Full wwPDB EM Validation Report ⓘ

Apr 20, 2026 – 10:32 PM JST

PDB ID	:	9K5E / pdb_00009k5e
EMDB ID	:	EMD-62090
Title	:	Structure of substrate-engaged double-cap human proteasome in state EA1-EA1
Authors	:	Wu, Z.; Chen, E.; Mao, Y.
Deposited on	:	2024-10-21
Resolution	:	3.80 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

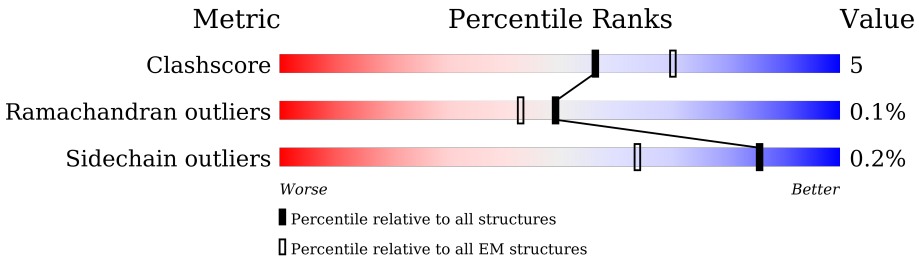
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

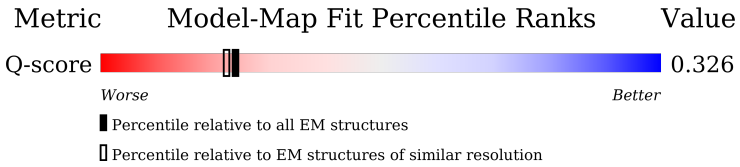
1 Overall quality at a glance

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

The reported resolution of this entry is 3.80 Å.

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





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	10198 (3.30 - 4.30)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% 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	AA	433	10% 83% 12% 5%
1	BA	433	10% 82% 13% 5%
2	AB	440	7% 73% 15% 12%
2	BB	440	7% 74% 14% 12%

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Mol	Chain	Length	Quality of chain
3	AC	398	74% 16% 9%
3	BC	398	5% 77% 13% 9%
4	AD	418	5% 72% 18% 9%
4	BD	418	5% 73% 17% 9%
5	AE	403	9% 79% 14% 7%
5	BE	403	8% 75% 17% 7%
6	AF	439	8% 73% 12% 14%
6	BF	439	8% 69% 17% 14%
7	AG	246	92% 7%
7	BG	246	92% 7%
8	AH	234	90% 9%
8	BH	234	91% 8%
9	AI	261	90% 6%
9	BI	261	88% 8%
10	AJ	248	88% 8%
10	BJ	248	85% 11%
11	AK	241	88% 9%
11	BK	241	89% 8%
12	AL	263	86% 5% 10%
12	BL	263	82% 8% 10%
13	AM	255	86% 8% 6%
13	BM	255	87% 7% 6%
14	AN	239	82% 15%
14	BN	239	81% 15%
15	AO	277	74% 5% 21%

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Mol	Chain	Length	Quality of chain
15	BO	277	69% 10% 21%
16	AP	205	90% 10%
16	BP	205	90% 9%
17	AQ	201	94% 5%
17	BQ	201	92% 7%
18	AR	263	72% 24%
18	BR	263	71% 5% 24%
19	AS	241	78% 11% 12%
19	BS	241	79% 10% 12%
20	AT	264	73% 8% 18%
20	BT	264	73% 9% 18%
21	AU	953	25% 76% 15% 9%
21	BU	953	28% 76% 15% 9%
22	AV	534	35% 77% 11% 12%
22	BV	534	37% 77% 12% 12%
23	AW	456	22% 86% 11%
23	BW	456	21% 87% 10%
24	AX	422	36% 89% 11%
24	BX	422	35% 90% 10%
25	AY	389	8% 89% 11%
25	BY	389	8% 90% 10%
26	AZ	324	24% 72% 16% 12%
26	BZ	324	23% 74% 14% 12%
27	Aa	376	45% 82% 16%
27	Ba	376	46% 84% 15%

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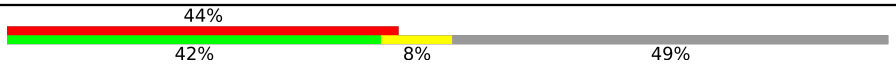
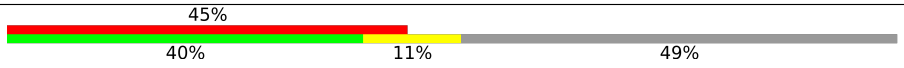
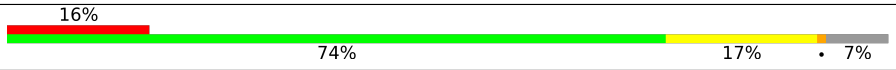
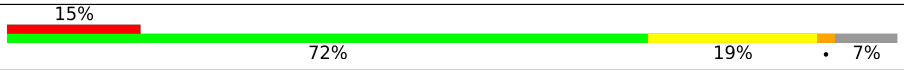
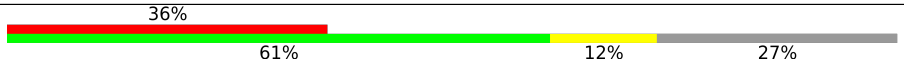
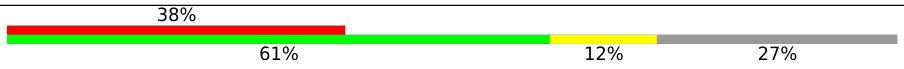
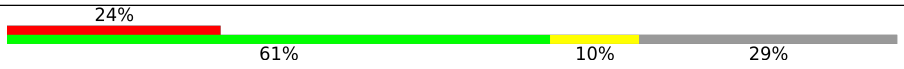
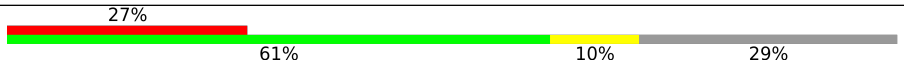
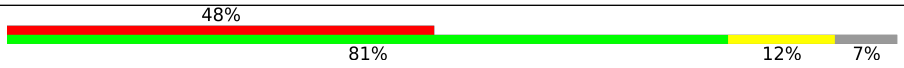
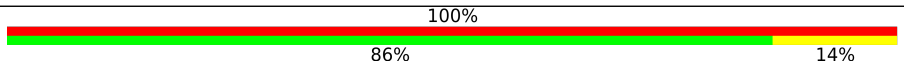
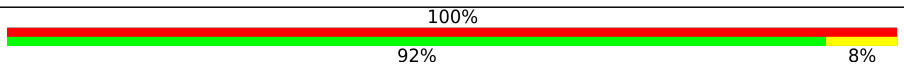
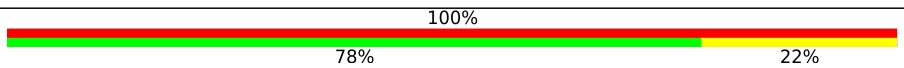
Mol	Chain	Length	Quality of chain
28	Ab	377	
28	Bb	377	
29	Ac	310	
29	Bc	310	
30	Ad	350	
30	Bd	350	
31	Ae	70	
31	Be	70	
32	Af	908	
32	Bf	908	
33	Au	76	
33	Aw	76	
33	Bu	76	
33	Bw	76	

2 Entry composition

There are 37 unique types of molecules in this entry. The entry contains 164552 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 26S proteasome regulatory subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	AA	413	Total	C	N	O	S	0	0
			3240	2042	567	613	18		
1	BA	413	Total	C	N	O	S	0	0
			3240	2042	567	613	18		

- Molecule 2 is a protein called 26S proteasome regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	AB	388	Total	C	N	O	S	0	0
			3042	1915	519	593	15		
2	BB	388	Total	C	N	O	S	0	0
			3042	1915	519	593	15		

- Molecule 3 is a protein called 26S proteasome regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	AC	363	Total	C	N	O	S	0	0
			2864	1808	515	525	16		
3	BC	363	Total	C	N	O	S	0	0
			2864	1808	515	525	16		

- Molecule 4 is a protein called 26S proteasome regulatory subunit 6B.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	AD	380	Total	C	N	O	S	0	0
			3039	1923	524	579	13		
4	BD	380	Total	C	N	O	S	0	0
			3039	1923	524	579	13		

- Molecule 5 is a protein called Proteasome 26S subunit, ATPase 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	AE	375	Total	C	N	O	S	0	0
			2860	1796	512	536	16		
5	BE	375	Total	C	N	O	S	0	0
			2860	1796	512	536	16		

- Molecule 6 is a protein called 26S proteasome regulatory subunit 6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	AF	376	Total	C	N	O	S	0	0
			2858	1802	496	545	15		
6	BF	376	Total	C	N	O	S	0	0
			2858	1802	496	545	15		

- Molecule 7 is a protein called Proteasome subunit alpha type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	AG	244	Total	C	N	O	S	0	0
			1889	1198	316	362	13		
7	BG	244	Total	C	N	O	S	0	0
			1889	1198	316	362	13		

- Molecule 8 is a protein called Proteasome subunit alpha type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	AH	232	Total	C	N	O	S	0	0
			1809	1155	306	342	6		
8	BH	232	Total	C	N	O	S	0	0
			1809	1155	306	342	6		

- Molecule 9 is a protein called Proteasome subunit alpha type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	AI	250	Total	C	N	O	S	1	0
			1954	1233	335	376	10		
9	BI	250	Total	C	N	O	S	1	0
			1954	1233	335	376	10		

- Molecule 10 is a protein called Proteasome subunit alpha type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	AJ	239	Total	C	N	O	S	0	0
			1858	1165	327	361	5		

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Mol	Chain	Residues	Atoms					AltConf	Trace
10	BJ	239	Total	C	N	O	S	0	0
			1858	1165	327	361	5		

- Molecule 11 is a protein called Proteasome subunit alpha type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	AK	234	Total	C	N	O	S	0	0
			1773	1115	295	352	11		
11	BK	234	Total	C	N	O	S	0	0
			1773	1115	295	352	11		

- Molecule 12 is a protein called Proteasome subunit alpha type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	AL	238	Total	C	N	O	S	0	0
			1866	1169	336	350	11		
12	BL	238	Total	C	N	O	S	0	0
			1866	1169	336	350	11		

- Molecule 13 is a protein called Proteasome subunit alpha type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	AM	240	Total	C	N	O	S	1	0
			1879	1193	321	353	12		
13	BM	240	Total	C	N	O	S	1	0
			1879	1193	321	353	12		

- Molecule 14 is a protein called Proteasome subunit beta type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	AN	202	Total	C	N	O	S	0	0
			1514	949	258	295	12		
14	BN	202	Total	C	N	O	S	0	0
			1514	949	258	295	12		

- Molecule 15 is a protein called Proteasome subunit beta type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	AO	220	Total	C	N	O	S	0	0
			1649	1038	279	320	12		
15	BO	220	Total	C	N	O	S	0	0
			1649	1038	279	320	12		

- Molecule 16 is a protein called Proteasome subunit beta type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	AP	204	Total	C	N	O	S	0	0
			1587	1010	264	294	19		
16	BP	204	Total	C	N	O	S	0	0
			1587	1010	264	294	19		

- Molecule 17 is a protein called Proteasome subunit beta type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	AQ	199	Total	C	N	O	S	0	0
			1588	1017	270	292	9		
17	BQ	199	Total	C	N	O	S	0	0
			1588	1017	270	292	9		

- Molecule 18 is a protein called Proteasome subunit beta type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	AR	201	Total	C	N	O	S	0	0
			1559	982	274	294	9		
18	BR	201	Total	C	N	O	S	0	0
			1559	982	274	294	9		

- Molecule 19 is a protein called Proteasome subunit beta type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	AS	213	Total	C	N	O	S	0	0
			1641	1041	281	309	10		
19	BS	213	Total	C	N	O	S	0	0
			1641	1041	281	309	10		

- Molecule 20 is a protein called Proteasome subunit beta type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	AT	216	Total	C	N	O	S	0	0
			1683	1062	291	318	12		
20	BT	216	Total	C	N	O	S	0	0
			1683	1062	291	318	12		

- Molecule 21 is a protein called 26S proteasome non-ATPase regulatory subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	AU	868	Total	C	N	O	S	0	0
			6787	4303	1153	1285	46		
21	BU	868	Total	C	N	O	S	0	0
			6787	4303	1153	1285	46		

- Molecule 22 is a protein called 26S proteasome non-ATPase regulatory subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	AV	472	Total	C	N	O	S	0	0
			3754	2387	673	681	13		
22	BV	472	Total	C	N	O	S	0	0
			3754	2387	673	681	13		

- Molecule 23 is a protein called 26S proteasome non-ATPase regulatory subunit 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	AW	441	Total	C	N	O	S	0	0
			3596	2277	613	682	24		
23	BW	441	Total	C	N	O	S	0	0
			3596	2277	613	682	24		

- Molecule 24 is a protein called 26S proteasome non-ATPase regulatory subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	AX	422	Total	C	N	O	S	0	0
			3335	2116	567	639	13		
24	BX	422	Total	C	N	O	S	0	0
			3335	2116	567	639	13		

- Molecule 25 is a protein called 26S proteasome non-ATPase regulatory subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	AY	389	Total	C	N	O	S	0	0
			3202	2041	545	598	18		
25	BY	389	Total	C	N	O	S	0	0
			3202	2041	545	598	18		

