ASP:HB2	1.82	0.61
16:G:6:A:C6	16:G:7:G:C4	2.89	0.61
16:G:147:C:N4	17:H:31:G:C6	2.56	0.61
19:I:365:ALA:CA	19:I:372:ARG:CB	2.79	0.61
1:A:382:GLU:HA	3:C:354:ARG:HH12	1.65	0.60
6:J:293:ASN:ND2	7:L:226:ASP:O	2.34	0.60
8:M:166:SER:O	13:S:141:ARG:NH2	2.34	0.60
15:W:491:GLN:CB	16:G:136:U:OP2	2.49	0.60
16:G:143:U:O4	17:H:34:U:O4	2.19	0.60
17:H:179:C:N3	17:H:180:G:N7	2.49	0.60
3:C:160:ARG:HH11	3:C:160:ARG:CB	2.14	0.60
3:C:160:ARG:HB3	3:C:164:ASP:HB2	1.83	0.60
3:C:618:THR:HB	3:C:630:LEU:HB2	1.82	0.60
1:A:1513:MET:HE3	1:A:1517:LYS:HD2	1.82	0.60
5:F:49:G:OP1	7:L:33:ARG:NH2	2.34	0.60
10:O:72:GLN:OE1	10:O:82:GLN:NE2	2.34	0.60
14:T:393:ASP:OD1	14:T:393:ASP:N	2.34	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:W:531:LYS:CB	15:W:546:PHE:O	2.50	0.60
17:H:157:G:H8	17:H:157:G:H5''	1.65	0.60
3:C:165:LEU:O	3:C:165:LEU:HD23	2.01	0.60
4:E:340:PRO:HB2	4:E:356:ILE:HB	1.84	0.60
17:H:34:U:O2'	17:H:35:A:C1'	2.48	0.60
19:I:374:ILE:CB	31:Q:357:ALA:CB	2.75	0.60
1:A:1371:TYR:OH	1:A:1473:ASP:OD2	2.17	0.60
18:U:551:THR:HG22	18:U:664:GLU:CD	2.21	0.60
2:B:11:U:H2'	2:B:12:U:O4'	2.02	0.60
16:G:26:U:H2'	16:G:27:U:H5''	1.82	0.60
6:J:669:GLN:O	6:J:671:ARG:N	2.34	0.60
1:A:82:ARG:NH2	16:G:14:A:OP2	2.35	0.59
1:A:695:ASP:OD2	14:T:376:ARG:NH2	2.35	0.59
7:L:123:LEU:HD13	7:L:124:LYS:H	1.67	0.59
15:W:290:GLY:HA3	15:W:571:TRP:HA	1.84	0.59
2:B:10:U:OP2	2:B:10:U:H2'	2.03	0.59
3:C:147:ASP:OD1	3:C:158:ARG:NH1	2.35	0.59
10:O:253:TYR:OH	13:S:123:ASP:OD2	2.19	0.59
10:O:234:LEU:HB2	10:O:272:ILE:HB	1.85	0.59
16:G:4:A:C6	16:G:5:G:N2	2.71	0.59
17:H:34:U:O2'	17:H:35:A:N9	2.35	0.59
11:P:20:GLU:OE2	14:T:313:ARG:NH2	2.36	0.59
16:G:1:G:H1'	16:G:2:U:OP1	2.03	0.59
17:H:55:U:O4	17:H:93:A:N6	2.36	0.59
1:A:1631:LEU:HB2	1:A:1660:TYR:HB3	1.83	0.59
3:C:139:HIS:HB2	34:C:1500:GTP:H5'	1.82	0.59
3:C:678:THR:OG1	3:C:680:ASN:O	2.21	0.59
12:R:101:ILE:O	12:R:104:GLN:NE2	2.36	0.59
12:R:196:VAL:HG11	15:W:120:ILE:HD12	1.85	0.59
1:A:163:ARG:NE	1:A:576:ASP:OD2	2.34	0.59
3:C:308:CYS:SG	3:C:309:PHE:N	2.76	0.59
2:B:96:A:N6	2:B:97:G:C6	2.71	0.58
4:E:143:ARG:HD3	4:E:146:ARG:HB2	1.85	0.58
18:U:678:CYS:SG	18:U:718:HIS:HD2	2.26	0.58
2:B:9:G:O6	2:B:69:A:C2	2.56	0.58
8:M:236:ASN:ND2	8:M:242:ALA:O	2.35	0.58
1:A:1813:ARG:HD3	1:A:1814:THR:HG23	1.83	0.58
4:E:178:LEU:HD12	4:E:188:GLN:HB2	1.84	0.58
17:H:107:A:O2'	17:H:108:G:H5'	2.03	0.58
16:G:145:U:C4	17:H:33:G:N1	2.58	0.58
1:A:48:LYS:NZ	5:F:21:U:OP2	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:H:50:C:H6	17:H:50:C:C5'	2.17	0.58
1:A:255:PHE:HB3	1:A:259:ASP:HB3	1.86	0.58
11:P:13:ARG:NH1	14:T:330:THR:O	2.37	0.58
1:A:1194:CYS:HB3	1:A:1230:LEU:HD23	1.85	0.58
14:T:342:GLU:OE1	14:T:365:ARG:NH1	2.37	0.58
14:T:350:HIS:HA	14:T:374:SER:HB2	1.86	0.58
17:H:33:G:OP1	18:U:666:ARG:CZ	2.50	0.58
18:U:671:GLN:OE1	18:U:671:GLN:HA	2.02	0.58
1:A:163:ARG:HD2	1:A:166:PHE:HZ	1.69	0.58
4:E:67:GLY:N	4:E:87:ASP:OD1	2.37	0.58
4:E:268:ALA:HB2	4:E:272:ARG:HH21	1.67	0.58
16:G:143:U:C6	16:G:143:U:C5'	2.87	0.58
17:H:54:U:HO2'	17:H:55:U:H5'	1.65	0.58
18:U:657:GLN:HA	18:U:660:LYS:HZ1	1.69	0.58
1:A:1321:GLU:HG3	1:A:1322:LEU:HD22	1.85	0.57
1:A:1833:LEU:CD1	18:U:668:LEU:HD21	2.33	0.57
2:B:69:A:H2'	2:B:69:A:N3	2.18	0.57
2:B:74:U:O4	2:B:76:A:N1	2.37	0.57
3:C:663:CYS:HB2	3:C:828:MET:HB2	1.85	0.57
3:C:742:PRO:HG3	3:C:785:ARG:HD2	1.85	0.57
2:B:96:A:C5	2:B:97:G:N7	2.73	0.57
19:I:327:LEU:O	19:I:330:ARG:N	2.37	0.57
12:R:64:PHE:O	12:R:71:GLN:NE2	2.38	0.57
13:S:57:ILE:HD13	15:W:97:ASN:HB3	1.87	0.57
1:A:523:ASN:OD1	1:A:552:ARG:NH2	2.38	0.57
3:C:166:CYS:HA	3:C:169:ASP:HB3	1.86	0.57
5:F:41:A:C6	16:G:7:G:N2	2.73	0.57
5:F:59:G:O2'	5:F:61:C:OP1	2.22	0.57
16:G:26:U:H2'	16:G:27:U:C5'	2.34	0.57
17:H:154:C:O2'	17:H:155:C:H5'	2.04	0.57
1:A:466:ALA:HA	2:B:20:G:H21	1.69	0.57
1:A:1606:ILE:O	1:A:1634:SER:OG	2.23	0.57
3:C:224:GLY:HA3	3:C:438:ILE:HD12	1.84	0.57
16:G:5:G:N3	16:G:6:A:N7	2.48	0.57
16:G:141:C:OP2	16:G:141:C:H6	1.88	0.57
1:A:1555:LEU:HD21	1:A:1570:LYS:HG3	1.87	0.57
3:C:174:GLU:HG3	3:C:181:ILE:H	1.69	0.57
5:F:41:A:N6	16:G:7:G:C2	2.73	0.57
10:O:159:ARG:NH1	16:G:20:A:OP1	2.30	0.57
17:H:57:A:N6	17:H:90:A:C2	2.72	0.57
1:A:975:VAL:HB	1:A:1099:PHE:HB2	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:96:A:C2'	2:B:97:G:H5'	2.34	0.57
17:H:109:C:O2'	17:H:110:A:C5'	2.51	0.57
1:A:1624:SER:HB2	1:A:1693:SER:HB2	1.87	0.56
2:B:9:G:O6	2:B:69:A:H2	1.88	0.56
2:B:66:A:C2'	2:B:67:A:O4'	2.50	0.56
7:L:37:LEU:HD11	7:L:155:ALA:HA	1.87	0.56
12:R:148:ARG:NH2	14:T:299:THR:O	2.36	0.56
14:T:294:LEU:HD12	14:T:303:LEU:HD11	1.86	0.56
19:I:364:VAL:CB	19:I:372:ARG:CB	2.83	0.56
1:A:1186:LEU:HD23	1:A:1195:ARG:HB3	1.87	0.56
15:W:103:GLN:NE2	15:W:111:LEU:O	2.38	0.56
16:G:22:C:O2'	16:G:23:U:P	2.63	0.56
1:A:608:LEU:HD13	1:A:632:ALA:HB1	1.87	0.56
2:B:9:G:C5	2:B:70:A:C8	2.94	0.56
16:G:5:G:C2	16:G:6:A:C8	2.93	0.56
17:H:77:C:C2	17:H:78:C:C5	2.93	0.56
17:H:147:G:C2	17:H:148:C:C5	2.92	0.56
17:H:148:C:H2'	17:H:149:A:H8	1.70	0.56
4:E:346:SER:OG	4:E:348:ASP:OD1	2.23	0.56
13:S:52:LYS:HA	13:S:158:LYS:HA	1.88	0.56
16:G:136:U:O2'	16:G:137:C:C6	2.58	0.56
17:H:71:C:H2'	17:H:72:U:H6	1.70	0.56
17:H:73:C:H2'	17:H:74:U:H6	1.70	0.56
17:H:77:C:H2'	17:H:78:C:H6	1.70	0.56
1:A:143:GLN:NE2	1:A:207:PHE:O	2.32	0.56
1:A:855:ARG:NH1	1:A:1518:LEU:HD11	2.21	0.56
12:R:106:GLN:HG2	12:R:110:LYS:HG2	1.87	0.56
14:T:349:SER:OG	14:T:351:ASP:OD1	2.23	0.56
16:G:154:U:H2'	16:G:154:U:O2	2.05	0.56
17:H:72:U:C2	17:H:73:C:C5	2.94	0.56
17:H:90:A:H2'	17:H:91:U:H6	1.71	0.56
17:H:91:U:H2'	17:H:92:U:H6	1.71	0.56
1:A:405:LEU:HD22	3:C:413:ARG:HE	1.68	0.56
1:A:891:PHE:O	7:L:83:ARG:NH1	2.38	0.56
2:B:96:A:C4	2:B:97:G:C8	2.93	0.56
16:G:149:G:H8	16:G:149:G:OP2	1.89	0.56
17:H:71:C:C2	17:H:72:U:C5	2.94	0.56
17:H:88:A:H2'	17:H:89:U:H6	1.70	0.56
4:E:178:LEU:HD11	4:E:222:LEU:HD22	1.86	0.56
10:O:185:LYS:HZ3	15:W:216:LEU:HG	1.71	0.56
16:G:138:A:O2'	16:G:139:U:C6	2.59	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:H:73:C:C2	17:H:74:U:C5	2.94	0.56
14:T:190:TRP:HE1	14:T:498:GLU:HB3	1.71	0.56
17:H:38:A:O2'	17:H:39:U:C6	2.59	0.56
1:A:1342:TRP:HB2	1:A:1486:GLU:HG3	1.88	0.56
3:C:375:GLU:OE2	3:C:379:LYS:NZ	2.33	0.56
4:E:62:LEU:HB2	4:E:351:LEU:HB2	1.88	0.56
14:T:312:ALA:HB3	14:T:326:LEU:HB2	1.88	0.56
17:H:39:U:O2'	17:H:40:C:C6	2.59	0.56
17:H:151:C:H2'	17:H:152:G:H8	1.68	0.56
3:C:173:THR:OG1	3:C:642:HIS:NE2	2.36	0.56
3:C:205:THR:HB	3:C:215:VAL:HG22	1.87	0.56
4:E:257:ASN:HD22	15:W:149:SER:HA	1.71	0.56
13:S:25:LEU:HD22	13:S:98:LEU:HD22	1.88	0.56
17:H:59:A:H2'	17:H:60:U:H6	1.70	0.56
17:H:72:U:H2'	17:H:73:C:H6	1.71	0.56
3:C:135:CYS:HB2	3:C:242:LEU:HD13	1.87	0.55
17:H:33:G:O5'	18:U:666:ARG:NE	2.39	0.55
18:U:678:CYS:SG	18:U:718:HIS:CD2	2.98	0.55
1:A:1865:ARG:NH1	18:U:726:ASP:OD2	2.39	0.55
2:B:9:G:H5''	2:B:10:U:C5	2.41	0.55
12:R:78:ARG:HG3	12:R:79:LYS:HG2	1.86	0.55
17:H:161:U:O2'	17:H:163:G:N2	2.39	0.55
1:A:1392:LYS:HD3	1:A:1407:ASP:HB3	1.87	0.55
13:S:26:GLU:OE1	13:S:131:ARG:NH1	2.40	0.55
18:U:666:ARG:CZ	18:U:666:ARG:HB3	2.36	0.55
3:C:139:HIS:CA	34:C:1500:GTP:PB	2.93	0.55
6:J:618:GLN:O	6:J:634:GLU:CB	2.55	0.55
8:M:178:GLU:OE1	8:M:181:ARG:NH1	2.37	0.55
14:T:261:LEU:HB3	14:T:273:TRP:HB2	1.86	0.55
17:H:55:U:O2	17:H:56:A:C8	2.59	0.55
17:H:57:A:H2'	17:H:58:U:H6	1.71	0.55
17:H:83:A:H2'	17:H:84:C:H6	1.71	0.55
3:C:803:ARG:O	3:C:807:GLN:HB2	2.07	0.55
4:E:266:PRO:HG2	7:L:785:GLN:CA	2.37	0.55
10:O:236:VAL:HG22	10:O:300:VAL:HG22	1.87	0.55
12:R:232:SEP:CB	12:R:233:PRO:CD	2.77	0.55
16:G:6:A:C6	16:G:7:G:C6	2.94	0.55
16:G:148:U:C4	17:H:30:A:N1	2.70	0.55
14:T:418:THR:HG21	14:T:467:ALA:HA	1.88	0.55
18:U:546:VAL:CB	18:U:665:HIS:CE1	2.88	0.55
1:A:425:PRO:HB2	1:A:428:LYS:HB2	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:846:VAL:HG22	3:C:887:LEU:HD11	1.88	0.55
17:H:108:G:H2'	17:H:109:C:C6	2.41	0.55
2:B:71:C:H3'	2:B:71:C:H6	1.72	0.55
3:C:523:GLN:HE21	3:C:558:PRO:HG3	1.72	0.55
5:F:82:A:N6	17:H:19:G:OP1	2.34	0.55
6:J:770:ASP:CB	6:J:791:ASP:CB	2.85	0.55
17:H:88:A:C4	17:H:89:U:C5	2.95	0.55
3:C:692:LEU:O	3:C:786:ASN:ND2	2.39	0.55
4:E:90:ILE:HD11	4:E:112:VAL:HG11	1.87	0.55
6:J:260:ARG:HD3	7:L:214:ILE:HG12	1.88	0.55
3:C:637:LEU:HA	3:C:640:VAL:HG12	1.88	0.55
16:G:22:C:O2'	16:G:23:U:OP1	2.25	0.55
17:H:34:U:O2'	17:H:35:A:C8	2.60	0.55
18:U:546:VAL:CB	18:U:665:HIS:HE1	2.20	0.55
1:A:1132:LYS:HA	1:A:1139:ARG:HH12	1.72	0.54
1:A:1431:ALA:O	1:A:1434:LYS:NZ	2.40	0.54
4:E:118:ASN:ND2	4:E:122:SER:OG	2.37	0.54
15:W:531:LYS:HA	15:W:546:PHE:O	2.07	0.54
17:H:57:A:C4	17:H:58:U:C5	2.95	0.54
18:U:666:ARG:CZ	18:U:666:ARG:CB	2.85	0.54
1:A:1335:ILE:HG23	1:A:1365:ILE:HD11	1.88	0.54
1:A:1609:VAL:HG12	1:A:1631:LEU:HG	1.89	0.54
14:T:270:VAL:HB	14:T:284:TYR:HB2	1.89	0.54
17:H:91:U:C2	17:H:92:U:C5	2.94	0.54
17:H:148:C:H2'	17:H:149:A:C8	2.43	0.54
18:U:546:VAL:CG1	18:U:665:HIS:CE1	2.90	0.54
2:B:85:C:H3'	2:B:85:C:OP1	2.07	0.54
2:B:100:C:H2'	2:B:101:U:C6	2.42	0.54
3:C:219:LEU:HD13	3:C:245:HIS:HD2	1.72	0.54
17:H:50:C:H2'	17:H:51:A:C8	2.42	0.54
1:A:470:ARG:NH1	2:B:56:C:OP2	2.41	0.54
16:G:151:C:C2'	16:G:152:C:H6	2.09	0.54
17:H:83:A:C4	17:H:84:C:C5	2.95	0.54
1:A:657:ALA:O	1:A:661:GLU:HB2	2.08	0.54
5:F:43:A:O5'	5:F:43:A:H8	1.89	0.54
12:R:68:HIS:NE2	13:S:89:ASP:O	2.36	0.54
17:H:32:U:N3	17:H:33:G:C6	2.76	0.54
2:B:66:A:H3'	2:B:67:A:C5'	2.36	0.54
3:C:529:ARG:H	3:C:553:GLU:HB3	1.71	0.54
10:O:27:CYS:SG	10:O:66:LYS:NZ	2.71	0.54
16:G:135:G:O2'	16:G:136:U:C6	2.59	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:H:90:A:C4	17:H:91:U:C5	2.95	0.54
13:S:11:PRO:O	13:S:29:TRP:NE1	2.40	0.54
14:T:392:PRO:HG3	14:T:415:ILE:HA	1.90	0.54
17:H:59:A:C4	17:H:60:U:C5	2.95	0.54
17:H:153:A:C3'	17:H:154:C:C5'	2.85	0.54
1:A:1072:LEU:HD22	1:A:1087:LEU:HD22	1.90	0.54
2:B:10:U:O2'	2:B:11:U:OP2	2.17	0.54
5:F:29:A:N6	16:G:17:U:OP2	2.39	0.54
6:J:311:GLN:HG3	8:M:131:GLN:HG2	1.90	0.54
16:G:151:C:O2	16:G:152:C:C6	2.61	0.54
18:U:539:GLU:OE2	18:U:662:ILE:HG13	2.07	0.54
1:A:1614:ILE:HD13	1:A:1626:CYS:HB2	1.89	0.54
16:G:147:C:H6	16:G:147:C:OP1	1.90	0.54
19:I:797:PHE:O	19:I:801:ASP:CB	2.56	0.54
3:C:693:GLU:H	3:C:696:LEU:HD12	1.73	0.54
6:J:466:ARG:CB	19:I:606:TRP:CB	2.86	0.54
6:J:600:ILE:C	6:J:602:LYS:H	2.10	0.54
17:H:54:U:C2'	17:H:55:U:H5'	2.38	0.54
28:K:131:GLY:O	28:K:135:TRP:CB	2.56	0.54
1:A:658:ARG:NH2	5:F:65:G:OP2	2.41	0.53
2:B:79:C:H2'	2:B:79:C:O2	2.07	0.53
17:H:30:A:C2'	17:H:31:G:OP2	2.56	0.53
16:G:151:C:C3'	16:G:152:C:C6	2.89	0.53
17:H:36:G:O2'	17:H:37:U:C6	2.59	0.53
1:A:761:ILE:HG12	1:A:767:VAL:HG21	1.90	0.53
1:A:1104:ASP:OD1	1:A:1107:ARG:NH2	2.42	0.53
3:C:139:HIS:CD2	3:C:139:HIS:H	2.26	0.53
6:J:239:ARG:HG3	6:J:239:ARG:NH1	2.22	0.53
10:O:78:LYS:HD3	10:O:94:ILE:HG21	1.91	0.53
15:W:474:LYS:CA	15:W:490:ALA:HB3	2.37	0.53
16:G:6:A:C6	16:G:7:G:C5	2.97	0.53
1:A:766:THR:OG1	2:B:39:C:N4	2.41	0.53
9:N:139:CYS:SG	9:N:140:ARG:N	2.81	0.53
15:W:481:MET:O	15:W:483:ASN:N	2.41	0.53
16:G:22:C:H2'	16:G:22:C:O2	2.08	0.53
17:H:182:U:H2'	17:H:183:G:C8	2.44	0.53
18:U:814:VAL:HG11	18:U:820:TYR:HB3	1.90	0.53
1:A:253:ASN:ND2	1:A:336:ASN:OD1	2.42	0.53
1:A:1090:ARG:NH1	1:A:1092:ILE:O	2.41	0.53
1:A:1544:ARG:HB2	1:A:1547:VAL:HG12	1.91	0.53
14:T:371:HIS:ND1	14:T:391:SER:OG	2.40	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:W:227:GLY:O	15:W:228:LYS:O	2.25	0.53
18:U:539:GLU:OE2	18:U:662:ILE:HG12	2.07	0.53
13:S:84:ASP:OD1	13:S:108:ASN:ND2	2.41	0.53
17:H:107:A:H8	17:H:107:A:H5''	1.72	0.53
3:C:148:CYS:SG	3:C:417:ARG:NH2	2.82	0.53
14:T:390:GLY:HA3	14:T:416:ILE:HD11	1.89	0.53
18:U:809:ASP:O	18:U:811:ARG:N	2.42	0.53
2:B:9:G:H5''	2:B:10:U:H5	1.73	0.53
3:C:92:PRO:HA	14:T:278:ASN:HD21	1.74	0.53
3:C:139:HIS:CB	34:C:1500:GTP:O3A	2.57	0.53
3:C:534:VAL:HB	3:C:537:TYR:HB2	1.90	0.53
13:S:41:GLU:OE2	13:S:44:ARG:NH2	2.38	0.53
19:I:249:THR:O	19:I:250:ARG:CB	2.57	0.53
2:B:68:C:O2	2:B:68:C:H2'	2.09	0.52
3:C:134:LEU:HD13	3:C:202:ILE:HG23	1.89	0.52
4:E:75:HIS:ND1	4:E:77:ASN:OD1	2.42	0.52
5:F:29:A:H62	16:G:16:G:H1'	1.74	0.52
10:O:32:PRO:HG2	15:W:153:ILE:HD12	1.91	0.52
12:R:70:ALA:HA	13:S:93:THR:HG21	1.91	0.52
16:G:151:C:C6	16:G:152:C:N4	2.74	0.52
19:I:264:ASP:O	19:I:268:ARG:CB	2.58	0.52
1:A:261:LYS:NZ	3:C:176:GLU:OE2	2.42	0.52
2:B:96:A:N6	2:B:97:G:O6	2.42	0.52
4:E:84:ALA:HB2	4:E:90:ILE:HD13	1.91	0.52
10:O:110:SER:OG	10:O:113:ASN:ND2	2.42	0.52
15:W:536:ASP:O	15:W:540:THR:N	2.41	0.52
1:A:963:GLN:HG3	1:A:1077:ILE:HG23	1.91	0.52
10:O:31:ASN:O	12:R:195:ARG:NH1	2.40	0.52
16:G:7:G:H2'	16:G:8:C:C6	2.44	0.52
16:G:22:C:HO2'	16:G:23:U:P	2.31	0.52
16:G:151:C:C2	16:G:152:C:C6	2.96	0.52
17:H:147:G:C2	17:H:148:C:C6	2.97	0.52
1:A:1820:LYS:NZ	1:A:1844:GLU:OE1	2.42	0.52
2:B:9:G:C6	2:B:70:A:N7	2.77	0.52
17:H:40:C:O2'	17:H:41:U:C6	2.59	0.52
17:H:182:U:H2'	17:H:183:G:H8	1.74	0.52
3:C:143:THR:HG23	34:C:1500:GTP:PA	2.48	0.52
7:L:263:ASP:OD2	8:M:199:ARG:NH1	2.37	0.52
17:H:67:C:H2'	17:H:68:G:C8	2.42	0.52
16:G:2:U:H2'	16:G:3:A:C4	2.45	0.52
16:G:143:U:N3	17:H:34:U:N3	2.57	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:532:THR:CB	16:G:3:A:C3'	2.69	0.52
1:A:1320:LYS:HG2	18:U:798:MET:HG2	1.90	0.52
3:C:369:PHE:O	3:C:373:ILE:HB	2.10	0.52
4:E:171:SER:OG	4:E:173:ASP:OD1	2.25	0.52
6:J:774:VAL:CA	6:J:787:LYS:CB	2.86	0.52
7:L:526:ARG:CB	7:L:594:PRO:CB	2.88	0.52
16:G:147:C:N4	16:G:148:U:O4	2.42	0.52
1:A:378:PHE:HB3	3:C:342:ARG:HH11	1.75	0.52
16:G:143:U:N3	17:H:34:U:C2	2.70	0.52
1:A:1555:LEU:HD13	1:A:1556:ASP:H	1.74	0.52
2:B:70:A:N3	2:B:70:A:C5'	2.73	0.52
16:G:140:A:O2'	16:G:141:C:C6	2.61	0.52
17:H:54:U:N3	17:H:93:A:C2	2.77	0.52
17:H:183:G:H2'	17:H:184:C:C6	2.45	0.52
2:B:99:C:H2'	2:B:100:C:C6	2.45	0.52
10:O:276:THR:HG23	10:O:279:ALA:H	1.75	0.52
15:W:531:LYS:CA	15:W:546:PHE:O	2.57	0.52
16:G:146:C:O2'	16:G:147:C:OP2	2.27	0.52
3:C:203:MET:HG2	3:C:218:GLY:HA3	1.91	0.51
15:W:518:PRO:O	15:W:519:ASP:CB	2.57	0.51
1:A:1249:MET:O	1:A:1253:SER:OG	2.22	0.51
3:C:160:ARG:NH1	3:C:160:ARG:CG	2.73	0.51
3:C:507:VAL:HG13	3:C:565:ILE:HG23	1.92	0.51
7:L:21:ALA:HB1	7:L:159:LEU:HD21	1.92	0.51
10:O:169:VAL:HA	15:W:216:LEU:HD13	1.92	0.51
19:I:795:ILE:CD1	19:I:795:ILE:N	2.73	0.51
1:A:82:ARG:HH22	16:G:14:A:H5''	1.74	0.51
