Full wwPDB EM Validation Report ⓘ

Jul 9, 2025 – 02:20 PM JST

PDB ID	:	8H6J / pdb_00008h6j
EMDB ID	:	EMD-34505
Title	:	Cryo-EM structure of human exon-defined spliceosome in the mature pre-B state.
Authors	:	Zhang, W.; Zhan, X.; Zhang, X.; Lei, J.; Yan, C.; Shi, Y.
Deposited on	:	2022-10-18
Resolution	:	3.25 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:

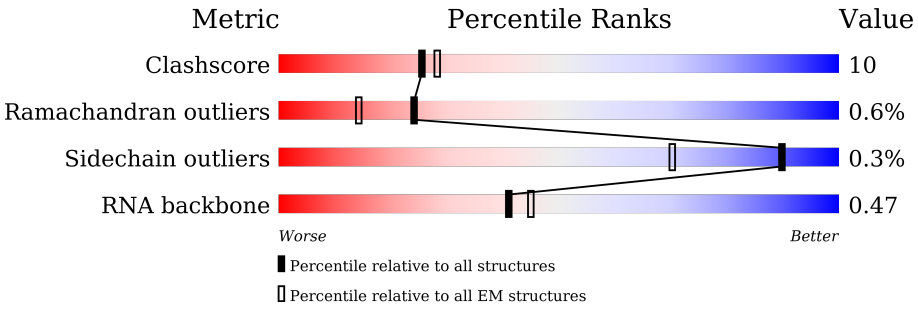
EMDB validation analysis	:	FAILED
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

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 3.25 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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 <=5%

Mol	Chain	Length	Quality of chain
1	A	144	• 8% 15% • 71%
2	6A	107	32% 10% 7% • 50%
3	6a	95	87% 5% • 6%
4	6b	102	62% 11% 27%
5	6c	139	51% • 47%
6	6d	91	77% • 21%
7	6e	80	80% 6% • 12%
8	6f	103	63% 37%

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Mol	Chain	Length	Quality of chain
9	6g	96	58% 5% 36%
10	5A	117	38% 32% 25%
11	5B	2335	80% 15% 5%
12	5C	972	74% 14% 12%
13	5D	2136	74% 19% 6%
14	5E	357	83% 16%
15	2a	231	36% 63%
15	4a	231	32% 65%
15	5a	231	36% 63%
16	2b	119	69% 31%
16	4b	119	66% 32%
16	5b	119	67% 31%
17	2c	118	69% 28%
17	4c	118	73% 5% 22%
17	5c	118	78% 18%
18	2d	86	85% 14%
18	4d	86	74% 9% 16%
18	5d	86	80% 5% 15%
19	2e	92	85% 14%
19	4e	92	67% 15% 17%
19	5e	92	82% 14%
20	2f	76	86% 13%
20	4f	76	89% 8%
20	5f	76	95%
21	2g	126	63% 37%

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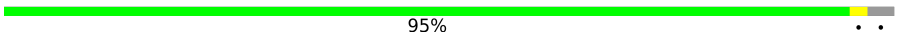
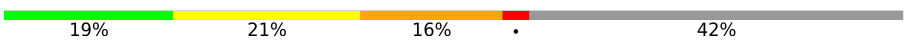
Mol	Chain	Length	Quality of chain
21	4g	126	
21	5g	126	
22	4A	144	
23	4B	683	
24	4C	522	
25	4D	499	
26	4E	128	
27	4F	142	
28	4G	941	
29	4R	480	
30	4S	800	
31	4T	565	
32	4U	820	
33	4X	155	
34	4Y	1007	
35	2A	188	
36	2B	255	
37	2C	225	
38	2D	793	
39	2E	464	
40	2F	501	
41	2G	1304	
42	2H	895	
43	2I	1217	
44	2J	424	

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Mol	Chain	Length	Quality of chain
45	2K	125	
46	2L	110	
47	2M	86	

2 Entry composition

There are 51 unique types of molecules in this entry. The entry contains 96473 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 RNA chain called pre-mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	A	42	864	387	124	311	42	0	0

- Molecule 2 is a RNA chain called U6 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	6A	54	1142	509	206	373	54	0	0

- Molecule 3 is a protein called U6 snRNA-associated Sm-like protein LSm2.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	6a	89	356	178	89	89	0	0

- Molecule 4 is a protein called U6 snRNA-associated Sm-like protein LSm3.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	6b	74	296	148	74	74	0	0

- Molecule 5 is a protein called U6 snRNA-associated Sm-like protein LSm4.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
5	6c	74	296	148	74	74	0	0

- Molecule 6 is a protein called U6 snRNA-associated Sm-like protein LSm5.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
6	6d	72	288	144	72	72	0	0

- Molecule 7 is a protein called U6 snRNA-associated Sm-like protein LSm6.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	6e	70	Total	C	N	O	0	0
			280	140	70	70		

- Molecule 8 is a protein called U6 snRNA-associated Sm-like protein LSm7.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	6f	65	Total	C	N	O	0	0
			260	130	65	65		

- Molecule 9 is a protein called U6 snRNA-associated Sm-like protein LSm8.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	6g	61	Total	C	N	O	0	0
			244	122	61	61		

- Molecule 10 is a RNA chain called U5 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	5A	114	Total	C	N	O	P	0	0
			2398	1074	398	812	114		

- Molecule 11 is a protein called Pre-mRNA-processing-splicing factor 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	5B	2209	Total	C	N	O	S	0	0
			18244	11760	3170	3235	79		

- Molecule 12 is a protein called 116 kDa U5 small nuclear ribonucleoprotein component.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	5C	852	Total	C	N	O	S	0	0
			6727	4300	1127	1266	34		

- Molecule 13 is a protein called U5 small nuclear ribonucleoprotein 200 kDa helicase.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	5D	2001	Total	C	N	O	S	0	0
			16077	10235	2767	2991	84		

- Molecule 14 is a protein called U5 small nuclear ribonucleoprotein 40 kDa protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	5E	301	Total	C	N	O	0	0
			1481	879	301	301		

- Molecule 15 is a protein called Isoform SM-B of Small nuclear ribonucleoprotein-associated proteins B and B'.

Mol	Chain	Residues	Atoms				AltConf	Trace
15	5a	86	Total	C	N	O	0	0
			344	172	86	86		
15	4a	82	Total	C	N	O	0	0
			405	241	82	82		
15	2a	85	Total	C	N	O	0	0
			340	170	85	85		

- Molecule 16 is a protein called Small nuclear ribonucleoprotein Sm D1.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	5b	82	Total	C	N	O	0	0
			328	164	82	82		
16	4b	81	Total	C	N	O	0	0
			401	239	81	81		
16	2b	82	Total	C	N	O	0	0
			328	164	82	82		

- Molecule 17 is a protein called Small nuclear ribonucleoprotein Sm D2.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	5c	97	Total	C	N	O	0	0
			388	194	97	97		
17	4c	92	Total	C	N	O	0	0
			455	271	92	92		
17	2c	85	Total	C	N	O	0	0
			340	170	85	85		

- Molecule 18 is a protein called Small nuclear ribonucleoprotein F.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	5d	73	Total	C	N	O	0	0
			292	146	73	73		
18	4d	72	Total	C	N	O	0	0
			351	207	72	72		
18	2d	74	Total	C	N	O	0	0
			296	148	74	74		

- Molecule 19 is a protein called Small nuclear ribonucleoprotein E.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	5e	79	Total	C	N	O	0	0
			316	158	79	79		
19	4e	76	Total	C	N	O	0	0
			376	224	76	76		
19	2e	79	Total	C	N	O	0	0
			316	158	79	79		

- Molecule 20 is a protein called Small nuclear ribonucleoprotein G.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	5f	74	Total	C	N	O	0	0
			296	148	74	74		
20	4f	74	Total	C	N	O	0	0
			363	215	74	74		
20	2f	66	Total	C	N	O	0	0
			264	132	66	66		

- Molecule 21 is a protein called Small nuclear ribonucleoprotein Sm D3.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	5g	77	Total	C	N	O	0	0
			308	154	77	77		
21	4g	83	Total	C	N	O	0	0
			409	243	83	83		
21	2g	80	Total	C	N	O	0	0
			320	160	80	80		

- Molecule 22 is a RNA chain called U4 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	4A	125	Total	C	N	O	P	0	0
			2656	1188	468	876	124		

- Molecule 23 is a protein called U4/U6 small nuclear ribonucleoprotein Prp3.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	4B	193	Total	C	N	O	0	0
			953	567	193	193		

- Molecule 24 is a protein called U4/U6 small nuclear ribonucleoprotein Prp4.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	4C	359	Total 1765	C 1047	N 359	O 359	0	0

- Molecule 25 is a protein called U4/U6 small nuclear ribonucleoprotein Prp31.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	4D	270	Total 1340	C 800	N 270	O 270	0	0

- Molecule 26 is a protein called NHP2-like protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	4E	124	Total 615	C 367	N 124	O 124	0	0

- Molecule 27 is a protein called Thioredoxin-like protein 4A.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	4F	141	Total 1169	C 751	N 194	O 214	S 10	0	0

- Molecule 28 is a protein called Pre-mRNA-processing factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	4G	784	Total 4539	C 2745	N 884	O 901	S 9	0	0

- Molecule 29 is a protein called RNA-binding protein 42.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	4R	106	Total 874	C 553	N 160	O 157	S 4	0	0

- Molecule 30 is a protein called U4/U6.U5 tri-snRNP-associated protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	4S	61	Total 505	C 317	N 94	O 91	S 3	0	0

- Molecule 31 is a protein called U4/U6.U5 tri-snRNP-associated protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	4T	456	Total	C	N	O	S	0	0
			3749	2427	635	673	14		

- Molecule 32 is a protein called Probable ATP-dependent RNA helicase DDX23.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	4U	578	Total	C	N	O	S	1	0
			3414	2063	682	667	2		

- Molecule 33 is a protein called U4/U6.U5 small nuclear ribonucleoprotein 27 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	4X	21	Total	C	N	O	S	0	0
			184	115	40	28	1		

- Molecule 34 is a protein called Serine/threonine-protein kinase PRP4 homolog.

Mol	Chain	Residues	Atoms				AltConf	Trace
34	4Y	322	Total	C	N	O	0	0
			1595	951	322	322		

- Molecule 35 is a RNA chain called U2 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	2A	109	Total	C	N	O	P	0	0
			2311	1032	396	774	109		

- Molecule 36 is a protein called U2 small nuclear ribonucleoprotein A'.

Mol	Chain	Residues	Atoms				AltConf	Trace
36	2B	162	Total	C	N	O	0	0
			648	324	162	162		

- Molecule 37 is a protein called U2 small nuclear ribonucleoprotein B".

Mol	Chain	Residues	Atoms				AltConf	Trace
37	2C	94	Total	C	N	O	0	0
			376	188	94	94		

- Molecule 38 is a protein called Splicing factor 3A subunit 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
38	2D	124	Total 496	C 248	N 124	O 124	0	0

- Molecule 39 is a protein called Splicing factor 3A subunit 2.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	2E	94	Total 376	C 188	N 94	O 94	0	0

- Molecule 40 is a protein called Splicing factor 3A subunit 3.

Mol	Chain	Residues	Atoms				AltConf	Trace
40	2F	423	Total 1693	C 847	N 423	O 423	0	0

- Molecule 41 is a protein called Splicing factor 3B subunit 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
41	2G	1048	Total 4192	C 2096	N 1048	O 1048	0	0

- Molecule 42 is a protein called Splicing factor 3B subunit 2.

Mol	Chain	Residues	Atoms				AltConf	Trace
42	2H	182	Total 728	C 364	N 182	O 182	0	0

- Molecule 43 is a protein called Splicing factor 3B subunit 3.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	2I	1168	Total 4672	C 2336	N 1168	O 1168	0	0

- Molecule 44 is a protein called Splicing factor 3B subunit 4.

Mol	Chain	Residues	Atoms				AltConf	Trace
44	2J	78	Total 312	C 156	N 78	O 78	0	0

- Molecule 45 is a protein called Splicing factor 3B subunit 6.

Mol	Chain	Residues	Atoms				AltConf	Trace
45	2K	108	Total	C	N	O	0	0
			432	216	108	108		

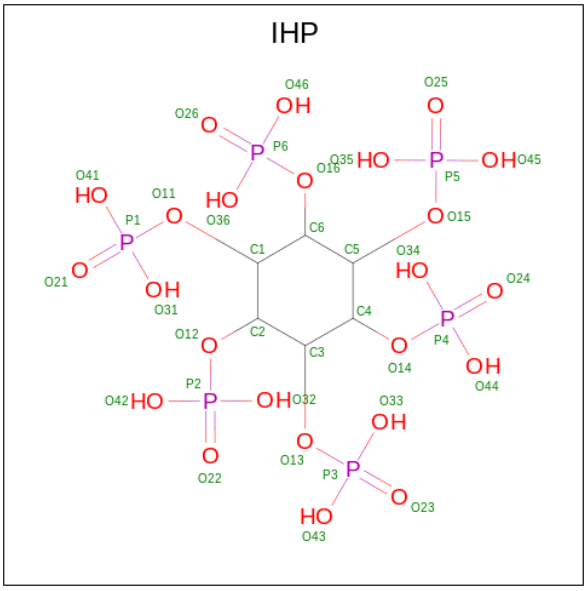
- Molecule 46 is a protein called PHD finger-like domain-containing protein 5A.

Mol	Chain	Residues	Atoms				AltConf	Trace
46	2L	89	Total	C	N	O	0	0
			356	178	89	89		

- Molecule 47 is a protein called Splicing factor 3B subunit 5.

Mol	Chain	Residues	Atoms				AltConf	Trace
47	2M	66	Total	C	N	O	0	0
			264	132	66	66		

- Molecule 48 is INOSITOL HEXAKISPHOSPHATE (CCD ID: IHP) (formula: $C_6H_{18}O_{24}P_6$).

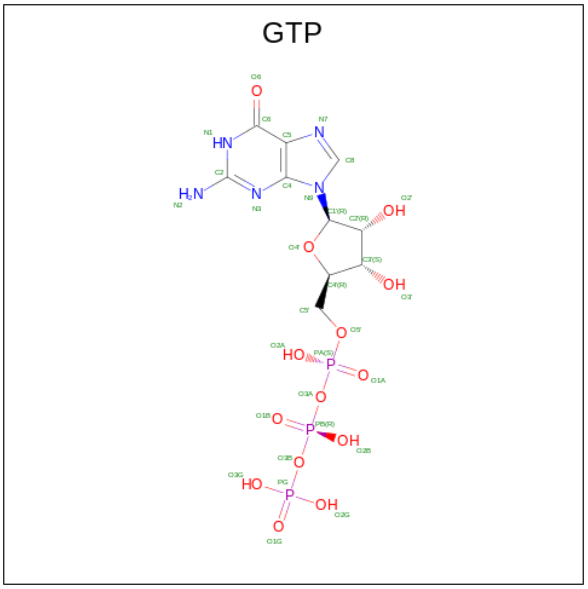


Mol	Chain	Residues	Atoms				AltConf
48	5B	1	Total	C	O	P	0
			36	6	24	6	

- Molecule 49 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
49	5C	1	Total	Mg	0
			1	1	

- Molecule 50 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
50	5C	1	Total	C	N	O	P	0
			32	10	5	14	3	

- Molecule 51 is ZINC ION (CCD ID: ZN) (formula: Zn).

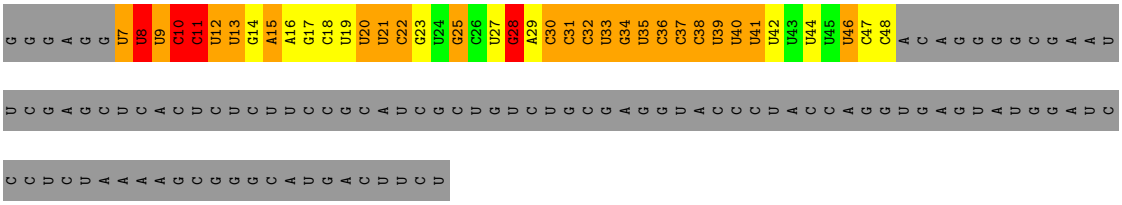
Mol	Chain	Residues	Atoms		AltConf
51	4T	1	Total	Zn	0
			1	1	

3 Residue-property plots (i)

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. 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. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

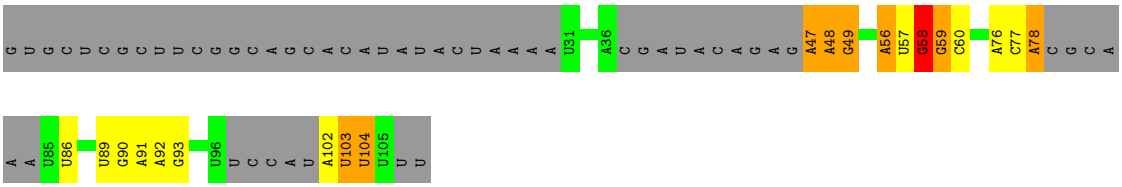
- Molecule 1: pre-mRNA

Chain A:



- Molecule 2: U6 snRNA

Chain 6A:

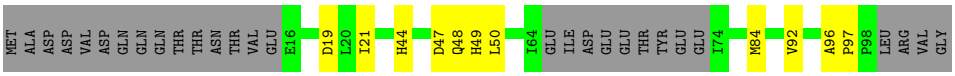


- Molecule 3: U6 snRNA-associated Sm-like protein LSm2

Chain 6a:

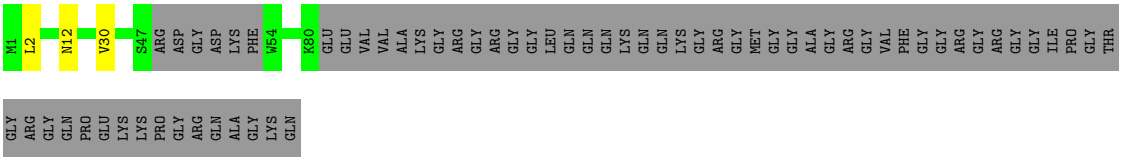
- Molecule 4: U6 snRNA-associated Sm-like protein LSm3

Chain 6b:



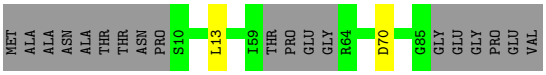
- Molecule 5: U6 snRNA-associated Sm-like protein LSm4

Chain 6c:



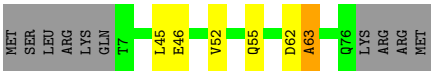
• Molecule 6: U6 snRNA-associated Sm-like protein LSm5

Chain 6d:



• Molecule 7: U6 snRNA-associated Sm-like protein LSm6

Chain 6e:



• Molecule 8: U6 snRNA-associated Sm-like protein LSm7

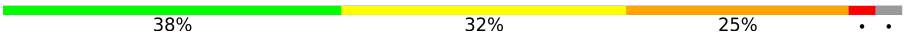
Chain 6f:

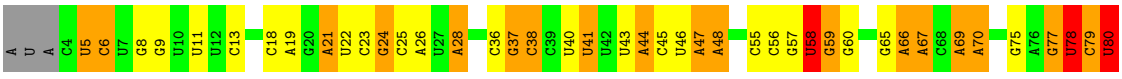
• Molecule 9: U6 snRNA-associated Sm-like protein LSm8

Chain 6g:

• Molecule 10: U5 snRNA

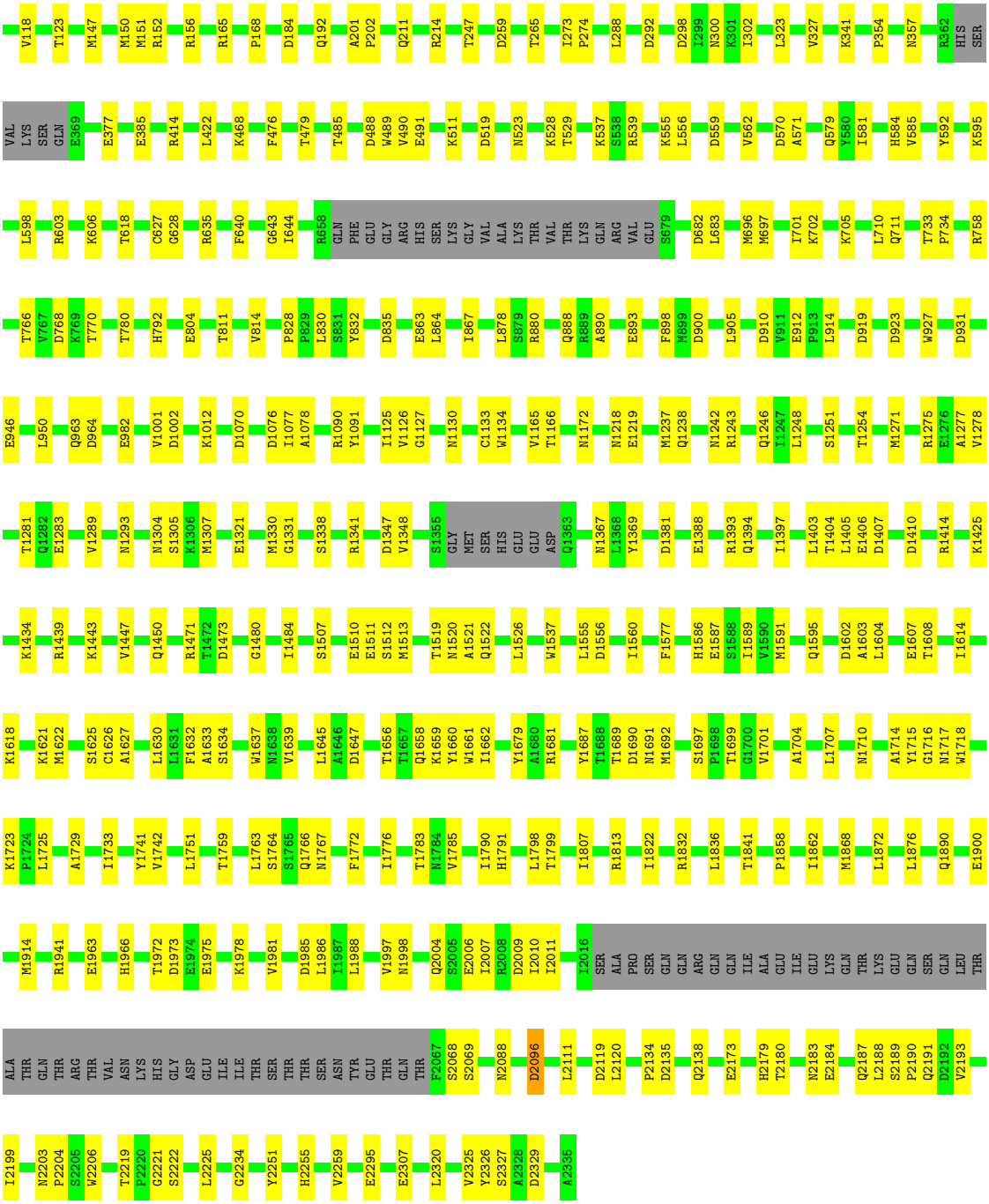
Chain 5A:





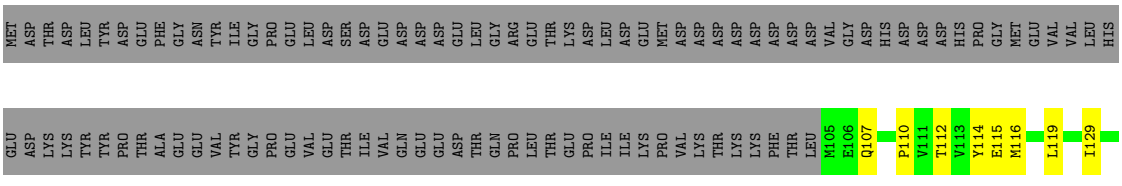
• Molecule 11: Pre-mRNA-processing-splicing factor 8

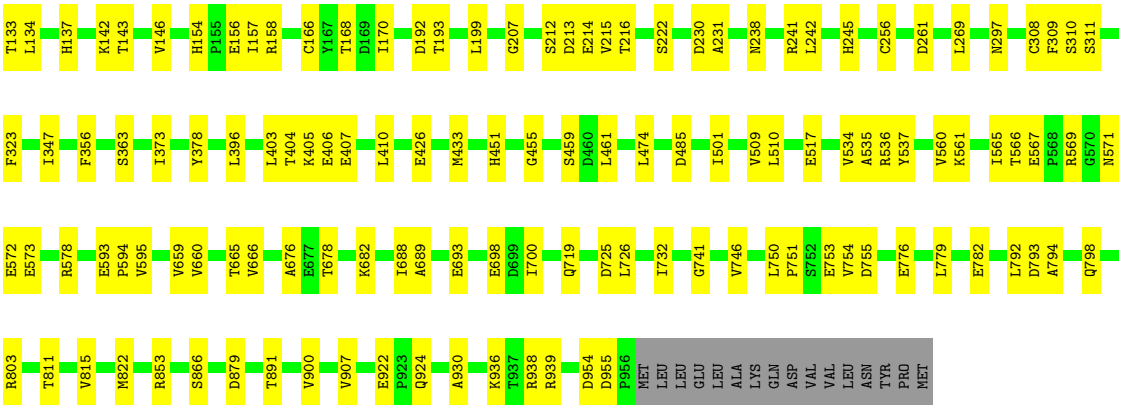
Chain 5B:



• Molecule 12: 116 kDa U5 small nuclear ribonucleoprotein component

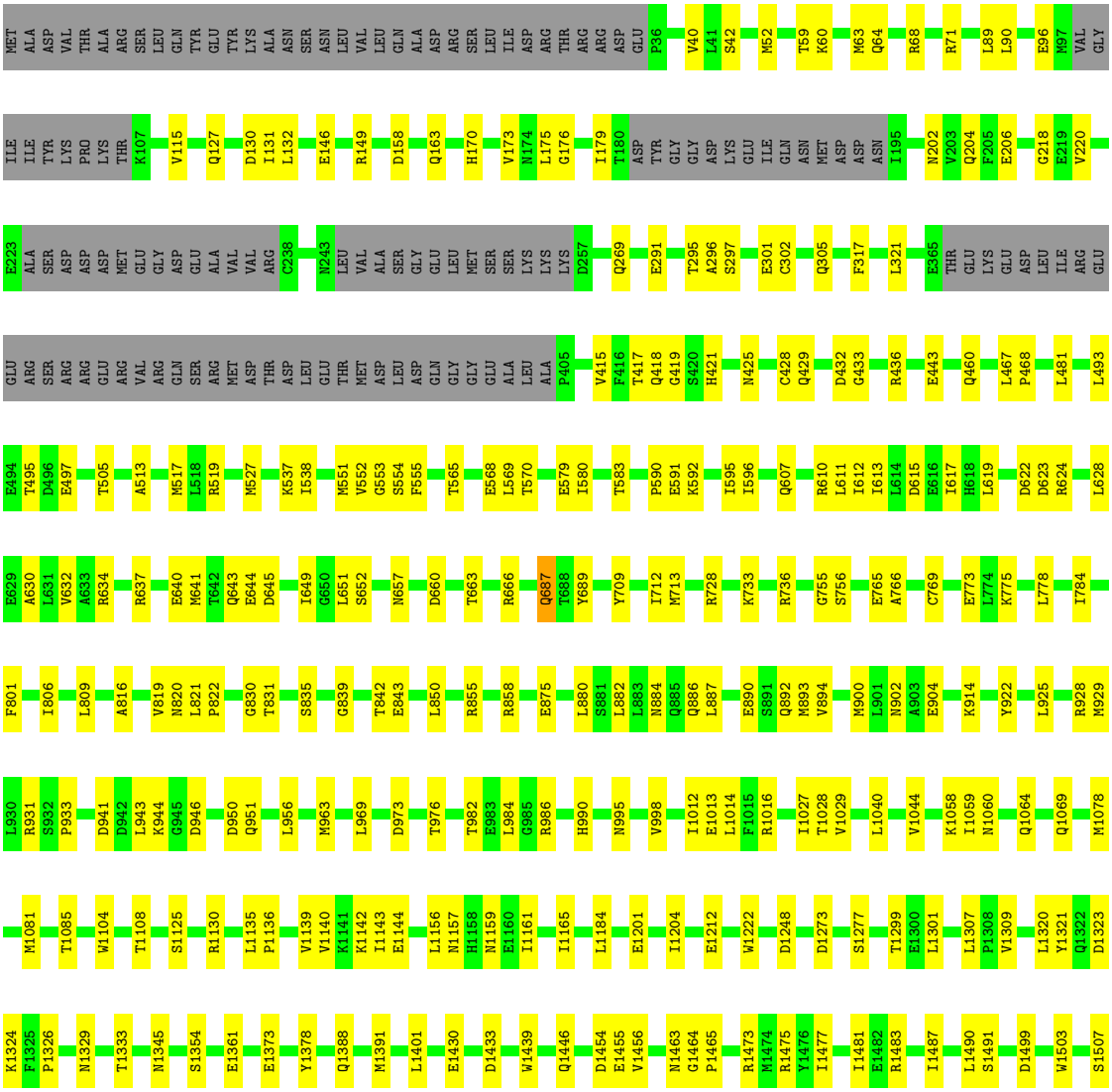
Chain 5C:

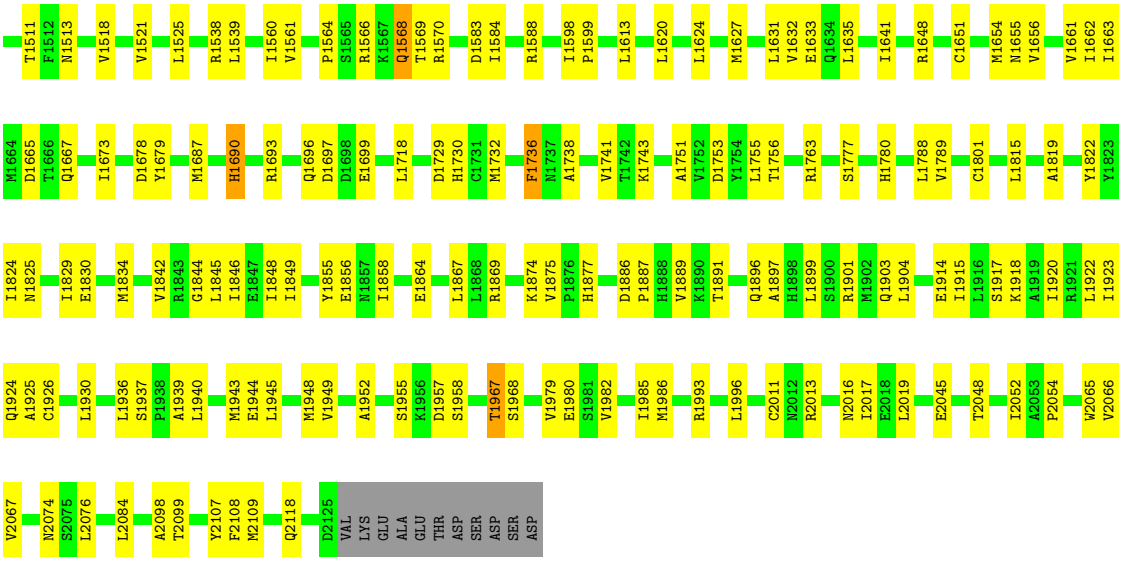




• Molecule 13: U5 small nuclear ribonucleoprotein 200 kDa helicase

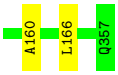
Chain 5D:





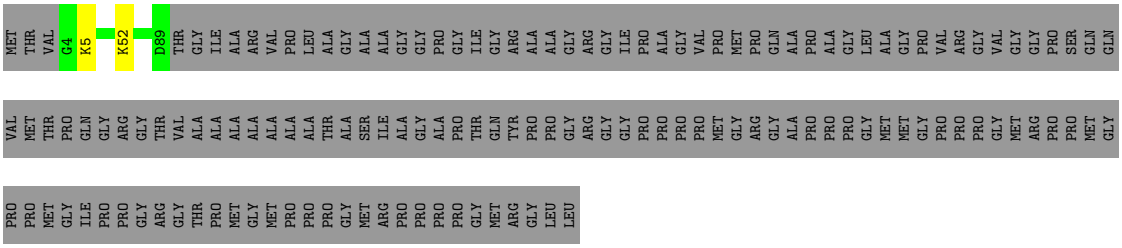
• Molecule 14: U5 small nuclear ribonucleoprotein 40 kDa protein

Chain 5E:



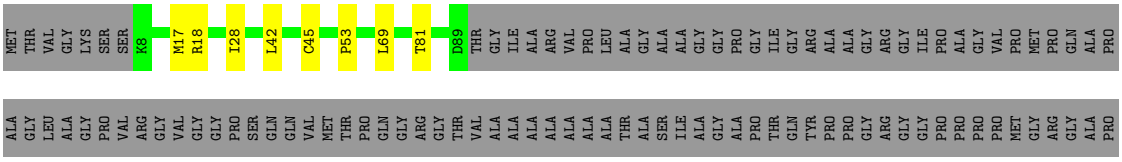
• Molecule 15: Isoform SM-B of Small nuclear ribonucleoprotein-associated proteins B and B'

Chain 5a:



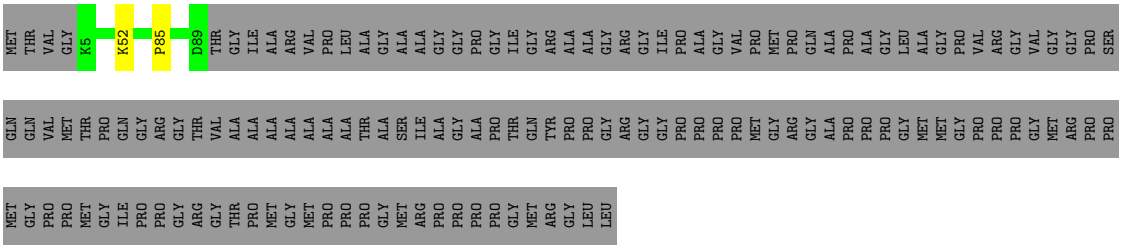
• Molecule 15: Isoform SM-B of Small nuclear ribonucleoprotein-associated proteins B and B'

Chain 4a:



• Molecule 15: Isoform SM-B of Small nuclear ribonucleoprotein-associated proteins B and B'

Chain 2a:

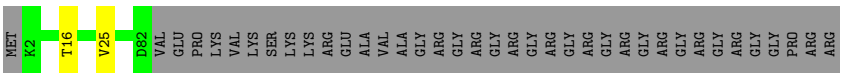


• Molecule 16: Small nuclear ribonucleoprotein Sm D1

Chain 5b:

• Molecule 16: Small nuclear ribonucleoprotein Sm D1

Chain 4b:



• Molecule 16: Small nuclear ribonucleoprotein Sm D1

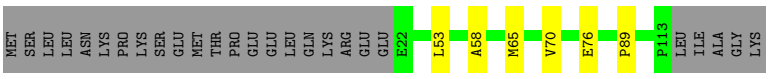
Chain 2b:

• Molecule 17: Small nuclear ribonucleoprotein Sm D2

Chain 5c:

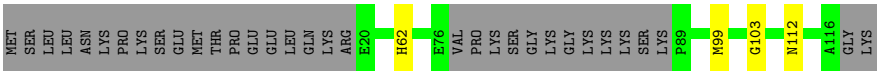
• Molecule 17: Small nuclear ribonucleoprotein Sm D2

Chain 4c:



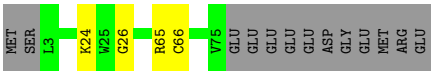
• Molecule 17: Small nuclear ribonucleoprotein Sm D2

Chain 2c:



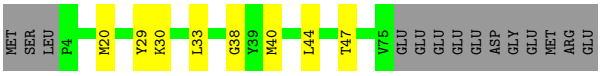
• Molecule 18: Small nuclear ribonucleoprotein F

Chain 5d:



• Molecule 18: Small nuclear ribonucleoprotein F

Chain 4d:



• Molecule 18: Small nuclear ribonucleoprotein F

Chain 2d:

• Molecule 19: Small nuclear ribonucleoprotein E

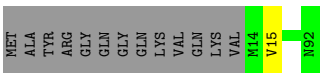
Chain 5e:

• Molecule 19: Small nuclear ribonucleoprotein E

Chain 4e:

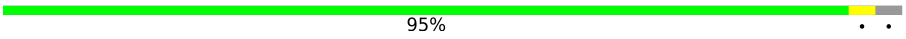
• Molecule 19: Small nuclear ribonucleoprotein E

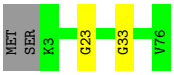
Chain 2e:



• Molecule 20: Small nuclear ribonucleoprotein G

Chain 5f:



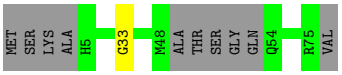


• Molecule 20: Small nuclear ribonucleoprotein G

Chain 4f:

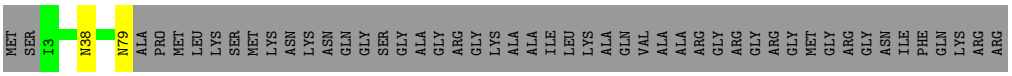
• Molecule 20: Small nuclear ribonucleoprotein G

Chain 2f:



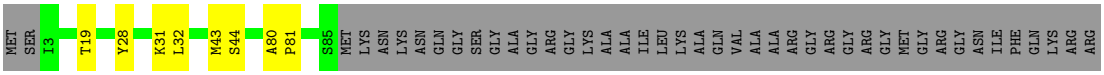
• Molecule 21: Small nuclear ribonucleoprotein Sm D3

Chain 5g:



• Molecule 21: Small nuclear ribonucleoprotein Sm D3

Chain 4g:

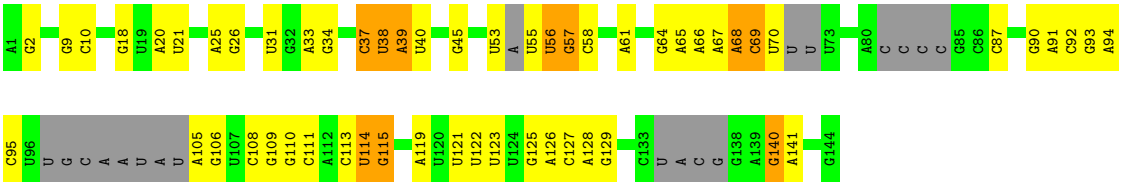


• Molecule 21: Small nuclear ribonucleoprotein Sm D3

Chain 2g:

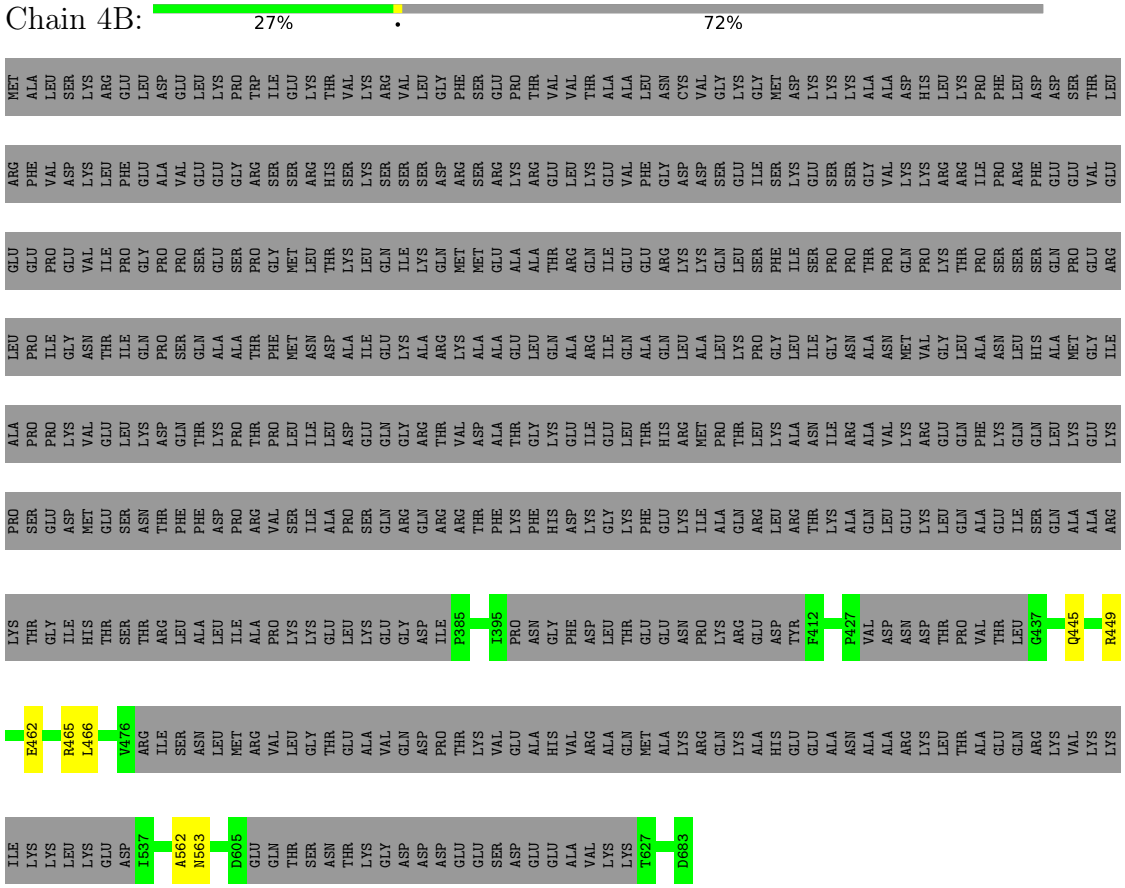
• Molecule 22: U4 snRNA

Chain 4A:



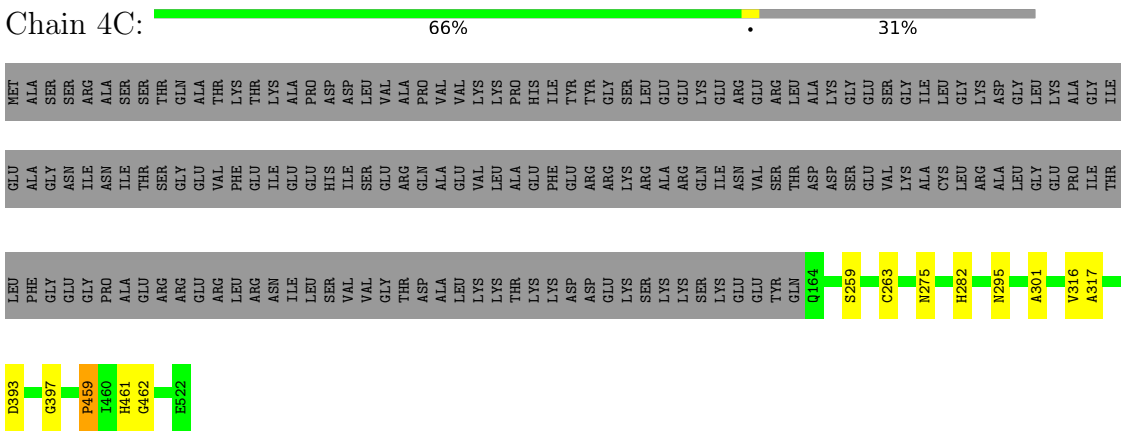
• Molecule 23: U4/U6 small nuclear ribonucleoprotein Prp3

Chain 4B:



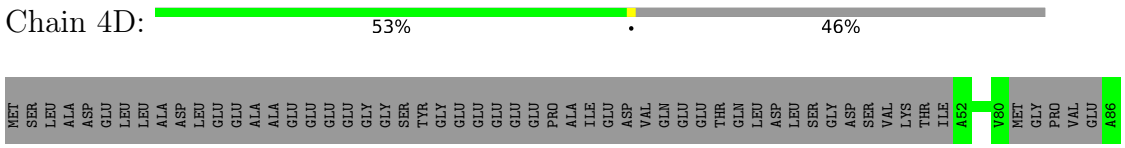
• Molecule 24: U4/U6 small nuclear ribonucleoprotein Prp4

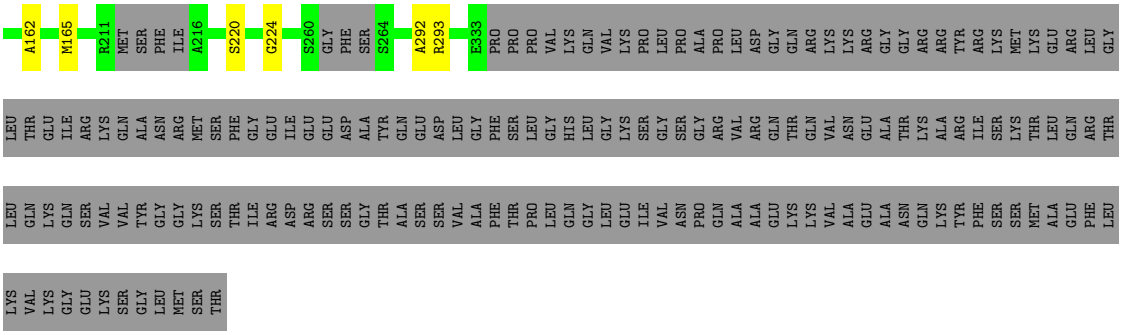
Chain 4C:



• Molecule 25: U4/U6 small nuclear ribonucleoprotein Prp31

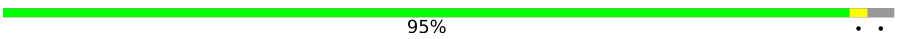
Chain 4D:

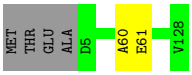




• Molecule 26: NHP2-like protein 1

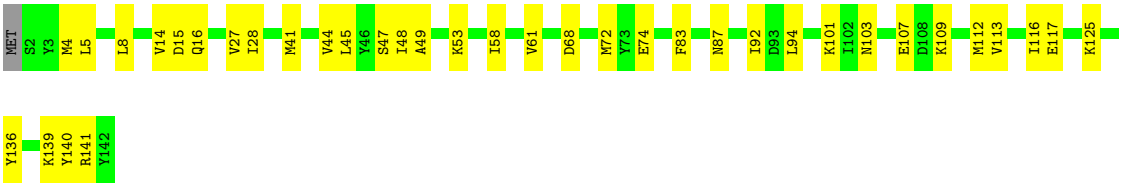
Chain 4E:





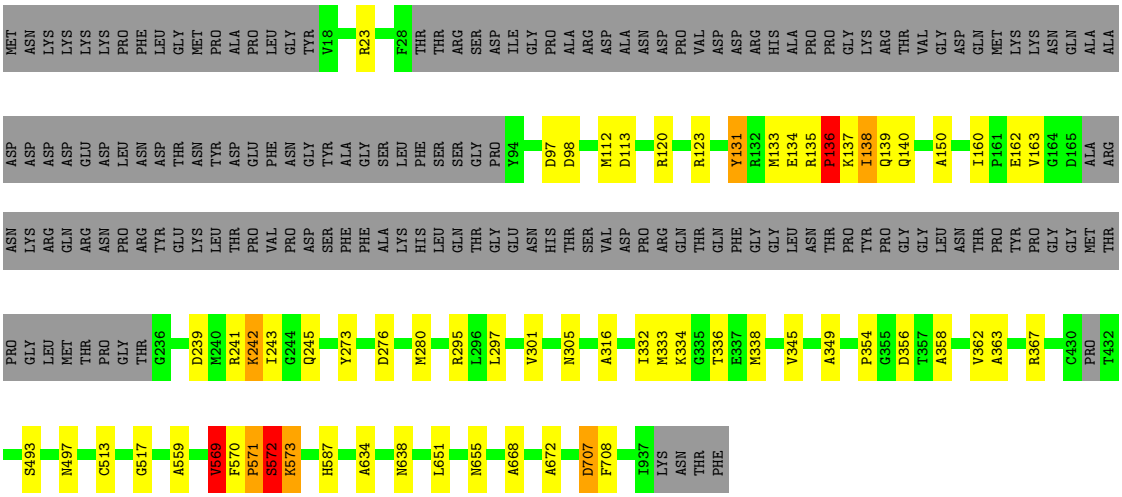
• Molecule 27: Thioredoxin-like protein 4A

Chain 4F:



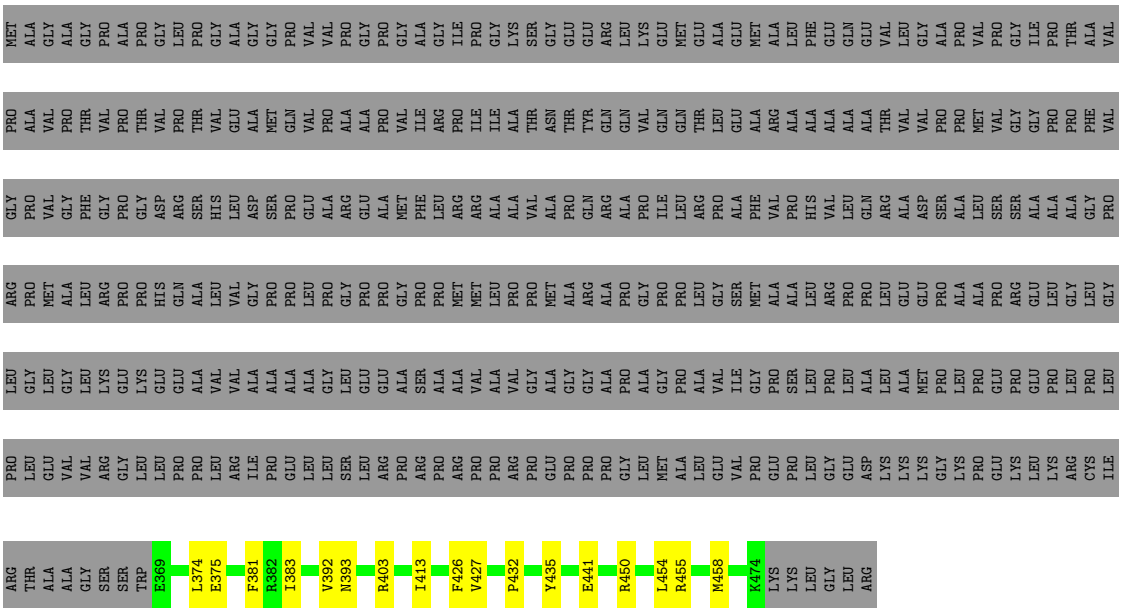
• Molecule 28: Pre-mRNA-processing factor 6

Chain 4G:



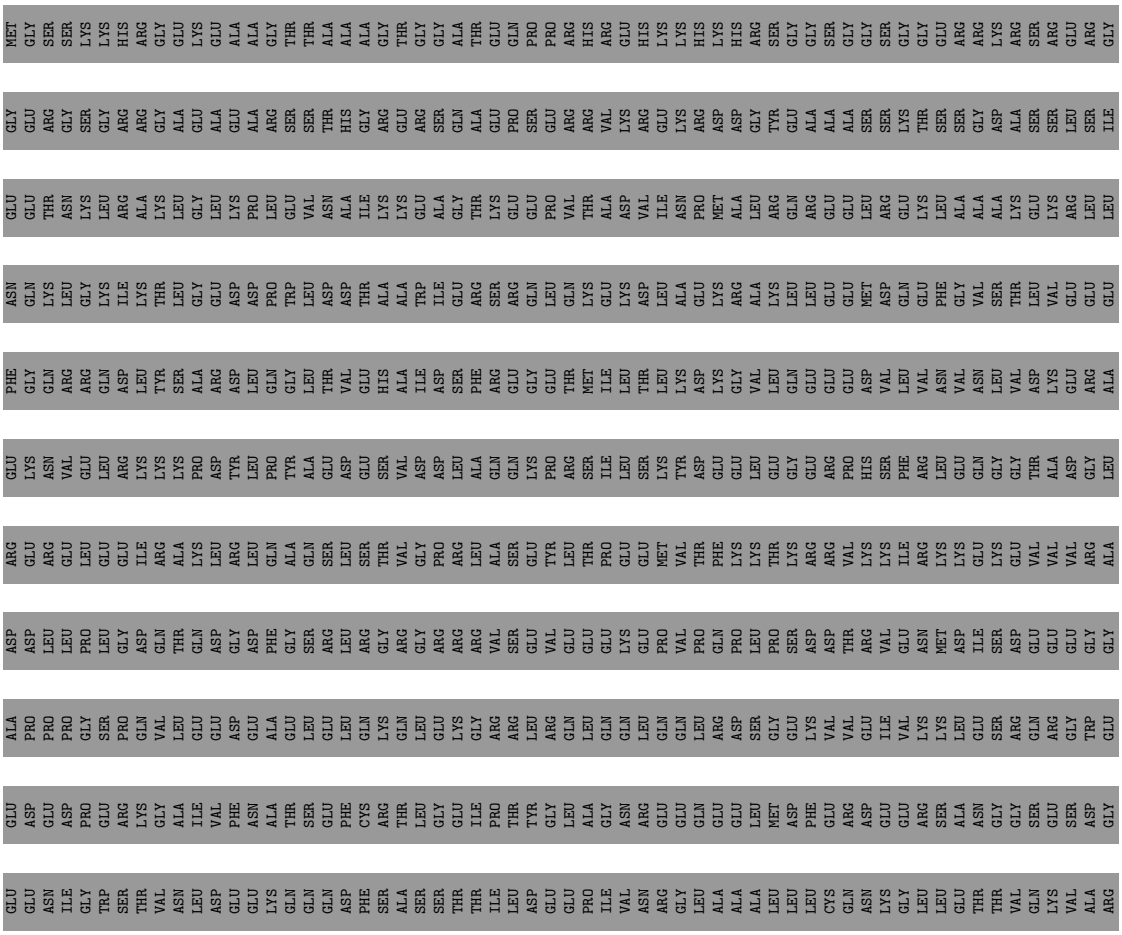
• Molecule 29: RNA-binding protein 42

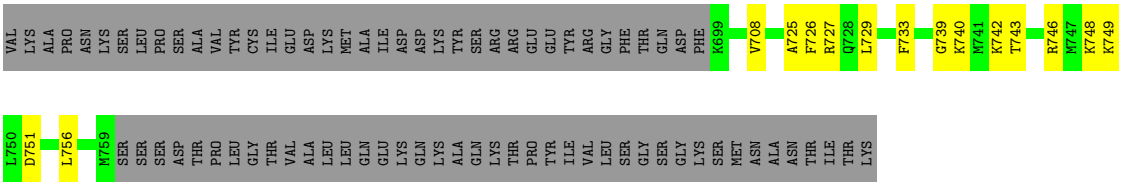
Chain 4R:



• Molecule 30: U4/U6.U5 tri-snRNP-associated protein 1

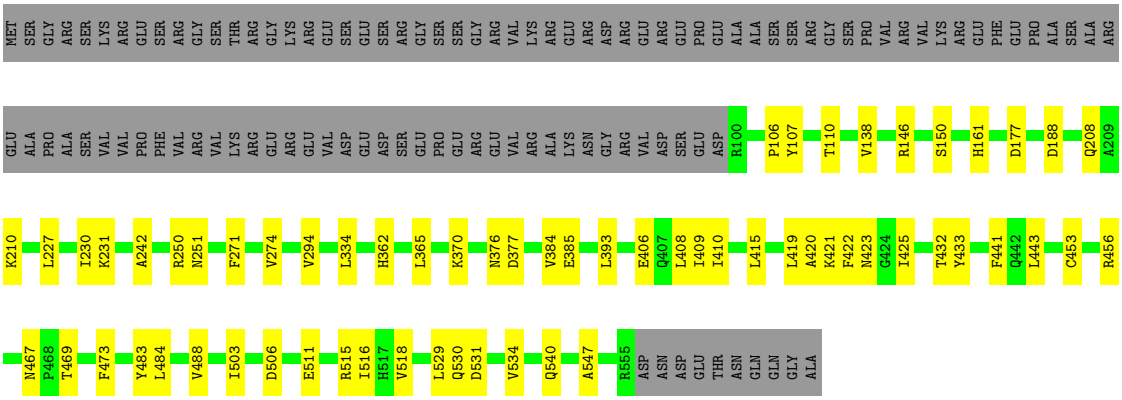
Chain 4S: 6% 92%





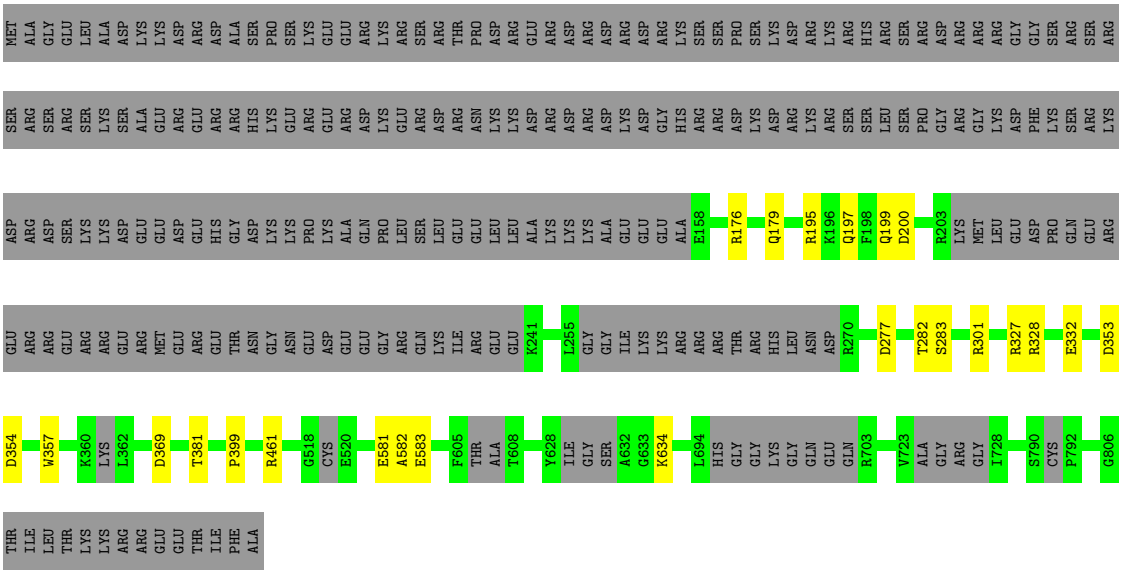
• Molecule 31: U4/U6.U5 tri-snRNP-associated protein 2

Chain 4T:



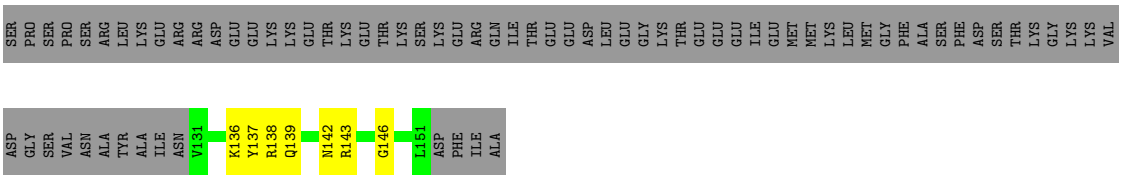
• Molecule 32: Probable ATP-dependent RNA helicase DDX23

Chain 4U:



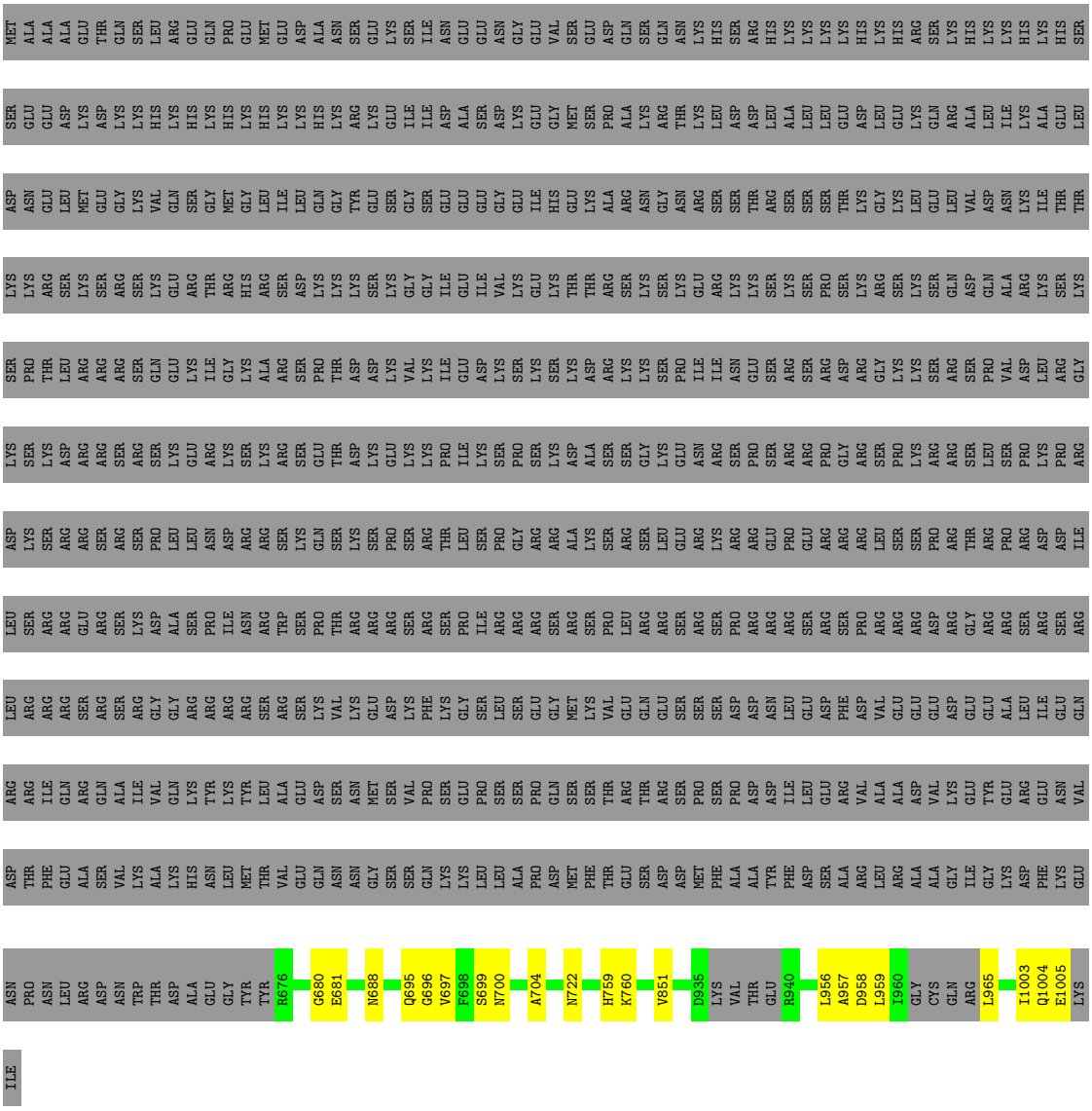
• Molecule 33: U4/U6.U5 small nuclear ribonucleoprotein 27 kDa protein

Chain 4X:



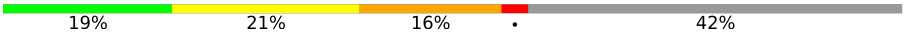
• Molecule 34: Serine/threonine-protein kinase PRP4 homolog

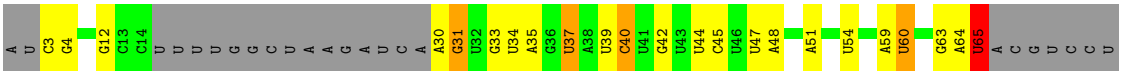
Chain 4Y:

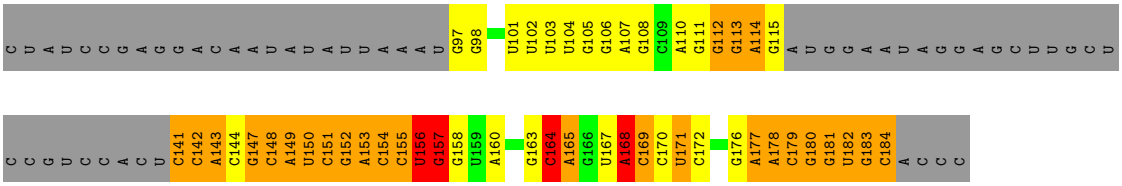


• Molecule 35: U2 snRNA

Chain 2A:

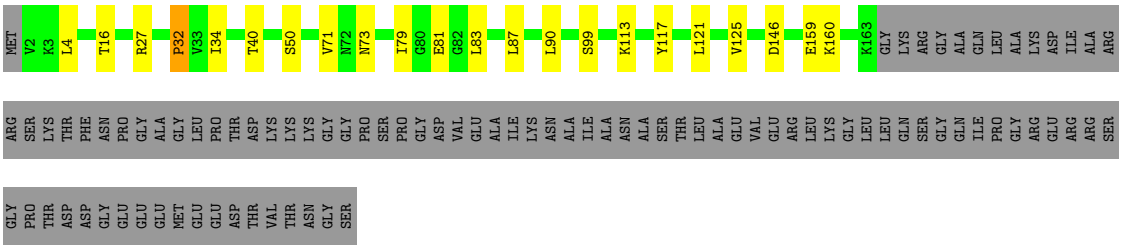






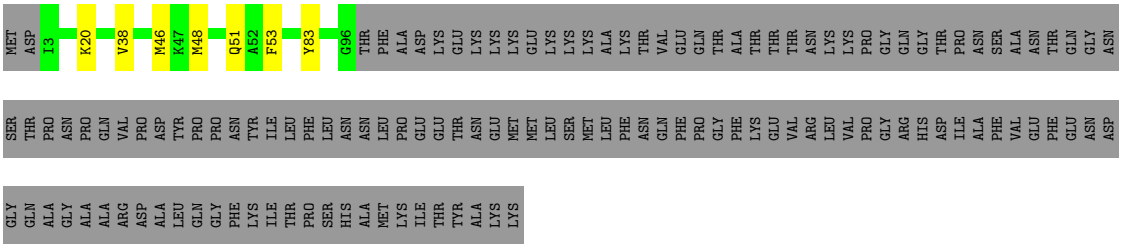
• Molecule 36: U2 small nuclear ribonucleoprotein A'

Chain 2B:



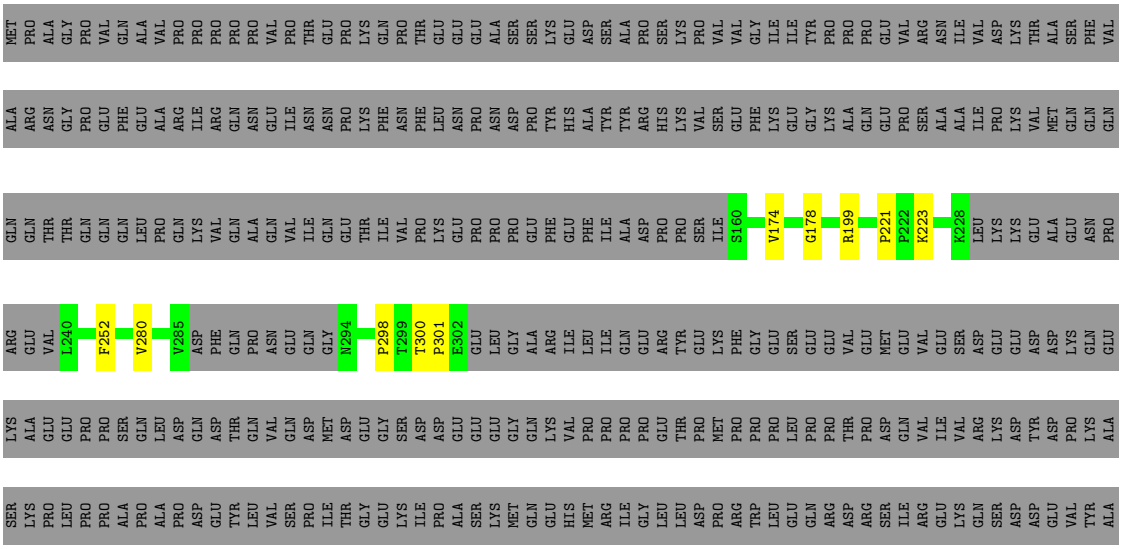
• Molecule 37: U2 small nuclear ribonucleoprotein B"

