



# Full wwPDB EM Validation Report ⓘ

Nov 6, 2023 – 12:05 PM JST

PDB ID : 8IPD  
EMDB ID : EMD-35639  
Title : human nuclear pre-60S ribosomal particle - State C  
Authors : Zhang, Y.; Gao, N.  
Deposited on : 2023-03-14  
Resolution : 3.20 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](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

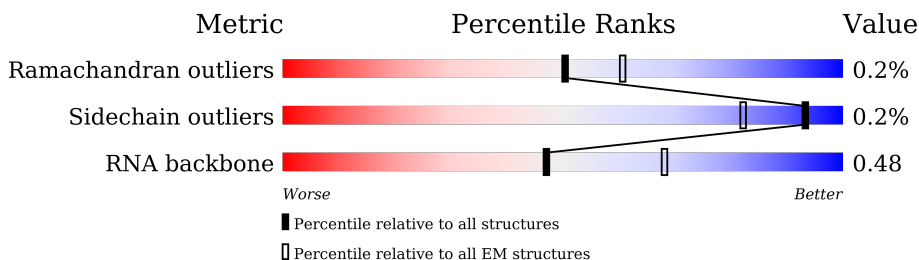
EMDB validation analysis : 0.0.1.dev70  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

# 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 3.20 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)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	6	245	 10% 99%
2	7	163	 82% 17%
3	8	156	 5% 66% 31%
4	9	134	 57% 63% 36%
5	A	159	 13% 28% 72%
6	B	403	 99%
7	D	427	 83% 16%
8	E	115	 57% 84% 15%

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Mol	Chain	Length	Quality of chain
9	F	117	15% 93% 7%
10	G	266	24% 90% 9%
11	H	123	99% .
12	I	192	97% ..
13	J	260	6% 83% 17%
14	K	105	10% 96% ..
15	L	148	75% . 24%
16	M	97	89% 11%
17	O	70	34% 97% ..
18	P	51	98% .
19	Q	211	10% 99%
20	S	215	61% . 37%
21	U	204	8% 100%
22	V	203	98% ..
23	X	92	36% 99% .
24	Z	188	80% 20%
25	a	196	15% 75% . 24%
26	b	176	99% .
27	e	140	93% . 6%
28	g	156	74% . 25%
29	h	145	92% . 8%
30	i	136	47% 99% .
31	l	137	91% . 9%
32	m	257	32% 96% .
33	n	110	96% ..

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Mol	Chain	Length	Quality of chain
34	o	288	10% 81% 18%
35	p	248	90% 9%
36	r	360	14% 22% 77%
37	u	549	5% 11% 88%
38	w	731	15% 59% 41%
39	y	165	71% 96%
40	z	129	15% 51% 48%
41	C	178	88% 93% 7%
42	R	297	88% 96%
43	W	485	79% 79% 20%
44	T	160	34% 76% 22%
45	4	634	22% 94%
46	Y	184	8% 90% 9%
47	k	135	96%
48	j	125	7% 89% 11%
49	d	128	9% 79% 19%
50	3	120	23% 61% 30% 5%
51	v	239	19% 90% 9%
52	2	5054	10% 40% 24% 31%

## 2 Entry composition [i](#)

There are 54 unique types of molecules in this entry. The entry contains 149878 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Eukaryotic translation initiation factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	6	244	1852	1149	318	372	13	0	0

- Molecule 2 is a protein called Probable ribosome biogenesis protein RLP24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	7	135	1159	737	225	187	10	0	0

- Molecule 3 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	8	156	3315	1481	585	1094	155	0	0

- Molecule 4 is a protein called Zinc finger protein 593.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	9	86	711	433	154	121	3	0	0

- Molecule 5 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	A	45	352	221	76	52	3	0	0

- Molecule 6 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	B	402	3244	2065	609	556	14	1	0

- Molecule 7 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	D	358	2853	1797	570	473	13	0	0

- Molecule 8 is a protein called 60S ribosomal protein L30.

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

- Molecule 9 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	F	109	868	544	179	139	6	0	0

- Molecule 10 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	G	241	1927	1228	371	324	4	0	0

- Molecule 11 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	H	122	1015	641	205	168	1	0	0

- Molecule 12 is a protein called 60S ribosomal protein L9.

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

- Molecule 13 is a protein called Ribosome biogenesis protein NSA2 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	J	217	1772	1134	334	296	8	0	0

- Molecule 14 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	K	102	Total	C	N	O	S	0	0
			832	521	177	129	5		

- Molecule 15 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	L	112	Total	C	N	O	S	0	0
			877	557	172	145	3		

- Molecule 16 is a protein called 60S ribosomal protein L37.

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

- Molecule 17 is a protein called 60S ribosomal protein L38.

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

- Molecule 18 is a protein called 60S ribosomal protein L39.

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

- Molecule 19 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	Q	210	Total	C	N	O	S	0	0
			1701	1064	352	281	4		

- Molecule 20 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	135	Total	C	N	O	S	0	0
			1111	713	213	178	7		

- Molecule 21 is a protein called 60S ribosomal protein L15.

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

- Molecule 22 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	V	201	1650	1063	321	261	5	0	0

- Molecule 23 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	X	91	708	445	136	120	7	0	0

- Molecule 24 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	Z	151	1223	768	247	203	5	0	0

- Molecule 25 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	a	148	1239	772	266	192	9	0	0

- Molecule 26 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	b	176	1461	930	284	236	11	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	e	131	979	618	184	172	5	0	0

- Molecule 28 is a protein called 60S ribosomal protein L23a.



Mol	Chain	Residues	Atoms					AltConf	Trace
28	g	117	Total	C	N	O	S	0	0
			958	612	179	166	1		

- Molecule 29 is a protein called 60S ribosomal protein L26.

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

- Molecule 30 is a protein called 60S ribosomal protein L27.

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

- Molecule 31 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	l	125	Total	C	N	O	S	0	0
			1002	622	207	168	5		

- Molecule 32 is a protein called 60S ribosomal protein L8.

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

- Molecule 33 is a protein called 60S ribosomal protein L35a.

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

- Molecule 34 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	o	235	Total	C	N	O	S	0	0
			1897	1217	360	316	4		

- Molecule 35 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	p	225	Total	C	N	O	S	1	0
			1878	1207	361	301	9		

- Molecule 36 is a protein called Coiled-coil domain-containing protein 86.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	r	82	Total	C	N	O	S	0	0
			723	442	158	121	2		

- Molecule 37 is a protein called Guanine nucleotide-binding protein-like 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	u	68	Total	C	N	O	S	0	0
			578	362	121	92	3		

- Molecule 38 is a protein called G Protein Nucleolar 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	w	433	Total	C	N	O	S	0	0
			3472	2201	615	643	13		

- Molecule 39 is a protein called 60S ribosomal protein L12.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	y	165	Total	C	N	O	S	0	0
			1250	779	232	234	5		

- Molecule 40 is a protein called Protein LLP homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	z	67	Total	C	N	O	S	0	0
			581	363	128	88	2		

- Molecule 41 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	C	165	Total	C	N	O	S	0	0
			1319	836	245	233	5		

- Molecule 42 is a protein called 60S ribosomal protein L5.

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

- Molecule 43 is a protein called Notchless protein homolog 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	W	388	Total	C	N	O	S	0	0
			3018	1889	556	562	11		

- Molecule 44 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	T	124	Total	C	N	O	S	0	0
			1001	632	194	171	4		

- Molecule 45 is a protein called GTP-binding protein 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	4	611	Total	C	N	O	S	0	0
			5016	3151	918	920	27		

- Molecule 46 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	Y	167	Total	C	N	O	S	0	0
			1355	848	260	238	9		

- Molecule 47 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	k	129	Total	C	N	O	S	0	0
			1064	673	220	166	5		

- Molecule 48 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	j	111	Total	C	N	O	S	0	0
			918	578	178	160	2		

- Molecule 49 is a protein called 60S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	d	104	Total	C	N	O	S	0	0
			850	542	149	157	2		

- Molecule 50 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	3	115	Total	C	N	O	P	0	0
			2453	1093	437	808	115		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
3	92	C	G	conflict	GB NR_023363
3	93	G	C	conflict	GB NR_023363
3	95	C	U	conflict	GB NR_023363
3	96	U	G	conflict	GB NR_023363

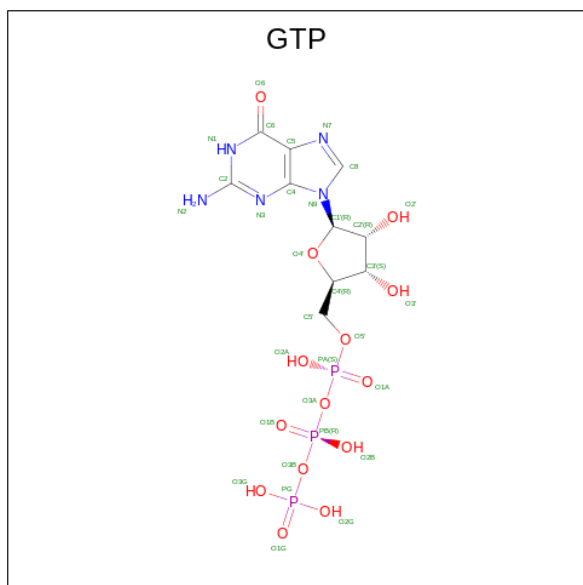
- Molecule 51 is a protein called mRNA turnover protein 4 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	v	217	Total	C	N	O	S	0	0
			1771	1129	311	320	11		

- Molecule 52 is a RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	2	3485	Total	C	N	O	P	0	0
			74813	33355	13677	24297	3484		

- Molecule 53 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula:  $C_{10}H_{16}N_5O_{14}P_3$ ).



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

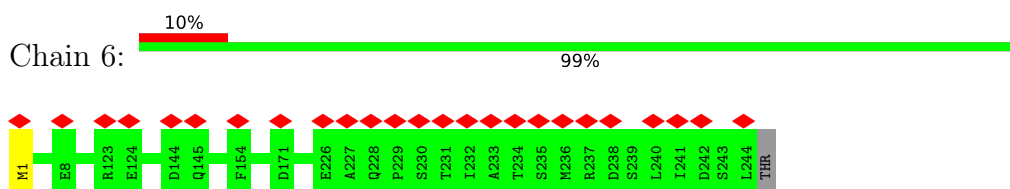
- Molecule 54 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
54	w	1	1	1	0

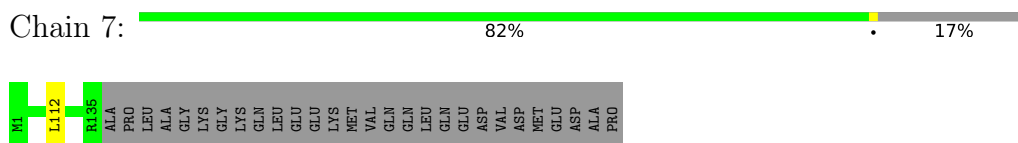
### 3 Residue-property plots [i](#)

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 and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

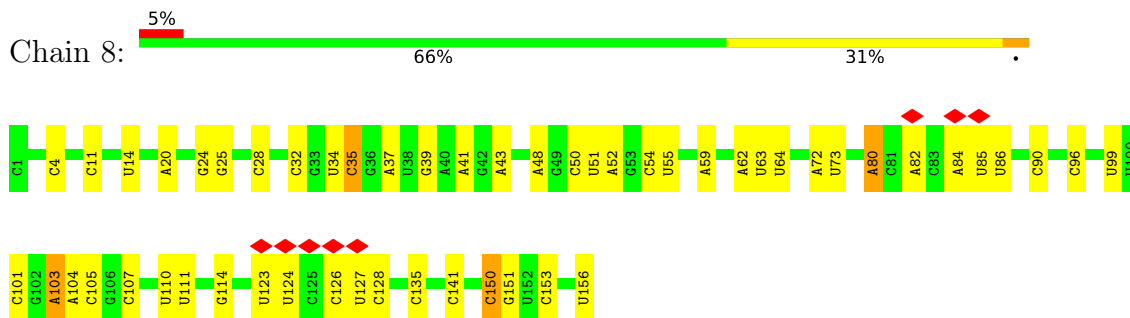
- Molecule 1: Eukaryotic translation initiation factor 6



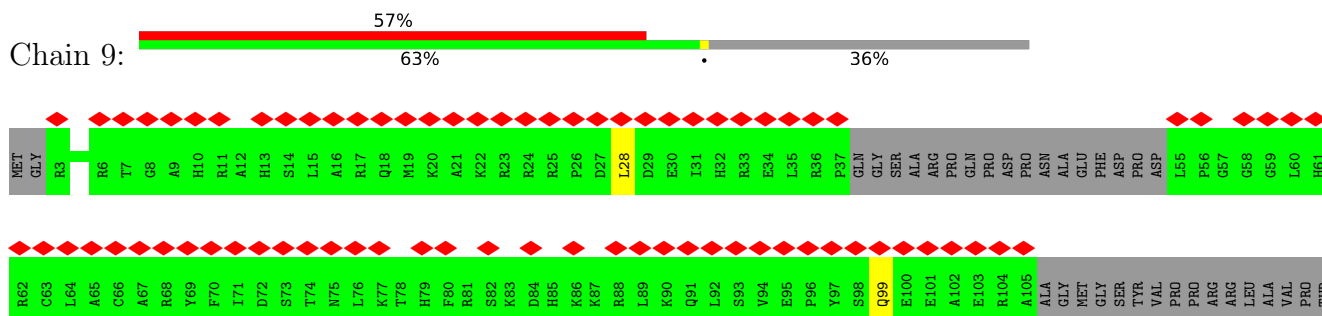
- Molecule 2: Probable ribosome biogenesis protein RLP24



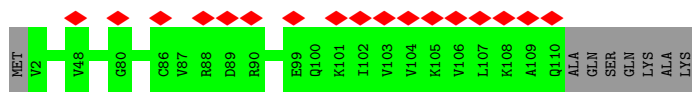
- Molecule 3: 5.8S rRNA



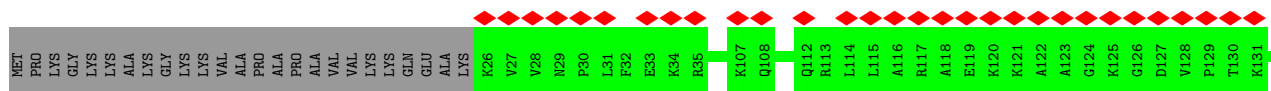
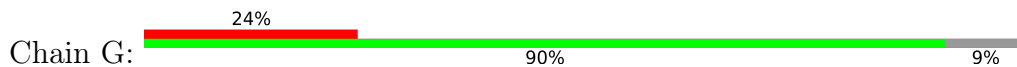
- Molecule 4: Zinc finger protein 593



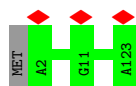




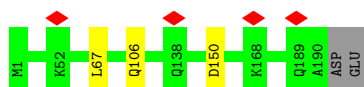
• Molecule 10: 60S ribosomal protein L7a



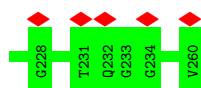
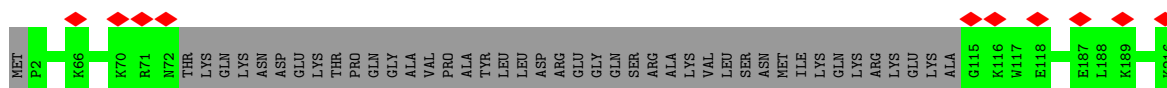
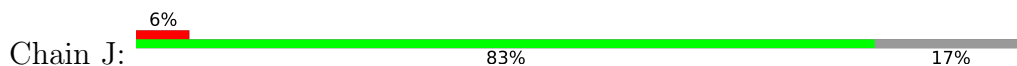
• Molecule 11: 60S ribosomal protein L35



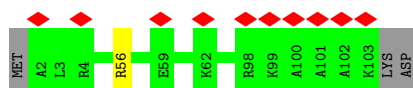
• Molecule 12: 60S ribosomal protein L9



• Molecule 13: Ribosome biogenesis protein NSA2 homolog

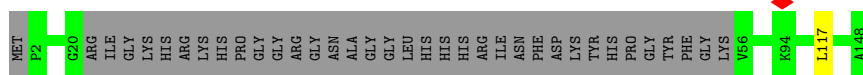
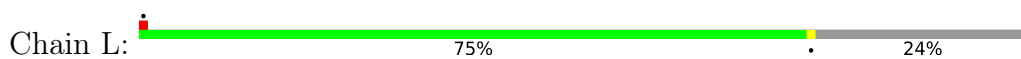


• Molecule 14: 60S ribosomal protein L36

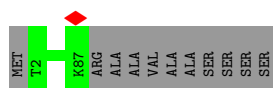
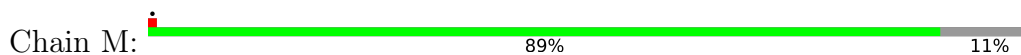


• Molecule 15: 60S ribosomal protein L27a

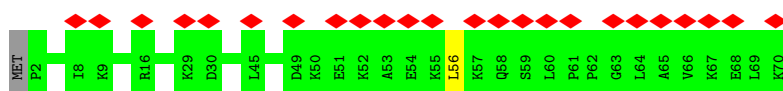




• Molecule 16: 60S ribosomal protein L37



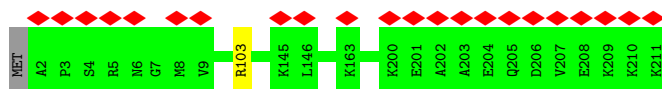
• Molecule 17: 60S ribosomal protein L38



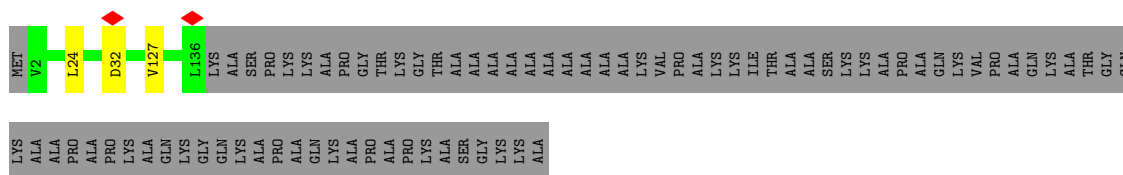
• Molecule 18: 60S ribosomal protein L39



• Molecule 19: 60S ribosomal protein L13

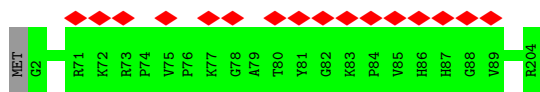


• Molecule 20: 60S ribosomal protein L14

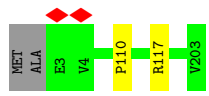


• Molecule 21: 60S ribosomal protein L15

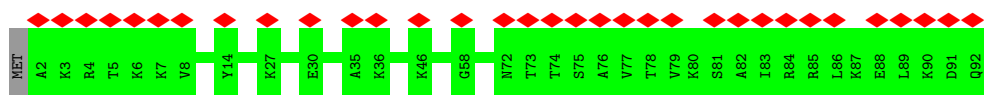




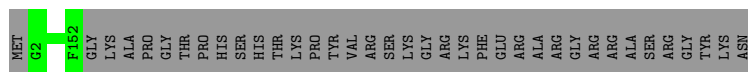
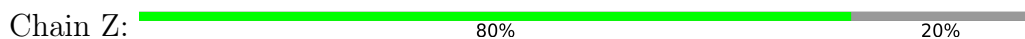
• Molecule 22: 60S ribosomal protein L13a



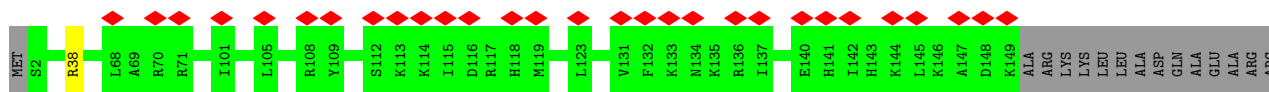
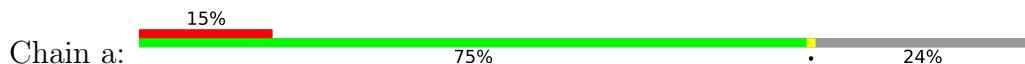
• Molecule 23: 60S ribosomal protein L37a



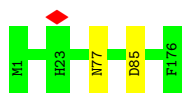
• Molecule 24: 60S ribosomal protein L18



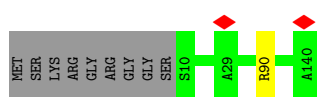
• Molecule 25: 60S ribosomal protein L19



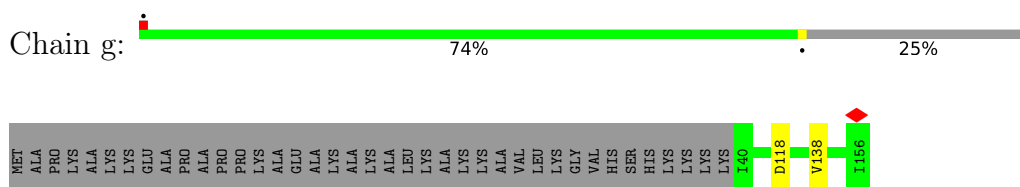
• Molecule 26: 60S ribosomal protein L18a



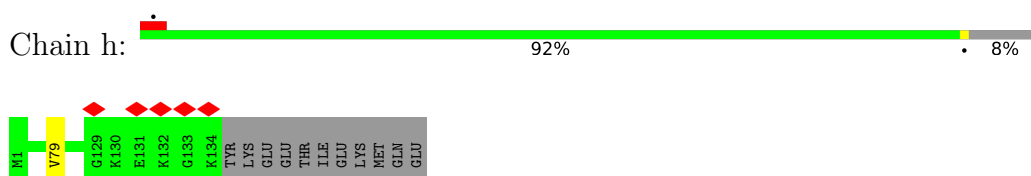
• Molecule 27: 60S ribosomal protein L23



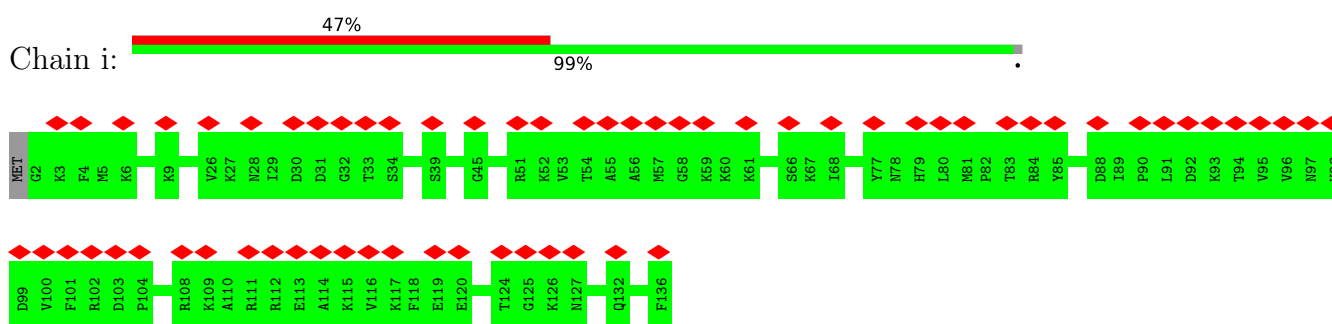
- Molecule 28: 60S ribosomal protein L23a



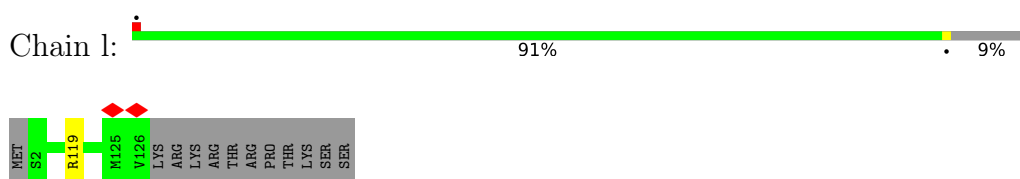
- Molecule 29: 60S ribosomal protein L26



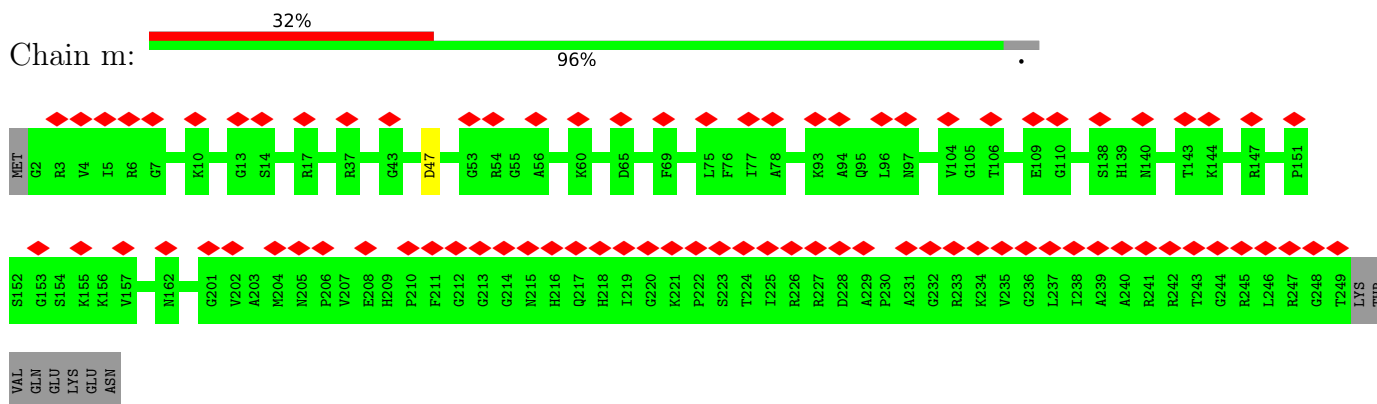
- Molecule 30: 60S ribosomal protein L27



- Molecule 31: 60S ribosomal protein L28

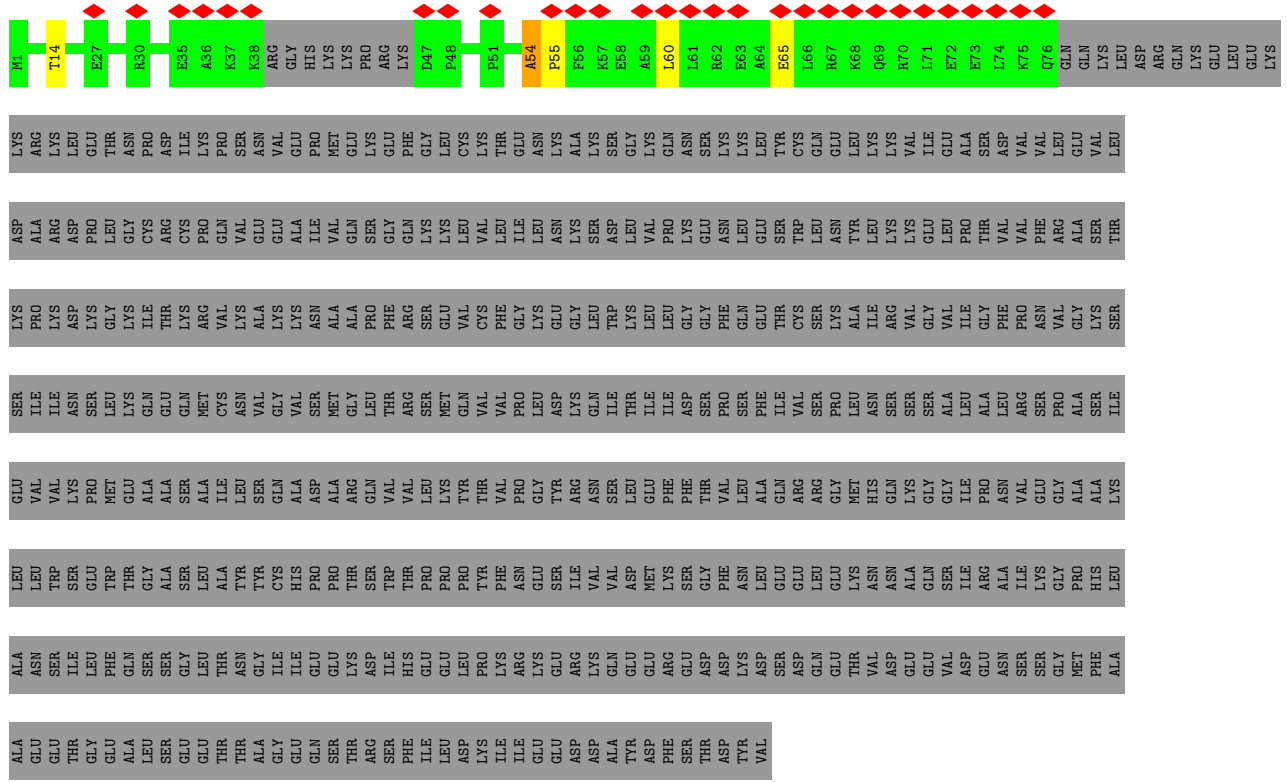


- Molecule 32: 60S ribosomal protein L8

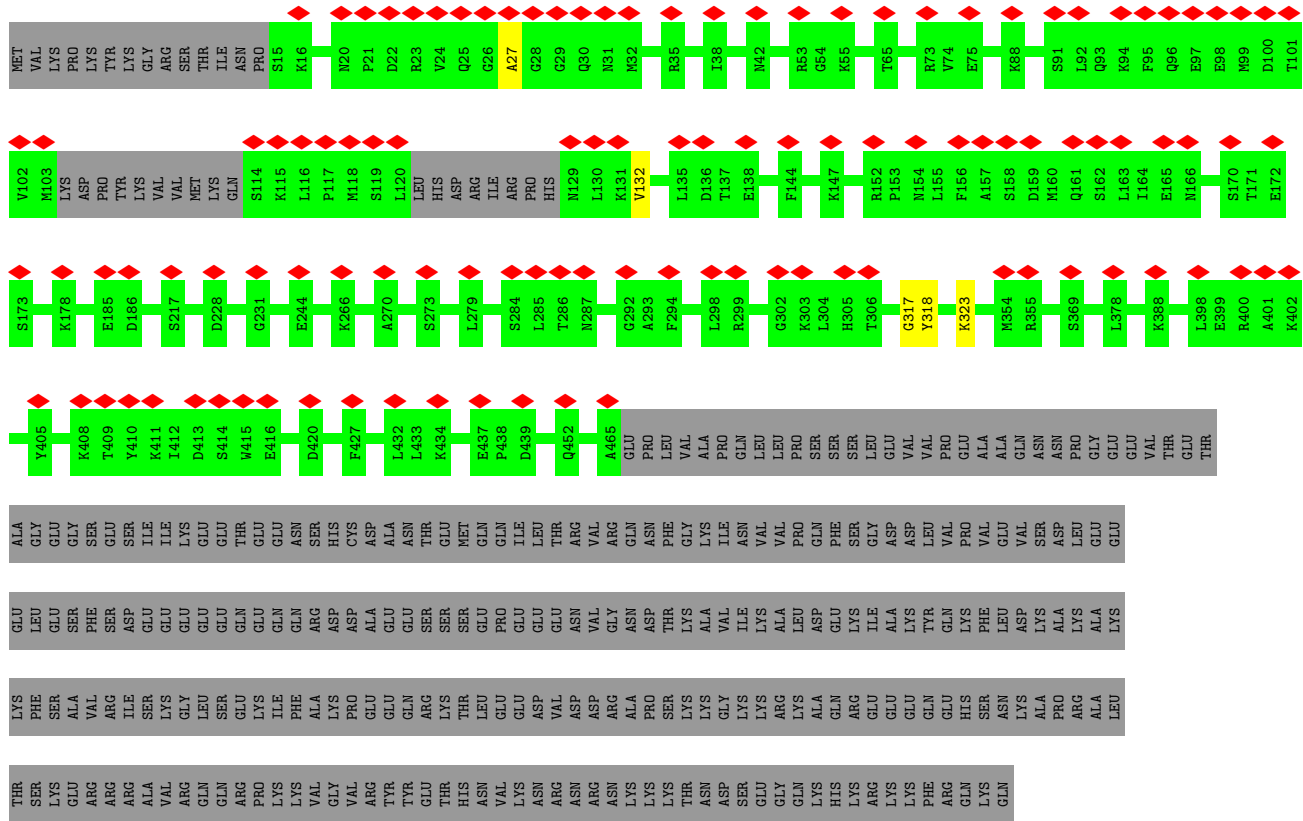


- Molecule 33: 60S ribosomal protein L35a

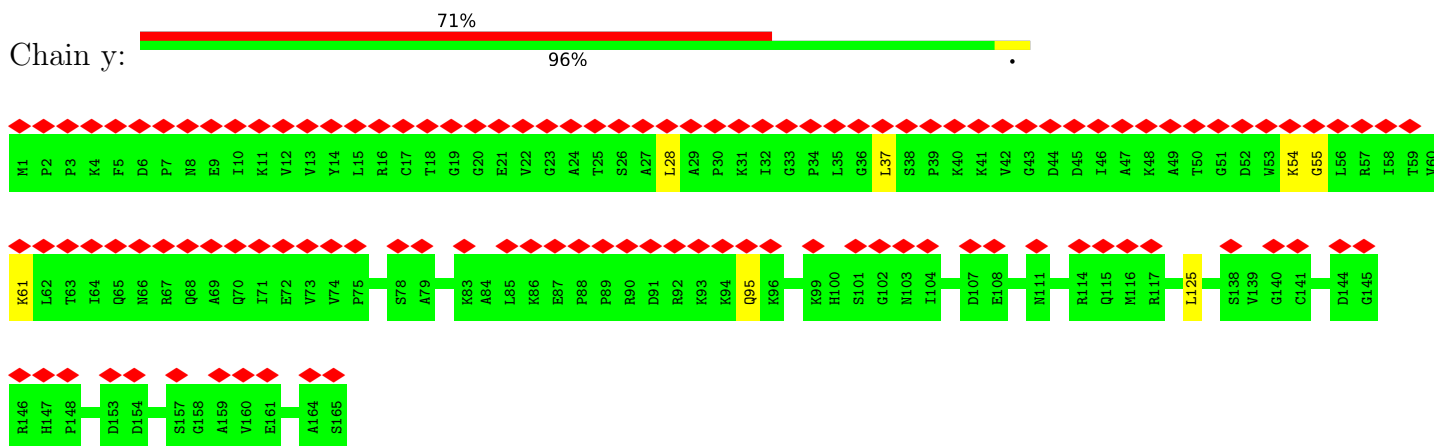




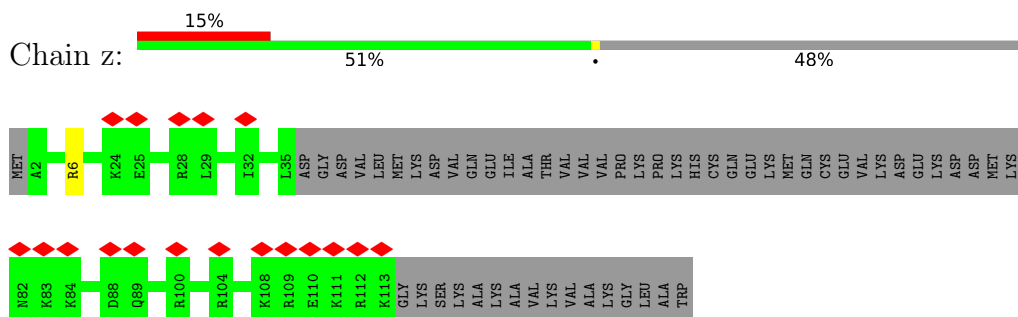
● Molecule 38: G Protein Nucleolar 2



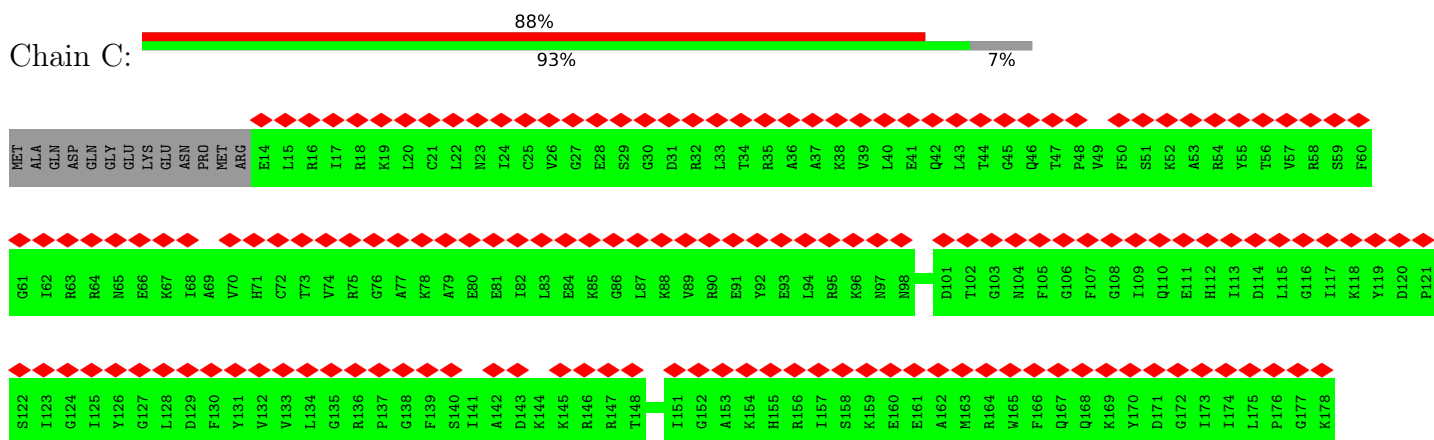
• Molecule 39: 60S ribosomal protein L12