3:C:434:CYS:O	3:C:438:ILE:N	2.43	0.51
6:J:201:ARG:HB3	6:J:203:LEU:HD23	1.91	0.51
16:G:151:C:O2	16:G:152:C:C5	2.63	0.51
17:H:50:C:C6	17:H:50:C:C5'	2.94	0.51
17:H:70:C:C2	17:H:71:C:C5	2.98	0.51
28:K:128:SER:O	28:K:132:CYS:N	2.37	0.51
3:C:476:CYS:HB2	3:C:565:ILE:HB	1.92	0.51
15:W:425:VAL:O	15:W:433:PHE:CB	2.59	0.51
1:A:1190:CYS:O	1:A:1192:PHE:N	2.41	0.51
1:A:1605:GLU:HB3	1:A:1637:TRP:HE1	1.75	0.51
3:C:137:HIS:ND1	3:C:138:LEU:HB2	2.25	0.51
5:F:36:A:N6	5:F:38:G:O6	2.44	0.51
12:R:235:ARG:CG	12:R:235:ARG:NH1	2.73	0.51
16:G:148:U:C2	17:H:30:A:N1	2.70	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:103:LEU:HD11	1:A:554:THR:HG22	1.92	0.51
2:B:87:A:N3	2:B:87:A:C3'	2.73	0.51
17:H:67:C:C2'	17:H:68:G:H5'	2.41	0.51
2:B:78:U:H4'	2:B:79:C:OP2	2.10	0.51
4:E:60:MET:HB2	4:E:353:MET:HB2	1.91	0.51
16:G:147:C:P	16:G:147:C:O4'	2.69	0.51
16:G:151:C:H2'	16:G:151:C:O2	2.10	0.51
3:C:115:GLU:HB2	3:C:118:PHE:HB3	1.93	0.51
3:C:849:VAL:HG22	3:C:852:ARG:HH21	1.75	0.51
1:A:976:MET:HG2	1:A:1187:PHE:HB3	1.93	0.51
3:C:666:VAL:HG13	3:C:824:THR:HG23	1.92	0.51
12:R:241:GLU:HA	12:R:244:GLU:HG2	1.93	0.51
16:G:133:A:C2'	16:G:134:U:C6	2.92	0.51
16:G:151:C:C1'	16:G:152:C:C5	2.93	0.51
19:I:729:SER:O	19:I:732:ALA:HB3	2.09	0.51
17:H:68:G:H2'	17:H:69:U:C6	2.46	0.51
1:A:711:GLN:HE22	17:H:18:U:H3'	1.77	0.50
1:A:1217:GLN:HA	1:A:1224:ARG:HA	1.92	0.50
6:J:188:GLN:NE2	7:L:140:ASP:OD1	2.44	0.50
18:U:819:PRO:HB2	18:U:835:ILE:HB	1.93	0.50
1:A:381:PRO:O	3:C:354:ARG:NH2	2.45	0.50
1:A:1628:ASP:OD2	1:A:1664:ILE:N	2.44	0.50
14:T:468:CYS:HA	14:T:478:LEU:O	2.12	0.50
17:H:180:G:H2'	17:H:181:G:C8	2.45	0.50
16:G:5:G:C6	16:G:6:A:C4	2.99	0.50
17:H:34:U:O2'	17:H:35:A:C4'	2.59	0.50
19:I:265:TYR:O	19:I:266:TYR:C	2.50	0.50
1:A:388:LEU:HD11	3:C:399:LEU:HD11	1.94	0.50
1:A:857:ASN:OD1	1:A:860:GLN:NE2	2.44	0.50
1:A:1309:SER:OG	1:A:1310:ARG:N	2.40	0.50
3:C:160:ARG:NH1	3:C:160:ARG:HG3	2.26	0.50
3:C:749:THR:HG23	3:C:753:GLU:HB3	1.93	0.50
7:L:696:LEU:HA	28:K:110:SER:CB	2.40	0.50
14:T:200:ILE:HB	14:T:486:ILE:HB	1.93	0.50
15:W:474:LYS:C	15:W:490:ALA:CB	2.80	0.50
19:I:795:ILE:N	19:I:795:ILE:HD12	2.26	0.50
12:R:235:ARG:HB2	12:R:235:ARG:CZ	2.40	0.50
17:H:111:G:O3'	17:H:112:G:O4'	2.28	0.50
1:A:136:ILE:HG22	1:A:138:PRO:HD2	1.93	0.50
1:A:1467:LEU:HD11	18:U:796:TRP:HH2	1.77	0.50
6:J:615:LEU:CB	6:J:638:GLU:CB	2.89	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:L:751:THR:O	7:L:755:LEU:N	2.38	0.50
10:O:259:ARG:HE	10:O:275:ALA:HA	1.77	0.50
15:W:430:ASN:O	15:W:447:TRP:CB	2.60	0.50
16:G:148:U:O2	17:H:30:A:C2	2.64	0.50
17:H:32:U:C2	17:H:33:G:C5	2.99	0.50
3:C:165:LEU:HD21	34:C:1500:GTP:O2A	2.12	0.50
3:C:260:ILE:HG13	3:C:311:SER:HB2	1.93	0.50
4:E:136:TRP:CD1	4:E:143:ARG:HA	2.46	0.50
1:A:1405:LEU:HD12	1:A:1408:LEU:HD23	1.94	0.50
3:C:699:ASP:OD2	3:C:722:TYR:OH	2.30	0.50
4:E:55:LEU:CD1	4:E:55:LEU:N	2.73	0.50
16:G:5:G:N1	16:G:6:A:C5	2.80	0.50
16:G:151:C:N1	16:G:152:C:H5	2.05	0.50
17:H:93:A:C2'	17:H:94:A:H5'	2.42	0.50
19:I:218:TYR:CB	19:I:223:GLU:CB	2.90	0.50
3:C:143:THR:HG22	34:C:1500:GTP:PB	2.52	0.50
3:C:673:LYS:HG3	3:C:686:THR:HG23	1.93	0.50
4:E:311:VAL:HB	4:E:321:TYR:HB2	1.93	0.49
6:J:239:ARG:HH11	6:J:239:ARG:HG3	1.77	0.49
17:H:106:G:H1'	17:H:107:A:C8	2.47	0.49
1:A:309:ARG:HE	1:A:310:THR:H	1.60	0.49
1:A:1782:ASP:HB3	1:A:1841:THR:HG21	1.93	0.49
1:A:641:MET:HA	1:A:644:ILE:HG22	1.93	0.49
1:A:825:ILE:HA	1:A:933:ARG:HH12	1.78	0.49
1:A:1663:ASP:HB3	1:A:1702:LEU:HB2	1.93	0.49
1:A:1863:VAL:HG11	1:A:1868:MET:HB2	1.93	0.49
6:J:290:ARG:NH1	8:M:180:ASP:OD1	2.40	0.49
17:H:93:A:H2'	17:H:94:A:H5'	1.94	0.49
17:H:149:A:H2'	17:H:150:U:C6	2.47	0.49
1:A:552:ARG:NH1	1:A:589:THR:O	2.45	0.49
1:A:1430:LEU:HD21	1:A:1459:ARG:HE	1.78	0.49
1:A:1518:LEU:HD13	1:A:1518:LEU:N	2.27	0.49
12:R:252:SER:OG	12:R:255:LYS:O	2.30	0.49
18:U:691:ALA:HB3	18:U:698:LEU:H	1.78	0.49
19:I:585:ASP:O	19:I:586:GLY:C	2.50	0.49
1:A:1131:LYS:O	1:A:1139:ARG:NH1	2.45	0.49
1:A:1231:ARG:NH2	1:A:1283:GLU:OE1	2.45	0.49
2:B:79:C:C6	2:B:79:C:C5'	2.95	0.49
15:W:474:LYS:C	15:W:490:ALA:HB3	2.33	0.49
16:G:144:A:H4'	16:G:145:U:H2'	1.95	0.49
19:I:320:GLU:O	19:I:324:ASP:CB	2.60	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:529:THR:OG1	18:U:581:THR:OG1	2.22	0.49
1:A:820:ARG:NH1	1:A:1063:GLY:O	2.43	0.49
1:A:1781:ASP:HB3	1:A:1808:PHE:HB3	1.94	0.49
14:T:287:HIS:NE2	14:T:305:THR:OG1	2.40	0.49
15:W:155:SER:OG	15:W:158:GLU:OE1	2.29	0.49
15:W:290:GLY:HA2	15:W:573:GLY:HA2	1.94	0.49
16:G:125:C:O2'	16:G:126:C:C2'	2.61	0.49
1:A:974:ASN:HB2	1:A:1178:TYR:HB3	1.94	0.49
1:A:1337:GLN:O	1:A:1341:ARG:NH2	2.46	0.49
5:F:41:A:C6	16:G:7:G:C2	2.99	0.49
17:H:168:A:H3'	17:H:169:C:H6	1.77	0.49
6:J:591:LEU:O	6:J:593:ARG:N	2.44	0.49
7:L:784:LEU:CB	28:K:195:ILE:CB	2.90	0.49
1:A:978:GLU:OE2	1:A:1188:ASN:N	2.45	0.49
15:W:144:ASP:N	15:W:144:ASP:OD1	2.44	0.49
1:A:1511:GLU:OE2	18:U:761:LYS:NZ	2.36	0.49
2:B:87:A:N3	2:B:87:A:C2'	2.75	0.49
9:N:70:ILE:HG12	9:N:74:LEU:HD23	1.95	0.49
17:H:93:A:O2'	17:H:94:A:H5'	2.13	0.49
1:A:1124:ASN:ND2	1:A:1148:ASN:OD1	2.46	0.48
4:E:61:LEU:HD13	4:E:352:TYR:CE1	2.43	0.48
19:I:326:ASP:O	19:I:329:LEU:CB	2.60	0.48
16:G:148:U:O2	17:H:30:A:H2	1.95	0.48
16:G:151:C:C1'	16:G:152:C:H5	2.25	0.48
18:U:579:VAL:HG22	18:U:646:GLU:HB2	1.94	0.48
3:C:139:HIS:HB2	34:C:1500:GTP:O3A	2.13	0.48
3:C:183:SER:HB2	3:C:214:GLU:HB3	1.94	0.48
18:U:663:ALA:HA	18:U:666:ARG:HH12	1.76	0.48
18:U:666:ARG:NH1	18:U:666:ARG:HB2	2.28	0.48
19:I:485:LYS:O	19:I:486:VAL:CG1	2.53	0.48
1:A:741:ARG:NH2	14:T:463:SER:O	2.47	0.48
1:A:1639:VAL:HG12	1:A:1719:PHE:HB3	1.94	0.48
2:B:70:A:H2	2:B:70:A:OP2	1.97	0.48
2:B:96:A:C2	2:B:97:G:C4	3.02	0.48
17:H:104:U:H4'	17:H:105:G:H5''	1.95	0.48
3:C:159:LYS:N	3:C:159:LYS:CD	2.74	0.48
3:C:814:ARG:NH1	3:C:818:SER:OG	2.46	0.48
17:H:51:A:H8	17:H:51:A:OP2	1.96	0.48
18:U:752:ILE:HD12	18:U:773:LEU:HD21	1.94	0.48
1:A:940:ILE:HD12	1:A:1090:ARG:HH21	1.78	0.48
1:A:1501:LEU:HD13	1:A:1753:LEU:HD11	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1522:GLN:NE2	18:U:622:ALA:O	2.47	0.48
1:A:1957:ASP:HB3	1:A:1960:THR:HG23	1.96	0.48
3:C:700:ILE:O	3:C:740:THR:OG1	2.32	0.48
15:W:528:GLY:O	15:W:552:VAL:CB	2.62	0.48
17:H:181:G:H2'	17:H:182:U:C6	2.49	0.48
18:U:713:ILE:HB	18:U:768:TYR:HB3	1.95	0.48
3:C:737:PRO:HB3	3:C:775:ARG:HB3	1.95	0.48
5:F:41:A:C6	16:G:6:A:N1	2.81	0.48
10:O:136:MET:O	10:O:140:ALA:HB2	2.13	0.48
10:O:245:GLU:HG2	10:O:248:LEU:HD12	1.95	0.48
14:T:223:SER:OG	14:T:224:ALA:N	2.47	0.48
3:C:501:ILE:O	3:C:543:ARG:HA	2.14	0.48
14:T:343:PRO:HG2	14:T:356:LEU:HD23	1.95	0.48
17:H:34:U:C2'	17:H:35:A:N9	2.76	0.48
1:A:855:ARG:HH12	1:A:1518:LEU:HD11	1.78	0.48
7:L:73:HIS:O	7:L:77:LEU:HB2	2.13	0.48
17:H:77:C:H2'	17:H:78:C:C6	2.49	0.48
1:A:1597:PHE:HB3	1:A:1609:VAL:HG11	1.96	0.48
1:A:1784:ASN:HD21	1:A:1894:GLN:HG2	1.78	0.48
3:C:826:ARG:HA	3:C:911:PRO:HG3	1.96	0.48
15:W:491:GLN:O	15:W:492:ASN:C	2.50	0.48
18:U:657:GLN:O	18:U:661:ALA:HB3	2.14	0.48
3:C:150:ILE:HD13	3:C:167:TYR:HD2	1.79	0.47
16:G:141:C:OP2	16:G:141:C:H2'	2.14	0.47
17:H:34:U:O2'	17:H:35:A:H5'	2.14	0.47
17:H:54:U:O4	17:H:93:A:N1	2.46	0.47
19:I:520:ILE:O	19:I:524:TYR:CA	2.61	0.47
1:A:136:ILE:HG12	1:A:418:THR:HG22	1.97	0.47
1:A:579:GLN:HG3	1:A:629:PHE:H	1.79	0.47
1:A:1214:TRP:NE1	1:A:1276:GLU:OE2	2.34	0.47
1:A:1577:PHE:HD1	1:A:1581:LEU:HB3	1.79	0.47
3:C:258:ASN:OD1	3:C:259:LYS:N	2.44	0.47
14:T:224:ALA:HA	14:T:248:THR:HG23	1.94	0.47
17:H:67:C:O2'	17:H:68:G:H5'	2.13	0.47
2:B:72:U:H3'	2:B:72:U:H6	1.78	0.47
12:R:52:PRO:HG3	12:R:67:ILE:HG21	1.97	0.47
17:H:104:U:H4'	17:H:105:G:C5'	2.44	0.47
18:U:741:VAL:HG11	18:U:827:LEU:HG	1.96	0.47
10:O:245:GLU:HG3	10:O:263:VAL:HG21	1.95	0.47
1:A:995:ARG:HG3	12:R:291:LEU:HD13	1.97	0.47
1:A:1636:LYS:HB2	1:A:1655:THR:HB	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:160:ARG:HH11	3:C:160:ARG:C	2.18	0.47
17:H:148:C:O2'	17:H:149:A:H5'	2.13	0.47
1:A:516:LEU:HD11	1:A:538:SER:HB2	1.97	0.47
6:J:197:GLU:OE1	7:L:156:ARG:NE	2.46	0.47
8:M:235:GLN:HB3	8:M:239:ARG:HH21	1.79	0.47
12:R:238:THR:HB	12:R:241:GLU:HG2	1.96	0.47
14:T:216:ASN:HD21	14:T:471:ASP:HB2	1.79	0.47
16:G:6:A:C5	16:G:7:G:C8	3.02	0.47
2:B:11:U:C6	2:B:11:U:C4'	2.97	0.47
3:C:829:GLU:HB2	3:C:907:VAL:HG22	1.97	0.47
17:H:50:C:C6	17:H:50:C:C3'	2.97	0.47
1:A:1237:MET:HG2	1:A:1284:LEU:HD23	1.95	0.47
1:A:1899:VAL:HB	1:A:1902:PHE:HD2	1.80	0.47
2:B:77:G:C6	2:B:80:U:C5	3.03	0.47
3:C:137:HIS:CE1	3:C:138:LEU:HB2	2.50	0.47
3:C:349:PHE:HZ	3:C:354:ARG:HE	1.63	0.47
7:L:12:ARG:HH12	7:L:40:ARG:HH11	1.63	0.47
8:M:134:GLN:HG2	8:M:137:ARG:HH21	1.79	0.47
10:O:131:THR:O	15:W:108:ARG:NH1	2.37	0.47
12:R:60:ASP:HB2	13:S:134:GLN:HA	1.96	0.47
16:G:1:G:H5'	16:G:144:A:H1'	1.95	0.47
17:H:71:C:H2'	17:H:72:U:C6	2.50	0.47
1:A:32:GLU:OE1	1:A:35:ARG:NH1	2.48	0.47
1:A:532:THR:CB	16:G:3:A:C4'	2.93	0.47
14:T:398:TRP:CD1	14:T:405:PHE:HA	2.50	0.47
16:G:147:C:OP1	16:G:147:C:C6	2.67	0.47
17:H:69:U:H6	17:H:69:U:O5'	1.97	0.47
19:I:289:VAL:O	19:I:292:PHE:CB	2.63	0.47
19:I:326:ASP:O	19:I:329:LEU:N	2.48	0.47
1:A:723:ASN:ND2	1:A:788:GLN:OE1	2.48	0.47
4:E:266:PRO:HG2	7:L:785:GLN:C	2.35	0.47
12:R:119:LEU:HD21	12:R:230:MET:HB3	1.97	0.47
13:S:55:ARG:HB3	13:S:63:GLN:HB3	1.96	0.47
13:S:90:LEU:HB3	13:S:128:ILE:HD12	1.97	0.47
17:H:10:C:H2'	17:H:11:G:H8	1.80	0.47
1:A:1745:GLU:O	1:A:1749:LYS:HB2	2.15	0.46
17:H:147:G:N3	17:H:148:C:C6	2.84	0.46
18:U:705:SER:OG	18:U:875:LYS:NZ	2.47	0.46
2:B:78:U:O2'	2:B:79:C:OP1	2.28	0.46
6:J:774:VAL:HA	6:J:787:LYS:CB	2.45	0.46
7:L:209:ASP:HB2	10:O:113:ASN:HD21	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:M:207:ASP:N	8:M:207:ASP:OD1	2.48	0.46
14:T:213:GLU:HG3	14:T:218:TRP:CE2	2.50	0.46
17:H:51:A:N3	17:H:51:A:H2'	2.30	0.46
17:H:55:U:H2'	17:H:56:A:C8	2.48	0.46
18:U:659:LYS:O	18:U:663:ALA:CB	2.63	0.46
1:A:256:TYR:HE1	1:A:332:TYR:HB2	1.80	0.46
1:A:1518:LEU:O	1:A:1519:THR:C	2.52	0.46
3:C:80:ILE:HG22	3:C:82:GLN:HG2	1.97	0.46
6:J:391:TYR:HB3	6:J:394:HIS:HB2	1.96	0.46
17:H:90:A:H2'	17:H:91:U:C6	2.50	0.46
1:A:1676:ILE:HD13	1:A:1706:ASP:HB2	1.96	0.46
5:F:39:A:C2'	5:F:40:U:H5'	2.45	0.46
5:F:43:A:O5'	5:F:43:A:C8	2.69	0.46
14:T:416:ILE:HA	14:T:431:ALA:HA	1.97	0.46
16:G:148:U:C2	17:H:30:A:C2	3.04	0.46
17:H:81:G:H2'	17:H:82:G:H8	1.81	0.46
17:H:88:A:H2'	17:H:89:U:C6	2.50	0.46
17:H:164:C:OP2	17:H:164:C:H6	1.99	0.46
18:U:537:GLY:HA3	18:U:548:LEU:HD12	1.95	0.46
1:A:1481:VAL:HG11	1:A:1498:TRP:CD2	2.51	0.46
2:B:29:A:H2'	2:B:30:A:H8	1.80	0.46
4:E:217:ILE:HB	4:E:231:MET:HB2	1.97	0.46
4:E:257:ASN:OD1	4:E:282:HIS:N	2.48	0.46
16:G:4:A:C2	16:G:5:G:C2	3.04	0.46
17:H:80:A:H2'	17:H:81:G:H8	1.81	0.46
1:A:532:THR:HG1	16:G:3:A:H5'	1.66	0.46
1:A:1128:TYR:OH	1:A:1140:MET:SD	2.73	0.46
3:C:221:ILE:O	3:C:495:ARG:NH1	2.49	0.46
10:O:237:GLY:O	10:O:299:ASN:HB3	2.15	0.46
13:S:160:ILE:HG22	13:S:161:LYS:HG3	1.98	0.46
15:W:516:PHE:HA	15:W:522:TYR:O	2.16	0.46
19:I:521:VAL:O	19:I:527:PHE:N	2.48	0.46
4:E:56:GLN:HB3	4:E:57:ALA:H	1.47	0.46
4:E:266:PRO:HG2	7:L:785:GLN:O	2.16	0.46
10:O:255:PHE:O	12:R:78:ARG:NH1	2.48	0.46
12:R:151:LEU:HD22	14:T:323:VAL:HG11	1.96	0.46
16:G:5:G:C5	16:G:6:A:N9	2.84	0.46
17:H:78:C:H2'	17:H:79:G:H8	1.81	0.46
17:H:92:U:C2'	17:H:93:A:C8	2.85	0.46
17:H:114:A:H2'	17:H:115:G:H8	1.81	0.46
1:A:1163:ARG:HH12	11:P:201:VAL:HG11	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:11:U:C6	2:B:11:U:C3'	2.99	0.46
3:C:191:PRO:HA	3:C:197:SER:HA	1.96	0.46
3:C:850:LEU:HD23	3:C:855:GLY:HA3	1.97	0.46
10:O:90:TYR:HB3	10:O:92:LEU:HD13	1.98	0.46
15:W:481:MET:C	15:W:483:ASN:H	2.18	0.46
17:H:108:G:O5'	17:H:108:G:H8	1.99	0.46
4:E:56:GLN:HG2	4:E:97:GLY:O	2.16	0.46
16:G:5:G:C2	16:G:6:A:C5	3.04	0.46
1:A:1198:PRO:HA	1:A:1226:ALA:HA	1.98	0.46
1:A:1699:THR:HA	1:A:1717:ASN:HD22	1.81	0.46
1:A:1946:ASN:ND2	1:A:1990:ASP:OD2	2.46	0.46
17:H:148:C:H2'	17:H:149:A:H5'	1.98	0.46
19:I:712:VAL:O	19:I:715:GLY:N	2.49	0.46
1:A:762:ARG:HH12	11:P:226:LYS:HZ1	1.63	0.45
1:A:941:LYS:HA	1:A:941:LYS:HD2	1.72	0.45
4:E:135:VAL:HB	4:E:145:LYS:HB3	1.97	0.45
5:F:41:A:C2'	5:F:42:C:H5'	2.46	0.45
8:M:135:TYR:O	8:M:139:THR:OG1	2.27	0.45
15:W:476:LEU:O	15:W:487:ILE:HA	2.17	0.45
16:G:23:U:C6	16:G:23:U:H5''	2.51	0.45
16:G:27:U:HO2'	16:G:28:A:C4'	2.29	0.45
16:G:133:A:N6	17:H:43:U:C4	2.79	0.45
17:H:82:G:H2'	17:H:83:A:H8	1.81	0.45
2:B:74:U:C4	2:B:76:A:C6	3.04	0.45
3:C:85:ASP:OD1	3:C:85:ASP:N	2.47	0.45
4:E:251:LEU:HD21	4:E:300:ILE:HG23	1.97	0.45
7:L:74:LEU:HA	7:L:77:LEU:HB3	1.97	0.45
10:O:175:ARG:HB2	10:O:179:CYS:HB2	1.98	0.45
17:H:74:U:H2'	17:H:75:A:H8	1.81	0.45
1:A:787:GLU:OE2	1:A:790:ARG:NH2	2.44	0.45
1:A:1426:ASP:OD1	1:A:1426:ASP:N	2.49	0.45
3:C:82:GLN:HE21	14:T:238:LEU:H	1.64	0.45
16:G:145:U:C5	16:G:146:C:C5	3.04	0.45
1:A:339:PHE:HE1	1:A:402:ILE:HG22	1.82	0.45
2:B:66:A:H2'	2:B:67:A:C1'	2.46	0.45
3:C:160:ARG:HH11	3:C:160:ARG:HB2	1.81	0.45
3:C:162:ASP:OD1	3:C:162:ASP:N	2.48	0.45
3:C:440:SER:O	3:C:442:LYS:N	2.46	0.45
7:L:16:ASP:OD2	7:L:49:ARG:NH2	2.39	0.45
17:H:73:C:H2'	17:H:74:U:C6	2.50	0.45
1:A:1201:ARG:HG3	1:A:1202:THR:H	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:142:LYS:HE2	3:C:142:LYS:HB2	1.67	0.45
3:C:383:GLN:HA	3:C:387:ASP:HB2	1.98	0.45
3:C:670:SER:HB2	3:C:689:ALA:H	1.82	0.45
17:H:89:U:H2'	17:H:90:A:H8	1.82	0.45
17:H:107:A:H5''	17:H:107:A:C8	2.50	0.45
1:A:668:VAL:HB	5:F:68:C:H5''	1.99	0.45
1:A:1807:ILE:HB	1:A:1820:LYS:HB3	1.98	0.45
2:B:93:U:H4'	2:B:94:U:H5''	1.99	0.45
2:B:96:A:N1	2:B:97:G:C5	2.84	0.45
3:C:595:VAL:HG22	3:C:654:LYS:HG3	1.99	0.45
16:G:7:G:H2'	16:G:8:C:H6	1.80	0.45
18:U:546:VAL:HG11	18:U:665:HIS:ND1	2.31	0.45
19:I:277:ASP:O	19:I:280:GLU:CB	2.64	0.45
1:A:1296:GLN:NE2	1:A:1317:TYR:OH	2.50	0.45
10:O:152:ARG:HH12	16:G:22:C:H41	1.65	0.45
11:P:3:THR:O	11:P:6:ARG:NE	2.43	0.45
17:H:58:U:O4	17:H:90:A:N1	2.50	0.45
17:H:113:G:H2'	17:H:114:A:H8	1.82	0.45
1:A:1011:ALA:HB2	7:L:80:THR:HB	1.98	0.45
1:A:1701:VAL:HA	1:A:1716:GLY:HA3	1.99	0.45
2:B:70:A:OP2	2:B:70:A:C2	2.70	0.45
3:C:94:ILE:H	3:C:94:ILE:HG13	1.44	0.45
3:C:157:ILE:O	3:C:159:LYS:HD3	2.17	0.45
3:C:556:ASP:OD1	3:C:556:ASP:N	2.49	0.45
6:J:322:MET:O	8:M:181:ARG:NH1	2.48	0.45
12:R:62:GLY:HA2	13:S:96:GLY:HA3	1.99	0.45
