



Full wwPDB EM Validation Report ⓘ

Mar 24, 2026 – 05:18 PM JST

PDB ID : 22TU / pdb_000022tu
EMDB ID : EMD-68666
Title : Human 80S ribosome in complex with DHX29
Authors : Goto-Ito, S.; Iwasaki, W.; Ito, T.
Deposited on : 2026-01-22
Resolution : 3.00 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

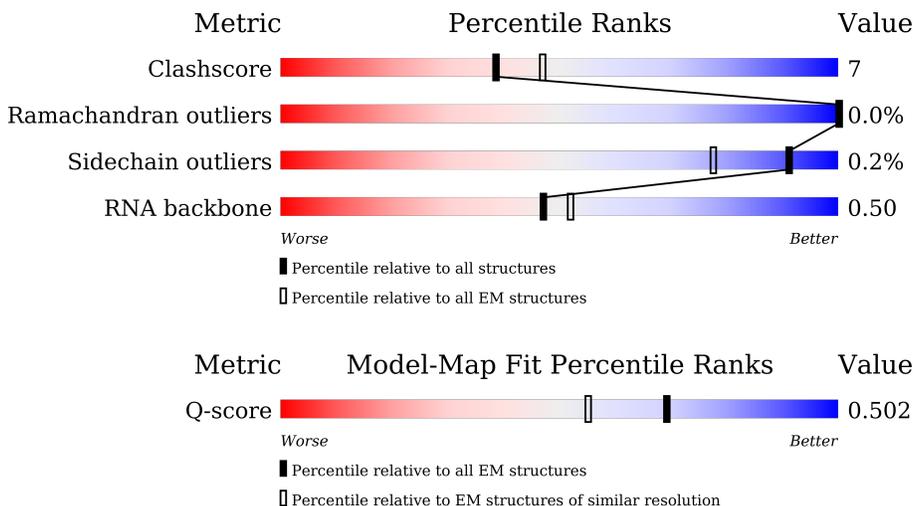
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.48.1

1 Overall quality at a glance i

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

The reported resolution of this entry is 3.00 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	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	14081 (2.50 - 3.50)

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	LA	257	
2	SA	295	
3	LB	403	

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Mol	Chain	Length	Quality of chain
4	SB	264	63% 17% 19%
5	B4	75	64% 32% .
5	C4	75	44% 44% 12%
6	L5	5070	43% 24% 5% 29%
7	L7	121	71% 21% 7% .
8	L8	157	60% 34% 6% .
9	LC	427	71% 14% 15%
10	LD	297	85% 14% .
11	LE	288	61% 16% 23%
12	LF	248	77% 14% 9%
13	LG	266	72% 14% 14%
14	LH	192	80% 19% .
15	LI	214	84% 16%
16	LJ	178	78% 16% 6%
17	LL	211	83% 15% .
18	LM	215	55% 8% 36%
19	LN	204	82% 18%
20	LO	203	85% 13% .
21	LP	184	74% 10% 16%
22	LQ	188	85% 14% .
23	LR	196	78% 12% 10%
24	LS	176	86% 14% .
25	LT	160	89% 10% .
26	LU	128	58% 21% 21%
27	LV	140	76% 16% . 7%

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Mol	Chain	Length	Quality of chain
28	LW	157	6% 51% 22% 27%
29	LX	156	65% 11% 24%
30	LY	145	71% 21% 8%
31	LZ	136	84% 15%
32	La	148	91% 9%
33	Lb	159	55% 12% 33%
34	Lc	115	72% 13% 15%
35	Ld	125	75% 10% 14%
36	Le	135	89% 7%
37	Lf	110	89% 10%
38	Lg	117	91% 5%
39	Lh	123	85% 13%
40	Li	105	82% 14%
41	Lj	97	74% 14% 11%
42	Lk	70	84% 14%
43	Ll	51	78% 20%
44	Lm	128	31% 9% 59%
45	Ln	25	84% 12%
46	Lo	106	84% 15%
47	Lp	92	82% 15%
48	Lr	137	74% 16% 10%
49	S2	1869	51% 33% 7% 10%
50	SC	293	60% 14% 25%
51	SD	243	76% 16% 8%
52	SE	263	74% 25%

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Mol	Chain	Length	Quality of chain
53	SF	204	78% 13% 9%
54	SG	249	67% 25% 7%
55	SH	194	76% 19% . .
56	SI	208	78% 21% .
57	SJ	194	80% 13% 7%
58	SK	165	30% 27% . 42%
59	SL	158	74% 16% 9%
60	SM	132	16% 64% 26% . 9%
61	SN	151	83% 17% .
62	SO	151	76% 13% 11%
63	SP	145	67% 21% 12%
64	SQ	146	71% 25% .
65	SR	135	77% 21% .
66	SS	152	64% 28% 7%
67	ST	145	78% 19% .
68	SU	119	62% 23% 15%
69	SV	83	89% 11%
70	SW	130	85% 14% .
71	SX	143	83% 16% .
72	SY	133	80% 11% 8%
73	SZ	125	40% 18% 42%
74	Sa	115	73% 13% 14%
75	Sb	84	80% 19% .
76	Sc	69	80% 12% 9%
77	Sd	56	77% 21% .

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Mol	Chain	Length	Quality of chain
78	Se	133	
79	Sf	156	
80	Sg	317	
81	DH	1369	
82	zx	32	

2 Entry composition [i](#)

There are 84 unique types of molecules in this entry. The entry contains 222283 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 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	LA	248	Total	C	N	O	S	0	0
			1898	1189	389	314	6		

- Molecule 2 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	SA	219	Total	C	N	O	S	0	0
			1727	1097	303	319	8		

- Molecule 3 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	LB	395	Total	C	N	O	S	0	0
			3189	2030	600	545	14		

- Molecule 4 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	SB	213	Total	C	N	O	S	0	0
			1729	1098	309	308	14		

- Molecule 5 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	B4	75	Total	C	N	O	P	0	0
			1599	713	284	528	74		
5	C4	75	Total	C	N	O	P	0	0
			1602	713	284	530	75		

- Molecule 6 is a RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
6	L5	3619	77578	34548	14191	25221	3618	0	0

- Molecule 7 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
7	L7	120	2558	1141	456	842	119	0	0

- Molecule 8 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
8	L8	156	3314	1480	585	1094	155	0	0

- Molecule 9 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	LC	362	2882	1814	576	478	14	0	0

- Molecule 10 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	LD	293	2382	1507	434	427	14	0	0

- Molecule 11 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	LE	222	1783	1148	338	293	4	0	0

- Molecule 12 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	LF	225	1870	1202	358	301	9	0	0

- Molecule 13 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	LG	228	1841	1174	354	309	4	0	0

- Molecule 14 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	LH	190	1518	956	284	272	6	0	0

- Molecule 15 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	LI	213	1716	1086	331	285	14	0	0

- Molecule 16 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	LJ	168	1344	850	251	237	6	0	0

- Molecule 17 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	LL	207	1673	1046	346	277	4	0	0

- Molecule 18 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	LM	137	1125	722	216	180	7	0	0

- Molecule 19 is a protein called 60S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	LN	203	1701	1072	359	266	4	0	0

- Molecule 20 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	LO	200	Total	C	N	O	S	0	0
			1641	1058	320	258	5		

- Molecule 21 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	LP	155	Total	C	N	O	S	0	0
			1259	787	244	219	9		

- Molecule 22 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	LQ	187	Total	C	N	O	S	0	0
			1513	944	314	250	5		

- Molecule 23 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	LR	176	Total	C	N	O	S	0	0
			1472	910	320	233	9		

- Molecule 24 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	LS	175	Total	C	N	O	S	0	0
			1452	925	283	234	10		

- Molecule 25 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	LT	159	Total	C	N	O	S	0	0
			1294	821	252	215	6		

- Molecule 26 is a protein called 60S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	LU	101	Total	C	N	O	S	0	0
			825	529	144	150	2		

- Molecule 27 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	LV	130	973	615	183	170	5	0	0

- Molecule 28 is a protein called 60S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	LW	114	932	583	192	153	4	0	0

- Molecule 29 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	LX	118	967	618	181	167	1	0	0

- Molecule 30 is a protein called 60S ribosomal protein L26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	LY	134	1115	700	226	186	3	0	0

- Molecule 31 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	LZ	135	1107	714	208	182	3	0	0

- Molecule 32 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	La	147	1154	731	236	184	3	0	0

- Molecule 33 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	Lb	106	864	537	189	134	4	0	0

- Molecule 34 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	Lc	98	Total	C	N	O	S	0	0
			764	485	135	138	6		

- Molecule 35 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	Ld	107	Total	C	N	O	S	0	0
			888	560	171	155	2		

- Molecule 36 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	Le	130	Total	C	N	O	S	0	0
			1070	676	221	168	5		

- Molecule 37 is a protein called 60S ribosomal protein L35a.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	Lf	109	Total	C	N	O	S	0	0
			876	555	174	144	3		

- Molecule 38 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	Lg	112	Total	C	N	O	S	0	0
			888	555	183	144	6		

- Molecule 39 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	Lh	121	Total	C	N	O	S	0	0
			1010	638	204	167	1		

- Molecule 40 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	Li	101	Total	C	N	O	S	0	0
			823	515	175	128	5		

- Molecule 41 is a protein called 60S ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	Lj	86	Total	C	N	O	S	0	0
			705	434	155	111	5		

- Molecule 42 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	Lk	69	Total	C	N	O	S	0	0
			569	366	103	99	1		

- Molecule 43 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	Ll	50	Total	C	N	O	S	0	0
			444	281	98	64	1		

- Molecule 44 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	Lm	52	Total	C	N	O	S	0	0
			429	266	90	67	6		

- Molecule 45 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	Ln	24	Total	C	N	O	S	0	0
			230	139	62	26	3		

- Molecule 46 is a protein called 60S ribosomal protein L36a.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	Lo	105	Total	C	N	O	S	0	0
			862	542	175	139	6		

- Molecule 47 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	Lp	89	Total	C	N	O	S	0	0
			690	436	133	114	7		

- Molecule 48 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	Lr	123	Total	C	N	O	S	0	0
			987	612	205	166	4		

- Molecule 49 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	S2	1683	Total	C	N	O	P	0	0
			35919	16035	6448	11754	1682		

- Molecule 50 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	SC	219	Total	C	N	O	S	0	0
			1700	1100	292	298	10		

- Molecule 51 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	SD	224	Total	C	N	O	S	0	0
			1740	1110	313	310	7		

- Molecule 52 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	SE	259	Total	C	N	O	S	0	0
			2055	1314	383	350	8		

- Molecule 53 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	SF	186	Total	C	N	O	S	0	0
			1475	923	278	267	7		

- Molecule 54 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	SG	231	Total	C	N	O	S	0	0
			1853	1157	371	318	7		

- Molecule 55 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	SH	186	Total	C	N	O	S	0	0
			1501	957	276	267	1		

- Molecule 56 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	SI	206	Total	C	N	O	S	0	0
			1686	1058	332	291	5		

- Molecule 57 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	SJ	180	Total	C	N	O	S	0	0
			1499	955	300	242	2		

- Molecule 58 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	SK	96	Total	C	N	O	S	0	0
			810	530	143	131	6		

- Molecule 59 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	SL	143	Total	C	N	O	S	0	0
			1173	747	222	198	6		

- Molecule 60 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	SM	120	Total	C	N	O	S	0	0
			925	580	162	175	8		

- Molecule 61 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	SN	150	Total	C	N	O	S	0	0
			1204	771	229	203	1		

- Molecule 62 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
62	SO	134	1002	612	197	187	6	0	0

- Molecule 63 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
63	SP	127	1043	662	197	177	7	0	0

- Molecule 64 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
64	SQ	140	1117	710	211	193	3	0	0

- Molecule 65 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
65	SR	133	1072	674	200	194	4	0	0

- Molecule 66 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
66	SS	141	1160	731	235	193	1	0	0

- Molecule 67 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
67	ST	140	1086	681	208	194	3	0	0

- Molecule 68 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
68	SU	101	803	504	153	142	4	0	0

- Molecule 69 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
69	SV	83	636	393	117	121	5	0	0

- Molecule 70 is a protein called 40S ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
70	SW	129	1034	659	193	176	6	0	0

- Molecule 71 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
71	SX	141	1098	693	219	183	3	0	0

- Molecule 72 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
72	SY	122	994	630	195	164	5	0	0

- Molecule 73 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
73	SZ	73	583	374	106	102	1	0	0

- Molecule 74 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
74	Sa	99	788	490	165	128	5	0	0

- Molecule 75 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
75	Sb	83	647	406	121	113	7	0	0

- Molecule 76 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	Sc	63	Total	C	N	O	S	0	0
			495	302	98	93	2		

- Molecule 77 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	Sd	55	Total	C	N	O	S	0	0
			459	286	94	74	5		

- Molecule 78 is a protein called Ubiquitin-like FUBI-ribosomal protein eS30 fusion protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	Se	58	Total	C	N	O	S	0	0
			459	284	100	74	1		

- Molecule 79 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	Sf	64	Total	C	N	O	S	0	0
			522	329	99	87	7		

- Molecule 80 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	Sg	311	Total	C	N	O	S	0	0
			2420	1526	422	460	12		

- Molecule 81 is a protein called ATP-dependent RNA helicase DHX29.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	DH	1004	Total	C	N	O	S	0	0
			8048	5136	1404	1473	35		

- Molecule 82 is a protein called nascent peptide.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	zx	32	Total	C	N	O	S	0	0
			246	164	36	45	1		

- Molecule 83 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
83	LA	2	Total Mg 2 2	0
83	B4	1	Total Mg 1 1	0
83	L5	124	Total Mg 124 124	0
83	L7	3	Total Mg 3 3	0
83	L8	4	Total Mg 4 4	0
83	LC	1	Total Mg 1 1	0
83	LN	1	Total Mg 1 1	0
83	LP	1	Total Mg 1 1	0
83	LV	1	Total Mg 1 1	0
83	Lb	2	Total Mg 2 2	0
83	S2	51	Total Mg 51 51	0

- Molecule 84 is ZINC ION (CCD ID: ZN) (formula: Zn).

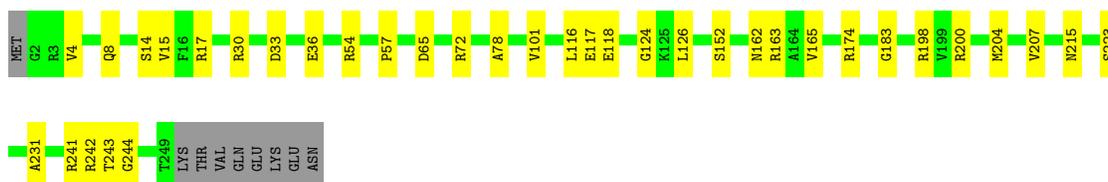
Mol	Chain	Residues	Atoms	AltConf
84	Lg	1	Total Zn 1 1	0
84	Lj	1	Total Zn 1 1	0
84	Lm	1	Total Zn 1 1	0
84	Lo	1	Total Zn 1 1	0
84	Lp	1	Total Zn 1 1	0
84	Sa	1	Total Zn 1 1	0
84	Sd	1	Total Zn 1 1	0
84	Sf	1	Total Zn 1 1	0

3 Residue-property plots

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

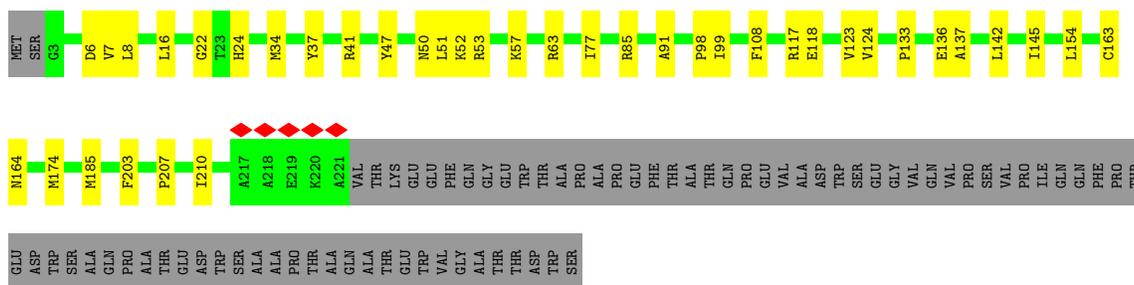
- Molecule 1: 60S ribosomal protein L8

Chain LA: 



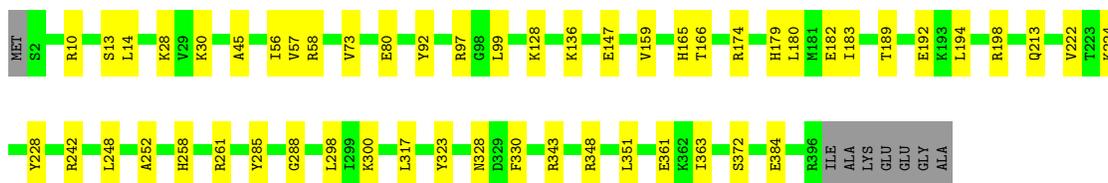
- Molecule 2: Small ribosomal subunit protein uS2

Chain SA: 



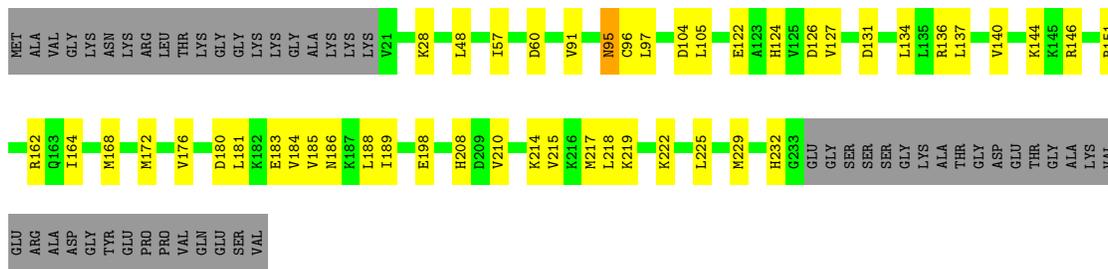
- Molecule 3: 60S ribosomal protein L3

Chain LB: 



- Molecule 4: 40S ribosomal protein S3a

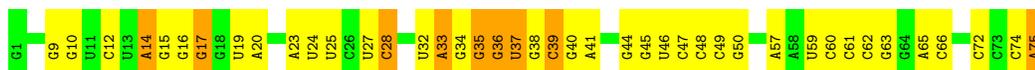
Chain SB: 



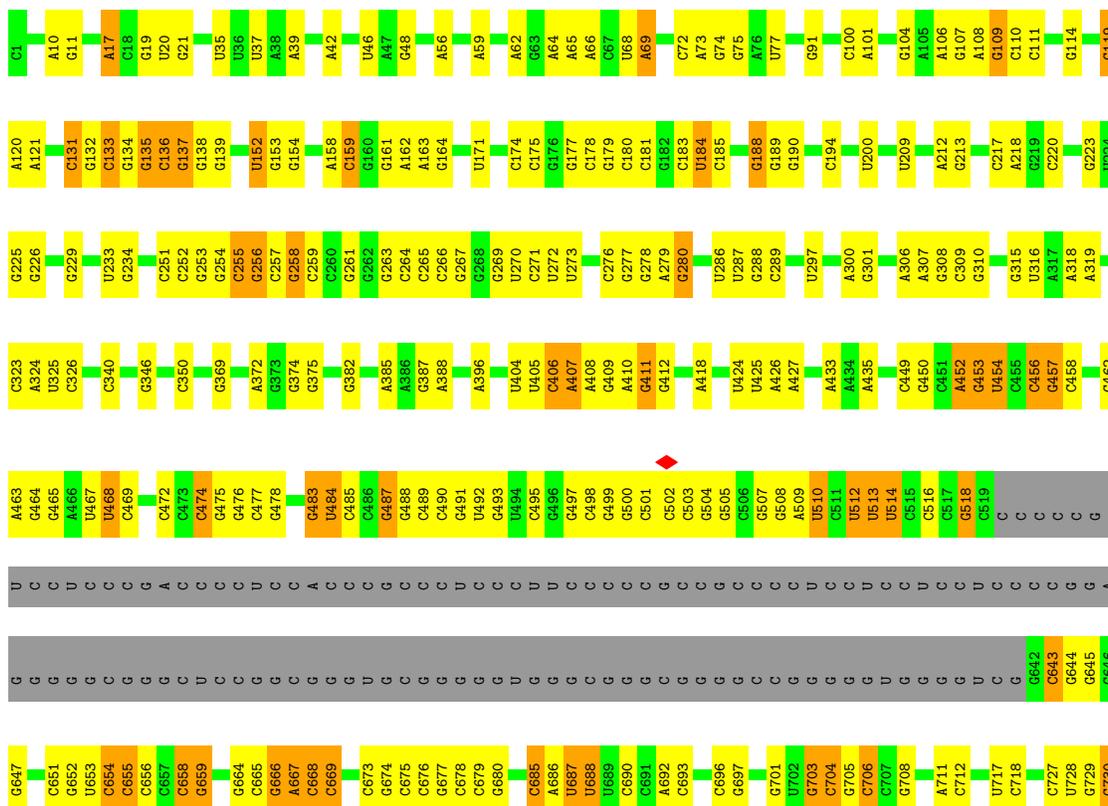
• Molecule 5: tRNA

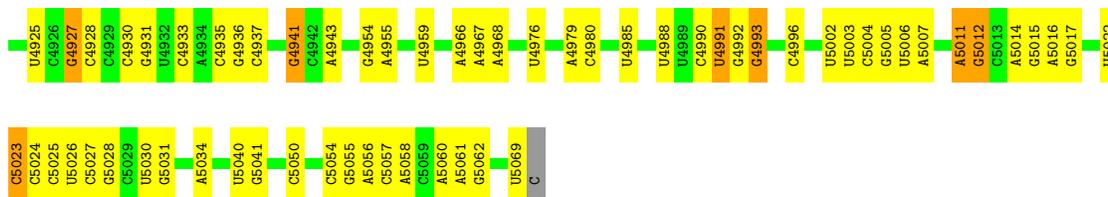


• Molecule 5: tRNA



• Molecule 6: 28S rRNA

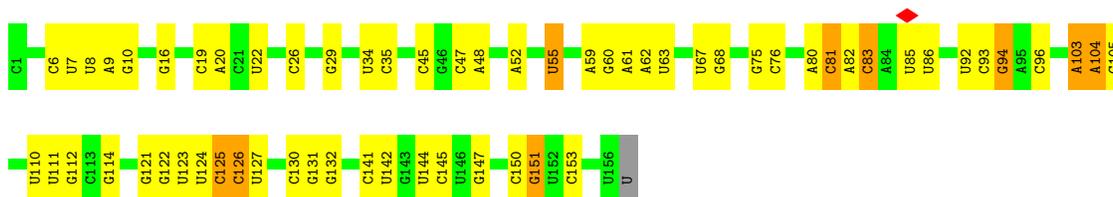




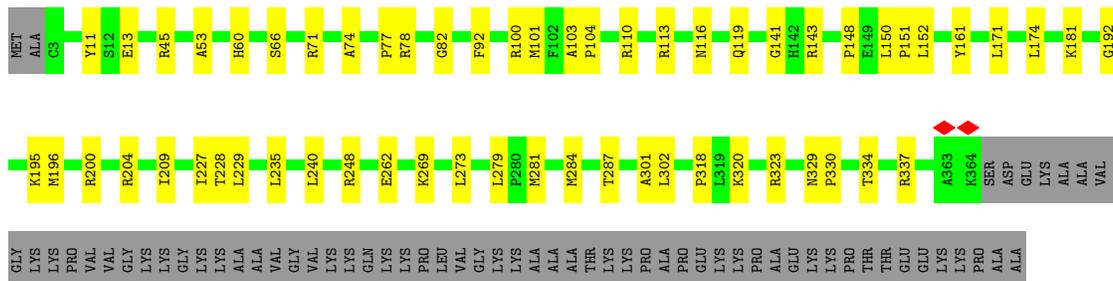
• Molecule 7: 5S rRNA



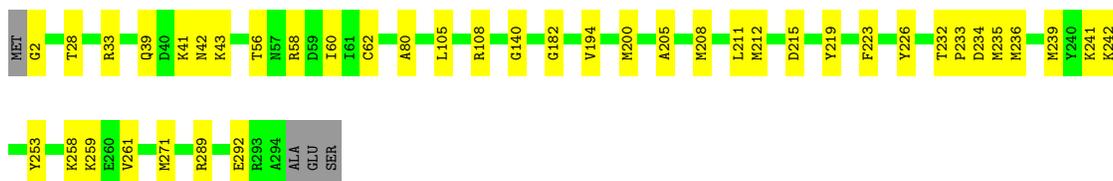
• Molecule 8: 5.8S rRNA



• Molecule 9: 60S ribosomal protein L4

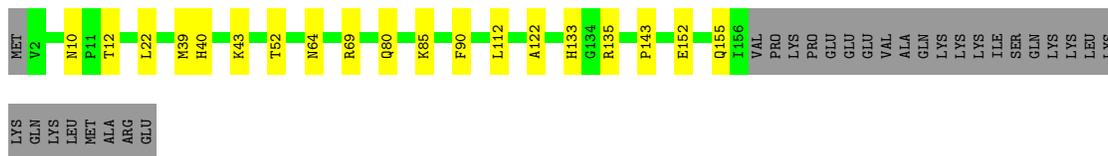
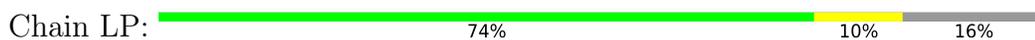


• Molecule 10: 60S ribosomal protein L5

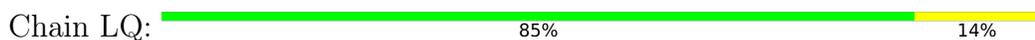


• Molecule 11: 60S ribosomal protein L6

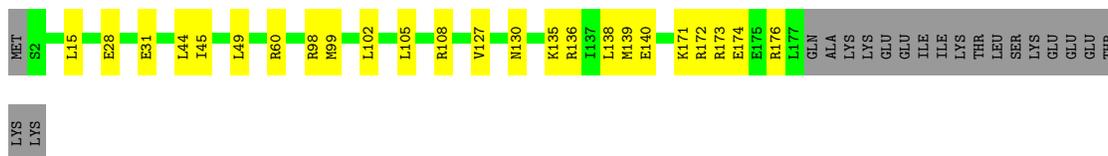
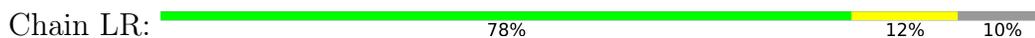
• Molecule 21: 60S ribosomal protein L17



• Molecule 22: 60S ribosomal protein L18



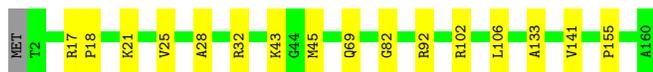
• Molecule 23: 60S ribosomal protein L19



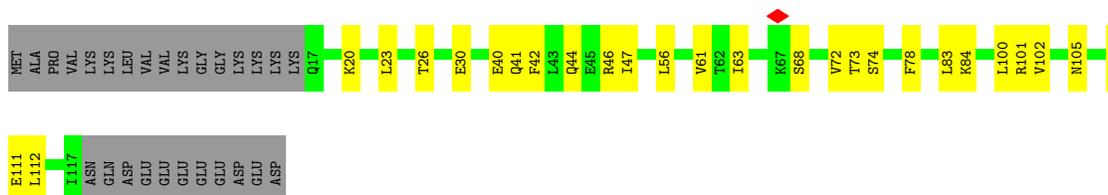
• Molecule 24: 60S ribosomal protein L18a



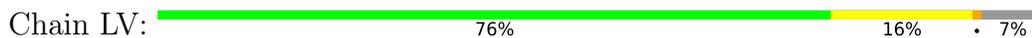
• Molecule 25: 60S ribosomal protein L21



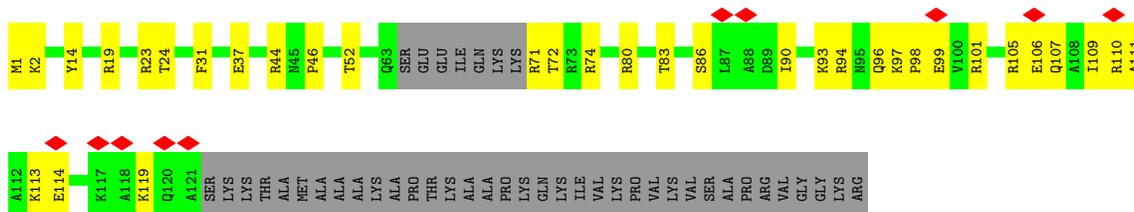
• Molecule 26: 60S ribosomal protein L22



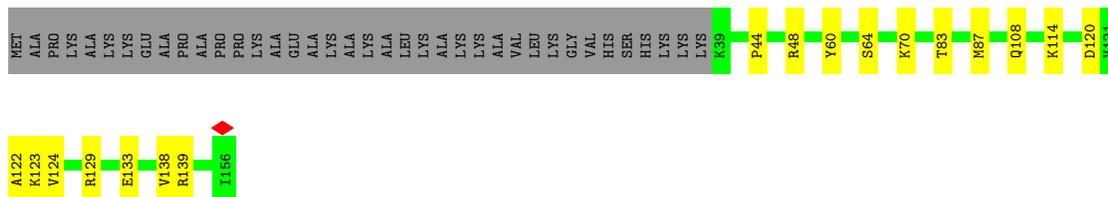
• Molecule 27: 60S ribosomal protein L23



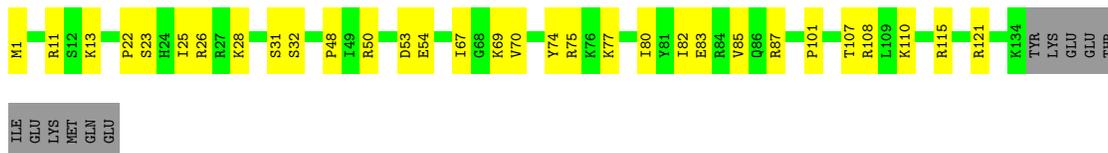
• Molecule 28: 60S ribosomal protein L24



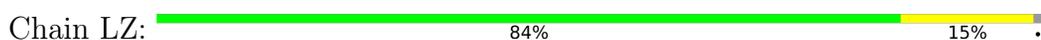
• Molecule 29: 60S ribosomal protein L23a



• Molecule 30: 60S ribosomal protein L26



• Molecule 31: 60S ribosomal protein L27

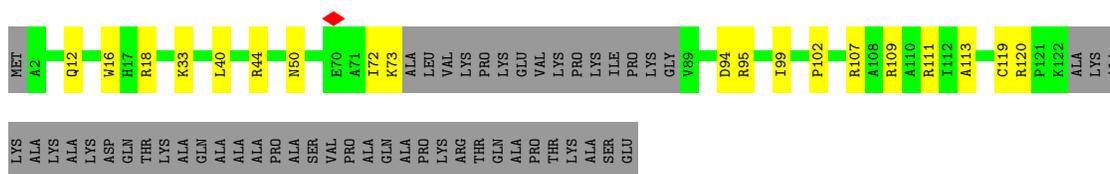


• Molecule 32: 60S ribosomal protein L27a





- Molecule 33: 60S ribosomal protein L29



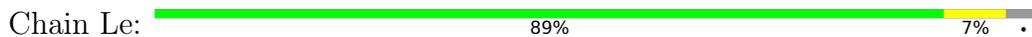
- Molecule 34: 60S ribosomal protein L30



- Molecule 35: 60S ribosomal protein L31



- Molecule 36: 60S ribosomal protein L32



- Molecule 37: 60S ribosomal protein L35a

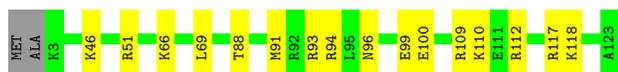


- Molecule 38: 60S ribosomal protein L34



- Molecule 39: 60S ribosomal protein L35

Chain Lh:  85% 13%



- Molecule 40: 60S ribosomal protein L36

Chain Li:  82% 14%



- Molecule 41: 60S ribosomal protein L37

Chain Lj:  74% 14% 11%



- Molecule 42: 60S ribosomal protein L38

Chain Lk:  84% 14%



- Molecule 43: 60S ribosomal protein L39

Chain Ll:  78% 20%



- Molecule 44: Ubiquitin-60S ribosomal protein L40

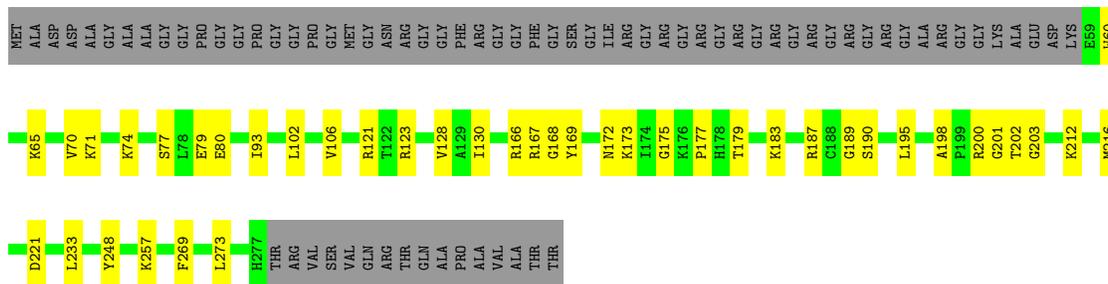
Chain Lm:  31% 9% 59%



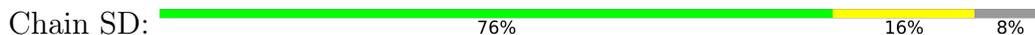
- Molecule 45: 60S ribosomal protein L41

Chain Ln:  84% 12%

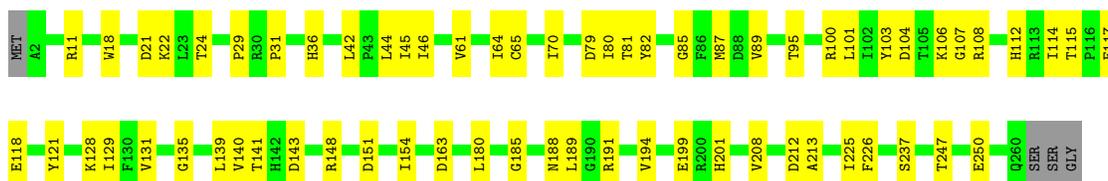




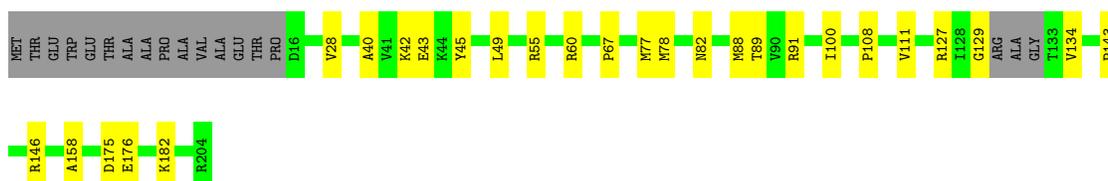
• Molecule 51: 40S ribosomal protein S3



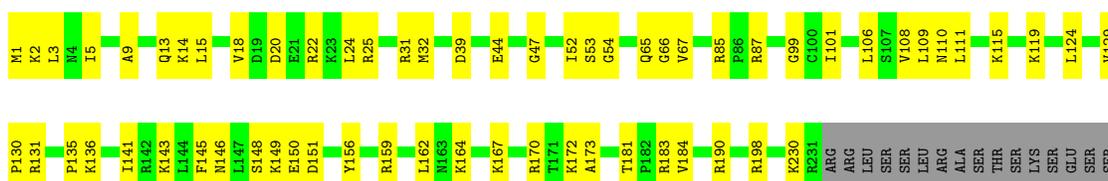
• Molecule 52: 40S ribosomal protein S4, X isoform

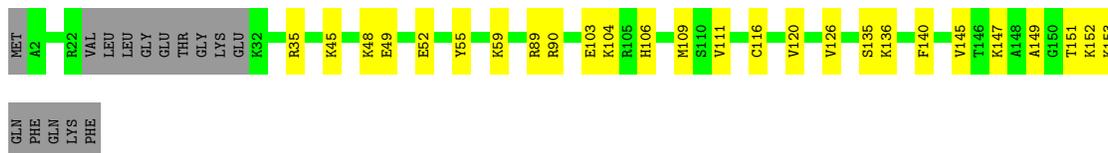


• Molecule 53: 40S ribosomal protein S5

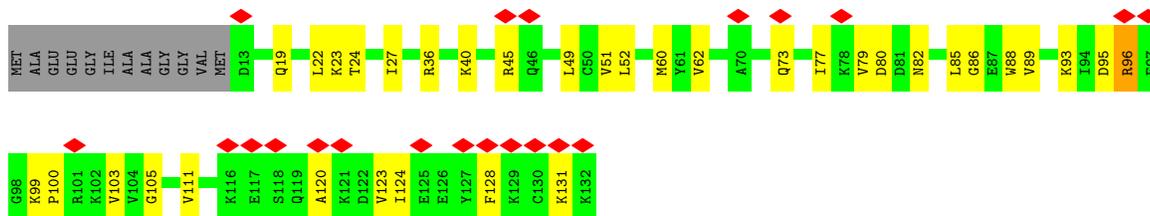


• Molecule 54: 40S ribosomal protein S6

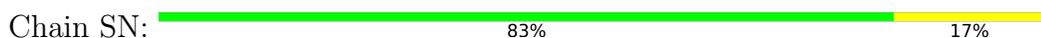




• Molecule 60: 40S ribosomal protein S12



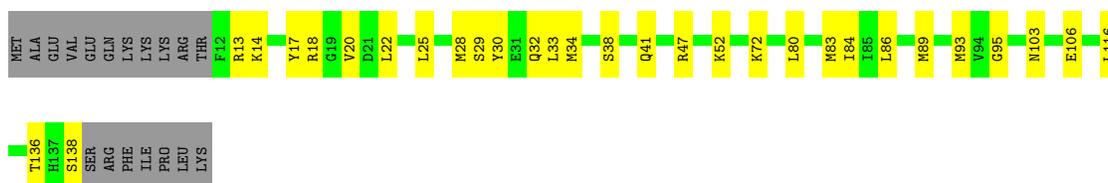
• Molecule 61: 40S ribosomal protein S13



• Molecule 62: 40S ribosomal protein S14



• Molecule 63: 40S ribosomal protein S15

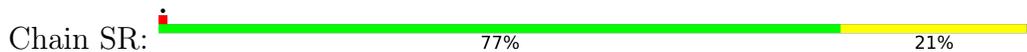


• Molecule 64: 40S ribosomal protein S16





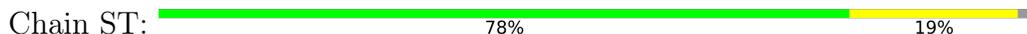
- Molecule 65: 40S ribosomal protein S17



- Molecule 66: 40S ribosomal protein S18



- Molecule 67: 40S ribosomal protein S19



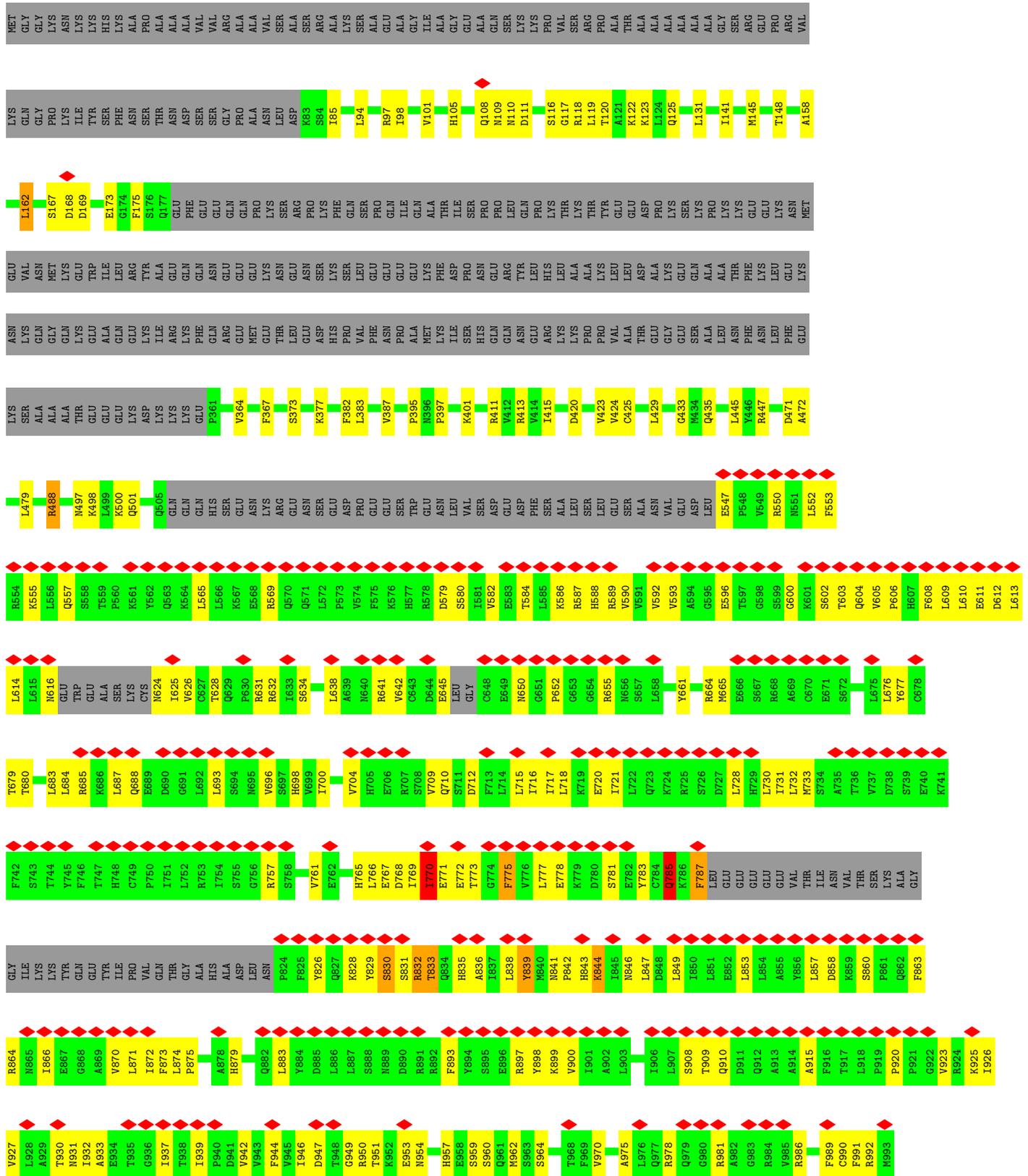
- Molecule 68: 40S ribosomal protein S20

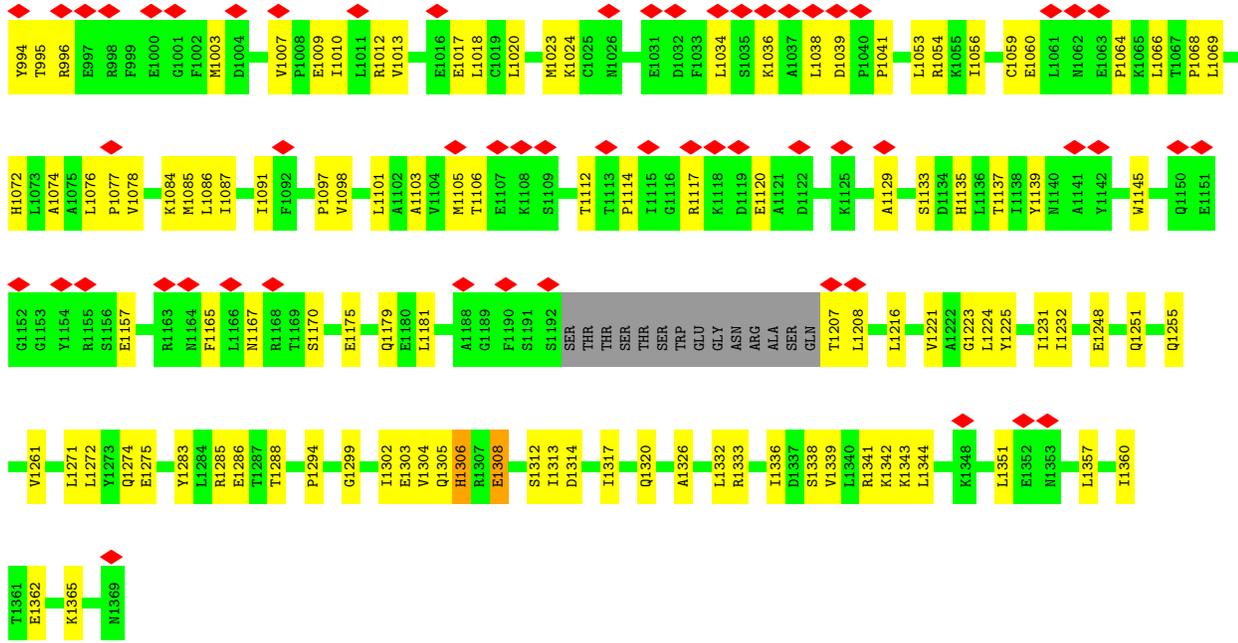


- Molecule 69: 40S ribosomal protein S21

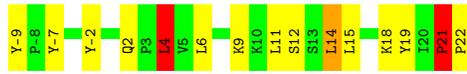


- Molecule 70: 40S ribosomal protein S15a





• Molecule 82: nascent peptide



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	35668	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	58	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.093	Depositor
Minimum map value	-0.014	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.016	Depositor
Map size (\AA)	508.8, 508.8, 508.8	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.06, 1.06, 1.06	Depositor

5 Model quality i

5.1 Standard geometry i

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	LA	0.31	0/1936	0.37	0/2596
2	SA	0.27	0/1764	0.36	0/2396
3	LB	0.28	0/3257	0.35	0/4359
4	SB	0.26	0/1756	0.39	0/2350
5	B4	0.21	0/1786	0.26	0/2784
5	C4	0.18	0/1789	0.31	0/2788
6	L5	0.32	0/86777	0.30	0/135357
7	L7	0.32	0/2858	0.27	0/4455
8	L8	0.31	0/3701	0.28	0/5766
9	LC	0.29	0/2936	0.37	0/3943
10	LD	0.25	0/2428	0.37	0/3252
11	LE	0.24	0/1817	0.37	0/2437
12	LF	0.29	0/1905	0.35	0/2539
13	LG	0.55	2/1872 (0.1%)	0.50	2/2521 (0.1%)
14	LH	0.25	0/1537	0.36	0/2066
15	LI	0.28	0/1755	0.34	0/2344
16	LJ	0.23	0/1367	0.34	0/1829
17	LL	0.25	0/1704	0.33	0/2282
18	LM	0.26	0/1147	0.33	0/1534
19	LN	0.31	0/1746	0.33	0/2338
20	LO	0.29	0/1673	0.34	0/2238
21	LP	0.30	0/1285	0.34	0/1724
22	LQ	0.29	0/1537	0.32	0/2052
23	LR	0.27	0/1488	0.39	0/1968
24	LS	0.30	0/1492	0.35	0/2003
25	LT	0.28	0/1322	0.33	0/1765
26	LU	0.24	0/839	0.46	0/1126
27	LV	0.28	0/987	0.34	0/1324
28	LW	0.23	0/946	0.34	0/1254
29	LX	0.25	0/984	0.28	0/1323
30	LY	0.26	0/1132	0.35	0/1504
31	LZ	0.25	0/1130	0.33	0/1507