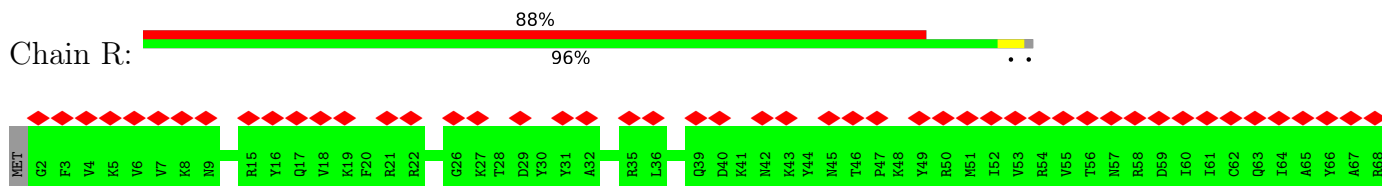
• Molecule 40: Protein LLP homolog

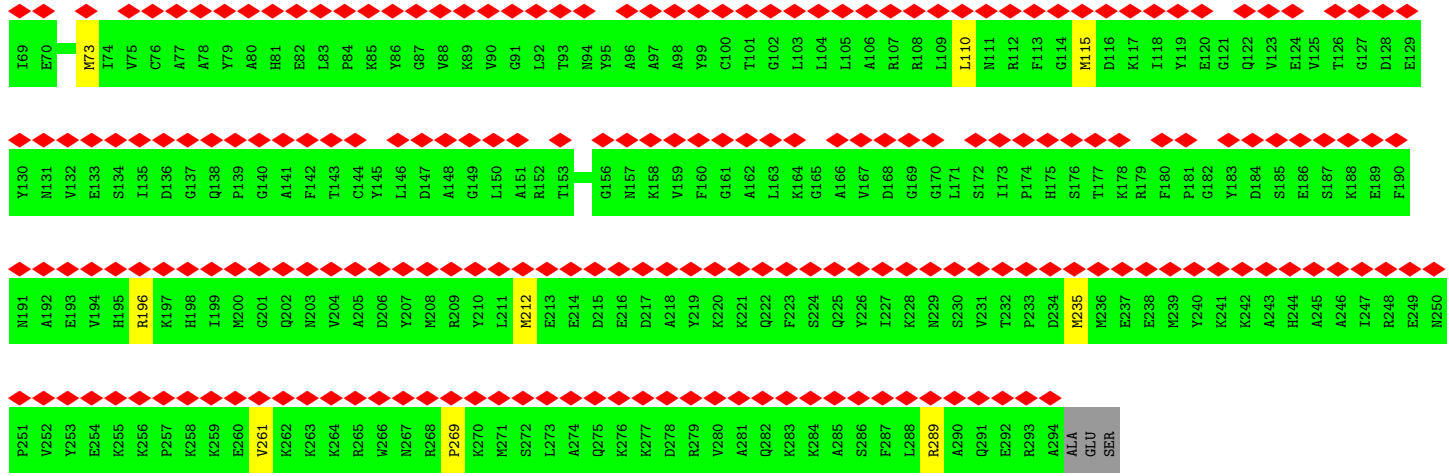


• Molecule 41: 60S ribosomal protein L11

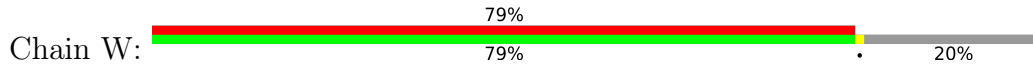


• Molecule 42: 60S ribosomal protein L5





• Molecule 43: Notchless protein homolog 1



MET	ALA	ALA	ALA	VAL	PRO	ASP	GLU	ILE	VAL	GLN	ARG	LEU	VAL	GLN	PHE	GLN	ASP	GLY	PRO	PHE	ASP	VAL	VAL	ASP	ILE	THR	PRO	ASP	ASP	ARG	LEU	GLN	VAL	VAL	LEU	LEU	ALA	LEU	ALA	GLU	GLU	ASP	PRO	LEU	PRO	LEU
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ALA	PHE	VAL	HIS	ASP	ALA	GLU	ILE	VAL	VAL	SER	SER	LEU	THR	LYS	GLY	THR	GLY	GLY	LYS	VAL	VAL	VAL	ILE	F98	R99	V100	R101	A102	V103	T104	R105	C106	T107	S108	S109	L110	E111	G112	H113	S114	E115	A116	V117	I118	S119	V120
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A121	F122	S123	P124	T125	G126	K127	Y128	L129	A130	S131	G132	S133	G134	D135	T136	V138	R139	F140	M141	D142	L143	S144	T145	E146	T147	P148	H149	F150	T151	C152	K153	G154	H155	R156	H157	V158	L160	S161	I162	S163	W164	S165	P166	D167	G168	R169	K170	L171	A172	S173	G174	C175	K176	M177	G178	Q179	I180
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L181	L182	M183	D184	P185	S186	T187	G188	K189	Q190	V191	G192	R193	T194	L195	A196	G197	H198	S199	K200	W201	T202	T203	G204	L205	S206	W207	E208	P209	L210	H211	A212	M213	P214	E215	C216	R217	Y218	V219	A220	S221	S222	S223	K224	D225	G226	S227	W228	R229	T230	W231	D232	T233	T234	A235	G236	R237	C238	E239	R240
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I241	L242	T243	G244	H245	T246	Q247	S248	A249	W250	C251	L252	R253	W254	G255	G256	D257	L258	S259	L260	Y261	S262	A263	S264	Q265	D266	R267	T268	I269	K270	W271	W272	R273	A274	H275	D276	G277	L278	C280	R281	S282	L283	Q284	G285	H286	G287	H288	W289	V290	N291	T292	H293	A294	L295	S296	T297	D298	Y299	A300
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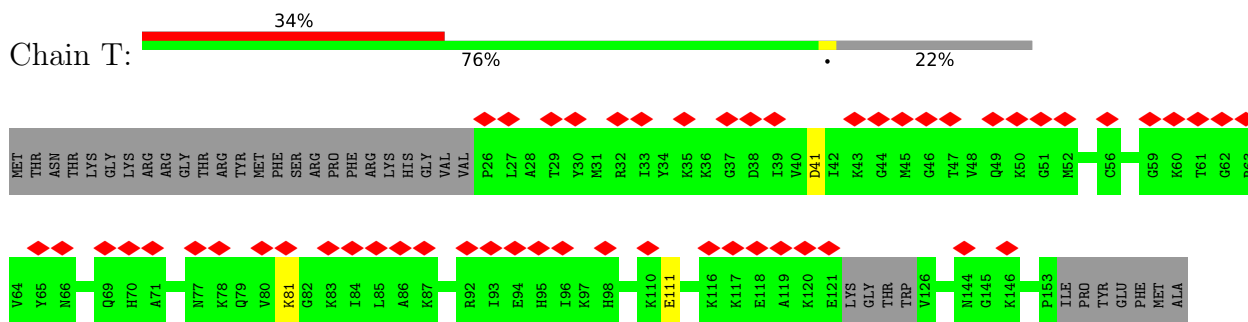
L301	R302	T303	G304	A305	F306	E307	P308	A309	E310	A311	S312	V313	N314	F315	Q316	D317	L318	Q319	G320	S321	L322	Q323	E324	L325	K326	E327	R328	A329	L330	S331	R332	Y333	N334	L335	V336	R337	G338	Q339	G340	F341	E342	R343	L344	V345	S346	G347	S348	D349	D350	F351	L353	F354	L355	W356	S357	F358	A359	E360
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D361	K362	K363	P364	L365	T366	R367	M368	T369	G370	H371	Q372	A373	L374	Q377	V378	L379	F380	S381	P382	D383	S384	R385	L386	V387	A388	S389	A390	S391	F392	D393	K394	S395	I396	K397	L398	D400	A401	R402	T403	G404	K405	Y406	L407	A408	S409	R470	R411	G412	H413	V414	A415	A416	V417	Y418	Q419	I420	A421
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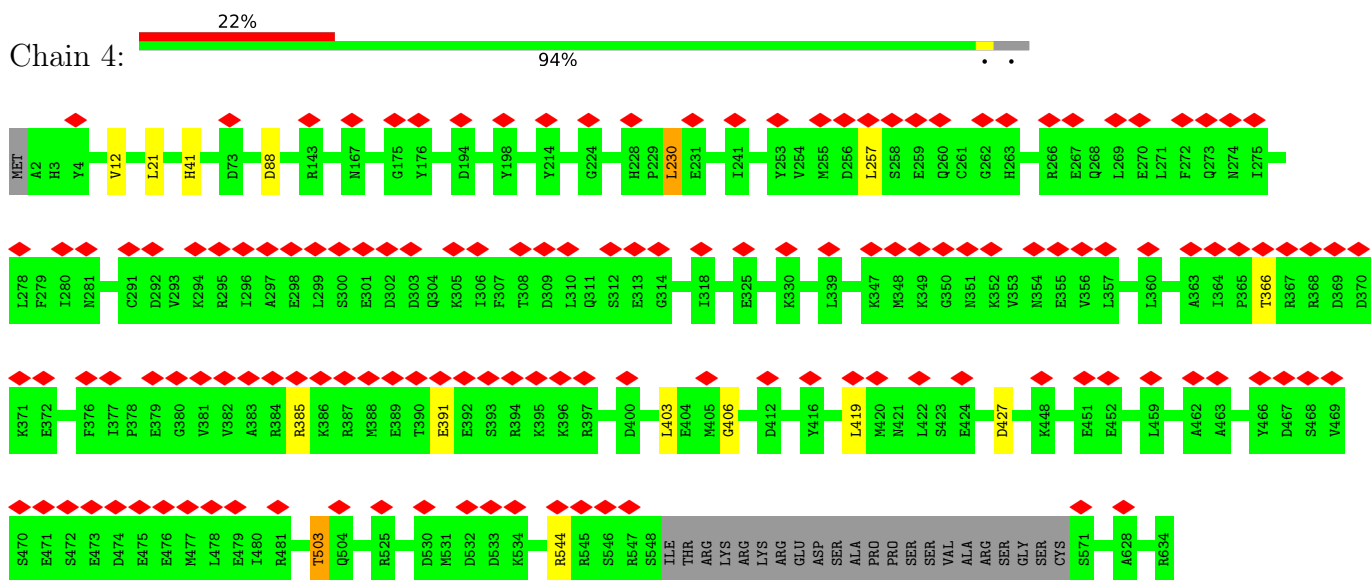
W422	S423	A424	D425	S426	R427	L428	L429	V430	S431	G432	S433	S434	D435	S436	T437	L438	V440	W441	D442	V443	K444	A445	Q446	K447	L448	A449	M450	D451	L452	P453	G454	H455	A456	D457	E458	V459	Y460	A461	V462	D463	W464	S465	P466	D467	G468	Q469	R470	V471	A472	S473	G474	G475	K476	D477	K478	C479	L480	R481
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W482	W483	R484	R485
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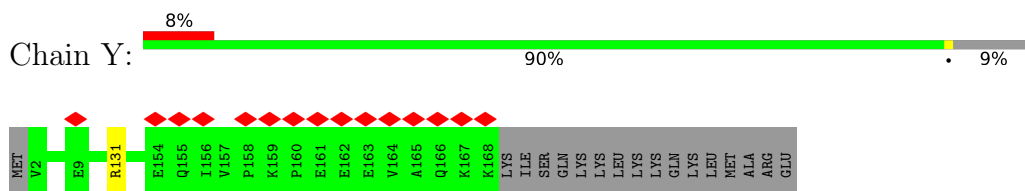
- Molecule 44: 60S ribosomal protein L21



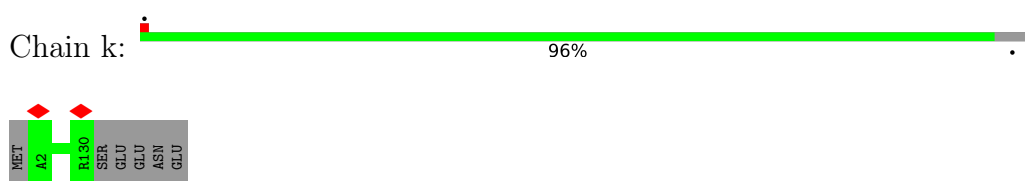
- Molecule 45: GTP-binding protein 4



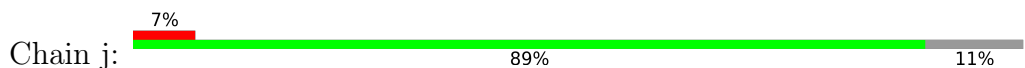
- Molecule 46: 60S ribosomal protein L17



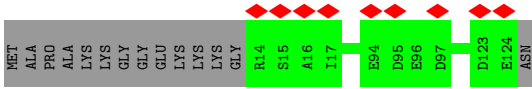
- Molecule 47: 60S ribosomal protein L32



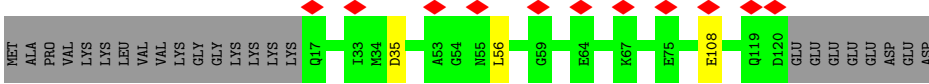
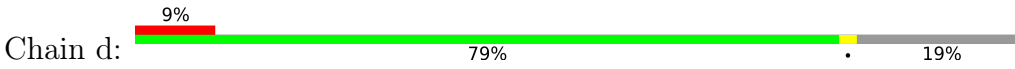
- Molecule 48: 60S ribosomal protein L31



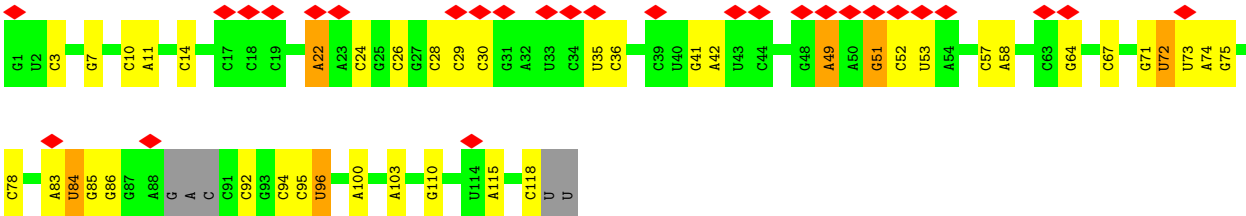




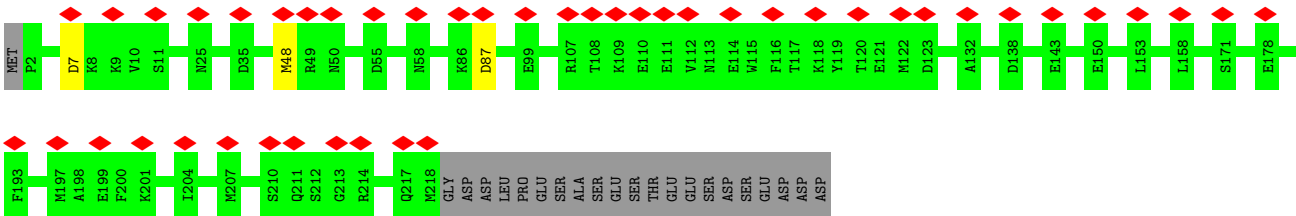
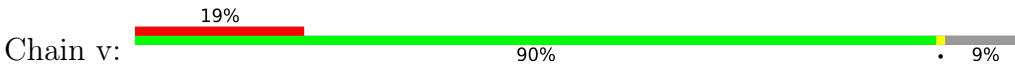
• Molecule 49: 60S ribosomal protein L22



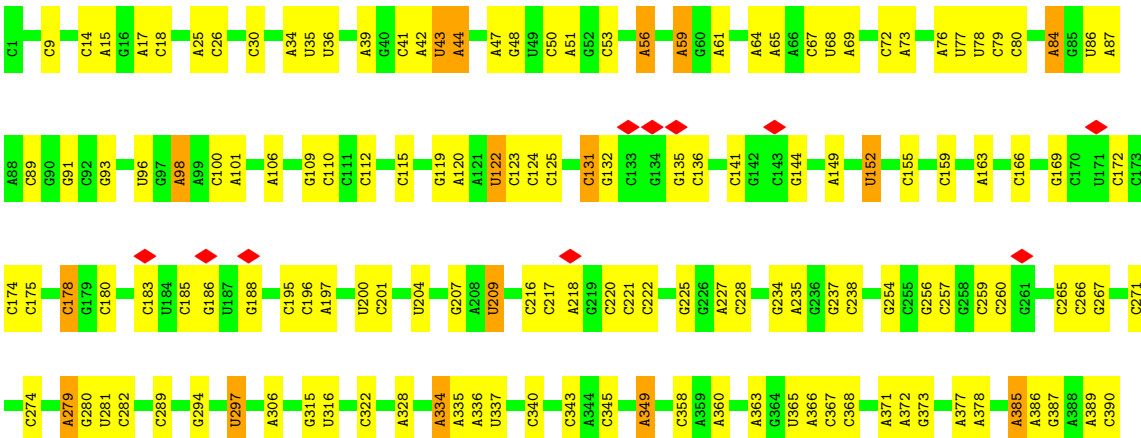
• Molecule 50: 5S rRNA

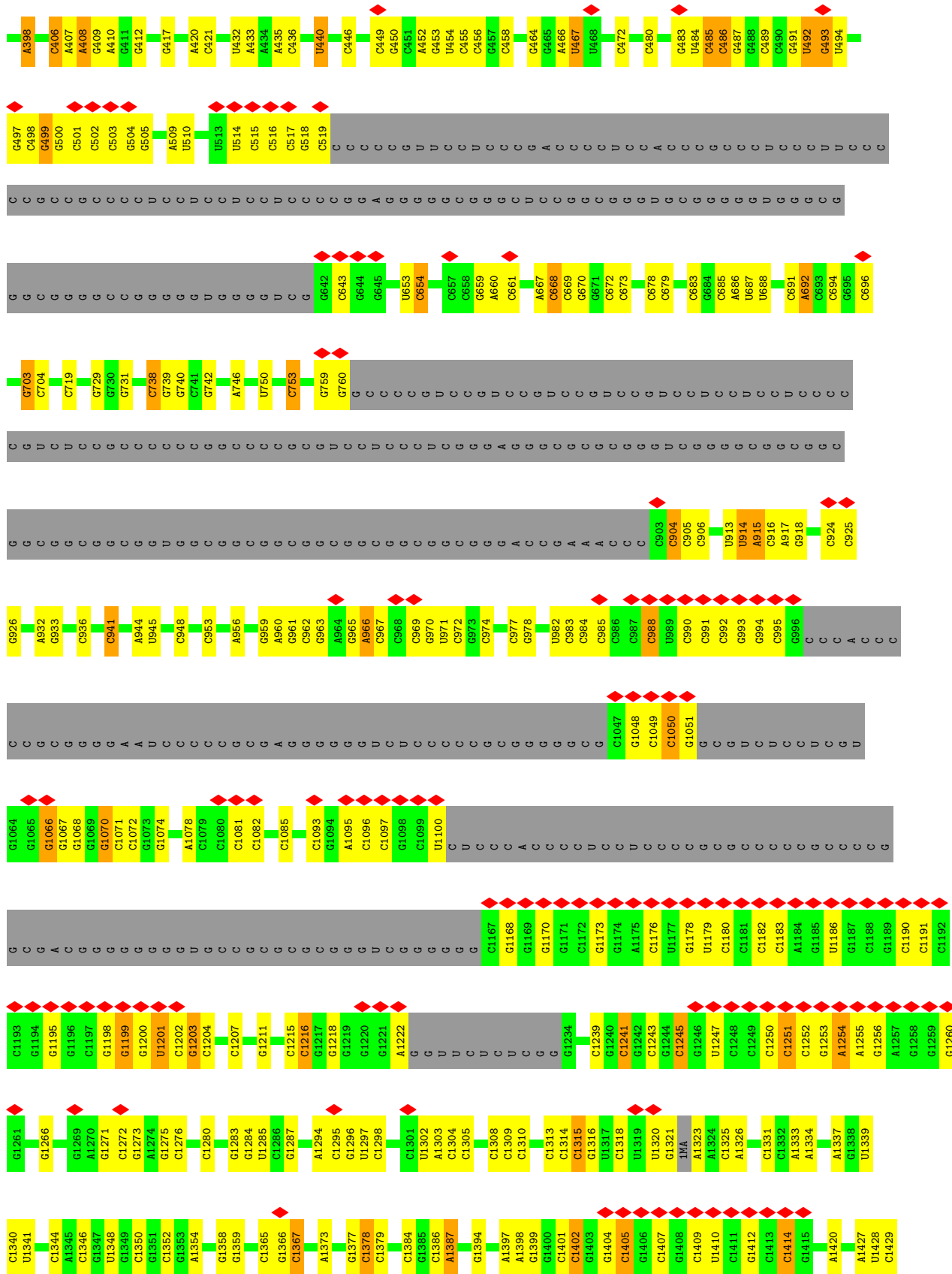


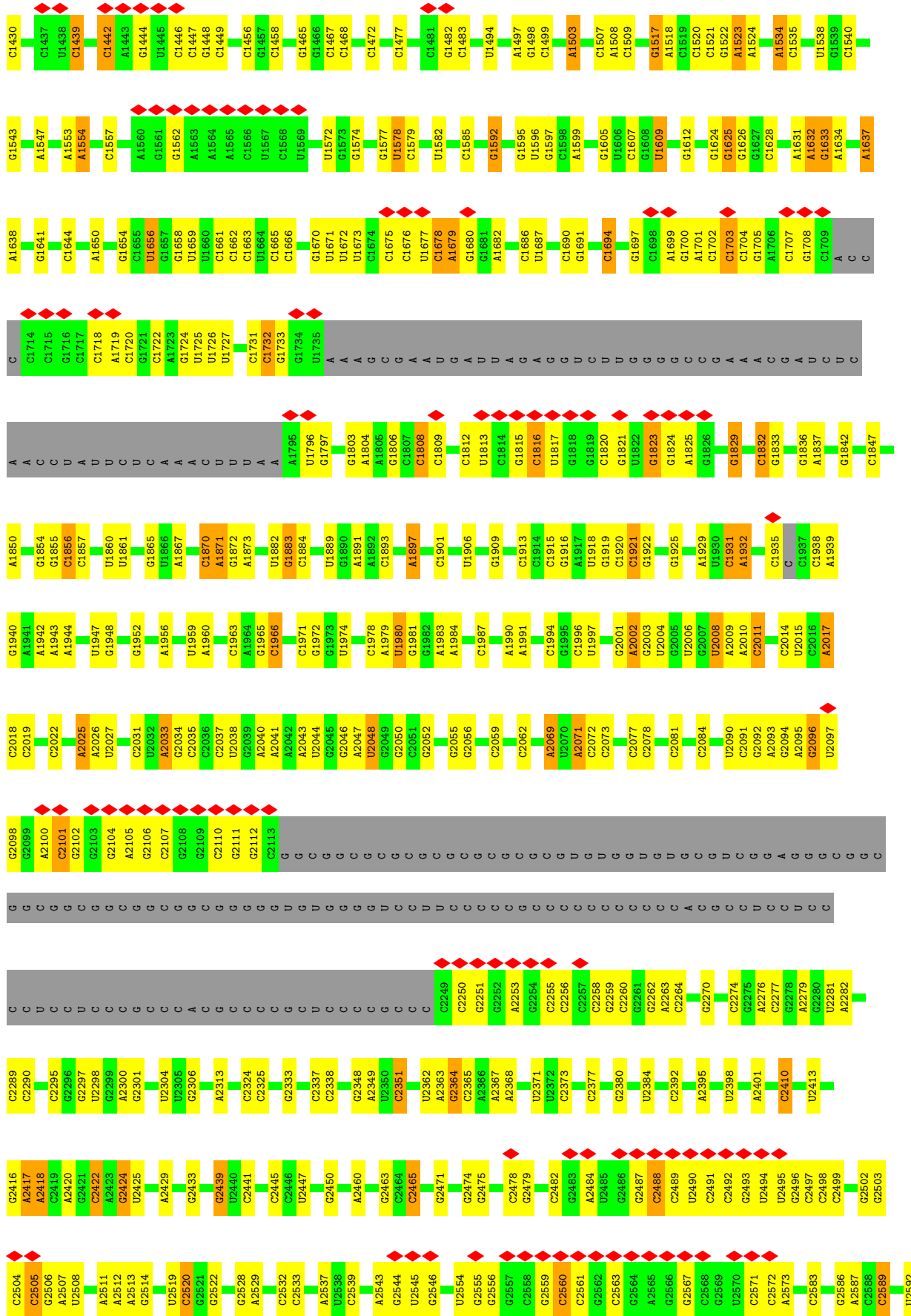
• Molecule 51: mRNA turnover protein 4 homolog

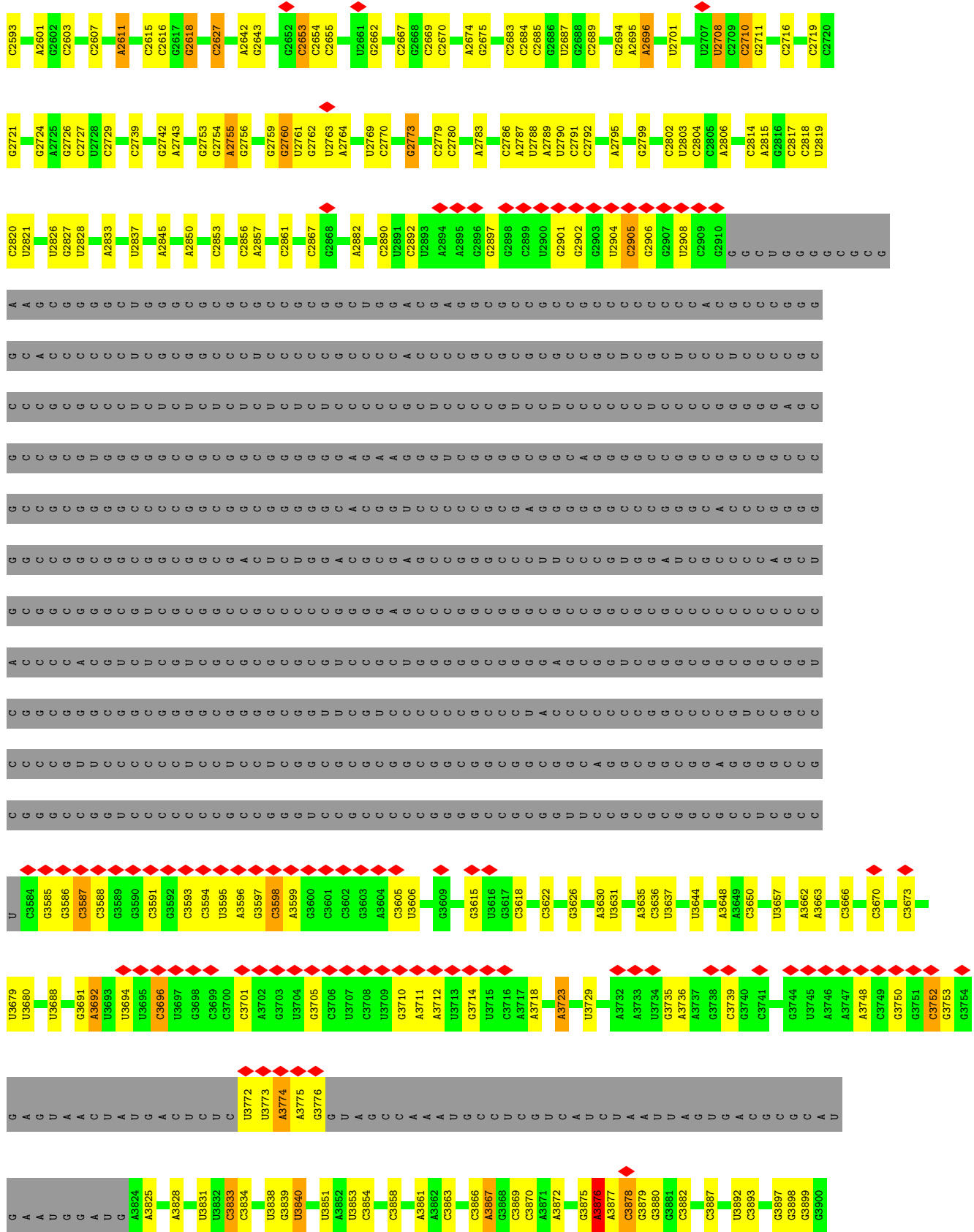


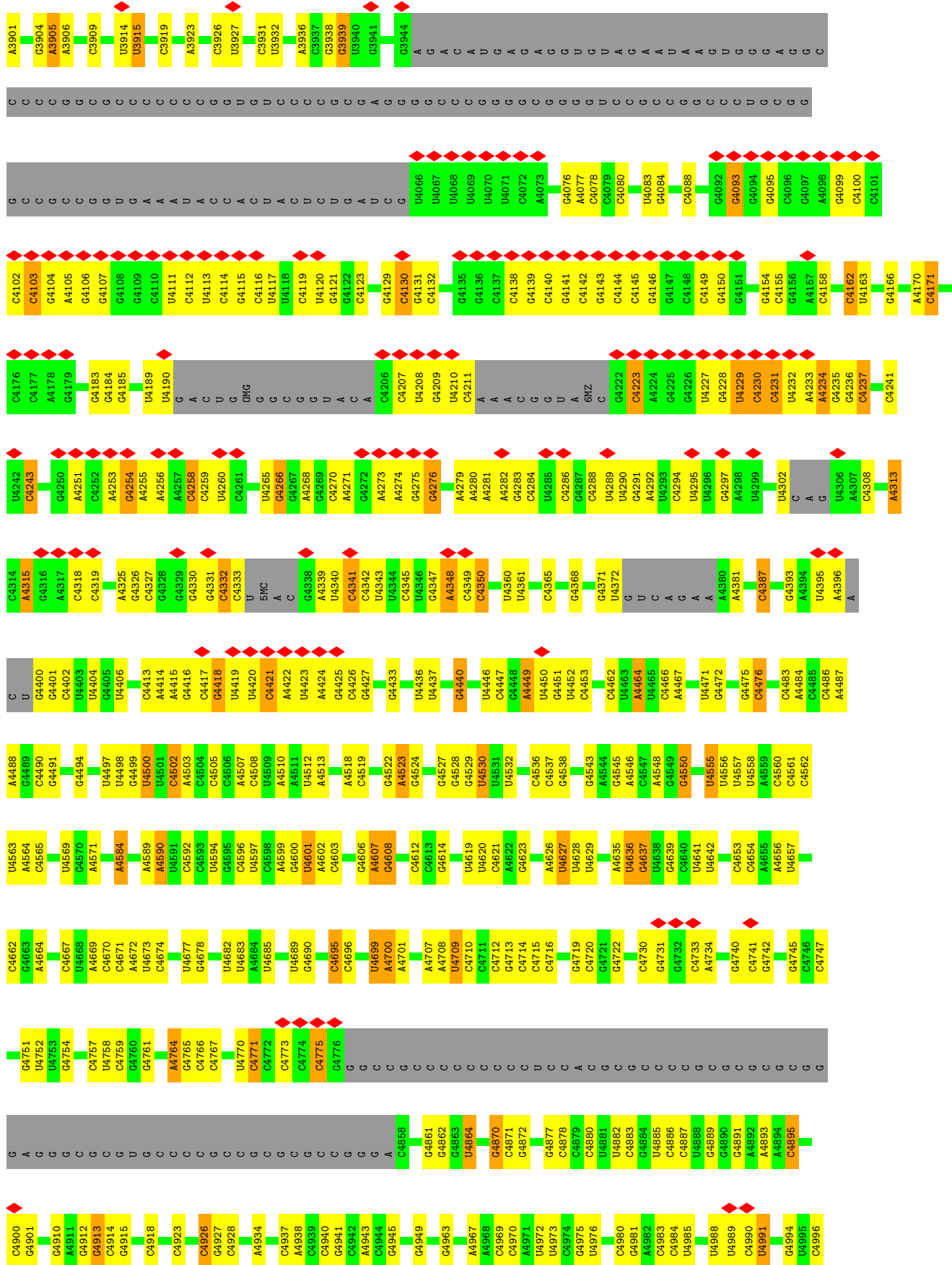
• Molecule 52: 28S rRNA

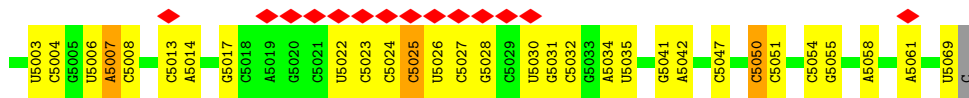












## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	31498	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	1.8	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.211	Depositor
Minimum map value	-0.071	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.037	Depositor
Map size (Å)	548.0, 548.0, 548.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.37, 1.37, 1.37	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: 2MG, B8K, P4U, M7A, B8Q, UR3, BGH, A2M, OMG, GTP, OMC, P7G, OMU, B8T, E7G, B8W, I4U, B9H, 7MG, B9B, 5MU, MG

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	6	0.33	0/1877	0.70	0/2554
2	7	0.39	0/1181	0.73	1/1563 (0.1%)
3	8	0.56	0/3679	1.41	59/5732 (1.0%)
4	9	0.31	0/723	0.81	1/961 (0.1%)
5	A	0.30	0/354	0.80	1/465 (0.2%)
6	B	0.36	0/3315	0.71	1/4435 (0.0%)
7	D	0.35	0/2907	0.70	1/3905 (0.0%)
8	E	0.33	0/774	0.72	1/1038 (0.1%)
9	F	0.31	0/878	0.73	0/1170
10	G	0.35	0/1960	0.69	0/2637
11	H	0.33	0/1023	0.64	0/1351
12	I	0.40	0/1537	0.81	2/2066 (0.1%)
13	J	0.32	0/1808	0.63	0/2414
14	K	0.37	0/843	0.81	0/1115
15	L	0.34	0/893	0.67	1/1193 (0.1%)
16	M	0.35	0/720	0.73	0/952
17	O	0.37	0/575	0.75	1/761 (0.1%)
18	P	0.32	0/454	0.64	0/599
19	Q	0.34	0/1732	0.70	0/2315
20	S	0.42	0/1133	0.75	3/1516 (0.2%)
21	U	0.33	0/1746	0.68	0/2338
22	V	0.38	0/1682	0.67	0/2250
23	X	0.33	0/718	0.72	0/953
24	Z	0.36	0/1239	0.68	0/1658
25	a	0.33	0/1255	0.74	1/1662 (0.1%)
26	b	0.36	0/1501	0.66	1/2013 (0.0%)
27	e	0.35	0/993	0.71	1/1332 (0.1%)
28	g	0.34	0/975	0.74	2/1312 (0.2%)
29	h	0.38	0/1132	0.72	1/1504 (0.1%)
30	i	0.36	0/1130	0.72	0/1507
31	l	0.33	0/1017	0.67	0/1364



Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
32	m	0.35	0/1936	0.77	1/2596 (0.0%)
33	n	0.34	0/895	0.74	2/1198 (0.2%)
34	o	0.34	0/1935	0.74	1/2596 (0.0%)
35	p	0.38	0/1916	0.69	1/2553 (0.0%)
36	r	0.43	0/732	0.96	2/960 (0.2%)
37	u	0.35	0/585	0.82	3/767 (0.4%)
38	w	0.34	0/3541	0.66	2/4775 (0.0%)
39	y	0.39	0/1269	0.84	4/1712 (0.2%)
40	z	0.35	0/587	0.76	0/767
41	C	0.37	0/1341	0.78	0/1793
42	R	0.37	0/2428	0.82	6/3252 (0.2%)
43	W	0.30	0/3093	0.70	5/4196 (0.1%)
44	T	0.40	0/1018	0.86	2/1357 (0.1%)
45	4	0.35	0/5099	0.78	10/6840 (0.1%)
46	Y	0.35	0/1383	0.65	0/1856
47	k	0.35	0/1082	0.71	0/1443
48	j	0.37	0/933	0.73	0/1256
49	d	0.40	0/864	0.85	3/1160 (0.3%)
50	3	0.50	0/2739	1.52	67/4266 (1.6%)
51	v	0.35	0/1806	0.78	3/2420 (0.1%)
52	2	0.54	5/81897 (0.0%)	1.42	1428/127676 (1.1%)
All	All	0.46	5/158833 (0.0%)	1.19	1618/232074 (0.7%)

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
6	B	0	1
12	I	0	1
22	V	0	1
33	n	0	1
37	u	0	1
39	y	0	1
43	W	0	1
45	4	0	1
46	Y	0	1
52	2	0	1
All	All	0	10

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	3876	A	N9-C4	23.61	1.52	1.37
52	2	3876	A	N7-C5	-8.67	1.34	1.39
52	2	3876	A	N3-C4	6.65	1.38	1.34
52	2	3876	A	N9-C8	5.96	1.42	1.37
52	2	4764	A	N9-C4	-5.18	1.34	1.37

