



Full wwPDB EM Validation Report ⓘ

Mar 4, 2026 – 08:05 PM UTC

PDB ID : 7OE0 / pdb_00007oe0
EMDB ID : EMD-12856
Title : E. coli pre-30S delta rbfA ribosomal subunit class F
Authors : Maksimova, E.; Korepanov, A.; Baymukhametov, T.; Kravchenko, O.; Stoboushkina, E.
Deposited on : 2021-04-30
Resolution : 2.69 Å(reported)
Based on initial model : 4V4Q

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:

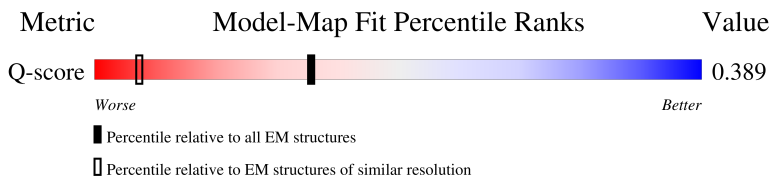
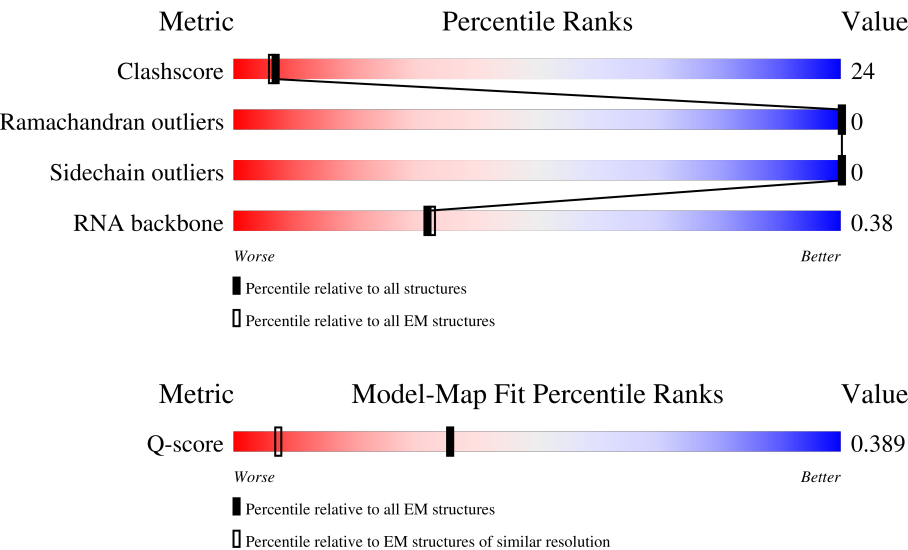
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

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 2.69 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	9309 (2.19 - 3.19)

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	B	240	27% 43% 48% 9%
2	D	205	59% 41%
3	E	166	55% 36% 10%

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Mol	Chain	Length	Quality of chain
4	F	135	
5	H	129	
6	K	128	
7	L	123	
8	O	89	
9	P	82	
10	Q	83	
11	R	74	
12	T	86	
13	A	1542	
14	C	232	
15	G	178	
16	I	129	
17	J	103	
18	M	117	
19	N	100	
20	S	91	

2 Entry composition

There are 21 unique types of molecules in this entry. The entry contains 50296 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 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	B	218	Total	C	N	O	S	0	0
			1704	1081	305	311	7		

- Molecule 2 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

- Molecule 3 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	E	150	Total	C	N	O	S	0	0
			1105	687	211	201	6		

- Molecule 4 is a protein called 30S ribosomal protein S6, fully modified isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	F	100	Total	C	N	O	S	0	0
			817	515	148	148	6		

- Molecule 5 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	H	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 6 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	K	95	Total	C	N	O	S	0	0
			702	433	137	130	2		

- Molecule 7 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	L	123	Total	C	N	O	S	0	0
			955	590	196	165	4		

- Molecule 8 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	O	88	Total	C	N	O	S	0	0
			716	440	146	129	1		

- Molecule 9 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	P	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 10 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Q	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

- Molecule 11 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	R	50	Total	C	N	O	0	0
			407	259	76	72		

- Molecule 12 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	T	85	Total	C	N	O	S	0	0
			665	411	137	114	3		

- Molecule 13 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	A	1510	Total	C	N	O	P	0	0
			32408	14454	5952	10493	1509		

- Molecule 14 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	C	206	Total	C	N	O	S	0	0
			1624	1028	305	288	3		

- Molecule 15 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	G	83	Total	C	N	O	S	0	0
			642	406	119	114	3		

- Molecule 16 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	I	127	Total	C	N	O	S	0	0
			1022	634	206	179	3		

- Molecule 17 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	J	98	Total	C	N	O	S	0	0
			786	493	150	142	1		

- Molecule 18 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	M	114	Total	C	N	O	S	0	0
			883	546	178	156	3		

- Molecule 19 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	N	96	Total	C	N	O	S	0	0
			774	483	160	128	3		

- Molecule 20 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	79	Total	C	N	O	S	0	0
			637	408	120	107	2		

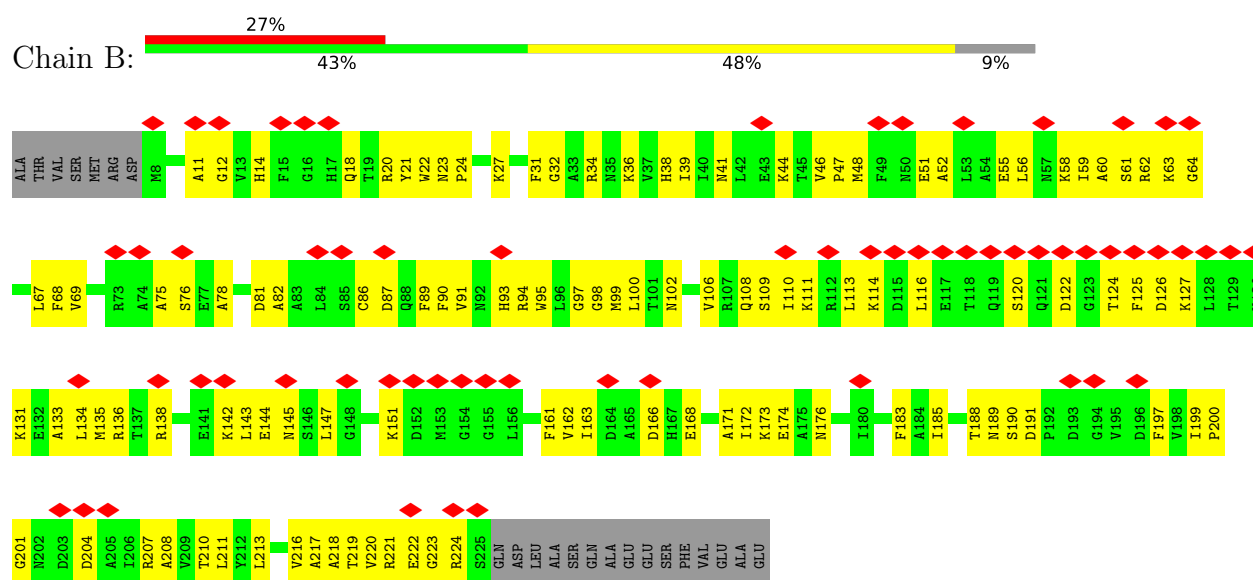
- Molecule 21 is water.

Mol	Chain	Residues	Atoms		AltConf
21	D	7	Total 7	O 7	0
21	H	9	Total 9	O 9	0
21	L	6	Total 6	O 6	0
21	O	1	Total 1	O 1	0
21	P	9	Total 9	O 9	0
21	Q	3	Total 3	O 3	0
21	R	1	Total 1	O 1	0
21	T	10	Total 10	O 10	0
21	A	484	Total 484	O 484	0

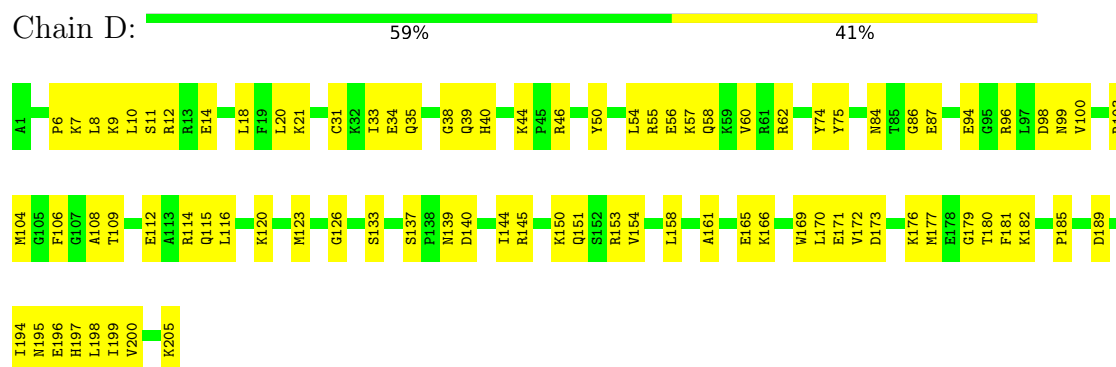
3 Residue-property plots

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: 30S ribosomal protein S2

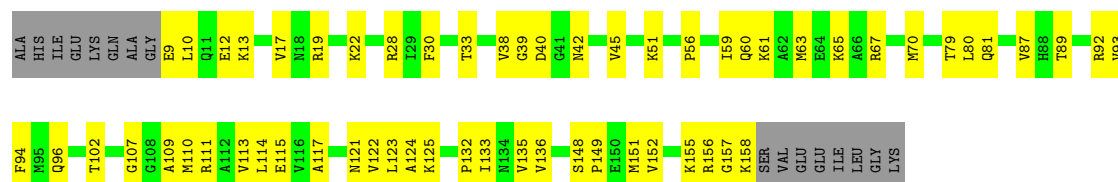


• Molecule 2: 30S ribosomal protein S4

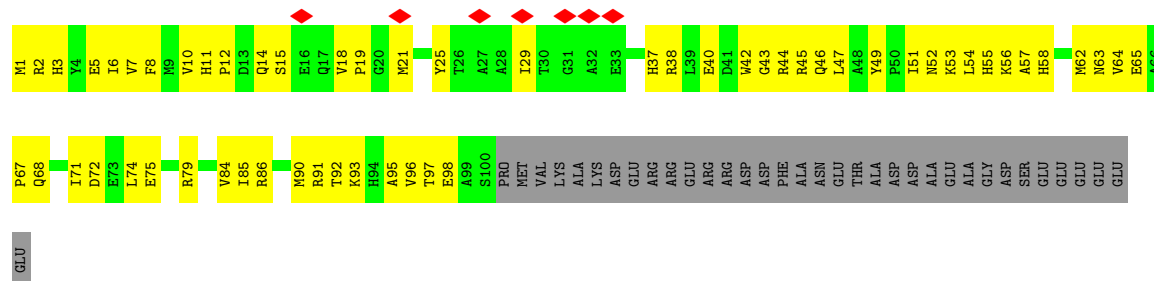


• Molecule 3: 30S ribosomal protein S5

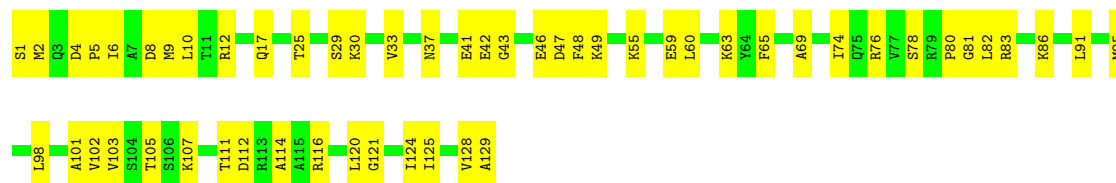




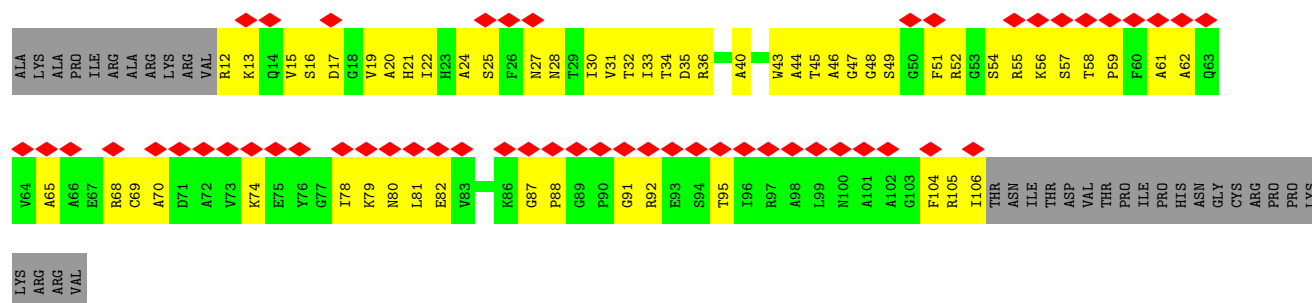
- Molecule 4: 30S ribosomal protein S6, fully modified isoform



- Molecule 5: 30S ribosomal protein S8

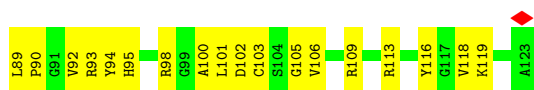


- Molecule 6: 30S ribosomal protein S11

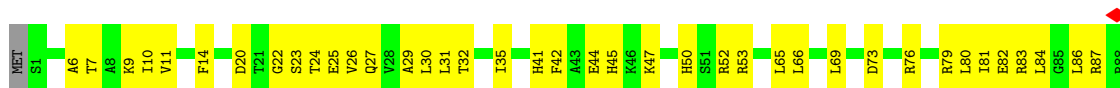


- Molecule 7: 30S ribosomal protein S12

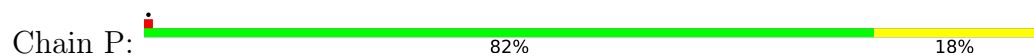




- Molecule 8: 30S ribosomal protein S15



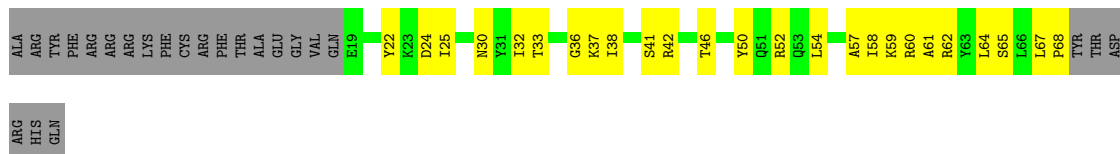
- Molecule 9: 30S ribosomal protein S16



- Molecule 10: 30S ribosomal protein S17



- Molecule 11: 30S ribosomal protein S18



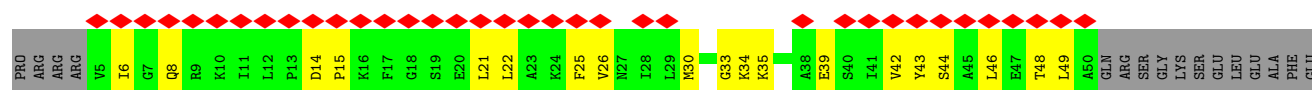
- Molecule 12: 30S ribosomal protein S20

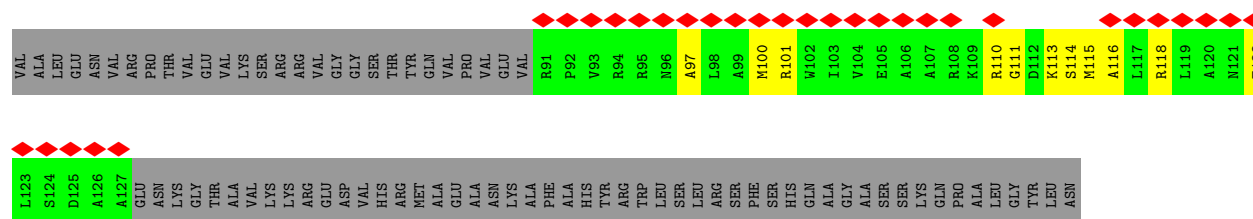


- Molecule 13: 16S rRNA

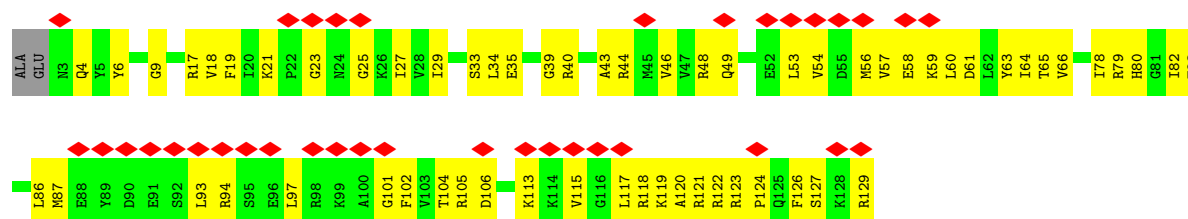


A1111	A1112	U1115	U1116	U1117	U1118	U1119	U1120	U1121	U1122	U1123	U1124	U1125	U1126	U1127	A1130	A1131	U1132	U1133	U1134	U1135	U1136	U1137	U1138	U1139	U1140	U1141	U1142	U1143	U1144	U1145	U1146	U1147	U1148	U1149	U1150	U1151	U1152	G1156	G1157	G1158	U1159	G1160	G1161	G1162	G1163	G1164	G1165	G1166	G1167	G1168	G1169	G1170	G1171	G1172	G1173	G1174	G1175																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
C984	C985	U986	U987	U988	U989	C990	U991	U992	U993	U994	U995	U996	U997	C998	C999	U1000	U1001	U1002	U1003	U1004	U1005	U1006	U1007	U1008	U1009	U1010	U1011	U1012	U1013	U1014	U1015	U1016	U1017	U1018	U1019	U1020	U1021	U1022	U1023	U1024	U1025	U1026	U1027	U1028	U1029	U1030	U1031	U1032	U1033	U1034	U1035	U1036	U1037	U1038	U1039	U1040	U1041	U1042	U1043	U1044	U1045	U1046																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
A845	A846	A847	A848	A849	A850	A851	U852	U853	U854	U855	U856	U857	U858	U859	U860	U861	A862	A863	A864	A865	A866	A867	A868	A869	A870	A871	A872	A873	A874	A875	A876	A877	A878	A879	A880	A881	A882	A883	A884	A885	A886	A887	A888	A889	A890	A891	A892	A893	A894	A895	A896	A897	A898	A899	A900	A901	A902	A903	A904	A905	A906	A907	A908	A909	A910	A911	A912	A913	A914	A915	A916	A917	A918	A919	A920	A921	A922	A923	A924	A925	A926	A927	A928	A929	A930	A931	A932	A933	A934	A935	A936	A937	A938	A939	A940	A941	A942	A943	A944	A945	A946	A947	A948	A949	A950	A951	A952	A953	A954	A955	A956	A957	A958	A959	A960	A961	A962	A963	A964	A965	A966	A967	A968	A969	A970	A971	A972	A973	A974	A975	A976	A977	A978	A979	A980	A981	A982	A983	A984	A985	A986	A987	A988	A989	A990	A991	A992	A993	A994	A995	A996	A997	A998	A999	A1000	A1001	A1002	A1003	A1004	A1005	A1006	A1007	A1008	A1009	A1010	A1011	A1012	A1013	A1014	A1015	A1016	A1017	A1018	A1019	A1020	A1021	A1022	A1023	A1024	A1025	A1026	A1027	A1028	A1029	A1030	A1031	A1032	A1033	A1034	A1035	A1036	A1037	A1038	A1039	A1040	A1041	A1042	A1043	A1044	A1045	A1046																																																																																																																																																																																																																																																																																																																																																																										
U701	A702	A703	A704	A705	A706	U707	U708	U709	U710	U711	U712	U713	U714	U715	U716	U717	U718	U719	U720	U721	U722	U723	U724	U725	U726	U727	U728	U729	U730	U731	U732	U733	U734	U735	U736	U737	U738	U739	U740	U741	U742	U743	U744	U745	U746	U747	U748	U749	U750	U751	U752	U753	U754	U755	U756	U757	U758	U759	U760	U761	U762	U763	U764	U765	U766	U767	U768	U769	U770	U771	U772	U773	U774	U775	U776	U777	U778	U779	U780	U781	U782	U783	U784	U785	U786	U787	U788	U789	U790	U791	U792	U793	U794	U795	U796	U797	U798	U799	U800	U801	U802	U803	U804	U805	U806	U807	U808	U809	U810	U811	U812	U813	U814	U815	U816	U817	U818	U819	U820	U821	U822	U823	U824	U825	U826	U827	U828	U829	U830	U831	U832	U833	U834	U835	U836	U837	U838	U839	U840	U841	U842	U843	U844	U845	U846	U847	U848	U849	U850	U851	U852	U853	U854	U855	U856	U857	U858	U859	U860	U861	U862	U863	U864	U865	U866	U867	U868	U869	U870	U871	U872	U873	U874	U875	U876	U877	U878	U879	U880	U881	U882	U883	U884	U885	U886	U887	U888	U889	U890	U891	U892	U893	U894	U895	U896	U897	U898	U899	U900	U901	U902	U903	U904	U905	U906	U907	U908	U909	U910	U911	U912	U913	U914	U915	U916	U917	U918	U919	U920	U921	U922	U923	U924	U925	U926	U927	U928	U929	U930	U931	U932	U933	U934	U935	U936	U937	U938	U939	U940	U941	U942	U943	U944	U945	U946	U947	U948	U949	U950	U951	U952	U953	U954	U955	U956	U957	U958	U959	U960	U961	U962	U963	U964	U965	U966	U967	U968	U969	U970	U971	U972	U973	U974	U975	U976	U977	U978	U979	U980	U981	U982	U983	U984	U985	U986	U987	U988	U989	U990	U991	U992	U993	U994	U995	U996	U997	U998	U999	A1000	A1001	A1002	A1003	A1004	A1005	A1006	A1007	A1008	A1009	A1010	A1011	A1012	A1013	A1014	A1015	A1016	A1017	A1018	A1019	A1020	A1021	A1022	A1023	A1024	A1025	A1026	A1027	A1028	A1029	A1030	A1031	A1032	A1033	A1034	A1035	A1036	A1037	A1038	A1039	A1040	A1041	A1042	A1043	A1044	A1045	A1046																																																																																																																																																																																																																										
A483	A484	U485	U486	A487	C488	C489	C490	C491	C492	C493	C494	C495	C496	C497	C498	C499	C500	C501	C502	C503	C504	C505	C506	C507	C508	C509	C510	C511	C512	C513	C514	C515	C516	C517	C518	C519	C520	C521	C522	C523	C524	C525	C526	C527	C528	C529	C530	C531	C532	C533	C534	C535	C536	C537	C538	C539	C540	C541	C542	C543	C544	C545	C546	C547	C548	C549	C550	C551	C552	C553	C554	C555	C556	C557	C558	C559	C560	C561	C562	C563	C564	C565	C566	C567	C568	C569	C570	C571	C572	C573	C574	C575	C576	C577	C578	C579	C580	C581	C582	C583	C584	C585	C586	C587	C588	C589	C590	C591	C592	C593	C594	C595	C596	C597	C598	C599	C600	C601	C602	C603	C604	C605	C606	C607	C608	C609	C610	C611	C612	C613	C614	C615	C616	C617	C618	C619	C620	C621	C622	C623	C624	C625	C626	C627	C628	C629	C630	C631	C632	C633	C634	C635	C636	C637	C638	C639	C640	C641	C642	C643	C644	C645	C646	C647	C648	C649	C650	C651	C652	C653	C654	C655	C656	C657	C658	C659	C660	C661	C662	C663	C664	C665	C666	C667	C668	C669	C670	C671	C672	C673	C674	C675	C676	C677	C678	C679	C680	C681	C682	C683	C684	C685	C686	C687	C688	C689	C690	C691	C692	C693	C694	C695	C696	C697	C698	C699	C700	C701	C702	C703	C704	C705	C706	C707	C708	C709	C710	C711	C712	C713	C714	C715	C716	C717	C718	C719	C720	C721	C722	C723	C724	C725	C726	C727	C728	C729	C730	C731	C732	C733	C734	C735	C736	C737	C738	C739	C740	C741	C742	C743	C744	C745	C746	C747	C748	C749	C750	C751	C752	C753	C754	C755	C756	C757	C758	C759	C760	C761	C762	C763	C764	C765	C766	C767	C768	C769	C770	C771	C772	C773	C774	C775	C776	C777	C778	C779	C780	C781	C782	C783	C784	C785	C786	C787	C788	C789	C790	C791	C792	C793	C794	C795	C796	C797	C798	C799	C800	C801	C802	C803	C804	C805	C806	C807	C808	C809	C810	C811	C812	C813	C814	C815	C816	C817	C818	C819	C820	C821	C822	C823	C824	C825	C826	C827	C828	C829	C830	C831	C832	C833	C834	C835	C836	C837	C838	C839	C840	C841	C842	C843	C844	C845	C846	C847	C848	C849	C850	C851	C852	C853	C854	C855	C856	C857	C858	C859	C860	C861	C862	C863	C864	C865	C866	C867	C868	C869	C870	C871	C872	C873	C874	C875	C876	C877	C878	C879	C880	C881	C882	C883	C884	C885	C886	C887	C888	C889	C890	C891	C892	C893	C894	C895	C896	C897	C898	C899	C900	C901	C902	C903	C904	C905	C906	C907	C908	C909	C910	C911	C912	C913	C914	C915	C916	C917	C918	C919	C920	C921	C922	C923	C924	C925	C926	C927	C928	C929	C930	C931	C932	C933	C934	C935	C936	C937	C938	C939	C940	C941	C942	C943	C944	C945	C946	C947	C948	C949	C950	C951	C952	C953	C954	C955	C956	C957	C958	C959	C960	C961	C962	C963	C964	C965	C966	C967	C968	C969	C970	C971	C972	C973	C974	C975	C976	C977	C978	C979	C980	C981	C982	C983	C984	C985	C986	C987	C988	C989	C990	C991	C992	C993	C994	C995	C996	C997	C998	C999	A1000	A1001	A1002	A1003	A1004	A1005	A1006	A1007	A1008	A1009	A1010	A1011	A1012	A1013	A1014	A1015	A1016	A1017	A1018	A1019	A1020	A1021	A1022	A1023	A1024	A1025	A1026	A1027	A1028	A1029	A1030	A1031	A1032	A1033	A1034	A1035	A1036	A1037	A1038	A1039	A1040	A1041	A1042	A1043	A1044	A1045	A1046
A80	A81	G82	G83	U84	U85	G86	G87	U88	U89	C90	U91	U92	U93	G94	C95	U96	G97	A98	C99	G107	G108	A109	G113	G114	G115	A119	A120	U121	G122	U123	C124	U125	G126	G127	G128	A129	A130	A131	C132	U133	G134	C135	A139	U140	G146	G147	G148	A149	U150	A151	A152	U157	G158																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
G159	A160	A161	A162	C163	G164	G165	C169	U170	U171	A172	U173	U174	G177	C178	A179	U180	A181	A182	C183	G184	G187	C188	A189	A190	C194	A195	A196	A197	G201	G202	G203	G204	A205	C206	U208	U209	C210	G211	G212	C213	C214	C215	U216	C217	U218	U219	G226	C235	A236	G237	A238																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
U239	A243	U244	U245	U246	G247	G251	U252	A253	G254	U255	U256	G257	G258	C264	G265	G266	C267	U268	C269	A270	C271	G279	C280	G289	G292	U296	G297	A298	G299	A300	G301	A303	U304	G305	A306	A307	C308	A309	C311	C312	A313	C314	A320	A321	A325	G326	A327	C328	A329	C330	G331	G332	U333	C334	C335	C336	A337	U340	U343	A344	C345	G346	G350	C351	C352	A353	G354	C355	A356	G360	G361	C362	A363	U367	U368	G369	C370	A371	C372	A373	A374	U375	C381	U382	A383	G384	U387	U390	G391	C392	U398	G399	G406	U407	A408	U409	A410	A411	A412	G413	A414</																																																																																																																																																																																																																																																																																																																																																																																																																																																																														





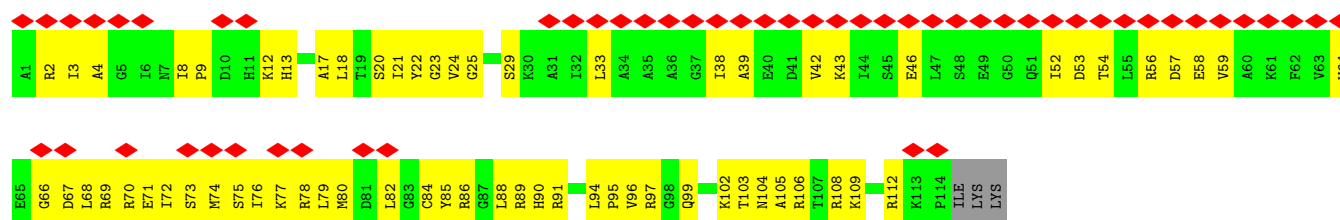
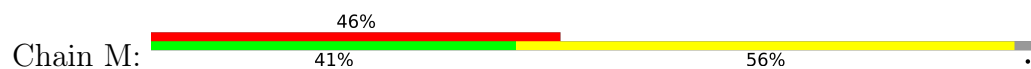
• Molecule 16: 30S ribosomal protein S9



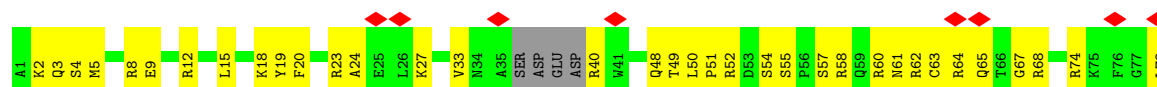
• Molecule 17: 30S ribosomal protein S10

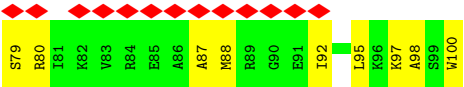


• Molecule 18: 30S ribosomal protein S13

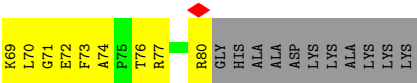
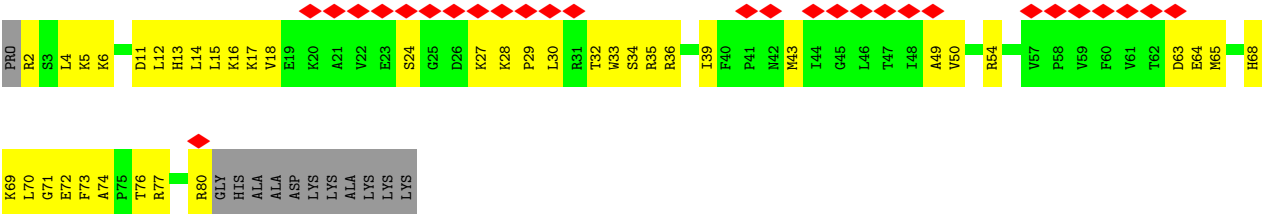


• Molecule 19: 30S ribosomal protein S14





• Molecule 20: 30S ribosomal protein S19



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	138247	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	2.5	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	6.844	Depositor
Minimum map value	-2.889	Depositor
Average map value	0.010	Depositor
Map value standard deviation	0.102	Depositor
Recommended contour level	0.29	Depositor
Map size (Å)	378.4, 378.4, 378.4	wwPDB
Map dimensions	440, 440, 440	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.86, 0.86, 0.86	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	B	0.24	0/1735	0.52	0/2338
2	D	0.68	0/1665	0.78	0/2227
3	E	0.61	0/1118	0.68	0/1504
4	F	0.22	0/835	0.47	0/1128
5	H	0.78	0/989	0.77	0/1326
6	K	0.19	0/713	0.42	0/960
7	L	0.84	0/969	0.92	0/1300
8	O	0.52	0/724	0.69	0/966
9	P	0.96	0/659	0.89	0/884
10	Q	0.75	0/657	0.69	0/881
11	R	0.32	0/412	0.58	0/553
12	T	0.84	0/671	0.90	0/888
13	A	0.78	0/36289	0.51	2/56610 (0.0%)
14	C	0.14	0/1651	0.42	0/2225
15	G	0.15	0/648	0.45	0/868
16	I	0.30	0/1034	0.56	0/1375
17	J	0.15	0/796	0.47	0/1077
18	M	0.15	0/892	0.49	0/1193
19	N	0.14	0/785	0.40	0/1043
20	S	0.19	0/652	0.51	0/877
All	All	0.70	0/53894	0.55	2/80223 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	A	1396	A	N9-C1'-C2'	5.17	119.76	112.00
13	A	328	C	P-O3'-C3'	5.02	127.72	120.20

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1704	0	1732	101	0
2	D	1643	0	1710	92	0
3	E	1105	0	1148	53	0
4	F	817	0	808	65	0
5	H	979	0	1034	54	0
6	K	702	0	702	55	0
7	L	955	0	1019	71	0
8	O	716	0	742	57	0
9	P	649	0	666	15	0
10	Q	648	0	691	23	0
11	R	407	0	438	28	0
12	T	665	0	714	20	0
13	A	32408	0	16290	1118	0
14	C	1624	0	1699	82	0
15	G	642	0	685	31	0
16	I	1022	0	1070	71	0
17	J	786	0	828	42	0
18	M	883	0	944	79	0
19	N	774	0	827	55	0
20	S	637	0	665	50	0
21	A	484	0	0	24	0
21	D	7	0	0	0	0
21	H	9	0	0	0	0
21	L	6	0	0	2	0
21	O	1	0	0	0	0
21	P	9	0	0	1	0
21	Q	3	0	0	0	0
21	R	1	0	0	0	0
21	T	10	0	0	1	0
All	All	50296	0	34412	1935	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 24.