13:S:99:ALA:HA	13:S:129:PHE:H	1.81	0.45
1:A:1892:PRO:HD3	1:A:1941:ARG:HH21	1.81	0.45
3:C:139:HIS:CB	34:C:1500:GTP:H5''	2.33	0.45
5:F:9:U:O2	5:F:10:U:N3	2.50	0.45
7:L:699:ASN:CB	28:K:114:LEU:CB	2.95	0.45
8:M:221:LYS:NZ	17:H:18:U:OP2	2.38	0.45
15:W:466:ALA:HB2	15:W:512:CYS:O	2.17	0.45
16:G:2:U:H2'	16:G:3:A:N3	2.32	0.45
19:I:253:ASP:O	19:I:254:GLN:CB	2.64	0.45
2:B:66:A:C3'	2:B:67:A:O4'	2.65	0.45
3:C:770:PHE:HE1	3:C:789:PHE:HD2	1.64	0.45
16:G:144:A:H4'	16:G:145:U:C3'	2.46	0.45
1:A:435:CYS:SG	1:A:439:GLN:NE2	2.67	0.44
2:B:11:U:C6	2:B:11:U:C5'	2.85	0.44
3:C:144:CYS:HA	3:C:165:LEU:HD12	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:619:THR:HG22	3:C:629:ILE:HG13	1.99	0.44
4:E:149:GLY:O	4:E:177:LYS:NZ	2.50	0.44
9:N:119:CYS:SG	9:N:139:CYS:HB3	2.57	0.44
17:H:83:A:H2'	17:H:84:C:C6	2.49	0.44
18:U:655:GLU:O	18:U:659:LYS:HB3	2.16	0.44
18:U:805:LEU:HD11	18:U:832:ALA:HB2	1.99	0.44
2:B:8:G:N3	2:B:8:G:C2'	2.73	0.44
4:E:300:ILE:O	4:E:311:VAL:HA	2.18	0.44
17:H:34:U:C6	17:H:34:U:OP2	2.70	0.44
8:M:165:ASN:HB3	12:R:96:ILE:H	1.82	0.44
15:W:266:ARG:O	15:W:267:SER:O	2.35	0.44
17:H:50:C:H2'	17:H:51:A:C1'	2.48	0.44
17:H:51:A:C8	17:H:51:A:OP2	2.70	0.44
1:A:675:GLN:HG3	1:A:676:ARG:HD3	1.99	0.44
1:A:1831:LYS:HD2	1:A:1831:LYS:HA	1.76	0.44
4:E:61:LEU:HD13	4:E:352:TYR:OH	2.15	0.44
4:E:307:ARG:HH11	15:W:143:LEU:HD12	1.83	0.44
5:F:58:G:H2'	5:F:59:G:C8	2.52	0.44
9:N:70:ILE:HG23	9:N:74:LEU:HB3	1.98	0.44
10:O:174:LYS:HA	15:W:205:VAL:HG22	2.00	0.44
16:G:149:G:OP2	16:G:149:G:C8	2.70	0.44
17:H:79:G:H2'	17:H:80:A:H8	1.81	0.44
19:I:368:GLN:OE1	19:I:368:GLN:HA	2.18	0.44
4:E:92:LEU:HB2	4:E:103:ALA:HB3	1.99	0.44
5:F:44:G:OP2	5:F:44:G:C8	2.70	0.44
17:H:58:U:H2'	17:H:59:A:H8	1.82	0.44
17:H:84:C:H2'	17:H:85:A:H8	1.82	0.44
17:H:109:C:C5	17:H:109:C:OP2	2.71	0.44
1:A:139:VAL:HG11	1:A:212:PRO:HG2	1.99	0.44
1:A:671:THR:O	1:A:676:ARG:NH2	2.50	0.44
1:A:1426:ASP:HB2	1:A:1429:THR:HG22	1.98	0.44
3:C:614:TYR:HA	3:C:615:PRO:HD3	1.87	0.44
8:M:221:LYS:HE3	12:R:249:PRO:HB3	1.98	0.44
16:G:141:C:H2'	16:G:141:C:O5'	2.18	0.44
1:A:179:ALA:HA	1:A:183:LEU:HD13	2.00	0.44
1:A:1754:TYR:OH	18:U:553:GLN:OE1	2.35	0.44
3:C:144:CYS:CB	3:C:165:LEU:CD1	2.89	0.44
4:E:90:ILE:HG13	4:E:136:TRP:CZ3	2.53	0.44
10:O:64:ARG:HD2	10:O:163:HIS:CE1	2.53	0.44
17:H:56:A:H2'	17:H:57:A:H8	1.82	0.44
17:H:57:A:H2'	17:H:58:U:C6	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:H:154:C:O2'	17:H:155:C:C5'	2.66	0.44
18:U:546:VAL:HG11	18:U:665:HIS:HE1	1.75	0.44
19:I:251:PHE:CB	19:I:254:GLN:CB	2.95	0.44
1:A:1110:ILE:HD11	1:A:1149:LEU:HB2	2.00	0.44
3:C:122:LEU:HD22	3:C:128:LEU:HD12	1.98	0.44
3:C:300:LEU:HA	3:C:306:ASN:HD21	1.83	0.44
4:E:241:LEU:HD22	4:E:250:LEU:HD21	2.00	0.44
11:P:23:LEU:HD23	11:P:26:LEU:HD13	2.00	0.44
16:G:5:G:C4	16:G:6:A:H8	2.31	0.44
17:H:168:A:N3	17:H:168:A:H2'	2.33	0.44
1:A:348:PRO:HG2	1:A:351:TYR:HB3	1.99	0.44
1:A:517:HIS:CD2	18:U:585:ARG:HD3	2.53	0.44
1:A:1779:PHE:O	1:A:1809:ILE:HA	2.18	0.44
2:B:77:G:O6	2:B:80:U:C5	2.71	0.44
3:C:705:VAL:HG22	3:C:717:PHE:HE2	1.83	0.44
4:E:294:SER:HB3	4:E:299:LYS:HB2	2.00	0.44
7:L:703:MET:O	7:L:707:ALA:HB3	2.18	0.44
14:T:406:ILE:HG22	14:T:407:GLN:HB2	2.00	0.44
15:W:309:MET:HA	15:W:334:ALA:HB1	1.99	0.44
16:G:153:C:O5'	16:G:153:C:C6	2.70	0.44
1:A:266:SER:OG	1:A:271:MET:O	2.32	0.43
2:B:11:U:O2'	2:B:12:U:H5'	2.18	0.43
2:B:77:G:C6	2:B:80:U:H5	2.35	0.43
10:O:59:PRO:HB2	10:O:63:MET:HG3	1.99	0.43
12:R:97:LYS:NZ	13:S:146:GLU:OE1	2.50	0.43
16:G:146:C:C2'	16:G:147:C:OP1	2.66	0.43
1:A:1365:ILE:HA	1:A:1366:PRO:HD3	1.82	0.43
3:C:561:LYS:NZ	3:C:611:ASN:OD1	2.36	0.43
3:C:692:LEU:HD12	3:C:696:LEU:HB3	1.99	0.43
4:E:82:ALA:HA	4:E:91:LEU:O	2.19	0.43
9:N:128:VAL:HG13	9:N:130:ARG:H	1.82	0.43
10:O:213:LEU:CD1	16:G:21:A:H2'	2.48	0.43
15:W:162:ASN:HB3	15:W:165:LEU:HD22	2.00	0.43
17:H:59:A:H2'	17:H:60:U:C6	2.50	0.43
17:H:72:U:H2'	17:H:73:C:C6	2.50	0.43
1:A:1196:ILE:HA	1:A:1227:GLN:O	2.18	0.43
1:A:1595:GLN:HA	1:A:1598:ASP:HB2	2.01	0.43
3:C:925:PRO:HB2	3:C:927:PRO:HD2	1.99	0.43
4:E:284:PHE:HZ	15:W:120:ILE:HD13	1.83	0.43
4:E:294:SER:OG	4:E:298:SER:N	2.51	0.43
15:W:426:PHE:HA	15:W:433:PHE:HA	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:G:134:U:O2'	16:G:135:G:C8	2.66	0.43
16:G:153:C:H3'	16:G:153:C:H6	1.83	0.43
1:A:178:TYR:OH	1:A:488:ASP:OD2	2.32	0.43
1:A:923:ASP:OD2	1:A:1439:ARG:NE	2.49	0.43
3:C:223:ASP:HA	3:C:251:LEU:HD22	2.00	0.43
6:J:196:ARG:HA	8:M:208:ILE:HD11	2.00	0.43
6:J:496:ASP:CB	6:J:535:TYR:CA	2.95	0.43
14:T:306:CYS:SG	14:T:336:VAL:HB	2.58	0.43
17:H:157:G:H5''	17:H:157:G:C8	2.50	0.43
1:A:793:ASN:HD22	3:C:60:HIS:CE1	2.37	0.43
16:G:27:U:HO2'	16:G:28:A:C5'	2.28	0.43
17:H:178:A:N3	17:H:178:A:H2'	2.33	0.43
1:A:494:LEU:HD21	1:A:562:VAL:HG21	2.00	0.43
1:A:856:LEU:HD23	1:A:860:GLN:HB3	2.00	0.43
1:A:1745:GLU:OE2	1:A:1748:ARG:NH1	2.51	0.43
2:B:71:C:C3'	2:B:71:C:C6	3.01	0.43
16:G:141:C:OP2	16:G:141:C:C6	2.70	0.43
17:H:45:C:O2'	17:H:46:U:O5'	2.33	0.43
17:H:50:C:C6	17:H:50:C:C4'	3.02	0.43
18:U:680:ASP:OD1	18:U:680:ASP:N	2.44	0.43
1:A:591:MET:HE2	1:A:598:LEU:HD21	2.01	0.43
3:C:590:ILE:HG22	3:C:592:VAL:HG23	2.01	0.43
3:C:707:ILE:H	3:C:707:ILE:HG13	1.67	0.43
13:S:122:LEU:O	13:S:126:HIS:N	2.52	0.43
17:H:157:G:H2'	17:H:158:G:O4'	2.19	0.43
28:K:134:ALA:O	28:K:136:LYS:N	2.52	0.43
1:A:180:ASP:OD1	1:A:180:ASP:N	2.49	0.43
1:A:828:PRO:HA	1:A:829:PRO:HD3	1.82	0.43
3:C:495:ARG:HB3	3:C:549:TRP:CD1	2.54	0.43
3:C:843:VAL:HG13	3:C:871:ILE:HD11	2.00	0.43
11:P:17:GLY:N	11:P:20:GLU:OE1	2.48	0.43
17:H:91:U:H2'	17:H:92:U:C6	2.50	0.43
2:B:11:U:H6	2:B:11:U:C4'	2.32	0.43
3:C:259:LYS:HG2	34:C:1500:GTP:C2	2.54	0.43
3:C:592:VAL:HG22	3:C:655:VAL:HG22	2.00	0.43
5:F:41:A:N6	5:F:42:C:N4	2.66	0.43
10:O:234:LEU:O	10:O:271:PHE:HA	2.19	0.43
12:R:178:ARG:NH1	15:W:141:PRO:O	2.52	0.43
13:S:25:LEU:HD23	13:S:132:VAL:HG12	2.00	0.43
16:G:22:C:C2'	16:G:23:U:O5'	2.66	0.43
17:H:37:U:O2'	17:H:38:A:C8	2.67	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:H:168:A:H3'	17:H:169:C:C6	2.53	0.43
2:B:46:U:O4	2:B:47:A:N6	2.46	0.43
3:C:453:TYR:HD2	3:C:456:GLY:H	1.67	0.43
3:C:829:GLU:OE2	3:C:854:ARG:NH2	2.52	0.43
6:J:194:LEU:HD21	7:L:152:LEU:HD22	2.01	0.43
16:G:21:A:H3'	16:G:21:A:H8	1.84	0.43
16:G:25:G:HO2'	16:G:26:U:P	2.41	0.43
17:H:98:G:H5'	17:H:104:U:OP2	2.19	0.43
1:A:1516:LYS:HB3	1:A:1516:LYS:HE2	1.57	0.42
3:C:160:ARG:NH1	3:C:160:ARG:C	2.73	0.42
4:E:75:HIS:HD1	4:E:77:ASN:H	1.66	0.42
4:E:258:THR:HG21	4:E:260:ARG:HH21	1.84	0.42
6:J:343:GLU:HG2	6:J:347:HIS:CD2	2.54	0.42
13:S:152:ARG:HH22	15:W:74:PRO:HG2	1.84	0.42
15:W:571:TRP:O	15:W:573:GLY:N	2.52	0.42
16:G:6:A:N1	16:G:7:G:C4	2.87	0.42
18:U:673:GLU:O	18:U:682:SER:OG	2.26	0.42
19:I:545:ILE:O	19:I:548:PHE:N	2.51	0.42
1:A:1272:THR:HA	1:A:1275:ARG:HD3	2.00	0.42
16:G:137:C:O2'	16:G:138:A:C8	2.67	0.42
16:G:140:A:O2'	16:G:141:C:C5	2.72	0.42
19:I:790:ARG:CB	19:I:801:ASP:HA	2.48	0.42
1:A:833:LYS:HG3	1:A:834:HIS:CD2	2.54	0.42
9:N:105:CYS:HB3	9:N:117:CYS:SG	2.59	0.42
10:O:159:ARG:HG2	16:G:20:A:P	2.59	0.42
16:G:125:C:O2'	16:G:126:C:C1'	2.67	0.42
18:U:685:PRO:O	18:U:687:HIS:ND1	2.50	0.42
4:E:305:ALA:HA	4:E:329:SER:HB2	2.01	0.42
13:S:26:GLU:N	13:S:131:ARG:O	2.50	0.42
17:H:32:U:H6	17:H:32:U:H2'	1.57	0.42
17:H:42:G:C2	17:H:43:U:O4	2.72	0.42
1:A:1259:ILE:HD13	1:A:1259:ILE:HA	1.89	0.42
3:C:388:VAL:HA	3:C:392:LEU:HB2	2.00	0.42
5:F:17:C:H2'	5:F:18:A:C8	2.54	0.42
14:T:478:LEU:HD13	14:T:488:VAL:HG22	2.02	0.42
15:W:431:ARG:O	15:W:446:GLU:HA	2.19	0.42
15:W:528:GLY:HA2	15:W:552:VAL:CB	2.49	0.42
16:G:6:A:N6	16:G:7:G:N1	2.68	0.42
17:H:69:U:C2'	17:H:70:C:H5'	2.49	0.42
28:K:18:TYR:CB	28:K:168:LYS:HA	2.50	0.42
1:A:462:ARG:HA	1:A:463:PRO:HD3	1.94	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:38:G:H2'	5:F:39:A:C8	2.55	0.42
16:G:1:G:C1'	16:G:2:U:OP1	2.67	0.42
16:G:6:A:C5	16:G:7:G:C5	3.07	0.42
1:A:1333:VAL:HG13	1:A:1365:ILE:HD13	2.02	0.42
1:A:1666:LEU:HD23	1:A:1705:ILE:HB	2.00	0.42
3:C:369:PHE:CD1	3:C:373:ILE:HG13	2.54	0.42
15:W:290:GLY:HA2	15:W:571:TRP:O	2.19	0.42
16:G:4:A:OP1	16:G:4:A:C8	2.70	0.42
16:G:12:G:H2'	16:G:13:C:C6	2.55	0.42
19:I:712:VAL:O	19:I:713:ARG:C	2.57	0.42
1:A:1057:ARG:NH2	1:A:1085:ILE:O	2.50	0.42
3:C:500:THR:HG22	3:C:545:PRO:HA	2.02	0.42
14:T:382:PRO:HB2	14:T:383:ARG:HD2	2.02	0.42
17:H:155:C:H2'	17:H:156:U:H5''	2.01	0.42
17:H:180:G:H2'	17:H:181:G:H8	1.83	0.42
3:C:129:ILE:HG22	3:C:199:LEU:HB3	2.02	0.42
3:C:853:ARG:NH2	3:C:886:ASP:OD2	2.52	0.42
5:F:57:U:H2'	5:F:58:G:C8	2.55	0.42
16:G:152:C:O2	16:G:152:C:H2'	2.19	0.42
1:A:1318:THR:HB	1:A:1324:GLY:HA3	2.01	0.42
3:C:781:ASP:HB2	3:C:941:LYS:HZ1	1.84	0.42
4:E:131:LYS:HA	4:E:154:VAL:HG23	2.01	0.42
4:E:209:ILE:HG12	4:E:219:VAL:HG22	2.02	0.42
7:L:11:TRP:HE1	7:L:133:GLU:HG3	1.84	0.42
7:L:253:SER:HA	7:L:256:GLU:HG2	2.02	0.42
17:H:147:G:N1	17:H:148:C:C4	2.88	0.42
1:A:758:ARG:HD2	1:A:758:ARG:HA	1.69	0.41
3:C:144:CYS:HB2	3:C:165:LEU:HD12	1.98	0.41
4:E:133:VAL:HB	4:E:147:LEU:HG	2.02	0.41
4:E:145:LYS:HE2	4:E:184:LYS:HG2	2.02	0.41
7:L:120:PRO:O	7:L:121:ARG:NE	2.53	0.41
17:H:112:G:H2'	17:H:113:G:C8	2.50	0.41
1:A:93:LYS:O	1:A:649:GLU:HG2	2.20	0.41
1:A:312:TYR:OH	3:C:886:ASP:OD2	2.37	0.41
3:C:506:PRO:HA	3:C:526:THR:HA	2.01	0.41
3:C:664:GLU:HB3	3:C:820:PHE:HZ	1.85	0.41
6:J:669:GLN:C	6:J:671:ARG:N	2.74	0.41
1:A:788:GLN:HG2	1:A:1024:HIS:HB3	2.02	0.41
3:C:263:LEU:HD23	3:C:267:LEU:HD12	2.02	0.41
3:C:389:ASP:OD1	3:C:389:ASP:N	2.54	0.41
4:E:59:ILE:HD12	4:E:59:ILE:HA	1.88	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:248:SER:HB3	4:E:265:ARG:HH21	1.85	0.41
11:P:19:GLY:HA2	11:P:23:LEU:HD12	2.02	0.41
13:S:92:PHE:CD2	13:S:122:LEU:HB3	2.55	0.41
16:G:21:A:H3'	16:G:21:A:C8	2.55	0.41
17:H:103:U:C3'	17:H:104:U:H5'	2.51	0.41
17:H:150:U:C2'	17:H:151:C:H5'	2.50	0.41
28:K:128:SER:O	28:K:132:CYS:CB	2.68	0.41
1:A:1159:ASN:HB3	11:P:196:ASN:HA	2.02	0.41
2:B:70:A:N3	2:B:70:A:H5''	2.34	0.41
7:L:209:ASP:OD1	7:L:209:ASP:N	2.52	0.41
7:L:699:ASN:HA	28:K:114:LEU:CB	2.50	0.41
10:O:213:LEU:HD12	16:G:21:A:H2'	2.02	0.41
14:T:380:LEU:HG	14:T:400:PHE:HZ	1.85	0.41
15:W:371:THR:O	15:W:372:ASN:CB	2.68	0.41
16:G:21:A:C8	16:G:21:A:C3'	3.03	0.41
18:U:810:ILE:HA	18:U:813:SER:HB2	2.01	0.41
19:I:255:LEU:O	19:I:256:GLY:C	2.59	0.41
1:A:1048:MET:HG2	1:A:1051:LEU:HD12	2.03	0.41
3:C:163:GLN:HB3	3:C:164:ASP:H	1.60	0.41
3:C:375:GLU:O	3:C:379:LYS:HG2	2.21	0.41
18:U:560:VAL:CG1	18:U:660:LYS:HZ3	2.26	0.41
18:U:696:VAL:HG12	18:U:715:PRO:HA	2.02	0.41
19:I:255:LEU:O	19:I:257:LYS:N	2.53	0.41
1:A:250:VAL:HG13	1:A:406:TRP:HB3	2.02	0.41
1:A:796:LYS:HG3	12:R:279:HIS:HE1	1.84	0.41
1:A:1513:MET:SD	18:U:619:MET:HG2	2.60	0.41
3:C:836:VAL:HG11	3:C:846:VAL:HG21	2.03	0.41
5:F:27:A:OP1	10:O:175:ARG:NH1	2.46	0.41
10:O:216:ARG:HD2	16:G:22:C:H5''	2.03	0.41
11:P:32:SER:HA	11:P:35:LEU:HD13	2.02	0.41
11:P:204:GLN:O	11:P:206:LYS:N	2.53	0.41
14:T:380:LEU:HG	14:T:400:PHE:CZ	2.55	0.41
15:W:491:GLN:CB	16:G:136:U:P	3.09	0.41
17:H:168:A:H5''	17:H:169:C:H5	1.86	0.41
19:I:526:MET:O	19:I:526:MET:SD	2.78	0.41
1:A:332:TYR:O	3:C:888:ARG:NH2	2.48	0.41
17:H:153:A:H3'	17:H:154:C:H5'	2.00	0.41
18:U:620:ARG:NH1	18:U:647:ARG:HE	2.19	0.41
9:N:22:LEU:HD21	9:N:60:ILE:HD11	2.02	0.41
14:T:450:VAL:HG11	14:T:489:TYR:HE2	1.86	0.41
17:H:171:U:H2'	17:H:172:C:O4'	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:199:GLU:OE2	1:A:240:ARG:NH1	2.51	0.41
1:A:699:GLU:OE2	12:R:235:ARG:HB3	2.21	0.41
1:A:1178:TYR:HB2	1:A:1185:LEU:HB3	2.02	0.41
1:A:1487:HIS:HD2	1:A:1541:THR:HG21	1.85	0.41
1:A:1556:ASP:OD1	1:A:1557:LEU:N	2.50	0.41
1:A:1648:SER:HB2	1:A:1649:LYS:HD2	2.03	0.41
1:A:1971:LEU:HB2	1:A:1976:TRP:CE2	2.55	0.41
3:C:92:PRO:HA	14:T:278:ASN:ND2	2.36	0.41
3:C:804:GLY:O	3:C:808:ILE:HB	2.21	0.41
12:R:113:TYR:OH	14:T:402:ASP:O	2.25	0.41
13:S:121:TRP:CZ2	15:W:98:PRO:HG3	2.56	0.41
13:S:123:ASP:N	13:S:123:ASP:OD1	2.51	0.41
14:T:345:ILE:HD11	14:T:359:LEU:HD13	2.03	0.41
16:G:6:A:N9	16:G:7:G:C8	2.89	0.41
16:G:147:C:C4	17:H:31:G:N1	2.69	0.41
17:H:35:A:H8	17:H:35:A:OP2	2.03	0.41
17:H:51:A:H5'	17:H:99:A:O2'	2.21	0.41
17:H:112:G:H8	17:H:112:G:O5'	2.04	0.41
17:H:147:G:C4	17:H:148:C:C5	3.09	0.41
1:A:852:VAL:HG11	1:A:1449:LYS:HZ2	1.85	0.41
1:A:1971:LEU:O	1:A:1976:TRP:NE1	2.53	0.41
2:B:72:U:C3'	2:B:72:U:C6	3.04	0.41
6:J:600:ILE:C	6:J:602:LYS:N	2.74	0.41
17:H:88:A:C6	17:H:89:U:C4	3.09	0.41
17:H:92:U:C2'	17:H:93:A:H8	2.28	0.41
1:A:56:ALA:O	9:N:109:ARG:NH1	2.35	0.40
2:B:73:C:O2	2:B:73:C:O2'	2.35	0.40
3:C:158:ARG:C	3:C:159:LYS:CD	2.73	0.40
3:C:637:LEU:HA	3:C:637:LEU:HD23	1.90	0.40
5:F:17:C:H2'	5:F:18:A:H8	1.87	0.40
6:J:281:LYS:HA	6:J:284:GLU:HG2	2.02	0.40
6:J:774:VAL:CB	6:J:787:LYS:CB	2.99	0.40
7:L:114:GLU:HG2	7:L:115:GLU:H	1.86	0.40
14:T:213:GLU:HG3	14:T:218:TRP:CZ2	2.57	0.40
3:C:134:LEU:O	3:C:205:THR:OG1	2.29	0.40
6:J:293:ASN:OD1	7:L:225:TYR:HB3	2.21	0.40
7:L:22:ALA:HB2	7:L:37:LEU:HD23	2.04	0.40
15:W:298:PRO:O	15:W:299:LEU:CB	2.68	0.40
16:G:22:C:O2	16:G:22:C:C2'	2.69	0.40
16:G:141:C:O5'	16:G:141:C:C2'	2.70	0.40
17:H:59:A:C6	17:H:60:U:C4	3.09	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1179:SER:O	1:A:1201:ARG:NH2	2.37	0.40
3:C:495:ARG:HH21	3:C:547:GLY:HA2	1.86	0.40
5:F:78:A:H4'	6:J:237:LYS:HE2	2.03	0.40
7:L:140:ASP:OD1	7:L:140:ASP:N	2.55	0.40
15:W:77:LYS:HA	15:W:77:LYS:HD3	1.86	0.40
19:I:426:PHE:CB	19:I:458:LYS:CB	2.99	0.40
1:A:1976:TRP:HA	1:A:1979:VAL:HG22	2.04	0.40
2:B:85:C:H3'	2:B:85:C:P	2.61	0.40
5:F:81:C:H5''	5:F:82:A:H5''	2.03	0.40
6:J:493:ALA:CB	6:J:499:ARG:CB	2.96	0.40
6:J:592:ALA:N	6:J:595:ALA:HB3	2.37	0.40
9:N:3:LYS:HA	9:N:3:LYS:HD2	1.91	0.40
12:R:281:ASN:ND2	12:R:282:GLU:OE1	2.54	0.40
14:T:216:ASN:ND2	14:T:471:ASP:HB2	2.37	0.40
17:H:181:G:C4	17:H:182:U:C5	3.10	0.40
3:C:264:ILE:HG12	3:C:378:TYR:CE1	2.57	0.40
4:E:304:SER:OG	4:E:308:PHE:O	2.39	0.40
7:L:692:LEU:CB	28:K:107:VAL:CB	3.00	0.40
14:T:446:ASN:ND2	14:T:449:ARG:HE	2.19	0.40
19:I:606:TRP:O	19:I:609:ALA:HB3	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	1977/2335 (85%)	1793 (91%)	165 (8%)	19 (1%)	15	45
3	C	886/972 (91%)	788 (89%)	96 (11%)	2 (0%)	47	78
4	E	301/357 (84%)	280 (93%)	20 (7%)	1 (0%)	41	71
6	J	520/848 (61%)	473 (91%)	42 (8%)	5 (1%)	15	45