All (1618) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	3876	A	C8-N9-C4	-51.99	85.00	105.80
52	2	3876	A	N7-C8-N9	34.23	130.92	113.80
52	2	1872	G	OP1-P-OP2	-26.55	79.77	119.60
52	2	3876	A	C2-N3-C4	26.25	123.73	110.60
52	2	1872	G	O5'-P-OP1	-25.78	79.76	110.70
52	2	3876	A	N3-C4-C5	-19.54	113.12	126.80
52	2	3876	A	N9-C4-C5	16.26	112.31	105.80
52	2	1871	A2M	OP2-P-O3'	-16.24	69.48	105.20
52	2	1872	G	O5'-P-OP2	15.92	129.81	110.70
52	2	3876	A	C5-N7-C8	-14.40	96.70	103.90
52	2	1871	A2M	OP1-P-O3'	14.28	136.61	105.20
52	2	753	C	N1-C2-O2	13.63	127.08	118.90
52	2	467	U	N1-C2-O2	12.45	131.51	122.80
50	3	78	C	N1-C2-O2	12.32	126.29	118.90
52	2	3876	A	C8-N9-C1'	12.24	149.74	127.70
52	2	1216	C	N1-C2-O2	11.98	126.09	118.90
52	2	4926	C	N1-C2-O2	11.96	126.08	118.90
52	2	4926	C	C6-N1-C2	-11.95	115.52	120.30
52	2	2710	C	C6-N1-C2	-11.92	115.53	120.30
52	2	753	C	N3-C2-O2	-11.67	113.73	121.90
52	2	467	U	N3-C2-O2	-11.62	114.06	122.20
52	2	4502	C	N1-C2-O2	11.41	125.75	118.90
52	2	2499	C	N1-C2-O2	11.19	125.61	118.90
52	2	100	C	C2-N1-C1'	11.12	131.04	118.80
52	2	2710	C	N1-C2-O2	10.99	125.50	118.90
52	2	2710	C	N3-C2-O2	-10.99	114.20	121.90
52	2	1402	C	N1-C2-O2	10.94	125.46	118.90
52	2	1216	C	C2-N1-C1'	10.83	130.71	118.80
52	2	467	U	C2-N1-C1'	10.82	130.68	117.70
52	2	3878	C	N1-C2-O2	10.81	125.39	118.90
52	2	4926	C	N3-C2-O2	-10.79	114.34	121.90
52	2	4709	U	N3-C2-O2	-10.70	114.71	122.20
52	2	4476	C	C2-N1-C1'	10.59	130.45	118.80
50	3	78	C	N3-C2-O2	-10.56	114.51	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	100	C	N1-C2-O2	10.55	125.23	118.90
52	2	753	C	C6-N1-C2	-10.49	116.10	120.30
45	4	230	LEU	CA-CB-CG	10.47	139.38	115.30
52	2	4709	U	N1-C2-O2	10.44	130.11	122.80
50	3	78	C	C6-N1-C2	-10.40	116.14	120.30
50	3	95	C	C2-N1-C1'	10.32	130.16	118.80
52	2	1994	C	C2-N1-C1'	10.30	130.13	118.80
52	2	4476	C	N1-C2-O2	10.25	125.05	118.90
52	2	220	C	N1-C2-O2	10.23	125.04	118.90
44	T	41	ASP	CB-CG-OD1	10.22	127.50	118.30
52	2	1726	U	N3-C2-O2	-10.19	115.07	122.20
52	2	1442	C	C6-N1-C2	-10.17	116.23	120.30
52	2	516	C	N1-C2-O2	10.12	124.97	118.90
3	8	64	U	N3-C2-O2	-10.08	115.14	122.20
52	2	1318	C	C6-N1-C2	-10.00	116.30	120.30
52	2	4158	C	N3-C2-O2	-9.99	114.91	121.90
52	2	1671	U	N1-C2-O2	9.97	129.78	122.80
52	2	1405	C	N1-C2-O2	9.96	124.88	118.90
52	2	4714	C	N1-C2-O2	9.87	124.82	118.90
52	2	4502	C	C2-N1-C1'	9.85	129.64	118.80
52	2	1921	C	N1-C2-O2	9.84	124.80	118.90
50	3	78	C	C2-N1-C1'	9.79	129.57	118.80
12	I	150	ASP	CB-CG-OD1	9.75	127.07	118.30
50	3	95	C	N1-C2-O2	9.75	124.75	118.90
52	2	1671	U	C5-C6-N1	9.71	127.56	122.70
52	2	1732	C	N1-C2-O2	9.69	124.71	118.90
52	2	2499	C	C6-N1-C2	-9.66	116.44	120.30
52	2	2710	C	C2-N1-C1'	9.63	129.40	118.80
52	2	2627	C	C6-N1-C2	-9.63	116.45	120.30
52	2	77	U	N3-C2-O2	-9.58	115.49	122.20
52	2	1671	U	N3-C2-O2	-9.57	115.50	122.20
52	2	35	U	N3-C2-O2	-9.57	115.50	122.20
28	g	118	ASP	CB-CG-OD2	9.53	126.88	118.30
51	v	87	ASP	CB-CG-OD2	9.52	126.86	118.30
52	2	4758	U	N3-C2-O2	-9.50	115.55	122.20
52	2	4286	C	C5-C6-N1	9.49	125.75	121.00
52	2	4758	U	C2-N1-C1'	9.49	129.09	117.70
52	2	1216	C	N3-C2-O2	-9.45	115.29	121.90
52	2	4243	C	C6-N1-C2	-9.44	116.53	120.30
50	3	95	C	N3-C2-O2	-9.40	115.32	121.90
52	2	486	C	C6-N1-C2	-9.40	116.54	120.30
52	2	3876	A	N1-C2-N3	-9.39	124.61	129.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	o	99	ASP	CB-CG-OD1	9.36	126.72	118.30
52	2	50	C	N1-C2-O2	9.36	124.51	118.90
42	R	212	MET	CA-CB-CG	9.35	129.20	113.30
52	2	3696	C	N1-C2-O2	9.35	124.51	118.90
52	2	4758	U	N1-C2-O2	9.34	129.34	122.80
52	2	35	U	N1-C2-O2	9.31	129.32	122.80
52	2	2499	C	N3-C2-O2	-9.30	115.39	121.90
52	2	2571	C	N3-C2-O2	-9.29	115.40	121.90
52	2	282	C	N1-C2-O2	9.26	124.45	118.90
52	2	1994	C	N1-C2-O2	9.24	124.45	118.90
52	2	963	G	C4-N9-C1'	9.24	138.51	126.50
52	2	499	G	C4-N9-C1'	9.23	138.50	126.50
52	2	4502	C	N3-C2-O2	-9.22	115.45	121.90
52	2	489	C	C6-N1-C2	-9.21	116.62	120.30
52	2	516	C	N3-C2-O2	-9.20	115.46	121.90
50	3	92	C	N1-C2-O2	9.18	124.41	118.90
52	2	3876	A	C5-C6-N1	9.18	122.29	117.70
52	2	3876	A	N9-C1'-C2'	9.18	125.93	114.00
52	2	100	C	N3-C2-O2	-9.16	115.49	121.90
52	2	1732	C	C6-N1-C2	-9.13	116.65	120.30
52	2	516	C	C6-N1-C2	-9.12	116.65	120.30
52	2	4286	C	C6-N1-C2	-9.12	116.65	120.30
52	2	2499	C	C2-N1-C1'	9.11	128.82	118.80
52	2	4887	C	N1-C2-O2	9.10	124.36	118.90
36	r	248	ASP	CB-CG-OD1	9.08	126.47	118.30
52	2	3622	C	N1-C2-O2	9.05	124.33	118.90
52	2	1402	C	C6-N1-C2	-9.04	116.68	120.30
52	2	115	C	N1-C2-O2	9.02	124.31	118.90
52	2	1671	U	C2-N1-C1'	9.02	128.53	117.70
50	3	84	U	C2-N1-C1'	9.01	128.51	117.70
52	2	2022	C	N1-C2-O2	8.97	124.28	118.90
50	3	57	C	C6-N1-C2	-8.95	116.72	120.30
52	2	220	C	C6-N1-C2	-8.94	116.72	120.30
52	2	1442	C	N1-C2-O2	8.93	124.26	118.90
52	2	2439	G	C4-N9-C1'	8.93	138.11	126.50
52	2	1816	C	N1-C2-O2	8.92	124.25	118.90
52	2	4662	C	C6-N1-C2	-8.91	116.74	120.30
32	m	47	ASP	CB-CG-OD2	8.89	126.31	118.30
52	2	4608	G	C8-N9-C4	-8.87	102.85	106.40
52	2	115	C	C2-N1-C1'	8.82	128.50	118.80
52	2	96	U	N3-C2-O2	-8.81	116.03	122.20
52	2	2819	U	N3-C2-O2	-8.79	116.05	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	753	C	C2-N1-C1'	8.76	128.43	118.80
52	2	1402	C	N3-C2-O2	-8.75	115.77	121.90
52	2	4926	C	C5-C6-N1	8.75	125.37	121.00
52	2	2011	C	N1-C2-O2	8.74	124.15	118.90
52	2	4880	C	N1-C2-O2	8.74	124.14	118.90
52	2	499	G	N3-C4-N9	8.71	131.22	126.00
52	2	4747	C	C6-N1-C2	-8.71	116.82	120.30
52	2	4608	G	N7-C8-N9	8.70	117.45	113.10
52	2	4158	C	N1-C2-O2	8.67	124.10	118.90
52	2	3878	C	C2-N1-C1'	8.66	128.33	118.80
52	2	4695	C	N1-C2-O2	8.66	124.10	118.90
52	2	2410	C	C6-N1-C2	-8.64	116.84	120.30
7	D	319	LEU	CA-CB-CG	8.62	135.12	115.30
52	2	472	C	C6-N1-C2	-8.60	116.86	120.30
52	2	3772	U	N3-C2-O2	-8.56	116.21	122.20
52	2	1929	A	C2-N3-C4	8.54	114.87	110.60
52	2	2571	C	N1-C2-O2	8.52	124.01	118.90
52	2	1726	U	N1-C2-O2	8.50	128.75	122.80
50	3	57	C	C5-C6-N1	8.47	125.23	121.00
52	2	2814	C	N1-C2-O2	8.42	123.95	118.90
52	2	274	C	C6-N1-C2	-8.41	116.94	120.30
45	4	257	LEU	CA-CB-CG	8.39	134.60	115.30
52	2	2627	C	C5-C6-N1	8.38	125.19	121.00
52	2	2351	C	C6-N1-C2	-8.34	116.96	120.30
52	2	2820	C	N1-C2-O2	8.32	123.89	118.90
52	2	50	C	C6-N1-C2	-8.32	116.97	120.30
52	2	1732	C	N3-C2-O2	-8.31	116.08	121.90
52	2	1987	C	N1-C2-O2	8.30	123.88	118.90
52	2	985	C	C6-N1-C2	-8.29	116.99	120.30
52	2	4682	U	N3-C2-O2	-8.28	116.40	122.20
52	2	209	U	N1-C2-O2	8.27	128.59	122.80
52	2	2856	C	N1-C2-O2	8.27	123.86	118.90
52	2	963	G	N3-C4-C5	-8.27	124.47	128.60
52	2	4714	C	N3-C2-O2	-8.27	116.11	121.90
52	2	4996	C	C6-N1-C2	-8.27	116.99	120.30
52	2	1458	C	N1-C2-O2	8.24	123.84	118.90
52	2	972	C	N1-C2-O2	8.24	123.84	118.90
52	2	1994	C	N3-C2-O2	-8.23	116.14	121.90
52	2	220	C	N3-C2-O2	-8.21	116.15	121.90
50	3	92	C	C6-N1-C2	-8.21	117.02	120.30
52	2	2760	G	P-O3'-C3'	8.21	129.55	119.70
52	2	4471	U	N3-C2-O2	-8.21	116.46	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2262	G	C4-N9-C1'	8.19	137.15	126.50
52	2	963	G	N3-C4-N9	8.19	130.91	126.00
52	2	4476	C	N3-C2-O2	-8.18	116.17	121.90
52	2	3587	C	N1-C2-O2	8.18	123.81	118.90
52	2	4926	C	C2-N1-C1'	8.17	127.79	118.80
52	2	2532	C	C6-N1-C2	-8.17	117.03	120.30
52	2	3636	C	C6-N1-C2	-8.16	117.03	120.30
52	2	2072	C	C6-N1-C2	-8.16	117.04	120.30
52	2	2532	C	C5-C6-N1	8.16	125.08	121.00
50	3	92	C	N3-C2-O2	-8.15	116.19	121.90
52	2	2627	C	C2-N1-C1'	8.15	127.77	118.80
52	2	3772	U	N1-C2-O2	8.11	128.48	122.80
52	2	499	G	N3-C4-C5	-8.10	124.55	128.60
52	2	1472	C	N1-C2-O2	8.09	123.75	118.90
52	2	1963	C	C6-N1-C2	-8.08	117.07	120.30
52	2	1442	C	N3-C2-O2	-8.06	116.26	121.90
52	2	1996	C	C6-N1-C2	-8.04	117.08	120.30
52	2	3878	C	N3-C2-O2	-8.04	116.28	121.90
52	2	4709	U	C2-N1-C1'	8.03	127.33	117.70
3	8	64	U	N1-C2-O2	8.02	128.41	122.80
52	2	3696	C	C6-N1-C2	-8.01	117.10	120.30
52	2	1889	U	N3-C2-O2	-8.01	116.60	122.20
52	2	492	U	N3-C2-O2	-8.00	116.60	122.20
52	2	489	C	C2-N1-C1'	7.98	127.58	118.80
52	2	1607	C	N1-C2-O2	7.97	123.69	118.90
52	2	1607	C	N3-C2-O2	-7.97	116.32	121.90
52	2	77	U	N1-C2-O2	7.97	128.38	122.80
52	2	1978	C	N1-C2-O2	7.96	123.68	118.90
52	2	2528	G	C4-N9-C1'	7.95	136.84	126.50
52	2	2022	C	N3-C2-O2	-7.95	116.34	121.90
52	2	2337	C	N1-C2-O2	7.95	123.67	118.90
52	2	2410	C	N1-C2-O2	7.95	123.67	118.90
52	2	2410	C	C5-C6-N1	7.94	124.97	121.00
52	2	1402	C	C2-N1-C1'	7.93	127.53	118.80
52	2	1578	U	N3-C2-O2	-7.90	116.67	122.20
6	B	360	LEU	CA-CB-CG	7.90	133.47	115.30
52	2	1921	C	N3-C2-O2	-7.90	116.37	121.90
3	8	99	U	N3-C2-O2	-7.89	116.68	122.20
52	2	4747	C	C2-N1-C1'	7.89	127.47	118.80
52	2	499	G	C8-N9-C1'	-7.88	116.75	127.00
52	2	3892	U	N3-C2-O2	-7.88	116.69	122.20
52	2	1402	C	C5-C6-N1	7.88	124.94	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	50	C	N3-C2-O2	-7.87	116.39	121.90
52	2	3657	U	N3-C2-O2	-7.86	116.69	122.20
52	2	4764	A	N1-C2-N3	-7.84	125.38	129.30
52	2	195	C	C6-N1-C2	-7.83	117.17	120.30
52	2	1915	C	N1-C2-O2	7.83	123.60	118.90
52	2	4682	U	N1-C2-O2	7.82	128.28	122.80
52	2	4766	C	C6-N1-C2	-7.82	117.17	120.30
52	2	2850	A	C2-N3-C4	7.81	114.51	110.60
52	2	738	C	N1-C2-O2	7.81	123.59	118.90
52	2	2410	C	C2-N1-C1'	7.81	127.39	118.80
52	2	1921	C	C2-N1-C1'	7.80	127.38	118.80
52	2	4985	U	N3-C2-O2	-7.79	116.75	122.20
52	2	2362	U	N3-C2-O2	-7.78	116.75	122.20
52	2	4895	C	N1-C2-O2	7.78	123.57	118.90
52	2	4453	C	C2-N1-C1'	7.78	127.36	118.80
52	2	914	U	P-O3'-C3'	7.76	129.02	119.70
52	2	367	C	C6-N1-C2	-7.75	117.20	120.30
52	2	2819	U	N1-C2-O2	7.75	128.23	122.80
52	2	2439	G	C8-N9-C1'	-7.75	116.93	127.00
52	2	486	C	C5-C6-N1	7.75	124.87	121.00
52	2	3774	A	P-O3'-C3'	7.75	128.99	119.70
52	2	4453	C	N1-C2-O2	7.74	123.54	118.90
52	2	1191	C	N3-C2-O2	-7.74	116.49	121.90
52	2	4714	C	C6-N1-C2	-7.73	117.21	120.30
52	2	4350	C	C6-N1-C2	-7.73	117.21	120.30
52	2	2262	G	N3-C4-N9	7.72	130.63	126.00
52	2	4171	C	N1-C2-O2	7.72	123.53	118.90
50	3	78	C	C5-C6-N1	7.72	124.86	121.00
52	2	1579	C	C6-N1-C2	-7.72	117.21	120.30
52	2	3831	U	N3-C2-O2	-7.72	116.80	122.20
52	2	141	C	N1-C2-O2	7.71	123.53	118.90
52	2	100	C	C6-N1-C1'	-7.71	111.55	120.80
52	2	3876	A	N3-C4-N9	7.71	133.57	127.40
52	2	282	C	N3-C2-O2	-7.70	116.51	121.90
52	2	1666	C	C6-N1-C2	-7.68	117.23	120.30
52	2	963	G	C8-N9-C1'	-7.67	117.02	127.00
52	2	4112	C	N1-C2-O2	7.67	123.50	118.90
52	2	4327	C	C6-N1-C2	-7.66	117.23	120.30
52	2	4864	U	N3-C2-O2	-7.65	116.84	122.20
52	2	3696	C	N3-C2-O2	-7.64	116.55	121.90
52	2	4502	C	C6-N1-C2	-7.64	117.25	120.30
52	2	2019	C	C6-N1-C2	-7.63	117.25	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	4864	U	N1-C2-O2	7.63	128.14	122.80
52	2	220	C	C5-C6-N1	7.63	124.82	121.00
52	2	281	U	N3-C2-O2	-7.63	116.86	122.20
52	2	2589	C	C6-N1-C2	-7.63	117.25	120.30
52	2	4476	C	C6-N1-C1'	-7.62	111.66	120.80
52	2	209	U	N3-C2-O2	-7.61	116.88	122.20
52	2	753	C	C5-C6-N1	7.60	124.80	121.00
52	2	1671	U	C6-N1-C2	-7.59	116.44	121.00
52	2	2561	C	C5-C6-N1	7.59	124.80	121.00
52	2	1405	C	N3-C2-O2	-7.58	116.60	121.90
52	2	4387	C	N1-C2-O2	7.58	123.44	118.90
52	2	112	C	C6-N1-C2	-7.57	117.27	120.30
52	2	1318	C	C5-C6-N1	7.57	124.79	121.00
52	2	1276	C	C6-N1-C2	-7.56	117.28	120.30
52	2	694	C	C2-N1-C1'	7.56	127.11	118.80
52	2	1703	C	N1-C2-O2	7.55	123.43	118.90
49	d	35	ASP	CB-CG-OD1	7.54	125.09	118.30
52	2	3598	C	N1-C2-O2	7.54	123.43	118.90
52	2	1978	C	C6-N1-C2	-7.53	117.29	120.30
52	2	2107	C	C6-N1-C2	-7.52	117.29	120.30
52	2	489	C	C5-C6-N1	7.51	124.75	121.00
3	8	28	C	C6-N1-C2	-7.50	117.30	120.30
52	2	2627	C	N1-C2-O2	7.50	123.40	118.90
33	n	5	LEU	CA-CB-CG	7.48	132.51	115.30
35	p	220	MET	CA-CB-CG	7.48	126.02	113.30
50	3	28	C	C6-N1-C2	-7.45	117.32	120.30
52	2	1401	C	C2-N1-C1'	7.45	127.00	118.80
52	2	4162	C	N1-C2-O2	7.44	123.36	118.90
52	2	2482	C	N1-C2-O2	7.43	123.36	118.90
52	2	2814	C	C2-N1-C1'	7.43	126.97	118.80
52	2	2603	C	C6-N1-C2	-7.43	117.33	120.30
52	2	3863	C	C6-N1-C2	-7.41	117.34	120.30
52	2	1216	C	C6-N1-C1'	-7.40	111.92	120.80
52	2	115	C	N3-C2-O2	-7.39	116.72	121.90
52	2	3772	U	C2-N1-C1'	7.39	126.57	117.70
52	2	4171	C	C6-N1-C2	-7.39	117.34	120.30
52	2	2445	C	C6-N1-C2	-7.38	117.35	120.30
52	2	472	C	C2-N1-C1'	7.38	126.92	118.80
52	2	467	U	C6-N1-C1'	-7.38	110.87	121.20
52	2	2019	C	C2-N1-C1'	7.37	126.91	118.80
52	2	3892	U	N1-C2-O2	7.37	127.96	122.80
52	2	2262	G	N3-C4-C5	-7.37	124.91	128.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	4286	C	C2-N1-C1'	7.37	126.91	118.80
52	2	1720	C	N1-C2-O2	7.36	123.32	118.90
3	8	99	U	N1-C2-O2	7.36	127.95	122.80
52	2	1241	C	N1-C2-O2	7.34	123.30	118.90
3	8	51	U	N3-C2-O2	-7.33	117.07	122.20
52	2	1216	C	C6-N1-C2	-7.33	117.37	120.30
52	2	694	C	C6-N1-C2	-7.32	117.37	120.30
52	2	4308	C	C6-N1-C2	-7.32	117.37	120.30
52	2	4243	C	C5-C6-N1	7.31	124.66	121.00
52	2	4885	U	N3-C2-O2	-7.31	117.08	122.20
3	8	51	U	N1-C2-O2	7.31	127.92	122.80
52	2	1442	C	C5-C6-N1	7.31	124.65	121.00
52	2	486	C	O5'-P-OP2	-7.31	99.12	105.70
52	2	2351	C	C5-C6-N1	7.31	124.65	121.00
2	7	112	LEU	CA-CB-CG	7.30	132.10	115.30
52	2	112	C	C2-N1-C1'	7.30	126.83	118.80
52	2	2033	A	P-O3'-C3'	7.29	128.45	119.70
52	2	3932	U	N3-C2-O2	-7.29	117.10	122.20
52	2	2561	C	C6-N1-C2	-7.28	117.39	120.30
52	2	96	U	N1-C2-O2	7.27	127.89	122.80
52	2	4308	C	N1-C2-O2	7.27	123.26	118.90
52	2	2528	G	N3-C4-C5	-7.27	124.97	128.60
52	2	5035	U	N3-C2-O2	-7.27	117.11	122.20
52	2	2499	C	C5-C6-N1	7.26	124.63	121.00
52	2	100	C	C6-N1-C2	-7.26	117.40	120.30
52	2	220	C	C2-N1-C1'	7.25	126.78	118.80
5	A	116	LEU	CA-CB-CG	7.25	131.98	115.30
52	2	4266	G	C4-N9-C1'	7.25	135.92	126.50
52	2	3622	C	N3-C2-O2	-7.25	116.83	121.90
52	2	3833	C	C6-N1-C2	-7.24	117.40	120.30
52	2	2011	C	C6-N1-C2	-7.23	117.41	120.30
50	3	95	C	C6-N1-C1'	-7.23	112.12	120.80
52	2	3637	U	N3-C2-O2	-7.23	117.14	122.20
52	2	4537	C	C6-N1-C2	-7.21	117.42	120.30
52	2	3739	C	N1-C2-O2	7.21	123.22	118.90
52	2	4426	C	C6-N1-C2	-7.20	117.42	120.30
52	2	274	C	C5-C6-N1	7.20	124.60	121.00
52	2	1889	U	N1-C2-O2	7.20	127.84	122.80
52	2	1994	C	C6-N1-C1'	-7.19	112.17	120.80
52	2	4747	C	C5-C6-N1	7.19	124.60	121.00
52	2	750	U	N3-C2-O2	-7.19	117.17	122.20
50	3	29	C	C6-N1-C2	-7.18	117.43	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	1632	A	C2-N3-C4	7.18	114.19	110.60
52	2	260	C	C6-N1-C2	-7.18	117.43	120.30
52	2	2856	C	N3-C2-O2	-7.18	116.88	121.90
52	2	4887	C	N3-C2-O2	-7.18	116.88	121.90
52	2	1980	U	P-O3'-C3'	7.17	128.31	119.70
52	2	3598	C	N3-C2-O2	-7.17	116.88	121.90
52	2	2528	G	N3-C4-N9	7.17	130.30	126.00
52	2	4918	C	C6-N1-C2	-7.17	117.43	120.30
52	2	1315	C	C5-C6-N1	7.17	124.58	121.00
52	2	4130	C	C5-C6-N1	7.16	124.58	121.00
52	2	492	U	N1-C2-O2	7.15	127.81	122.80
52	2	3650	C	C6-N1-C2	-7.15	117.44	120.30
52	2	2603	C	C5-C6-N1	7.14	124.57	121.00
3	8	150	C	N1-C2-O2	7.13	123.18	118.90
3	8	4	C	C6-N1-C2	-7.13	117.45	120.30
52	2	3587	C	C6-N1-C2	-7.13	117.45	120.30
52	2	406	C	P-O3'-C3'	7.13	128.25	119.70
52	2	1694	C	C6-N1-C2	-7.13	117.45	120.30
52	2	3915	U	N3-C2-O2	-7.12	117.22	122.20
52	2	4294	C	C6-N1-C2	-7.11	117.45	120.30
52	2	4453	C	N3-C2-O2	-7.11	116.92	121.90
52	2	1297	U	N3-C2-O2	-7.09	117.24	122.20
52	2	2667	C	N1-C2-O2	7.08	123.15	118.90
52	2	1732	C	C5-C6-N1	7.08	124.54	121.00
52	2	2008	U	C2-N1-C1'	7.08	126.19	117.70
52	2	5008	C	C6-N1-C2	-7.07	117.47	120.30
52	2	4508	C	C6-N1-C2	-7.06	117.47	120.30
52	2	4522	G	C4-N9-C1'	7.06	135.68	126.50
52	2	2011	C	N3-C2-O2	-7.05	116.96	121.90
52	2	4695	C	N3-C2-O2	-7.05	116.96	121.90
3	8	101	C	C6-N1-C2	-7.05	117.48	120.30
50	3	51	G	P-O3'-C3'	7.05	128.16	119.70
52	2	1429	C	C6-N1-C2	-7.04	117.48	120.30
52	2	178	C	N1-C2-O2	7.04	123.12	118.90
52	2	1472	C	C6-N1-C2	-7.02	117.49	120.30
52	2	4880	C	N3-C2-O2	-7.01	116.99	121.90
50	3	24	C	N1-C2-O2	7.01	123.11	118.90
52	2	1808	C	P-O3'-C3'	7.01	128.11	119.70
52	2	2710	C	C5-C6-N1	7.01	124.50	121.00
52	2	1578	U	N1-C2-O2	7.00	127.70	122.80
52	2	3831	U	N1-C2-O2	6.99	127.70	122.80
52	2	2439	G	N3-C4-N9	6.99	130.19	126.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	3931	C	C5-C6-N1	6.99	124.50	121.00
50	3	3	C	C5-C6-N1	6.99	124.49	121.00
52	2	368	C	C6-N1-C2	-6.99	117.50	120.30
52	2	1191	C	N1-C2-O2	6.99	123.09	118.90
50	3	57	C	C2-N1-C1'	6.98	126.48	118.80
52	2	3657	U	N1-C2-O2	6.98	127.69	122.80
52	2	972	C	N3-C2-O2	-6.98	117.02	121.90
3	8	35	C	C6-N1-C2	-6.96	117.51	120.30
52	2	3833	C	C2-N1-C1'	6.96	126.46	118.80
52	2	2856	C	C6-N1-C2	-6.96	117.52	120.30
50	3	28	C	C5-C6-N1	6.96	124.48	121.00
52	2	131	C	C6-N1-C2	-6.96	117.52	120.30
52	2	2019	C	N1-C2-O2	6.95	123.07	118.90
52	2	2262	G	C8-N9-C1'	-6.95	117.96	127.00
52	2	4996	C	C5-C6-N1	6.95	124.48	121.00
3	8	107	C	C6-N1-C2	-6.95	117.52	120.30
52	2	1816	C	N3-C2-O2	-6.95	117.04	121.90
52	2	3905	A	P-O3'-C3'	6.95	128.04	119.70
52	2	274	C	C2-N1-C1'	6.95	126.44	118.80
50	3	72	U	O5'-P-OP2	-6.94	99.46	105.70
52	2	719	C	C6-N1-C2	-6.93	117.53	120.30
52	2	4773	C	N1-C2-O2	6.93	123.06	118.90
52	2	44	A	C2-N3-C4	6.92	114.06	110.60
52	2	2837	U	N3-C2-O2	-6.91	117.36	122.20
52	2	4985	U	N1-C2-O2	6.91	127.64	122.80
52	2	1458	C	N3-C2-O2	-6.91	117.06	121.90
52	2	1812	C	C5-C6-N1	6.91	124.45	121.00
3	8	54	C	N1-C2-O2	6.90	123.04	118.90
52	2	694	C	N1-C2-O2	6.89	123.03	118.90
52	2	985	C	C2-N1-C1'	6.89	126.38	118.80
50	3	3	C	C6-N1-C2	-6.89	117.55	120.30
52	2	3637	U	N1-C2-O2	6.89	127.62	122.80
52	2	661	C	C6-N1-C2	-6.88	117.55	120.30
52	2	1931	C	P-O3'-C3'	6.88	127.96	119.70
52	2	259	C	N1-C2-O2	6.88	123.03	118.90
50	3	26	C	C6-N1-C2	-6.87	117.55	120.30
52	2	1241	C	C2-N1-C1'	6.87	126.36	118.80
52	2	3876	A	C4-N9-C1'	-6.87	113.93	126.30
52	2	2027	U	N3-C2-O2	-6.87	117.39	122.20
52	2	2592	U	N3-C2-O2	-6.85	117.40	122.20
52	2	4662	C	C5-C6-N1	6.85	124.42	121.00
52	2	1346	C	C6-N1-C2	-6.84	117.56	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	672	C	C2-N1-C1'	6.83	126.32	118.80
52	2	322	C	C6-N1-C2	-6.83	117.57	120.30
52	2	1315	C	C6-N1-C2	-6.83	117.57	120.30
52	2	1678	C	P-O3'-C3'	6.83	127.89	119.70
52	2	3696	C	C2-N1-C1'	6.83	126.31	118.80
52	2	4284	C	C5-C6-N1	6.82	124.41	121.00
52	2	1367	C	C2-N1-C1'	6.82	126.30	118.80
52	2	2465	C	C5-C6-N1	6.81	124.41	121.00
52	2	1367	C	N1-C2-O2	6.80	122.98	118.90
52	2	2667	C	C6-N1-C2	-6.79	117.58	120.30
52	2	1644	C	C6-N1-C2	-6.79	117.58	120.30
52	2	4349	C	N1-C2-O2	6.78	122.97	118.90
52	2	281	U	N1-C2-O2	6.78	127.55	122.80
52	2	3863	C	C5-C6-N1	6.77	124.39	121.00
52	2	1987	C	N3-C2-O2	-6.76	117.17	121.90
52	2	4614	G	C5-C6-O6	6.76	132.66	128.60
52	2	4972	U	N3-C2-O2	-6.76	117.47	122.20
52	2	78	U	N3-C2-O2	-6.76	117.47	122.20
52	2	3631	U	N3-C2-O2	-6.76	117.47	122.20
52	2	3870	C	C6-N1-C2	-6.76	117.60	120.30
52	2	79	C	C6-N1-C2	-6.75	117.60	120.30
52	2	4913	G	P-O3'-C3'	6.75	127.80	119.70
52	2	1428	U	N3-C2-O2	-6.75	117.48	122.20
50	3	72	U	P-O3'-C3'	6.74	127.78	119.70
52	2	4471	U	N1-C2-O2	6.74	127.52	122.80
52	2	4627	U	N3-C2-O2	-6.73	117.49	122.20
52	2	1401	C	C6-N1-C2	-6.73	117.61	120.30
52	2	2818	C	C6-N1-C2	-6.73	117.61	120.30
52	2	2792	C	C6-N1-C2	-6.72	117.61	120.30
52	2	4500	U	C2-N1-C1'	6.71	125.75	117.70
3	8	54	C	C6-N1-C2	-6.70	117.62	120.30
52	2	4945	G	N3-C4-N9	6.70	130.02	126.00
52	2	2362	U	N1-C2-O2	6.70	127.49	122.80
52	2	1929	A	C4-N9-C1'	6.70	138.35	126.30
52	2	5050	C	C6-N1-C2	-6.70	117.62	120.30
52	2	2820	C	N3-C2-O2	-6.69	117.22	121.90
52	2	485	C	P-O3'-C3'	6.69	127.72	119.70
52	2	2837	U	N1-C2-O2	6.69	127.48	122.80
52	2	4569	U	N3-C2-O2	-6.68	117.52	122.20
52	2	4266	G	N3-C4-N9	6.68	130.01	126.00
52	2	365	U	N3-C2-O2	-6.66	117.54	122.20
52	2	4418	G	C4-N9-C1'	-6.66	117.84	126.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
50	3	84	U	C6-N1-C1'	-6.66	111.88	121.20
52	2	1428	U	N1-C2-O2	6.66	127.46	122.80
52	2	988	C	C6-N1-C2	-6.65	117.64	120.30
52	2	1378	C	C2-N1-C1'	6.65	126.11	118.80
52	2	1915	C	N3-C2-O2	-6.65	117.25	121.90
52	2	4406	U	N3-C2-O2	-6.64	117.55	122.20
52	2	1579	C	C5-C6-N1	6.63	124.32	121.00
52	2	2038	U	N3-C2-O2	-6.63	117.56	122.20
52	2	3688	U	N3-C2-O2	-6.63	117.56	122.20
52	2	4360	U	N3-C2-O2	-6.63	117.56	122.20
52	2	3622	C	C6-N1-C2	-6.63	117.65	120.30
3	8	32	C	C6-N1-C2	-6.62	117.65	120.30
52	2	4674	C	C6-N1-C2	-6.62	117.65	120.30
52	2	2482	C	N3-C2-O2	-6.62	117.27	121.90
52	2	4112	C	N3-C2-O2	-6.61	117.27	121.90
50	3	28	C	N1-C2-O2	6.61	122.87	118.90
52	2	2264	C	N1-C2-O2	6.61	122.86	118.90
52	2	4171	C	N3-C2-O2	-6.60	117.28	121.90
52	2	4969	C	C6-N1-C2	-6.60	117.66	120.30
52	2	112	C	N1-C2-O2	6.60	122.86	118.90
51	v	48	MET	CA-CB-CG	6.60	124.52	113.30
52	2	3696	C	C5-C6-N1	6.60	124.30	121.00
52	2	4887	C	C2-N1-C1'	6.60	126.06	118.80
52	2	4627	U	N1-C2-O2	6.59	127.41	122.80
52	2	1297	U	N1-C2-O2	6.58	127.41	122.80
52	2	4231	C	N1-C2-O2	6.58	122.85	118.90
52	2	3739	C	C6-N1-C2	-6.58	117.67	120.30
52	2	4350	C	C5-C6-N1	6.58	124.29	121.00
52	2	406	C	C6-N1-C2	-6.57	117.67	120.30
52	2	1401	C	N1-C2-O2	6.57	122.84	118.90
52	2	3931	C	C6-N1-C2	-6.57	117.67	120.30
52	2	282	C	C6-N1-C2	-6.57	117.67	120.30
3	8	153	C	C6-N1-C2	-6.56	117.67	120.30
52	2	1644	C	C5-C6-N1	6.56	124.28	121.00
52	2	1987	C	C6-N1-C2	-6.56	117.67	120.30
52	2	1978	C	C5-C6-N1	6.56	124.28	121.00
52	2	5004	C	N1-C2-O2	6.55	122.83	118.90
3	8	101	C	C2-N1-C1'	6.55	126.01	118.80
3	8	111	U	C2-N1-C1'	6.54	125.55	117.70
52	2	365	U	N1-C2-O2	6.54	127.38	122.80
52	2	3876	A	C4-C5-C6	6.54	120.27	117.00
52	2	4387	C	C6-N1-C2	-6.53	117.69	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	1203	G	C4-N9-C1'	6.53	134.99	126.50
52	2	941	C	C6-N1-C2	-6.53	117.69	120.30
52	2	1994	C	C6-N1-C2	-6.53	117.69	120.30
52	2	112	C	C5-C6-N1	6.52	124.26	121.00
52	2	977	C	C6-N1-C2	-6.52	117.69	120.30
52	2	4596	C	N1-C2-O2	6.52	122.81	118.90
52	2	3840	U	N3-C2-O2	-6.52	117.64	122.20
3	8	32	C	N1-C2-O2	6.51	122.81	118.90
52	2	1245	C	C5-C6-N1	6.51	124.25	121.00
52	2	1966	C	C6-N1-C2	-6.51	117.69	120.30
3	8	11	C	C6-N1-C2	-6.51	117.70	120.30
52	2	2654	C	C6-N1-C2	-6.50	117.70	120.30
52	2	2497	C	C6-N1-C2	-6.50	117.70	120.30
52	2	5035	U	N1-C2-O2	6.50	127.35	122.80
52	2	1808	C	C6-N1-C2	-6.50	117.70	120.30
52	2	2783	A	N1-C2-N3	-6.50	126.05	129.30
52	2	3866	C	C5-C6-N1	6.49	124.25	121.00
52	2	4149	C	C6-N1-C2	-6.49	117.70	120.30
52	2	1203	G	N3-C4-C5	-6.49	125.35	128.60
52	2	1384	C	C6-N1-C2	-6.49	117.70	120.30
52	2	4628	U	N3-C2-O2	-6.49	117.66	122.20
52	2	2593	C	C6-N1-C2	-6.47	117.71	120.30
52	2	1996	C	C5-C6-N1	6.47	124.23	121.00
50	3	95	C	C6-N1-C2	-6.46	117.71	120.30
52	2	1720	C	C6-N1-C2	-6.46	117.71	120.30
52	2	4764	A	C6-N1-C2	6.46	122.48	118.60
52	2	673	C	N1-C2-O2	6.46	122.78	118.90
52	2	4406	U	N1-C2-O2	6.46	127.32	122.80
52	2	68	U	N3-C2-O2	-6.46	117.68	122.20
52	2	2791	C	C6-N1-C2	-6.46	117.72	120.30
52	2	390	C	C6-N1-C2	-6.46	117.72	120.30
50	3	35	U	N3-C2-O2	-6.45	117.68	122.20
52	2	4230	C	C6-N1-C2	-6.45	117.72	120.30
52	2	2325	C	C6-N1-C2	-6.44	117.72	120.30
52	2	1081	C	N1-C2-O2	6.44	122.77	118.90
52	2	2062	C	C6-N1-C2	-6.44	117.72	120.30
52	2	4887	C	C6-N1-C2	-6.44	117.72	120.30
52	2	1812	C	C6-N1-C2	-6.44	117.72	120.30
52	2	904	C	N1-C2-O2	6.44	122.76	118.90
52	2	3772	U	O4'-C1'-N1	6.44	113.35	108.20
52	2	1663	C	C6-N1-C2	-6.43	117.73	120.30
50	3	71	G	OP1-P-O3'	6.43	119.34	105.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	8	80	A	C2-N3-C4	6.42	113.81	110.60
52	2	4502	C	C6-N1-C1'	-6.42	113.10	120.80
52	2	2528	G	C8-N9-C1'	-6.42	118.66	127.00
52	2	3870	C	C5-C6-N1	6.41	124.21	121.00
52	2	972	C	C6-N1-C2	-6.41	117.74	120.30
52	2	2532	C	C2-N1-C1'	6.41	125.85	118.80
52	2	2439	G	N3-C4-C5	-6.40	125.40	128.60
52	2	4880	C	C6-N1-C2	-6.40	117.74	120.30
52	2	492	U	C2-N1-C1'	6.40	125.38	117.70
52	2	988	C	C5-C6-N1	6.40	124.20	121.00
52	2	985	C	C5-C6-N1	6.40	124.20	121.00
52	2	2337	C	N3-C2-O2	-6.40	117.42	121.90
52	2	2814	C	N3-C2-O2	-6.40	117.42	121.90
52	2	4885	U	N1-C2-O2	6.40	127.28	122.80
52	2	180	C	C6-N1-C2	-6.39	117.74	120.30
52	2	1203	G	N3-C4-N9	6.39	129.84	126.00
52	2	1414	C	C6-N1-C2	-6.39	117.74	120.30
52	2	1825	A	N7-C8-N9	6.39	117.00	113.80
3	8	90	C	C6-N1-C2	-6.39	117.74	120.30
52	2	1971	C	N1-C2-O2	6.39	122.73	118.90
52	2	2094	G	C4-N9-C1'	6.39	134.81	126.50
52	2	4286	C	N1-C2-O2	6.39	122.73	118.90
50	3	67	C	C6-N1-C2	-6.38	117.75	120.30
52	2	988	C	N1-C2-O2	6.38	122.73	118.90
52	2	3851	U	N3-C2-O2	-6.38	117.73	122.20
52	2	3636	C	N1-C2-O2	6.38	122.73	118.90
52	2	4406	U	C2-N1-C1'	6.38	125.36	117.70
52	2	3587	C	N3-C2-O2	-6.38	117.44	121.90
52	2	1323	A	N1-C2-N3	-6.37	126.11	129.30
52	2	472	C	C5-C6-N1	6.37	124.18	121.00
52	2	2615	C	N1-C2-O2	6.37	122.72	118.90
52	2	297	U	N3-C2-O2	-6.36	117.75	122.20
3	8	4	C	C5-C6-N1	6.35	124.18	121.00
52	2	2072	C	C5-C6-N1	6.35	124.18	121.00
52	2	1663	C	C5-C6-N1	6.35	124.17	121.00
52	2	738	C	C6-N1-C2	-6.34	117.76	120.30
52	2	4628	U	N1-C2-O2	6.34	127.24	122.80
50	3	96	U	N3-C2-O2	-6.34	117.76	122.20
52	2	1216	C	C5-C6-N1	6.33	124.17	121.00
52	2	516	C	C5-C6-N1	6.33	124.17	121.00
52	2	1938	C	C2-N1-C1'	6.33	125.77	118.80
52	2	1702	C	C2-N1-C1'	6.33	125.76	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	3636	C	N3-C2-O2	-6.33	117.47	121.90
52	2	489	C	N1-C2-O2	6.33	122.70	118.90
52	2	26	C	C6-N1-C2	-6.33	117.77	120.30
52	2	386	A	C2-N3-C4	6.32	113.76	110.60
52	2	4766	C	C2-N1-C1'	6.32	125.75	118.80
52	2	673	C	C6-N1-C2	-6.32	117.77	120.30
52	2	1245	C	C6-N1-C2	-6.31	117.78	120.30
52	2	3598	C	C6-N1-C2	-6.31	117.78	120.30
50	3	72	U	OP1-P-OP2	-6.30	110.14	119.60
52	2	50	C	C5-C6-N1	6.30	124.15	121.00
52	2	1414	C	N1-C2-O2	6.30	122.68	118.90
52	2	3833	C	C5-C6-N1	6.30	124.15	121.00
52	2	2337	C	C6-N1-C2	-6.30	117.78	120.30
52	2	4709	U	C6-N1-C2	-6.30	117.22	121.00
52	2	472	C	N1-C2-O2	6.30	122.68	118.90
50	3	24	C	C6-N1-C2	-6.29	117.78	120.30
52	2	1405	C	C5-C6-N1	6.29	124.15	121.00
52	2	4319	C	C6-N1-C2	-6.29	117.78	120.30
52	2	257	C	N1-C2-O2	6.29	122.67	118.90
52	2	2482	C	C6-N1-C2	-6.29	117.78	120.30
52	2	4532	U	N3-C2-O2	-6.28	117.80	122.20
52	2	4773	C	N3-C2-O2	-6.28	117.50	121.90
52	2	2533	C	C6-N1-C2	-6.28	117.79	120.30
52	2	1405	C	C6-N1-C2	-6.28	117.79	120.30
52	2	4775	C	C2-N1-C1'	6.28	125.71	118.80
52	2	1901	C	C6-N1-C2	-6.28	117.79	120.30
52	2	1978	C	C2-N1-C1'	6.28	125.70	118.80
52	2	4158	C	C6-N1-C2	-6.27	117.79	120.30
52	2	2684	C	C6-N1-C2	-6.27	117.79	120.30
52	2	4709	U	C5-C6-N1	6.27	125.83	122.70
52	2	2615	C	C6-N1-C2	-6.26	117.80	120.30
52	2	2729	C	C6-N1-C2	-6.26	117.80	120.30
52	2	4266	G	N3-C4-C5	-6.26	125.47	128.60
52	2	5008	C	N1-C2-O2	6.26	122.66	118.90
52	2	3587	C	C5-C6-N1	6.25	124.13	121.00
52	2	1309	C	C6-N1-C2	-6.25	117.80	120.30
52	2	2589	C	C5-C6-N1	6.25	124.12	121.00
3	8	150	C	N3-C2-O2	-6.24	117.53	121.90
50	3	35	U	N1-C2-O2	6.24	127.17	122.80
52	2	1884	C	C6-N1-C2	-6.24	117.80	120.30
52	2	2031	C	C6-N1-C2	-6.24	117.80	120.30
3	8	150	C	C6-N1-C2	-6.23	117.81	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	1678	C	N1-C2-O2	6.23	122.64	118.90
52	2	4712	C	N1-C2-O2	6.23	122.64	118.90
52	2	3882	C	C6-N1-C2	-6.23	117.81	120.30
52	2	1966	C	C5-C6-N1	6.22	124.11	121.00
52	2	1183	C	N1-C2-O2	6.22	122.63	118.90
52	2	1720	C	N3-C2-O2	-6.22	117.55	121.90
52	2	1251	C	C6-N1-C2	-6.22	117.81	120.30
52	2	1963	C	N1-C2-O2	6.21	122.63	118.90
52	2	988	C	C2-N1-C1'	6.21	125.63	118.80
52	2	5050	C	C2-N1-C1'	6.21	125.63	118.80
52	2	30	C	C6-N1-C2	-6.21	117.82	120.30
52	2	1666	C	C5-C6-N1	6.20	124.10	121.00
52	2	4360	U	N1-C2-O2	6.20	127.14	122.80
52	2	4508	C	C5-C6-N1	6.20	124.10	121.00
52	2	1538	U	N3-C2-O2	-6.19	117.87	122.20
52	2	1325	C	N1-C2-O2	6.19	122.61	118.90
52	2	2048	U	N3-C2-O2	-6.18	117.87	122.20
52	2	2037	C	C6-N1-C2	-6.18	117.83	120.30
52	2	1340	C	C5-C6-N1	6.18	124.09	121.00
52	2	4276	G	C4-N9-C1'	6.18	134.53	126.50
50	3	29	C	C5-C6-N1	6.18	124.09	121.00
52	2	738	C	N3-C2-O2	-6.18	117.58	121.90
52	2	4775	C	N1-C2-O2	6.17	122.60	118.90
52	2	3876	A	N1-C6-N6	-6.17	114.90	118.60
52	2	4387	C	N3-C2-O2	-6.17	117.58	121.90
3	8	28	C	C5-C6-N1	6.17	124.08	121.00
52	2	3882	C	N1-C2-O2	6.17	122.60	118.90
52	2	1340	C	C6-N1-C2	-6.17	117.83	120.30
52	2	1472	C	C2-N1-C1'	6.17	125.58	118.80
52	2	4341	C	N1-C2-O2	6.16	122.60	118.90
52	2	3878	C	C6-N1-C1'	-6.16	113.41	120.80
52	2	4747	C	N1-C2-O2	6.16	122.59	118.90
52	2	2497	C	N1-C2-O2	6.15	122.59	118.90
50	3	71	G	P-O3'-C3'	6.15	127.08	119.70
52	2	4766	C	C5-C6-N1	6.15	124.08	121.00
52	2	1963	C	C2-N1-C1'	6.15	125.57	118.80
52	2	4878	C	C6-N1-C2	-6.15	117.84	120.30
52	2	2532	C	N1-C2-O2	6.15	122.59	118.90
52	2	1732	C	C2-N1-C1'	6.15	125.56	118.80
52	2	100	C	O4'-C1'-N1	6.14	113.11	108.20
52	2	643	C	N1-C2-O2	6.14	122.58	118.90
52	2	1467	C	N1-C2-O2	6.13	122.58	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	1856	C	C6-N1-C2	-6.13	117.85	120.30
20	S	127	VAL	CG1-CB-CG2	-6.13	101.09	110.90
52	2	1081	C	N3-C2-O2	-6.13	117.61	121.90
52	2	4639	G	N3-C4-C5	-6.13	125.54	128.60
52	2	4532	U	N1-C2-O2	6.12	127.09	122.80
52	2	2373	C	C6-N1-C2	-6.12	117.85	120.30
3	8	101	C	N1-C2-O2	6.12	122.57	118.90
52	2	123	C	C6-N1-C2	-6.12	117.85	120.30
50	3	57	C	N1-C2-O2	6.12	122.57	118.90
52	2	3772	U	C6-N1-C2	-6.12	117.33	121.00
52	2	4758	U	C6-N1-C1'	-6.12	112.64	121.20
52	2	750	U	N1-C2-O2	6.11	127.08	122.80
52	2	1847	C	C6-N1-C2	-6.11	117.86	120.30
52	2	2417	A	O4'-C1'-N9	6.11	113.09	108.20
52	2	1978	C	N3-C2-O2	-6.11	117.62	121.90
52	2	4254	G	N3-C4-C5	-6.11	125.55	128.60
52	2	1678	C	C2-N1-C1'	6.10	125.51	118.80
52	2	4308	C	C5-C6-N1	6.09	124.05	121.00
52	2	358	C	N1-C2-O2	6.09	122.55	118.90
52	2	2556	G	N3-C4-N9	6.09	129.65	126.00
52	2	1633	G	P-O3'-C3'	6.09	127.00	119.70
52	2	4923	C	N1-C2-O2	6.08	122.55	118.90
52	2	4237	C	C6-N1-C2	-6.08	117.87	120.30
3	8	96	C	N1-C2-O2	6.07	122.54	118.90
52	2	115	C	C6-N1-C1'	-6.07	113.51	120.80
52	2	2107	C	C2-N1-C1'	6.07	125.48	118.80
52	2	4764	A	C4-C5-C6	-6.07	113.96	117.00
52	2	4642	U	N3-C2-O2	-6.07	117.95	122.20
52	2	2019	C	N3-C2-O2	-6.07	117.65	121.90
52	2	3622	C	C2-N1-C1'	6.06	125.47	118.80
52	2	1251	C	N3-C2-O2	-6.06	117.66	121.90
52	2	2821	U	N3-C2-O2	-6.06	117.96	122.20
52	2	4996	C	C2-N1-C1'	6.06	125.46	118.80
50	3	72	U	O5'-P-OP1	6.05	117.97	110.70
50	3	94	C	C6-N1-C2	-6.05	117.88	120.30
52	2	4864	U	C2-N1-C1'	6.05	124.96	117.70
52	2	4555	U	P-O3'-C3'	6.05	126.96	119.70
52	2	3833	C	N1-C2-O2	6.05	122.53	118.90
52	2	4476	C	C6-N1-C2	-6.05	117.88	120.30
52	2	1207	C	C6-N1-C2	-6.04	117.88	120.30
52	2	4562	C	N1-C2-O2	6.04	122.53	118.90
52	2	5025	C	C6-N1-C2	-6.04	117.88	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
27	e	90	ARG	CA-CB-CG	6.04	126.69	113.40
52	2	4440	G	N3-C4-N9	6.04	129.62	126.00
36	r	310	LEU	CA-CB-CG	6.04	129.19	115.30
52	2	1401	C	C5-C6-N1	6.03	124.02	121.00
52	2	3915	U	N1-C2-O2	6.03	127.02	122.80
52	2	3932	U	N1-C2-O2	6.03	127.02	122.80
52	2	4402	C	N1-C2-O2	6.03	122.52	118.90
3	8	54	C	N3-C2-O2	-6.03	117.68	121.90
39	y	125	LEU	CA-CB-CG	6.03	129.16	115.30
52	2	3587	C	C2-N1-C1'	6.02	125.42	118.80
52	2	1318	C	C6-N1-C1'	6.02	128.02	120.80
52	2	4132	C	C6-N1-C2	-6.02	117.89	120.30
52	2	3858	C	C6-N1-C2	-6.02	117.89	120.30
52	2	67	C	C6-N1-C2	-6.02	117.89	120.30
52	2	1847	C	C5-C6-N1	6.02	124.01	121.00
52	2	1378	C	C6-N1-C1'	-6.01	113.58	120.80
52	2	2011	C	C5-C6-N1	6.01	124.01	121.00
52	2	4453	C	C6-N1-C2	-6.01	117.89	120.30
39	y	28	LEU	CA-CB-CG	6.01	129.12	115.30
52	2	1472	C	N3-C2-O2	-6.01	117.70	121.90
52	2	122	U	N3-C2-O2	-6.00	118.00	122.20
52	2	14	C	C6-N1-C2	-6.00	117.90	120.30
52	2	672	C	N1-C2-O2	6.00	122.50	118.90
52	2	2892	C	C6-N1-C2	-6.00	117.90	120.30
52	2	1074	G	N3-C4-N9	6.00	129.60	126.00
52	2	4508	C	N1-C2-O2	6.00	122.50	118.90
52	2	1521	C	C6-N1-C2	-6.00	117.90	120.30
52	2	2505	C	C6-N1-C2	-6.00	117.90	120.30
52	2	4972	U	N1-C2-O2	5.99	126.99	122.80
52	2	155	C	N1-C2-O2	5.99	122.49	118.90
52	2	4243	C	N1-C2-O2	5.99	122.49	118.90
52	2	274	C	N1-C2-O2	5.98	122.49	118.90
52	2	1540	C	C6-N1-C2	-5.98	117.91	120.30
52	2	367	C	C5-C6-N1	5.98	123.99	121.00
52	2	1607	C	C6-N1-C2	-5.98	117.91	120.30
50	3	92	C	C5-C6-N1	5.98	123.99	121.00
52	2	4241	C	C5-C6-N1	5.98	123.99	121.00
52	2	4418	G	C8-N9-C1'	5.97	134.76	127.00
52	2	1731	C	C6-N1-C2	-5.97	117.91	120.30
52	2	4233	A	C4-C5-C6	-5.97	114.02	117.00
52	2	4629	U	N3-C2-O2	-5.97	118.02	122.20
52	2	673	C	C5-C6-N1	5.97	123.98	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2618	G	N3-C4-C5	-5.97	125.61	128.60
52	2	4984	C	N1-C2-O2	5.97	122.48	118.90
52	2	3774	A	OP1-P-O3'	5.96	118.32	105.20
52	2	204	U	N3-C2-O2	-5.96	118.03	122.20
52	2	2384	U	N3-C2-O2	-5.96	118.03	122.20
52	2	4254	G	N3-C4-N9	5.96	129.57	126.00
52	2	5008	C	C5-C6-N1	5.96	123.98	121.00
52	2	1465	G	N3-C4-N9	5.95	129.57	126.00
52	2	4308	C	N3-C2-O2	-5.95	117.73	121.90
3	8	43	A	C2-N3-C4	5.95	113.58	110.60
52	2	155	C	N3-C2-O2	-5.95	117.73	121.90
52	2	1592	G	C4-N9-C1'	5.95	134.23	126.50
52	2	1309	C	C5-C6-N1	5.95	123.97	121.00
52	2	152	U	N3-C2-O2	-5.94	118.04	122.20
52	2	201	C	N1-C2-O2	5.94	122.46	118.90
52	2	2304	U	N3-C2-O2	-5.94	118.04	122.20
52	2	3694	U	N1-C2-O2	5.94	126.96	122.80
52	2	4402	C	C6-N1-C2	-5.94	117.92	120.30
52	2	1572	U	N3-C2-O2	-5.94	118.04	122.20
3	8	55	U	N3-C2-O2	-5.93	118.05	122.20
52	2	2561	C	N1-C2-O2	5.93	122.46	118.90
52	2	3901	A	C2-N3-C4	5.93	113.57	110.60
52	2	4983	C	C6-N1-C2	-5.93	117.93	120.30
52	2	1477	C	C6-N1-C2	-5.93	117.93	120.30
52	2	3834	C	C6-N1-C2	-5.92	117.93	120.30
52	2	141	C	N3-C2-O2	-5.92	117.75	121.90
52	2	2514	G	N3-C4-N9	5.92	129.55	126.00
52	2	4619	U	N3-C2-O2	-5.92	118.06	122.20
52	2	977	C	C2-N1-C1'	5.92	125.31	118.80
45	4	12	VAL	CA-CB-CG1	5.92	119.78	110.90
52	2	4476	C	O4'-C1'-N1	5.92	112.93	108.20
52	2	2304	U	N1-C2-O2	5.92	126.94	122.80
52	2	4260	U	N3-C2-O2	-5.91	118.06	122.20
52	2	4393	G	C5-C6-O6	5.91	132.15	128.60
52	2	131	C	C5-C6-N1	5.91	123.95	121.00
52	2	4714	C	C5-C6-N1	5.91	123.95	121.00
52	2	115	C	C6-N1-C2	-5.90	117.94	120.30
52	2	4284	C	N1-C2-O2	5.90	122.44	118.90
52	2	3594	C	C6-N1-C2	-5.90	117.94	120.30
52	2	3688	U	N1-C2-O2	5.90	126.93	122.80
52	2	26	C	N1-C2-O2	5.90	122.44	118.90
52	2	2779	C	C6-N1-C2	-5.90	117.94	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2351	C	N1-C2-O2	5.89	122.44	118.90
52	2	4683	U	N3-C2-O2	-5.89	118.08	122.20
52	2	4895	C	C2-N1-C1'	5.89	125.28	118.80
52	2	2667	C	N3-C2-O2	-5.89	117.78	121.90
52	2	4592	C	C6-N1-C2	-5.89	117.94	120.30
33	n	105	LEU	C-N-CA	5.88	136.41	121.70
52	2	358	C	C6-N1-C2	-5.88	117.95	120.30
52	2	2616	C	C6-N1-C2	-5.88	117.95	120.30
52	2	2607	C	C6-N1-C2	-5.88	117.95	120.30
52	2	2445	C	C5-C6-N1	5.88	123.94	121.00
52	2	18	C	C6-N1-C2	-5.88	117.95	120.30
52	2	3866	C	C6-N1-C2	-5.88	117.95	120.30
52	2	1628	C	C6-N1-C2	-5.87	117.95	120.30
50	3	58	A	N1-C2-N3	-5.87	126.36	129.30
52	2	3882	C	C2-N1-C1'	5.87	125.26	118.80
42	R	235	MET	CA-CB-CG	5.87	123.28	113.30
52	2	1097	C	C6-N1-C2	-5.87	117.95	120.30
52	2	4295	U	N3-C2-O2	-5.87	118.09	122.20