All (1935) 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)
4:F:51:ILE:CD1	4:F:86:ARG:HH22	1.24	1.46
9:P:8:ARG:NH1	13:A:391:G:H4'	1.59	1.18
13:A:771:G:H4'	21:A:1894:HOH:O	1.44	1.18
4:F:51:ILE:CD1	4:F:86:ARG:NH2	2.05	1.16
4:F:51:ILE:HD13	4:F:86:ARG:HH22	1.15	1.09
13:A:687:A:H62	13:A:703:G:N2	1.48	1.09
13:A:195:A:H8	21:A:1604:HOH:O	1.39	1.05
2:D:151:GLN:NE2	13:A:437:U:H4'	1.71	1.05
7:L:38:THR:HG22	7:L:48:LEU:HB3	1.36	1.04
4:F:21:MET:SD	4:F:25:TYR:CE2	2.51	1.03
13:A:978:A:C2	13:A:1316:G:N2	2.25	1.03
7:L:113:ARG:HG2	7:L:118:VAL:O	1.59	1.03
4:F:51:ILE:HD11	4:F:86:ARG:HH12	1.17	1.03
13:A:687:A:N6	13:A:703:G:H21	1.58	1.01
7:L:38:THR:CG2	7:L:48:LEU:HB3	1.89	1.01
4:F:51:ILE:HD11	4:F:86:ARG:NH1	1.76	1.01
8:O:6:ALA:O	8:O:9:LYS:HG3	1.61	0.99
13:A:1026:G:N1	13:A:1035:A:H2	1.59	0.99
13:A:1392:G:H21	13:A:1502:A:H3'	1.26	0.99
9:P:8:ARG:HD2	21:P:105:HOH:O	1.63	0.98
4:F:90:MET:SD	11:R:60:ARG:NH1	2.37	0.98
9:P:8:ARG:HH12	13:A:391:G:H4'	1.24	0.97
13:A:978:A:H2	13:A:1316:G:N2	1.61	0.97
7:L:14:LYS:HE3	21:L:201:HOH:O	1.65	0.97
13:A:94:G:N2	13:A:97:G:N7	2.13	0.97
13:A:1115:U:H3	13:A:1185:G:H1	1.00	0.96
13:A:1026:G:N1	13:A:1035:A:C2	2.31	0.96
13:A:444:G:N2	13:A:490:C:O2	1.98	0.96
3:E:87:VAL:HG12	3:E:92:ARG:HG3	1.44	0.96
7:L:113:ARG:CG	7:L:118:VAL:O	2.14	0.95
13:A:202:G:HO2'	13:A:468:A:H8	1.08	0.95
13:A:658:C:O2	13:A:748:G:N2	1.98	0.95
2:D:151:GLN:HE22	13:A:437:U:H4'	1.22	0.95
13:A:517:G:N2	13:A:533:A:OP1	2.01	0.94
4:F:51:ILE:HD12	4:F:86:ARG:HH22	1.32	0.94
4:F:45:ARG:HG2	4:F:46:GLN:H	1.30	0.93
13:A:658:C:N3	13:A:748:G:N1	2.16	0.93
13:A:978:A:H2	13:A:1316:G:H21	0.95	0.93
1:B:135:MET:HG2	1:B:138:ARG:HH21	1.29	0.92
7:L:105:GLY:HA2	7:L:116:TYR:O	1.68	0.92
13:A:448:A:N6	13:A:486:U:O2	2.02	0.92
13:A:1088:G:H21	13:A:1167:A:H61	1.18	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:L:80:LEU:HB2	7:L:101:LEU:HD13	1.52	0.92
13:A:1357:A:H61	13:A:1365:G:H1	1.19	0.90
11:R:42:ARG:HH12	13:A:721:G:H5''	1.36	0.90
13:A:1159:U:O2	13:A:1161:C:N4	2.05	0.89
13:A:182:A:H2	13:A:194:C:H42	1.17	0.88
5:H:1:SER:N	5:H:5:PRO:HA	1.86	0.88
13:A:1304:G:N2	13:A:1333:A:H62	1.71	0.88
13:A:457:G:N1	13:A:475:C:N3	2.22	0.87
7:L:98:ARG:HA	7:L:103:CYS:SG	2.13	0.87
13:A:1304:G:H21	13:A:1333:A:H62	1.22	0.86
13:A:898:G:O2'	13:A:901:A:N6	2.08	0.86
5:H:47:ASP:OD1	5:H:48:PHE:N	2.09	0.86
13:A:1312:G:H5'	20:S:5:LYS:HE3	1.56	0.86
8:O:9:LYS:CE	8:O:10:ILE:HG13	2.06	0.86
13:A:187:G:N2	13:A:190:A:OP2	2.09	0.86
13:A:1026:G:H1	13:A:1035:A:H2	0.90	0.86
13:A:414:A:OP2	13:A:428:G:N2	2.08	0.85
13:A:687:A:H62	13:A:703:G:H21	0.88	0.85
13:A:79:G:N1	13:A:90:C:N3	2.24	0.85
13:A:770:C:H4'	13:A:900:A:H61	1.39	0.85
12:T:27:MET:HE1	12:T:66:ILE:HD13	1.55	0.85
13:A:674:G:H2'	13:A:675:A:H8	1.42	0.84
7:L:78:VAL:N	7:L:102:ASP:OD2	2.10	0.84
13:A:152:A:N6	13:A:169:C:O2	2.11	0.84
13:A:443:C:N3	13:A:491:G:N1	2.25	0.84
13:A:839:C:N3	13:A:847:G:N1	2.26	0.84
13:A:79:G:N2	13:A:90:C:O2	2.10	0.83
2:D:151:GLN:HE21	13:A:437:U:C5'	1.91	0.83
4:F:51:ILE:HD11	4:F:86:ARG:NH2	1.93	0.83
13:A:473:U:N3	13:A:474:G:N7	2.27	0.83
13:A:1329:A:H5''	18:M:24:VAL:HA	1.61	0.83
2:D:151:GLN:NE2	13:A:437:U:C5'	2.42	0.83
3:E:148:SER:OG	3:E:151:MET:HE3	1.77	0.83
13:A:1115:U:O2	13:A:1185:G:N2	2.12	0.82
13:A:839:C:O2	13:A:847:G:N2	2.12	0.82
13:A:1150:A:H4'	17:J:43:PRO:HG3	1.61	0.82
7:L:90:PRO:HG3	13:A:912:C:OP1	1.80	0.82
13:A:360:G:C8	21:A:1677:HOH:O	2.33	0.82
14:C:59:PRO:HG3	14:C:64:ARG:HE	1.45	0.81
4:F:51:ILE:HD11	4:F:86:ARG:CZ	2.10	0.81
13:A:785:G:H2'	13:A:786:G:C8	2.15	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:K:46:ALA:HB2	6:K:65:ALA:HB2	1.60	0.81
13:A:1162:C:H2'	13:A:1163:A:H8	1.44	0.81
13:A:682:G:H2'	13:A:683:G:C8	2.16	0.81
13:A:444:G:N1	13:A:490:C:N3	2.26	0.81
13:A:157:U:O2	13:A:164:G:O6	1.99	0.80
13:A:664:G:H22	13:A:741:G:H1	1.27	0.80
2:D:58:GLN:O	2:D:62:ARG:HG2	1.81	0.80
13:A:1069:C:N3	13:A:1106:G:N1	2.28	0.80
14:C:13:ILE:HG22	14:C:14:VAL:H	1.47	0.80
11:R:37:LYS:NZ	13:A:718:A:N7	2.30	0.80
2:D:151:GLN:NE2	13:A:437:U:C4'	2.45	0.80
3:E:19:ARG:HD2	3:E:19:ARG:O	1.82	0.80
13:A:674:G:O6	13:A:716:A:N1	2.14	0.80
13:A:837:U:O2	13:A:849:G:O6	2.00	0.80
13:A:202:G:N2	13:A:465:A:N1	2.29	0.79
13:A:1396:A:H2'	13:A:1397:C:C2	2.17	0.79
13:A:94:G:N1	13:A:97:G:O6	2.16	0.79
13:A:925:G:H2'	13:A:1391:U:H3	1.44	0.79
3:E:114:LEU:HD13	3:E:122:VAL:HG11	1.64	0.79
13:A:1237:C:HO2'	13:A:1300:G:H1	1.31	0.79
19:N:65:GLN:HG2	19:N:78:LEU:HD22	1.64	0.79
13:A:465:A:N6	13:A:468:A:N7	2.30	0.78
4:F:21:MET:SD	4:F:25:TYR:CZ	2.76	0.78
13:A:1309:G:H2'	13:A:1310:G:H8	1.46	0.78
13:A:86:G:H1'	13:A:87:C:H5	1.49	0.78
13:A:673:A:H2'	13:A:674:G:C8	2.19	0.78
13:A:1425:U:O2	13:A:1475:G:N1	2.14	0.78
18:M:21:ILE:HG22	18:M:23:GLY:H	1.47	0.78
2:D:115:GLN:HG2	2:D:153:ARG:HH12	1.48	0.78
8:O:24:THR:HG23	8:O:65:LEU:HD12	1.64	0.78
13:A:76:G:H1	13:A:93:U:H3	0.81	0.77
20:S:39:ILE:HG23	20:S:43:MET:HE3	1.65	0.77
13:A:1026:G:O6	13:A:1035:A:N1	2.17	0.77
7:L:14:LYS:CE	21:L:201:HOH:O	2.28	0.77
13:A:695:A:H61	13:A:786:G:H21	1.31	0.77
11:R:50:TYR:HE1	11:R:54:LEU:HD22	1.49	0.76
2:D:56:GLU:OE2	2:D:198:LEU:HB2	1.85	0.76
13:A:1053:G:H5''	13:A:1200:C:H41	1.50	0.76
13:A:1305:G:N2	13:A:1331:G:O2'	2.15	0.76
4:F:51:ILE:HD13	4:F:86:ARG:NH2	1.81	0.76
13:A:76:G:O6	13:A:93:U:O4	2.04	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:452:A:N6	13:A:480:U:O2	2.19	0.76
3:E:96:GLN:HE21	3:E:123:LEU:HD23	1.50	0.76
6:K:16:SER:HA	6:K:78:ILE:HA	1.65	0.76
14:C:182:ASP:HB3	14:C:201:ILE:HB	1.68	0.76
13:A:1086:U:N3	13:A:1100:C:O2	2.18	0.75
6:K:45:THR:HG23	6:K:49:SER:HB3	1.69	0.75
13:A:1200:C:H5'	13:A:1201:A:H3'	1.68	0.75
1:B:144:GLU:HA	1:B:147:LEU:HB3	1.69	0.75
3:E:123:LEU:HD21	13:A:6:G:H2'	1.69	0.74
11:R:50:TYR:CE1	11:R:54:LEU:HD22	2.21	0.74
13:A:801:U:H2'	13:A:802:A:H8	1.52	0.74
13:A:770:C:O2'	13:A:900:A:N6	2.21	0.74
13:A:981:U:H5'	19:N:60:ARG:HH11	1.51	0.74
13:A:1052:U:H3	13:A:1206:G:H1	1.34	0.74
13:A:1162:C:H2'	13:A:1163:A:C8	2.22	0.74
13:A:924:C:H3'	13:A:925:G:H8	1.53	0.74
5:H:112:ASP:OD2	5:H:116:ARG:NH2	2.21	0.74
13:A:678:U:H3	13:A:713:G:H22	1.35	0.74
13:A:1160:G:O6	13:A:1182:G:O6	2.05	0.74
7:L:39:THR:OG1	7:L:89:LEU:CD2	2.35	0.74
13:A:1218:C:H2'	13:A:1219:A:C8	2.23	0.74
17:J:52:LEU:HB3	19:N:80:ARG:HD2	1.70	0.74
13:A:1348:U:H2'	13:A:1349:A:H8	1.52	0.73
4:F:2:ARG:HH12	4:F:68:GLN:HG3	1.52	0.73
13:A:70:U:O2'	13:A:94:G:N7	2.19	0.73
13:A:1149:C:H2'	13:A:1150:A:H8	1.52	0.73
2:D:8:LEU:HD13	13:A:429:U:H3'	1.69	0.73
13:A:674:G:H1	13:A:716:A:H2	1.35	0.73
13:A:204:G:C8	13:A:465:A:H1'	2.23	0.73
2:D:195:ASN:OD1	2:D:197:HIS:ND1	2.21	0.73
7:L:82:ARG:NH2	7:L:95:HIS:CE1	2.57	0.73
13:A:1304:G:H21	13:A:1333:A:N6	1.85	0.73
13:A:1357:A:N6	13:A:1365:G:H1	1.86	0.73
12:T:27:MET:HE1	12:T:66:ILE:CD1	2.18	0.72
13:A:427:U:OP2	13:A:428:G:O2'	2.07	0.72
17:J:30:LYS:HA	17:J:34:ALA:HB3	1.71	0.72
2:D:115:GLN:CG	2:D:153:ARG:HH12	2.02	0.72
7:L:106:VAL:O	7:L:118:VAL:CG2	2.37	0.72
13:A:993:G:O2'	13:A:994:A:N7	2.20	0.72
13:A:1178:G:N2	13:A:1181:G:OP2	2.19	0.72
13:A:1315:U:O2'	13:A:1360:A:N3	2.22	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:658:C:N4	13:A:748:G:O6	2.19	0.72
13:A:722:G:N1	13:A:733:G:O6	2.17	0.72
13:A:1269:A:H1'	13:A:1312:G:H21	1.54	0.72
11:R:46:THR:HG23	11:R:50:TYR:HD1	1.55	0.72
13:A:932:C:H2'	13:A:933:G:C8	2.25	0.72
13:A:1320:C:H42	20:S:36:ARG:HA	1.55	0.71
4:F:45:ARG:HG2	4:F:46:GLN:N	2.04	0.71
13:A:181:A:O2'	13:A:194:C:N4	2.24	0.71
16:I:39:GLY:HA2	16:I:44:ARG:HB2	1.71	0.71
7:L:33:CYS:H	7:L:54:VAL:HG23	1.55	0.71
13:A:1423:G:N2	13:A:1477:U:O2	2.24	0.71
17:J:53:ILE:HD12	17:J:61:ALA:HB1	1.73	0.71
9:P:8:ARG:NH1	13:A:391:G:C4'	2.48	0.71
13:A:1321:U:O2	20:S:35:ARG:NH2	2.24	0.71
8:O:9:LYS:HE3	8:O:10:ILE:CD1	2.21	0.71
13:A:1393:U:H3'	13:A:1394:A:H8	1.56	0.71
13:A:1516:G:N2	13:A:1518:A:H2'	2.06	0.71
13:A:697:U:O2'	13:A:785:G:N3	2.22	0.70
14:C:7:ASN:ND2	14:C:183:TYR:O	2.21	0.70
2:D:151:GLN:NE2	13:A:437:U:H5''	2.05	0.70
13:A:514:C:H5''	13:A:532:A:H61	1.55	0.70
13:A:1307:U:OP1	18:M:99:GLN:NE2	2.24	0.70
12:T:78:LEU:O	12:T:82:ILE:HG12	1.90	0.70
13:A:982:U:N3	13:A:1223:C:O2	2.24	0.70
13:A:159:G:N2	13:A:162:A:OP2	2.25	0.70
16:I:21:LYS:HB2	16:I:61:ASP:HB3	1.73	0.70
18:M:74:MET:HA	18:M:77:LYS:HB2	1.72	0.70
20:S:13:HIS:HB2	20:S:34:SER:HB3	1.73	0.70
20:S:32:THR:HG22	20:S:34:SER:H	1.55	0.70
11:R:41:SER:OG	11:R:42:ARG:NH2	2.25	0.70
13:A:1227:A:N7	20:S:80:ARG:NH2	2.39	0.70
4:F:5:GLU:HB2	4:F:90:MET:HB3	1.73	0.70
2:D:98:ASP:OD1	2:D:114:ARG:HB2	1.92	0.69
3:E:39:GLY:HA2	3:E:70:MET:HE1	1.74	0.69
12:T:84:LYS:NZ	13:A:258:G:OP1	2.24	0.69
13:A:1351:U:O4	13:A:1371:G:O6	2.11	0.69
8:O:47:LYS:NZ	13:A:669:G:H5'	2.06	0.69
13:A:356:A:N3	13:A:368:U:O2'	2.24	0.69
14:C:63:ILE:HG23	14:C:96:VAL:HG21	1.73	0.69
14:C:138:GLN:HB3	14:C:142:ARG:HH12	1.58	0.69
16:I:18:VAL:HG22	16:I:64:ILE:HG12	1.73	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:N:87:ALA:HB2	19:N:92:ILE:HD12	1.74	0.69
13:A:1373:G:H4'	15:G:30:MET:HE1	1.75	0.69
17:J:52:LEU:HD11	17:J:59:LYS:HA	1.74	0.69
5:H:2:MET:HE1	13:A:756:C:H4'	1.74	0.69
10:Q:7:LEU:HD13	10:Q:72:TRP:CZ3	2.28	0.69
13:A:1058:G:H1	13:A:1199:U:H3	1.40	0.69
13:A:1147:C:O2	16:I:17:ARG:NH1	2.24	0.69
1:B:86:CYS:O	1:B:221:ARG:NH2	2.25	0.69
13:A:1009:U:H3	13:A:1020:G:H1	0.75	0.69
2:D:31:CYS:SG	13:A:429:U:H5''	2.32	0.69
1:B:99:MET:HE3	1:B:106:VAL:HG21	1.74	0.69
8:O:53:ARG:HH12	13:A:579:A:HO2'	1.37	0.69
13:A:382:A:H2'	13:A:383:A:C8	2.27	0.69
18:M:8:ILE:HD12	18:M:9:PRO:HD2	1.75	0.69
1:B:97:GLY:O	13:A:1102:A:O2'	2.10	0.69
2:D:86:GLY:HA3	2:D:196:GLU:HG3	1.75	0.69
4:F:38:ARG:NH1	4:F:98:GLU:O	2.25	0.69
13:A:981:U:OP1	19:N:8:ARG:NH2	2.25	0.69
20:S:11:ASP:HB2	20:S:34:SER:HB2	1.75	0.69
13:A:202:G:O2'	13:A:468:A:H8	1.76	0.69
13:A:251:G:C6	13:A:266:G:C2	2.81	0.68
8:O:44:GLU:CD	8:O:45:HIS:HD1	2.02	0.68
13:A:216:U:H2'	13:A:217:C:C6	2.28	0.68
13:A:1502:A:C5	13:A:1530:G:H4'	2.28	0.68
20:S:35:ARG:HA	20:S:70:LEU:HD22	1.76	0.68
20:S:65:MET:HG3	20:S:68:HIS:HB2	1.74	0.68
3:E:9:GLU:O	3:E:10:LEU:HD12	1.92	0.68
6:K:52:ARG:NE	13:A:691:G:O6	2.26	0.68
7:L:89:LEU:HD12	7:L:89:LEU:O	1.93	0.68
8:O:9:LYS:HD2	8:O:10:ILE:HG13	1.76	0.68
13:A:829:G:N1	13:A:857:C:N3	2.37	0.68
1:B:113:LEU:HD12	1:B:116:LEU:HD21	1.76	0.68
18:M:12:LYS:HB3	18:M:17:ALA:HB2	1.76	0.68
2:D:169:TRP:CD2	2:D:185:PRO:HB3	2.29	0.68
13:A:1111:A:H61	14:C:175:HIS:HB3	1.59	0.68
19:N:87:ALA:HB1	19:N:95:LEU:HD22	1.74	0.68
13:A:457:G:N2	13:A:475:C:O2	2.19	0.67
13:A:703:G:H4'	13:A:704:A:H8	1.59	0.67
16:I:86:LEU:HD13	16:I:93:LEU:HD11	1.76	0.67
13:A:360:G:H8	21:A:1677:HOH:O	1.74	0.67
13:A:861:G:HO2'	13:A:874:G:HO2'	1.40	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:976:G:O5'	13:A:1358:U:O2'	2.12	0.67
13:A:1391:U:O2	13:A:1503:A:N6	2.27	0.67
13:A:149:A:O5'	13:A:1446:A:O2'	2.11	0.67
13:A:1152:A:OP1	17:J:72:ARG:NH2	2.27	0.67
16:I:105:ARG:NH1	16:I:106:ASP:O	2.27	0.67
3:E:33:THR:HG22	3:E:51:LYS:HG2	1.77	0.67
16:I:113:LYS:HA	16:I:120:ALA:HB2	1.76	0.67
13:A:1268:G:O2'	13:A:1326:U:O2'	2.03	0.67
13:A:122:G:H1'	21:A:1647:HOH:O	1.93	0.67
13:A:1025:U:H4'	13:A:1026:G:H8	1.60	0.67
12:T:27:MET:HE3	12:T:57:VAL:HG22	1.77	0.67
13:A:770:C:O2'	13:A:899:C:N3	2.26	0.67
13:A:1175:G:H2'	13:A:1176:A:H8	1.59	0.67
13:A:692:U:N3	13:A:695:A:OP2	2.25	0.67
4:F:6:ILE:HB	4:F:62:MET:HG3	1.76	0.67
13:A:67:C:H2'	13:A:68:G:C8	2.30	0.67
16:I:27:ILE:HB	16:I:34:LEU:HD22	1.76	0.67
6:K:12:ARG:NH1	13:A:684:U:O3'	2.28	0.66
13:A:1269:A:N6	13:A:1313:U:OP1	2.28	0.66
13:A:1060:U:H2'	13:A:1061:G:H8	1.60	0.66
13:A:1218:C:H2'	13:A:1219:A:H8	1.60	0.66
1:B:210:THR:HA	1:B:213:LEU:HD12	1.77	0.66
13:A:1096:C:H2'	13:A:1097:C:C6	2.30	0.66
7:L:38:THR:HG21	7:L:48:LEU:HB3	1.75	0.66
1:B:172:ILE:O	1:B:176:ASN:ND2	2.28	0.66
4:F:3:HIS:HB2	4:F:92:THR:HB	1.77	0.66
13:A:459:A:O5'	13:A:474:G:N2	2.27	0.66
13:A:801:U:H2'	13:A:802:A:C8	2.30	0.66
1:B:56:LEU:HD13	1:B:216:VAL:HG23	1.78	0.66
3:E:102:THR:O	3:E:121:ASN:ND2	2.29	0.66
5:H:1:SER:H1	5:H:5:PRO:HA	1.61	0.66
6:K:30:ILE:HG22	6:K:43:TRP:HE1	1.60	0.66
10:Q:7:LEU:HD13	10:Q:72:TRP:CH2	2.31	0.66
13:A:654:G:O6	13:A:752:G:N2	2.20	0.66
13:A:1194:U:O4	14:C:2:GLN:NE2	2.29	0.66
13:A:1220:G:OP1	19:N:52:ARG:NH2	2.26	0.66
5:H:1:SER:N	5:H:5:PRO:CA	2.59	0.66
7:L:62:VAL:HG21	7:L:94:TYR:CE2	2.31	0.66
13:A:457:G:O6	13:A:475:C:N4	2.22	0.66
1:B:94:ARG:NH1	13:A:1099:G:OP2	2.29	0.66
13:A:1301:U:OP2	13:A:1303:C:N4	2.29	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1351:U:H3	13:A:1371:G:H1	0.75	0.66
8:O:9:LYS:CD	8:O:10:ILE:HG13	2.26	0.66
13:A:1106:G:H5''	14:C:171:ARG:HB3	1.78	0.66
3:E:19:ARG:HD3	3:E:30:PHE:CD2	2.31	0.65
5:H:82:LEU:HD21	7:L:3:VAL:HG21	1.78	0.65
7:L:30:ARG:NH1	13:A:363:A:OP2	2.29	0.65
13:A:946:A:H2'	13:A:947:G:C8	2.31	0.65
13:A:1516:G:N2	13:A:1519:A:C5	2.64	0.65
1:B:59:ILE:HA	1:B:62:ARG:NH1	2.12	0.65
11:R:42:ARG:NH2	13:A:721:G:OP1	2.29	0.65
13:A:148:G:H21	13:A:1447:A:H2	1.43	0.65
13:A:677:U:H2'	13:A:678:U:C6	2.31	0.65
13:A:1313:U:H2'	13:A:1314:C:C6	2.31	0.65
4:F:8:PHE:HB2	4:F:84:VAL:HG11	1.79	0.65
13:A:443:C:O2	13:A:491:G:N2	2.17	0.65
13:A:1047:G:OP1	19:N:3:GLN:NE2	2.25	0.65
7:L:106:VAL:O	7:L:118:VAL:HG21	1.95	0.65
13:A:195:A:C8	21:A:1604:HOH:O	2.26	0.65
18:M:85:TYR:N	20:S:72:GLU:O	2.29	0.65
13:A:82:G:N2	13:A:84:U:O4	2.29	0.65
13:A:147:G:H2'	13:A:148:G:C8	2.32	0.65
13:A:521:G:H5''	21:A:1697:HOH:O	1.96	0.65
16:I:127:SER:O	16:I:129:ARG:NH1	2.29	0.65
8:O:81:ILE:O	8:O:86:LEU:N	2.29	0.65
13:A:829:G:N2	13:A:857:C:O2	2.16	0.65
13:A:1137:C:O2'	13:A:1138:G:N3	2.30	0.65
13:A:1321:U:H3	20:S:35:ARG:HH12	1.43	0.65
13:A:1360:A:OP2	19:N:74:ARG:NH2	2.30	0.65
13:A:1516:G:H22	13:A:1518:A:H2'	1.61	0.65
2:D:12:ARG:HG2	2:D:33:ILE:HD12	1.79	0.65
9:P:44:SER:H	9:P:46:LYS:HE2	1.61	0.65
13:A:1501:C:OP2	13:A:1504:G:O2'	2.13	0.65
19:N:8:ARG:HB2	19:N:60:ARG:HH22	1.62	0.65
6:K:58:THR:HG23	6:K:61:ALA:H	1.62	0.64
13:A:1224:U:O2'	13:A:1322:C:OP1	2.15	0.64
13:A:1323:G:H2'	13:A:1324:A:C8	2.31	0.64
13:A:696:A:O2'	13:A:786:G:O2'	2.15	0.64
13:A:746:A:H2'	13:A:747:A:C8	2.33	0.64
13:A:1309:G:H2'	13:A:1310:G:C8	2.29	0.64
14:C:69:THR:HG21	14:C:75:VAL:HG21	1.79	0.64
13:A:409:U:O2'	13:A:410:G:O5'	2.14	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1393:U:H3	13:A:1501:C:HO2'	1.45	0.64
6:K:19:VAL:HG12	6:K:82:GLU:HB3	1.80	0.64
6:K:62:ALA:HB1	6:K:95:THR:HB	1.78	0.64
13:A:677:U:O2'	13:A:777:A:O2'	2.15	0.64
13:A:899:C:H2'	13:A:900:A:C8	2.32	0.64
14:C:53:ARG:H	14:C:68:HIS:HB2	1.63	0.64
15:G:15:PRO:HB3	16:I:49:GLN:NE2	2.11	0.64
6:K:32:THR:HB	13:A:705:G:H22	1.63	0.64
13:A:1060:U:H2'	13:A:1061:G:C8	2.33	0.64
1:B:185:ILE:HG13	1:B:199:ILE:HB	1.79	0.64
4:F:6:ILE:HB	4:F:62:MET:SD	2.37	0.64
13:A:744:C:H2'	13:A:745:G:C8	2.33	0.64
13:A:1356:G:H2'	13:A:1357:A:H8	1.63	0.64
7:L:98:ARG:NE	7:L:103:CYS:SG	2.70	0.64
13:A:1316:G:N1	13:A:1319:A:OP2	2.30	0.64
16:I:27:ILE:HD12	16:I:48:ARG:HE	1.63	0.64
18:M:94:LEU:HD12	18:M:95:PRO:HD2	1.80	0.64
13:A:518:C:H2'	13:A:530:G:C8	2.32	0.64
13:A:1251:A:H2'	13:A:1252:A:C8	2.33	0.64
13:A:1384:C:H2'	13:A:1385:G:C8	2.33	0.64
18:M:88:LEU:HA	18:M:91:ARG:HD2	1.80	0.64
13:A:945:G:H1	13:A:1236:A:H61	1.46	0.63
14:C:48:LYS:O	14:C:71:ARG:NH2	2.31	0.63
2:D:94:GLU:OE2	2:D:103:ARG:NH1	2.31	0.63
8:O:9:LYS:NZ	8:O:10:ILE:HG13	2.13	0.63
13:A:438:U:O2'	13:A:494:G:O6	2.15	0.63
16:I:117:LEU:HD22	16:I:123:ARG:HG2	1.80	0.63
13:A:292:G:H1'	21:A:1742:HOH:O	1.97	0.63
13:A:842:U:O2'	13:A:843:U:OP1	2.16	0.63
13:A:1388:C:H2'	13:A:1389:C:C6	2.33	0.63
19:N:20:PHE:HA	19:N:24:ALA:HB3	1.80	0.63
18:M:4:ALA:HB1	18:M:64:VAL:HG22	1.79	0.63
13:A:1291:U:O2'	16:I:40:ARG:NH2	2.21	0.63
13:A:687:A:N6	13:A:701:U:O4'	2.32	0.63
13:A:1311:A:OP2	20:S:2:ARG:NH1	2.31	0.63
19:N:33:VAL:HA	19:N:40:ARG:HH21	1.64	0.63
5:H:95:MET:HE2	5:H:129:ALA:HB1	1.81	0.62
8:O:47:LYS:NZ	13:A:669:G:OP1	2.32	0.62
13:A:569:C:H3'	21:A:1787:HOH:O	1.98	0.62
13:A:695:A:H61	13:A:786:G:N2	1.97	0.62
13:A:1069:C:N4	13:A:1106:G:O6	2.25	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:K:51:PHE:HB2	6:K:55:ARG:HH22	1.65	0.62
13:A:674:G:H2'	13:A:675:A:C8	2.30	0.62
13:A:685:G:O2'	13:A:686:U:O4'	2.17	0.62
13:A:980:C:O2'	19:N:12:ARG:NH1	2.32	0.62
13:A:1009:U:O4	13:A:1020:G:O6	2.17	0.62
18:M:64:VAL:O	18:M:68:LEU:N	2.27	0.62
2:D:14:GLU:OE1	2:D:55:ARG:NH1	2.32	0.62
13:A:86:G:H1'	13:A:87:C:C5	2.32	0.62
13:A:1055:A:H2	14:C:193:GLY:HA2	1.63	0.62
2:D:195:ASN:HD21	2:D:197:HIS:HE1	1.46	0.62
8:O:24:THR:HG21	8:O:69:LEU:HG	1.82	0.62
13:A:1055:A:N3	14:C:155:ARG:NH1	2.47	0.62
7:L:39:THR:OG1	7:L:89:LEU:HD23	1.99	0.62
13:A:575:G:O2'	13:A:821:G:H5'	1.99	0.62
13:A:1143:G:H2'	13:A:1144:G:H8	1.64	0.62
14:C:58:ARG:HG2	14:C:63:ILE:HG22	1.81	0.62
5:H:43:GLY:O	5:H:63:LYS:NZ	2.33	0.62
13:A:1431:A:H1'	13:A:1432:G:H5'	1.82	0.62
4:F:7:VAL:HG11	11:R:64:LEU:HD11	1.82	0.62
13:A:299:G:H2'	13:A:300:A:C8	2.35	0.62
13:A:695:A:H2'	13:A:696:A:O4'	2.00	0.62
4:F:6:ILE:HG13	4:F:62:MET:SD	2.40	0.62
13:A:212:G:H2'	13:A:213:G:H8	1.65	0.62
10:Q:70:LYS:NZ	13:A:255:G:OP1	2.30	0.61
13:A:571:U:H5''	13:A:819:A:C5	2.35	0.61
13:A:1071:C:H2'	13:A:1072:G:H8	1.65	0.61