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	La	0.30	0/1183	0.33	0/1582
33	Lb	0.24	0/877	0.36	0/1157
34	Lc	0.28	0/774	0.35	0/1038
35	Ld	0.28	0/903	0.33	0/1216
36	Le	0.28	0/1088	0.31	0/1451
37	Lf	0.31	0/895	0.32	0/1198
38	Lg	0.26	0/898	0.35	0/1197
39	Lh	0.25	0/1018	0.35	0/1344
40	Li	0.23	0/834	0.36	0/1104
41	Lj	0.29	0/720	0.37	0/952
42	Lk	0.23	0/575	0.33	0/761
43	Ll	0.29	0/454	0.33	0/599
44	Lm	0.26	0/435	0.37	0/575
45	Ln	0.26	0/231	0.34	0/294
46	Lo	0.28	0/876	0.36	0/1156
47	Lp	0.29	0/700	0.43	0/930
48	Lr	0.28	0/1002	0.36	0/1344
49	S2	0.30	0/40168	0.31	0/62610
50	SC	0.28	0/1737	0.43	0/2347
51	SD	0.22	0/1768	0.34	0/2382
52	SE	0.26	0/2097	0.39	2/2823 (0.1%)
53	SF	0.25	0/1495	0.39	0/2008
54	SG	0.21	0/1876	0.36	0/2502
55	SH	0.33	2/1524 (0.1%)	0.39	0/2042
56	SI	0.27	0/1715	0.36	0/2287
57	SJ	0.24	0/1524	0.31	0/2035
58	SK	0.43	1/834 (0.1%)	0.50	1/1125 (0.1%)
59	SL	0.28	0/1193	0.36	0/1594
60	SM	0.17	0/935	0.40	0/1255
61	SN	0.25	0/1228	0.32	0/1651
62	SO	0.26	0/1015	0.35	0/1361
63	SP	0.23	0/1064	0.35	0/1422
64	SQ	0.24	0/1134	0.38	0/1517
65	SR	0.23	0/1087	0.44	0/1460
66	SS	0.23	0/1178	0.40	0/1578
67	ST	0.22	0/1105	0.35	0/1482
68	SU	0.22	0/813	0.42	0/1092
69	SV	0.26	0/643	0.37	0/860
70	SW	0.28	0/1051	0.33	0/1406
71	SX	0.27	0/1116	0.34	0/1490
72	SY	0.23	0/1011	0.34	0/1345
73	SZ	0.22	0/589	0.44	0/791
74	Sa	0.27	0/801	0.32	0/1074

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
75	Sb	0.24	0/661	0.35	0/886
76	Sc	0.23	0/497	0.32	0/666
77	Sd	0.27	0/470	0.39	0/623
78	Se	0.22	0/465	0.37	0/612
79	Sf	0.17	0/533	0.39	0/706
80	Sg	0.21	0/2477	0.39	0/3372
81	DH	0.32	6/8196 (0.1%)	0.47	5/11069 (0.0%)
82	zx	0.40	0/254	0.57	0/348
All	All	0.30	11/238370 (0.0%)	0.33	10/349443 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
60	SM	0	1
81	DH	0	1
82	zx	0	1
All	All	0	3

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
13	LG	77	PRO	CA-C	20.47	1.63	1.51
58	SK	86	PRO	CA-C	-9.34	1.46	1.51
55	SH	12	ASN	CG-OD1	-6.82	1.10	1.23
81	DH	787	PHE	CG-CD2	-6.64	1.24	1.38
81	DH	839	TYR	C-O	-6.38	1.15	1.24
81	DH	839	TYR	CG-CD1	-6.23	1.26	1.39
55	SH	46	THR	C-O	-6.14	1.15	1.23
13	LG	77	PRO	C-O	-5.22	1.20	1.25
81	DH	488	ARG	CZ-NH1	-5.18	1.25	1.32
81	DH	844	LYS	CD-CE	-5.10	1.37	1.52
81	DH	839	TYR	CE1-CZ	-5.03	1.26	1.38

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	LG	77	PRO	O-C-N	16.78	129.03	121.31
81	DH	785	GLN	CA-CB-CG	10.60	135.31	114.10
81	DH	600	GLY	N-CA-C	7.54	127.10	115.72

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
58	SK	86	PRO	O-C-N	-6.79	118.19	121.31
81	DH	839	TYR	O-C-N	-6.18	114.32	122.42
13	LG	77	PRO	CA-C-O	-5.74	116.77	120.90
81	DH	826	TYR	CA-CB-CG	5.45	123.72	113.90
81	DH	770	ILE	CB-CA-C	5.42	119.12	112.02
52	SE	65	CYS	CA-C-N	-5.09	113.17	122.38
52	SE	65	CYS	C-N-CA	-5.09	113.17	122.38

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
81	DH	770	ILE	Mainchain
60	SM	96	ARG	Sidechain
82	zx	21	PRO	Peptide

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	LA	1898	0	1993	31	0
2	SA	1727	0	1730	28	0
3	LB	3189	0	3327	38	0
4	SB	1729	0	1803	33	0
5	B4	1599	0	809	12	0
5	C4	1602	0	809	30	0
6	L5	77578	0	39204	842	0
7	L7	2558	0	1296	19	0
8	L8	3314	0	1683	42	0
9	LC	2882	0	3059	44	0
10	LD	2382	0	2410	30	0
11	LE	1783	0	1942	41	0
12	LF	1870	0	1996	28	0
13	LG	1841	0	1975	29	0
14	LH	1518	0	1601	23	0
15	LI	1716	0	1765	30	0
16	LJ	1344	0	1380	21	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
17	LL	1673	0	1779	27	0
18	LM	1125	0	1192	14	0
19	LN	1701	0	1749	26	0
20	LO	1641	0	1788	21	0
21	LP	1259	0	1288	14	0
22	LQ	1513	0	1628	22	0
23	LR	1472	0	1614	19	0
24	LS	1452	0	1490	17	0
25	LT	1294	0	1362	14	0
26	LU	825	0	850	17	0
27	LV	973	0	1034	19	0
28	LW	932	0	985	36	0
29	LX	967	0	1040	13	0
30	LY	1115	0	1205	24	0
31	LZ	1107	0	1182	15	0
32	La	1154	0	1198	11	0
33	Lb	864	0	941	17	0
34	Lc	764	0	804	8	0
35	Ld	888	0	930	11	0
36	Le	1070	0	1165	9	0
37	Lf	876	0	912	8	0
38	Lg	888	0	977	6	0
39	Lh	1010	0	1143	16	0
40	Li	823	0	904	16	0
41	Lj	705	0	737	14	0
42	Lk	569	0	637	7	0
43	Ll	444	0	483	9	0
44	Lm	429	0	466	10	0
45	Ln	230	0	276	3	0
46	Lo	862	0	929	11	0
47	Lp	690	0	745	11	0
48	Lr	987	0	1050	20	0
49	S2	35919	0	18142	426	0
50	SC	1700	0	1784	28	0
51	SD	1740	0	1833	28	0
52	SE	2055	0	2160	41	0
53	SF	1475	0	1527	21	0
54	SG	1853	0	1988	51	0
55	SH	1501	0	1593	26	0
56	SI	1686	0	1772	34	0
57	SJ	1499	0	1618	22	0
58	SK	810	0	836	34	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
59	SL	1173	0	1245	22	0
60	SM	925	0	947	22	0
61	SN	1204	0	1290	18	0
62	SO	1002	0	1023	11	0
63	SP	1043	0	1087	22	0
64	SQ	1117	0	1185	29	0
65	SR	1072	0	1126	23	0
66	SS	1160	0	1220	38	0
67	ST	1086	0	1114	23	0
68	SU	803	0	873	21	0
69	SV	636	0	637	5	0
70	SW	1034	0	1080	14	0
71	SX	1098	0	1167	21	0
72	SY	994	0	1060	11	0
73	SZ	583	0	640	22	0
74	Sa	788	0	837	12	0
75	Sb	647	0	668	12	0
76	Sc	495	0	523	5	0
77	Sd	459	0	449	11	0
78	Se	459	0	503	11	0
79	Sf	522	0	529	17	0
80	Sg	2420	0	2380	65	0
81	DH	8048	0	8253	262	0
82	zx	246	0	253	25	0
83	B4	1	0	0	0	0
83	L5	124	0	0	0	0
83	L7	3	0	0	0	0
83	L8	4	0	0	0	0
83	LA	2	0	0	0	0
83	LC	1	0	0	0	0
83	LN	1	0	0	0	0
83	LP	1	0	0	0	0
83	LV	1	0	0	0	0
83	Lb	2	0	0	0	0
83	S2	51	0	0	0	0
84	Lg	1	0	0	0	0
84	Lj	1	0	0	0	0
84	Lm	1	0	0	0	0
84	Lo	1	0	0	0	0
84	Lp	1	0	0	0	0
84	Sa	1	0	0	0	0
84	Sd	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
84	Sf	1	0	0	0	0
All	All	222283	0	166607	2691	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 7.