52	2	1727	U	N3-C2-O2	-5.86	118.10	122.20
52	2	1582	U	N3-C2-O2	-5.86	118.10	122.20
52	2	691	C	C6-N1-C2	-5.86	117.96	120.30
52	2	4462	C	C6-N1-C2	-5.86	117.96	120.30
52	2	2362	U	C2-N1-C1'	5.86	124.73	117.70
52	2	4088	C	C6-N1-C2	-5.85	117.96	120.30
52	2	4259	C	C6-N1-C2	-5.85	117.96	120.30
52	2	2006	U	N3-C2-O2	-5.85	118.11	122.20
52	2	4984	C	C6-N1-C2	-5.85	117.96	120.30
39	y	95	GLN	CA-CB-CG	5.85	126.26	113.40
52	2	2338	C	C6-N1-C2	-5.85	117.96	120.30
52	2	2803	U	N3-C2-O2	-5.84	118.11	122.20
52	2	694	C	C5-C6-N1	5.84	123.92	121.00
52	2	1472	C	C5-C6-N1	5.84	123.92	121.00
52	2	2684	C	C5-C6-N1	5.84	123.92	121.00
52	2	297	U	N1-C2-O2	5.83	126.88	122.80
52	2	1339	U	N3-C2-O2	-5.83	118.12	122.20
52	2	4120	U	N3-C2-O2	-5.83	118.12	122.20
17	O	56	LEU	CA-CB-CG	5.83	128.71	115.30
52	2	238	C	C6-N1-C2	-5.82	117.97	120.30
52	2	2290	C	N1-C2-O2	5.82	122.39	118.90
3	8	96	C	C6-N1-C2	-5.82	117.97	120.30
52	2	1592	G	N3-C4-C5	-5.82	125.69	128.60
52	2	195	C	N1-C2-O2	5.82	122.39	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	4258	C	C6-N1-C2	-5.81	117.97	120.30
52	2	1703	C	C2-N1-C1'	5.81	125.19	118.80
52	2	719	C	C5-C6-N1	5.81	123.90	121.00
52	2	3694	U	N3-C2-O2	-5.81	118.13	122.20
52	2	4155	C	N1-C2-O2	5.81	122.39	118.90
52	2	4341	C	C2-N1-C1'	5.81	125.19	118.80
52	2	4440	G	N3-C4-C5	-5.81	125.69	128.60
52	2	4880	C	C2-N1-C1'	5.81	125.19	118.80
52	2	4189	U	N3-C4-O4	5.81	123.46	119.40
52	2	345	C	C6-N1-C2	-5.80	117.98	120.30
52	2	672	C	C6-N1-C2	-5.80	117.98	120.30
52	2	4130	C	C6-N1-C2	-5.80	117.98	120.30
52	2	1245	C	C2-N1-C1'	5.80	125.18	118.80
52	2	1325	C	C6-N1-C2	-5.80	117.98	120.30
52	2	390	C	C5-C6-N1	5.80	123.90	121.00
52	2	1722	C	C6-N1-C2	-5.80	117.98	120.30
52	2	2560	C	C6-N1-C2	-5.80	117.98	120.30
52	2	1344	C	C6-N1-C2	-5.80	117.98	120.30
52	2	4700	A	N1-C2-N3	-5.79	126.40	129.30
52	2	1191	C	C6-N1-C2	-5.79	117.98	120.30
52	2	1994	C	O4'-C1'-N1	5.79	112.83	108.20
52	2	2059	C	C6-N1-C2	-5.79	117.98	120.30
52	2	4522	G	C8-N9-C1'	-5.79	119.48	127.00
52	2	4365	C	C5-C6-N1	5.78	123.89	121.00
52	2	1938	C	N1-C2-O2	5.78	122.37	118.90
52	2	180	C	C5-C6-N1	5.78	123.89	121.00
52	2	4612	C	C6-N1-C2	-5.78	117.99	120.30
52	2	455	C	C6-N1-C2	-5.77	117.99	120.30
52	2	4266	G	C8-N9-C1'	-5.77	119.50	127.00
50	3	26	C	N3-C2-O2	-5.76	117.86	121.90
52	2	1429	C	C5-C6-N1	5.76	123.88	121.00
52	2	948	C	C6-N1-C2	-5.76	118.00	120.30
52	2	1250	C	N1-C2-O2	5.76	122.36	118.90
52	2	1963	C	C5-C6-N1	5.76	123.88	121.00
3	8	153	C	C2-N1-C1'	5.76	125.13	118.80
52	2	1662	C	C5-C6-N1	5.76	123.88	121.00
52	2	4349	C	C2-N1-C1'	5.76	125.13	118.80
52	2	4464	A	C2-N3-C4	5.76	113.48	110.60
43	W	295	LEU	CA-CB-CG	5.76	128.54	115.30
52	2	178	C	N3-C2-O2	-5.76	117.87	121.90
52	2	1906	U	N3-C2-O2	-5.76	118.17	122.20
52	2	4294	C	C5-C6-N1	5.76	123.88	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	41	C	C5-C6-N1	5.75	123.88	121.00
52	2	3851	U	N1-C2-O2	5.75	126.83	122.80
3	8	32	C	C2-N1-C1'	5.75	125.13	118.80
50	3	24	C	N3-C2-O2	-5.75	117.87	121.90
52	2	1679	A	C2-N3-C4	5.75	113.48	110.60
52	2	1085	C	C6-N1-C2	-5.74	118.00	120.30
52	2	3772	U	C5-C6-N1	5.74	125.57	122.70
52	2	1298	C	C6-N1-C2	-5.74	118.00	120.30
52	2	3606	U	N3-C2-O2	-5.74	118.18	122.20
52	2	408	A	N1-C2-N3	-5.74	126.43	129.30
52	2	1429	C	N1-C2-O2	5.74	122.34	118.90
52	2	2817	C	C6-N1-C2	-5.74	118.01	120.30
52	2	4685	U	N3-C2-O2	-5.74	118.19	122.20
52	2	977	C	N1-C2-O2	5.73	122.34	118.90
52	2	2107	C	C5-C6-N1	5.73	123.86	121.00
52	2	3670	C	N1-C2-O2	5.73	122.34	118.90
52	2	4527	G	C4-N9-C1'	5.73	133.94	126.50
52	2	493	G	C4-N9-C1'	5.72	133.94	126.50
52	2	4546	A	N1-C2-N3	-5.72	126.44	129.30
52	2	4767	C	C6-N1-C2	-5.72	118.01	120.30
52	2	4123	C	N1-C2-O2	5.72	122.33	118.90
52	2	53	C	C6-N1-C2	-5.72	118.01	120.30
52	2	195	C	C5-C6-N1	5.72	123.86	121.00
52	2	2729	C	C2-N1-C1'	5.72	125.09	118.80
52	2	1725	U	N3-C2-O2	-5.72	118.20	122.20
20	S	32	ASP	CB-CG-OD1	5.71	123.44	118.30
52	2	4714	C	C2-N1-C1'	5.71	125.09	118.80
52	2	4981	G	C4-N9-C1'	5.71	133.93	126.50
3	8	135	C	C6-N1-C2	-5.71	118.02	120.30
52	2	228	C	C6-N1-C2	-5.71	118.02	120.30
50	3	26	C	N1-C2-O2	5.71	122.33	118.90
52	2	4715	C	C6-N1-C2	-5.71	118.02	120.30
52	2	1690	C	C6-N1-C2	-5.71	118.02	120.30
52	2	4669	A	N1-C2-N3	-5.71	126.45	129.30
52	2	259	C	N3-C2-O2	-5.70	117.91	121.90
52	2	322	C	C2-N1-C1'	5.70	125.07	118.80
52	2	1686	C	C6-N1-C2	-5.70	118.02	120.30
52	2	4522	G	N3-C4-N9	5.70	129.42	126.00
52	2	2653	C	C6-N1-C2	-5.70	118.02	120.30
3	8	99	U	C2-N1-C1'	5.70	124.54	117.70
52	2	2410	C	N3-C2-O2	-5.70	117.91	121.90
52	2	2803	U	N1-C2-O2	5.70	126.79	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2514	G	C4-N9-C1'	5.70	133.91	126.50
52	2	1974	U	C5-C4-O4	-5.69	122.49	125.90
38	w	317	GLY	C-N-CA	5.69	135.92	121.70
42	R	261	VAL	CG1-CB-CG2	-5.69	101.80	110.90
52	2	2892	C	C5-C6-N1	5.69	123.84	121.00
52	2	4112	C	C6-N1-C2	-5.68	118.03	120.30
52	2	4231	C	C2-N1-C1'	5.68	125.05	118.80
52	2	516	C	C2-N1-C1'	5.68	125.04	118.80
52	2	4171	C	C5-C6-N1	5.68	123.84	121.00
52	2	4695	C	C6-N1-C2	-5.68	118.03	120.30
52	2	492	U	C6-N1-C2	-5.67	117.60	121.00
52	2	1323	A	C2-N3-C4	5.67	113.44	110.60
3	8	32	C	N3-C2-O2	-5.67	117.93	121.90
52	2	4752	U	N1-C2-O2	5.67	126.77	122.80
52	2	1893	C	C6-N1-C2	-5.67	118.03	120.30
52	2	4189	U	C5-C4-O4	-5.67	122.50	125.90
52	2	4636	U	N3-C2-O2	-5.67	118.23	122.20
52	2	4887	C	C5-C6-N1	5.67	123.83	121.00
52	2	436	C	C6-N1-C2	-5.66	118.03	120.30
52	2	4673	U	N3-C2-O2	-5.66	118.24	122.20
52	2	2508	U	N3-C2-O2	-5.66	118.24	122.20
52	2	4078	C	C6-N1-C2	-5.66	118.04	120.30
52	2	4712	C	N3-C2-O2	-5.66	117.94	121.90
52	2	322	C	N1-C2-O2	5.66	122.30	118.90
52	2	436	C	N1-C2-O2	5.66	122.29	118.90
52	2	2892	C	C2-N1-C1'	5.66	125.02	118.80
52	2	4327	C	C5-C6-N1	5.66	123.83	121.00
52	2	683	C	N1-C2-O2	5.65	122.29	118.90
52	2	2096	G	C4-N9-C1'	5.65	133.85	126.50
52	2	1310	C	C6-N1-C2	-5.65	118.04	120.30
52	2	4991	U	N3-C2-O2	-5.65	118.25	122.20
52	2	499	G	C2-N3-C4	5.65	114.72	111.90
52	2	1921	C	C6-N1-C1'	-5.64	114.03	120.80
4	9	28	LEU	CA-CB-CG	5.64	128.28	115.30
52	2	2081	C	C6-N1-C2	-5.64	118.04	120.30
3	8	111	U	N3-C2-O2	-5.64	118.25	122.20
50	3	42	A	C2-N3-C4	5.64	113.42	110.60
52	2	86	U	N3-C2-O2	-5.64	118.25	122.20
52	2	196	C	C6-N1-C2	-5.64	118.04	120.30
52	2	1074	G	N3-C4-C5	-5.64	125.78	128.60
52	2	1430	C	C6-N1-C2	-5.64	118.04	120.30
52	2	1694	C	C5-C6-N1	5.64	123.82	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	4696	C	N1-C2-O2	5.64	122.28	118.90
52	2	2856	C	C2-N1-C1'	5.64	125.00	118.80
50	3	118	C	N1-C2-O2	5.63	122.28	118.90
52	2	4973	U	N3-C2-O2	-5.63	118.26	122.20
52	2	4315	A	C2-N3-C4	5.63	113.42	110.60
52	2	4970	C	C6-N1-C2	-5.63	118.05	120.30
52	2	76	A	N1-C2-N3	-5.63	126.49	129.30
52	2	4683	U	N1-C2-O2	5.63	126.74	122.80
52	2	1929	A	C8-N9-C1'	-5.62	117.58	127.70
52	2	125	C	C6-N1-C2	-5.62	118.05	120.30
52	2	3666	C	C6-N1-C2	-5.62	118.05	120.30
50	3	92	C	C2-N1-C1'	5.62	124.98	118.80
52	2	260	C	C5-C6-N1	5.62	123.81	121.00
52	2	1247	U	N3-C2-O2	-5.62	118.27	122.20
52	2	2533	C	C5-C6-N1	5.62	123.81	121.00
52	2	977	C	C5-C6-N1	5.62	123.81	121.00
52	2	1373	A	N1-C2-N3	-5.62	126.49	129.30
52	2	4345	C	C6-N1-C2	-5.61	118.06	120.30
52	2	4527	G	C8-N9-C1'	-5.61	119.70	127.00
52	2	1966	C	C2-N1-C1'	5.61	124.97	118.80
52	2	3650	C	C5-C6-N1	5.61	123.81	121.00
52	2	4601	U	N3-C2-O2	-5.61	118.27	122.20
15	L	117	LEU	CA-CB-CG	5.61	128.20	115.30
52	2	4162	C	C2-N1-C1'	5.61	124.97	118.80
52	2	358	C	N3-C2-O2	-5.61	117.98	121.90
52	2	2071	A	C2-N3-C4	5.61	113.40	110.60
52	2	4234	A	P-O3'-C3'	5.61	126.43	119.70
52	2	1254	A	C2-N3-C4	5.60	113.40	110.60
52	2	1572	U	N1-C2-O2	5.60	126.72	122.80
20	S	24	LEU	CA-CB-CG	5.60	128.18	115.30
52	2	4223	C	N1-C2-O2	5.60	122.26	118.90
52	2	4773	C	C6-N1-C2	-5.60	118.06	120.30
52	2	385	A	N1-C2-N3	-5.60	126.50	129.30
52	2	1494	U	N3-C2-O2	-5.60	118.28	122.20
52	2	4284	C	C6-N1-C2	-5.60	118.06	120.30
52	2	672	C	C5-C6-N1	5.60	123.80	121.00
52	2	1656	U	N3-C2-O2	-5.60	118.28	122.20
52	2	3622	C	C5-C6-N1	5.60	123.80	121.00
52	2	643	C	N3-C2-O2	-5.59	117.98	121.90
52	2	4527	G	O4'-C1'-N9	5.59	112.67	108.20
52	2	4752	U	N3-C2-O2	-5.59	118.28	122.20
52	2	2031	C	N1-C2-O2	5.59	122.25	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2791	C	C5-C6-N1	5.59	123.79	121.00
52	2	5050	C	N1-C2-O2	5.59	122.25	118.90
52	2	4990	C	C6-N1-C2	-5.58	118.07	120.30
52	2	906	C	C6-N1-C2	-5.58	118.07	120.30
52	2	974	C	C6-N1-C2	-5.58	118.07	120.30
52	2	1093	C	C6-N1-C2	-5.58	118.07	120.30
52	2	175	C	C6-N1-C2	-5.58	118.07	120.30
52	2	4662	C	N3-C2-O2	-5.58	118.00	121.90
52	2	36	U	N3-C2-O2	-5.58	118.30	122.20
52	2	371	A	N1-C2-N3	-5.58	126.51	129.30
52	2	2027	U	N1-C2-O2	5.58	126.70	122.80
52	2	4260	U	N1-C2-O2	5.58	126.70	122.80
52	2	1468	C	C6-N1-C2	-5.57	118.07	120.30
52	2	1203	G	C8-N9-C1'	-5.57	119.76	127.00
52	2	1703	C	N3-C2-O2	-5.57	118.00	121.90
52	2	4612	C	N1-C2-O2	5.57	122.24	118.90
52	2	2667	C	C5-C6-N1	5.57	123.78	121.00
52	2	3893	C	C6-N1-C2	-5.57	118.07	120.30
52	2	294	G	C4-N9-C1'	5.56	133.73	126.50
52	2	365	U	C2-N1-C1'	5.56	124.38	117.70
52	2	4716	C	C6-N1-C2	-5.56	118.08	120.30
3	8	50	C	C6-N1-C2	-5.56	118.08	120.30
38	w	317	GLY	N-CA-C	5.56	127.00	113.10
52	2	2520	C	C6-N1-C2	-5.56	118.08	120.30
52	2	2850	A	C4-N9-C1'	5.56	136.31	126.30
52	2	4319	C	C2-N1-C1'	5.56	124.91	118.80
52	2	18	C	N1-C2-O2	5.56	122.23	118.90
52	2	4440	G	C4-N9-C1'	5.56	133.73	126.50
52	2	1577	G	N3-C2-N2	-5.55	116.01	119.90
52	2	4256	A	N1-C2-N3	-5.55	126.52	129.30
52	2	259	C	C6-N1-C2	-5.55	118.08	120.30
52	2	2615	C	N3-C2-O2	-5.55	118.02	121.90
52	2	3939	G	C4-N9-C1'	5.55	133.71	126.50
52	2	4699	U	OP1-P-O3'	5.55	117.41	105.20
50	3	96	U	N1-C2-O2	5.55	126.68	122.80
52	2	440	U	N3-C2-O2	-5.55	118.32	122.20
52	2	1346	C	C5-C6-N1	5.55	123.77	121.00
3	8	101	C	C5-C6-N1	5.54	123.77	121.00
52	2	178	C	C6-N1-C2	-5.54	118.08	120.30
52	2	1582	U	N1-C2-O2	5.54	126.68	122.80
52	2	1632	A	N1-C2-N3	-5.54	126.53	129.30
52	2	2094	G	C8-N9-C1'	-5.54	119.80	127.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
39	y	37	LEU	CA-CB-CG	5.54	128.04	115.30
52	2	5004	C	C6-N1-C2	-5.54	118.08	120.30
52	2	101	A	C2-N3-C4	5.54	113.37	110.60
52	2	1687	U	N3-C2-O2	-5.54	118.32	122.20
52	2	904	C	C6-N1-C2	-5.54	118.08	120.30
52	2	963	G	C2-N3-C4	5.53	114.67	111.90
52	2	2533	C	N1-C2-O2	5.53	122.22	118.90
52	2	98	A	C2-N3-C4	5.53	113.36	110.60
52	2	101	A	N1-C2-N3	-5.53	126.53	129.30
52	2	4601	U	N1-C2-O2	5.53	126.67	122.80
52	2	1439	C	C6-N1-C2	-5.52	118.09	120.30
44	T	111	GLU	N-CA-CB	5.52	120.54	110.60
52	2	2101	C	C6-N1-C2	-5.52	118.09	120.30
52	2	2002	A	C2-N3-C4	5.52	113.36	110.60
3	8	111	U	N1-C2-O2	5.52	126.66	122.80
49	d	108	GLU	CA-CB-CG	5.52	125.54	113.40
51	v	7	ASP	CB-CG-OD1	5.51	123.26	118.30
52	2	480	C	C6-N1-C2	-5.51	118.09	120.30
52	2	2853	C	N1-C2-O2	5.51	122.21	118.90
52	2	4713	G	N3-C4-C5	-5.51	125.84	128.60
52	2	221	C	C6-N1-C2	-5.51	118.09	120.30
52	2	691	C	C5-C6-N1	5.51	123.76	121.00
52	2	1499	C	C6-N1-C2	-5.51	118.10	120.30
52	2	1578	U	C2-N1-C1'	5.51	124.31	117.70
52	2	4667	C	C6-N1-C2	-5.51	118.10	120.30
52	2	486	C	C2-N1-C1'	5.50	124.86	118.80
52	2	1448	G	C4-N9-C1'	5.50	133.66	126.50
52	2	703	G	C4-N9-C1'	5.50	133.65	126.50
52	2	4505	C	N1-C2-O2	5.50	122.20	118.90
52	2	1929	A	N1-C2-N3	-5.50	126.55	129.30
52	2	3831	U	C2-N1-C1'	5.50	124.30	117.70
52	2	3870	C	C2-N1-C1'	5.50	124.85	118.80
52	2	4886	C	N1-C2-O2	5.50	122.20	118.90
52	2	1812	C	N1-C2-O2	5.49	122.19	118.90
52	2	4980	C	C6-N1-C2	-5.49	118.10	120.30
52	2	4254	G	C2-N3-C4	5.49	114.64	111.90
52	2	4569	U	N1-C2-O2	5.49	126.64	122.80
52	2	4713	G	C4-N9-C1'	5.49	133.63	126.50
52	2	953	C	C6-N1-C2	-5.49	118.11	120.30
52	2	1352	C	N1-C2-O2	5.49	122.19	118.90
52	2	4120	U	N1-C2-O2	5.48	126.64	122.80
52	2	1414	C	C5-C6-N1	5.48	123.74	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	1915	C	C2-N1-C1'	5.48	124.83	118.80
52	2	1074	G	C4-N9-C1'	5.48	133.62	126.50
52	2	4093	G	C4-N9-C1'	5.48	133.62	126.50
52	2	4237	C	C5-C6-N1	5.48	123.74	121.00
52	2	4975	G	O4'-C1'-N9	5.47	112.58	108.20
52	2	3752	C	P-O3'-C3'	5.47	126.27	119.70
52	2	4522	G	O4'-C1'-N9	5.47	112.58	108.20
43	W	442	ASP	CB-CG-OD1	5.47	123.22	118.30
50	3	78	C	C6-N1-C1'	-5.47	114.24	120.80
52	2	43	U	N3-C2-O2	-5.47	118.37	122.20
52	2	2593	C	C5-C6-N1	5.47	123.73	121.00
52	2	4149	C	C5-C6-N1	5.47	123.73	121.00
52	2	4254	G	C4-N9-C1'	5.47	133.61	126.50
52	2	4653	C	C6-N1-C2	-5.47	118.11	120.30
52	2	98	A	N1-C2-N3	-5.46	126.57	129.30
52	2	2497	C	C5-C6-N1	5.46	123.73	121.00
52	2	3739	C	C2-N1-C1'	5.46	124.81	118.80
52	2	4594	U	N3-C2-O2	-5.46	118.38	122.20
45	4	41	HIS	C-N-CA	5.46	135.34	121.70
52	2	486	C	O5'-P-OP1	5.46	117.25	110.70
50	3	14	C	C6-N1-C2	-5.46	118.12	120.30
50	3	30	C	C6-N1-C2	-5.46	118.12	120.30
52	2	1577	G	C2-N3-C4	5.46	114.63	111.90
45	4	391	GLU	C-N-CA	5.45	135.34	121.70
52	2	1509	C	C6-N1-C2	-5.45	118.12	120.30
52	2	2019	C	C5-C6-N1	5.45	123.72	121.00
52	2	4426	C	C5-C6-N1	5.45	123.72	121.00
52	2	1906	U	N1-C2-O2	5.45	126.61	122.80
52	2	2009	A	N1-C2-N3	-5.45	126.58	129.30
52	2	4476	C	C5-C6-N1	5.45	123.72	121.00
52	2	4502	C	C5-C6-N1	5.45	123.72	121.00
52	2	282	C	C2-N1-C1'	5.45	124.79	118.80
3	8	90	C	C5-C6-N1	5.45	123.72	121.00
52	2	4662	C	N1-C2-O2	5.45	122.17	118.90
52	2	174	C	N1-C2-O2	5.44	122.17	118.90
52	2	5042	A	N1-C2-N3	-5.44	126.58	129.30
52	2	152	U	N1-C2-O2	5.44	126.61	122.80
52	2	1535	C	N1-C2-O2	5.44	122.17	118.90
3	8	54	C	C5-C6-N1	5.44	123.72	121.00
52	2	2018	C	C6-N1-C2	-5.44	118.12	120.30
3	8	35	C	C5-C6-N1	5.43	123.72	121.00
52	2	30	C	N1-C2-O2	5.43	122.16	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	336	A	C2-N3-C4	5.43	113.32	110.60
52	2	3926	C	C6-N1-C2	-5.43	118.13	120.30
52	2	4162	C	N3-C2-O2	-5.43	118.10	121.90
43	W	374	LEU	CA-CB-CG	5.43	127.79	115.30
52	2	1913	C	C6-N1-C2	-5.43	118.13	120.30
3	8	41	A	N1-C2-N3	-5.43	126.59	129.30
52	2	1665	C	C6-N1-C2	-5.43	118.13	120.30
52	2	2048	U	N1-C2-O2	5.43	126.60	122.80
52	2	80	C	C6-N1-C2	-5.42	118.13	120.30
52	2	3739	C	N3-C2-O2	-5.42	118.10	121.90
52	2	4689	U	C5-C6-N1	5.42	125.41	122.70
52	2	1096	C	C5-C6-N1	5.42	123.71	121.00
52	2	1096	C	N1-C2-O2	5.42	122.15	118.90
52	2	2420	A	N1-C2-N3	-5.42	126.59	129.30
52	2	2033	A	N1-C2-N3	-5.42	126.59	129.30
52	2	1367	C	N3-C2-O2	-5.42	118.11	121.90
52	2	4880	C	C5-C6-N1	5.42	123.71	121.00
52	2	61	A	N1-C2-N3	-5.42	126.59	129.30
52	2	86	U	N1-C2-O2	5.42	126.59	122.80
52	2	1070	G	N3-C2-N2	5.42	123.69	119.90
52	2	1429	C	C2-N1-C1'	5.42	124.76	118.80
52	2	3631	U	N1-C2-O2	5.42	126.59	122.80
52	2	2627	C	N3-C2-O2	-5.42	118.11	121.90
52	2	100	C	C5-C6-N1	5.41	123.71	121.00
52	2	1554	A	C2-N3-C4	5.41	113.31	110.60
52	2	2780	C	C6-N1-C2	-5.41	118.14	120.30
52	2	3853	U	N3-C2-O2	-5.41	118.41	122.20
52	2	209	U	C2-N1-C1'	5.41	124.19	117.70
52	2	271	C	C5-C6-N1	5.41	123.70	121.00
52	2	322	C	C5-C6-N1	5.41	123.70	121.00
52	2	2017	A	C3'-C2'-C1'	5.41	105.83	101.50
52	2	2615	C	C2-N1-C1'	5.41	124.75	118.80
52	2	4639	G	C4-N9-C1'	5.41	133.53	126.50
52	2	2017	A	N7-C8-N9	5.41	116.50	113.80
52	2	4522	G	N3-C4-C5	-5.41	125.90	128.60
52	2	2264	C	C6-N1-C2	-5.40	118.14	120.30
52	2	456	C	C6-N1-C2	-5.40	118.14	120.30
52	2	2514	G	N3-C4-C5	-5.40	125.90	128.60
52	2	124	C	C6-N1-C2	-5.40	118.14	120.30
52	2	2264	C	N3-C2-O2	-5.40	118.12	121.90
52	2	4985	U	C6-N1-C2	-5.40	117.76	121.00
50	3	84	U	N1-C2-O2	5.39	126.58	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	149	A	N1-C2-N3	-5.39	126.60	129.30
52	2	1856	C	C5-C6-N1	5.39	123.69	121.00
52	2	4945	G	C4-N9-C1'	5.39	133.51	126.50
52	2	1656	U	N1-C2-O2	5.39	126.57	122.80
52	2	2367	A	N1-C2-N3	-5.39	126.61	129.30
52	2	2008	U	N1-C2-O2	5.38	126.57	122.80
52	2	2820	C	C6-N1-C2	-5.38	118.15	120.30
52	2	1577	G	C8-N9-C4	-5.38	104.25	106.40
52	2	2592	U	N1-C2-O2	5.38	126.56	122.80
52	2	3905	A	OP2-P-O3'	5.38	117.03	105.20
52	2	4490	C	C6-N1-C2	-5.38	118.15	120.30
42	R	115	MET	CA-CB-CG	5.38	122.44	113.30
52	2	9	C	C6-N1-C2	-5.38	118.15	120.30
52	2	3692	A	C2-N3-C4	5.38	113.29	110.60
52	2	1966	C	N1-C2-O2	5.37	122.12	118.90
50	3	94	C	C2-N1-C1'	5.37	124.71	118.80
52	2	366	A	N1-C2-N3	-5.37	126.61	129.30
52	2	4400	G	C4-N9-C1'	5.37	133.48	126.50
50	3	30	C	N1-C2-O2	5.37	122.12	118.90
52	2	2418	A	N7-C8-N9	5.37	116.48	113.80
52	2	2429	A	C2-N3-C4	5.37	113.28	110.60
52	2	2683	C	C6-N1-C2	-5.37	118.15	120.30
52	2	750	U	C2-N1-C1'	5.37	124.14	117.70
52	2	4276	G	C8-N9-C1'	-5.37	120.02	127.00
50	3	95	C	O4'-C1'-N1	5.37	112.49	108.20
52	2	4923	C	C6-N1-C2	-5.37	118.15	120.30
52	2	2077	C	C6-N1-C2	-5.36	118.15	120.30
52	2	3927	U	N3-C2-O2	-5.36	118.45	122.20
52	2	984	C	C6-N1-C2	-5.36	118.16	120.30
52	2	4895	C	N3-C2-O2	-5.36	118.15	121.90
52	2	5042	A	C2-N3-C4	5.36	113.28	110.60
52	2	4758	U	O4'-C1'-N1	5.36	112.49	108.20
52	2	5007	A	N1-C2-N3	-5.36	126.62	129.30
3	8	72	A	N1-C2-N3	-5.36	126.62	129.30
45	4	503	THR	C-N-CA	5.36	135.09	121.70
49	d	56	LEU	CA-CB-CG	5.36	127.62	115.30
52	2	2371	U	N3-C2-O2	-5.36	118.45	122.20
52	2	4878	C	C5-C6-N1	5.36	123.68	121.00
52	2	446	C	C6-N1-C2	-5.35	118.16	120.30
52	2	1929	A	N3-C4-N9	5.35	131.68	127.40
52	2	4945	G	N3-C4-C5	-5.35	125.92	128.60
45	4	21	LEU	CA-CB-CG	5.35	127.60	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	289	C	C6-N1-C2	-5.35	118.16	120.30
52	2	966	A	C2-N3-C4	5.35	113.27	110.60
52	2	378	A	N1-C2-N3	-5.35	126.63	129.30
52	2	4603	C	C6-N1-C2	-5.35	118.16	120.30
52	2	1465	G	N3-C4-C5	-5.35	125.93	128.60
52	2	420	A	N1-C2-N3	-5.34	126.63	129.30
52	2	435	A	N1-C2-N3	-5.34	126.63	129.30
52	2	661	C	C5-C6-N1	5.34	123.67	121.00
50	3	103	A	C2-N3-C4	5.34	113.27	110.60
52	2	4607	A	O4'-C1'-N9	5.34	112.47	108.20
52	2	1308	C	C6-N1-C2	-5.34	118.17	120.30
52	2	1987	C	C5-C6-N1	5.34	123.67	121.00
52	2	2274	C	C6-N1-C2	-5.34	118.17	120.30
52	2	1304	C	C6-N1-C2	-5.33	118.17	120.30
52	2	4132	C	C5-C6-N1	5.33	123.67	121.00
52	2	201	C	C6-N1-C2	-5.33	118.17	120.30
52	2	2685	C	C6-N1-C2	-5.33	118.17	120.30
52	2	4120	U	C2-N1-C1'	5.33	124.10	117.70
52	2	4893	A	C2-N3-C4	5.33	113.27	110.60
52	2	4969	C	C5-C6-N1	5.33	123.67	121.00
52	2	4318	C	N1-C2-O2	5.33	122.10	118.90
52	2	195	C	C2-N1-C1'	5.33	124.66	118.80
52	2	386	A	N1-C2-N3	-5.33	126.64	129.30
52	2	4565	C	N1-C2-O2	5.33	122.09	118.90
52	2	2008	U	N3-C2-O2	-5.32	118.47	122.20
52	2	337	U	N3-C2-O2	-5.32	118.47	122.20
52	2	1331	C	C6-N1-C2	-5.32	118.17	120.30
52	2	2727	C	C6-N1-C2	-5.32	118.17	120.30
52	2	4639	G	C2-N3-C4	5.32	114.56	111.90
52	2	5003	U	N3-C2-O2	-5.32	118.48	122.20
52	2	5050	C	C5-C6-N1	5.32	123.66	121.00
3	8	96	C	N3-C2-O2	-5.32	118.18	121.90
25	a	38	ARG	C-N-CA	5.32	135.00	121.70
52	2	4230	C	O4'-C1'-N1	5.32	112.45	108.20
52	2	1276	C	C5-C6-N1	5.32	123.66	121.00
52	2	2642	A	N1-C2-N3	-5.32	126.64	129.30
52	2	4486	C	N1-C2-O2	5.32	122.09	118.90
52	2	4771	C	C5-C6-N1	5.32	123.66	121.00
52	2	3739	C	C5-C6-N1	5.31	123.66	121.00
52	2	904	C	N3-C2-O2	-5.31	118.18	121.90
52	2	1050	C	C6-N1-C2	-5.31	118.17	120.30
52	2	4294	C	N1-C2-O2	5.31	122.09	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	I	67	LEU	CB-CG-CD2	-5.31	101.97	111.00
52	2	2276	A	N1-C2-N3	-5.31	126.64	129.30
52	2	4695	C	C2-N1-C1'	5.31	124.64	118.80
52	2	4710	C	C6-N1-C2	-5.31	118.18	120.30
52	2	360	A	N1-C2-N3	-5.31	126.65	129.30
52	2	2708	U	N1-C2-O2	5.31	126.52	122.80
52	2	1241	C	C6-N1-C1'	-5.31	114.43	120.80
52	2	166	C	C5-C6-N1	5.30	123.65	121.00
52	2	406	C	C5-C6-N1	5.30	123.65	121.00
52	2	1508	A	N1-C2-N3	-5.30	126.65	129.30
52	2	4682	U	C2-N1-C1'	5.30	124.06	117.70
52	2	2362	U	C6-N1-C2	-5.30	117.82	121.00
52	2	5004	C	C5-C6-N1	5.30	123.65	121.00
52	2	688	U	N3-C2-O2	-5.30	118.49	122.20
52	2	1732	C	O4'-C1'-N1	5.30	112.44	108.20
45	4	403	LEU	CA-CB-CG	5.30	127.48	115.30
52	2	2349	A	N1-C2-N3	-5.30	126.65	129.30
52	2	4243	C	C2-N1-C1'	5.30	124.63	118.80
52	2	4985	U	C2-N1-C1'	5.30	124.06	117.70
52	2	15	A	N1-C2-N3	-5.29	126.65	129.30
42	R	73	MET	CB-CG-SD	5.29	128.28	112.40
52	2	738	C	C5-C6-N1	5.29	123.65	121.00
52	2	1535	C	C6-N1-C2	-5.29	118.18	120.30
52	2	4313	A	N1-C2-N3	-5.29	126.65	129.30
52	2	1585	C	C6-N1-C2	-5.29	118.18	120.30
52	2	2290	C	C6-N1-C2	-5.29	118.18	120.30
52	2	2325	C	N1-C2-O2	5.29	122.07	118.90
52	2	1427	A	N1-C2-N3	-5.29	126.66	129.30
52	2	974	C	N1-C2-O2	5.29	122.07	118.90
52	2	1932	A	N1-C2-N3	-5.29	126.66	129.30
52	2	4629	U	N1-C2-O2	5.29	126.50	122.80
52	2	2561	C	C2-N1-C1'	5.29	124.61	118.80
52	2	406	C	C2'-C3'-O3'	5.28	122.15	113.70
52	2	1448	G	N3-C4-N9	5.28	129.17	126.00
52	2	2845	A	C2-N3-C4	5.28	113.24	110.60
52	2	5004	C	N3-C2-O2	-5.28	118.20	121.90
37	u	54	ALA	CB-CA-C	5.28	118.02	110.10
52	2	2867	C	C6-N1-C2	-5.28	118.19	120.30
52	2	1070	G	N1-C2-N2	-5.28	111.45	116.20
52	2	2482	C	C5-C6-N1	5.28	123.64	121.00
52	2	2729	C	N1-C2-O2	5.28	122.06	118.90
52	2	4701	A	C2-N3-C4	5.28	113.24	110.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	966	A	N1-C2-N3	-5.27	126.66	129.30
3	8	80	A	N1-C2-N3	-5.27	126.67	129.30
3	8	141	C	C5-C6-N1	5.27	123.64	121.00
26	b	85	ASP	CB-CG-OD1	5.27	123.04	118.30
52	2	1829	G	N3-C4-N9	5.27	129.16	126.00
52	2	1503	A	N1-C2-N3	-5.27	126.67	129.30
52	2	1507	C	C6-N1-C2	-5.27	118.19	120.30
50	3	29	C	N1-C2-O2	5.26	122.06	118.90
52	2	2413	U	N3-C2-O2	-5.26	118.52	122.20
52	2	4449	A	N1-C2-N3	-5.26	126.67	129.30
52	2	4619	U	N1-C2-O2	5.26	126.48	122.80
52	2	1387	A	N1-C2-N3	-5.26	126.67	129.30
50	3	84	U	C5-C4-O4	-5.26	122.75	125.90
3	8	73	U	N3-C2-O2	-5.26	118.52	122.20
3	8	135	C	N1-C2-O2	5.25	122.05	118.90
52	2	2100	A	N1-C2-N3	-5.25	126.67	129.30
52	2	2373	C	C5-C6-N1	5.25	123.63	121.00
52	2	1066	G	C8-N9-C1'	-5.25	120.17	127.00
52	2	4233	A	N1-C2-N3	-5.25	126.67	129.30
52	2	1832	C	N1-C2-O2	5.25	122.05	118.90
52	2	4973	U	N1-C2-O2	5.25	126.47	122.80
52	2	1096	C	C6-N1-C2	-5.25	118.20	120.30
52	2	1971	C	C2-N1-C1'	5.25	124.57	118.80
52	2	2460	A	N1-C2-N3	-5.25	126.68	129.30
52	2	4229	U	C2-N1-C1'	5.25	124.00	117.70
52	2	1378	C	N1-C2-O2	5.25	122.05	118.90
52	2	175	C	N3-C2-O2	-5.25	118.23	121.90
52	2	4387	C	C2-N1-C1'	5.24	124.57	118.80
52	2	3915	U	C2-N1-C1'	5.24	123.99	117.70
45	4	406	GLY	C-N-CA	5.24	134.80	121.70
52	2	4464	A	N1-C2-N3	-5.24	126.68	129.30
52	2	4701	A	N1-C2-N3	-5.24	126.68	129.30
52	2	14	C	N1-C2-O2	5.24	122.04	118.90
52	2	14	C	N3-C2-O2	-5.24	118.23	121.90
52	2	18	C	N3-C2-O2	-5.24	118.23	121.90
52	2	26	C	C2-N1-C1'	5.24	124.56	118.80
52	2	4418	G	N1-C6-O6	-5.24	116.76	119.90
52	2	692	A	N1-C2-N3	-5.24	126.68	129.30
52	2	36	U	N1-C2-O2	5.23	126.46	122.80
52	2	2701	U	N3-C2-O2	-5.23	118.54	122.20
37	u	60	LEU	CA-CB-CG	5.23	127.33	115.30
52	2	368	C	N3-C2-O2	-5.23	118.24	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	372	A	N1-C2-N3	-5.23	126.69	129.30
52	2	2073	C	C6-N1-C2	-5.23	118.21	120.30
52	2	2905	C	C6-N1-C2	-5.23	118.21	120.30
52	2	279	A	N1-C2-N3	-5.23	126.69	129.30
52	2	89	C	C6-N1-C2	-5.23	118.21	120.30
52	2	17	A	N1-C2-N3	-5.22	126.69	129.30
3	8	103	A	N1-C2-N3	-5.22	126.69	129.30
52	2	59	A	N1-C2-N3	-5.22	126.69	129.30
52	2	1947	U	N1-C2-O2	5.22	126.45	122.80
52	2	1609	U	N1-C2-O2	5.22	126.45	122.80
52	2	2298	U	N3-C2-O2	-5.22	118.55	122.20
52	2	2497	C	N3-C2-O2	-5.22	118.25	121.90
52	2	3861	A	N1-C2-N3	-5.22	126.69	129.30
52	2	4103	C	N1-C2-O2	5.22	122.03	118.90
52	2	1201	U	C5-C6-N1	5.22	125.31	122.70
50	3	118	C	N3-C2-O2	-5.21	118.25	121.90
52	2	3705	G	N3-C4-N9	5.21	129.13	126.00
52	2	4295	U	N1-C2-O2	5.21	126.45	122.80
52	2	47	A	N1-C2-N3	-5.21	126.69	129.30
52	2	2078	C	C6-N1-C2	-5.21	118.22	120.30
52	2	2465	C	C6-N1-C2	-5.21	118.22	120.30
52	2	915	A	N1-C2-N3	-5.21	126.70	129.30
52	2	3670	C	C6-N1-C2	-5.21	118.22	120.30
52	2	4563	U	N3-C2-O2	-5.21	118.55	122.20
52	2	1557	C	C6-N1-C2	-5.21	118.22	120.30
52	2	2338	C	C5-C6-N1	5.20	123.60	121.00
52	2	2696	A	N1-C2-N3	-5.20	126.70	129.30
52	2	4614	G	N1-C6-O6	-5.20	116.78	119.90
52	2	1609	U	N3-C2-O2	-5.20	118.56	122.20
52	2	4350	C	N1-C2-O2	5.20	122.02	118.90
50	3	115	A	N1-C2-N3	-5.20	126.70	129.30
52	2	654	C	N1-C2-O2	5.20	122.02	118.90
52	2	2277	C	N1-C2-O2	5.20	122.02	118.90
52	2	3840	U	N1-C2-O2	5.20	126.44	122.80
52	2	4770	U	N3-C2-O2	-5.20	118.56	122.20
52	2	4967	A	N1-C2-N3	-5.19	126.70	129.30
52	2	458	C	C6-N1-C2	-5.19	118.22	120.30
52	2	4258	C	C5-C6-N1	5.19	123.60	121.00
52	2	4713	G	N3-C4-N9	5.19	129.12	126.00
52	2	4766	C	N1-C2-O2	5.19	122.02	118.90
52	2	4994	G	N3-C4-N9	5.19	129.11	126.00
52	2	1341	U	N3-C2-O2	-5.19	118.57	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
50	3	36	C	C5-C6-N1	5.19	123.59	121.00
52	2	1637	A	N1-C2-N3	-5.19	126.71	129.30
52	2	1897	A	N1-C2-N3	-5.19	126.71	129.30
52	2	3636	C	C5-C6-N1	5.19	123.59	121.00
52	2	3854	C	C6-N1-C2	-5.19	118.22	120.30
3	8	101	C	N3-C2-O2	-5.18	118.27	121.90
52	2	668	C	C6-N1-C2	-5.18	118.23	120.30
52	2	3939	G	N3-C4-N9	5.18	129.11	126.00
52	2	738	C	C2-N1-C1'	5.18	124.50	118.80
52	2	2107	C	N1-C2-O2	5.18	122.01	118.90
52	2	1599	A	C2-N3-C4	5.18	113.19	110.60
52	2	467	U	C5-C6-N1	5.18	125.29	122.70
52	2	963	G	C8-N9-C4	-5.18	104.33	106.40
52	2	972	C	C5-C6-N1	5.18	123.59	121.00
52	2	1458	C	C6-N1-C2	-5.18	118.23	120.30
52	2	30	C	C2-N1-C1'	5.18	124.50	118.80
52	2	2324	C	C6-N1-C2	-5.18	118.23	120.30
52	2	2890	C	C6-N1-C2	-5.18	118.23	120.30
52	2	41	C	C6-N1-C2	-5.17	118.23	120.30
52	2	345	C	N3-C2-O2	-5.17	118.28	121.90
52	2	4672	A	N1-C2-N3	-5.17	126.71	129.30
52	2	661	C	N1-C2-O2	5.17	122.00	118.90
52	2	4270	C	C6-N1-C2	-5.17	118.23	120.30
52	2	68	U	N1-C2-O2	5.17	126.42	122.80
52	2	106	A	N1-C2-N3	-5.17	126.72	129.30
52	2	1384	C	C5-C6-N1	5.17	123.58	121.00
52	2	389	A	N1-C2-N3	-5.17	126.72	129.30
52	2	1199	G	N3-C2-N2	5.17	123.52	119.90
52	2	1870	C	C6-N1-C2	-5.17	118.23	120.30
50	3	22	A	C2-N3-C4	5.17	113.18	110.60
52	2	2295	C	C6-N1-C2	-5.17	118.23	120.30
52	2	1066	G	C4-N9-C1'	5.16	133.21	126.50
52	2	694	C	N3-C2-O2	-5.16	118.29	121.90
52	2	2031	C	C5-C6-N1	5.16	123.58	121.00
52	2	2729	C	C5-C6-N1	5.16	123.58	121.00
52	2	4712	C	C6-N1-C2	-5.16	118.24	120.30
52	2	653	U	N3-C2-O2	-5.16	118.59	122.20
52	2	2779	C	N1-C2-O2	5.16	121.99	118.90
52	2	493	G	N3-C4-N9	5.16	129.09	126.00
52	2	2282	A	N1-C2-N3	-5.16	126.72	129.30
52	2	257	C	C6-N1-C2	-5.15	118.24	120.30
52	2	3650	C	N1-C2-O2	5.15	121.99	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2499	C	C6-N1-C1'	-5.15	114.62	120.80
52	2	1662	C	C6-N1-C2	-5.15	118.24	120.30
52	2	4387	C	C5-C6-N1	5.15	123.57	121.00
52	2	2779	C	C2-N1-C1'	5.14	124.46	118.80
52	2	660	A	N1-C2-N3	-5.14	126.73	129.30
52	2	1857	C	C6-N1-C2	-5.14	118.24	120.30
52	2	2689	C	C6-N1-C2	-5.14	118.24	120.30
52	2	4602	A	N1-C2-N3	-5.14	126.73	129.30
52	2	472	C	N3-C2-O2	-5.14	118.30	121.90
52	2	1722	C	C5-C6-N1	5.14	123.57	121.00
52	2	1889	U	C2-N1-C1'	5.14	123.87	117.70
52	2	2392	C	C6-N1-C2	-5.14	118.24	120.30
52	2	51	A	N1-C2-N3	-5.14	126.73	129.30
52	2	4345	C	C5-C6-N1	5.14	123.57	121.00
52	2	87	A	N1-C2-N3	-5.14	126.73	129.30
52	2	1183	C	C6-N1-C2	-5.14	118.25	120.30
52	2	1247	U	N1-C2-O2	5.14	126.39	122.80
52	2	2755	A	N1-C2-N3	-5.14	126.73	129.30
52	2	3872	A	N1-C2-N3	-5.13	126.73	129.30
52	2	4970	C	C2-N1-C1'	5.13	124.45	118.80
52	2	2337	C	C5-C6-N1	5.13	123.57	121.00
43	W	283	LEU	CA-CB-CG	5.13	127.10	115.30
52	2	271	C	C6-N1-C2	-5.13	118.25	120.30
52	2	1325	C	N3-C2-O2	-5.13	118.31	121.90
52	2	4080	C	C6-N1-C2	-5.13	118.25	120.30
52	2	1901	C	C5-C6-N1	5.13	123.56	121.00
52	2	2371	U	C6-N1-C2	-5.12	117.92	121.00
52	2	2655	C	N1-C2-O2	5.12	121.97	118.90
52	2	4467	A	N1-C2-N3	-5.12	126.74	129.30
52	2	4561	C	N1-C2-O2	5.12	121.97	118.90
52	2	1241	C	N3-C2-O2	-5.12	118.32	121.90
52	2	4276	G	N3-C4-C5	-5.12	126.04	128.60
52	2	4913	G	OP2-P-O3'	5.12	116.45	105.20
52	2	2281	U	N3-C2-O2	-5.11	118.62	122.20
52	2	2667	C	C2-N1-C1'	5.11	124.42	118.80
52	2	2716	C	C6-N1-C2	-5.11	118.25	120.30
52	2	2654	C	C2-N1-C1'	5.11	124.42	118.80
52	2	4088	C	N1-C2-O2	5.11	121.97	118.90
52	2	4923	C	C5-C6-N1	5.11	123.56	121.00
50	3	118	C	C6-N1-C2	-5.11	118.26	120.30
52	2	421	C	C6-N1-C2	-5.11	118.26	120.30
52	2	963	G	N7-C8-N9	5.11	115.65	113.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2708	U	C2-N1-C1'	5.11	123.83	117.70
52	2	4701	A	N1-C6-N6	-5.11	115.54	118.60
52	2	914	U	OP2-P-O3'	5.11	116.43	105.20
52	2	1856	C	C2-N1-C1'	5.11	124.42	118.80
52	2	4421	C	C6-N1-C2	-5.11	118.26	120.30
3	8	73	U	N1-C2-O2	5.10	126.37	122.80
52	2	4487	A	N1-C2-N3	-5.10	126.75	129.30
3	8	153	C	N1-C2-O2	5.10	121.96	118.90
52	2	1873	A	C2-N3-C4	5.10	113.15	110.60
52	2	2014	C	N1-C2-O2	5.10	121.96	118.90
52	2	115	C	C5-C6-N1	5.10	123.55	121.00
52	2	4436	U	C2-N1-C1'	5.10	123.82	117.70
52	2	4436	U	N1-C2-O2	5.10	126.37	122.80
52	2	196	C	C5-C6-N1	5.10	123.55	121.00
52	2	1386	C	C6-N1-C2	-5.10	118.26	120.30
52	2	2277	C	C2-N1-C1'	5.10	124.41	118.80
52	2	3878	C	C6-N1-C2	-5.10	118.26	120.30
52	2	4256	A	C2-N3-C4	5.10	113.15	110.60
52	2	5008	C	N3-C2-O2	-5.10	118.33	121.90
52	2	1947	U	C2-N1-C1'	5.10	123.81	117.70
52	2	3919	C	N1-C2-O2	5.09	121.96	118.90
52	2	4621	C	C6-N1-C2	-5.09	118.26	120.30
52	2	1554	A	N1-C2-N3	-5.09	126.75	129.30
52	2	4266	G	N7-C8-N9	5.09	115.65	113.10
52	2	669	C	N1-C2-O2	5.09	121.95	118.90
52	2	4332	C	C6-N1-C1'	5.09	126.91	120.80
52	2	4562	C	C6-N1-C2	-5.09	118.26	120.30
52	2	204	U	N1-C2-O2	5.09	126.36	122.80
52	2	485	C	OP1-P-O3'	5.09	116.39	105.20
52	2	1678	C	OP2-P-O3'	5.09	116.39	105.20
52	2	2351	C	N3-C2-O2	-5.09	118.34	121.90
52	2	4319	C	N1-C2-O2	5.09	121.95	118.90
52	2	2867	C	N1-C2-O2	5.09	121.95	118.90
52	2	4498	U	C2-N1-C1'	5.09	123.80	117.70
52	2	1682	A	N1-C2-N3	-5.08	126.76	129.30
50	3	49	A	N1-C2-N3	-5.08	126.76	129.30
52	2	1405	C	C2-N1-C1'	5.08	124.39	118.80
52	2	1971	C	N3-C2-O2	-5.08	118.34	121.90
52	2	1965	G	N3-C4-N9	5.08	129.05	126.00
52	2	2035	C	C6-N1-C2	-5.08	118.27	120.30
52	2	2814	C	C6-N1-C1'	-5.08	114.70	120.80
42	R	110	LEU	CB-CG-CD2	5.08	119.64	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	1467	C	N3-C2-O2	-5.08	118.34	121.90
52	2	2014	C	C6-N1-C2	-5.08	118.27	120.30
52	2	2708	U	N3-C2-O2	-5.08	118.64	122.20
52	2	4722	G	C4-N9-C1'	5.08	133.10	126.50
52	2	1884	C	C5-C6-N1	5.08	123.54	121.00
52	2	2062	C	N1-C2-O2	5.08	121.95	118.90
29	h	79	VAL	CG1-CB-CG2	-5.07	102.78	110.90
52	2	4361	U	N3-C2-O2	-5.07	118.65	122.20
50	3	28	C	N3-C2-O2	-5.07	118.35	121.90
52	2	4402	C	C5-C6-N1	5.07	123.54	121.00
52	2	4891	G	C4-N9-C1'	5.07	133.09	126.50
52	2	2047	A	N1-C2-N3	-5.07	126.77	129.30
3	8	107	C	C5-C6-N1	5.07	123.53	121.00
52	2	2882	A	N1-C2-N3	-5.07	126.77	129.30
52	2	4626	A	N1-C2-N3	-5.07	126.77	129.30
52	2	5051	C	C6-N1-C2	-5.07	118.27	120.30
52	2	78	U	N1-C2-O2	5.07	126.34	122.80
52	2	131	C	N1-C2-O2	5.07	121.94	118.90
52	2	222	C	C6-N1-C2	-5.06	118.27	120.30
52	2	1578	U	C6-N1-C2	-5.06	117.96	121.00
52	2	2368	A	N1-C2-N3	-5.06	126.77	129.30
52	2	2528	G	C2-N3-C4	5.06	114.43	111.90
52	2	4453	C	C6-N1-C1'	-5.06	114.73	120.80
52	2	4607	A	N1-C2-N3	-5.06	126.77	129.30
52	2	328	A	N1-C2-N3	-5.06	126.77	129.30
52	2	679	C	C6-N1-C2	-5.06	118.28	120.30
52	2	1250	C	N3-C2-O2	-5.06	118.36	121.90
52	2	1334	A	N1-C2-N3	-5.06	126.77	129.30
52	2	2488	C	N1-C2-O2	5.06	121.93	118.90
52	2	4349	C	N3-C2-O2	-5.06	118.36	121.90
52	2	4639	G	N3-C4-N9	5.06	129.03	126.00
3	8	135	C	C5-C6-N1	5.05	123.53	121.00
52	2	4654	C	C6-N1-C2	-5.05	118.28	120.30
52	2	1823	G	C5-C6-O6	5.05	131.63	128.60
52	2	2508	U	N1-C2-O2	5.05	126.34	122.80
52	2	2572	C	C6-N1-C2	-5.05	118.28	120.30
43	W	448	LEU	CA-CB-CG	5.05	126.92	115.30
52	2	1414	C	N3-C2-O2	-5.05	118.36	121.90
52	2	3892	U	C2-N1-C1'	5.05	123.76	117.70
52	2	4983	C	N1-C2-O2	5.05	121.93	118.90
37	u	65	GLU	CA-CB-CG	5.05	124.50	113.40
52	2	2371	U	C5-C6-N1	5.05	125.22	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2806	A	N1-C2-N3	-5.05	126.78	129.30
52	2	84	A	N1-C2-N3	-5.04	126.78	129.30
52	2	195	C	N3-C2-O2	-5.04	118.37	121.90
52	2	2377	C	C6-N1-C2	-5.04	118.28	120.30
52	2	4664	A	N1-C2-N3	-5.04	126.78	129.30
52	2	5032	C	C5-C6-N1	5.04	123.52	121.00
52	2	390	C	N1-C2-O2	5.04	121.92	118.90
52	2	1350	C	C6-N1-C2	-5.04	118.28	120.30
52	2	1553	A	N1-C2-N3	-5.04	126.78	129.30
52	2	1884	C	N1-C2-O2	5.04	121.92	118.90
52	2	4243	C	N3-C2-O2	-5.04	118.37	121.90
52	2	4488	A	N1-C2-N3	-5.04	126.78	129.30
45	4	419	LEU	CA-CB-CG	5.04	126.89	115.30
52	2	983	C	N1-C2-O2	5.04	121.92	118.90
52	2	2384	U	C2-N1-C1'	5.04	123.75	117.70
52	2	2611	A	N1-C2-N3	-5.04	126.78	129.30
52	2	1731	C	C2-N1-C1'	5.04	124.34	118.80
52	2	2072	C	N1-C2-O2	5.04	121.92	118.90
52	2	34	A	N1-C2-N3	-5.04	126.78	129.30
52	2	4584	A	N1-C2-N3	-5.04	126.78	129.30
52	2	4612	C	N3-C2-O2	-5.04	118.38	121.90
28	g	138	VAL	CG1-CB-CG2	-5.03	102.84	110.90
52	2	1344	C	C5-C6-N1	5.03	123.52	121.00
52	2	1825	A	C5-N7-C8	-5.03	101.38	103.90
52	2	2833	A	N1-C2-N3	-5.03	126.78	129.30
52	2	1183	C	N3-C2-O2	-5.03	118.38	121.90
52	2	985	C	N1-C2-O2	5.03	121.92	118.90
52	2	3936	A	N1-C2-N3	-5.03	126.78	129.30
52	2	1893	C	C5-C6-N1	5.03	123.52	121.00
52	2	1066	G	N3-C4-N9	5.03	129.02	126.00
52	2	1333	A	N1-C2-N3	-5.03	126.79	129.30
52	2	2528	G	C8-N9-C4	-5.03	104.39	106.40
52	2	4696	C	C6-N1-C2	-5.03	118.29	120.30
3	8	37	A	N1-C2-N3	-5.03	126.79	129.30
52	2	2035	C	C5-C6-N1	5.03	123.51	121.00
52	2	3882	C	C5-C6-N1	5.03	123.51	121.00
52	2	4596	C	N3-C2-O2	-5.03	118.38	121.90
52	2	335	A	N1-C2-N3	-5.02	126.79	129.30
52	2	1520	C	C6-N1-C2	-5.02	118.29	120.30
52	2	678	C	N1-C2-O2	5.02	121.91	118.90
52	2	1726	U	C6-N1-C2	-5.02	117.99	121.00
52	2	2015	U	N1-C2-O2	5.02	126.32	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	4945	G	C5-C6-O6	-5.02	125.59	128.60
52	2	2654	C	C5-C6-N1	5.02	123.51	121.00
52	2	4497	U	N3-C2-O2	-5.02	118.69	122.20
52	2	343	C	C6-N1-C2	-5.02	118.29	120.30
52	2	1203	G	C2-N3-C4	5.02	114.41	111.90
52	2	1305	C	C6-N1-C2	-5.02	118.29	120.30
52	2	436	C	N3-C2-O2	-5.02	118.39	121.90
52	2	2618	G	C2-N3-C4	5.02	114.41	111.90
52	2	56	A	N1-C2-N3	-5.01	126.79	129.30
52	2	466	A	C2-N3-C4	5.01	113.11	110.60
3	8	20	A	N1-C2-N3	-5.01	126.79	129.30
52	2	1523	A	N1-C2-N3	-5.01	126.79	129.30
8	E	11	LEU	CA-CB-CG	5.01	126.83	115.30
52	2	227	A	N1-C2-N3	-5.01	126.79	129.30
52	2	2025	A	N1-C2-N3	-5.01	126.79	129.30
52	2	4348	A	N1-C2-N3	-5.01	126.79	129.30
52	2	4507	A	N1-C2-N3	-5.01	126.79	129.30
52	2	4590	A	N1-C2-N3	-5.01	126.79	129.30
52	2	4641	U	N3-C2-O2	-5.01	118.69	122.20
52	2	349	A	N1-C2-N3	-5.01	126.80	129.30
52	2	1078	A	N1-C2-N3	-5.01	126.80	129.30
52	2	1239	C	C6-N1-C2	-5.01	118.30	120.30
52	2	2069	A	N1-C2-N3	-5.01	126.80	129.30
52	2	3939	G	N3-C4-C5	-5.01	126.09	128.60
52	2	1339	U	N1-C2-O2	5.01	126.31	122.80
52	2	163	A	N1-C2-N3	-5.00	126.80	129.30
52	2	2539	C	C6-N1-C2	-5.00	118.30	120.30
52	2	334	A	N1-C2-N3	-5.00	126.80	129.30
52	2	377	A	N1-C2-N3	-5.00	126.80	129.30
52	2	2281	U	N1-C2-O2	5.00	126.30	122.80