16:I:21:LYS:O	16:I:61:ASP:N	2.27	0.61
17:J:27:GLU:O	17:J:31:ARG:NH1	2.33	0.61
3:E:22:LYS:HD3	13:A:1081:A:H5''	1.82	0.61
3:E:107:GLY:HA3	13:A:9:G:H5'	1.82	0.61
13:A:796:C:H2'	13:A:797:C:C6	2.35	0.61
17:J:6:ILE:HD11	17:J:79:PRO:HB3	1.83	0.61
11:R:46:THR:HG23	11:R:50:TYR:CD1	2.35	0.61
11:R:59:LYS:HE2	13:A:735:C:H5'	1.82	0.61
13:A:837:U:C2	13:A:849:G:O6	2.53	0.61
13:A:1291:U:O3'	16:I:40:ARG:NH1	2.32	0.61
18:M:80:MET:SD	18:M:84:CYS:SG	2.93	0.61
18:M:86:ARG:O	18:M:90:HIS:ND1	2.28	0.61
13:A:788:U:O2	13:A:795:C:N4	2.33	0.61
13:A:1095:U:OP1	13:A:1108:G:N2	2.27	0.61
2:D:56:GLU:CD	2:D:198:LEU:HB2	2.25	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:H:95:MET:HG2	5:H:98:LEU:HB2	1.82	0.61
13:A:697:U:H1'	13:A:785:G:H21	1.65	0.61
13:A:1147:C:H2'	13:A:1148:U:C6	2.35	0.61
3:E:132:PRO:HA	3:E:135:VAL:HG22	1.83	0.61
3:E:59:ILE:O	3:E:63:MET:HG2	2.00	0.61
13:A:1090:U:O2	13:A:1095:U:N3	2.20	0.61
9:P:2:VAL:O	9:P:65:ALA:HA	2.01	0.61
7:L:86:VAL:HG13	13:A:523:A:N6	2.16	0.61
13:A:1095:U:P	13:A:1108:G:H1	2.23	0.61
17:J:53:ILE:HD11	17:J:63:ASP:HB2	1.81	0.61
1:B:99:MET:HG3	1:B:100:LEU:HD22	1.83	0.60
13:A:464:U:H2'	13:A:466:A:OP1	2.01	0.60
13:A:1239:A:H62	13:A:1299:A:H62	1.48	0.60
13:A:1356:G:H2'	13:A:1357:A:C8	2.36	0.60
16:I:25:GLY:HA3	16:I:58:GLU:HA	1.83	0.60
16:I:43:ALA:HA	16:I:46:VAL:HG12	1.83	0.60
2:D:55:ARG:NH2	13:A:544:G:OP1	2.30	0.60
13:A:779:C:O2'	13:A:780:A:O4'	2.18	0.60
13:A:1287:A:H2'	13:A:1288:A:C8	2.35	0.60
13:A:1348:U:H2'	13:A:1349:A:C8	2.34	0.60
17:J:24:GLU:HG3	17:J:92:LEU:HD21	1.82	0.60
13:A:204:G:N9	13:A:465:A:H1'	2.16	0.60
13:A:1086:U:O4	13:A:1100:C:N3	2.33	0.60
13:A:1191:A:H2'	13:A:1192:C:C6	2.37	0.60
13:A:171:A:H2'	13:A:172:A:C8	2.36	0.60
13:A:949:A:H2'	13:A:950:U:C6	2.36	0.60
14:C:82:ASP:OD1	14:C:85:LYS:NZ	2.34	0.60
13:A:1181:G:H4'	13:A:1182:G:H5'	1.81	0.60
7:L:90:PRO:HB3	13:A:911:U:H5''	1.84	0.60
13:A:1271:A:H2'	13:A:1272:G:H8	1.67	0.60
2:D:195:ASN:HD21	2:D:197:HIS:CE1	2.19	0.60
13:A:269:C:H2'	13:A:270:A:C8	2.36	0.60
13:A:335:C:O2'	13:A:336:A:H8	1.85	0.60
13:A:79:G:O6	13:A:90:C:N4	2.26	0.60
20:S:29:PRO:HB2	20:S:49:ALA:HB2	1.83	0.60
1:B:48:MET:HE2	1:B:200:PRO:HD2	1.84	0.60
10:Q:76:ARG:HH12	10:Q:78:VAL:HG12	1.67	0.60
12:T:24:ARG:O	12:T:28:ARG:HG3	2.02	0.60
13:A:715:A:H8	13:A:716:A:C8	2.20	0.60
12:T:35:TYR:O	12:T:38:ILE:N	2.35	0.59
13:A:681:A:N6	13:A:682:G:O6	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:751:U:H2'	13:A:752:G:O4'	2.02	0.59
13:A:1288:A:N3	13:A:1352:C:O2'	2.32	0.59
18:M:74:MET:O	18:M:78:ARG:N	2.30	0.59
3:E:63:MET:O	3:E:67:ARG:HG3	2.02	0.59
5:H:81:GLY:O	5:H:82:LEU:HD22	2.02	0.59
13:A:90:C:H2'	13:A:91:U:C6	2.38	0.59
13:A:1311:A:H2'	13:A:1312:G:O4'	2.02	0.59
17:J:56:HIS:ND1	17:J:57:VAL:HG23	2.17	0.59
6:K:30:ILE:HG22	6:K:43:TRP:NE1	2.17	0.59
8:O:44:GLU:OE1	8:O:45:HIS:ND1	2.36	0.59
13:A:1096:C:H2'	13:A:1097:C:C5	2.38	0.59
13:A:1230:C:OP2	18:M:112:ARG:NH2	2.36	0.59
19:N:88:MET:HE1	19:N:95:LEU:HD23	1.85	0.59
1:B:11:ALA:HB2	1:B:211:LEU:HD13	1.84	0.59
1:B:41:ASN:HB3	1:B:44:LYS:HB2	1.85	0.59
9:P:25:ARG:NH1	13:A:134:G:O6	2.36	0.59
10:Q:76:ARG:NH1	10:Q:78:VAL:HG12	2.16	0.59
13:A:180:U:C2'	13:A:181:A:H5'	2.32	0.59
13:A:802:A:H3'	13:A:803:G:H8	1.68	0.59
13:A:1222:G:OP2	13:A:1322:C:N4	2.35	0.59
7:L:39:THR:OG1	7:L:89:LEU:HD21	2.02	0.59
13:A:407:U:H2'	13:A:408:A:H8	1.67	0.59
13:A:1064:G:O6	13:A:1192:C:N4	2.35	0.59
15:G:44:SER:O	15:G:48:THR:OG1	2.20	0.59
13:A:1095:U:H2'	13:A:1096:C:C6	2.38	0.59
13:A:1481:U:H2'	13:A:1482:G:C8	2.36	0.59
16:I:18:VAL:HG11	16:I:82:ILE:HA	1.84	0.59
16:I:97:LEU:HG	16:I:102:PHE:HD2	1.68	0.59
1:B:220:VAL:O	1:B:224:ARG:NH1	2.35	0.59
4:F:3:HIS:CE1	4:F:95:ALA:HA	2.37	0.59
7:L:113:ARG:CD	7:L:118:VAL:O	2.51	0.59
13:A:678:U:H3	13:A:713:G:N2	2.00	0.59
13:A:1240:U:OP2	15:G:116:ALA:N	2.34	0.59
13:A:1327:C:H2'	13:A:1328:C:O4'	2.03	0.59
11:R:54:LEU:O	11:R:58:ILE:HD12	2.03	0.59
13:A:789:U:N3	13:A:792:A:OP2	2.28	0.59
13:A:985:C:H2'	13:A:986:U:C6	2.38	0.59
13:A:1372:U:H2'	13:A:1373:G:O4'	2.03	0.59
6:K:48:GLY:H	6:K:52:ARG:HG2	1.68	0.58
9:P:1:MET:HB2	13:A:135:C:O2	2.03	0.58
13:A:839:C:N4	13:A:847:G:O6	2.27	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1175:G:H2'	13:A:1176:A:C8	2.38	0.58
2:D:120:LYS:HG3	13:A:439:U:H5'	1.85	0.58
4:F:11:HIS:O	4:F:15:SER:N	2.36	0.58
6:K:43:TRP:HZ3	13:A:704:A:N1	2.01	0.58
13:A:932:C:H2'	13:A:933:G:H8	1.66	0.58
13:A:1143:G:H2'	13:A:1144:G:C8	2.38	0.58
19:N:88:MET:CE	19:N:95:LEU:HD23	2.33	0.58
2:D:151:GLN:HE21	13:A:437:U:H5'	1.69	0.58
16:I:118:ARG:HH21	16:I:124:PRO:HB3	1.67	0.58
13:A:1520:C:H2'	13:A:1521:C:C6	2.39	0.58
13:A:777:A:H2'	13:A:778:G:H8	1.67	0.58
13:A:844:G:H2'	13:A:845:A:O4'	2.04	0.58
13:A:1144:G:O6	13:A:1145:A:N6	2.35	0.58
18:M:68:LEU:HA	18:M:71:GLU:HG2	1.86	0.58
1:B:110:ILE:HG22	1:B:147:LEU:HG	1.84	0.58
13:A:1070:U:H2'	13:A:1071:C:H6	1.69	0.58
16:I:82:ILE:HG22	16:I:86:LEU:HD23	1.85	0.58
8:O:44:GLU:CD	8:O:45:HIS:ND1	2.61	0.58
13:A:350:G:H2'	13:A:351:G:C8	2.38	0.58
13:A:987:G:H2'	13:A:988:G:H8	1.69	0.58
15:G:30:MET:HE2	15:G:33:GLY:HA2	1.86	0.58
15:G:113:LYS:HB3	15:G:118:ARG:HH12	1.69	0.58
17:J:11:LYS:HB2	17:J:97:ASP:HB3	1.85	0.58
19:N:88:MET:CE	19:N:95:LEU:CD2	2.81	0.58
5:H:17:GLN:OE1	5:H:69:ALA:HB1	2.04	0.58
13:A:371:A:H2'	13:A:372:C:O4'	2.04	0.58
13:A:407:U:H2'	13:A:408:A:C8	2.39	0.58
13:A:679:C:H2'	13:A:680:C:C6	2.38	0.58
13:A:1026:G:C6	13:A:1035:A:N1	2.71	0.58
13:A:1229:A:OP1	18:M:112:ARG:NH2	2.37	0.58
16:I:34:LEU:HD21	16:I:48:ARG:NH2	2.18	0.58
13:A:159:G:O2'	13:A:161:A:N7	2.28	0.58
13:A:776:G:N2	13:A:802:A:OP2	2.29	0.58
16:I:97:LEU:O	16:I:101:GLY:N	2.36	0.58
1:B:110:ILE:HA	1:B:147:LEU:HD11	1.86	0.58
13:A:1396:A:H3'	13:A:1397:C:C6	2.38	0.58
15:G:115:MET:HA	15:G:118:ARG:HB2	1.85	0.58
4:F:2:ARG:HE	4:F:91:ARG:CZ	2.17	0.57
8:O:9:LYS:NZ	8:O:10:ILE:CG1	2.67	0.57
8:O:47:LYS:HZ1	13:A:669:G:H5'	1.68	0.57
13:A:1255:G:O2'	13:A:1258:G:N3	2.29	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1271:A:H2'	13:A:1272:G:C8	2.38	0.57
13:A:1343:G:H4'	16:I:123:ARG:HB2	1.85	0.57
13:A:1377:A:H4'	13:A:1378:C:H5	1.68	0.57
13:A:157:U:O2	13:A:164:G:C6	2.56	0.57
13:A:777:A:H2'	13:A:778:G:C8	2.39	0.57
13:A:1221:G:OP2	20:S:36:ARG:NH2	2.38	0.57
13:A:1301:U:H2'	13:A:1303:C:H5	1.69	0.57
20:S:4:LEU:HD12	20:S:6:LYS:H	1.68	0.57
13:A:925:G:O2'	13:A:1503:A:N6	2.37	0.57
13:A:1032:G:OP2	13:A:1032:G:N2	2.36	0.57
13:A:1330:U:H3'	13:A:1331:G:C8	2.40	0.57
7:L:46:SER:OG	13:A:518:C:O3'	2.22	0.57
13:A:1070:U:H2'	13:A:1071:C:C6	2.39	0.57
16:I:58:GLU:HG2	16:I:59:LYS:HD3	1.85	0.57
5:H:74:ILE:HG13	5:H:128:VAL:HG22	1.86	0.57
13:A:131:A:H2'	13:A:132:C:C6	2.40	0.57
13:A:532:A:H1'	13:A:533:A:H2'	1.86	0.57
13:A:982:U:O2	13:A:1222:G:O6	2.20	0.57
2:D:12:ARG:NH1	2:D:35:GLN:O	2.38	0.57
8:O:31:LEU:O	8:O:35:ILE:HG12	2.05	0.57
13:A:450:G:H5''	13:A:451:A:C5'	2.35	0.57
13:A:676:A:N1	13:A:715:A:N6	2.52	0.57
13:A:1304:G:N2	13:A:1333:A:N6	2.47	0.57
13:A:1320:C:C5	20:S:69:LYS:HG2	2.40	0.57
20:S:17:LYS:HB3	20:S:30:LEU:HD13	1.86	0.57
4:F:18:VAL:HB	4:F:19:PRO:HD3	1.87	0.57
7:L:113:ARG:NH2	13:A:501:C:OP1	2.38	0.57
13:A:686:U:O2'	13:A:703:G:N2	2.38	0.57
5:H:2:MET:HE1	13:A:756:C:C4'	2.35	0.57
13:A:334:C:O2'	13:A:335:C:O5'	2.23	0.57
13:A:1025:U:H4'	13:A:1026:G:C8	2.40	0.57
13:A:1124:G:N2	13:A:1125:U:O4	2.31	0.57
13:A:1269:A:H1'	13:A:1312:G:N2	2.20	0.57
13:A:1277:C:O2'	13:A:1279:G:N3	2.34	0.57
13:A:1358:U:OP2	13:A:1359:C:N4	2.38	0.57
13:A:1384:C:H2'	13:A:1385:G:H8	1.70	0.57
19:N:23:ARG:HH21	19:N:51:PRO:HG2	1.69	0.57
5:H:4:ASP:OD1	5:H:76:ARG:NH1	2.38	0.57
7:L:113:ARG:HG3	7:L:118:VAL:HB	1.86	0.57
13:A:925:G:N2	13:A:1392:G:OP2	2.35	0.57
18:M:24:VAL:HG23	18:M:29:SER:HB2	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:33:ILE:O	2:D:34:GLU:HG3	2.05	0.56
13:A:443:C:N4	13:A:491:G:O6	2.28	0.56
13:A:1090:U:H2'	13:A:1091:U:C6	2.40	0.56
13:A:1306:A:N6	13:A:1331:G:H1'	2.19	0.56
17:J:5:ARG:N	17:J:77:VAL:O	2.38	0.56
2:D:108:ALA:N	2:D:112:GLU:OE1	2.31	0.56
8:O:9:LYS:HE3	8:O:10:ILE:HG13	1.87	0.56
13:A:177:G:O2'	13:A:1448:C:H4'	2.04	0.56
16:I:34:LEU:O	16:I:39:GLY:N	2.36	0.56
20:S:13:HIS:HB3	20:S:33:TRP:H	1.70	0.56
2:D:94:GLU:HA	2:D:99:ASN:HD22	1.70	0.56
2:D:109:THR:OG1	13:A:408:A:OP1	2.21	0.56
5:H:55:LYS:NZ	13:A:653:U:O4'	2.38	0.56
6:K:32:THR:HB	13:A:705:G:N2	2.20	0.56
13:A:802:A:H3'	13:A:803:G:C8	2.40	0.56
13:A:1086:U:H2'	13:A:1087:G:C8	2.40	0.56
13:A:1148:U:H2'	13:A:1149:C:O4'	2.05	0.56
5:H:17:GLN:CD	5:H:69:ALA:HB1	2.30	0.56
13:A:1147:C:H2'	13:A:1148:U:H6	1.70	0.56
13:A:1417:G:N1	13:A:1482:G:N7	2.53	0.56
18:M:103:THR:HG22	18:M:104:ASN:H	1.69	0.56
13:A:17:U:H2'	13:A:18:C:C6	2.40	0.56
13:A:97:G:H2'	13:A:98:A:O4'	2.06	0.56
13:A:695:A:N6	13:A:786:G:H21	2.03	0.56
14:C:165:GLU:HB2	14:C:167:TYR:HE1	1.71	0.56
18:M:12:LYS:HG2	18:M:13:HIS:H	1.70	0.56
4:F:37:HIS:ND1	4:F:65:GLU:HG3	2.20	0.56
8:O:9:LYS:CE	8:O:10:ILE:CG1	2.82	0.56
11:R:52:ARG:NH2	13:A:835:U:OP1	2.39	0.56
13:A:309:A:O2'	13:A:607:A:N1	2.30	0.56
13:A:1330:U:H5'	18:M:22:TYR:HB3	1.88	0.56
13:A:1392:G:N2	13:A:1502:A:O5'	2.39	0.56
13:A:1355:G:H2'	13:A:1356:G:H8	1.70	0.56
16:I:40:ARG:H	16:I:44:ARG:HB2	1.71	0.56
1:B:161:PHE:HA	1:B:183:PHE:HB2	1.88	0.56
3:E:125:LYS:NZ	13:A:9:G:OP2	2.33	0.56
4:F:40:GLU:OE2	4:F:42:TRP:NE1	2.39	0.56
13:A:374:A:H5''	13:A:452:A:C2	2.40	0.56
13:A:1097:C:H2'	13:A:1098:C:C6	2.40	0.56
13:A:1237:C:O2'	13:A:1300:G:N1	2.25	0.56
13:A:1392:G:H2'	13:A:1393:U:H6	1.70	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:44:LYS:O	1:B:48:MET:HE1	2.06	0.56
2:D:151:GLN:HG2	2:D:153:ARG:HG2	1.88	0.56
6:K:80:ASN:HA	6:K:105:ARG:H	1.71	0.55
13:A:21:G:H2'	13:A:22:G:C8	2.41	0.55
13:A:687:A:N6	13:A:703:G:N2	2.29	0.55
13:A:908:A:H2'	13:A:909:A:C8	2.41	0.55
13:A:1287:A:H2'	13:A:1288:A:H8	1.71	0.55
13:A:1393:U:N3	13:A:1501:C:O2'	2.34	0.55
7:L:38:THR:HG22	7:L:48:LEU:CB	2.24	0.55
13:A:1347:G:H22	13:A:1374:A:P	2.29	0.55
13:A:1479:C:H2'	13:A:1480:A:C8	2.40	0.55
3:E:157:GLY:C	3:E:158:LYS:HD3	2.31	0.55
8:O:66:LEU:HD11	8:O:86:LEU:HD13	1.88	0.55
10:Q:68:LYS:O	10:Q:69:THR:OG1	2.14	0.55
13:A:148:G:H1	13:A:174:A:H61	1.54	0.55
13:A:1087:G:H2'	13:A:1088:G:H8	1.71	0.55
18:M:64:VAL:HG12	18:M:66:GLY:H	1.70	0.55
13:A:984:C:H2'	13:A:985:C:C6	2.41	0.55
6:K:43:TRP:CZ3	13:A:704:A:N1	2.75	0.55
7:L:33:CYS:N	7:L:54:VAL:HG23	2.20	0.55
13:A:1014:A:H2'	13:A:1015:G:C8	2.42	0.55
13:A:1307:U:O2'	18:M:108:ARG:HD3	2.07	0.55
18:M:97:ARG:HH21	18:M:99:GLN:HB3	1.71	0.55
1:B:218:ALA:O	1:B:221:ARG:N	2.37	0.55
13:A:270:A:H2'	13:A:271:C:C6	2.41	0.55
13:A:1009:U:O2	13:A:1020:G:N2	2.26	0.55
13:A:1270:G:H2'	13:A:1271:A:H8	1.71	0.55
14:C:178:ARG:NH1	14:C:205:GLU:OE1	2.39	0.55
1:B:60:ALA:HB3	1:B:223:GLY:HA3	1.88	0.55
4:F:6:ILE:HB	4:F:62:MET:CG	2.37	0.55
6:K:105:ARG:NH1	6:K:106:ILE:O	2.40	0.55
7:L:106:VAL:O	7:L:118:VAL:HG22	2.06	0.55
13:A:594:U:H2'	13:A:595:A:O4'	2.07	0.55
13:A:1191:A:OP1	14:C:2:GLN:HB3	2.07	0.55
2:D:150:LYS:HD2	2:D:150:LYS:C	2.32	0.55
13:A:950:U:H2'	13:A:951:G:H8	1.71	0.55
13:A:1048:G:H5''	19:N:2:LYS:HG2	1.88	0.55
14:C:76:ILE:HA	14:C:83:VAL:HG23	1.89	0.55
18:M:56:ARG:HH21	18:M:59:VAL:HG11	1.72	0.55
2:D:7:LYS:HB3	2:D:20:LEU:CD1	2.37	0.55
13:A:1072:G:H2'	13:A:1073:U:C6	2.42	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:T:29:THR:OG1	13:A:1458:G:OP1	2.22	0.55
13:A:208:U:N3	13:A:210:C:O2	2.40	0.55
13:A:987:G:H2'	13:A:988:G:C8	2.42	0.55
13:A:1038:C:H2'	13:A:1039:G:C8	2.42	0.55
13:A:1163:A:H2'	13:A:1164:G:C8	2.42	0.55
13:A:1298:U:H4'	13:A:1299:A:H5'	1.89	0.55
13:A:1355:G:H2'	13:A:1356:G:C8	2.42	0.55
19:N:27:LYS:HE2	19:N:48:GLN:H	1.72	0.55
1:B:102:ASN:ND2	13:A:1073:U:O2	2.40	0.54
10:Q:6:THR:HA	10:Q:60:ILE:O	2.07	0.54
13:A:922:G:O2'	13:A:923:A:H8	1.89	0.54
13:A:1125:U:H2'	13:A:1126:U:H2'	1.89	0.54
1:B:58:LYS:O	1:B:62:ARG:NH1	2.40	0.54
2:D:104:MET:SD	2:D:179:GLY:HA3	2.47	0.54
6:K:54:SER:OG	13:A:694:A:OP1	2.20	0.54
13:A:64:G:H4'	13:A:65:A:H3'	1.89	0.54
13:A:180:U:H2'	13:A:181:A:H5'	1.89	0.54
13:A:516:U:O4	13:A:532:A:C8	2.61	0.54
13:A:1305:G:H22	13:A:1331:G:HO2'	1.52	0.54
14:C:46:LEU:HD22	14:C:75:VAL:HG22	1.89	0.54
2:D:195:ASN:OD1	2:D:195:ASN:O	2.25	0.54
2:D:205:LYS:HA	13:A:8:A:N7	2.22	0.54
7:L:100:ALA:C	7:L:101:LEU:HD12	2.32	0.54
13:A:1415:G:N2	13:A:1486:G:OP1	2.39	0.54
2:D:169:TRP:CE3	2:D:185:PRO:HB3	2.43	0.54
7:L:106:VAL:HG23	7:L:109:ARG:HB2	1.89	0.54
8:O:53:ARG:NH1	13:A:579:A:O2'	2.23	0.54
13:A:1005:A:OP2	13:A:1024:G:N2	2.37	0.54
4:F:45:ARG:CG	4:F:46:GLN:H	2.11	0.54
13:A:1347:G:N2	13:A:1374:A:O5'	2.41	0.54
19:N:60:ARG:HD2	19:N:62:ARG:HE	1.71	0.54
1:B:166:ASP:OD2	1:B:189:ASN:ND2	2.41	0.54
3:E:28:ARG:HH12	3:E:30:PHE:HZ	1.54	0.54
13:A:673:A:H2'	13:A:674:G:H8	1.70	0.54
13:A:700:G:H4'	13:A:704:A:H1'	1.88	0.54
13:A:785:G:N1	13:A:786:G:C6	2.76	0.54
1:B:99:MET:CE	1:B:106:VAL:HG21	2.38	0.54
13:A:71:A:N1	13:A:99:C:O2'	2.40	0.54
13:A:788:U:H3'	13:A:789:U:C6	2.43	0.54
13:A:1120:C:H2'	13:A:1121:U:H6	1.72	0.54
14:C:137:VAL:HG13	14:C:169:GLU:OE2	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:K:27:ASN:HA	6:K:57:SER:OG	2.08	0.54
13:A:126:G:OP1	13:A:605:U:O2'	2.22	0.54
13:A:776:G:N1	13:A:802:A:OP1	2.25	0.54
13:A:840:C:H2'	13:A:841:C:H5''	1.89	0.54
13:A:996:A:H2'	13:A:997:U:C6	2.42	0.54
13:A:1270:G:H2'	13:A:1271:A:C8	2.43	0.54
13:A:1392:G:H2'	13:A:1393:U:C6	2.42	0.54
3:E:109:ALA:HB3	3:E:135:VAL:HG23	1.88	0.54
13:A:1151:A:O2'	13:A:1152:A:H8	1.90	0.54
13:A:1161:C:H2'	13:A:1162:C:C6	2.42	0.54
13:A:1251:A:H2'	13:A:1252:A:H8	1.72	0.54
15:G:46:LEU:HA	15:G:49:LEU:HD23	1.89	0.54
1:B:143:LEU:HD23	1:B:147:LEU:HB2	1.90	0.54
10:Q:17:GLU:OE2	13:A:254:G:N2	2.40	0.54
13:A:440:C:H2'	13:A:441:A:H8	1.72	0.54
13:A:450:G:H5''	13:A:451:A:H5'	1.90	0.54
13:A:890:G:O2'	13:A:906:A:N6	2.41	0.54
13:A:939:G:H2'	13:A:940:C:C6	2.43	0.54
16:I:17:ARG:HE	16:I:65:THR:HB	1.73	0.54
4:F:71:ILE:HD12	4:F:74:LEU:HD12	1.90	0.53
6:K:20:ALA:N	6:K:82:GLU:O	2.39	0.53
6:K:28:ASN:ND2	13:A:689:C:OP1	2.41	0.53
13:A:413:G:H4'	13:A:414:A:O5'	2.07	0.53
13:A:1120:C:H2'	13:A:1121:U:C6	2.43	0.53
13:A:1510:C:H4'	21:A:2074:HOH:O	2.07	0.53
19:N:52:ARG:HE	19:N:58:ARG:HH12	1.56	0.53
13:A:785:G:C6	13:A:786:G:C6	2.96	0.53
13:A:1221:G:O2'	20:S:76:THR:HG21	2.08	0.53
13:A:1418:A:H61	13:A:1482:G:H2'	1.73	0.53
17:J:16:ARG:NH2	17:J:19:ASP:OD2	2.41	0.53
13:A:674:G:C6	13:A:716:A:N1	2.77	0.53
13:A:789:U:C2	13:A:791:G:H5''	2.43	0.53
13:A:1288:A:N6	13:A:1371:G:O2'	2.36	0.53
13:A:1326:U:H2'	13:A:1327:C:C6	2.43	0.53
14:C:9:ILE:HG13	19:N:97:LYS:HD3	1.89	0.53
16:I:66:VAL:HG11	16:I:78:ILE:HD11	1.89	0.53
2:D:171:GLU:CD	2:D:182:LYS:HZ2	2.16	0.53
3:E:19:ARG:HD3	3:E:30:PHE:CE2	2.44	0.53
9:P:31:ARG:NH1	13:A:311:C:OP1	2.39	0.53
13:A:783:C:H2'	13:A:784:A:C8	2.43	0.53
13:A:1393:U:H3'	13:A:1394:A:C8	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:C:38:VAL:HG12	14:C:93:ILE:HG23	1.90	0.53
16:I:83:THR:HB	16:I:87:MET:HE1	1.89	0.53
6:K:43:TRP:CD1	6:K:44:ALA:N	2.77	0.53
8:O:9:LYS:HD2	8:O:10:ILE:N	2.24	0.53
13:A:179:A:N6	21:A:1604:HOH:O	2.41	0.53
13:A:952:U:H2'	13:A:953:G:C8	2.44	0.53
13:A:1349:A:H1'	13:A:1374:A:N6	2.23	0.53
1:B:36:LYS:NZ	13:A:848:C:OP1	2.38	0.53
13:A:785:G:C6	13:A:786:G:O6	2.61	0.53
13:A:846:G:H3'	13:A:847:G:H8	1.73	0.53
13:A:1056:U:H2'	13:A:1057:G:H8	1.73	0.53
17:J:66:GLU:HB2	19:N:98:ALA:HB2	1.89	0.53
18:M:57:ASP:OD1	18:M:58:GLU:N	2.42	0.53
1:B:20:ARG:HD2	13:A:831:A:OP1	2.09	0.53
3:E:19:ARG:O	3:E:19:ARG:CD	2.56	0.53
7:L:63:THR:CG2	7:L:92:VAL:HG22	2.38	0.53
12:T:77:ASN:O	12:T:81:GLN:HG2	2.08	0.53
13:A:1111:A:N6	14:C:175:HIS:HB3	2.22	0.53
13:A:1366:C:H2'	13:A:1367:C:C6	2.43	0.53
3:E:93:VAL:HB	3:E:110:MET:HE3	1.91	0.53
7:L:89:LEU:HD12	7:L:89:LEU:C	2.32	0.53
13:A:71:A:O2'	13:A:72:A:O4'	2.26	0.53
13:A:151:A:H2'	13:A:152:A:O4'	2.08	0.53
13:A:946:A:H2'	13:A:947:G:H8	1.73	0.53
13:A:1250:A:H2'	13:A:1251:A:C8	2.44	0.53
14:C:62:SER:HA	14:C:96:VAL:HB	1.90	0.53
20:S:4:LEU:O	20:S:5:LYS:HG2	2.08	0.53
7:L:78:VAL:HG12	7:L:101:LEU:HD23	1.90	0.53
13:A:411:A:H4'	13:A:412:A:H5'	1.91	0.53
13:A:1246:A:N6	13:A:1292:G:O6	2.42	0.53
14:C:2:GLN:HB2	14:C:3:LYS:HZ2	1.73	0.53
20:S:39:ILE:HD11	20:S:70:LEU:HD12	1.91	0.53
13:A:816:A:OP1	13:A:1526:G:O2'	2.26	0.53
13:A:1087:G:H2'	13:A:1088:G:C8	2.44	0.53
13:A:1205:U:H2'	13:A:1206:G:C8	2.44	0.53
13:A:1377:A:OP2	15:G:8:GLN:NE2	2.41	0.53
3:E:152:VAL:HA	3:E:155:LYS:HE2	1.91	0.52
7:L:86:VAL:C	7:L:88:ASP:H	2.16	0.52
13:A:152:A:N6	13:A:169:C:C2	2.77	0.52
13:A:950:U:H2'	13:A:951:G:C8	2.44	0.52
13:A:1383:C:H2'	13:A:1384:C:C6	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1507:A:O2'	13:A:1508:A:OP1	2.21	0.52
2:D:195:ASN:OD1	2:D:195:ASN:C	2.51	0.52
5:H:102:VAL:HG13	5:H:125:ILE:HB	1.90	0.52
6:K:44:ALA:HB1	6:K:68:ARG:HB3	1.91	0.52
13:A:680:C:H2'	13:A:681:A:C8	2.45	0.52
1:B:69:VAL:HA	1:B:91:VAL:HG22	1.90	0.52
2:D:169:TRP:NE1	2:D:170:LEU:HD23	2.24	0.52
3:E:13:LYS:NZ	3:E:115:GLU:OE1	2.40	0.52
13:A:251:G:C5	13:A:266:G:C2	2.98	0.52
13:A:687:A:N3	13:A:688:G:H1'	2.24	0.52
13:A:1093:A:O2'	13:A:1095:U:OP1	2.26	0.52
14:C:150:VAL:HG13	14:C:199:VAL:HG12	1.91	0.52
17:J:67:ILE:HD11	19:N:95:LEU:HD12	1.91	0.52