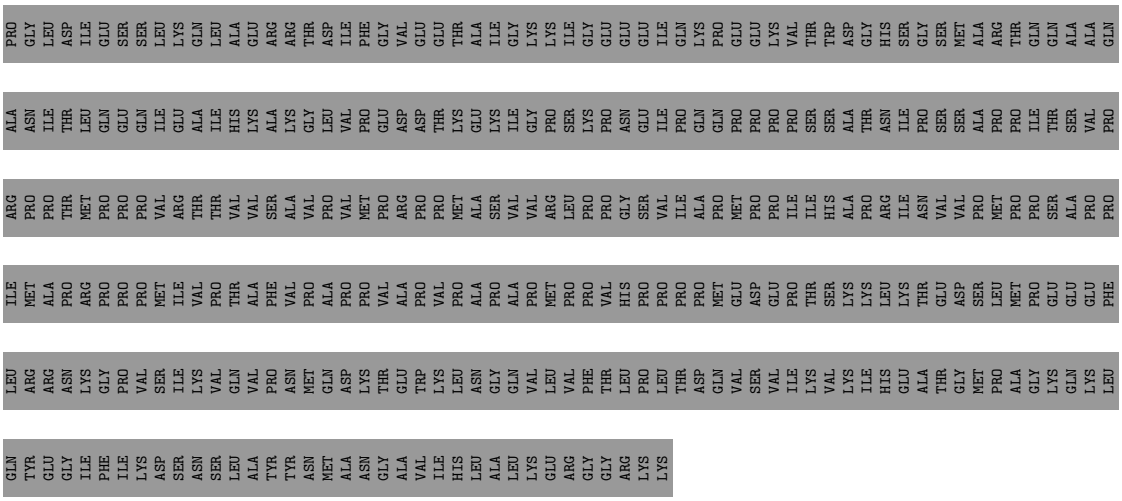
Chain 2C:



• Molecule 38: Splicing factor 3A subunit 1

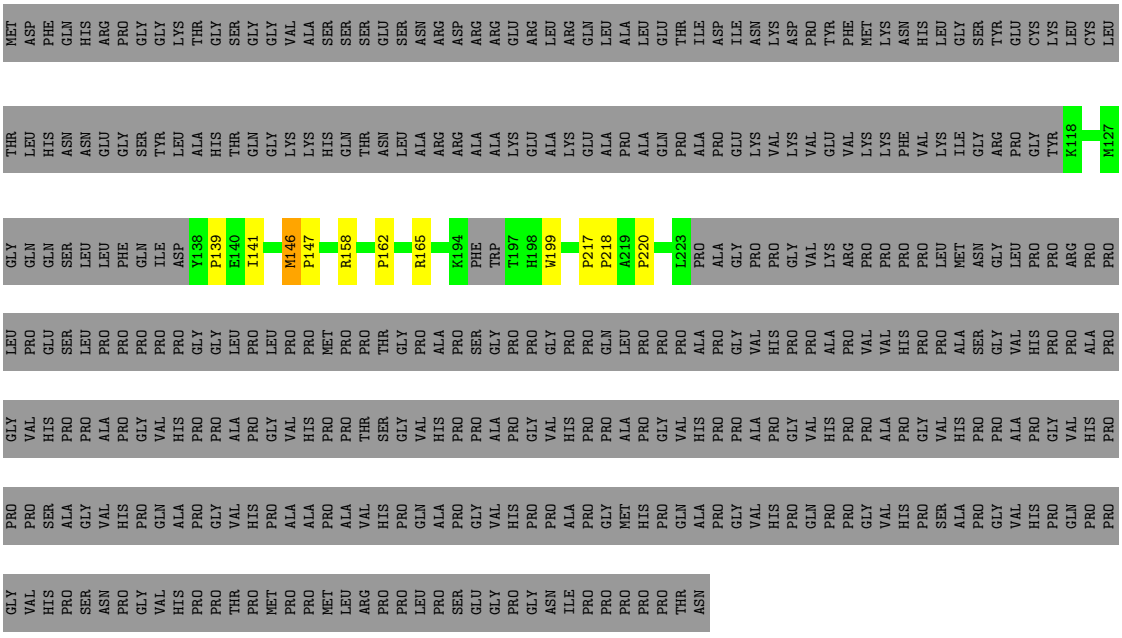
Chain 2D:





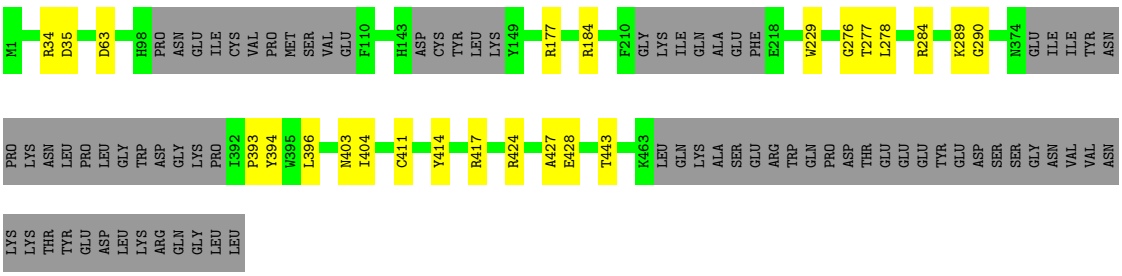
• Molecule 39: Splicing factor 3A subunit 2

Chain 2E:



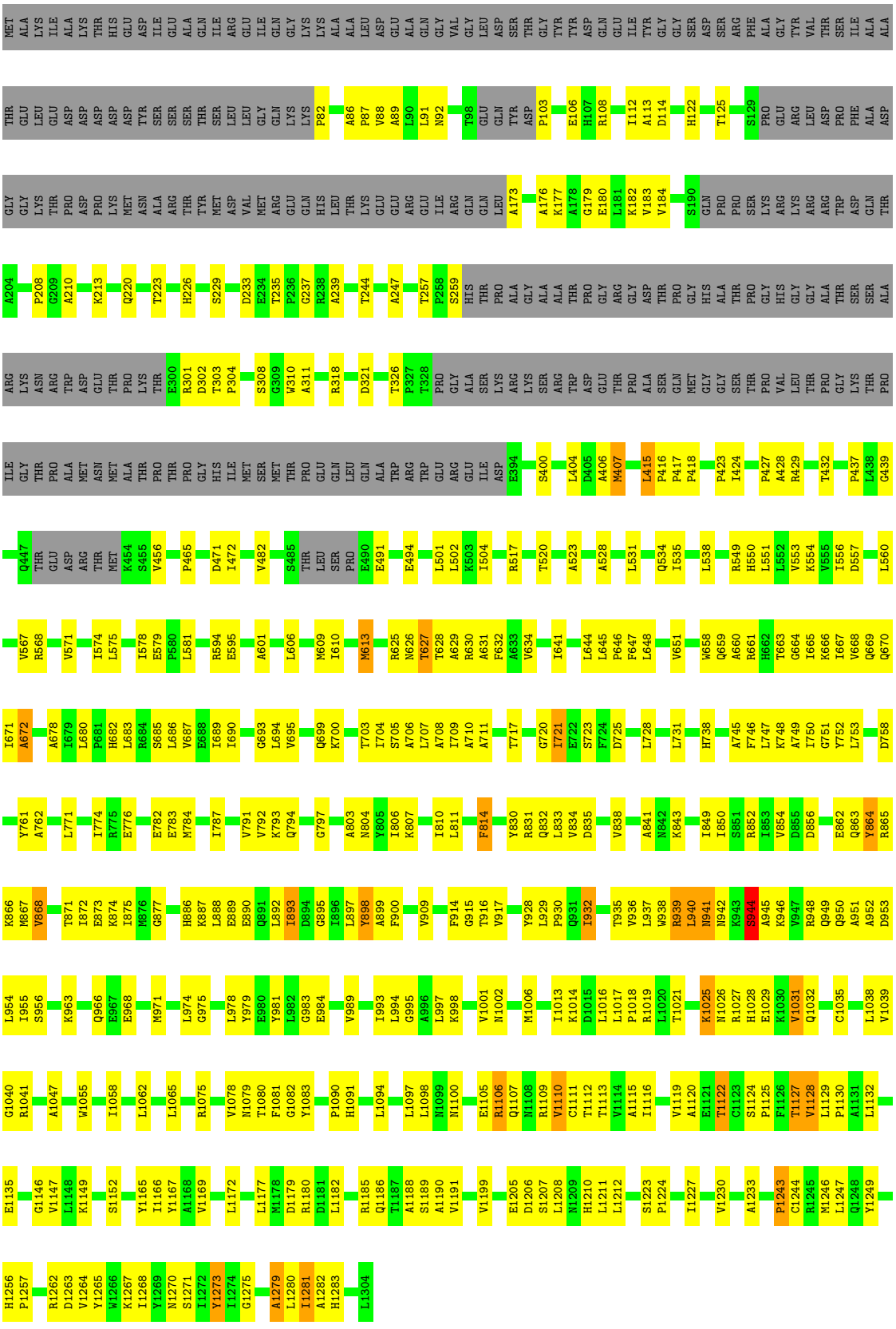
• Molecule 40: Splicing factor 3A subunit 3

Chain 2F:



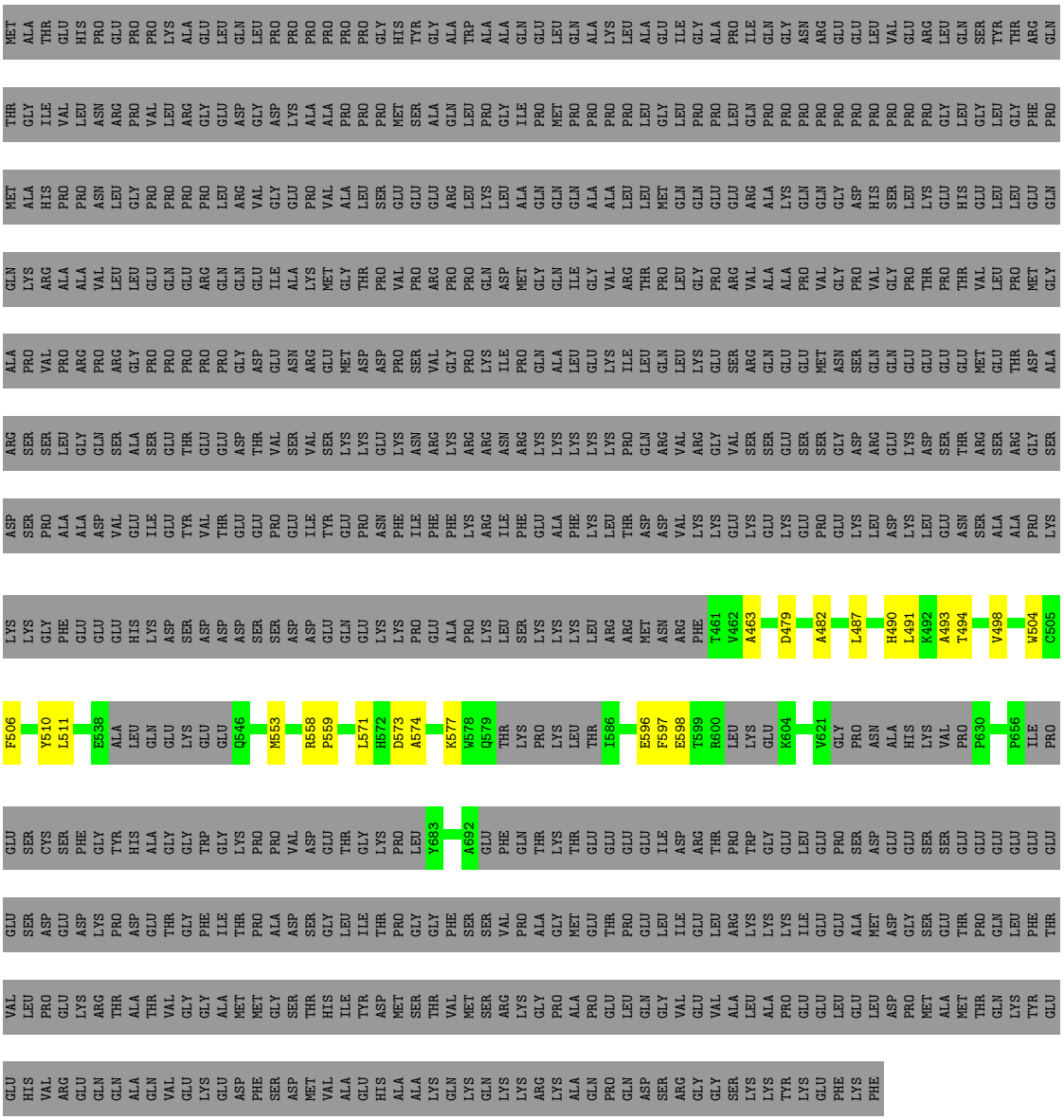
• Molecule 41: Splicing factor 3B subunit 1

Chain 2G:



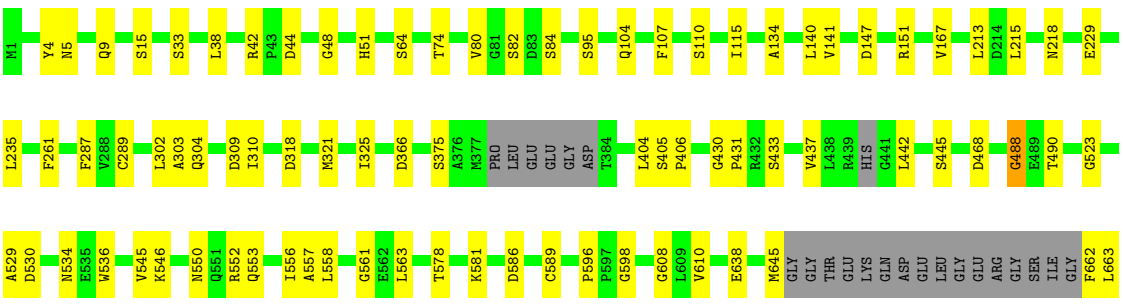
• Molecule 42: Splicing factor 3B subunit 2

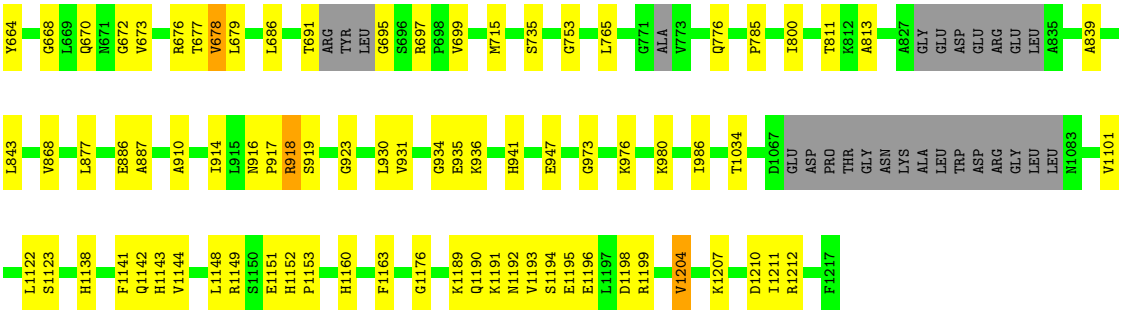
Chain 2H:



• Molecule 43: Splicing factor 3B subunit 3

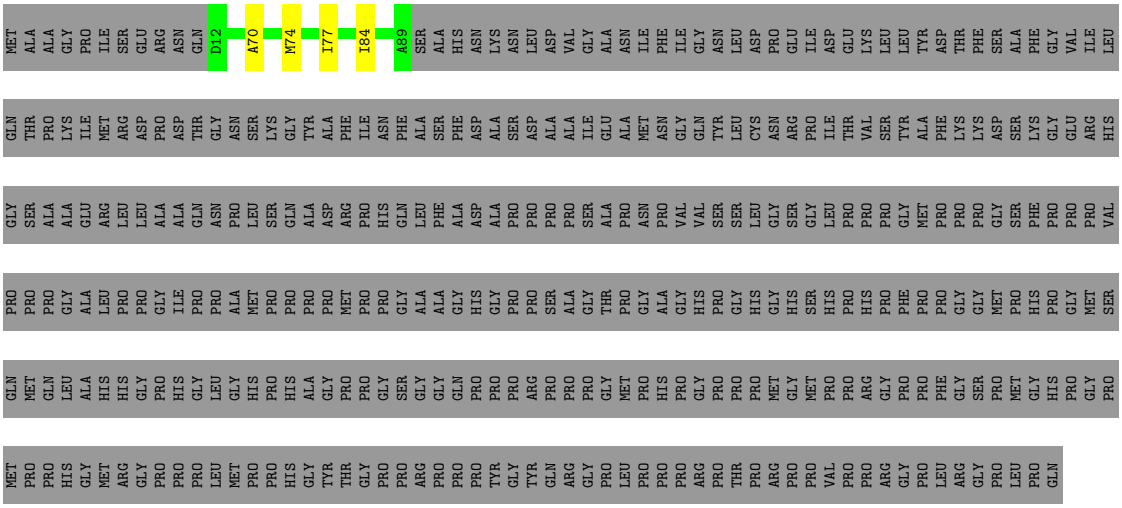
Chain 2I:





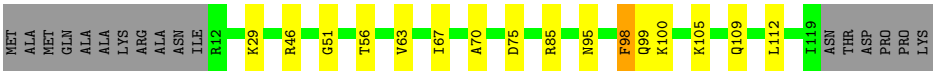
• Molecule 44: Splicing factor 3B subunit 4

Chain 2J:



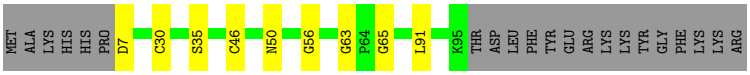
• Molecule 45: Splicing factor 3B subunit 6

Chain 2K:



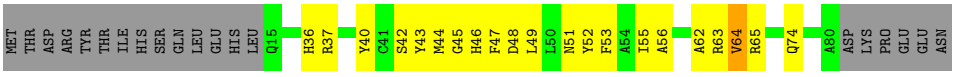
• Molecule 46: PHD finger-like domain-containing protein 5A

Chain 2L:



• Molecule 47: Splicing factor 3B subunit 5

Chain 2M:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	116801	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.69	6/956 (0.6%)	0.75	2/1481 (0.1%)
2	6A	0.30	0/1274	0.48	2/1976 (0.1%)
3	6a	0.70	0/355	1.27	0/442
4	6b	0.75	0/294	1.37	3/364 (0.8%)
5	6c	0.59	0/294	1.32	3/364 (0.8%)
6	6d	0.71	0/286	1.28	2/354 (0.6%)
7	6e	0.71	0/279	1.40	2/347 (0.6%)
8	6f	0.60	0/258	1.14	0/319
9	6g	0.68	0/242	1.21	1/299 (0.3%)
10	5A	0.22	0/2673	0.55	8/4156 (0.2%)
11	5B	0.13	0/18748	0.31	0/25452
12	5C	0.13	0/6879	0.32	0/9344
13	5D	0.12	0/16393	0.31	0/22174
14	5E	0.26	0/1480	0.67	0/2056
15	2a	0.86	0/339	1.19	2/422 (0.5%)
15	4a	0.30	0/404	0.71	0/561
15	5a	0.87	0/343	1.20	3/427 (0.7%)
16	2b	0.89	0/327	1.10	0/407
16	4b	0.32	0/400	0.78	0/556
16	5b	0.89	0/327	1.11	0/407
17	2c	1.18	0/338	1.20	1/419 (0.2%)
17	4c	0.34	0/454	0.78	0/631
17	5c	1.14	1/387 (0.3%)	1.22	1/482 (0.2%)
18	2d	1.24	1/295 (0.3%)	1.26	0/367
18	4d	0.39	0/350	0.78	0/483
18	5d	1.23	0/291	1.26	0/362
19	2e	1.02	0/315	1.26	0/392
19	4e	0.33	0/375	0.91	2/521 (0.4%)
19	5e	1.03	0/315	1.27	1/392 (0.3%)
20	2f	0.85	0/262	1.04	0/324
20	4f	0.34	0/362	0.81	0/501
20	5f	0.86	0/295	1.05	0/367

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
21	2g	0.81	0/318	1.01	0/394
21	4g	0.30	0/408	0.71	0/566
21	5g	0.78	0/307	1.01	0/382
22	4A	0.35	1/2963 (0.0%)	0.49	5/4603 (0.1%)
23	4B	0.17	0/948	0.40	0/1312
24	4C	0.13	0/1764	0.36	0/2450
25	4D	0.16	0/1336	0.33	0/1858
26	4E	0.11	0/614	0.29	0/855
27	4F	0.12	0/1198	0.31	0/1620
28	4G	0.29	4/4561 (0.1%)	0.51	11/6271 (0.2%)
29	4R	0.12	0/891	0.34	0/1188
30	4S	0.13	0/512	0.33	0/673
31	4T	0.12	0/3845	0.34	0/5208
32	4U	0.61	0/3422	0.89	5/4659 (0.1%)
33	4X	0.12	0/187	0.34	0/245
34	4Y	0.49	0/1592	0.99	2/2215 (0.1%)
35	2A	0.71	12/2576 (0.5%)	1.11	27/4003 (0.7%)
36	2B	0.99	0/647	2.34	33/807 (4.1%)
37	2C	0.96	0/375	1.97	7/467 (1.5%)
38	2D	0.37	0/493	0.98	2/611 (0.3%)
39	2E	0.38	0/373	1.77	4/461 (0.9%)
40	2F	0.39	0/1688	0.92	2/2102 (0.1%)
41	2G	1.72	36/4184 (0.9%)	1.43	29/5216 (0.6%)
42	2H	1.17	0/722	1.25	3/892 (0.3%)
43	2I	1.39	24/4664 (0.5%)	1.20	10/5816 (0.2%)
44	2J	1.02	0/311	0.99	0/387
45	2K	1.27	2/431 (0.5%)	1.27	1/537 (0.2%)
46	2L	1.15	0/355	1.10	0/442
47	2M	1.59	1/263 (0.4%)	1.24	0/327
All	All	0.61	88/98538 (0.1%)	0.73	174/133716 (0.1%)

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
15	4a	0	1
17	2c	0	1
17	5c	0	1
18	4d	0	1
19	4e	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
22	4A	0	1
24	4C	0	1
28	4G	0	2
40	2F	0	1
41	2G	0	11
42	2H	0	3
43	2I	0	11
45	2K	0	1
47	2M	0	1
All	All	0	37

All (88) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
41	2G	407	MET	N-CA	22.59	1.71	1.46
41	2G	406	ALA	C-N	14.97	1.52	1.33
41	2G	1243	PRO	N-CA	-9.49	1.35	1.47
22	4A	87	C	O3'-P	9.19	1.75	1.61
41	2G	944	SER	N-CA	-8.47	1.34	1.46
43	2I	84	SER	CA-C	-7.80	1.42	1.53
35	2A	142	C	C1'-N1	7.45	1.59	1.48
41	2G	868	VAL	CA-C	-7.21	1.42	1.52
43	2I	82	SER	CA-C	-7.19	1.43	1.52
43	2I	110	SER	C-O	-7.19	1.15	1.23
43	2I	1101	VAL	CA-C	-7.12	1.44	1.52
35	2A	182	U	C1'-N1	7.09	1.59	1.48
43	2I	1101	VAL	C-O	-7.04	1.16	1.24
35	2A	150	U	C1'-N1	7.01	1.58	1.48
28	4G	571	PRO	N-CA	6.99	1.56	1.47
41	2G	1273	TYR	CA-C	-6.74	1.43	1.52
35	2A	151	C	C1'-N1	6.71	1.58	1.48
41	2G	939	ARG	CA-C	-6.68	1.44	1.52
35	2A	97	G	C1'-N9	-6.67	1.38	1.48
35	2A	141	C	C1'-N1	6.60	1.58	1.48
43	2I	141	VAL	C-O	-6.55	1.17	1.24
43	2I	289	CYS	C-O	-6.54	1.15	1.23
35	2A	184	C	C1'-N1	6.54	1.58	1.48
43	2I	64	SER	N-CA	-6.54	1.38	1.46
35	2A	148	C	C1'-N1	6.53	1.58	1.48
45	2K	98	PHE	N-CA	-6.48	1.37	1.46
41	2G	814	PHE	CA-C	-6.21	1.45	1.52
43	2I	213	LEU	CA-C	-6.04	1.45	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
41	2G	678	ALA	N-CA	-6.04	1.38	1.46
43	2I	64	SER	C-O	-6.04	1.16	1.23
1	A	8	U	C1'-N1	6.02	1.56	1.47
1	A	9	U	C1'-N1	6.01	1.56	1.47
1	A	7	U	C1'-N1	5.98	1.56	1.47
28	4G	570	PHE	N-CA	5.96	1.54	1.46
43	2I	140	LEU	CA-C	-5.95	1.45	1.52
41	2G	1167	TYR	CA-C	-5.92	1.45	1.52
41	2G	945	ALA	CA-C	-5.91	1.44	1.52
35	2A	48	A	C1'-N9	-5.90	1.39	1.48
43	2I	302	LEU	C-O	-5.85	1.17	1.24
41	2G	940	LEU	CA-C	-5.85	1.45	1.52
43	2I	167	VAL	CA-C	-5.84	1.46	1.52
41	2G	571	VAL	CA-C	-5.84	1.46	1.52
41	2G	893	ILE	N-CA	-5.78	1.39	1.46
43	2I	115	ILE	N-CA	-5.77	1.40	1.46
28	4G	572	SER	N-CA	5.71	1.53	1.46
45	2K	95	ASN	N-CA	-5.70	1.38	1.46
35	2A	65	U	C1'-N1	5.70	1.56	1.48
43	2I	235	LEU	C-O	-5.67	1.16	1.23
41	2G	989	VAL	CA-C	-5.66	1.45	1.52
41	2G	482	VAL	C-O	-5.65	1.17	1.24
43	2I	104	GLN	CA-C	-5.64	1.46	1.52
43	2I	1153	PRO	C-O	-5.61	1.18	1.24
41	2G	233	ASP	CA-C	-5.60	1.45	1.52
41	2G	1177	LEU	C-O	-5.59	1.17	1.24
43	2I	80	VAL	C-O	-5.58	1.18	1.24
41	2G	439	GLY	CA-C	5.54	1.56	1.52
41	2G	838	VAL	N-CA	-5.54	1.40	1.46
35	2A	110	A	C1'-N9	-5.53	1.39	1.48
1	A	10	C	C1'-N1	5.53	1.55	1.47
1	A	11	C	C1'-N1	5.53	1.55	1.47
41	2G	235	THR	C-O	-5.48	1.19	1.24
43	2I	1123	SER	CA-C	-5.47	1.45	1.52
41	2G	738	HIS	N-CA	-5.44	1.39	1.45
43	2I	134	ALA	C-O	-5.43	1.18	1.23
43	2I	107	PHE	CA-C	-5.36	1.45	1.52
41	2G	627	THR	N-CA	-5.35	1.40	1.46
43	2I	941	HIS	C-O	5.33	1.30	1.23
43	2I	38	LEU	CA-C	-5.33	1.46	1.52
41	2G	898	TYR	C-N	-5.28	1.27	1.33
1	A	46	U	C1'-N1	5.27	1.55	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
41	2G	672	ALA	CA-C	-5.26	1.46	1.52
41	2G	721	ILE	N-CA	-5.26	1.40	1.46
41	2G	864	TYR	CA-C	-5.24	1.46	1.52
47	2M	44	MET	C-O	-5.23	1.18	1.24
41	2G	601	ALA	N-CA	-5.23	1.40	1.46
41	2G	680	LEU	C-O	-5.23	1.19	1.24
41	2G	415	LEU	C-N	5.19	1.39	1.33
43	2I	1034	THR	CA-C	-5.19	1.47	1.53
41	2G	944	SER	CA-C	5.17	1.59	1.53
41	2G	407	MET	C-O	-5.14	1.18	1.23
41	2G	776	GLU	CA-C	-5.14	1.45	1.52
41	2G	1281	ILE	CA-C	-5.13	1.46	1.52
35	2A	60	U	C1'-N1	5.12	1.56	1.48
41	2G	1279	ALA	CA-C	-5.09	1.46	1.52
18	2d	14	LEU	CA-C	5.07	1.59	1.52
17	5c	73	MET	CA-C	-5.06	1.46	1.52
41	2G	899	ALA	N-CA	-5.04	1.40	1.46
28	4G	570	PHE	CA-C	5.01	1.59	1.52

All (174) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
39	2E	146	MET	CA-C-N	21.08	146.19	119.84
39	2E	146	MET	C-N-CA	21.08	146.19	119.84
41	2G	406	ALA	CA-C-N	17.64	147.35	120.89
41	2G	406	ALA	C-N-CA	17.64	147.35	120.89
41	2G	406	ALA	CA-C-O	-13.03	105.77	120.24
41	2G	108	ARG	CA-C-N	12.17	132.92	120.38
41	2G	108	ARG	C-N-CA	12.17	132.92	120.38
10	5A	78	U	P-O3'-C3'	-11.65	102.72	120.20
28	4G	571	PRO	N-CA-CB	-11.44	91.24	103.25
10	5A	58	U	P-O3'-C3'	-10.61	104.29	120.20
28	4G	569	VAL	O-C-N	-10.50	109.44	122.57
22	4A	87	C	O3'-P-O5'	10.23	119.35	104.00
43	2I	916	ASN	CA-C-N	9.50	131.72	119.84
43	2I	916	ASN	C-N-CA	9.50	131.72	119.84
41	2G	114	ASP	N-CA-C	9.44	121.33	111.14
10	5A	57	G	P-O3'-C3'	-9.40	106.11	120.20
28	4G	572	SER	CA-C-O	-8.79	107.94	120.51
35	2A	149	A	O3'-P-O5'	-8.65	91.02	104.00
35	2A	180	G	O3'-P-O5'	-8.62	91.07	104.00
35	2A	182	U	O3'-P-O5'	-8.62	91.08	104.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
35	2A	183	G	O3'-P-O5'	-8.62	91.08	104.00
35	2A	148	C	O3'-P-O5'	-8.59	91.12	104.00
35	2A	141	C	O3'-P-O5'	-8.57	91.15	104.00
35	2A	181	G	O3'-P-O5'	-8.56	91.16	104.00
7	6e	45	LEU	N-CA-C	8.56	123.58	112.12
35	2A	114	A	O3'-P-O5'	-8.55	91.18	104.00
35	2A	113	G	O3'-P-O5'	-8.54	91.19	104.00
35	2A	150	U	O3'-P-O5'	-8.54	91.20	104.00
28	4G	571	PRO	N-CA-C	8.24	129.45	112.47
28	4G	707	ASP	CA-C-N	8.20	136.46	121.70
28	4G	707	ASP	C-N-CA	8.20	136.46	121.70
36	2B	16	THR	CA-C-O	-8.03	111.77	120.36
10	5A	80	U	P-O3'-C3'	-8.03	108.16	120.20
22	4A	56	U	P-O3'-C3'	-8.03	108.16	120.20
36	2B	99	SER	N-CA-C	8.03	122.85	112.26
22	4A	55	U	P-O3'-C3'	-7.96	108.27	120.20
36	2B	117	TYR	CA-C-O	7.73	128.52	120.40
35	2A	168	A	P-O5'-C5'	-7.63	109.45	120.90
35	2A	167	U	O3'-P-O5'	-7.30	93.05	104.00
28	4G	570	PHE	CA-C-N	7.22	128.86	119.84
28	4G	570	PHE	C-N-CA	7.22	128.86	119.84
41	2G	1100	ASN	N-CA-C	7.17	119.23	110.41
10	5A	78	U	C3'-C2'-C1'	-7.17	94.13	101.30
36	2B	71	VAL	CA-C-N	7.15	131.55	120.75
36	2B	71	VAL	C-N-CA	7.15	131.55	120.75
41	2G	613	MET	N-CA-C	7.15	121.71	112.92
41	2G	407	MET	N-CA-C	7.03	121.93	111.04
34	4Y	965	LEU	CA-C-N	7.01	126.94	120.21
34	4Y	965	LEU	C-N-CA	7.01	126.94	120.21
35	2A	170	C	C3'-C2'-O2'	-6.99	104.11	114.60
40	2F	290	GLY	N-CA-C	6.89	121.00	112.73
36	2B	121	LEU	CA-C-O	6.88	128.87	121.44
38	2D	199	ARG	CA-C-N	6.87	127.82	120.47
38	2D	199	ARG	C-N-CA	6.87	127.82	120.47
36	2B	4	LEU	N-CA-C	-6.86	98.04	108.67
37	2C	53	PHE	CA-C-O	-6.77	112.87	120.32
41	2G	1120	ALA	CA-C-N	-6.72	111.30	120.44
41	2G	1120	ALA	C-N-CA	-6.72	111.30	120.44
39	2E	158	ARG	N-CA-C	6.71	118.68	111.36
35	2A	164	C	C5'-C4'-O4'	-6.61	99.19	109.10
45	2K	85	ARG	N-CA-C	6.51	120.02	109.40
36	2B	87	LEU	CA-C-N	6.43	126.19	119.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
36	2B	87	LEU	C-N-CA	6.43	126.19	119.05
41	2G	406	ALA	O-C-N	6.42	130.57	122.23
35	2A	168	A	C5'-C4'-C3'	-6.34	106.50	116.00
10	5A	56	C	P-O3'-C3'	-6.30	110.75	120.20
35	2A	169	C	P-O3'-C3'	6.26	129.60	120.20
36	2B	40	THR	CA-C-N	6.24	131.45	122.40
36	2B	40	THR	C-N-CA	6.24	131.45	122.40
41	2G	406	ALA	N-CA-C	6.24	119.36	111.69
41	2G	1180	ARG	N-CA-C	-6.16	103.28	111.96
28	4G	571	PRO	CB-CA-C	-6.15	101.41	111.56
36	2B	73	ASN	N-CA-C	6.15	119.84	111.17
22	4A	87	C	P-O3'-C3'	-6.11	111.03	120.20
42	2H	559	PRO	N-CA-C	6.10	120.05	111.33
28	4G	570	PHE	N-CA-C	6.08	123.26	109.81
41	2G	1275	GLY	N-CA-C	-6.08	104.94	111.93
10	5A	77	G	P-O3'-C3'	-6.04	111.13	120.20
36	2B	79	ILE	CA-C-N	6.03	125.83	120.10
36	2B	79	ILE	C-N-CA	6.03	125.83	120.10
41	2G	415	LEU	O-C-N	-6.03	114.38	121.32
37	2C	46	MET	N-CA-C	-5.92	104.74	111.07
41	2G	465	PRO	N-CA-C	-5.87	106.46	114.80
36	2B	113	LYS	N-CA-C	5.85	118.41	111.33
35	2A	163	G	O3'-P-O5'	-5.85	95.22	104.00
22	4A	87	C	OP2-P-O3'	-5.84	90.49	108.00
5	6c	2	LEU	CA-C-N	5.82	127.11	119.84
5	6c	2	LEU	C-N-CA	5.82	127.11	119.84
6	6d	13	LEU	CA-C-N	5.81	125.95	119.32
6	6d	13	LEU	C-N-CA	5.81	125.95	119.32
36	2B	50	SER	CA-C-O	5.80	127.70	121.55
43	2I	679	LEU	N-CA-C	5.75	119.46	110.32
36	2B	27	ARG	CA-C-N	5.74	128.78	120.11
36	2B	27	ARG	C-N-CA	5.74	128.78	120.11
32	4U	634	LYS	CA-C-N	5.71	125.83	119.32
32	4U	634	LYS	C-N-CA	5.71	125.83	119.32
28	4G	136	PRO	N-CA-CB	-5.69	97.27	103.25
7	6e	63	ALA	N-CA-C	5.69	118.04	109.23
35	2A	164	C	P-O3'-C3'	5.68	128.72	120.20
41	2G	942	ASN	CA-C-N	-5.66	114.75	124.82
41	2G	942	ASN	C-N-CA	-5.66	114.75	124.82
43	2I	887	ALA	N-CA-C	-5.64	101.69	110.10
35	2A	160	A	P-O5'-C5'	-5.61	112.49	120.90
15	2a	52	LYS	CA-C-N	-5.61	114.15	119.76