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	L	459/802 (57%)	423 (92%)	31 (7%)	5 (1%)	14	42
8	M	128/243 (53%)	116 (91%)	12 (9%)	0	100	100
9	N	141/144 (98%)	128 (91%)	12 (8%)	1 (1%)	22	54
10	O	288/420 (69%)	262 (91%)	25 (9%)	1 (0%)	41	71
11	P	114/229 (50%)	98 (86%)	15 (13%)	1 (1%)	17	48
12	R	268/536 (50%)	227 (85%)	38 (14%)	3 (1%)	14	42
13	S	157/166 (95%)	141 (90%)	16 (10%)	0	100	100
14	T	315/514 (61%)	292 (93%)	21 (7%)	2 (1%)	25	58
15	W	507/579 (88%)	433 (85%)	46 (9%)	28 (6%)	2	5
18	U	343/894 (38%)	277 (81%)	58 (17%)	8 (2%)	6	23
19	I	528/855 (62%)	491 (93%)	23 (4%)	14 (3%)	5	19
20	a	77/126 (61%)	76 (99%)	1 (1%)	0	100	100
20	h	77/126 (61%)	76 (99%)	1 (1%)	0	100	100
21	b	84/231 (36%)	82 (98%)	2 (2%)	0	100	100
21	i	84/231 (36%)	82 (98%)	2 (2%)	0	100	100
22	c	80/119 (67%)	77 (96%)	3 (4%)	0	100	100
22	j	80/119 (67%)	77 (96%)	3 (4%)	0	100	100
23	d	95/118 (80%)	91 (96%)	4 (4%)	0	100	100
23	k	81/118 (69%)	78 (96%)	3 (4%)	0	100	100
24	f	72/86 (84%)	69 (96%)	3 (4%)	0	100	100
24	m	72/86 (84%)	68 (94%)	4 (6%)	0	100	100
25	e	77/92 (84%)	76 (99%)	1 (1%)	0	100	100
25	l	77/92 (84%)	76 (99%)	1 (1%)	0	100	100
26	g	72/76 (95%)	70 (97%)	2 (3%)	0	100	100
26	n	63/76 (83%)	61 (97%)	2 (3%)	0	100	100
27	q	130/504 (26%)	119 (92%)	7 (5%)	4 (3%)	4	16
27	r	129/504 (26%)	119 (92%)	8 (6%)	2 (2%)	9	32
27	s	65/504 (13%)	62 (95%)	2 (3%)	1 (2%)	10	34
27	t	65/504 (13%)	64 (98%)	0	1 (2%)	10	34
28	K	144/225 (64%)	130 (90%)	8 (6%)	6 (4%)	3	10
29	o	160/255 (63%)	146 (91%)	12 (8%)	2 (1%)	12	37