- Molecule 26 is a protein called 26S proteasome non-ATPase regulatory subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	AZ	286	Total	C	N	O	S	0	0
			2281	1457	392	427	5		

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Mol	Chain	Residues	Atoms					AltConf	Trace
26	BZ	286	Total	C	N	O	S	0	0
			2281	1457	392	427	5		

- Molecule 27 is a protein called 26S proteasome non-ATPase regulatory subunit 13.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Aa	373	Total	C	N	O	S	0	0
			2995	1911	510	559	15		
27	Ba	373	Total	C	N	O	S	0	0
			2995	1911	510	559	15		

- Molecule 28 is a protein called 26S proteasome non-ATPase regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Ab	191	Total	C	N	O	S	0	0
			1458	910	261	279	8		
28	Bb	191	Total	C	N	O	S	0	0
			1458	910	261	279	8		

- Molecule 29 is a protein called 26S proteasome non-ATPase regulatory subunit 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Ac	287	Total	C	N	O	S	0	0
			2260	1430	389	422	19		
29	Bc	287	Total	C	N	O	S	0	0
			2260	1430	389	422	19		

- Molecule 30 is a protein called 26S proteasome non-ATPase regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Ad	257	Total	C	N	O	S	0	0
			2116	1371	346	390	9		
30	Bd	257	Total	C	N	O	S	0	0
			2116	1371	346	390	9		

- Molecule 31 is a protein called 26S proteasome complex subunit SEM1.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	Ae	50	Total	C	N	O	0	0
			425	260	65	100		
31	Be	50	Total	C	N	O	0	0
			425	260	65	100		

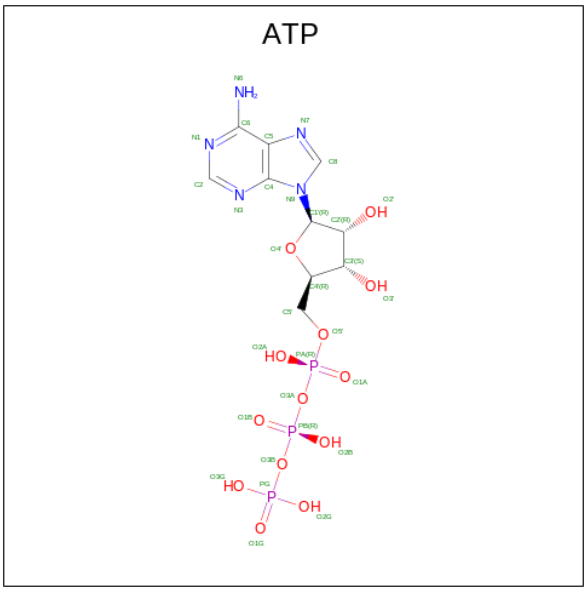
- Molecule 32 is a protein called 26S proteasome non-ATPase regulatory subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Af	844	Total	C	N	O	S	0	0
			6529	4126	1108	1250	45		
32	Bf	844	Total	C	N	O	S	0	0
			6529	4126	1108	1250	45		

- Molecule 33 is a protein called Ubiquitin.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Au	76	Total	C	N	O	S	0	0
			601	378	105	117	1		
33	Aw	76	Total	C	N	O	S	0	0
			601	378	105	117	1		
33	Bu	76	Total	C	N	O	S	0	0
			601	378	105	117	1		
33	Bw	76	Total	C	N	O	S	0	0
			601	378	105	117	1		

- Molecule 34 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
34	AA	1	Total	C	N	O	P	0
			31	10	5	13	3	
34	AB	1	Total	C	N	O	P	0
			31	10	5	13	3	

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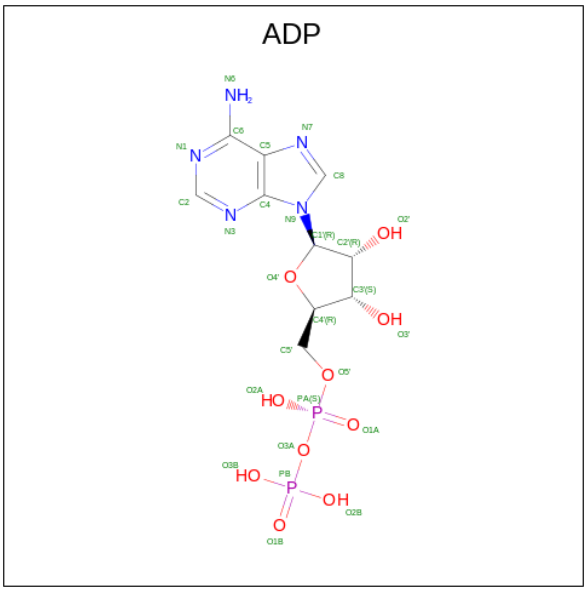
Mol	Chain	Residues	Atoms					AltConf
34	AD	1	Total	C	N	O	P	0
			31	10	5	13	3	
34	AE	1	Total	C	N	O	P	0
			31	10	5	13	3	
34	BA	1	Total	C	N	O	P	0
			31	10	5	13	3	
34	BB	1	Total	C	N	O	P	0
			31	10	5	13	3	
34	BD	1	Total	C	N	O	P	0
			31	10	5	13	3	
34	BE	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 35 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
35	AA	1	Total	Mg	0
			1	1	
35	AB	1	Total	Mg	0
			1	1	
35	AD	1	Total	Mg	0
			1	1	
35	AE	1	Total	Mg	0
			1	1	
35	AF	1	Total	Mg	0
			1	1	
35	BA	1	Total	Mg	0
			1	1	
35	BB	1	Total	Mg	0
			1	1	
35	BD	1	Total	Mg	0
			1	1	
35	BE	1	Total	Mg	0
			1	1	
35	BF	1	Total	Mg	0
			1	1	

- Molecule 36 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
36	AC	1	Total	C	N	O	P	0
			27	10	5	10	2	
36	AF	1	Total	C	N	O	P	0
			27	10	5	10	2	
36	BC	1	Total	C	N	O	P	0
			27	10	5	10	2	
36	BF	1	Total	C	N	O	P	0
			27	10	5	10	2	

- Molecule 37 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

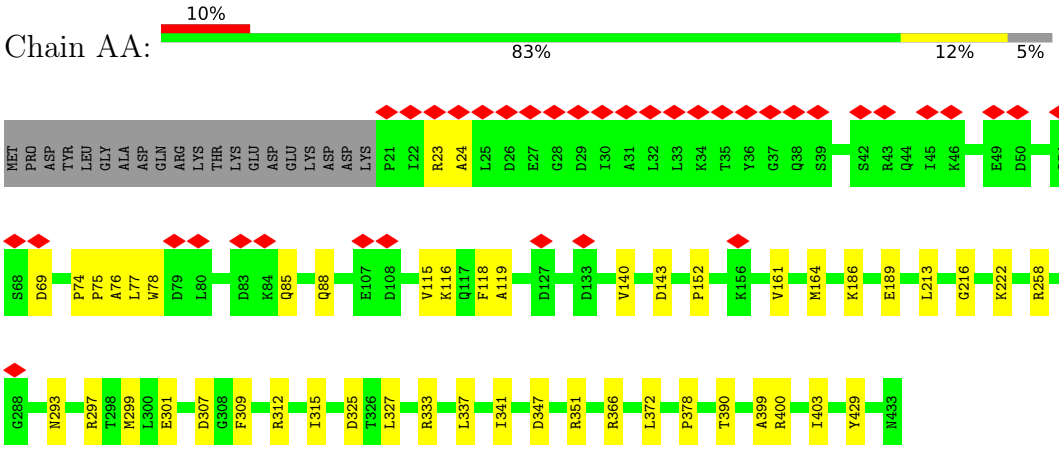
Mol	Chain	Residues	Atoms		AltConf
37	Ac	1	Total	Zn	0
			1	1	
37	Bc	1	Total	Zn	0
			1	1	

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry 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.

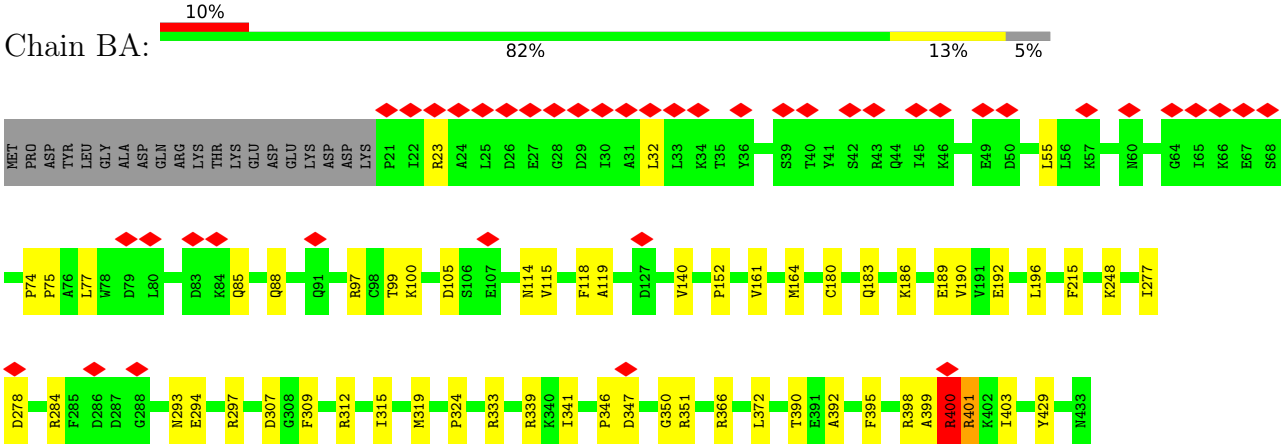
• Molecule 1: 26S proteasome regulatory subunit 7

Chain AA:



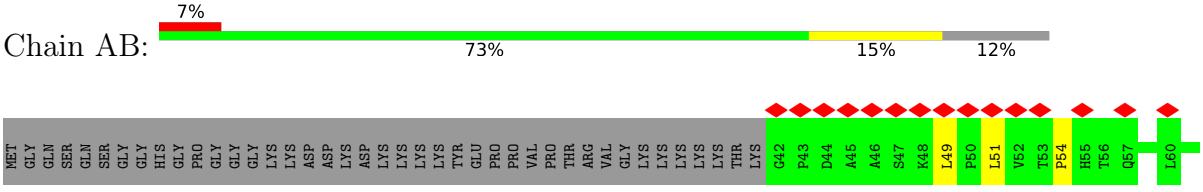
• Molecule 1: 26S proteasome regulatory subunit 7

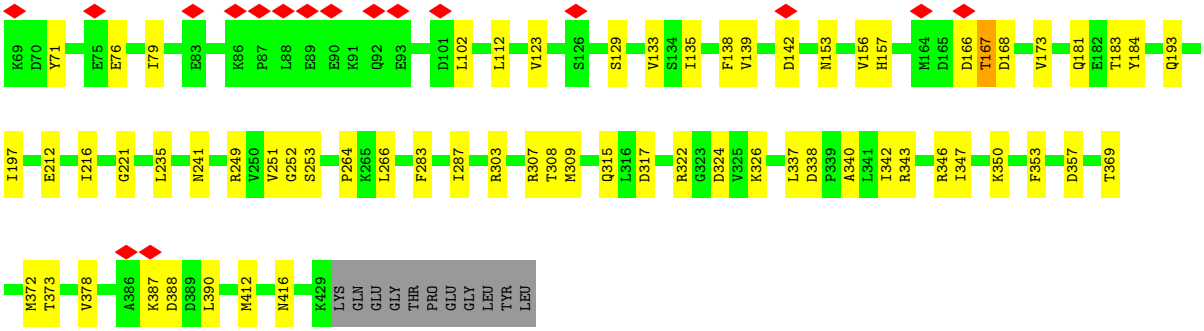
Chain BA:



• Molecule 2: 26S proteasome regulatory subunit 4

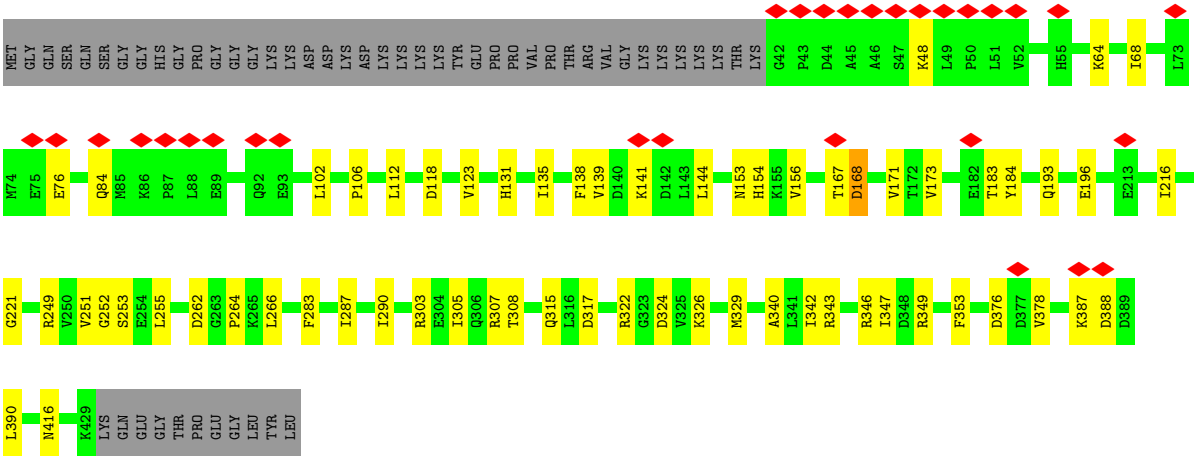
Chain AB:





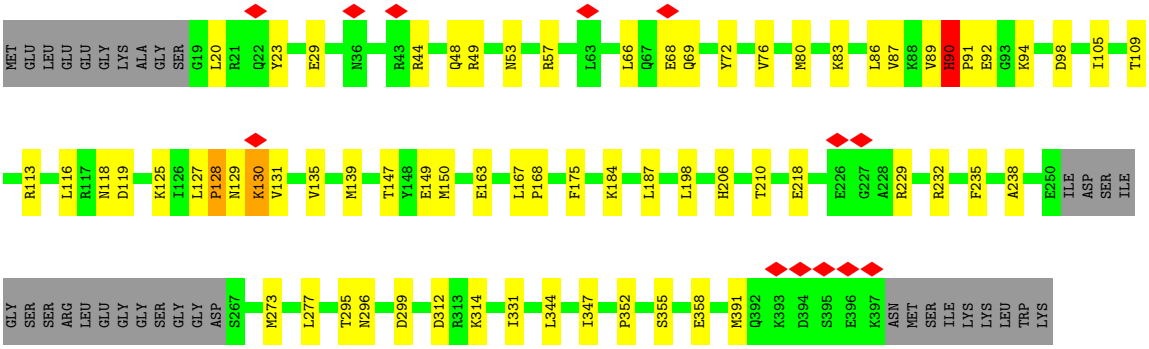
• Molecule 2: 26S proteasome regulatory subunit 4

Chain BB:



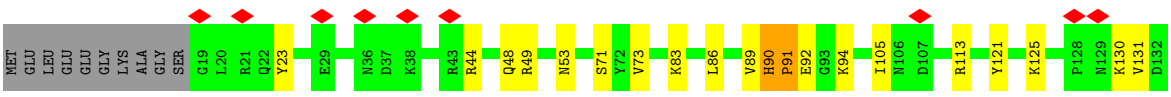
• Molecule 3: 26S proteasome regulatory subunit 8

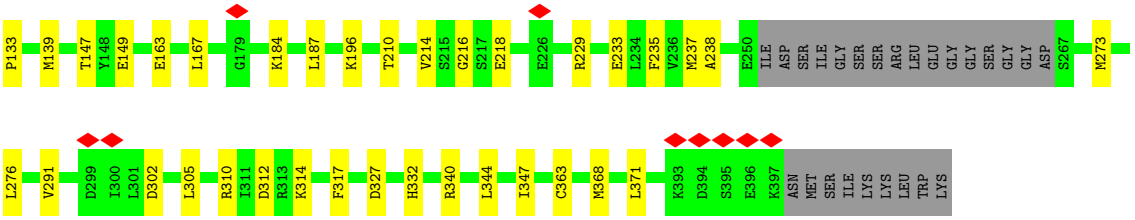
Chain AC:



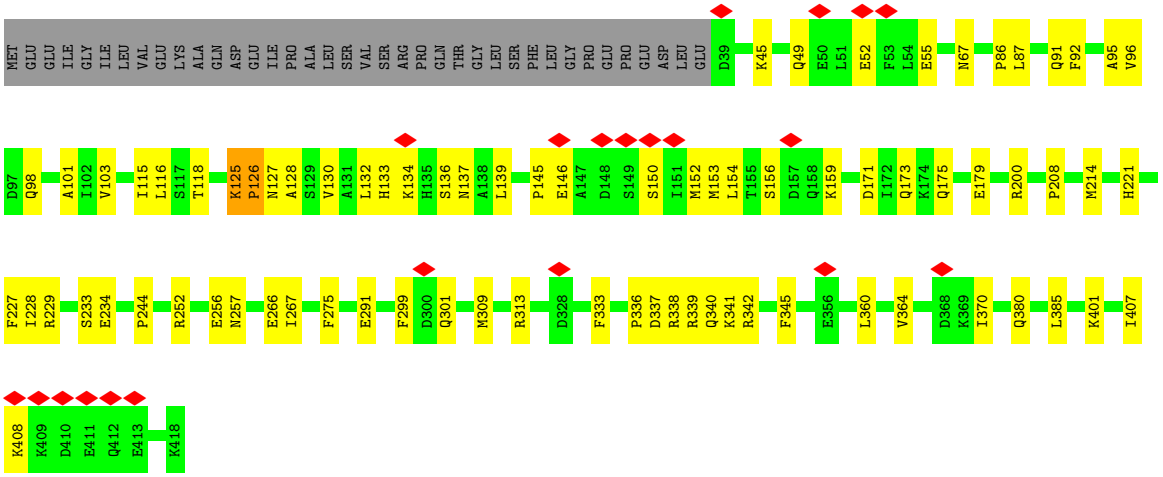
• Molecule 3: 26S proteasome regulatory subunit 8

Chain BC:

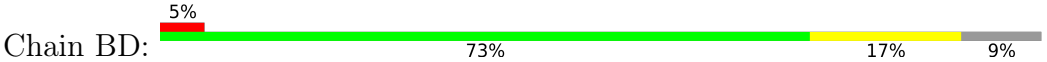


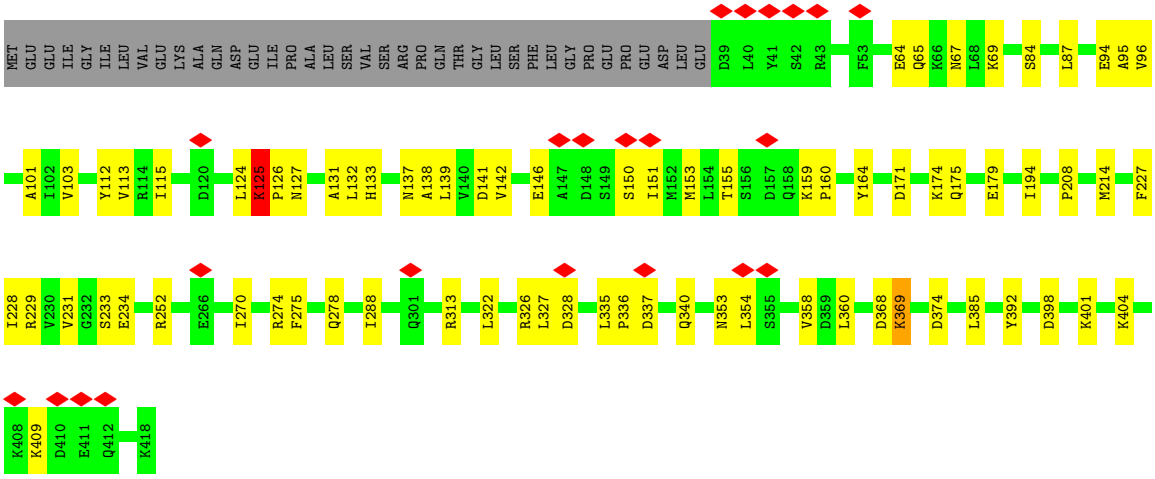


• Molecule 4: 26S proteasome regulatory subunit 6B

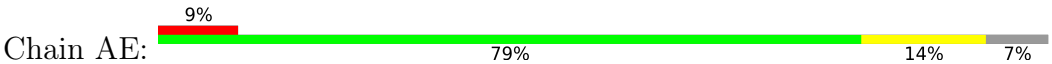


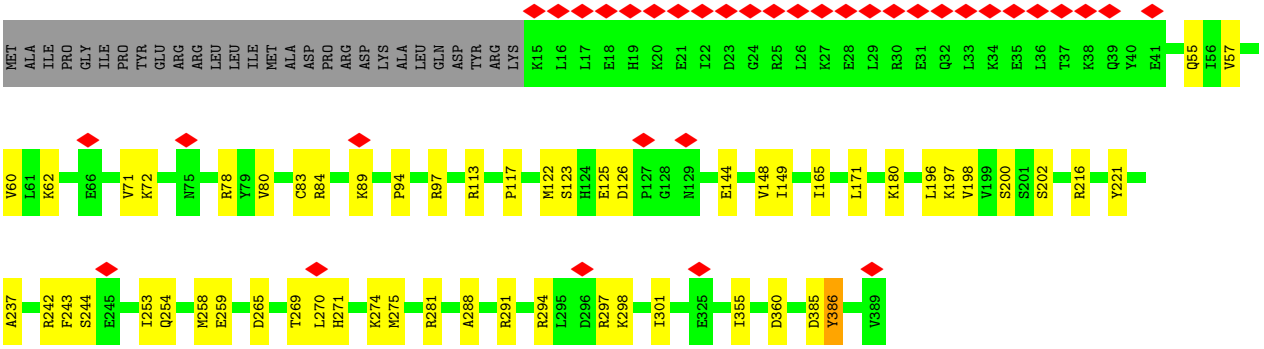
• Molecule 4: 26S proteasome regulatory subunit 6B





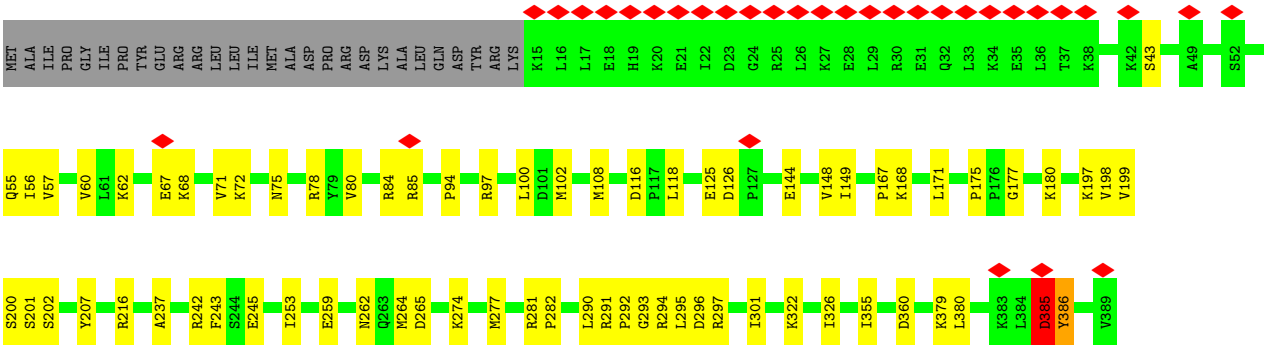
• Molecule 5: Proteasome 26S subunit, ATPase 6





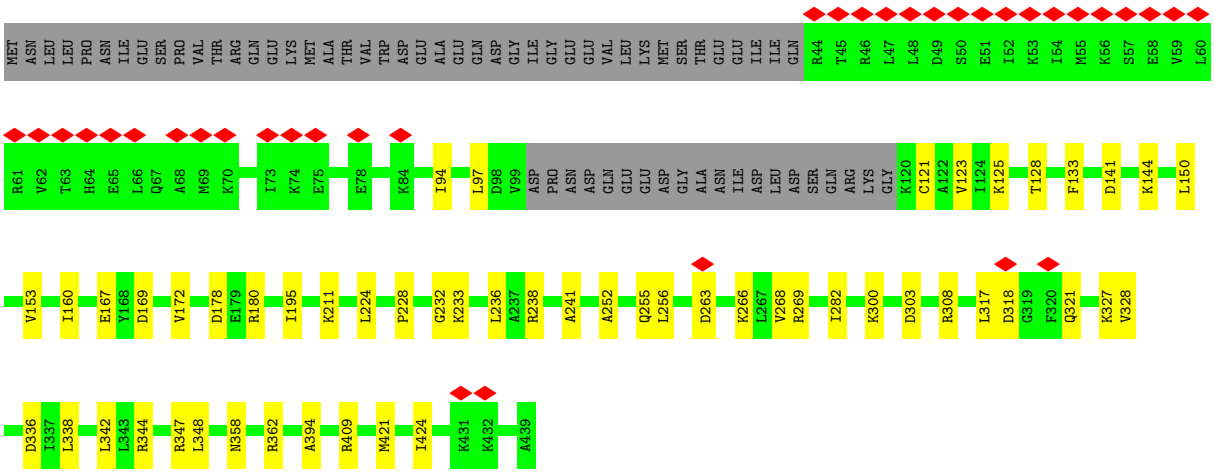
• Molecule 5: Proteasome 26S subunit, ATPase 6

Chain BE:



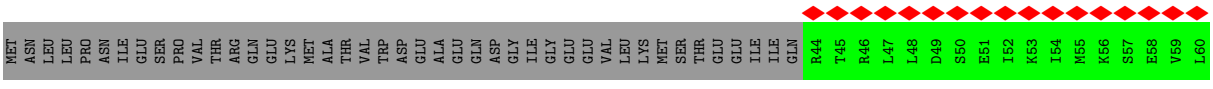
• Molecule 6: 26S proteasome regulatory subunit 6A