All (2691) 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)
81:DH:785:GLN:HG2	81:DH:839:TYR:HA	1.28	1.11
81:DH:785:GLN:N	81:DH:839:TYR:O	1.86	1.07
81:DH:785:GLN:HB3	81:DH:841:ASN:OD1	1.56	1.04
49:S2:540:U:H3	49:S2:543:C:N4	1.54	1.03
81:DH:125:GLN:HG2	81:DH:488:ARG:NH1	1.83	0.93
81:DH:785:GLN:NE2	81:DH:838:LEU:O	2.02	0.90
81:DH:785:GLN:HG2	81:DH:839:TYR:CA	2.01	0.90
81:DH:787:PHE:CE2	81:DH:839:TYR:HD1	1.92	0.88
5:C4:10:G:H1	5:C4:25:U:H3	1.23	0.87
49:S2:1033:G:H1	49:S2:1080:A:HO2'	1.22	0.86
49:S2:1824:A:OP2	71:SX:61:GLN:NE2	2.09	0.86
55:SH:12:ASN:OD1	55:SH:46:THR:O	1.93	0.85
81:DH:550:ARG:O	81:DH:614:LEU:HD21	1.75	0.85
81:DH:775:PHE:CG	81:DH:849:LEU:HD13	2.10	0.85
6:L5:512:U:H3	6:L5:647:G:H1	1.24	0.85
6:L5:729:G:H5''	12:LF:76:ARG:HD2	1.58	0.84
52:SE:185:GLY:H	52:SE:189:LEU:HD13	1.43	0.84
81:DH:787:PHE:HD2	81:DH:839:TYR:CE1	1.96	0.83
6:L5:4452:U:C4	82:zx:21:PRO:HG3	2.15	0.82
56:SI:141:ARG:HH12	56:SI:144:LYS:HG2	1.44	0.81
6:L5:474:C:N3	6:L5:680:G:N1	2.28	0.81
21:LP:135:ARG:CD	82:zx:4:LEU:HD22	2.10	0.81
49:S2:925:G:H1	49:S2:1017:U:H3	1.23	0.81
71:SX:58:GLU:OE2	78:Se:77:HIS:NE2	2.14	0.81
6:L5:1759:G:H1	6:L5:1773:U:H3	1.28	0.81
6:L5:1391:A:OP1	22:LQ:181:ARG:NH2	2.13	0.80
22:LQ:15:ARG:HH12	22:LQ:19:LYS:HB2	1.46	0.80
81:DH:125:GLN:CD	81:DH:488:ARG:HH12	1.89	0.79
81:DH:787:PHE:HE2	81:DH:839:TYR:HD1	1.30	0.79
6:L5:1481:C:O2	40:Li:4:ARG:NH2	2.17	0.78
28:LW:97:LYS:HD3	28:LW:99:GLU:H	1.48	0.78
49:S2:1288:U:H3	49:S2:1311:C:N4	1.81	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:2557:G:H1	6:L5:2570:U:H3	0.82	0.78
28:LW:74:ARG:HD3	49:S2:1781:A:H62	1.48	0.78
81:DH:785:GLN:CB	81:DH:841:ASN:OD1	2.30	0.78
6:L5:2559:G:N2	6:L5:2568:C:O2	2.16	0.77
81:DH:602:SER:OG	81:DH:638:LEU:HD11	1.84	0.76
81:DH:125:GLN:CG	81:DH:488:ARG:HH12	1.97	0.76
6:L5:1760:G:N1	6:L5:1772:C:N3	2.34	0.76
80:Sg:195:LEU:HA	80:Sg:211:GLY:HA3	1.67	0.76
6:L5:474:C:O2	6:L5:680:G:N2	2.15	0.76
6:L5:740:G:O6	6:L5:923:C:N4	2.19	0.76
6:L5:1534:A:O2'	41:Lj:11:ARG:NH1	2.18	0.76
58:SK:32:HIS:HB3	58:SK:35:LEU:HB2	1.68	0.76
27:LV:97:TYR:OH	28:LW:37:GLU:OE2	2.03	0.76
6:L5:736:C:O2	6:L5:927:G:N2	2.17	0.76
6:L5:2845:A:H61	6:L5:3843:C:H42	1.32	0.75
49:S2:1743:G:H21	49:S2:1791:A:H62	1.31	0.75
6:L5:1095:A:H2	6:L5:1200:G:H1	1.33	0.75
6:L5:4898:G:N2	6:L5:4922:C:O2	2.17	0.75
57:SJ:50:LEU:HD12	57:SJ:102:ILE:HD13	1.67	0.75
71:SX:49:GLY:O	71:SX:99:GLU:HA	1.86	0.75
2:SA:123:VAL:HG12	2:SA:145:ILE:HB	1.69	0.74
6:L5:181:C:N4	6:L5:255:C:N3	2.35	0.74
76:Sc:60:GLU:OE2	76:Sc:63:ARG:NH1	2.20	0.74
81:DH:785:GLN:HE21	81:DH:838:LEU:C	1.95	0.74
6:L5:490:C:N3	6:L5:664:G:N2	2.35	0.74
49:S2:1091:C:HO2'	70:SW:2:VAL:N	1.85	0.74
81:DH:787:PHE:CD2	81:DH:839:TYR:CD1	2.75	0.74
81:DH:1024:LYS:HA	81:DH:1066:LEU:HD11	1.68	0.74
81:DH:787:PHE:CZ	81:DH:838:LEU:O	2.41	0.74
6:L5:2559:G:N1	6:L5:2568:C:N3	2.34	0.74
81:DH:787:PHE:CE2	81:DH:839:TYR:CD1	2.76	0.73
6:L5:1912:G:H21	20:LO:87:MET:HE1	1.52	0.73
49:S2:540:U:H3	49:S2:543:C:H42	0.78	0.73
41:Lj:36:LYS:HA	41:Lj:45:ARG:HH21	1.54	0.73
81:DH:787:PHE:CD2	81:DH:839:TYR:CE1	2.76	0.73
5:B4:32:U:OP2	64:SQ:146:ARG:NH2	2.22	0.73
49:S2:1285:G:H1'	79:Sf:99:LYS:NZ	2.04	0.73
49:S2:927:C:O2	75:Sb:51:GLN:NE2	2.22	0.73
15:LI:87:ILE:HG22	15:LI:138:ILE:HG12	1.69	0.72
8:L8:94:G:N3	41:Lj:82:THR:OG1	2.22	0.72
66:SS:16:LEU:HD23	66:SS:17:ASN:H	1.52	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:4093:G:H2'	6:L5:4094:G:H8	1.53	0.72
81:DH:125:GLN:HG2	81:DH:488:ARG:HH12	1.52	0.72
6:L5:1070:G:OP2	11:LE:65:ARG:NH2	2.21	0.72
3:LB:10:ARG:HH12	3:LB:14:LEU:HD13	1.53	0.72
26:LU:26:THR:HG22	26:LU:68:SER:HB2	1.70	0.72
6:L5:4313:A:OP1	25:LT:92:ARG:NH2	2.16	0.72
49:S2:190:G:O2'	49:S2:209:A:N6	2.23	0.72
49:S2:1627:C:H5''	67:ST:41:LYS:HD2	1.71	0.72
81:DH:766:LEU:O	81:DH:770:ILE:HG22	1.88	0.72
82:zx:14:LEU:HD21	82:zx:18:LYS:HE3	1.72	0.72
63:SP:86:LEU:H	63:SP:89:MET:HE2	1.54	0.72
12:LF:182:TYR:HB3	12:LF:200:ARG:HG3	1.72	0.71
19:LN:73:ARG:HB3	19:LN:89:VAL:HG23	1.72	0.71
81:DH:553:PHE:CD2	81:DH:614:LEU:HD13	2.24	0.71
6:L5:1552:G:O2'	6:L5:1574:G:N2	2.22	0.71
6:L5:1656:U:OP2	32:La:26:ARG:NH2	2.24	0.71
6:L5:1760:G:N2	6:L5:1772:C:O2	2.16	0.71
6:L5:1899:G:O2'	36:Le:57:ASN:ND2	2.22	0.71
49:S2:1834:A:H2	49:S2:1837:G:H1	1.38	0.71
20:LO:85:ARG:HG3	20:LO:99:LEU:HD11	1.71	0.71
22:LQ:82:VAL:HG11	22:LQ:86:ILE:HD11	1.72	0.71
55:SH:10:LYS:HZ1	55:SH:12:ASN:ND2	1.88	0.71
6:L5:1317:U:OP1	32:La:21:ARG:NH2	2.23	0.71
49:S2:1288:U:H3	49:S2:1311:C:H42	1.38	0.71
63:SP:29:SER:H	63:SP:32:GLN:HE22	1.39	0.71
80:Sg:199:THR:HG21	80:Sg:240:CYS:HA	1.72	0.71
6:L5:2781:G:O2'	43:Ll:3:SER:O	2.09	0.70
55:SH:10:LYS:NZ	55:SH:12:ASN:ND2	2.39	0.70
79:Sf:107:LYS:HB3	79:Sf:115:SER:HB2	1.71	0.70
6:L5:739:G:H2'	6:L5:740:G:C8	2.26	0.70
81:DH:866:ILE:HD13	81:DH:986:ARG:HH12	1.55	0.70
7:L7:61:G:H5''	10:LD:271:MET:HE2	1.72	0.70
6:L5:4901:G:N1	6:L5:4920:C:N3	2.31	0.70
21:LP:135:ARG:HD2	82:zx:4:LEU:HD22	1.72	0.70
49:S2:384:U:O4	56:SI:5:ARG:NH2	2.25	0.70
81:DH:953:GLU:OE2	81:DH:1012:ARG:NH1	2.25	0.70
6:L5:4751:G:N7	37:Lf:52:LYS:NZ	2.40	0.69
55:SH:154:ILE:HB	55:SH:185:VAL:HG12	1.73	0.69
17:LL:56:ARG:O	17:LL:116:ARG:NH2	2.25	0.69
49:S2:1255:G:OP1	49:S2:1256:G:O2'	2.10	0.69
23:LR:135:LYS:HG2	23:LR:139:MET:HE2	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
81:DH:787:PHE:HZ	81:DH:838:LEU:O	1.74	0.69
52:SE:247:THR:OG1	52:SE:250:GLU:OE1	2.10	0.69
6:L5:3672:G:H4'	19:LN:67:ARG:HH12	1.58	0.69
8:L8:55:U:H3	8:L8:62:A:H2	1.37	0.69
1:LA:118:GLU:HG3	1:LA:126:LEU:HD11	1.74	0.69
6:L5:3641:U:OP2	6:L5:3646:A:N6	2.26	0.69
6:L5:3904:G:H1'	82:zx:11:LEU:HD23	1.74	0.69
24:LS:83:ARG:HG3	24:LS:127:MET:HE3	1.73	0.69
49:S2:155:G:H4'	54:SG:15:LEU:HD11	1.74	0.69
49:S2:1779:G:N2	49:S2:1780:G:O6	2.26	0.69
49:S2:1865:C:O2	74:Sa:7:ASN:ND2	2.24	0.69
51:SD:142:LEU:HD13	51:SD:150:MET:HE3	1.74	0.69
72:SY:39:GLU:HA	72:SY:42:GLU:HG2	1.75	0.69
81:DH:872:ILE:HG23	81:DH:946:ILE:HD11	1.74	0.69
64:SQ:132:PHE:CE1	68:SU:76:THR:HA	2.29	0.68
54:SG:54:GLY:O	54:SG:110:ASN:ND2	2.27	0.68
63:SP:13:ARG:NH1	63:SP:14:LYS:O	2.26	0.68
6:L5:2469:C:H5	6:L5:2471:G:H1	1.41	0.68
6:L5:4902:C:O2	6:L5:4919:G:N2	2.18	0.68
49:S2:832:G:N2	49:S2:842:C:O2	2.20	0.68
2:SA:207:PRO:HA	2:SA:210:ILE:HB	1.76	0.68
6:L5:3905:A:C2	82:zx:15:LEU:HD22	2.29	0.68
54:SG:2:LYS:HB2	54:SG:108:VAL:HG22	1.76	0.68
58:SK:20:VAL:HG12	58:SK:70:TYR:HA	1.76	0.68
81:DH:718:LEU:HA	81:DH:721:ILE:HB	1.74	0.68
81:DH:1275:GLU:HB3	81:DH:1285:ARG:HB2	1.76	0.68
49:S2:1488:C:O2'	49:S2:1490:G:OP2	2.12	0.68
9:LC:337:ARG:NH1	11:LE:55:GLY:O	2.27	0.68
6:L5:375:G:OP2	41:Lj:52:LYS:NZ	2.19	0.67
55:SH:145:ARG:NH1	70:SW:49:GLU:OE1	2.27	0.67
81:DH:565:LEU:HD22	81:DH:641:ARG:HH22	1.59	0.67
40:Li:45:ARG:NH1	40:Li:49:GLY:O	2.24	0.67
80:Sg:120:ILE:HB	80:Sg:132:TRP:HB2	1.76	0.67
59:SL:104:LYS:O	71:SX:11:ARG:NH2	2.22	0.67
6:L5:3955:G:N2	6:L5:3966:A:C4	2.63	0.67
63:SP:83:MET:HB3	63:SP:116:LEU:HD13	1.75	0.67
6:L5:1499:C:OP1	22:LQ:150:ARG:NH2	2.28	0.67
19:LN:96:ARG:NH2	19:LN:104:GLU:OE1	2.23	0.67
4:SB:162:ARG:NH2	49:S2:1005:G:OP2	2.28	0.67
65:SR:66:VAL:HG23	65:SR:68:GLY:H	1.58	0.67
6:L5:4122:G:N1	38:Lg:98:GLU:OE2	2.26	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:4452:U:O4	82:zx:21:PRO:HG3	1.94	0.67
69:SV:14:PRO:HG2	69:SV:23:ILE:HD11	1.77	0.67
6:L5:3967:G:O6	6:L5:4055:U:O4	2.12	0.67
49:S2:927:C:H1'	75:Sb:51:GLN:HE21	1.60	0.67
77:Sd:21:CYS:CB	77:Sd:24:CYS:SG	2.80	0.67
3:LB:57:VAL:HG22	3:LB:73:VAL:HG12	1.77	0.67
6:L5:3955:G:C2	6:L5:3966:A:N7	2.63	0.67
50:SC:102:LEU:HD12	50:SC:130:ILE:HG12	1.77	0.67
81:DH:777:LEU:HD22	81:DH:836:ALA:HB1	1.76	0.67
55:SH:163:GLN:O	55:SH:167:GLU:HB2	1.94	0.66
28:LW:83:THR:OG1	54:SG:130:PRO:HB2	1.94	0.66
6:L5:1552:G:HO2'	6:L5:1574:G:N2	1.93	0.66
6:L5:3955:G:C2	6:L5:3966:A:C5	2.84	0.66
6:L5:4040:C:H5'	6:L5:4045:G:H22	1.59	0.66
6:L5:4901:G:N2	6:L5:4920:C:O2	2.19	0.66
16:LJ:90:ARG:NH2	16:LJ:108:GLY:O	2.29	0.66
49:S2:839:C:H41	72:SY:10:ARG:HA	1.60	0.66
81:DH:628:THR:HB	81:DH:683:LEU:HD12	1.76	0.66
6:L5:1270:A:O2'	6:L5:1439:C:O2	2.14	0.66
6:L5:3717:A:H2'	6:L5:3718:A:C8	2.30	0.66
49:S2:197:U:N3	49:S2:202:G:N7	2.43	0.66
12:LF:91:PHE:HB2	12:LF:145:PRO:HG3	1.77	0.66
49:S2:1543:U:OP1	64:SQ:37:ARG:NH1	2.28	0.66
81:DH:125:GLN:CG	81:DH:488:ARG:NH1	2.55	0.66
6:L5:2263:A:OP1	48:Lr:107:ARG:NH2	2.29	0.66
6:L5:1552:G:HO2'	6:L5:1574:G:H22	1.43	0.66
6:L5:1696:C:H41	6:L5:1697:G:H21	1.42	0.66
73:SZ:79:ILE:HB	73:SZ:83:LEU:HD11	1.76	0.66
13:LG:55:VAL:HG12	29:LX:44:PRO:HA	1.77	0.66
33:Lb:72:ILE:HG22	33:Lb:73:LYS:HD2	1.77	0.65
49:S2:878:G:O6	49:S2:908:A:N1	2.29	0.65
66:SS:5:ILE:HA	73:SZ:49:LEU:HG	1.77	0.65
5:C4:12:C:H42	5:C4:23:A:H61	1.44	0.65
50:SC:172:ASN:ND2	57:SJ:95:ASP:OD2	2.30	0.65
80:Sg:67:SER:N	80:Sg:81:GLY:O	2.29	0.65
6:L5:2695:A:OP1	42:Lk:35:LYS:NZ	2.27	0.65
6:L5:2370:A:N7	35:Ld:39:LYS:NZ	2.36	0.65
6:L5:2520:C:O2	6:L5:2640:G:N2	2.30	0.65
67:ST:126:GLN:HB2	67:ST:129:ARG:HH21	1.60	0.65
1:LA:200:ARG:NH1	6:L5:3651:A:OP2	2.30	0.65
6:L5:2611:A:H5'	6:L5:2688:G:H4'	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:LR:172:ARG:NH1	49:S2:909:G:OP1	2.29	0.65
3:LB:213:GLN:NE2	3:LB:285:TYR:O	2.27	0.65
4:SB:122:GLU:HG2	4:SB:140:VAL:HG12	1.79	0.65
6:L5:2601:A:N6	6:L5:2744:A:OP2	2.27	0.65
49:S2:924:G:OP1	61:SN:4:MET:N	2.29	0.65
2:SA:7:VAL:HG13	2:SA:8:LEU:HD12	1.79	0.65
6:L5:3711:A:H2'	6:L5:3712:A:H8	1.60	0.65
6:L5:3717:A:H2'	6:L5:3718:A:H8	1.60	0.65
6:L5:4902:C:N3	6:L5:4919:G:N1	2.33	0.65
49:S2:832:G:N1	49:S2:842:C:N3	2.39	0.65
6:L5:4451:G:C4	82:zx:18:LYS:HE2	2.32	0.65
49:S2:153:G:N3	54:SG:13:GLN:NE2	2.44	0.65
56:SI:57:ALA:HB2	56:SI:183:GLY:HA2	1.79	0.65
70:SW:55:ASP:O	70:SW:57:ARG:NH1	2.30	0.65
81:DH:553:PHE:CZ	81:DH:610:LEU:HB3	2.31	0.65
7:L7:30:C:H5	7:L7:47:G:H1	1.45	0.64
13:LG:176:LYS:NZ	40:Li:43:MET:HE1	2.12	0.64
28:LW:80:ARG:HD3	54:SG:9:ALA:O	1.97	0.64
81:DH:783:TYR:CB	81:DH:846:ASN:OD1	2.45	0.64
6:L5:3971:G:H22	6:L5:4037:C:H42	1.42	0.64
81:DH:785:GLN:O	81:DH:839:TYR:HB3	1.98	0.64
81:DH:1034:LEU:HG	81:DH:1041:PRO:HD2	1.79	0.64
6:L5:4936:G:N7	11:LE:183:ARG:NH2	2.46	0.64
68:SU:56:MET:HE2	68:SU:88:LEU:HD11	1.80	0.64
6:L5:1095:A:N1	6:L5:1200:G:O6	2.31	0.64
6:L5:2573:A:H62	6:L5:2761:U:H3	1.45	0.64
54:SG:20:ASP:HB2	54:SG:22:ARG:HE	1.63	0.64
6:L5:3959:U:O2'	6:L5:3961:G:N7	2.31	0.64
24:LS:76:LYS:NZ	24:LS:100:LEU:O	2.31	0.64
30:LY:31:SER:HA	30:LY:48:PRO:HA	1.80	0.64
4:SB:151:ARG:NH2	49:S2:1102:G:OP2	2.31	0.64
6:L5:2894:A:H62	6:L5:3607:U:H3	1.46	0.64
6:L5:4352:U:H1'	32:La:58:MET:HE1	1.79	0.64
81:DH:785:GLN:HB3	81:DH:841:ASN:CG	2.21	0.64
2:SA:85:ARG:HB3	65:SR:81:ARG:NH1	2.13	0.64
5:C4:10:G:O6	5:C4:44:G:N2	2.30	0.64
1:LA:198:ARG:NH2	6:L5:3688:U:OP2	2.31	0.63
49:S2:370:G:O2'	56:SI:10:LYS:NZ	2.31	0.63
49:S2:1228:A:H2'	49:S2:1229:G:C8	2.33	0.63
49:S2:1550:G:H3'	49:S2:1579:A:H61	1.63	0.63
61:SN:16:LEU:HD12	61:SN:17:PRO:HD2	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:405:U:H5'	30:LY:87:ARG:HH22	1.63	0.63
6:L5:3908:A:N6	82:zx:15:LEU:O	2.30	0.63
53:SF:129:GLY:HA2	53:SF:134:VAL:HA	1.79	0.63
81:DH:588:HIS:ND1	81:DH:590:VAL:O	2.29	0.63
65:SR:36:GLU:OE1	65:SR:47:ARG:NH1	2.30	0.63
81:DH:606:PRO:HG3	81:DH:677:TYR:OH	1.98	0.63
49:S2:165:G:OP2	49:S2:165:G:N2	2.28	0.63
71:SX:98:ASP:OD2	71:SX:140:ARG:NH2	2.31	0.63
81:DH:899:LYS:HE2	81:DH:920:PRO:HD2	1.81	0.63
3:LB:222:VAL:O	3:LB:343:ARG:NH1	2.31	0.63
6:L5:513:U:H3'	6:L5:514:U:H4'	1.81	0.63
6:L5:3955:G:N2	6:L5:3966:A:C5	2.67	0.63
49:S2:1107:G:H1	49:S2:1125:C:H5	1.43	0.63
51:SD:45:ARG:NH2	51:SD:87:TYR:OH	2.31	0.63
6:L5:4898:G:N1	6:L5:4922:C:N3	2.36	0.63
66:SS:23:ARG:NH2	73:SZ:80:ARG:NH2	2.47	0.63
81:DH:1023:MET:HG3	81:DH:1066:LEU:HG	1.81	0.63
2:SA:22:GLY:O	2:SA:164:ASN:ND2	2.32	0.63
6:L5:508:G:O2'	6:L5:510:U:OP2	2.15	0.63
49:S2:1865:C:H1'	74:Sa:7:ASN:HD21	1.63	0.63
53:SF:40:ALA:HB3	53:SF:67:PRO:HA	1.80	0.63
49:S2:1192:U:OP2	71:SX:119:ARG:NH2	2.32	0.62
81:DH:98:ILE:HD11	81:DH:1332:LEU:HD12	1.81	0.62
6:L5:3956:G:N2	6:L5:3957:U:O4	2.32	0.62
28:LW:74:ARG:CD	49:S2:1781:A:H62	2.12	0.62
6:L5:490:C:H2'	6:L5:491:G:C8	2.34	0.62
6:L5:4745:G:H1	6:L5:4955:A:H61	1.45	0.62
64:SQ:19:ALA:HB2	64:SQ:75:GLY:HA3	1.82	0.62
66:SS:23:ARG:NH2	73:SZ:80:ARG:HH21	1.97	0.62
6:L5:2876:G:C8	47:Lp:16:THR:HG22	2.34	0.62
6:L5:4103:C:O2	6:L5:4106:G:N1	2.33	0.62
81:DH:603:THR:OG1	81:DH:642:VAL:HG22	1.98	0.62
6:L5:729:G:N7	24:LS:70:LYS:NZ	2.48	0.62
9:LC:262:GLU:HB3	9:LC:273:LEU:HD13	1.82	0.62
49:S2:71:G:N7	54:SG:170:ARG:NH2	2.47	0.62
62:SO:96:LYS:HD3	62:SO:132:VAL:HG11	1.81	0.62
81:DH:547:GLU:HG3	81:DH:550:ARG:HE	1.64	0.62
81:DH:944:PHE:HD1	81:DH:989:PHE:HB2	1.65	0.62
56:SI:142:SER:HA	56:SI:146:GLN:HB2	1.81	0.62
81:DH:553:PHE:CG	81:DH:614:LEU:HD13	2.35	0.62
81:DH:1054:ARG:NH1	81:DH:1059:CYS:SG	2.72	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:LY:50:ARG:HB2	30:LY:115:ARG:HH22	1.65	0.62
76:Sc:44:ARG:NH1	76:Sc:63:ARG:O	2.31	0.62
80:Sg:124:SER:OG	80:Sg:126:ASP:OD1	2.16	0.62
6:L5:2845:A:H61	6:L5:3843:C:N4	1.98	0.62
49:S2:1286:G:N2	49:S2:1312:G:O2'	2.31	0.62
52:SE:128:LYS:HG2	52:SE:140:VAL:HB	1.82	0.62
5:C4:10:G:N2	5:C4:25:U:O2	2.28	0.62
81:DH:97:ARG:NH2	81:DH:1362:GLU:OE1	2.32	0.62
13:LG:134:PRO:HB3	13:LG:206:GLN:HG3	1.80	0.62
26:LU:23:LEU:HD11	26:LU:83:LEU:HD23	1.81	0.62
49:S2:1354:G:N2	49:S2:1357:A:OP2	2.26	0.62
56:SI:114:GLU:HB3	56:SI:136:ILE:HG21	1.82	0.62
66:SS:70:ILE:HD13	66:SS:77:TYR:HD2	1.65	0.62
6:L5:135:G:N2	39:Lh:100:GLU:OE2	2.32	0.61
6:L5:3973:G:N2	6:L5:3975:C:O2	2.33	0.61
6:L5:5011:A:H2'	6:L5:5012:G:C8	2.35	0.61
13:LG:230:TYR:HA	13:LG:233:ILE:HG12	1.82	0.61
49:S2:634:A:OP1	78:Se:87:ARG:NH1	2.33	0.61
73:SZ:75:GLU:O	73:SZ:78:LYS:NZ	2.32	0.61
2:SA:137:ALA:HB1	2:SA:142:LEU:HB2	1.81	0.61
4:SB:127:VAL:HG21	4:SB:176:VAL:HG11	1.82	0.61
62:SO:45:THR:HG22	62:SO:52:THR:HA	1.83	0.61
6:L5:4875:G:H2'	24:LS:169:THR:HG22	1.81	0.61
13:LG:176:LYS:HZ2	40:Li:43:MET:HE1	1.66	0.61
28:LW:93:LYS:HA	28:LW:96:GLN:HE22	1.64	0.61
49:S2:1313:A:H5''	58:SK:5:LYS:HE3	1.81	0.61
49:S2:1619:A:OP1	63:SP:47:ARG:NE	2.33	0.61
61:SN:46:THR:OG1	61:SN:86:GLU:OE1	2.17	0.61
74:Sa:43:ASN:OD1	74:Sa:66:LYS:NZ	2.33	0.61
1:LA:54:ARG:NH2	6:L5:3680:U:OP1	2.28	0.61
3:LB:384:GLU:OE2	28:LW:14:TYR:OH	2.12	0.61
6:L5:1962:A:H2	6:L5:2024:G:H21	1.48	0.61
6:L5:2444:U:HO2'	8:L8:112:G:HO2'	1.41	0.61
1:LA:30:ARG:O	1:LA:163:ARG:NH2	2.33	0.61
1:LA:117:GLU:HB2	1:LA:162:ASN:HB2	1.80	0.61
6:L5:1756:U:O2'	6:L5:1758:G:OP2	2.18	0.61
9:LC:284:MET:HE2	9:LC:287:THR:HA	1.81	0.61
10:LD:223:PHE:HB3	10:LD:226:TYR:HB2	1.81	0.61
49:S2:1568:C:OP1	67:ST:96:SER:OG	2.18	0.61
66:SS:118:ARG:HE	66:SS:123:LEU:HD21	1.64	0.61
3:LB:348:ARG:HH12	3:LB:351:LEU:HD22	1.64	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:LI:191:ILE:HG12	15:LI:200:ILE:CD1	2.30	0.61
26:LU:47:ILE:HG21	26:LU:56:LEU:HD13	1.83	0.61
56:SI:140:LYS:HD3	56:SI:141:ARG:HG2	1.81	0.61
64:SQ:80:GLN:O	64:SQ:84:ILE:HD12	1.99	0.61
6:L5:1594:C:HO2'	6:L5:1597:G:HO2'	1.49	0.61
3:LB:228:TYR:O	6:L5:2835:A:O2'	2.19	0.61
6:L5:2745:A:H2'	6:L5:2746:A:H8	1.65	0.61
6:L5:4349:C:H5'	6:L5:4350:C:H5'	1.83	0.61
21:LP:39:MET:HE3	21:LP:43:LYS:HE3	1.83	0.61
37:Lf:43:LEU:O	37:Lf:109:ARG:NH1	2.33	0.61
49:S2:588:G:OP2	49:S2:588:G:N2	2.33	0.61
80:Sg:145:GLU:O	80:Sg:175:LYS:NZ	2.29	0.61
6:L5:1521:C:OP1	9:LC:100:ARG:NH2	2.34	0.61
6:L5:4699:U:H1'	6:L5:4700:A:H5''	1.82	0.61
49:S2:1285:G:H1'	79:Sf:99:LYS:HZ1	1.66	0.61
52:SE:80:ILE:HG23	52:SE:81:THR:HG23	1.82	0.61
27:LV:39:ILE:HD12	27:LV:61:VAL:HG21	1.83	0.61
6:L5:1857:C:H2'	6:L5:1858:A:H8	1.65	0.60
6:L5:4139:G:O2'	6:L5:4146:G:N1	2.33	0.60
49:S2:377:G:H5'	56:SI:98:LYS:HB3	1.82	0.60
80:Sg:82:SER:OG	80:Sg:84:ASP:OD1	2.19	0.60
81:DH:785:GLN:CA	81:DH:839:TYR:O	2.49	0.60
6:L5:2295:C:O2'	9:LC:45:ARG:NH2	2.33	0.60
9:LC:71:ARG:HE	82:zx:6:LEU:HG	1.65	0.60
54:SG:85:ARG:O	54:SG:87:ARG:NH1	2.34	0.60
6:L5:690:C:OP1	48:Lr:87:ARG:NH1	2.34	0.60
6:L5:4991:U:H2'	6:L5:4992:G:H8	1.65	0.60
49:S2:202:G:N2	49:S2:202:G:OP2	2.35	0.60
49:S2:579:C:O2	72:SY:61:ARG:NH2	2.35	0.60
49:S2:1563:G:OP1	67:ST:121:ARG:NH1	2.34	0.60
4:SB:136:ARG:HG3	4:SB:218:LEU:HD11	1.81	0.60
6:L5:1175:A:H2	6:L5:1185:G:H22	1.50	0.60
43:Ll:21:ARG:O	43:Ll:38:ASN:ND2	2.35	0.60
51:SD:23:GLU:OE2	51:SD:27:ARG:NH1	2.35	0.60
81:DH:970:VAL:HG21	81:DH:978:ARG:HH22	1.66	0.60
6:L5:19:G:OP2	39:Lh:93:ARG:NH2	2.33	0.60
21:LP:135:ARG:HD3	82:zx:4:LEU:HD22	1.82	0.60
72:SY:117:VAL:O	72:SY:122:LYS:NZ	2.32	0.60
6:L5:1332:C:H2'	6:L5:1333:A:H8	1.65	0.60
6:L5:1391:A:P	22:LQ:181:ARG:HH22	2.24	0.60
6:L5:3970:G:O2'	6:L5:4051:C:O2	2.19	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:4238:G:H2'	6:L5:4239:A:H8	1.64	0.60
6:L5:4474:A:OP2	6:L5:4476:C:N4	2.35	0.60
50:SC:201:GLY:N	50:SC:221:ASP:OD2	2.34	0.60
65:SR:90:ALA:O	65:SR:93:GLN:NE2	2.32	0.60
75:Sb:11:SER:OG	75:Sb:14:GLU:OE1	2.18	0.60
4:SB:28:LYS:NZ	62:SO:51:GLU:OE2	2.34	0.60
6:L5:3664:G:H2'	6:L5:3665:G:H8	1.67	0.60
57:SJ:107:GLU:OE1	57:SJ:116:LYS:NZ	2.35	0.60
70:SW:28:ARG:HG3	70:SW:60:LYS:HE2	1.83	0.60
6:L5:184:U:O2	6:L5:254:G:C6	2.55	0.60
6:L5:2472:A:H1'	29:LX:48:ARG:HB3	1.84	0.60
15:LI:38:ARG:NH1	15:LI:45:GLU:OE1	2.34	0.60
49:S2:1226:G:N1	49:S2:1639:G:OP2	2.32	0.60
59:SL:103:GLU:OE2	71:SX:11:ARG:NH1	2.35	0.60
49:S2:1140:G:H1	49:S2:1147:C:H5	1.50	0.60
80:Sg:116:ASP:O	80:Sg:118:ARG:NH1	2.34	0.60
81:DH:915:ALA:O	81:DH:925:LYS:NZ	2.31	0.60
6:L5:666:G:H22	48:Lr:47:LYS:HE3	1.65	0.60
6:L5:1676:C:O2'	6:L5:3914:U:N3	2.34	0.60
6:L5:2578:G:N7	31:LZ:17:ARG:NH1	2.50	0.60
6:L5:4452:U:N3	82:zx:21:PRO:HG3	2.16	0.60
60:SM:51:VAL:HG12	60:SM:77:ILE:HB	1.84	0.60
66:SS:5:ILE:HB	73:SZ:49:LEU:CB	2.32	0.60
80:Sg:37:ASP:OD1	80:Sg:39:THR:OG1	2.19	0.60
6:L5:2318:G:N2	6:L5:2321:G:OP2	2.33	0.59
6:L5:4478:G:O2'	6:L5:4602:A:N1	2.34	0.59
31:LZ:92:ASP:HB3	31:LZ:95:VAL:HG12	1.82	0.59
64:SQ:43:GLU:OE2	64:SQ:45:ARG:NH1	2.35	0.59
81:DH:785:GLN:CB	81:DH:839:TYR:O	2.50	0.59
31:LZ:125:GLY:O	31:LZ:128:LYS:NZ	2.35	0.59
55:SH:36:LEU:HD21	55:SH:78:ARG:HE	1.67	0.59
66:SS:89:ASP:OD2	66:SS:106:LYS:NZ	2.34	0.59
81:DH:650:ASN:ND2	81:DH:655:ARG:O	2.35	0.59
23:LR:105:LEU:HD22	23:LR:135:LYS:HG3	1.84	0.59
37:Lf:56:ASN:OD1	37:Lf:66:LYS:NZ	2.36	0.59
81:DH:937:ILE:O	81:DH:981:ARG:NH1	2.34	0.59
6:L5:685:C:O5'	11:LE:101:ASN:ND2	2.35	0.59
6:L5:2739:C:H4'	47:Lp:52:VAL:HG21	1.85	0.59
10:LD:41:LYS:NZ	25:LT:32:ARG:O	2.35	0.59
49:S2:1142:G:H21	49:S2:1145:A:H2	1.50	0.59
82:zx:21:PRO:HG2	82:zx:22:PRO:HD3	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:3959:U:O2	6:L5:3960:A:N6	2.35	0.59
6:L5:5006:U:H4'	6:L5:5007:A:H5'	1.83	0.59
49:S2:846:G:OP2	52:SE:108:ARG:NH1	2.31	0.59
60:SM:52:LEU:HD11	60:SM:62:VAL:HG12	1.85	0.59
71:SX:107:ARG:HD3	71:SX:112:VAL:HG12	1.84	0.59
81:DH:843:HIS:HE1	81:DH:844:LYS:HE3	1.66	0.59
81:DH:949:GLY:HA3	81:DH:994:TYR:HE2	1.67	0.59
6:L5:1071:C:HO2'	11:LE:69:TYR:HH	1.50	0.59
6:L5:4139:G:HO2'	6:L5:4146:G:H1	1.50	0.59
48:Lr:82:ILE:HG22	48:Lr:89:THR:HG22	1.85	0.59
49:S2:1113:A:H5''	49:S2:1115:U:H5	1.68	0.59
52:SE:199:GLU:OE2	52:SE:201:HIS:NE2	2.35	0.59
6:L5:3968:U:O4	6:L5:4053:A:O2'	2.19	0.59
6:L5:4274:A:H2'	6:L5:4275:G:H8	1.68	0.59
6:L5:4927:G:H5'	6:L5:4928:C:H5	1.67	0.59
49:S2:1228:A:H2'	49:S2:1229:G:H8	1.68	0.59
49:S2:1536:G:H2'	49:S2:1537:A:H8	1.68	0.59
81:DH:775:PHE:CD1	81:DH:849:LEU:HD13	2.38	0.59
2:SA:85:ARG:HB3	65:SR:81:ARG:HH11	1.66	0.59
6:L5:308:G:OP2	6:L5:308:G:N2	2.30	0.59
6:L5:2758:G:O2'	6:L5:2765:A:N3	2.32	0.59
6:L5:4557:U:O2	82:zx:11:LEU:HG	2.02	0.59
6:L5:4626:A:H62	6:L5:4669:A:H2	1.50	0.59
6:L5:4740:G:O6	6:L5:4959:U:O2	2.20	0.59
7:L7:7:G:OP1	10:LD:33:ARG:NH1	2.36	0.59
27:LV:33:GLY:HA3	27:LV:69:LYS:HE2	1.84	0.59
42:Lk:23:VAL:HG11	42:Lk:60:LEU:HD11	1.85	0.59
49:S2:1391:C:H4'	77:Sd:55:LEU:HD23	1.85	0.59
59:SL:151:THR:HG22	59:SL:152:LYS:H	1.68	0.59
8:L8:22:U:OP1	30:LY:11:ARG:NH1	2.36	0.58
26:LU:56:LEU:HD12	26:LU:61:VAL:HG13	1.85	0.58
64:SQ:52:LEU:HB3	64:SQ:56:LEU:HD13	1.86	0.58
81:DH:787:PHE:HD2	81:DH:839:TYR:CD1	2.15	0.58
8:L8:83:C:H41	30:LY:50:ARG:HE	1.51	0.58
15:LI:87:ILE:HG22	15:LI:138:ILE:HG23	1.84	0.58
49:S2:96:C:H1'	49:S2:474:G:H5'	1.85	0.58
49:S2:1589:A:N3	49:S2:1653:U:O2'	2.32	0.58
53:SF:143:PRO:HA	53:SF:146:ARG:HG2	1.85	0.58
6:L5:4274:A:H2'	6:L5:4275:G:C8	2.38	0.58
23:LR:171:LYS:O	23:LR:174:GLU:HG3	2.03	0.58
26:LU:47:ILE:HD11	26:LU:78:PHE:HZ	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:SK:25:LYS:HA	58:SK:46:MET:HE1	1.85	0.58
80:Sg:166:VAL:HG12	80:Sg:176:VAL:HG22	1.85	0.58
3:LB:165:HIS:HB3	3:LB:180:LEU:HD12	1.85	0.58
3:LB:166:THR:HG22	3:LB:179:HIS:H	1.66	0.58
6:L5:982:U:O2	11:LE:70:LYS:NZ	2.36	0.58
49:S2:1447:G:OP1	68:SU:85:HIS:ND1	2.36	0.58
67:ST:113:VAL:HG12	67:ST:123:LEU:HD23	1.85	0.58
3:LB:224:LYS:NZ	6:L5:4626:A:OP2	2.26	0.58
23:LR:98:ARG:NH2	23:LR:130:ASN:OD1	2.35	0.58
81:DH:1305:GLN:CB	81:DH:1308:GLU:HG2	2.34	0.58
6:L5:229:G:H5''	30:LY:11:ARG:HG3	1.84	0.58
6:L5:3617:G:OP1	28:LW:44:ARG:NH2	2.37	0.58
6:L5:1253:G:O2'	6:L5:1257:A:N6	2.35	0.58
6:L5:4672:A:OP1	27:LV:15:ARG:NH2	2.35	0.58
27:LV:45:ILE:HG21	27:LV:53:PRO:HB3	1.86	0.58
49:S2:94:G:O2'	49:S2:508:A:O2'	2.21	0.58
49:S2:888:U:H1'	49:S2:889:U:H2'	1.85	0.58
49:S2:1464:C:OP1	65:SR:63:ARG:NH2	2.32	0.58
6:L5:1646:A:O2'	41:Lj:49:TRP:O	2.22	0.58
6:L5:3955:G:C2	6:L5:3966:A:C8	2.91	0.58
48:Lr:28:GLU:OE2	48:Lr:31:ASN:ND2	2.36	0.58
81:DH:700:ILE:HG12	81:DH:731:ILE:HD11	1.84	0.58
6:L5:4220:A:H2'	6:L5:4222:G:H5''	1.86	0.58
10:LD:208:MET:HG3	10:LD:233:PRO:HG3	1.85	0.58
49:S2:803:C:H41	49:S2:860:G:H1	1.52	0.58
49:S2:1536:G:H2'	49:S2:1537:A:C8	2.39	0.58
49:S2:1619:A:OP2	63:SP:47:ARG:NH2	2.37	0.58
81:DH:785:GLN:HG2	81:DH:839:TYR:C	2.28	0.58
81:DH:1054:ARG:NH1	81:DH:1060:GLU:O	2.36	0.58
6:L5:279:A:OP2	19:LN:8:GLN:NE2	2.37	0.57
49:S2:1101:U:H2'	49:S2:1102:G:H8	1.68	0.57
6:L5:188:G:N2	6:L5:190:G:O6	2.37	0.57
6:L5:4431:U:OP2	15:LI:3:ARG:NH2	2.37	0.57
6:L5:5026:U:O2	6:L5:5027:C:N4	2.38	0.57
81:DH:553:PHE:HB3	81:DH:614:LEU:CD1	2.34	0.57
81:DH:1091:ILE:HD12	81:DH:1343:LYS:HD3	1.86	0.57
8:L8:96:C:H5''	39:Lh:66:LYS:HD2	1.86	0.57
9:LC:195:LYS:HB3	9:LC:200:ARG:HD2	1.86	0.57
12:LF:105:VAL:HG13	12:LF:136:VAL:HG12	1.85	0.57
28:LW:101:ARG:CZ	54:SG:146:ASN:HD21	2.17	0.57
73:SZ:95:GLY:O	73:SZ:112:ASN:ND2	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:LD:62:CYS:HB3	10:LD:105:LEU:HD22	1.85	0.57
42:Lk:54:GLU:OE2	42:Lk:58:GLN:NE2	2.31	0.57
49:S2:197:U:OP2	49:S2:203:G:N2	2.37	0.57
42:Lk:37:ARG:HH11	42:Lk:42:LEU:HB2	1.69	0.57
58:SK:31:LYS:NZ	58:SK:39:ASN:OD1	2.37	0.57
3:LB:147:GLU:OE2	3:LB:198:ARG:NH2	2.33	0.57
6:L5:74:G:H5''	17:LL:59:VAL:HB	1.85	0.57
6:L5:2557:G:O6	6:L5:2570:U:O4	2.23	0.57
6:L5:3663:A:N6	6:L5:4168:G:O2'	2.37	0.57
6:L5:4472:G:O2'	44:Lm:100:TYR:O	2.23	0.57
11:LE:46:ARG:O	11:LE:65:ARG:NH1	2.38	0.57
14:LH:51:LYS:HE3	14:LH:52:LYS:HG3	1.85	0.57
31:LZ:33:THR:OG1	31:LZ:35:ASP:OD1	2.22	0.57
52:SE:100:ARG:HG2	52:SE:114:ILE:HD13	1.86	0.57
58:SK:80:ARG:HD3	58:SK:87:PRO:HA	1.87	0.57
64:SQ:132:PHE:CD1	68:SU:77:TRP:HD1	2.22	0.57
81:DH:552:LEU:HD12	81:DH:555:LYS:HE3	1.86	0.57
81:DH:1097:PRO:HB2	81:DH:1216:LEU:HD11	1.85	0.57
6:L5:4299:U:OP1	33:Lb:33:LYS:NZ	2.38	0.57
10:LD:42:ASN:ND2	25:LT:69:GLN:OE1	2.37	0.57
12:LF:171:ASP:OD1	12:LF:172:ASN:N	2.37	0.57
18:LM:39:ASP:HB3	18:LM:47:ARG:HA	1.86	0.57
6:L5:136:C:H5''	39:Lh:96:ASN:HD22	1.69	0.57
49:S2:955:A:N6	49:S2:971:G:O2'	2.35	0.57
6:L5:37:U:H4'	32:La:32:ARG:HD2	1.85	0.57
6:L5:179:G:N1	6:L5:258:G:O6	2.37	0.57
6:L5:404:U:O3'	30:LY:87:ARG:NH2	2.38	0.57
64:SQ:86:GLN:HE22	64:SQ:122:ALA:HA	1.68	0.57
66:SS:98:VAL:HG11	66:SS:106:LYS:HG3	1.86	0.57
68:SU:38:ASP:OD1	68:SU:41:ARG:NH2	2.37	0.57
27:LV:13:LYS:HD2	27:LV:128:LEU:HD11	1.87	0.57
47:Lp:33:GLN:HB3	47:Lp:69:TRP:HB3	1.87	0.57
49:S2:107:A:H2'	49:S2:108:G:C8	2.39	0.57
49:S2:1746:U:OP1	54:SG:31:ARG:NH2	2.37	0.57
4:SB:198:GLU:HB2	4:SB:210:VAL:HG21	1.86	0.56
6:L5:513:U:N3	6:L5:516:C:OP2	2.37	0.56
6:L5:1279:A:O2'	9:LC:323:ARG:NH1	2.38	0.56
6:L5:1326:A:OP2	6:L5:4445:U:O2'	2.22	0.56
49:S2:928:G:H2'	49:S2:929:G:C8	2.40	0.56
49:S2:1230:C:OP1	66:SS:130:ARG:NH2	2.38	0.56
49:S2:1588:A:HO2'	49:S2:1589:A:H8	1.47	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
51:SD:72:VAL:HG21	58:SK:70:TYR:HE1	1.69	0.56
52:SE:42:LEU:HG	52:SE:46:ILE:HD11	1.87	0.56
56:SI:76:THR:HG22	56:SI:108:PRO:HG2	1.87	0.56
81:DH:148:THR:HG21	81:DH:158:ALA:HA	1.87	0.56
81:DH:765:HIS:HB3	81:DH:995:THR:HA	1.86	0.56
81:DH:783:TYR:HB2	81:DH:846:ASN:OD1	2.04	0.56
6:L5:512:U:O4	6:L5:647:G:O6	2.23	0.56
6:L5:1524:A:H61	6:L5:1651:G:H22	1.53	0.56
27:LV:120:PRO:HD3	28:LW:24:THR:O	2.05	0.56
49:S2:1277:C:O3'	58:SK:55:ARG:NH1	2.32	0.56
2:SA:24:HIS:HB3	2:SA:51:LEU:HD11	1.87	0.56
3:LB:58:ARG:NH1	3:LB:361:GLU:OE2	2.38	0.56
3:LB:80:GLU:OE2	3:LB:328:ASN:ND2	2.38	0.56
6:L5:1070:G:P	11:LE:65:ARG:HH21	2.27	0.56
6:L5:1942:A:H2'	6:L5:1943:A:H8	1.70	0.56
6:L5:3757:G:O2'	6:L5:3758:U:O5'	2.16	0.56
15:LI:93:PRO:HB2	15:LI:125:THR:HG22	1.87	0.56
47:Lp:7:LYS:O	47:Lp:27:LYS:NZ	2.39	0.56
49:S2:500:A:H5'	49:S2:501:C:H5	1.71	0.56
49:S2:552:G:H2'	49:S2:553:U:C6	2.40	0.56
49:S2:1594:A:N7	73:SZ:104:ARG:HD2	2.20	0.56
49:S2:1743:G:N2	49:S2:1791:A:H62	2.01	0.56
52:SE:44:LEU:HD21	52:SE:70:ILE:HG21	1.86	0.56
6:L5:4537:C:H2'	6:L5:4538:G:H8	1.69	0.56
31:LZ:36:ARG:NH1	31:LZ:38:TYR:OH	2.34	0.56
49:S2:1752:C:O2	49:S2:1781:A:O2'	2.24	0.56
59:SL:35:ARG:NH2	59:SL:55:TYR:O	2.29	0.56
81:DH:1232:ILE:HD11	81:DH:1248:GLU:HB2	1.86	0.56
6:L5:736:C:OP1	18:LM:74:ARG:NH2	2.34	0.56
6:L5:968:C:OP2	11:LE:110:ARG:NH1	2.39	0.56
6:L5:2744:A:H2'	6:L5:2745:A:C8	2.40	0.56
7:L7:117:G:OP1	10:LD:253:TYR:OH	2.23	0.56
11:LE:178:PRO:HB3	11:LE:258:LEU:HD21	1.86	0.56
49:S2:334:C:OP2	54:SG:190:ARG:NH2	2.38	0.56
53:SF:77:MET:HB3	53:SF:89:THR:HG21	1.88	0.56
57:SJ:132:GLN:HG3	57:SJ:134:HIS:HD2	1.71	0.56
81:DH:120:THR:HG22	81:DH:122:LYS:H	1.70	0.56
81:DH:125:GLN:HG2	81:DH:488:ARG:HH11	1.66	0.56
1:LA:223:SER:OG	6:L5:3748:A:O2'	2.24	0.56
6:L5:2517:A:H5'	38:Lg:62:LYS:HD3	1.86	0.56
6:L5:4238:G:H2'	6:L5:4239:A:C8	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:La:38:LEU:O	32:La:42:ARG:NH1	2.39	0.56
49:S2:562:U:H4'	57:SJ:132:GLN:HB2	1.88	0.56
62:SO:84:ARG:NH1	62:SO:87:GLU:OE2	2.33	0.56
81:DH:874:LEU:HD23	81:DH:879:HIS:HB3	1.86	0.56
4:SB:57:ILE:HG23	4:SB:60:ASP:HB2	1.87	0.56
6:L5:3611:A:H2	6:L5:5016:A:H8	1.52	0.56
49:S2:1113:A:H61	49:S2:1120:U:H3	1.51	0.56
54:SG:67:VAL:HG21	54:SG:99:GLY:HA2	1.87	0.56
3:LB:80:GLU:OE1	3:LB:323:TYR:OH	2.20	0.56
6:L5:4108:G:H2'	6:L5:4109:G:C8	2.41	0.56
11:LE:157:HIS:HB3	11:LE:160:LYS:HD2	1.87	0.56
21:LP:10:ASN:OD1	21:LP:12:THR:OG1	2.24	0.56
48:Lr:97:ILE:HD13	48:Lr:107:ARG:HA	1.87	0.56
80:Sg:219:TRP:HD1	80:Sg:226:HIS:HA	1.71	0.56
81:DH:787:PHE:HE2	81:DH:839:TYR:CD1	2.19	0.56
6:L5:1887:G:OP2	37:Lf:19:ARG:NH2	2.38	0.56
6:L5:3951:G:H1	6:L5:4060:U:H3	1.54	0.56
6:L5:4860:G:H4'	20:LO:169:ARG:NH1	2.20	0.56
6:L5:4954:G:H2'	6:L5:4955:A:H8	1.71	0.56
24:LS:147:ASP:HB3	24:LS:150:ILE:HB	1.87	0.56
49:S2:124:U:OP1	52:SE:148:ARG:NH1	2.37	0.56
81:DH:131:LEU:HD12	81:DH:141:ILE:HG23	1.88	0.56
9:LC:101:MET:SD	9:LC:104:PRO:HA	2.46	0.56
49:S2:629:A:O2'	49:S2:631:U:OP1	2.24	0.56
49:S2:847:A:OP1	52:SE:108:ARG:NH2	2.39	0.56
49:S2:1094:C:O2	70:SW:16:ASN:ND2	2.39	0.56
56:SI:11:ARG:O	59:SL:136:LYS:NZ	2.37	0.56
67:ST:42:HIS:ND1	67:ST:93:SER:OG	2.39	0.56
81:DH:85:ILE:HD12	81:DH:1320:GLN:HB2	1.87	0.56
81:DH:664:ARG:HG2	81:DH:665:MET:HG3	1.88	0.56
28:LW:101:ARG:HH22	54:SG:146:ASN:CG	2.13	0.55
49:S2:1317:C:H2'	49:S2:1318:G:H8	1.71	0.55
52:SE:18:TRP:HH2	52:SE:31:PRO:HD3	1.71	0.55
75:Sb:42:LYS:HZ3	75:Sb:58:GLY:H	1.53	0.55
81:DH:1357:LEU:HD12	81:DH:1360:ILE:HD11	1.87	0.55
1:LA:174:ARG:NH1	6:L5:2739:C:O2	2.38	0.55
6:L5:4537:C:H2'	6:L5:4538:G:C8	2.41	0.55
6:L5:4992:G:H2'	6:L5:4993:G:C8	2.41	0.55
47:Lp:38:THR:HA	47:Lp:45:THR:HA	1.87	0.55
49:S2:363:A:N6	49:S2:400:C:O2'	2.38	0.55
49:S2:534:G:H2'	49:S2:535:G:C8	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
65:SR:114:LEU:HB3	65:SR:117:LEU:HD23	1.87	0.55
6:L5:2848:G:O2'	6:L5:3838:U:O4	2.22	0.55
6:L5:3965:A:H61	6:L5:4043:G:H1	1.54	0.55
28:LW:71:ARG:NH1	28:LW:72:THR:O	2.40	0.55
49:S2:981:A:H2'	49:S2:982:G:C8	2.41	0.55
60:SM:45:ARG:NH2	60:SM:73:GLN:OE1	2.39	0.55
80:Sg:42:MET:HB3	80:Sg:57:ARG:HB2	1.87	0.55
81:DH:550:ARG:NH1	81:DH:616:ASN:O	2.38	0.55
2:SA:50:ASN:HB3	2:SA:53:ARG:HD2	1.88	0.55
6:L5:727:C:OP1	12:LF:73:ARG:NH2	2.39	0.55
6:L5:1333:A:H2'	6:L5:1334:A:C8	2.42	0.55
6:L5:2745:A:H2'	6:L5:2746:A:C8	2.41	0.55
11:LE:141:ARG:NH2	11:LE:191:GLN:O	2.40	0.55
52:SE:141:THR:OG1	52:SE:143:ASP:O	2.24	0.55
53:SF:108:PRO:HA	53:SF:111:VAL:HG12	1.89	0.55
58:SK:27:VAL:HG23	58:SK:43:LEU:HD13	1.88	0.55
81:DH:1056:ILE:HG23	81:DH:1084:LYS:HE3	1.88	0.55
3:LB:182:GLU:OE2	6:L5:4580:U:O2'	2.20	0.55
6:L5:668:C:O2'	6:L5:669:C:H5''	2.07	0.55
17:LL:80:GLU:OE2	17:LL:102:ARG:NH2	2.40	0.55
24:LS:15:ARG:HB3	24:LS:27:LEU:HD23	1.89	0.55
24:LS:19:THR:HG22	24:LS:21:LYS:H	1.72	0.55
49:S2:29:G:OP1	71:SX:124:LYS:NZ	2.35	0.55
49:S2:1256:G:C8	77:Sd:29:GLY:HA2	2.42	0.55
79:Sf:100:LEU:HB3	79:Sf:103:LEU:HD13	1.87	0.55
6:L5:2898:G:OP2	23:LR:135:LYS:NZ	2.39	0.55
20:LO:83:THR:O	20:LO:87:MET:HG2	2.07	0.55
29:LX:64:SER:HB2	39:Lh:69:LEU:HD23	1.88	0.55
49:S2:1632:G:OP1	66:SS:34:LYS:NZ	2.40	0.55
81:DH:557:GLN:CD	81:DH:611:GLU:HG2	2.31	0.55
6:L5:518:G:H1	6:L5:643:C:H2'	1.71	0.55
39:Lh:91:MET:HA	39:Lh:94:ARG:HG3	1.88	0.55
49:S2:1398:G:H1'	80:Sg:63:SER:HB2	1.89	0.55
81:DH:111:ASP:N	81:DH:111:ASP:OD1	2.40	0.55
6:L5:4691:A:H5'	14:LH:71:ARG:HH11	1.72	0.55
18:LM:122:ILE:HG21	20:LO:189:ILE:HD11	1.89	0.55
49:S2:94:G:HO2'	49:S2:508:A:HO2'	1.52	0.55
67:ST:111:LYS:O	67:ST:126:GLN:NE2	2.39	0.55
81:DH:94:LEU:HA	81:DH:97:ARG:HD3	1.88	0.55
81:DH:843:HIS:ND1	81:DH:844:LYS:HG3	2.22	0.55
81:DH:1086:LEU:HD11	81:DH:1181:LEU:HD13	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:SA:77:ILE:HB	2:SA:124:VAL:HG12	1.89	0.55
6:L5:3798:U:OP2	27:LV:74:LYS:NZ	2.39	0.55
6:L5:4139:G:H4'	6:L5:4146:G:H22	1.71	0.55
27:LV:107:ASN:HD21	27:LV:109:LYS:HG2	1.72	0.55
49:S2:1324:G:H1	49:S2:1504:U:H3	1.53	0.55
81:DH:592:VAL:HG22	81:DH:732:LEU:HD22	1.89	0.55
81:DH:1068:PRO:O	81:DH:1072:HIS:ND1	2.40	0.55
6:L5:2378:G:N2	6:L5:2381:A:OP2	2.39	0.55
6:L5:3969:G:O2'	6:L5:4054:C:N4	2.39	0.55
6:L5:4280:A:N6	10:LD:28:THR:O	2.38	0.55
49:S2:552:G:OP2	78:Se:113:ASN:ND2	2.40	0.55
49:S2:1556:A:N1	77:Sd:18:SER:OG	2.35	0.55
6:L5:1174:G:H1	6:L5:1186:U:H3	1.53	0.54
6:L5:1912:G:N2	20:LO:87:MET:HE1	2.20	0.54
6:L5:2899:C:OP1	23:LR:108:ARG:NH2	2.36	0.54
6:L5:4260:U:H2'	6:L5:4261:C:C6	2.42	0.54
7:L7:12:U:O3'	7:L7:109:U:O2'	2.23	0.54
13:LG:161:VAL:HG11	13:LG:200:THR:HG23	1.89	0.54
20:LO:130:LYS:HB2	20:LO:133:ARG:HG2	1.88	0.54
32:La:72:THR:HG22	32:La:110:LYS:HB3	1.89	0.54
49:S2:957:A:H2'	49:S2:958:G:H21	1.71	0.54
49:S2:1403:C:H41	49:S2:1433:C:H2'	1.72	0.54
57:SJ:128:VAL:O	57:SJ:132:GLN:HG2	2.06	0.54
81:DH:828:LYS:HG3	81:DH:829:TYR:CE1	2.42	0.54
2:SA:37:TYR:OH	2:SA:57:LYS:NZ	2.40	0.54
6:L5:474:C:H2'	6:L5:475:G:C8	2.42	0.54
6:L5:2300:A:N7	9:LC:143:ARG:NH1	2.55	0.54
6:L5:2579:G:N2	6:L5:2582:A:OP2	2.37	0.54
6:L5:4260:U:H2'	6:L5:4261:C:H6	1.72	0.54
15:LI:191:ILE:CG1	15:LI:200:ILE:HD11	2.38	0.54
6:L5:184:U:O2'	6:L5:189:G:O4'	2.25	0.54
56:SI:48:VAL:HG11	56:SI:54:LYS:HE3	1.89	0.54
81:DH:612:ASP:OD1	81:DH:613:LEU:N	2.41	0.54
6:L5:453:G:H4'	6:L5:454:U:H5'	1.88	0.54
6:L5:2833:A:OP1	35:Ld:44:ARG:NH2	2.41	0.54
6:L5:4765:G:OP1	14:LH:23:ARG:NE	2.41	0.54
6:L5:4941:G:OP2	11:LE:188:ARG:NH2	2.41	0.54
7:L7:119:U:H2'	10:LD:261:VAL:HG11	1.89	0.54
2:SA:118:GLU:HG3	50:SC:65:LYS:HE3	1.89	0.54
6:L5:1414:C:H2'	6:L5:1415:G:H8	1.73	0.54
6:L5:2876:G:OP1	47:Lp:8:VAL:HG22	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
46:Lo:36:GLN:OE1	46:Lo:40:ARG:NH2	2.40	0.54
49:S2:64:A:N6	49:S2:83:A:OP2	2.40	0.54
49:S2:907:G:H2'	49:S2:908:A:C8	2.43	0.54
1:LA:65:ASP:OD2	1:LA:72:ARG:NH1	2.40	0.54
6:L5:72:C:H5	17:LL:67:HIS:HD1	1.55	0.54
6:L5:119:G:OP1	13:LG:132:ARG:NH2	2.41	0.54
6:L5:318:A:H2'	6:L5:319:A:H8	1.73	0.54
6:L5:1914:C:H4'	20:LO:89:PRO:HD3	1.89	0.54
6:L5:4522:G:O2'	6:L5:4525:C:OP2	2.23	0.54
6:L5:4967:A:H2'	6:L5:4968:A:H8	1.73	0.54
49:S2:562:U:H2'	49:S2:563:G:C8	2.43	0.54
49:S2:1608:U:OP1	66:SS:134:GLN:NE2	2.41	0.54
58:SK:65:ARG:NH1	77:Sd:21:CYS:O	2.41	0.54
80:Sg:62:HIS:NE2	80:Sg:80:SER:OG	2.29	0.54
81:DH:364:VAL:HG22	81:DH:429:LEU:HB2	1.89	0.54
81:DH:842:PRO:O	81:DH:950:ARG:NH1	2.41	0.54
81:DH:1069:LEU:HA	81:DH:1344:LEU:HD11	1.88	0.54
6:L5:3973:G:N2	6:L5:3974:G:O6	2.40	0.54
6:L5:4991:U:H2'	6:L5:4992:G:C8	2.43	0.54
9:LC:71:ARG:HH21	82:zx:6:LEU:HG	1.72	0.54
59:SL:135:SER:OG	59:SL:136:LYS:N	2.40	0.54
63:SP:136:THR:HG23	63:SP:138:SER:H	1.72	0.54
80:Sg:39:THR:HG22	80:Sg:60:ARG:HG2	1.89	0.54
5:C4:34:G:O2'	49:S2:1641:A:OP1	2.25	0.54
6:L5:3964:U:O2'	6:L5:3966:A:O4'	2.22	0.54
28:LW:101:ARG:NH2	54:SG:146:ASN:HD21	2.05	0.54
42:Lk:49:ASP:HB3	42:Lk:52:LYS:HB2	1.90	0.54
81:DH:960:SER:HB2	81:DH:1251:GLN:HB3	1.89	0.54
6:L5:3616:U:H3'	28:LW:44:ARG:HH12	1.72	0.54
6:L5:4076:G:OP1	13:LG:73:ARG:NE	2.32	0.54
10:LD:205:ALA:HA	10:LD:208:MET:HE3	1.89	0.54
28:LW:101:ARG:NH2	54:SG:146:ASN:ND2	2.56	0.54
35:Ld:64:ILE:HG23	35:Ld:68:LEU:HD23	1.90	0.54
49:S2:1606:G:H22	49:S2:1632:G:H2'	1.73	0.54
81:DH:715:LEU:HD22	81:DH:1038:LEU:HD11	1.89	0.54
81:DH:769:ILE:HA	81:DH:773:THR:HG23	1.90	0.54
81:DH:1306:HIS:CD2	81:DH:1306:HIS:H	2.25	0.54
6:L5:730:G:OP2	12:LF:76:ARG:NE	2.40	0.54
6:L5:1962:A:OP2	6:L5:2024:G:N2	2.41	0.54
6:L5:2702:C:OP1	26:LU:101:ARG:NH2	2.41	0.54
14:LH:31:ARG:HD2	14:LH:188:GLN:HE22	1.71	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:LH:120:GLU:OE1	14:LH:124:ARG:NH2	2.40	0.54
20:LO:61:ARG:HA	20:LO:70:PRO:HD2	1.89	0.54
24:LS:127:MET:HE1	25:LT:155:PRO:HA	1.88	0.54
49:S2:145:G:H2'	49:S2:146:G:C8	2.43	0.54
49:S2:1759:G:N2	49:S2:1773:C:OP1	2.31	0.54
81:DH:413:ARG:HG2	81:DH:423:VAL:HG22	1.90	0.54
6:L5:1095:A:C2	6:L5:1200:G:N1	2.65	0.53
6:L5:1333:A:H2'	6:L5:1334:A:H8	1.73	0.53
6:L5:2559:G:O6	6:L5:2568:C:N4	2.40	0.53
13:LG:99:ALA:HB1	13:LG:136:LEU:HD11	1.90	0.53
31:LZ:11:VAL:HG12	31:LZ:82:PRO:HA	1.90	0.53
49:S2:16:G:H2'	49:S2:17:C:C6	2.43	0.53
57:SJ:132:GLN:HG3	57:SJ:134:HIS:CD2	2.43	0.53
6:L5:1700:G:H5'	6:L5:1701:A:H5''	1.91	0.53
6:L5:4094:G:H3'	6:L5:4095:G:H8	1.73	0.53
6:L5:4239:A:H2'	6:L5:4240:G:C8	2.44	0.53
9:LC:192:GLY:O	9:LC:195:LYS:NZ	2.40	0.53
48:Lr:26:SER:OG	48:Lr:28:GLU:OE1	2.22	0.53
49:S2:589:G:OP2	81:DH:123:LYS:NZ	2.36	0.53
50:SC:77:SER:OG	50:SC:80:GLU:OE1	2.19	0.53
3:LB:97:ARG:NH2	6:L5:4911:A:OP1	2.38	0.53
4:SB:214:LYS:NZ	49:S2:943:U:OP1	2.39	0.53
5:C4:62:C:H2'	5:C4:63:G:H8	1.73	0.53
6:L5:1755:C:H1'	10:LD:2:GLY:HA3	1.90	0.53
6:L5:1503:A:H4'	6:L5:1504:G:H5'	1.90	0.53
6:L5:2017:A:H5''	6:L5:2018:C:H5	1.73	0.53
6:L5:4304:A:OP2	6:L5:4305:G:N2	2.40	0.53
21:LP:52:THR:HG23	21:LP:85:LYS:HG3	1.91	0.53
44:Lm:94:MET:HB3	44:Lm:103:LEU:HB2	1.90	0.53
49:S2:323:C:H2'	49:S2:327:G:H22	1.72	0.53
49:S2:1130:G:OP2	49:S2:1130:G:N2	2.39	0.53
49:S2:1521:C:OP2	66:SS:136:THR:OG1	2.25	0.53
50:SC:169:TYR:OH	50:SC:175:GLY:O	2.24	0.53
62:SO:31:CYS:HB2	62:SO:93:LEU:HD13	1.90	0.53
63:SP:52:LYS:HB3	63:SP:80:LEU:HD21	1.90	0.53
81:DH:624:ASN:HB3	81:DH:696:VAL:HA	1.91	0.53
6:L5:1930:U:OP2	20:LO:49:ARG:NH1	2.40	0.53
6:L5:3809:G:OP2	6:L5:3809:G:N2	2.30	0.53
7:L7:54:A:O4'	16:LJ:10:ASN:ND2	2.42	0.53
26:LU:84:LYS:HE3	26:LU:102:VAL:HG13	1.91	0.53
34:Lc:50:ASN:OD1	34:Lc:76:GLY:N	2.42	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:1217:A:H2'	49:S2:1218:C:C6	2.44	0.53
66:SS:104:ASP:OD1	66:SS:105:ASN:N	2.42	0.53
80:Sg:86:THR:HG22	80:Sg:102:VAL:HG12	1.89	0.53
80:Sg:87:LEU:HD21	80:Sg:108:VAL:HG11	1.91	0.53
81:DH:787:PHE:CE2	81:DH:838:LEU:O	2.60	0.53
81:DH:1086:LEU:HD23	81:DH:1098:VAL:HG12	1.90	0.53
5:C4:33:A:O5'	53:SF:127:ARG:NH2	2.42	0.53
6:L5:667:A:OP1	48:Lr:46:ARG:NH1	2.39	0.53
6:L5:1079:C:O2	6:L5:1221:G:N1	2.39	0.53
6:L5:1245:C:H2'	6:L5:1246:G:H8	1.73	0.53
6:L5:2495:U:H2'	6:L5:2496:G:H8	1.74	0.53
49:S2:60:A:N3	49:S2:316:G:O2'	2.40	0.53
49:S2:1480:A:O2'	77:Sd:56:ASP:O	2.20	0.53
59:SL:111:VAL:HG12	59:SL:140:PHE:HB2	1.91	0.53
68:SU:31:SER:HB2	68:SU:107:GLU:HG2	1.90	0.53
81:DH:1231:ILE:HD11	81:DH:1271:LEU:HD13	1.91	0.53
6:L5:162:A:H2'	6:L5:163:A:H8	1.74	0.53
6:L5:2495:U:H2'	6:L5:2496:G:C8	2.43	0.53
14:LH:174:LYS:HG2	14:LH:175:PHE:H	1.72	0.53
68:SU:22:ILE:HG22	68:SU:114:VAL:HG22	1.90	0.53
6:L5:1669:A:N3	6:L5:1852:U:O2'	2.36	0.53
9:LC:334:THR:HA	9:LC:337:ARG:HG2	1.91	0.53
13:LG:184:ILE:HG21	13:LG:190:LEU:HD13	1.91	0.53
64:SQ:41:MET:HE1	67:ST:9:VAL:C	2.34	0.53
66:SS:70:ILE:HD13	66:SS:77:TYR:CD2	2.43	0.53
3:LB:45:ALA:H	3:LB:183:ILE:HG23	1.73	0.53
6:L5:703:G:H2'	6:L5:704:C:H4'	1.91	0.53
10:LD:211:LEU:HB3	10:LD:219:TYR:HB2	1.90	0.53
51:SD:103:GLU:OE2	51:SD:173:ARG:NE	2.35	0.53
80:Sg:123:GLY:HA2	80:Sg:129:ILE:HG22	1.90	0.53
81:DH:860:SER:HB3	81:DH:863:PHE:HB2	1.90	0.53
6:L5:1942:A:H2'	6:L5:1943:A:C8	2.43	0.53
6:L5:4620:U:OP2	6:L5:4670:C:N4	2.38	0.53
6:L5:4688:C:O2'	14:LH:155:SER:OG	2.26	0.53
47:Lp:39:CYS:HB3	47:Lp:42:CYS:SG	2.48	0.53
6:L5:4039:G:N2	6:L5:4050:A:O2'	2.30	0.52
9:LC:330:PRO:HG3	12:LF:47:ARG:NH2	2.24	0.52
21:LP:122:ALA:HB3	21:LP:143:PRO:HG2	1.91	0.52
37:Lf:40:GLU:O	37:Lf:109:ARG:NH2	2.41	0.52
49:S2:681:U:H4'	71:SX:9:THR:HG22	1.91	0.52
80:Sg:212:LYS:HA	80:Sg:235:ILE:HG13	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:LA:101:VAL:HG22	1:LA:165:VAL:HG22	1.91	0.52
6:L5:1266:G:N1	33:Lb:94:ASP:OD1	2.42	0.52
6:L5:3873:G:H2'	6:L5:3874:G:C8	2.44	0.52
6:L5:4122:G:N2	31:LZ:135:ARG:O	2.38	0.52
6:L5:4128:A:H3'	6:L5:4129:G:H8	1.73	0.52
81:DH:1305:GLN:HB2	81:DH:1308:GLU:HG2	1.92	0.52
6:L5:178:C:H42	6:L5:259:C:H42	1.57	0.52
6:L5:1270:A:OP1	33:Lb:107:ARG:NH2	2.42	0.52
6:L5:1534:A:HO2'	41:Lj:11:ARG:NH1	2.06	0.52
16:LJ:43:LEU:HD13	16:LJ:117:ILE:HD11	1.92	0.52
6:L5:1517:G:H22	9:LC:103:ALA:HA	1.73	0.52
6:L5:1933:G:H2'	6:L5:1934:A:C8	2.44	0.52
6:L5:3855:C:H2'	6:L5:3856:A:H8	1.73	0.52
14:LH:89:ARG:NH2	14:LH:187:VAL:O	2.42	0.52
22:LQ:124:ASP:N	22:LQ:124:ASP:OD1	2.42	0.52
65:SR:21:TYR:HE1	65:SR:58:MET:HE1	1.73	0.52
19:LN:155:VAL:O	19:LN:162:ARG:NH2	2.42	0.52
26:LU:61:VAL:HG23	26:LU:74:SER:HB2	1.92	0.52
34:Lc:38:ILE:HG21	34:Lc:63:TYR:HB3	1.91	0.52
49:S2:1597:C:OP2	73:SZ:85:ARG:NH1	2.36	0.52
80:Sg:219:TRP:CD1	80:Sg:226:HIS:HA	2.44	0.52
81:DH:367:PHE:N	81:DH:435:GLN:OE1	2.43	0.52
1:LA:244:GLY:HA3	6:L5:3746:A:H5''	1.92	0.52
4:SB:185:VAL:O	4:SB:189:ILE:HD12	2.09	0.52
6:L5:1339:U:H2'	6:L5:1340:C:C6	2.44	0.52
6:L5:3861:A:H2'	6:L5:3862:A:C8	2.44	0.52
35:Ld:46:LEU:HD21	35:Ld:72:VAL:HG11	1.91	0.52
49:S2:639:C:H2'	49:S2:640:A:H8	1.74	0.52
49:S2:921:G:OP2	75:Sb:21:LYS:NZ	2.42	0.52
49:S2:1032:C:H5'	61:SN:109:LYS:HD3	1.90	0.52
49:S2:1232:U:H2'	49:S2:1233:G:H8	1.75	0.52
51:SD:175:VAL:HB	51:SD:182:LEU:HB2	1.92	0.52
65:SR:5:ARG:O	65:SR:10:LYS:NZ	2.42	0.52
76:Sc:29:GLN:NE2	76:Sc:66:ARG:O	2.42	0.52
81:DH:946:ILE:HG22	81:DH:991:PHE:CE1	2.45	0.52
5:B4:19:U:O2'	5:B4:58:A:N6	2.41	0.52
6:L5:1172:C:H42	6:L5:1188:C:H42	1.58	0.52
6:L5:3917:A:H2'	6:L5:3918:G:H8	1.75	0.52
12:LF:134:ARG:HA	12:LF:137:GLU:HG3	1.92	0.52
38:Lg:94:ALA:O	38:Lg:98:GLU:HG2	2.09	0.52
49:S2:1407:U:H2'	49:S2:1408:U:C6	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
62:SO:40:THR:HG21	62:SO:111:GLY:HA3	1.92	0.52
62:SO:46:ASP:OD1	62:SO:47:LEU:N	2.38	0.52
6:L5:2765:A:H2'	6:L5:2766:A:C8	2.44	0.52
6:L5:2845:A:N6	6:L5:3843:C:H42	2.05	0.52
11:LE:278:THR:H	11:LE:281:ILE:HD11	1.74	0.52
22:LQ:3:VAL:HG12	22:LQ:5:ILE:HG12	1.91	0.52
39:Lh:109:ARG:HG2	39:Lh:112:ARG:HH21	1.75	0.52
49:S2:1313:A:OP1	58:SK:5:LYS:NZ	2.33	0.52
52:SE:115:THR:HG23	52:SE:118:GLU:H	1.75	0.52
61:SN:103:GLU:O	61:SN:106:ARG:NH2	2.42	0.52
65:SR:97:GLU:OE1	65:SR:120:THR:OG1	2.28	0.52
66:SS:86:ARG:NH2	66:SS:89:ASP:OD1	2.41	0.52
3:LB:30:LYS:NZ	6:L5:4717:A:OP2	2.30	0.52
6:L5:468:U:H3	6:L5:688:U:H3	1.56	0.52
8:L8:29:G:H5''	17:LL:27:ASN:HB3	1.92	0.52
10:LD:258:LYS:NZ	10:LD:259:LYS:O	2.42	0.52
22:LQ:12:LYS:HD2	22:LQ:14:ARG:HH21	1.75	0.52
66:SS:138:THR:HA	66:SS:141:ARG:HH21	1.75	0.52
77:Sd:38:MET:HE3	77:Sd:43:PHE:HD1	1.75	0.52
80:Sg:4:GLN:N	80:Sg:313:THR:HG1	2.08	0.52
3:LB:56:ILE:O	3:LB:73:VAL:HA	2.10	0.52
56:SI:141:ARG:HH22	56:SI:144:LYS:HE2	1.74	0.52
58:SK:53:LYS:HD2	58:SK:60:GLU:HG2	1.92	0.52
78:Se:110:MET:HE3	78:Se:114:ARG:HH21	1.75	0.52
79:Sf:132:MET:HG2	79:Sf:139:HIS:HB3	1.92	0.52
4:SB:181:LEU:HA	4:SB:184:VAL:HG12	1.92	0.51
6:L5:346:G:OP2	30:LY:13:LYS:NZ	2.29	0.51
6:L5:4097:G:N2	6:L5:4113:U:O4'	2.43	0.51
6:L5:4098:A:C5	6:L5:4099:G:H1'	2.45	0.51
40:Li:34:THR:HB	40:Li:37:THR:HG22	1.92	0.51
56:SI:177:SER:OG	56:SI:178:ARG:N	2.43	0.51
66:SS:15:VAL:HB	66:SS:20:ILE:HD13	1.91	0.51
66:SS:86:ARG:NH1	66:SS:110:ASP:OD2	2.43	0.51
81:DH:783:TYR:HB3	81:DH:846:ASN:CG	2.35	0.51
81:DH:1087:ILE:O	81:DH:1091:ILE:HG12	2.11	0.51
6:L5:136:C:OP1	39:Lh:96:ASN:ND2	2.44	0.51
18:LM:27:ILE:HA	18:LM:38:VAL:HG23	1.91	0.51
27:LV:87:SER:HB3	28:LW:19:ARG:HH21	1.75	0.51
46:Lo:33:LEU:HA	46:Lo:38:LYS:HG2	1.92	0.51
49:S2:958:G:H2'	49:S2:959:G:C8	2.45	0.51
49:S2:1622:U:OP1	66:SS:120:HIS:ND1	2.30	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
61:SN:83:ASP:OD1	61:SN:84:LEU:N	2.43	0.51
63:SP:22:LEU:HA	63:SP:25:LEU:HB2	1.92	0.51
6:L5:111:C:OP1	39:Lh:110:LYS:NZ	2.42	0.51
6:L5:1095:A:H2	6:L5:1200:G:N1	2.07	0.51
6:L5:3726:A:H2'	6:L5:3727:A:C8	2.46	0.51
27:LV:71:GLU:O	27:LV:75:LYS:NZ	2.40	0.51
30:LY:22:PRO:O	30:LY:26:ARG:HB2	2.09	0.51
49:S2:126:G:OP2	54:SG:198:ARG:NH1	2.43	0.51
54:SG:145:PHE:HE2	54:SG:156:TYR:HB3	1.76	0.51
81:DH:843:HIS:CE1	81:DH:844:LYS:HE3	2.44	0.51
5:C4:10:G:C6	5:C4:44:G:N2	2.79	0.51
6:L5:3848:U:H2'	6:L5:3849:A:H8	1.75	0.51
6:L5:4891:G:C4	6:L5:4892:A:H8	2.28	0.51
6:L5:4930:C:H5'	11:LE:266:GLN:HG2	1.92	0.51
49:S2:70:G:OP2	54:SG:167:LYS:NZ	2.31	0.51
49:S2:538:U:H2'	49:S2:539:C:C6	2.45	0.51
51:SD:218:LEU:HD12	51:SD:219:PRO:HD2	1.93	0.51
6:L5:309:C:H5'	40:Li:31:GLY:O	2.09	0.51
6:L5:1498:G:OP1	22:LQ:164:LYS:NZ	2.43	0.51
6:L5:4642:U:H2'	6:L5:4643:G:H8	1.76	0.51
8:L8:67:U:H2'	8:L8:68:G:H8	1.73	0.51
28:LW:80:ARG:NH2	54:SG:131:ARG:HE	2.09	0.51
49:S2:957:A:O2'	49:S2:958:G:N3	2.41	0.51
49:S2:993:G:OP1	49:S2:1131:G:N2	2.40	0.51
50:SC:65:LYS:HB2	50:SC:273:LEU:HD21	1.93	0.51
52:SE:45:ILE:HA	52:SE:61:VAL:HG11	1.93	0.51