There are no chirality outliers.

All (10) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
52	2	3876	A	Sidechain
45	4	503	THR	Peptide
6	B	241	PRO	Peptide
12	I	106	GLN	Peptide
22	V	110	PRO	Peptide
43	W	267	ARG	Peptide
46	Y	131	ARG	Peptide

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Mol	Chain	Res	Type	Group
33	n	106	TYR	Peptide
37	u	54	ALA	Peptide
39	y	55	GLY	Peptide

## 5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	6	242/245 (99%)	227 (94%)	15 (6%)	0	100	100
2	7	133/163 (82%)	129 (97%)	4 (3%)	0	100	100
4	9	82/134 (61%)	73 (89%)	8 (10%)	1 (1%)	13	49
5	A	41/159 (26%)	41 (100%)	0	0	100	100
6	B	401/403 (100%)	378 (94%)	23 (6%)	0	100	100
7	D	356/427 (83%)	333 (94%)	23 (6%)	0	100	100
8	E	96/115 (84%)	93 (97%)	3 (3%)	0	100	100
9	F	107/117 (92%)	105 (98%)	2 (2%)	0	100	100
10	G	239/266 (90%)	227 (95%)	12 (5%)	0	100	100
11	H	120/123 (98%)	119 (99%)	1 (1%)	0	100	100
12	I	188/192 (98%)	180 (96%)	8 (4%)	0	100	100
13	J	213/260 (82%)	206 (97%)	7 (3%)	0	100	100
14	K	100/105 (95%)	95 (95%)	5 (5%)	0	100	100
15	L	108/148 (73%)	100 (93%)	8 (7%)	0	100	100
16	M	84/97 (87%)	78 (93%)	6 (7%)	0	100	100
17	O	67/70 (96%)	63 (94%)	4 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	P	48/51 (94%)	45 (94%)	3 (6%)	0	100	100
19	Q	208/211 (99%)	193 (93%)	15 (7%)	0	100	100
20	S	133/215 (62%)	128 (96%)	5 (4%)	0	100	100
21	U	201/204 (98%)	190 (94%)	11 (6%)	0	100	100
22	V	199/203 (98%)	191 (96%)	8 (4%)	0	100	100
23	X	89/92 (97%)	86 (97%)	3 (3%)	0	100	100
24	Z	149/188 (79%)	145 (97%)	4 (3%)	0	100	100
25	a	146/196 (74%)	140 (96%)	6 (4%)	0	100	100
26	b	174/176 (99%)	168 (97%)	6 (3%)	0	100	100
27	e	129/140 (92%)	120 (93%)	9 (7%)	0	100	100
28	g	115/156 (74%)	109 (95%)	6 (5%)	0	100	100
29	h	132/145 (91%)	128 (97%)	4 (3%)	0	100	100
30	i	133/136 (98%)	126 (95%)	7 (5%)	0	100	100
31	l	123/137 (90%)	117 (95%)	6 (5%)	0	100	100
32	m	246/257 (96%)	217 (88%)	29 (12%)	0	100	100
33	n	107/110 (97%)	103 (96%)	4 (4%)	0	100	100
34	o	231/288 (80%)	212 (92%)	19 (8%)	0	100	100
35	p	224/248 (90%)	217 (97%)	7 (3%)	0	100	100
36	r	80/360 (22%)	76 (95%)	4 (5%)	0	100	100
37	u	64/549 (12%)	58 (91%)	4 (6%)	2 (3%)	4	26
38	w	427/731 (58%)	406 (95%)	17 (4%)	4 (1%)	17	56
39	y	163/165 (99%)	158 (97%)	5 (3%)	0	100	100
40	z	63/129 (49%)	61 (97%)	2 (3%)	0	100	100
41	C	163/178 (92%)	146 (90%)	17 (10%)	0	100	100
42	R	291/297 (98%)	272 (94%)	18 (6%)	1 (0%)	41	74
43	W	386/485 (80%)	364 (94%)	22 (6%)	0	100	100
44	T	120/160 (75%)	109 (91%)	10 (8%)	1 (1%)	19	58
45	4	607/634 (96%)	553 (91%)	50 (8%)	4 (1%)	22	61
46	Y	165/184 (90%)	157 (95%)	8 (5%)	0	100	100
47	k	127/135 (94%)	119 (94%)	8 (6%)	0	100	100
48	j	109/125 (87%)	105 (96%)	4 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
49	d	102/128 (80%)	91 (89%)	11 (11%)	0	100	100
51	v	215/239 (90%)	203 (94%)	12 (6%)	0	100	100
All	All	8446/10676 (79%)	7960 (94%)	473 (6%)	13 (0%)	50	79

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
37	u	55	PRO
4	9	99	GLN
37	u	14	THR
38	w	27	ALA
45	4	88	ASP
45	4	230	LEU
45	4	427	ASP
38	w	132	VAL
38	w	323	LYS
42	R	269	PRO
44	T	81	LYS
45	4	366	THR
38	w	318	TYR

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	6	212/213 (100%)	211 (100%)	1 (0%)	88	95
2	7	126/149 (85%)	126 (100%)	0	100	100
4	9	74/114 (65%)	74 (100%)	0	100	100
5	A	34/126 (27%)	34 (100%)	0	100	100
6	B	349/349 (100%)	349 (100%)	0	100	100
7	D	298/348 (86%)	297 (100%)	1 (0%)	92	96
8	E	83/97 (86%)	83 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
9	F	94/100 (94%)	94 (100%)	0	100	100
10	G	203/223 (91%)	202 (100%)	1 (0%)	88	95
11	H	109/110 (99%)	109 (100%)	0	100	100
12	I	169/171 (99%)	169 (100%)	0	100	100
13	J	191/228 (84%)	191 (100%)	0	100	100
14	K	86/89 (97%)	85 (99%)	1 (1%)	71	88
15	L	94/121 (78%)	94 (100%)	0	100	100
16	M	73/80 (91%)	73 (100%)	0	100	100
17	O	64/65 (98%)	64 (100%)	0	100	100
18	P	47/48 (98%)	47 (100%)	0	100	100
19	Q	176/177 (99%)	175 (99%)	1 (1%)	86	94
20	S	115/161 (71%)	115 (100%)	0	100	100
21	U	171/172 (99%)	171 (100%)	0	100	100
22	V	173/174 (99%)	172 (99%)	1 (1%)	86	94
23	X	74/75 (99%)	74 (100%)	0	100	100
24	Z	136/165 (82%)	136 (100%)	0	100	100
25	a	133/175 (76%)	133 (100%)	0	100	100
26	b	157/157 (100%)	156 (99%)	1 (1%)	86	94
27	e	101/107 (94%)	101 (100%)	0	100	100
28	g	105/133 (79%)	105 (100%)	0	100	100
29	h	124/135 (92%)	124 (100%)	0	100	100
30	i	117/118 (99%)	117 (100%)	0	100	100
31	l	109/121 (90%)	108 (99%)	1 (1%)	78	91
32	m	190/199 (96%)	190 (100%)	0	100	100
33	n	88/89 (99%)	88 (100%)	0	100	100
34	o	208/252 (82%)	207 (100%)	1 (0%)	88	95
35	p	195/215 (91%)	195 (100%)	0	100	100
36	r	76/312 (24%)	76 (100%)	0	100	100
37	u	62/485 (13%)	62 (100%)	0	100	100
38	w	385/654 (59%)	385 (100%)	0	100	100
39	y	137/137 (100%)	135 (98%)	2 (2%)	65	85

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
40	z	61/115 (53%)	60 (98%)	1 (2%)	62	84
41	C	138/149 (93%)	138 (100%)	0	100	100
42	R	246/250 (98%)	244 (99%)	2 (1%)	81	93
43	W	322/404 (80%)	322 (100%)	0	100	100
44	T	109/140 (78%)	109 (100%)	0	100	100
45	4	554/574 (96%)	552 (100%)	2 (0%)	91	95
46	Y	147/163 (90%)	147 (100%)	0	100	100
47	k	115/121 (95%)	115 (100%)	0	100	100
48	j	101/110 (92%)	101 (100%)	0	100	100
49	d	94/115 (82%)	94 (100%)	0	100	100
51	v	194/214 (91%)	194 (100%)	0	100	100
All	All	7419/9199 (81%)	7403 (100%)	16 (0%)	93	98

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	6	1	MET
7	D	95	MET
10	G	240	ASN
14	K	56	ARG
19	Q	103	ARG
22	V	117	ARG
26	b	77	ASN
31	l	119	ARG
34	o	56	ARG
39	y	54	LYS
39	y	61	LYS
40	z	6	ARG
42	R	196	ARG
42	R	289	ARG
45	4	385	ARG
45	4	544	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
38	w	282	HIS

## 5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
3	8	155/156 (99%)	28 (18%)	0
50	3	113/120 (94%)	21 (18%)	2 (1%)
52	2	3441/5054 (68%)	878 (25%)	24 (0%)
All	All	3709/5330 (69%)	927 (24%)	26 (0%)

All (927) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
3	8	24	G
3	8	25	G
3	8	34	U
3	8	35	C
3	8	39	G
3	8	48	A
3	8	52	A
3	8	59	A
3	8	62	A
3	8	63	U
3	8	80	A
3	8	82	A
3	8	84	A
3	8	85	U
3	8	86	U
3	8	103	A
3	8	104	A
3	8	105	C
3	8	110	U
3	8	114	G
3	8	123	U
3	8	124	U
3	8	126	C
3	8	127	U
3	8	128	C
3	8	150	C
3	8	151	G
3	8	156	U
50	3	7	G
50	3	10	C
50	3	11	A
50	3	22	A
50	3	41	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
50	3	49	A
50	3	51	G
50	3	52	C
50	3	53	U
50	3	64	G
50	3	72	U
50	3	73	U
50	3	74	A
50	3	75	G
50	3	83	A
50	3	84	U
50	3	85	G
50	3	86	G
50	3	96	U
50	3	100	A
50	3	110	G
52	2	25	A
52	2	39	A
52	2	42	A
52	2	43	U
52	2	44	A
52	2	48	G
52	2	56	A
52	2	59	A
52	2	64	A
52	2	65	A
52	2	69	A
52	2	72	C
52	2	73	A
52	2	84	A
52	2	91	G
52	2	93	G
52	2	98	A
52	2	109	G
52	2	110	C
52	2	119	G
52	2	120	A
52	2	122	U
52	2	131	C
52	2	132	G
52	2	135	G
52	2	136	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	144	G
52	2	152	U
52	2	159	C
52	2	169	G
52	2	172	C
52	2	178	C
52	2	183	C
52	2	185	C
52	2	186	G
52	2	188	G
52	2	197	A
52	2	200	U
52	2	207	G
52	2	209	U
52	2	216	C
52	2	217	C
52	2	218	A
52	2	225	G
52	2	234	G
52	2	235	A
52	2	254	G
52	2	256	G
52	2	265	C
52	2	266	C
52	2	267	G
52	2	279	A
52	2	280	G
52	2	297	U
52	2	306	A
52	2	315	G
52	2	316	U
52	2	334	A
52	2	340	C
52	2	349	A
52	2	363	A
52	2	385	A
52	2	387	G
52	2	398	A2M
52	2	407	A
52	2	408	A
52	2	409	G
52	2	410	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	412	G
52	2	417	G
52	2	432	U
52	2	433	A
52	2	440	U
52	2	449	C
52	2	450	G
52	2	452	A
52	2	453	G
52	2	454	U
52	2	464	G
52	2	467	U
52	2	483	G
52	2	484	U
52	2	485	C
52	2	486	C
52	2	487	G
52	2	491	G
52	2	492	U
52	2	493	G
52	2	494	U
52	2	497	G
52	2	498	C
52	2	499	G
52	2	500	G
52	2	501	C
52	2	502	C
52	2	503	C
52	2	504	G
52	2	505	G
52	2	509	A
52	2	510	U
52	2	514	U
52	2	515	C
52	2	517	C
52	2	518	G
52	2	519	C
52	2	654	C
52	2	659	G
52	2	667	A
52	2	668	C
52	2	670	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	685	C
52	2	686	A
52	2	687	U
52	2	692	A
52	2	696	C
52	2	703	G
52	2	704	C
52	2	731	G
52	2	738	C
52	2	739	G
52	2	740	G
52	2	742	G
52	2	746	A
52	2	753	C
52	2	759	G
52	2	760	G
52	2	904	C
52	2	905	C
52	2	913	U
52	2	914	U
52	2	915	A
52	2	916	C
52	2	917	A
52	2	918	G
52	2	924	C
52	2	925	C
52	2	926	G
52	2	932	A
52	2	933	G
52	2	936	C
52	2	941	C
52	2	944	A
52	2	945	U
52	2	956	A
52	2	959	G
52	2	960	A
52	2	961	G
52	2	962	C
52	2	965	G
52	2	966	A
52	2	967	C
52	2	969	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	970	G
52	2	971	U
52	2	982	U
52	2	988	C
52	2	990	C
52	2	991	C
52	2	992	C
52	2	993	G
52	2	994	G
52	2	995	C
52	2	1048	G
52	2	1049	C
52	2	1050	C
52	2	1051	G
52	2	1066	G
52	2	1067	G
52	2	1068	G
52	2	1070	G
52	2	1071	C
52	2	1072	C
52	2	1082	C
52	2	1095	A
52	2	1100	U
52	2	1168	G
52	2	1170	G
52	2	1173	G
52	2	1176	C
52	2	1178	G
52	2	1179	U
52	2	1180	C
52	2	1182	C
52	2	1186	U
52	2	1190	C
52	2	1195	G
52	2	1198	G
52	2	1199	G
52	2	1200	G
52	2	1201	U
52	2	1202	C
52	2	1203	G
52	2	1204	C
52	2	1211	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	1215	C
52	2	1216	C
52	2	1218	G
52	2	1222	A
52	2	1241	C
52	2	1243	C
52	2	1245	C
52	2	1251	C
52	2	1252	C
52	2	1253	G
52	2	1254	A
52	2	1255	A
52	2	1256	G
52	2	1260	G
52	2	1266	G
52	2	1271	G
52	2	1272	C
52	2	1273	G
52	2	1275	G
52	2	1280	C
52	2	1283	G
52	2	1284	G
52	2	1285	U
52	2	1287	G
52	2	1294	A
52	2	1295	C
52	2	1296	G
52	2	1302	U
52	2	1303	A
52	2	1313	C
52	2	1314	C
52	2	1315	C
52	2	1320	U
52	2	1321	G
52	2	1337	A
52	2	1354	A
52	2	1358	G
52	2	1359	G
52	2	1365	C
52	2	1366	G
52	2	1367	C
52	2	1377	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	1378	C
52	2	1379	C
52	2	1387	A
52	2	1394	G
52	2	1397	A
52	2	1398	A
52	2	1399	G
52	2	1402	C
52	2	1404	G
52	2	1405	C
52	2	1407	C
52	2	1409	C
52	2	1410	U
52	2	1412	G
52	2	1414	C
52	2	1420	A
52	2	1439	C
52	2	1442	C
52	2	1444	G
52	2	1446	C
52	2	1447	C
52	2	1449	C
52	2	1482	G
52	2	1483	C
52	2	1497	A
52	2	1498	G
52	2	1503	A
52	2	1517	2MG
52	2	1518	A
52	2	1523	A
52	2	1534	A2M
52	2	1543	G
52	2	1547	A
52	2	1554	A
52	2	1562	G
52	2	1578	U
52	2	1592	G
52	2	1595	G
52	2	1596	U
52	2	1597	G
52	2	1609	U
52	2	1612	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	1624	G
52	2	1625	OMG
52	2	1626	G
52	2	1631	A
52	2	1632	A
52	2	1633	G
52	2	1634	A
52	2	1637	A
52	2	1638	A
52	2	1641	G
52	2	1650	A
52	2	1654	G
52	2	1656	U
52	2	1658	G
52	2	1661	C
52	2	1670	G
52	2	1672	U
52	2	1673	U
52	2	1675	C
52	2	1676	C
52	2	1677	U
52	2	1679	A
52	2	1680	G
52	2	1691	G
52	2	1694	C
52	2	1697	G
52	2	1699	A
52	2	1700	G
52	2	1701	A
52	2	1703	C
52	2	1704	C
52	2	1705	G
52	2	1707	C
52	2	1708	G
52	2	1718	C
52	2	1719	A
52	2	1724	G
52	2	1732	C
52	2	1733	G
52	2	1796	U
52	2	1797	G
52	2	1803	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	1804	A
52	2	1806	G
52	2	1809	C
52	2	1813	U
52	2	1815	G
52	2	1816	C
52	2	1817	U
52	2	1820	C
52	2	1821	G
52	2	1823	G
52	2	1824	G
52	2	1829	G
52	2	1832	C
52	2	1833	G
52	2	1836	G
52	2	1837	A
52	2	1842	G
52	2	1850	A
52	2	1854	G
52	2	1855	G
52	2	1856	C
52	2	1860	U
52	2	1861	U
52	2	1865	G
52	2	1867	A
52	2	1870	C
52	2	1871	A2M
52	2	1882	U
52	2	1883	OMG
52	2	1891	A
52	2	1897	A
52	2	1916	G
52	2	1918	U
52	2	1919	G
52	2	1920	C
52	2	1921	C
52	2	1922	G
52	2	1925	G
52	2	1931	C
52	2	1932	A
52	2	1935	C
52	2	1939	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	1940	G
52	2	1942	A
52	2	1943	A
52	2	1944	A
52	2	1948	G
52	2	1952	G
52	2	1956	A
52	2	1959	U
52	2	1960	A
52	2	1966	C
52	2	1972	G
52	2	1979	A
52	2	1980	U
52	2	1981	G
52	2	1983	A
52	2	1984	A
52	2	1990	A
52	2	1991	A
52	2	1997	U
52	2	2001	G
52	2	2002	A
52	2	2003	G
52	2	2004	U
52	2	2008	U
52	2	2010	A
52	2	2011	C
52	2	2017	A
52	2	2025	A
52	2	2026	A
52	2	2033	A
52	2	2034	G
52	2	2040	A
52	2	2041	A
52	2	2043	A
52	2	2044	U
52	2	2046	G
52	2	2048	U
52	2	2052	G
52	2	2055	G
52	2	2056	G
52	2	2069	A
52	2	2071	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	2084	C
52	2	2090	U
52	2	2091	C
52	2	2092	G
52	2	2093	A
52	2	2095	A
52	2	2096	G
52	2	2097	U
52	2	2098	G
52	2	2101	C
52	2	2102	G
52	2	2104	G
52	2	2105	A
52	2	2106	G
52	2	2110	C
52	2	2111	G
52	2	2112	G
52	2	2250	C
52	2	2251	G
52	2	2253	A
52	2	2255	C
52	2	2256	C
52	2	2258	C
52	2	2259	G
52	2	2260	C
52	2	2263	A
52	2	2270	G
52	2	2279	A
52	2	2289	C
52	2	2300	A
52	2	2301	G
52	2	2306	G
52	2	2313	A
52	2	2333	G
52	2	2348	G
52	2	2351	C
52	2	2364	OMG
52	2	2395	A
52	2	2398	U
52	2	2410	C
52	2	2416	G
52	2	2417	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	2418	A
52	2	2422	OMC
52	2	2424	OMG
52	2	2425	U
52	2	2433	G
52	2	2439	G
52	2	2441	C
52	2	2447	U
52	2	2450	G
52	2	2463	G
52	2	2465	C
52	2	2471	G
52	2	2474	G
52	2	2475	G
52	2	2478	C
52	2	2479	G
52	2	2484	A
52	2	2487	G
52	2	2488	C
52	2	2489	C
52	2	2490	U
52	2	2491	C
52	2	2492	C
52	2	2493	G
52	2	2494	U
52	2	2495	U
52	2	2496	G
52	2	2498	C
52	2	2502	G
52	2	2503	G
52	2	2504	C
52	2	2505	C
52	2	2506	G
52	2	2507	A
52	2	2511	A
52	2	2512	A
52	2	2513	A
52	2	2519	U
52	2	2520	C
52	2	2529	A
52	2	2537	A
52	2	2543	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	2544	G
52	2	2545	U
52	2	2546	G
52	2	2554	U
52	2	2555	G
52	2	2559	G
52	2	2560	C
52	2	2563	C
52	2	2567	G
52	2	2573	A
52	2	2583	C
52	2	2586	G
52	2	2587	A
52	2	2589	C
52	2	2601	A
52	2	2611	A
52	2	2618	G
52	2	2627	C
52	2	2643	G
52	2	2653	C
52	2	2662	G
52	2	2669	C
52	2	2670	C
52	2	2674	A
52	2	2675	G
52	2	2687	U
52	2	2694	G
52	2	2695	A
52	2	2696	A
52	2	2708	U
52	2	2710	C
52	2	2711	G
52	2	2719	C
52	2	2721	G
52	2	2724	G
52	2	2726	G
52	2	2739	C
52	2	2742	G
52	2	2743	A
52	2	2753	G
52	2	2755	A
52	2	2756	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	2759	G
52	2	2760	G
52	2	2761	U
52	2	2762	G
52	2	2763	U
52	2	2764	A
52	2	2769	U
52	2	2770	C
52	2	2773	OMG
52	2	2787	A
52	2	2788	U
52	2	2789	A
52	2	2790	U
52	2	2795	A
52	2	2799	G
52	2	2802	C
52	2	2815	A
52	2	2826	U
52	2	2827	G
52	2	2828	U
52	2	2857	A
52	2	2897	G
52	2	2901	G
52	2	2902	G
52	2	2904	U
52	2	2905	C
52	2	2906	G
52	2	2908	U
52	2	3585	G
52	2	3586	G
52	2	3587	C
52	2	3588	C
52	2	3591	C
52	2	3593	C
52	2	3595	U
52	2	3596	A
52	2	3597	G
52	2	3598	C
52	2	3599	A
52	2	3605	C
52	2	3615	G
52	2	3618	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	3626	G
52	2	3630	A
52	2	3635	A
52	2	3644	U
52	2	3648	A
52	2	3662	A
52	2	3663	A
52	2	3673	C
52	2	3679	U
52	2	3680	U
52	2	3691	G
52	2	3692	A
52	2	3696	C
52	2	3710	G
52	2	3711	A
52	2	3712	A
52	2	3714	G
52	2	3723	A2M
52	2	3729	U
52	2	3735	G
52	2	3736	A
52	2	3748	A
52	2	3750	G
52	2	3753	G
52	2	3773	U
52	2	3774	A
52	2	3775	A
52	2	3776	G
52	2	3828	A
52	2	3833	C
52	2	3838	U
52	2	3839	G
52	2	3840	U
52	2	3867	A2M
52	2	3875	G
52	2	3876	A
52	2	3877	A
52	2	3878	C
52	2	3879	G
52	2	3898	G
52	2	3904	G
52	2	3905	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	3906	A
52	2	3914	U
52	2	3915	U
52	2	3923	A
52	2	3938	G
52	2	3939	G
52	2	4076	G
52	2	4077	A
52	2	4084	G
52	2	4093	G
52	2	4095	G
52	2	4099	G
52	2	4100	C
52	2	4102	C
52	2	4103	C
52	2	4104	G
52	2	4105	A
52	2	4106	G
52	2	4107	G
52	2	4111	U
52	2	4113	U
52	2	4114	C
52	2	4115	G
52	2	4116	C
52	2	4117	U
52	2	4119	C
52	2	4121	G
52	2	4130	C
52	2	4131	G
52	2	4138	C
52	2	4139	G
52	2	4140	C
52	2	4141	G
52	2	4142	C
52	2	4143	G
52	2	4144	C
52	2	4145	C
52	2	4146	G
52	2	4150	G
52	2	4154	G
52	2	4162	C
52	2	4163	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	4166	G
52	2	4170	A
52	2	4171	C
52	2	4183	G
52	2	4184	G
52	2	4190	U
52	2	4207	C
52	2	4208	U
52	2	4209	G
52	2	4210	U
52	2	4211	C
52	2	4223	C
52	2	4227	U
52	2	4228	G
52	2	4229	U
52	2	4230	C
52	2	4231	C
52	2	4232	U
52	2	4234	A
52	2	4235	G
52	2	4236	G
52	2	4237	C
52	2	4243	C
52	2	4251	A
52	2	4253	A
52	2	4254	G
52	2	4255	A
52	2	4258	C
52	2	4265	U
52	2	4266	G
52	2	4268	A
52	2	4271	A
52	2	4273	A
52	2	4274	A
52	2	4275	G
52	2	4276	G
52	2	4279	A
52	2	4280	A
52	2	4281	A
52	2	4282	A
52	2	4283	G
52	2	4288	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	4289	U
52	2	4290	U
52	2	4291	G
52	2	4292	A
52	2	4297	G
52	2	4302	U
52	2	4313	A
52	2	4315	A
52	2	4325	A
52	2	4326	G
52	2	4330	G
52	2	4331	G
52	2	4332	C
52	2	4333	C
52	2	4339	A
52	2	4340	U
52	2	4341	C
52	2	4342	C
52	2	4343	U
52	2	4347	G
52	2	4348	A
52	2	4350	C
52	2	4368	G
52	2	4371	G
52	2	4372	U
52	2	4381	A
52	2	4387	C
52	2	4395	U
52	2	4396	A
52	2	4401	G
52	2	4404	U
52	2	4413	C
52	2	4414	A
52	2	4415	A
52	2	4416	G
52	2	4417	C
52	2	4418	G
52	2	4419	U
52	2	4420	U
52	2	4421	C
52	2	4422	A
52	2	4423	U