18:M:80:MET:HE1	20:S:68:HIS:HE1	1.74	0.52
19:N:23:ARG:NH1	19:N:48:GLN:HG3	2.25	0.52
2:D:60:VAL:HG22	2:D:194:ILE:HD12	1.91	0.52
13:A:677:U:H2'	13:A:678:U:C5	2.44	0.52
13:A:1321:U:H3'	13:A:1322:C:H2'	1.90	0.52
19:N:63:CYS:HB2	19:N:79:SER:HB3	1.90	0.52
8:O:25:GLU:HG3	8:O:80:LEU:HD22	1.90	0.52
13:A:1309:G:OP1	18:M:90:HIS:NE2	2.42	0.52
11:R:46:THR:CG2	11:R:50:TYR:HD1	2.21	0.52
13:A:182:A:H1'	13:A:183:C:C5	2.44	0.52
13:A:967:C:OP2	13:A:968:A:O2'	2.22	0.52
13:A:1225:A:H1'	20:S:77:ARG:HG2	1.92	0.52
13:A:1359:C:OP2	19:N:74:ARG:NE	2.42	0.52
13:A:1468:A:H2'	13:A:1469:C:O4'	2.09	0.52
16:I:46:VAL:HA	16:I:49:GLN:HG3	1.90	0.52
1:B:221:ARG:HD3	1:B:224:ARG:HH12	1.74	0.52
3:E:113:VAL:HG21	3:E:136:VAL:HG23	1.91	0.52
5:H:80:PRO:O	13:A:878:A:H5''	2.10	0.52
8:O:45:HIS:CD2	13:A:668:G:O2'	2.62	0.52
13:A:298:A:H2'	13:A:299:G:O4'	2.09	0.52
16:I:49:GLN:O	16:I:53:LEU:HG	2.10	0.52
6:K:70:ALA:O	6:K:74:LYS:HG2	2.10	0.52
7:L:69:GLU:OE2	13:A:520:A:O2'	2.27	0.52
8:O:66:LEU:HD12	8:O:87:ARG:NH1	2.24	0.52
8:O:81:ILE:HG13	8:O:82:GLU:OE1	2.09	0.52
13:A:696:A:HO2'	13:A:786:G:HO2'	1.50	0.52
13:A:1052:U:O4	13:A:1206:G:O6	2.28	0.52
14:C:21:TRP:HB3	14:C:58:ARG:H	1.75	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:15:HIS:HA	17:J:18:ILE:HG22	1.92	0.52
17:J:52:LEU:HD13	17:J:62:ARG:HE	1.74	0.52
2:D:100:VAL:CG1	2:D:104:MET:HE3	2.40	0.52
6:K:52:ARG:NH2	13:A:691:G:N7	2.54	0.52
13:A:122:G:C1'	21:A:1647:HOH:O	2.55	0.52
13:A:493:A:H5'	13:A:494:G:OP2	2.09	0.52
13:A:576:C:H3'	13:A:577:G:H5''	1.91	0.52
7:L:34:THR:OG1	7:L:53:ARG:O	2.24	0.52
12:T:32:LYS:NZ	13:A:1439:G:OP2	2.43	0.52
13:A:462:G:P	13:A:462:G:H8	2.33	0.52
13:A:678:U:H2'	13:A:679:C:C6	2.45	0.52
13:A:711:G:H2'	13:A:712:A:C8	2.44	0.52
13:A:1225:A:H2'	13:A:1225:A:N3	2.24	0.52
16:I:40:ARG:H	16:I:44:ARG:HD3	1.74	0.52
4:F:5:GLU:HA	4:F:63:ASN:CB	2.40	0.51
7:L:11:ARG:HE	13:A:564:C:P	2.33	0.51
7:L:50:LYS:CD	7:L:50:LYS:N	2.73	0.51
13:A:306:A:H5''	21:A:1660:HOH:O	2.09	0.51
13:A:335:C:O3'	13:A:1433:A:O2'	2.28	0.51
13:A:409:U:O2'	13:A:410:G:P	2.68	0.51
13:A:710:G:H2'	13:A:711:G:C8	2.45	0.51
13:A:785:G:P	13:A:785:G:H8	2.33	0.51
13:A:1011:C:H2'	13:A:1012:A:C8	2.45	0.51
13:A:1055:A:C2	14:C:193:GLY:HA2	2.44	0.51
13:A:1065:U:H4'	13:A:1066:C:O5'	2.10	0.51
13:A:1221:G:OP1	20:S:35:ARG:NE	2.43	0.51
13:A:1251:A:H1'	13:A:1370:G:H4'	1.92	0.51
18:M:78:ARG:NH2	20:S:63:ASP:O	2.42	0.51
19:N:23:ARG:HH12	19:N:48:GLN:HG3	1.73	0.51
13:A:76:G:N2	13:A:93:U:O2	2.33	0.51
13:A:374:A:H5''	13:A:452:A:H2	1.74	0.51
13:A:461:A:O2'	13:A:467:U:OP1	2.16	0.51
13:A:496:A:H5'	13:A:497:G:OP2	2.10	0.51
13:A:554:A:H2'	13:A:555:U:C6	2.45	0.51
13:A:704:A:H2'	13:A:704:A:N3	2.25	0.51
13:A:1059:C:OP2	14:C:198:LYS:NZ	2.28	0.51
13:A:1166:G:N2	13:A:1169:A:OP2	2.44	0.51
13:A:1216:A:H2'	13:A:1217:C:C6	2.44	0.51
13:A:1313:U:H2'	13:A:1314:C:H6	1.75	0.51
13:A:1348:U:H4'	16:I:121:ARG:HD2	1.92	0.51
1:B:75:ALA:HA	1:B:78:ALA:HB3	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:135:MET:CG	1:B:138:ARG:HH21	2.14	0.51
13:A:123:U:H2'	13:A:124:C:C6	2.45	0.51
13:A:714:G:H1'	13:A:777:A:C8	2.45	0.51
13:A:783:C:H2'	13:A:784:A:H8	1.75	0.51
13:A:800:G:H2'	13:A:801:U:C5	2.45	0.51
14:C:107:LYS:HG2	14:C:110:LEU:HB2	1.92	0.51
2:D:123:MET:HG3	2:D:145:ARG:HG2	1.93	0.51
8:O:20:ASP:O	8:O:26:VAL:HG21	2.10	0.51
8:O:47:LYS:HZ3	13:A:669:G:H5'	1.75	0.51
13:A:381:C:H2'	13:A:382:A:O4'	2.11	0.51
13:A:1163:A:H2'	13:A:1164:G:H8	1.75	0.51
14:C:107:LYS:HG3	14:C:143:LEU:HD23	1.93	0.51
13:A:1250:A:H2	13:A:1370:G:H1'	1.74	0.51
13:A:1011:C:H2'	13:A:1012:A:H8	1.75	0.51
13:A:1048:G:H2'	13:A:1050:G:H8	1.76	0.51
13:A:1320:C:H4'	18:M:86:ARG:HH21	1.76	0.51
13:A:1467:C:H2'	13:A:1468:A:H8	1.76	0.51
13:A:565:U:OP2	13:A:566:G:O2'	2.29	0.51
13:A:1057:G:H5''	14:C:153:SER:HB3	1.92	0.51
13:A:1077:G:N2	13:A:1080:A:OP2	2.37	0.51
13:A:1250:A:N3	13:A:1370:G:O2'	2.31	0.51
14:C:146:LYS:O	14:C:146:LYS:HD2	2.11	0.51
2:D:74:TYR:OH	2:D:96:ARG:NH1	2.44	0.51
3:E:12:GLU:OE1	3:E:38:VAL:HG22	2.10	0.51
3:E:80:LEU:HD11	3:E:122:VAL:HG23	1.93	0.51
4:F:29:ILE:HG21	4:F:64:VAL:HG21	1.92	0.51
13:A:452:A:N6	13:A:480:U:C2	2.79	0.51
13:A:770:C:C4'	13:A:900:A:H61	2.17	0.51
13:A:982:U:O2	13:A:1222:G:C6	2.64	0.51
13:A:1373:G:H4'	15:G:30:MET:CE	2.40	0.51
13:A:1386:G:H2'	13:A:1387:G:C8	2.46	0.51
1:B:131:LYS:O	1:B:134:LEU:HG	2.10	0.51
1:B:216:VAL:HA	1:B:219:THR:HG22	1.93	0.51
2:D:123:MET:SD	2:D:145:ARG:HG2	2.51	0.51
4:F:1:MET:N	4:F:67:PRO:HA	2.26	0.51
5:H:107:LYS:HG2	5:H:120:LEU:HD11	1.93	0.51
13:A:771:G:C4'	21:A:1894:HOH:O	2.25	0.51
17:J:29:ALA:O	17:J:82:LYS:NZ	2.43	0.51
18:M:3:ILE:HD12	18:M:21:ILE:HD11	1.92	0.51
1:B:23:ASN:N	1:B:188:THR:O	2.31	0.51
2:D:84:ASN:OD1	2:D:87:GLU:HB3	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:2:ARG:NH1	4:F:68:GLN:OE1	2.44	0.51
13:A:613:C:H2'	13:A:614:C:C6	2.45	0.51
13:A:736:C:H2'	13:A:737:C:H6	1.76	0.51
13:A:952:U:H2'	13:A:953:G:H8	1.75	0.51
13:A:1278:G:H21	14:C:26:LYS:HE2	1.76	0.51
13:A:1409:C:H2'	13:A:1410:A:H8	1.76	0.51
6:K:25:SER:OG	6:K:28:ASN:O	2.23	0.50
13:A:999:C:N3	13:A:1042:A:N6	2.58	0.50
13:A:1071:C:H2'	13:A:1072:G:C8	2.44	0.50
1:B:126:ASP:OD1	1:B:127:LYS:N	2.44	0.50
3:E:28:ARG:NH1	3:E:30:PHE:CE1	2.79	0.50
11:R:22:TYR:HA	11:R:57:ALA:HB1	1.93	0.50
13:A:79:G:H2'	13:A:80:A:C8	2.47	0.50
13:A:868:C:H2'	13:A:869:G:O4'	2.11	0.50
13:A:1298:U:H5	15:G:111:GLY:HA2	1.74	0.50
13:A:1423:G:H1	13:A:1477:U:H3	1.58	0.50
13:A:1518:A:O2'	13:A:1519:A:O4'	2.30	0.50
3:E:61:LYS:O	3:E:65:LYS:HG2	2.10	0.50
6:K:36:ARG:HH22	6:K:82:GLU:HB2	1.77	0.50
8:O:41:HIS:O	8:O:44:GLU:HG3	2.11	0.50
13:A:502:A:H2'	13:A:503:C:O4'	2.11	0.50
13:A:1137:C:O2'	13:A:1138:G:H5''	2.12	0.50
18:M:79:LEU:HA	20:S:64:GLU:HB2	1.94	0.50
13:A:89:U:C2	13:A:90:C:C5	3.00	0.50
13:A:931:C:H2'	13:A:932:C:C6	2.46	0.50
13:A:978:A:N1	13:A:1316:G:N3	2.59	0.50
13:A:1181:G:H1'	13:A:1182:G:C8	2.47	0.50
13:A:1393:U:C2	13:A:1502:A:H5'	2.46	0.50
13:A:1467:C:H2'	13:A:1468:A:C8	2.46	0.50
3:E:40:ASP:C	3:E:42:ASN:H	2.19	0.50
3:E:56:PRO:O	3:E:60:GLN:HG2	2.12	0.50
4:F:37:HIS:HB2	4:F:97:THR:HG23	1.94	0.50
10:Q:47:ASP:OD1	10:Q:47:ASP:N	2.44	0.50
13:A:89:U:H2'	13:A:90:C:C6	2.47	0.50
13:A:1185:G:H2'	13:A:1186:G:H8	1.77	0.50
13:A:1359:C:H4'	13:A:1362:A:H62	1.76	0.50
19:N:49:THR:HG21	20:S:15:LEU:HD21	1.93	0.50
1:B:204:ASP:OD1	1:B:204:ASP:N	2.44	0.50
3:E:89:THR:HG23	13:A:864:A:H4'	1.93	0.50
6:K:21:HIS:CE1	13:A:706:A:H4'	2.47	0.50
13:A:945:G:H1	13:A:1236:A:N6	2.10	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:978:A:C8	13:A:979:C:H5	2.30	0.50
13:A:1149:C:H2'	13:A:1150:A:C8	2.41	0.50
18:M:56:ARG:HA	18:M:59:VAL:HG12	1.91	0.50
5:H:17:GLN:OE1	5:H:69:ALA:CB	2.59	0.50
6:K:13:LYS:NZ	6:K:35:ASP:OD2	2.45	0.50
14:C:134:LYS:HA	14:C:137:VAL:HB	1.93	0.50
3:E:28:ARG:HD2	13:A:1397:C:O2'	2.12	0.50
3:E:155:LYS:HA	5:H:65:PHE:CD1	2.47	0.50
13:A:1125:U:OP1	17:J:37:ARG:HD3	2.12	0.50
13:A:1144:G:N2	13:A:1146:A:H62	2.10	0.50
13:A:1267:C:O2'	13:A:1327:C:H4'	2.12	0.50
13:A:1508:A:H2'	13:A:1509:C:O4'	2.12	0.50
16:I:87:MET:HG2	16:I:94:ARG:CZ	2.41	0.50
5:H:47:ASP:OD1	5:H:48:PHE:O	2.29	0.50
11:R:61:ALA:O	11:R:65:SER:N	2.45	0.50
13:A:473:U:N3	13:A:474:G:C8	2.79	0.50
13:A:799:G:H2'	13:A:800:G:O4'	2.12	0.50
13:A:1119:C:H2'	13:A:1120:C:C6	2.47	0.50
11:R:36:GLY:O	11:R:62:ARG:NH1	2.44	0.49
13:A:782:A:H3'	13:A:783:C:H6	1.77	0.49
13:A:974:A:OP2	19:N:80:ARG:NE	2.45	0.49
13:A:1147:C:H4'	16:I:6:TYR:CE2	2.47	0.49
13:A:1279:G:OP1	17:J:9:ARG:NH2	2.44	0.49
13:A:1396:A:H3'	13:A:1397:C:C5	2.47	0.49
1:B:142:LYS:O	1:B:145:ASN:ND2	2.45	0.49
13:A:1119:C:H2'	13:A:1120:C:H6	1.77	0.49
13:A:1151:A:O2'	13:A:1152:A:O5'	2.27	0.49
13:A:1295:U:H2'	13:A:1296:C:C6	2.47	0.49
13:A:1375:A:H2'	13:A:1376:U:C6	2.47	0.49
18:M:25:GLY:O	18:M:29:SER:HB3	2.12	0.49
1:B:12:GLY:HA2	1:B:14:HIS:CE1	2.46	0.49
7:L:62:VAL:HG22	7:L:63:THR:H	1.76	0.49
8:O:9:LYS:HE3	8:O:10:ILE:CG1	2.42	0.49
9:P:8:ARG:NH1	13:A:391:G:C5'	2.75	0.49
13:A:499:A:N1	13:A:546:A:O2'	2.32	0.49
13:A:769:G:H4'	13:A:1513:A:H4'	1.94	0.49
13:A:846:G:H3'	13:A:847:G:C8	2.47	0.49
13:A:965:U:H5''	13:A:966:G:OP1	2.13	0.49
13:A:1348:U:N3	13:A:1374:A:C8	2.76	0.49
14:C:67:ILE:HG22	14:C:69:THR:HG23	1.94	0.49
6:K:43:TRP:HD1	6:K:44:ALA:H	1.58	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:L:113:ARG:HD2	7:L:118:VAL:O	2.12	0.49
13:A:680:C:H2'	13:A:681:A:H8	1.77	0.49
13:A:1176:A:H2'	13:A:1177:G:C8	2.47	0.49
13:A:1250:A:C2	13:A:1370:G:H1'	2.48	0.49
14:C:35:ASP:OD1	14:C:58:ARG:NH2	2.45	0.49
1:B:59:ILE:HA	1:B:62:ARG:CZ	2.42	0.49
4:F:21:MET:SD	4:F:25:TYR:HE2	2.27	0.49
5:H:1:SER:HB3	5:H:8:ASP:OD2	2.13	0.49
13:A:96:U:H2'	13:A:97:G:C8	2.46	0.49
13:A:736:C:H2'	13:A:737:C:C6	2.48	0.49
13:A:829:G:O6	13:A:857:C:N4	2.35	0.49
13:A:837:U:O2	13:A:849:G:C6	2.65	0.49
13:A:982:U:C2	13:A:1222:G:O6	2.65	0.49
16:I:126:PHE:CZ	16:I:129:ARG:HG3	2.47	0.49
18:M:103:THR:HG22	18:M:104:ASN:N	2.26	0.49
2:D:172:VAL:HA	2:D:179:GLY:HA2	1.93	0.49
13:A:71:A:O2'	13:A:72:A:O5'	2.31	0.49
13:A:355:C:H2'	13:A:356:A:O4'	2.12	0.49
13:A:847:G:H2'	13:A:848:C:C6	2.47	0.49
13:A:942:G:H2'	13:A:943:U:C6	2.47	0.49
13:A:1435:G:H2'	13:A:1436:U:C6	2.48	0.49
13:A:1502:A:N7	13:A:1530:G:H4'	2.28	0.49
16:I:33:SER:OG	16:I:35:GLU:OE1	2.31	0.49
8:O:65:LEU:HD22	21:A:1938:HOH:O	2.11	0.49
13:A:77:A:H2'	13:A:78:A:O4'	2.13	0.49
13:A:943:U:H2'	13:A:944:G:C8	2.47	0.49
13:A:1000:A:H2'	13:A:1001:C:H6	1.77	0.49
13:A:1169:A:H2'	13:A:1170:A:C8	2.48	0.49
13:A:1198:G:H2'	13:A:1199:U:C6	2.48	0.49
13:A:1216:A:H5''	19:N:4:SER:OG	2.13	0.49
13:A:1392:G:H8	13:A:1392:G:O5'	1.95	0.49
7:L:66:ILE:CD1	7:L:73:LEU:HD22	2.43	0.49
13:A:519:C:H2'	13:A:520:A:O4'	2.12	0.49
13:A:720:C:OP2	13:A:721:G:O2'	2.26	0.49
13:A:1161:C:H2'	13:A:1162:C:H6	1.78	0.49
18:M:76:ILE:O	18:M:80:MET:HB3	2.13	0.49
7:L:50:LYS:N	7:L:50:LYS:HD2	2.28	0.49
13:A:56:U:H2'	13:A:57:G:C8	2.47	0.49
13:A:76:G:N1	13:A:93:U:N3	2.27	0.49
13:A:91:U:H2'	13:A:92:U:C6	2.48	0.49
13:A:517:G:O6	13:A:532:A:H8	1.96	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:655:A:H2'	13:A:656:G:O4'	2.12	0.49
13:A:1064:G:H1'	13:A:1190:G:H21	1.76	0.49
13:A:1133:G:H2'	13:A:1134:G:C8	2.47	0.49
13:A:1201:A:H1'	13:A:1202:U:OP2	2.13	0.49
13:A:1301:U:H2'	13:A:1303:C:C5	2.48	0.49
14:C:182:ASP:O	14:C:201:ILE:N	2.41	0.49
7:L:86:VAL:CG1	13:A:523:A:N6	2.76	0.49
13:A:60:A:N1	13:A:107:G:O2'	2.43	0.49
13:A:1185:G:H2'	13:A:1186:G:C8	2.47	0.49
13:A:1317:C:O3'	19:N:48:GLN:NE2	2.45	0.49
16:I:6:TYR:HE1	16:I:17:ARG:HB3	1.77	0.49
2:D:8:LEU:HD11	2:D:21:LYS:HG2	1.94	0.48
14:C:128:MET:HG2	14:C:130:ARG:NH1	2.28	0.48
2:D:137:SER:N	2:D:140:ASP:OD1	2.45	0.48
3:E:28:ARG:NH2	13:A:15:G:O2'	2.42	0.48
3:E:79:THR:HB	3:E:121:ASN:HB2	1.94	0.48
13:A:204:G:H2'	13:A:205:A:O4'	2.13	0.48
13:A:398:U:H2'	13:A:399:G:C8	2.48	0.48
13:A:1137:C:H1'	13:A:1138:G:C2	2.47	0.48
13:A:1229:A:P	18:M:112:ARG:HH21	2.36	0.48
14:C:76:ILE:HD13	14:C:83:VAL:HG21	1.94	0.48
14:C:119:ILE:O	14:C:123:LEU:HB2	2.13	0.48
10:Q:51:GLU:O	10:Q:51:GLU:CD	2.57	0.48
13:A:555:U:H2'	13:A:556:C:C6	2.48	0.48
13:A:636:U:H2'	13:A:637:C:C6	2.48	0.48
13:A:1423:G:H2'	13:A:1424:U:C6	2.47	0.48
13:A:1434:A:H3'	13:A:1435:G:H8	1.79	0.48
14:C:109:GLU:HG3	14:C:139:ASN:HB3	1.94	0.48
17:J:33:GLY:O	17:J:80:THR:OG1	2.23	0.48
18:M:86:ARG:HG2	18:M:90:HIS:CE1	2.49	0.48
1:B:133:ALA:HA	1:B:136:ARG:HE	1.78	0.48
2:D:94:GLU:HA	2:D:99:ASN:ND2	2.28	0.48
2:D:96:ARG:HG3	2:D:133:SER:HA	1.95	0.48
13:A:20:U:H2'	13:A:21:G:O4'	2.13	0.48
13:A:189:A:H2'	13:A:190:A:C8	2.49	0.48
13:A:204:G:C4	13:A:205:A:C8	3.01	0.48
13:A:712:A:C2	13:A:713:G:N2	2.82	0.48
13:A:925:G:H1'	13:A:1392:G:O6	2.13	0.48
13:A:1297:G:N2	15:G:113:LYS:HG3	2.28	0.48
14:C:185:THR:HG22	14:C:198:LYS:HG2	1.95	0.48
16:I:23:GLY:O	16:I:61:ASP:HB2	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:77:VAL:HG13	17:J:78:GLU:OE1	2.13	0.48
1:B:114:LYS:HD2	1:B:151:LYS:HD2	1.96	0.48
13:A:714:G:C5	13:A:715:A:C6	3.01	0.48
13:A:786:G:C5	13:A:787:A:N6	2.81	0.48
13:A:996:A:H2'	13:A:997:U:H6	1.78	0.48
13:A:1485:U:H2'	13:A:1486:G:C8	2.48	0.48
14:C:131:ARG:O	14:C:135:ARG:HG2	2.13	0.48
13:A:679:C:H2'	13:A:680:C:H6	1.76	0.48
13:A:946:A:H1'	13:A:1334:G:H4'	1.96	0.48
13:A:948:C:OP1	18:M:106:ARG:N	2.45	0.48
13:A:1091:U:C2	13:A:1095:U:C4	3.02	0.48
13:A:1238:A:N7	13:A:1303:C:H1'	2.28	0.48
13:A:1464:U:O4	13:A:1465:A:N6	2.46	0.48
13:A:1527:U:O2'	13:A:1528:U:H5'	2.13	0.48
18:M:18:LEU:HG	18:M:33:LEU:HD21	1.96	0.48
1:B:221:ARG:HH11	1:B:224:ARG:HH12	1.61	0.48
4:F:72:ASP:O	4:F:75:GLU:HG3	2.14	0.48
13:A:37:U:O2'	13:A:500:G:H4'	2.14	0.48
13:A:161:A:H2'	13:A:162:A:C8	2.49	0.48
13:A:409:U:O2'	13:A:410:G:C8	2.67	0.48
13:A:459:A:P	13:A:474:G:H22	2.37	0.48
13:A:757:U:H2'	13:A:758:C:O4'	2.13	0.48
13:A:827:U:H2'	13:A:870:U:O4	2.14	0.48
13:A:1228:C:H41	18:M:102:LYS:HG2	1.78	0.48
13:A:1360:A:C8	19:N:57:SER:HA	2.48	0.48
13:A:1380:U:O2	13:A:1382:C:N4	2.45	0.48
18:M:66:GLY:HA2	18:M:70:ARG:NH2	2.29	0.48
13:A:741:G:H2'	13:A:742:G:O4'	2.13	0.48
13:A:1124:G:H1'	13:A:1125:U:H5	1.79	0.48
13:A:1258:G:H2'	13:A:1259:C:C6	2.48	0.48
15:G:30:MET:HE3	15:G:35:LYS:H	1.77	0.48
1:B:32:GLY:HA3	1:B:34:ARG:HH22	1.79	0.48
1:B:163:ILE:HA	1:B:185:ILE:HD13	1.96	0.48
8:O:73:ASP:OD2	8:O:76:ARG:NH1	2.47	0.48
13:A:62:U:H2'	13:A:63:C:C6	2.48	0.48
13:A:146:G:H8	21:A:2069:HOH:O	1.97	0.48
13:A:202:G:H21	13:A:465:A:N6	2.12	0.48
13:A:524:G:H2'	13:A:525:C:C6	2.48	0.48
13:A:1375:A:O2'	15:G:101:ARG:NH2	2.26	0.48
13:A:1524:C:H2'	13:A:1525:G:C8	2.49	0.48
17:J:7:ARG:HD3	17:J:73:LEU:HD11	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:N:68:ARG:HH22	19:N:80:ARG:HH21	1.61	0.48
1:B:81:ASP:N	1:B:81:ASP:OD1	2.45	0.48
1:B:86:CYS:HB3	1:B:217:ALA:HB1	1.95	0.48
6:K:28:ASN:OD1	6:K:46:ALA:HB3	2.14	0.48
13:A:119:A:C2	21:A:1608:HOH:O	2.67	0.48
13:A:212:G:N3	13:A:213:G:C8	2.82	0.48
13:A:452:A:N6	13:A:480:U:H3	2.11	0.48
13:A:481:G:O2'	13:A:483:C:N4	2.47	0.48
13:A:608:A:H2'	13:A:609:A:O4'	2.14	0.48
13:A:1122:U:H2'	13:A:1123:U:C6	2.49	0.48
4:F:1:MET:H1	4:F:67:PRO:HA	1.78	0.47
4:F:55:HIS:C	4:F:56:LYS:HD3	2.39	0.47
5:H:111:THR:HG23	5:H:114:ALA:H	1.78	0.47
13:A:1520:C:H2'	13:A:1521:C:H6	1.79	0.47
14:C:146:LYS:HE3	14:C:204:GLY:HA2	1.96	0.47
2:D:137:SER:O	2:D:140:ASP:OD1	2.31	0.47
3:E:111:ARG:NH2	13:A:8:A:C6	2.82	0.47
4:F:1:MET:SD	4:F:67:PRO:HG3	2.54	0.47
4:F:44:ARG:HG3	4:F:57:ALA:C	2.39	0.47
9:P:31:ARG:HB2	13:A:310:G:H5''	1.95	0.47
13:A:160:A:H2'	13:A:161:A:O4'	2.13	0.47
13:A:631:C:H3'	13:A:632:U:H5'	1.96	0.47
13:A:1160:G:C6	13:A:1161:C:C4	3.01	0.47
13:A:1191:A:H2'	13:A:1192:C:H6	1.78	0.47
19:N:15:LEU:HG	19:N:18:LYS:HE3	1.96	0.47
2:D:33:ILE:HG13	2:D:34:GLU:N	2.29	0.47
4:F:6:ILE:CG1	4:F:62:MET:SD	3.02	0.47
8:O:47:LYS:NZ	13:A:669:G:P	2.87	0.47
13:A:441:A:H61	13:A:493:A:N6	2.12	0.47
13:A:962:C:H2'	13:A:963:G:C8	2.49	0.47
13:A:1380:U:H4'	13:A:1381:U:H5'	1.96	0.47
1:B:108:GLN:HA	1:B:111:LYS:NZ	2.29	0.47
6:K:43:TRP:CD1	6:K:44:ALA:H	2.33	0.47
13:A:334:C:HO2'	13:A:335:C:H6	1.61	0.47
13:A:685:G:H2'	13:A:686:U:C6	2.49	0.47
13:A:1314:C:H2'	13:A:1315:U:C6	2.49	0.47
1:B:18:GLN:NE2	1:B:21:TYR:HB2	2.29	0.47
1:B:58:LYS:O	1:B:61:SER:OG	2.27	0.47
2:D:165:GLU:OE2	2:D:166:LYS:N	2.47	0.47
12:T:80:ALA:O	12:T:84:LYS:HG2	2.13	0.47
13:A:172:A:O2'	13:A:173:U:H5'	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:334:C:O2'	13:A:335:C:P	2.73	0.47
13:A:1019:A:H2'	13:A:1020:G:O4'	2.14	0.47
13:A:1156:G:O2'	13:A:1180:A:N6	2.47	0.47
13:A:1278:G:H5''	13:A:1279:G:O4'	2.14	0.47
13:A:1484:C:H2'	13:A:1485:U:O4'	2.15	0.47
1:B:110:ILE:HG13	1:B:111:LYS:N	2.30	0.47
7:L:66:ILE:HD11	7:L:73:LEU:HD22	1.97	0.47
8:O:42:PHE:HB3	8:O:52:ARG:NH2	2.30	0.47
11:R:32:ILE:HG22	11:R:33:THR:N	2.29	0.47
13:A:703:G:C4'	13:A:704:A:H8	2.26	0.47
13:A:778:G:C5	13:A:779:C:C4	3.03	0.47
13:A:898:G:H2'	13:A:900:A:OP2	2.15	0.47
13:A:921:U:C2'	13:A:922:G:H5'	2.44	0.47
13:A:947:G:H2'	13:A:948:C:C6	2.48	0.47
13:A:1287:A:H1'	13:A:1353:G:O2'	2.15	0.47
14:C:115:VAL:HG12	14:C:199:VAL:HG11	1.95	0.47
1:B:20:ARG:HA	1:B:38:HIS:NE2	2.29	0.47
1:B:76:SER:HB3	1:B:93:HIS:CE1	2.49	0.47
4:F:90:MET:HG3	4:F:91:ARG:N	2.30	0.47
7:L:63:THR:HG22	7:L:92:VAL:HG22	1.96	0.47
8:O:9:LYS:HZ1	8:O:10:ILE:HD11	1.80	0.47
8:O:27:GLN:O	8:O:31:LEU:HD23	2.14	0.47
11:R:33:THR:HG22	11:R:37:LYS:H	1.79	0.47
13:A:49:U:C2	13:A:361:G:N2	2.82	0.47
13:A:113:G:H21	13:A:353:A:H8	1.62	0.47
13:A:208:U:O2'	13:A:211:G:O6	2.21	0.47
13:A:251:G:C8	13:A:266:G:C4	3.03	0.47
13:A:703:G:H4'	13:A:704:A:C8	2.45	0.47
13:A:1271:A:C2	13:A:1272:G:C5	3.03	0.47
13:A:1321:U:H2'	13:A:1322:C:C2	2.50	0.47
13:A:1385:G:H2'	13:A:1386:G:C8	2.50	0.47
20:S:50:VAL:HG21	20:S:70:LEU:HD21	1.97	0.47
2:D:56:GLU:OE2	2:D:199:ILE:N	2.48	0.47
2:D:106:PHE:CG	2:D:144:ILE:HD11	2.50	0.47
7:L:43:LYS:N	7:L:44:PRO:HD2	2.30	0.47
13:A:50:A:N1	13:A:360:G:O2'	2.41	0.47
13:A:649:A:H2'	13:A:650:G:O4'	2.15	0.47
13:A:964:A:H1'	17:J:57:VAL:HG21	1.95	0.47
13:A:1048:G:H2'	13:A:1050:G:C8	2.50	0.47
13:A:1131:G:P	16:I:4:GLN:HE22	2.38	0.47
13:A:1164:G:H2'	13:A:1165:U:H6	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:26:VAL:HG13	17:J:36:VAL:HG11	1.97	0.47