81:DH:109:ASN:OD1	81:DH:110:ASN:N	2.41	0.51
6:L5:491:G:H2'	6:L5:492:U:C6	2.46	0.51
6:L5:4630:G:H2'	6:L5:4631:G:H8	1.75	0.51
6:L5:4967:A:H2'	6:L5:4968:A:C8	2.45	0.51
8:L8:52:A:H62	43:Ll:27:ILE:HD13	1.76	0.51
13:LG:176:LYS:HG2	40:Li:43:MET:HE1	1.93	0.51
19:LN:184:ILE:O	19:LN:194:ARG:NH2	2.43	0.51
30:LY:82:ILE:HB	30:LY:85:VAL:HG22	1.91	0.51
49:S2:165:G:H4'	54:SG:53:SER:HB3	1.91	0.51
49:S2:367:U:H4'	49:S2:371:A:C8	2.45	0.51
50:SC:183:LYS:HG2	70:SW:95:PRO:O	2.11	0.51
51:SD:28:GLU:OE2	51:SD:65:ARG:NH2	2.41	0.51
52:SE:115:THR:OG1	52:SE:117:GLU:OE1	2.28	0.51
81:DH:787:PHE:CD2	81:DH:839:TYR:HE1	2.27	0.51
81:DH:1255:GLN:O	81:DH:1283:TYR:HA	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C4:35:G:H1'	5:C4:36:G:H5'	1.93	0.51
6:L5:711:A:OP1	11:LE:192:LYS:HD2	2.11	0.51
6:L5:4322:G:N2	6:L5:4325:A:OP2	2.43	0.51
6:L5:4507:A:H2'	6:L5:4508:C:C6	2.46	0.51
6:L5:4901:G:O6	6:L5:4920:C:N4	2.29	0.51
43:L1:22:PRO:HD3	43:L1:41:ARG:HH21	1.75	0.51
64:SQ:132:PHE:HB2	68:SU:77:TRP:CD1	2.45	0.51
6:L5:369:G:N2	6:L5:372:A:OP2	2.40	0.51
6:L5:3697:U:H5''	6:L5:3698:G:H5'	1.93	0.51
6:L5:3722:G:H2'	6:L5:3723:A:H8	1.76	0.51
49:S2:398:A:H5''	49:S2:399:C:H3'	1.92	0.51
52:SE:11:ARG:NH2	52:SE:24:THR:OG1	2.43	0.51
64:SQ:49:TYR:O	64:SQ:53:GLU:HG2	2.11	0.51
72:SY:100:LYS:HG3	72:SY:102:THR:HG22	1.92	0.51
81:DH:395:PRO:HG2	81:DH:415:ILE:HD13	1.93	0.51
81:DH:1341:ARG:HH21	81:DH:1342:LYS:HE3	1.75	0.51
6:L5:2743:A:H2'	6:L5:2744:A:C8	2.46	0.51
6:L5:4093:G:OP2	6:L5:4093:G:N2	2.42	0.51
17:LL:127:PHE:O	39:Lh:117:ARG:NH2	2.43	0.51
49:S2:570:C:O2'	72:SY:34:THR:O	2.28	0.51
49:S2:835:C:N4	72:SY:9:THR:O	2.44	0.51
63:SP:17:TYR:CD2	63:SP:18:ARG:HG2	2.45	0.51
80:Sg:214:GLY:HA2	80:Sg:236:ILE:HG12	1.93	0.51
82:zx:12:SER:HA	82:zx:15:LEU:HG	1.93	0.51
6:L5:418:A:N6	8:L8:16:G:H1'	2.26	0.51
6:L5:4353:U:H5''	6:L5:4354:U:H5'	1.92	0.51
30:LY:67:ILE:HD12	30:LY:107:THR:HG21	1.93	0.51
49:S2:29:G:H2'	49:S2:30:C:C6	2.46	0.51
55:SH:63:PHE:HA	55:SH:95:ILE:O	2.11	0.51
64:SQ:134:GLY:H	64:SQ:140:ARG:HH21	1.59	0.51
6:L5:4392:G:N2	6:L5:4395:U:O2	2.44	0.50
8:L8:45:C:H4'	43:L1:11:ARG:HD2	1.93	0.50
8:L8:103:A:H5'	8:L8:104:A:H8	1.76	0.50
9:LC:82:GLY:HA3	82:zx:2:GLN:NE2	2.26	0.50
16:LJ:40:LEU:HD12	16:LJ:70:VAL:HG12	1.94	0.50
49:S2:1256:G:O6	77:Sd:31:ILE:HG12	2.11	0.50
52:SE:129:ILE:HG22	52:SE:139:LEU:HD23	1.91	0.50
80:Sg:87:LEU:HB2	80:Sg:101:PHE:HD2	1.75	0.50
80:Sg:256:ILE:HB	80:Sg:270:LEU:HB2	1.93	0.50
6:L5:3598:C:H2'	6:L5:3599:A:H8	1.75	0.50
6:L5:3861:A:H2'	6:L5:3862:A:H8	1.74	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:LU:26:THR:O	26:LU:30:GLU:HG2	2.11	0.50
28:LW:86:SER:O	28:LW:90:ILE:HG12	2.12	0.50
43:LI:27:ILE:O	43:LI:33:ASN:ND2	2.43	0.50
52:SE:100:ARG:NH2	52:SE:121:TYR:O	2.45	0.50
60:SM:24:THR:HA	60:SM:27:ILE:HG22	1.93	0.50
81:DH:766:LEU:HA	81:DH:769:ILE:HG12	1.92	0.50
4:SB:134:LEU:HB3	4:SB:219:LYS:HB2	1.94	0.50
6:L5:374:G:OP2	41:Lj:56:ARG:NH2	2.45	0.50
6:L5:703:G:O2'	36:Le:5:ARG:NH1	2.42	0.50
6:L5:1553:A:N6	6:L5:1574:G:H1'	2.27	0.50
8:L8:60:G:OP1	29:LX:70:LYS:NZ	2.43	0.50
11:LE:72:LYS:HB2	33:Lb:119:CYS:HB2	1.93	0.50
28:LW:80:ARG:NH1	54:SG:129:VAL:O	2.45	0.50
49:S2:874:G:H2'	49:S2:875:A:H8	1.76	0.50
49:S2:1018:U:H5'	61:SN:71:ILE:HD13	1.93	0.50
49:S2:1756:C:N3	49:S2:1757:G:H1'	2.27	0.50
50:SC:168:GLY:N	50:SC:179:THR:O	2.37	0.50
61:SN:29:THR:HG23	61:SN:31:ASP:H	1.76	0.50
67:ST:76:THR:HB	67:ST:94:ARG:HB3	1.93	0.50
76:Sc:67:ARG:HH11	76:Sc:68:LEU:H	1.57	0.50
81:DH:687:LEU:HD13	81:DH:717:ILE:HD13	1.93	0.50
81:DH:875:PRO:HG2	81:DH:951:THR:HA	1.93	0.50
1:LA:241:ARG:NH2	6:L5:3660:C:OP2	2.44	0.50
6:L5:226:G:OP2	30:LY:1:MET:N	2.35	0.50
6:L5:2640:G:H2'	6:L5:2641:A:C8	2.47	0.50
6:L5:2896:G:OP1	23:LR:136:ARG:NH1	2.45	0.50
37:Lf:36:ARG:O	37:Lf:39:THR:OG1	2.29	0.50
49:S2:444:G:O6	56:SI:26:LYS:NZ	2.44	0.50
49:S2:683:G:H4'	70:SW:4:MET:HB3	1.93	0.50
66:SS:5:ILE:HB	73:SZ:49:LEU:HB3	1.92	0.50
80:Sg:93:THR:HG23	80:Sg:94:THR:HG23	1.92	0.50
6:L5:3754:G:O6	6:L5:3771:C:N4	2.45	0.50
6:L5:4928:C:O2	18:LM:118:MET:HE1	2.12	0.50
9:LC:141:GLY:O	9:LC:204:ARG:NH2	2.44	0.50
49:S2:1545:A:OP1	64:SQ:73:LYS:NZ	2.32	0.50
49:S2:1822:A:H2'	49:S2:1823:A:C8	2.47	0.50
49:S2:1860:A:H3'	74:Sa:8:ASN:HB3	1.93	0.50
50:SC:166:ARG:HB2	50:SC:248:TYR:CE1	2.46	0.50
50:SC:187:ARG:NH1	50:SC:189:GLY:O	2.45	0.50
81:DH:1007:VAL:O	81:DH:1012:ARG:NH2	2.45	0.50
81:DH:1105:MET:SD	81:DH:1135:HIS:ND1	2.81	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:1382:G:OP1	17:LL:65:ARG:NH2	2.44	0.50
6:L5:3607:U:H2'	6:L5:3608:A:H8	1.75	0.50
49:S2:1317:C:H2'	49:S2:1318:G:C8	2.45	0.50
49:S2:1406:G:H2'	49:S2:1407:U:H6	1.77	0.50
49:S2:1421:A:H5''	49:S2:1422:G:C5	2.46	0.50
80:Sg:244:ASN:ND2	80:Sg:294:ASP:O	2.45	0.50
6:L5:4745:G:H1	6:L5:4955:A:N6	2.10	0.50
9:LC:116:ASN:HB2	9:LC:119:GLN:HG2	1.94	0.50
15:LI:191:ILE:HG12	15:LI:200:ILE:HD12	1.93	0.50
49:S2:544:G:N2	81:DH:959:SER:OG	2.41	0.50
49:S2:982:G:H2'	49:S2:983:A:H8	1.77	0.50
49:S2:1222:G:H5''	53:SF:78:MET:HE1	1.93	0.50
49:S2:1404:U:OP1	68:SU:21:ARG:NH2	2.45	0.50
49:S2:1756:C:N4	49:S2:1757:G:N3	2.59	0.50
60:SM:19:GLN:HE22	60:SM:88:TRP:CD1	2.30	0.50
63:SP:29:SER:N	63:SP:32:GLN:HE22	2.09	0.50
6:L5:2400:G:H21	38:Lg:6:THR:HG22	1.75	0.50
6:L5:2573:A:N7	6:L5:2761:U:O4	2.44	0.50
6:L5:3870:C:H2'	6:L5:3871:A:H8	1.77	0.50
6:L5:4872:G:OP2	18:LM:94:LYS:NZ	2.40	0.50
16:LJ:15:LEU:HD12	16:LJ:134:LEU:HD13	1.94	0.50
49:S2:51:U:H2'	49:S2:52:G:H8	1.76	0.50
49:S2:1597:C:H4'	49:S2:1603:G:C6	2.46	0.50
60:SM:128:PHE:HA	60:SM:131:LYS:HG2	1.94	0.50
75:Sb:40:CYS:SG	75:Sb:41:TYR:N	2.85	0.50
81:DH:550:ARG:C	81:DH:614:LEU:HD21	2.37	0.50
81:DH:857:LEU:HD23	81:DH:863:PHE:HD2	1.77	0.50
81:DH:1007:VAL:HB	81:DH:1012:ARG:HH22	1.76	0.50
4:SB:183:GLU:HA	4:SB:186:ASN:HB2	1.93	0.50
6:L5:1408:G:O2'	6:L5:1411:C:O2	2.26	0.50
6:L5:1516:G:O2'	17:LL:18:TRP:NE1	2.44	0.50
6:L5:1563:A:N6	49:S2:1028:A:N1	2.60	0.50
6:L5:1617:G:H1'	6:L5:2513:A:N6	2.27	0.50
6:L5:1970:A:H2'	6:L5:2018:C:H42	1.77	0.50
8:L8:123:U:O3'	8:L8:126:C:N4	2.38	0.50
49:S2:51:U:H2'	49:S2:52:G:C8	2.47	0.50
49:S2:537:C:H2'	49:S2:538:U:C6	2.47	0.50
49:S2:839:C:O2'	49:S2:840:C:O5'	2.30	0.50
49:S2:996:A:H2'	49:S2:997:A:C8	2.47	0.50
49:S2:1004:U:H2'	49:S2:1005:G:H8	1.77	0.50
49:S2:1665:G:N7	67:ST:88:MET:HE1	2.27	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
55:SH:109:ARG:HE	55:SH:110:THR:H	1.59	0.50
68:SU:34:LYS:NZ	68:SU:107:GLU:OE1	2.43	0.50
70:SW:112:ASP:OD1	70:SW:112:ASP:N	2.44	0.50
81:DH:847:LEU:HD21	81:DH:874:LEU:HD21	1.94	0.50
6:L5:711:A:H2'	6:L5:712:C:C6	2.47	0.49
6:L5:1197:C:H2'	6:L5:1198:G:C8	2.46	0.49
6:L5:1725:U:H2'	6:L5:1726:U:H6	1.77	0.49
6:L5:1819:G:O2'	10:LD:140:GLY:O	2.24	0.49
6:L5:3970:G:O3'	6:L5:4052:C:N4	2.45	0.49
8:L8:8:U:H2'	8:L8:9:A:C8	2.47	0.49
27:LV:101:ASN:O	27:LV:101:ASN:ND2	2.41	0.49
49:S2:43:U:OP2	49:S2:485:A:N6	2.41	0.49
49:S2:194:C:H2'	49:S2:195:C:H6	1.77	0.49
49:S2:1406:G:H2'	49:S2:1407:U:C6	2.47	0.49
49:S2:1568:C:H2'	49:S2:1569:A:C8	2.47	0.49
58:SK:82:TYR:HD2	58:SK:83:LEU:HD12	1.76	0.49
81:DH:632:ARG:HG2	81:DH:679:THR:HG21	1.93	0.49
6:L5:1963:C:N4	6:L5:4694:G:O6	2.45	0.49
6:L5:2262:G:OP2	48:Lr:98:ARG:NH2	2.41	0.49
6:L5:4457:U:OP1	27:LV:50:ASN:ND2	2.42	0.49
6:L5:4479:A:OP1	14:LH:170:LYS:NZ	2.45	0.49
20:LO:47:PHE:HZ	20:LO:144:GLU:HG3	1.77	0.49
49:S2:17:C:H2'	49:S2:18:C:C6	2.47	0.49
49:S2:1623:A:O5'	66:SS:133:GLY:HA3	2.12	0.49
50:SC:121:ARG:HH11	50:SC:123:ARG:HG3	1.77	0.49
51:SD:20:GLU:HB2	58:SK:64:TRP:CZ3	2.47	0.49
55:SH:31:GLU:HG2	55:SH:40:LEU:HB3	1.95	0.49
64:SQ:100:VAL:HG22	64:SQ:101:ASP:H	1.76	0.49
80:Sg:101:PHE:CD1	80:Sg:136:GLY:HA2	2.47	0.49
81:DH:631:ARG:HB2	81:DH:634:SER:HB3	1.93	0.49
2:SA:77:ILE:HD13	2:SA:99:ILE:HB	1.94	0.49
6:L5:46:U:H5''	17:LL:16:LYS:HG3	1.94	0.49
6:L5:1857:C:H2'	6:L5:1858:A:C8	2.45	0.49
6:L5:1968:G:N2	6:L5:2020:U:O2	2.45	0.49
6:L5:2705:G:H22	6:L5:2710:C:H5	1.59	0.49
6:L5:3689:G:O2'	6:L5:3818:U:OP2	2.30	0.49
6:L5:4458:C:H2'	6:L5:4459:U:C6	2.47	0.49
14:LH:134:CYS:SG	14:LH:144:LEU:HD21	2.51	0.49
19:LN:36:LEU:HD21	19:LN:109:HIS:CG	2.46	0.49
22:LQ:180:ARG:HH11	32:La:50:PRO:HG2	1.78	0.49
30:LY:53:ASP:OD1	30:LY:110:LYS:N	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:328:U:O2'	49:S2:329:G:O5'	2.29	0.49
49:S2:634:A:H2'	49:S2:635:G:H8	1.77	0.49
49:S2:639:C:H2'	49:S2:640:A:C8	2.47	0.49
49:S2:804:U:H5	49:S2:859:G:H1	1.60	0.49
52:SE:36:HIS:CE1	52:SE:85:GLY:HA3	2.47	0.49
80:Sg:230:LEU:HD21	80:Sg:259:TRP:CD2	2.47	0.49
81:DH:1274:GLN:HB3	81:DH:1286:GLU:HG2	1.92	0.49
81:DH:1302:ILE:HD11	81:DH:1333:ARG:HE	1.77	0.49
2:SA:50:ASN:HD22	2:SA:53:ARG:HE	1.60	0.49
6:L5:1303:A:H5'	36:Le:33:ARG:HH12	1.76	0.49
6:L5:3868:G:H22	6:L5:3900:G:H1'	1.76	0.49
6:L5:4570:G:H2'	6:L5:4571:A:H8	1.78	0.49
21:LP:40:HIS:NE2	21:LP:155:GLN:O	2.41	0.49
25:LT:82:GLY:HA3	33:Lb:16:TRP:HB2	1.93	0.49
28:LW:107:GLN:HG2	28:LW:110:ARG:HH21	1.76	0.49
35:Ld:19:GLU:HG3	35:Ld:102:LEU:HD11	1.94	0.49
44:Lm:80:PRO:O	44:Lm:84:GLN:HG3	2.12	0.49
48:Lr:47:LYS:HB2	48:Lr:102:TYR:CZ	2.47	0.49
49:S2:317:C:OP2	54:SG:183:ARG:NH2	2.44	0.49
49:S2:1416:C:N3	49:S2:1417:C:N4	2.61	0.49
55:SH:72:PHE:O	55:SH:76:GLN:HB2	2.13	0.49
69:SV:82:ASN:OD1	69:SV:83:PHE:N	2.45	0.49
81:DH:1305:GLN:HB3	81:DH:1308:GLU:HG2	1.94	0.49
5:B4:62:C:H2'	5:B4:63:G:H8	1.77	0.49
6:L5:75:G:H3'	17:LL:74:ARG:HD2	1.94	0.49
6:L5:1199:G:H2'	6:L5:1200:G:C8	2.48	0.49
8:L8:141:C:H2'	8:L8:142:U:C6	2.48	0.49
49:S2:1018:U:O2'	61:SN:86:GLU:OE2	2.31	0.49
49:S2:1232:U:H2'	49:S2:1233:G:C8	2.47	0.49
49:S2:1309:C:O2'	79:Sf:142:GLY:N	2.45	0.49
49:S2:1845:A:H2'	49:S2:1846:G:C8	2.48	0.49
53:SF:49:LEU:CD1	64:SQ:49:TYR:HB2	2.42	0.49
55:SH:36:LEU:HB3	55:SH:40:LEU:HD23	1.92	0.49
64:SQ:44:PRO:HD2	64:SQ:81:ILE:HD11	1.94	0.49
80:Sg:14:HIS:ND1	80:Sg:35:SER:HB2	2.27	0.49
80:Sg:88:ARG:HH11	80:Sg:97:THR:HG21	1.78	0.49
80:Sg:163:PRO:HB2	80:Sg:179:LEU:HD21	1.93	0.49
81:DH:897:ARG:O	81:DH:923:VAL:HA	2.13	0.49
6:L5:163:A:H2'	6:L5:164:G:H8	1.78	0.49
6:L5:1523:A:N3	6:L5:4389:C:O2'	2.43	0.49
6:L5:3751:G:H21	6:L5:3775:A:H8	1.60	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:4155:C:H2'	6:L5:4156:G:O4'	2.12	0.49
6:L5:4980:C:N3	21:LP:69:ARG:NH2	2.60	0.49
17:LL:154:VAL:HG12	17:LL:155:MET:HG3	1.95	0.49
23:LR:102:LEU:HD22	23:LR:138:LEU:HD13	1.94	0.49
31:LZ:5:MET:O	31:LZ:28:ASN:ND2	2.45	0.49
49:S2:640:A:H2'	49:S2:641:A:C8	2.47	0.49
49:S2:931:C:H2'	49:S2:932:G:C8	2.48	0.49
50:SC:200:ARG:O	57:SJ:54:ARG:NH2	2.43	0.49
50:SC:257:LYS:O	69:SV:16:LYS:NZ	2.46	0.49
53:SF:28:VAL:HG23	53:SF:42:LYS:HE2	1.93	0.49
73:SZ:69:THR:H	73:SZ:72:VAL:HG12	1.77	0.49
80:Sg:14:HIS:CE1	80:Sg:35:SER:HB2	2.48	0.49
4:SB:91:VAL:HG12	4:SB:96:CYS:HB3	1.95	0.49
6:L5:1253:G:H21	6:L5:1257:A:H8	1.61	0.49
6:L5:2764:A:H2'	6:L5:2765:A:H8	1.77	0.49
6:L5:2780:C:H2'	6:L5:2781:G:H8	1.78	0.49
7:L7:27:G:N7	10:LD:58:ARG:NH1	2.50	0.49
9:LC:329:ASN:ND2	12:LF:188:GLU:OE2	2.46	0.49
10:LD:182:GLY:HA2	10:LD:194:VAL:HB	1.94	0.49
49:S2:1705:C:H2'	49:S2:1706:G:C8	2.47	0.49
60:SM:86:GLY:HA2	60:SM:89:VAL:HG12	1.95	0.49
71:SX:84:PHE:HB3	71:SX:105:PHE:HZ	1.78	0.49
6:L5:280:G:H5''	19:LN:14:LYS:HE2	1.94	0.49
6:L5:457:G:H2'	6:L5:458:C:C6	2.48	0.49
6:L5:2789:A:O2'	43:Ll:45:ARG:NH2	2.46	0.49
11:LE:216:TYR:O	11:LE:220:LYS:NZ	2.46	0.49
13:LG:103:ARG:NH2	13:LG:192:ARG:O	2.45	0.49
28:LW:46:PRO:O	28:LW:52:THR:OG1	2.26	0.49
50:SC:212:LYS:O	50:SC:216:MET:HG3	2.12	0.49
60:SM:99:LYS:HD2	60:SM:100:PRO:HD2	1.95	0.49
81:DH:173:GLU:C	81:DH:175:PHE:H	2.20	0.49
81:DH:411:ARG:HG3	81:DH:425:CYS:HB2	1.95	0.49
81:DH:579:ASP:OD1	81:DH:580:SER:N	2.45	0.49
1:LA:8:GLN:HE21	1:LA:231:ALA:C	2.20	0.49
6:L5:75:G:O6	17:LL:103:ARG:NH1	2.46	0.49
6:L5:982:U:C4	11:LE:71:ARG:HD2	2.48	0.49
6:L5:1332:C:H2'	6:L5:1333:A:C8	2.46	0.49
6:L5:4927:G:H5'	6:L5:4928:C:C5	2.47	0.49
8:L8:9:A:H2'	8:L8:10:G:H8	1.78	0.49
49:S2:67:C:C5	54:SG:162:LEU:HB3	2.47	0.49
49:S2:67:C:OP2	54:SG:172:LYS:NZ	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:546:G:H2'	49:S2:547:G:C8	2.47	0.49
49:S2:867:G:H5''	59:SL:149:ALA:HB2	1.95	0.49
49:S2:1628:C:H2'	49:S2:1629:C:H6	1.78	0.49
64:SQ:50:LYS:HG3	64:SQ:85:ARG:HD2	1.95	0.49
6:L5:1558:A:H2'	6:L5:1559:G:H8	1.78	0.49
6:L5:1755:C:O2	10:LD:2:GLY:N	2.46	0.49
6:L5:3848:U:H2'	6:L5:3849:A:C8	2.47	0.49
15:LI:87:ILE:CG2	15:LI:138:ILE:HG12	2.39	0.49
28:LW:105:ARG:NH1	54:SG:150:GLU:O	2.45	0.49
81:DH:1120:GLU:HB3	81:DH:1165:PHE:CZ	2.48	0.49
6:L5:325:U:H2'	6:L5:326:C:C6	2.48	0.48
6:L5:483:G:H5''	6:L5:484:U:H4'	1.94	0.48
6:L5:2084:C:N3	22:LQ:14:ARG:HD2	2.28	0.48
6:L5:3727:A:H2'	6:L5:3728:A:C8	2.48	0.48
6:L5:3955:G:H22	6:L5:3966:A:H3'	1.78	0.48
6:L5:5023:C:H4'	56:SI:124:LYS:NZ	2.28	0.48
8:L8:103:A:H3'	8:L8:104:A:H5''	1.94	0.48
49:S2:1217:A:H2'	49:S2:1218:C:H6	1.77	0.48
50:SC:203:GLY:O	50:SC:221:ASP:HA	2.13	0.48
51:SD:50:ILE:HD11	51:SD:86:LEU:HD23	1.94	0.48
53:SF:175:ASP:OD1	53:SF:176:GLU:N	2.46	0.48
5:C4:24:U:H2'	5:C4:25:U:C6	2.48	0.48
6:L5:131:C:H2'	6:L5:132:G:C5	2.48	0.48
6:L5:162:A:H2'	6:L5:163:A:C8	2.47	0.48
6:L5:300:A:H2'	6:L5:301:G:H8	1.78	0.48
6:L5:2411:C:H2'	6:L5:2412:A:H8	1.77	0.48
6:L5:4693:C:OP1	14:LH:64:ARG:NH2	2.46	0.48
7:L7:23:A:N3	7:L7:118:C:O2'	2.42	0.48
8:L8:94:G:C5	41:Lj:84:PRO:HG3	2.48	0.48
49:S2:581:U:OP1	57:SJ:133:ARG:NH2	2.46	0.48
56:SI:78:ILE:HA	56:SI:104:ILE:HG22	1.93	0.48
69:SV:37:ALA:HA	69:SV:50:PHE:HA	1.95	0.48
73:SZ:56:ASP:O	73:SZ:60:LYS:HG2	2.13	0.48
77:Sd:31:ILE:O	77:Sd:37:ASN:N	2.44	0.48
6:L5:426:A:H2'	6:L5:427:A:H8	1.78	0.48
6:L5:2407:G:O6	43:Ll:2:SER:N	2.47	0.48
6:L5:2760:G:H4'	6:L5:2761:U:O5'	2.13	0.48
6:L5:3955:G:N3	6:L5:3966:A:N7	2.61	0.48
6:L5:4291:G:H5'	6:L5:4293:U:C6	2.48	0.48
49:S2:372:U:OP1	59:SL:136:LYS:NZ	2.34	0.48
6:L5:309:C:O2	40:Li:32:ARG:NH2	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:1743:A:N1	6:L5:1789:C:O2'	2.45	0.48
6:L5:2461:G:H5'	19:LN:104:GLU:OE2	2.13	0.48
8:L8:130:C:H2'	8:L8:131:G:H8	1.78	0.48
49:S2:1570:G:N7	67:ST:97:LYS:NZ	2.60	0.48
79:Sf:118:ARG:HB2	79:Sf:131:PHE:HB3	1.96	0.48
81:DH:584:THR:HA	81:DH:587:ARG:HD3	1.94	0.48
4:SB:146:ARG:NH1	49:S2:1122:A:N3	2.62	0.48
6:L5:318:A:H2'	6:L5:319:A:C8	2.48	0.48
6:L5:1197:C:H2'	6:L5:1198:G:H8	1.77	0.48
6:L5:3953:G:H2'	6:L5:3954:A:O4'	2.14	0.48
6:L5:4135:G:H2'	6:L5:4136:G:C8	2.49	0.48
15:LI:46:PHE:HB2	15:LI:139:ARG:HD2	1.95	0.48
21:LP:133:HIS:CD2	82:zx:9:LYS:HG2	2.48	0.48
49:S2:1834:A:H2	49:S2:1837:G:N1	2.10	0.48
56:SI:57:ALA:HB1	56:SI:60:LEU:HD21	1.95	0.48
73:SZ:47:LEU:HD21	73:SZ:79:ILE:HG22	1.95	0.48
6:L5:280:G:OP1	19:LN:47:LYS:NZ	2.36	0.48
6:L5:759:G:N2	6:L5:904:C:O2'	2.41	0.48
6:L5:1696:C:H41	6:L5:1697:G:N2	2.08	0.48
6:L5:3607:U:H2'	6:L5:3608:A:C8	2.49	0.48
6:L5:4043:G:N2	6:L5:4045:G:N3	2.61	0.48
6:L5:4043:G:OP1	6:L5:4045:G:N2	2.47	0.48
6:L5:4941:G:OP1	11:LE:219:LYS:HE2	2.13	0.48
23:LR:173:ARG:NH2	23:LR:174:GLU:HB3	2.28	0.48
27:LV:120:PRO:HG3	28:LW:23:ARG:O	2.14	0.48
49:S2:531:A:H2'	49:S2:532:C:C6	2.49	0.48
49:S2:554:A:N6	78:Se:97:GLU:OE1	2.46	0.48
49:S2:835:C:H4'	49:S2:836:G:N7	2.28	0.48
49:S2:842:C:H2'	49:S2:843:C:C6	2.49	0.48
49:S2:1204:A:H62	49:S2:1694:U:H3	1.61	0.48
63:SP:20:VAL:HG12	63:SP:25:LEU:HG	1.96	0.48
81:DH:858:ASP:O	81:DH:864:ARG:NE	2.47	0.48
4:SB:97:LEU:HB3	4:SB:232:HIS:NE2	2.29	0.48
6:L5:62:A:N3	6:L5:77:U:O2'	2.40	0.48
6:L5:158:A:N1	6:L5:276:C:O2'	2.38	0.48
6:L5:1577:G:O2'	6:L5:1612:G:H4'	2.13	0.48
6:L5:2098:G:OP2	6:L5:2098:G:H4'	2.10	0.48
6:L5:3908:A:C8	82:zx:19:TYR:HB2	2.49	0.48
19:LN:6:TYR:HD2	40:Li:44:ILE:HD11	1.78	0.48
52:SE:208:VAL:HG11	52:SE:225:ILE:HG13	1.95	0.48
55:SH:44:ASN:O	55:SH:68:GLN:NE2	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
59:SL:48:LYS:HG2	59:SL:52:GLU:OE2	2.14	0.48
63:SP:29:SER:OG	63:SP:32:GLN:OE1	2.29	0.48
63:SP:93:MET:HE1	63:SP:106:GLU:HG3	1.96	0.48
6:L5:1095:A:N1	6:L5:1200:G:C6	2.82	0.48
6:L5:1697:G:O2'	6:L5:1698:C:O4'	2.27	0.48
6:L5:3786:U:OP1	6:L5:4550:G:O2'	2.29	0.48
6:L5:5055:G:H2'	6:L5:5056:A:C8	2.48	0.48
54:SG:44:GLU:HA	54:SG:119:LYS:HE2	1.95	0.48
65:SR:81:ARG:HE	65:SR:81:ARG:C	2.21	0.48
73:SZ:68:ILE:HB	73:SZ:109:TYR:HB2	1.94	0.48
80:Sg:302:TYR:HE2	80:Sg:308:ARG:HG3	1.79	0.48
81:DH:569:ARG:HD2	81:DH:604:GLN:OE1	2.14	0.48
81:DH:783:TYR:HB3	81:DH:846:ASN:OD1	2.14	0.48
6:L5:1739:G:N3	6:L5:1742:A:N6	2.61	0.48
6:L5:2474:G:N2	6:L5:2502:G:O2'	2.46	0.48
6:L5:3598:C:H2'	6:L5:3599:A:C8	2.49	0.48
6:L5:3707:U:H2'	6:L5:3708:C:C6	2.49	0.48
17:LL:126:LEU:HG	39:Lh:117:ARG:HH21	1.78	0.48
33:Lb:73:LYS:HA	33:Lb:73:LYS:HE3	1.95	0.48
33:Lb:95:ARG:O	33:Lb:99:ILE:HG12	2.13	0.48
49:S2:520:A:H5''	57:SJ:12:THR:HG23	1.95	0.48
49:S2:1101:U:H2'	49:S2:1102:G:C8	2.49	0.48
49:S2:1277:C:OP1	58:SK:51:SER:OG	2.26	0.48
79:Sf:119:ARG:HH22	79:Sf:139:HIS:CD2	2.31	0.48
81:DH:141:ILE:O	81:DH:145:MET:HG2	2.14	0.48
81:DH:709:VAL:HG21	81:DH:1013:VAL:HB	1.95	0.48
5:C4:17:G:N2	5:C4:57:A:O5'	2.47	0.48
6:L5:1362:G:OP1	17:LL:39:ARG:NH2	2.47	0.48
6:L5:1660:U:H3'	32:La:13:GLY:HA2	1.96	0.48
6:L5:2485:U:H2'	6:L5:2486:G:C8	2.49	0.48
6:L5:3956:G:O5'	6:L5:3966:A:N6	2.47	0.48
6:L5:3966:A:O2'	6:L5:4049:U:N3	2.43	0.48
8:L8:151:G:OP2	13:LG:65:ARG:NE	2.42	0.48
19:LN:149:GLN:O	19:LN:152:THR:OG1	2.30	0.48
48:Lr:105:ASP:OD1	48:Lr:105:ASP:N	2.46	0.48
49:S2:455:A:H2'	49:S2:456:C:C6	2.48	0.48
49:S2:935:G:O2'	61:SN:108:ASP:OD1	2.26	0.48
49:S2:1297:U:O2'	49:S2:1298:G:N2	2.46	0.48
49:S2:1601:A:O2'	49:S2:1604:G:O6	2.22	0.48
49:S2:1797:U:H2'	49:S2:1798:C:C6	2.48	0.48
52:SE:64:ILE:HG23	72:SY:17:LEU:HD23	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
57:SJ:86:VAL:HG11	57:SJ:105:PHE:CD1	2.48	0.48
67:ST:85:ASN:HB2	67:ST:88:MET:HB2	1.96	0.48
2:SA:34:MET:HE2	2:SA:34:MET:HB2	1.73	0.47
6:L5:757:G:H2'	6:L5:758:G:C8	2.48	0.47
6:L5:1448:G:H2'	6:L5:1449:C:C6	2.48	0.47
6:L5:4910:G:H22	20:LO:107:GLY:HA3	1.79	0.47
8:L8:83:C:N4	30:LY:50:ARG:HE	2.10	0.47
9:LC:281:MET:HA	9:LC:281:MET:HE3	1.95	0.47
23:LR:176:ARG:NH2	49:S2:910:G:OP1	2.47	0.47
48:Lr:7:TRP:O	48:Lr:11:ARG:HB2	2.14	0.47
49:S2:804:U:H2'	49:S2:805:U:C6	2.48	0.47
49:S2:1264:C:H4'	49:S2:1265:A:H5'	1.95	0.47
49:S2:1285:G:H1'	79:Sf:99:LYS:HZ2	1.77	0.47
56:SI:101:ILE:HD12	56:SI:190:LEU:HD11	1.96	0.47
64:SQ:34:VAL:HG23	64:SQ:70:VAL:HB	1.96	0.47
67:ST:118:ASP:OD1	67:ST:119:GLY:N	2.47	0.47
81:DH:704:VAL:HG21	81:DH:732:LEU:HD21	1.96	0.47
81:DH:858:ASP:OD2	81:DH:898:TYR:OH	2.32	0.47
81:DH:909:THR:HG23	81:DH:910:GLN:HG2	1.95	0.47
81:DH:1313:ILE:HB	81:DH:1317:ILE:HB	1.95	0.47
6:L5:965:G:O4'	6:L5:2093:A:N6	2.46	0.47
6:L5:2623:A:H2'	6:L5:2624:G:H8	1.79	0.47
6:L5:4239:A:H2'	6:L5:4240:G:H8	1.79	0.47
6:L5:4882:U:OP1	18:LM:117:LYS:NZ	2.47	0.47
8:L8:75:G:H2'	8:L8:76:C:C6	2.49	0.47
11:LE:117:PRO:O	48:Lr:112:ARG:NH1	2.39	0.47
20:LO:113:ASP:OD1	20:LO:113:ASP:N	2.46	0.47
49:S2:919:A:OP2	61:SN:64:ARG:NH1	2.47	0.47
55:SH:20:GLU:HG2	55:SH:48:ALA:H	1.78	0.47
68:SU:66:ARG:HG3	68:SU:68:THR:HG22	1.96	0.47
1:LA:14:SER:H	1:LA:17:ARG:HG3	1.80	0.47
5:C4:39:C:H2'	5:C4:40:G:H8	1.80	0.47
6:L5:755:C:H2'	6:L5:756:G:H8	1.79	0.47
6:L5:1187:G:H2'	6:L5:1188:C:C6	2.49	0.47
6:L5:2079:G:H2'	6:L5:2080:U:C6	2.50	0.47
6:L5:4541:G:N2	6:L5:4544:A:OP2	2.39	0.47
15:LI:55:ASP:HB3	15:LI:162:ARG:HG3	1.95	0.47
49:S2:115:U:H2'	49:S2:116:U:C6	2.50	0.47
49:S2:194:C:H2'	49:S2:195:C:C6	2.49	0.47
80:Sg:21:ILE:HG13	80:Sg:288:SER:HB3	1.96	0.47
81:DH:830:SER:O	81:DH:832:ARG:N	2.46	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
81:DH:1103:ALA:HA	81:DH:1106:THR:HG22	1.95	0.47
1:LA:215:ASN:ND2	6:L5:4546:A:N7	2.63	0.47
6:L5:138:G:H2'	6:L5:139:G:H8	1.80	0.47
6:L5:730:G:N3	12:LF:73:ARG:NH1	2.63	0.47
6:L5:1248:C:H2'	6:L5:1249:C:H6	1.79	0.47
6:L5:1563:A:H2'	6:L5:1564:A:C8	2.50	0.47
49:S2:1117:C:H2'	49:S2:1118:C:C6	2.49	0.47
49:S2:1628:C:H2'	49:S2:1629:C:C6	2.50	0.47
49:S2:1845:A:H2'	49:S2:1846:G:H8	1.80	0.47
54:SG:31:ARG:HG2	54:SG:101:ILE:HD13	1.96	0.47
66:SS:5:ILE:HB	73:SZ:49:LEU:HB2	1.95	0.47
66:SS:63:GLU:HA	66:SS:66:ARG:HB3	1.97	0.47
67:ST:42:HIS:CD2	67:ST:43:LYS:HE3	2.48	0.47
5:C4:57:A:O2'	5:C4:59:U:OP2	2.19	0.47
6:L5:114:G:P	19:LN:49:ARG:HH21	2.38	0.47
6:L5:2091:C:C2	6:L5:2094:G:H4'	2.49	0.47
6:L5:4460:U:H2'	6:L5:4461:C:H6	1.79	0.47
7:L7:110:G:H2'	7:L7:111:C:C6	2.50	0.47
20:LO:157:GLU:OE2	20:LO:160:ARG:NE	2.46	0.47
49:S2:803:C:H5	49:S2:860:G:H22	1.63	0.47
50:SC:169:TYR:CG	50:SC:173:LYS:HA	2.49	0.47
58:SK:42:ASN:O	58:SK:46:MET:HG3	2.14	0.47
60:SM:120:ALA:O	60:SM:124:ILE:HG12	2.14	0.47
80:Sg:33:SER:OG	80:Sg:43:TRP:NE1	2.45	0.47
81:DH:553:PHE:HB3	81:DH:614:LEU:HD13	1.96	0.47
2:SA:108:PHE:HB2	2:SA:136:GLU:HG2	1.95	0.47
3:LB:261:ARG:HB3	6:L5:4564:A:O2'	2.15	0.47
6:L5:161:G:H2'	6:L5:162:A:H8	1.79	0.47
6:L5:174:C:H2'	6:L5:175:C:C6	2.50	0.47
6:L5:408:A:O2'	6:L5:411:G:OP2	2.24	0.47
6:L5:736:C:N3	6:L5:927:G:N1	2.46	0.47
6:L5:1761:G:O6	6:L5:1772:C:N4	2.47	0.47
11:LE:112:MET:HG3	11:LE:113:PRO:HD2	1.97	0.47
48:Lr:58:LYS:N	48:Lr:121:GLN:OE1	2.42	0.47
49:S2:1863:A:H8	74:Sa:79:ILE:HG21	1.80	0.47
80:Sg:286:CYS:HA	80:Sg:302:TYR:HD1	1.79	0.47
81:DH:1017:GLU:HG2	81:DH:1018:LEU:HD22	1.97	0.47
4:SB:137:LEU:HG	4:SB:215:VAL:HG22	1.97	0.47
5:C4:65:A:H2'	5:C4:66:C:C6	2.50	0.47
6:L5:464:G:H2'	6:L5:465:G:H8	1.80	0.47
6:L5:943:A:N7	12:LF:151:ASN:ND2	2.62	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:3911:C:H2'	6:L5:3912:U:H6	1.80	0.47
6:L5:3961:G:N2	6:L5:3965:A:N7	2.63	0.47
6:L5:3961:G:H1'	6:L5:3965:A:N1	2.30	0.47
6:L5:4460:U:H2'	6:L5:4461:C:C6	2.50	0.47
15:LI:191:ILE:HG12	15:LI:200:ILE:HD11	1.95	0.47
15:LI:191:ILE:HG13	15:LI:200:ILE:HD11	1.97	0.47
16:LJ:136:ARG:NH2	16:LJ:161:GLU:OE2	2.48	0.47
29:LX:124:VAL:HG22	29:LX:138:VAL:HG12	1.96	0.47
31:LZ:68:ILE:HG12	31:LZ:119:GLU:HG2	1.96	0.47
49:S2:508:A:H3'	49:S2:509:G:H8	1.79	0.47
49:S2:534:G:H2'	49:S2:535:G:H8	1.77	0.47
49:S2:609:U:H2'	49:S2:610:G:H8	1.80	0.47
49:S2:656:G:H5'	49:S2:662:G:N2	2.30	0.47
49:S2:892:U:H2'	49:S2:893:U:H6	1.80	0.47
49:S2:1007:C:H2'	49:S2:1008:A:C8	2.50	0.47
54:SG:159:ARG:HG2	54:SG:173:ALA:HB2	1.96	0.47
56:SI:140:LYS:HZ2	56:SI:141:ARG:HE	1.62	0.47
60:SM:36:ARG:HH12	60:SM:40:LYS:HB2	1.79	0.47
75:Sb:67:THR:OG1	75:Sb:70:LYS:O	2.33	0.47
81:DH:1076:LEU:HB3	81:DH:1078:VAL:HG22	1.97	0.47
3:LB:285:TYR:CD1	3:LB:363:ILE:HD13	2.50	0.47
5:C4:62:C:H2'	5:C4:63:G:C8	2.49	0.47
6:L5:189:G:H2'	6:L5:190:G:H8	1.79	0.47
6:L5:1558:A:H2'	6:L5:1559:G:C8	2.49	0.47
6:L5:2266:C:OP1	6:L5:2271:C:O2'	2.30	0.47
6:L5:2467:U:H4'	6:L5:2468:U:H5'	1.95	0.47
6:L5:2657:G:H2'	6:L5:2658:G:C8	2.50	0.47
6:L5:3955:G:N3	6:L5:3966:A:C5	2.83	0.47
9:LC:209:ILE:HB	9:LC:229:LEU:HD13	1.97	0.47
26:LU:41:GLN:HA	26:LU:44:GLN:OE1	2.14	0.47
49:S2:1556:A:C5	77:Sd:13:LYS:HA	2.50	0.47
81:DH:954:ASN:HA	81:DH:964:SER:O	2.15	0.47
3:LB:92:TYR:HB2	3:LB:159:VAL:HG23	1.96	0.47
6:L5:3933:G:H2'	6:L5:3934:G:H8	1.79	0.47
6:L5:4935:C:H2'	6:L5:4936:G:C8	2.50	0.47
9:LC:228:THR:OG1	9:LC:248:ARG:NH2	2.43	0.47
15:LI:87:ILE:HG22	15:LI:138:ILE:CG1	2.39	0.47
21:LP:64:ASN:ND2	21:LP:80:GLN:OE1	2.45	0.47
24:LS:69:GLU:HG3	24:LS:71:SER:H	1.80	0.47
33:Lb:40:LEU:O	33:Lb:44:ARG:HG3	2.15	0.47
49:S2:1289:U:H5	79:Sf:95:ARG:HH12	1.60	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
56:SI:6:ASP:OD1	56:SI:9:HIS:ND1	2.47	0.47
67:ST:129:ARG:HH11	67:ST:133:ARG:NH1	2.11	0.47
79:Sf:124:ASP:OD1	79:Sf:124:ASP:N	2.48	0.47
80:Sg:149:GLU:HG2	80:Sg:171:ASP:HB3	1.96	0.47
80:Sg:179:LEU:HD23	80:Sg:179:LEU:H	1.80	0.47
81:DH:843:HIS:CE1	81:DH:844:LYS:HG3	2.50	0.47
81:DH:1351:LEU:HB3	81:DH:1357:LEU:HD22	1.96	0.47
1:LA:207:VAL:HG21	6:L5:1633:G:C6	2.50	0.47
2:SA:52:LYS:HB2	65:SR:109:LEU:HD13	1.95	0.47
5:C4:34:G:H21	5:C4:34:G:P	2.37	0.47
6:L5:1686:C:O2'	33:Lb:18:ARG:NH1	2.48	0.47
6:L5:2875:C:OP1	47:Lp:23:ARG:NH2	2.41	0.47
6:L5:4504:C:H2'	6:L5:4505:C:C6	2.50	0.47
6:L5:4761:G:H2'	6:L5:4762:A:H8	1.80	0.47
6:L5:4768:G:OP1	20:LO:168:TYR:OH	2.29	0.47
7:L7:55:A:H4'	16:LJ:155:HIS:HB2	1.97	0.47
11:LE:192:LYS:HE3	37:Lf:107:PRO:HB3	1.97	0.47
15:LI:76:MET:HE1	15:LI:148:VAL:HA	1.97	0.47
17:LL:49:ARG:HE	39:Lh:118:LYS:HA	1.79	0.47
21:LP:22:LEU:HD13	21:LP:90:PHE:HD2	1.79	0.47
24:LS:154:LEU:HB3	24:LS:157:ARG:HD3	1.96	0.47
28:LW:113:LYS:HE2	49:S2:328:U:H5''	1.97	0.47
40:Li:54:GLU:O	40:Li:58:MET:HG3	2.15	0.47
49:S2:571:U:O2'	72:SY:60:PHE:O	2.27	0.47
53:SF:49:LEU:HD11	64:SQ:49:TYR:HB2	1.96	0.47
65:SR:21:TYR:CE1	65:SR:58:MET:HE1	2.50	0.47
6:L5:1761:G:N2	6:L5:1771:U:O2	2.48	0.46
6:L5:4128:A:O2'	13:LG:35:ARG:NH1	2.48	0.46
12:LF:94:ARG:NH2	12:LF:97:GLY:O	2.40	0.46
49:S2:379:C:O2	56:SI:5:ARG:HD2	2.15	0.46
49:S2:1667:U:H2'	49:S2:1668:U:C6	2.51	0.46
49:S2:1673:U:H5''	64:SQ:78:VAL:HG22	1.96	0.46
69:SV:32:ILE:O	69:SV:54:ALA:HA	2.15	0.46
70:SW:18:GLU:HG2	70:SW:69:LEU:HB3	1.96	0.46
81:DH:684:LEU:O	81:DH:688:GLN:HG2	2.14	0.46
81:DH:772:GLU:O	81:DH:772:GLU:HG3	2.15	0.46
2:SA:203:PHE:HZ	65:SR:91:LEU:HD11	1.81	0.46
3:LB:189:THR:HG23	3:LB:192:GLU:H	1.80	0.46
4:SB:95:ASN:C	4:SB:95:ASN:HD22	2.19	0.46
6:L5:2018:C:H2'	6:L5:2019:C:C4	2.50	0.46
6:L5:2275:G:H2'	6:L5:2276:A:C8	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:2864:A:H2'	6:L5:2865:U:C6	2.50	0.46
9:LC:60:HIS:HA	9:LC:92:PHE:HE1	1.80	0.46
27:LV:87:SER:HB3	28:LW:19:ARG:NH2	2.30	0.46
33:Lb:102:PRO:O	33:Lb:109:ARG:NH2	2.48	0.46
56:SI:87:ASN:HB3	56:SI:90:LEU:HG	1.96	0.46
81:DH:1085:MET:HB2	81:DH:1223:GLY:HA3	1.96	0.46
1:LA:117:GLU:O	1:LA:162:ASN:ND2	2.48	0.46
6:L5:457:G:H2'	6:L5:458:C:H6	1.81	0.46
6:L5:474:C:H2'	6:L5:475:G:H8	1.80	0.46
6:L5:1271:G:H1	6:L5:2107:C:H5	1.63	0.46
6:L5:4755:G:N7	11:LE:279:ASN:ND2	2.62	0.46
28:LW:94:ARG:O	54:SG:146:ASN:HB3	2.15	0.46
30:LY:74:TYR:HD2	30:LY:77:LYS:HB2	1.80	0.46
42:Lk:29:LYS:HE3	42:Lk:29:LYS:HB3	1.74	0.46
53:SF:158:ALA:N	53:SF:176:GLU:OE1	2.48	0.46
67:ST:11:GLN:HA	67:ST:14:PHE:HB3	1.97	0.46
81:DH:777:LEU:CD2	81:DH:836:ALA:HB1	2.45	0.46
81:DH:1312:SER:HA	81:DH:1317:ILE:O	2.16	0.46
3:LB:128:LYS:NZ	6:L5:4966:A:OP1	2.48	0.46
6:L5:651:C:H2'	6:L5:652:G:C8	2.51	0.46
6:L5:2411:C:H2'	6:L5:2412:A:C8	2.50	0.46
6:L5:2434:G:O3'	29:LX:83:THR:HG21	2.16	0.46
6:L5:2503:G:H2'	6:L5:2504:C:O4'	2.16	0.46
6:L5:2566:G:H2'	6:L5:2567:G:H8	1.79	0.46
6:L5:3893:C:O2'	6:L5:4979:A:N1	2.47	0.46
6:L5:4255:A:H2'	6:L5:4256:A:O4'	2.14	0.46
6:L5:4345:C:H2'	6:L5:4346:U:H6	1.80	0.46
6:L5:4459:U:H2'	6:L5:4460:U:C6	2.50	0.46
14:LH:92:MET:HE2	14:LH:179:ILE:HG22	1.97	0.46
49:S2:500:A:H3'	49:S2:501:C:C6	2.50	0.46
49:S2:818:A:OP1	57:SJ:80:ARG:NH1	2.34	0.46
49:S2:1192:U:P	71:SX:119:ARG:HH22	2.38	0.46
49:S2:1513:C:H2'	49:S2:1514:G:H8	1.79	0.46
50:SC:183:LYS:HA	50:SC:195:LEU:O	2.15	0.46
52:SE:79:ASP:HB3	52:SE:82:TYR:HB2	1.98	0.46
52:SE:104:ASP:OD1	52:SE:104:ASP:N	2.48	0.46
66:SS:16:LEU:HD23	66:SS:17:ASN:N	2.25	0.46
66:SS:64:VAL:O	66:SS:68:ILE:HG12	2.15	0.46
80:Sg:251:ALA:HB1	80:Sg:286:CYS:HB3	1.96	0.46
81:DH:553:PHE:CB	81:DH:614:LEU:HD13	2.45	0.46
5:C4:49:C:H2'	5:C4:50:G:C8	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:677:G:H2'	6:L5:678:C:C6	2.51	0.46
6:L5:4258:C:H2'	6:L5:4259:C:H6	1.81	0.46
6:L5:4954:G:H2'	6:L5:4955:A:C8	2.51	0.46
46:Lo:59:LYS:NZ	46:Lo:61:LYS:O	2.39	0.46
49:S2:17:C:H2'	49:S2:18:C:H6	1.80	0.46
49:S2:1100:A:OP1	65:SR:129:LYS:NZ	2.35	0.46
49:S2:1518:C:OP1	49:S2:1519:U:O2'	2.21	0.46
51:SD:197:LYS:HG3	51:SD:198:ILE:HG23	1.96	0.46
55:SH:113:LYS:HD2	55:SH:113:LYS:HA	1.65	0.46
58:SK:37:ASP:N	58:SK:37:ASP:OD1	2.47	0.46
80:Sg:199:THR:OG1	80:Sg:239:LEU:O	2.27	0.46
81:DH:589:ARG:O	81:DH:730:LEU:N	2.49	0.46
5:B4:73:C:O5'	15:LI:110:ARG:NH1	2.48	0.46
6:L5:1328:G:O2'	6:L5:2349:A:OP1	2.33	0.46
6:L5:2343:G:C5	9:LC:101:MET:HE1	2.51	0.46
8:L8:125:C:H1'	8:L8:126:C:H2'	1.97	0.46
10:LD:60:ILE:HB	10:LD:80:ALA:HB2	1.97	0.46
16:LJ:96:LYS:O	16:LJ:159:LYS:NZ	2.49	0.46
24:LS:43:ARG:HA	24:LS:43:ARG:HD2	1.76	0.46
30:LY:70:VAL:HG13	30:LY:80:ILE:HG23	1.97	0.46
49:S2:1393:G:H2'	49:S2:1394:G:C8	2.51	0.46
50:SC:106:VAL:HG12	50:SC:128:VAL:HG12	1.97	0.46
53:SF:43:GLU:C	53:SF:45:TYR:H	2.23	0.46
58:SK:63:ALA:HB3	58:SK:68:TYR:HE2	1.81	0.46
64:SQ:101:ASP:OD1	64:SQ:102:GLU:N	2.49	0.46
80:Sg:207:CYS:HB2	80:Sg:221:LEU:HD21	1.98	0.46
81:DH:550:ARG:NH1	81:DH:614:LEU:O	2.49	0.46
1:LA:204:MET:HG2	6:L5:1631:A:C2	2.50	0.46
6:L5:956:A:H1'	6:L5:2076:G:H5''	1.97	0.46
6:L5:1404:G:N1	6:L5:1414:C:N3	2.63	0.46
6:L5:1662:C:H2'	6:L5:1663:C:C6	2.51	0.46
6:L5:1761:G:N1	6:L5:1772:C:N3	2.64	0.46
6:L5:2562:G:N2	6:L5:2565:A:OP2	2.33	0.46
6:L5:2590:G:H22	6:L5:2754:G:H2'	1.81	0.46
6:L5:3614:G:O2'	6:L5:3615:G:OP1	2.31	0.46
12:LF:60:GLU:OE2	12:LF:192:HIS:NE2	2.49	0.46
14:LH:41:ILE:HG22	14:LH:43:VAL:HG13	1.98	0.46
18:LM:126:GLU:HG3	20:LO:185:VAL:HG11	1.97	0.46
21:LP:22:LEU:HD13	21:LP:90:PHE:CD2	2.51	0.46
34:Lc:18:LEU:O	34:Lc:22:MET:HG2	2.16	0.46
45:Ln:18:ARG:NH2	49:S2:1183:A:OP2	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:84:A:N3	49:S2:150:A:O2'	2.48	0.46
49:S2:500:A:H3'	49:S2:501:C:H6	1.80	0.46
49:S2:588:G:C2	81:DH:118:ARG:HD2	2.50	0.46
71:SX:95:GLU:OE2	81:DH:373:SER:N	2.48	0.46
81:DH:593:VAL:O	81:DH:733:MET:HA	2.16	0.46
81:DH:873:PHE:HE1	81:DH:933:ALA:HB3	1.81	0.46
81:DH:1304:VAL:HG23	81:DH:1306:HIS:NE2	2.30	0.46
1:LA:116:LEU:HB3	1:LA:126:LEU:HB2	1.98	0.46
6:L5:277:G:C5	40:Li:30:ARG:NH1	2.83	0.46
6:L5:1590:C:H4'	6:L5:2857:A:H5'	1.98	0.46
6:L5:4743:G:H2'	6:L5:4744:A:C8	2.51	0.46
8:L8:67:U:H2'	8:L8:68:G:C8	2.50	0.46
10:LD:39:GLN:HE21	10:LD:43:LYS:HD3	1.79	0.46
11:LE:221:LYS:NZ	11:LE:238:GLU:HB2	2.31	0.46
24:LS:113:MET:HE3	24:LS:113:MET:HB3	1.79	0.46
49:S2:106:C:H2'	49:S2:107:A:H8	1.80	0.46
49:S2:891:G:O2'	49:S2:893:U:OP1	2.34	0.46
49:S2:1462:U:H5'	49:S2:1463:U:C4	2.51	0.46
49:S2:1656:G:H1	49:S2:1668:U:H3	1.64	0.46
50:SC:167:ARG:HB3	50:SC:177:PRO:HB2	1.98	0.46
52:SE:101:LEU:HA	52:SE:101:LEU:HD23	1.75	0.46
52:SE:151:ASP:HB3	52:SE:154:ILE:HG13	1.98	0.46
54:SG:22:ARG:HA	54:SG:25:ARG:HD2	1.98	0.46
63:SP:30:TYR:O	63:SP:34:MET:HG2	2.16	0.46
67:ST:88:MET:HE2	67:ST:88:MET:HA	1.98	0.46
1:LA:117:GLU:HG2	1:LA:124:GLY:H	1.80	0.46
6:L5:263:G:H2'	6:L5:264:C:C6	2.50	0.46
6:L5:462:G:H2'	6:L5:463:A:C8	2.50	0.46
6:L5:739:G:H2'	6:L5:740:G:H8	1.77	0.46
6:L5:1071:C:O2'	11:LE:69:TYR:OH	2.24	0.46
6:L5:1266:G:H5'	33:Lb:99:ILE:HD11	1.98	0.46
6:L5:2373:C:H5'	35:Ld:46:LEU:HD13	1.97	0.46
6:L5:5023:C:H4'	56:SI:124:LYS:HZ3	1.81	0.46
6:L5:5055:G:H2'	6:L5:5056:A:H8	1.80	0.46
11:LE:127:SER:O	11:LE:128:HIS:ND1	2.49	0.46
26:LU:20:LYS:HB3	26:LU:73:THR:HG23	1.98	0.46
49:S2:1114:U:H5	49:S2:1115:U:C4	2.34	0.46
49:S2:1388:A:H61	51:SD:161:GLY:HA3	1.81	0.46
54:SG:181:THR:H	54:SG:184:VAL:HG22	1.81	0.46
74:Sa:33:ASP:OD1	74:Sa:34:LYS:N	2.49	0.46
80:Sg:66:VAL:HA	80:Sg:82:SER:HA	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
81:DH:775:PHE:CE2	81:DH:777:LEU:HD13	2.51	0.46
81:DH:947:ASP:N	81:DH:947:ASP:OD1	2.47	0.46
81:DH:1303:GLU:HB3	81:DH:1312:SER:OG	2.16	0.46
6:L5:426:A:H2'	6:L5:427:A:C8	2.50	0.46
6:L5:1390:G:N2	6:L5:1393:G:OP2	2.48	0.46
6:L5:3811:G:O2'	6:L5:3814:U:OP2	2.33	0.46
6:L5:3904:G:H22	82:zx:14:LEU:HD23	1.81	0.46
6:L5:4136:G:H2'	6:L5:4137:C:C6	2.51	0.46
9:LC:152:LEU:HD21	9:LC:174:LEU:HD13	1.98	0.46
17:LL:64:VAL:HA	17:LL:67:HIS:CD2	2.51	0.46
49:S2:1313:A:C5'	58:SK:5:LYS:HE3	2.46	0.46
51:SD:42:THR:OG1	51:SD:45:ARG:O	2.20	0.46
56:SI:62:VAL:HA	56:SI:77:ARG:HA	1.98	0.46
79:Sf:120:GLU:OE2	79:Sf:128:ALA:N	2.49	0.46
79:Sf:144:CYS:SG	79:Sf:146:LEU:HG	2.56	0.46
80:Sg:107:ASP:HB2	80:Sg:125:ARG:HB2	1.98	0.46
81:DH:98:ILE:HA	81:DH:101:VAL:HG22	1.97	0.46
81:DH:1336:ILE:HA	81:DH:1339:VAL:HG12	1.98	0.46
6:L5:17:A:OP2	29:LX:60:TYR:OH	2.27	0.45
6:L5:1168:G:O6	6:L5:1194:G:N2	2.49	0.45
6:L5:1548:G:O2'	6:L5:2812:A:N3	2.42	0.45
6:L5:1749:A:H2'	6:L5:1750:G:C8	2.51	0.45
6:L5:1846:G:H2'	6:L5:1847:C:C6	2.51	0.45
6:L5:2335:C:H2'	6:L5:2336:G:H8	1.80	0.45
6:L5:2611:A:H2'	6:L5:2612:G:C8	2.51	0.45
15:LI:48:LEU:O	15:LI:139:ARG:HA	2.16	0.45
26:LU:100:LEU:HD12	26:LU:112:LEU:HB3	1.97	0.45
36:Le:92:ASN:N	36:Le:92:ASN:OD1	2.49	0.45
47:Lp:49:ARG:HH21	47:Lp:52:VAL:HG22	1.79	0.45
49:S2:553:U:O4	49:S2:555:A:N6	2.50	0.45
81:DH:893:PHE:HD1	81:DH:898:TYR:HE2	1.65	0.45
6:L5:2318:G:O6	36:Le:19:LYS:NZ	2.48	0.45
6:L5:2520:C:H2'	6:L5:2521:G:H8	1.80	0.45
6:L5:2639:U:O2'	6:L5:2694:G:O6	2.28	0.45
6:L5:4129:G:O6	6:L5:4156:G:N2	2.49	0.45
11:LE:176:THR:HB	11:LE:186:LEU:HA	1.98	0.45
49:S2:857:U:H2'	49:S2:858:A:C8	2.51	0.45
51:SD:75:LYS:HE3	58:SK:18:GLU:OE2	2.17	0.45
57:SJ:59:GLU:OE2	57:SJ:69:ARG:NH2	2.48	0.45
62:SO:65:ASP:HA	62:SO:68:GLU:HG3	1.98	0.45
81:DH:497:ASN:HA	81:DH:500:LYS:HE3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:755:C:H2'	6:L5:756:G:C8	2.52	0.45
6:L5:1317:U:H2'	6:L5:1318:C:C6	2.52	0.45
6:L5:4680:G:H2'	6:L5:4681:A:C8	2.52	0.45
8:L8:132:G:OP1	29:LX:108:GLN:NE2	2.49	0.45
10:LD:242:LYS:HE3	10:LD:242:LYS:HB3	1.70	0.45
16:LJ:89:VAL:HG21	16:LJ:115:LEU:HD23	1.97	0.45
52:SE:112:HIS:NE2	52:SE:237:SER:O	2.50	0.45
63:SP:38:SER:OG	63:SP:41:GLN:OE1	2.33	0.45
71:SX:95:GLU:OE1	71:SX:96:GLU:N	2.40	0.45
81:DH:626:VAL:HG12	81:DH:676:LEU:HB3	1.99	0.45
6:L5:727:C:H2'	6:L5:728:U:C6	2.51	0.45
6:L5:1824:G:H2'	6:L5:1825:A:C8	2.51	0.45
6:L5:2333:G:H5''	9:LC:195:LYS:HE3	1.97	0.45
6:L5:4091:G:H2'	6:L5:4092:G:C8	2.51	0.45
34:Lc:37:MET:HE3	34:Lc:97:ILE:HD11	1.98	0.45
49:S2:1315:U:H4'	58:SK:2:LEU:HD13	1.98	0.45
49:S2:1778:C:H2'	49:S2:1779:G:O4'	2.16	0.45
54:SG:32:MET:CE	54:SG:65:GLN:HB2	2.46	0.45
81:DH:771:GLU:OE1	81:DH:833:THR:HG22	2.16	0.45
81:DH:1139:TYR:HE2	81:DH:1208:LEU:HD21	1.81	0.45
1:LA:33:ASP:H	1:LA:36:GLU:HB2	1.81	0.45
3:LB:288:GLY:HA3	3:LB:330:PHE:CZ	2.51	0.45
5:B4:22:G:H2'	5:B4:23:A:C8	2.52	0.45
6:L5:1304:C:H2'	6:L5:1305:C:C6	2.51	0.45
6:L5:3599:A:H2'	6:L5:3600:G:C8	2.52	0.45
17:LL:21:ARG:HB3	19:LN:197:THR:HG22	1.98	0.45
19:LN:51:LEU:HD13	19:LN:117:ASN:HB3	1.98	0.45
27:LV:119:GLY:HA2	28:LW:24:THR:O	2.16	0.45
30:LY:54:GLU:HG3	30:LY:108:ARG:HD2	1.99	0.45
49:S2:1004:U:H2'	49:S2:1005:G:C8	2.51	0.45
49:S2:1171:G:O2'	49:S2:1187:G:O6	2.32	0.45
49:S2:1566:G:N7	67:ST:101:ARG:NH2	2.64	0.45
62:SO:142:ARG:CZ	74:Sa:27:ALA:HB2	2.46	0.45
80:Sg:14:HIS:CE1	80:Sg:33:SER:HG	2.33	0.45
80:Sg:18:VAL:HG21	80:Sg:301:GLY:HA3	1.99	0.45
6:L5:1269:G:O2'	6:L5:1440:U:H4'	2.17	0.45
13:LG:80:ILE:HD11	19:LN:18:VAL:HG23	1.97	0.45
16:LJ:19:LYS:HG2	16:LJ:133:VAL:HB	1.97	0.45
33:Lb:12:GLN:HB3	33:Lb:16:TRP:CZ3	2.51	0.45
34:Lc:104:ILE:HD12	34:Lc:104:ILE:H	1.82	0.45
49:S2:223:C:H2'	49:S2:224:A:C8	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:SE:131:VAL:HG22	52:SE:135:GLY:HA2	1.98	0.45
75:Sb:49:HIS:HA	75:Sb:70:LYS:HA	1.98	0.45
80:Sg:109:LEU:N	80:Sg:123:GLY:O	2.50	0.45
4:SB:172:MET:O	4:SB:176:VAL:HG12	2.16	0.45
5:C4:39:C:H2'	5:C4:40:G:C8	2.51	0.45
6:L5:256:G:H2'	6:L5:257:C:C6	2.52	0.45
6:L5:1183:C:H2'	6:L5:1184:A:C8	2.51	0.45
6:L5:2382:A:N1	6:L5:2829:U:O2'	2.42	0.45
6:L5:2539:C:H2'	6:L5:2540:C:C6	2.52	0.45
6:L5:3711:A:H2'	6:L5:3712:A:C8	2.45	0.45
6:L5:4080:C:H2'	6:L5:4081:G:H8	1.82	0.45
6:L5:4918:C:H2'	6:L5:4919:G:H8	1.82	0.45
9:LC:71:ARG:HE	82:zx:6:LEU:CG	2.30	0.45
15:LI:191:ILE:CG1	15:LI:200:ILE:CD1	2.95	0.45
34:Lc:20:LEU:HD12	34:Lc:23:LYS:HE3	1.97	0.45
49:S2:538:U:H2'	49:S2:539:C:H6	1.82	0.45
49:S2:892:U:H2'	49:S2:893:U:C6	2.52	0.45
49:S2:1542:C:HO2'	49:S2:1543:U:P	2.39	0.45
50:SC:198:ALA:HB1	50:SC:202:THR:HG21	1.98	0.45
55:SH:61:ILE:HG23	55:SH:93:VAL:HG23	1.99	0.45
61:SN:60:VAL:HG13	61:SN:66:VAL:HG21	1.97	0.45
71:SX:105:PHE:HE2	71:SX:118:VAL:HG12	1.82	0.45
81:DH:1039:ASP:OD1	81:DH:1039:ASP:N	2.50	0.45
6:L5:1281:G:C5	11:LE:128:HIS:CD2	3.05	0.45
6:L5:1847:C:H2'	6:L5:1848:C:C6	2.52	0.45
6:L5:1895:G:O2'	6:L5:1907:A:N3	2.44	0.45
6:L5:2020:U:H2'	6:L5:2021:G:H8	1.80	0.45
6:L5:2501:C:N4	6:L5:2502:G:O6	2.50	0.45
6:L5:3934:G:H2'	6:L5:3935:C:C6	2.51	0.45
6:L5:3969:G:N2	6:L5:4053:A:O2'	2.48	0.45
8:L8:45:C:H4'	43:Ll:11:ARG:CD	2.46	0.45
14:LH:93:ARG:HG2	14:LH:182:SER:HB3	1.99	0.45
18:LM:85:LYS:O	18:LM:89:THR:HG23	2.17	0.45
23:LR:171:LYS:HD2	23:LR:174:GLU:OE2	2.16	0.45
49:S2:24:C:H2'	49:S2:25:A:C8	2.52	0.45
49:S2:1113:A:H5''	49:S2:1115:U:C5	2.50	0.45
51:SD:137:VAL:HG22	51:SD:151:LYS:HG3	1.98	0.45
52:SE:95:THR:HA	72:SY:16:ARG:HH21	1.82	0.45
59:SL:153:LYS:HD2	61:SN:133:ARG:HH11	1.82	0.45
81:DH:1304:VAL:HG12	81:DH:1326:ALA:HB1	1.99	0.45
6:L5:1248:C:H2'	6:L5:1249:C:C6	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:1445:U:H2'	6:L5:1446:C:H6	1.81	0.45
6:L5:1732:C:H5''	25:LT:43:LYS:HD3	1.99	0.45
6:L5:2634:C:H2'	6:L5:2635:U:H6	1.81	0.45
9:LC:171:LEU:HD11	9:LC:227:ILE:HD11	1.99	0.45
15:LI:103:LEU:O	15:LI:112:GLN:NE2	2.50	0.45
49:S2:496:C:H5'	52:SE:29:PRO:HA	1.99	0.45
49:S2:1809:A:H2'	49:S2:1810:U:C6	2.52	0.45
68:SU:32:LEU:HD21	68:SU:87:ARG:HG2	1.99	0.45
81:DH:125:GLN:NE2	81:DH:488:ARG:HH12	2.15	0.45
81:DH:785:GLN:CG	81:DH:839:TYR:O	2.65	0.45
81:DH:1024:LYS:HD2	81:DH:1074:ALA:HB1	1.99	0.45
1:LA:242:ARG:NH2	1:LA:243:THR:O	2.50	0.45
2:SA:63:ARG:HA	2:SA:185:MET:HE1	1.99	0.45
4:SB:229:MET:HA	4:SB:229:MET:HE3	1.99	0.45
5:C4:49:C:H2'	5:C4:50:G:H8	1.82	0.45
6:L5:212:A:H2'	6:L5:213:G:H8	1.81	0.45
6:L5:257:C:H2'	6:L5:258:G:C8	2.52	0.45
6:L5:1773:U:H2'	6:L5:1774:C:C6	2.52	0.45
6:L5:1802:A:H5''	6:L5:1803:G:H5'	1.99	0.45
6:L5:3904:G:H22	82:zx:14:LEU:CD2	2.30	0.45
6:L5:4634:U:OP1	6:L5:4657:U:N3	2.42	0.45
8:L8:19:C:H2'	8:L8:20:A:H8	1.81	0.45
13:LG:105:GLU:HB2	13:LG:109:GLU:HG3	1.99	0.45
23:LR:136:ARG:O	23:LR:140:GLU:HG2	2.17	0.45
25:LT:102:ARG:O	25:LT:106:LEU:HG	2.16	0.45
49:S2:562:U:O4	57:SJ:172:ARG:NH2	2.50	0.45
49:S2:889:U:O2'	49:S2:899:U:O2	2.34	0.45
54:SG:135:PRO:HG2	54:SG:141:ILE:HG12	1.99	0.45
55:SH:119:SER:OG	55:SH:120:ARG:NH1	2.50	0.45
58:SK:41:PRO:HG2	58:SK:44:HIS:CG	2.52	0.45
81:DH:939:ILE:HB	81:DH:942:VAL:HB	1.99	0.45
6:L5:718:C:OP1	12:LF:217:ARG:HD3	2.17	0.44
6:L5:969:C:O2'	11:LE:123:ARG:HD3	2.17	0.44
6:L5:1070:G:HO2'	6:L5:1071:C:P	2.40	0.44
6:L5:4088:C:H2'	6:L5:4089:G:H8	1.82	0.44
6:L5:4770:U:H2'	6:L5:4771:C:C6	2.52	0.44
8:L8:47:C:H1'	8:L8:61:A:H2'	1.99	0.44
8:L8:81:C:O2'	8:L8:83:C:OP2	2.23	0.44
12:LF:37:PHE:HZ	33:Lb:113:ALA:HB1	1.81	0.44
17:LL:65:ARG:HG2	32:La:69:PHE:CG	2.52	0.44
31:LZ:115:LYS:O	31:LZ:119:GLU:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:465:A:H4'	49:S2:466:G:O5'	2.17	0.44
49:S2:537:C:H2'	49:S2:538:U:H6	1.82	0.44
49:S2:890:U:H5''	49:S2:897:U:O4	2.18	0.44
49:S2:1756:C:N3	49:S2:1776:G:C6	2.86	0.44
51:SD:41:VAL:HG13	51:SD:46:THR:HG22	1.98	0.44
65:SR:70:SER:O	65:SR:74:GLN:HG2	2.17	0.44
4:SB:126:ASP:OD1	4:SB:136:ARG:HG2	2.17	0.44
6:L5:10:A:H2'	6:L5:11:G:C8	2.53	0.44
6:L5:1241:C:O2'	33:Lb:120:ARG:O	2.34	0.44
6:L5:1271:G:H8	12:LF:30:ILE:HG21	1.82	0.44
6:L5:2079:G:H2'	6:L5:2080:U:H6	1.82	0.44
6:L5:2693:G:H2'	6:L5:2694:G:N2	2.31	0.44
6:L5:3880:G:H2'	6:L5:3881:G:C8	2.52	0.44
6:L5:3910:C:H2'	6:L5:3911:C:C6	2.52	0.44
6:L5:4591:U:H2'	6:L5:4592:C:C6	2.52	0.44
6:L5:4759:C:H2'	6:L5:4760:G:C8	2.53	0.44
8:L8:75:G:OP2	30:LY:74:TYR:OH	2.34	0.44
25:LT:28:ALA:O	25:LT:32:ARG:HG2	2.17	0.44
49:S2:1101:U:OP1	65:SR:132:ARG:NH1	2.50	0.44
49:S2:1587:G:C6	67:ST:78:ILE:HD11	2.53	0.44
49:S2:1659:U:OP1	77:Sd:32:ARG:HG2	2.17	0.44
49:S2:1864:U:H5'	74:Sa:79:ILE:HD11	1.97	0.44
51:SD:40:ARG:HH12	51:SD:49:ILE:HD11	1.81	0.44
55:SH:81:ARG:NH1	55:SH:82:GLU:OE2	2.50	0.44
68:SU:26:SER:OG	68:SU:32:LEU:HB2	2.17	0.44
78:Se:127:LYS:HD3	78:Se:127:LYS:HA	1.67	0.44
81:DH:709:VAL:HG22	81:DH:1010:ILE:HA	1.99	0.44
81:DH:931:ASN:ND2	81:DH:951:THR:OG1	2.30	0.44
6:L5:1204:C:H2'	6:L5:1205:G:H8	1.82	0.44
6:L5:1247:U:H2'	6:L5:1248:C:C6	2.51	0.44
6:L5:1396:G:HO2'	6:L5:1468:C:HO2'	1.64	0.44
6:L5:1460:C:H2'	6:L5:1461:C:H6	1.82	0.44
19:LN:103:GLU:OE2	19:LN:118:SER:OG	2.33	0.44
49:S2:146:G:OP1	54:SG:143:LYS:NZ	2.49	0.44
49:S2:149:A:H3'	49:S2:150:A:H8	1.83	0.44
49:S2:465:A:H5'	49:S2:466:G:C4	2.52	0.44
49:S2:1231:C:OP2	66:SS:139:THR:HG21	2.17	0.44
58:SK:80:ARG:NH1	58:SK:89:ILE:O	2.30	0.44
66:SS:82:TRP:HA	66:SS:87:GLN:HE22	1.82	0.44
81:DH:847:LEU:HD22	81:DH:883:LEU:HD13	2.00	0.44
81:DH:871:LEU:HD23	81:DH:942:VAL:HG23	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:LA:15:VAL:HG21	6:L5:1628:C:H5''	2.00	0.44
5:B4:17:G:N2	5:B4:57:A:OP2	2.50	0.44
5:C4:34:G:H2'	5:C4:35:G:C5	2.53	0.44
6:L5:270:U:H2'	6:L5:271:C:H6	1.83	0.44
6:L5:658:C:H2'	6:L5:659:G:C8	2.52	0.44
6:L5:1187:G:OP2	6:L5:1187:G:N2	2.40	0.44
6:L5:3710:G:N3	6:L5:3711:A:N6	2.65	0.44
6:L5:4635:A:O2'	6:L5:4637:G:OP1	2.33	0.44
7:L7:97:G:H4'	12:LF:134:ARG:NH1	2.33	0.44
9:LC:301:ALA:HB1	22:LQ:132:LYS:HD2	1.98	0.44
48:Lr:103:ARG:NH2	48:Lr:105:ASP:OD2	2.50	0.44
49:S2:1753:C:H4'	49:S2:1780:G:H1	1.82	0.44
49:S2:1858:G:OP2	62:SO:146:ARG:NH2	2.46	0.44
49:S2:1864:U:H3'	74:Sa:5:ARG:HH21	1.83	0.44
50:SC:77:SER:C	50:SC:79:GLU:H	2.26	0.44
51:SD:168:VAL:HA	51:SD:188:ILE:O	2.17	0.44
52:SE:212:ASP:OD1	52:SE:213:ALA:N	2.44	0.44
60:SM:86:GLY:HA3	60:SM:105:GLY:HA2	1.99	0.44
66:SS:125:HIS:CD2	66:SS:131:VAL:HG11	2.52	0.44
70:SW:23:ARG:HG3	75:Sb:4:ALA:HB2	1.99	0.44
71:SX:41:PHE:HZ	71:SX:102:VAL:HG12	1.82	0.44
81:DH:498:LYS:O	81:DH:501:GLN:HG3	2.17	0.44
81:DH:908:SER:HB2	81:DH:1112:THR:HG22	1.98	0.44
6:L5:153:G:H2'	6:L5:154:G:H8	1.83	0.44
6:L5:194:C:O2	30:LY:121:ARG:NH1	2.49	0.44
6:L5:1183:C:H2'	6:L5:1184:A:H8	1.80	0.44
6:L5:2869:U:O2'	6:L5:2881:A:N7	2.40	0.44
6:L5:3910:C:H2'	6:L5:3911:C:H6	1.83	0.44
6:L5:4452:U:H3	82:zx:21:PRO:HB3	1.83	0.44
6:L5:5004:C:H2'	6:L5:5005:G:O4'	2.18	0.44
8:L8:22:U:OP2	9:LC:196:MET:HG2	2.17	0.44
8:L8:94:G:H21	41:Lj:82:THR:CB	2.31	0.44
9:LC:66:SER:HA	9:LC:77:PRO:HA	1.99	0.44
10:LD:108:ARG:CZ	10:LD:253:TYR:HB2	2.48	0.44
12:LF:92:VAL:O	12:LF:120:GLY:HA2	2.18	0.44
33:Lb:50:ASN:O	33:Lb:50:ASN:ND2	2.51	0.44
49:S2:1681:U:H2'	49:S2:1682:C:C6	2.53	0.44
49:S2:1801:A:H2'	49:S2:1802:C:H6	1.82	0.44
49:S2:1839:U:H2'	49:S2:1840:U:C6	2.53	0.44
68:SU:95:SER:O	68:SU:99:LYS:HG3	2.17	0.44
74:Sa:12:LYS:HG3	74:Sa:15:ARG:HB2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
81:DH:712:ASP:O	81:DH:716:ILE:HG12	2.17	0.44
5:C4:36:G:H3'	5:C4:37:U:H5''	2.00	0.44
6:L5:1287:G:C2	11:LE:132:PRO:HG3	2.53	0.44
6:L5:1812:C:H2'	6:L5:1813:U:C6	2.53	0.44
6:L5:2520:C:H2'	6:L5:2521:G:C8	2.53	0.44
6:L5:3961:G:O2'	6:L5:3965:A:OP1	2.35	0.44
6:L5:4188:U:H2'	6:L5:4189:U:C6	2.53	0.44
6:L5:4642:U:H2'	6:L5:4643:G:C8	2.52	0.44
6:L5:5027:C:H6	56:SI:77:ARG:HH22	1.62	0.44
8:L8:48:A:H5''	39:Lh:51:ARG:HH12	1.83	0.44
9:LC:110:ARG:O	9:LC:113:ARG:NH1	2.50	0.44
9:LC:318:PRO:C	9:LC:320:LYS:H	2.23	0.44