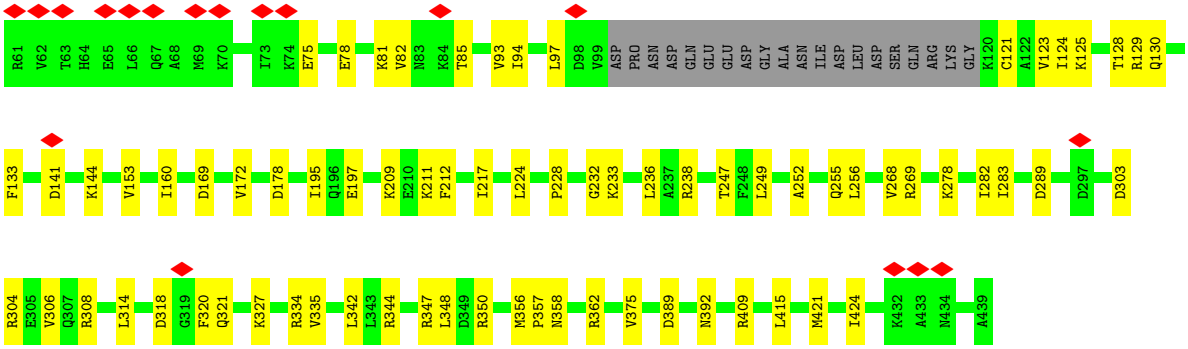
Chain AF:



• Molecule 6: 26S proteasome regulatory subunit 6A

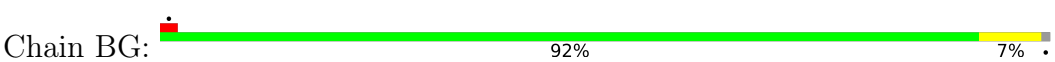
Chain BF:

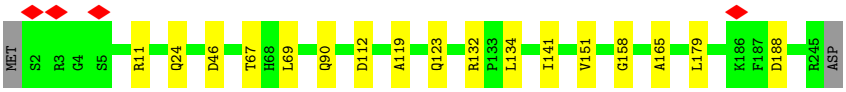




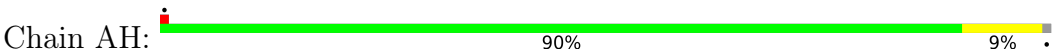
• Molecule 7: Proteasome subunit alpha type-6

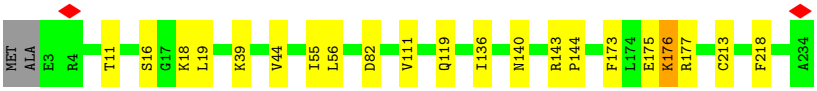
• Molecule 7: Proteasome subunit alpha type-6



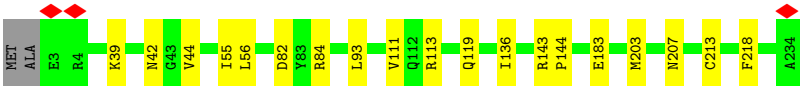


• Molecule 8: Proteasome subunit alpha type-2

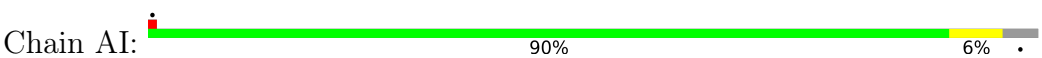


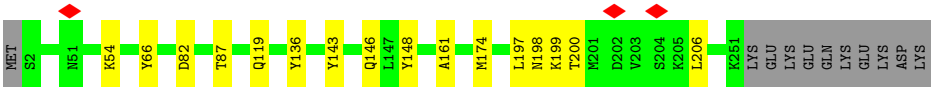


• Molecule 8: Proteasome subunit alpha type-2



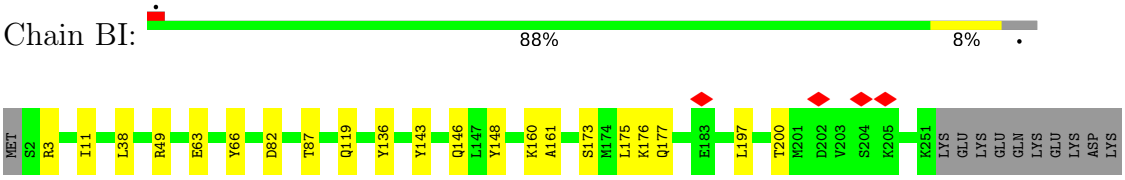
• Molecule 9: Proteasome subunit alpha type-4





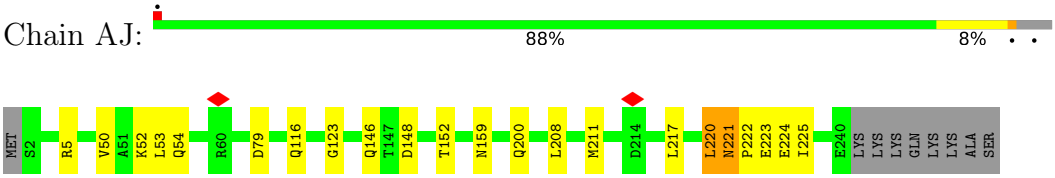
• Molecule 9: Proteasome subunit alpha type-4

Chain BI:



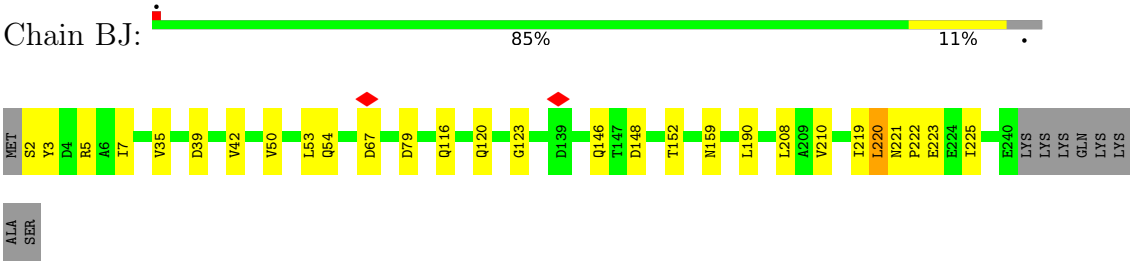
• Molecule 10: Proteasome subunit alpha type-7

Chain AJ:



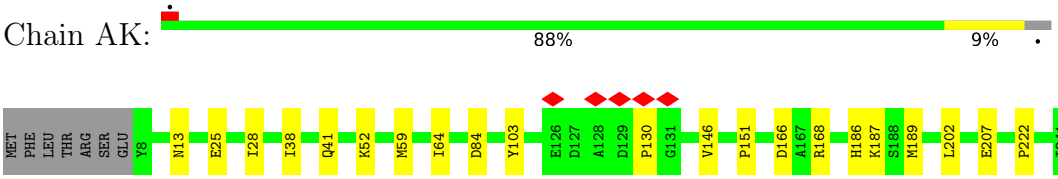
• Molecule 10: Proteasome subunit alpha type-7

Chain BJ:



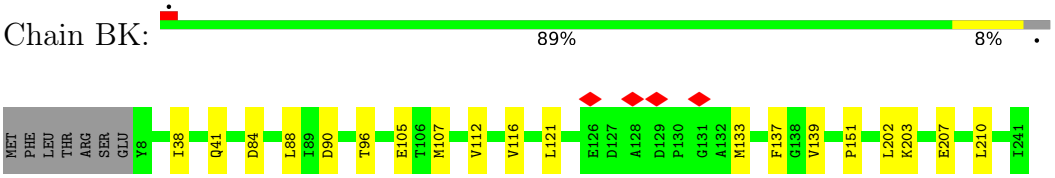
• Molecule 11: Proteasome subunit alpha type-5

Chain AK:



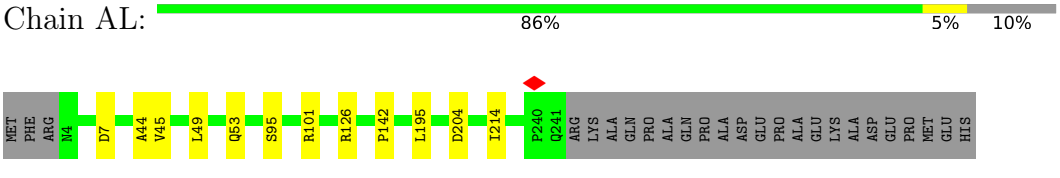
• Molecule 11: Proteasome subunit alpha type-5

Chain BK:



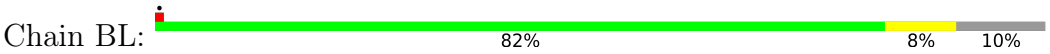
• Molecule 12: Proteasome subunit alpha type-1

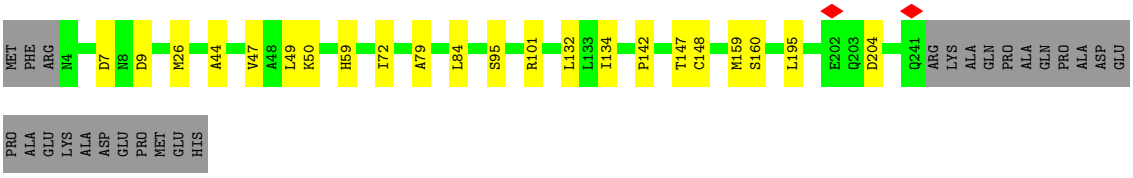
Chain AL:



• Molecule 12: Proteasome subunit alpha type-1

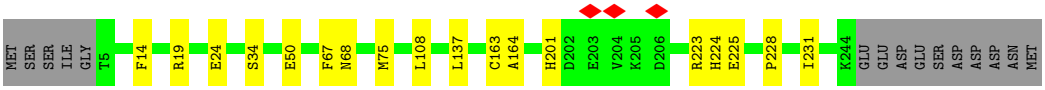
Chain BL:



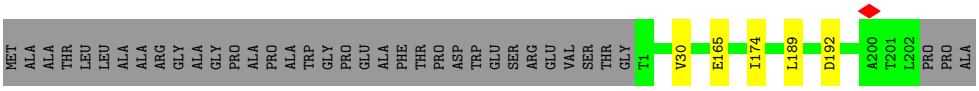


• Molecule 13: Proteasome subunit alpha type-3

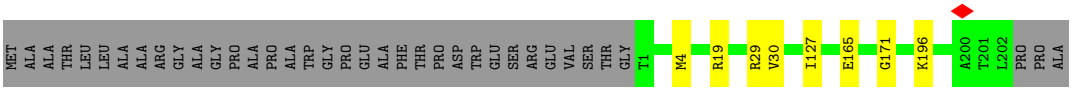
• Molecule 13: Proteasome subunit alpha type-3



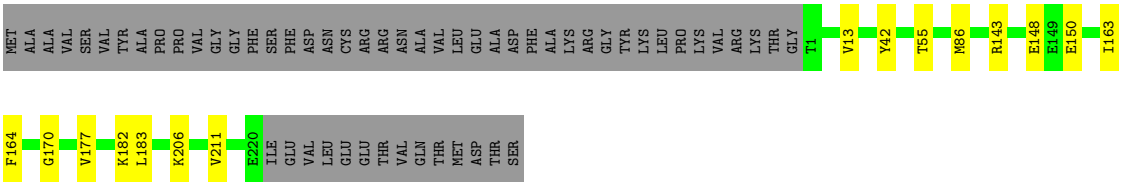
• Molecule 14: Proteasome subunit beta type-6



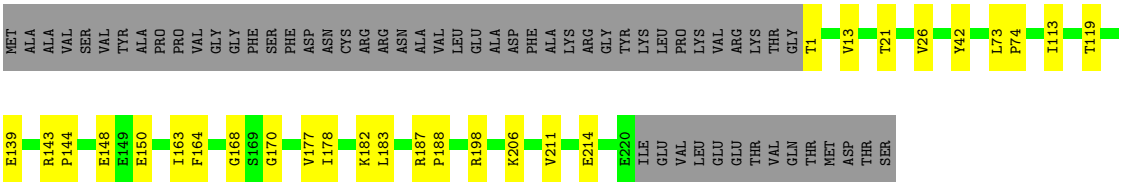
• Molecule 14: Proteasome subunit beta type-6



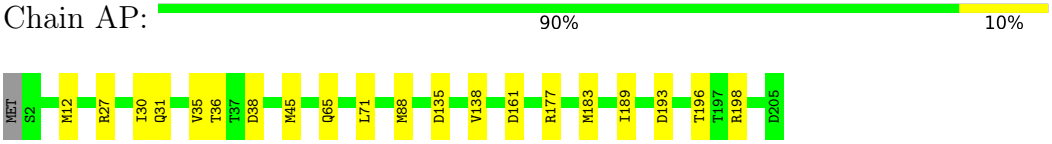
• Molecule 15: Proteasome subunit beta type-7



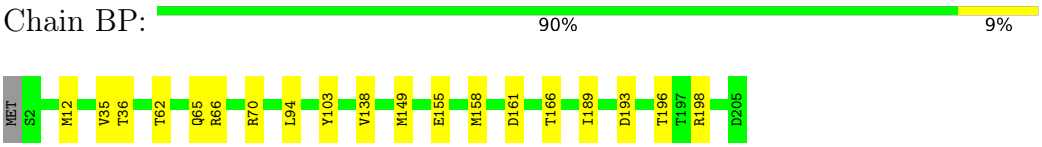
• Molecule 15: Proteasome subunit beta type-7