1:B:98:GLY:N	1:B:174:GLU:OE2	2.40	0.47
10:Q:18:LYS:HE2	13:A:255:G:H4'	1.97	0.47
13:A:123:U:H2'	13:A:124:C:H6	1.80	0.47
13:A:383:A:C5	13:A:384:G:H1'	2.50	0.47
13:A:398:U:H2'	13:A:399:G:H8	1.80	0.47
13:A:1023:U:H2'	13:A:1024:G:C8	2.50	0.47
13:A:1090:U:H2'	13:A:1091:U:H6	1.79	0.47
13:A:1288:A:H2'	13:A:1289:A:O4'	2.15	0.47
13:A:1326:U:C2	13:A:1327:C:C5	3.03	0.47
13:A:1385:G:H2'	13:A:1386:G:H8	1.80	0.47
1:B:207:ARG:HD2	1:B:208:ALA:N	2.30	0.47
8:O:6:ALA:C	8:O:9:LYS:HG3	2.35	0.47
13:A:76:G:O6	13:A:93:U:C4	2.68	0.47
13:A:948:C:H3'	18:M:104:ASN:HB3	1.96	0.47
13:A:1091:U:O2'	13:A:1093:A:N7	2.40	0.47
13:A:1127:G:H22	13:A:1145:A:H2	1.61	0.47
19:N:88:MET:HE3	19:N:95:LEU:CD2	2.45	0.47
6:K:79:LYS:O	6:K:104:PHE:HA	2.15	0.46
7:L:24:GLU:OE2	7:L:60:PHE:HE2	1.98	0.46
13:A:713:G:O2'	13:A:714:G:O4'	2.07	0.46
13:A:1186:G:H21	19:N:100:TRP:C	2.22	0.46
13:A:1341:U:H5''	16:I:129:ARG:HH22	1.80	0.46
13:A:1485:U:H3'	13:A:1486:G:H2'	1.98	0.46
14:C:155:ARG:H	14:C:162:ALA:HA	1.80	0.46
16:I:56:MET:HG3	16:I:57:VAL:H	1.79	0.46
18:M:3:ILE:HA	18:M:56:ARG:CZ	2.45	0.46
2:D:50:TYR:CZ	2:D:54:LEU:HD12	2.50	0.46
6:K:51:PHE:HE2	6:K:56:LYS:HG3	1.80	0.46
11:R:25:ILE:HD11	11:R:67:LEU:HD21	1.97	0.46
12:T:75:LYS:O	12:T:79:THR:HG23	2.15	0.46
13:A:464:U:C2	13:A:466:A:OP1	2.68	0.46
13:A:691:G:H1'	13:A:696:A:N6	2.30	0.46
13:A:958:A:N3	13:A:985:C:O2'	2.38	0.46
13:A:958:A:H1'	13:A:985:C:O2'	2.15	0.46
13:A:1357:A:N1	13:A:1365:G:N2	2.55	0.46
2:D:60:VAL:HG21	2:D:199:ILE:HD11	1.96	0.46
3:E:28:ARG:NH1	3:E:30:PHE:CZ	2.84	0.46
13:A:715:A:C8	13:A:716:A:C8	3.03	0.46
13:A:745:G:H5'	13:A:851:G:H21	1.79	0.46
13:A:1237:C:H3'	13:A:1336:C:H41	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:C:138:GLN:O	14:C:142:ARG:NH1	2.48	0.46
16:I:39:GLY:HA2	16:I:44:ARG:CB	2.43	0.46
16:I:115:VAL:HG11	17:J:62:ARG:HB2	1.97	0.46
1:B:48:MET:HG3	1:B:199:ILE:HG23	1.96	0.46
1:B:144:GLU:HA	1:B:147:LEU:CB	2.42	0.46
5:H:91:LEU:HB3	5:H:112:ASP:OD1	2.15	0.46
12:T:83:ASN:HD22	12:T:83:ASN:N	2.13	0.46
13:A:462:G:P	13:A:462:G:C8	3.09	0.46
13:A:674:G:N3	13:A:675:A:C8	2.83	0.46
13:A:864:A:H2'	13:A:865:A:C8	2.50	0.46
14:C:182:ASP:OD2	14:C:203:LYS:NZ	2.47	0.46
16:I:93:LEU:HD23	16:I:93:LEU:H	1.80	0.46
18:M:53:ASP:OD1	18:M:54:THR:N	2.49	0.46
1:B:87:ASP:OD1	1:B:221:ARG:NH2	2.45	0.46
2:D:33:ILE:C	2:D:34:GLU:HG3	2.41	0.46
5:H:78:SER:OG	5:H:83:ARG:HA	2.16	0.46
7:L:54:VAL:O	7:L:61:GLU:OE1	2.34	0.46
7:L:85:ARG:HA	7:L:93:ARG:HA	1.96	0.46
9:P:76:LYS:O	9:P:80:LYS:HG2	2.15	0.46
13:A:91:U:H2'	13:A:92:U:H6	1.80	0.46
13:A:346:G:N3	13:A:346:G:H5''	2.31	0.46
13:A:475:C:H2'	13:A:476:U:C6	2.51	0.46
13:A:938:A:N3	13:A:1376:U:O2'	2.37	0.46
13:A:1003:G:N2	13:A:1005:A:O5'	2.48	0.46
13:A:1321:U:O2'	20:S:77:ARG:NH2	2.49	0.46
15:G:39:GLU:O	15:G:43:TYR:HB2	2.15	0.46
20:S:35:ARG:C	20:S:35:ARG:HD2	2.40	0.46
1:B:63:LYS:HG2	1:B:224:ARG:HD2	1.98	0.46
1:B:98:GLY:O	1:B:102:ASN:HB3	2.15	0.46
2:D:39:GLN:OE1	2:D:40:HIS:NE2	2.48	0.46
10:Q:16:MET:HE3	10:Q:19:SER:OG	2.16	0.46
10:Q:45:VAL:HG21	10:Q:60:ILE:HG21	1.97	0.46
11:R:32:ILE:HG22	11:R:33:THR:O	2.16	0.46
13:A:84:U:H3'	13:A:85:U:O2	2.16	0.46
13:A:266:G:O2'	13:A:267:C:O5'	2.34	0.46
13:A:1107:C:C4	13:A:1108:G:C8	3.03	0.46
17:J:53:ILE:HG13	17:J:63:ASP:H	1.81	0.46
1:B:48:MET:N	1:B:48:MET:SD	2.88	0.46
5:H:86:LYS:HB2	5:H:91:LEU:HD23	1.98	0.46
6:K:22:ILE:HA	6:K:31:VAL:HG22	1.98	0.46
13:A:1272:G:H2'	13:A:1273:C:C6	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1370:G:H2'	13:A:1371:G:H8	1.81	0.46
16:I:79:ARG:O	16:I:83:THR:HG23	2.14	0.46
18:M:86:ARG:HG2	18:M:90:HIS:HE1	1.81	0.46
4:F:10:VAL:HG11	4:F:18:VAL:HG22	1.98	0.46
4:F:85:ILE:HG22	4:F:86:ARG:HG3	1.97	0.46
5:H:25:THR:HG22	5:H:59:GLU:OE1	2.16	0.46
6:K:56:LYS:HG2	6:K:57:SER:H	1.81	0.46
13:A:978:A:N1	13:A:1316:G:C2	2.84	0.46
13:A:1074:G:O2'	13:A:1101:A:N1	2.37	0.46
13:A:1130:A:H61	13:A:1144:G:H1'	1.80	0.46
13:A:1340:A:H2'	13:A:1341:U:O4'	2.15	0.46
13:A:1369:C:H2'	13:A:1370:G:C8	2.50	0.46
1:B:94:ARG:HD3	13:A:1099:G:O5'	2.16	0.46
2:D:9:LYS:NZ	13:A:428:G:OP2	2.45	0.46
2:D:151:GLN:HB3	2:D:154:VAL:HG22	1.96	0.46
5:H:82:LEU:CD2	7:L:3:VAL:HG21	2.43	0.46
13:A:767:A:H2'	13:A:768:A:O4'	2.15	0.46
13:A:1026:G:C2	13:A:1027:C:C5	3.04	0.46
13:A:1396:A:H5''	13:A:1397:C:OP2	2.16	0.46
1:B:173:LYS:NZ	13:A:1076:U:OP1	2.38	0.46
2:D:8:LEU:O	2:D:11:SER:OG	2.30	0.46
6:K:45:THR:O	6:K:49:SER:OG	2.26	0.46
7:L:98:ARG:NH1	7:L:106:VAL:HG12	2.31	0.46
13:A:182:A:H1'	13:A:183:C:C6	2.51	0.46
13:A:689:C:H2'	13:A:690:G:O4'	2.16	0.46
13:A:712:A:C5	13:A:713:G:N1	2.84	0.46
13:A:1236:A:H2'	13:A:1237:C:C6	2.51	0.46
13:A:1321:U:H5''	13:A:1322:C:OP2	2.16	0.46
13:A:1507:A:HO2'	13:A:1508:A:P	2.38	0.46
16:I:56:MET:HE3	16:I:57:VAL:HG23	1.98	0.46
17:J:7:ARG:NE	17:J:75:ASP:OD2	2.35	0.46
18:M:52:ILE:O	18:M:56:ARG:HG2	2.16	0.46
19:N:62:ARG:NH1	19:N:67:GLY:O	2.49	0.46
20:S:28:LYS:HG2	20:S:29:PRO:HD2	1.97	0.46
1:B:82:ALA:HB2	1:B:213:LEU:HB3	1.97	0.45
2:D:75:TYR:HE1	2:D:200:VAL:HG23	1.80	0.45
4:F:3:HIS:HB2	4:F:92:THR:CB	2.44	0.45
13:A:1213:A:H2'	13:A:1215:G:C8	2.52	0.45
13:A:1329:A:P	18:M:25:GLY:H	2.35	0.45
1:B:131:LYS:NZ	13:A:1157:A:OP2	2.44	0.45
13:A:1390:U:H2'	13:A:1391:U:C6	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:G:26:VAL:HG12	15:G:42:VAL:HG11	1.98	0.45
17:J:12:ALA:HB2	17:J:96:VAL:HG22	1.99	0.45
5:H:49:LYS:HG2	5:H:59:GLU:HB3	1.98	0.45
9:P:42:ILE:O	9:P:42:ILE:HG13	2.16	0.45
13:A:934:C:O2	13:A:938:A:N6	2.49	0.45
13:A:978:A:H61	13:A:1316:G:H1'	1.81	0.45
13:A:1387:G:H2'	13:A:1388:C:C6	2.52	0.45
1:B:122:ASP:HA	1:B:125:PHE:CD2	2.52	0.45
4:F:2:ARG:HE	4:F:91:ARG:NH2	2.15	0.45
13:A:15:G:OP1	13:A:1397:C:N4	2.49	0.45
13:A:264:C:N4	21:A:1609:HOH:O	2.42	0.45
13:A:666:G:H5'	13:A:726:C:H1'	1.99	0.45
13:A:675:A:C4	13:A:676:A:C8	3.04	0.45
13:A:785:G:H8	13:A:785:G:OP1	1.99	0.45
13:A:791:G:H2'	13:A:792:A:H5'	1.98	0.45
13:A:846:G:H2'	13:A:846:G:N3	2.32	0.45
13:A:1304:G:C2	13:A:1333:A:N6	2.84	0.45
13:A:1341:U:H4'	16:I:129:ARG:HH12	1.81	0.45
13:A:1434:A:H3'	13:A:1435:G:C8	2.52	0.45
3:E:40:ASP:O	3:E:42:ASN:N	2.48	0.45
7:L:2:THR:HB	7:L:5:GLN:HG3	1.98	0.45
13:A:159:G:H1'	13:A:162:A:N6	2.31	0.45
13:A:201:G:H1	13:A:216:U:H3	1.64	0.45
13:A:676:A:C6	13:A:677:U:C4	3.04	0.45
13:A:927:G:N2	13:A:1390:U:H3	2.14	0.45
13:A:1130:A:O3'	16:I:4:GLN:NE2	2.44	0.45
13:A:1395:C:H2'	13:A:1396:A:C8	2.51	0.45
14:C:111:ASP:HB3	14:C:114:LEU:HB2	1.98	0.45
16:I:87:MET:HE3	16:I:94:ARG:NH2	2.32	0.45
20:S:12:LEU:HD21	20:S:16:LYS:HD2	1.97	0.45
1:B:82:ALA:CB	1:B:213:LEU:HB3	2.47	0.45
3:E:93:VAL:HB	3:E:110:MET:CE	2.46	0.45
13:A:520:A:H2'	13:A:521:G:O4'	2.17	0.45
13:A:1014:A:C2	13:A:1219:A:H1'	2.52	0.45
13:A:1168:U:O2'	13:A:1169:A:H5'	2.17	0.45
13:A:1478:U:O2'	13:A:1479:C:OP1	2.33	0.45
14:C:18:ASN:O	14:C:55:VAL:HA	2.17	0.45
2:D:116:LEU:HD11	2:D:154:VAL:HG12	1.97	0.45
3:E:113:VAL:CG2	3:E:136:VAL:HG23	2.47	0.45
13:A:984:C:H2'	13:A:985:C:H6	1.81	0.45
13:A:993:G:H2'	13:A:995:C:H41	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1203:C:H2'	13:A:1204:A:H8	1.82	0.45
13:A:1299:A:H62	13:A:1302:C:H41	1.64	0.45
17:J:20:GLN:OE1	17:J:20:GLN:N	2.49	0.45
2:D:38:GLY:HA3	13:A:542:G:H5'	1.97	0.45
5:H:37:ASN:ND2	5:H:48:PHE:HZ	2.14	0.45
13:A:40:C:H2'	13:A:41:G:O4'	2.15	0.45
13:A:1234:C:H2'	13:A:1235:U:C6	2.52	0.45
13:A:1305:G:HO2'	13:A:1306:A:H8	1.62	0.45
13:A:1422:G:H2'	13:A:1423:G:C8	2.52	0.45
2:D:39:GLN:OE1	2:D:40:HIS:CE1	2.70	0.45
5:H:2:MET:HE1	13:A:756:C:O2'	2.16	0.45
5:H:9:MET:HE3	5:H:60:LEU:HD11	1.98	0.45
8:O:26:VAL:O	8:O:30:LEU:HD13	2.16	0.45
13:A:450:G:H5''	13:A:451:A:H5''	1.97	0.45
13:A:859:G:H2'	13:A:860:A:C8	2.51	0.45
13:A:983:A:O2'	13:A:1049:U:O3'	2.35	0.45
13:A:1088:G:N2	13:A:1167:A:H61	2.00	0.45
1:B:56:LEU:HA	1:B:59:ILE:HG12	1.98	0.45
4:F:53:LYS:HD3	4:F:53:LYS:HA	1.87	0.45
10:Q:4:ILE:HG23	10:Q:5:ARG:H	1.82	0.45
13:A:212:G:C4	13:A:213:G:C8	3.05	0.45
13:A:343:U:O3'	13:A:344:A:H8	1.99	0.45
13:A:846:G:C2	13:A:847:G:C5	3.05	0.45
13:A:924:C:H3'	13:A:925:G:C8	2.43	0.45
13:A:928:G:C6	13:A:1390:U:C5	3.05	0.45
13:A:1038:C:H2'	13:A:1039:G:H8	1.81	0.45
13:A:1125:U:OP2	13:A:1145:A:N6	2.50	0.45
14:C:85:LYS:O	14:C:89:VAL:HG23	2.16	0.45
18:M:68:LEU:O	18:M:72:ILE:HG12	2.17	0.45
18:M:89:ARG:HD2	18:M:95:PRO:O	2.17	0.45
19:N:50:LEU:HA	20:S:12:LEU:HD12	1.99	0.45
1:B:22:TRP:CZ3	1:B:24:PRO:HA	2.52	0.44
2:D:94:GLU:CD	2:D:99:ASN:HD21	2.25	0.44
2:D:176:LYS:O	2:D:176:LYS:HG3	2.17	0.44
13:A:244:U:O4	13:A:906:A:H1'	2.17	0.44
13:A:321:A:N6	13:A:329:A:OP2	2.50	0.44
13:A:1386:G:H2'	13:A:1387:G:H8	1.82	0.44
14:C:165:GLU:HB2	14:C:167:TYR:CE1	2.52	0.44
14:C:187:GLU:HA	14:C:196:GLY:HA2	1.98	0.44
16:I:122:ARG:NH1	16:I:123:ARG:O	2.50	0.44
17:J:19:ASP:HA	17:J:22:THR:HG22	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:M:43:LYS:HD3	18:M:43:LYS:HA	1.73	0.44
4:F:79:ARG:NH2	13:A:671:G:H4'	2.32	0.44
5:H:29:SER:HB2	21:A:1819:HOH:O	2.18	0.44
13:A:771:G:C5'	21:A:1894:HOH:O	2.61	0.44
13:A:860:A:H2'	13:A:861:G:O4'	2.17	0.44
13:A:1329:A:H4'	18:M:23:GLY:O	2.17	0.44
13:A:1338:G:H2'	13:A:1339:A:C4	2.52	0.44
16:I:43:ALA:HA	16:I:46:VAL:CG1	2.46	0.44
3:E:152:VAL:HA	3:E:155:LYS:HG2	1.99	0.44
5:H:37:ASN:O	5:H:41:GLU:HG2	2.17	0.44
8:O:22:GLY:HA2	13:A:657:U:H1'	1.99	0.44
12:T:68:LYS:HG3	21:T:108:HOH:O	2.17	0.44
13:A:325:A:H2'	13:A:326:G:O4'	2.17	0.44
13:A:501:C:H2'	13:A:502:A:C8	2.52	0.44
13:A:783:C:C2	13:A:784:A:C8	3.05	0.44
13:A:789:U:N3	13:A:791:G:H5''	2.33	0.44
13:A:1106:G:H2'	13:A:1107:C:C6	2.52	0.44
13:A:1216:A:H2'	13:A:1217:C:H6	1.81	0.44
13:A:1326:U:H2'	13:A:1327:C:C5	2.53	0.44
13:A:1329:A:OP1	18:M:25:GLY:N	2.34	0.44
13:A:1396:A:H2'	13:A:1397:C:O2	2.18	0.44
14:C:137:VAL:HG13	14:C:169:GLU:CD	2.43	0.44
15:G:110:ARG:HH12	15:G:122:GLU:HG3	1.81	0.44
6:K:28:ASN:CG	6:K:47:GLY:H	2.25	0.44
13:A:251:G:C6	13:A:266:G:N2	2.85	0.44
13:A:1356:G:C2	13:A:1357:A:C5	3.05	0.44
19:N:2:LYS:HB2	19:N:5:MET:HG2	1.99	0.44
20:S:39:ILE:HD11	20:S:70:LEU:HB2	1.99	0.44
1:B:69:VAL:CG2	1:B:162:VAL:HG23	2.47	0.44
2:D:197:HIS:HA	2:D:200:VAL:HG12	1.99	0.44
3:E:45:VAL:HB	3:E:117:ALA:HB2	1.99	0.44
10:Q:46:HIS:HB2	10:Q:70:LYS:HE2	2.00	0.44
13:A:83:C:H4'	13:A:84:U:C5	2.51	0.44
13:A:89:U:H2'	13:A:90:C:H6	1.82	0.44
13:A:182:A:N1	13:A:194:C:N3	2.64	0.44
13:A:700:G:H4'	13:A:704:A:C1'	2.47	0.44
13:A:705:G:H2'	13:A:706:A:C8	2.52	0.44
13:A:1206:G:H2'	13:A:1207:G:C8	2.53	0.44
13:A:1377:A:N1	15:G:6:ILE:HD11	2.31	0.44
13:A:1434:A:H5'	13:A:1435:G:OP2	2.17	0.44
18:M:70:ARG:HA	18:M:73:SER:HB3	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:67:LEU:HD13	1:B:89:PHE:HB3	1.98	0.44
2:D:189:ASP:OD1	2:D:189:ASP:N	2.41	0.44
5:H:6:ILE:O	5:H:10:LEU:HG	2.18	0.44
8:O:47:LYS:NZ	13:A:668:G:O3'	2.51	0.44
10:Q:75:VAL:HG12	10:Q:76:ARG:HG3	1.99	0.44
13:A:500:G:H2'	13:A:501:C:C6	2.52	0.44
13:A:786:G:C5	13:A:787:A:C6	3.06	0.44
17:J:54:SER:HB3	17:J:58:ASN:O	2.18	0.44
18:M:76:ILE:HA	18:M:80:MET:HB3	2.00	0.44
20:S:32:THR:HB	20:S:50:VAL:HG22	1.99	0.44
1:B:218:ALA:O	1:B:222:GLU:OE1	2.36	0.44
10:Q:51:GLU:OE1	10:Q:77:VAL:CG2	2.66	0.44
13:A:50:A:O2'	13:A:360:G:N2	2.50	0.44
13:A:472:U:H2'	13:A:473:U:O4'	2.17	0.44
13:A:687:A:N6	13:A:703:G:C2	2.82	0.44
13:A:1330:U:H5''	13:A:1331:G:C8	2.53	0.44
13:A:1349:A:OP2	16:I:119:LYS:NZ	2.47	0.44
15:G:15:PRO:HB3	16:I:49:GLN:HE22	1.81	0.44
17:J:42:LEU:HB2	17:J:71:LEU:HG	1.98	0.44
17:J:56:HIS:CE1	17:J:57:VAL:HG23	2.53	0.44
18:M:105:ALA:O	18:M:109:LYS:HB3	2.18	0.44
19:N:15:LEU:HD23	19:N:54:SER:HB2	1.99	0.44
20:S:4:LEU:HD12	20:S:6:LYS:N	2.32	0.44
4:F:29:ILE:HD13	4:F:64:VAL:HG11	1.99	0.44
13:A:6:G:O2'	13:A:7:A:H8	2.01	0.44
13:A:441:A:H61	13:A:493:A:H61	1.65	0.44
13:A:466:A:H3'	13:A:467:U:H6	1.83	0.44
13:A:958:A:N6	20:S:54:ARG:HG3	2.33	0.44
17:J:22:THR:O	17:J:26:VAL:HG23	2.17	0.44
18:M:33:LEU:HB3	18:M:38:ILE:HG21	2.00	0.44
18:M:72:ILE:O	18:M:75:SER:OG	2.28	0.44
2:D:158:LEU:O	2:D:161:ALA:HB3	2.18	0.44
8:O:44:GLU:OE1	8:O:45:HIS:CE1	2.70	0.44
12:T:3:ILE:O	12:T:7:LYS:HG3	2.17	0.44
13:A:139:A:H2'	13:A:140:U:C6	2.53	0.44
13:A:713:G:C4	13:A:714:G:N1	2.85	0.44
13:A:1004:A:C5	13:A:1026:G:C8	3.06	0.44
13:A:1077:G:N1	13:A:1080:A:OP2	2.47	0.44
13:A:1487:G:H1'	13:A:1488:G:N7	2.33	0.44
14:C:31:ASN:O	14:C:58:ARG:NH2	2.51	0.44
14:C:116:ALA:O	14:C:120:THR:OG1	2.34	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:115:GLN:HG3	2:D:153:ARG:HH22	1.83	0.43
13:A:212:G:C2	13:A:213:G:C8	3.06	0.43
13:A:462:G:C8	13:A:462:G:OP1	2.71	0.43
13:A:473:U:C2	13:A:474:G:C8	3.06	0.43
13:A:592:G:H2'	13:A:593:U:O4'	2.18	0.43
13:A:696:A:H2'	13:A:697:U:O4'	2.18	0.43
13:A:939:G:H2'	13:A:940:C:H6	1.82	0.43
13:A:1363:A:O2'	13:A:1365:G:N7	2.33	0.43
1:B:32:GLY:O	1:B:34:ARG:NH1	2.52	0.43
2:D:56:GLU:O	2:D:60:VAL:HG23	2.18	0.43
6:K:31:VAL:HB	6:K:69:CYS:SG	2.58	0.43
6:K:59:PRO:HA	6:K:91:GLY:HA3	1.99	0.43
13:A:205:A:H2'	13:A:206:C:H6	1.83	0.43
13:A:530:G:H5''	13:A:531:U:H5''	2.00	0.43
13:A:702:A:H8	13:A:702:A:OP1	2.01	0.43
13:A:706:A:H2'	13:A:707:U:C6	2.54	0.43
13:A:1296:C:H4'	18:M:12:LYS:HE2	1.99	0.43
13:A:1320:C:C6	20:S:69:LYS:HE3	2.52	0.43
13:A:1393:U:H2'	13:A:1394:A:O4'	2.18	0.43
13:A:1518:A:O2'	13:A:1519:A:O5'	2.35	0.43
2:D:10:LEU:HD11	2:D:62:ARG:HD2	2.00	0.43
3:E:156:ARG:NH1	5:H:42:GLU:O	2.50	0.43
7:L:113:ARG:HD2	7:L:119:LYS:C	2.44	0.43
11:R:62:ARG:HD2	11:R:68:PRO:C	2.43	0.43
13:A:235:C:H2'	13:A:236:A:C8	2.53	0.43
13:A:390:U:H2'	13:A:391:G:C8	2.54	0.43
13:A:710:G:H2'	13:A:711:G:H8	1.82	0.43
13:A:714:G:H1'	13:A:777:A:N7	2.33	0.43
13:A:908:A:H2'	13:A:909:A:H8	1.83	0.43
13:A:1069:C:O2	13:A:1106:G:N2	2.19	0.43
13:A:1346:A:N1	13:A:1374:A:H5''	2.33	0.43
13:A:1366:C:H2'	13:A:1367:C:H6	1.82	0.43
13:A:1431:A:O2'	13:A:1432:G:O5'	2.36	0.43
14:C:104:GLU:O	14:C:106:ARG:NH1	2.51	0.43
16:I:19:PHE:HB2	16:I:63:TYR:HB3	2.00	0.43
19:N:55:SER:HB2	19:N:58:ARG:HG2	2.00	0.43
19:N:61:ASN:C	19:N:61:ASN:HD22	2.27	0.43
1:B:68:PHE:H	1:B:90:PHE:HA	1.82	0.43
1:B:126:ASP:OD1	1:B:127:LYS:HG2	2.19	0.43
1:B:166:ASP:HB3	1:B:190:SER:HB3	1.99	0.43
7:L:54:VAL:C	7:L:61:GLU:OE1	2.61	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:L:63:THR:HG21	7:L:92:VAL:HG22	2.01	0.43
8:O:6:ALA:HA	8:O:9:LYS:HG2	2.00	0.43
8:O:23:SER:OG	8:O:26:VAL:HG23	2.19	0.43
10:Q:53:GLY:N	10:Q:56:ASP:OD2	2.31	0.43
13:A:157:U:H1'	13:A:165:G:C2	2.52	0.43
13:A:675:A:C6	13:A:676:A:C5	3.07	0.43
13:A:1049:U:H2'	19:N:2:LYS:HD2	2.00	0.43
13:A:1162:C:C2	13:A:1163:A:N7	2.86	0.43
13:A:1430:A:N6	13:A:1431:A:N1	2.66	0.43
13:A:1519:A:O2'	13:A:1520:C:OP2	2.30	0.43
15:G:21:LEU:HD23	15:G:21:LEU:H	1.83	0.43
1:B:55:GLU:HA	1:B:58:LYS:HE2	2.00	0.43
4:F:37:HIS:ND1	4:F:65:GLU:CG	2.81	0.43
4:F:43:GLY:C	4:F:58:HIS:ND1	2.76	0.43
5:H:37:ASN:HD21	5:H:48:PHE:HZ	1.65	0.43
6:K:16:SER:H	6:K:78:ILE:HD13	1.83	0.43
6:K:52:ARG:HA	6:K:52:ARG:HD2	1.78	0.43
13:A:1072:G:H2'	13:A:1073:U:H6	1.82	0.43
13:A:1087:G:C6	13:A:1099:G:N1	2.86	0.43
13:A:1111:A:H2'	13:A:1112:C:C6	2.53	0.43
13:A:1203:C:H2'	13:A:1204:A:C8	2.54	0.43
13:A:1458:G:H2'	13:A:1459:G:C8	2.53	0.43
16:I:87:MET:HE3	16:I:94:ARG:HH22	1.83	0.43
1:B:183:PHE:HE1	1:B:197:PHE:CD2	2.36	0.43
3:E:133:ILE:O	3:E:136:VAL:HG12	2.18	0.43
7:L:105:GLY:CA	7:L:116:TYR:O	2.53	0.43
8:O:14:PHE:CZ	8:O:84:LEU:HD13	2.53	0.43
13:A:96:U:H2'	13:A:97:G:H8	1.84	0.43
13:A:264:C:H2'	13:A:265:G:O4'	2.19	0.43
13:A:715:A:H8	13:A:716:A:N7	2.15	0.43
13:A:1091:U:N3	13:A:1095:U:C4	2.87	0.43
13:A:1239:A:O2'	15:G:114:SER:HA	2.18	0.43
13:A:1381:U:H2'	13:A:1382:C:O4'	2.18	0.43
13:A:1516:G:N2	13:A:1519:A:C6	2.86	0.43
14:C:13:ILE:HG22	14:C:14:VAL:N	2.24	0.43
1:B:59:ILE:O	1:B:64:GLY:N	2.44	0.43
1:B:95:TRP:CZ3	1:B:171:ALA:HB2	2.54	0.43
1:B:120:SER:O	1:B:124:THR:HG23	2.18	0.43
3:E:51:LYS:HD2	13:A:1080:A:OP1	2.19	0.43
6:K:34:THR:HA	6:K:40:ALA:HA	2.00	0.43
6:K:49:SER:HB2	6:K:68:ARG:NH2	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:128:G:H2'	13:A:129:A:C8	2.54	0.43
13:A:946:A:O2'	13:A:1333:A:O2'	2.30	0.43
13:A:1124:G:O6	13:A:1150:A:N6	2.52	0.43
13:A:1179:A:H4'	16:I:104:THR:HA	1.99	0.43
13:A:1273:C:H2'	13:A:1274:A:O4'	2.19	0.43
19:N:5:MET:SD	19:N:8:ARG:NH2	2.92	0.43
4:F:52:ASN:HD22	4:F:85:ILE:HG13	1.84	0.43
5:H:101:ALA:HB3	5:H:112:ASP:HB2	2.00	0.43
8:O:50:HIS:ND1	13:A:667:G:H4'	2.34	0.43
13:A:486:U:H2'	13:A:487:A:C8	2.53	0.43
13:A:875:U:H5''	21:A:1998:HOH:O	2.17	0.43
16:I:54:VAL:HG11	16:I:93:LEU:HD13	2.00	0.43
18:M:29:SER:O	18:M:29:SER:OG	2.36	0.43
18:M:70:ARG:O	18:M:73:SER:OG	2.34	0.43
1:B:113:LEU:HD12	1:B:113:LEU:HA	1.91	0.43
5:H:103:VAL:HG23	5:H:105:THR:HG23	2.01	0.43
12:T:27:MET:CE	12:T:66:ILE:HD13	2.39	0.43
13:A:843:U:H2'	13:A:844:G:C5	2.54	0.43
13:A:928:G:H2'	13:A:929:G:O4'	2.19	0.43
13:A:947:G:H2'	13:A:948:C:H6	1.84	0.43
13:A:981:U:H2'	13:A:982:U:H5	1.83	0.43
13:A:1087:G:O5'	13:A:1087:G:H8	2.02	0.43
13:A:1164:G:H2'	13:A:1165:U:C6	2.53	0.43
13:A:1193:G:OP1	14:C:166:TRP:NE1	2.49	0.43
13:A:1283:U:H2'	13:A:1284:C:O4'	2.19	0.43
13:A:1326:U:H2'	13:A:1327:C:H6	1.83	0.43
14:C:152:VAL:HG23	14:C:156:LEU:HD11	2.01	0.43
19:N:19:TYR:HB2	19:N:54:SER:OG	2.18	0.43
20:S:11:ASP:HB2	20:S:34:SER:CB	2.47	0.43
2:D:18:LEU:HD13	2:D:62:ARG:HB2	2.01	0.43