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
30	p	92/225 (41%)	90 (98%)	2 (2%)	0	100	100
31	Q	1308/1485 (88%)	1283 (98%)	25 (2%)	0	100	100
32	y	77/301 (26%)	75 (97%)	2 (3%)	0	100	100
All	All	10193/16097 (63%)	9369 (92%)	718 (7%)	106 (1%)	20	45

All (106) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1306	LYS
1	A	1367	ASN
1	A	1639	VAL
1	A	1653	ASP
1	A	1654	SER
4	E	59	ILE
6	J	592	ALA
15	W	228	LYS
15	W	240	ILE
15	W	259	GLN
15	W	263	VAL
15	W	267	SER
15	W	279	LYS
15	W	299	LEU
15	W	372	ASN
15	W	492	ASN
18	U	579	VAL
18	U	613	ASN
18	U	706	LEU
18	U	793	ASP
18	U	810	ILE
19	I	463	PRO
19	I	486	VAL
19	I	721	LYS
27	q	59	HIS
27	q	60	PRO
27	s	71	ILE
27	t	69	THR
28	K	78	PRO
28	K	90	PRO
1	A	136	ILE
1	A	626	GLY
1	A	1191	GLY

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Mol	Chain	Res	Type
1	A	1305	SER
1	A	1366	PRO
1	A	1419	ILE
6	J	709	VAL
7	L	765	ARG
9	N	4	VAL
11	P	205	LYS
12	R	52	PRO
12	R	234	SER
14	T	406	ILE
15	W	318	VAL
15	W	325	LEU
15	W	482	ASP
19	I	368	GLN
19	I	546	SER
19	I	618	ARG
27	q	9	ASN
28	K	136	LYS
28	K	172	LEU
29	o	160	LYS
1	A	625	PRO
1	A	803	ALA
1	A	1092	ILE
3	C	94	ILE
7	L	118	ASP
12	R	53	ARG
14	T	343	PRO
15	W	77	LYS
15	W	149	SER
15	W	243	VAL
15	W	246	MET
18	U	679	PHE
18	U	809	ASP
19	I	284	ARG
19	I	480	VAL
19	I	601	GLN
27	q	19	PRO
27	r	9	ASN
1	A	1519	THR
6	J	341	PRO
6	J	591	LEU
7	L	585	TYR