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
15	2a	52	LYS	C-N-CA	-5.61	114.15	119.76
32	4U	399	PRO	O-C-N	5.60	123.89	121.31
36	2B	71	VAL	O-C-N	-5.60	115.58	122.57
36	2B	32	PRO	CA-C-N	5.59	130.76	122.99
36	2B	32	PRO	C-N-CA	5.59	130.76	122.99
41	2G	942	ASN	N-CA-C	-5.58	98.91	110.80
35	2A	168	A	O4'-C1'-C2'	-5.54	102.06	107.60
15	5a	52	LYS	CA-C-N	-5.54	114.22	119.76
15	5a	52	LYS	C-N-CA	-5.54	114.22	119.76
35	2A	165	A	N9-C1'-C2'	5.54	120.31	112.00
35	2A	157	G	P-O5'-C5'	-5.51	112.63	120.90
36	2B	34	ILE	CA-C-O	-5.50	114.25	120.74
36	2B	159	GLU	N-CA-C	-5.47	104.96	111.69
36	2B	16	THR	O-C-N	5.47	129.46	123.22
41	2G	1128	VAL	N-CA-C	5.46	117.92	111.09
4	6b	49	HIS	N-CA-C	-5.46	106.70	113.19
42	2H	511	LEU	N-CA-C	5.45	117.55	108.99
41	2G	1105	GLU	N-CA-C	5.42	117.56	108.73
1	A	28	G	C2'-C3'-O3'	-5.42	105.58	113.70
43	2I	488	GLY	N-CA-C	-5.42	106.38	115.80
1	A	28	G	C4'-C3'-O3'	-5.40	104.91	113.00
41	2G	751	GLY	CA-C-N	-5.38	111.74	120.72
41	2G	751	GLY	C-N-CA	-5.38	111.74	120.72
36	2B	40	THR	N-CA-C	-5.38	106.22	112.89
36	2B	125	VAL	CA-C-N	5.34	127.97	120.28
36	2B	125	VAL	C-N-CA	5.34	127.97	120.28
2	6A	58	G	P-O3'-C3'	-5.33	112.20	120.20
39	2E	199	TRP	N-CA-C	5.33	117.32	107.73
15	5a	5	LYS	N-CA-C	5.32	117.99	111.82
32	4U	461	ARG	N-CA-C	-5.31	106.75	113.18
4	6b	92	VAL	N-CA-C	5.28	115.90	109.30
41	2G	1106	ARG	N-CA-C	5.26	118.84	111.74
35	2A	171	U	C2'-C3'-O3'	-5.26	105.81	113.70
40	2F	289	LYS	N-CA-C	5.26	122.00	110.80
36	2B	146	ASP	CA-C-N	5.25	130.02	122.40
36	2B	146	ASP	C-N-CA	5.25	130.02	122.40
5	6c	30	VAL	N-CA-C	5.25	116.15	111.90
2	6A	56	A	P-O3'-C3'	-5.25	112.33	120.20
32	4U	381	THR	N-CA-C	5.25	117.45	108.90
43	2I	4	TYR	N-CA-C	-5.23	102.55	110.28
35	2A	170	C	O4'-C1'-C2'	-5.22	100.58	105.80
9	6g	69	VAL	N-CA-C	5.21	115.40	108.27

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
37	2C	20	LYS	N-CA-C	5.20	117.35	111.11
37	2C	51	GLN	N-CA-C	5.17	117.53	109.52
4	6b	44	HIS	N-CA-C	-5.17	107.04	113.55
17	5c	99	MET	N-CA-C	5.16	116.92	108.76
41	2G	415	LEU	CA-C-N	5.14	125.67	120.38
41	2G	415	LEU	C-N-CA	5.14	125.67	120.38
35	2A	160	A	N9-C1'-C2'	5.11	119.67	112.00
37	2C	83	TYR	CA-C-O	-5.11	115.22	121.05
36	2B	90	LEU	O-C-N	5.11	129.38	122.59
36	2B	90	LEU	CA-C-O	-5.10	113.22	120.51
19	5e	85	THR	N-CA-C	-5.10	105.90	112.68
35	2A	155	C	P-O3'-C3'	5.08	127.82	120.20
43	2I	404	LEU	N-CA-C	-5.08	105.82	111.36
36	2B	83	LEU	N-CA-C	5.08	117.47	111.33
17	2c	99	MET	N-CA-C	5.08	116.78	108.76
19	4e	53	TYR	CA-C-N	5.07	129.75	122.40
19	4e	53	TYR	C-N-CA	5.07	129.75	122.40
37	2C	38	VAL	O-C-N	5.07	127.05	121.83
37	2C	48	MET	N-CA-C	5.07	119.46	113.28
35	2A	156	U	C4'-C3'-C2'	5.06	107.66	102.60
43	2I	9	GLN	N-CA-C	-5.05	101.52	109.25
41	2G	1002	ASN	CA-C-N	-5.04	118.03	122.97
41	2G	1002	ASN	C-N-CA	-5.04	118.03	122.97
43	2I	445	SER	N-CA-C	-5.03	104.04	110.53
36	2B	81	GLU	N-CA-C	5.02	118.56	112.23
10	5A	78	U	C4'-C3'-C2'	-5.01	97.58	102.60
42	2H	498	VAL	N-CA-C	5.01	113.35	107.89
43	2I	213	LEU	N-CA-C	-5.01	103.54	110.35

There are no chirality outliers.

All (37) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
40	2F	443	THR	Peptide
41	2G	1025	LYS	Peptide
41	2G	1122	THR	Peptide
41	2G	1127	THR	Peptide
41	2G	1179	ASP	Peptide
41	2G	1199	VAL	Peptide
41	2G	220	GLN	Peptide
41	2G	415	LEU	Mainchain,Peptide
41	2G	689	ILE	Peptide

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Mol	Chain	Res	Type	Group
41	2G	941	ASN	Peptide
41	2G	944	SER	Peptide
42	2H	553	MET	Peptide
42	2H	558	ARG	Peptide
42	2H	571	LEU	Peptide
43	2I	261	PHE	Peptide
43	2I	366	ASP	Peptide
43	2I	468	ASP	Peptide
43	2I	530	ASP	Peptide
43	2I	534	ASN	Peptide
43	2I	552	ARG	Peptide
43	2I	670	GLN	Peptide
43	2I	678	VAL	Peptide
43	2I	74	THR	Peptide
43	2I	980	LYS	Peptide
43	2I	986	ILE	Peptide
45	2K	29	LYS	Peptide
47	2M	74	GLN	Peptide
17	2c	112	ASN	Peptide
22	4A	90	G	Sidechain
24	4C	459	PRO	Peptide
28	4G	569	VAL	Mainchain
28	4G	572	SER	Mainchain
15	4a	53	PRO	Peptide
18	4d	40	MET	Peptide
19	4e	51	ASP	Peptide
17	5c	112	ASN	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	864	0	443	142	0
2	6A	1142	0	575	39	0
3	6a	356	0	94	2	0
4	6b	296	0	76	5	0
5	6c	296	0	77	0	0
6	6d	288	0	78	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	6e	280	0	81	8	0
8	6f	260	0	75	0	0
9	6g	244	0	71	3	0
10	5A	2398	0	1215	98	0
11	5B	18244	0	18075	266	0
12	5C	6727	0	6735	93	0
13	5D	16077	0	16192	305	0
14	5E	1481	0	675	2	0
15	2a	340	0	90	4	0
15	4a	405	0	170	4	0
15	5a	344	0	93	0	0
16	2b	328	0	89	0	0
16	4b	401	0	165	1	0
16	5b	328	0	89	5	0
17	2c	340	0	87	1	0
17	4c	455	0	187	3	0
17	5c	388	0	102	6	0
18	2d	296	0	87	0	0
18	4d	351	0	155	4	0
18	5d	292	0	86	9	0
19	2e	316	0	85	1	0
19	4e	376	0	157	6	0
19	5e	316	0	85	4	0
20	2f	264	0	73	1	0
20	4f	363	0	160	3	0
20	5f	296	0	84	4	0
21	2g	320	0	88	0	0
21	4g	409	0	180	4	0
21	5g	308	0	86	5	0
22	4A	2656	0	1349	50	0
23	4B	953	0	411	17	0
24	4C	1765	0	801	7	0
25	4D	1340	0	616	5	0
26	4E	615	0	279	4	0
27	4F	1169	0	1141	42	0
28	4G	4539	0	3081	49	0
29	4R	874	0	883	23	0
30	4S	505	0	530	16	0
31	4T	3749	0	3767	46	0
32	4U	3414	0	2245	16	0
33	4X	184	0	192	8	0
34	4Y	1595	0	694	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
35	2A	2311	0	1170	143	0
36	2B	648	0	167	0	0
37	2C	376	0	102	0	0
38	2D	496	0	118	2	0
39	2E	376	0	85	0	0
40	2F	1693	0	454	22	0
41	2G	4192	0	1110	233	0
42	2H	728	0	183	9	0
43	2I	4672	0	1260	71	0
44	2J	312	0	87	3	0
45	2K	432	0	114	6	0
46	2L	356	0	105	5	0
47	2M	264	0	70	12	0
48	5B	36	0	6	2	0
49	5C	1	0	0	0	0
50	5C	32	0	12	0	0
51	4T	1	0	0	0	0
All	All	96473	0	67892	1662	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 10.

All (1662) 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)
23:4B:466:LEU:CA	29:4R:432:PRO:HG3	1.12	1.54
41:2G:407:MET:N	41:2G:407:MET:CA	1.71	1.51
2:6A:76:A:N1	23:4B:562:ALA:HB1	1.21	1.45
1:A:30:C:C2'	1:A:31:C:H5"	1.54	1.38
23:4B:466:LEU:CA	29:4R:432:PRO:CG	2.08	1.28
2:6A:76:A:N1	23:4B:562:ALA:CB	2.03	1.20
1:A:30:C:N4	1:A:31:C:C4	2.10	1.20
1:A:34:G:C8	1:A:35:U:C5	2.34	1.15
1:A:30:C:C4	1:A:31:C:C5	2.34	1.15
1:A:22:C:O2'	1:A:23:G:H5'	1.45	1.14
1:A:30:C:H2'	1:A:31:C:C5'	1.78	1.13
35:2A:156:U:H6	35:2A:156:U:H5"	1.09	1.13
2:6A:76:A:C2	23:4B:562:ALA:HB1	1.85	1.09
1:A:38:C:H4'	1:A:39:U:OP1	1.42	1.06
35:2A:105:G:H2'	35:2A:106:G:H5"	1.37	1.05
1:A:30:C:C3'	1:A:31:C:H5"	1.84	1.05