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	4424	A
52	2	4425	G
52	2	4427	G
52	2	4433	G
52	2	4437	U
52	2	4440	G
52	2	4446	U
52	2	4447	C
52	2	4449	A
52	2	4450	U
52	2	4451	G
52	2	4452	U
52	2	4464	A
52	2	4466	C
52	2	4475	G
52	2	4476	C
52	2	4484	A
52	2	4491	G
52	2	4499	G
52	2	4500	U
52	2	4502	C
52	2	4503	A
52	2	4510	A
52	2	4512	U
52	2	4513	A
52	2	4518	A
52	2	4519	C
52	2	4523	A2M
52	2	4524	G
52	2	4528	G
52	2	4530	UR3
52	2	4538	G
52	2	4543	G
52	2	4545	G
52	2	4548	A
52	2	4550	7MG
52	2	4555	U
52	2	4556	U
52	2	4557	U
52	2	4558	U
52	2	4560	C
52	2	4584	A

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	4589	A
52	2	4590	A
52	2	4599	A
52	2	4600	G
52	2	4601	U
52	2	4606	G
52	2	4607	A
52	2	4608	G
52	2	4627	U
52	2	4635	A
52	2	4636	U
52	2	4637	OMG
52	2	4656	A
52	2	4657	U
52	2	4670	C
52	2	4677	U
52	2	4678	G
52	2	4695	C
52	2	4700	A
52	2	4707	A
52	2	4708	A
52	2	4709	U
52	2	4719	G
52	2	4720	C
52	2	4730	C
52	2	4731	G
52	2	4733	C
52	2	4734	A
52	2	4740	G
52	2	4741	C
52	2	4742	G
52	2	4745	G
52	2	4751	G
52	2	4754	G
52	2	4757	C
52	2	4759	C
52	2	4761	G
52	2	4764	A
52	2	4765	G
52	2	4771	C
52	2	4775	C
52	2	4861	G

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	4862	G
52	2	4864	U
52	2	4870	OMG
52	2	4871	C
52	2	4877	G
52	2	4882	U
52	2	4883	C
52	2	4889	G
52	2	4895	C
52	2	4900	C
52	2	4901	G
52	2	4910	G
52	2	4912	G
52	2	4913	G
52	2	4914	C
52	2	4915	G
52	2	4926	C
52	2	4927	G
52	2	4928	C
52	2	4934	A
52	2	4937	C
52	2	4938	A
52	2	4940	C
52	2	4941	G
52	2	4943	A
52	2	4949	G
52	2	4963	G
52	2	4976	U
52	2	4988	U
52	2	4989	U
52	2	4991	U
52	2	5006	U
52	2	5007	A
52	2	5013	C
52	2	5014	A
52	2	5017	G
52	2	5022	U
52	2	5023	C
52	2	5024	C
52	2	5025	C
52	2	5026	U
52	2	5027	C

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
52	2	5028	G
52	2	5030	U
52	2	5031	G
52	2	5034	A
52	2	5041	G
52	2	5047	C
52	2	5050	C
52	2	5054	C
52	2	5055	G
52	2	5058	A
52	2	5061	A
52	2	5069	U

All (26) RNA pucker outliers are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
50	3	51	G
50	3	72	U
52	2	406	C
52	2	485	C
52	2	914	U
52	2	1517	2MG
52	2	1633	G
52	2	1678	C
52	2	1808	C
52	2	1860	U
52	2	1931	C
52	2	1980	U
52	2	2033	A
52	2	2760	G
52	2	3596	A
52	2	3752	C
52	2	3774	A
52	2	3905	A
52	2	4235	G
52	2	4236	G
52	2	4414	A
52	2	4415	A
52	2	4555	U
52	2	4636	U
52	2	4699	U
52	2	4913	G

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
52	E7G	2	2297	52	24,27,28	3.72	11 (45%)	30,40,43	2.09	7 (23%)
52	OMG	2	373	52	18,26,27	2.79	8 (44%)	19,38,41	1.74	5 (26%)
52	P4U	2	1348	52	21,24,25	3.37	8 (38%)	27,33,36	1.04	1 (3%)
52	OMC	2	4536	52	19,22,23	2.95	8 (42%)	26,31,34	0.75	0
52	BGH	2	3899	52	25,29,30	4.54	17 (68%)	31,43,46	2.59	11 (35%)
52	A2M	2	2401	52	18,25,26	3.60	8 (44%)	18,36,39	3.46	3 (16%)
52	UR3	2	4597	52	19,22,23	2.73	7 (36%)	26,32,35	2.06	5 (19%)
52	OMG	2	1625	52	18,26,27	2.91	8 (44%)	19,38,41	1.53	4 (21%)
52	OMG	2	2773	52	18,26,27	2.88	8 (44%)	19,38,41	1.40	4 (21%)
52	2MG	2	978	52	18,26,27	2.68	6 (33%)	16,38,41	1.44	3 (18%)
52	OMG	2	1522	52	18,26,27	2.79	8 (44%)	19,38,41	1.55	4 (21%)
52	B8Q	2	1456	52	17,22,23	2.88	5 (29%)	22,32,35	2.32	6 (27%)
52	2MG	2	729	52	18,26,27	2.59	6 (33%)	16,38,41	1.39	3 (18%)
52	2MG	2	4872	52	18,26,27	2.45	6 (33%)	16,38,41	1.73	4 (25%)
52	OMG	2	2364	52	18,26,27	2.76	8 (44%)	19,38,41	1.61	5 (26%)
52	OMC	2	2365	52	19,22,23	2.89	8 (42%)	26,31,34	0.80	0
52	OMC	2	2804	52	19,22,23	2.86	8 (42%)	26,31,34	0.78	0
52	A2M	2	398	52	18,25,26	3.60	8 (44%)	18,36,39	3.44	3 (16%)
52	B8K	2	3897	52	24,28,29	3.39	11 (45%)	30,42,45	2.59	11 (36%)
52	OMG	2	2050	52	18,26,27	2.73	8 (44%)	19,38,41	1.52	4 (21%)
52	A2M	2	3867	52	18,25,26	3.62	8 (44%)	18,36,39	3.44	4 (22%)
52	OMC	2	2861	52	19,22,23	3.04	8 (42%)	26,31,34	1.11	2 (7%)
52	B8T	2	4483	52	19,22,23	3.56	8 (42%)	26,31,34	1.32	4 (15%)
52	OMG	2	4637	52	18,26,27	2.75	8 (44%)	19,38,41	1.54	3 (15%)
52	A2M	2	1534	52	18,25,26	3.60	8 (44%)	18,36,39	3.56	4 (22%)
52	OMG	2	2424	52	18,26,27	2.83	8 (44%)	19,38,41	1.54	4 (21%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
52	OMC	2	3909	52	19,22,23	3.15	8 (42%)	26,31,34	1.83	7 (26%)
52	B8W	2	4129	52	18,26,27	2.13	2 (11%)	21,38,41	2.46	6 (28%)
52	P7G	2	1909	52	24,28,29	3.87	11 (45%)	27,41,44	1.66	3 (11%)
52	P7G	2	3880	52	24,28,29	3.95	11 (45%)	27,41,44	1.44	2 (7%)
52	A2M	2	4523	52	18,25,26	3.57	8 (44%)	18,36,39	3.40	4 (22%)
52	OMC	2	2422	52,46	19,22,23	2.92	8 (42%)	26,31,34	1.08	1 (3%)
52	OMG	2	1883	52	18,26,27	2.79	8 (44%)	19,38,41	1.57	4 (21%)
52	A2M	2	3718	52	18,25,26	3.58	8 (44%)	18,36,39	3.41	4 (22%)
52	A2M	2	3723	52	18,25,26	3.56	8 (44%)	18,36,39	3.41	4 (22%)
52	A2M	2	3825	52	18,25,26	3.58	8 (44%)	18,36,39	3.33	4 (22%)
52	M7A	2	4564	52	20,25,26	1.98	3 (15%)	28,37,40	3.91	7 (25%)
52	OMC	2	3869	52	19,22,23	2.94	8 (42%)	26,31,34	0.95	2 (7%)
52	B9B	2	2754	52	21,28,29	2.02	3 (14%)	23,40,43	6.39	4 (17%)
52	A2M	2	4571	52	18,25,26	3.61	8 (44%)	18,36,39	3.41	4 (22%)
52	OMU	2	4620	52	19,22,23	2.91	8 (42%)	26,31,34	1.72	5 (19%)
52	OMG	2	4870	52	18,26,27	2.83	8 (44%)	19,38,41	1.62	4 (21%)
52	B8W	2	4529	52	18,26,27	2.13	2 (11%)	21,38,41	2.48	6 (28%)
52	B8T	2	4671	52	19,22,23	3.49	8 (42%)	26,31,34	1.02	1 (3%)
52	OMG	2	1316	52	18,26,27	2.75	8 (44%)	19,38,41	1.58	5 (26%)
52	B8W	2	4472	52	18,26,27	2.11	2 (11%)	21,38,41	2.37	7 (33%)
52	OMC	2	3887	52	19,22,23	3.03	8 (42%)	26,31,34	1.09	1 (3%)
52	B9B	2	1574	52	21,28,29	2.01	3 (14%)	23,40,43	6.68	4 (17%)
52	A2M	2	1524	52	18,25,26	3.66	9 (50%)	18,36,39	3.58	6 (33%)
52	I4U	2	1659	52	21,24,25	3.46	9 (42%)	27,34,37	1.18	1 (3%)
52	A2M	2	2363	52	18,25,26	3.63	8 (44%)	18,36,39	3.42	4 (22%)
52	OMC	2	3701	52	19,22,23	3.04	8 (42%)	26,31,34	0.77	0
52	A2M	2	1871	52	18,25,26	3.58	9 (50%)	18,36,39	3.50	3 (16%)
52	OMG	2	4623	52	18,26,27	2.75	8 (44%)	19,38,41	1.59	5 (26%)
52	B8W	2	4185	52	18,26,27	2.12	2 (11%)	21,38,41	2.39	7 (33%)
52	B8K	2	4690	52	24,28,29	3.14	12 (50%)	30,42,45	2.67	12 (40%)
52	7MG	2	2522	52	22,26,27	3.57	10 (45%)	29,39,42	1.98	9 (31%)
52	A2M	2	1326	52	18,25,26	3.63	8 (44%)	18,36,39	3.39	4 (22%)
52	7MG	2	1605	52	22,26,27	3.83	10 (45%)	29,39,42	1.99	9 (31%)
52	OMG	2	4494	52	18,26,27	2.87	8 (44%)	19,38,41	1.50	4 (21%)
52	7MG	2	4550	52	22,26,27	3.87	10 (45%)	29,39,42	2.00	9 (31%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	OMU	8	14	3,52	19,22,23	2.86	8 (42%)	26,31,34	1.84	6 (23%)
52	5MU	2	4083	52	19,22,23	7.22	8 (42%)	28,32,35	3.39	10 (35%)
52	UR3	2	4530	52	19,22,23	2.84	6 (31%)	26,32,35	1.28	2 (7%)
52	B8W	2	2380	52	18,26,27	2.07	2 (11%)	21,38,41	2.50	7 (33%)
52	B9H	2	2786	52	20,25,26	3.19	3 (15%)	22,35,38	2.53	7 (31%)
52	2MG	2	1517	52	18,26,27	2.62	7 (38%)	16,38,41	1.62	3 (18%)
52	B9B	2	237	52	21,28,29	2.03	3 (14%)	23,40,43	6.51	5 (21%)

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
52	E7G	2	2297	52	-	1/9/39/40	0/3/3/3
52	OMG	2	373	52	-	1/5/27/28	0/3/3/3
52	P4U	2	1348	52	-	1/10/29/30	0/2/2/2
52	OMC	2	4536	52	-	0/9/27/28	0/2/2/2
52	BGH	2	3899	52	-	0/13/43/44	0/3/3/3
52	A2M	2	2401	52	-	2/5/27/28	0/3/3/3
52	UR3	2	4597	52	-	0/7/25/26	0/2/2/2
52	OMG	2	1625	52	-	3/5/27/28	0/3/3/3
52	OMG	2	2773	52	-	2/5/27/28	0/3/3/3
52	2MG	2	978	52	-	0/5/27/28	0/3/3/3
52	OMG	2	1522	52	-	1/5/27/28	0/3/3/3
52	B8Q	2	1456	52	-	0/7/42/43	0/2/2/2
52	2MG	2	729	52	-	2/5/27/28	0/3/3/3
52	2MG	2	4872	52	-	2/5/27/28	0/3/3/3
52	OMG	2	2364	52	-	2/5/27/28	0/3/3/3
52	OMC	2	2365	52	-	0/9/27/28	0/2/2/2
52	OMC	2	2804	52	-	0/9/27/28	0/2/2/2
52	A2M	2	398	52	-	2/5/27/28	0/3/3/3
52	B8K	2	3897	52	-	3/11/41/42	0/3/3/3
52	OMG	2	2050	52	-	0/5/27/28	0/3/3/3
52	A2M	2	3867	52	-	2/5/27/28	0/3/3/3
52	OMC	2	2861	52	-	0/9/27/28	0/2/2/2
52	B8T	2	4483	52	-	0/7/27/28	0/2/2/2
52	OMG	2	4637	52	-	3/5/27/28	0/3/3/3
52	A2M	2	1534	52	-	2/5/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
52	OMG	2	2424	52	-	2/5/27/28	0/3/3/3
52	OMC	2	3909	52	-	2/9/27/28	0/2/2/2
52	B8W	2	4129	52	-	4/5/27/28	0/3/3/3
52	P7G	2	1909	52	-	2/10/40/41	0/3/3/3
52	P7G	2	3880	52	-	4/10/40/41	0/3/3/3
52	A2M	2	4523	52	-	4/5/27/28	0/3/3/3
52	OMC	2	2422	52,46	-	1/9/27/28	0/2/2/2
52	OMG	2	1883	52	-	2/5/27/28	0/3/3/3
52	A2M	2	3718	52	-	0/5/27/28	0/3/3/3
52	A2M	2	3723	52	-	2/5/27/28	0/3/3/3
52	A2M	2	3825	52	-	0/5/27/28	0/3/3/3
52	M7A	2	4564	52	-	0/7/37/38	0/3/3/3
52	OMC	2	3869	52	-	0/9/27/28	0/2/2/2
52	B9B	2	2754	52	-	3/7/29/30	0/3/3/3
52	A2M	2	4571	52	-	0/5/27/28	0/3/3/3
52	OMU	2	4620	52	-	0/9/27/28	0/2/2/2
52	OMG	2	4870	52	-	3/5/27/28	0/3/3/3
52	B8W	2	4529	52	-	2/5/27/28	0/3/3/3
52	B8T	2	4671	52	-	0/7/27/28	0/2/2/2
52	OMG	2	1316	52	-	2/5/27/28	0/3/3/3
52	B8W	2	4472	52	-	2/5/27/28	0/3/3/3
52	OMC	2	3887	52	-	1/9/27/28	0/2/2/2
52	B9B	2	1574	52	-	2/7/29/30	0/3/3/3
52	A2M	2	1524	52	-	0/5/27/28	0/3/3/3
52	I4U	2	1659	52	-	2/9/29/30	0/2/2/2
52	A2M	2	2363	52	-	0/5/27/28	0/3/3/3
52	OMC	2	3701	52	-	4/9/27/28	0/2/2/2
52	A2M	2	1871	52	-	2/5/27/28	0/3/3/3
52	OMG	2	4623	52	-	0/5/27/28	0/3/3/3
52	B8W	2	4185	52	-	2/5/27/28	0/3/3/3
52	B8K	2	4690	52	-	0/11/41/42	0/3/3/3
52	7MG	2	2522	52	-	0/7/37/38	0/3/3/3
52	A2M	2	1326	52	-	0/5/27/28	0/3/3/3
52	7MG	2	1605	52	-	1/7/37/38	0/3/3/3
52	OMG	2	4494	52	-	0/5/27/28	0/3/3/3
52	7MG	2	4550	52	-	2/7/37/38	0/3/3/3
3	OMU	8	14	3,52	-	1/9/27/28	0/2/2/2
52	5MU	2	4083	52	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
52	UR3	2	4530	52	-	0/7/25/26	0/2/2/2
52	B8W	2	2380	52	-	2/5/27/28	0/3/3/3
52	B9H	2	2786	52	-	3/12/47/48	0/2/2/2
52	2MG	2	1517	52	-	1/5/27/28	0/3/3/3
52	B9B	2	237	52	-	4/7/29/30	0/3/3/3

All (510) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	4083	5MU	C4-C5	20.94	1.79	1.44
52	2	4083	5MU	C6-N1	15.82	1.65	1.38
52	2	4083	5MU	C6-C5	-11.44	1.15	1.34
52	2	4083	5MU	C4-N3	-11.01	1.18	1.38
52	2	1659	I4U	C4-N3	10.46	1.44	1.31
52	2	1348	P4U	C4-N3	10.16	1.44	1.31
52	2	2786	B9H	C2-N3	10.13	1.50	1.37
52	2	4550	7MG	C8-N9	9.38	1.51	1.46
52	2	3880	P7G	C5-N7	9.25	1.46	1.35
52	2	1524	A2M	C3'-C4'	-9.21	1.29	1.53
52	2	3897	B8K	C8-N9	9.19	1.51	1.46
52	2	1605	7MG	C8-N9	9.17	1.51	1.46
52	2	1909	P7G	C5-N7	9.08	1.45	1.35
52	2	2297	E7G	C5-N7	9.05	1.45	1.35
52	2	1326	A2M	C3'-C4'	-8.99	1.30	1.53
52	2	1871	A2M	C3'-C4'	-8.99	1.30	1.53
52	2	4550	7MG	C5-N7	8.90	1.45	1.35
52	2	2363	A2M	C3'-C4'	-8.90	1.30	1.53
52	2	3880	P7G	C8-N9	8.88	1.50	1.46
52	2	2401	A2M	C3'-C4'	-8.87	1.30	1.53
52	2	3899	BGH	C2'-C1'	-8.86	1.30	1.53
52	2	398	A2M	C3'-C4'	-8.84	1.30	1.53
52	2	3899	BGH	O4'-C1'	8.84	1.62	1.42
52	2	3867	A2M	C3'-C4'	-8.83	1.30	1.53
52	2	3723	A2M	C3'-C4'	-8.82	1.30	1.53
52	2	4571	A2M	C3'-C4'	-8.80	1.30	1.53
52	2	1605	7MG	C5-N7	8.77	1.45	1.35
52	2	3718	A2M	C3'-C4'	-8.72	1.30	1.53
52	2	4523	A2M	C3'-C4'	-8.68	1.30	1.53
52	2	1534	A2M	C3'-C4'	-8.60	1.31	1.53
52	2	3825	A2M	C3'-C4'	-8.54	1.31	1.53
52	2	2522	7MG	C5-N7	8.42	1.45	1.35
52	2	1909	P7G	C8-N9	8.39	1.50	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	2522	7MG	C8-N9	8.24	1.50	1.46
52	2	3899	BGH	C8-N9	8.21	1.50	1.46
52	2	1456	B8Q	C6-C5	8.20	1.51	1.33
52	2	2297	E7G	C8-N9	8.03	1.50	1.46
52	2	4185	B8W	C2-N2	8.02	1.49	1.33
52	2	4690	B8K	C8-N9	8.02	1.50	1.46
52	2	4529	B8W	C2-N2	7.99	1.49	1.33
52	2	4129	B8W	C2-N2	7.98	1.49	1.33
52	2	4472	B8W	C2-N2	7.89	1.49	1.33
52	2	3825	A2M	O4'-C4'	7.74	1.62	1.45
52	2	1524	A2M	O4'-C1'	-7.71	1.30	1.41
52	2	1871	A2M	O4'-C4'	7.70	1.62	1.45
52	2	2380	B8W	C2-N2	7.69	1.49	1.33
52	2	3718	A2M	O4'-C4'	7.68	1.62	1.45
52	2	4523	A2M	O4'-C4'	7.59	1.61	1.45
52	2	3899	BGH	O4'-C4'	-7.58	1.28	1.45
52	2	398	A2M	O4'-C4'	7.55	1.61	1.45
52	2	1326	A2M	O4'-C4'	7.54	1.61	1.45
52	2	1534	A2M	O4'-C4'	7.50	1.61	1.45
52	2	2363	A2M	O4'-C4'	7.48	1.61	1.45
52	2	4571	A2M	O4'-C4'	7.47	1.61	1.45
52	2	3867	A2M	O4'-C4'	7.44	1.61	1.45
52	2	3723	A2M	O4'-C4'	7.44	1.61	1.45
52	2	2401	A2M	O4'-C4'	7.39	1.61	1.45
52	2	3867	A2M	O4'-C1'	-7.37	1.30	1.41
52	2	4483	B8T	C2-N3	7.34	1.51	1.36
52	2	4571	A2M	O4'-C1'	-7.30	1.30	1.41
52	2	1534	A2M	O4'-C1'	-7.26	1.30	1.41
52	2	2401	A2M	O4'-C1'	-7.21	1.31	1.41
52	2	2363	A2M	O4'-C1'	-7.20	1.31	1.41
52	2	1326	A2M	O4'-C1'	-7.18	1.31	1.41
52	2	398	A2M	O4'-C1'	-7.13	1.31	1.41
52	2	4523	A2M	O4'-C1'	-7.08	1.31	1.41
52	2	3825	A2M	O4'-C1'	-7.02	1.31	1.41
52	2	4671	B8T	C2-N3	7.01	1.50	1.36
52	2	3723	A2M	O4'-C1'	-6.97	1.31	1.41
52	2	3718	A2M	O4'-C1'	-6.96	1.31	1.41
52	2	4483	B8T	C4-N3	6.91	1.44	1.32
52	2	1524	A2M	O4'-C4'	6.88	1.60	1.45
52	2	978	2MG	C2-N2	6.80	1.48	1.33
52	2	4620	OMU	C2-N1	6.78	1.49	1.38
52	2	4530	UR3	C6-C5	6.77	1.50	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	4671	B8T	C6-C5	6.75	1.50	1.35
52	2	3909	OMC	C6-C5	6.73	1.50	1.35
52	2	4671	B8T	C4-N3	6.68	1.44	1.32
52	2	4597	UR3	C6-C5	6.66	1.50	1.35
52	2	4530	UR3	C2-N1	6.65	1.48	1.38
52	2	2786	B9H	C6-C5	6.65	1.48	1.33
52	2	1517	2MG	C2-N2	6.64	1.48	1.33
52	2	1871	A2M	O4'-C1'	-6.63	1.31	1.41
52	2	3897	B8K	C2-N3	6.59	1.49	1.33
52	2	2786	B9H	C2-N1	6.59	1.48	1.38
3	8	14	OMU	C2-N1	6.54	1.48	1.38
52	2	4483	B8T	C6-C5	6.54	1.50	1.35
52	2	729	2MG	C2-N2	6.54	1.47	1.33
52	2	4690	B8K	C2-N3	6.52	1.48	1.33
52	2	1625	OMG	C2-N3	6.47	1.48	1.33
3	8	14	OMU	C2-N3	6.45	1.49	1.38
52	2	4620	OMU	C2-N3	6.39	1.49	1.38
52	2	3701	OMC	C2-N3	6.35	1.49	1.36
52	2	3887	OMC	C2-N3	6.31	1.49	1.36
52	2	4597	UR3	C2-N3	6.29	1.51	1.39
52	2	2861	OMC	C2-N3	6.29	1.49	1.36
52	2	4671	B8T	C4-N4	6.25	1.48	1.35
52	2	1456	B8Q	C2-N3	6.25	1.45	1.35
52	2	3869	OMC	C2-N3	6.23	1.49	1.36
52	2	2754	B9B	O6-C6	6.23	1.40	1.35
52	2	1574	B9B	O6-C6	6.23	1.40	1.35
52	2	1659	I4U	C2-N3	6.21	1.49	1.36
52	2	4494	OMG	C2-N3	6.20	1.48	1.33
52	2	2422	OMC	C2-N3	6.18	1.48	1.36
52	2	4483	B8T	C4-N4	6.18	1.48	1.35
52	2	237	B9B	O6-C6	6.17	1.40	1.35
52	2	4536	OMC	C2-N3	6.16	1.48	1.36
52	2	1909	P7G	C4-N9	6.15	1.44	1.35
52	2	2773	OMG	C2-N3	6.12	1.48	1.33
52	2	2773	OMG	C2-N2	6.10	1.48	1.34
52	2	1909	P7G	C4-N3	6.10	1.48	1.37
52	2	3880	P7G	C4-N3	6.09	1.48	1.37
52	2	2365	OMC	C2-N3	6.08	1.48	1.36
52	2	2804	OMC	C2-N3	6.06	1.48	1.36
52	2	4872	2MG	C2-N2	6.06	1.46	1.33
52	2	3701	OMC	C6-C5	6.05	1.49	1.35
52	2	2424	OMG	C2-N3	6.04	1.47	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	2861	OMC	C6-C5	6.03	1.49	1.35
52	2	1625	OMG	C2-N2	6.00	1.48	1.34
52	2	4494	OMG	C2-N2	5.97	1.48	1.34
52	2	2424	OMG	C2-N2	5.96	1.48	1.34
52	2	1522	OMG	C2-N2	5.94	1.48	1.34
52	2	4870	OMG	C2-N3	5.94	1.47	1.33
52	2	4870	OMG	C2-N2	5.93	1.48	1.34
52	2	3887	OMC	C6-C5	5.93	1.48	1.35
52	2	1883	OMG	C2-N3	5.92	1.47	1.33
52	2	1348	P4U	C2-N3	5.89	1.48	1.36
52	2	1883	OMG	C2-N2	5.88	1.48	1.34
52	2	4536	OMC	C6-C5	5.87	1.48	1.35
52	2	3880	P7G	C8-N7	5.87	1.51	1.45
52	2	1659	I4U	C6-C5	5.85	1.48	1.35
52	2	1316	OMG	C2-N2	5.84	1.48	1.34
52	2	3869	OMC	C6-C5	5.84	1.48	1.35
52	2	3899	BGH	C4-N9	5.82	1.44	1.37
52	2	2364	OMG	C2-N2	5.82	1.48	1.34
52	2	4550	7MG	C2-N3	5.81	1.47	1.33
52	2	373	OMG	C2-N2	5.81	1.48	1.34
52	2	1522	OMG	C2-N3	5.79	1.47	1.33
52	2	2365	OMC	C6-C5	5.79	1.48	1.35
52	2	3880	P7G	C2-N2	5.77	1.47	1.34
52	2	2297	E7G	C8-N7	5.77	1.51	1.45
52	2	4637	OMG	C2-N2	5.76	1.47	1.34
52	2	1909	P7G	C2-N2	5.75	1.47	1.34
52	2	3897	B8K	C4-N9	5.75	1.44	1.37
52	2	2050	OMG	C2-N2	5.73	1.47	1.34
52	2	2422	OMC	C6-C5	5.73	1.48	1.35
52	2	2754	B9B	C2-N2	5.73	1.45	1.33
52	2	3880	P7G	C4-N9	5.72	1.43	1.35
52	2	4623	OMG	C2-N2	5.72	1.47	1.34
52	2	4637	OMG	C2-N3	5.71	1.47	1.33
52	2	237	B9B	C2-N2	5.70	1.45	1.33
52	2	3909	OMC	C4-N4	5.69	1.47	1.33
52	2	2050	OMG	C2-N3	5.68	1.47	1.33
52	2	1348	P4U	C6-C5	5.68	1.48	1.35
52	2	3909	OMC	C2-N3	5.68	1.47	1.36
52	2	4564	M7A	C4-N9	5.68	1.48	1.38
52	2	1316	OMG	C2-N3	5.65	1.46	1.33
52	2	2804	OMC	C6-C5	5.65	1.48	1.35
52	2	3899	BGH	C2-N3	5.65	1.46	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	4530	UR3	C2-N3	5.63	1.49	1.39
52	2	3899	BGH	C4-N3	5.63	1.47	1.34
52	2	4623	OMG	C2-N3	5.62	1.46	1.33
52	2	1574	B9B	C2-N2	5.61	1.45	1.33
52	2	373	OMG	C2-N3	5.59	1.46	1.33
52	2	1605	7MG	C2-N3	5.57	1.46	1.33
52	2	4620	OMU	C6-C5	5.55	1.48	1.35
52	2	1605	7MG	C4-N3	5.49	1.47	1.34
52	2	4550	7MG	C4-N3	5.49	1.47	1.34
52	2	4597	UR3	C2-N1	5.48	1.46	1.38
52	2	2364	OMG	C2-N3	5.48	1.46	1.33
52	2	1517	2MG	C4-N3	5.47	1.50	1.37
52	2	2297	E7G	C2-N3	5.40	1.46	1.33
52	2	2297	E7G	C4-N3	5.40	1.47	1.34
52	2	3701	OMC	C4-N3	5.39	1.45	1.34
52	2	2522	7MG	C2-N3	5.33	1.46	1.33
52	2	1605	7MG	C4-N9	5.32	1.43	1.37
52	2	3909	OMC	C2-N1	5.29	1.51	1.40
52	2	2297	E7G	C4-N9	5.25	1.43	1.37
3	8	14	OMU	C6-C5	5.16	1.47	1.35
52	2	729	2MG	C4-N3	5.15	1.49	1.37
52	2	2522	7MG	C4-N3	5.14	1.46	1.34
52	2	4550	7MG	C4-N9	5.11	1.43	1.37
52	2	2861	OMC	C4-N3	5.08	1.44	1.34
52	2	4536	OMC	C4-N3	5.08	1.44	1.34
52	2	3880	P7G	C2-N1	5.08	1.45	1.33
52	2	978	2MG	C4-N3	5.08	1.49	1.37
52	2	1625	OMG	C4-N3	5.00	1.49	1.37
52	2	1909	P7G	C8-N7	4.97	1.50	1.45
52	2	3887	OMC	C4-N3	4.97	1.44	1.34
52	2	3887	OMC	C2-N1	4.96	1.50	1.40
52	2	1909	P7G	C2-N1	4.96	1.45	1.33
52	2	4550	7MG	C2-N2	4.94	1.45	1.34
52	2	2861	OMC	C2-N1	4.93	1.50	1.40
52	2	2297	E7G	C2-N2	4.92	1.45	1.34
52	2	2861	OMC	C4-N4	4.90	1.45	1.33
52	2	3869	OMC	C4-N3	4.89	1.44	1.34
52	2	3701	OMC	C4-N4	4.87	1.45	1.33
52	2	4483	B8T	C2-N1	4.85	1.50	1.40
52	2	3887	OMC	C4-N4	4.83	1.45	1.33
52	2	2422	OMC	C4-N3	4.83	1.44	1.34
52	2	4536	OMC	C4-N4	4.83	1.45	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	3899	BGH	C2-N2	4.81	1.45	1.34
52	2	2422	OMC	C2-N1	4.80	1.50	1.40
52	2	3869	OMC	C4-N4	4.80	1.45	1.33
52	2	4690	B8K	C4-N9	4.78	1.43	1.37
52	2	4494	OMG	C4-N3	4.77	1.48	1.37
52	2	2365	OMC	C4-N3	4.76	1.44	1.34
52	2	2365	OMC	C4-N4	4.76	1.45	1.33
52	2	1605	7MG	C2-N2	4.75	1.45	1.34
52	2	2804	OMC	C4-N3	4.74	1.44	1.34
52	2	3909	OMC	C4-N3	4.74	1.44	1.34
52	2	2773	OMG	C4-N3	4.71	1.48	1.37
52	2	373	OMG	C6-N1	4.68	1.44	1.37
52	2	2522	7MG	C4-N9	4.68	1.43	1.37
52	2	2804	OMC	C4-N4	4.67	1.44	1.33
52	2	2422	OMC	C4-N4	4.66	1.44	1.33
52	2	2773	OMG	C6-N1	4.64	1.44	1.37
52	2	4870	OMG	C4-N3	4.61	1.48	1.37
52	2	2364	OMG	C6-N1	4.58	1.44	1.37
52	2	2522	7MG	C2-N2	4.57	1.45	1.34
52	2	1456	B8Q	C2-N1	4.55	1.45	1.38
52	2	1522	OMG	C4-N3	4.54	1.48	1.37
52	2	2424	OMG	C4-N3	4.53	1.48	1.37
52	2	3701	OMC	C2-N1	4.52	1.49	1.40
52	2	3869	OMC	C2-N1	4.52	1.49	1.40
52	2	1883	OMG	C4-N3	4.52	1.48	1.37
52	2	4637	OMG	C4-N3	4.50	1.48	1.37
52	2	4083	5MU	C2-N3	4.47	1.45	1.38
52	2	3899	BGH	C5-N7	4.47	1.47	1.39
52	2	4872	2MG	C4-N3	4.45	1.48	1.37
52	2	1316	OMG	C4-N3	4.42	1.48	1.37
52	2	3897	B8K	C4-N3	4.40	1.44	1.34
52	2	2050	OMG	C4-N3	4.38	1.48	1.37
52	2	4536	OMC	C2-N1	4.37	1.49	1.40
52	2	4671	B8T	C2-N1	4.37	1.49	1.40
52	2	1316	OMG	C6-N1	4.37	1.44	1.37
52	2	4623	OMG	C6-N1	4.35	1.44	1.37
52	2	4494	OMG	C6-N1	4.33	1.44	1.37
52	2	2804	OMC	C2-N1	4.29	1.49	1.40
52	2	3897	B8K	C5-C6	4.28	1.54	1.43
52	2	1625	OMG	C6-N1	4.28	1.44	1.37
52	2	2424	OMG	C6-N1	4.27	1.44	1.37
52	2	2364	OMG	C4-N3	4.26	1.47	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	4870	OMG	C6-N1	4.26	1.44	1.37
52	2	4623	OMG	C4-N3	4.26	1.47	1.37
52	2	4564	M7A	C6-N6	4.26	1.44	1.34
52	2	4690	B8K	C4-N3	4.25	1.44	1.34
52	2	2050	OMG	C6-N1	4.24	1.44	1.37
52	2	2365	OMC	C2-N1	4.24	1.49	1.40
52	2	1883	OMG	C6-N1	4.22	1.44	1.37
52	2	373	OMG	C4-N3	4.18	1.47	1.37
52	2	1659	I4U	C5-C4	4.17	1.48	1.43
52	2	4637	OMG	C6-N1	4.16	1.44	1.37
52	2	1348	P4U	O4-C4	4.12	1.39	1.35
52	2	3899	BGH	C5-C6	4.11	1.54	1.43
52	2	978	2MG	C2-N1	4.10	1.43	1.36
52	2	3897	B8K	C5-N7	4.06	1.46	1.39
52	2	1659	I4U	C2-N1	4.05	1.48	1.40
52	2	1522	OMG	C6-N1	4.02	1.43	1.37
52	2	4690	B8K	C5-N7	3.96	1.46	1.39
3	8	14	OMU	C4-N3	3.95	1.45	1.38
52	2	1348	P4U	C2-N1	3.90	1.48	1.40
52	2	4671	B8T	C5-C4	3.82	1.49	1.40
52	2	4564	M7A	C5-N7	3.79	1.48	1.39
52	2	4620	OMU	C4-N3	3.75	1.45	1.38
52	2	4690	B8K	C5-C6	3.74	1.53	1.43
52	2	729	2MG	C2-N1	3.74	1.42	1.36
52	2	1605	7MG	C5-C6	3.72	1.53	1.43
52	2	4872	2MG	C2-N1	3.72	1.42	1.36
52	2	1517	2MG	C2-N1	3.69	1.42	1.36
52	2	3899	BGH	C71-N7	3.67	1.47	1.39
52	2	1605	7MG	C2-N1	3.64	1.46	1.37
52	2	1909	P7G	C2-N3	3.63	1.46	1.37
52	2	978	2MG	C6-N1	3.62	1.43	1.37
52	2	3899	BGH	O2'-C2'	3.60	1.51	1.42
52	2	4483	B8T	C6-N1	3.59	1.46	1.38
52	2	3909	OMC	C6-N1	3.58	1.46	1.38
52	2	4550	7MG	C2-N1	3.58	1.46	1.37
52	2	4690	B8K	C2-N2	3.53	1.42	1.34
52	2	4550	7MG	C5-C6	3.53	1.52	1.43
52	2	2297	E7G	C5-C6	3.52	1.52	1.43
52	2	3880	P7G	C2-N3	3.52	1.46	1.37
52	2	2522	7MG	C5-C6	3.46	1.52	1.43
52	2	3897	B8K	C6-N1	3.46	1.45	1.38
52	2	3897	B8K	C71-N7	3.46	1.47	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	4530	UR3	C6-N1	3.45	1.46	1.38
52	2	4872	2MG	C5-C6	3.41	1.54	1.47
52	2	1909	P7G	O6-C6	-3.40	1.18	1.23
52	2	1348	P4U	C5-C4	3.39	1.47	1.43
52	2	4083	5MU	C2-N1	3.38	1.43	1.38
52	2	3887	OMC	C6-N1	3.38	1.46	1.38
52	2	3897	B8K	C2-N2	3.38	1.42	1.34
52	2	2522	7MG	C2-N1	3.37	1.46	1.37
52	2	4483	B8T	C5-C4	3.36	1.48	1.40
52	2	1605	7MG	C6-N1	3.34	1.45	1.38
52	2	978	2MG	C5-C6	3.31	1.54	1.47
52	2	4690	B8K	C71-N7	3.30	1.46	1.39
52	2	3880	P7G	C6-N1	3.29	1.43	1.38
52	2	729	2MG	C5-C6	3.28	1.54	1.47
52	2	4690	B8K	C6-N1	3.27	1.44	1.38
52	2	1909	P7G	C6-N1	3.27	1.43	1.38
52	2	4550	7MG	C6-N1	3.25	1.44	1.38
52	2	729	2MG	C6-N1	3.25	1.42	1.37
52	2	3899	BGH	C6-N1	3.25	1.44	1.38
52	2	4494	OMG	C5-C6	3.23	1.54	1.47
52	2	1625	OMG	C5-C6	3.23	1.54	1.47
52	2	3899	BGH	C2-N1	3.22	1.45	1.37
52	2	2861	OMC	C6-N1	3.20	1.45	1.38
52	2	1909	P7G	C5-C4	3.20	1.43	1.37
52	2	3880	P7G	O6-C6	-3.20	1.18	1.23
52	2	4872	2MG	C6-N1	3.19	1.42	1.37
52	2	3718	A2M	C6-N6	3.18	1.45	1.34
52	2	3825	A2M	C6-N6	3.18	1.45	1.34
52	2	3897	B8K	C2-N1	3.17	1.45	1.37
52	2	1883	OMG	O6-C6	-3.16	1.16	1.23
52	2	3701	OMC	C6-N1	3.15	1.45	1.38
52	2	1348	P4U	C6-N1	3.15	1.45	1.38
52	2	4870	OMG	C5-C6	3.15	1.53	1.47
52	2	1659	I4U	C6-N1	3.14	1.45	1.38
52	2	2365	OMC	C6-N1	3.14	1.45	1.38
52	2	4536	OMC	C6-N1	3.14	1.45	1.38
52	2	1517	2MG	C6-N1	3.13	1.42	1.37
52	2	2773	OMG	C5-C6	3.11	1.53	1.47
52	2	4571	A2M	C6-N6	3.11	1.45	1.34
52	2	4623	OMG	C5-C6	3.11	1.53	1.47
52	2	3867	A2M	C6-N6	3.10	1.45	1.34
52	2	1871	A2M	C6-N6	3.10	1.45	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	1524	A2M	C6-N6	3.09	1.45	1.34
52	2	4523	A2M	C6-N6	3.09	1.45	1.34
52	2	3723	A2M	C6-N6	3.09	1.45	1.34
3	8	14	OMU	O4-C4	-3.09	1.18	1.24
52	2	2297	E7G	C2-N1	3.08	1.45	1.37
52	2	2422	OMC	C6-N1	3.08	1.45	1.38
52	2	3880	P7G	C5-C4	3.08	1.43	1.37
52	2	3869	OMC	C6-N1	3.08	1.45	1.38
52	2	4690	B8K	C2-N1	3.07	1.45	1.37
52	2	1326	A2M	C6-N6	3.07	1.45	1.34
52	2	4620	OMU	O4-C4	-3.05	1.18	1.24
52	2	1534	A2M	C6-N6	3.04	1.45	1.34
52	2	398	A2M	C6-N6	3.03	1.45	1.34
52	2	4872	2MG	C5-C4	-3.03	1.35	1.43
52	2	2363	A2M	C6-N6	3.02	1.45	1.34
52	2	1348	P4U	O2-C2	-3.01	1.18	1.23
52	2	2804	OMC	C6-N1	3.01	1.45	1.38
52	2	4637	OMG	C5-C6	3.01	1.53	1.47
52	2	1522	OMG	C5-C6	3.00	1.53	1.47
52	2	3718	A2M	O3'-C3'	3.00	1.50	1.43
52	2	373	OMG	O6-C6	-2.99	1.17	1.23
52	2	2401	A2M	C6-N6	2.99	1.44	1.34
52	2	4870	OMG	O6-C6	-2.98	1.17	1.23
52	2	978	2MG	C5-C4	-2.98	1.35	1.43
52	2	1316	OMG	O6-C6	-2.98	1.17	1.23
52	2	1534	A2M	O3'-C3'	2.97	1.50	1.43
52	2	2424	OMG	O6-C6	-2.96	1.17	1.23
52	2	2401	A2M	O3'-C3'	2.96	1.50	1.43
52	2	4671	B8T	C6-N1	2.96	1.45	1.38
52	2	4671	B8T	O2-C2	-2.96	1.18	1.23
52	2	2050	OMG	O6-C6	-2.96	1.17	1.23
52	2	2804	OMC	O2-C2	-2.94	1.18	1.23
52	2	1522	OMG	O6-C6	-2.94	1.17	1.23
52	2	373	OMG	C5-C6	2.93	1.53	1.47
52	2	4597	UR3	C6-N1	2.93	1.45	1.38
52	2	3825	A2M	O3'-C3'	2.93	1.49	1.43
52	2	729	2MG	C5-C4	-2.92	1.35	1.43
52	2	4637	OMG	O6-C6	-2.92	1.17	1.23
52	2	1574	B9B	C5-C4	-2.91	1.33	1.40
52	2	2364	OMG	O6-C6	-2.91	1.17	1.23
52	2	2380	B8W	C5-C4	-2.90	1.33	1.40
52	2	2424	OMG	C5-C6	2.90	1.53	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	2364	OMG	C5-C6	2.89	1.53	1.47
52	2	4623	OMG	O6-C6	-2.89	1.17	1.23
52	2	2522	7MG	C6-N1	2.89	1.44	1.38
52	2	1316	OMG	C5-C6	2.88	1.53	1.47
52	2	3897	B8K	C5-C4	2.86	1.47	1.38
52	2	2363	A2M	C5-C4	-2.85	1.33	1.40
52	2	1326	A2M	C5-C4	-2.84	1.33	1.40
52	2	3899	BGH	O3'-C3'	-2.84	1.36	1.43
52	2	4571	A2M	O3'-C3'	2.83	1.49	1.43
52	2	2297	E7G	C6-N1	2.83	1.44	1.38
52	2	1659	I4U	O2-C2	-2.83	1.18	1.23
52	2	4483	B8T	O2-C2	-2.83	1.18	1.23
52	2	3869	OMC	O2-C2	-2.83	1.18	1.23
52	2	398	A2M	C5-C4	-2.82	1.33	1.40
52	2	237	B9B	C5-C4	-2.82	1.33	1.40
52	2	1534	A2M	O2'-C2'	-2.82	1.35	1.42
52	2	2365	OMC	O2-C2	-2.82	1.18	1.23
52	2	2861	OMC	O2-C2	-2.82	1.18	1.23
52	2	4529	B8W	C5-C4	-2.82	1.33	1.40
52	2	1625	OMG	O6-C6	-2.81	1.17	1.23
52	2	1534	A2M	C5-C4	-2.81	1.33	1.40
52	2	1517	2MG	C5-C6	2.81	1.53	1.47
52	2	4083	5MU	O4-C4	-2.80	1.18	1.23
52	2	2363	A2M	O2'-C2'	-2.80	1.35	1.42
52	2	398	A2M	O2'-C2'	-2.80	1.35	1.42
52	2	3899	BGH	O6-C6	-2.80	1.18	1.23
52	2	3867	A2M	O3'-C3'	2.79	1.49	1.43
52	2	1524	A2M	O3'-C3'	2.79	1.49	1.43
52	2	4494	OMG	O6-C6	-2.78	1.17	1.23
52	2	2401	A2M	C5-C4	-2.78	1.33	1.40
52	2	3723	A2M	O3'-C3'	2.77	1.49	1.43
52	2	398	A2M	O3'-C3'	2.77	1.49	1.43
52	2	2522	7MG	O6-C6	-2.77	1.18	1.23
52	2	2050	OMG	C5-C6	2.77	1.53	1.47
52	2	1517	2MG	C5-C4	-2.76	1.36	1.43
52	2	4536	OMC	O2-C2	-2.75	1.18	1.23
52	2	373	OMG	C5-C4	-2.75	1.36	1.43
52	2	4523	A2M	O3'-C3'	2.74	1.49	1.43
52	2	2401	A2M	O2'-C2'	-2.74	1.35	1.42
52	2	1883	OMG	C5-C4	-2.74	1.36	1.43
52	2	1659	I4U	O4-C4	2.73	1.40	1.35
52	2	2422	OMC	O2-C2	-2.73	1.18	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	4083	5MU	O2-C2	-2.73	1.18	1.23
52	2	2363	A2M	O3'-C3'	2.72	1.49	1.43
52	2	2364	OMG	C5-C4	-2.72	1.36	1.43
52	2	2754	B9B	C5-C4	-2.71	1.33	1.40
52	2	3701	OMC	O2-C2	-2.71	1.18	1.23
52	2	4185	B8W	C5-C4	-2.69	1.33	1.40
52	2	1871	A2M	O3'-C3'	2.69	1.49	1.43
52	2	4571	A2M	C5-C4	-2.68	1.33	1.40
52	2	3909	OMC	C5-C4	2.68	1.49	1.42
52	2	4472	B8W	C5-C4	-2.67	1.33	1.40
52	2	3867	A2M	C5-C4	-2.67	1.33	1.40
52	2	4523	A2M	C5-C4	-2.67	1.33	1.40
52	2	1326	A2M	O3'-C3'	2.66	1.49	1.43
52	2	4550	7MG	O6-C6	-2.66	1.18	1.23
52	2	1524	A2M	C5-C4	-2.65	1.33	1.40
52	2	1659	I4U	O4-C41	-2.65	1.41	1.47
52	2	2773	OMG	O6-C6	-2.65	1.17	1.23
52	2	1524	A2M	O2'-C2'	-2.65	1.35	1.42
52	2	3723	A2M	C5-C4	-2.63	1.34	1.40
52	2	3887	OMC	O2-C2	-2.63	1.18	1.23
52	2	1871	A2M	C5-C4	-2.61	1.34	1.40
52	2	1871	A2M	O2'-C2'	-2.60	1.36	1.42
52	2	3701	OMC	C5-C4	2.60	1.48	1.42
52	2	4571	A2M	O2'-C2'	-2.58	1.36	1.42
52	2	4523	A2M	O2'-C2'	-2.58	1.36	1.42
52	2	2773	OMG	C2-N1	2.58	1.44	1.37
52	2	3825	A2M	O2'-C2'	-2.56	1.36	1.42
52	2	1605	7MG	O6-C6	-2.56	1.18	1.23
52	2	1316	OMG	C5-C4	-2.56	1.36	1.43
52	2	3718	A2M	O2'-C2'	-2.56	1.36	1.42
52	2	1522	OMG	C5-C4	-2.55	1.36	1.43
52	2	2297	E7G	O6-C6	-2.53	1.18	1.23
52	2	4620	OMU	C6-N1	2.53	1.44	1.38
52	2	4129	B8W	C5-C4	-2.53	1.34	1.40
52	2	4623	OMG	C5-C4	-2.52	1.36	1.43
52	2	3867	A2M	O2'-C2'	-2.52	1.36	1.42
52	2	3825	A2M	C5-C4	-2.52	1.34	1.40
52	2	4620	OMU	O2-C2	-2.51	1.18	1.23
52	2	1326	A2M	O2'-C2'	-2.50	1.36	1.42
52	2	4870	OMG	C5-C4	-2.50	1.36	1.43
52	2	1883	OMG	C5-C6	2.50	1.52	1.47
52	2	4690	B8K	C5-C4	2.50	1.46	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	3867	A2M	C2-N3	2.49	1.36	1.32
52	2	2424	OMG	C5-C4	-2.47	1.36	1.43
3	8	14	OMU	C6-N1	2.47	1.44	1.38
52	2	3718	A2M	C5-C4	-2.47	1.34	1.40
52	2	2050	OMG	C5-C4	-2.47	1.36	1.43
52	2	3723	A2M	O2'-C2'	-2.45	1.36	1.42
52	2	373	OMG	C2-N1	2.43	1.43	1.37
52	2	2861	OMC	C5-C4	2.43	1.48	1.42
52	2	2364	OMG	C2-N1	2.43	1.43	1.37
3	8	14	OMU	O2-C2	-2.40	1.18	1.23
52	2	3718	A2M	C2-N3	2.37	1.35	1.32
52	2	4494	OMG	C2-N1	2.36	1.43	1.37
52	2	4637	OMG	C5-C4	-2.36	1.37	1.43
52	2	3909	OMC	O2-C2	-2.35	1.19	1.23
52	2	1625	OMG	C2-N1	2.34	1.43	1.37
52	2	4623	OMG	C2-N1	2.33	1.43	1.37
52	2	1456	B8Q	C6-N1	2.33	1.43	1.38
52	2	3723	A2M	C2-N3	2.32	1.35	1.32
52	2	2363	A2M	C2-N3	2.31	1.35	1.32
52	2	4536	OMC	C5-C4	2.31	1.48	1.42
52	2	2424	OMG	C2-N1	2.30	1.43	1.37
52	2	4530	UR3	C4-N3	2.30	1.45	1.40
52	2	2050	OMG	C2-N1	2.30	1.43	1.37
52	2	1524	A2M	C2-N3	2.30	1.35	1.32
52	2	4690	B8K	O6-C6	-2.29	1.19	1.23
52	2	4597	UR3	O2-C2	-2.28	1.18	1.22
52	2	4870	OMG	C2-N1	2.28	1.43	1.37
52	2	4523	A2M	C2-N3	2.28	1.35	1.32
52	2	4637	OMG	C2-N1	2.27	1.43	1.37
52	2	1534	A2M	C2-N3	2.26	1.35	1.32
52	2	3887	OMC	C5-C4	2.25	1.48	1.42
52	2	1883	OMG	C2-N1	2.25	1.43	1.37
52	2	4494	OMG	C5-C4	-2.25	1.37	1.43
52	2	1326	A2M	C2-N3	2.24	1.35	1.32
52	2	1871	A2M	C2-N3	2.23	1.35	1.32
52	2	3825	A2M	C2-N3	2.22	1.35	1.32
52	2	4571	A2M	C2-N3	2.22	1.35	1.32
52	2	1316	OMG	C2-N1	2.22	1.43	1.37
52	2	1524	A2M	O5'-C5'	-2.21	1.39	1.44
52	2	1522	OMG	C2-N1	2.18	1.43	1.37
3	8	14	OMU	C5-C4	2.16	1.48	1.43
52	2	4620	OMU	C5-C4	2.16	1.48	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	2	4597	UR3	C5-C4	2.16	1.49	1.43
52	2	1456	B8Q	O2-C2	-2.16	1.18	1.22
52	2	2365	OMC	C5-C4	2.14	1.47	1.42
52	2	4530	UR3	C5-C4	2.14	1.49	1.43
52	2	4597	UR3	C4-N3	2.13	1.45	1.40
52	2	2773	OMG	C5-C4	-2.13	1.37	1.43
52	2	398	A2M	C2-N3	2.11	1.35	1.32
52	2	1517	2MG	O6-C6	-2.11	1.19	1.23
52	2	3869	OMC	C5-C4	2.10	1.47	1.42
52	2	3899	BGH	C5-C4	2.06	1.44	1.38
52	2	2401	A2M	C2-N3	2.06	1.35	1.32
52	2	1625	OMG	C5-C4	-2.05	1.37	1.43
52	2	2804	OMC	C5-C4	2.05	1.47	1.42
52	2	1871	A2M	O5'-C5'	-2.03	1.39	1.44
52	2	2422	OMC	C5-C4	2.02	1.47	1.42