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Mol	Chain	Res	Type
15	W	204	ASP
15	W	272	GLU
15	W	554	ILE
18	U	845	PHE
19	I	617	GLU
28	K	65	ILE
29	o	32	PRO
1	A	108	MET
1	A	1365	ILE
1	A	1652	MET
6	J	357	LYS
15	W	301	GLY
15	W	330	GLY
19	I	254	GLN
19	I	256	GLY
19	I	321	GLU
19	I	796	LEU
1	A	1251	SER
7	L	763	ILE
10	O	20	PHE
15	W	229	GLN
15	W	376	PRO
15	W	549	HIS
7	L	764	PRO
15	W	205	VAL
15	W	208	PRO
3	C	87	GLN
15	W	251	GLY
27	r	65	PRO
28	K	17	PRO
15	W	270	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.

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	1792/2108 (85%)	1767 (99%)	25 (1%)	67	89
3	C	787/866 (91%)	769 (98%)	18 (2%)	50	80
4	E	259/300 (86%)	254 (98%)	5 (2%)	57	84
6	J	242/751 (32%)	236 (98%)	6 (2%)	47	78
7	L	228/709 (32%)	225 (99%)	3 (1%)	69	90
8	M	117/209 (56%)	114 (97%)	3 (3%)	46	77
9	N	130/130 (100%)	129 (99%)	1 (1%)	81	94
10	O	259/361 (72%)	254 (98%)	5 (2%)	57	84
11	P	104/203 (51%)	101 (97%)	3 (3%)	42	76
12	R	227/457 (50%)	218 (96%)	9 (4%)	31	65
13	S	129/134 (96%)	127 (98%)	2 (2%)	62	86
14	T	273/441 (62%)	270 (99%)	3 (1%)	73	92
15	W	135/502 (27%)	133 (98%)	2 (2%)	65	87
18	U	313/806 (39%)	302 (96%)	11 (4%)	36	70
19	I	7/749 (1%)	2 (29%)	5 (71%)	0	0
All	All	5002/8726 (57%)	4901 (98%)	101 (2%)	57	82

All (101) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	82	ARG
1	A	409	ARG
1	A	470	ARG
1	A	642	ARG
1	A	668	VAL
1	A	676	ARG
1	A	762	ARG
1	A	994	ASN
1	A	1109	LEU
1	A	1195	ARG
1	A	1216	LEU
1	A	1295	ILE
1	A	1505	LYS
1	A	1516	LYS
1	A	1517	LYS

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Mol	Chain	Res	Type
1	A	1518	LEU
1	A	1522	GLN
1	A	1527	ASN
1	A	1532	ARG
1	A	1555	LEU
1	A	1593	LEU
1	A	1622	MET
1	A	1636	LYS
1	A	1649	LYS
1	A	1813	ARG
3	C	128	LEU
3	C	138	LEU
3	C	139	HIS
3	C	144	CYS
3	C	159	LYS
3	C	160	ARG
3	C	161	TYR
3	C	162	ASP
3	C	175	GLN
3	C	238	ASN
3	C	313	GLN
3	C	394	ARG
3	C	495	ARG
3	C	513	ASN
3	C	673	LYS
3	C	775	ARG
3	C	786	ASN
3	C	814	ARG
4	E	55	LEU
4	E	59	ILE
4	E	62	LEU
4	E	131	LYS
4	E	147	LEU
6	J	236	ARG
6	J	237	LYS
6	J	239	ARG
6	J	240	THR
6	J	242	ILE
6	J	366	TYR
7	L	13	ASN
7	L	123	LEU
7	L	202	ARG

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Mol	Chain	Res	Type
8	M	134	GLN
8	M	212	ASN
8	M	215	ASN
9	N	101	CYS
10	O	78	LYS
10	O	79	ASN
10	O	146	MET
10	O	222	ARG
10	O	249	ARG
11	P	13	ARG
11	P	75	ASN
11	P	212	ASN
12	R	95	LYS
12	R	163	MET
12	R	165	VAL
12	R	166	ARG
12	R	234	SER
12	R	235	ARG
12	R	276	GLN
12	R	281	ASN
12	R	305	ARG
13	S	61	MET
13	S	102	ASN
14	T	220	VAL
14	T	308	ARG
14	T	489	TYR
15	W	145	ASN
15	W	193	LEU
18	U	550	ARG
18	U	589	ARG
18	U	656	ASN
18	U	660	LYS
18	U	662	ILE
18	U	666	ARG
18	U	667	SER
18	U	672	MET
18	U	702	ASN
18	U	737	ARG
18	U	808	LYS
19	I	235	VAL
19	I	399	VAL
19	I	486	VAL

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Mol	Chain	Res	Type
19	I	526	MET
19	I	795	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (51) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	328	HIS
1	A	361	HIS
1	A	711	GLN
1	A	723	ASN
1	A	775	ASN
1	A	793	ASN
1	A	860	GLN
1	A	1215	ASN
1	A	1296	GLN
1	A	1373	GLN
1	A	1487	HIS
1	A	1522	GLN
1	A	1580	HIS
1	A	1811	ASN
3	C	60	HIS
3	C	82	GLN
3	C	139	HIS
3	C	238	ASN
3	C	245	HIS
3	C	513	ASN
3	C	523	GLN
3	C	903	HIS
4	E	191	GLN
4	E	253	ASN
6	J	188	GLN
6	J	311	GLN
6	J	347	HIS
6	J	410	HIS
8	M	212	ASN
9	N	37	HIS
10	O	14	ASN
10	O	79	ASN
10	O	113	ASN
11	P	75	ASN
11	P	212	ASN
12	R	189	ASN

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Mol	Chain	Res	Type
12	R	231	HIS
12	R	242	GLN
12	R	279	HIS
13	S	102	ASN
14	T	191	HIS
14	T	216	ASN
14	T	283	HIS
14	T	324	HIS
14	T	446	ASN
15	W	145	ASN
18	U	656	ASN
18	U	665	HIS
18	U	702	ASN
18	U	718	HIS
18	U	765	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
16	G	69/272 (25%)	55 (79%)	12 (17%)
17	H	133/188 (70%)	52 (39%)	8 (6%)
2	B	97/117 (82%)	44 (45%)	5 (5%)
5	F	96/107 (89%)	41 (42%)	6 (6%)
All	All	395/684 (57%)	192 (48%)	31 (7%)

All (192) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	B	8	G
2	B	9	G
2	B	10	U
2	B	11	U
2	B	20	G
2	B	21	A
2	B	22	U
2	B	23	C
2	B	25	C
2	B	26	A
2	B	28	A
2	B	35	U
2	B	36	C

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Mol	Chain	Res	Type
2	B	38	C
2	B	45	C
2	B	47	A
2	B	48	A
2	B	57	G
2	B	67	A
2	B	69	A
2	B	70	A
2	B	71	C
2	B	73	C
2	B	74	U
2	B	75	G
2	B	77	G
2	B	78	U
2	B	79	C
2	B	80	U
2	B	81	U
2	B	82	A
2	B	83	A
2	B	84	C
2	B	85	C
2	B	86	C
2	B	87	A
2	B	88	A
2	B	89	U
2	B	90	U
2	B	91	U
2	B	92	U
2	B	94	U
2	B	95	G
2	B	96	A
5	F	5	U
5	F	6	C
5	F	7	G
5	F	10	U
5	F	12	G
5	F	26	U
5	F	27	A
5	F	28	A
5	F	29	A
5	F	33	G
5	F	34	G

Continued on next page...

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Mol	Chain	Res	Type
5	F	36	A
5	F	37	C
5	F	39	A
5	F	40	U
5	F	41	A
5	F	42	C
5	F	43	A
5	F	44	G
5	F	45	A
5	F	46	G
5	F	47	A
5	F	49	G
5	F	51	U
5	F	52	U
5	F	53	A
5	F	54	G
5	F	58	G
5	F	59	G
5	F	61	C
5	F	66	C
5	F	67	G
5	F	68	C
5	F	69	A
5	F	74	U
5	F	78	A
5	F	79	C
5	F	81	C
5	F	82	A
5	F	84	A
5	F	87	C
16	G	2	U
16	G	3	A
16	G	4	A
16	G	5	G
16	G	7	G
16	G	11	A
16	G	13	C
16	G	15	U
16	G	17	U
16	G	20	A
16	G	21	A
16	G	22	C

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Mol	Chain	Res	Type
16	G	23	U
16	G	24	G
16	G	25	G
16	G	26	U
16	G	27	U
16	G	28	A
16	G	29	C
16	G	30	C
16	G	31	U
16	G	119	G
16	G	121	G
16	G	122	U
16	G	123	U
16	G	124	U
16	G	125	C
16	G	126	C
16	G	127	U
16	G	128	U
16	G	129	G
16	G	130	A
16	G	131	U
16	G	132	G
16	G	133	A
16	G	134	U
16	G	135	G
16	G	136	U
16	G	137	C
16	G	138	A
16	G	139	U
16	G	140	A
16	G	141	C
16	G	142	U
16	G	143	U
16	G	144	A
16	G	145	U
16	G	146	C
16	G	147	C
16	G	148	U
16	G	149	G
16	G	150	U
16	G	151	C
16	G	153	C

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Mol	Chain	Res	Type
16	G	154	U
17	H	15	U
17	H	16	U
17	H	17	U
17	H	19	G
17	H	20	G
17	H	23	A
17	H	25	G
17	H	28	C
17	H	29	A
17	H	30	A
17	H	31	G
17	H	32	U
17	H	34	U
17	H	36	G
17	H	37	U
17	H	38	A
17	H	39	U
17	H	40	C
17	H	41	U
17	H	43	U
17	H	44	U
17	H	45	C
17	H	46	U
17	H	47	U
17	H	48	A
17	H	49	U
17	H	50	C
17	H	51	A
17	H	68	G
17	H	70	C
17	H	94	A
17	H	101	U
17	H	102	U
17	H	105	G
17	H	106	G
17	H	107	A
17	H	109	C
17	H	112	G
17	H	149	A
17	H	151	C
17	H	154	C

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Mol	Chain	Res	Type
17	H	156	U
17	H	157	G
17	H	164	C
17	H	166	G
17	H	167	U
17	H	168	A
17	H	177	A
17	H	178	A
17	H	179	C
17	H	180	G
17	H	182	U

All (31) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	B	78	U
2	B	79	C
2	B	80	U
2	B	92	U
2	B	95	G
5	F	5	U
5	F	33	G
5	F	43	A
5	F	45	A
5	F	50	A
5	F	58	G
16	G	1	G
16	G	2	U
16	G	3	A
16	G	16	G
16	G	21	A
16	G	22	C
16	G	133	A
16	G	141	C
16	G	143	U
16	G	145	U
16	G	147	C
16	G	148	U
17	H	29	A
17	H	30	A
17	H	31	G
17	H	34	U

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Mol	Chain	Res	Type
17	H	46	U
17	H	49	U
17	H	50	C
17	H	156	U

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

2 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
12	SEP	R	224	12	8,9,10	0.85	0	8,12,14	2.02	1 (12%)
12	SEP	R	232	12	8,9,10	0.91	0	8,12,14	2.06	1 (12%)

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
12	SEP	R	224	12	-	1/5/8/10	-
12	SEP	R	232	12	-	3/5/8/10	-

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
12	R	232	SEP	OG-CB-CA	5.17	113.17	108.14
12	R	224	SEP	OG-CB-CA	4.66	112.67	108.14

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
12	R	224	SEP	N-CA-CB-OG
12	R	232	SEP	CB-OG-P-O1P
12	R	232	SEP	CB-OG-P-O2P
12	R	232	SEP	CB-OG-P-O3P

There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
12	R	232	SEP	3	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 16 ligands modelled in this entry, 14 are monoatomic - leaving 2 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
33	IHP	A	3000	-	36,36,36	0.70	0	54,60,60	0.97	0
34	GTP	C	1500	35	26,34,34	0.96	1 (3%)	32,54,54	1.46	4 (12%)

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
33	IHP	A	3000	-	-	8/30/54/54	0/1/1/1
34	GTP	C	1500	35	-	4/18/38/38	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	C	1500	GTP	C6-N1	-2.74	1.33	1.37

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	C	1500	GTP	PA-O3A-PB	-3.98	119.17	132.83
34	C	1500	GTP	PB-O3B-PG	-3.53	120.71	132.83
34	C	1500	GTP	C5-C6-N1	2.44	118.26	113.95
34	C	1500	GTP	C8-N7-C5	2.43	107.61	102.99

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
33	A	3000	IHP	C6-C1-O11-P1
33	A	3000	IHP	C4-O14-P4-O44
33	A	3000	IHP	C6-O16-P6-O26
34	C	1500	GTP	C5'-O5'-PA-O3A
33	A	3000	IHP	C2-C1-O11-P1
33	A	3000	IHP	C1-C2-O12-P2
33	A	3000	IHP	C3-C2-O12-P2
33	A	3000	IHP	C6-O16-P6-O36
34	C	1500	GTP	C5'-O5'-PA-O1A
34	C	1500	GTP	C5'-O5'-PA-O2A
33	A	3000	IHP	C1-O11-P1-O31
34	C	1500	GTP	PB-O3A-PA-O2A

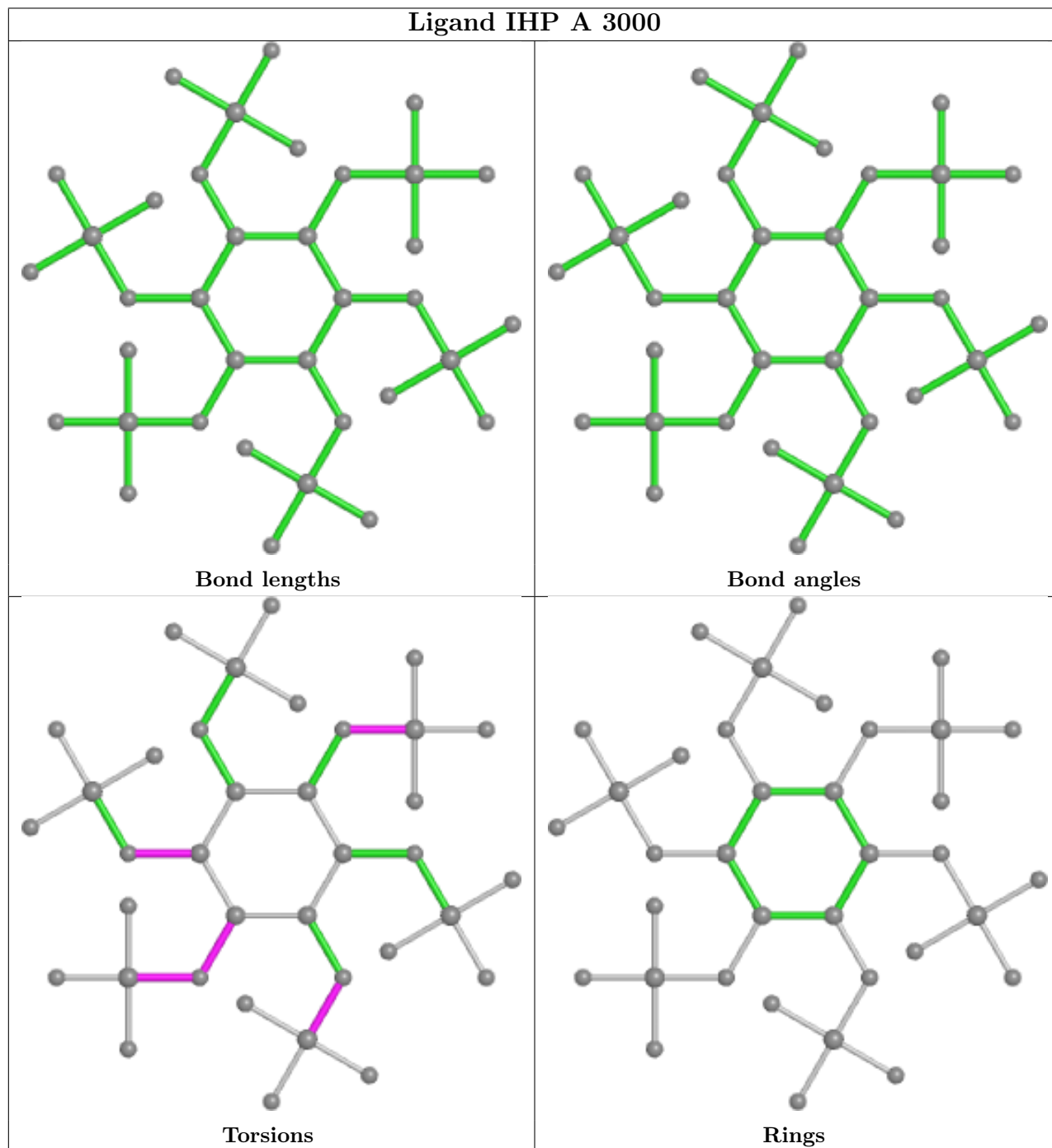
There are no ring outliers.