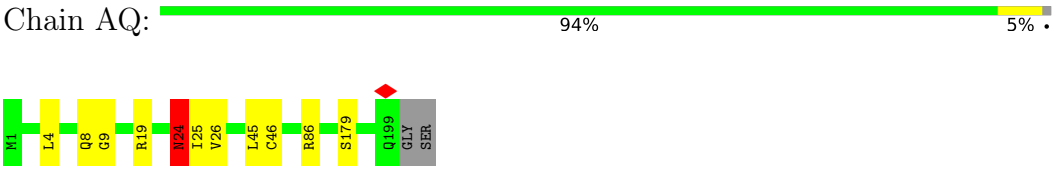
• Molecule 16: Proteasome subunit beta type-3



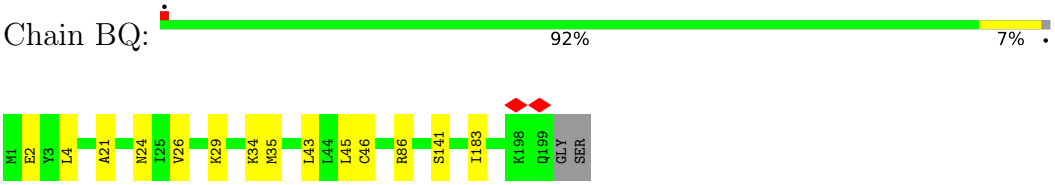
• Molecule 16: Proteasome subunit beta type-3



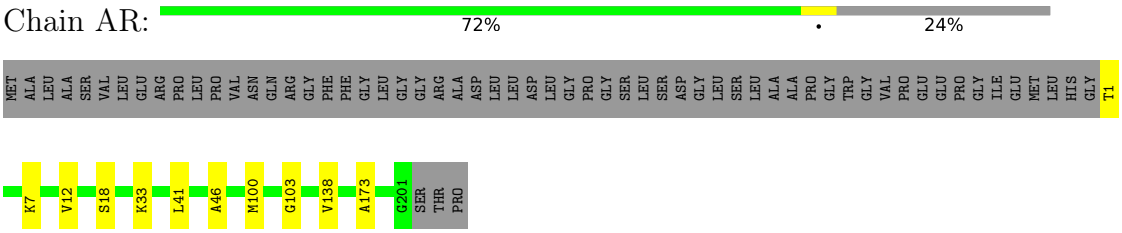
• Molecule 17: Proteasome subunit beta type-2



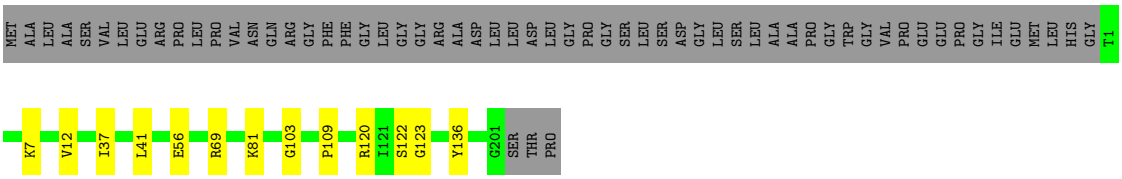
• Molecule 17: Proteasome subunit beta type-2



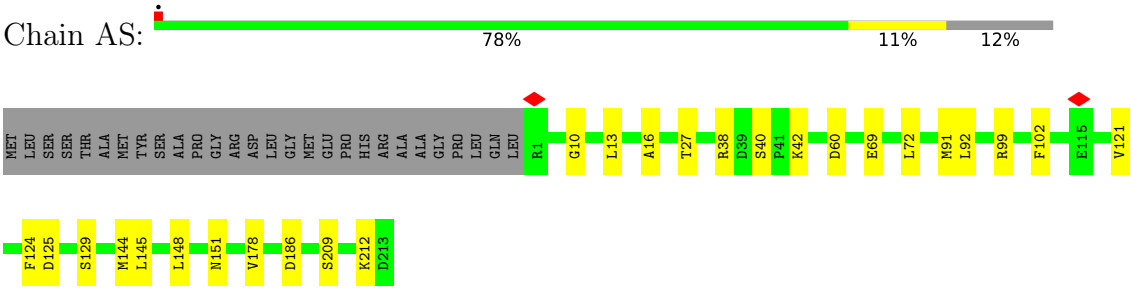
• Molecule 18: Proteasome subunit beta type-5



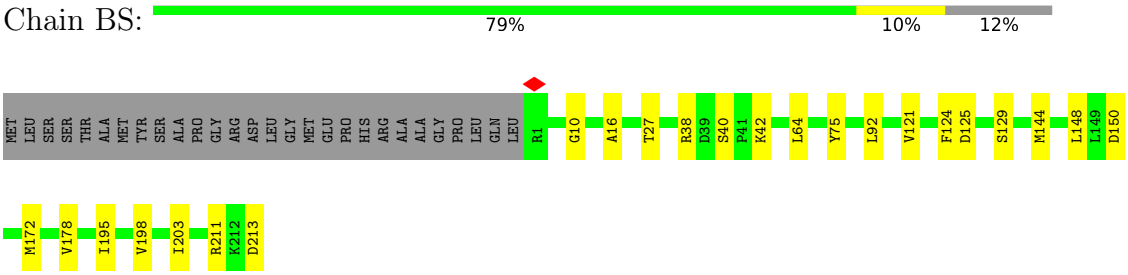
• Molecule 18: Proteasome subunit beta type-5



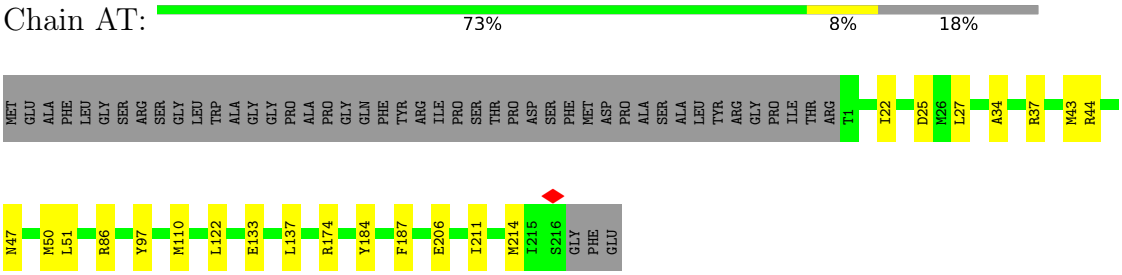
• Molecule 19: Proteasome subunit beta type-1



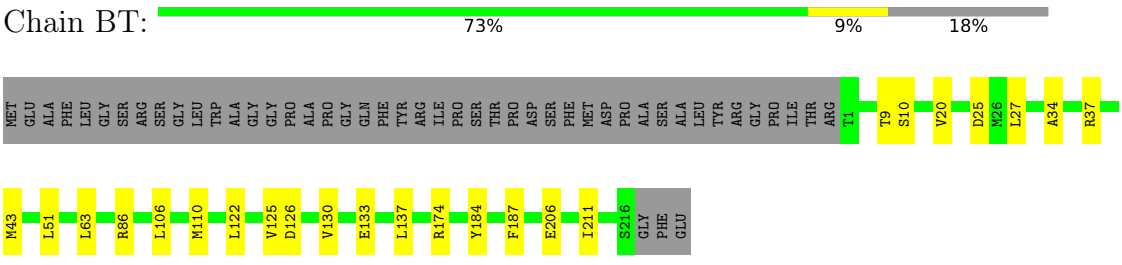
• Molecule 19: Proteasome subunit beta type-1



• Molecule 20: Proteasome subunit beta type-4

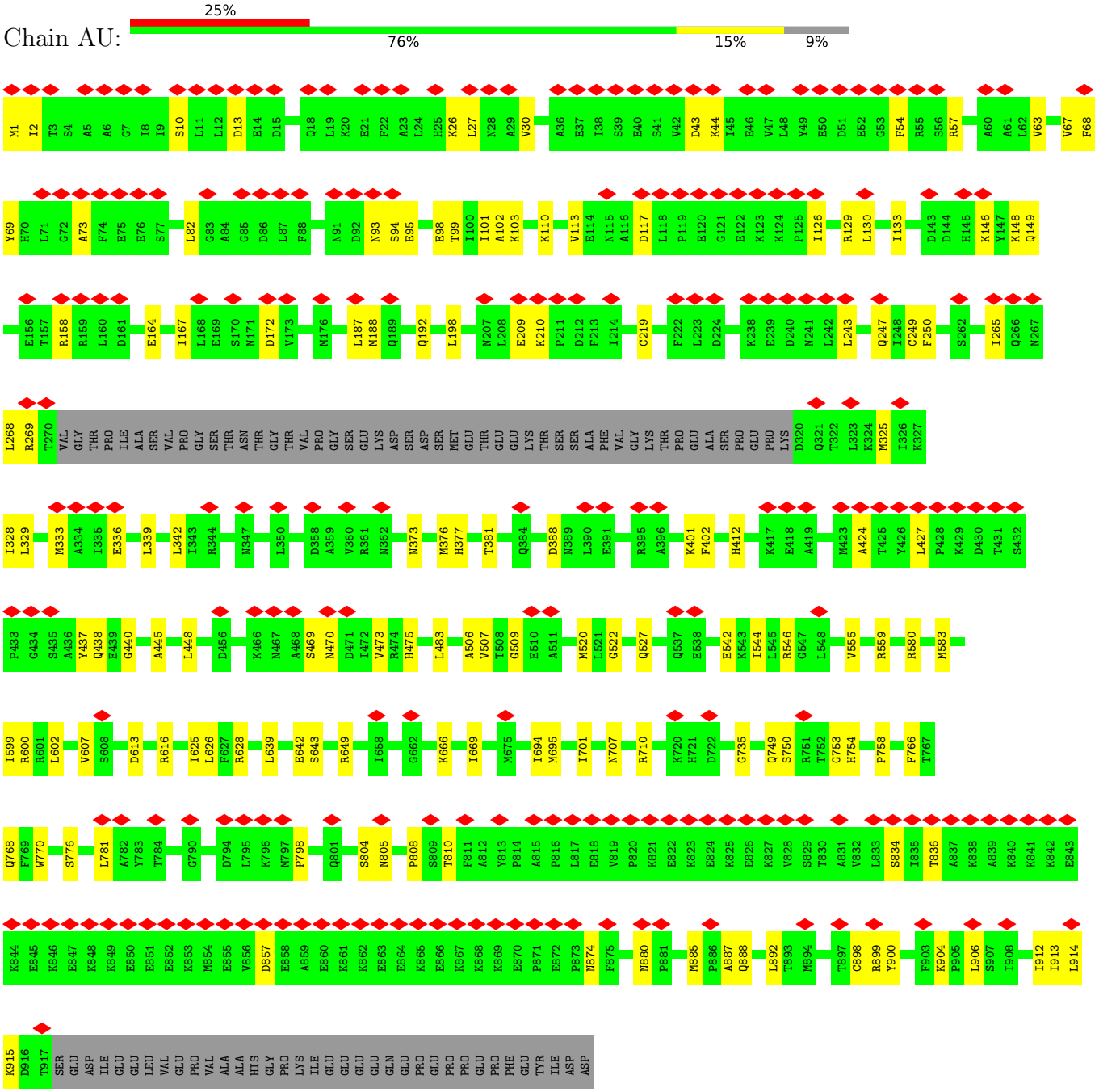


• Molecule 20: Proteasome subunit beta type-4



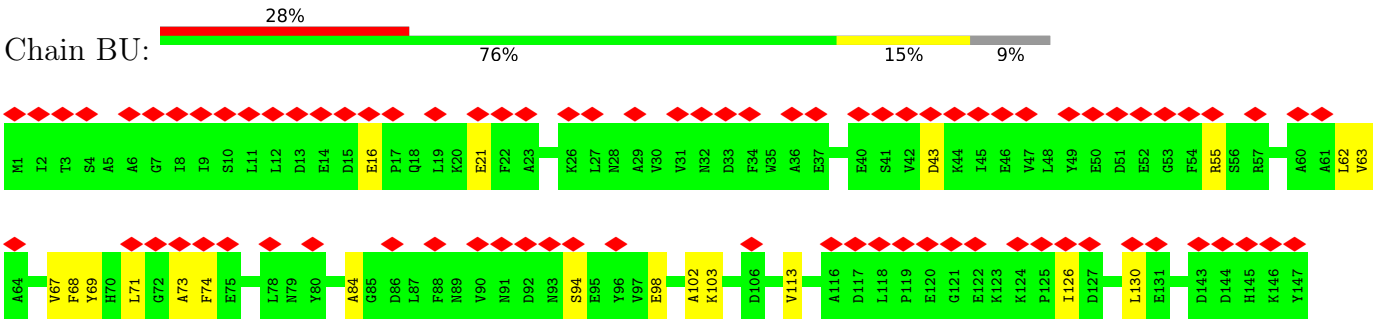
• Molecule 21: 26S proteasome non-ATPase regulatory subunit 1