20:LO:126:VAL:HG13	20:LO:127:VAL:HG13	2.00	0.44
23:LR:99:MET:HE1	23:LR:127:VAL:O	2.18	0.44
49:S2:197:U:C5	49:S2:203:G:H1'	2.53	0.44
49:S2:495:U:H2'	49:S2:496:C:O4'	2.18	0.44
49:S2:642:U:O4	78:Se:107:LYS:NZ	2.41	0.44
49:S2:1643:U:H2'	49:S2:1644:C:C6	2.53	0.44
53:SF:42:LYS:HD3	53:SF:42:LYS:HA	1.79	0.44
80:Sg:66:VAL:HG12	80:Sg:82:SER:HB3	1.99	0.44
81:DH:401:LYS:HE3	81:DH:433:GLY:HA3	2.00	0.44
81:DH:871:LEU:HD13	81:DH:927:VAL:HB	1.98	0.44
6:L5:286:U:H2'	6:L5:287:U:C6	2.53	0.44
6:L5:669:C:OP1	48:Lr:71:ARG:NH1	2.51	0.44
6:L5:1315:C:N4	6:L5:1316:G:O6	2.50	0.44
6:L5:1355:G:OP1	22:LQ:108:ARG:NH2	2.50	0.44
6:L5:1690:C:P	22:LQ:11:ARG:HH22	2.41	0.44
6:L5:1700:G:H1	12:LF:177:ARG:NE	2.15	0.44
6:L5:1725:U:H2'	6:L5:1726:U:C6	2.53	0.44
6:L5:2633:U:H2'	6:L5:2634:C:H6	1.81	0.44
6:L5:3722:G:H2'	6:L5:3723:A:C8	2.52	0.44
6:L5:3732:A:H2'	6:L5:3733:A:C8	2.52	0.44
6:L5:4062:A:H2'	6:L5:4063:U:C5	2.52	0.44
6:L5:4258:C:H5'	16:LJ:68:ILE:HD11	1.99	0.44
11:LE:161:ARG:O	11:LE:182:ASN:ND2	2.50	0.44
49:S2:963:A:H2'	49:S2:964:A:C8	2.53	0.44
49:S2:1265:A:O4'	49:S2:1326:U:O2'	2.35	0.44
49:S2:1550:G:O2'	49:S2:1558:C:O2	2.33	0.44
63:SP:41:GLN:HG3	63:SP:84:ILE:HD12	2.00	0.44
81:DH:582:VAL:O	81:DH:586:LYS:HG2	2.18	0.44
3:LB:317:LEU:HB2	3:LB:372:SER:HB2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B4:61:C:H2'	5:B4:62:C:C6	2.53	0.44
6:L5:3932:U:H2'	6:L5:3933:G:H8	1.82	0.44
8:L8:130:C:H2'	8:L8:131:G:C8	2.53	0.44
11:LE:276:ALA:HB1	37:Lf:3:GLY:HA3	2.00	0.44
13:LG:176:LYS:HG2	40:Li:43:MET:CE	2.47	0.44
16:LJ:63:ARG:HH11	46:Lo:106:PHE:H	1.63	0.44
17:LL:9:VAL:HG23	32:La:49:HIS:CE1	2.53	0.44
17:LL:70:VAL:HG12	17:LL:159:ASN:HB3	1.99	0.44
49:S2:104:A:H62	49:S2:356:C:H5	1.66	0.44
49:S2:482:G:OP1	71:SX:76:LYS:HA	2.17	0.44
49:S2:1542:C:H4'	67:ST:11:GLN:HB2	1.98	0.44
49:S2:1610:G:OP1	66:SS:121:ARG:NH1	2.44	0.44
51:SD:5:ILE:HD12	51:SD:5:ILE:HA	1.87	0.44
81:DH:778:GLU:HG2	81:DH:781:SER:HB2	2.00	0.44
6:L5:727:C:H4'	12:LF:69:ILE:HD12	2.00	0.44
6:L5:905:C:H2'	6:L5:906:C:C6	2.53	0.44
6:L5:1070:G:O2'	6:L5:1071:C:O5'	2.36	0.44
6:L5:1097:C:H2'	6:L5:1098:G:C8	2.53	0.44
6:L5:1247:U:H2'	6:L5:1248:C:H6	1.83	0.44
6:L5:2295:C:H2'	6:L5:2296:G:H8	1.82	0.44
6:L5:2361:G:O2'	6:L5:3859:G:O6	2.33	0.44
6:L5:2674:A:N6	47:Lp:41:PHE:O	2.51	0.44
6:L5:3599:A:H2'	6:L5:3600:G:H8	1.83	0.44
6:L5:4106:G:N7	6:L5:4107:G:H1'	2.33	0.44
16:LJ:163:MET:HE3	16:LJ:174:ILE:HG21	1.99	0.44
17:LL:91:ALA:HB1	17:LL:96:ILE:HB	2.00	0.44
38:Lg:19:LYS:HA	38:Lg:19:LYS:HD3	1.62	0.44
40:Li:35:LYS:HB3	40:Li:35:LYS:HE2	1.84	0.44
48:Lr:108:MET:O	48:Lr:112:ARG:HG2	2.18	0.44
49:S2:170:A:OP1	54:SG:136:LYS:N	2.51	0.44
49:S2:184:G:H2'	49:S2:185:G:H8	1.83	0.44
49:S2:674:C:H2'	49:S2:675:U:C6	2.53	0.44
49:S2:857:U:H2'	49:S2:858:A:H8	1.83	0.44
49:S2:861:A:N3	55:SH:106:ARG:NH2	2.66	0.44
49:S2:1107:G:N1	49:S2:1125:C:H5	2.13	0.44
49:S2:1745:A:H1'	54:SG:66:GLY:HA2	1.99	0.44
59:SL:89:ARG:HH21	59:SL:106:HIS:CG	2.35	0.44
73:SZ:72:VAL:O	73:SZ:76:ARG:HG2	2.18	0.44
81:DH:557:GLN:NE2	81:DH:611:GLU:HG2	2.33	0.44
81:DH:1101:LEU:HB3	81:DH:1105:MET:HE1	1.99	0.44
3:LB:248:LEU:N	6:L5:2838:G:OP1	2.42	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:C4:14:A:H3'	5:C4:15:G:H8	1.83	0.43
6:L5:307:A:N3	6:L5:310:G:O2'	2.50	0.43
6:L5:1821:G:H21	6:L5:1822:U:H5''	1.83	0.43
8:L8:121:G:H2'	8:L8:122:G:C8	2.53	0.43
12:LF:67:THR:O	12:LF:71:MET:HG2	2.18	0.43
14:LH:1:MET:HE3	14:LH:2:LYS:N	2.33	0.43
45:Ln:10:MET:HE2	45:Ln:10:MET:HB2	1.75	0.43
49:S2:28:U:H2'	49:S2:29:G:H8	1.82	0.43
49:S2:374:G:OP1	59:SL:59:LYS:NZ	2.40	0.43
49:S2:583:A:H2'	49:S2:583:A:N3	2.33	0.43
49:S2:1597:C:O2'	49:S2:1598:G:O4'	2.36	0.43
56:SI:206:LYS:HE2	56:SI:206:LYS:HB3	1.70	0.43
61:SN:99:ARG:NH2	61:SN:119:GLU:OE2	2.48	0.43
81:DH:693:LEU:HD22	81:DH:728:LEU:HB2	2.00	0.43
81:DH:1225:TYR:OH	81:DH:1314:ASP:OD2	2.27	0.43
1:LA:57:PRO:HG2	1:LA:78:ALA:HB3	2.00	0.43
4:SB:124:HIS:HA	4:SB:137:LEU:O	2.18	0.43
5:B4:39:C:C5'	5:C4:36:G:H5''	2.48	0.43
6:L5:1245:C:H2'	6:L5:1246:G:C8	2.52	0.43
6:L5:1271:G:H22	6:L5:2107:C:H5	1.64	0.43
6:L5:1867:A:OP1	15:LI:13:LYS:NZ	2.39	0.43
6:L5:2765:A:H2'	6:L5:2766:A:H8	1.83	0.43
6:L5:3608:A:H2'	6:L5:3609:G:H8	1.82	0.43
6:L5:4635:A:OP1	6:L5:4636:U:O2'	2.36	0.43
9:LC:302:LEU:HD22	22:LQ:38:ARG:HB3	2.00	0.43
12:LF:127:LYS:HB2	25:LT:133:ALA:HB3	2.00	0.43
49:S2:12:U:H2'	49:S2:13:C:C6	2.53	0.43
49:S2:604:A:H2'	49:S2:605:A:C8	2.53	0.43
49:S2:1010:G:H2'	49:S2:1011:A:C8	2.53	0.43
81:DH:105:HIS:O	81:DH:108:GLN:HG3	2.17	0.43
81:DH:1009:GLU:HG3	81:DH:1012:ARG:HE	1.83	0.43
6:L5:106:A:H2'	6:L5:107:G:O4'	2.18	0.43
6:L5:435:A:O2'	36:Le:26:ASP:OD1	2.36	0.43
6:L5:1479:G:H2'	6:L5:1480:C:C6	2.53	0.43
6:L5:1662:C:H2'	6:L5:1663:C:H6	1.82	0.43
6:L5:4345:C:H2'	6:L5:4346:U:C6	2.53	0.43
7:L7:29:C:H4'	16:LJ:12:MET:HE1	1.99	0.43
15:LI:43:VAL:HG11	15:LI:197:VAL:HG13	2.01	0.43
19:LN:121:VAL:HG11	19:LN:131:GLU:HG3	2.00	0.43
22:LQ:41:SER:OG	22:LQ:44:ASN:OD1	2.35	0.43
49:S2:29:G:H2'	49:S2:30:C:H6	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:38:A:OP1	57:SJ:5:ARG:HB3	2.18	0.43
49:S2:96:C:H2'	49:S2:97:U:C6	2.53	0.43
49:S2:528:A:H2'	49:S2:529:A:H8	1.83	0.43
54:SG:3:LEU:HB3	54:SG:5:ILE:HD11	1.99	0.43
54:SG:39:ASP:OD1	54:SG:47:GLY:N	2.46	0.43
54:SG:145:PHE:CE2	54:SG:156:TYR:HB3	2.53	0.43
57:SJ:86:VAL:HG11	57:SJ:105:PHE:HD1	1.84	0.43
57:SJ:111:GLN:NE2	57:SJ:127:ARG:HB2	2.33	0.43
81:DH:1059:CYS:SG	81:DH:1060:GLU:N	2.91	0.43
1:LA:152:SER:OG	6:L5:3661:G:N7	2.50	0.43
6:L5:424:U:H2'	6:L5:425:U:C6	2.53	0.43
6:L5:717:U:H2'	6:L5:718:C:C6	2.54	0.43
6:L5:1875:C:H2'	6:L5:1876:U:C6	2.53	0.43
6:L5:3938:G:N2	6:L5:4171:C:OP2	2.52	0.43
6:L5:4086:G:C4	13:LG:51:LEU:HD21	2.54	0.43
7:L7:52:C:O2'	7:L7:54:A:N7	2.51	0.43
10:LD:236:MET:HA	10:LD:239:MET:HG3	1.99	0.43
14:LH:111:LEU:HD13	14:LH:127:ARG:HH21	1.83	0.43
16:LJ:19:LYS:HE2	16:LJ:21:CYS:SG	2.58	0.43
24:LS:27:LEU:HD21	25:LT:141:VAL:HG11	2.00	0.43
28:LW:93:LYS:HA	28:LW:96:GLN:NE2	2.31	0.43
42:Lk:37:ARG:HA	42:Lk:37:ARG:HD2	1.75	0.43
49:S2:634:A:H2'	49:S2:635:G:C8	2.53	0.43
49:S2:929:G:H2'	49:S2:930:C:O4'	2.18	0.43
51:SD:72:VAL:HG21	58:SK:70:TYR:CE1	2.52	0.43
53:SF:88:MET:O	53:SF:91:ARG:HG3	2.19	0.43
55:SH:39:GLN:HG3	55:SH:75:ILE:HD13	2.00	0.43
81:DH:772:GLU:O	81:DH:772:GLU:CG	2.64	0.43
3:LB:298:LEU:HD23	3:LB:300:LYS:HE2	2.00	0.43
5:B4:62:C:H2'	5:B4:63:G:C8	2.54	0.43
6:L5:1553:A:H61	6:L5:1574:G:H1'	1.83	0.43
6:L5:4570:G:H2'	6:L5:4571:A:C8	2.53	0.43
6:L5:4775:C:N3	6:L5:4859:C:N4	2.67	0.43
13:LG:63:LEU:HD12	19:LN:32:GLN:HB2	1.99	0.43
16:LJ:113:ILE:HD11	16:LJ:125:ILE:HG22	2.00	0.43
25:LT:17:ARG:HA	25:LT:17:ARG:HD2	1.85	0.43
26:LU:105:ASN:OD1	26:LU:111:GLU:HB2	2.18	0.43
29:LX:129:ARG:HD3	29:LX:133:GLU:HB2	2.01	0.43
30:LY:32:SER:OG	30:LY:101:PRO:O	2.31	0.43
35:Ld:117:LEU:HD23	35:Ld:117:LEU:HA	1.86	0.43
49:S2:559:G:OP1	81:DH:117:GLY:N	2.35	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:1279:C:H2'	49:S2:1280:G:C8	2.53	0.43
49:S2:1606:G:H1'	49:S2:1633:A:N6	2.33	0.43
53:SF:182:LYS:HB2	53:SF:182:LYS:HE2	1.80	0.43
60:SM:82:ASN:OD1	60:SM:82:ASN:N	2.51	0.43
70:SW:24:GLN:NE2	70:SW:64:ASN:OD1	2.37	0.43
74:Sa:44:ILE:HD12	74:Sa:65:PRO:HG2	2.00	0.43
81:DH:377:LYS:HD2	81:DH:382:PHE:HD1	1.83	0.43
81:DH:1133:SER:HB3	81:DH:1288:THR:HG23	2.00	0.43
4:SB:185:VAL:HA	4:SB:188:LEU:HB2	2.01	0.43
6:L5:756:G:H2'	6:L5:757:G:H8	1.83	0.43
6:L5:2489:C:H4'	6:L5:2491:C:C2	2.54	0.43
6:L5:2676:A:OP2	6:L5:2676:A:H8	2.02	0.43
6:L5:4041:C:P	6:L5:4042:G:H3'	2.58	0.43
6:L5:4635:A:H3'	6:L5:4636:U:H4'	2.01	0.43
6:L5:4919:G:H2'	6:L5:4920:C:C6	2.54	0.43
8:L8:94:G:H21	41:Lj:82:THR:HB	1.84	0.43
23:LR:28:GLU:HB2	23:LR:31:GLU:HB3	2.01	0.43
24:LS:80:ILE:HA	24:LS:128:LYS:O	2.18	0.43
49:S2:158:A:H2'	49:S2:159:A:O4'	2.18	0.43
49:S2:1545:A:O2'	49:S2:1546:G:OP2	2.36	0.43
49:S2:1714:U:H2'	49:S2:1715:A:C8	2.53	0.43
51:SD:164:VAL:O	51:SD:168:VAL:HG22	2.18	0.43
58:SK:90:VAL:H	58:SK:95:ARG:HH21	1.67	0.43
68:SU:50:VAL:HG12	68:SU:91:LEU:HB3	2.01	0.43
73:SZ:74:SER:HA	73:SZ:79:ILE:HG12	2.00	0.43
75:Sb:64:CYS:HB3	75:Sb:73:LEU:HD23	1.99	0.43
80:Sg:112:ALA:HB3	80:Sg:121:VAL:HG12	2.01	0.43
81:DH:167:SER:OG	81:DH:169:ASP:OD1	2.33	0.43
81:DH:785:GLN:CG	81:DH:839:TYR:C	2.92	0.43
1:LA:183:GLY:HA2	6:L5:1613:A:H5''	2.00	0.43
5:C4:65:A:H2'	5:C4:66:C:H6	1.84	0.43
6:L5:270:U:H2'	6:L5:271:C:C6	2.53	0.43
6:L5:456:C:N4	6:L5:701:G:O6	2.51	0.43
6:L5:1481:C:C2	40:Li:4:ARG:NH2	2.84	0.43
6:L5:2372:U:H2'	6:L5:2373:C:C6	2.54	0.43
6:L5:2497:C:H2'	6:L5:2498:C:H6	1.84	0.43
6:L5:2533:C:OP1	29:LX:123:LYS:NZ	2.49	0.43
6:L5:3699:C:O2'	6:L5:3775:A:O2'	2.34	0.43
6:L5:3932:U:H2'	6:L5:3933:G:C8	2.54	0.43
17:LL:181:SER:O	40:Li:7:MET:HE1	2.18	0.43
34:Lc:31:TYR:CZ	34:Lc:35:LEU:HD11	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
50:SC:70:VAL:HG11	50:SC:93:ILE:HG23	2.00	0.43
52:SE:45:ILE:HG13	52:SE:61:VAL:HG11	2.01	0.43
52:SE:188:ASN:HB2	52:SE:191:ARG:HD3	1.99	0.43
56:SI:177:SER:OG	56:SI:182:CYS:SG	2.77	0.43
57:SJ:163:SER:OG	57:SJ:165:TYR:O	2.37	0.43
65:SR:35:CYS:HA	65:SR:38:ILE:HG12	2.01	0.43
81:DH:720:GLU:OE2	81:DH:1036:LYS:HD2	2.18	0.43
81:DH:900:VAL:HG22	81:DH:926:ILE:HB	2.01	0.43
81:DH:1357:LEU:HA	81:DH:1360:ILE:HG12	2.00	0.43
2:SA:34:MET:HE1	2:SA:154:LEU:HD21	2.00	0.43
3:LB:92:TYR:HB3	3:LB:99:LEU:HD22	2.01	0.43
6:L5:433:A:C2	6:L5:3867:A:H4'	2.54	0.43
6:L5:905:C:H2'	6:L5:906:C:H6	1.83	0.43
6:L5:1588:U:H2'	6:L5:1589:C:C6	2.53	0.43
6:L5:2566:G:H2'	6:L5:2567:G:C8	2.54	0.43
6:L5:2808:G:O3'	23:LR:60:ARG:NH1	2.52	0.43
6:L5:4070:U:H2'	6:L5:4071:U:C6	2.54	0.43
8:L8:6:C:H2'	8:L8:7:U:C6	2.54	0.43
10:LD:211:LEU:HD23	10:LD:211:LEU:HA	1.83	0.43
15:LI:31:ILE:HG22	15:LI:62:SER:HB2	2.01	0.43
16:LJ:119:TYR:CD2	66:SS:12:ILE:HG12	2.54	0.43
28:LW:1:MET:HB3	28:LW:2:LYS:H	1.54	0.43
49:S2:829:C:OP1	52:SE:22:LYS:N	2.41	0.43
68:SU:30:LYS:HE2	68:SU:30:LYS:HB3	1.83	0.43
81:DH:1207:THR:OG1	81:DH:1208:LEU:N	2.52	0.43
1:LA:4:VAL:HG13	1:LA:8:GLN:OE1	2.19	0.43
2:SA:41:ARG:HB2	2:SA:47:TYR:CE1	2.54	0.43
4:SB:131:ASP:HB2	4:SB:180:ASP:OD1	2.18	0.43
6:L5:492:U:H2'	6:L5:493:G:C8	2.54	0.43
6:L5:1786:A:H2'	6:L5:1789:C:C5	2.53	0.43
6:L5:1969:G:C5	6:L5:1970:A:H2	2.37	0.43
6:L5:3952:A:H2'	6:L5:3953:G:C8	2.54	0.43
19:LN:140:LYS:O	19:LN:144:ARG:HG2	2.19	0.43
27:LV:27:ASN:HB2	27:LV:102:ALA:HB2	2.00	0.43
52:SE:104:ASP:C	52:SE:106:LYS:H	2.26	0.43
80:Sg:147:HIS:ND1	80:Sg:151:VAL:HG12	2.33	0.43
81:DH:930:THR:OG1	81:DH:931:ASN:N	2.51	0.43
5:C4:28:C:H42	5:C4:41:A:H62	1.66	0.43
5:C4:37:U:OP1	5:C4:37:U:H4'	2.18	0.43
6:L5:1281:G:C6	11:LE:128:HIS:CD2	3.06	0.43
6:L5:1342:A:OP1	19:LN:204:ARG:HD2	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:1966:C:H42	6:L5:2021:G:H1	1.67	0.43
6:L5:4162:C:O2	13:LG:73:ARG:NH2	2.42	0.43
44:Lm:94:MET:HG2	44:Lm:121:LEU:HD13	2.01	0.43
49:S2:352:U:H2'	49:S2:353:C:C6	2.54	0.43
49:S2:1227:G:C2	49:S2:1228:A:C8	3.07	0.43
49:S2:1275:G:N1	49:S2:1506:A:OP2	2.34	0.43
49:S2:1398:G:H22	49:S2:1448:A:H2	1.66	0.43
49:S2:1533:A:H2	49:S2:1536:G:N3	2.17	0.43
49:S2:1736:G:H2'	49:S2:1737:G:C8	2.54	0.43
49:S2:1798:C:H2'	49:S2:1799:G:O4'	2.18	0.43
52:SE:87:MET:HE3	52:SE:226:PHE:CE2	2.54	0.43
56:SI:126:GLY:H	56:SI:128:LYS:HZ1	1.67	0.43
61:SN:40:LEU:HD13	61:SN:53:ILE:HD11	2.01	0.43
73:SZ:69:THR:HG22	73:SZ:108:ILE:HG22	2.01	0.43
81:DH:1009:GLU:HA	81:DH:1012:ARG:HG2	1.99	0.43
81:DH:1221:VAL:HG11	81:DH:1294:PRO:HB2	2.00	0.43
6:L5:35:U:OP2	19:LN:83:LYS:NZ	2.52	0.42
6:L5:1182:C:OP2	6:L5:1183:C:H5''	2.18	0.42
6:L5:1298:C:H2'	6:L5:1299:G:C8	2.54	0.42
6:L5:1345:A:H2'	6:L5:1346:C:C6	2.54	0.42
6:L5:2361:G:N2	6:L5:3860:A:OP2	2.42	0.42
6:L5:4401:G:H2'	6:L5:4402:C:H6	1.84	0.42
15:LI:51:HIS:HB3	15:LI:134:VAL:HG13	2.00	0.42
49:S2:558:G:H2'	49:S2:559:G:C8	2.54	0.42
49:S2:1454:A:OP1	65:SR:49:LYS:NZ	2.52	0.42
49:S2:1627:C:H2'	49:S2:1628:C:H6	1.84	0.42
58:SK:7:ASN:O	58:SK:11:ILE:HG12	2.19	0.42
1:LA:8:GLN:O	6:L5:3667:C:O2'	2.37	0.42
6:L5:3777:G:O2'	6:L5:3815:G:O6	2.34	0.42
7:L7:24:C:H2'	7:L7:25:G:O4'	2.18	0.42
8:L8:144:U:H2'	8:L8:145:C:C6	2.54	0.42
15:LI:193:ASP:N	15:LI:193:ASP:OD1	2.51	0.42
49:S2:1658:G:OP2	49:S2:1660:C:N4	2.52	0.42
49:S2:1700:C:C2	49:S2:1834:A:N6	2.87	0.42
54:SG:14:LYS:HG2	54:SG:124:LEU:HD11	2.00	0.42
66:SS:36:VAL:HG23	66:SS:40:TYR:HD2	1.83	0.42
80:Sg:47:ARG:HG2	80:Sg:52:TYR:CZ	2.54	0.42
81:DH:642:VAL:HA	81:DH:645:GLU:HB2	1.99	0.42
81:DH:1069:LEU:N	81:DH:1344:LEU:HD21	2.35	0.42
81:DH:1085:MET:SD	81:DH:1098:VAL:HG13	2.59	0.42
81:DH:1145:TRP:CD1	81:DH:1157:GLU:HG3	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:SA:91:ALA:HB3	2:SA:98:PRO:HG3	2.01	0.42
3:LB:13:SER:HB2	6:L5:4622:A:H4'	2.01	0.42
6:L5:288:G:H2'	6:L5:289:C:C6	2.54	0.42
6:L5:1604:G:H2'	6:L5:1605:G:C8	2.53	0.42
6:L5:1719:A:H2'	6:L5:1720:C:C6	2.54	0.42
6:L5:1825:A:H2'	6:L5:1826:G:C8	2.54	0.42
6:L5:2084:C:C4	22:LQ:14:ARG:HD2	2.55	0.42
6:L5:2376:A:H2'	6:L5:2377:C:C6	2.53	0.42
6:L5:2749:C:H2'	6:L5:2750:G:H8	1.83	0.42
6:L5:3948:C:O2'	6:L5:4065:G:N2	2.51	0.42
6:L5:4584:A:H2'	6:L5:4585:U:O4'	2.19	0.42
15:LI:38:ARG:HG2	15:LI:41:ALA:HB2	2.01	0.42
15:LI:103:LEU:HB2	15:LI:112:GLN:HE21	1.85	0.42
16:LJ:63:ARG:NH1	46:Lo:106:PHE:H	2.17	0.42
16:LJ:143:ASP:N	16:LJ:143:ASP:OD1	2.52	0.42
17:LL:107:THR:HG22	40:Li:20:ASN:OD1	2.19	0.42
24:LS:54:MET:HE2	24:LS:54:MET:HB3	1.77	0.42
27:LV:91:LYS:HA	27:LV:91:LYS:HD2	1.88	0.42
49:S2:1648:G:H5''	64:SQ:125:ARG:HB2	2.00	0.42
52:SE:21:ASP:OD1	52:SE:21:ASP:N	2.53	0.42
66:SS:66:ARG:O	66:SS:70:ILE:HG12	2.19	0.42
71:SX:134:TYR:O	78:Se:87:ARG:NH2	2.53	0.42
81:DH:383:LEU:HD13	81:DH:445:LEU:HG	2.02	0.42
81:DH:765:HIS:HB2	81:DH:996:ARG:NH1	2.33	0.42
3:LB:252:ALA:HB3	6:L5:4457:U:H1'	2.01	0.42
6:L5:2784:C:H2'	6:L5:2785:C:H6	1.84	0.42
6:L5:3725:G:N2	6:L5:3728:A:OP2	2.41	0.42
49:S2:349:A:H2'	49:S2:350:C:C6	2.54	0.42
49:S2:382:C:H2'	49:S2:383:G:H8	1.84	0.42
49:S2:386:C:H2'	49:S2:387:C:C6	2.54	0.42
49:S2:1542:C:H5''	67:ST:62:ARG:CZ	2.49	0.42
54:SG:230:LYS:HA	54:SG:230:LYS:HD2	1.78	0.42
63:SP:95:GLY:HA2	63:SP:103:ASN:O	2.19	0.42
73:SZ:52:LYS:HD3	73:SZ:52:LYS:N	2.34	0.42
81:DH:424:VAL:HG11	81:DH:447:ARG:HD2	2.00	0.42
6:L5:20:U:H3'	6:L5:21:G:H8	1.84	0.42
6:L5:136:C:H4'	6:L5:137:G:H5'	2.01	0.42
6:L5:272:U:H2'	6:L5:273:U:C6	2.54	0.42
6:L5:406:C:O2'	6:L5:407:A:OP1	2.33	0.42
6:L5:512:U:O5'	17:LL:165:LYS:NZ	2.51	0.42
6:L5:1303:A:O4'	36:Le:33:ARG:NH1	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:2749:C:H2'	6:L5:2750:G:C8	2.54	0.42
6:L5:4996:C:OP1	35:Ld:32:ARG:NH1	2.43	0.42
20:LO:202:LEU:HD23	20:LO:202:LEU:HA	1.94	0.42
22:LQ:59:PRO:HG3	22:LQ:143:ARG:HA	2.01	0.42
28:LW:119:LYS:HD3	28:LW:119:LYS:HA	1.77	0.42
31:LZ:35:ASP:OD1	31:LZ:35:ASP:N	2.52	0.42
49:S2:432:G:H2'	49:S2:433:A:C8	2.54	0.42
49:S2:804:U:H2'	49:S2:805:U:H6	1.84	0.42
63:SP:28:MET:HG2	63:SP:33:LEU:HD13	2.02	0.42
64:SQ:41:MET:HE3	64:SQ:41:MET:HB3	1.82	0.42
64:SQ:112:LEU:HD22	64:SQ:119:LEU:HD13	2.01	0.42
75:Sb:34:ASP:CG	75:Sb:82:LYS:HZ3	2.27	0.42
80:Sg:131:LEU:O	80:Sg:139:LYS:N	2.52	0.42
81:DH:162:LEU:HD13	81:DH:162:LEU:HA	1.80	0.42
81:DH:420:ASP:OD1	81:DH:420:ASP:N	2.50	0.42
81:DH:1129:ALA:HA	81:DH:1137:THR:HG22	2.00	0.42
2:SA:6:ASP:OD1	2:SA:7:VAL:N	2.53	0.42
6:L5:475:G:H2'	6:L5:476:G:H8	1.85	0.42
6:L5:1175:A:H2	6:L5:1185:G:H1	1.67	0.42
6:L5:3933:G:H2'	6:L5:3934:G:C8	2.54	0.42
16:LJ:15:LEU:HD23	16:LJ:15:LEU:H	1.85	0.42
18:LM:11:ARG:HG2	18:LM:57:LEU:HD22	2.01	0.42
22:LQ:157:GLY:O	22:LQ:188:ASN:ND2	2.52	0.42
49:S2:218:U:H2'	49:S2:219:U:O2	2.20	0.42
49:S2:320:G:H2'	49:S2:321:C:C6	2.55	0.42
49:S2:521:A:OP1	57:SJ:45:ARG:NH1	2.47	0.42
49:S2:898:U:H2'	49:S2:899:U:C6	2.55	0.42
49:S2:1579:A:H4'	49:S2:1581:C:H5	1.84	0.42
56:SI:90:LEU:HA	56:SI:93:THR:HG22	2.01	0.42
68:SU:96:GLU:H	68:SU:96:GLU:CD	2.28	0.42
81:DH:1003:MET:SD	81:DH:1003:MET:N	2.92	0.42
81:DH:1133:SER:O	81:DH:1137:THR:HG23	2.20	0.42
81:DH:1338:SER:HA	81:DH:1341:ARG:NH1	2.34	0.42
1:LA:183:GLY:CA	6:L5:1613:A:H5''	2.50	0.42
6:L5:158:A:H5''	6:L5:159:C:H2'	2.00	0.42
6:L5:1461:C:H2'	6:L5:1462:A:H8	1.83	0.42
6:L5:1870:C:H2'	6:L5:1871:A:H8	1.84	0.42
6:L5:2370:A:C8	35:Ld:39:LYS:HD2	2.55	0.42
6:L5:3955:G:O2'	6:L5:3956:G:O5'	2.36	0.42
6:L5:4670:C:O2'	6:L5:4672:A:OP2	2.32	0.42
20:LO:191:LYS:HE2	20:LO:192:TYR:CZ	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:532:C:N4	49:S2:533:A:H62	2.18	0.42
49:S2:798:G:H21	55:SH:107:LYS:HA	1.84	0.42
49:S2:1801:A:H2'	49:S2:1802:C:C6	2.53	0.42
54:SG:164:LYS:HE2	54:SG:164:LYS:HB3	1.91	0.42
60:SM:23:LYS:HD2	60:SM:23:LYS:HA	1.75	0.42
1:LA:242:ARG:NH1	6:L5:3658:C:OP1	2.52	0.42
4:SB:28:LYS:HB3	4:SB:48:LEU:HD22	2.02	0.42
4:SB:104:ASP:OD1	4:SB:105:LEU:N	2.52	0.42
6:L5:382:G:N1	6:L5:385:A:OP2	2.49	0.42
6:L5:679:C:H2'	6:L5:680:G:C8	2.54	0.42
6:L5:705:G:H2'	6:L5:706:C:C6	2.54	0.42
6:L5:1346:C:H2'	6:L5:1347:G:H8	1.83	0.42
6:L5:1739:G:H2'	6:L5:1740:C:C6	2.55	0.42
6:L5:4045:G:N7	6:L5:4048:A:H5'	2.35	0.42
23:LR:105:LEU:HD23	23:LR:138:LEU:HD22	2.01	0.42
29:LX:83:THR:O	29:LX:87:MET:HG2	2.20	0.42
44:Lm:126:LYS:HD3	44:Lm:126:LYS:HA	1.83	0.42
46:Lo:101:GLY:O	46:Lo:102:GLN:NE2	2.52	0.42
49:S2:184:G:H2'	49:S2:185:G:C8	2.55	0.42
49:S2:924:G:OP1	61:SN:3:ARG:HA	2.20	0.42
49:S2:982:G:H2'	49:S2:983:A:C8	2.55	0.42
49:S2:1199:A:H2'	49:S2:1200:A:C8	2.54	0.42
49:S2:1337:C:H2'	49:S2:1338:G:H8	1.85	0.42
54:SG:146:ASN:C	54:SG:148:SER:H	2.28	0.42
57:SJ:151:LEU:HD23	57:SJ:151:LEU:HA	1.87	0.42
58:SK:16:PHE:CD2	58:SK:79:LEU:HD22	2.55	0.42
80:Sg:156:PHE:HD1	80:Sg:165:ILE:HG22	1.85	0.42
81:DH:387:VAL:HG21	81:DH:397:PRO:HD3	2.00	0.42
81:DH:625:ILE:HD13	81:DH:698:HIS:H	1.85	0.42
2:SA:51:LEU:HD13	65:SR:105:MET:HE1	2.01	0.42
2:SA:77:ILE:HG21	2:SA:133:PRO:HG3	2.01	0.42
5:B4:67:G:H2'	5:B4:68:A:H8	1.83	0.42
6:L5:487:G:H2'	6:L5:488:G:O4'	2.20	0.42
6:L5:1273:G:HO2'	6:L5:1274:A:C5'	2.33	0.42
6:L5:2415:U:H2'	6:L5:2416:G:C8	2.55	0.42
6:L5:2608:G:H2'	6:L5:2609:G:H8	1.85	0.42
6:L5:2756:G:O6	31:LZ:51:ARG:NH2	2.35	0.42
6:L5:3893:C:H2'	6:L5:3894:A:C8	2.55	0.42
6:L5:4174:U:H2'	6:L5:4175:G:H8	1.84	0.42
9:LC:235:LEU:HD23	9:LC:240:LEU:HD11	2.01	0.42
9:LC:279:LEU:HA	9:LC:279:LEU:HD23	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:LG:180:PRO:HA	13:LG:227:ASN:OD1	2.20	0.42
26:LU:40:GLU:HG2	26:LU:44:GLN:NE2	2.35	0.42
28:LW:97:LYS:HG2	28:LW:98:PRO:HD2	2.02	0.42
50:SC:60:TRP:O	50:SC:71:LYS:NZ	2.38	0.42
53:SF:55:ARG:HH11	64:SQ:125:ARG:HD3	1.85	0.42
54:SG:52:ILE:HA	54:SG:111:LEU:HD23	2.01	0.42
60:SM:22:LEU:HD21	60:SM:89:VAL:HG23	2.01	0.42
80:Sg:26:GLN:NE2	80:Sg:73:SER:O	2.53	0.42
80:Sg:33:SER:HG	80:Sg:43:TRP:HE1	1.63	0.42
3:LB:136:LYS:HB2	3:LB:136:LYS:HE3	1.84	0.42
3:LB:242:ARG:NH2	6:L5:2856:C:O2	2.46	0.42
6:L5:475:G:H2'	6:L5:476:G:C8	2.55	0.42
6:L5:2348:G:OP1	6:L5:2351:C:N4	2.53	0.42
6:L5:2864:A:H2'	6:L5:2865:U:H6	1.84	0.42
6:L5:4685:U:H2'	6:L5:4686:G:C8	2.55	0.42
6:L5:4765:G:O6	18:LM:4:ARG:NH2	2.49	0.42
18:LM:34:ASN:HA	18:LM:52:PHE:HD2	1.84	0.42
28:LW:31:PHE:CD2	28:LW:37:GLU:HG3	2.55	0.42
30:LY:69:LYS:N	30:LY:83:GLU:OE1	2.52	0.42
49:S2:14:C:H2'	49:S2:15:U:C6	2.55	0.42
49:S2:898:U:H2'	49:S2:899:U:H6	1.85	0.42
49:S2:1304:U:H2'	49:S2:1305:C:C6	2.55	0.42
49:S2:1462:U:H5'	49:S2:1463:U:N3	2.35	0.42
49:S2:1535:U:H1'	53:SF:82:ASN:HD22	1.85	0.42
49:S2:1749:G:H2'	49:S2:1750:C:C6	2.55	0.42
52:SE:89:VAL:HG22	52:SE:100:ARG:HE	1.84	0.42
54:SG:1:MET:HE1	54:SG:106:LEU:HB2	2.02	0.42
55:SH:168:HIS:CD2	55:SH:168:HIS:H	2.36	0.42
58:SK:86:PRO:HA	58:SK:87:PRO:HD3	1.92	0.42
74:Sa:39:PHE:CD1	74:Sa:70:LYS:HG2	2.55	0.42
79:Sf:97:LYS:HD2	79:Sf:97:LYS:HA	1.82	0.42
80:Sg:220:ASP:N	80:Sg:220:ASP:OD1	2.53	0.42
81:DH:768:ASP:OD1	81:DH:772:GLU:HB3	2.19	0.42
5:B4:9:G:O2'	5:B4:10:G:N7	2.53	0.41
5:C4:60:C:H2'	5:C4:61:C:C6	2.54	0.41
6:L5:1719:A:H2'	6:L5:1720:C:H6	1.85	0.41
6:L5:1733:G:OP1	25:LT:43:LYS:HE3	2.20	0.41
6:L5:3641:U:H5	6:L5:3646:A:N7	2.18	0.41
6:L5:3870:C:H2'	6:L5:3871:A:C8	2.54	0.41
6:L5:4094:G:C2	6:L5:4095:G:H1'	2.55	0.41
6:L5:4736:C:H2'	6:L5:4737:G:H8	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:LF:247:MET:HE3	12:LF:247:MET:HB3	1.97	0.41
30:LY:28:LYS:HE3	30:LY:28:LYS:HB3	1.95	0.41
49:S2:1189:A:H2'	49:S2:1190:A:H8	1.85	0.41
49:S2:1727:G:H2'	49:S2:1728:U:C6	2.55	0.41
55:SH:178:LYS:HD2	55:SH:182:GLY:HA2	2.01	0.41
57:SJ:134:HIS:ND1	57:SJ:163:SER:HB2	2.35	0.41
80:Sg:249:CYS:SG	80:Sg:289:LEU:HD21	2.60	0.41
81:DH:932:ILE:HG13	81:DH:937:ILE:HD11	2.02	0.41
4:SB:222:LYS:HB3	4:SB:222:LYS:HE3	1.83	0.41
6:L5:100:C:C2	6:L5:101:A:C8	3.08	0.41
6:L5:1685:G:H5'	6:L5:1686:C:OP2	2.19	0.41
6:L5:1966:C:H2'	6:L5:1967:A:O4'	2.20	0.41
6:L5:2634:C:H2'	6:L5:2635:U:C6	2.54	0.41
6:L5:2683:C:H2'	6:L5:2684:C:C6	2.54	0.41
7:L7:112:U:H2'	7:L7:113:G:H8	1.84	0.41
10:LD:200:MET:HE1	10:LD:241:LYS:HG3	2.01	0.41
10:LD:289:ARG:O	10:LD:292:GLU:HG3	2.20	0.41
11:LE:114:ARG:HD3	48:Lr:87:ARG:NH2	2.36	0.41
11:LE:164:PHE:HA	11:LE:175:VAL:HG23	2.02	0.41
13:LG:103:ARG:HH21	13:LG:195:HIS:CD2	2.38	0.41
13:LG:162:ASP:HB3	13:LG:163:PRO:HD3	2.01	0.41
17:LL:43:ALA:HB1	17:LL:149:GLN:NE2	2.35	0.41
22:LQ:6:ARG:CZ	22:LQ:8:ASN:HD21	2.34	0.41
34:Lc:13:SER:O	34:Lc:17:ARG:HG3	2.18	0.41
49:S2:382:C:H2'	49:S2:383:G:C8	2.56	0.41
49:S2:604:A:N3	49:S2:639:C:O2'	2.44	0.41
49:S2:1598:G:N7	73:SZ:85:ARG:NH2	2.66	0.41
54:SG:52:ILE:HG23	54:SG:109:LEU:HD21	2.01	0.41
58:SK:15:LEU:HD22	58:SK:49:MET:HE3	2.02	0.41
63:SP:18:ARG:NH1	66:SS:88:LYS:O	2.52	0.41
63:SP:72:LYS:HE2	63:SP:72:LYS:HB2	1.80	0.41
79:Sf:89:LYS:HD2	79:Sf:89:LYS:HA	1.85	0.41
81:DH:116:SER:O	81:DH:119:LEU:HD23	2.20	0.41
81:DH:893:PHE:HD1	81:DH:898:TYR:CE2	2.39	0.41
81:DH:1023:MET:HE1	81:DH:1064:PRO:HB2	2.03	0.41
2:SA:16:LEU:HD11	65:SR:116:ASN:HD21	1.85	0.41
3:LB:228:TYR:HB2	6:L5:4979:A:OP1	2.20	0.41
6:L5:109:G:OP2	17:LL:74:ARG:NH1	2.46	0.41
6:L5:654:C:H1'	9:LC:269:LYS:HD3	2.02	0.41
6:L5:1690:C:OP2	22:LQ:11:ARG:NH2	2.45	0.41
6:L5:2542:G:H2'	6:L5:2543:A:C8	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:4186:A:H2'	6:L5:4187:G:C8	2.55	0.41
6:L5:4452:U:H3	82:zx:21:PRO:CB	2.34	0.41
6:L5:4473:A:OP1	44:Lm:124:LYS:NZ	2.53	0.41
6:L5:4629:U:H3	6:L5:4669:A:H62	1.67	0.41
9:LC:74:ALA:H	9:LC:78:ARG:HH21	1.69	0.41
10:LD:232:THR:OG1	10:LD:234:ASP:OD1	2.32	0.41
14:LH:12:ILE:HD11	14:LH:53:LYS:HB2	2.02	0.41
30:LY:23:SER:OG	30:LY:75:ARG:NH1	2.50	0.41
49:S2:5:U:H2'	49:S2:6:G:H8	1.85	0.41
49:S2:1256:G:N2	68:SU:65:THR:HA	2.36	0.41
50:SC:74:LYS:HB3	50:SC:269:PHE:CZ	2.55	0.41
55:SH:130:LEU:HD23	55:SH:130:LEU:HA	1.82	0.41
56:SI:119:LEU:HD23	56:SI:119:LEU:HA	1.87	0.41
57:SJ:134:HIS:HE1	57:SJ:164:PRO:HD2	1.85	0.41
75:Sb:11:SER:HG	75:Sb:14:GLU:CD	2.25	0.41
78:Se:92:LYS:HE2	78:Se:92:LYS:HB2	1.92	0.41
81:DH:1175:GLU:O	81:DH:1179:GLN:HG2	2.21	0.41
3:LB:258:HIS:NE2	6:L5:4518:A:N7	2.69	0.41
6:L5:477:C:H2'	6:L5:478:G:H8	1.85	0.41
6:L5:678:C:H2'	6:L5:679:C:C6	2.55	0.41
6:L5:1281:G:N1	11:LE:128:HIS:HB2	2.36	0.41
6:L5:1896:A:OP1	12:LF:223:LYS:NZ	2.45	0.41
6:L5:4419:U:OP1	6:L5:4475:G:N2	2.53	0.41
6:L5:5057:C:H2'	6:L5:5058:A:C8	2.55	0.41
7:L7:75:G:N2	7:L7:100:A:OP2	2.41	0.41
13:LG:143:VAL:HG21	13:LG:201:THR:HG23	2.02	0.41
18:LM:71:LYS:HE3	18:LM:71:LYS:HB2	1.75	0.41
26:LU:63:ILE:HG12	26:LU:72:VAL:HG22	2.03	0.41
49:S2:145:G:H2'	49:S2:146:G:H8	1.84	0.41
49:S2:1143:A:H5'	50:SC:190:SER:HB3	2.03	0.41
49:S2:1387:G:H2'	49:S2:1388:A:O4'	2.20	0.41
54:SG:115:LYS:HB3	54:SG:115:LYS:HE3	1.77	0.41
60:SM:95:ASP:O	60:SM:96:ARG:C	2.64	0.41
71:SX:95:GLU:HB3	71:SX:98:ASP:OD2	2.21	0.41
80:Sg:196:ASN:HD22	80:Sg:237:ASN:HA	1.85	0.41
81:DH:479:LEU:HD23	81:DH:479:LEU:HA	1.90	0.41
81:DH:930:THR:HG23	81:DH:932:ILE:HG22	2.03	0.41
6:L5:251:C:H2'	6:L5:252:C:C6	2.55	0.41
6:L5:1246:G:H2'	6:L5:1247:U:H6	1.85	0.41
6:L5:2045:G:O6	6:L5:3870:C:O2'	2.36	0.41
6:L5:2538:U:H2'	6:L5:2539:C:C6	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:3664:G:H2'	6:L5:3665:G:C8	2.50	0.41
6:L5:4135:G:H2'	6:L5:4136:G:H8	1.85	0.41
19:LN:200:LEU:HD23	19:LN:200:LEU:HA	1.92	0.41
35:Ld:92:ARG:HA	35:Ld:102:LEU:HD23	2.03	0.41
39:Lh:88:THR:HG1	39:Lh:91:MET:HG3	1.86	0.41
39:Lh:96:ASN:O	39:Lh:99:GLU:N	2.49	0.41
44:Lm:106:ARG:HE	44:Lm:106:ARG:HB3	1.67	0.41
49:S2:544:G:H2'	49:S2:545:A:C8	2.56	0.41
49:S2:980:A:H2'	49:S2:981:A:C8	2.56	0.41
49:S2:1203:G:H2'	49:S2:1204:A:N3	2.36	0.41
60:SM:49:LEU:H	60:SM:111:VAL:HG22	1.85	0.41
68:SU:55:ARG:HE	68:SU:87:ARG:NH1	2.18	0.41
71:SX:58:GLU:OE2	78:Se:77:HIS:CD2	2.74	0.41
81:DH:761:VAL:HG11	81:DH:990:CYS:HB3	2.02	0.41
81:DH:1224:LEU:HB2	81:DH:1272:LEU:HD11	2.01	0.41
4:SB:95:ASN:O	4:SB:95:ASN:ND2	2.47	0.41
6:L5:68:U:H2'	6:L5:69:A:O4'	2.20	0.41
6:L5:666:G:H21	48:Lr:46:ARG:HG2	1.85	0.41
6:L5:756:G:H2'	6:L5:757:G:C8	2.55	0.41
6:L5:970:G:C2	11:LE:123:ARG:HD2	2.55	0.41
6:L5:1304:C:H2'	6:L5:1305:C:H6	1.85	0.41
6:L5:2284:G:OP1	32:La:7:LYS:NZ	2.47	0.41
6:L5:2777:G:H5''	6:L5:2778:G:H5'	2.03	0.41
6:L5:2814:C:H5'	6:L5:2815:A:OP2	2.20	0.41
6:L5:2876:G:C8	47:Lp:16:THR:HA	2.56	0.41
6:L5:2891:U:H1'	6:L5:5016:A:N7	2.35	0.41
10:LD:215:ASP:OD1	10:LD:215:ASP:N	2.52	0.41
14:LH:48:LEU:HD11	14:LH:56:ARG:HE	1.85	0.41
16:LJ:112:HIS:HE1	16:LJ:125:ILE:HA	1.85	0.41
23:LR:15:LEU:HD21	23:LR:45:ILE:HD12	2.03	0.41
25:LT:25:VAL:HG23	25:LT:45:MET:HE1	2.01	0.41
28:LW:98:PRO:HA	28:LW:101:ARG:HB2	2.01	0.41
31:LZ:92:ASP:OD1	31:LZ:94:THR:HG22	2.21	0.41
41:Lj:21:ARG:O	41:Lj:23:GLY:N	2.54	0.41
49:S2:651:U:H2'	49:S2:652:U:C6	2.56	0.41
49:S2:1058:A:H2'	49:S2:1059:G:C8	2.56	0.41
49:S2:1215:C:O2'	49:S2:1645:C:OP2	2.38	0.41
49:S2:1337:C:H4'	68:SU:67:LYS:O	2.21	0.41
49:S2:1403:C:O2'	49:S2:1405:A:OP2	2.38	0.41
51:SD:115:VAL:HG21	51:SD:150:MET:HE1	2.03	0.41
58:SK:52:LEU:HD23	58:SK:52:LEU:HA	1.88	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
58:SK:60:GLU:HB3	58:SK:69:TRP:CD1	2.55	0.41
59:SL:147:LYS:HD3	59:SL:147:LYS:HA	1.82	0.41
60:SM:80:ASP:N	60:SM:80:ASP:OD1	2.51	0.41
60:SM:93:LYS:HB2	60:SM:103:VAL:HG13	2.03	0.41
81:DH:471:ASP:OD1	81:DH:472:ALA:N	2.53	0.41
81:DH:1362:GLU:HA	81:DH:1365:LYS:HE2	2.02	0.41
4:SB:168:MET:O	4:SB:172:MET:HG3	2.20	0.41
5:C4:9:G:O2'	5:C4:10:G:N7	2.53	0.41
6:L5:757:G:H2'	6:L5:758:G:H8	1.85	0.41
6:L5:1397:A:N1	6:L5:1498:G:O2'	2.52	0.41
6:L5:1669:A:H4'	6:L5:1685:G:N2	2.35	0.41
6:L5:2391:G:H2'	6:L5:2392:C:C6	2.55	0.41
6:L5:2448:G:H2'	6:L5:2449:A:C8	2.55	0.41
6:L5:2483:G:H1	6:L5:2495:U:H3	1.67	0.41
6:L5:3702:A:N6	6:L5:3774:A:N1	2.68	0.41
6:L5:4208:U:OP1	6:L5:4334:U:O2'	2.35	0.41
14:LH:93:ARG:NH2	44:Lm:82:LEU:HD11	2.36	0.41
15:LI:19:LYS:HB2	15:LI:26:VAL:HG11	2.03	0.41
41:Lj:45:ARG:HH11	41:Lj:47:TYR:HE2	1.68	0.41
49:S2:659:G:HO2'	49:S2:662:G:HO2'	1.55	0.41
49:S2:863:U:O4	49:S2:864:A:N6	2.53	0.41
49:S2:940:U:H3	49:S2:1002:U:H3	1.67	0.41
49:S2:1189:A:H2'	49:S2:1190:A:C8	2.56	0.41
49:S2:1617:G:N1	49:S2:1620:A:OP2	2.53	0.41
54:SG:18:VAL:HG21	54:SG:24:LEU:HD21	2.03	0.41
59:SL:90:ARG:HD2	59:SL:109:MET:HE2	2.03	0.41
81:DH:596:GLU:OE2	81:DH:757:ARG:N	2.54	0.41
81:DH:604:GLN:HG3	81:DH:608:PHE:CE2	2.56	0.41
3:LB:194:LEU:HD23	3:LB:194:LEU:HA	1.82	0.41
5:B4:73:C:P	15:LI:110:ARG:HH11	2.44	0.41
6:L5:4136:G:O2'	6:L5:4137:C:OP1	2.34	0.41
6:L5:4563:U:H2'	6:L5:4564:A:C8	2.56	0.41
6:L5:4563:U:H2'	6:L5:4564:A:H8	1.86	0.41
13:LG:88:ASP:OD1	13:LG:88:ASP:N	2.48	0.41
14:LH:92:MET:HG2	14:LH:181:VAL:HA	2.03	0.41
14:LH:92:MET:SD	14:LH:161:ILE:HD11	2.61	0.41
15:LI:85:PHE:HD2	15:LI:87:ILE:HG23	1.85	0.41
19:LN:159:ARG:HG3	19:LN:164:LEU:HB2	2.03	0.41
24:LS:99:ASP:OD1	24:LS:100:LEU:N	2.51	0.41
49:S2:528:A:H2'	49:S2:529:A:C8	2.56	0.41
49:S2:1468:C:H2'	49:S2:1469:A:H8	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:1558:C:H2'	49:S2:1559:C:C6	2.56	0.41
49:S2:1741:U:H2'	49:S2:1742:C:O4'	2.21	0.41
50:SC:233:LEU:HD12	50:SC:233:LEU:HA	1.80	0.41
51:SD:27:ARG:C	58:SK:61:GLN:HE22	2.29	0.41
59:SL:45:LYS:HD3	59:SL:45:LYS:HA	1.82	0.41
59:SL:89:ARG:HE	59:SL:106:HIS:CD2	2.39	0.41
60:SM:36:ARG:NH1	60:SM:40:LYS:HB2	2.36	0.41
68:SU:55:ARG:HA	68:SU:87:ARG:HD3	2.02	0.41
80:Sg:7:LEU:HD11	80:Sg:308:ARG:HB3	2.03	0.41
80:Sg:17:TRP:CE2	80:Sg:303:THR:HB	2.55	0.41
80:Sg:246:TYR:CD2	80:Sg:261:LEU:HB2	2.56	0.41
81:DH:605:VAL:O	81:DH:609:LEU:HG	2.21	0.41
81:DH:767:GLU:HB3	81:DH:829:TYR:CE2	2.55	0.41
4:SB:144:LYS:HD3	4:SB:208:HIS:HB3	2.03	0.41
6:L5:10:A:H2'	6:L5:11:G:H8	1.85	0.41
6:L5:464:G:H2'	6:L5:465:G:C8	2.56	0.41
6:L5:919:C:H2'	6:L5:920:C:C6	2.56	0.41
6:L5:979:C:OP2	11:LE:66:LYS:HD3	2.21	0.41
6:L5:1718:C:OP2	12:LF:200:ARG:NH2	2.52	0.41
6:L5:1720:C:H2'	6:L5:1721:G:O4'	2.21	0.41
6:L5:1946:G:O2'	6:L5:1948:G:OP2	2.36	0.41
6:L5:2550:G:O2'	6:L5:2587:A:N1	2.54	0.41
6:L5:3893:C:H2'	6:L5:3894:A:H8	1.86	0.41
6:L5:3923:A:H2'	6:L5:3924:C:C6	2.56	0.41
6:L5:4038:C:H41	6:L5:4051:C:P	2.44	0.41
6:L5:4689:U:H5	6:L5:4699:U:O4	2.04	0.41
6:L5:4913:G:H4'	6:L5:4914:C:O5'	2.21	0.41
9:LC:13:GLU:OE1	9:LC:161:TYR:OH	2.30	0.41
12:LF:232:ASP:HB2	12:LF:236:ARG:HH21	1.85	0.41
13:LG:31:LEU:HD21	31:LZ:122:TYR:OH	2.21	0.41
13:LG:32:PHE:CE2	31:LZ:55:ALA:HA	2.55	0.41
14:LH:137:SER:HB3	14:LH:143:GLU:HB3	2.03	0.41
25:LT:18:PRO:HG2	25:LT:21:LYS:HB2	2.02	0.41
26:LU:42:PHE:CZ	26:LU:46:ARG:HG3	2.56	0.41
26:LU:84:LYS:HB2	26:LU:110:TYR:CZ	2.56	0.41
28:LW:106:GLU:HA	28:LW:109:ILE:HG22	2.03	0.41
29:LX:122:ALA:N	29:LX:139:ARG:O	2.46	0.41
41:Lj:27:TYR:HA	41:Lj:34:CYS:HA	2.03	0.41
45:Ln:11:ARG:NH2	49:S2:1844:U:OP1	2.49	0.41
46:Lo:69:ARG:HH22	46:Lo:80:LYS:HD3	1.86	0.41
46:Lo:69:ARG:HB3	46:Lo:82:MET:CE	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:15:U:H2'	49:S2:16:G:O4'	2.21	0.41
49:S2:321:C:H2'	49:S2:322:C:C6	2.56	0.41
49:S2:530:U:H2'	49:S2:531:A:C8	2.55	0.41
49:S2:664:A:O2'	49:S2:670:A:N1	2.51	0.41
49:S2:1143:A:H2'	49:S2:1144:A:C8	2.56	0.41
49:S2:1277:C:H2'	49:S2:1278:A:H8	1.86	0.41
49:S2:1535:U:O2	53:SF:82:ASN:ND2	2.54	0.41
49:S2:1713:C:H2'	49:S2:1714:U:C6	2.55	0.41
51:SD:49:ILE:HA	51:SD:87:TYR:O	2.20	0.41
56:SI:31:ARG:HH12	56:SI:48:VAL:HG12	1.86	0.41
58:SK:94:LEU:O	58:SK:96:ARG:NH2	2.54	0.41
59:SL:126:VAL:HG12	59:SL:145:VAL:HG22	2.03	0.41
60:SM:60:MET:HG3	79:Sf:103:LEU:HG	2.03	0.41
60:SM:120:ALA:HA	60:SM:123:VAL:HG22	2.01	0.41
61:SN:87:ASP:N	61:SN:87:ASP:OD1	2.52	0.41
62:SO:44:VAL:HG12	62:SO:53:ILE:HB	2.02	0.41
66:SS:36:VAL:HG23	66:SS:40:TYR:CD2	2.54	0.41
66:SS:106:LYS:O	66:SS:109:GLU:HG3	2.21	0.41
70:SW:83:LEU:HD23	70:SW:83:LEU:HA	1.86	0.41
72:SY:18:LEU:HG	72:SY:20:ARG:NH1	2.36	0.41
80:Sg:34:ALA:HB1	80:Sg:66:VAL:HG23	2.02	0.41
80:Sg:80:SER:HB3	80:Sg:90:TRP:HE1	1.85	0.41
80:Sg:230:LEU:HD11	80:Sg:259:TRP:CD1	2.55	0.41
81:DH:773:THR:HG21	81:DH:853:LEU:CD1	2.51	0.41
81:DH:870:VAL:HG23	81:DH:926:ILE:HA	2.01	0.41
81:DH:1114:PRO:HG2	81:DH:1117:ARG:HD2	2.03	0.41
81:DH:1137:THR:HG21	81:DH:1261:VAL:HG21	2.03	0.41
2:SA:99:ILE:HD11	2:SA:117:ARG:HD2	2.03	0.41
6:L5:982:U:O5'	11:LE:73:TYR:OH	2.39	0.41
6:L5:1341:U:H2'	6:L5:1342:A:H8	1.86	0.41
6:L5:2412:A:H2'	6:L5:2413:U:C6	2.56	0.41
6:L5:2588:C:OP1	6:L5:2768:C:O2'	2.28	0.41
6:L5:4071:U:H2'	6:L5:4072:C:C6	2.55	0.41
6:L5:4088:C:H2'	6:L5:4089:G:C8	2.55	0.41
8:L8:122:G:C5	8:L8:123:U:H1'	2.56	0.41
19:LN:104:GLU:HA	19:LN:160:GLU:HG3	2.03	0.41
49:S2:107:A:H2'	49:S2:108:G:H8	1.84	0.41
49:S2:1290:G:O6	79:Sf:95:ARG:NH2	2.54	0.41
49:S2:1297:U:HO2'	49:S2:1298:G:N2	2.19	0.41
53:SF:100:ILE:HG21	53:SF:111:VAL:HG11	2.03	0.41
55:SH:20:GLU:HA	55:SH:23:ILE:HD13	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
65:SR:41:ILE:HG23	65:SR:46:LEU:HD23	2.02	0.41
67:ST:102:ARG:HA	67:ST:102:ARG:HD3	1.83	0.41
81:DH:413:ARG:HG2	81:DH:423:VAL:HG13	2.03	0.41
81:DH:957:HIS:HB2	81:DH:962:MET:SD	2.61	0.41
5:C4:27:U:O2'	5:C4:28:C:H5'	2.22	0.40
6:L5:179:G:H2'	6:L5:180:C:C6	2.56	0.40
6:L5:189:G:N3	6:L5:253:G:N2	2.69	0.40
6:L5:964:A:H2'	6:L5:965:G:H4'	2.04	0.40
6:L5:985:C:H2'	6:L5:986:C:H6	1.84	0.40
6:L5:1246:G:H2'	6:L5:1247:U:C6	2.56	0.40
6:L5:1577:G:H5'	6:L5:1578:U:H5''	2.03	0.40
6:L5:1693:U:H2'	6:L5:1694:C:O4'	2.21	0.40
6:L5:4089:G:H2'	6:L5:4090:G:H8	1.87	0.40
6:L5:4324:A:H2'	6:L5:4325:A:C8	2.55	0.40
6:L5:4474:A:H5''	44:Lm:125:LYS:HG3	2.03	0.40
6:L5:4531:U:C6	82:zx:21:PRO:O	2.74	0.40
9:LC:150:LEU:HB3	9:LC:151:PRO:HD3	2.03	0.40
15:LI:102:MET:HG3	15:LI:112:GLN:NE2	2.36	0.40
20:LO:142:ALA:HA	20:LO:145:VAL:HG22	2.03	0.40
24:LS:164:LYS:HA	24:LS:165:PRO:HA	1.94	0.40
36:Le:67:LYS:O	36:Le:75:ARG:NH2	2.50	0.40
49:S2:1201:U:H2'	49:S2:1202:U:C6	2.56	0.40
49:S2:1623:A:N6	66:SS:132:ARG:HG2	2.36	0.40
51:SD:156:LEU:HD12	51:SD:157:MET:H	1.86	0.40
52:SE:163:ASP:OD1	52:SE:163:ASP:N	2.52	0.40
55:SH:20:GLU:H	55:SH:20:GLU:CD	2.29	0.40
56:SI:36:THR:OG1	56:SI:57:ALA:O	2.29	0.40
58:SK:57:TYR:HB3	58:SK:75:GLY:HA2	2.03	0.40
60:SM:79:VAL:HB	60:SM:85:LEU:HD12	2.02	0.40
64:SQ:39:LEU:HD12	64:SQ:39:LEU:HA	1.95	0.40
65:SR:81:ARG:O	65:SR:81:ARG:NE	2.37	0.40
80:Sg:152:SER:H	80:Sg:169:GLY:HA2	1.85	0.40
81:DH:685:ARG:NH2	81:DH:1077:PRO:HA	2.36	0.40
4:SB:217:MET:HE2	4:SB:217:MET:HB2	1.91	0.40
6:L5:163:A:H2'	6:L5:164:G:C8	2.56	0.40
6:L5:223:G:H4'	6:L5:225:G:N7	2.37	0.40
6:L5:425:U:H2'	6:L5:426:A:H8	1.86	0.40
6:L5:452:A:H4'	6:L5:453:G:H5'	2.04	0.40
6:L5:951:G:H2'	6:L5:952:G:H8	1.87	0.40
6:L5:2034:G:H2'	6:L5:2035:C:C6	2.56	0.40
6:L5:2683:C:H2'	6:L5:2684:C:H6	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L5:3633:C:H2'	6:L5:3634:G:C8	2.57	0.40
6:L5:3916:G:H2'	6:L5:3917:A:C8	2.56	0.40
6:L5:4174:U:H2'	6:L5:4175:G:C8	2.56	0.40
6:L5:4342:C:O3'	46:Lo:37:GLY:HA3	2.21	0.40
6:L5:4629:U:C2	6:L5:4630:G:C8	3.09	0.40
14:LH:165:THR:O	14:LH:165:THR:OG1	2.38	0.40
18:LM:122:ILE:CG2	20:LO:189:ILE:HD11	2.51	0.40
22:LQ:53:MET:HB3	22:LQ:57:ASN:HB2	2.02	0.40
23:LR:44:LEU:HD22	23:LR:49:LEU:HD22	2.02	0.40
27:LV:123:LYS:HE2	27:LV:123:LYS:HB3	1.90	0.40
35:Ld:37:GLY:O	35:Ld:41:ARG:HG3	2.21	0.40
39:Lh:46:LYS:HB3	39:Lh:46:LYS:HE3	1.89	0.40
41:Lj:67:LEU:HD23	41:Lj:67:LEU:HA	1.86	0.40
49:S2:838:G:N2	49:S2:840:C:O2'	2.54	0.40
49:S2:1288:U:O2	49:S2:1311:C:N3	2.54	0.40
52:SE:103:TYR:HB3	52:SE:107:GLY:HA2	2.03	0.40
54:SG:151:ASP:N	54:SG:151:ASP:OD1	2.54	0.40
56:SI:199:LEU:HD23	56:SI:199:LEU:HA	1.89	0.40
59:SL:35:ARG:NH2	59:SL:55:TYR:H	2.19	0.40
64:SQ:28:GLY:HA3	64:SQ:67:ASP:OD2	2.21	0.40
66:SS:114:LEU:HA	66:SS:117:ILE:HG22	2.02	0.40
70:SW:15:ASN:HD21	70:SW:71:LYS:HG3	1.85	0.40
70:SW:55:ASP:N	70:SW:55:ASP:OD1	2.54	0.40
73:SZ:110:THR:OG1	73:SZ:111:ARG:N	2.55	0.40
81:DH:1299:GLY:O	81:DH:1333:ARG:NH1	2.54	0.40
1:LA:241:ARG:HH22	6:L5:3660:C:P	2.43	0.40
2:SA:163:CYS:HB3	2:SA:174:MET:HE3	2.02	0.40
3:LB:28:LYS:HB2	3:LB:28:LYS:HE3	1.86	0.40
4:SB:164:ILE:O	4:SB:168:MET:HG3	2.22	0.40
6:L5:687:U:N3	11:LE:95:PRO:HG2	2.36	0.40
6:L5:1346:C:H2'	6:L5:1347:G:C8	2.56	0.40
6:L5:1348:U:H2'	6:L5:1349:G:C8	2.56	0.40
6:L5:1445:U:H2'	6:L5:1446:C:C6	2.55	0.40
6:L5:2583:C:OP2	38:Lg:76:ARG:NH1	2.43	0.40
6:L5:4577:U:H2'	6:L5:4578:G:C8	2.56	0.40
6:L5:4611:A:H2'	6:L5:4612:C:H6	1.86	0.40
6:L5:5002:U:H2'	6:L5:5003:U:C6	2.56	0.40
8:L8:92:U:H2'	8:L8:93:C:O4'	2.21	0.40
9:LC:11:TYR:CZ	9:LC:148:PRO:HB2	2.57	0.40
9:LC:240:LEU:HA	9:LC:240:LEU:HD23	1.85	0.40
30:LY:22:PRO:HD2	30:LY:25:ILE:HD11	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:49:C:H2'	49:S2:472:C:H41	1.85	0.40
49:S2:128:U:H5'	49:S2:129:C:H5	1.85	0.40
49:S2:842:C:H2'	49:S2:843:C:H6	1.85	0.40
49:S2:845:G:H2'	49:S2:846:G:C8	2.56	0.40
51:SD:193:ASP:CG	51:SD:195:THR:HG1	2.29	0.40
52:SE:180:LEU:HA	52:SE:194:VAL:HA	2.02	0.40
54:SG:149:LYS:HD2	54:SG:150:GLU:HB2	2.03	0.40
59:SL:120:VAL:HG12	59:SL:145:VAL:HG11	2.03	0.40
61:SN:63:VAL:HB	61:SN:71:ILE:HD11	2.04	0.40
64:SQ:72:VAL:HG21	64:SQ:84:ILE:HD11	2.03	0.40
80:Sg:159:ASN:ND2	80:Sg:163:PRO:HB3	2.36	0.40
81:DH:642:VAL:HG21	81:DH:677:TYR:OH	2.21	0.40
81:DH:680:THR:OG1	81:DH:710:GLN:HB3	2.20	0.40
81:DH:975:ALA:HB1	81:DH:992:ARG:HE	1.86	0.40
81:DH:1020:LEU:HD12	81:DH:1053:LEU:HD11	2.03	0.40
81:DH:1167:ASN:HB3	81:DH:1170:SER:HB2	2.02	0.40
4:SB:225:LEU:HD23	13:LG:264:LYS:HG2	2.03	0.40
5:C4:75:A:N7	6:L5:4371:G:H5'	2.37	0.40
6:L5:132:G:H2'	6:L5:133:C:H4'	2.04	0.40
6:L5:323:C:H2'	6:L5:324:A:H8	1.87	0.40
6:L5:453:G:N3	6:L5:453:G:H2'	2.36	0.40
6:L5:654:C:H2'	6:L5:655:C:C6	2.57	0.40
6:L5:1074:G:H3'	6:L5:1075:G:H8	1.86	0.40
6:L5:1267:C:N4	33:Lb:111:ARG:HH12	2.19	0.40
6:L5:1833:G:N2	6:L5:1835:G:O4'	2.54	0.40
6:L5:2300:A:N1	9:LC:181:LYS:HG3	2.36	0.40
6:L5:2615:C:H2'	6:L5:2616:C:H6	1.86	0.40
6:L5:4697:U:H4'	44:Lm:104:HIS:CE1	2.56	0.40
6:L5:4704:C:H2'	6:L5:4705:A:C8	2.57	0.40
7:L7:27:G:OP2	10:LD:56:THR:HB	2.21	0.40
8:L8:26:C:O2'	9:LC:53:ALA:O	2.36	0.40
10:LD:208:MET:O	10:LD:212:MET:HG2	2.21	0.40
13:LG:71:TYR:HE1	19:LN:25:VAL:HG21	1.86	0.40
17:LL:51:ALA:HB2	17:LL:149:GLN:HE21	1.85	0.40
21:LP:112:LEU:HD23	21:LP:152:GLU:HB3	2.04	0.40
29:LX:114:LYS:HE2	29:LX:120:ASP:HA	2.03	0.40
36:Le:77:PHE:CD2	36:Le:88:LEU:HD11	2.56	0.40
46:Lo:97:LYS:HD2	46:Lo:97:LYS:HA	1.90	0.40
49:S2:309:G:OP2	56:SI:55:TYR:OH	2.39	0.40
49:S2:488:U:H6	49:S2:488:U:H2'	1.67	0.40
49:S2:527:C:H2'	49:S2:528:A:H8	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:S2:688:U:H4'	49:S2:689:U:O5'	2.19	0.40
49:S2:1109:C:H6	49:S2:1109:C:H2'	1.74	0.40
49:S2:1177:U:H2'	49:S2:1178:U:C6	2.56	0.40
49:S2:1365:G:H2'	49:S2:1366:G:H8	1.87	0.40
49:S2:1389:C:O2'	51:SD:162:ASP:HB3	2.22	0.40
50:SC:121:ARG:HH12	50:SC:123:ARG:CZ	2.34	0.40
51:SD:7:LYS:HA	51:SD:7:LYS:HD3	1.75	0.40
59:SL:49:GLU:OE1	59:SL:116:CYS:HA	2.22	0.40
63:SP:14:LYS:HA	63:SP:14:LYS:HD2	1.92	0.40
81:DH:168:ASP:OD1	81:DH:168:ASP:N	2.54	0.40
81:DH:553:PHE:HB3	81:DH:614:LEU:HD11	2.01	0.40
81:DH:652:PRO:HB2	81:DH:661:TYR:HD1	1.87	0.40
3:LB:174:ARG:NH1	6:L5:4985:U:O2	2.43	0.40
6:L5:121:A:H62	6:L5:152:U:H3	1.69	0.40
6:L5:406:C:H2'	6:L5:407:A:C8	2.56	0.40
6:L5:1084:C:H2'	6:L5:1085:C:C6	2.56	0.40
6:L5:1351:G:H2'	6:L5:1352:C:C6	2.56	0.40
6:L5:2901:G:N2	6:L5:2902:G:O6	2.55	0.40
6:L5:3736:A:H2'	6:L5:3737:A:C8	2.57	0.40
6:L5:5015:G:H2'	6:L5:5016:A:C2	2.57	0.40
7:L7:12:U:OP2	7:L7:67:C:O2'	2.39	0.40
12:LF:179:LEU:HD23	12:LF:179:LEU:HA	1.96	0.40
28:LW:111:ALA:O	28:LW:114:GLU:HG3	2.21	0.40
46:Lo:45:GLN:HE22	46:Lo:51:GLN:HA	1.87	0.40
48:Lr:16:PHE:O	48:Lr:26:SER:HA	2.22	0.40
49:S2:889:U:O5'	49:S2:890:U:H5'	2.21	0.40
49:S2:1310:U:H2'	49:S2:1311:C:H6	1.86	0.40
49:S2:1736:G:H2'	49:S2:1737:G:H8	1.86	0.40
53:SF:60:ARG:HH21	76:Sc:49:PRO:HB3	1.86	0.40
59:SL:151:THR:HG22	59:SL:152:LYS:N	2.36	0.40
67:ST:65:TYR:HB2	67:ST:123:LEU:HD11	2.04	0.40
71:SX:122:VAL:HG13	71:SX:130:LEU:HD22	2.03	0.40
73:SZ:60:LYS:HE3	73:SZ:60:LYS:HB3	1.87	0.40
78:Se:114:ARG:HA	78:Se:118:ASN:HD22	1.85	0.40
81:DH:830:SER:C	81:DH:832:ARG:N	2.79	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	LA	246/257 (96%)	235 (96%)	11 (4%)	0	100	100
2	SA	217/295 (74%)	206 (95%)	11 (5%)	0	100	100
3	LB	393/403 (98%)	386 (98%)	7 (2%)	0	100	100
4	SB	211/264 (80%)	204 (97%)	7 (3%)	0	100	100
9	LC	360/427 (84%)	339 (94%)	21 (6%)	0	100	100
10	LD	291/297 (98%)	277 (95%)	13 (4%)	1 (0%)	37	70
11	LE	216/288 (75%)	207 (96%)	9 (4%)	0	100	100
12	LF	223/248 (90%)	215 (96%)	8 (4%)	0	100	100
13	LG	224/266 (84%)	219 (98%)	5 (2%)	0	100	100
14	LH	188/192 (98%)	185 (98%)	3 (2%)	0	100	100
15	LI	211/214 (99%)	204 (97%)	7 (3%)	0	100	100
16	LJ	166/178 (93%)	166 (100%)	0	0	100	100
17	LL	205/211 (97%)	199 (97%)	6 (3%)	0	100	100
18	LM	135/215 (63%)	132 (98%)	3 (2%)	0	100	100
19	LN	201/204 (98%)	199 (99%)	2 (1%)	0	100	100
20	LO	198/203 (98%)	194 (98%)	4 (2%)	0	100	100
21	LP	153/184 (83%)	146 (95%)	7 (5%)	0	100	100
22	LQ	185/188 (98%)	179 (97%)	6 (3%)	0	100	100
23	LR	174/196 (89%)	172 (99%)	2 (1%)	0	100	100
24	LS	173/176 (98%)	160 (92%)	13 (8%)	0	100	100
25	LT	157/160 (98%)	152 (97%)	5 (3%)	0	100	100
26	LU	99/128 (77%)	93 (94%)	6 (6%)	0	100	100
27	LV	128/140 (91%)	124 (97%)	4 (3%)	0	100	100
28	LW	110/157 (70%)	108 (98%)	2 (2%)	0	100	100
29	LX	116/156 (74%)	114 (98%)	2 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
30	LY	132/145 (91%)	129 (98%)	3 (2%)	0	100	100
31	LZ	133/136 (98%)	129 (97%)	4 (3%)	0	100	100
32	La	145/148 (98%)	138 (95%)	7 (5%)	0	100	100
33	Lb	102/159 (64%)	96 (94%)	6 (6%)	0	100	100
34	Lc	96/115 (84%)	94 (98%)	2 (2%)	0	100	100
35	Ld	105/125 (84%)	102 (97%)	3 (3%)	0	100	100
36	Le	128/135 (95%)	126 (98%)	2 (2%)	0	100	100
37	Lf	107/110 (97%)	106 (99%)	1 (1%)	0	100	100
38	Lg	110/117 (94%)	109 (99%)	1 (1%)	0	100	100
39	Lh	119/123 (97%)	114 (96%)	5 (4%)	0	100	100
40	Li	99/105 (94%)	93 (94%)	6 (6%)	0	100	100
41	Lj	84/97 (87%)	79 (94%)	5 (6%)	0	100	100
42	Lk	67/70 (96%)	67 (100%)	0	0	100	100
43	Ll	48/51 (94%)	45 (94%)	3 (6%)	0	100	100
44	Lm	50/128 (39%)	49 (98%)	1 (2%)	0	100	100
45	Ln	22/25 (88%)	21 (96%)	1 (4%)	0	100	100
46	Lo	103/106 (97%)	95 (92%)	8 (8%)	0	100	100
47	Lp	87/92 (95%)	83 (95%)	4 (5%)	0	100	100
48	Lr	121/137 (88%)	115 (95%)	6 (5%)	0	100	100
50	SC	217/293 (74%)	204 (94%)	13 (6%)	0	100	100
51	SD	222/243 (91%)	213 (96%)	9 (4%)	0	100	100
52	SE	257/263 (98%)	239 (93%)	18 (7%)	0	100	100
53	SF	182/204 (89%)	167 (92%)	15 (8%)	0	100	100
54	SG	229/249 (92%)	219 (96%)	10 (4%)	0	100	100
55	SH	184/194 (95%)	169 (92%)	15 (8%)	0	100	100
56	SI	204/208 (98%)	192 (94%)	12 (6%)	0	100	100
57	SJ	178/194 (92%)	174 (98%)	4 (2%)	0	100	100
58	SK	94/165 (57%)	91 (97%)	3 (3%)	0	100	100
59	SL	139/158 (88%)	134 (96%)	5 (4%)	0	100	100
60	SM	118/132 (89%)	110 (93%)	8 (7%)	0	100	100
61	SN	148/151 (98%)	145 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
62	SO	132/151 (87%)	129 (98%)	3 (2%)	0	100	100
63	SP	125/145 (86%)	123 (98%)	2 (2%)	0	100	100
64	SQ	138/146 (94%)	130 (94%)	8 (6%)	0	100	100
65	SR	131/135 (97%)	123 (94%)	8 (6%)	0	100	100
66	SS	139/152 (91%)	128 (92%)	11 (8%)	0	100	100
67	ST	138/145 (95%)	132 (96%)	6 (4%)	0	100	100
68	SU	99/119 (83%)	97 (98%)	2 (2%)	0	100	100
69	SV	81/83 (98%)	80 (99%)	1 (1%)	0	100	100
70	SW	127/130 (98%)	125 (98%)	2 (2%)	0	100	100
71	SX	139/143 (97%)	134 (96%)	5 (4%)	0	100	100
72	SY	120/133 (90%)	117 (98%)	3 (2%)	0	100	100
73	SZ	71/125 (57%)	71 (100%)	0	0	100	100
74	Sa	97/115 (84%)	95 (98%)	2 (2%)	0	100	100
75	Sb	81/84 (96%)	80 (99%)	1 (1%)	0	100	100
76	Sc	61/69 (88%)	60 (98%)	1 (2%)	0	100	100
77	Sd	53/56 (95%)	52 (98%)	1 (2%)	0	100	100
78	Se	56/133 (42%)	55 (98%)	1 (2%)	0	100	100
79	Sf	62/156 (40%)	60 (97%)	2 (3%)	0	100	100
80	Sg	309/317 (98%)	279 (90%)	30 (10%)	0	100	100
81	DH	990/1369 (72%)	955 (96%)	33 (3%)	2 (0%)	44	77
82	zx	30/32 (94%)	24 (80%)	4 (13%)	2 (7%)	1	5
All	All	12189/14163 (86%)	11711 (96%)	473 (4%)	5 (0%)	100	100