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:5A:90:U:C5	21:5g:38:ASN:O	2.09	1.05
1:A:34:G:C8	1:A:35:U:C4	2.47	1.02
1:A:40:U:H4'	1:A:41:U:H5'	1.38	1.02
22:4A:31:U:O4	26:4E:61:GLU:N	1.93	1.00
10:5A:95:G:H1'	18:5d:24:LYS:CA	1.91	1.00
1:A:30:C:C2'	1:A:31:C:C5'	2.38	1.00
1:A:30:C:H2'	1:A:31:C:H5"	1.03	0.99
1:A:30:C:C3'	1:A:31:C:C5'	2.40	0.98
35:2A:168:A:C8	35:2A:168:A:H5"	1.98	0.98
1:A:31:C:C2	35:2A:33:G:C6	2.53	0.97
1:A:31:C:C2	35:2A:33:G:N1	2.32	0.97
10:5A:59:G:H5"	10:5A:59:G:H8	1.31	0.96
41:2G:501:LEU:O	41:2G:504:ILE:N	1.98	0.95
2:6A:76:A:C6	23:4B:562:ALA:CB	2.50	0.95
23:4B:466:LEU:N	29:4R:432:PRO:HG3	1.81	0.95
10:5A:93:U:H1'	17:5c:104:ASP:CA	1.96	0.94
35:2A:156:U:H5"	35:2A:156:U:C6	2.02	0.94
1:A:31:C:O2	35:2A:33:G:C6	2.20	0.94
23:4B:465:ARG:O	29:4R:381:PHE:CD1	2.22	0.92
41:2G:86:ALA:O	41:2G:89:ALA:N	2.02	0.92
1:A:40:U:O2'	1:A:41:U:OP2	1.89	0.91
10:5A:95:G:H21	10:5A:96:A:H5"	1.36	0.90
25:4D:165:MET:CB	31:4T:540:GLN:HE22	1.85	0.90
35:2A:54:U:OP1	40:2F:428:GLU:CA	2.20	0.90
1:A:34:G:N7	1:A:35:U:C4	2.40	0.89
10:5A:90:U:H5	21:5g:38:ASN:O	1.53	0.89
2:6A:76:A:C6	23:4B:562:ALA:HB3	2.07	0.89
35:2A:168:A:H5"	35:2A:168:A:H8	1.36	0.88
41:2G:793:LYS:O	41:2G:797:GLY:HA3	1.73	0.88
1:A:30:C:H3'	1:A:31:C:C5'	2.04	0.88
10:5A:93:U:O4	18:5d:66:CYS:N	2.06	0.88
10:5A:93:U:C1'	17:5c:104:ASP:CA	2.52	0.87
35:2A:154:C:O2	35:2A:176:G:N2	2.07	0.87
13:5D:1948:MET:SD	13:5D:1955:SER:OG	2.33	0.86
1:A:23:G:H1	35:2A:39:U:H3	1.20	0.86
1:A:38:C:OP1	1:A:39:U:P	2.34	0.86
1:A:12:U:OP2	1:A:12:U:H2'	1.74	0.86
13:5D:537:LYS:NZ	13:5D:583:THR:O	2.09	0.85
35:2A:156:U:H6	35:2A:156:U:C5'	1.89	0.85
35:2A:40:C:H5"	35:2A:40:C:H6	1.39	0.85
1:A:11:C:H2'	1:A:11:C:O2	1.75	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:5D:1388:GLN:NE2	13:5D:1655:ASN:OD1	2.10	0.84
22:4A:61:A:OP1	30:4S:749:LYS:NZ	2.10	0.84
11:5B:1589:ILE:HD11	11:5B:1733:ILE:HG21	1.59	0.84
11:5B:1271:MET:HE1	11:5B:1278:VAL:HG11	1.60	0.83
41:2G:728:LEU:O	41:2G:731:LEU:N	2.10	0.83
1:A:36:C:H1'	1:A:37:C:OP1	1.78	0.83
35:2A:152:G:N2	35:2A:153:A:N7	2.26	0.83
10:5A:59:G:H5"	10:5A:59:G:C8	2.13	0.83
1:A:36:C:H4'	1:A:37:C:H5	1.44	0.82
22:4A:68:A:O2'	22:4A:69:C:OP1	1.96	0.82
46:2L:56:GLY:O	46:2L:65:GLY:N	2.12	0.82
11:5B:1607:GLU:OE2	11:5B:1608:THR:OG1	1.97	0.82
13:5D:713:MET:HE3	13:5D:713:MET:HA	1.59	0.82
1:A:31:C:O2	35:2A:33:G:N1	2.13	0.82
1:A:30:C:C5	1:A:31:C:C5	2.67	0.82
7:6e:46:GLU:CA	7:6e:63:ALA:N	2.43	0.82
27:4F:87:ASN:OD1	28:4G:23:ARG:NH1	2.13	0.82
35:2A:105:G:C2'	35:2A:106:G:H5"	2.10	0.82
35:2A:152:G:H5"	35:2A:153:A:OP2	1.80	0.81
1:A:23:G:N2	35:2A:39:U:O2	2.14	0.81
23:4B:462:GLU:O	29:4R:432:PRO:HB2	1.79	0.81
31:4T:420:ALA:O	31:4T:423:ASN:ND2	2.13	0.81
41:2G:648:LEU:O	41:2G:651:VAL:N	2.13	0.81
1:A:28:G:H5'	1:A:28:G:H8	1.45	0.81
12:5C:137:HIS:O	12:5C:142:LYS:NZ	2.14	0.80
13:5D:1499:ASP:OD2	13:5D:1763:ARG:NH1	2.15	0.80
1:A:34:G:N9	1:A:35:U:C5	2.49	0.80
43:2I:839:ALA:O	43:2I:843:LEU:N	2.13	0.80
1:A:27:U:OP2	41:2G:1106:ARG:CA	2.29	0.80
13:5D:1654:MET:SD	13:5D:1656:VAL:HG12	2.22	0.80
11:5B:110:TRP:O	11:5B:192:GLN:NE2	2.14	0.80
10:5A:92:U:H3	16:5b:36:MET:CA	1.93	0.80
11:5B:152:ARG:NH2	11:5B:618:THR:O	2.14	0.80
13:5D:769:CYS:O	13:5D:775:LYS:NZ	2.15	0.80
13:5D:1060:ASN:OD1	13:5D:1064:GLN:NE2	2.16	0.79
35:2A:101:U:H5"	35:2A:102:U:H5'	1.65	0.79
1:A:34:G:C2	1:A:35:U:H2'	2.16	0.79
1:A:20:U:O2	35:2A:42:G:C2	2.35	0.79
11:5B:1434:LYS:O	11:5B:1439:ARG:NH2	2.16	0.79
35:2A:54:U:OP1	40:2F:424:ARG:O	2.00	0.79
1:A:30:C:N4	1:A:31:C:N4	2.31	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:2G:669:GLN:O	41:2G:672:ALA:N	2.16	0.78
11:5B:2119:ASP:OD1	11:5B:2120:LEU:N	2.17	0.78
43:2I:523:GLY:HA3	43:2I:536:TRP:O	1.83	0.78
1:A:28:G:H5'	1:A:28:G:C8	2.18	0.78
1:A:31:C:H1'	35:2A:33:G:N2	1.99	0.78
1:A:36:C:H4'	1:A:37:C:C5	2.18	0.78
10:5A:94:U:H1'	10:5A:95:G:OP1	1.82	0.78
11:5B:292:ASP:OD2	11:5B:1130:ASN:ND2	2.16	0.78
1:A:34:G:H2'	1:A:35:U:C6	2.19	0.78
1:A:40:U:H4'	1:A:41:U:C5'	2.13	0.78
1:A:31:C:O2	35:2A:33:G:C2	2.37	0.77
11:5B:1321:GLU:OE2	11:5B:1471:ARG:NH2	2.17	0.77
43:2I:914:ILE:O	43:2I:918:ARG:CA	2.32	0.77
41:2G:428:ALA:O	41:2G:432:THR:N	2.17	0.77
1:A:32:C:O2	35:2A:31:G:N1	2.11	0.77
13:5D:611:LEU:HD21	13:5D:613:ILE:HD11	1.65	0.77
22:4A:56:U:H2'	22:4A:57:G:C8	2.19	0.77
35:2A:153:A:H2'	35:2A:154:C:H5'	1.65	0.77
13:5D:1753:ASP:O	13:5D:1756:THR:OG1	2.01	0.77
41:2G:531:LEU:O	41:2G:534:GLN:N	2.18	0.77
1:A:31:C:H1'	35:2A:33:G:C2	2.20	0.76
35:2A:177:A:H5"	35:2A:178:A:OP1	1.84	0.76
40:2F:276:GLY:C	40:2F:278:LEU:H	1.92	0.76
41:2G:1246:MET:O	41:2G:1249:TYR:N	2.18	0.76
13:5D:1538:ARG:NH1	13:5D:1665:ASP:OD1	2.19	0.76
13:5D:146:GLU:OE2	13:5D:149:ARG:NH2	2.18	0.76
11:5B:804:GLU:N	11:5B:804:GLU:OE1	2.17	0.76
13:5D:946:ASP:OD2	13:5D:951:GLN:N	2.19	0.76
15:4a:28:ILE:O	15:4a:45:CYS:HA	1.86	0.76
1:A:8:U:O2	1:A:8:U:H2'	1.84	0.76
11:5B:1783:THR:O	13:5D:202:ASN:ND2	2.20	0.75
11:5B:1914:MET:HE3	11:5B:1914:MET:N	2.00	0.75
28:4G:136:PRO:HB2	28:4G:140:GLN:CD	2.11	0.75
11:5B:1251:SER:O	11:5B:1254:THR:OG1	2.04	0.75
13:5D:1693:ARG:NH1	13:5D:1696:GLN:OE1	2.19	0.75
22:4A:114:U:H4'	22:4A:115:G:OP1	1.87	0.75
19:4e:64:ILE:HA	19:4e:70:SER:O	1.86	0.75
13:5D:619:LEU:HD22	13:5D:628:LEU:HD23	1.68	0.75
35:2A:143:A:H3'	35:2A:143:A:N3	2.01	0.75
31:4T:456:ARG:NH1	31:4T:469:THR:O	2.18	0.75
1:A:34:G:H2'	1:A:35:U:H6	1.52	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:5C:261:ASP:OD2	12:5C:311:SER:OG	2.05	0.75
13:5D:1678:ASP:OD1	13:5D:1679:TYR:N	2.20	0.75
1:A:34:G:H3'	1:A:35:U:H5"	1.67	0.74
10:5A:93:U:O4	18:5d:65:ARG:CA	2.35	0.74
10:5A:44:A:O2'	10:5A:46:U:OP2	2.05	0.74
41:2G:1016:LEU:O	41:2G:1019:ARG:N	2.19	0.74
11:5B:606:LYS:NZ	48:5B:2401:IHP:O41	2.19	0.74
13:5D:660:ASP:OD1	13:5D:931:ARG:NH1	2.21	0.74
41:2G:874:LYS:O	41:2G:877:GLY:N	2.20	0.74
12:5C:853:ARG:NH1	12:5C:879:ASP:O	2.21	0.74
43:2I:304:GLN:CA	43:2I:309:ASP:O	2.36	0.74
1:A:17:G:H1	35:2A:44:U:H3	1.33	0.74
13:5D:610:ARG:NH2	13:5D:645:ASP:O	2.21	0.74
11:5B:1304:ASN:OD1	11:5B:1305:SER:N	2.20	0.74
13:5D:1856:GLU:N	13:5D:1856:GLU:OE1	2.21	0.74
13:5D:1321:TYR:OH	13:5D:1361:GLU:OE1	2.04	0.74
2:6A:49:G:H2'	22:4A:68:A:N7	2.03	0.73
11:5B:2219:THR:OG1	11:5B:2222:SER:OG	2.05	0.73
43:2I:753:GLY:HA3	43:2I:765:LEU:O	1.88	0.73
10:5A:117:A:N1	18:5d:26:GLY:HA3	2.03	0.73
13:5D:297:SER:N	13:5D:301:GLU:OE2	2.21	0.73
1:A:31:C:O2	35:2A:33:G:C5	2.41	0.73
1:A:30:C:C4	1:A:31:C:C6	2.76	0.73
20:4f:42:ILE:O	20:4f:59:MET:HA	1.89	0.73
40:2F:184:ARG:O	15:2a:85:PRO:N	2.21	0.73
7:6e:46:GLU:N	7:6e:63:ALA:H	1.87	0.73
13:5D:1633:GLU:OE2	13:5D:1655:ASN:N	2.21	0.73
35:2A:106:G:H4'	35:2A:107:A:O4'	1.89	0.73
35:2A:153:A:C2'	35:2A:154:C:H5'	2.17	0.73
35:2A:179:C:H2'	35:2A:180:G:H8	1.54	0.73
11:5B:1660:TYR:OH	11:5B:1717:ASN:O	2.05	0.73
1:A:38:C:OP1	1:A:39:U:OP1	2.05	0.73
43:2I:442:LEU:O	43:2I:735:SER:N	2.19	0.73
40:2F:276:GLY:O	40:2F:278:LEU:N	2.20	0.72
41:2G:994:LEU:O	41:2G:997:LEU:N	2.22	0.72
31:4T:208:GLN:NE2	31:4T:210:LYS:O	2.22	0.72
41:2G:660:ALA:O	41:2G:663:THR:N	2.22	0.72
1:A:30:C:C4	1:A:31:C:C4	2.69	0.72
7:6e:46:GLU:N	7:6e:63:ALA:N	2.37	0.72
41:2G:1055:TRP:O	41:2G:1058:ILE:N	2.22	0.72
41:2G:1270:ASN:O	41:2G:1273:TYR:N	2.21	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:19:U:H3	35:2A:42:G:H1	1.37	0.72
27:4F:28:ILE:HD11	27:4F:61:VAL:HG23	1.71	0.72
10:5A:47:A:O2'	10:5A:48:A:O5'	2.07	0.72
11:5B:476:PHE:O	11:5B:479:THR:OG1	2.06	0.72
35:2A:153:A:H2'	35:2A:154:C:C5'	2.19	0.72
11:5B:1637:TRP:O	11:5B:1656:THR:OG1	2.02	0.72
1:A:15:A:H2'	1:A:16:A:O4'	1.89	0.72
28:4G:136:PRO:HB2	28:4G:140:GLN:OE1	1.91	0.71
10:5A:92:U:N3	16:5b:36:MET:CA	2.53	0.71
1:A:21:U:H1'	1:A:22:C:OP1	1.90	0.71
27:4F:74:GLU:O	27:4F:101:LYS:NZ	2.23	0.71
1:A:38:C:OP1	1:A:39:U:OP2	2.09	0.71
13:5D:1741:VAL:O	13:5D:1743:LYS:NZ	2.22	0.71
41:2G:791:VAL:O	41:2G:794:GLN:N	2.23	0.71
11:5B:1338:SER:O	11:5B:1341:ARG:NH1	2.24	0.71
11:5B:1764:SER:OG	11:5B:1767:ASN:OD1	2.08	0.71
13:5D:1446:GLN:O	13:5D:1483:ARG:NH2	2.24	0.71
11:5B:579:GLN:NE2	11:5B:627:CYS:O	2.22	0.71
35:2A:106:G:H21	35:2A:107:A:N6	1.87	0.71
41:2G:535:ILE:O	41:2G:538:LEU:N	2.23	0.71
13:5D:1028:THR:O	13:5D:1058:LYS:NZ	2.24	0.71
43:2I:558:LEU:O	43:2I:561:GLY:N	2.24	0.70
10:5A:96:A:H4'	10:5A:97:G:H5"	1.72	0.70
11:5B:1661:TRP:NE1	11:5B:1697:SER:O	2.24	0.70
13:5D:1887:PRO:O	13:5D:1891:THR:HG23	1.91	0.70
13:5D:1903:GLN:N	13:5D:1903:GLN:OE1	2.24	0.70
46:2L:7:ASP:O	46:2L:91:LEU:N	2.25	0.70
11:5B:2199:ILE:O	11:5B:2203:ASN:ND2	2.24	0.70
2:6A:86:U:H3	35:2A:12:G:H1	1.39	0.70
41:2G:700:LYS:O	41:2G:703:THR:N	2.24	0.70
13:5D:1588:ARG:O	13:5D:1588:ARG:NH1	2.24	0.70
22:4A:56:U:H2'	22:4A:57:G:H8	1.55	0.70
10:5A:94:U:C1'	10:5A:95:G:OP1	2.39	0.70
35:2A:153:A:N6	35:2A:177:A:C2	2.60	0.70
42:2H:479:ASP:O	42:2H:482:ALA:N	2.25	0.70
43:2I:545:VAL:N	43:2I:557:ALA:O	2.25	0.70
10:5A:87:A:N6	10:5A:92:U:P	2.64	0.69
12:5C:192:ASP:OD1	12:5C:193:THR:N	2.24	0.69
11:5B:2187:GLN:N	11:5B:2187:GLN:OE1	2.24	0.69
35:2A:54:U:OP1	40:2F:427:ALA:O	2.10	0.69
12:5C:517:GLU:OE1	12:5C:517:GLU:N	2.26	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:2A:40:C:H6	35:2A:40:C:C5'	2.05	0.69
12:5C:698:GLU:N	12:5C:698:GLU:OE1	2.25	0.69
35:2A:154:C:H2'	35:2A:155:C:C6	2.27	0.69
2:6A:102:A:O2'	9:6g:33:THR:CA	2.41	0.69
2:6A:103:U:O4	9:6g:32:GLN:O	2.10	0.69
11:5B:982:GLU:OE2	11:5B:1172:ASN:ND2	2.26	0.69
13:5D:1777:SER:OG	13:5D:1780:HIS:ND1	2.26	0.69
1:A:22:C:HO2'	1:A:23:G:H5'	1.54	0.69
10:5A:87:A:N6	10:5A:92:U:OP2	2.26	0.69
10:5A:93:U:O4	18:5d:65:ARG:C	2.36	0.69
10:5A:96:A:H61	20:5f:23:GLY:H	1.38	0.69
1:A:31:C:H5'	1:A:31:C:H6	1.58	0.69
42:2H:596:GLU:C	42:2H:598:GLU:H	2.00	0.69
13:5D:1561:VAL:HG22	13:5D:1662:ILE:HB	1.73	0.68
11:5B:1076:ASP:OD1	11:5B:1077:ILE:N	2.26	0.68
35:2A:30:A:N3	35:2A:30:A:H2'	2.06	0.68
2:6A:47:A:N6	22:4A:64:G:H21	1.90	0.68
10:5A:97:G:H1	10:5A:116:U:H3	1.41	0.68
11:5B:156:ARG:NH2	32:4U:354:ASP:OD2	2.27	0.68
13:5D:644:GLU:OE1	13:5D:644:GLU:N	2.27	0.68
28:4G:572:SER:O	28:4G:573:LYS:O	2.10	0.68
11:5B:1283:GLU:N	11:5B:1283:GLU:OE1	2.27	0.68
11:5B:1607:GLU:N	11:5B:1632:PHE:O	2.26	0.68
28:4G:133:MET:HE2	31:4T:433:TYR:HB3	1.74	0.68
13:5D:973:ASP:OD2	13:5D:976:THR:OG1	2.12	0.68
27:4F:15:ASP:OD1	27:4F:16:GLN:N	2.28	0.67
35:2A:151:C:H2'	35:2A:152:G:H8	1.60	0.67
28:4G:513:CYS:O	28:4G:517:GLY:N	2.27	0.67
35:2A:152:G:O3'	35:2A:153:A:O4'	2.11	0.67
2:6A:103:U:H3'	2:6A:104:U:H5"	1.75	0.67
12:5C:798:GLN:O	12:5C:803:ARG:NH2	2.28	0.67
13:5D:816:ALA:O	13:5D:855:ARG:NH2	2.28	0.67
35:2A:143:A:H2'	35:2A:144:C:H6	1.59	0.67
2:6A:103:U:H4'	2:6A:104:U:OP2	1.95	0.67
10:5A:93:U:O4'	17:5c:104:ASP:CA	2.42	0.67
28:4G:301:VAL:O	28:4G:305:ASN:ND2	2.28	0.67
27:4F:53:LYS:O	27:4F:53:LYS:NZ	2.23	0.67
22:4A:114:U:H6	22:4A:114:U:P	2.18	0.67
35:2A:151:C:O2	35:2A:152:G:C8	2.48	0.67
42:2H:487:LEU:O	42:2H:490:HIS:N	2.28	0.67
35:2A:153:A:C3'	35:2A:154:C:H5'	2.25	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:30:C:N4	1:A:31:C:C5	2.50	0.67
12:5C:779:LEU:O	12:5C:938:ARG:NH1	2.27	0.66
12:5C:116:MET:SD	12:5C:116:MET:N	2.67	0.66
13:5D:89:LEU:HD22	28:4G:363:ALA:CB	2.26	0.66
1:A:30:C:H41	1:A:31:C:N4	1.91	0.66
43:2I:753:GLY:CA	43:2I:765:LEU:O	2.44	0.66
1:A:22:C:O5'	1:A:22:C:H6	1.78	0.66
1:A:36:C:C4'	1:A:37:C:H5	2.07	0.66
32:4U:282:THR:HG22	32:4U:283:SER:H	1.60	0.66
35:2A:150:U:H3	35:2A:181:G:H1	1.41	0.66
41:2G:87:PRO:O	41:2G:91:LEU:N	2.21	0.66
35:2A:151:C:C2	35:2A:152:G:C8	2.83	0.66
13:5D:630:ALA:HB2	13:5D:900:MET:SD	2.36	0.66
35:2A:54:U:OP1	40:2F:427:ALA:C	2.39	0.66
11:5B:1985:ASP:OD1	11:5B:1986:LEU:N	2.28	0.66
41:2G:400:SER:O	41:2G:404:LEU:N	2.28	0.66
23:4B:465:ARG:O	29:4R:381:PHE:CE1	2.48	0.66
1:A:8:U:O2	1:A:8:U:C2'	2.44	0.65
11:5B:2009:ASP:OD1	11:5B:2010:ILE:N	2.29	0.65
12:5C:573:GLU:OE2	12:5C:573:GLU:N	2.27	0.65
13:5D:660:ASP:OD2	13:5D:928:ARG:NH1	2.28	0.65
1:A:36:C:C4'	1:A:37:C:C5	2.79	0.65
43:2I:550:ASN:N	43:2I:553:GLN:O	2.27	0.65
11:5B:1331:GLY:O	11:5B:1367:ASN:ND2	2.28	0.65
22:4A:109:G:H2'	22:4A:110:G:C8	2.30	0.65
1:A:32:C:OP2	1:A:32:C:H3'	1.96	0.65
13:5D:1788:LEU:HD12	13:5D:1789:VAL:N	2.12	0.65
41:2G:122:HIS:O	41:2G:125:THR:N	2.22	0.65
41:2G:1280:LEU:O	41:2G:1283:HIS:N	2.22	0.65
11:5B:385:GLU:N	11:5B:385:GLU:OE1	2.30	0.65
13:5D:801:PHE:CG	13:5D:809:LEU:HD11	2.31	0.65
43:2I:1148:LEU:O	43:2I:1152:HIS:N	2.27	0.65
1:A:36:C:H1'	1:A:37:C:P	2.36	0.65
10:5A:89:U:H2'	10:5A:90:U:H5"	1.79	0.65
35:2A:156:U:C6	35:2A:156:U:C5'	2.72	0.65
35:2A:168:A:C8	35:2A:168:A:C5'	2.75	0.65
41:2G:1243:PRO:O	41:2G:1246:MET:N	2.29	0.65
12:5C:207:GLY:O	12:5C:238:ASN:ND2	2.30	0.65
12:5C:256:CYS:SG	12:5C:310:SER:OG	2.53	0.65
13:5D:1566:ARG:O	13:5D:1569:THR:HG22	1.96	0.65
35:2A:114:A:H61	35:2A:142:C:H42	1.44	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:2204:PRO:O	32:4U:195:ARG:NH1	2.30	0.65
42:2H:491:LEU:O	42:2H:494:THR:N	2.30	0.65
43:2I:868:VAL:O	43:2I:877:LEU:N	2.30	0.65
11:5B:422:LEU:O	11:5B:635:ARG:NE	2.29	0.65
11:5B:705:LYS:NZ	28:4G:160:ILE:O	2.28	0.65
11:5B:1604:LEU:HD11	11:5B:1725:LEU:HD22	1.78	0.65
41:2G:658:TRP:O	41:2G:661:ARG:N	2.30	0.65
12:5C:212:SER:O	12:5C:216:THR:HG23	1.97	0.64
41:2G:1018:PRO:O	41:2G:1021:THR:N	2.30	0.64
32:4U:357:TRP:CB	32:4U:369:ASP:CB	2.75	0.64
1:A:11:C:O2	1:A:11:C:C2'	2.45	0.64
41:2G:758:ASP:O	41:2G:762:ALA:N	2.28	0.64
41:2G:886:HIS:O	41:2G:889:GLU:N	2.30	0.64
13:5D:417:THR:OG1	13:5D:418:GLN:OE1	2.15	0.64
13:5D:1507:SER:O	13:5D:1511:THR:HG23	1.97	0.64
2:6A:76:A:C2	23:4B:562:ALA:CB	2.64	0.64
29:4R:403:ARG:NH2	29:4R:441:GLU:OE2	2.31	0.64
1:A:35:U:OP1	46:2L:63:GLY:HA3	1.98	0.64
10:5A:95:G:H21	10:5A:96:A:C5'	2.06	0.64
13:5D:1201:GLU:N	13:5D:1201:GLU:OE1	2.31	0.64
28:4G:493:SER:O	28:4G:497:ASN:N	2.31	0.64
13:5D:429:GLN:N	13:5D:886:GLN:OE1	2.29	0.64
13:5D:607:GLN:OE1	13:5D:607:GLN:N	2.31	0.64
1:A:35:U:H4'	1:A:36:C:OP2	1.98	0.63
13:5D:568:GLU:OE2	13:5D:570:THR:OG1	2.16	0.63
13:5D:963:MET:HE3	13:5D:963:MET:HA	1.80	0.63
13:5D:1378:TYR:OH	13:5D:1454:ASP:OD2	2.16	0.63
13:5D:1539:LEU:HD21	13:5D:1568:GLN:HG3	1.80	0.63
10:5A:77:G:C8	10:5A:78:U:C5	2.87	0.63
10:5A:85:C:OP1	17:5c:20:GLU:CA	2.46	0.63
13:5D:1481:ILE:HG22	13:5D:1481:ILE:O	1.98	0.63
35:2A:164:C:H6	35:2A:164:C:H5'	1.63	0.63
41:2G:749:ALA:O	41:2G:752:TYR:N	2.31	0.63
1:A:31:C:C2	1:A:32:C:C5	2.87	0.63
12:5C:678:THR:OG1	12:5C:682:LYS:O	2.14	0.63
13:5D:89:LEU:HD22	28:4G:363:ALA:HB1	1.81	0.63
35:2A:147:G:H2'	35:2A:148:C:H6	1.63	0.63
35:2A:154:C:H2'	35:2A:155:C:H6	1.63	0.63
43:2I:325:ILE:O	43:2I:375:SER:N	2.30	0.63
1:A:20:U:H5'	1:A:21:U:OP2	1.99	0.63
35:2A:152:G:C2	35:2A:153:A:C5	2.87	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:22:C:C2'	1:A:23:G:H5'	2.28	0.63
12:5C:426:GLU:N	12:5C:426:GLU:OE1	2.32	0.63
28:4G:572:SER:C	28:4G:573:LYS:O	2.42	0.63
41:2G:1109:ARG:O	41:2G:1110:VAL:C	2.41	0.63
43:2I:1191:LYS:O	43:2I:1194:SER:N	2.32	0.63
47:2M:40:TYR:O	47:2M:43:TYR:N	2.31	0.63
1:A:31:C:N3	35:2A:33:G:C6	2.65	0.63
10:5A:88:A:H2'	10:5A:88:A:N3	2.14	0.63
31:4T:511:GLU:OE1	31:4T:511:GLU:O	2.17	0.63
35:2A:153:A:H3'	35:2A:154:C:H5'	1.79	0.62
41:2G:491:GLU:O	41:2G:494:GLU:N	2.32	0.62
44:2J:77:ILE:O	44:2J:84:ILE:N	2.32	0.62
10:5A:90:U:H5	21:5g:38:ASN:C	2.06	0.62
13:5D:1986:MET:HE3	13:5D:2011:CYS:SG	2.39	0.62
41:2G:914:PHE:O	41:2G:917:VAL:N	2.32	0.62
43:2I:931:VAL:O	43:2I:936:LYS:N	2.31	0.62
11:5B:2329:ASP:OD1	13:5D:728:ARG:NH2	2.32	0.62
11:5B:1405:LEU:HD23	11:5B:1405:LEU:O	2.00	0.62
12:5C:133:THR:OG1	12:5C:222:SER:OG	1.98	0.62
41:2G:1264:VAL:O	41:2G:1267:LYS:N	2.32	0.62
1:A:31:C:H2'	1:A:32:C:H6	1.65	0.62
10:5A:81:U:H2'	10:5A:81:U:O2	1.98	0.62
41:2G:179:GLY:O	41:2G:182:LYS:N	2.33	0.62
43:2I:973:GLY:HA3	43:2I:976:LYS:O	2.00	0.62
11:5B:1914:MET:HE3	11:5B:1914:MET:H	1.62	0.62
31:4T:362:HIS:O	31:4T:370:LYS:NZ	2.33	0.62
11:5B:1595:GLN:O	11:5B:1595:GLN:NE2	2.33	0.62
43:2I:586:ASP:O	43:2I:610:VAL:N	2.32	0.62
1:A:31:C:O2'	1:A:32:C:H5'	2.00	0.61
10:5A:80:U:H6	10:5A:80:U:H5'	1.65	0.61
11:5B:1248:LEU:O	11:5B:1251:SER:OG	2.12	0.61
35:2A:157:G:H5"	35:2A:157:G:H8	1.65	0.61
41:2G:862:GLU:O	41:2G:865:ARG:N	2.33	0.61
12:5C:572:GLU:N	12:5C:572:GLU:OE1	2.33	0.61
41:2G:88:VAL:CA	41:2G:92:ASN:H	2.13	0.61
13:5D:429:GLN:O	13:5D:886:GLN:NE2	2.32	0.61
27:4F:4:MET:SD	27:4F:4:MET:N	2.66	0.61
1:A:40:U:H5"	1:A:41:U:H5"	1.82	0.61
13:5D:1222:TRP:NE1	13:5D:1273:ASP:OD2	2.32	0.61
35:2A:143:A:H2'	35:2A:144:C:C6	2.35	0.61
41:2G:551:LEU:O	41:2G:554:LYS:N	2.34	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:2G:895:GLY:O	41:2G:898:TYR:N	2.34	0.61
1:A:31:C:C2'	1:A:32:C:H5'	2.30	0.61
12:5C:688:ILE:HD13	12:5C:792:LEU:HD22	1.82	0.61
35:2A:106:G:N2	35:2A:107:A:C6	2.67	0.61
41:2G:897:LEU:O	41:2G:900:PHE:N	2.34	0.61
1:A:31:C:H2'	1:A:32:C:C6	2.36	0.61
11:5B:682:ASP:OD1	11:5B:683:LEU:N	2.34	0.61
11:5B:1237:MET:CE	11:5B:1281:THR:HG21	2.30	0.61
29:4R:374:LEU:H	29:4R:374:LEU:HD23	1.65	0.61
41:2G:784:MET:O	41:2G:787:ILE:N	2.33	0.61
11:5B:2295:GLU:N	11:5B:2295:GLU:OE1	2.33	0.61
1:A:13:U:H2'	1:A:14:G:H8	1.66	0.61
1:A:21:U:H1'	1:A:22:C:P	2.41	0.61
10:5A:19:A:N3	10:5A:21:A:N6	2.49	0.61
35:2A:112:G:H2'	35:2A:113:G:H8	1.65	0.61
35:2A:142:C:C2'	35:2A:143:A:H5'	2.31	0.61
35:2A:153:A:N6	35:2A:177:A:H2	1.98	0.61
1:A:30:C:H3'	1:A:31:C:H5'	1.83	0.61
13:5D:63:MET:O	13:5D:63:MET:HG3	2.00	0.61
41:2G:929:LEU:O	41:2G:932:ILE:N	2.34	0.61
11:5B:1406:GLU:OE1	13:5D:71:ARG:NH2	2.33	0.60
13:5D:206:GLU:N	13:5D:206:GLU:OE1	2.34	0.60
10:5A:95:G:N3	10:5A:95:G:H2'	2.15	0.60
41:2G:610:ILE:O	41:2G:613:MET:N	2.34	0.60
2:6A:48:A:C5	29:4R:450:ARG:HG2	2.35	0.60
38:2D:252:PHE:CA	40:2F:63:ASP:CA	2.79	0.60
7:6e:46:GLU:CA	7:6e:62:ASP:C	2.74	0.60
29:4R:383:ILE:HD12	29:4R:455:ARG:O	2.01	0.60
32:4U:282:THR:O	32:4U:283:SER:OG	2.13	0.60
2:6A:103:U:C3'	2:6A:104:U:H5"	2.31	0.60
1:A:10:C:O2'	1:A:11:C:OP2	2.16	0.60
43:2I:638:GLU:N	43:2I:668:GLY:O	2.32	0.60
1:A:13:U:O5'	1:A:13:U:H6	1.84	0.60
13:5D:1345:ASN:OD1	13:5D:1487:ILE:N	2.32	0.60
13:5D:1945:LEU:O	13:5D:1949:VAL:HG13	2.02	0.60
28:4G:333:MET:HE3	28:4G:333:MET:O	2.01	0.60
43:2I:563:LEU:N	43:2I:581:LYS:O	2.27	0.60
11:5B:950:LEU:HD23	11:5B:950:LEU:O	2.02	0.59
13:5D:1143:ILE:HD13	13:5D:1165:ILE:HD13	1.83	0.59
13:5D:1699:GLU:N	13:5D:1699:GLU:OE1	2.35	0.59
41:2G:173:ALA:C	41:2G:176:ALA:H	2.09	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:6A:47:A:H2'	2:6A:49:G:N3	2.17	0.59
12:5C:474:LEU:HD21	12:5C:501:ILE:HD13	1.84	0.59
41:2G:1125:PRO:O	41:2G:1128:VAL:N	2.35	0.59
10:5A:87:A:N6	10:5A:91:U:O3'	2.36	0.59
41:2G:953:ASP:O	41:2G:956:SER:N	2.34	0.59
43:2I:645:MET:N	43:2I:662:PHE:O	2.28	0.59
13:5D:1693:ARG:NH2	13:5D:1697:ASP:OD1	2.35	0.59
43:2I:523:GLY:CA	43:2I:536:TRP:O	2.51	0.59
43:2I:664:TYR:CA	43:2I:677:THR:O	2.50	0.59
11:5B:357:ASN:ND2	12:5C:866:SER:O	2.36	0.59
13:5D:89:LEU:HD21	13:5D:96:GLU:OE1	2.02	0.59
22:4A:68:A:OP1	30:4S:742:LYS:NZ	2.35	0.59
11:5B:1868:MET:HE3	11:5B:1872:LEU:HD21	1.85	0.59
13:5D:1212:GLU:N	13:5D:1212:GLU:OE1	2.34	0.59
13:5D:1433:ASP:OD1	13:5D:1473:ARG:NH2	2.33	0.59
41:2G:1182:LEU:O	41:2G:1185:ARG:N	2.35	0.59
10:5A:18:C:OP2	11:5B:468:LYS:NZ	2.35	0.59
31:4T:146:ARG:O	31:4T:150:SER:OG	2.21	0.59
11:5B:1963:GLU:OE1	11:5B:1966:HIS:ND1	2.36	0.59
13:5D:1864:GLU:OE2	13:5D:1867:LEU:HD21	2.03	0.59
13:5D:1957:ASP:OD1	13:5D:1958:SER:N	2.37	0.58
40:2F:276:GLY:C	40:2F:278:LEU:N	2.60	0.58
41:2G:308:SER:O	41:2G:311:ALA:N	2.35	0.58
10:5A:95:G:O2'	18:5d:24:LYS:C	2.46	0.58
11:5B:2206:TRP:O	32:4U:195:ARG:NH1	2.36	0.58
13:5D:1277:SER:O	13:5D:1277:SER:OG	2.20	0.58
13:5D:1373:GLU:N	13:5D:1373:GLU:OE1	2.36	0.58
18:4d:20:MET:HA	18:4d:29:TYR:O	2.02	0.58
11:5B:211:GLN:OE1	11:5B:214:ARG:NE	2.25	0.58
11:5B:2188:LEU:O	11:5B:2251:TYR:OH	2.14	0.58
13:5D:1142:LYS:HB3	13:5D:1165:ILE:HD11	1.86	0.58
41:2G:745:ALA:O	41:2G:748:LYS:N	2.36	0.58
10:5A:96:A:N6	20:5f:23:GLY:H	2.02	0.58
27:4F:41:MET:O	27:4F:45:LEU:HD23	2.03	0.58
31:4T:107:TYR:O	31:4T:110:THR:HG22	2.04	0.58
32:4U:581:GLU:C	32:4U:583:GLU:H	2.10	0.58
41:2G:811:LEU:O	41:2G:814:PHE:N	2.36	0.58
1:A:30:C:N3	1:A:31:C:C6	2.72	0.58
1:A:31:C:O2	35:2A:33:G:C4	2.56	0.58
11:5B:1406:GLU:OE2	13:5D:64:GLN:NE2	2.36	0.58
12:5C:156:GLU:OE2	12:5C:156:GLU:N	2.33	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:5D:1651:CYS:O	13:5D:1690:HIS:NE2	2.32	0.58
47:2M:48:ASP:O	47:2M:51:ASN:N	2.37	0.58
10:5A:95:G:N2	10:5A:96:A:H5"	2.13	0.58
13:5D:612:ILE:C	13:5D:613:ILE:HD13	2.29	0.58
18:4d:33:LEU:HA	18:4d:44:LEU:HA	1.86	0.58
1:A:34:G:N9	1:A:35:U:C6	2.72	0.58
1:A:38:C:C4'	1:A:39:U:OP1	2.34	0.58
11:5B:1941:ARG:NE	11:5B:2011:ILE:O	2.35	0.58
11:5B:1972:THR:OG1	11:5B:1975:GLU:OE1	2.22	0.58
13:5D:1329:ASN:ND2	13:5D:1354:SER:O	2.37	0.58
13:5D:1936:LEU:HD11	13:5D:1940:LEU:HD11	1.86	0.58
45:2K:67:ILE:O	45:2K:70:ALA:N	2.36	0.58
7:6e:46:GLU:H	7:6e:63:ALA:N	2.01	0.58
11:5B:1076:ASP:OD1	11:5B:1078:ALA:N	2.34	0.58
41:2G:1149:LYS:O	41:2G:1152:SER:N	2.36	0.58
11:5B:1890:GLN:OE1	11:5B:1890:GLN:N	2.37	0.57
13:5D:493:LEU:O	13:5D:519:ARG:NH1	2.37	0.57
13:5D:1732:MET:HE3	13:5D:1755:LEU:HD11	1.85	0.57
35:2A:154:C:O2'	35:2A:155:C:H5'	2.04	0.57
22:4A:37:C:H1'	22:4A:38:U:H2'	1.85	0.57
41:2G:929:LEU:O	41:2G:930:PRO:C	2.46	0.57
13:5D:1518:VAL:HG12	13:5D:1518:VAL:O	2.03	0.57
28:4G:97:ASP:OD1	28:4G:98:ASP:N	2.37	0.57
41:2G:981:TYR:O	41:2G:984:GLU:N	2.21	0.57
43:2I:1204:VAL:O	43:2I:1207:LYS:N	2.37	0.57
1:A:35:U:O2	1:A:35:U:O2'	2.22	0.57
13:5D:657:ASN:ND2	13:5D:890:GLU:OE2	2.38	0.57
13:5D:1248:ASP:OD1	13:5D:1248:ASP:N	2.36	0.57
13:5D:1620:LEU:HD21	13:5D:1632:VAL:HB	1.86	0.57
41:2G:424:ILE:O	41:2G:428:ALA:N	2.36	0.57
13:5D:527:MET:HE3	13:5D:527:MET:H	1.70	0.57
12:5C:112:THR:OG1	12:5C:114:TYR:O	2.22	0.57
13:5D:538:ILE:HG23	13:5D:611:LEU:HD23	1.86	0.57
13:5D:1985:ILE:HD11	13:5D:1996:LEU:HD22	1.87	0.57
35:2A:152:G:N2	35:2A:153:A:C5	2.73	0.57
11:5B:1237:MET:HE2	11:5B:1281:THR:HG21	1.86	0.57
13:5D:1157:ASN:OD1	13:5D:1159:ASN:N	2.38	0.57
13:5D:1801:CYS:SG	13:5D:1829:ILE:HD11	2.44	0.57
11:5B:377:GLU:OE1	11:5B:377:GLU:N	2.36	0.57
11:5B:1289:VAL:HG11	13:5D:42:SER:HA	1.86	0.57
11:5B:1602:ASP:OD1	11:5B:1603:ALA:N	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:5C:922:GLU:O	12:5C:924:GLN:NE2	2.37	0.57
22:4A:31:U:O4	26:4E:60:ALA:CA	2.53	0.57
40:2F:184:ARG:CA	15:2a:85:PRO:CA	2.82	0.57
43:2I:15:SER:N	43:2I:33:SER:O	2.35	0.57
1:A:12:U:H2'	1:A:12:U:P	2.45	0.57
1:A:34:G:C4	1:A:35:U:C6	2.93	0.57
10:5A:80:U:H5'	10:5A:80:U:C6	2.40	0.57
10:5A:81:U:O2	10:5A:81:U:C2'	2.53	0.57
11:5B:950:LEU:HD23	11:5B:950:LEU:C	2.30	0.57
12:5C:822:MET:HE3	12:5C:822:MET:HA	1.87	0.57
13:5D:2098:ALA:O	13:5D:2099:THR:HG22	2.05	0.57
1:A:34:G:C2'	1:A:35:U:C6	2.88	0.56
11:5B:711:GLN:HB3	28:4G:163:VAL:HG11	1.87	0.56
42:2H:596:GLU:O	42:2H:598:GLU:N	2.37	0.56
43:2I:914:ILE:O	43:2I:918:ARG:C	2.47	0.56
11:5B:733:THR:HG23	11:5B:734:PRO:HD3	1.87	0.56
11:5B:2189:SER:OG	11:5B:2191:GLN:OE1	2.23	0.56
13:5D:1901:ARG:NH2	13:5D:1952:ALA:O	2.38	0.56
43:2I:430:GLY:O	43:2I:433:SER:N	2.31	0.56
43:2I:931:VAL:O	43:2I:935:GLU:N	2.39	0.56
1:A:31:C:C1'	35:2A:33:G:N2	2.68	0.56
11:5B:710:LEU:HD12	11:5B:710:LEU:O	2.05	0.56
12:5C:753:GLU:N	12:5C:753:GLU:OE1	2.36	0.56
13:5D:835:SER:O	13:5D:839:GLY:N	2.38	0.56
35:2A:152:G:N2	35:2A:153:A:C8	2.73	0.56
40:2F:184:ARG:O	15:2a:85:PRO:CA	2.53	0.56
41:2G:892:LEU:O	41:2G:895:GLY:N	2.37	0.56
43:2I:287:PHE:CA	43:2I:304:GLN:O	2.53	0.56
1:A:20:U:O2	35:2A:42:G:N2	2.38	0.56
11:5B:60:ASP:OD1	11:5B:61:MET:N	2.39	0.56
11:5B:1776:ILE:HG23	11:5B:1858:PRO:HA	1.87	0.56
1:A:36:C:C5'	1:A:37:C:H5	2.17	0.56
10:5A:78:U:H6	10:5A:78:U:O5'	1.89	0.56
1:A:36:C:O2'	1:A:37:C:OP1	2.24	0.56
13:5D:1307:LEU:HB2	13:5D:1333:THR:HG22	1.88	0.56
28:4G:358:ALA:O	28:4G:362:VAL:HG23	2.06	0.56
33:4X:143:ARG:NH2	33:4X:146:GLY:O	2.39	0.56
35:2A:141:C:C2	35:2A:142:C:C5	2.93	0.56
38:2D:174:VAL:O	38:2D:178:GLY:HA2	2.05	0.56
41:2G:86:ALA:C	41:2G:89:ALA:H	2.11	0.56
13:5D:1013:GLU:OE1	13:5D:1016:ARG:NH2	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:4U:328:ARG:NE	32:4U:332:GLU:OE1	2.39	0.56
41:2G:849:ILE:O	41:2G:852:ARG:N	2.38	0.56
41:2G:874:LYS:O	41:2G:877:GLY:CA	2.54	0.56
41:2G:1124:SER:O	41:2G:1127:THR:N	2.34	0.56
2:6A:56:A:H2'	2:6A:57:U:O4'	2.06	0.56
35:2A:150:U:C2	35:2A:151:C:C5	2.94	0.56
41:2G:937:LEU:O	41:2G:940:LEU:N	2.38	0.56
11:5B:766:THR:O	27:4F:141:ARG:NH2	2.39	0.56
11:5B:1511:GLU:O	11:5B:1512:SER:OG	2.16	0.56
11:5B:1872:LEU:O	11:5B:1876:LEU:HD12	2.05	0.56
35:2A:150:U:H2'	35:2A:151:C:H6	1.71	0.56
35:2A:183:G:H2'	35:2A:184:C:H6	1.71	0.56
43:2I:488:GLY:C	43:2I:490:THR:H	2.14	0.56
43:2I:1160:HIS:O	43:2I:1163:PHE:N	2.37	0.56
1:A:31:C:N4	1:A:32:C:H41	2.03	0.56
13:5D:637:ARG:HG2	13:5D:641:MET:HE1	1.88	0.56
13:5D:933:PRO:HG3	13:5D:943:LEU:HD12	1.88	0.56
41:2G:578:ILE:O	41:2G:581:LEU:N	2.39	0.56
41:2G:968:GLU:O	41:2G:971:MET:N	2.39	0.56
43:2I:303:ALA:O	43:2I:310:ILE:CA	2.54	0.56
43:2I:973:GLY:HA3	43:2I:976:LYS:C	2.31	0.56
10:5A:58:U:C6	10:5A:58:U:H5"	2.40	0.55
10:5A:110:C:H2'	10:5A:111:A:C8	2.41	0.55
12:5C:725:ASP:N	12:5C:725:ASP:OD1	2.37	0.55
13:5D:2013:ARG:NE	13:5D:2048:THR:O	2.40	0.55
31:4T:456:ARG:NH2	31:4T:547:ALA:O	2.36	0.55
35:2A:181:G:C4	35:2A:182:U:C5	2.95	0.55
1:A:22:C:O2'	1:A:23:G:C5'	2.37	0.55
10:5A:87:A:C6	10:5A:92:U:OP2	2.59	0.55
35:2A:183:G:C4	35:2A:184:C:C5	2.94	0.55
1:A:21:U:C1'	1:A:22:C:P	2.94	0.55
4:6b:48:GLN:C	4:6b:50:LEU:H	2.15	0.55
7:6e:46:GLU:CA	7:6e:62:ASP:CA	2.85	0.55
35:2A:147:G:C4	35:2A:148:C:C5	2.95	0.55
35:2A:149:A:H2'	35:2A:150:U:H6	1.70	0.55
41:2G:1109:ARG:O	41:2G:1112:THR:N	2.36	0.55
10:5A:117:A:C2	18:5d:26:GLY:HA3	2.41	0.55
12:5C:485:ASP:OD1	12:5C:485:ASP:N	2.38	0.55
35:2A:141:C:H2'	35:2A:142:C:H6	1.71	0.55
1:A:36:C:C1'	1:A:37:C:P	2.94	0.55
13:5D:1869:ARG:O	13:5D:1869:ARG:NH1	2.34	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
45:2K:109:GLN:O	45:2K:112:LEU:N	2.39	0.55
1:A:10:C:O2'	1:A:11:C:P	2.64	0.55
10:5A:110:C:H2'	10:5A:111:A:H8	1.70	0.55
11:5B:265:THR:HG23	11:5B:327:VAL:HG23	1.88	0.55
11:5B:946:GLU:HB2	11:5B:950:LEU:HD22	1.89	0.55
13:5D:801:PHE:CD1	13:5D:809:LEU:HD11	2.42	0.55
30:4S:740:LYS:O	30:4S:743:THR:OG1	2.23	0.55
35:2A:181:G:H2'	35:2A:182:U:H6	1.71	0.55
30:4S:743:THR:HG22	30:4S:746:ARG:HH21	1.71	0.55
45:2K:98:PHE:O	45:2K:100:LYS:N	2.39	0.55
11:5B:1589:ILE:HD11	11:5B:1733:ILE:CG2	2.33	0.55
22:4A:9:G:OP1	23:4B:445:GLN:CB	2.55	0.55
1:A:31:C:N3	35:2A:33:G:O6	2.40	0.55
22:4A:114:U:H2'	22:4A:114:U:O2	2.06	0.55
35:2A:153:A:H3'	35:2A:154:C:C5'	2.37	0.55
10:5A:108:G:H3'	10:5A:109:G:H8	1.73	0.54
13:5D:986:ARG:O	13:5D:990:HIS:ND1	2.40	0.54
35:2A:149:A:C4	35:2A:150:U:C5	2.95	0.54
1:A:31:C:C2	35:2A:33:G:C2	2.95	0.54
11:5B:1133:CYS:HG	11:5B:1134:TRP:CD1	2.25	0.54
11:5B:1766:GLN:NE2	11:5B:1767:ASN:OD1	2.40	0.54
41:2G:517:ARG:O	41:2G:520:THR:N	2.41	0.54
1:A:36:C:O2'	1:A:36:C:O2	2.24	0.54
10:5A:69:A:H2'	10:5A:70:A:O4'	2.08	0.54
11:5B:893:GLU:N	11:5B:893:GLU:OE1	2.40	0.54
13:5D:640:GLU:OE1	13:5D:922:TYR:OH	2.17	0.54
13:5D:2016:ASN:N	13:5D:2045:GLU:OE2	2.39	0.54
11:5B:1763:LEU:HD22	11:5B:1862:ILE:CD1	2.37	0.54
41:2G:557:ASP:O	41:2G:560:LEU:N	2.40	0.54
41:2G:1205:GLU:O	41:2G:1208:LEU:N	2.41	0.54
1:A:10:C:HO2'	1:A:11:C:P	2.29	0.54
13:5D:1135:LEU:HD23	13:5D:1140:VAL:HG12	1.88	0.54
43:2I:1195:GLU:C	43:2I:1198:ASP:H	2.14	0.54
13:5D:432:ASP:OD1	13:5D:433:GLY:N	2.39	0.54
13:5D:1464:GLY:N	13:5D:1465:PRO:HD2	2.22	0.54
13:5D:1525:LEU:HD21	13:5D:1718:LEU:HD23	1.89	0.54
31:4T:230:ILE:HG22	31:4T:231:LYS:H	1.73	0.54
7:6e:46:GLU:H	7:6e:63:ALA:CA	2.21	0.54
12:5C:455:GLY:O	12:5C:459:SER:OG	2.24	0.54
13:5D:640:GLU:O	13:5D:643:GLN:NE2	2.41	0.54
1:A:38:C:O2	1:A:38:C:H2'	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:5D:1815:LEU:HB3	13:5D:1829:ILE:HD12	1.90	0.54
27:4F:49:ALA:HB2	27:4F:58:ILE:HD11	1.90	0.54
41:2G:747:LEU:O	41:2G:748:LYS:C	2.48	0.54
13:5D:619:LEU:O	13:5D:619:LEU:HD23	2.07	0.54
13:5D:637:ARG:O	13:5D:641:MET:CE	2.56	0.54
29:4R:375:GLU:N	29:4R:375:GLU:OE1	2.41	0.54
35:2A:153:A:C3'	35:2A:154:C:C5'	2.85	0.54
43:2I:785:PRO:CA	43:2I:800:ILE:O	2.56	0.54
11:5B:118:VAL:N	11:5B:485:THR:O	2.34	0.53
11:5B:1807:ILE:HG13	11:5B:1822:ILE:HD11	1.89	0.53
10:5A:99:C:H2'	10:5A:100:C:C6	2.43	0.53
13:5D:130:ASP:OD1	13:5D:131:ILE:N	2.41	0.53
13:5D:1130:ARG:NH2	13:5D:1144:GLU:OE1	2.39	0.53
28:4G:651:LEU:O	28:4G:655:ASN:N	2.42	0.53
41:2G:978:LEU:O	41:2G:979:TYR:C	2.51	0.53
22:4A:31:U:O4	26:4E:60:ALA:C	2.49	0.53
35:2A:54:U:P	40:2F:424:ARG:O	2.67	0.53
41:2G:699:GLN:O	41:2G:700:LYS:C	2.48	0.53
1:A:22:C:C2'	1:A:23:G:C5'	2.87	0.53
31:4T:529:LEU:HD23	31:4T:534:VAL:HG22	1.90	0.53
41:2G:1026:ASN:O	41:2G:1028:HIS:N	2.41	0.53
1:A:36:C:C5'	1:A:37:C:C5	2.92	0.53
11:5B:259:ASP:OD1	11:5B:259:ASP:N	2.42	0.53
11:5B:863:GLU:O	11:5B:867:ILE:HD12	2.09	0.53
11:5B:1586:HIS:O	11:5B:1589:ILE:HG22	2.09	0.53
27:4F:83:PHE:HD2	27:4F:92:ILE:HD11	1.74	0.53
27:4F:107:GLU:N	27:4F:107:GLU:OE1	2.41	0.53
1:A:15:A:O2'	1:A:16:A:H5'	2.09	0.53
13:5D:1986:MET:O	13:5D:1993:ARG:NH2	2.38	0.53
31:4T:242:ALA:HB2	31:4T:503:ILE:HD11	1.90	0.53
35:2A:179:C:H2'	35:2A:180:G:C8	2.39	0.53
41:2G:1132:LEU:O	41:2G:1135:GLU:N	2.42	0.53
41:2G:1280:LEU:O	41:2G:1282:ALA:N	2.42	0.53
12:5C:157:ILE:O	12:5C:158:ARG:NH1	2.41	0.53
13:5D:941:ASP:OD1	13:5D:944:LYS:NZ	2.42	0.53
13:5D:1824:ILE:HD11	13:5D:1925:ALA:HB2	1.91	0.53
27:4F:45:LEU:HD12	27:4F:58:ILE:HG21	1.91	0.53
1:A:41:U:H2'	1:A:41:U:O2	2.08	0.53
41:2G:663:THR:O	41:2G:666:LYS:N	2.42	0.53
42:2H:596:GLU:C	42:2H:598:GLU:N	2.67	0.53
2:6A:47:A:H61	22:4A:64:G:H21	1.56	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:912:GLU:OE1	11:5B:914:LEU:N	2.41	0.53
28:4G:707:ASP:HA	28:4G:708:PHE:C	2.33	0.53
41:2G:1280:LEU:O	41:2G:1281:ILE:C	2.51	0.53
11:5B:165:ARG:NH1	11:5B:168:PRO:O	2.42	0.52
11:5B:1347:ASP:OD1	11:5B:1348:VAL:N	2.43	0.52
24:4C:393:ASP:O	24:4C:397:GLY:N	2.42	0.52
1:A:34:G:C3'	1:A:35:U:H5"	2.35	0.52
11:5B:2068:SER:O	11:5B:2069:SER:OG	2.24	0.52
27:4F:28:ILE:HD11	27:4F:61:VAL:CG2	2.39	0.52
19:4e:33:VAL:HA	19:4e:86:LEU:O	2.09	0.52
11:5B:1645:LEU:N	11:5B:1714:ALA:O	2.39	0.52
11:5B:2088:ASN:C	11:5B:2088:ASN:OD1	2.52	0.52
13:5D:59:THR:OG1	13:5D:60:LYS:N	2.42	0.52
10:5A:77:G:C8	10:5A:78:U:C6	2.98	0.52
10:5A:78:U:C6	10:5A:78:U:H3'	2.44	0.52
10:5A:90:U:C5	21:5g:38:ASN:C	2.85	0.52
41:2G:244:THR:O	41:2G:247:ALA:N	2.43	0.52
41:2G:841:ALA:O	41:2G:843:LYS:N	2.41	0.52
11:5B:570:ASP:OD1	11:5B:571:ALA:N	2.39	0.52
11:5B:1307:MET:HA	11:5B:1307:MET:HE2	1.92	0.52
12:5C:891:THR:HG22	12:5C:891:THR:O	2.09	0.52
13:5D:830:GLY:O	13:5D:831:THR:OG1	2.15	0.52
13:5D:1920:ILE:O	13:5D:1923:ILE:HG22	2.10	0.52
11:5B:67:ARG:NE	11:5B:491:GLU:OE2	2.43	0.52
11:5B:1076:ASP:OD1	11:5B:1076:ASP:C	2.53	0.52
11:5B:1832:ARG:HG3	11:5B:1836:LEU:HD13	1.92	0.52
43:2I:546:LYS:O	43:2I:556:ILE:CA	2.58	0.52
10:5A:59:G:C8	10:5A:59:G:C5'	2.91	0.52
11:5B:1973:ASP:OD1	11:5B:1973:ASP:N	2.42	0.52
12:5C:566:THR:OG1	12:5C:567:GLU:N	2.43	0.52
28:4G:131:TYR:CD1	28:4G:131:TYR:C	2.88	0.52
41:2G:1025:LYS:O	41:2G:1027:ARG:N	2.42	0.52
43:2I:42:ARG:N	43:2I:51:HIS:O	2.32	0.52
10:5A:87:A:H61	10:5A:92:U:P	2.32	0.52
11:5B:1555:LEU:HD23	11:5B:1556:ASP:N	2.25	0.52
11:5B:1622:MET:HE2	11:5B:1622:MET:HA	1.92	0.52
11:5B:1690:ASP:OD1	11:5B:1691:ASN:N	2.43	0.52
13:5D:296:ALA:HB1	13:5D:302:CYS:HB2	1.90	0.52
13:5D:663:THR:O	13:5D:666:ARG:NH2	2.43	0.52
34:4Y:957:ALA:C	34:4Y:958:ASP:O	2.50	0.52
41:2G:423:PRO:O	41:2G:427:PRO:N	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:931:ASP:OD1	11:5B:931:ASP:C	2.53	0.52
12:5C:700:ILE:HG21	12:5C:741:GLY:O	2.10	0.52
13:5D:1184:LEU:HD12	13:5D:1204:ILE:HG22	1.92	0.52
28:4G:356:ASP:OD1	28:4G:356:ASP:N	2.39	0.52
13:5D:568:GLU:OE1	13:5D:568:GLU:N	2.42	0.52
13:5D:2066:VAL:HG22	13:5D:2108:PHE:CD1	2.45	0.52
23:4B:466:LEU:N	29:4R:432:PRO:CG	2.56	0.52
29:4R:383:ILE:HD11	29:4R:454:LEU:HB3	1.91	0.52
11:5B:511:LYS:NZ	11:5B:537:LYS:O	2.36	0.51
31:4T:443:LEU:O	31:4T:484:LEU:HD23	2.09	0.51
41:2G:720:GLY:O	41:2G:721:ILE:C	2.54	0.51
1:A:31:C:H2'	1:A:32:C:H5'	1.91	0.51
11:5B:490:VAL:HG22	11:5B:562:VAL:HG12	1.92	0.51
13:5D:628:LEU:O	13:5D:632:VAL:HG23	2.10	0.51
22:4A:91:A:H2	22:4A:110:G:H22	1.58	0.51
28:4G:332:ILE:HG21	28:4G:349:ALA:HA	1.91	0.51
41:2G:771:LEU:O	41:2G:774:ILE:N	2.44	0.51
43:2I:699:VAL:CA	43:2I:715:MET:O	2.59	0.51
11:5B:95:MET:HA	11:5B:95:MET:HE3	1.93	0.51
35:2A:107:A:C6	35:2A:108:G:C5	2.98	0.51
35:2A:111:G:O3'	35:2A:112:G:O4'	2.29	0.51
13:5D:1627:MET:O	13:5D:1631:LEU:HG	2.11	0.51
13:5D:1967:THR:HG22	13:5D:1968:SER:H	1.74	0.51
41:2G:103:PRO:C	41:2G:106:GLU:H	2.18	0.51
1:A:34:G:C2'	1:A:35:U:H6	2.23	0.51
10:5A:95:G:N3	10:5A:95:G:C2'	2.73	0.51
11:5B:528:LYS:NZ	11:5B:529:THR:O	2.37	0.51
22:4A:114:U:P	22:4A:114:U:C6	3.02	0.51
28:4G:162:GLU:OE1	28:4G:162:GLU:N	2.40	0.51
31:4T:362:HIS:HB3	31:4T:365:LEU:HD13	1.92	0.51
35:2A:164:C:H5'	35:2A:164:C:C6	2.44	0.51
41:2G:1110:VAL:O	41:2G:1113:THR:N	2.43	0.51
13:5D:269:GLN:NE2	31:4T:106:PRO:O	2.39	0.51
14:5E:160:ALA:HB3	14:5E:166:LEU:H	1.74	0.51
41:2G:939:ARG:O	41:2G:940:LEU:C	2.51	0.51
41:2G:1035:CYS:O	41:2G:1038:LEU:N	2.44	0.51
12:5C:143:THR:HG23	12:5C:168:THR:OG1	2.11	0.51
12:5C:461:LEU:HD11	12:5C:571:ASN:ND2	2.26	0.51
12:5C:569:ARG:CZ	12:5C:569:ARG:HA	2.40	0.51
13:5D:527:MET:H	13:5D:527:MET:CE	2.24	0.51
41:2G:1207:SER:O	41:2G:1210:HIS:N	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:5A:85:C:OP1	17:5c:20:GLU:N	2.44	0.51
35:2A:30:A:N3	35:2A:30:A:C2'	2.73	0.51
41:2G:641:ILE:O	41:2G:644:LEU:N	2.40	0.51
41:2G:1109:ARG:O	41:2G:1111:CYS:N	2.43	0.51
11:5B:559:ASP:HA	11:5B:562:VAL:HG22	1.93	0.51
11:5B:1772:PHE:O	11:5B:1813:ARG:NH1	2.44	0.51
22:4A:69:C:HO2'	29:4R:426:PHE:HE1	1.59	0.51
28:4G:559:ALA:CB	28:4G:587:HIS:CB	2.88	0.51
10:5A:96:A:N6	20:5f:23:GLY:N	2.58	0.50
17:4c:53:LEU:O	17:4c:70:VAL:HA	2.11	0.50
41:2G:660:ALA:O	41:2G:661:ARG:C	2.53	0.50
41:2G:667:ILE:O	41:2G:668:VAL:C	2.53	0.50
11:5B:910:ASP:OD1	11:5B:910:ASP:O	2.29	0.50
12:5C:776:GLU:O	12:5C:782:GLU:N	2.45	0.50
13:5D:202:ASN:OD1	13:5D:204:GLN:NE2	2.44	0.50
13:5D:2084:LEU:HD23	13:5D:2084:LEU:H	1.75	0.50
21:4g:19:THR:HA	21:4g:28:TYR:O	2.11	0.50
45:2K:46:ARG:N	45:2K:63:VAL:O	2.44	0.50
11:5B:1614:ILE:O	33:4X:138:ARG:NH2	2.42	0.50
13:5D:527:MET:SD	13:5D:527:MET:N	2.85	0.50
28:4G:634:ALA:O	28:4G:638:ASN:N	2.40	0.50
43:2I:673:VAL:CA	43:2I:691:THR:H	2.24	0.50
1:A:37:C:H3'	1:A:37:C:H6	1.75	0.50
11:5B:758:ARG:O	11:5B:758:ARG:HD3	2.10	0.50
11:5B:1330:MET:HE1	11:5B:1369:TYR:HB3	1.94	0.50
27:4F:44:VAL:O	27:4F:48:ILE:HG13	2.12	0.50
34:4Y:956:LEU:O	34:4Y:958:ASP:O	2.30	0.50
41:2G:849:ILE:O	41:2G:850:ILE:C	2.54	0.50
10:5A:100:C:H2'	10:5A:101:U:C6	2.46	0.50
13:5D:68:ARG:O	13:5D:68:ARG:NH1	2.45	0.50
30:4S:739:GLY:O	30:4S:743:THR:HG23	2.11	0.50
35:2A:147:G:H2'	35:2A:148:C:C6	2.43	0.50
41:2G:1129:LEU:O	41:2G:1132:LEU:N	2.44	0.50
42:2H:573:ASP:O	42:2H:577:LYS:N	2.44	0.50
19:2e:15:VAL:O	20:2f:33:GLY:HA3	2.12	0.50
11:5B:1520:ASN:OD1	11:5B:1521:ALA:N	2.44	0.50
11:5B:1661:TRP:C	11:5B:1662:ILE:HD12	2.37	0.50
13:5D:115:VAL:HG13	13:5D:175:LEU:HD11	1.93	0.50
13:5D:513:ALA:HB1	13:5D:517:MET:HE3	1.93	0.50
13:5D:902:ASN:OD1	13:5D:969:LEU:HD23	2.11	0.50
28:4G:336:THR:HG22	28:4G:345:VAL:HG12	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:2G:528:ALA:O	41:2G:531:LEU:N	2.44	0.50
41:2G:629:ALA:O	41:2G:632:PHE:N	2.45	0.50
41:2G:804:ASN:O	41:2G:807:LYS:N	2.44	0.50
43:2I:1194:SER:O	43:2I:1199:ARG:N	2.35	0.50
47:2M:48:ASP:O	47:2M:49:LEU:C	2.54	0.50
1:A:36:C:C1'	1:A:37:C:OP1	2.55	0.50
1:A:37:C:O2'	1:A:38:C:O5'	2.30	0.50
31:4T:177:ASP:N	31:4T:177:ASP:OD1	2.43	0.50
41:2G:862:GLU:O	41:2G:863:GLN:C	2.55	0.50
41:2G:1268:ILE:O	41:2G:1271:SER:N	2.44	0.50
47:2M:37:ARG:O	47:2M:40:TYR:N	2.44	0.50
12:5C:134:LEU:HD12	12:5C:146:VAL:HG23	1.92	0.50
41:2G:708:ALA:O	41:2G:709:ILE:C	2.54	0.50
2:6A:58:G:H3'	2:6A:58:G:N3	2.27	0.50
12:5C:719:GLN:OE1	12:5C:726:LEU:N	2.44	0.50
25:4D:162:ALA:HB2	28:4G:242:LYS:HE3	1.94	0.50
27:4F:44:VAL:O	27:4F:47:SER:OG	2.24	0.50
34:4Y:695:GLN:O	34:4Y:696:GLY:C	2.55	0.50
47:2M:36:HIS:O	47:2M:37:ARG:C	2.53	0.50
15:4a:17:MET:O	15:4a:28:ILE:HA	2.12	0.49
41:2G:237:GLY:O	41:2G:239:ALA:N	2.45	0.49
41:2G:705:SER:O	41:2G:706:ALA:C	2.54	0.49
41:2G:1188:ALA:O	41:2G:1191:VAL:N	2.45	0.49
10:5A:98:G:H2'	10:5A:99:C:H6	1.77	0.49
11:5B:1275:ARG:O	13:5D:52:MET:HE1	2.12	0.49
11:5B:2134:PRO:O	11:5B:2135:ASP:OD1	2.30	0.49
13:5D:1819:ALA:HB2	13:5D:1829:ILE:HD13	1.94	0.49
19:4e:36:TYR:N	19:4e:83:ASN:O	2.41	0.49
10:5A:92:U:H3'	10:5A:92:U:H6	1.77	0.49
10:5A:115:C:OP1	19:5e:67:LYS:O	2.30	0.49
13:5D:893:MET:HE3	13:5D:925:LEU:HD22	1.93	0.49
41:2G:793:LYS:O	41:2G:797:GLY:CA	2.54	0.49
1:A:34:G:H21	1:A:35:U:H5'	1.77	0.49
11:5B:555:LYS:O	11:5B:559:ASP:OD1	2.30	0.49
11:5B:1522:GLN:O	11:5B:1526:LEU:HG	2.12	0.49
11:5B:2190:PRO:HA	11:5B:2193:VAL:HG12	1.93	0.49
13:5D:766:ALA:HA	13:5D:778:LEU:HD23	1.94	0.49
22:4A:109:G:H2'	22:4A:110:G:H8	1.77	0.49
41:2G:892:LEU:O	41:2G:893:ILE:C	2.54	0.49
41:2G:1080:THR:O	41:2G:1083:TYR:N	2.45	0.49
43:2I:1195:GLU:O	43:2I:1198:ASP:N	2.41	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:5A:98:G:H2'	10:5A:99:C:C6	2.47	0.49
11:5B:1381:ASP:OD2	11:5B:1414:ARG:NH1	2.46	0.49
11:5B:1519:THR:HG21	27:4F:117:GLU:OE1	2.11	0.49
33:4X:139:GLN:NE2	33:4X:142:ASN:O	2.46	0.49
41:2G:1243:PRO:O	41:2G:1244:CYS:C	2.55	0.49
1:A:25:G:H1	35:2A:37:U:H3	1.60	0.49
12:5C:297:ASN:OD1	12:5C:297:ASN:N	2.46	0.49
13:5D:425:ASN:ND2	13:5D:886:GLN:O	2.45	0.49
13:5D:538:ILE:HG23	13:5D:611:LEU:CD2	2.43	0.49
13:5D:565:THR:O	13:5D:583:THR:OG1	2.30	0.49
13:5D:1855:TYR:HB3	13:5D:1891:THR:HG21	1.94	0.49
13:5D:1897:ALA:HB1	13:5D:1904:LEU:HD21	1.94	0.49
13:5D:1899:LEU:HD21	13:5D:1949:VAL:HG12	1.94	0.49
19:5e:15:VAL:O	20:5f:33:GLY:HA3	2.12	0.49
22:4A:94:A:O2'	22:4A:95:C:H5'	2.12	0.49
28:4G:112:MET:HE2	28:4G:112:MET:HA	1.94	0.49
4:6b:48:GLN:C	4:6b:50:LEU:N	2.69	0.49
10:5A:77:G:N7	10:5A:78:U:C4	2.80	0.49
11:5B:2183:ASN:OD1	11:5B:2184:GLU:N	2.45	0.49
19:4e:65:HIS:O	19:4e:69:LYS:N	2.45	0.49
41:2G:803:ALA:O	41:2G:804:ASN:C	2.54	0.49
13:5D:619:LEU:HD22	13:5D:628:LEU:CD2	2.42	0.49
13:5D:619:LEU:HD21	13:5D:624:ARG:HB2	1.95	0.49
31:4T:188:ASP:OD1	31:4T:188:ASP:N	2.44	0.49
41:2G:553:VAL:O	41:2G:556:ILE:N	2.46	0.49
13:5D:1329:ASN:O	13:5D:1333:THR:HG23	2.13	0.49
43:2I:930:LEU:C	43:2I:934:GLY:HA2	2.38	0.49
12:5C:688:ILE:CD1	12:5C:792:LEU:HD22	2.43	0.49
12:5C:693:GLU:OE1	12:5C:693:GLU:N	2.45	0.49
13:5D:1320:LEU:HA	13:5D:1324:LYS:HZ3	1.78	0.49
27:4F:48:ILE:HD13	27:4F:113:VAL:HG23	1.93	0.49
41:2G:625:ARG:O	41:2G:628:THR:N	2.46	0.49
11:5B:354:PRO:O	32:4U:327:ARG:NH1	2.46	0.48
11:5B:1633:ALA:O	11:5B:1634:SER:OG	2.15	0.48
12:5C:954:ASP:OD1	12:5C:955:ASP:N	2.46	0.48
13:5D:1439:TRP:CG	13:5D:1477:ILE:HD11	2.48	0.48
22:4A:10:C:OP1	23:4B:449:ARG:HA	2.13	0.48
35:2A:107:A:C2	35:2A:108:G:C4	3.01	0.48
46:2L:46:CYS:O	46:2L:50:ASN:N	2.43	0.48
1:A:31:C:C2	1:A:32:C:H5	2.30	0.48
11:5B:59:GLU:OE1	11:5B:59:GLU:N	2.46	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:864:LEU:HD12	11:5B:864:LEU:O	2.13	0.48
12:5C:170:ILE:HG22	12:5C:536:ARG:HE	1.78	0.48
13:5D:497:GLU:OE2	13:5D:497:GLU:HA	2.11	0.48
13:5D:969:LEU:HD11	13:5D:998:VAL:CG2	2.42	0.48