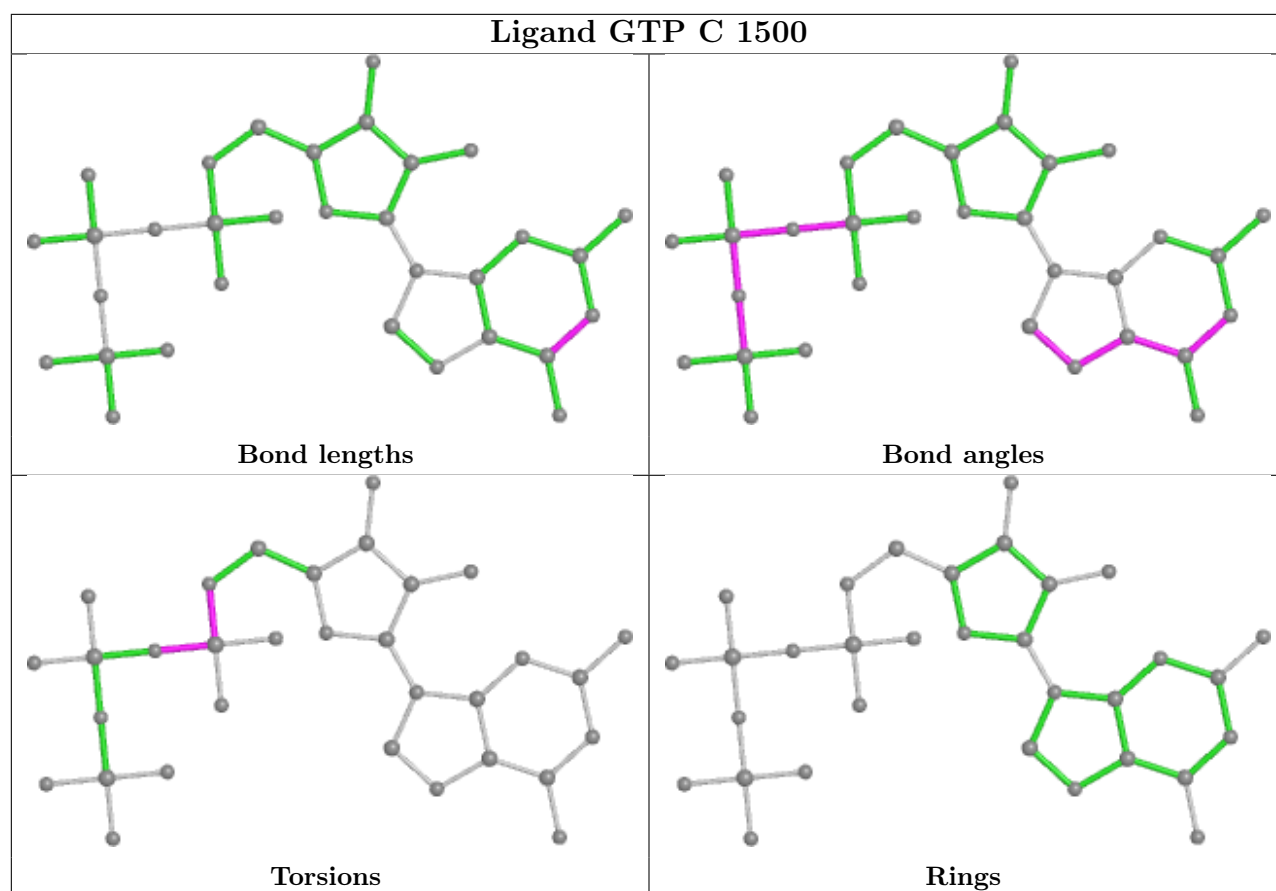
2 monomers are involved in 23 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
33	A	3000	IHP	1	0
34	C	1500	GTP	22	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be

highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

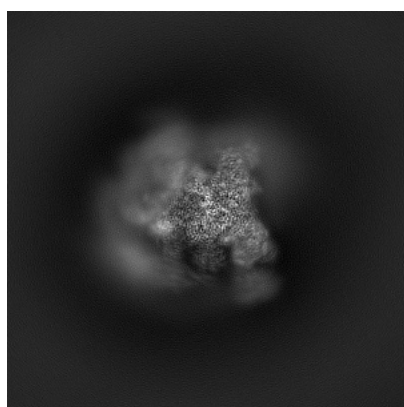
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-9646. These allow visual inspection of the internal detail of the map and identification of artifacts.

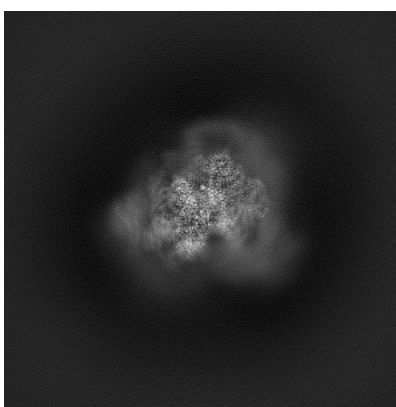
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

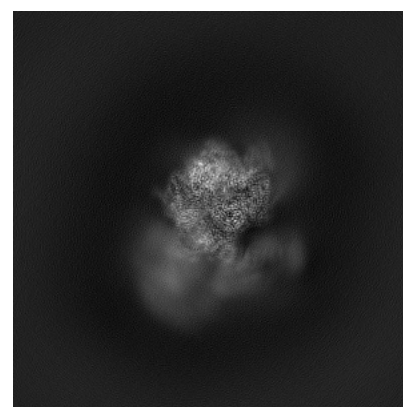
6.1.1 Primary map



X



Y

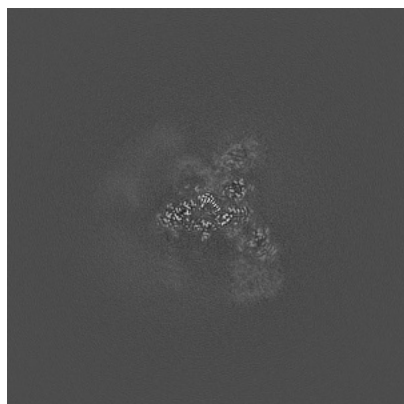


Z

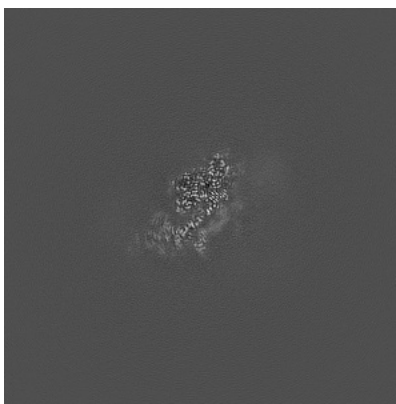
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

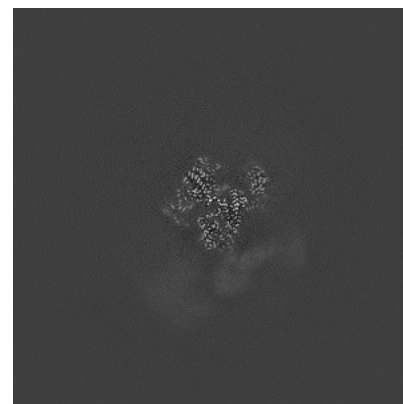
6.2.1 Primary map



X Index: 200



Y Index: 200

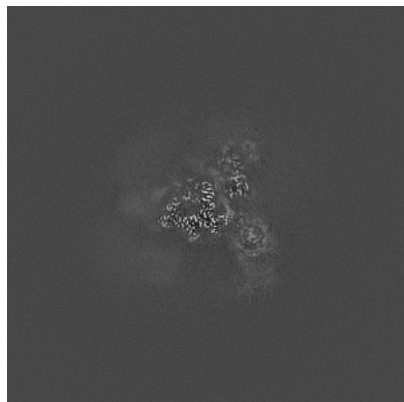


Z Index: 200

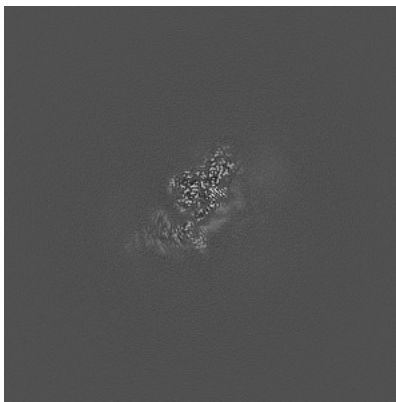
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

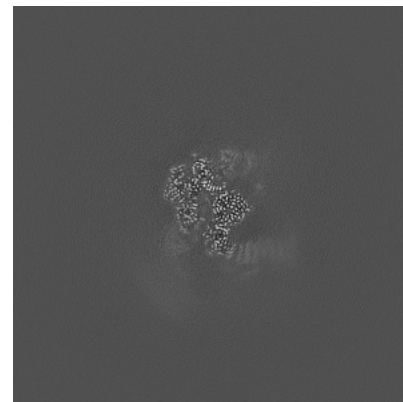
6.3.1 Primary map



X Index: 210



Y Index: 201



Z Index: 185

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

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.025. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

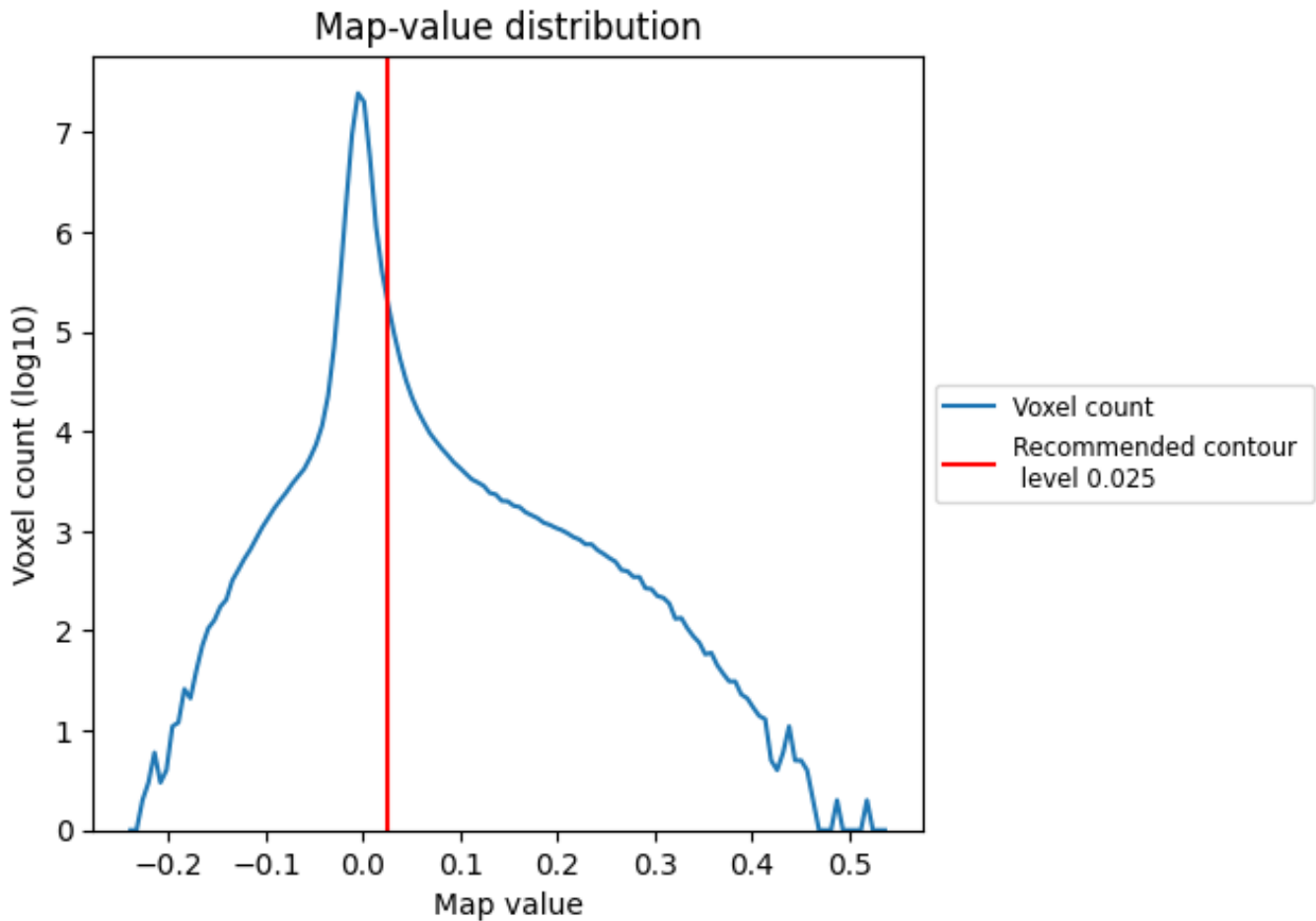
6.5 Mask visualisation

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

7 Map analysis [i](#)

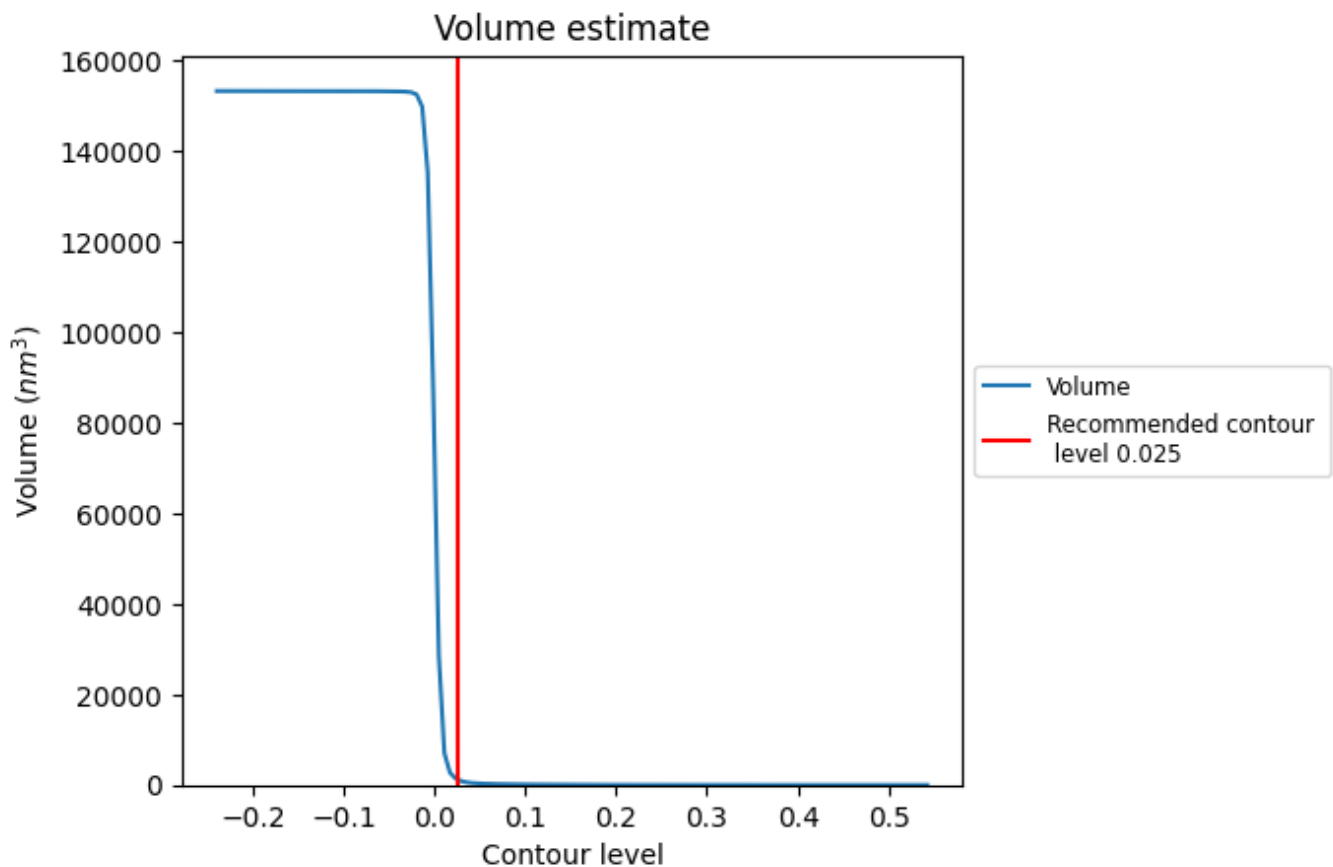
This section contains the results of statistical analysis of the map.