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
81	DH	775	PHE
81	DH	831	SER
82	zx	21	PRO
10	LD	235	MET
82	zx	4	LEU

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	LA	190/199 (96%)	190 (100%)	0	100	100
2	SA	181/243 (74%)	181 (100%)	0	100	100
3	LB	344/349 (99%)	344 (100%)	0	100	100
4	SB	194/231 (84%)	193 (100%)	1 (0%)	86	94
9	LC	301/348 (86%)	301 (100%)	0	100	100
10	LD	246/250 (98%)	246 (100%)	0	100	100
11	LE	196/252 (78%)	196 (100%)	0	100	100
12	LF	194/215 (90%)	194 (100%)	0	100	100
13	LG	196/223 (88%)	196 (100%)	0	100	100
14	LH	169/171 (99%)	169 (100%)	0	100	100
15	LI	180/181 (99%)	178 (99%)	2 (1%)	70	87
16	LJ	141/149 (95%)	141 (100%)	0	100	100
17	LL	173/177 (98%)	173 (100%)	0	100	100
18	LM	116/161 (72%)	116 (100%)	0	100	100
19	LN	171/172 (99%)	171 (100%)	0	100	100
20	LO	172/174 (99%)	172 (100%)	0	100	100
21	LP	136/163 (83%)	136 (100%)	0	100	100
22	LQ	164/165 (99%)	164 (100%)	0	100	100
23	LR	155/175 (89%)	155 (100%)	0	100	100
24	LS	156/157 (99%)	156 (100%)	0	100	100
25	LT	138/140 (99%)	138 (100%)	0	100	100
26	LU	91/115 (79%)	91 (100%)	0	100	100
27	LV	100/107 (94%)	99 (99%)	1 (1%)	73	88
28	LW	93/126 (74%)	93 (100%)	0	100	100
29	LX	106/133 (80%)	106 (100%)	0	100	100
30	LY	124/135 (92%)	124 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
31	LZ	117/118 (99%)	117 (100%)	0	100	100
32	La	118/121 (98%)	118 (100%)	0	100	100
33	Lb	88/126 (70%)	88 (100%)	0	100	100
34	Lc	83/97 (86%)	83 (100%)	0	100	100
35	Ld	98/110 (89%)	98 (100%)	0	100	100
36	Le	116/121 (96%)	116 (100%)	0	100	100
37	Lf	88/89 (99%)	88 (100%)	0	100	100
38	Lg	96/100 (96%)	96 (100%)	0	100	100
39	Lh	109/110 (99%)	109 (100%)	0	100	100
40	Li	85/89 (96%)	85 (100%)	0	100	100
41	Lj	73/80 (91%)	73 (100%)	0	100	100
42	Lk	64/65 (98%)	64 (100%)	0	100	100
43	Ll	47/48 (98%)	47 (100%)	0	100	100
44	Lm	48/116 (41%)	48 (100%)	0	100	100
45	Ln	23/24 (96%)	23 (100%)	0	100	100
46	Lo	93/94 (99%)	93 (100%)	0	100	100
47	Lp	72/75 (96%)	72 (100%)	0	100	100
48	Lr	107/121 (88%)	107 (100%)	0	100	100
50	SC	185/225 (82%)	185 (100%)	0	100	100
51	SD	187/202 (93%)	187 (100%)	0	100	100
52	SE	221/225 (98%)	221 (100%)	0	100	100
53	SF	158/170 (93%)	158 (100%)	0	100	100
54	SG	196/218 (90%)	196 (100%)	0	100	100
55	SH	167/174 (96%)	167 (100%)	0	100	100
56	SI	178/180 (99%)	176 (99%)	2 (1%)	70	87
57	SJ	160/168 (95%)	160 (100%)	0	100	100
58	SK	87/136 (64%)	87 (100%)	0	100	100
59	SL	129/142 (91%)	129 (100%)	0	100	100
60	SM	100/108 (93%)	100 (100%)	0	100	100
61	SN	129/131 (98%)	129 (100%)	0	100	100
62	SO	104/119 (87%)	104 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
63	SP	113/130 (87%)	113 (100%)	0	100	100
64	SQ	116/121 (96%)	116 (100%)	0	100	100
65	SR	119/122 (98%)	119 (100%)	0	100	100
66	SS	120/132 (91%)	120 (100%)	0	100	100
67	ST	110/115 (96%)	110 (100%)	0	100	100
68	SU	93/107 (87%)	93 (100%)	0	100	100
69	SV	67/67 (100%)	67 (100%)	0	100	100
70	SW	112/113 (99%)	112 (100%)	0	100	100
71	SX	113/115 (98%)	113 (100%)	0	100	100
72	SY	105/115 (91%)	105 (100%)	0	100	100
73	SZ	65/103 (63%)	65 (100%)	0	100	100
74	Sa	85/98 (87%)	85 (100%)	0	100	100
75	Sb	74/76 (97%)	74 (100%)	0	100	100
76	Sc	56/62 (90%)	56 (100%)	0	100	100
77	Sd	48/49 (98%)	48 (100%)	0	100	100
78	Se	47/104 (45%)	47 (100%)	0	100	100
79	Sf	57/140 (41%)	57 (100%)	0	100	100
80	Sg	270/275 (98%)	270 (100%)	0	100	100
81	DH	898/1208 (74%)	890 (99%)	8 (1%)	75	89
82	zx	28/29 (97%)	23 (82%)	5 (18%)	1	8
All	All	10649/12094 (88%)	10630 (100%)	19 (0%)	91	97