32:4U:353:ASP:OD1	32:4U:353:ASP:C	2.55	0.48
35:2A:40:C:C5'	35:2A:40:C:C6	2.92	0.48
43:2I:596:PRO:O	43:2I:598:GLY:N	2.46	0.48
43:2I:672:GLY:O	43:2I:695:GLY:N	2.46	0.48
10:5A:81:U:C2	10:5A:82:A:C5	3.02	0.48
11:5B:300:ASN:O	12:5C:939:ARG:NH1	2.46	0.48
13:5D:1069:GLN:CG	13:5D:1069:GLN:O	2.61	0.48
13:5D:1081:MET:O	13:5D:1085:THR:HG23	2.14	0.48
13:5D:1940:LEU:HD21	13:5D:2107:TYR:CD2	2.48	0.48
13:5D:1945:LEU:HD23	13:5D:1949:VAL:HG13	1.95	0.48
41:2G:226:HIS:O	41:2G:229:SER:N	2.46	0.48
41:2G:665:ILE:O	41:2G:666:LYS:C	2.56	0.48
43:2I:318:ASP:N	43:2I:321:MET:O	2.27	0.48
11:5B:519:ASP:OD1	11:5B:523:ASN:N	2.45	0.48
11:5B:1591:MET:HE3	33:4X:136:LYS:N	2.29	0.48
12:5C:363:SER:O	12:5C:363:SER:OG	2.26	0.48
13:5D:1920:ILE:O	13:5D:1924:GLN:HG3	2.13	0.48
27:4F:68:ASP:O	27:4F:72:MET:HE3	2.13	0.48
28:4G:241:ARG:O	28:4G:245:GLN:HG3	2.13	0.48
35:2A:54:U:C5'	40:2F:424:ARG:O	2.62	0.48
41:2G:177:LYS:O	41:2G:180:GLU:N	2.46	0.48
41:2G:501:LEU:O	41:2G:502:LEU:C	2.55	0.48
41:2G:1094:LEU:O	41:2G:1098:LEU:N	2.41	0.48
4:6b:47:ASP:O	4:6b:50:LEU:N	2.39	0.48
11:5B:184:ASP:OD1	11:5B:184:ASP:O	2.31	0.48
12:5C:406:GLU:OE1	12:5C:406:GLU:N	2.43	0.48
28:4G:113:ASP:OD1	28:4G:120:ARG:NH2	2.41	0.48
28:4G:668:ALA:O	28:4G:672:ALA:N	2.46	0.48
31:4T:230:ILE:O	31:4T:231:LYS:C	2.56	0.48
41:2G:693:GLY:O	41:2G:694:LEU:C	2.56	0.48
41:2G:993:ILE:O	41:2G:994:LEU:C	2.56	0.48
42:2H:491:LEU:O	42:2H:493:ALA:N	2.46	0.48
11:5B:110:TRP:HB3	11:5B:147:MET:CE	2.44	0.48
12:5C:509:VAL:HG22	12:5C:565:ILE:HD12	1.95	0.48
22:4A:70:U:C6	29:4R:413:ILE:HD13	2.49	0.48
31:4T:511:GLU:O	31:4T:511:GLU:CD	2.56	0.48
11:5B:1519:THR:HG21	27:4F:117:GLU:OE2	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:1625:SER:OG	11:5B:1626:CYS:N	2.46	0.48
41:2G:1227:ILE:O	41:2G:1230:VAL:N	2.46	0.48
2:6A:76:A:H61	23:4B:563:ASN:N	2.12	0.48
11:5B:835:ASP:HB3	11:5B:878:LEU:HD21	1.96	0.48
11:5B:1614:ILE:O	33:4X:138:ARG:NH1	2.45	0.48
11:5B:2320:LEU:N	13:5D:1069:GLN:OE1	2.47	0.48
13:5D:1309:VAL:HG23	13:5D:1326:PRO:O	2.14	0.48
22:4A:108:C:H2'	22:4A:109:G:C8	2.49	0.48
24:4C:259:SER:O	24:4C:263:CYS:N	2.43	0.48
32:4U:581:GLU:C	32:4U:583:GLU:N	2.72	0.48
41:2G:578:ILE:O	41:2G:579:GLU:C	2.57	0.48
41:2G:865:ARG:O	41:2G:866:LYS:C	2.56	0.48
41:2G:974:LEU:O	41:2G:975:GLY:C	2.54	0.48
45:2K:98:PHE:C	45:2K:100:LYS:N	2.72	0.48
3:6a:61:PHE:N	9:6g:70:ILE:O	2.45	0.48
11:5B:67:ARG:NH2	11:5B:491:GLU:OE1	2.46	0.48
11:5B:341:LYS:O	32:4U:301:ARG:NH1	2.42	0.48
13:5D:637:ARG:O	13:5D:641:MET:HE2	2.14	0.48
29:4R:392:VAL:HG22	29:4R:393:ASN:H	1.79	0.48
41:2G:629:ALA:O	41:2G:630:ARG:C	2.56	0.48
41:2G:631:ALA:O	41:2G:634:VAL:N	2.46	0.48
2:6A:78:A:N3	2:6A:78:A:H2'	2.29	0.48
13:5D:1104:TRP:O	13:5D:1108:THR:HG22	2.14	0.48
34:4Y:680:GLY:O	34:4Y:681:GLU:C	2.56	0.48
41:2G:833:LEU:O	41:2G:834:VAL:C	2.56	0.48
41:2G:1264:VAL:O	41:2G:1265:TYR:C	2.56	0.48
43:2I:589:CYS:O	43:2I:608:GLY:N	2.30	0.48
1:A:17:G:H2'	1:A:18:C:H6	1.78	0.47
10:5A:81:U:H1'	10:5A:82:A:C2	2.49	0.47
10:5A:111:A:H2'	10:5A:112:A:C8	2.49	0.47
11:5B:1410:ASP:OD1	11:5B:1410:ASP:N	2.46	0.47
35:2A:151:C:C2	35:2A:152:G:N7	2.82	0.47
13:5D:1040:LEU:O	13:5D:1044:VAL:HG13	2.14	0.47
13:5D:1391:MET:C	13:5D:1391:MET:SD	2.97	0.47
22:4A:20:A:H2'	22:4A:21:U:C6	2.48	0.47
27:4F:27:VAL:HG22	27:4F:83:PHE:CE1	2.50	0.47
43:2I:147:ASP:N	43:2I:151:ARG:O	2.42	0.47
47:2M:42:SER:O	47:2M:45:GLY:N	2.48	0.47
1:A:38:C:H4'	1:A:38:C:OP1	2.14	0.47
11:5B:1507:SER:O	11:5B:1512:SER:N	2.47	0.47
11:5B:2307:GLU:OE2	13:5D:1125:SER:N	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:5C:230:ASP:OD1	12:5C:231:ALA:N	2.48	0.47
13:5D:90:LEU:HD23	13:5D:90:LEU:O	2.14	0.47
35:2A:143:A:N3	35:2A:143:A:C3'	2.73	0.47
43:2I:923:GLY:HA3	43:2I:947:GLU:O	2.14	0.47
1:A:34:G:H3'	1:A:34:G:N3	2.28	0.47
11:5B:555:LYS:O	11:5B:556:LEU:C	2.58	0.47
11:5B:1729:ALA:O	11:5B:1733:ILE:HG12	2.15	0.47
12:5C:404:THR:HG22	12:5C:405:LYS:N	2.30	0.47
13:5D:1631:LEU:O	13:5D:1635:LEU:HD23	2.13	0.47
28:4G:138:ILE:HG22	28:4G:139:GLN:N	2.29	0.47
1:A:7:U:H4'	1:A:8:U:OP1	2.15	0.47
13:5D:551:MET:HE3	13:5D:551:MET:HA	1.97	0.47
13:5D:622:ASP:OD1	13:5D:623:ASP:N	2.47	0.47
22:4A:140:G:H2'	22:4A:141:A:H8	1.79	0.47
29:4R:426:PHE:O	29:4R:427:VAL:HG23	2.14	0.47
11:5B:584:HIS:NE2	48:5B:2401:IHP:O36	2.43	0.47
11:5B:1587:GLU:CD	33:4X:137:TYR:CE1	2.92	0.47
11:5B:2173:GLU:N	11:5B:2173:GLU:OE1	2.48	0.47
13:5D:415:VAL:HG12	13:5D:894:VAL:HB	1.96	0.47
22:4A:92:C:O2'	22:4A:93:G:H5'	2.14	0.47
22:4A:110:G:O2'	22:4A:111:C:H5'	2.14	0.47
24:4C:316:VAL:O	24:4C:317:ALA:C	2.58	0.47
30:4S:725:ALA:O	30:4S:729:LEU:HG	2.15	0.47
31:4T:362:HIS:CD2	31:4T:365:LEU:HD13	2.50	0.47
31:4T:453:CYS:O	31:4T:453:CYS:SG	2.72	0.47
20:4f:6:PRO:HA	20:4f:36:PRO:HA	1.96	0.47
41:2G:210:ALA:O	41:2G:213:LYS:N	2.48	0.47
30:4S:726:PHE:CD1	30:4S:726:PHE:C	2.93	0.47
41:2G:955:ILE:O	41:2G:956:SER:C	2.57	0.47
43:2I:44:ASP:O	43:2I:48:GLY:HA2	2.15	0.47
11:5B:1716:GLY:O	11:5B:1718:TRP:NE1	2.48	0.47
13:5D:551:MET:HE2	13:5D:555:PHE:CE2	2.50	0.47
21:4g:31:LYS:O	21:4g:44:SER:N	2.47	0.47
40:2F:411:CYS:O	40:2F:414:TYR:N	2.37	0.47
27:4F:103:ASN:OD1	27:4F:103:ASN:C	2.58	0.47
28:4G:239:ASP:O	28:4G:242:LYS:HG2	2.14	0.47
11:5B:1218:ASN:OD1	11:5B:1219:GLU:N	2.48	0.46
41:2G:82:PRO:O	41:2G:86:ALA:N	2.42	0.46
41:2G:914:PHE:O	41:2G:915:GLY:C	2.58	0.46
10:5A:99:C:H2'	10:5A:100:C:H6	1.79	0.46
11:5B:1645:LEU:O	11:5B:1645:LEU:HD23	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:1791:HIS:O	11:5B:1798:LEU:HD12	2.14	0.46
13:5D:893:MET:O	13:5D:893:MET:SD	2.73	0.46
13:5D:1830:GLU:O	13:5D:1834:MET:HG2	2.16	0.46
31:4T:409:ILE:HG23	31:4T:410:ILE:HD13	1.97	0.46
41:2G:631:ALA:O	41:2G:632:PHE:C	2.58	0.46
41:2G:994:LEU:O	41:2G:995:GLY:C	2.56	0.46
12:5C:216:THR:HG22	12:5C:245:HIS:HE2	1.80	0.46
13:5D:1307:LEU:CB	13:5D:1333:THR:HG22	2.45	0.46
29:4R:383:ILE:HD13	29:4R:435:TYR:CE2	2.51	0.46
31:4T:530:GLN:O	31:4T:531:ASP:C	2.57	0.46
35:2A:114:A:H2'	35:2A:115:G:H8	1.81	0.46
35:2A:181:G:H2'	35:2A:182:U:C6	2.50	0.46
43:2I:558:LEU:O	43:2I:561:GLY:CA	2.63	0.46
10:5A:58:U:H2'	10:5A:58:U:O2	2.15	0.46
10:5A:117:A:C2	18:5d:26:GLY:O	2.68	0.46
13:5D:1521:VAL:HG23	13:5D:1521:VAL:O	2.15	0.46
13:5D:1819:ALA:HB2	13:5D:1829:ILE:HG21	1.97	0.46
29:4R:458:MET:SD	29:4R:458:MET:N	2.88	0.46
35:2A:107:A:C6	35:2A:108:G:C6	3.04	0.46
41:2G:831:ARG:O	41:2G:832:GLN:C	2.58	0.46
43:2I:1148:LEU:O	43:2I:1149:ARG:C	2.57	0.46
1:A:28:G:H22	35:2A:34:U:H3	1.62	0.46
2:6A:47:A:H4'	2:6A:48:A:OP1	2.14	0.46
10:5A:41:U:OP1	27:4F:141:ARG:NE	2.49	0.46
10:5A:79:C:H4'	10:5A:80:U:OP2	2.08	0.46
13:5D:421:HIS:NE2	13:5D:875:GLU:OE2	2.43	0.46
35:2A:141:C:H2'	35:2A:142:C:C6	2.50	0.46
41:2G:693:GLY:O	41:2G:695:VAL:N	2.49	0.46
41:2G:952:ALA:O	41:2G:953:ASP:C	2.57	0.46
11:5B:414:ARG:NH1	12:5C:410:LEU:O	2.40	0.46
11:5B:1626:CYS:SG	11:5B:1627:ALA:N	2.88	0.46
11:5B:1985:ASP:OD1	11:5B:1985:ASP:C	2.58	0.46
12:5C:129:ILE:HD12	12:5C:199:LEU:HD23	1.98	0.46
22:4A:64:G:N2	22:4A:67:A:OP2	2.49	0.46
28:4G:133:MET:HE1	31:4T:432:THR:OG1	2.16	0.46
32:4U:277:ASP:N	32:4U:277:ASP:OD1	2.48	0.46
35:2A:180:G:H2'	35:2A:181:G:H8	1.81	0.46
41:2G:1119:VAL:O	41:2G:1122:THR:N	2.49	0.46
12:5C:573:GLU:O	12:5C:573:GLU:HG2	2.15	0.46
13:5D:819:VAL:O	13:5D:855:ARG:NH2	2.48	0.46
24:4C:282:HIS:N	24:4C:295:ASN:O	2.46	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:4S:748:LYS:HA	30:4S:751:ASP:OD1	2.16	0.46
41:2G:1256:HIS:O	41:2G:1257:PRO:C	2.58	0.46
11:5B:1407:ASP:N	11:5B:1407:ASP:OD1	2.41	0.46
13:5D:127:GLN:O	13:5D:132:LEU:HD13	2.16	0.46
27:4F:27:VAL:HG13	27:4F:83:PHE:CE1	2.50	0.46
1:A:34:G:N3	1:A:35:U:H5"	2.31	0.46
13:5D:687:GLN:OE1	13:5D:689:TYR:OH	2.28	0.46
24:4C:459:PRO:O	24:4C:462:GLY:N	2.48	0.46
27:4F:112:MET:O	27:4F:116:ILE:HG12	2.16	0.46
28:4G:316:ALA:HB2	28:4G:332:ILE:HG12	1.98	0.46
35:2A:3:C:H2'	35:2A:4:G:C8	2.51	0.46
35:2A:183:G:H2'	35:2A:184:C:C6	2.50	0.46
41:2G:708:ALA:O	41:2G:711:ALA:N	2.49	0.46
41:2G:889:GLU:O	41:2G:890:GLU:C	2.57	0.46
47:2M:64:VAL:O	47:2M:65:ARG:C	2.59	0.46
1:A:28:G:C2	35:2A:35:A:C2	3.05	0.46
3:6a:73:PRO:O	3:6a:75:ASP:N	2.49	0.46
11:5B:880:ARG:HH11	11:5B:914:LEU:HD21	1.81	0.46
13:5D:880:LEU:O	13:5D:884:ASN:ND2	2.39	0.46
22:4A:31:U:O4	26:4E:60:ALA:HA	2.16	0.46
32:4U:176:ARG:NH1	32:4U:179:GLN:OE1	2.49	0.46
35:2A:142:C:H2'	35:2A:143:A:H5'	1.98	0.46
40:2F:394:TYR:C	40:2F:396:LEU:H	2.24	0.46
41:2G:953:ASP:O	41:2G:954:LEU:C	2.56	0.46
10:5A:38:C:O2	10:5A:38:C:O4'	2.33	0.45
11:5B:1763:LEU:HD22	11:5B:1862:ILE:HD13	1.98	0.45
11:5B:1785:VAL:HG22	11:5B:1807:ILE:HG13	1.96	0.45
13:5D:1560:ILE:HD11	13:5D:1654:MET:HE3	1.97	0.45
29:4R:383:ILE:HG22	29:4R:427:VAL:O	2.16	0.45
41:2G:257:THR:O	41:2G:259:SER:N	2.49	0.45
41:2G:567:VAL:O	41:2G:568:ARG:C	2.58	0.45
41:2G:1062:LEU:O	41:2G:1065:LEU:N	2.39	0.45
41:2G:1246:MET:O	41:2G:1247:LEU:C	2.59	0.45
10:5A:92:U:N3	16:5b:36:MET:N	2.64	0.45
11:5B:323:LEU:HD21	12:5C:595:VAL:HG21	1.97	0.45
11:5B:1404:THR:OG1	11:5B:1407:ASP:OD1	2.21	0.45
11:5B:1841:THR:HG23	11:5B:1868:MET:HE1	1.97	0.45
12:5C:451:HIS:O	12:5C:578:ARG:NH1	2.50	0.45
12:5C:593:GLU:HG3	12:5C:594:PRO:HD2	1.98	0.45
13:5D:1858:ILE:HG22	13:5D:1887:PRO:HB3	1.97	0.45
28:4G:334:LYS:HG3	28:4G:338:MET:SD	2.56	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:4T:242:ALA:CB	31:4T:503:ILE:HD11	2.45	0.45
35:2A:153:A:C8	35:2A:154:C:H5'	2.50	0.45
41:2G:830:TYR:O	41:2G:831:ARG:C	2.57	0.45
44:2J:70:ALA:O	44:2J:74:MET:N	2.41	0.45
12:5C:676:ALA:HB3	12:5C:815:VAL:CG2	2.46	0.45
13:5D:1822:TYR:HB2	13:5D:1824:ILE:CD1	2.46	0.45
19:4e:34:TRP:O	19:4e:85:THR:N	2.41	0.45
41:2G:792:VAL:O	41:2G:793:LYS:C	2.59	0.45
41:2G:935:THR:O	41:2G:936:VAL:C	2.58	0.45
11:5B:832:TYR:HB3	11:5B:835:ASP:OD1	2.16	0.45
11:5B:1647:ASP:O	11:5B:1723:LYS:NZ	2.50	0.45
13:5D:637:ARG:C	13:5D:641:MET:HE1	2.42	0.45
13:5D:1136:PRO:O	13:5D:1140:VAL:HG13	2.16	0.45
27:4F:48:ILE:HD11	27:4F:109:LYS:HB2	1.98	0.45
28:4G:280:MET:O	28:4G:280:MET:HG2	2.16	0.45
41:2G:663:THR:O	41:2G:664:GLY:C	2.56	0.45
43:2I:672:GLY:O	43:2I:691:THR:N	2.49	0.45
43:2I:1141:PHE:O	43:2I:1144:VAL:N	2.49	0.45
47:2M:62:ALA:O	47:2M:65:ARG:N	2.50	0.45
4:6b:19:ASP:C	4:6b:21:ILE:H	2.23	0.45
11:5B:123:THR:HG22	11:5B:123:THR:O	2.16	0.45
13:5D:842:THR:HG22	13:5D:843:GLU:H	1.82	0.45
24:4C:275:ASN:O	24:4C:301:ALA:N	2.50	0.45
47:2M:46:HIS:O	47:2M:47:PHE:C	2.59	0.45
11:5B:963:GLN:O	11:5B:964:ASP:OD1	2.35	0.45
11:5B:1519:THR:HG21	27:4F:117:GLU:CD	2.41	0.45
13:5D:551:MET:HE3	13:5D:554:SER:OG	2.17	0.45
43:2I:215:LEU:O	43:2I:218:ASN:N	2.50	0.45
43:2I:672:GLY:C	43:2I:691:THR:H	2.25	0.45
1:A:33:U:O3'	1:A:34:G:O4'	2.35	0.45
11:5B:900:ASP:O	11:5B:1246:GLN:NE2	2.50	0.45
11:5B:1900:GLU:OE1	11:5B:1900:GLU:N	2.44	0.45
13:5D:1136:PRO:O	13:5D:1139:VAL:HG12	2.17	0.45
13:5D:1886:ASP:HB3	13:5D:1889:VAL:HG22	1.98	0.45
25:4D:162:ALA:H	28:4G:242:LYS:NZ	2.15	0.45
1:A:20:U:C2	35:2A:42:G:C2	3.04	0.45
10:5A:81:U:C2'	10:5A:82:A:O5'	2.65	0.45
11:5B:768:ASP:OD1	11:5B:770:THR:HG22	2.17	0.45
11:5B:828:PRO:O	28:4G:273:TYR:OH	2.17	0.45
11:5B:1070:ASP:OD1	11:5B:1070:ASP:N	2.47	0.45
12:5C:166:CYS:C	12:5C:168:THR:H	2.25	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:4C:459:PRO:O	24:4C:461:HIS:N	2.50	0.45
41:2G:749:ALA:O	41:2G:750:ILE:C	2.60	0.45
41:2G:1223:SER:O	41:2G:1224:PRO:C	2.60	0.45
43:2I:1191:LYS:O	43:2I:1192:ASN:C	2.59	0.45
11:5B:288:LEU:HD23	11:5B:288:LEU:H	1.82	0.45
13:5D:1299:THR:N	13:5D:1513:ASN:O	2.50	0.45
22:4A:66:A:OP1	30:4S:727:ARG:NH1	2.50	0.45
35:2A:113:G:H2'	35:2A:114:A:H8	1.82	0.45
35:2A:149:A:H2'	35:2A:150:U:C6	2.50	0.45
41:2G:429:ARG:O	41:2G:432:THR:N	2.46	0.45
43:2I:663:LEU:O	43:2I:678:VAL:CA	2.65	0.45
11:5B:1555:LEU:HD13	11:5B:1560:ILE:HD12	1.98	0.45
12:5C:560:VAL:HG23	12:5C:561:LYS:N	2.32	0.45
13:5D:96:GLU:O	28:4G:367:ARG:NH2	2.50	0.45
13:5D:1944:GLU:HG3	13:5D:2109:MET:HE1	1.98	0.45
28:4G:242:LYS:HG3	28:4G:243:ILE:N	2.32	0.45
28:4G:316:ALA:HB2	28:4G:332:ILE:CG1	2.47	0.45
31:4T:506:ASP:OD2	31:4T:515:ARG:NE	2.49	0.45
35:2A:54:U:H5'	40:2F:424:ARG:CA	2.47	0.45
35:2A:148:C:H2'	35:2A:149:A:H8	1.82	0.45
41:2G:1110:VAL:O	41:2G:1111:CYS:C	2.57	0.45
41:2G:1128:VAL:O	41:2G:1129:LEU:C	2.60	0.45
43:2I:406:PRO:CA	43:2I:1122:LEU:O	2.65	0.45
1:A:30:C:C3'	1:A:31:C:H5'	2.42	0.44
1:A:34:G:C5	1:A:35:U:C4	3.05	0.44
11:5B:150:MET:HE2	11:5B:192:GLN:C	2.41	0.44
11:5B:1293:ASN:OD1	13:5D:40:VAL:HG12	2.16	0.44
11:5B:1618:LYS:HA	11:5B:1621:LYS:HB2	1.99	0.44
22:4A:114:U:C6	22:4A:114:U:O5'	2.70	0.44
40:2F:403:ASN:N	40:2F:417:ARG:O	2.49	0.44
41:2G:810:ILE:O	41:2G:811:LEU:C	2.58	0.44
41:2G:937:LEU:O	41:2G:938:TRP:C	2.59	0.44
1:A:33:U:O2'	1:A:34:G:C8	2.70	0.44
2:6A:89:U:H2'	2:6A:90:G:C8	2.53	0.44
10:5A:92:U:C4	16:5b:36:MET:N	2.85	0.44
12:5C:216:THR:HG22	12:5C:245:HIS:NE2	2.32	0.44
13:5D:1323:ASP:OD1	13:5D:1324:LYS:NZ	2.50	0.44
35:2A:153:A:C2'	35:2A:154:C:C5'	2.86	0.44
35:2A:182:U:H2'	35:2A:183:G:H8	1.81	0.44
41:2G:687:VAL:O	41:2G:690:ILE:N	2.50	0.44
41:2G:841:ALA:C	41:2G:843:LYS:N	2.73	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:2G:867:MET:O	41:2G:868:VAL:C	2.57	0.44
41:2G:948:ARG:O	41:2G:949:GLN:C	2.60	0.44
1:A:32:C:N3	35:2A:31:G:O6	2.50	0.44
10:5A:45:C:O2	11:5B:603:ARG:NH2	2.51	0.44
11:5B:247:THR:HG22	11:5B:247:THR:O	2.16	0.44
11:5B:302:ILE:O	12:5C:936:LYS:NZ	2.36	0.44
11:5B:592:TYR:HA	11:5B:595:LYS:O	2.17	0.44
11:5B:1622:MET:O	11:5B:1687:TYR:OH	2.34	0.44
12:5C:569:ARG:HA	12:5C:569:ARG:NE	2.32	0.44
13:5D:914:LYS:HD3	13:5D:914:LYS:N	2.32	0.44
13:5D:995:ASN:O	13:5D:998:VAL:HG22	2.17	0.44
41:2G:471:ASP:O	41:2G:472:ILE:C	2.57	0.44
41:2G:645:LEU:O	41:2G:646:PRO:C	2.56	0.44
41:2G:1078:VAL:O	41:2G:1081:PHE:N	2.50	0.44
2:6A:91:A:H2'	2:6A:92:A:C8	2.53	0.44
11:5B:1126:VAL:HG23	11:5B:1127:GLY:N	2.33	0.44
11:5B:1997:VAL:HG12	11:5B:1998:ASN:N	2.33	0.44
13:5D:613:ILE:HD12	13:5D:649:ILE:HB	1.99	0.44
22:4A:65:A:H2'	22:4A:66:A:O4'	2.17	0.44
28:4G:334:LYS:O	28:4G:338:MET:HG3	2.18	0.44
31:4T:415:LEU:HD22	31:4T:473:PHE:HB3	1.99	0.44
41:2G:429:ARG:C	41:2G:432:THR:H	2.26	0.44
41:2G:834:VAL:O	41:2G:835:ASP:C	2.60	0.44
41:2G:1031:VAL:O	41:2G:1032:GLN:C	2.60	0.44
2:6A:48:A:N3	2:6A:48:A:H2'	2.31	0.44
11:5B:697:MET:HG3	11:5B:702:LYS:HB3	1.99	0.44
11:5B:1512:SER:O	11:5B:1513:MET:C	2.60	0.44
13:5D:460:GLN:OE1	13:5D:460:GLN:N	2.50	0.44
13:5D:1301:LEU:HD23	13:5D:1301:LEU:O	2.18	0.44
22:4A:119:A:N6	18:4d:38:GLY:O	2.43	0.44
33:4X:143:ARG:NH1	33:4X:146:GLY:O	2.49	0.44
15:4a:42:LEU:O	15:4a:69:LEU:HA	2.18	0.44
21:4g:80:ALA:HA	21:4g:81:PRO:HA	1.83	0.44
35:2A:59:A:H2'	35:2A:60:U:O4'	2.17	0.44
35:2A:143:A:OP2	35:2A:143:A:C2	2.71	0.44
41:2G:710:ALA:O	41:2G:711:ALA:C	2.61	0.44
41:2G:723:SER:C	41:2G:725:ASP:H	2.26	0.44
41:2G:745:ALA:O	41:2G:746:PHE:C	2.59	0.44
41:2G:916:THR:O	41:2G:917:VAL:C	2.61	0.44
41:2G:1129:LEU:O	41:2G:1130:PRO:C	2.59	0.44
41:2G:1165:TYR:O	41:2G:1166:ILE:C	2.59	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:2I:676:ARG:O	43:2I:686:LEU:CA	2.65	0.44
1:A:35:U:O2'	1:A:36:C:C5	2.71	0.44
10:5A:89:U:C2'	10:5A:90:U:H5"	2.47	0.44
11:5B:758:ARG:HH12	11:5B:905:LEU:HD21	1.82	0.44
11:5B:910:ASP:OD1	11:5B:910:ASP:C	2.61	0.44
11:5B:1692:MET:HE3	11:5B:1692:MET:HA	2.00	0.44
12:5C:119:LEU:HD23	12:5C:119:LEU:O	2.17	0.44
12:5C:323:PHE:CG	12:5C:373:ILE:HD12	2.53	0.44
13:5D:63:MET:O	13:5D:63:MET:CG	2.64	0.44
31:4T:274:VAL:HG21	31:4T:334:LEU:HD21	1.98	0.44
35:2A:152:G:O2'	35:2A:153:A:H1'	2.16	0.44
41:2G:872:ILE:O	41:2G:873:GLU:C	2.57	0.44
2:6A:92:A:H2'	2:6A:93:G:H8	1.83	0.44
11:5B:1707:LEU:O	11:5B:1710:ASN:ND2	2.48	0.44
12:5C:510:LEU:N	12:5C:510:LEU:HD12	2.33	0.44
13:5D:176:GLY:O	13:5D:179:ILE:HG22	2.18	0.44
35:2A:142:C:O2'	35:2A:143:A:H5'	2.18	0.44
41:2G:658:TRP:O	41:2G:659:GLN:C	2.60	0.44
2:6A:90:G:H2'	2:6A:91:A:H8	1.82	0.44
10:5A:117:A:C6	18:5d:26:GLY:HA3	2.52	0.44
11:5B:581:ILE:O	11:5B:585:VAL:HG23	2.18	0.44
11:5B:1658:GLN:OE1	11:5B:1658:GLN:N	2.51	0.44
12:5C:215:VAL:HG11	12:5C:242:LEU:HD22	1.99	0.44
13:5D:64:GLN:NE2	13:5D:64:GLN:O	2.51	0.44
13:5D:1980:GLU:N	13:5D:1980:GLU:OE1	2.51	0.44
22:4A:93:G:H2'	22:4A:94:A:H8	1.82	0.44
22:4A:113:C:O3'	22:4A:114:U:C5	2.71	0.44
27:4F:27:VAL:HG13	27:4F:83:PHE:HE1	1.82	0.44
35:2A:150:U:H2'	35:2A:151:C:C6	2.50	0.44
41:2G:606:LEU:O	41:2G:609:MET:N	2.51	0.44
41:2G:706:ALA:O	41:2G:707:LEU:C	2.61	0.44
41:2G:998:LYS:O	41:2G:1001:VAL:N	2.51	0.44
11:5B:1519:THR:HG22	11:5B:1520:ASN:H	1.83	0.44
12:5C:793:ASP:OD1	12:5C:794:ALA:N	2.50	0.44
12:5C:811:THR:O	12:5C:815:VAL:HG23	2.17	0.44
13:5D:537:LYS:NZ	13:5D:580:ILE:O	2.47	0.44
13:5D:773:GLU:OE2	13:5D:784:ILE:HD13	2.16	0.44
13:5D:1430:GLU:OE2	13:5D:1463:ASN:ND2	2.50	0.44
28:4G:297:LEU:O	28:4G:301:VAL:HG23	2.18	0.44
35:2A:112:G:H2'	35:2A:113:G:C8	2.50	0.44
41:2G:1090:PRO:O	41:2G:1091:HIS:C	2.61	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:150:MET:HE2	11:5B:192:GLN:O	2.18	0.43
11:5B:1125:ILE:HG22	11:5B:1125:ILE:O	2.16	0.43
12:5C:308:CYS:HB3	12:5C:433:MET:HE2	2.00	0.43
12:5C:907:VAL:HG13	12:5C:930:ALA:HB2	1.99	0.43
22:4A:113:C:O3'	22:4A:114:U:C6	2.71	0.43
27:4F:68:ASP:OD1	27:4F:68:ASP:N	2.51	0.43
41:2G:874:LYS:O	41:2G:875:ILE:C	2.60	0.43
41:2G:1082:GLY:O	41:2G:1083:TYR:C	2.61	0.43
41:2G:1262:ARG:O	41:2G:1263:ASP:C	2.61	0.43
2:6A:48:A:C4	29:4R:450:ARG:HG2	2.53	0.43
11:5B:1405:LEU:N	13:5D:218:GLY:O	2.51	0.43
13:5D:2052:ILE:HG22	13:5D:2054:PRO:HD3	2.01	0.43
14:5E:58:PRO:O	14:5E:60:MET:N	2.45	0.43
22:4A:57:G:C6	22:4A:58:C:C4	3.06	0.43
30:4S:756:LEU:HD23	30:4S:756:LEU:O	2.18	0.43
35:2A:178:A:N3	35:2A:178:A:H2'	2.34	0.43
41:2G:86:ALA:O	41:2G:89:ALA:CA	2.66	0.43
41:2G:1029:GLU:O	41:2G:1032:GLN:N	2.51	0.43
41:2G:1115:ALA:O	41:2G:1116:ILE:C	2.61	0.43
12:5C:659:VAL:HG22	12:5C:660:VAL:H	1.83	0.43
13:5D:969:LEU:HD12	13:5D:969:LEU:N	2.34	0.43
13:5D:1918:LYS:O	13:5D:1922:LEU:HD23	2.18	0.43
31:4T:393:LEU:HD11	31:4T:419:LEU:HD23	2.00	0.43
31:4T:422:PHE:HA	31:4T:441:PHE:HB2	2.00	0.43
43:2I:430:GLY:O	43:2I:431:PRO:C	2.61	0.43
13:5D:505:THR:HG21	13:5D:850:LEU:HB3	1.99	0.43
13:5D:613:ILE:HD13	13:5D:613:ILE:N	2.34	0.43
13:5D:1855:TYR:CE2	13:5D:1915:ILE:HG23	2.54	0.43
22:4A:105:A:H2'	22:4A:106:G:H8	1.83	0.43
28:4G:295:ARG:HD3	28:4G:295:ARG:O	2.18	0.43
35:2A:98:G:H5'	35:2A:104:U:OP2	2.19	0.43
41:2G:594:ARG:O	41:2G:595:GLU:C	2.61	0.43
41:2G:791:VAL:O	41:2G:792:VAL:C	2.60	0.43
41:2G:1230:VAL:O	41:2G:1233:ALA:N	2.51	0.43
10:5A:58:U:C6	10:5A:58:U:C5'	3.01	0.43
11:5B:151:MET:SD	11:5B:628:GLY:O	2.77	0.43
11:5B:273:ILE:O	11:5B:274:PRO:C	2.61	0.43
11:5B:2138:GLN:OE1	11:5B:2138:GLN:N	2.40	0.43
27:4F:48:ILE:O	27:4F:48:ILE:HG22	2.19	0.43
30:4S:743:THR:HG22	30:4S:746:ARG:NH2	2.33	0.43
31:4T:376:ASN:O	31:4T:377:ASP:CG	2.62	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:2A:157:G:H2'	35:2A:158:G:O4'	2.19	0.43
41:2G:1013:ILE:O	41:2G:1014:LYS:C	2.60	0.43
11:5B:1403:LEU:N	11:5B:1403:LEU:HD22	2.33	0.43
13:5D:842:THR:HG22	13:5D:843:GLU:N	2.33	0.43
13:5D:1846:ILE:HD11	13:5D:1896:GLN:HG3	2.00	0.43
27:4F:48:ILE:HD11	27:4F:109:LYS:HA	2.00	0.43
31:4T:421:LYS:O	31:4T:422:PHE:HB2	2.18	0.43
34:4Y:759:HIS:O	34:4Y:760:LYS:C	2.61	0.43
35:2A:64:A:H2'	35:2A:65:U:C6	2.54	0.43
40:2F:404:ILE:N	40:2F:417:ARG:O	2.44	0.43
43:2I:5:ASN:O	43:2I:1176:GLY:HA3	2.19	0.43
43:2I:1148:LEU:O	43:2I:1151:GLU:N	2.51	0.43
1:A:37:C:C2'	1:A:38:C:O5'	2.67	0.43
2:6A:91:A:H2'	2:6A:92:A:H8	1.82	0.43
11:5B:1165:VAL:O	11:5B:1166:THR:OG1	2.33	0.43
11:5B:1798:LEU:HD12	11:5B:1799:THR:H	1.84	0.43
11:5B:2096:ASP:CG	11:5B:2096:ASP:O	2.62	0.43
13:5D:428:CYS:O	13:5D:428:CYS:SG	2.77	0.43
35:2A:3:C:H2'	35:2A:4:G:H8	1.84	0.43
41:2G:665:ILE:O	41:2G:668:VAL:N	2.52	0.43
41:2G:889:GLU:O	41:2G:892:LEU:N	2.51	0.43
42:2H:504:TRP:C	42:2H:506:PHE:H	2.27	0.43
10:5A:92:U:O4	16:5b:34:VAL:O	2.37	0.43
11:5B:2004:GLN:O	11:5B:2007:ILE:HG22	2.19	0.43
11:5B:2327:SER:HA	13:5D:1078:MET:SD	2.59	0.43
12:5C:107:GLN:OE1	12:5C:107:GLN:N	2.41	0.43
12:5C:110:PRO:HD2	12:5C:537:TYR:CE2	2.54	0.43
13:5D:552:VAL:HG13	13:5D:553:GLY:N	2.34	0.43
13:5D:1014:LEU:HD23	13:5D:1014:LEU:O	2.19	0.43
13:5D:1320:LEU:HD23	13:5D:1401:LEU:HD23	2.00	0.43
27:4F:28:ILE:CD1	27:4F:61:VAL:HG23	2.46	0.43
31:4T:227:LEU:HD23	31:4T:294:VAL:HG13	2.01	0.43
41:2G:310:TRP:O	41:2G:311:ALA:C	2.62	0.43
41:2G:951:ALA:O	41:2G:952:ALA:C	2.62	0.43
43:2I:1141:PHE:O	43:2I:1142:GLN:C	2.60	0.43
2:6A:47:A:O2'	2:6A:48:A:P	2.77	0.43
11:5B:811:THR:HA	11:5B:814:VAL:HG22	1.99	0.43
11:5B:919:ASP:OD2	11:5B:1012:LYS:NZ	2.43	0.43
11:5B:1388:GLU:OE1	11:5B:2221:GLY:N	2.52	0.43
11:5B:1639:VAL:HG11	11:5B:1699:THR:HG21	2.00	0.43
13:5D:2066:VAL:HG22	13:5D:2108:PHE:HD1	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:5D:2098:ALA:C	13:5D:2099:THR:HG22	2.44	0.43
40:2F:34:ARG:O	40:2F:35:ASP:C	2.62	0.43
41:2G:669:GLN:O	41:2G:670:GLN:C	2.60	0.43
41:2G:1279:ALA:O	41:2G:1280:LEU:C	2.61	0.43
2:6A:48:A:O2'	27:4F:125:LYS:O	2.36	0.43
13:5D:1475:ARG:NH1	13:5D:1503:TRP:O	2.52	0.43
15:4a:18:ARG:N	15:4a:81:THR:O	2.44	0.43
35:2A:154:C:O2'	35:2A:155:C:C5'	2.66	0.43
43:2I:1211:ILE:O	43:2I:1212:ARG:C	2.62	0.43
1:A:31:C:C4	1:A:32:C:N4	2.73	0.42
11:5B:1645:LEU:HB2	11:5B:1714:ALA:H	1.83	0.42
12:5C:396:LEU:HD13	12:5C:403:LEU:HD22	2.01	0.42
13:5D:1569:THR:HG23	13:5D:1570:ARG:N	2.33	0.42
13:5D:1891:THR:HG22	13:5D:1915:ILE:HD11	2.01	0.42
27:4F:139:LYS:C	27:4F:140:TYR:CG	2.97	0.42
40:2F:394:TYR:C	40:2F:396:LEU:N	2.75	0.42
45:2K:51:GLY:HA3	45:2K:56:THR:O	2.19	0.42
11:5B:1393:ARG:O	11:5B:1397:ILE:HG22	2.19	0.42
11:5B:1988:LEU:HD11	11:5B:2007:ILE:CG1	2.48	0.42
11:5B:2184:GLU:C	11:5B:2184:GLU:OE1	2.62	0.42
13:5D:291:GLU:O	13:5D:295:THR:HG22	2.19	0.42
13:5D:467:LEU:HB3	13:5D:468:PRO:HD2	2.01	0.42
13:5D:645:ASP:N	13:5D:645:ASP:OD1	2.52	0.42
27:4F:5:LEU:HD22	27:4F:5:LEU:H	1.83	0.42
20:4f:46:VAL:HA	20:4f:56:ASN:HA	2.01	0.42
21:4g:32:LEU:HA	21:4g:43:MET:HA	2.00	0.42
35:2A:153:A:H2'	35:2A:154:C:H5"	1.99	0.42
41:2G:682:HIS:O	41:2G:683:LEU:C	2.61	0.42
46:2L:30:CYS:N	46:2L:35:SER:O	2.38	0.42
1:A:30:C:C5	1:A:31:C:H5	2.32	0.42
4:6b:19:ASP:C	4:6b:21:ILE:N	2.77	0.42
12:5C:215:VAL:HG11	12:5C:242:LEU:CD2	2.50	0.42
13:5D:1663:ILE:HD13	13:5D:1687:MET:HE2	2.01	0.42
13:5D:1939:ALA:O	13:5D:1943:MET:HG2	2.19	0.42
28:4G:123:ARG:O	28:4G:123:ARG:HD3	2.19	0.42
35:2A:54:U:H5'	40:2F:424:ARG:C	2.45	0.42
41:2G:301:ARG:O	41:2G:302:ASP:C	2.63	0.42
41:2G:1016:LEU:O	41:2G:1017:LEU:C	2.62	0.42
1:A:22:C:H2'	1:A:23:G:C5'	2.49	0.42
2:6A:57:U:H6	2:6A:57:U:O5'	2.02	0.42
2:6A:89:U:H2'	2:6A:90:G:H8	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:1165:VAL:HG23	11:5B:1166:THR:N	2.35	0.42
13:5D:495:THR:O	13:5D:519:ARG:NE	2.52	0.42
13:5D:1732:MET:CE	13:5D:1755:LEU:HD11	2.48	0.42
22:4A:127:C:H2'	22:4A:128:A:C8	2.55	0.42
29:4R:392:VAL:HG13	29:4R:393:ASN:N	2.34	0.42
31:4T:425:ILE:N	31:4T:425:ILE:HD12	2.34	0.42
41:2G:625:ARG:O	41:2G:626:ASN:C	2.61	0.42
41:2G:950:GLN:O	41:2G:951:ALA:C	2.61	0.42
12:5C:115:GLU:OE2	21:5g:79:ASN:C	2.61	0.42
12:5C:213:ASP:OD1	12:5C:214:GLU:N	2.52	0.42
12:5C:726:LEU:C	12:5C:726:LEU:HD23	2.45	0.42
13:5D:1583:ASP:OD1	13:5D:1584:ILE:N	2.52	0.42
31:4T:384:VAL:O	31:4T:385:GLU:C	2.61	0.42
17:4c:58:ALA:O	17:4c:65:MET:HA	2.19	0.42
41:2G:627:THR:O	41:2G:630:ARG:N	2.52	0.42
41:2G:806:ILE:O	41:2G:807:LYS:C	2.62	0.42
43:2I:886:GLU:CA	43:2I:910:ALA:O	2.67	0.42
43:2I:1189:LYS:O	43:2I:1190:GLN:C	2.62	0.42
1:A:17:G:H2'	1:A:18:C:C6	2.53	0.42
1:A:20:U:H5"	1:A:20:U:H6	1.85	0.42
1:A:40:U:O4'	1:A:41:U:C5	2.72	0.42
7:6e:46:GLU:CA	7:6e:63:ALA:H	2.21	0.42
10:5A:24:G:N3	10:5A:26:A:C2	2.88	0.42
11:5B:1537:TRP:CE3	11:5B:1751:LEU:HD13	2.55	0.42
11:5B:1914:MET:O	11:5B:1914:MET:HG2	2.20	0.42
11:5B:2325:VAL:HG23	11:5B:2326:TYR:N	2.34	0.42
12:5C:119:LEU:HD23	12:5C:119:LEU:C	2.44	0.42
13:5D:579:GLU:O	13:5D:583:THR:HG22	2.19	0.42
13:5D:822:PRO:O	13:5D:858:ARG:NH1	2.53	0.42
13:5D:1665:ASP:O	13:5D:1667:GLN:N	2.44	0.42
13:5D:1943:MET:HB2	13:5D:2065:TRP:CZ3	2.54	0.42
28:4G:354:PRO:O	28:4G:358:ALA:N	2.43	0.42
34:4Y:1004:GLN:O	34:4Y:1005:GLU:CB	2.67	0.42
35:2A:155:C:H2'	35:2A:156:U:H5"	2.02	0.42
41:2G:1205:GLU:O	41:2G:1206:ASP:C	2.62	0.42
47:2M:62:ALA:O	47:2M:63:ARG:C	2.62	0.42
1:A:34:G:C8	1:A:35:U:O4	2.71	0.42
10:5A:13:C:N4	10:5A:65:G:O6	2.53	0.42
10:5A:47:A:HO2'	10:5A:48:A:P	2.41	0.42
10:5A:115:C:OP1	19:5e:67:LYS:CA	2.67	0.42
11:5B:298:ASP:OD1	11:5B:300:ASN:N	2.43	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:1701:VAL:HA	11:5B:1716:GLY:HA3	2.02	0.42
11:5B:2009:ASP:OD1	11:5B:2009:ASP:C	2.62	0.42
11:5B:2096:ASP:O	11:5B:2096:ASP:OD1	2.37	0.42
12:5C:407:GLU:O	12:5C:410:LEU:HD12	2.20	0.42
13:5D:158:ASP:O	13:5D:163:GLN:N	2.39	0.42
13:5D:1142:LYS:CB	13:5D:1165:ILE:HD11	2.48	0.42
13:5D:1455:GLU:N	13:5D:1490:LEU:O	2.52	0.42
13:5D:2017:ILE:HG21	13:5D:2108:PHE:HE2	1.84	0.42
22:4A:108:C:H2'	22:4A:109:G:H8	1.85	0.42
41:2G:1078:VAL:O	41:2G:1079:ASN:C	2.63	0.42
1:A:37:C:O2'	1:A:38:C:O4'	2.38	0.42
10:5A:28:A:O2'	11:5B:643:GLY:HA3	2.20	0.42
11:5B:1090:ARG:HG2	11:5B:1091:TYR:O	2.20	0.42
11:5B:1443:LYS:O	11:5B:1447:VAL:HG22	2.20	0.42
13:5D:766:ALA:CA	13:5D:778:LEU:HD23	2.50	0.42
13:5D:925:LEU:HD11	13:5D:929:MET:HE3	2.01	0.42
13:5D:1027:ILE:HG21	13:5D:1059:ILE:HD11	2.02	0.42
13:5D:1945:LEU:HD23	13:5D:1949:VAL:CG1	2.50	0.42
27:4F:8:LEU:HD13	27:4F:14:VAL:HA	2.02	0.42
17:4c:76:GLU:O	17:4c:89:PRO:HA	2.20	0.42
41:2G:318:ARG:O	41:2G:321:ASP:N	2.52	0.42
41:2G:704:ILE:O	41:2G:705:SER:C	2.61	0.42
41:2G:854:VAL:O	41:2G:856:ASP:N	2.52	0.42
44:2J:77:ILE:O	44:2J:84:ILE:CA	2.68	0.42
11:5B:1876:LEU:HD12	11:5B:1876:LEU:H	1.85	0.42
12:5C:308:CYS:CB	12:5C:433:MET:HE2	2.50	0.42
13:5D:220:VAL:HG12	13:5D:220:VAL:O	2.20	0.42
13:5D:689:TYR:CE2	13:5D:880:LEU:HD11	2.55	0.42
13:5D:765:GLU:HB3	13:5D:778:LEU:HD21	2.02	0.42
13:5D:820:ASN:O	13:5D:821:LEU:HD22	2.20	0.42
13:5D:1560:ILE:HG22	13:5D:1661:VAL:HG22	2.00	0.42
13:5D:1620:LEU:HA	13:5D:1624:LEU:HD12	2.02	0.42
13:5D:1729:ASP:OD1	13:5D:1730:HIS:N	2.53	0.42
22:4A:33:A:H2'	22:4A:34:G:O4'	2.20	0.42
22:4A:128:A:H2'	22:4A:129:G:H8	1.85	0.42
31:4T:488:VAL:O	31:4T:488:VAL:HG12	2.18	0.42
41:2G:981:TYR:C	41:2G:983:GLY:N	2.76	0.42
41:2G:1038:LEU:O	41:2G:1039:VAL:C	2.62	0.42
10:5A:9:G:C6	10:5A:69:A:C2	3.07	0.42
11:5B:1790:ILE:HG22	11:5B:1798:LEU:HD11	2.02	0.42
12:5C:154:HIS:NE2	12:5C:537:TYR:OH	2.38	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:5C:732:ILE:HD13	12:5C:746:VAL:HG12	2.02	0.42
12:5C:750:LEU:HD22	12:5C:751:PRO:HD2	2.02	0.42
12:5C:754:VAL:HG12	12:5C:755:ASP:N	2.34	0.42
13:5D:929:MET:HE1	13:5D:956:LEU:HD11	2.01	0.42
13:5D:1875:VAL:HG23	13:5D:1877:HIS:O	2.20	0.42
27:4F:27:VAL:HB	27:4F:58:ILE:HG22	2.02	0.42
27:4F:94:LEU:HD22	27:4F:136:TYR:CE1	2.55	0.42
35:2A:40:C:H5"	35:2A:40:C:C6	2.32	0.42
35:2A:107:A:N1	35:2A:108:G:C5	2.88	0.42
41:2G:981:TYR:O	41:2G:983:GLY:N	2.53	0.42
1:A:12:U:O2	1:A:12:U:O2'	2.36	0.41
2:6A:92:A:H2'	2:6A:93:G:C8	2.54	0.41
11:5B:1001:VAL:HG22	11:5B:1002:ASP:H	1.85	0.41
11:5B:1589:ILE:HD12	11:5B:1733:ILE:HD12	2.02	0.41
11:5B:1630:LEU:HD21	11:5B:1659:LYS:HB3	2.01	0.41
11:5B:2179:HIS:ND1	11:5B:2180:THR:O	2.52	0.41
13:5D:1979:VAL:HG11	13:5D:1985:ILE:HD13	2.01	0.41
16:4b:16:THR:HA	16:4b:25:VAL:O	2.20	0.41
35:2A:103:U:C3'	35:2A:104:U:H5'	2.50	0.41
35:2A:157:G:H5"	35:2A:157:G:C8	2.50	0.41
41:2G:944:SER:O	41:2G:946:LYS:N	2.38	0.41
2:6A:56:A:N1	22:4A:57:G:C6	2.88	0.41
10:5A:23:C:H2'	10:5A:23:C:O2	2.20	0.41
10:5A:116:U:OP2	19:5e:68:THR:CA	2.67	0.41
11:5B:888:GLN:NE2	11:5B:890:ALA:O	2.53	0.41
11:5B:2111:LEU:HD11	11:5B:2225:LEU:HD11	2.02	0.41
12:5C:534:VAL:O	12:5C:535:ALA:C	2.62	0.41
13:5D:611:LEU:CD2	13:5D:613:ILE:HD11	2.44	0.41
13:5D:1844:GLY:O	13:5D:1848:ILE:HG12	2.20	0.41
13:5D:1937:SER:N	13:5D:2074:ASN:OD1	2.49	0.41
13:5D:1948:MET:SD	13:5D:1955:SER:HA	2.60	0.41
31:4T:138:VAL:HG11	31:4T:161:HIS:CD2	2.54	0.41
34:4Y:688:ASN:O	34:4Y:704:ALA:HA	2.20	0.41
40:2F:184:ARG:CA	15:2a:85:PRO:C	2.94	0.41
41:2G:963:LYS:O	41:2G:966:GLN:N	2.30	0.41
10:5A:8:G:H2'	10:5A:9:G:H5'	2.03	0.41
10:5A:11:U:C2	10:5A:67:A:C2	3.08	0.41
11:5B:1741:TYR:CD1	11:5B:1741:TYR:C	2.98	0.41
12:5C:659:VAL:HG22	12:5C:660:VAL:N	2.36	0.41
13:5D:592:LYS:O	13:5D:595:ILE:HG22	2.20	0.41
13:5D:1564:PRO:O	13:5D:1648:ARG:NH2	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:4D:292:ALA:O	25:4D:293:ARG:C	2.62	0.41
31:4T:419:LEU:HB3	31:4T:483:TYR:CE2	2.56	0.41
31:4T:425:ILE:HD12	31:4T:425:ILE:H	1.85	0.41
32:4U:197:GLN:O	32:4U:200:ASP:OD1	2.38	0.41
19:4e:44:GLU:O	19:4e:61:ALA:HA	2.20	0.41
41:2G:574:ILE:O	41:2G:575:LEU:C	2.63	0.41
41:2G:750:ILE:O	41:2G:753:LEU:N	2.54	0.41
11:5B:95:MET:N	11:5B:96:PRO:HD2	2.35	0.41
11:5B:1689:THR:O	11:5B:1689:THR:HG22	2.21	0.41
11:5B:1742:VAL:HG21	30:4S:726:PHE:CD2	2.55	0.41
12:5C:241:ARG:CZ	12:5C:900:VAL:HG21	2.50	0.41
13:5D:301:GLU:OE1	13:5D:305:GLN:NE2	2.53	0.41
13:5D:619:LEU:HD23	13:5D:619:LEU:C	2.45	0.41
13:5D:806:ILE:HG21	13:5D:809:LEU:HD23	2.02	0.41
13:5D:1738:ALA:O	13:5D:1741:VAL:HG22	2.19	0.41
34:4Y:695:GLN:HA	34:4Y:700:ASN:HA	2.02	0.41
2:6A:103:U:H3'	2:6A:104:U:C5'	2.47	0.41
10:5A:66:A:C2	10:5A:67:A:C5	3.08	0.41
10:5A:93:U:C4'	17:5c:104:ASP:CA	2.97	0.41
11:5B:780:THR:HG23	11:5B:898:PHE:CD1	2.56	0.41
13:5D:1456:VAL:HG22	13:5D:1491:SER:OG	2.20	0.41
13:5D:1982:VAL:HA	13:5D:1985:ILE:HG22	2.02	0.41
31:4T:271:PHE:O	31:4T:274:VAL:HG12	2.20	0.41
43:2I:1210:ASP:O	43:2I:1211:ILE:C	2.64	0.41
10:5A:5:U:C2	10:5A:77:G:N2	2.88	0.41
11:5B:201:ALA:N	11:5B:202:PRO:HD2	2.36	0.41
11:5B:697:MET:SD	11:5B:701:ILE:HG23	2.60	0.41
11:5B:792:HIS:CD2	31:4T:409:ILE:HG22	2.55	0.41
11:5B:880:ARG:HH11	11:5B:880:ARG:HG2	1.86	0.41
11:5B:923:ASP:OD1	11:5B:927:TRP:HD1	2.04	0.41
11:5B:1425:LYS:H	11:5B:1425:LYS:HG2	1.70	0.41
11:5B:1679:TYR:HE2	11:5B:1704:ALA:HB1	1.85	0.41
11:5B:1729:ALA:HA	30:4S:708:VAL:HG11	2.02	0.41
12:5C:269:LEU:O	12:5C:378:TYR:OH	2.20	0.41
13:5D:590:PRO:HG2	13:5D:628:LEU:HD21	2.02	0.41
13:5D:2098:ALA:O	13:5D:2099:THR:CG2	2.68	0.41
22:4A:38:U:H4'	22:4A:39:A:OP1	2.21	0.41
41:2G:862:GLU:O	41:2G:864:TYR:N	2.53	0.41
43:2I:811:THR:C	43:2I:813:ALA:N	2.78	0.41
1:A:10:C:C2	1:A:10:C:OP2	2.73	0.41
11:5B:696:MET:HE1	28:4G:150:ALA:N	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:5B:1473:ASP:OD1	11:5B:1473:ASP:N	2.52	0.41
13:5D:946:ASP:OD2	13:5D:950:ASP:N	2.54	0.41
13:5D:1029:VAL:HG13	13:5D:1029:VAL:O	2.20	0.41
13:5D:1324:LYS:H	13:5D:1324:LYS:HD2	1.84	0.41
13:5D:1598:ILE:N	13:5D:1599:PRO:CD	2.84	0.41
41:2G:997:LEU:O	41:2G:998:LYS:C	2.62	0.41
11:5B:1607:GLU:O	11:5B:1608:THR:HG23	2.21	0.41
12:5C:665:THR:OG1	12:5C:666:VAL:N	2.54	0.41
13:5D:882:LEU:HD12	13:5D:887:LEU:HD23	2.02	0.41
31:4T:406:GLU:O	31:4T:408:LEU:N	2.54	0.41
41:2G:1146:GLY:O	41:2G:1147:VAL:C	2.63	0.41
10:5A:5:U:C2'	10:5A:6:C:O5'	2.69	0.41
11:5B:539:ARG:O	11:5B:539:ARG:NE	2.54	0.41
11:5B:598:LEU:HD21	11:5B:640:PHE:CZ	2.56	0.41
11:5B:1238:GLN:OE1	11:5B:1242:ASN:ND2	2.50	0.41
11:5B:1394:GLN:OE1	11:5B:1394:GLN:HA	2.20	0.41
11:5B:1978:LYS:O	11:5B:1981:VAL:HG12	2.21	0.41
12:5C:347:ILE:HG23	12:5C:356:PHE:HB3	2.02	0.41
13:5D:569:LEU:HD22	13:5D:596:ILE:CD1	2.51	0.41
13:5D:709:TYR:HA	13:5D:712:ILE:HG22	2.03	0.41
13:5D:1156:LEU:HB2	13:5D:1161:ILE:HG23	2.01	0.41
13:5D:1663:ILE:HG23	13:5D:1687:MET:HE1	2.03	0.41
13:5D:1842:VAL:O	13:5D:1846:ILE:HG22	2.21	0.41
22:4A:113:C:O2'	22:4A:114:U:P	2.79	0.41
27:4F:27:VAL:HG22	27:4F:83:PHE:CD1	2.56	0.41
27:4F:44:VAL:HG11	27:4F:112:MET:HE2	2.03	0.41
27:4F:44:VAL:HG11	27:4F:112:MET:CE	2.51	0.41
28:4G:332:ILE:CG2	28:4G:349:ALA:HB2	2.51	0.41
31:4T:516:ILE:HG12	31:4T:518:VAL:HG13	2.02	0.41
32:4U:195:ARG:O	32:4U:199:GLN:HG2	2.21	0.41
34:4Y:1003:ILE:C	34:4Y:1005:GLU:N	2.78	0.41
18:4d:30:LYS:O	18:4d:47:THR:HA	2.20	0.41
35:2A:152:G:N3	35:2A:152:G:H2'	2.36	0.41
35:2A:171:U:H2'	35:2A:172:C:O4'	2.21	0.41
35:2A:183:G:C6	35:2A:184:C:N4	2.89	0.41
41:2G:301:ARG:O	41:2G:304:PRO:N	2.54	0.41
41:2G:407:MET:CA	41:2G:407:MET:H	2.07	0.41
41:2G:549:ARG:O	41:2G:550:HIS:C	2.64	0.41
41:2G:671:ILE:O	41:2G:672:ALA:C	2.62	0.41
41:2G:685:SER:O	41:2G:686:LEU:C	2.63	0.41
41:2G:782:GLU:O	41:2G:783:GLU:C	2.62	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:2G:928:TYR:O	41:2G:929:LEU:C	2.61	0.41
41:2G:1169:VAL:O	41:2G:1172:LEU:N	2.54	0.41
43:2I:437:VAL:O	43:2I:776:GLN:CA	2.69	0.41
43:2I:1193:VAL:O	43:2I:1196:GLU:N	2.54	0.41
47:2M:52:TYR:O	47:2M:53:PHE:C	2.62	0.41
2:6A:58:G:N3	2:6A:58:G:H5"	2.36	0.41
11:5B:488:ASP:OD1	11:5B:489:TRP:N	2.53	0.41
11:5B:830:LEU:HD21	28:4G:276:ASP:HB3	2.02	0.41
13:5D:170:HIS:HA	13:5D:173:VAL:HG22	2.03	0.41
13:5D:436:ARG:NE	13:5D:443:GLU:OE2	2.35	0.41
13:5D:615:ASP:OD1	13:5D:651:LEU:HD12	2.20	0.41
13:5D:733:LYS:O	13:5D:736:ARG:NH2	2.54	0.41
35:2A:153:A:C8	35:2A:154:C:O4'	2.74	0.41
41:2G:303:THR:O	41:2G:304:PRO:C	2.63	0.41
11:5B:1480:GLY:O	11:5B:1484:ILE:HG13	2.20	0.40
11:5B:1587:GLU:OE2	33:4X:137:TYR:CD1	2.73	0.40
11:5B:1681:ARG:NH1	11:5B:1715:TYR:OH	2.54	0.40
11:5B:1785:VAL:HG22	11:5B:1807:ILE:CG1	2.51	0.40
11:5B:2234:GLY:HA2	11:5B:2255:HIS:CG	2.56	0.40
13:5D:1012:ILE:N	13:5D:1012:ILE:HD12	2.36	0.40
13:5D:1736:PHE:HZ	13:5D:1751:ALA:HB1	1.86	0.40
13:5D:1824:ILE:HG22	13:5D:1825:ASN:N	2.36	0.40
22:4A:69:C:OP2	30:4S:740:LYS:NZ	2.35	0.40
23:4B:466:LEU:N	29:4R:432:PRO:CB	2.84	0.40
34:4Y:1003:ILE:C	34:4Y:1005:GLU:H	2.30	0.40
35:2A:152:G:H2'	35:2A:153:A:C1'	2.51	0.40
41:2G:871:THR:O	41:2G:872:ILE:C	2.62	0.40
41:2G:887:LYS:O	41:2G:888:LEU:C	2.63	0.40
41:2G:1112:THR:O	41:2G:1113:THR:C	2.63	0.40
41:2G:1188:ALA:O	41:2G:1189:SER:C	2.63	0.40
43:2I:672:GLY:N	43:2I:697:ARG:O	2.54	0.40
11:5B:640:PHE:CZ	11:5B:644:ILE:HG13	2.56	0.40
11:5B:1277:ALA:O	11:5B:1281:THR:OG1	2.32	0.40
13:5D:467:LEU:HD21	13:5D:481:LEU:HD11	2.03	0.40
13:5D:634:ARG:NH2	13:5D:904:GLU:OE2	2.50	0.40
13:5D:1914:GLU:O	13:5D:1917:SER:OG	2.29	0.40
13:5D:1926:CYS:O	13:5D:1930:LEU:HG	2.21	0.40
22:4A:68:A:HO2'	22:4A:69:C:P	2.31	0.40
27:4F:48:ILE:HD11	27:4F:109:LYS:CA	2.51	0.40
31:4T:456:ARG:HD2	31:4T:467:ASN:O	2.22	0.40
35:2A:63:G:H2'	35:2A:64:A:C8	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
41:2G:183:VAL:O	41:2G:184:VAL:C	2.65	0.40
41:2G:1040:GLY:O	41:2G:1041:ARG:C	2.63	0.40
41:2G:1097:LEU:O	41:2G:1098:LEU:C	2.61	0.40
43:2I:1143:HIS:O	43:2I:1144:VAL:C	2.64	0.40
1:A:37:C:C3'	1:A:37:C:C6	3.04	0.40
2:6A:90:G:H2'	2:6A:91:A:C8	2.57	0.40
10:5A:78:U:C6	10:5A:78:U:C3'	3.03	0.40
10:5A:101:U:H2'	10:5A:102:U:C6	2.57	0.40
11:5B:1587:GLU:OE2	30:4S:733:PHE:CD1	2.74	0.40
12:5C:308:CYS:SG	12:5C:309:PHE:N	2.94	0.40
12:5C:688:ILE:HG22	12:5C:689:ALA:N	2.36	0.40
13:5D:317:PHE:O	13:5D:321:LEU:HG	2.21	0.40
13:5D:709:TYR:O	13:5D:713:MET:HG2	2.22	0.40
13:5D:1673:ILE:HG13	13:5D:1673:ILE:O	2.21	0.40
13:5D:1845:LEU:O	13:5D:1849:ILE:HG13	2.21	0.40
13:5D:1940:LEU:HD21	13:5D:2107:TYR:HD2	1.85	0.40
41:2G:758:ASP:O	41:2G:761:TYR:N	2.54	0.40
41:2G:1211:LEU:O	41:2G:1212:LEU:C	2.64	0.40
47:2M:55:ILE:O	47:2M:56:ALA:C	2.63	0.40
2:6A:59:G:C6	2:6A:60:C:C4	3.10	0.40
10:5A:37:G:N2	10:5A:38:C:H41	2.19	0.40
11:5B:1243:ARG:NH1	11:5B:1450:GLN:OE1	2.55	0.40
11:5B:1510:GLU:OE1	11:5B:1510:GLU:N	2.54	0.40
11:5B:1587:GLU:OE2	30:4S:733:PHE:HD1	2.04	0.40
11:5B:2006:GLU:O	11:5B:2009:ASP:OD1	2.39	0.40
13:5D:755:GLY:O	13:5D:756:SER:C	2.64	0.40
13:5D:1012:ILE:HD12	13:5D:1012:ILE:H	1.87	0.40
13:5D:1324:LYS:HD2	13:5D:1324:LYS:N	2.37	0.40
13:5D:2013:ARG:HB3	13:5D:2052:ILE:HD11	2.04	0.40
13:5D:2019:LEU:HD11	13:5D:2118:GLN:HB3	2.04	0.40
13:5D:2067:VAL:CG2	13:5D:2076:LEU:HD11	2.51	0.40
22:4A:127:C:H2'	22:4A:128:A:H8	1.87	0.40
27:4F:48:ILE:HD11	27:4F:109:LYS:CB	2.51	0.40
34:4Y:958:ASP:O	34:4Y:959:LEU:CB	2.70	0.40
41:2G:647:PHE:O	41:2G:648:LEU:C	2.63	0.40
41:2G:897:LEU:O	41:2G:898:TYR:C	2.64	0.40
41:2G:1189:SER:O	41:2G:1190:ALA:C	2.65	0.40
17:2c:62:HIS:O	17:2c:103:GLY:HA3	2.21	0.40
11:5B:1560:ILE:HD11	11:5B:1577:PHE:CD2	2.57	0.40
13:5D:419:GLY:O	13:5D:892:GLN:NE2	2.54	0.40
13:5D:591:GLU:OE1	13:5D:591:GLU:N	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:5D:617:ILE:HG22	13:5D:652:SER:HB2	2.03	0.40
13:5D:982:THR:HG22	13:5D:984:LEU:H	1.85	0.40
13:5D:1613:LEU:CD1	13:5D:1641:ILE:HG21	2.51	0.40
25:4D:220:SER:O	25:4D:224:GLY:O	2.40	0.40
31:4T:250:ARG:NH2	31:4T:251:ASN:OD1	2.53	0.40
41:2G:854:VAL:C	41:2G:856:ASP:H	2.28	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
3	6a	87/95 (92%)	76 (87%)	7 (8%)	4 (5%)	2 12
4	6b	70/102 (69%)	64 (91%)	3 (4%)	3 (4%)	2 13
5	6c	70/139 (50%)	64 (91%)	5 (7%)	1 (1%)	9 34
6	6d	68/91 (75%)	63 (93%)	4 (6%)	1 (2%)	8 33
7	6e	68/80 (85%)	64 (94%)	2 (3%)	2 (3%)	3 20
8	6f	61/103 (59%)	56 (92%)	5 (8%)	0	100 100
9	6g	57/96 (59%)	52 (91%)	4 (7%)	1 (2%)	7 30
11	5B	2195/2335 (94%)	2099 (96%)	96 (4%)	0	100 100
12	5C	850/972 (87%)	823 (97%)	27 (3%)	0	100 100
13	5D	1989/2136 (93%)	1912 (96%)	77 (4%)	0	100 100
14	5E	299/357 (84%)	280 (94%)	17 (6%)	2 (1%)	19 49
15	2a	83/231 (36%)	81 (98%)	2 (2%)	0	100 100
15	4a	80/231 (35%)	71 (89%)	9 (11%)	0	100 100
15	5a	84/231 (36%)	82 (98%)	2 (2%)	0	100 100
16	2b	80/119 (67%)	77 (96%)	3 (4%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
16	4b	79/119 (66%)	75 (95%)	4 (5%)	0	100	100
16	5b	80/119 (67%)	77 (96%)	3 (4%)	0	100	100
17	2c	81/118 (69%)	78 (96%)	3 (4%)	0	100	100
17	4c	90/118 (76%)	84 (93%)	6 (7%)	0	100	100
17	5c	95/118 (80%)	91 (96%)	4 (4%)	0	100	100
18	2d	72/86 (84%)	68 (94%)	4 (6%)	0	100	100
18	4d	70/86 (81%)	69 (99%)	1 (1%)	0	100	100
18	5d	71/86 (83%)	68 (96%)	3 (4%)	0	100	100
19	2e	77/92 (84%)	76 (99%)	1 (1%)	0	100	100
19	4e	74/92 (80%)	71 (96%)	3 (4%)	0	100	100
19	5e	77/92 (84%)	76 (99%)	1 (1%)	0	100	100
20	2f	62/76 (82%)	60 (97%)	2 (3%)	0	100	100
20	4f	72/76 (95%)	66 (92%)	6 (8%)	0	100	100
20	5f	72/76 (95%)	70 (97%)	2 (3%)	0	100	100
21	2g	76/126 (60%)	74 (97%)	2 (3%)	0	100	100
21	4g	81/126 (64%)	76 (94%)	5 (6%)	0	100	100
21	5g	75/126 (60%)	73 (97%)	2 (3%)	0	100	100
23	4B	183/683 (27%)	177 (97%)	6 (3%)	0	100	100
24	4C	357/522 (68%)	333 (93%)	24 (7%)	0	100	100
25	4D	262/499 (52%)	252 (96%)	10 (4%)	0	100	100
26	4E	122/128 (95%)	114 (93%)	8 (7%)	0	100	100
27	4F	139/142 (98%)	136 (98%)	3 (2%)	0	100	100
28	4G	776/941 (82%)	739 (95%)	33 (4%)	4 (0%)	25	56
29	4R	104/480 (22%)	93 (89%)	11 (11%)	0	100	100
30	4S	59/800 (7%)	57 (97%)	2 (3%)	0	100	100
31	4T	454/565 (80%)	425 (94%)	29 (6%)	0	100	100
32	4U	559/820 (68%)	541 (97%)	17 (3%)	1 (0%)	44	71
33	4X	19/155 (12%)	19 (100%)	0	0	100	100
34	4Y	316/1007 (31%)	294 (93%)	18 (6%)	4 (1%)	10	35
36	2B	160/255 (63%)	146 (91%)	12 (8%)	2 (1%)	10	35
37	2C	92/225 (41%)	90 (98%)	2 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
38	2D	118/793 (15%)	106 (90%)	6 (5%)	6 (5%)	1 10
39	2E	88/464 (19%)	63 (72%)	16 (18%)	9 (10%)	0 2
40	2F	413/501 (82%)	367 (89%)	41 (10%)	5 (1%)	11 37
41	2G	1032/1304 (79%)	845 (82%)	165 (16%)	22 (2%)	5 26
42	2H	170/895 (19%)	151 (89%)	15 (9%)	4 (2%)	5 23
43	2I	1152/1217 (95%)	1053 (91%)	89 (8%)	10 (1%)	14 43
44	2J	76/424 (18%)	75 (99%)	1 (1%)	0	100 100
45	2K	106/125 (85%)	85 (80%)	18 (17%)	3 (3%)	4 21
46	2L	87/110 (79%)	75 (86%)	12 (14%)	0	100 100
47	2M	64/86 (74%)	55 (86%)	8 (12%)	1 (2%)	8 31
All	All	14353/22191 (65%)	13407 (93%)	861 (6%)	85 (1%)	24 52