2:D:115:GLN:HG3	2:D:153:ARG:HH12	1.81	0.43
2:D:123:MET:HE2	2:D:126:GLY:C	2.44	0.43
8:O:79:ARG:O	8:O:83:ARG:CB	2.67	0.43
11:R:64:LEU:HD23	11:R:64:LEU:O	2.18	0.43
13:A:320:A:H2'	13:A:321:A:O4'	2.19	0.43
13:A:984:C:C2	13:A:1222:G:C2	3.07	0.43
13:A:990:C:H2'	13:A:991:U:O4'	2.19	0.43
13:A:1015:G:H2'	13:A:1016:A:C8	2.54	0.43
13:A:1242:G:H2'	13:A:1243:C:C6	2.54	0.43
13:A:1243:C:H2'	13:A:1244:G:H8	1.84	0.43
13:A:1446:A:H8	13:A:1446:A:OP1	2.02	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:C:83:VAL:HG13	14:C:100:ILE:HB	2.01	0.43
1:B:131:LYS:HB3	13:A:1158:C:H1'	2.01	0.42
2:D:31:CYS:HB3	13:A:413:G:H1	1.84	0.42
2:D:44:LYS:HZ3	2:D:46:ARG:HE	1.66	0.42
2:D:169:TRP:HE1	2:D:170:LEU:HD23	1.83	0.42
4:F:92:THR:HG23	4:F:93:LYS:N	2.34	0.42
5:H:2:MET:CE	13:A:756:C:C4'	2.97	0.42
6:K:24:ALA:HB3	6:K:87:GLY:O	2.19	0.42
6:K:43:TRP:CH2	13:A:705:G:N3	2.87	0.42
7:L:78:VAL:O	7:L:102:ASP:HB2	2.18	0.42
10:Q:27:PHE:CE2	10:Q:36:PHE:HB3	2.54	0.42
13:A:90:C:C2	13:A:91:U:C5	3.07	0.42
13:A:352:C:O2'	13:A:354:G:OP1	2.31	0.42
13:A:628:G:H2'	13:A:629:A:C8	2.54	0.42
13:A:689:C:C4	13:A:690:G:C5	3.07	0.42
13:A:1056:U:H2'	13:A:1057:G:C8	2.54	0.42
14:C:118:SER:O	14:C:122:GLN:HG3	2.18	0.42
14:C:134:LYS:HZ1	14:C:167:TYR:HB3	1.83	0.42
1:B:31:PHE:HB2	1:B:41:ASN:HA	2.01	0.42
2:D:33:ILE:HG13	2:D:34:GLU:H	1.84	0.42
5:H:8:ASP:O	5:H:12:ARG:HG3	2.19	0.42
10:Q:20:ILE:HG23	10:Q:47:ASP:OD1	2.19	0.42
11:R:60:ARG:NE	13:A:736:C:OP1	2.51	0.42
12:T:42:ASP:OD1	12:T:43:LYS:N	2.52	0.42
13:A:114:U:O2'	13:A:115:G:H5'	2.19	0.42
13:A:745:G:H2'	13:A:746:A:C8	2.54	0.42
13:A:965:U:H4'	13:A:966:G:O5'	2.18	0.42
13:A:1025:U:H5''	13:A:1026:G:C5'	2.49	0.42
13:A:1026:G:H2'	13:A:1026:G:N3	2.33	0.42
13:A:1300:G:H4'	13:A:1301:U:O5'	2.19	0.42
13:A:1348:U:C2	13:A:1374:A:N7	2.87	0.42
14:C:22:PHE:CZ	17:J:11:LYS:HB3	2.53	0.42
16:I:9:GLY:HA2	16:I:80:HIS:ND1	2.33	0.42
18:M:3:ILE:HG12	18:M:8:ILE:HD13	2.01	0.42
8:O:9:LYS:CE	8:O:10:ILE:CD1	2.95	0.42
13:A:769:G:H21	13:A:901:A:H2	1.66	0.42
13:A:974:A:H4'	13:A:975:A:H3'	2.02	0.42
13:A:1055:A:C6	13:A:1206:G:C5	3.08	0.42
13:A:1172:C:H2'	13:A:1173:U:C6	2.54	0.42
13:A:1174:G:H2'	13:A:1175:G:C8	2.55	0.42
13:A:1240:U:OP2	15:G:115:MET:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:J:65:TYR:CD1	19:N:88:MET:HE3	2.55	0.42
20:S:14:LEU:HB2	20:S:18:VAL:HG23	2.01	0.42
5:H:95:MET:O	5:H:95:MET:CG	2.68	0.42
8:O:23:SER:O	8:O:27:GLN:HG3	2.18	0.42
13:A:1166:G:C2	13:A:1171:A:C6	3.08	0.42
13:A:1255:G:H2'	13:A:1258:G:H21	1.85	0.42
14:C:32:LEU:HD11	19:N:92:ILE:HG12	2.02	0.42
18:M:9:PRO:HD3	18:M:20:SER:HB3	2.00	0.42
1:B:109:SER:O	1:B:113:LEU:HB2	2.19	0.42
2:D:173:ASP:O	2:D:177:MET:HA	2.20	0.42
9:P:7:ALA:HB1	9:P:29:ASN:HB3	2.02	0.42
13:A:413:G:OP1	13:A:413:G:H3'	2.19	0.42
13:A:618:C:H3'	13:A:619:U:H5''	2.01	0.42
13:A:981:U:C4	13:A:982:U:C4	3.07	0.42
13:A:1423:G:H2'	13:A:1424:U:H6	1.84	0.42
14:C:8:GLY:HA2	14:C:11:LEU:HG	2.02	0.42
14:C:81:GLU:HG2	14:C:85:LYS:NZ	2.35	0.42
18:M:67:ASP:O	18:M:71:GLU:N	2.48	0.42
20:S:14:LEU:HB3	20:S:32:THR:HG23	2.00	0.42
1:B:34:ARG:HH11	1:B:39:ILE:HG13	1.85	0.42
1:B:124:THR:HG22	1:B:133:ALA:CB	2.50	0.42
2:D:100:VAL:HG12	2:D:104:MET:HE3	2.02	0.42
8:O:53:ARG:NH1	13:A:579:A:HO2'	2.12	0.42
10:Q:12:VAL:HG21	10:Q:42:LYS:HE3	2.02	0.42
13:A:120:A:H1'	13:A:122:G:N7	2.35	0.42
13:A:922:G:O2'	13:A:923:A:OP2	2.30	0.42
13:A:928:G:C6	13:A:1390:U:H5	2.38	0.42
13:A:1349:A:H5'	16:I:122:ARG:HB2	2.01	0.42
16:I:54:VAL:HG21	16:I:93:LEU:HD12	2.01	0.42
17:J:14:ASP:OD1	17:J:17:LEU:HB2	2.19	0.42
18:M:88:LEU:HD23	18:M:91:ARG:HD2	2.01	0.42
2:D:10:LEU:HD21	2:D:62:ARG:HD2	2.02	0.42
4:F:37:HIS:CD2	4:F:38:ARG:HE	2.38	0.42
11:R:24:ASP:OD1	11:R:24:ASP:N	2.45	0.42
13:A:725:G:H2'	13:A:726:C:C6	2.55	0.42
13:A:803:G:H2'	13:A:804:U:O4'	2.19	0.42
13:A:942:G:H1	13:A:1341:U:H3	1.68	0.42
13:A:1037:C:H2'	13:A:1038:C:C6	2.55	0.42
13:A:1101:A:N3	13:A:1102:A:H1'	2.35	0.42
13:A:1115:U:H2'	13:A:1116:U:C6	2.55	0.42
13:A:1326:U:O2'	13:A:1327:C:H5'	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1510:C:H2'	13:A:1511:G:C8	2.55	0.42
4:F:12:PRO:HD2	4:F:54:LEU:HD21	2.02	0.42
7:L:32:VAL:HG23	7:L:55:ARG:O	2.20	0.42
13:A:31:G:O2'	13:A:48:C:N4	2.52	0.42
13:A:335:C:O2'	13:A:336:A:P	2.77	0.42
13:A:494:G:O2'	13:A:496:A:H1'	2.20	0.42
13:A:539:A:H2'	13:A:540:G:C8	2.54	0.42
13:A:580:C:H2'	13:A:581:G:O4'	2.20	0.42
13:A:744:C:H2'	13:A:745:G:H8	1.80	0.42
13:A:841:C:C4	13:A:846:G:C4	3.08	0.42
13:A:867:G:O2'	13:A:873:A:N1	2.43	0.42
13:A:900:A:C8	13:A:901:A:C8	3.07	0.42
13:A:947:G:OP2	18:M:106:ARG:NE	2.53	0.42
13:A:1014:A:H5'	20:S:13:HIS:HA	2.02	0.42
13:A:1014:A:P	20:S:17:LYS:HE2	2.60	0.42
13:A:1054:C:H4'	13:A:1056:U:OP2	2.20	0.42
13:A:1072:G:C6	13:A:1104:G:C2	3.07	0.42
13:A:1308:U:P	18:M:96:VAL:HG22	2.60	0.42
13:A:1322:C:OP2	18:M:89:ARG:NH2	2.53	0.42
14:C:90:VAL:HA	14:C:93:ILE:HG22	2.02	0.42
18:M:2:ARG:HD3	18:M:2:ARG:HA	1.88	0.42
18:M:69:ARG:HD3	18:M:69:ARG:HA	1.83	0.42
19:N:27:LYS:HE2	19:N:48:GLN:N	2.33	0.42
2:D:150:LYS:C	2:D:150:LYS:CD	2.92	0.42
3:E:109:ALA:HB3	3:E:135:VAL:CG2	2.50	0.42
4:F:38:ARG:NH2	4:F:96:VAL:O	2.53	0.42
13:A:148:G:H1	13:A:174:A:N6	2.16	0.42
13:A:162:A:O5'	13:A:162:A:H8	2.02	0.42
13:A:652:U:H5	21:A:2015:HOH:O	2.03	0.42
13:A:782:A:H3'	13:A:783:C:C6	2.54	0.42
13:A:1000:A:H2'	13:A:1001:C:C6	2.53	0.42
13:A:1118:U:H1'	13:A:1179:A:C4	2.55	0.42
13:A:1118:U:H2'	13:A:1119:C:C6	2.54	0.42
13:A:1351:U:O2	13:A:1371:G:N2	2.30	0.42
16:I:119:LYS:O	16:I:119:LYS:HG2	2.19	0.42
20:S:71:GLY:HA2	20:S:74:ALA:HB3	2.02	0.42
1:B:56:LEU:HD23	1:B:59:ILE:HD11	2.01	0.42
4:F:11:HIS:HB2	4:F:14:GLN:OE1	2.19	0.42
7:L:45:ASN:OD1	13:A:528:C:N4	2.32	0.42
8:O:66:LEU:HA	8:O:66:LEU:HD23	1.83	0.42
13:A:134:G:H1'	13:A:325:A:C5	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:160:A:H8	13:A:160:A:OP1	2.03	0.42
13:A:312:C:H2'	13:A:313:A:C8	2.55	0.42
13:A:448:A:C2'	13:A:449:G:H5'	2.50	0.42
13:A:845:A:C8	13:A:846:G:C8	3.08	0.42
13:A:1022:A:C6	13:A:1023:U:C4	3.07	0.42
13:A:1359:C:H4'	13:A:1362:A:N6	2.35	0.42
19:N:97:LYS:HE3	19:N:97:LYS:HB3	1.84	0.42
20:S:14:LEU:HB3	20:S:32:THR:CG2	2.49	0.42
3:E:94:PHE:O	3:E:124:ALA:HA	2.20	0.41
4:F:6:ILE:CB	4:F:62:MET:SD	3.06	0.41
4:F:47:LEU:HD21	4:F:57:ALA:HB3	2.02	0.41
6:K:49:SER:HB2	6:K:68:ARG:CZ	2.50	0.41
11:R:37:LYS:HD3	13:A:719:C:H1'	2.01	0.41
13:A:432:A:H2'	13:A:433:G:O4'	2.20	0.41
13:A:505:G:H2'	13:A:506:G:C8	2.55	0.41
13:A:924:C:H1'	13:A:1501:C:N4	2.35	0.41
13:A:1040:U:H2'	13:A:1041:G:C8	2.55	0.41
13:A:1289:A:H2	13:A:1372:U:O4'	2.02	0.41
13:A:1514:G:H2'	13:A:1515:G:C8	2.55	0.41
18:M:82:LEU:C	18:M:84:CYS:H	2.28	0.41
2:D:180:THR:HG22	2:D:182:LYS:HD2	2.03	0.41
5:H:103:VAL:HG12	5:H:124:ILE:HD13	2.02	0.41
6:K:21:HIS:HB3	6:K:32:THR:HG22	2.02	0.41
7:L:19:ASN:O	7:L:93:ARG:HD2	2.20	0.41
7:L:30:ARG:NH1	21:A:1617:HOH:O	2.53	0.41
7:L:62:VAL:HG22	7:L:63:THR:N	2.35	0.41
8:O:22:GLY:HA3	13:A:750:C:O2	2.19	0.41
13:A:15:G:C4'	13:A:1397:C:H2'	2.50	0.41
13:A:945:G:C2	13:A:1337:G:C2	3.08	0.41
13:A:1217:C:H2'	13:A:1218:C:C6	2.54	0.41
13:A:1390:U:H2'	13:A:1391:U:H6	1.85	0.41
16:I:46:VAL:HA	16:I:49:GLN:NE2	2.35	0.41
19:N:9:GLU:CD	19:N:60:ARG:HB2	2.46	0.41
20:S:24:SER:HB2	20:S:27:LYS:NZ	2.34	0.41
1:B:62:ARG:H	1:B:62:ARG:HD3	1.83	0.41
2:D:56:GLU:HG3	2:D:57:LYS:N	2.36	0.41
6:K:15:VAL:HG13	6:K:17:ASP:H	1.85	0.41
13:A:211:G:C5	13:A:212:G:H1'	2.55	0.41
13:A:251:G:O6	13:A:266:G:N2	2.53	0.41
13:A:468:A:H3'	13:A:469:C:H6	1.84	0.41
13:A:1053:G:N2	13:A:1058:G:O6	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1206:G:H4'	14:C:191:THR:O	2.21	0.41
13:A:1309:G:C6	13:A:1329:A:C6	3.09	0.41
15:G:114:SER:O	15:G:118:ARG:HG2	2.20	0.41
6:K:32:THR:O	6:K:33:ILE:HD13	2.19	0.41
11:R:30:ASN:OD1	11:R:30:ASN:N	2.50	0.41
13:A:525:C:H2'	13:A:526:C:O4'	2.20	0.41
13:A:951:G:H2'	13:A:952:U:H6	1.85	0.41
16:I:25:GLY:HA2	16:I:60:LEU:O	2.20	0.41
3:E:81:GLN:OE1	3:E:149:PRO:HD3	2.21	0.41
5:H:2:MET:CE	13:A:756:C:H4'	2.47	0.41
8:O:66:LEU:CD1	8:O:87:ARG:NH1	2.84	0.41
13:A:673:A:C4	13:A:734:G:N2	2.88	0.41
13:A:839:C:H2'	13:A:840:C:C6	2.55	0.41
13:A:968:A:C4	13:A:1062:U:H4'	2.56	0.41
13:A:1254:A:H2'	13:A:1255:G:C8	2.55	0.41
13:A:1312:G:H3'	20:S:5:LYS:CE	2.51	0.41
14:C:13:ILE:CG2	14:C:14:VAL:H	2.26	0.41
15:G:30:MET:SD	15:G:35:LYS:HE3	2.61	0.41
17:J:44:THR:HG23	17:J:69:THR:C	2.46	0.41
18:M:78:ARG:HD3	18:M:79:LEU:HD12	2.02	0.41
20:S:4:LEU:HD12	20:S:5:LYS:N	2.35	0.41
1:B:191:ASP:N	1:B:191:ASP:OD1	2.52	0.41
5:H:30:LYS:HE3	13:A:643:C:OP1	2.21	0.41
6:K:45:THR:HG21	13:A:688:G:H4'	2.01	0.41
6:K:51:PHE:HB2	6:K:55:ARG:NH2	2.32	0.41
7:L:56:LEU:HD23	7:L:56:LEU:HA	1.82	0.41
8:O:7:THR:O	8:O:11:VAL:HG23	2.21	0.41
10:Q:4:ILE:HG23	10:Q:5:ARG:N	2.36	0.41
12:T:56:ILE:O	12:T:60:GLN:HG2	2.21	0.41
13:A:409:U:O2'	13:A:410:G:O4'	2.38	0.41
13:A:459:A:O4'	13:A:474:G:N2	2.54	0.41
13:A:1205:U:H2'	13:A:1206:G:H8	1.83	0.41
14:C:113:LYS:HB2	14:C:184:ASN:ND2	2.34	0.41
14:C:128:MET:HB3	14:C:131:ARG:NH1	2.36	0.41
19:N:9:GLU:HG2	19:N:60:ARG:HH21	1.85	0.41
1:B:51:GLU:O	1:B:52:ALA:C	2.63	0.41
5:H:46:GLU:OE2	5:H:63:LYS:HG3	2.21	0.41
6:K:88:PRO:HA	6:K:92:ARG:HH11	1.86	0.41
8:O:29:ALA:HA	8:O:84:LEU:HD21	2.02	0.41
13:A:460:A:C8	13:A:462:G:OP2	2.73	0.41
13:A:486:U:H2'	13:A:487:A:H8	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:586:C:O2'	13:A:587:G:H5'	2.21	0.41
13:A:1053:G:O2'	13:A:1199:U:OP2	2.30	0.41
13:A:1376:U:H3'	15:G:8:GLN:HE22	1.85	0.41
1:B:18:GLN:CD	1:B:21:TYR:HB2	2.46	0.41
1:B:114:LYS:HD2	1:B:151:LYS:CD	2.50	0.41
7:L:19:ASN:C	7:L:21:PRO:HD3	2.46	0.41
12:T:34:VAL:HG11	12:T:78:LEU:HD13	2.03	0.41
13:A:187:G:O2'	13:A:189:A:N7	2.47	0.41
13:A:268:U:H2'	13:A:269:C:C6	2.55	0.41
13:A:464:U:O2	13:A:466:A:H5'	2.21	0.41
13:A:466:A:O5'	13:A:467:U:H5	2.03	0.41
13:A:625:U:H2'	13:A:626:G:C8	2.55	0.41
13:A:685:G:N2	13:A:706:A:N6	2.68	0.41
13:A:899:C:H2'	13:A:900:A:H8	1.81	0.41
14:C:104:GLU:HG3	14:C:106:ARG:HD3	2.01	0.41
1:B:24:PRO:O	1:B:27:LYS:HG3	2.20	0.41
2:D:6:PRO:HB2	2:D:9:LYS:HD2	2.03	0.41
2:D:106:PHE:CD1	2:D:144:ILE:HD11	2.55	0.41
2:D:173:ASP:OD2	2:D:176:LYS:HG2	2.21	0.41
4:F:49:TYR:O	4:F:51:ILE:N	2.53	0.41
6:K:33:ILE:HD12	6:K:81:LEU:HD13	2.02	0.41
8:O:6:ALA:HA	8:O:9:LYS:CG	2.51	0.41
8:O:29:ALA:HA	8:O:32:THR:HG22	2.02	0.41
11:R:38:ILE:O	13:A:719:C:O2'	2.36	0.41
13:A:107:G:C2	13:A:108:G:H1'	2.56	0.41
13:A:163:C:H2'	13:A:164:G:O4'	2.21	0.41
13:A:215:C:H2'	13:A:216:U:C6	2.56	0.41
13:A:218:U:H2'	13:A:219:U:O4'	2.21	0.41
13:A:313:A:H2'	13:A:314:C:C6	2.55	0.41
13:A:475:C:H2'	13:A:476:U:H6	1.86	0.41
13:A:610:U:O2	13:A:610:U:O4'	2.38	0.41
13:A:688:G:C2	13:A:700:G:H1'	2.56	0.41
13:A:813:U:H4'	21:A:1630:HOH:O	2.21	0.41
13:A:845:A:H8	13:A:846:G:H8	1.68	0.41
13:A:904:U:H2'	13:A:905:U:C6	2.55	0.41
13:A:981:U:H4'	19:N:60:ARG:HG2	2.02	0.41
13:A:981:U:H3'	13:A:982:U:H6	1.84	0.41
13:A:1065:U:H5''	13:A:1190:G:N2	2.36	0.41
13:A:1350:A:P	16:I:122:ARG:HG3	2.60	0.41
13:A:1429:A:H2'	13:A:1430:A:C8	2.56	0.41
13:A:1510:C:H2'	13:A:1511:G:H8	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:1516:G:P	13:A:1516:G:H8	2.44	0.41
14:C:30:ASP:HA	19:N:64:ARG:HH22	1.86	0.41
14:C:38:VAL:HG11	14:C:94:ALA:HB2	2.02	0.41
15:G:14:ASP:OD2	15:G:22:LEU:HD22	2.21	0.41
16:I:17:ARG:O	16:I:64:ILE:HA	2.21	0.41
16:I:40:ARG:N	16:I:44:ARG:HB2	2.35	0.41
18:M:39:ALA:HB3	18:M:42:VAL:HG13	2.02	0.41
18:M:84:CYS:HB3	20:S:73:PHE:CZ	2.55	0.41
13:A:560:A:H4'	13:A:561:U:H5''	2.03	0.41
13:A:719:C:OP2	13:A:720:C:N4	2.51	0.41
13:A:962:C:H2'	13:A:963:G:H8	1.86	0.41
13:A:985:C:H2'	13:A:986:U:C5	2.56	0.41
13:A:1124:G:H5''	17:J:37:ARG:HG3	2.03	0.41
13:A:1278:G:N2	14:C:26:LYS:HE2	2.34	0.41
13:A:1285:A:H62	13:A:1355:G:H5'	1.85	0.41
13:A:1341:U:O3'	16:I:129:ARG:NH1	2.54	0.41
14:C:5:HIS:CE1	14:C:183:TYR:HE2	2.39	0.41
16:I:35:GLU:OE1	16:I:35:GLU:N	2.52	0.41
18:M:43:LYS:HB2	18:M:46:GLU:HB2	2.03	0.41
18:M:97:ARG:O	18:M:97:ARG:HD2	2.21	0.41
1:B:63:LYS:HE2	1:B:63:LYS:HB2	1.88	0.40
4:F:38:ARG:HH22	4:F:96:VAL:HG12	1.86	0.40
5:H:1:SER:H3	5:H:5:PRO:HA	1.78	0.40
5:H:105:THR:HG22	5:H:121:GLY:O	2.21	0.40
7:L:82:ARG:CZ	7:L:95:HIS:ND1	2.84	0.40
13:A:459:A:C8	13:A:474:G:N1	2.89	0.40
13:A:601:G:H2'	13:A:602:A:O4'	2.21	0.40
13:A:918:A:H2'	13:A:919:A:C8	2.56	0.40
13:A:938:A:H2'	13:A:939:G:C8	2.56	0.40
13:A:979:C:O2	19:N:58:ARG:NH1	2.54	0.40
13:A:1024:G:H2'	13:A:1025:U:O4'	2.21	0.40
13:A:1089:G:C5	13:A:1090:U:C5	3.08	0.40
13:A:1160:G:N1	13:A:1176:A:C2	2.79	0.40
17:J:35:GLN:N	17:J:78:GLU:OE2	2.54	0.40
18:M:102:LYS:HE3	18:M:102:LYS:HB3	1.86	0.40
1:B:199:ILE:O	1:B:201:GLY:N	2.54	0.40
7:L:80:LEU:HB2	7:L:101:LEU:CD1	2.37	0.40
13:A:125:U:H2'	13:A:126:G:O4'	2.22	0.40
13:A:151:A:N7	13:A:170:U:O2	2.54	0.40
13:A:205:A:H2'	13:A:206:C:C6	2.57	0.40
13:A:604:G:H2'	13:A:605:U:O4'	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:827:U:C2	13:A:874:G:N2	2.89	0.40
13:A:923:A:N1	13:A:924:C:N4	2.70	0.40
13:A:939:G:N3	13:A:1375:A:H2	2.19	0.40
13:A:1295:U:HO2'	18:M:13:HIS:CD2	2.32	0.40
15:G:30:MET:HE3	15:G:35:LYS:N	2.36	0.40
15:G:33:GLY:O	15:G:34:LYS:HE2	2.22	0.40
1:B:46:VAL:HG23	1:B:47:PRO:HD3	2.04	0.40
1:B:168:GLU:O	1:B:168:GLU:HG3	2.21	0.40
2:D:139:ASN:N	2:D:181:PHE:O	2.30	0.40
3:E:17:VAL:HA	3:E:33:THR:O	2.21	0.40
3:E:96:GLN:NE2	3:E:123:LEU:HD23	2.27	0.40
5:H:37:ASN:ND2	5:H:48:PHE:CZ	2.89	0.40
9:P:67:ILE:HG22	9:P:68:SER:O	2.21	0.40
12:T:53:MET:HE3	12:T:53:MET:HB3	1.98	0.40
13:A:15:G:H4'	13:A:1397:C:H2'	2.02	0.40
13:A:59:A:H5''	13:A:387:U:H5''	2.03	0.40
13:A:81:A:H2'	13:A:82:G:C8	2.56	0.40
13:A:776:G:H1	13:A:802:A:P	2.38	0.40
13:A:925:G:H2'	13:A:1391:U:N3	2.24	0.40
13:A:948:C:P	18:M:106:ARG:H	2.44	0.40
13:A:952:U:H5''	13:A:964:A:H61	1.85	0.40
13:A:1027:C:H2'	13:A:1028:C:H6	1.85	0.40
13:A:1041:G:H2'	13:A:1042:A:C8	2.57	0.40
13:A:1264:U:H2'	13:A:1265:C:C6	2.56	0.40
13:A:1276:G:H2'	13:A:1277:C:C6	2.57	0.40
14:C:85:LYS:HA	14:C:88:LYS:NZ	2.36	0.40
1:B:126:ASP:CG	1:B:127:LYS:HG2	2.47	0.40
4:F:52:ASN:ND2	4:F:85:ILE:HG13	2.37	0.40
10:Q:57:VAL:O	10:Q:78:VAL:HG22	2.21	0.40
13:A:333:U:C2'	13:A:334:C:H5'	2.52	0.40
13:A:680:C:C2	13:A:681:A:C8	3.09	0.40
13:A:881:G:H2'	13:A:882:C:O4'	2.22	0.40
13:A:994:A:C6	13:A:1216:A:H4'	2.56	0.40
13:A:1028:C:H2'	13:A:1029:U:H5'	2.04	0.40
13:A:1109:C:OP1	14:C:175:HIS:NE2	2.54	0.40
13:A:1233:G:H2'	13:A:1234:C:C6	2.56	0.40
15:G:25:PHE:CE2	15:G:100:MET:HG3	2.57	0.40
15:G:97:ALA:O	15:G:101:ARG:HG3	2.22	0.40
3:E:152:VAL:HG11	5:H:98:LEU:HG	2.02	0.40
5:H:10:LEU:HD22	5:H:74:ILE:HD11	2.03	0.40
5:H:33:VAL:O	5:H:37:ASN:OD1	2.39	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:35:G:H2'	13:A:36:C:C6	2.57	0.40
13:A:810:C:H2'	13:A:811:C:O4'	2.22	0.40
13:A:949:A:H1'	13:A:971:G:O6	2.21	0.40
13:A:1144:G:C6	13:A:1145:A:C6	3.10	0.40
13:A:1236:A:H2	13:A:1334:G:O2'	2.05	0.40
13:A:1376:U:H3'	15:G:8:GLN:NE2	2.37	0.40
16:I:29:ILE:HG12	16:I:64:ILE:HD12	2.04	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	B	216/240 (90%)	188 (87%)	28 (13%)	0	100	100
2	D	203/205 (99%)	181 (89%)	22 (11%)	0	100	100
3	E	148/166 (89%)	131 (88%)	17 (12%)	0	100	100
4	F	98/135 (73%)	89 (91%)	9 (9%)	0	100	100
5	H	127/129 (98%)	116 (91%)	11 (9%)	0	100	100
6	K	93/128 (73%)	87 (94%)	6 (6%)	0	100	100
7	L	121/123 (98%)	111 (92%)	10 (8%)	0	100	100
8	O	86/89 (97%)	83 (96%)	3 (4%)	0	100	100
9	P	80/82 (98%)	72 (90%)	8 (10%)	0	100	100
10	Q	78/83 (94%)	68 (87%)	10 (13%)	0	100	100
11	R	48/74 (65%)	41 (85%)	7 (15%)	0	100	100
12	T	83/86 (96%)	82 (99%)	1 (1%)	0	100	100
14	C	204/232 (88%)	185 (91%)	19 (9%)	0	100	100
15	G	79/178 (44%)	72 (91%)	7 (9%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	I	125/129 (97%)	111 (89%)	14 (11%)	0	100	100
17	J	96/103 (93%)	77 (80%)	19 (20%)	0	100	100
18	M	112/117 (96%)	100 (89%)	12 (11%)	0	100	100
19	N	92/100 (92%)	87 (95%)	5 (5%)	0	100	100
20	S	77/91 (85%)	66 (86%)	11 (14%)	0	100	100
All	All	2166/2490 (87%)	1947 (90%)	219 (10%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	180/198 (91%)	180 (100%)	0	100	100
2	D	172/172 (100%)	172 (100%)	0	100	100
3	E	113/125 (90%)	113 (100%)	0	100	100
4	F	87/116 (75%)	87 (100%)	0	100	100
5	H	104/104 (100%)	104 (100%)	0	100	100
6	K	69/98 (70%)	69 (100%)	0	100	100
7	L	103/103 (100%)	103 (100%)	0	100	100
8	O	76/77 (99%)	76 (100%)	0	100	100
9	P	65/65 (100%)	65 (100%)	0	100	100
10	Q	74/77 (96%)	74 (100%)	0	100	100
11	R	43/64 (67%)	43 (100%)	0	100	100
12	T	65/65 (100%)	65 (100%)	0	100	100
14	C	170/189 (90%)	170 (100%)	0	100	100
15	G	67/146 (46%)	67 (100%)	0	100	100
16	I	105/106 (99%)	105 (100%)	0	100	100
17	J	86/90 (96%)	86 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
18	M	92/95 (97%)	92 (100%)	0	100	100
19	N	79/83 (95%)	79 (100%)	0	100	100
20	S	70/78 (90%)	70 (100%)	0	100	100
All	All	1820/2051 (89%)	1820 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	41	ASN
1	B	176	ASN
2	D	40	HIS
2	D	99	ASN
2	D	151	GLN
3	E	77	ASN
3	E	96	GLN
4	F	3	HIS
4	F	46	GLN
4	F	55	HIS
5	H	3	GLN
6	K	80	ASN
10	Q	8	GLN
12	T	83	ASN
15	G	96	ASN
16	I	49	GLN
16	I	125	GLN
18	M	99	GLN
19	N	61	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
13	A	1507/1542 (97%)	403 (26%)	21 (1%)