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.

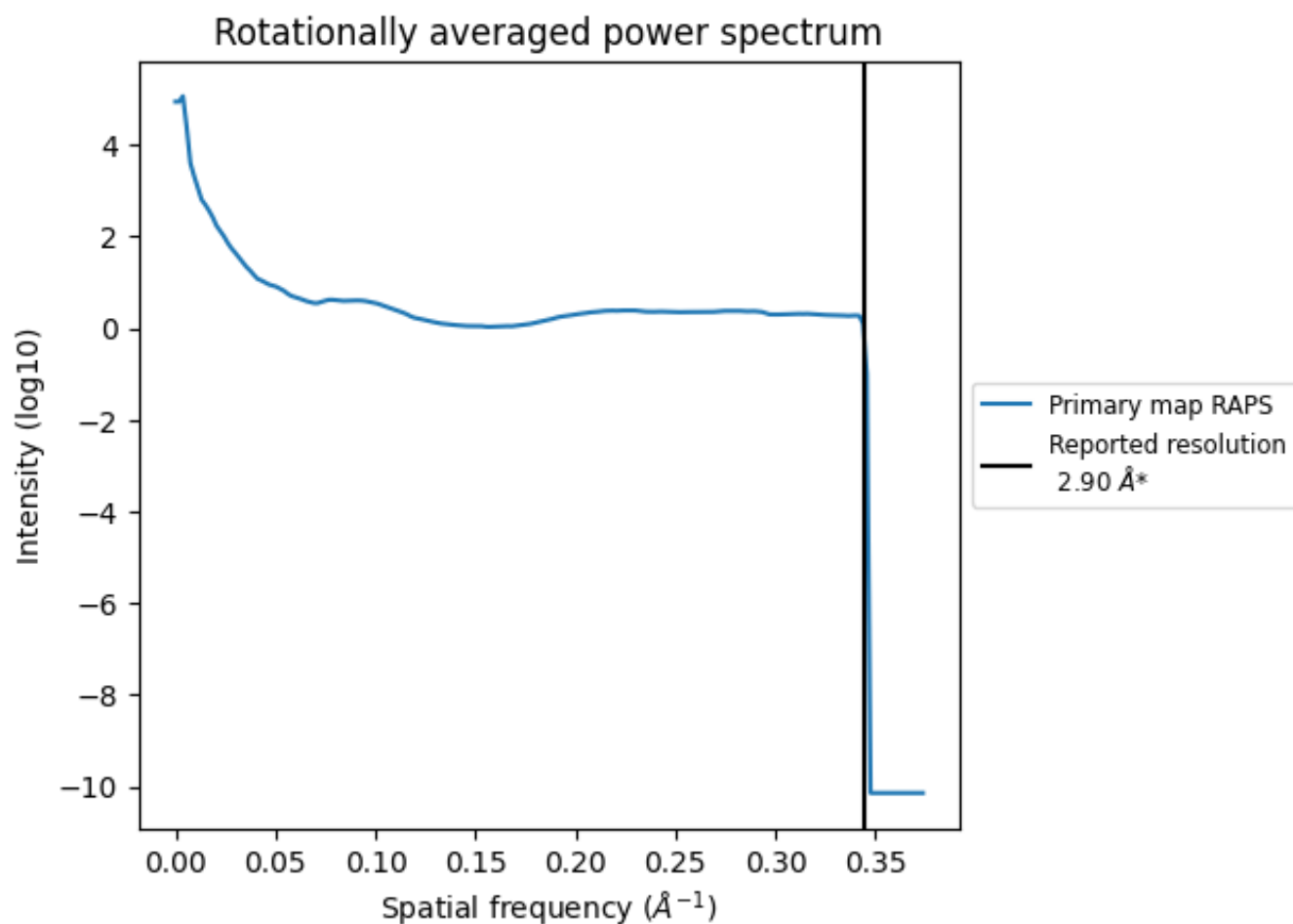
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1297 nm^3 ; this corresponds to an approximate mass of 1172 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 0.345 Å⁻¹

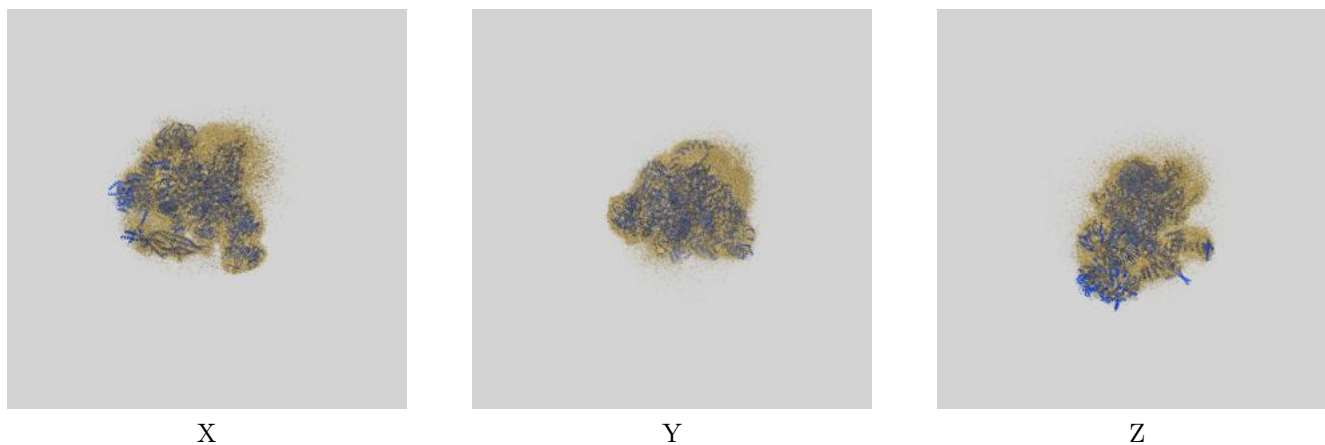
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

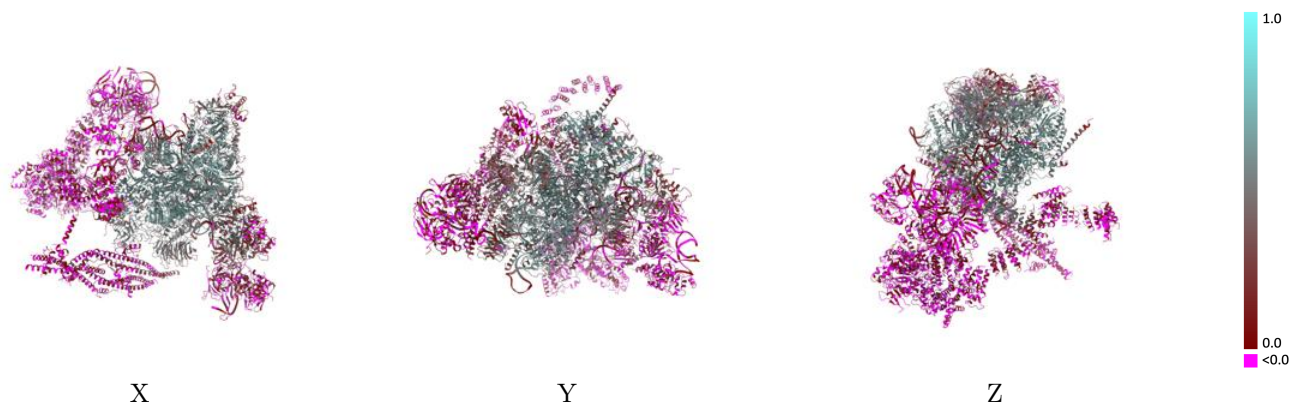
This section contains information regarding the fit between EMDB map EMD-9646 and PDB model 6ID0. Per-residue inclusion information can be found in section 3 on page 12.

9.1 Map-model overlay [i](#)



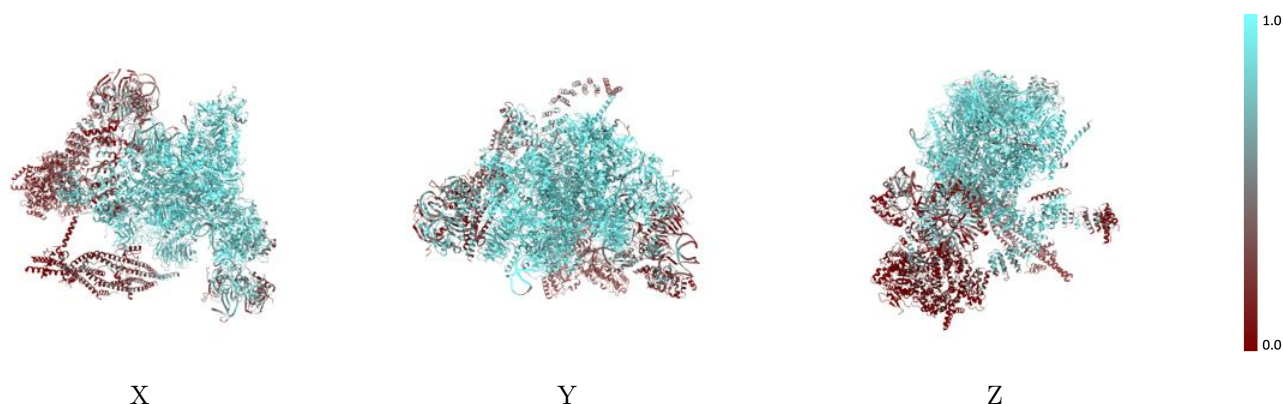
The images above show the 3D surface view of the map at the recommended contour level 0.025 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



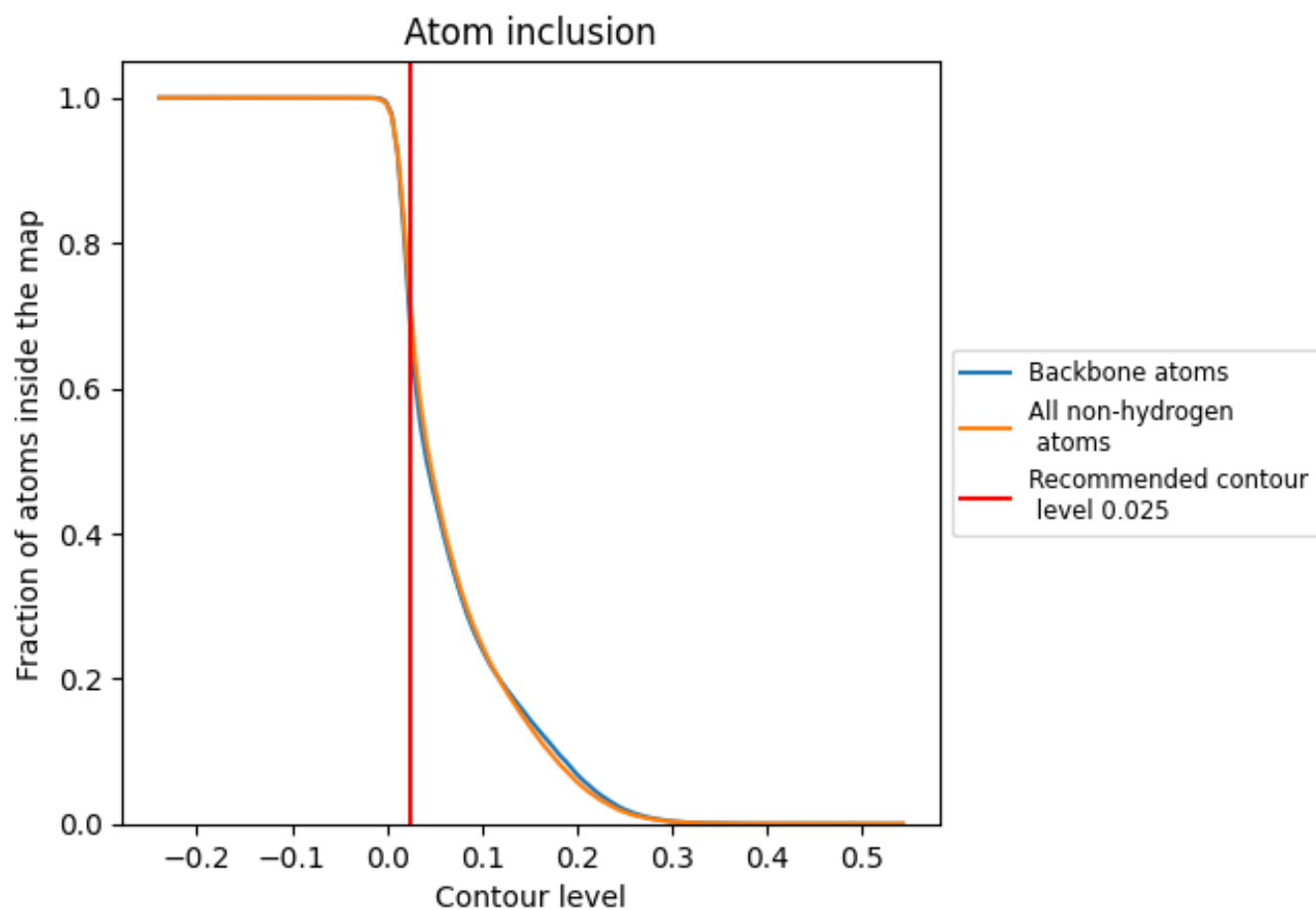
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.025).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 68% of all backbone atoms, 71% 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 (0.025) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7052	 0.3140
A	 0.9229	 0.5020
B	 0.8301	 0.3370
C	 0.8521	 0.3270
E	 0.8908	 0.4110
F	 0.9423	 0.4650
G	 0.6677	 0.1420
H	 0.5128	 0.1100
I	 0.5354	 0.0560
J	 0.7367	 0.3250
K	 0.2563	 0.0580
L	 0.6485	 0.3380
M	 0.8872	 0.4960
N	 0.9566	 0.5500
O	 0.8314	 0.3930
P	 0.8377	 0.4610
Q	 0.0687	 -0.0050
R	 0.8696	 0.4660
S	 0.9192	 0.4670
T	 0.9762	 0.5980
U	 0.8778	 0.4540
W	 0.8618	 0.3360
a	 0.6667	 0.1900
b	 0.4906	 0.0340
c	 0.6478	 0.0540
d	 0.6396	 0.0330
e	 0.4808	 0.0550
f	 0.4931	 -0.0020
g	 0.4848	 0.0500
h	 0.4698	 0.0160
i	 0.3656	 0.0240
j	 0.3522	 -0.0110
k	 0.3009	 -0.0100
l	 0.2532	 -0.0090
m	 0.3130	 0.0350



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Chain	Atom inclusion	Q-score
n	 0.3830	 0.0330
o	 0.1866	 -0.0010
p	 0.3728	 0.0250
q	 0.1153	 0.0380
r	 0.1850	 0.0200
s	 0.2328	 0.0550
t	 0.1403	 0.0050
y	 0.3923	 0.0170