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	SB	95	ASN
15	LI	109	ASP
15	LI	145	LYS
27	LV	101	ASN
56	SI	134	GLU
56	SI	135	GLU
81	DH	162	LEU
81	DH	785	GLN
81	DH	830	SER
81	DH	832	ARG

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Mol	Chain	Res	Type
81	DH	833	THR
81	DH	835	HIS
81	DH	1306	HIS
81	DH	1308	GLU
82	zx	-9	TYR
82	zx	-7	TYR
82	zx	-2	TYR
82	zx	4	LEU
82	zx	14	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (91) such sidechains are listed below:

Mol	Chain	Res	Type
1	LA	95	GLN
1	LA	140	ASN
3	LB	138	GLN
3	LB	376	HIS
4	SB	40	ASN
4	SB	76	ASN
9	LC	38	ASN
10	LD	45	ASN
10	LD	111	ASN
10	LD	202	GLN
11	LE	128	HIS
13	LG	43	GLN
13	LG	225	ASN
13	LG	236	HIS
14	LH	98	HIS
14	LH	188	GLN
15	LI	73	ASN
15	LI	112	GLN
15	LI	213	HIS
16	LJ	42	GLN
17	LL	15	HIS
17	LL	111	GLN
17	LL	115	GLN
17	LL	149	GLN
18	LM	48	GLN
19	LN	87	HIS
20	LO	26	GLN
20	LO	50	ASN
21	LP	21	ASN

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Mol	Chain	Res	Type
25	LT	90	ASN
25	LT	131	GLN
28	LW	50	ASN
28	LW	95	ASN
28	LW	104	GLN
30	LY	14	ASN
30	LY	24	HIS
32	La	17	HIS
32	La	62	HIS
33	Lb	6	ASN
35	Ld	116	ASN
35	Ld	121	ASN
36	Le	57	ASN
37	Lf	21	GLN
38	Lg	28	ASN
38	Lg	112	GLN
39	Lh	96	ASN
40	Li	26	HIS
43	Ll	43	HIS
47	Lp	34	HIS
50	SC	136	HIS
51	SD	101	GLN
51	SD	165	ASN
54	SG	65	GLN
54	SG	155	GLN
55	SH	12	ASN
55	SH	168	HIS
57	SJ	27	GLN
57	SJ	124	HIS
58	SK	32	HIS
58	SK	73	ASN
59	SL	11	GLN
59	SL	19	ASN
61	SN	36	GLN
62	SO	83	GLN
63	SP	46	ASN
65	SR	118	GLN
69	SV	2	GLN
69	SV	21	ASN
69	SV	35	ASN
69	SV	49	GLN
70	SW	15	ASN

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Mol	Chain	Res	Type
70	SW	120	HIS
71	SX	16	HIS
73	SZ	112	ASN
74	Sa	7	ASN
75	Sb	51	GLN
77	Sd	37	ASN
78	Se	118	ASN
80	Sg	26	GLN
80	Sg	159	ASN
80	Sg	311	GLN
81	DH	147	ASN
81	DH	381	GLN
81	DH	455	HIS
81	DH	504	GLN
81	DH	505	GLN
81	DH	640	ASN
81	DH	785	GLN
81	DH	889	ASN
81	DH	910	GLN
81	DH	1255	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
49	S2	1678/1869 (89%)	368 (21%)	10 (0%)
5	B4	74/75 (98%)	14 (18%)	0
5	C4	74/75 (98%)	19 (25%)	2 (2%)
6	L5	3603/5070 (71%)	719 (19%)	20 (0%)
7	L7	119/121 (98%)	18 (15%)	0
8	L8	155/157 (98%)	26 (16%)	0
All	All	5703/7367 (77%)	1164 (20%)	32 (0%)

All (1164) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
5	B4	13	U
5	B4	16	G
5	B4	17	G
5	B4	18	G
5	B4	19	U
5	B4	20	A

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Mol	Chain	Res	Type
5	B4	34	G
5	B4	44	G
5	B4	45	G
5	B4	46	U
5	B4	47	C
5	B4	57	A
5	B4	60	C
5	B4	75	A
5	C4	14	A
5	C4	16	G
5	C4	17	G
5	C4	19	U
5	C4	20	A
5	C4	28	C
5	C4	32	U
5	C4	33	A
5	C4	35	G
5	C4	36	G
5	C4	37	U
5	C4	38	G
5	C4	39	C
5	C4	45	G
5	C4	46	U
5	C4	47	C
5	C4	48	C
5	C4	72	C
5	C4	75	A
6	L5	17	A
6	L5	39	A
6	L5	42	A
6	L5	48	G
6	L5	56	A
6	L5	59	A
6	L5	64	A
6	L5	65	A
6	L5	66	A
6	L5	69	A
6	L5	73	A
6	L5	91	G
6	L5	104	G
6	L5	108	A
6	L5	109	G

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Mol	Chain	Res	Type
6	L5	110	C
6	L5	119	G
6	L5	120	A
6	L5	131	C
6	L5	133	C
6	L5	134	G
6	L5	135	G
6	L5	137	G
6	L5	152	U
6	L5	159	C
6	L5	171	U
6	L5	177	G
6	L5	183	C
6	L5	184	U
6	L5	185	C
6	L5	188	G
6	L5	200	U
6	L5	209	U
6	L5	217	C
6	L5	218	A
6	L5	220	C
6	L5	233	U
6	L5	234	G
6	L5	255	C
6	L5	256	G
6	L5	258	G
6	L5	261	G
6	L5	265	C
6	L5	266	C
6	L5	267	G
6	L5	269	G
6	L5	278	G
6	L5	280	G
6	L5	297	U
6	L5	306	A
6	L5	315	G
6	L5	316	U
6	L5	340	C
6	L5	350	C
6	L5	387	G
6	L5	388	A
6	L5	396	A

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Mol	Chain	Res	Type
6	L5	406	C
6	L5	407	A
6	L5	409	G
6	L5	410	A
6	L5	411	G
6	L5	412	G
6	L5	449	C
6	L5	450	G
6	L5	452	A
6	L5	453	G
6	L5	454	U
6	L5	456	C
6	L5	457	G
6	L5	467	U
6	L5	468	U
6	L5	469	C
6	L5	472	C
6	L5	474	C
6	L5	483	G
6	L5	484	U
6	L5	485	C
6	L5	487	G
6	L5	489	C
6	L5	495	C
6	L5	497	G
6	L5	498	C
6	L5	499	G
6	L5	500	G
6	L5	501	C
6	L5	502	C
6	L5	503	C
6	L5	504	G
6	L5	505	G
6	L5	507	G
6	L5	509	A
6	L5	510	U
6	L5	512	U
6	L5	513	U
6	L5	514	U
6	L5	518	G
6	L5	643	C
6	L5	644	G

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Mol	Chain	Res	Type
6	L5	645	G
6	L5	653	U
6	L5	654	C
6	L5	655	C
6	L5	656	C
6	L5	658	C
6	L5	659	G
6	L5	665	C
6	L5	666	G
6	L5	667	A
6	L5	668	C
6	L5	669	C
6	L5	673	C
6	L5	674	G
6	L5	675	C
6	L5	676	C
6	L5	685	C
6	L5	686	A
6	L5	687	U
6	L5	688	U
6	L5	692	A
6	L5	693	C
6	L5	696	C
6	L5	697	G
6	L5	703	G
6	L5	704	C
6	L5	706	C
6	L5	708	G
6	L5	730	G
6	L5	731	G
6	L5	738	C
6	L5	739	G
6	L5	743	G
6	L5	745	G
6	L5	904	C
6	L5	905	C
6	L5	913	U
6	L5	914	U
6	L5	915	A
6	L5	917	A
6	L5	918	G
6	L5	924	C

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Mol	Chain	Res	Type
6	L5	926	G
6	L5	932	A
6	L5	933	G
6	L5	936	C
6	L5	944	A
6	L5	945	U
6	L5	959	G
6	L5	960	A
6	L5	961	G
6	L5	962	C
6	L5	965	G
6	L5	966	A
6	L5	968	C
6	L5	969	C
6	L5	970	G
6	L5	972	C
6	L5	984	C
6	L5	990	C
6	L5	1070	G
6	L5	1071	C
6	L5	1075	G
6	L5	1082	C
6	L5	1083	U
6	L5	1168	G
6	L5	1171	G
6	L5	1172	C
6	L5	1173	G
6	L5	1178	G
6	L5	1179	U
6	L5	1180	C
6	L5	1181	C
6	L5	1182	C
6	L5	1183	C
6	L5	1196	G
6	L5	1198	G
6	L5	1202	C
6	L5	1203	G
6	L5	1209	U
6	L5	1210	C
6	L5	1211	G
6	L5	1214	C
6	L5	1215	C

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Mol	Chain	Res	Type
6	L5	1238	A
6	L5	1253	G
6	L5	1258	G
6	L5	1266	G
6	L5	1269	G
6	L5	1270	A
6	L5	1272	C
6	L5	1273	G
6	L5	1274	A
6	L5	1275	G
6	L5	1280	C
6	L5	1284	G
6	L5	1285	U
6	L5	1287	G
6	L5	1293	G
6	L5	1294	A
6	L5	1295	C
6	L5	1296	G
6	L5	1301	C
6	L5	1302	U
6	L5	1303	A
6	L5	1326	A
6	L5	1337	A
6	L5	1354	A
6	L5	1358	G
6	L5	1359	G
6	L5	1365	C
6	L5	1366	G
6	L5	1379	C
6	L5	1381	U
6	L5	1387	A
6	L5	1393	G
6	L5	1394	G
6	L5	1397	A
6	L5	1407	C
6	L5	1408	G
6	L5	1410	U
6	L5	1415	G
6	L5	1417	C
6	L5	1420	A
6	L5	1437	C
6	L5	1439	C

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Mol	Chain	Res	Type
6	L5	1441	C
6	L5	1442	C
6	L5	1444	G
6	L5	1447	C
6	L5	1449	C
6	L5	1457	G
6	L5	1483	C
6	L5	1497	A
6	L5	1498	G
6	L5	1502	G
6	L5	1525	A
6	L5	1527	A
6	L5	1534	A
6	L5	1547	A
6	L5	1552	G
6	L5	1564	A
6	L5	1566	C
6	L5	1578	U
6	L5	1591	U
6	L5	1596	U
6	L5	1597	G
6	L5	1624	G
6	L5	1625	G
6	L5	1631	A
6	L5	1633	G
6	L5	1634	A
6	L5	1638	A
6	L5	1640	C
6	L5	1654	G
6	L5	1661	C
6	L5	1663	C
6	L5	1676	C
6	L5	1684	A
6	L5	1685	G
6	L5	1694	C
6	L5	1697	G
6	L5	1699	A
6	L5	1700	G
6	L5	1701	A
6	L5	1703	C
6	L5	1705	G
6	L5	1718	C

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Mol	Chain	Res	Type
6	L5	1742	A
6	L5	1750	G
6	L5	1756	U
6	L5	1757	U
6	L5	1758	G
6	L5	1759	G
6	L5	1760	G
6	L5	1763	C
6	L5	1787	A
6	L5	1804	A
6	L5	1810	G
6	L5	1815	G
6	L5	1820	C
6	L5	1821	G
6	L5	1822	U
6	L5	1834	U
6	L5	1836	G
6	L5	1837	A
6	L5	1842	G
6	L5	1855	G
6	L5	1869	G
6	L5	1882	U
6	L5	1891	A
6	L5	1897	A
6	L5	1912	G
6	L5	1918	U
6	L5	1919	G
6	L5	1920	C
6	L5	1921	C
6	L5	1922	G
6	L5	1925	G
6	L5	1931	C
6	L5	1932	A
6	L5	1936	C
6	L5	1940	G
6	L5	1948	G
6	L5	1951	G
6	L5	1959	U
6	L5	1960	A
6	L5	1961	G
6	L5	1962	A
6	L5	1963	C

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Mol	Chain	Res	Type
6	L5	1964	A
6	L5	1966	C
6	L5	1967	A
6	L5	1969	G
6	L5	1970	A
6	L5	1971	C
6	L5	1974	U
6	L5	1975	G
6	L5	1976	G
6	L5	1995	G
6	L5	1996	C
6	L5	1997	U
6	L5	2018	C
6	L5	2019	C
6	L5	2020	U
6	L5	2022	C
6	L5	2024	G
6	L5	2025	A
6	L5	2026	A
6	L5	2034	G
6	L5	2046	G
6	L5	2048	U
6	L5	2055	G
6	L5	2056	G
6	L5	2069	A
6	L5	2084	C
6	L5	2088	A
6	L5	2092	G
6	L5	2095	A
6	L5	2096	G
6	L5	2098	G
6	L5	2101	C
6	L5	2102	G
6	L5	2103	G
6	L5	2109	G
6	L5	2257	C
6	L5	2258	C
6	L5	2270	G
6	L5	2289	C
6	L5	2300	A
6	L5	2301	G
6	L5	2306	G

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Mol	Chain	Res	Type
6	L5	2313	A
6	L5	2333	G
6	L5	2348	G
6	L5	2351	C
6	L5	2360	A
6	L5	2395	A
6	L5	2397	G
6	L5	2398	U
6	L5	2402	G
6	L5	2410	C
6	L5	2417	A
6	L5	2421	G
6	L5	2422	C
6	L5	2424	G
6	L5	2425	U
6	L5	2437	C
6	L5	2441	C
6	L5	2453	A
6	L5	2463	G
6	L5	2464	C
6	L5	2465	C
6	L5	2475	G
6	L5	2483	G
6	L5	2484	A
6	L5	2487	G
6	L5	2488	C
6	L5	2489	C
6	L5	2490	U
6	L5	2491	C
6	L5	2493	G
6	L5	2503	G
6	L5	2504	C
6	L5	2505	C
6	L5	2506	G
6	L5	2513	A
6	L5	2519	U
6	L5	2520	C
6	L5	2537	A
6	L5	2544	G
6	L5	2545	U
6	L5	2546	G
6	L5	2547	G

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Mol	Chain	Res	Type
6	L5	2554	U
6	L5	2555	G
6	L5	2556	G
6	L5	2567	G
6	L5	2577	C
6	L5	2583	C
6	L5	2587	A
6	L5	2589	C
6	L5	2601	A
6	L5	2602	G
6	L5	2618	G
6	L5	2627	C
6	L5	2653	C
6	L5	2662	G
6	L5	2669	C
6	L5	2676	A
6	L5	2686	G
6	L5	2687	U
6	L5	2694	G
6	L5	2695	A
6	L5	2696	A
6	L5	2707	U
6	L5	2710	C
6	L5	2711	G
6	L5	2721	G
6	L5	2724	G
6	L5	2726	G
6	L5	2739	C
6	L5	2742	G
6	L5	2743	A
6	L5	2746	A
6	L5	2754	G
6	L5	2759	G
6	L5	2760	G
6	L5	2761	U
6	L5	2763	U
6	L5	2764	A
6	L5	2769	U
6	L5	2770	C
6	L5	2788	U
6	L5	2789	A
6	L5	2814	C

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Mol	Chain	Res	Type
6	L5	2815	A
6	L5	2826	U
6	L5	2827	G
6	L5	2829	U
6	L5	2855	G
6	L5	2867	C
6	L5	2877	G
6	L5	2889	G
6	L5	2891	U
6	L5	2892	C
6	L5	2894	A
6	L5	2897	G
6	L5	2902	G
6	L5	3595	U
6	L5	3596	A
6	L5	3597	G
6	L5	3604	A
6	L5	3605	C
6	L5	3606	U
6	L5	3615	G
6	L5	3618	C
6	L5	3626	G
6	L5	3630	A
6	L5	3635	A
6	L5	3646	A
6	L5	3648	A
6	L5	3649	A
6	L5	3662	A
6	L5	3664	G
6	L5	3673	C
6	L5	3711	A
6	L5	3713	U
6	L5	3726	A
6	L5	3727	A
6	L5	3735	G
6	L5	3736	A
6	L5	3748	A
6	L5	3750	G
6	L5	3753	G
6	L5	3754	G
6	L5	3757	G
6	L5	3758	U

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Mol	Chain	Res	Type
6	L5	3760	A
6	L5	3763	A
6	L5	3771	C
6	L5	3773	U
6	L5	3774	A
6	L5	3776	G
6	L5	3777	G
6	L5	3783	A
6	L5	3784	A
6	L5	3786	U
6	L5	3811	G
6	L5	3814	U
6	L5	3817	A
6	L5	3818	U
6	L5	3819	G
6	L5	3823	G
6	L5	3838	U
6	L5	3839	G
6	L5	3840	U
6	L5	3867	A
6	L5	3877	A
6	L5	3878	C
6	L5	3879	G
6	L5	3885	G
6	L5	3890	A
6	L5	3897	G
6	L5	3901	A
6	L5	3906	A
6	L5	3907	G
6	L5	3908	A
6	L5	3915	U
6	L5	3943	A
6	L5	3944	G
6	L5	3947	A
6	L5	3948	C
6	L5	3949	A
6	L5	3955	G
6	L5	3956	G
6	L5	3958	G
6	L5	3959	U
6	L5	3960	A
6	L5	3961	G

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Mol	Chain	Res	Type
6	L5	3962	A
6	L5	3963	A
6	L5	3964	U
6	L5	3965	A
6	L5	3966	A
6	L5	3967	G
6	L5	3969	G
6	L5	3970	G
6	L5	3971	G
6	L5	3974	G
6	L5	4038	C
6	L5	4039	G
6	L5	4041	C
6	L5	4042	G
6	L5	4043	G
6	L5	4046	A
6	L5	4048	A
6	L5	4049	U
6	L5	4051	C
6	L5	4052	C
6	L5	4053	A
6	L5	4055	U
6	L5	4056	A
6	L5	4057	C
6	L5	4058	U
6	L5	4059	C
6	L5	4062	A
6	L5	4063	U
6	L5	4064	C
6	L5	4065	G
6	L5	4076	G
6	L5	4097	G
6	L5	4099	G
6	L5	4102	C
6	L5	4104	G
6	L5	4105	A
6	L5	4106	G
6	L5	4107	G
6	L5	4108	G
6	L5	4111	U
6	L5	4112	C
6	L5	4113	U

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Mol	Chain	Res	Type
6	L5	4114	C
6	L5	4115	G
6	L5	4116	C
6	L5	4119	C
6	L5	4122	G
6	L5	4128	A
6	L5	4130	C
6	L5	4131	G
6	L5	4137	C
6	L5	4138	C
6	L5	4140	C
6	L5	4141	G
6	L5	4143	G
6	L5	4145	C
6	L5	4150	G
6	L5	4155	C
6	L5	4160	C
6	L5	4162	C
6	L5	4163	U
6	L5	4170	A
6	L5	4183	G
6	L5	4184	G
6	L5	4191	G
6	L5	4203	A
6	L5	4212	A
6	L5	4222	G
6	L5	4225	G
6	L5	4229	U
6	L5	4233	A
6	L5	4251	A
6	L5	4254	G
6	L5	4256	A
6	L5	4257	A
6	L5	4268	A
6	L5	4273	A
6	L5	4281	A
6	L5	4291	G
6	L5	4297	G
6	L5	4304	A
6	L5	4305	G
6	L5	4306	U
6	L5	4314	C

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Mol	Chain	Res	Type
6	L5	4329	G
6	L5	4330	G
6	L5	4332	C
6	L5	4349	C
6	L5	4354	U
6	L5	4373	G
6	L5	4377	G
6	L5	4378	A
6	L5	4381	A
6	L5	4387	C
6	L5	4391	G
6	L5	4394	A
6	L5	4421	C
6	L5	4422	A
6	L5	4426	C
6	L5	4438	U
6	L5	4444	C
6	L5	4448	G
6	L5	4449	A
6	L5	4453	C
6	L5	4464	A
6	L5	4466	C
6	L5	4500	U
6	L5	4512	U
6	L5	4513	A
6	L5	4518	A
6	L5	4519	C
6	L5	4524	G
6	L5	4529	G
6	L5	4531	U
6	L5	4548	A
6	L5	4554	G
6	L5	4560	C
6	L5	4567	G
6	L5	4573	G
6	L5	4575	G
6	L5	4589	A
6	L5	4590	A
6	L5	4600	G
6	L5	4601	U
6	L5	4617	G
6	L5	4627	U

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Mol	Chain	Res	Type
6	L5	4636	U
6	L5	4637	G
6	L5	4638	U
6	L5	4639	G
6	L5	4656	A
6	L5	4670	C
6	L5	4672	A
6	L5	4695	C
6	L5	4700	A
6	L5	4708	A
6	L5	4709	U
6	L5	4741	C
6	L5	4742	G
6	L5	4745	G
6	L5	4754	G
6	L5	4757	C
6	L5	4759	C
6	L5	4761	G
6	L5	4765	G
6	L5	4771	C
6	L5	4772	C
6	L5	4775	C
6	L5	4860	G
6	L5	4868	G
6	L5	4870	G
6	L5	4871	C
6	L5	4875	G
6	L5	4877	G
6	L5	4882	U
6	L5	4883	C
6	L5	4887	C
6	L5	4888	U
6	L5	4889	G
6	L5	4892	A
6	L5	4893	A
6	L5	4894	A
6	L5	4896	G
6	L5	4900	C
6	L5	4901	G
6	L5	4910	G
6	L5	4912	G
6	L5	4914	C

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Mol	Chain	Res	Type
6	L5	4925	U
6	L5	4927	G
6	L5	4931	G
6	L5	4933	C
6	L5	4937	C
6	L5	4941	G
6	L5	4943	A
6	L5	4976	U
6	L5	4988	U
6	L5	4990	C
6	L5	4991	U
6	L5	4993	G
6	L5	5011	A
6	L5	5012	G
6	L5	5014	A
6	L5	5017	G
6	L5	5022	U
6	L5	5023	C
6	L5	5024	C
6	L5	5025	C
6	L5	5028	G
6	L5	5030	U
6	L5	5031	G
6	L5	5034	A
6	L5	5040	U
6	L5	5041	G
6	L5	5050	C
6	L5	5054	C
6	L5	5060	A
6	L5	5061	A
6	L5	5062	G
6	L5	5069	U
7	L7	7	G
7	L7	22	A
7	L7	23	A
7	L7	24	C
7	L7	27	G
7	L7	33	U
7	L7	50	A
7	L7	53	U
7	L7	54	A
7	L7	63	C

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Mol	Chain	Res	Type
7	L7	64	G
7	L7	97	G
7	L7	100	A
7	L7	102	U
7	L7	103	A
7	L7	110	G
7	L7	111	C
7	L7	120	U
8	L8	34	U
8	L8	35	C
8	L8	55	U
8	L8	59	A
8	L8	63	U
8	L8	80	A
8	L8	81	C
8	L8	82	A
8	L8	83	C
8	L8	85	U
8	L8	86	U
8	L8	94	G
8	L8	103	A
8	L8	104	A
8	L8	105	C
8	L8	110	U
8	L8	111	U
8	L8	114	G
8	L8	124	U
8	L8	125	C
8	L8	126	C
8	L8	127	U
8	L8	147	G
8	L8	150	C
8	L8	151	G
8	L8	153	C
49	S2	17	C
49	S2	33	G
49	S2	41	G
49	S2	42	A
49	S2	44	U
49	S2	46	A
49	S2	56	G
49	S2	58	C

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Mol	Chain	Res	Type
49	S2	59	U
49	S2	62	G
49	S2	67	C
49	S2	68	A
49	S2	74	G
49	S2	76	U
49	S2	86	C
49	S2	99	A
49	S2	101	U
49	S2	113	G
49	S2	115	U
49	S2	126	G
49	S2	127	C
49	S2	128	U
49	S2	130	G
49	S2	143	U
49	S2	147	A
49	S2	149	A
49	S2	160	U
49	S2	161	U
49	S2	162	C
49	S2	163	U
49	S2	168	C
49	S2	170	A
49	S2	179	C
49	S2	182	C
49	S2	190	G
49	S2	197	U
49	S2	198	U
49	S2	199	C
49	S2	200	G
49	S2	203	G
49	S2	204	G
49	S2	206	G
49	S2	214	U
49	S2	290	U
49	S2	291	G
49	S2	295	C
49	S2	306	C
49	S2	307	G
49	S2	308	G
49	S2	309	G

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Mol	Chain	Res	Type
49	S2	311	C
49	S2	312	G
49	S2	318	A
49	S2	319	C
49	S2	323	C
49	S2	324	C
49	S2	325	C
49	S2	326	C
49	S2	327	G
49	S2	328	U
49	S2	329	G
49	S2	332	G
49	S2	347	G
49	S2	351	G
49	S2	362	C
49	S2	364	A
49	S2	368	U
49	S2	369	C
49	S2	370	G
49	S2	380	G
49	S2	381	C
49	S2	385	G
49	S2	386	C
49	S2	398	A
49	S2	400	C
49	S2	409	C
49	S2	413	G
49	S2	438	G
49	S2	448	A
49	S2	449	A
49	S2	450	C
49	S2	452	G
49	S2	463	C
49	S2	464	A
49	S2	465	A
49	S2	466	G
49	S2	467	G
49	S2	471	G
49	S2	472	C
49	S2	473	A
49	S2	474	G
49	S2	482	G

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Mol	Chain	Res	Type
49	S2	487	U
49	S2	488	U
49	S2	489	A
49	S2	492	C
49	S2	493	A
49	S2	500	A
49	S2	502	C
49	S2	503	C
49	S2	516	A
49	S2	525	A
49	S2	533	A
49	S2	534	G
49	S2	537	C
49	S2	542	U
49	S2	543	C
49	S2	552	G
49	S2	554	A
49	S2	555	A
49	S2	556	U
49	S2	559	G
49	S2	563	G
49	S2	564	A
49	S2	576	A
49	S2	583	A
49	S2	589	G
49	S2	590	A
49	S2	591	U
49	S2	593	C
49	S2	604	A
49	S2	605	A
49	S2	606	G
49	S2	607	U
49	S2	608	C
49	S2	614	C
49	S2	617	G
49	S2	628	A
49	S2	631	U
49	S2	643	A
49	S2	645	C
49	S2	648	A
49	S2	650	A
49	S2	655	A

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Mol	Chain	Res	Type
49	S2	660	C
49	S2	668	A
49	S2	669	A
49	S2	671	A
49	S2	672	A
49	S2	673	G
49	S2	688	U
49	S2	689	U
49	S2	801	U
49	S2	807	G
49	S2	808	A
49	S2	811	A
49	S2	812	A
49	S2	818	A
49	S2	821	G
49	S2	822	U
49	S2	830	A
49	S2	834	C
49	S2	835	C
49	S2	836	G
49	S2	837	A
49	S2	838	G
49	S2	839	C
49	S2	840	C
49	S2	842	C
49	S2	847	A
49	S2	858	A
49	S2	859	G
49	S2	869	A
49	S2	870	A
49	S2	872	A
49	S2	873	G
49	S2	874	G
49	S2	889	U
49	S2	890	U
49	S2	892	U
49	S2	896	U
49	S2	897	U
49	S2	898	U
49	S2	909	G
49	S2	913	A
49	S2	919	A

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Mol	Chain	Res	Type
49	S2	920	A
49	S2	922	A
49	S2	924	G
49	S2	926	A
49	S2	933	G
49	S2	934	G
49	S2	958	G
49	S2	963	A
49	S2	970	G
49	S2	971	G
49	S2	990	A
49	S2	992	A
49	S2	1001	A
49	S2	1017	U
49	S2	1023	A
49	S2	1027	A
49	S2	1060	A
49	S2	1061	U
49	S2	1062	A
49	S2	1083	A
49	S2	1085	C
49	S2	1096	G
49	S2	1099	G
49	S2	1100	A
49	S2	1105	G
49	S2	1107	G
49	S2	1110	G
49	S2	1116	C
49	S2	1117	C
49	S2	1118	C
49	S2	1121	G
49	S2	1133	A
49	S2	1142	G
49	S2	1143	A
49	S2	1144	A
49	S2	1146	C
49	S2	1148	A
49	S2	1149	A
49	S2	1153	C
49	S2	1154	U
49	S2	1157	G
49	S2	1168	G

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Mol	Chain	Res	Type
49	S2	1181	A
49	S2	1183	A
49	S2	1195	A
49	S2	1207	G
49	S2	1212	G
49	S2	1215	C
49	S2	1216	C
49	S2	1217	A
49	S2	1221	G
49	S2	1224	G
49	S2	1238	U
49	S2	1242	U
49	S2	1243	U
49	S2	1251	A
49	S2	1253	A
49	S2	1256	G
49	S2	1257	G
49	S2	1259	A
49	S2	1260	A
49	S2	1264	C
49	S2	1265	A
49	S2	1270	G
49	S2	1274	G
49	S2	1275	G
49	S2	1281	G
49	S2	1282	A
49	S2	1283	C
49	S2	1284	A
49	S2	1287	A
49	S2	1288	U
49	S2	1298	G
49	S2	1299	A
49	S2	1301	A
49	S2	1302	G
49	S2	1303	C
49	S2	1308	U
49	S2	1309	C
49	S2	1313	A
49	S2	1318	G
49	S2	1326	U
49	S2	1330	G
49	S2	1331	C

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Mol	Chain	Res	Type
49	S2	1342	U
49	S2	1348	G
49	S2	1363	C
49	S2	1371	U
49	S2	1378	A
49	S2	1396	A
49	S2	1397	U
49	S2	1402	A
49	S2	1403	C
49	S2	1408	U
49	S2	1409	A
49	S2	1414	A
49	S2	1415	C
49	S2	1419	C
49	S2	1420	G
49	S2	1421	A
49	S2	1422	G
49	S2	1423	C
49	S2	1424	G
49	S2	1435	C
49	S2	1436	C
49	S2	1438	A
49	S2	1454	A
49	S2	1462	U
49	S2	1463	U
49	S2	1477	U
49	S2	1489	A
49	S2	1490	G
49	S2	1498	A
49	S2	1505	U
49	S2	1507	G
49	S2	1508	A
49	S2	1510	G
49	S2	1519	U
49	S2	1520	G
49	S2	1521	C
49	S2	1522	A
49	S2	1527	C
49	S2	1533	A
49	S2	1535	U
49	S2	1536	G
49	S2	1543	U

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Mol	Chain	Res	Type
49	S2	1544	C
49	S2	1546	G
49	S2	1547	C
49	S2	1548	G
49	S2	1552	G
49	S2	1553	C
49	S2	1556	A
49	S2	1567	G
49	S2	1569	A
49	S2	1570	G
49	S2	1575	G
49	S2	1579	A
49	S2	1580	A
49	S2	1585	U
49	S2	1586	U
49	S2	1588	A
49	S2	1589	A
49	S2	1599	U
49	S2	1602	U
49	S2	1621	U
49	S2	1623	A
49	S2	1624	U
49	S2	1632	G
49	S2	1634	A
49	S2	1648	G
49	S2	1654	G
49	S2	1663	A
49	S2	1664	A
49	S2	1665	G
49	S2	1671	G
49	S2	1695	A
49	S2	1698	C
49	S2	1699	A
49	S2	1715	A
49	S2	1719	A
49	S2	1721	U
49	S2	1722	G
49	S2	1742	C
49	S2	1743	G
49	S2	1744	G
49	S2	1745	A
49	S2	1753	C

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Mol	Chain	Res	Type
49	S2	1754	G
49	S2	1755	C
49	S2	1759	G
49	S2	1773	C
49	S2	1774	C
49	S2	1777	G
49	S2	1781	A
49	S2	1782	G
49	S2	1783	C
49	S2	1786	U
49	S2	1813	A
49	S2	1823	A
49	S2	1824	A
49	S2	1825	A
49	S2	1829	G
49	S2	1838	U
49	S2	1849	G
49	S2	1850	A
49	S2	1851	A
49	S2	1852	C
49	S2	1861	G
49	S2	1862	G
49	S2	1863	A
49	S2	1865	C

All (32) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
5	C4	35	G
5	C4	74	C
6	L5	136	C
6	L5	406	C
6	L5	497	G
6	L5	504	G
6	L5	665	C
6	L5	914	U
6	L5	1082	C
6	L5	1302	U
6	L5	1448	G
6	L5	1633	G
6	L5	2095	A
6	L5	2102	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
6	L5	2416	G
6	L5	2675	G
6	L5	2760	G
6	L5	3614	G
6	L5	4136	G
6	L5	4600	G
6	L5	4699	U
6	L5	4913	G
49	S2	213	G
49	S2	465	A
49	S2	554	A
49	S2	604	A
49	S2	688	U
49	S2	912	C
49	S2	1434	C
49	S2	1519	U
49	S2	1664	A
49	S2	1860	A

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 199 ligands modelled in this entry, 199 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

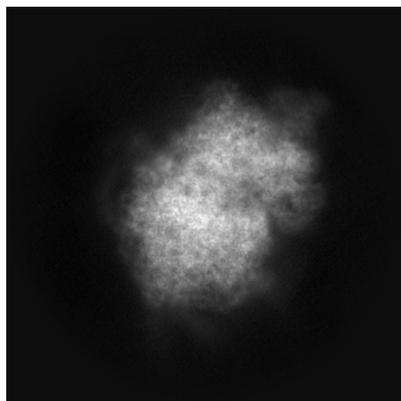
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-68666. These allow visual inspection of the internal detail of the map and identification of artifacts.