All (403) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
13	A	6	G

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Mol	Chain	Res	Type
13	A	7	A
13	A	9	G
13	A	15	G
13	A	20	U
13	A	22	G
13	A	31	G
13	A	32	A
13	A	39	G
13	A	44	A
13	A	47	C
13	A	48	C
13	A	50	A
13	A	51	A
13	A	64	G
13	A	66	A
13	A	70	U
13	A	72	A
13	A	84	U
13	A	85	U
13	A	86	G
13	A	87	C
13	A	89	U
13	A	90	C
13	A	94	G
13	A	95	C
13	A	98	A
13	A	109	A
13	A	115	G
13	A	121	U
13	A	122	G
13	A	129	A
13	A	130	A
13	A	131	A
13	A	149	A
13	A	158	G
13	A	173	U
13	A	177	G
13	A	180	U
13	A	181	A
13	A	182	A
13	A	183	C
13	A	184	G

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Mol	Chain	Res	Type
13	A	195	A
13	A	196	A
13	A	197	A
13	A	209	U
13	A	226	G
13	A	239	U
13	A	243	A
13	A	244	U
13	A	245	U
13	A	247	G
13	A	251	G
13	A	252	U
13	A	253	A
13	A	256	U
13	A	257	G
13	A	258	G
13	A	266	G
13	A	267	C
13	A	279	A
13	A	280	C
13	A	289	G
13	A	296	U
13	A	301	G
13	A	303	A
13	A	305	G
13	A	306	A
13	A	307	C
13	A	310	G
13	A	313	A
13	A	321	A
13	A	328	C
13	A	329	A
13	A	330	C
13	A	332	G
13	A	334	C
13	A	335	C
13	A	336	A
13	A	338	A
13	A	340	U
13	A	345	C
13	A	346	G
13	A	352	C

Continued on next page...

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Mol	Chain	Res	Type
13	A	354	G
13	A	363	A
13	A	367	U
13	A	369	G
13	A	372	C
13	A	375	U
13	A	384	G
13	A	392	C
13	A	398	U
13	A	406	G
13	A	409	U
13	A	410	G
13	A	411	A
13	A	413	G
13	A	414	A
13	A	415	A
13	A	421	U
13	A	422	C
13	A	423	G
13	A	424	G
13	A	429	U
13	A	430	A
13	A	435	A
13	A	439	U
13	A	449	G
13	A	450	G
13	A	451	A
13	A	453	G
13	A	457	G
13	A	459	A
13	A	460	A
13	A	461	A
13	A	462	G
13	A	463	U
13	A	464	U
13	A	465	A
13	A	466	A
13	A	467	U
13	A	468	A
13	A	484	G
13	A	485	U
13	A	486	U

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Mol	Chain	Res	Type
13	A	493	A
13	A	495	A
13	A	499	A
13	A	511	C
13	A	518	C
13	A	519	C
13	A	521	G
13	A	527	G
13	A	531	U
13	A	532	A
13	A	533	A
13	A	536	C
13	A	537	G
13	A	540	G
13	A	541	G
13	A	544	G
13	A	547	A
13	A	559	A
13	A	562	U
13	A	564	C
13	A	565	U
13	A	570	G
13	A	571	U
13	A	572	A
13	A	573	A
13	A	575	G
13	A	576	C
13	A	577	G
13	A	607	A
13	A	615	G
13	A	618	C
13	A	619	U
13	A	633	G
13	A	641	U
13	A	651	C
13	A	652	U
13	A	653	U
13	A	659	U
13	A	660	C
13	A	665	A
13	A	669	G
13	A	671	G

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Mol	Chain	Res	Type
13	A	682	G
13	A	685	G
13	A	687	A
13	A	689	C
13	A	695	A
13	A	698	G
13	A	702	A
13	A	703	G
13	A	710	G
13	A	712	A
13	A	713	G
13	A	721	G
13	A	724	G
13	A	731	G
13	A	741	G
13	A	742	G
13	A	747	A
13	A	755	G
13	A	758	C
13	A	759	A
13	A	771	G
13	A	774	G
13	A	776	G
13	A	777	A
13	A	782	A
13	A	785	G
13	A	790	A
13	A	791	G
13	A	793	U
13	A	794	A
13	A	804	U
13	A	812	G
13	A	814	A
13	A	815	A
13	A	817	C
13	A	821	G
13	A	828	U
13	A	836	G
13	A	841	C
13	A	842	U
13	A	843	U
13	A	844	G

Continued on next page...

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Mol	Chain	Res	Type
13	A	846	G
13	A	847	G
13	A	854	U
13	A	864	A
13	A	868	C
13	A	870	U
13	A	871	U
13	A	875	U
13	A	884	U
13	A	900	A
13	A	901	A
13	A	902	G
13	A	914	A
13	A	922	G
13	A	924	C
13	A	930	C
13	A	934	C
13	A	935	A
13	A	944	G
13	A	946	A
13	A	948	C
13	A	955	U
13	A	960	U
13	A	961	U
13	A	966	G
13	A	969	A
13	A	971	G
13	A	976	G
13	A	977	A
13	A	982	U
13	A	983	A
13	A	991	U
13	A	992	U
13	A	993	G
13	A	994	A
13	A	1002	G
13	A	1004	A
13	A	1009	U
13	A	1010	U
13	A	1026	G
13	A	1027	C
13	A	1029	U

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Mol	Chain	Res	Type
13	A	1030	U
13	A	1031	C
13	A	1032	G
13	A	1036	A
13	A	1049	U
13	A	1051	C
13	A	1055	A
13	A	1056	U
13	A	1063	C
13	A	1064	G
13	A	1065	U
13	A	1066	C
13	A	1070	U
13	A	1081	A
13	A	1085	U
13	A	1089	G
13	A	1094	G
13	A	1095	U
13	A	1097	C
13	A	1101	A
13	A	1102	A
13	A	1103	C
13	A	1104	G
13	A	1108	G
13	A	1110	A
13	A	1111	A
13	A	1126	U
13	A	1130	A
13	A	1136	C
13	A	1137	C
13	A	1138	G
13	A	1139	G
13	A	1140	C
13	A	1150	A
13	A	1151	A
13	A	1152	A
13	A	1157	A
13	A	1159	U
13	A	1168	U
13	A	1169	A
13	A	1183	U
13	A	1184	G

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Mol	Chain	Res	Type
13	A	1191	A
13	A	1196	A
13	A	1197	A
13	A	1198	G
13	A	1202	U
13	A	1211	U
13	A	1212	U
13	A	1213	A
13	A	1215	G
13	A	1216	A
13	A	1221	G
13	A	1222	G
13	A	1225	A
13	A	1226	C
13	A	1228	C
13	A	1229	A
13	A	1233	G
13	A	1236	A
13	A	1239	A
13	A	1240	U
13	A	1241	G
13	A	1247	U
13	A	1258	G
13	A	1259	C
13	A	1260	G
13	A	1267	C
13	A	1268	G
13	A	1270	G
13	A	1279	G
13	A	1280	A
13	A	1281	C
13	A	1282	C
13	A	1286	U
13	A	1287	A
13	A	1290	G
13	A	1298	U
13	A	1299	A
13	A	1300	G
13	A	1301	U
13	A	1302	C
13	A	1303	C
13	A	1305	G

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Mol	Chain	Res	Type
13	A	1312	G
13	A	1313	U
13	A	1315	U
13	A	1316	G
13	A	1317	C
13	A	1318	A
13	A	1319	A
13	A	1320	C
13	A	1321	U
13	A	1322	C
13	A	1323	G
13	A	1327	C
13	A	1328	C
13	A	1331	G
13	A	1333	A
13	A	1336	C
13	A	1338	G
13	A	1346	A
13	A	1347	G
13	A	1348	U
13	A	1349	A
13	A	1353	G
13	A	1363	A
13	A	1364	U
13	A	1376	U
13	A	1378	C
13	A	1379	G
13	A	1381	U
13	A	1383	C
13	A	1390	U
13	A	1414	U
13	A	1415	G
13	A	1416	G
13	A	1417	G
13	A	1431	A
13	A	1432	G
13	A	1433	A
13	A	1434	A
13	A	1441	A
13	A	1442	G
13	A	1447	A
13	A	1448	C

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Mol	Chain	Res	Type
13	A	1452	C
13	A	1457	G
13	A	1473	G
13	A	1474	U
13	A	1475	G
13	A	1478	U
13	A	1479	C
13	A	1486	G
13	A	1487	G
13	A	1488	G
13	A	1489	G
13	A	1500	A
13	A	1501	C
13	A	1502	A
13	A	1503	A
13	A	1504	G
13	A	1505	G
13	A	1507	A
13	A	1508	A
13	A	1518	A
13	A	1519	A
13	A	1520	C
13	A	1523	G
13	A	1529	G

All (21) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
13	A	238	A
13	A	266	G
13	A	328	C
13	A	413	G
13	A	428	G
13	A	429	U
13	A	532	A
13	A	842	U
13	A	843	U
13	A	900	A
13	A	960	U
13	A	965	U
13	A	1065	U
13	A	1101	A

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Mol	Chain	Res	Type
13	A	1201	A
13	A	1246	A
13	A	1278	G
13	A	1300	G
13	A	1507	A
13	A	1518	A
13	A	1528	U

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

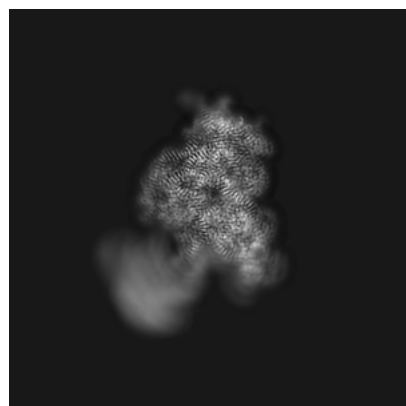
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-12856. These allow visual inspection of the internal detail of the map and identification of artifacts.

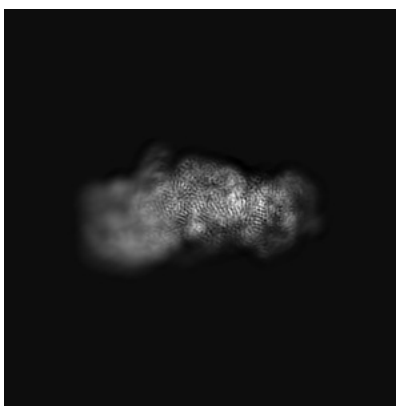
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

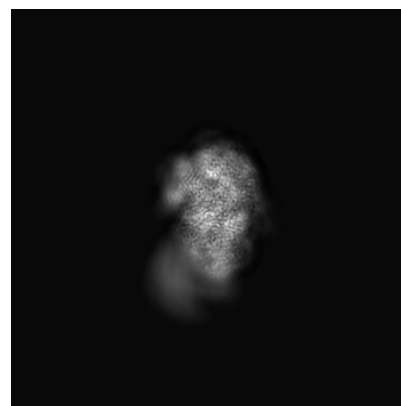
6.1.1 Primary map



X

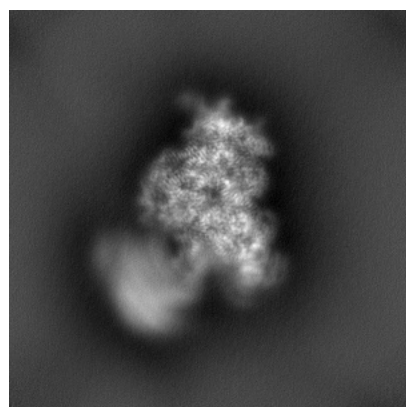


Y

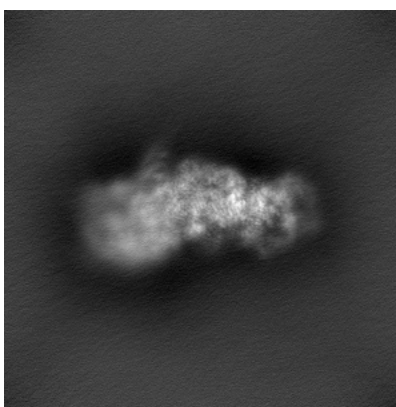


Z

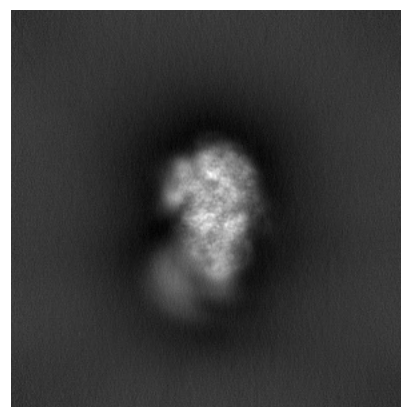
6.1.2 Raw map



X



Y

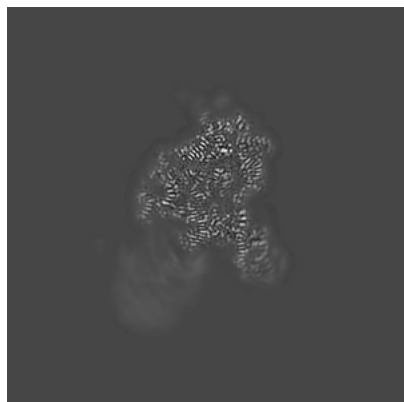


Z

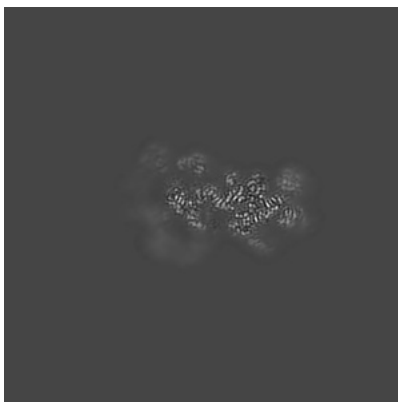
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

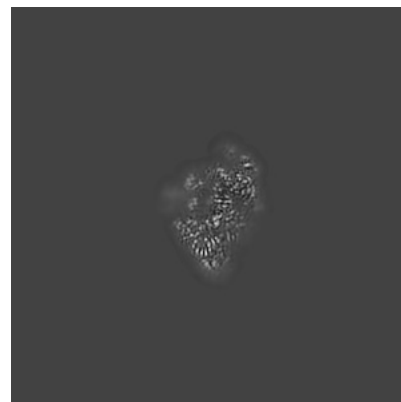
6.2.1 Primary map



X Index: 220

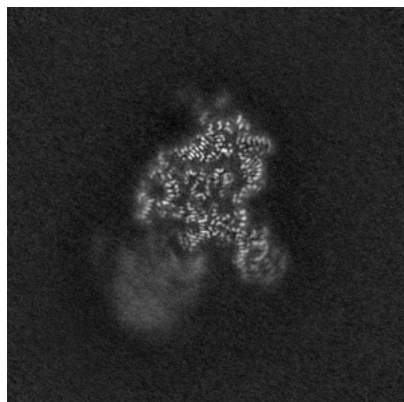


Y Index: 220

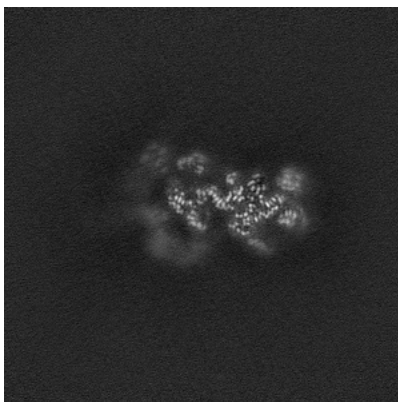


Z Index: 220

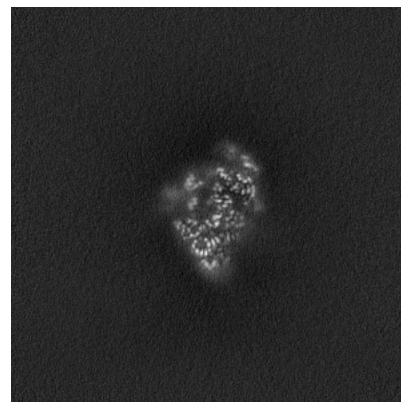
6.2.2 Raw map



X Index: 220



Y Index: 220

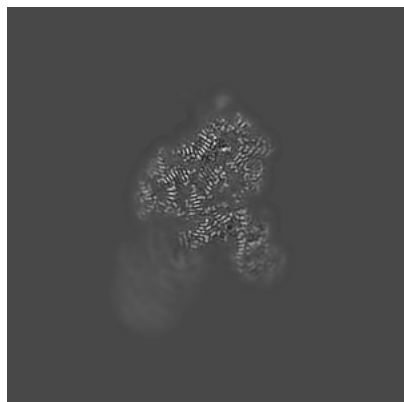


Z Index: 220

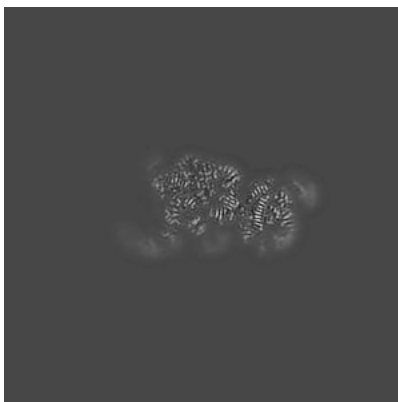
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

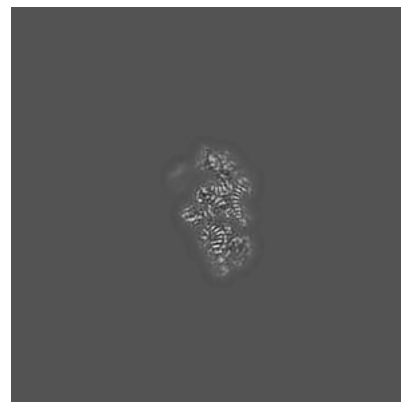
6.3.1 Primary map



X Index: 224

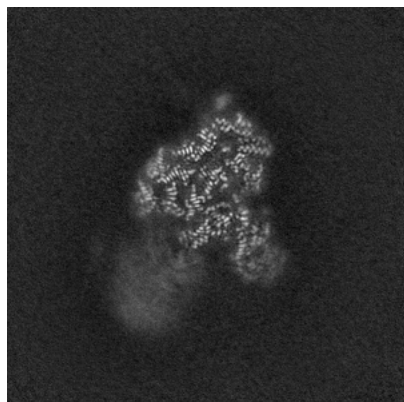


Y Index: 239

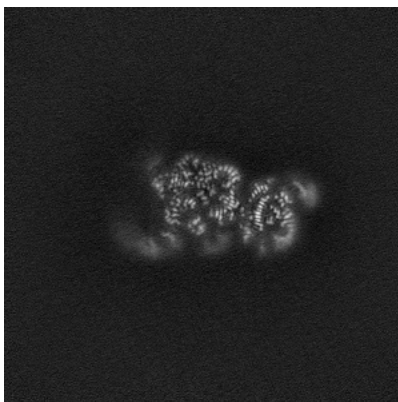


Z Index: 251

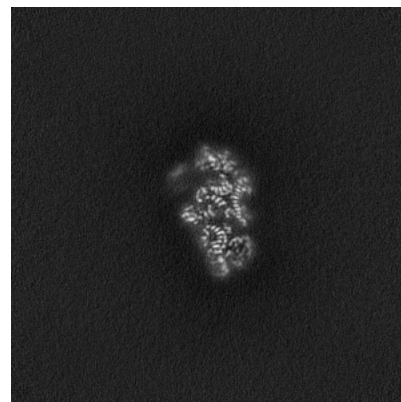
6.3.2 Raw map



X Index: 225



Y Index: 239

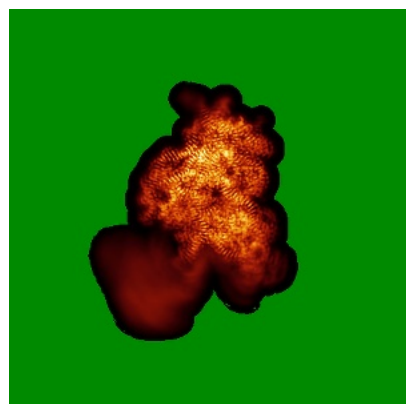


Z Index: 251

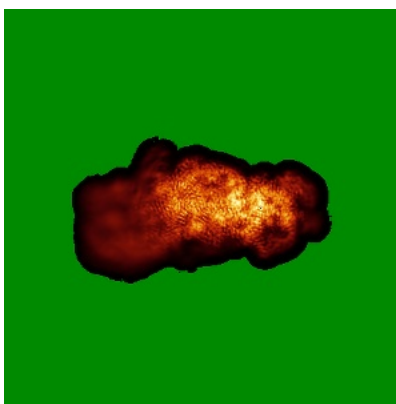
The images above show the largest variance slices of the map in three orthogonal directions.