All (306) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	1574	B9B	O6-C6-N1	-30.74	93.58	120.12
52	2	237	B9B	O6-C6-N1	-29.75	94.44	120.12
52	2	2754	B9B	O6-C6-N1	-29.26	94.87	120.12
52	2	4564	M7A	C5-C6-N6	13.48	146.77	123.74
52	2	4564	M7A	N6-C6-N1	-11.58	93.00	118.35
52	2	1534	A2M	C5-C6-N6	10.71	136.63	120.35
52	2	2401	A2M	C5-C6-N6	10.63	136.51	120.35
52	2	3718	A2M	C5-C6-N6	10.50	136.30	120.35
52	2	1871	A2M	C5-C6-N6	10.48	136.28	120.35
52	2	398	A2M	C5-C6-N6	10.46	136.25	120.35
52	2	1524	A2M	C5-C6-N6	10.42	136.19	120.35
52	2	4571	A2M	C5-C6-N6	10.35	136.08	120.35
52	2	3723	A2M	C5-C6-N6	10.20	135.85	120.35
52	2	1326	A2M	C5-C6-N6	10.20	135.85	120.35
52	2	4523	A2M	C5-C6-N6	10.19	135.84	120.35
52	2	3867	A2M	C5-C6-N6	10.17	135.81	120.35
52	2	2363	A2M	C5-C6-N6	10.16	135.80	120.35
52	2	4083	5MU	C5-C4-N3	10.10	123.93	115.31
52	2	3825	A2M	C5-C6-N6	10.03	135.60	120.35
52	2	4597	UR3	C4-N3-C2	-8.26	116.78	124.56
52	2	4083	5MU	C5-C6-N1	-8.02	115.09	123.34
52	2	1534	A2M	N6-C6-N1	-7.63	102.73	118.57
52	2	2786	B9H	C31-N3-C2	7.42	126.48	117.21

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2401	A2M	N6-C6-N1	-7.40	103.22	118.57
52	2	1524	A2M	N6-C6-N1	-7.39	103.24	118.57
52	2	398	A2M	N6-C6-N1	-7.37	103.28	118.57
52	2	1871	A2M	N6-C6-N1	-7.35	103.32	118.57
52	2	1326	A2M	N6-C6-N1	-7.22	103.59	118.57
52	2	2363	A2M	N6-C6-N1	-7.22	103.59	118.57
52	2	3723	A2M	N6-C6-N1	-7.21	103.61	118.57
52	2	3718	A2M	N6-C6-N1	-7.21	103.61	118.57
52	2	4571	A2M	N6-C6-N1	-7.20	103.63	118.57
52	2	3867	A2M	N6-C6-N1	-7.20	103.64	118.57
52	2	4523	A2M	N6-C6-N1	-7.19	103.64	118.57
52	2	4083	5MU	C4-N3-C2	-7.07	118.19	127.35
52	2	3825	A2M	N6-C6-N1	-6.89	104.27	118.57
52	2	4690	B8K	C72-C71-N7	6.72	128.96	118.86
52	2	4564	M7A	N3-C4-N9	6.53	135.12	126.87
52	2	3897	B8K	C72-C71-N7	6.48	128.61	118.86
52	2	4523	A2M	N3-C2-N1	-6.48	118.55	128.68
52	2	3723	A2M	N3-C2-N1	-6.44	118.61	128.68
52	2	1326	A2M	N3-C2-N1	-6.40	118.67	128.68
52	2	398	A2M	N3-C2-N1	-6.40	118.67	128.68
52	2	2401	A2M	N3-C2-N1	-6.38	118.70	128.68
52	2	1871	A2M	N3-C2-N1	-6.37	118.72	128.68
52	2	3899	BGH	C72-C71-N7	6.36	128.43	118.86
52	2	4690	B8K	C5-C6-N1	6.34	122.16	110.99
52	2	1534	A2M	N3-C2-N1	-6.32	118.80	128.68
52	2	3867	A2M	N3-C2-N1	-6.31	118.81	128.68
52	2	4571	A2M	N3-C2-N1	-6.31	118.82	128.68
52	2	2363	A2M	N3-C2-N1	-6.30	118.83	128.68
52	2	1524	A2M	N3-C2-N1	-6.23	118.94	128.68
52	2	3825	A2M	N3-C2-N1	-6.20	118.99	128.68
52	2	3718	A2M	N3-C2-N1	-6.16	119.05	128.68
52	2	2380	B8W	N2-C2-N3	6.01	127.58	117.79
52	2	4129	B8W	N2-C2-N3	5.88	127.37	117.79
52	2	1909	P7G	C4-C5-N7	5.85	109.76	106.67
52	2	3897	B8K	C5-C6-N1	5.77	121.16	110.99
52	2	4564	M7A	N3-C2-N1	-5.74	119.62	128.60
52	2	3899	BGH	C5-C6-N1	5.73	121.09	110.99
52	2	4185	B8W	N2-C2-N3	5.55	126.84	117.79
52	2	2754	B9B	N3-C2-N1	-5.52	119.86	127.22
52	2	4129	B8W	N3-C2-N1	-5.51	119.87	127.22
52	2	4472	B8W	N3-C2-N1	-5.47	119.93	127.22
52	2	4472	B8W	N2-C2-N3	5.45	126.67	117.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	1456	B8Q	N3-C2-N1	5.43	123.52	117.13
52	2	1574	B9B	N3-C2-N1	-5.42	119.99	127.22
52	2	4185	B8W	N3-C2-N1	-5.40	120.01	127.22
3	8	14	OMU	C4-N3-C2	-5.39	119.46	126.58
52	2	4129	B8W	C2-N3-C4	5.38	121.50	115.36
52	2	2786	B9H	C6-N1-C2	-5.36	116.98	121.79
52	2	237	B9B	N3-C2-N1	-5.35	120.09	127.22
52	2	3909	OMC	O2-C2-N3	-5.33	113.67	122.33
52	2	4529	B8W	N3-C2-N1	-5.29	120.16	127.22
52	2	1456	B8Q	C31-N3-C4	5.25	122.16	114.25
52	2	4620	OMU	C4-N3-C2	-5.19	119.74	126.58
52	2	4529	B8W	N2-C2-N3	5.18	126.24	117.79
52	2	3880	P7G	C4-C5-N7	5.18	109.40	106.67
52	2	4529	B8W	O6-C6-N1	5.14	126.16	119.03
52	2	1456	B8Q	O2-C2-N3	-5.06	115.52	122.95
52	2	2380	B8W	N3-C2-N1	-5.05	120.48	127.22
52	2	2297	E7G	C4-C5-N7	5.03	109.39	104.91
52	2	3897	B8K	C2-N3-C4	5.01	121.22	112.30
52	2	1605	7MG	C5-C6-N1	4.98	119.77	110.99
52	2	4550	7MG	C5-C6-N1	4.98	119.77	110.99
52	2	2522	7MG	C5-C6-N1	4.96	119.74	110.99
52	2	3899	BGH	C2-N3-C4	4.96	121.14	112.30
52	2	2297	E7G	C5-C6-N1	4.92	119.66	110.99
52	2	4083	5MU	N3-C2-N1	4.90	121.40	114.89
52	2	4083	5MU	C5M-C5-C6	-4.90	116.31	122.85
52	2	4690	B8K	C2-N3-C4	4.89	121.00	112.30
52	2	2380	B8W	O6-C6-N1	4.67	125.50	119.03
52	2	237	B9B	C2-N3-C4	4.63	120.64	115.36
52	2	4185	B8W	C2-N3-C4	4.57	120.58	115.36
52	2	4472	B8W	C2-N3-C4	4.56	120.56	115.36
52	2	4872	2MG	CM2-N2-C2	-4.56	113.79	123.86
52	2	4550	7MG	C2-N3-C4	4.54	120.38	112.30
52	2	4690	B8K	C4-C5-N7	4.53	108.94	104.91
52	2	1574	B9B	C2-N3-C4	4.51	120.51	115.36
52	2	4530	UR3	C4-N3-C2	-4.51	120.31	124.56
52	2	237	B9B	N2-C2-N3	4.50	125.13	117.79
52	2	4529	B8W	C2-N3-C4	4.48	120.48	115.36
52	2	1605	7MG	C2-N3-C4	4.45	120.23	112.30
52	2	1456	B8Q	C6-N1-C2	-4.43	117.82	121.79
52	2	2754	B9B	N2-C2-N3	4.40	124.96	117.79
52	2	2754	B9B	C2-N3-C4	4.39	120.37	115.36
52	2	2786	B9H	C21-O2'-C2'	4.38	126.02	114.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	3897	B8K	C5-C4-N9	4.36	112.00	106.35
52	2	3899	BGH	C4-C5-N7	4.29	108.72	104.91
52	2	2297	E7G	C2-N3-C4	4.27	119.91	112.30
52	2	3899	BGH	N9-C8-N7	4.22	108.99	103.33
52	2	1574	B9B	N2-C2-N3	4.21	124.65	117.79
52	2	1659	I4U	C5-C4-N3	-4.15	118.60	124.91
52	2	1517	2MG	C5-C6-N1	4.12	121.23	113.95
52	2	2522	7MG	C2-N3-C4	4.12	119.64	112.30
52	2	3899	BGH	C5-C4-N9	4.10	111.67	106.35
52	2	4620	OMU	N3-C2-N1	3.95	120.14	114.89
52	2	3909	OMC	O2-C2-N1	3.94	127.03	118.89
52	2	4083	5MU	O4-C4-C5	-3.92	120.36	124.90
52	2	4690	B8K	C5-C4-N9	3.92	111.43	106.35
52	2	4083	5MU	C5M-C5-C4	3.85	123.01	118.77
52	2	2380	B8W	C2-N3-C4	3.85	119.75	115.36
52	2	1605	7MG	C5-C4-N9	3.81	111.30	106.35
52	2	4185	B8W	O6-C6-N1	3.81	124.31	119.03
52	2	3897	B8K	C4-C5-N7	3.78	108.27	104.91
52	2	4870	OMG	C5-C6-N1	3.74	120.56	113.95
52	2	2297	E7G	C5-C4-N3	-3.74	121.00	128.13
52	2	978	2MG	C5-C6-N1	3.73	120.54	113.95
52	2	1883	OMG	C5-C6-N1	3.73	120.53	113.95
52	2	2522	7MG	C5-C4-N9	3.70	111.15	106.35
52	2	2424	OMG	C5-C6-N1	3.70	120.48	113.95
3	8	14	OMU	C5-C4-N3	3.67	120.33	114.84
52	2	3899	BGH	C5-C4-N3	-3.62	121.23	128.13
52	2	1605	7MG	C5-C4-N3	-3.60	121.26	128.13
52	2	3897	B8K	N9-C8-N7	3.60	108.16	103.33
52	2	729	2MG	C5-C6-N1	3.58	120.28	113.95
52	2	373	OMG	C5-C6-N1	3.55	120.23	113.95
52	2	1625	OMG	C5-C6-N1	3.55	120.23	113.95
52	2	4550	7MG	C5-C4-N3	-3.54	121.38	128.13
52	2	1316	OMG	C5-C6-N1	3.54	120.20	113.95
52	2	1909	P7G	N9-C8-N7	3.53	108.43	103.38
52	2	2364	OMG	C5-C6-N1	3.52	120.17	113.95
52	2	4494	OMG	C5-C6-N1	3.52	120.17	113.95
52	2	2297	E7G	C5-C4-N9	3.52	110.92	106.35
52	2	1522	OMG	C5-C6-N1	3.52	120.16	113.95
52	2	1348	P4U	C5-C4-N3	-3.48	119.62	124.91
52	2	4872	2MG	C5-C6-N1	3.47	120.07	113.95
52	2	4637	OMG	C5-C6-N1	3.47	120.07	113.95
52	2	4690	B8K	N9-C8-N7	3.45	107.96	103.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	4623	OMG	C5-C6-N1	3.45	120.04	113.95
52	2	2050	OMG	C5-C6-N1	3.45	120.04	113.95
52	2	2380	B8W	N2-C2-N1	-3.42	111.94	117.25
52	2	4129	B8W	O6-C6-N1	3.40	123.74	119.03
52	2	2522	7MG	C5-C4-N3	-3.39	121.67	128.13
52	2	3897	B8K	C5-C4-N3	-3.38	121.69	128.13
52	2	4690	B8K	C6-C5-C4	-3.37	115.67	122.62
52	2	4564	M7A	C2-N3-C4	3.34	119.64	111.75
52	2	2773	OMG	C5-C6-N1	3.33	119.84	113.95
52	2	4597	UR3	C6-N1-C2	-3.32	118.81	121.79
3	8	14	OMU	N3-C2-N1	3.31	119.28	114.89
3	8	14	OMU	CM2-O2'-C2'	3.30	123.18	114.52
52	2	4623	OMG	C2-N1-C6	-3.28	119.06	125.10
52	2	4620	OMU	C5-C4-N3	3.26	119.72	114.84
52	2	2363	A2M	C1'-N9-C4	3.25	132.36	126.64
52	2	4637	OMG	C2-N1-C6	-3.22	119.16	125.10
52	2	4550	7MG	C5-C4-N9	3.22	110.53	106.35
52	2	1625	OMG	C2-N1-C6	-3.20	119.20	125.10
52	2	4083	5MU	C6-C5-C4	3.17	120.68	118.03
52	2	3887	OMC	O2-C2-N3	-3.16	117.20	122.33
52	2	2424	OMG	C2-N1-C6	-3.16	119.29	125.10
52	2	373	OMG	C2-N1-C6	-3.15	119.31	125.10
52	2	2050	OMG	C2-N1-C6	-3.14	119.31	125.10
52	2	4690	B8K	C5-C4-N3	-3.12	122.18	128.13
52	2	3897	B8K	C6-C5-C4	-3.12	116.19	122.62
52	2	1883	OMG	C2-N1-C6	-3.11	119.37	125.10
52	2	1316	OMG	C2-N1-C6	-3.10	119.39	125.10
52	2	4870	OMG	C2-N1-C6	-3.09	119.40	125.10
52	2	3909	OMC	C5-C4-N4	3.08	125.43	120.57
52	2	2422	OMC	O2-C2-N3	-3.08	117.33	122.33
52	2	2861	OMC	O2-C2-N3	-3.03	117.41	122.33
52	2	4494	OMG	C2-N1-C6	-3.03	119.53	125.10
52	2	2522	7MG	N9-C8-N7	3.02	107.70	103.38
52	2	1909	P7G	C71-N7-C5	3.02	131.67	124.52
52	2	4483	B8T	O3'-C3'-C2'	3.00	121.54	111.82
52	2	2786	B9H	C32-C31-N3	3.00	118.74	112.47
52	2	2364	OMG	C2-N1-C6	-3.00	119.57	125.10
52	2	4671	B8T	C6-C5-C4	2.99	120.62	116.96
52	2	1524	A2M	O4'-C4'-C3'	-2.98	99.21	105.11
52	2	4550	7MG	C4-C5-N7	2.98	109.67	105.53
52	2	2786	B9H	O2-C2-N1	-2.97	115.76	122.72
3	8	14	OMU	O4-C4-C5	-2.95	119.98	125.16

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2786	B9H	O2'-C2'-C1'	2.94	114.82	109.08
52	2	2773	OMG	C2-N1-C6	-2.92	119.71	125.10
52	2	4597	UR3	C3U-N3-C2	2.92	122.43	117.31
52	2	4129	B8W	N2-C2-N1	-2.89	112.76	117.25
52	2	2380	B8W	C1'-N9-C4	-2.88	121.59	126.64
52	2	1517	2MG	O6-C6-C5	-2.87	118.77	124.37
52	2	2297	E7G	N9-C8-N7	2.86	107.47	103.38
52	2	3909	OMC	C4-N3-C2	2.86	124.88	120.25
52	2	3899	BGH	C6-C5-C4	-2.85	116.74	122.62
52	2	1524	A2M	C1'-N9-C4	2.85	131.65	126.64
52	2	4690	B8K	C2-N1-C6	-2.84	119.92	125.10
52	2	1883	OMG	O6-C6-C5	-2.83	118.84	124.37
52	2	3897	B8K	O6-C6-N1	-2.82	114.70	120.12
52	2	2364	OMG	N2-C2-N1	2.81	122.70	116.71
52	2	4472	B8W	C1'-N9-C4	-2.80	121.72	126.64
52	2	373	OMG	N2-C2-N1	2.78	122.63	116.71
52	2	1456	B8Q	C1'-N1-C2	2.77	121.67	116.99
52	2	4529	B8W	C1'-N9-C4	-2.77	121.78	126.64
52	2	2522	7MG	C4-C5-N7	2.76	109.36	105.53
52	2	4472	B8W	O6-C6-N1	2.75	122.84	119.03
52	2	3825	A2M	C1'-N9-C4	2.75	131.47	126.64
52	2	4185	B8W	C1'-N9-C4	-2.73	121.85	126.64
52	2	3867	A2M	C1'-N9-C4	2.70	131.39	126.64
52	2	4483	B8T	O3'-C3'-C4'	2.70	118.86	111.05
52	2	3909	OMC	C5-C4-N3	-2.70	116.73	121.33
52	2	1522	OMG	C2-N1-C6	-2.69	120.14	125.10
52	2	4620	OMU	O4-C4-C5	-2.68	120.44	125.16
52	2	1605	7MG	N9-C8-N7	2.68	107.21	103.38
52	2	978	2MG	C8-N7-C5	2.65	108.04	102.99
52	2	4185	B8W	N2-C2-N1	-2.64	113.15	117.25
52	2	4550	7MG	N9-C8-N7	2.63	107.14	103.38
52	2	2861	OMC	C1'-N1-C2	2.61	124.25	118.42
52	2	4872	2MG	C8-N7-C5	2.59	107.93	102.99
52	2	237	B9B	C61-O6-C6	-2.59	112.68	117.51
52	2	729	2MG	C8-N7-C5	2.59	107.92	102.99
52	2	3899	BGH	O6-C6-N1	-2.58	115.17	120.12
52	2	3869	OMC	O2-C2-N3	-2.57	118.15	122.33
52	2	4472	B8W	C2-N1-C6	2.57	120.20	116.08
52	2	4564	M7A	C71-N7-C5	-2.56	114.17	124.01
52	2	373	OMG	C8-N7-C5	2.56	107.86	102.99
52	2	1605	7MG	C4-C5-N7	2.51	109.02	105.53
52	2	4564	M7A	C5-C4-N3	-2.51	120.73	126.62

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	3723	A2M	C1'-N9-C4	2.51	131.05	126.64
52	2	2364	OMG	O6-C6-C5	-2.50	119.49	124.37
52	2	2522	7MG	C2-N1-C6	-2.49	120.55	125.10
52	2	4530	UR3	C6-N1-C2	-2.49	119.56	121.79
52	2	3899	BGH	C2-N1-C6	-2.48	120.58	125.10
52	2	4472	B8W	N2-C2-N1	-2.48	113.40	117.25
52	2	4690	B8K	O6-C6-N1	-2.47	115.39	120.12
52	2	4083	5MU	O2-C2-N1	-2.46	119.51	122.79
52	2	3897	B8K	C2-N1-C6	-2.46	120.61	125.10
52	2	1605	7MG	C2-N1-C6	-2.46	120.62	125.10
52	2	4870	OMG	C8-N7-C5	2.45	107.65	102.99
52	2	4623	OMG	C8-N7-C5	2.44	107.63	102.99
52	2	4623	OMG	N2-C2-N1	2.44	121.90	116.71
52	2	1522	OMG	C8-N7-C5	2.43	107.62	102.99
52	2	1316	OMG	C8-N7-C5	2.42	107.61	102.99
52	2	3909	OMC	C6-N1-C2	-2.42	116.30	120.49
52	2	2297	E7G	C2-N1-C6	-2.41	120.71	125.10
52	2	373	OMG	O6-C6-C5	-2.39	119.71	124.37
52	2	2050	OMG	O6-C6-C5	-2.36	119.76	124.37
52	2	4529	B8W	N2-C2-N1	-2.35	113.59	117.25
52	2	4550	7MG	N1-C2-N3	-2.32	118.99	123.32
52	2	4494	OMG	C8-N7-C5	2.32	107.41	102.99
52	2	3880	P7G	N9-C8-N7	2.30	106.66	103.38
52	2	4083	5MU	O4-C4-N3	-2.30	115.72	120.12
52	2	4690	B8K	N1-C2-N3	-2.28	119.07	123.32
52	2	1625	OMG	O6-C6-C5	-2.27	119.93	124.37
52	2	4571	A2M	C1'-N9-C4	2.26	130.61	126.64
52	2	3909	OMC	C1'-N1-C2	2.26	123.46	118.42
52	2	4597	UR3	O2-C2-N1	-2.26	117.43	122.72
52	2	1316	OMG	O6-C6-C5	-2.25	119.97	124.37
52	2	3897	B8K	N1-C2-N3	-2.25	119.13	123.32
52	2	1456	B8Q	C31-N3-C2	2.24	121.05	117.79
52	2	978	2MG	O6-C6-C5	-2.24	119.99	124.37
52	2	1326	A2M	C1'-N9-C4	2.24	130.57	126.64
52	2	1316	OMG	N2-C2-N1	2.23	121.47	116.71
52	2	2424	OMG	O6-C6-C5	-2.23	120.01	124.37
52	2	3899	BGH	N1-C2-N3	-2.21	119.20	123.32
52	2	1625	OMG	C8-N7-C5	2.19	107.16	102.99
52	2	2050	OMG	N2-C2-N1	2.18	121.36	116.71
52	2	2773	OMG	O6-C6-C5	-2.17	120.12	124.37
52	2	4623	OMG	O6-C6-C5	-2.16	120.15	124.37
52	2	1524	A2M	O4'-C1'-C2'	-2.16	102.85	106.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	2	2380	B8W	C2-N1-C6	2.15	119.53	116.08
52	2	4185	B8W	C2-N1-C6	2.15	119.53	116.08
52	2	2522	7MG	C6-C5-C4	-2.14	118.20	122.62
52	2	4483	B8T	O2-C2-N3	-2.14	118.85	122.33
52	2	1534	A2M	C1'-N9-C4	2.14	130.40	126.64
52	2	1517	2MG	C8-N7-C5	2.13	107.04	102.99
52	2	1605	7MG	O6-C6-C5	-2.13	122.33	127.54
52	2	4550	7MG	C6-C5-C4	-2.13	118.24	122.62
52	2	1883	OMG	C8-N7-C5	2.12	107.03	102.99
52	2	4483	B8T	C6-C5-C4	2.12	119.55	116.96
52	2	4620	OMU	O2-C2-N1	-2.12	119.97	122.79
52	2	4550	7MG	C2-N1-C6	-2.11	121.25	125.10
52	2	2522	7MG	O6-C6-C5	-2.11	122.36	127.54
52	2	729	2MG	O6-C6-C5	-2.11	120.25	124.37
52	2	2364	OMG	C8-N7-C5	2.11	107.00	102.99
52	2	4870	OMG	O6-C6-C5	-2.10	120.27	124.37
52	2	3718	A2M	C1'-N9-C4	2.09	130.32	126.64
52	2	4637	OMG	O6-C6-C5	-2.09	120.28	124.37
52	2	4690	B8K	O6-C6-C5	-2.08	122.45	127.54
52	2	1522	OMG	N1-C2-N3	-2.07	119.45	123.32
52	2	3869	OMC	C1'-N1-C2	2.07	123.04	118.42
52	2	1605	7MG	C6-C5-C4	-2.07	118.36	122.62
52	2	2424	OMG	C8-N7-C5	2.06	106.91	102.99
3	8	14	OMU	C1'-N1-C2	2.05	121.28	117.57
52	2	4597	UR3	C3U-N3-C4	2.03	120.79	117.89
52	2	4872	2MG	O6-C6-C5	-2.02	120.42	124.37
52	2	4523	A2M	C1'-N9-C4	2.02	130.19	126.64
52	2	4129	B8W	C2-N1-C6	2.01	119.31	116.08
52	2	2786	B9H	C1'-N1-C6	2.01	125.23	120.84
52	2	2773	OMG	C8-N7-C5	2.01	106.81	102.99
52	2	4494	OMG	O6-C6-C5	-2.01	120.46	124.37

There are no chirality outliers.

All (91) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	8	14	OMU	C1'-C2'-O2'-CM2
52	2	237	B9B	C5-C6-O6-C61
52	2	237	B9B	N1-C6-O6-C61
52	2	237	B9B	C3'-C4'-C5'-O5'
52	2	237	B9B	O4'-C4'-C5'-O5'
52	2	398	A2M	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
52	2	1348	P4U	N3-C4-O4-C41
52	2	1574	B9B	C5-C6-O6-C61
52	2	1574	B9B	N1-C6-O6-C61
52	2	1625	OMG	C3'-C4'-C5'-O5'
52	2	1871	A2M	O4'-C4'-C5'-O5'
52	2	1871	A2M	C3'-C4'-C5'-O5'
52	2	1883	OMG	O4'-C4'-C5'-O5'
52	2	1883	OMG	C3'-C4'-C5'-O5'
52	2	2364	OMG	O4'-C4'-C5'-O5'
52	2	2380	B8W	C5-C6-O6-C61
52	2	2424	OMG	C3'-C4'-C5'-O5'
52	2	2754	B9B	C5-C6-O6-C61
52	2	2754	B9B	N1-C6-O6-C61
52	2	2773	OMG	C3'-C4'-C5'-O5'
52	2	2786	B9H	C1'-C2'-O2'-C21
52	2	3723	A2M	O4'-C4'-C5'-O5'
52	2	3897	B8K	O4'-C4'-C5'-O5'
52	2	4129	B8W	C5-C6-O6-C61
52	2	4129	B8W	N1-C6-O6-C61
52	2	4185	B8W	C5-C6-O6-C61
52	2	4472	B8W	C5-C6-O6-C61
52	2	4472	B8W	N1-C6-O6-C61
52	2	4529	B8W	C5-C6-O6-C61
52	2	4550	7MG	C3'-C4'-C5'-O5'
52	2	4637	OMG	O4'-C4'-C5'-O5'
52	2	4870	OMG	O4'-C4'-C5'-O5'
52	2	4870	OMG	C3'-C4'-C5'-O5'
52	2	398	A2M	C3'-C4'-C5'-O5'
52	2	1625	OMG	O4'-C4'-C5'-O5'
52	2	1909	P7G	O4'-C4'-C5'-O5'
52	2	2364	OMG	C3'-C4'-C5'-O5'
52	2	2424	OMG	O4'-C4'-C5'-O5'
52	2	3897	B8K	C3'-C4'-C5'-O5'
52	2	4129	B8W	C3'-C4'-C5'-O5'
52	2	4523	A2M	O4'-C4'-C5'-O5'
52	2	4550	7MG	O4'-C4'-C5'-O5'
52	2	4637	OMG	C3'-C4'-C5'-O5'
52	2	3880	P7G	N7-C71-C72-C73
52	2	1909	P7G	C3'-C4'-C5'-O5'
52	2	3723	A2M	C3'-C4'-C5'-O5'
52	2	3880	P7G	C3'-C4'-C5'-O5'
52	2	4129	B8W	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
52	2	4523	A2M	C3'-C4'-C5'-O5'
52	2	2380	B8W	N1-C6-O6-C61
52	2	4529	B8W	N1-C6-O6-C61
52	2	4872	2MG	O4'-C4'-C5'-O5'
52	2	3880	P7G	O4'-C4'-C5'-O5'
52	2	4872	2MG	C3'-C4'-C5'-O5'
52	2	1316	OMG	O4'-C4'-C5'-O5'
52	2	2773	OMG	O4'-C4'-C5'-O5'
52	2	2401	A2M	C3'-C2'-O2'-CM'
52	2	2754	B9B	O6-C61-C62-C63
52	2	729	2MG	O4'-C4'-C5'-O5'
52	2	1517	2MG	C4'-C5'-O5'-P
52	2	4523	A2M	C4'-C5'-O5'-P
52	2	4637	OMG	C4'-C5'-O5'-P
52	2	4185	B8W	N1-C6-O6-C61
52	2	1522	OMG	C3'-C2'-O2'-CM2
52	2	2786	B9H	C3'-C2'-O2'-C21
52	2	3867	A2M	C4'-C5'-O5'-P
52	2	3701	OMC	O4'-C4'-C5'-O5'
52	2	3897	B8K	C4'-C5'-O5'-P
52	2	4870	OMG	C4'-C5'-O5'-P
52	2	2786	B9H	C32-C31-N3-C2
52	2	1625	OMG	C4'-C5'-O5'-P
52	2	3880	P7G	C4'-C5'-O5'-P
52	2	3887	OMC	C4'-C5'-O5'-P
52	2	1534	A2M	O4'-C4'-C5'-O5'
52	2	2297	E7G	C72-C71-N7-C8
52	2	1605	7MG	O4'-C4'-C5'-O5'
52	2	3701	OMC	C2'-C1'-N1-C6
52	2	729	2MG	C3'-C4'-C5'-O5'
52	2	3701	OMC	C3'-C4'-C5'-O5'
52	2	3909	OMC	O4'-C4'-C5'-O5'
52	2	2401	A2M	C1'-C2'-O2'-CM'
52	2	3701	OMC	O4'-C1'-N1-C6
52	2	4523	A2M	C3'-C2'-O2'-CM'
52	2	1534	A2M	C4'-C5'-O5'-P
52	2	1316	OMG	C3'-C4'-C5'-O5'
52	2	3867	A2M	C3'-C4'-C5'-O5'
52	2	1659	I4U	C42-C41-O4-C4
52	2	1659	I4U	C43-C41-O4-C4
52	2	3909	OMC	C2'-C1'-N1-C2
52	2	2422	OMC	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
52	2	373	OMG	C4'-C5'-O5'-P

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
53	GTP	w	801	54	26,34,34	0.99	3 (11%)	32,54,54	0.84	0

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
53	GTP	w	801	54	-	1/18/38/38	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
53	w	801	GTP	C5-C6	-2.69	1.42	1.47
53	w	801	GTP	C8-N7	-2.11	1.31	1.35
53	w	801	GTP	C5-C4	-2.06	1.37	1.43

There are no bond angle outliers.

There are no chirality outliers.

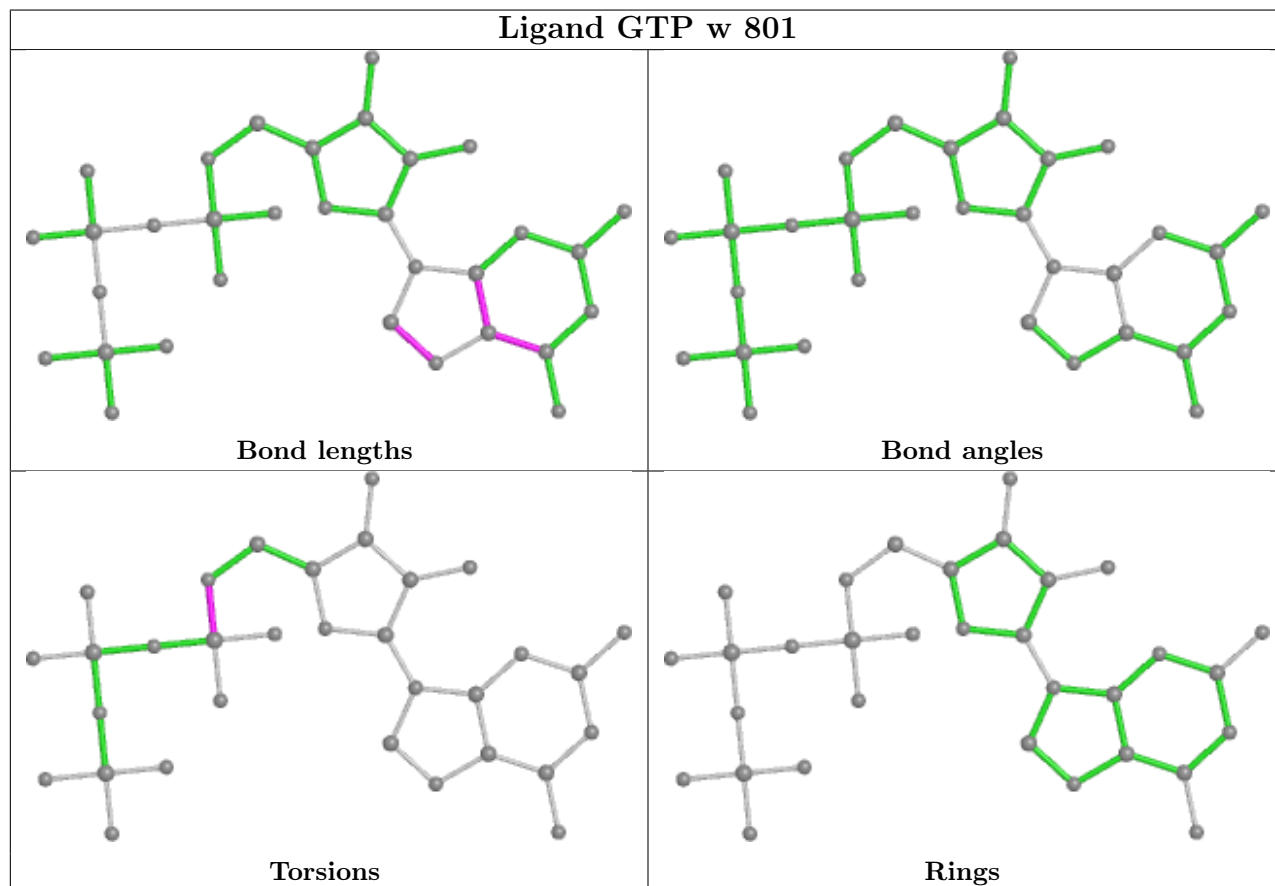
All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
53	w	801	GTP	C5'-O5'-PA-O1A

There are no ring outliers.