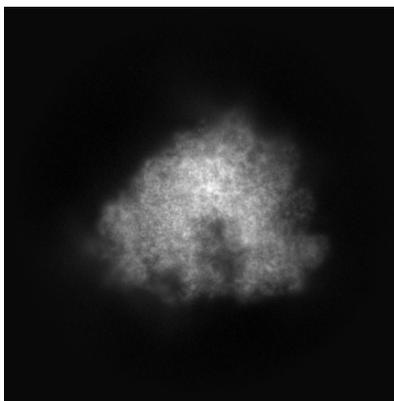
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

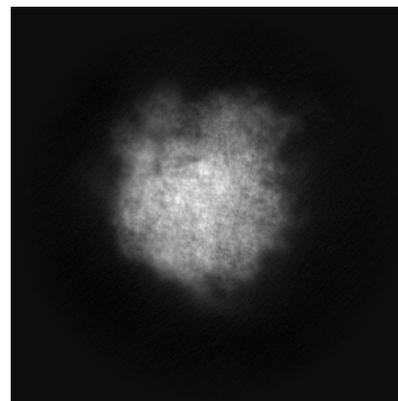
6.1.1 Primary map



X

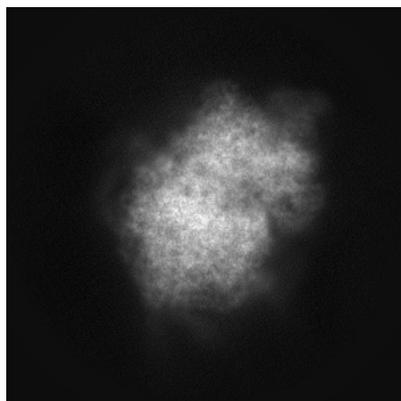


Y

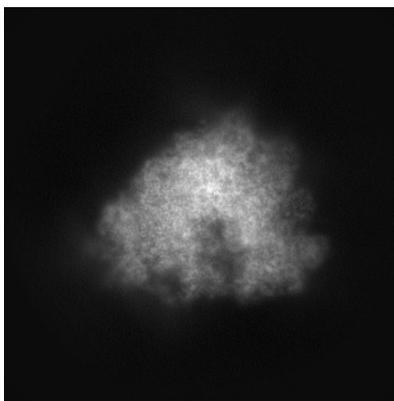


Z

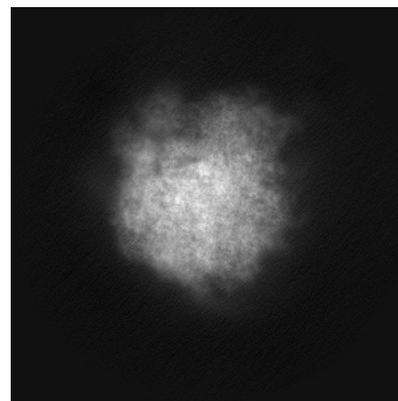
6.1.2 Raw map



X



Y

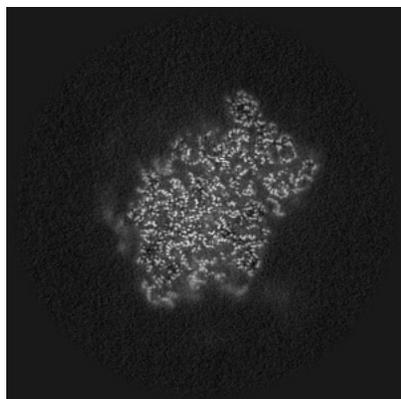


Z

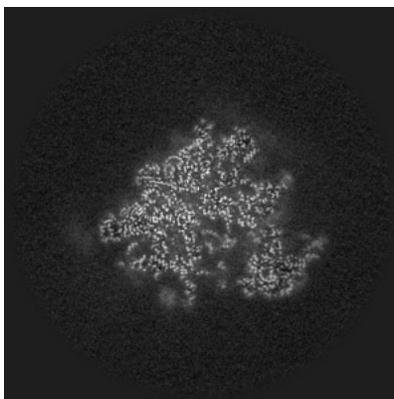
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

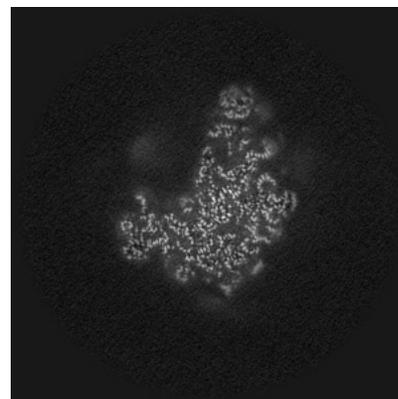
6.2.1 Primary map



X Index: 240

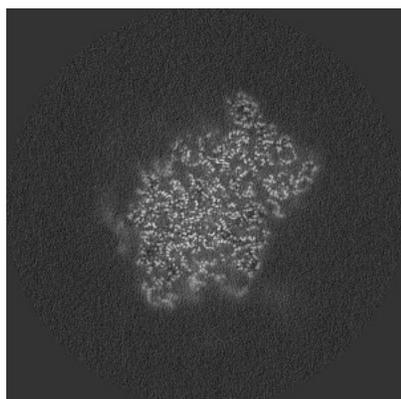


Y Index: 240

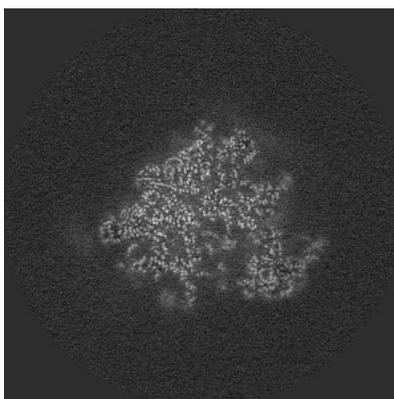


Z Index: 240

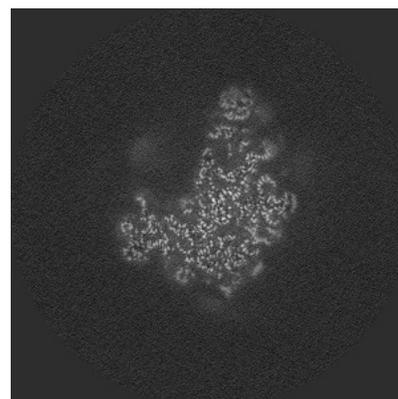
6.2.2 Raw map



X Index: 240



Y Index: 240

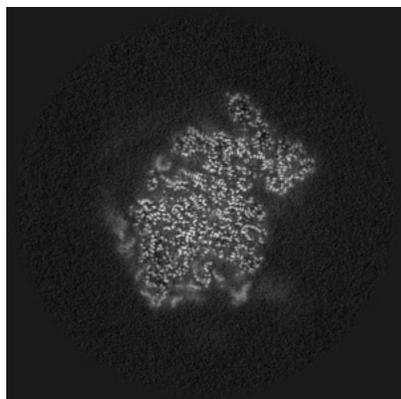


Z Index: 240

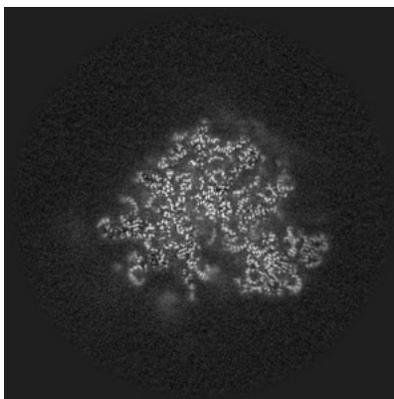
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

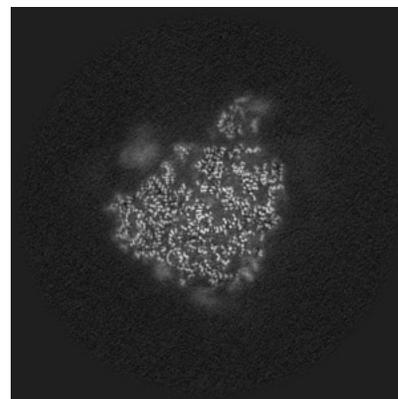
6.3.1 Primary map



X Index: 234

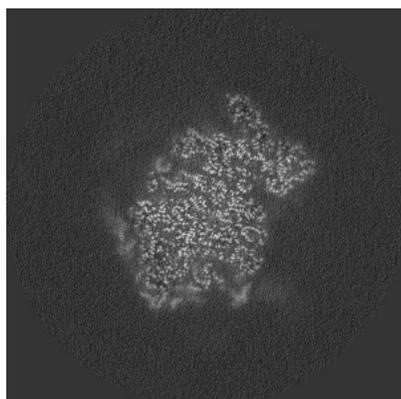


Y Index: 250

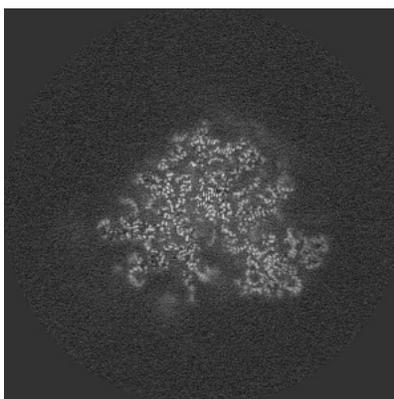


Z Index: 225

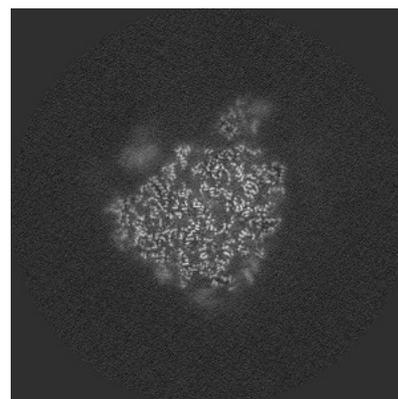
6.3.2 Raw map



X Index: 234



Y Index: 250

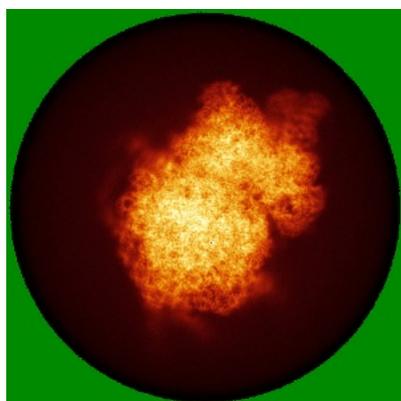


Z Index: 223

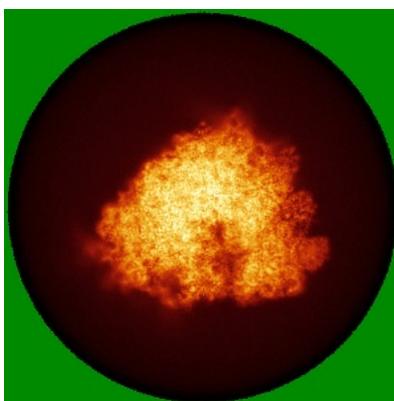
The images above show the largest variance slices of the map in three orthogonal directions.

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

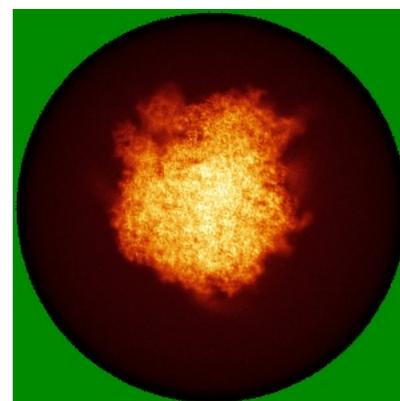
6.4.1 Primary map



X

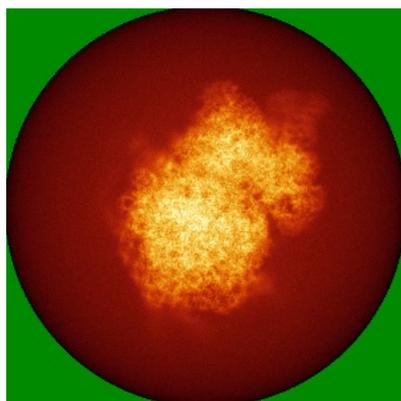


Y

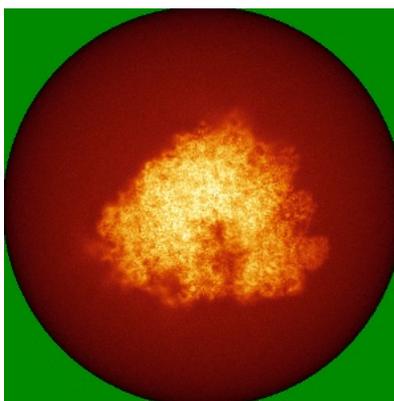


Z

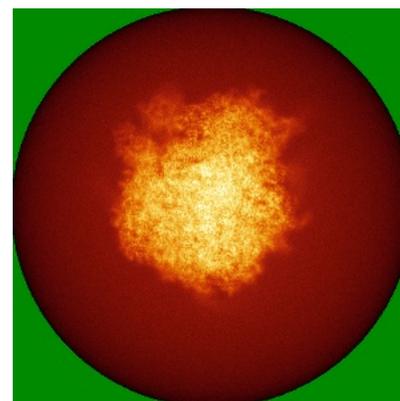
6.4.2 Raw map



X



Y

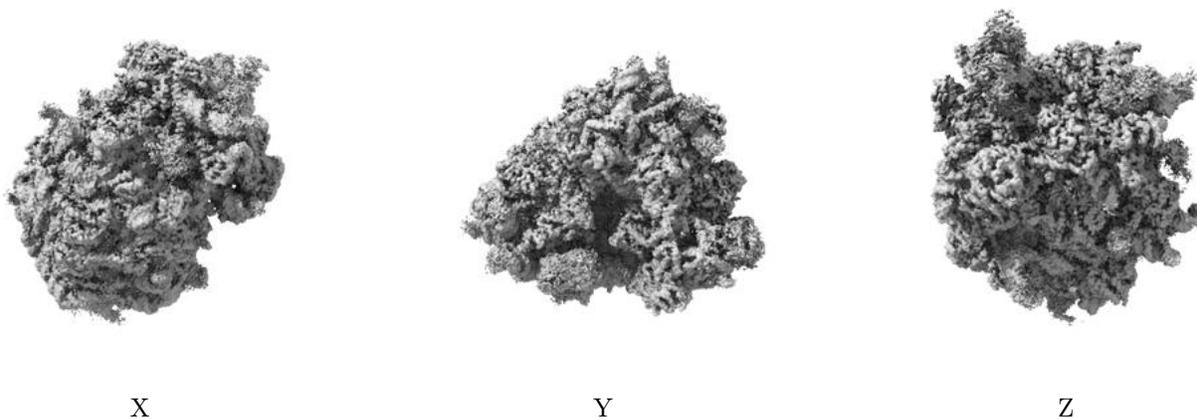


Z

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

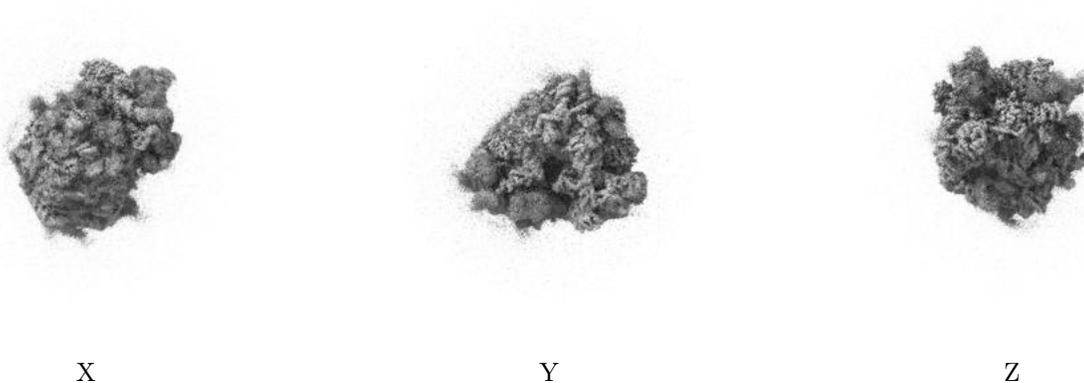
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.016. 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.

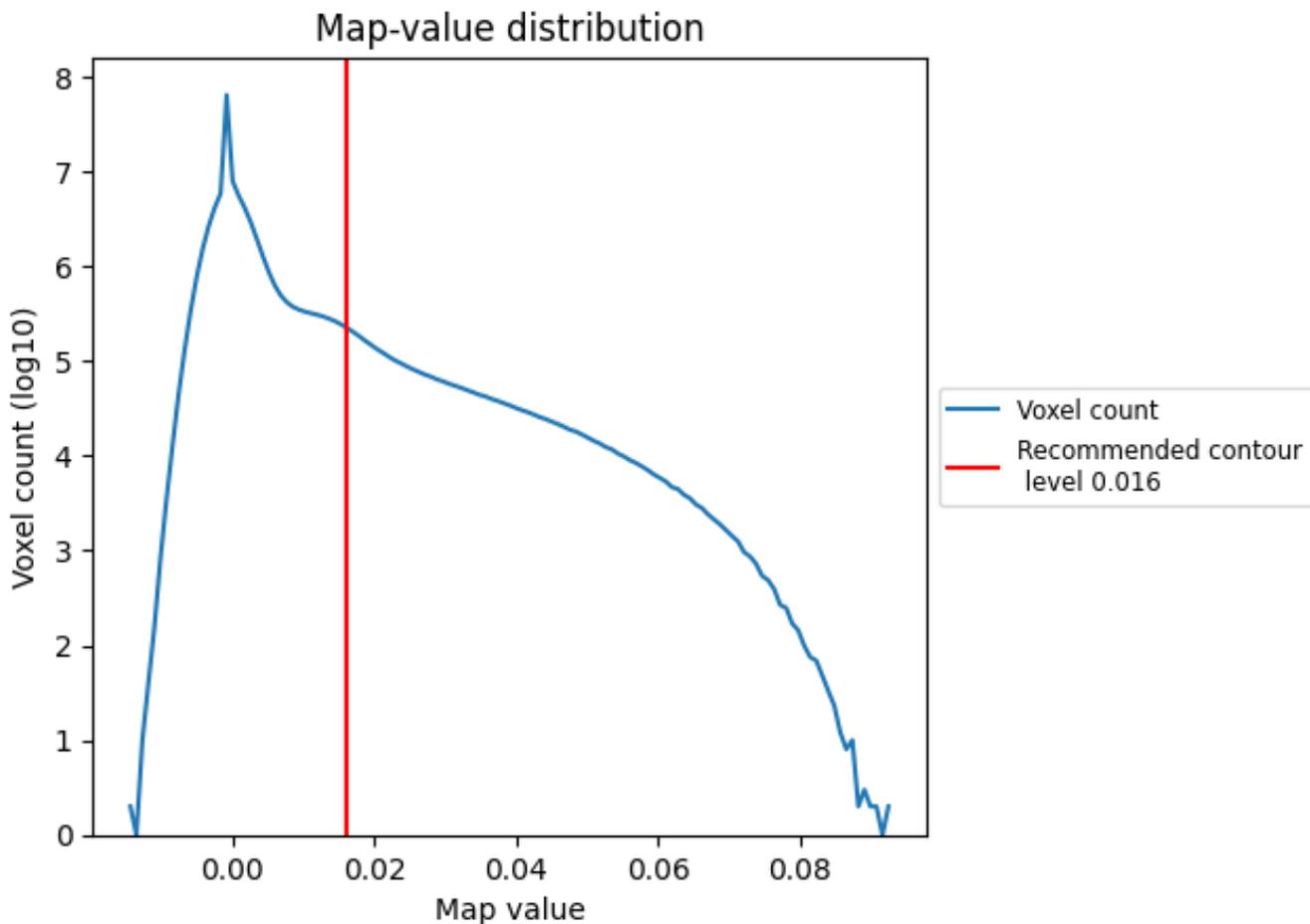
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

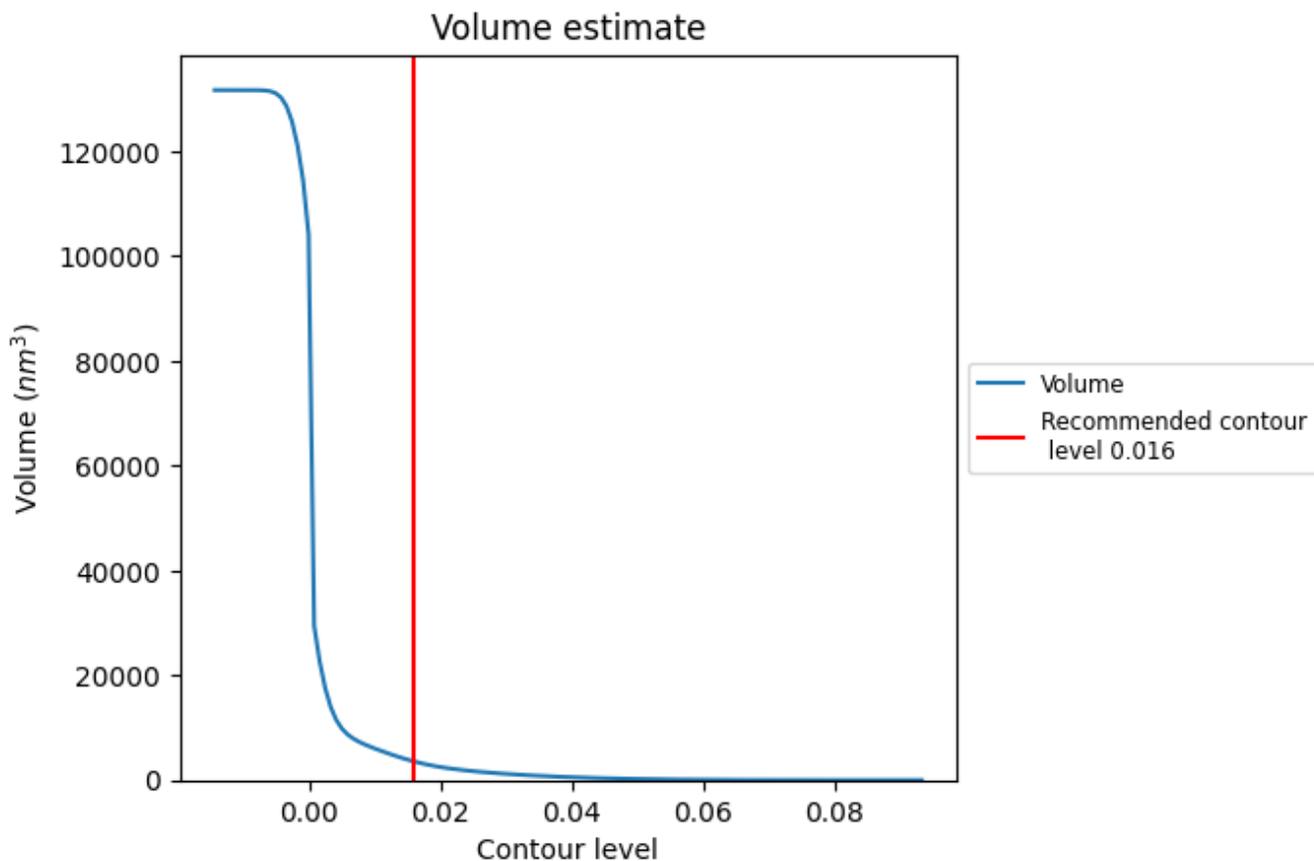
This section contains the results of statistical analysis of the map.

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.

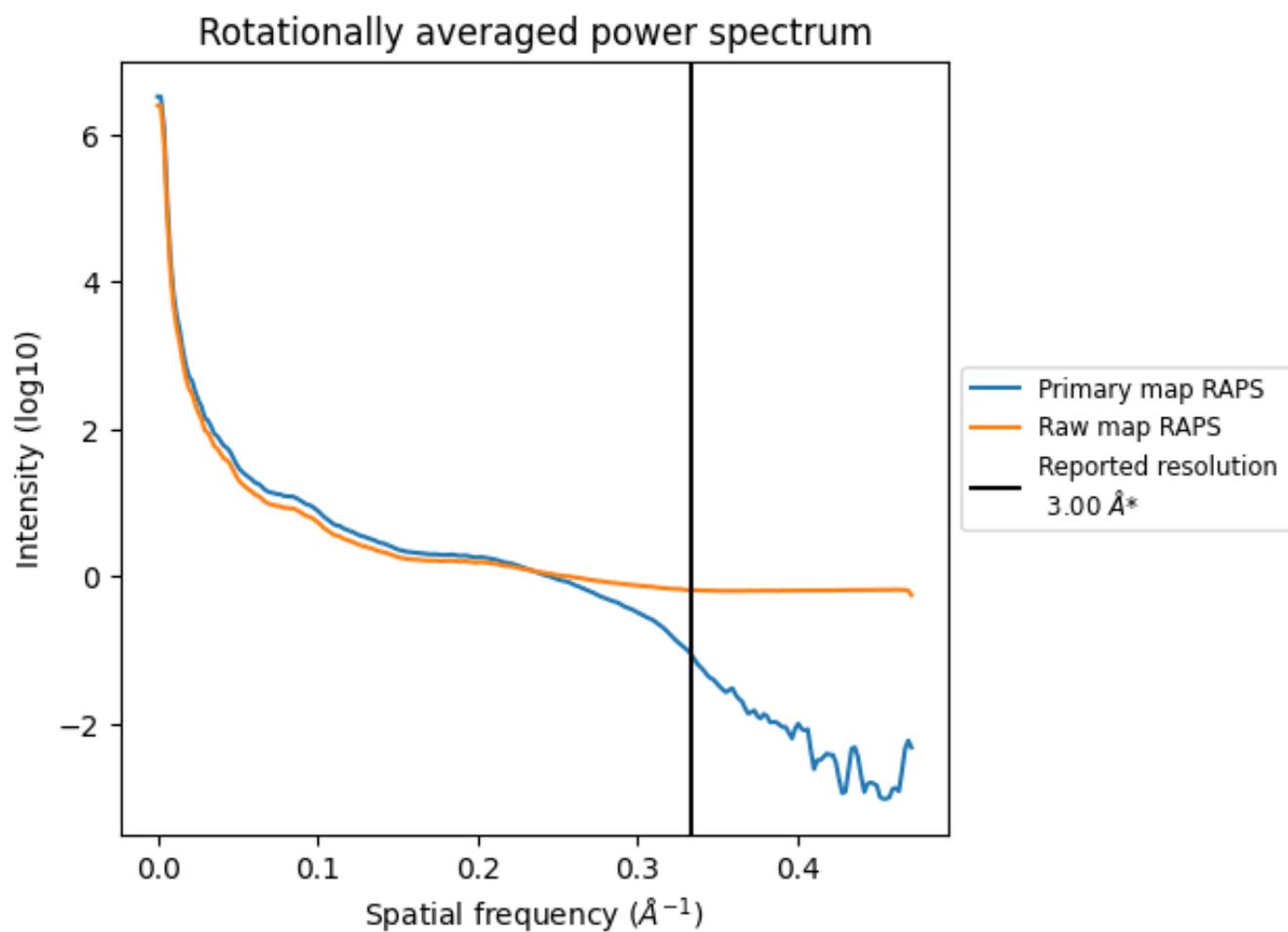
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 3562 nm^3 ; this corresponds to an approximate mass of 3218 kDa.

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

7.3 Rotationally averaged power spectrum i

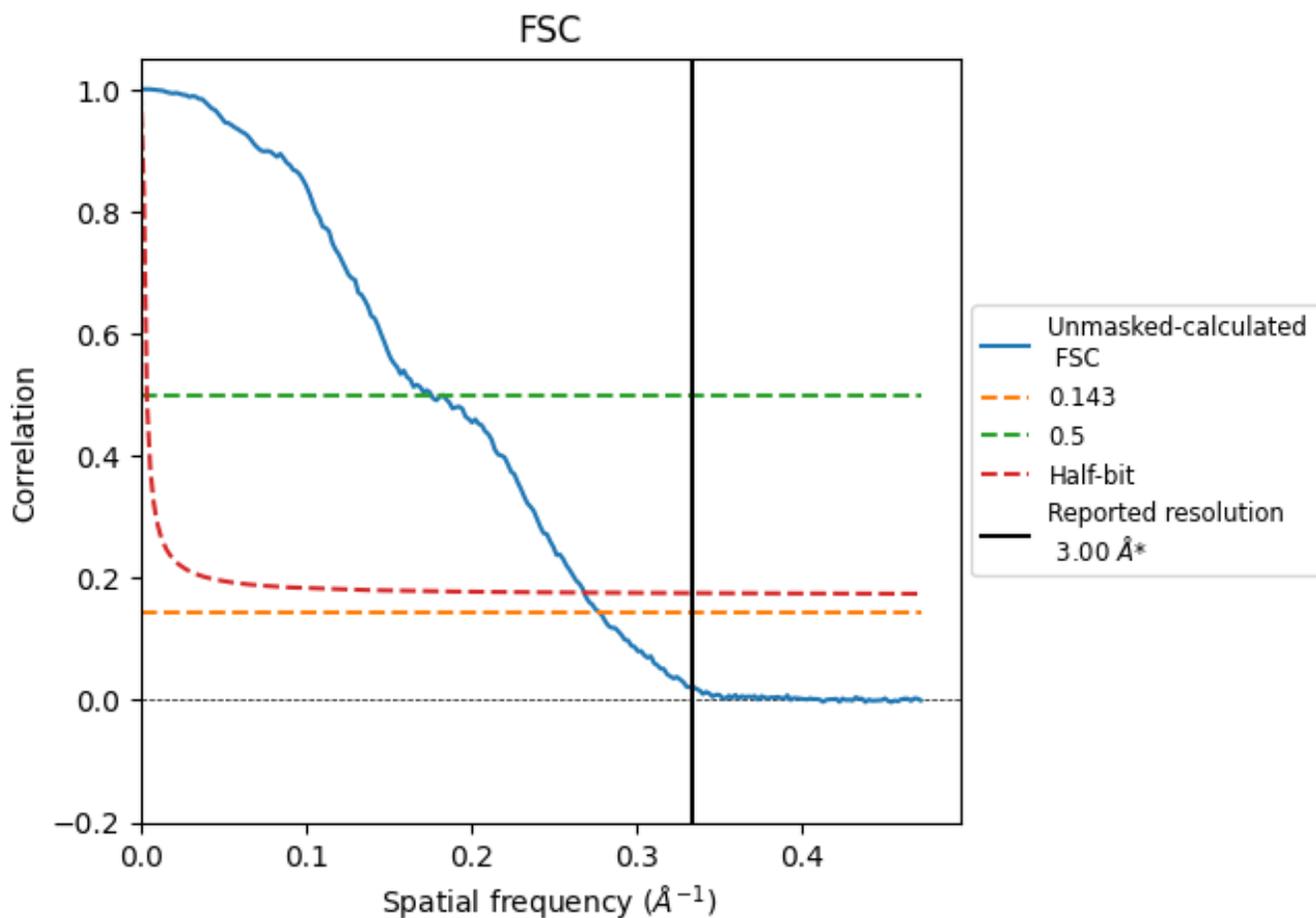


*Reported resolution corresponds to spatial frequency of 0.333 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.333 Å⁻¹

8.2 Resolution estimates [i](#)

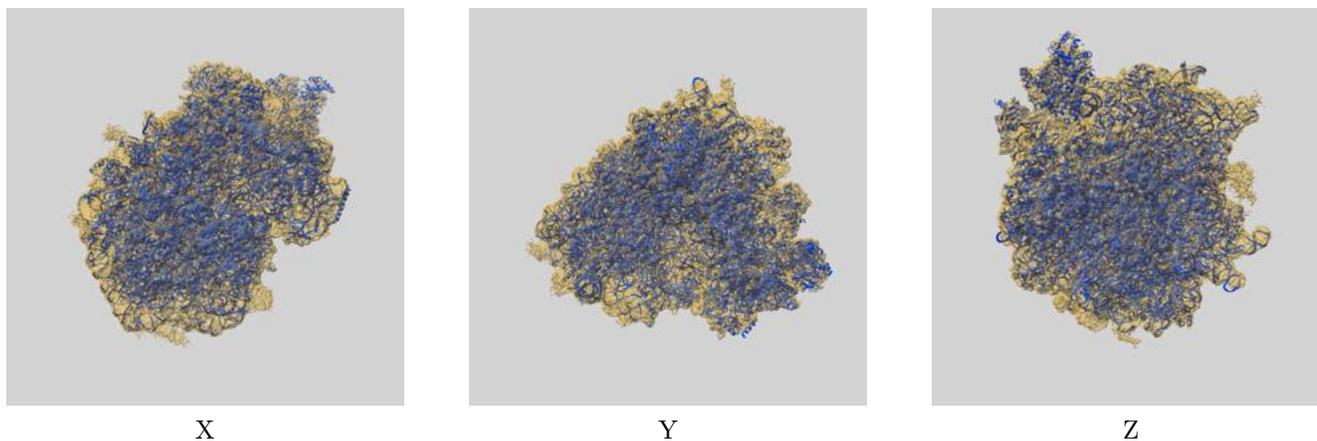
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.00	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.60	5.69	3.73

*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 3.60 differs from the reported value 3.0 by more than 10 %

9 Map-model fit [i](#)

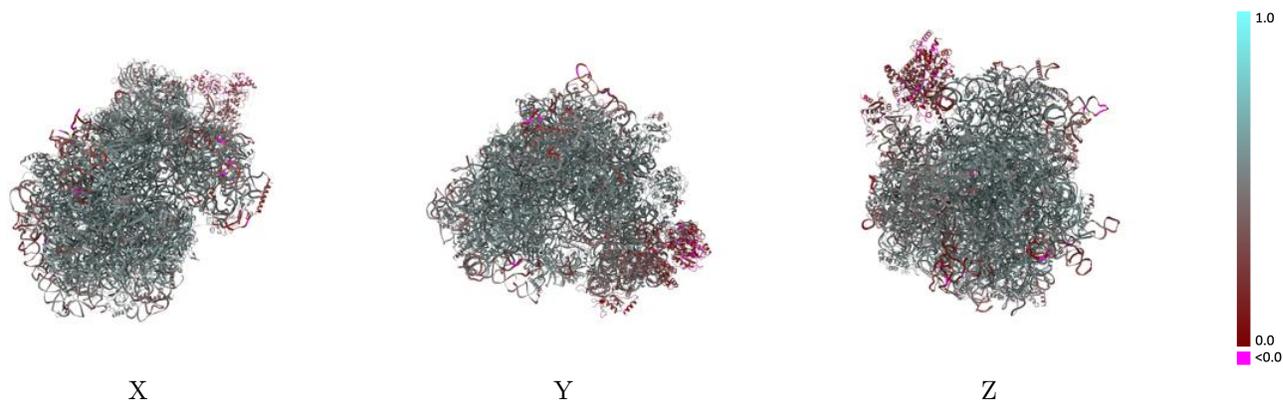
This section contains information regarding the fit between EMDB map EMD-68666 and PDB model 22TU. Per-residue inclusion information can be found in section 3 on page 20.

9.1 Map-model overlay [i](#)



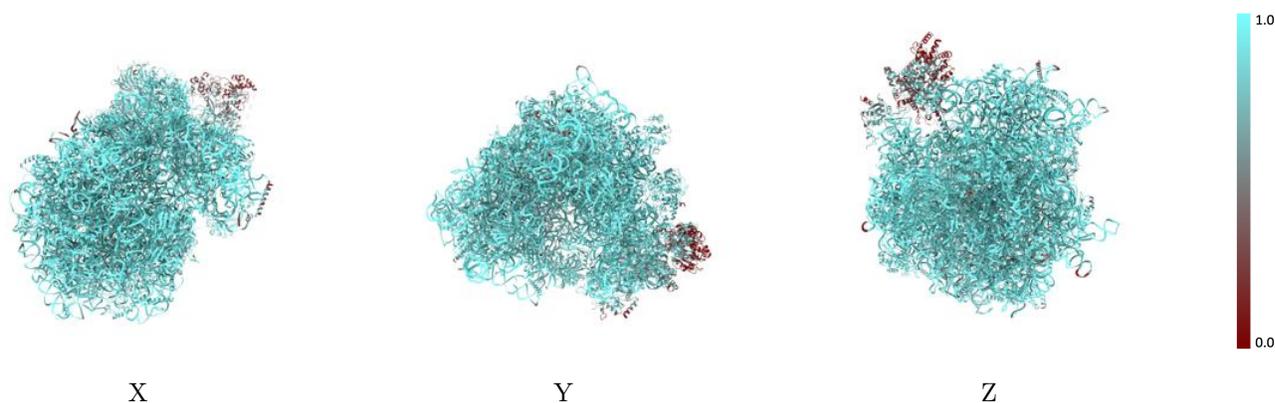
The images above show the 3D surface view of the map at the recommended contour level 0.016 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



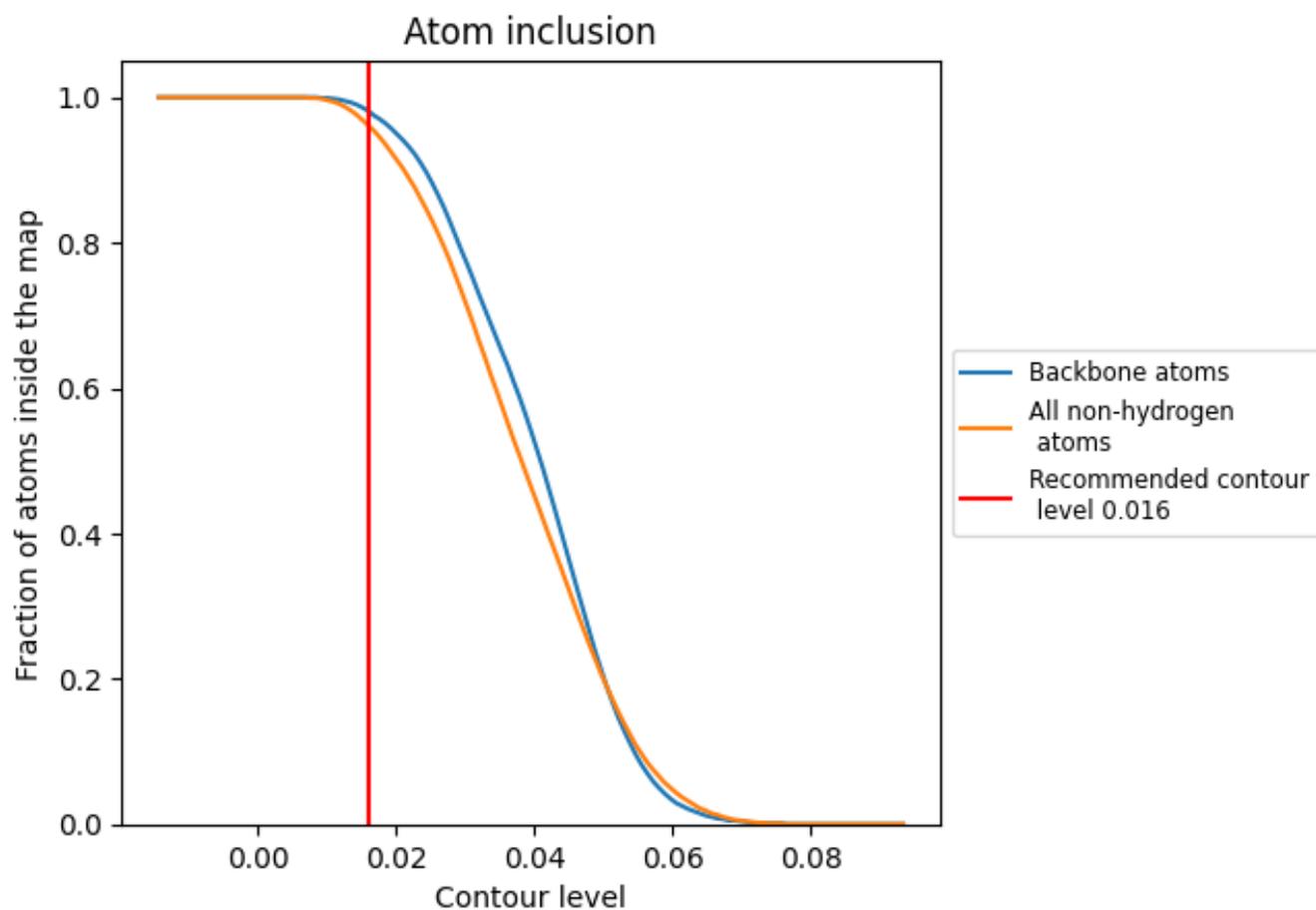
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.016).

9.4 Atom inclusion [i](#)

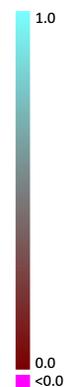


At the recommended contour level, 98% of all backbone atoms, 96% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.016) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9610	 0.5020
B4	 0.9890	 0.4770
C4	 0.9890	 0.3430
DH	 0.5770	 0.2560
L5	 0.9900	 0.5120
L7	 0.9980	 0.5540
L8	 0.9870	 0.5150
LA	 0.9990	 0.5770
LB	 0.9780	 0.5500
LC	 0.9850	 0.5480
LD	 0.9630	 0.5170
LE	 0.9790	 0.5140
LF	 0.9920	 0.5420
LG	 0.9230	 0.5020
LH	 0.9700	 0.5360
LI	 0.9800	 0.5400
LJ	 0.9590	 0.5140
LL	 0.9590	 0.5240
LM	 0.9780	 0.5310
LN	 0.9980	 0.5740
LO	 0.9820	 0.5420
LP	 0.9920	 0.5530
LQ	 0.9970	 0.5590
LR	 0.9750	 0.5270
LS	 0.9920	 0.5660
LT	 0.9820	 0.5270
LU	 0.9340	 0.4720
LV	 0.9880	 0.5670
LW	 0.8290	 0.4030
LX	 0.9830	 0.5370
LY	 0.9750	 0.5200
LZ	 0.9750	 0.5340
La	 0.9910	 0.5690
Lb	 0.9690	 0.4960
Lc	 0.9760	 0.5330



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Chain	Atom inclusion	Q-score
Ld	 0.9670	 0.5240
Le	 0.9980	 0.5630
Lf	 0.9930	 0.5730
Lg	 0.9850	 0.5540
Lh	 0.9700	 0.5190
Li	 0.9580	 0.4740
Lj	 0.9990	 0.5660
Lk	 0.8850	 0.4850
Ll	 0.9980	 0.5310
Lm	 0.9710	 0.5410
Ln	 1.0000	 0.5690
Lo	 0.9820	 0.5500
Lp	 0.9970	 0.5460
Lr	 0.9870	 0.5520
S2	 0.9880	 0.5120
SA	 0.9260	 0.5150
SB	 0.9650	 0.5250
SC	 0.9650	 0.5390
SD	 0.9300	 0.4590
SE	 0.9670	 0.5190
SF	 0.9670	 0.4920
SG	 0.9190	 0.4620
SH	 0.8700	 0.4510
SI	 0.9450	 0.4960
SJ	 0.9610	 0.5140
SK	 0.9250	 0.4240
SL	 0.9810	 0.5450
SM	 0.6160	 0.2490
SN	 0.9800	 0.5260
SO	 0.9780	 0.5370
SP	 0.9220	 0.4330
SQ	 0.9570	 0.5150
SR	 0.8970	 0.4820
SS	 0.9260	 0.4470
ST	 0.9460	 0.4790
SU	 0.9100	 0.4500
SV	 0.9440	 0.5230
SW	 0.9880	 0.5500
SX	 0.9920	 0.5420
SY	 0.9680	 0.4960
SZ	 0.8960	 0.3960
Sa	 0.9910	 0.5470

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Chain	Atom inclusion	Q-score
Sb	 0.9540	 0.5160
Sc	 0.9710	 0.5020
Sd	 0.9800	 0.5120
Se	 0.9440	 0.4720
Sf	 0.6500	 0.1930
Sg	 0.8710	 0.4370
zx	 0.9790	 0.3380