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

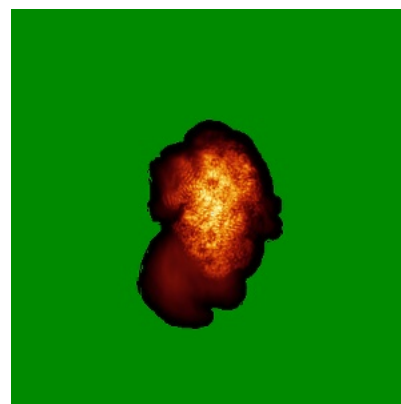
6.4.1 Primary map



X

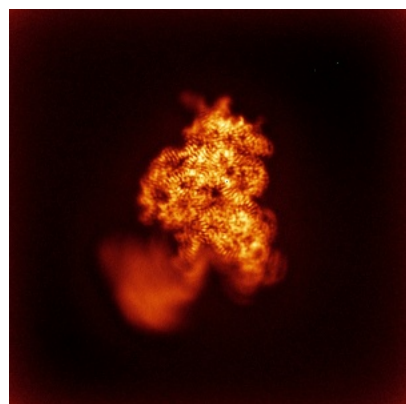


Y



Z

6.4.2 Raw map



X



Y

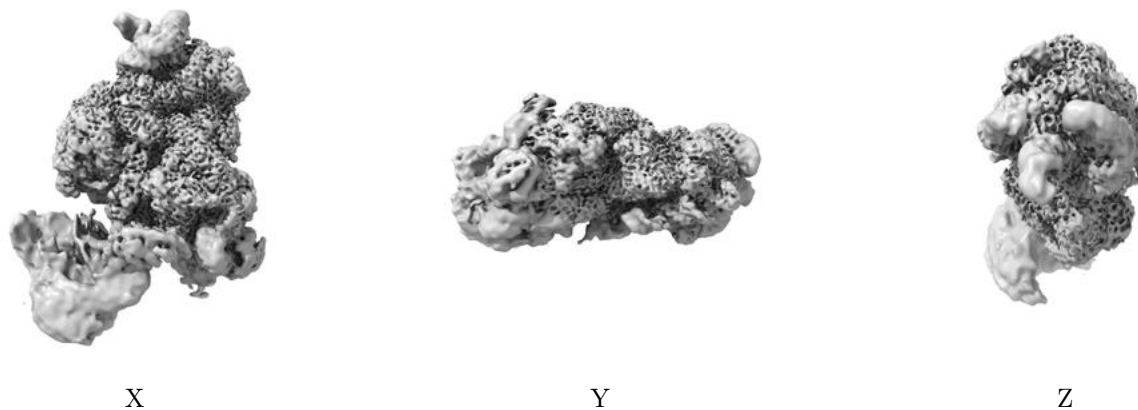


Z

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

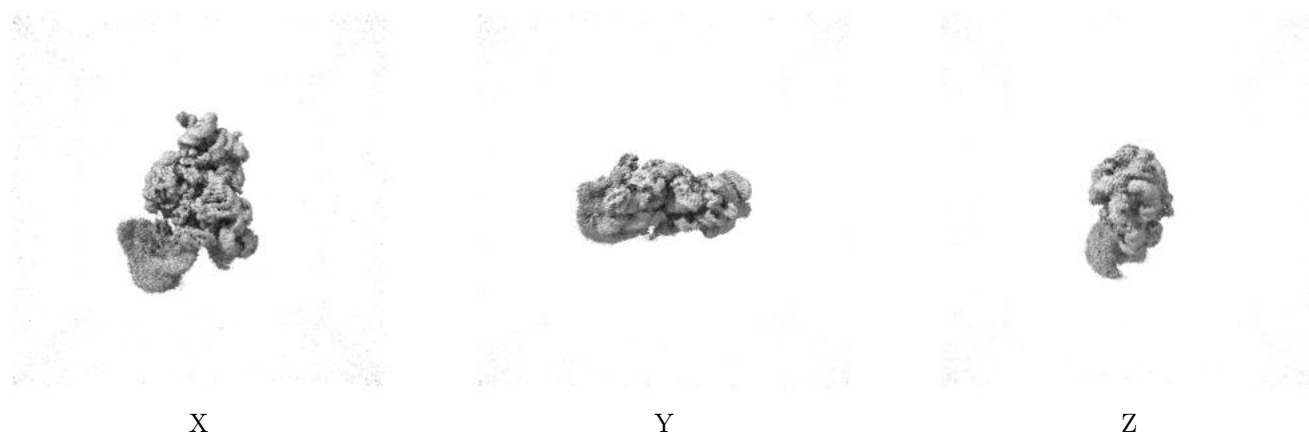
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.29. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

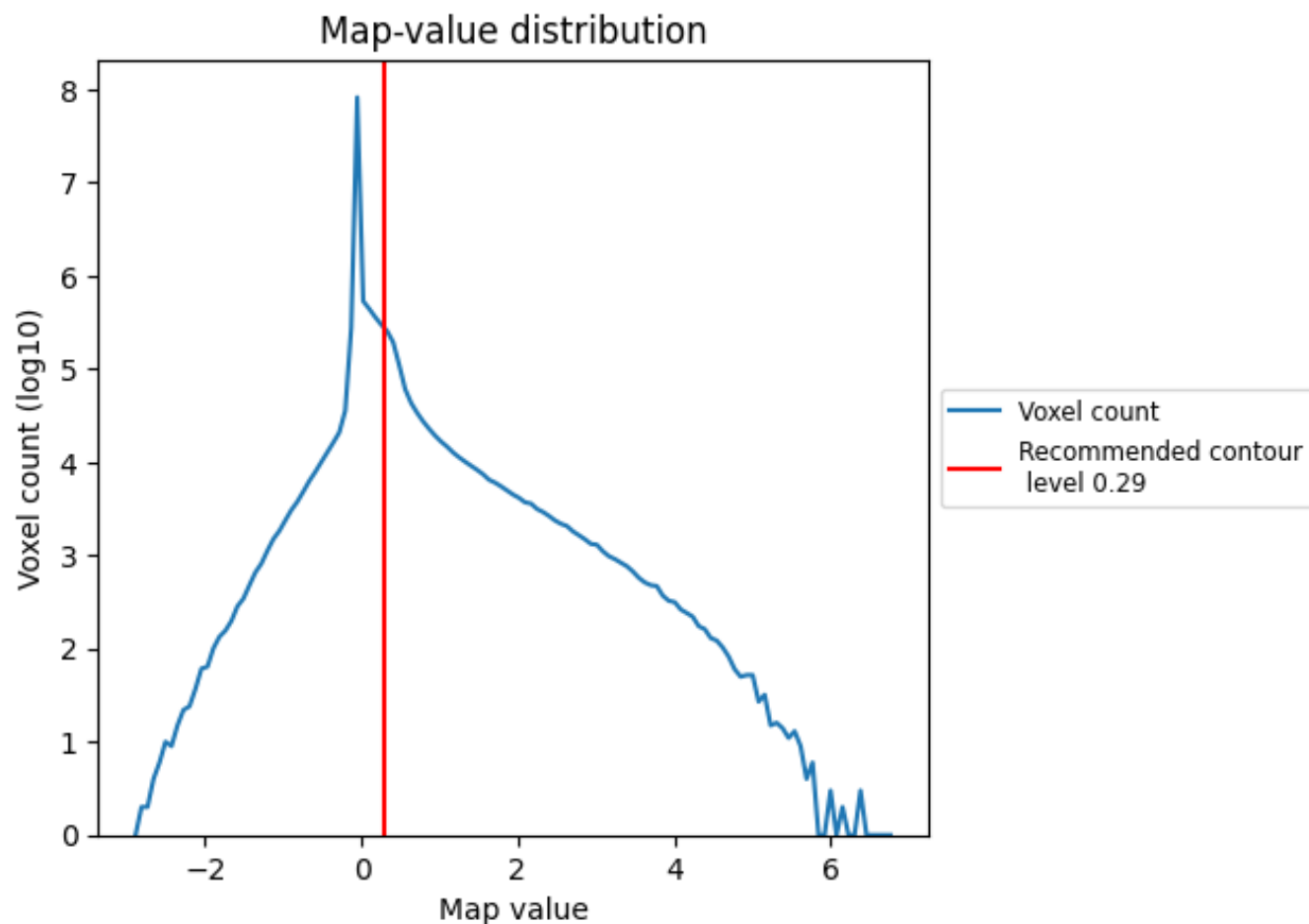
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

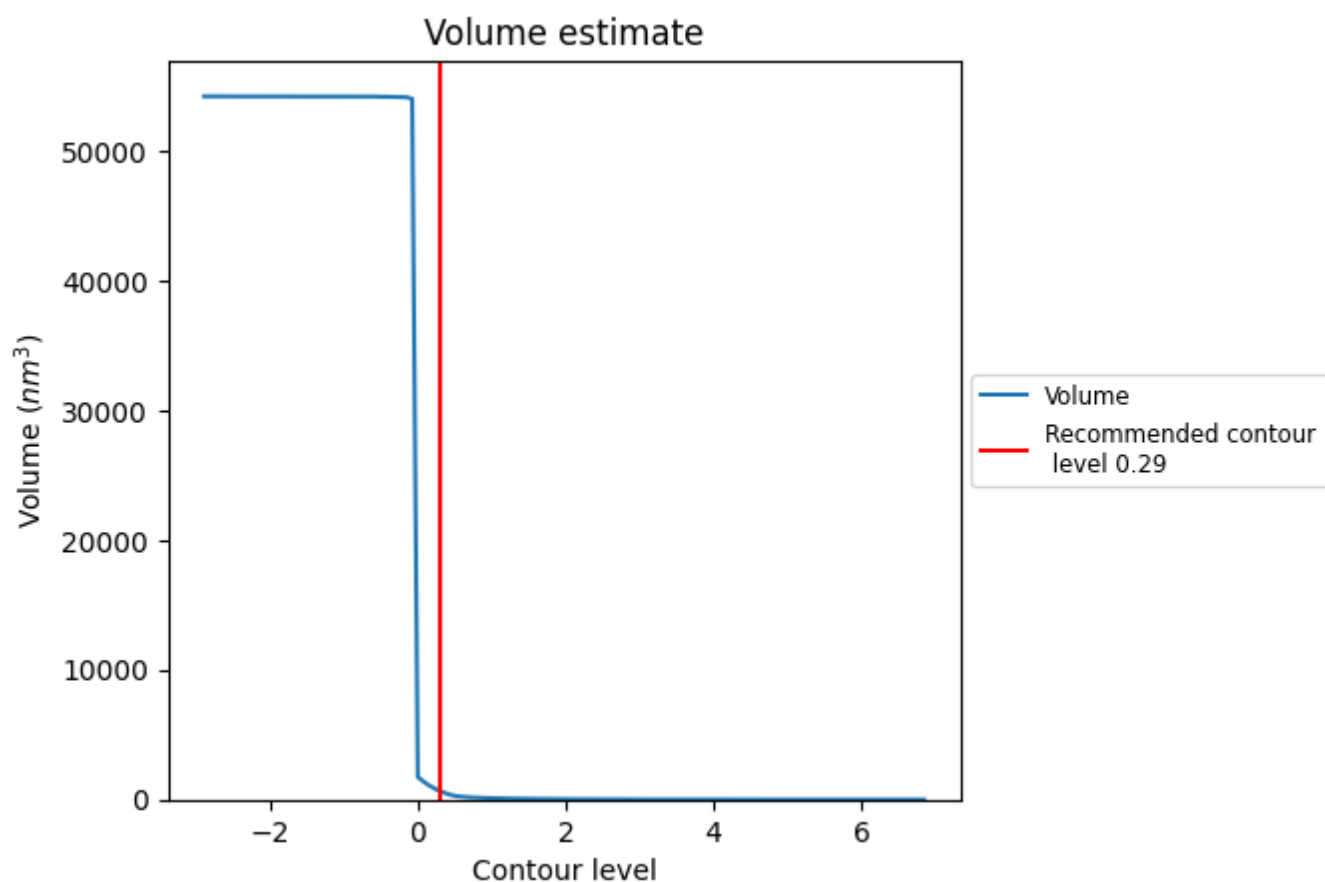
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

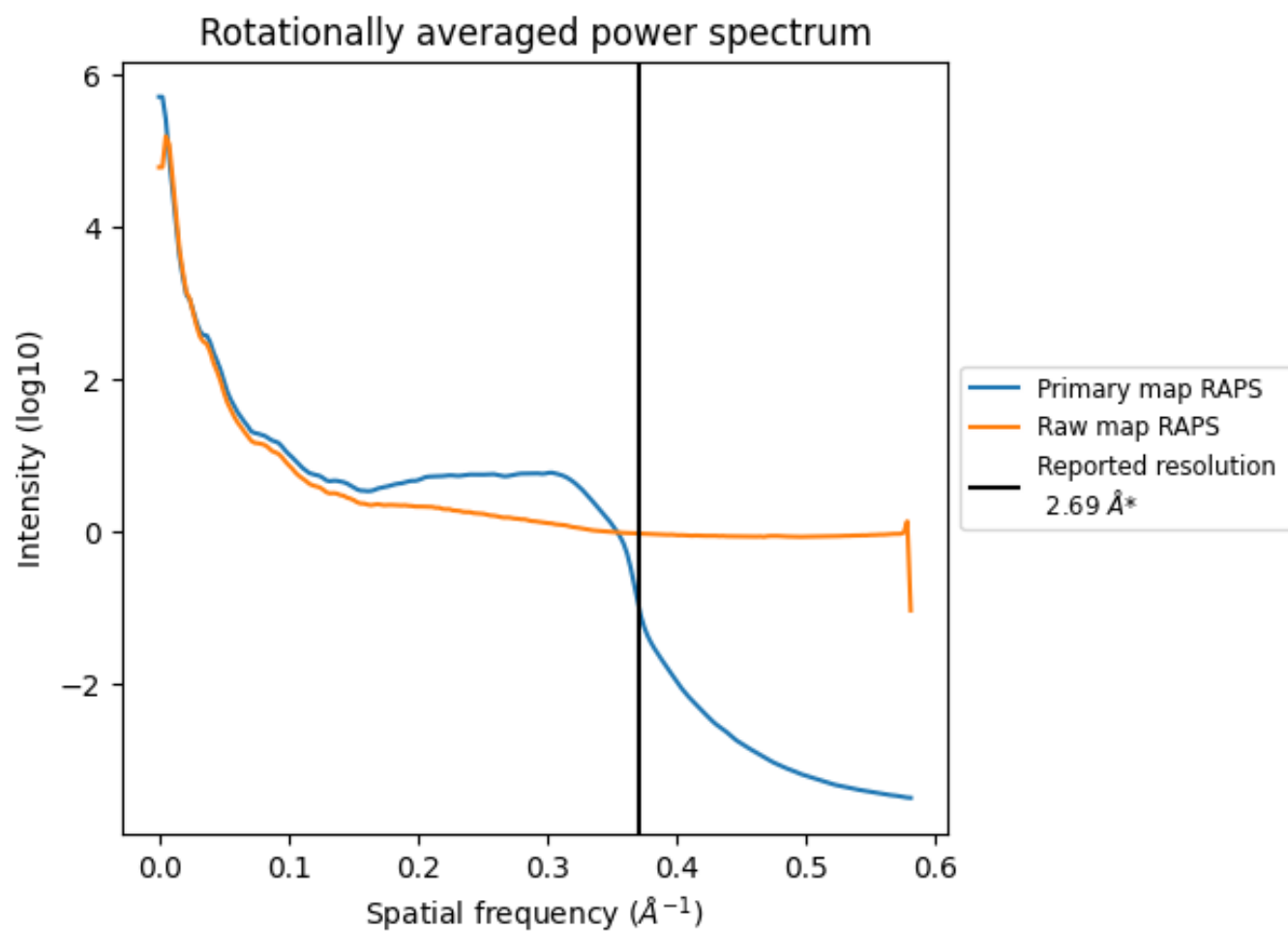
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 688 nm^3 ; this corresponds to an approximate mass of 622 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

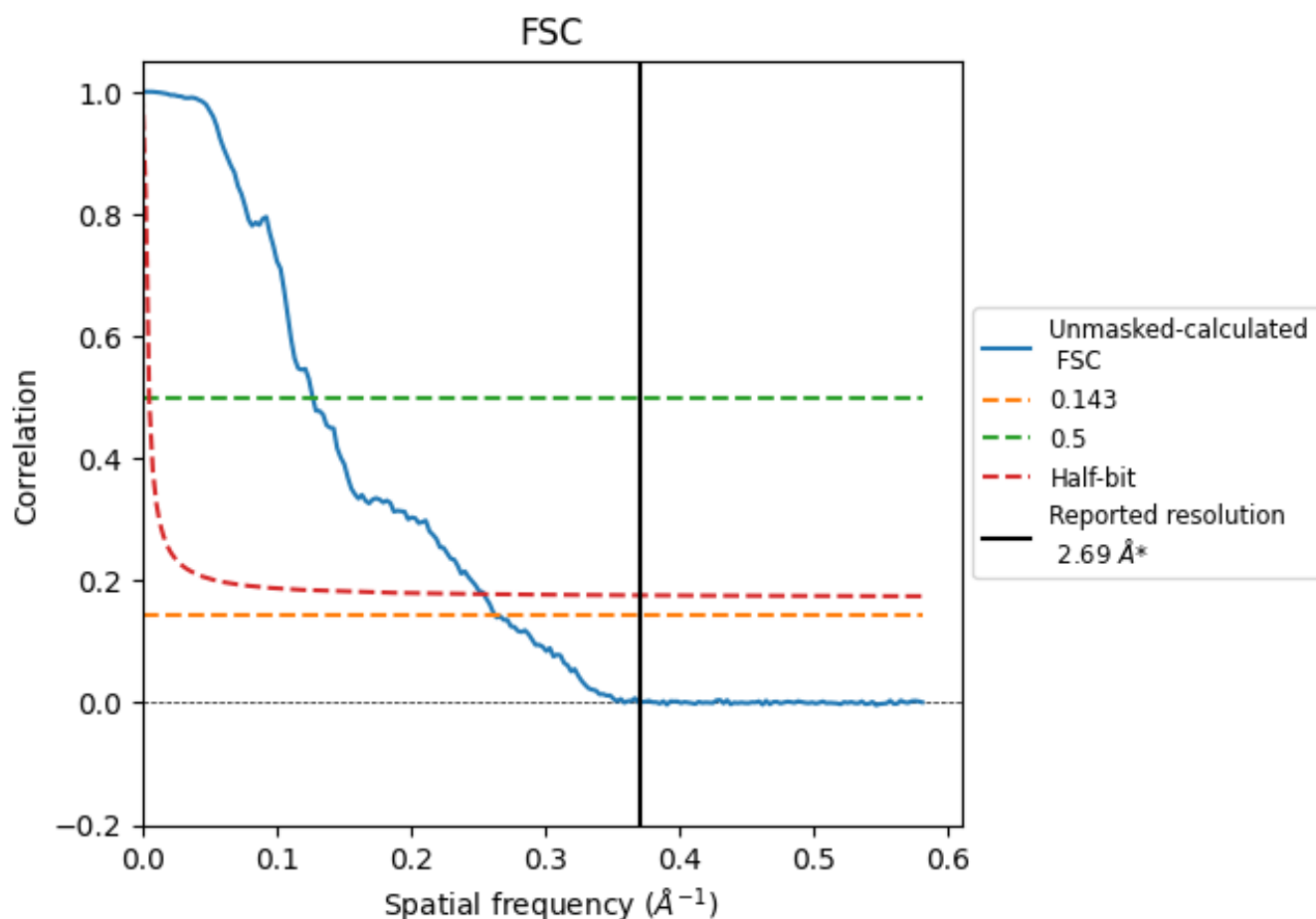


*Reported resolution corresponds to spatial frequency of 0.372 $\text{\AA}^{-1}$

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.372 Å⁻¹

8.2 Resolution estimates [i](#)

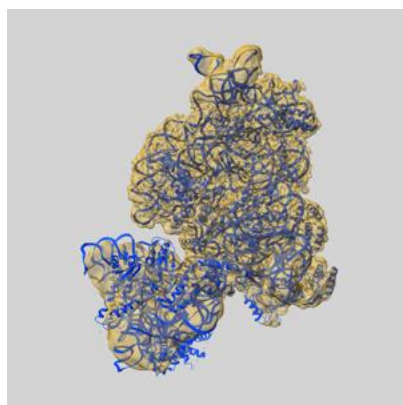
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.69	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.80	7.87	3.93

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.80 differs from the reported value 2.69 by more than 10 %

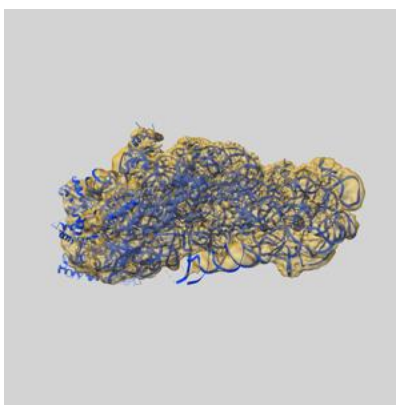
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-12856 and PDB model 7OE0. Per-residue inclusion information can be found in section [3](#) on page [8](#).

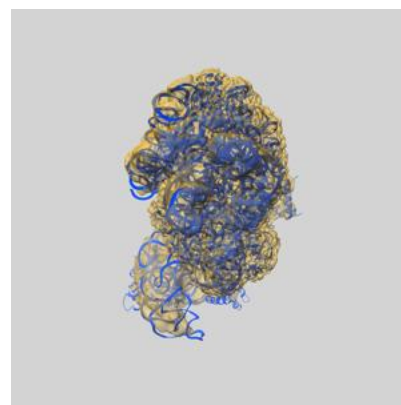
9.1 Map-model overlay [i](#)



X



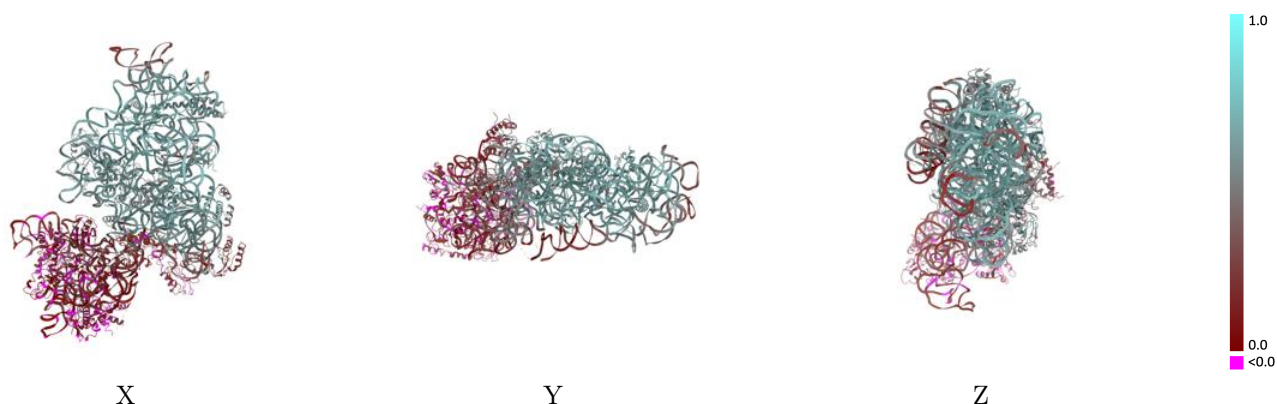
Y



Z

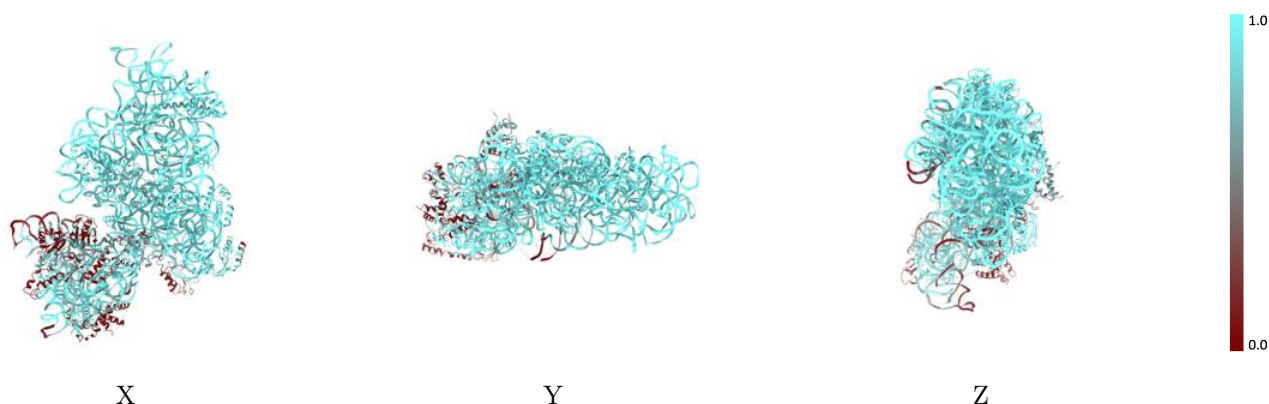
The images above show the 3D surface view of the map at the recommended contour level 0.29 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



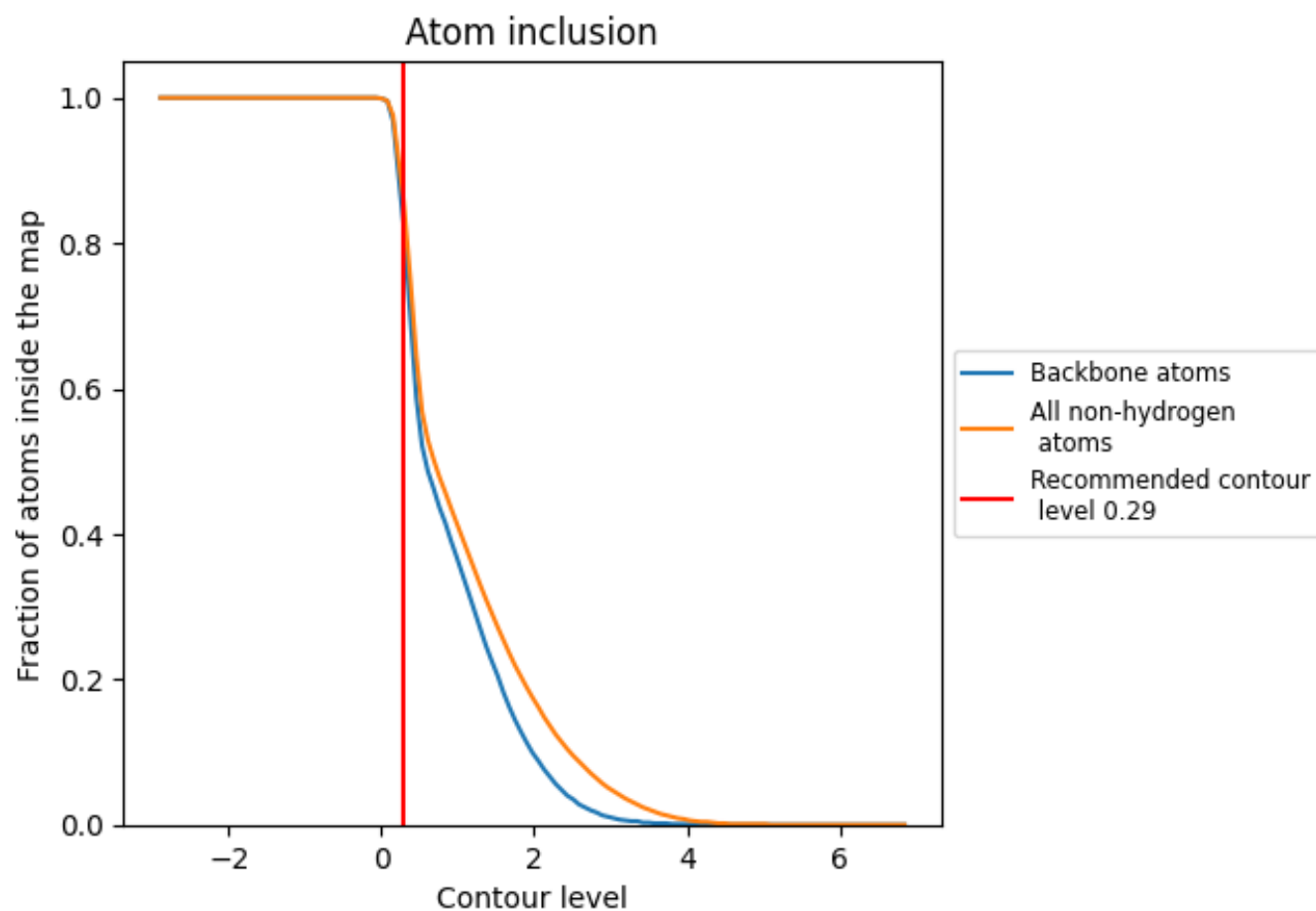
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.29).

9.4 Atom inclusion [i](#)



At the recommended contour level, 82% of all backbone atoms, 86% 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 (0.29) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8590	 0.3890
A	 0.9340	 0.4270
B	 0.5730	 0.2560
C	 0.2430	 0.0910
D	 0.9670	 0.5470
E	 0.9760	 0.5780
F	 0.8220	 0.2890
G	 0.1910	 0.0230
H	 0.9720	 0.5960
I	 0.6570	 0.0520
J	 0.4870	 0.0560
K	 0.3900	 0.1240
L	 0.9650	 0.5870
M	 0.5050	 0.0370
N	 0.7480	 0.0230
O	 0.9520	 0.5060
P	 0.9650	 0.6260
Q	 0.9860	 0.5940
R	 0.9260	 0.4250
S	 0.6230	 0.0670
T	 0.9940	 0.5990