No monomer is involved in short contacts.

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





## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

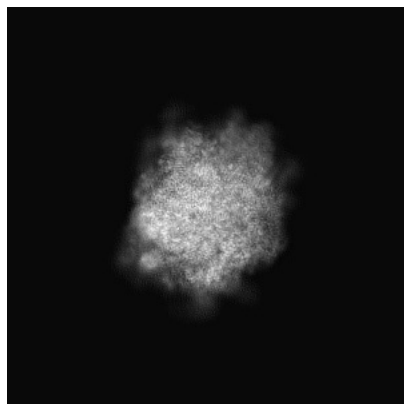
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-35639. These allow visual inspection of the internal detail of the map and identification of artifacts.

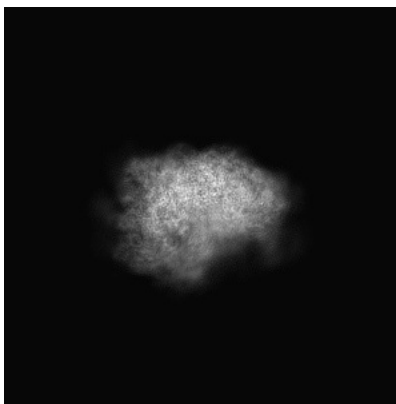
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

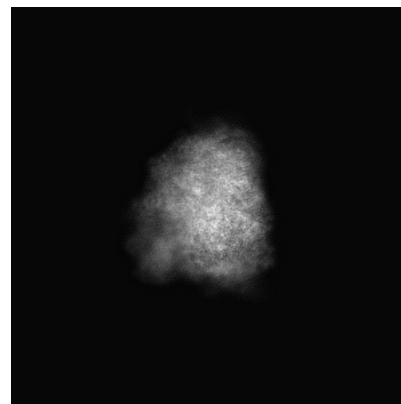
#### 6.1.1 Primary map



X

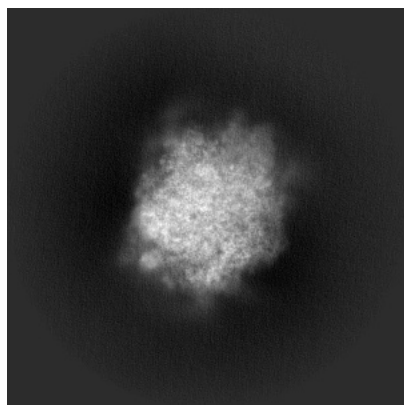


Y

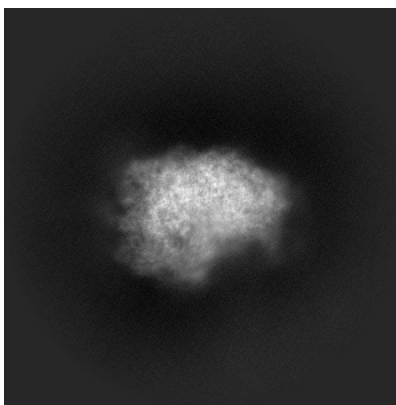


Z

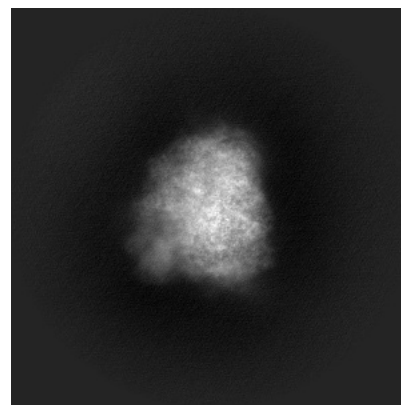
#### 6.1.2 Raw map



X



Y

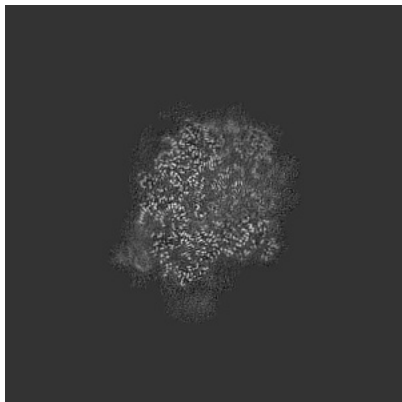


Z

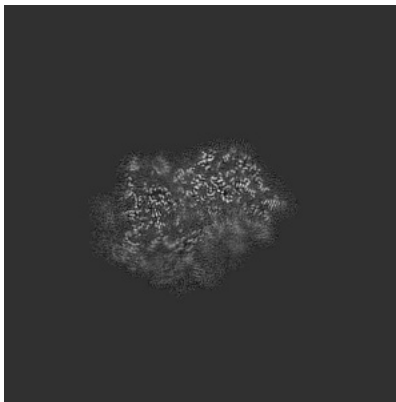
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

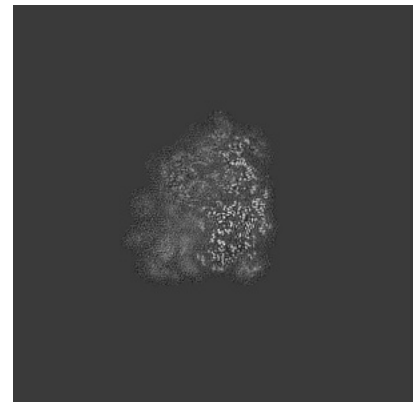
### 6.2.1 Primary map



X Index: 200

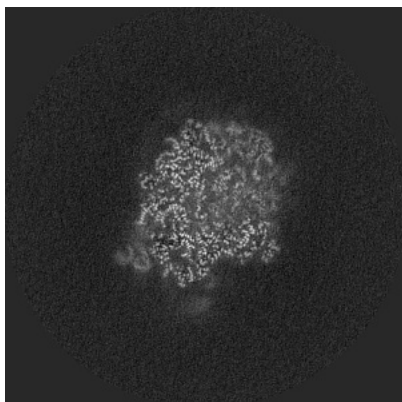


Y Index: 200

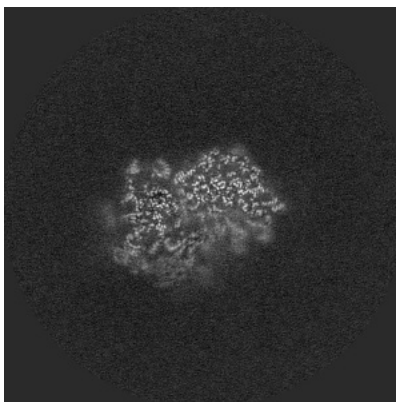


Z Index: 200

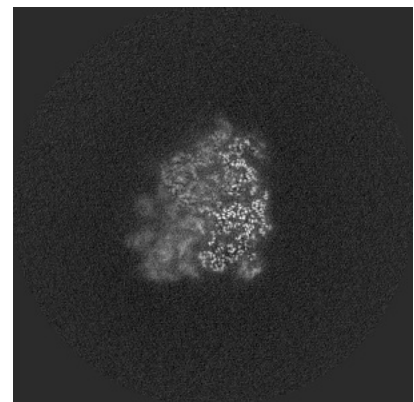
### 6.2.2 Raw map



X Index: 200



Y Index: 200

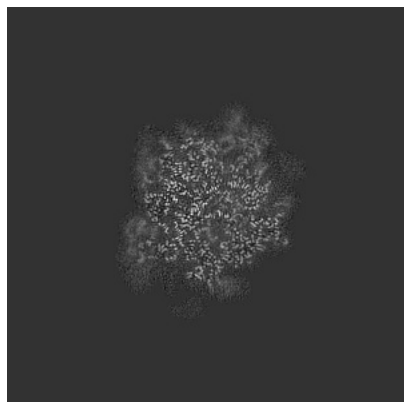


Z Index: 200

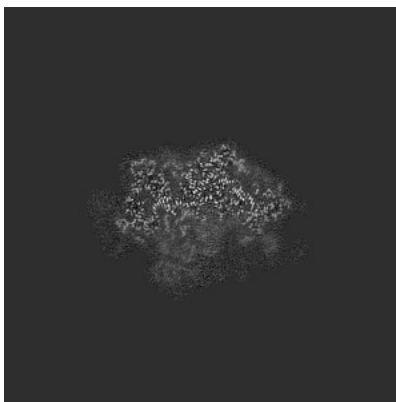
The images above show central slices of the map in three orthogonal directions.

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

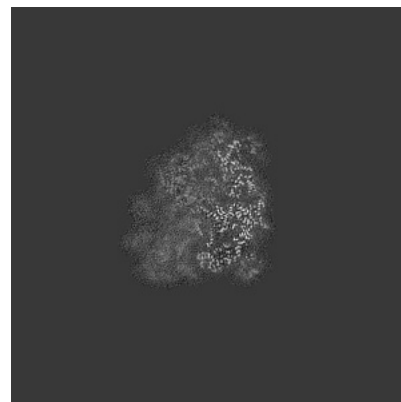
### 6.3.1 Primary map



X Index: 214

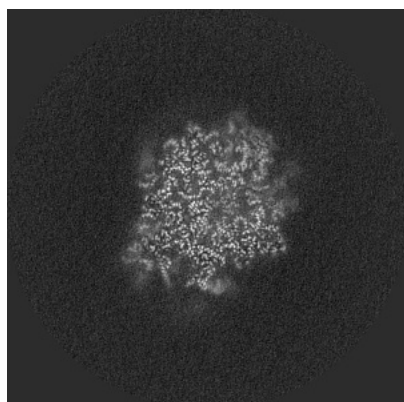


Y Index: 181

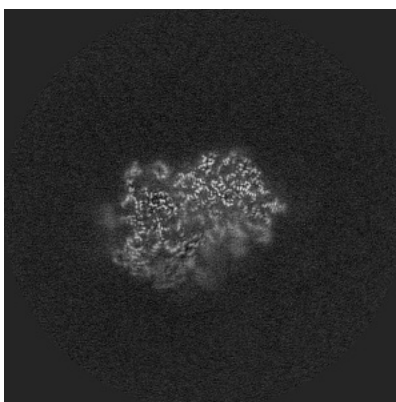


Z Index: 198

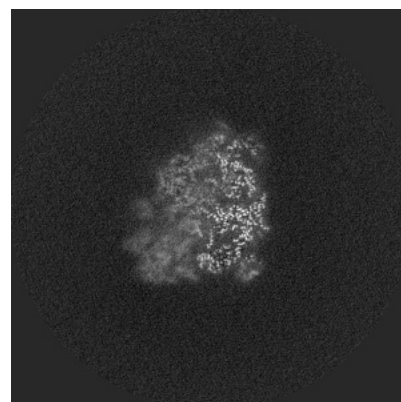
### 6.3.2 Raw map



X Index: 207



Y Index: 201

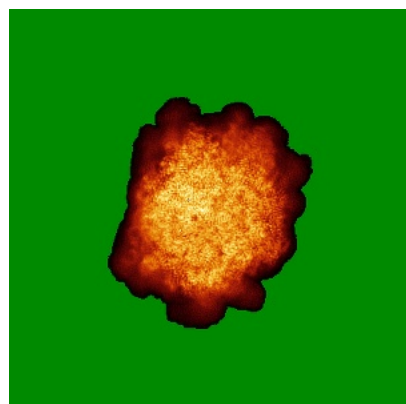


Z Index: 199

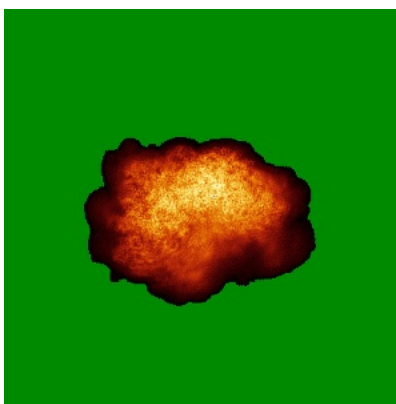
The images above show the largest variance slices of the map in three orthogonal directions.

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

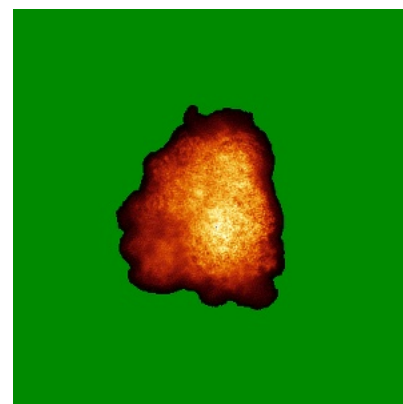
### 6.4.1 Primary map



X

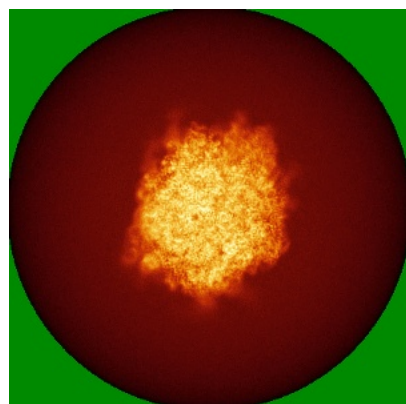


Y

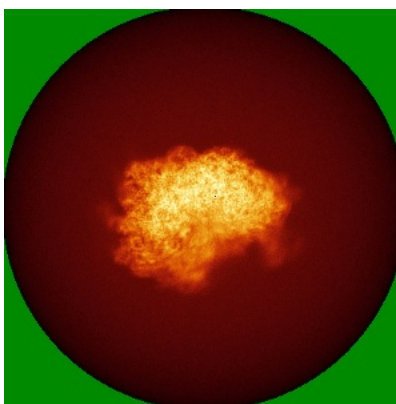


Z

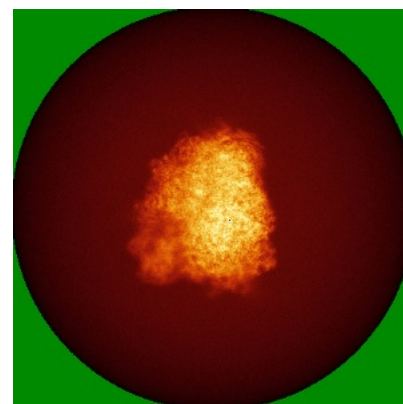
### 6.4.2 Raw map



X



Y



Z

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

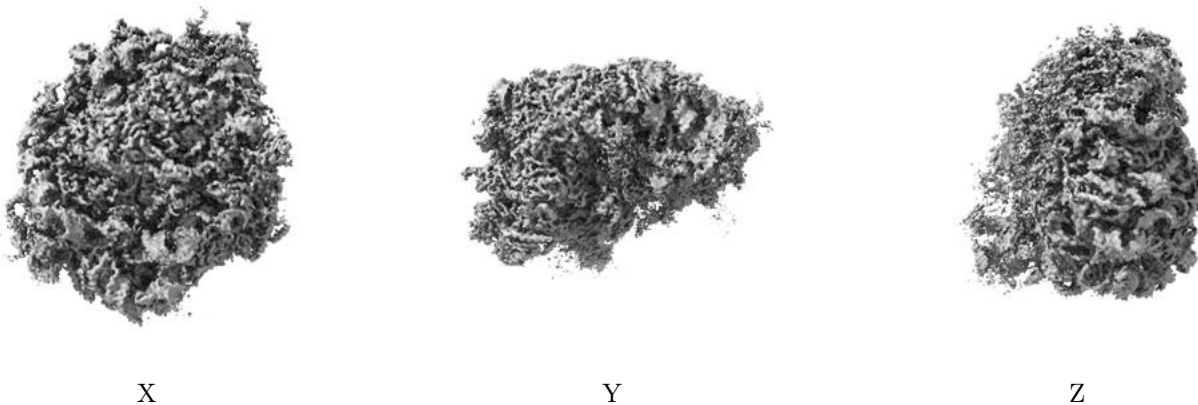
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.037. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



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

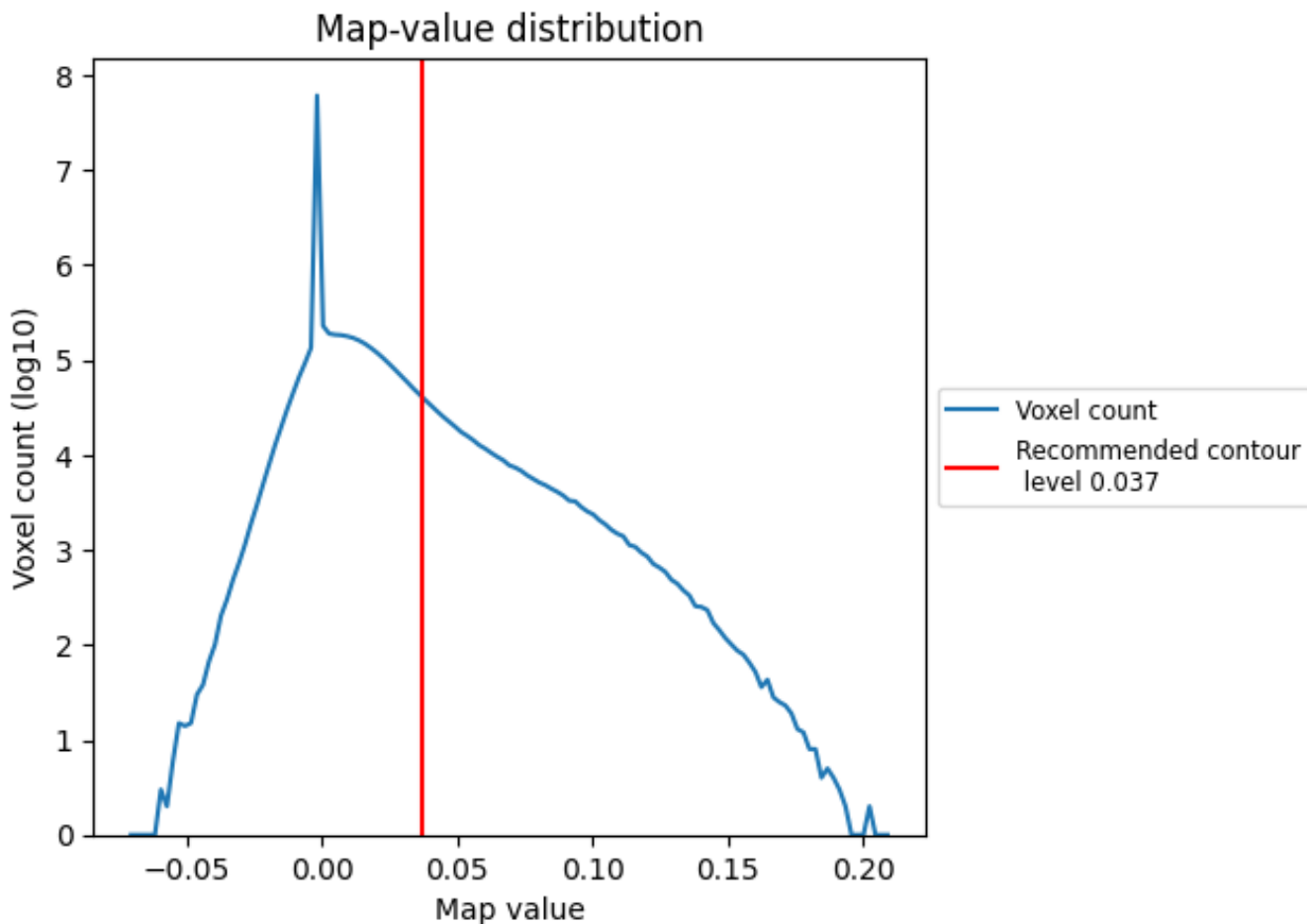
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

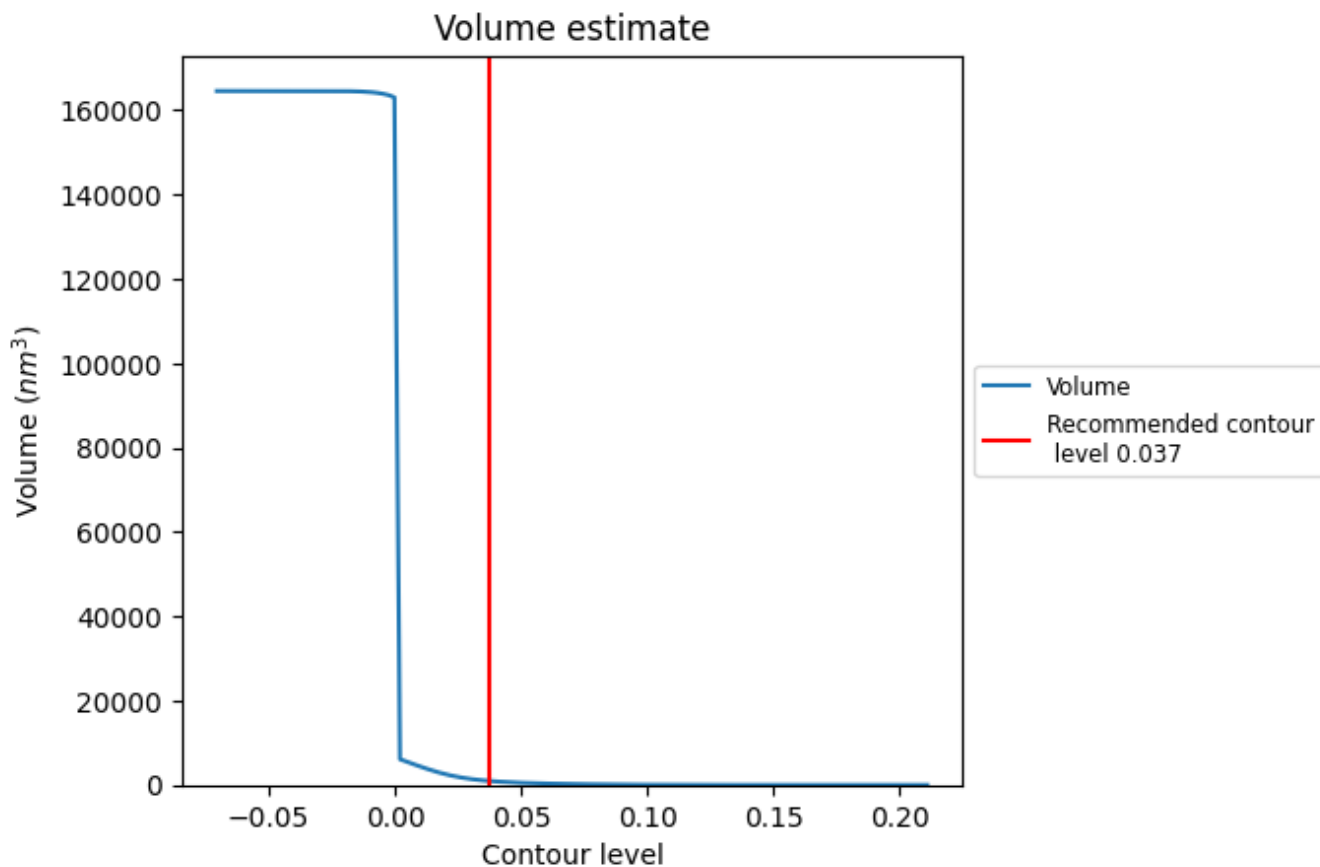
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



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

## 7.2 Volume estimate [i](#)

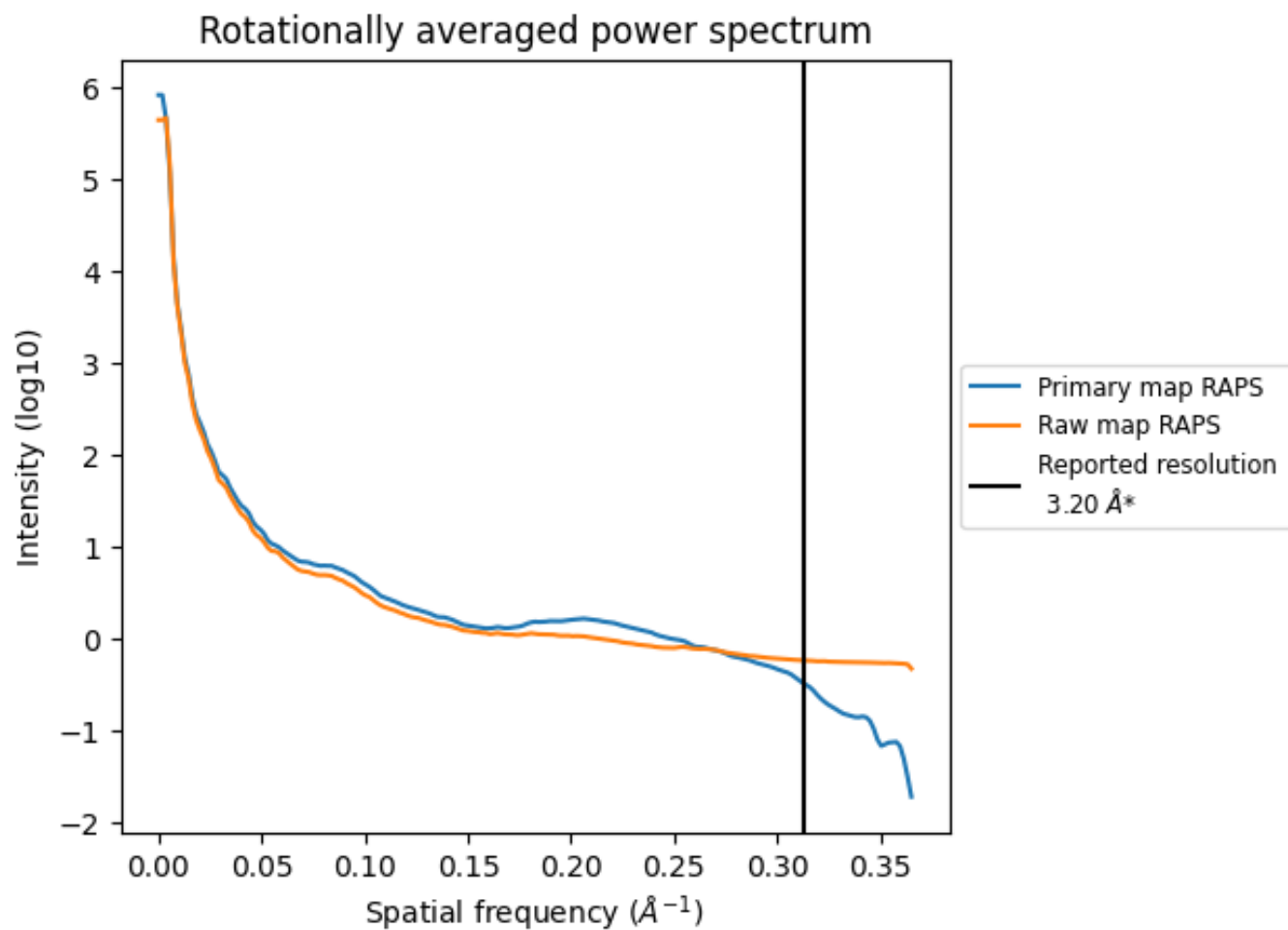


The volume at the recommended contour level is 969 nm<sup>3</sup>; this corresponds to an approximate mass of 876 kDa.

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



### 7.3 Rotationally averaged power spectrum i

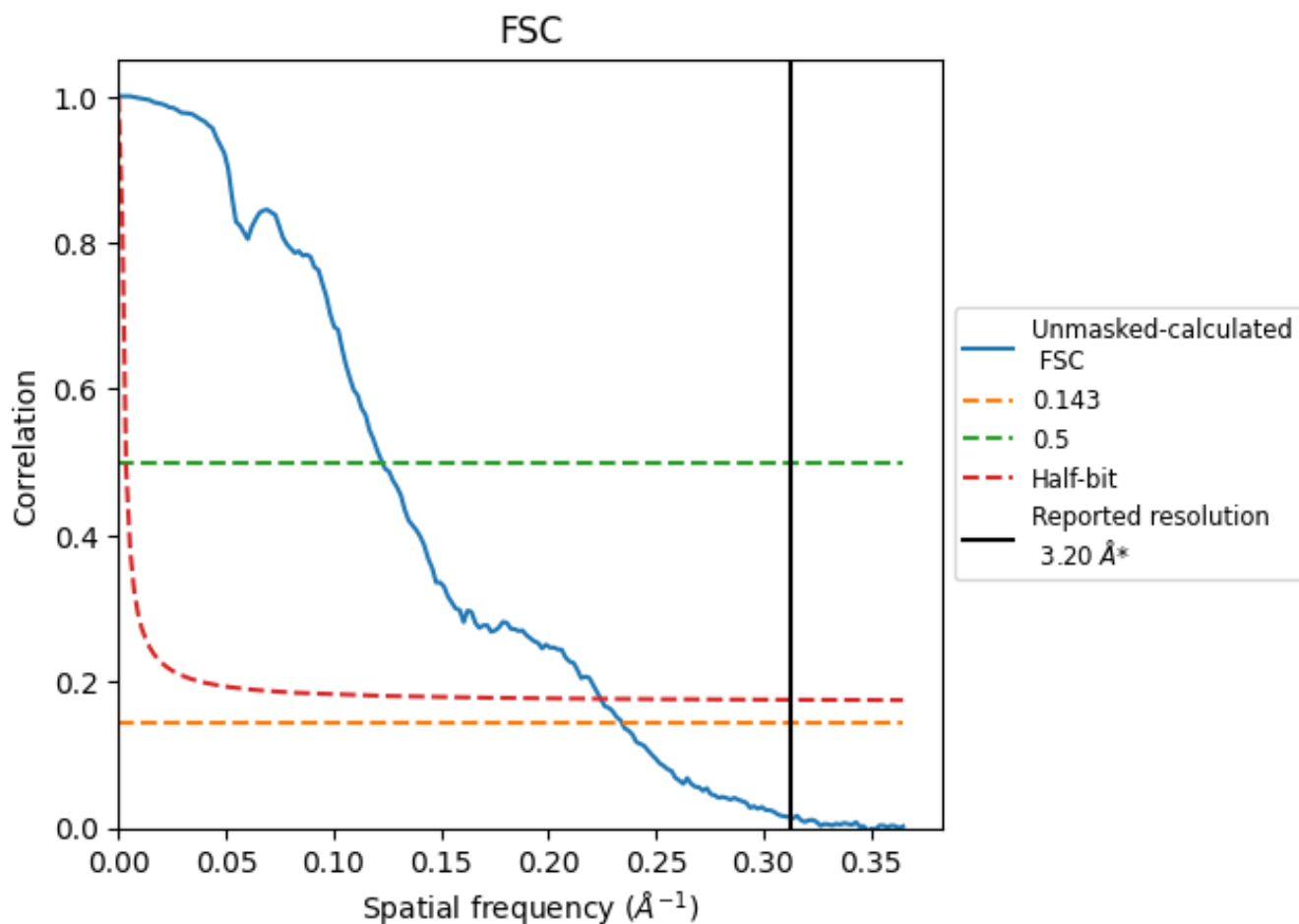


\*Reported resolution corresponds to spatial frequency of  $0.312 \text{ \AA}^{-1}$

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

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.312 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

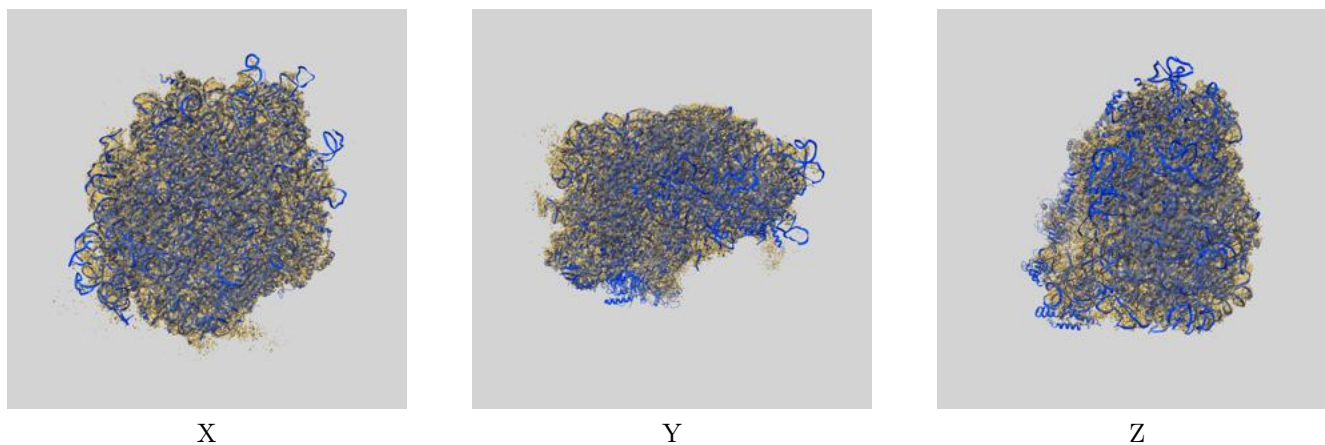
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.27	8.16	4.45

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.27 differs from the reported value 3.2 by more than 10 %

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

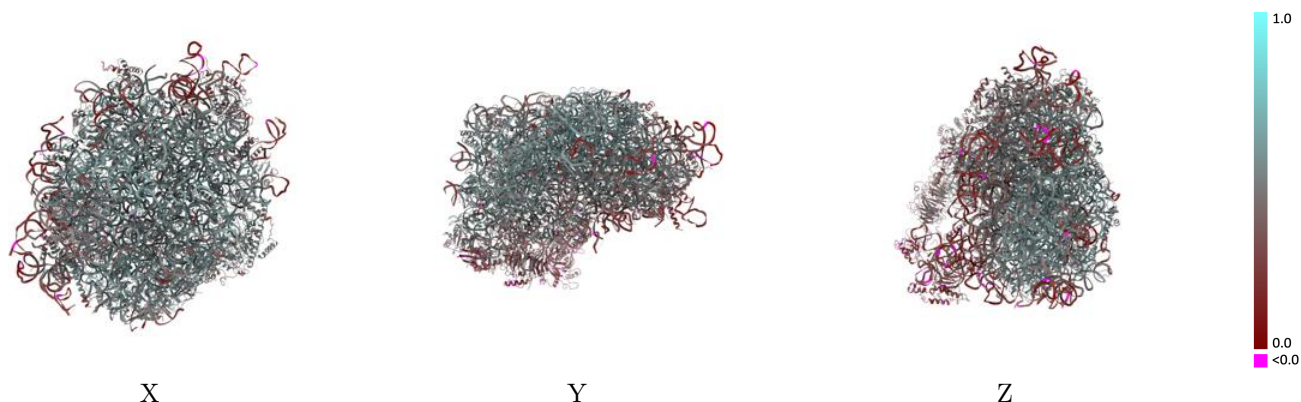
This section contains information regarding the fit between EMDB map EMD-35639 and PDB model 8IPD. Per-residue inclusion information can be found in section 3 on page 14.

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



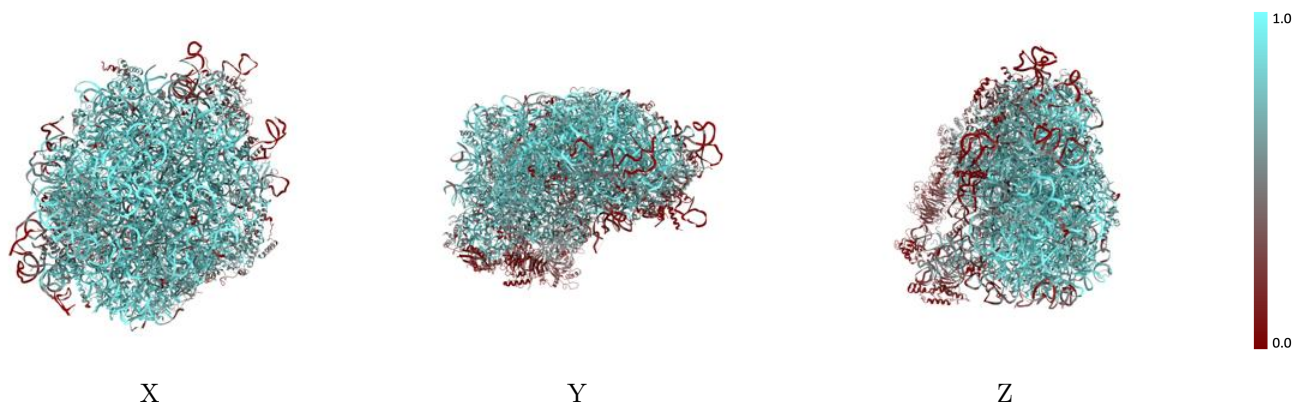
The images above show the 3D surface view of the map at the recommended contour level 0.037 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



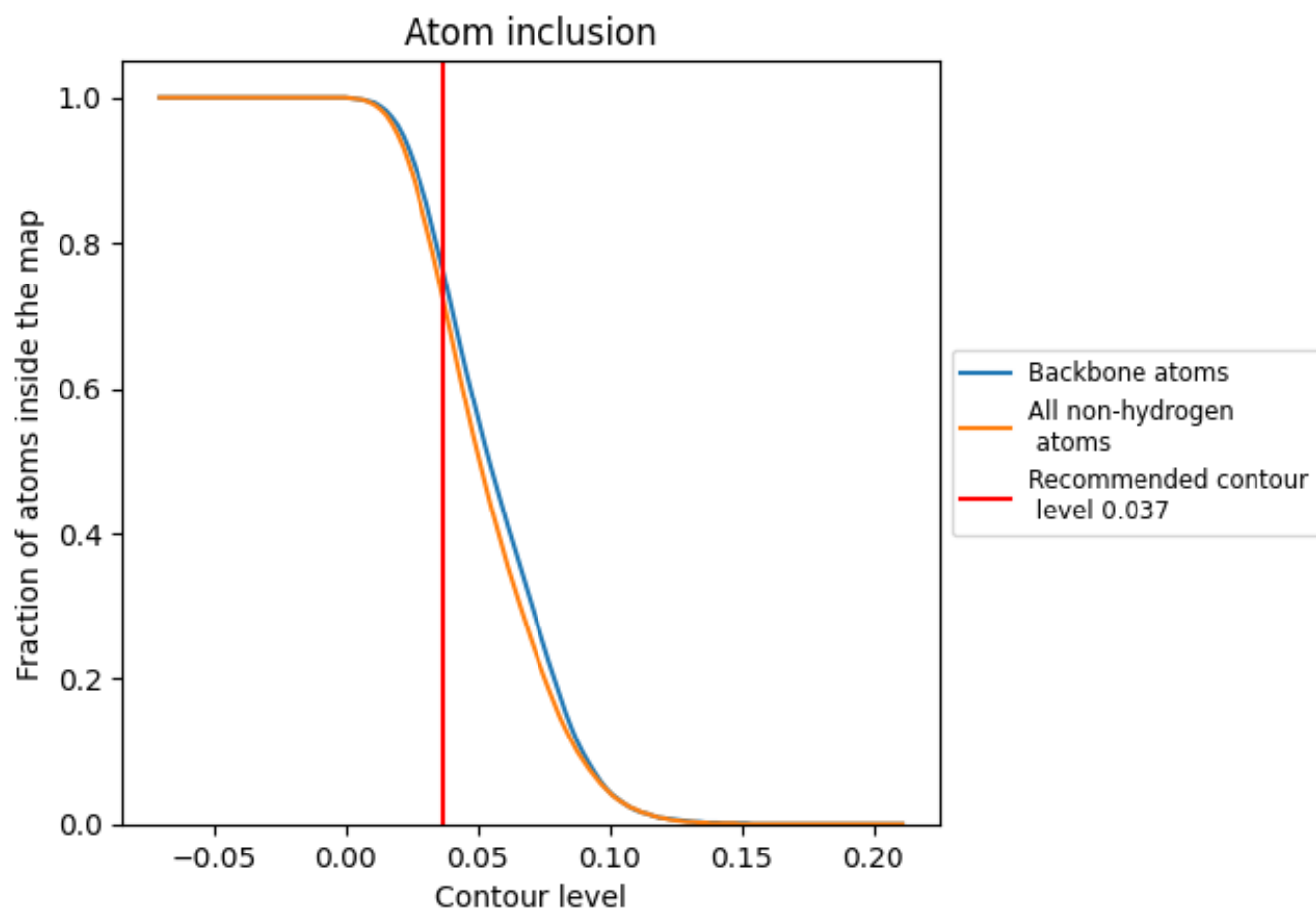
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.037).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 76% of all backbone atoms, 72% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary





































The table lists the average atom inclusion at the recommended contour level (0.037) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7210	 0.4630
2	 0.7860	 0.4560
3	 0.5870	 0.2880
4	 0.6030	 0.4480
6	 0.6490	 0.4870
7	 0.7730	 0.5300
8	 0.9230	 0.5260
9	 0.1560	 0.3750
A	 0.3840	 0.3890
B	 0.8250	 0.5510
C	 0.0850	 0.1950
D	 0.9130	 0.5740
E	 0.2850	 0.3890
F	 0.6900	 0.4830
G	 0.5870	 0.4400
H	 0.8070	 0.5400
I	 0.8000	 0.5440
J	 0.7430	 0.4850
K	 0.7190	 0.4800
L	 0.8810	 0.5580
M	 0.9090	 0.5580
O	 0.5210	 0.4350
P	 0.9460	 0.5740
Q	 0.7590	 0.5170
R	 0.1370	 0.2210
S	 0.8800	 0.5610
T	 0.4600	 0.3250
U	 0.8470	 0.5440
V	 0.8740	 0.5600
W	 0.0720	 0.3170
X	 0.5060	 0.4370
Y	 0.8190	 0.5400
Z	 0.9000	 0.5780
a	 0.6530	 0.4840
b	 0.8580	 0.5640



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Chain	Atom inclusion	Q-score
d	 0.6970	 0.5000
e	 0.8120	 0.5360
g	 0.8370	 0.5410
h	 0.8360	 0.5490
i	 0.4050	 0.3930
j	 0.8190	 0.5350
k	 0.8950	 0.5770
l	 0.8820	 0.5650
m	 0.5190	 0.4350
n	 0.9240	 0.5840
o	 0.7140	 0.5020
p	 0.8420	 0.5460
r	 0.3580	 0.3760
u	 0.4600	 0.4160
v	 0.5640	 0.4590
w	 0.5720	 0.4320
y	 0.2460	 0.3250
z	 0.5590	 0.4700