All (85) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	6a	55	LEU
4	6b	84	MET
6	6d	70	ASP
7	6e	52	VAL
7	6e	55	GLN
14	5E	59	ILE
28	4G	136	PRO
28	4G	571	PRO
28	4G	573	LYS
34	4Y	697	VAL
38	2D	301	PRO
39	2E	139	PRO
39	2E	141	ILE
39	2E	146	MET
39	2E	162	PRO
39	2E	165	ARG
39	2E	218	PRO
40	2F	284	ARG
41	2G	208	PRO
41	2G	416	PRO
41	2G	418	PRO
41	2G	456	VAL
41	2G	717	THR

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Mol	Chain	Res	Type
41	2G	941	ASN
41	2G	1107	GLN
43	2I	405	SER
43	2I	919	SER
45	2K	99	GLN
45	2K	105	LYS
3	6a	74	ALA
4	6b	97	PRO
5	6c	12	ASN
34	4Y	851	VAL
36	2B	160	LYS
38	2D	223	LYS
38	2D	280	VAL
40	2F	277	THR
41	2G	113	ALA
41	2G	1110	VAL
42	2H	597	PHE
43	2I	917	PRO
32	4U	582	ALA
40	2F	177	ARG
40	2F	393	PRO
41	2G	437	PRO
42	2H	510	TYR
4	6b	96	ALA
14	5E	58	PRO
34	4Y	699	SER
36	2B	32	PRO
38	2D	300	THR
41	2G	112	ILE
41	2G	523	ALA
41	2G	909	VAL
41	2G	1006	MET
42	2H	463	ALA
42	2H	574	ALA
43	2I	529	ALA
43	2I	578	THR
3	6a	73	PRO
28	4G	569	VAL
34	4Y	722	ASN
39	2E	147	PRO
39	2E	217	PRO
41	2G	1047	ALA