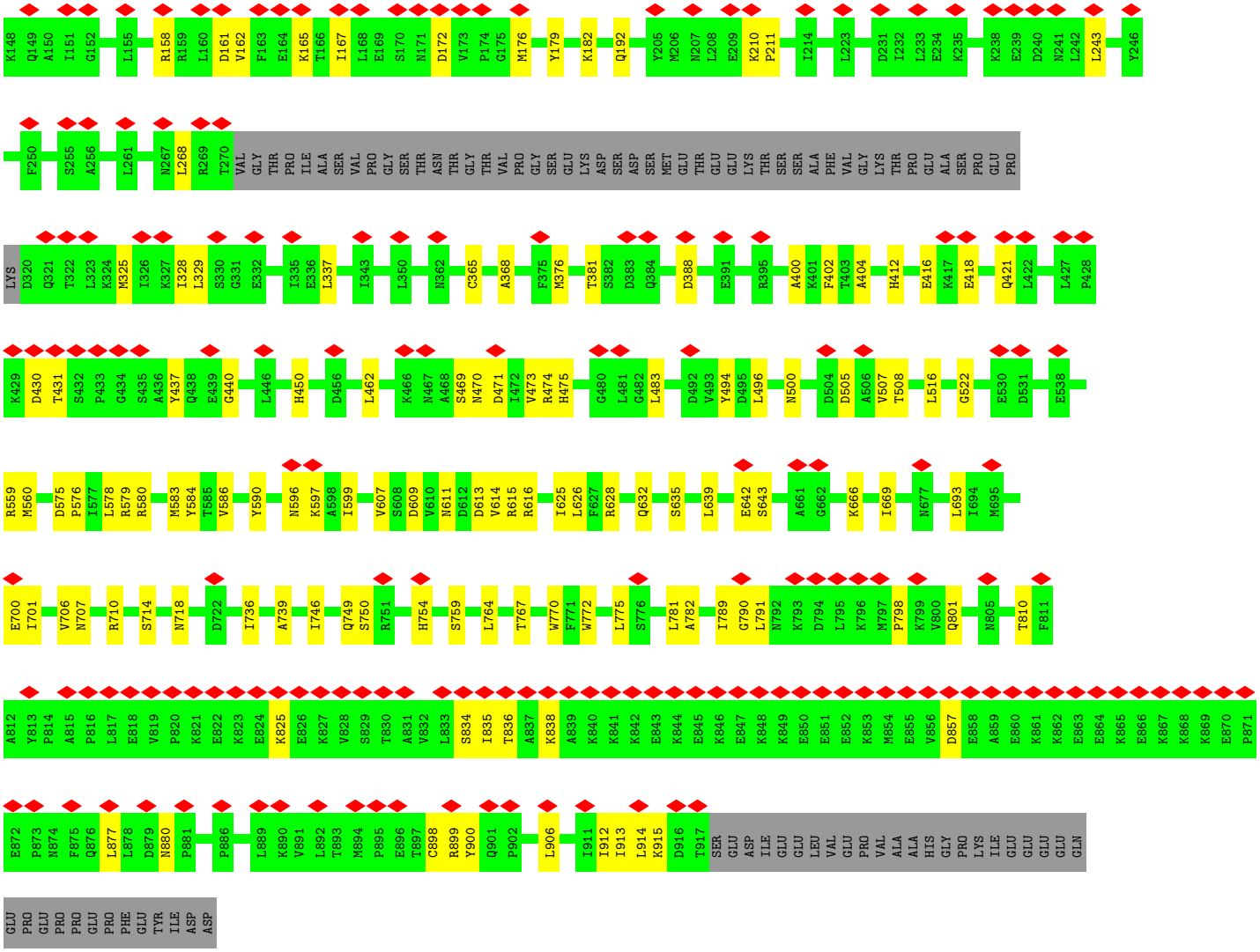
Chain AU:



• Molecule 21: 26S proteasome non-ATPase regulatory subunit 1

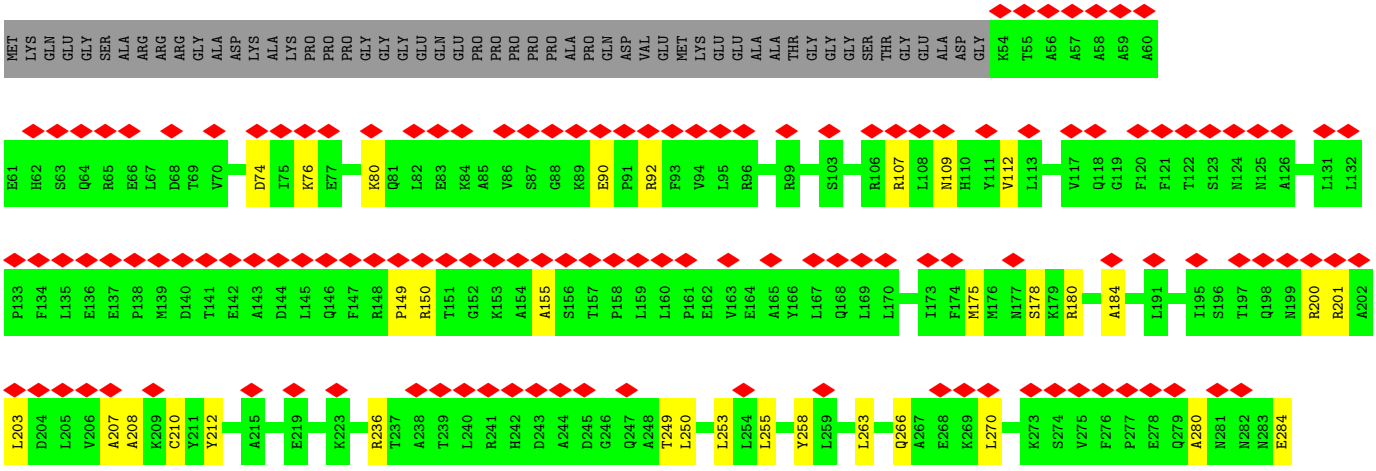
Chain BU:

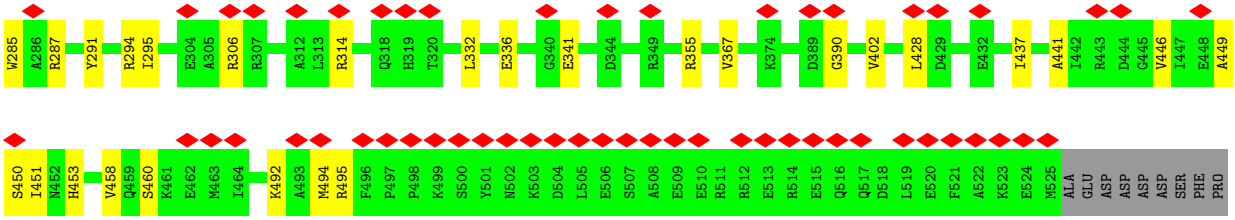




• Molecule 22: 26S proteasome non-ATPase regulatory subunit 3

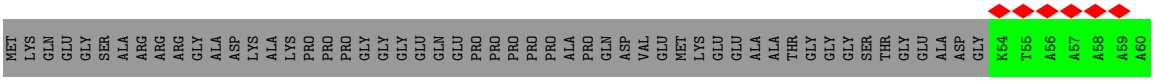
Chain AV:

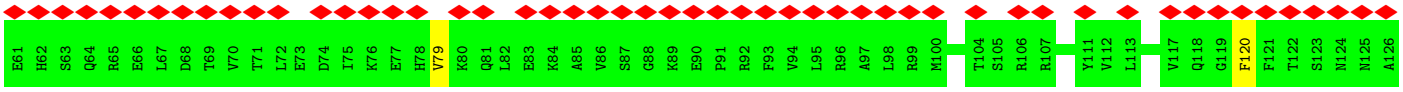


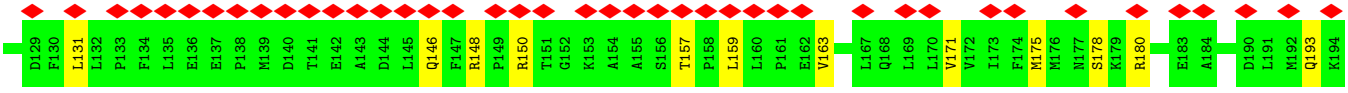


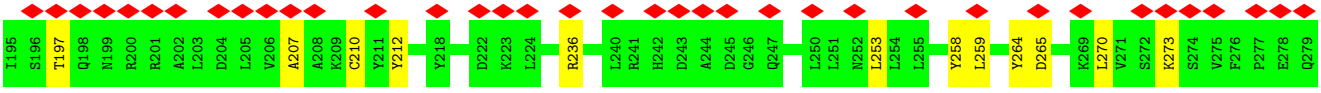
• Molecule 22: 26S proteasome non-ATPase regulatory subunit 3

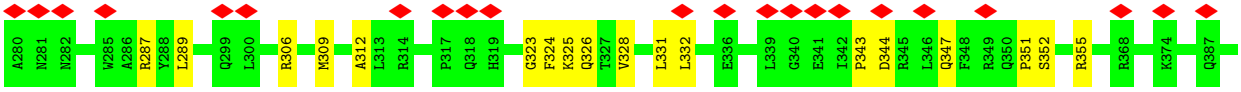
Chain BV:

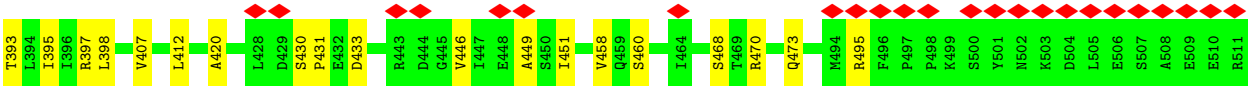


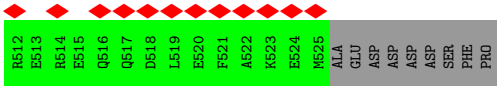






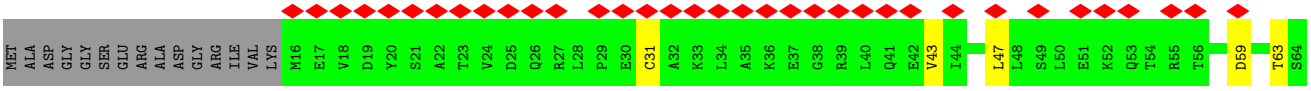


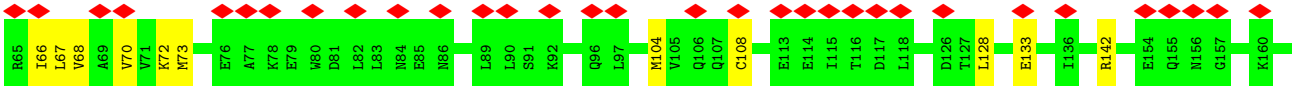


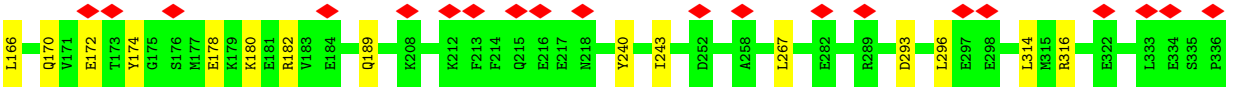


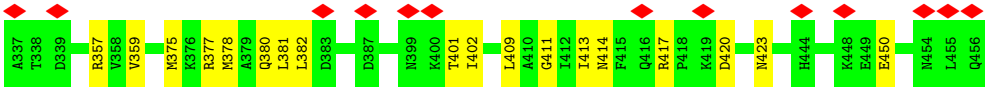
• Molecule 23: 26S proteasome non-ATPase regulatory subunit 12

Chain AW:

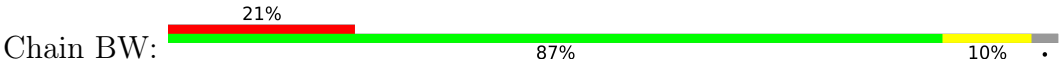


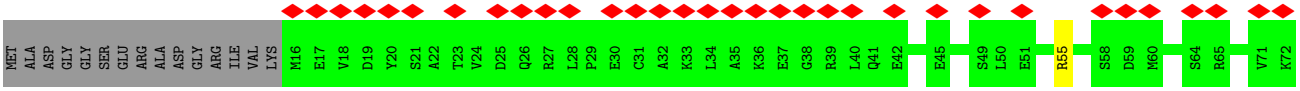


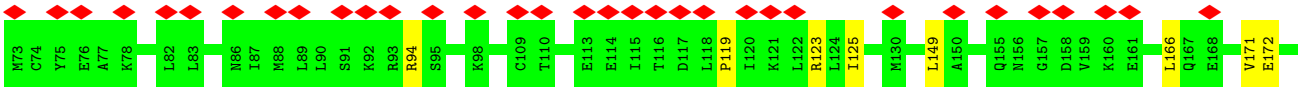


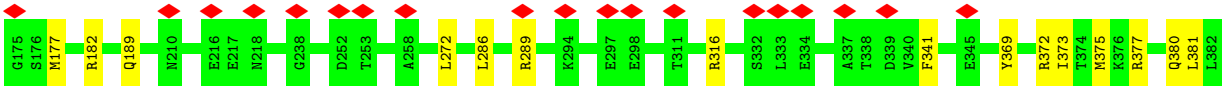


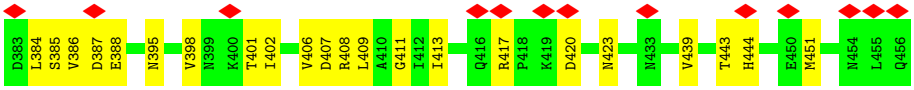
• Molecule 23: 26S proteasome non-ATPase regulatory subunit 12