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Mol	Chain	Res	Type
41	2G	1075	ARG
41	2G	1186	GLN
43	2I	95	SER
43	2I	229	GLU
45	2K	75	ASP
9	6g	34	ILE
39	2E	220	PRO
41	2G	326	THR
41	2G	932	ILE
43	2I	918	ARG
43	2I	1138	HIS
41	2G	417	PRO
38	2D	221	PRO
41	2G	223	THR
43	2I	1204	VAL
40	2F	229	TRP
38	2D	298	PRO
41	2G	1031	VAL
47	2M	64	VAL
3	6a	52	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
11	5B	1978/2108 (94%)	1975 (100%)	3 (0%)	92 95
12	5C	754/866 (87%)	754 (100%)	0	100 100
13	5D	1779/1908 (93%)	1773 (100%)	6 (0%)	91 94
27	4F	129/130 (99%)	129 (100%)	0	100 100
28	4G	185/792 (23%)	179 (97%)	6 (3%)	34 59
29	4R	94/369 (26%)	94 (100%)	0	100 100
30	4S	54/681 (8%)	54 (100%)	0	100 100
31	4T	418/511 (82%)	418 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
32	4U	133/721 (18%)	133 (100%)	0	100 100
33	4X	19/144 (13%)	19 (100%)	0	100 100
All	All	5543/8230 (67%)	5528 (100%)	15 (0%)	90 94

All (15) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
11	5B	1759	THR
11	5B	2096	ASP
11	5B	2259	VAL
13	5D	687	GLN
13	5D	1568	GLN
13	5D	1690	HIS
13	5D	1736	PHE
13	5D	1874	LYS
13	5D	1967	THR
28	4G	131	TYR
28	4G	134	GLU
28	4G	135	ARG
28	4G	137	LYS
28	4G	138	ILE
28	4G	242	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (53) such sidechains are listed below:

Mol	Chain	Res	Type
11	5B	210	HIS
11	5B	321	ASN
11	5B	429	ASN
11	5B	434	HIS
11	5B	884	HIS
11	5B	1117	HIS
11	5B	1296	GLN
11	5B	1554	GLN
11	5B	1623	ASN
11	5B	1766	GLN
11	5B	1784	ASN
11	5B	1823	HIS
11	5B	1946	ASN
11	5B	2084	HIS

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Mol	Chain	Res	Type
11	5B	2089	HIS
11	5B	2165	GLN
11	5B	2203	ASN
12	5C	140	HIS
12	5C	768	GLN
12	5C	802	HIS
12	5C	807	GLN
12	5C	903	HIS
13	5D	121	GLN
13	5D	174	ASN
13	5D	271	GLN
13	5D	305	GLN
13	5D	362	GLN
13	5D	472	GLN
13	5D	726	HIS
13	5D	785	HIS
13	5D	824	HIS
13	5D	958	HIS
13	5D	1101	ASN
13	5D	1158	HIS
13	5D	1159	ASN
13	5D	1341	ASN
13	5D	1388	GLN
13	5D	1441	GLN
13	5D	1463	ASN
13	5D	1727	HIS
13	5D	1784	HIS
13	5D	2086	GLN
13	5D	2102	HIS
27	4F	7	HIS
27	4F	32	HIS
27	4F	100	ASN
28	4G	139	GLN
28	4G	305	ASN
28	4G	307	HIS
31	4T	293	HIS
31	4T	350	GLN
31	4T	520	HIS
31	4T	540	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	41/144 (28%)	27 (65%)	9 (21%)
10	5A	113/117 (96%)	39 (34%)	6 (5%)
2	6A	50/107 (46%)	8 (16%)	3 (6%)
22	4A	119/144 (82%)	21 (17%)	2 (1%)
35	2A	105/188 (55%)	22 (20%)	3 (2%)
All	All	428/700 (61%)	117 (27%)	23 (5%)

All (117) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	8	U
1	A	9	U
1	A	10	C
1	A	11	C
1	A	12	U
1	A	13	U
1	A	15	A
1	A	20	U
1	A	21	U
1	A	22	C
1	A	25	G
1	A	29	A
1	A	30	C
1	A	31	C
1	A	32	C
1	A	33	U
1	A	34	G
1	A	35	U
1	A	36	C
1	A	37	C
1	A	39	U
1	A	41	U
1	A	42	U
1	A	44	U
1	A	46	U
1	A	47	C
1	A	48	C
2	6A	48	A
2	6A	49	G
2	6A	58	G
2	6A	59	G
2	6A	77	C
2	6A	78	A

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Mol	Chain	Res	Type
2	6A	103	U
2	6A	104	U
10	5A	5	U
10	5A	6	C
10	5A	21	A
10	5A	22	U
10	5A	24	G
10	5A	25	C
10	5A	28	A
10	5A	36	C
10	5A	37	G
10	5A	38	C
10	5A	40	U
10	5A	41	U
10	5A	43	U
10	5A	44	A
10	5A	47	A
10	5A	48	A
10	5A	55	C
10	5A	58	U
10	5A	59	G
10	5A	60	G
10	5A	66	A
10	5A	67	A
10	5A	69	A
10	5A	70	A
10	5A	75	G
10	5A	79	C
10	5A	80	U
10	5A	81	U
10	5A	83	A
10	5A	88	A
10	5A	89	U
10	5A	90	U
10	5A	92	U
10	5A	93	U
10	5A	94	U
10	5A	95	G
10	5A	96	A
10	5A	97	G
10	5A	109	G
22	4A	2	G

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Mol	Chain	Res	Type
22	4A	18	G
22	4A	25	A
22	4A	26	G
22	4A	37	C
22	4A	38	U
22	4A	39	A
22	4A	40	U
22	4A	45	G
22	4A	53	U
22	4A	57	G
22	4A	68	A
22	4A	69	C
22	4A	114	U
22	4A	115	G
22	4A	121	U
22	4A	122	U
22	4A	123	U
22	4A	125	G
22	4A	126	A
22	4A	140	G
35	2A	31	G
35	2A	37	U
35	2A	40	C
35	2A	45	C
35	2A	47	U
35	2A	51	A
35	2A	65	U
35	2A	112	G
35	2A	143	A
35	2A	147	G
35	2A	152	G
35	2A	153	A
35	2A	154	C
35	2A	156	U
35	2A	157	G
35	2A	164	C
35	2A	165	A
35	2A	168	A
35	2A	169	C
35	2A	177	A
35	2A	178	A
35	2A	179	C

All (23) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	9	U
1	A	21	U
1	A	28	G
1	A	33	U
1	A	35	U
1	A	36	C
1	A	38	C
1	A	40	U
1	A	41	U
2	6A	47	A
2	6A	48	A
2	6A	77	C
10	5A	58	U
10	5A	59	G
10	5A	78	U
10	5A	79	C
10	5A	94	U
10	5A	96	A
22	4A	68	A
22	4A	114	U
35	2A	156	U
35	2A	164	C
35	2A	168	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 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
50	GTP	5C	1002	49	26,34,34	1.14	2 (7%)	32,54,54	1.65	6 (18%)
48	IHP	5B	2401	-	36,36,36	0.74	0	54,60,60	1.19	3 (5%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
50	GTP	5C	1002	49	-	5/18/38/38	0/3/3/3
48	IHP	5B	2401	-	-	4/30/54/54	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
50	5C	1002	GTP	C5-C6	-4.08	1.39	1.47
50	5C	1002	GTP	C2-N3	2.08	1.38	1.33

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	5C	1002	GTP	PA-O3A-PB	-4.22	118.36	132.83
50	5C	1002	GTP	PB-O3B-PG	-4.15	118.59	132.83
50	5C	1002	GTP	C5-C6-N1	3.44	120.02	113.95
48	5B	2401	IHP	C5-C4-C3	3.36	117.76	110.41
50	5C	1002	GTP	C2-N1-C6	-2.97	119.64	125.10
50	5C	1002	GTP	C8-N7-C5	2.84	108.40	102.99
48	5B	2401	IHP	C6-C5-C4	2.63	116.16	110.41
48	5B	2401	IHP	C4-C3-C2	2.31	115.46	110.41
50	5C	1002	GTP	O6-C6-C5	-2.19	120.10	124.37

There are no chirality outliers.

All (9) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
48	5B	2401	IHP	C1-O11-P1-O41

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Mol	Chain	Res	Type	Atoms
50	5C	1002	GTP	C5'-O5'-PA-O3A
50	5C	1002	GTP	O4'-C4'-C5'-O5'
50	5C	1002	GTP	C3'-C4'-C5'-O5'
48	5B	2401	IHP	C3-O13-P3-O43
48	5B	2401	IHP	C4-O14-P4-O44
50	5C	1002	GTP	C5'-O5'-PA-O2A
48	5B	2401	IHP	C3-O13-P3-O33
50	5C	1002	GTP	C5'-O5'-PA-O1A

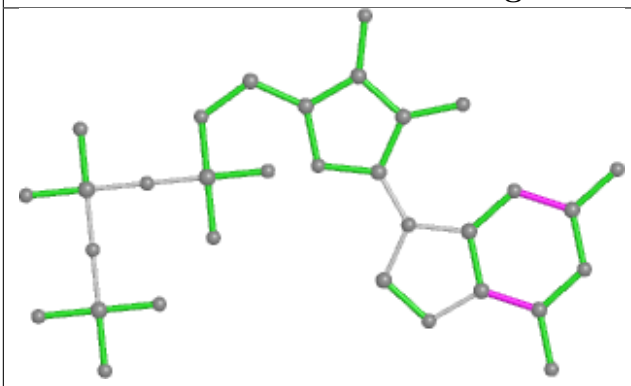
There are no ring outliers.

1 monomer is involved in 2 short contacts:

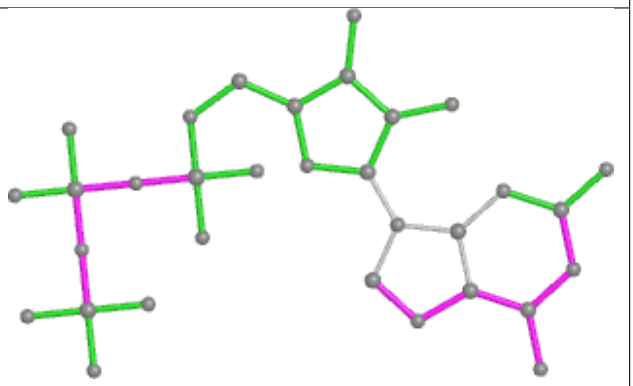
Mol	Chain	Res	Type	Clashes	Symm-Clashes
48	5B	2401	IHP	2	0

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

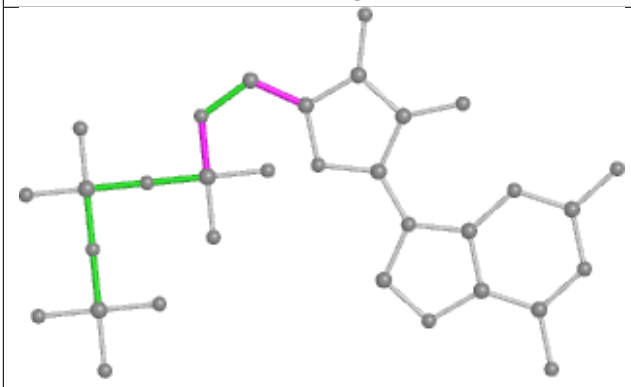
Ligand GTP 5C 1002



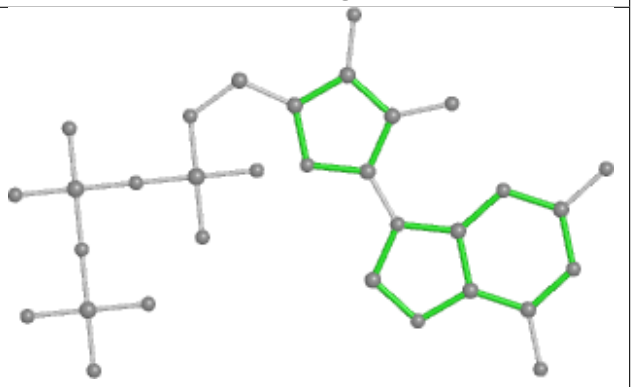
Bond lengths



Bond angles

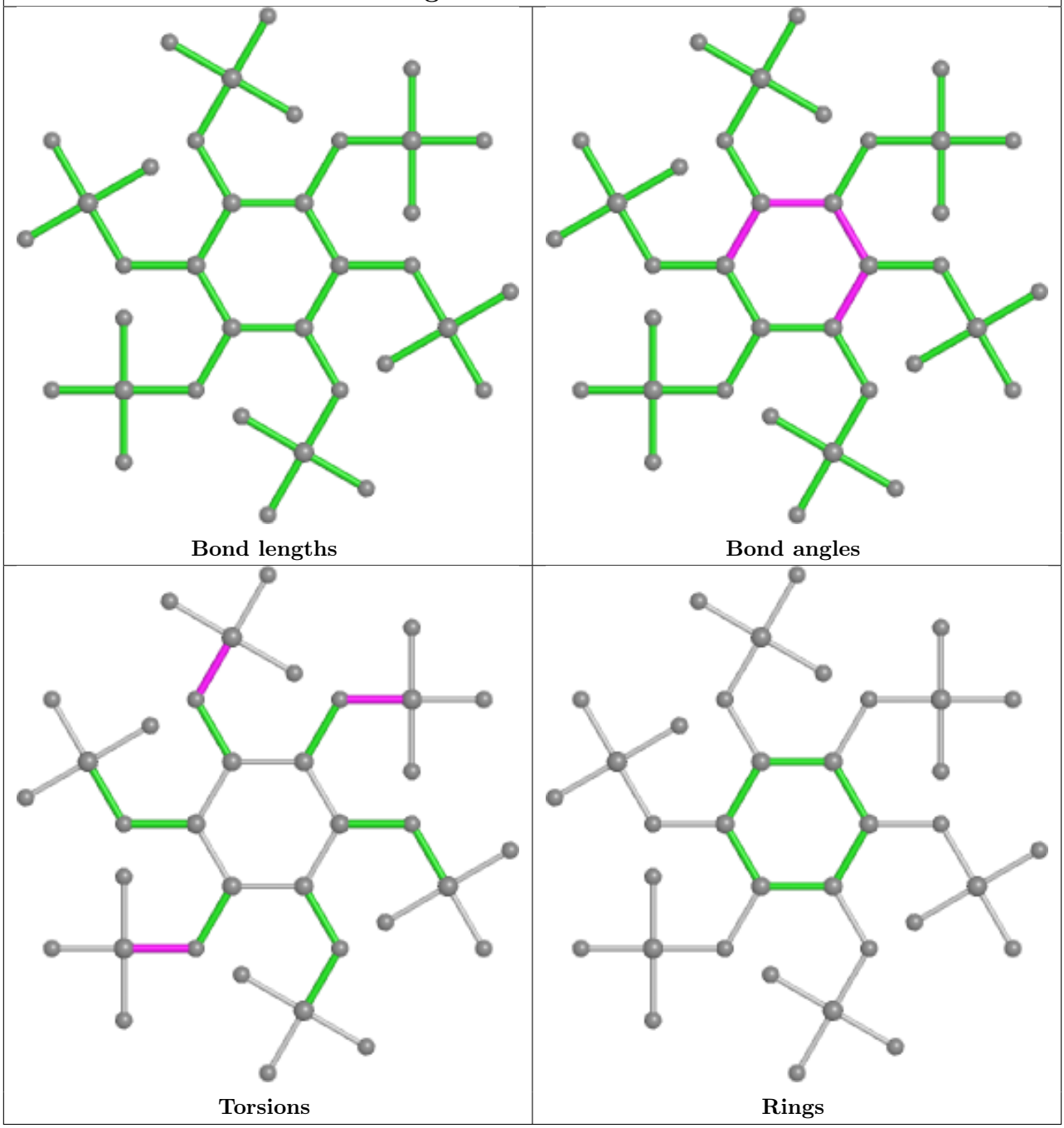


Torsions



Rings

Ligand IHP 5B 2401



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.