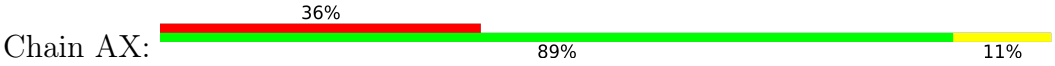


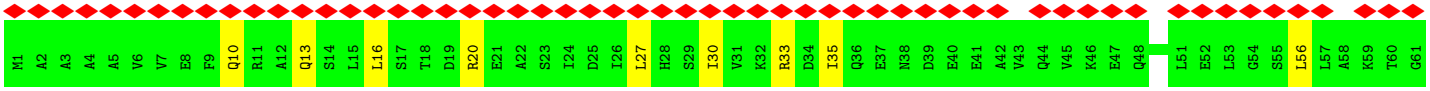


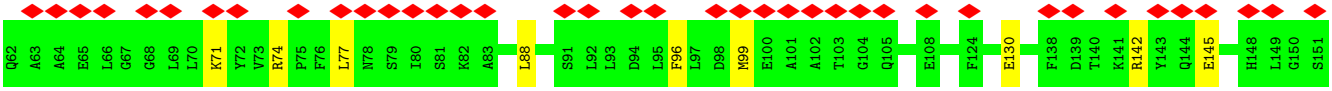


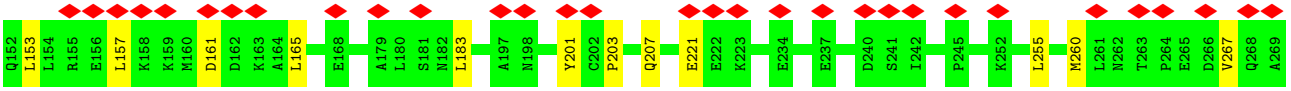


• Molecule 24: 26S proteasome non-ATPase regulatory subunit 11

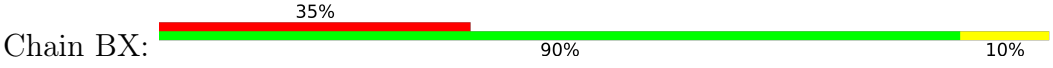


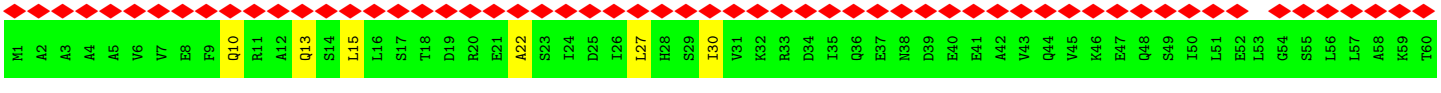


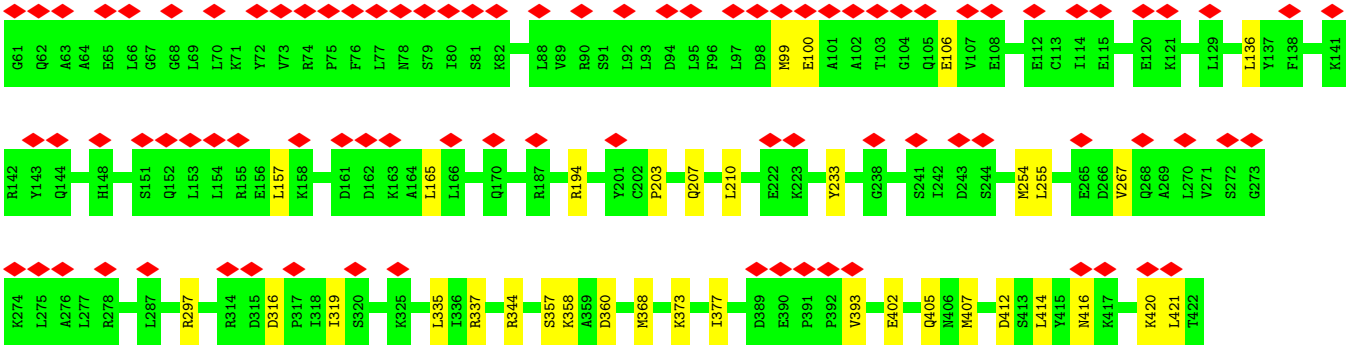




• Molecule 24: 26S proteasome non-ATPase regulatory subunit 11

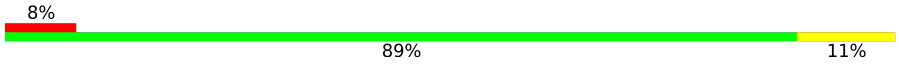


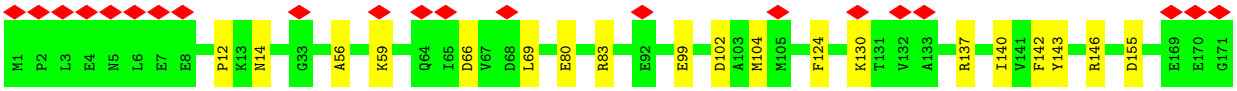


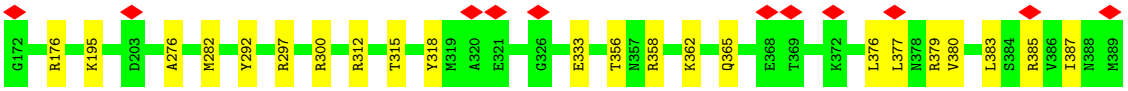


• Molecule 25: 26S proteasome non-ATPase regulatory subunit 6

Chain AY:

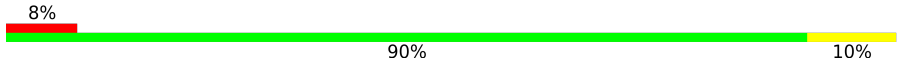


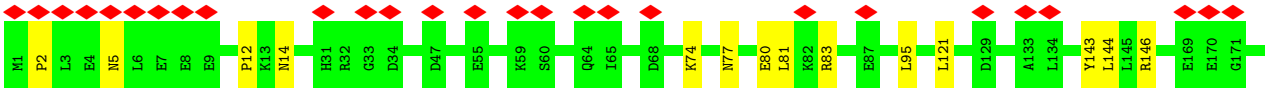


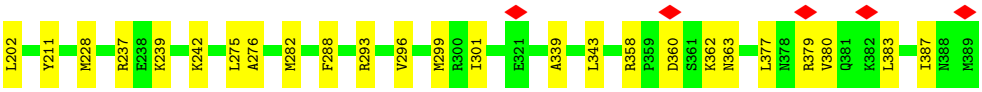


• Molecule 25: 26S proteasome non-ATPase regulatory subunit 6

Chain BY:

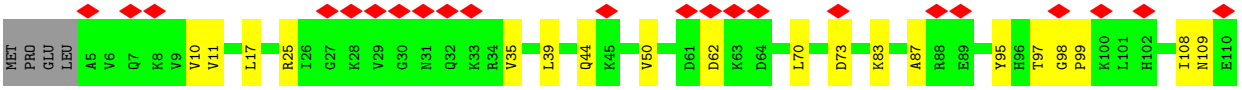


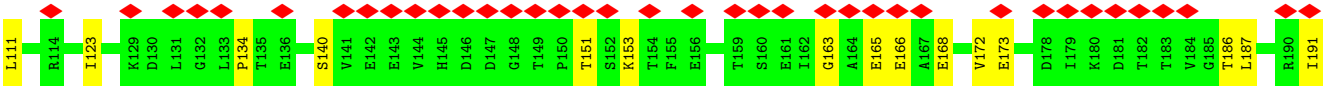


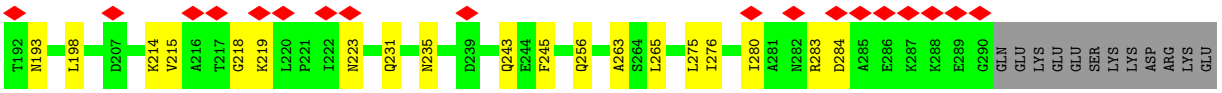


• Molecule 26: 26S proteasome non-ATPase regulatory subunit 7

Chain AZ:

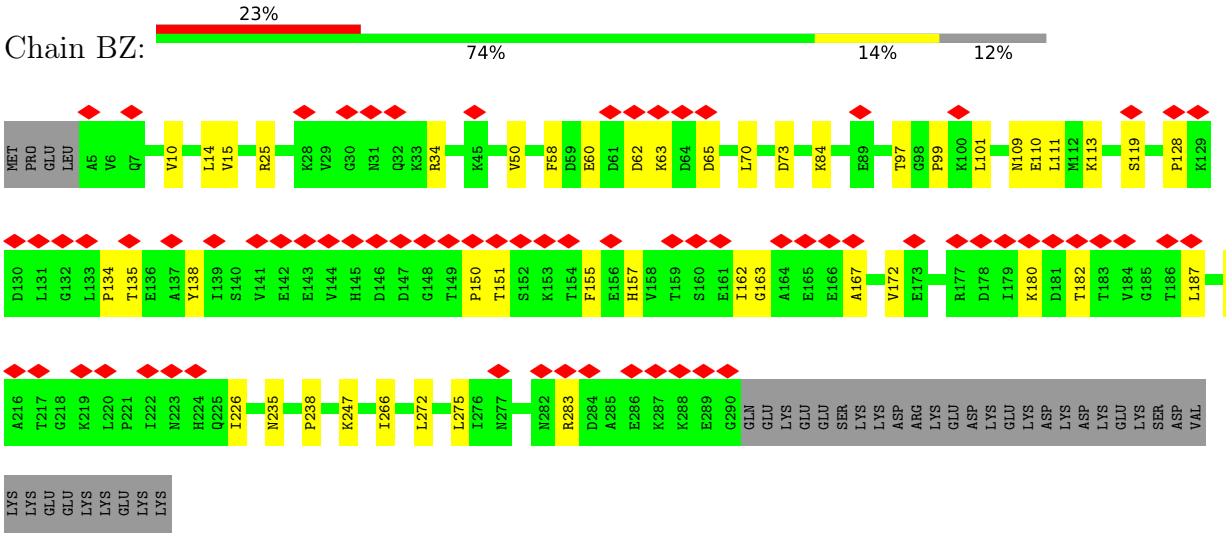






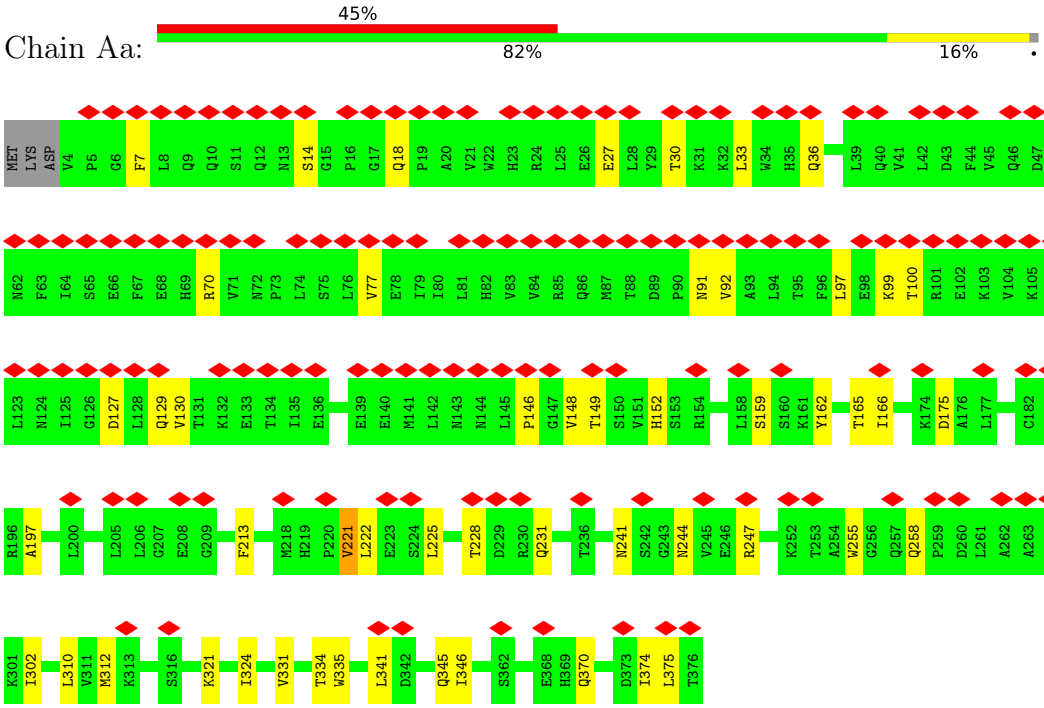
• Molecule 26: 26S proteasome non-ATPase regulatory subunit 7

Chain BZ:



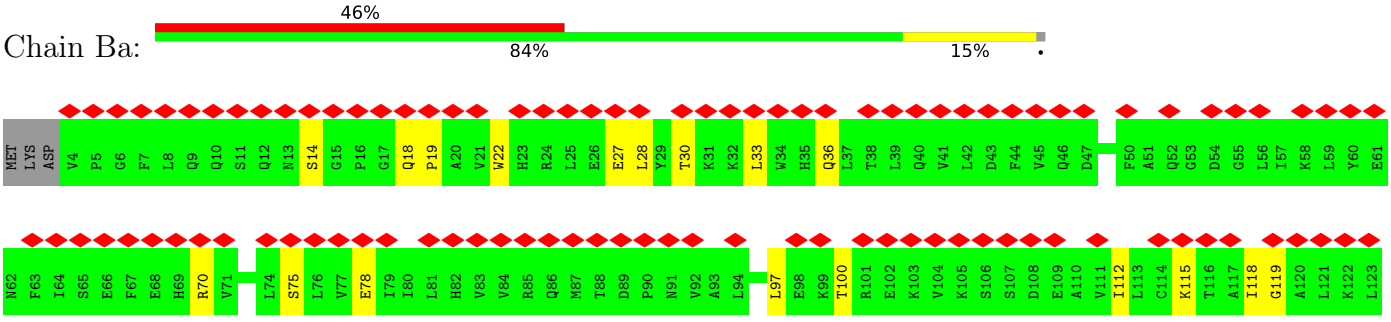
• Molecule 27: 26S proteasome non-ATPase regulatory subunit 13

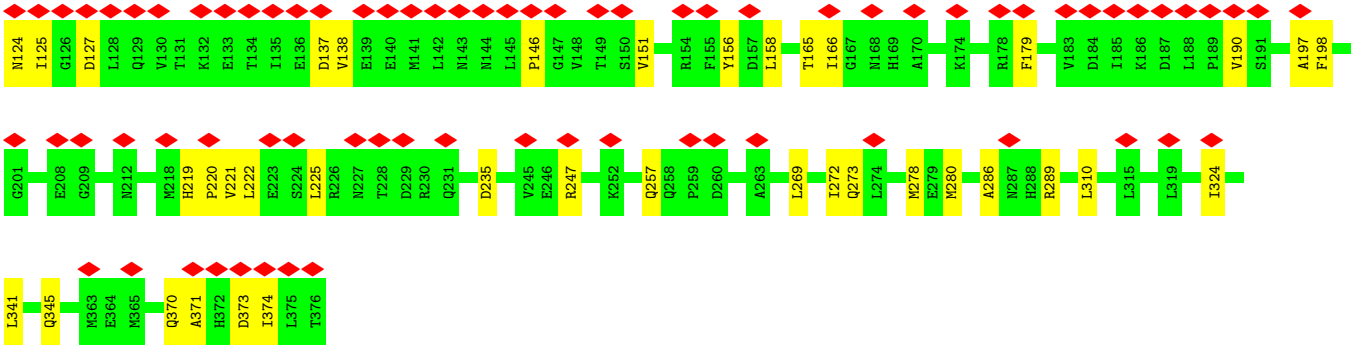
Chain Aa:



• Molecule 27: 26S proteasome non-ATPase regulatory subunit 13

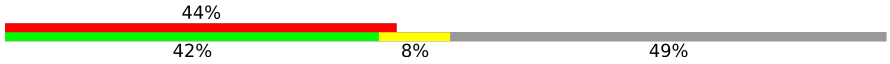
Chain Ba:

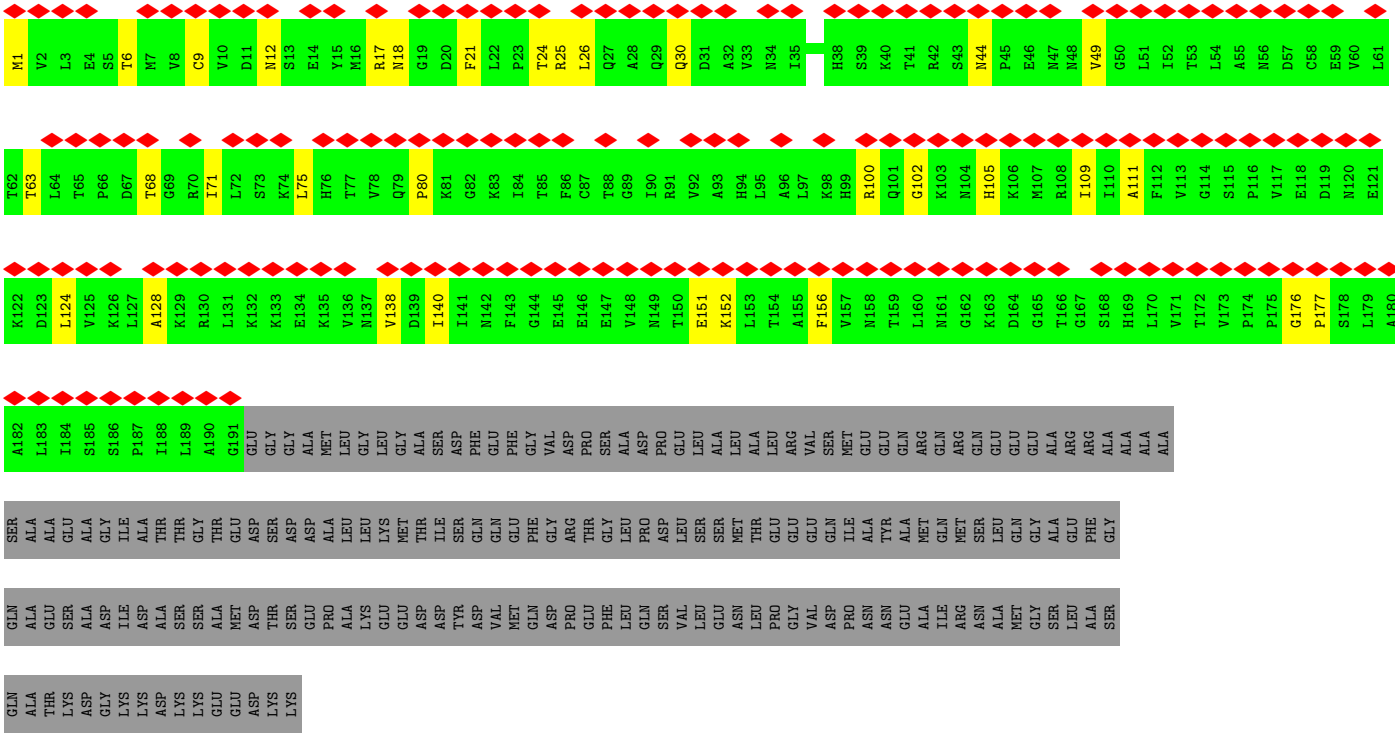




• Molecule 28: 26S proteasome non-ATPase regulatory subunit 4

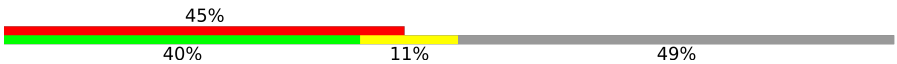
Chain Ab:

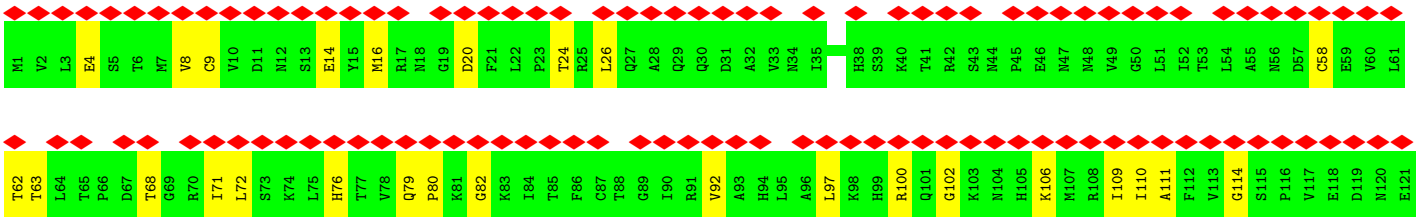


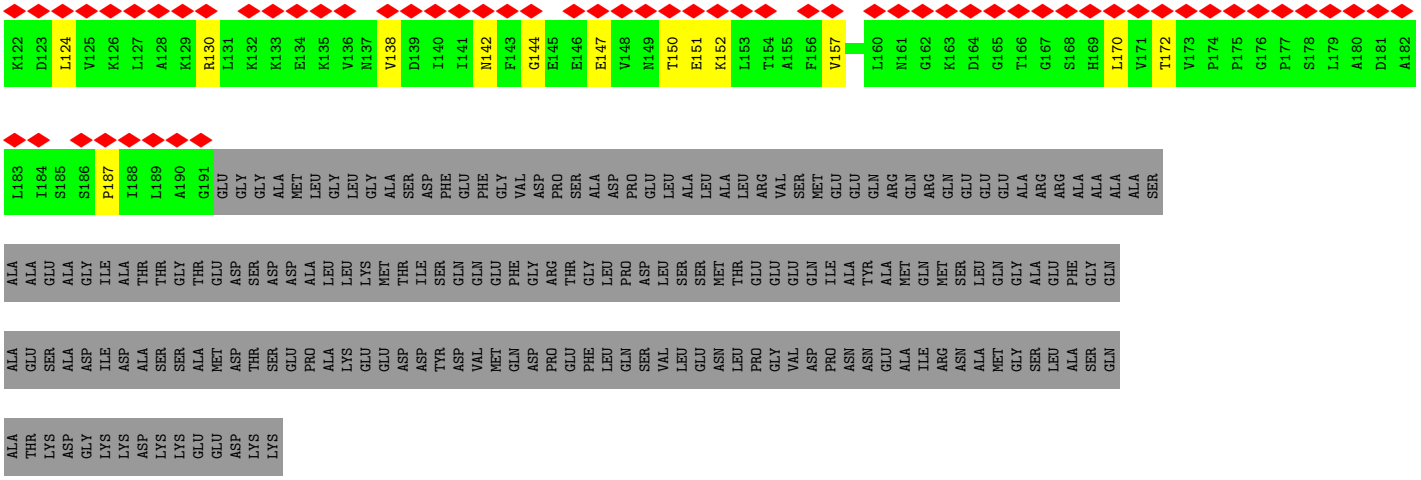


• Molecule 28: 26S proteasome non-ATPase regulatory subunit 4

Chain Bb:

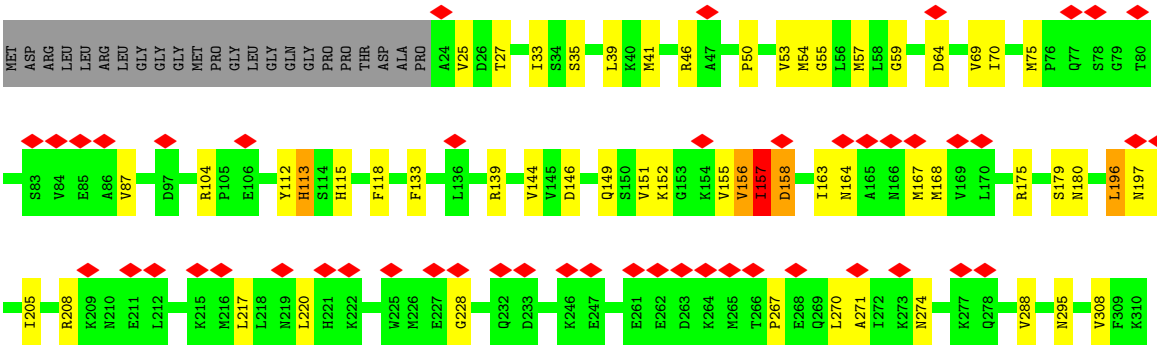






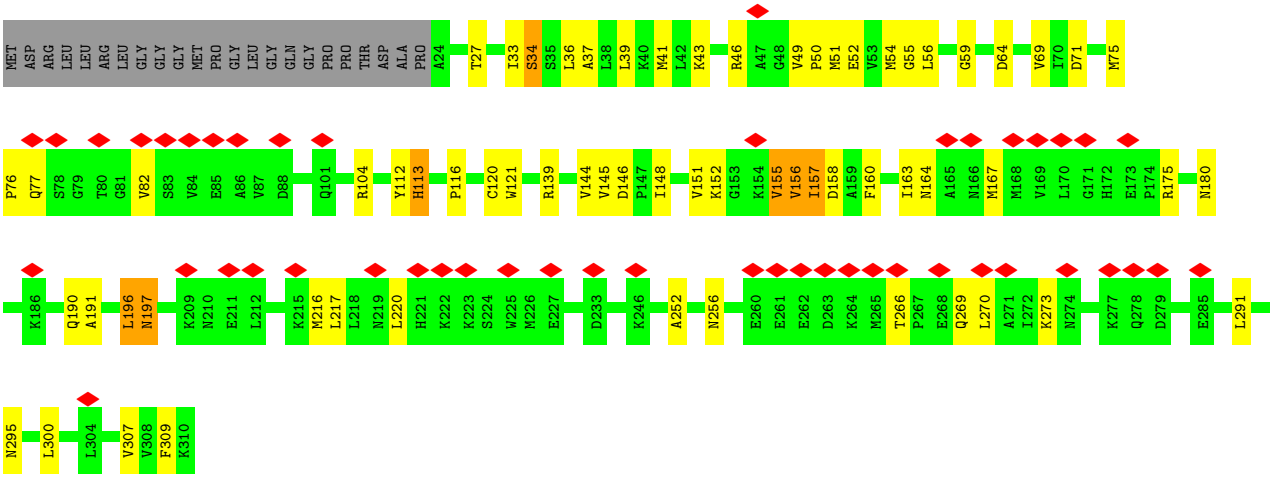
• Molecule 29: 26S proteasome non-ATPase regulatory subunit 14

Chain Ac:

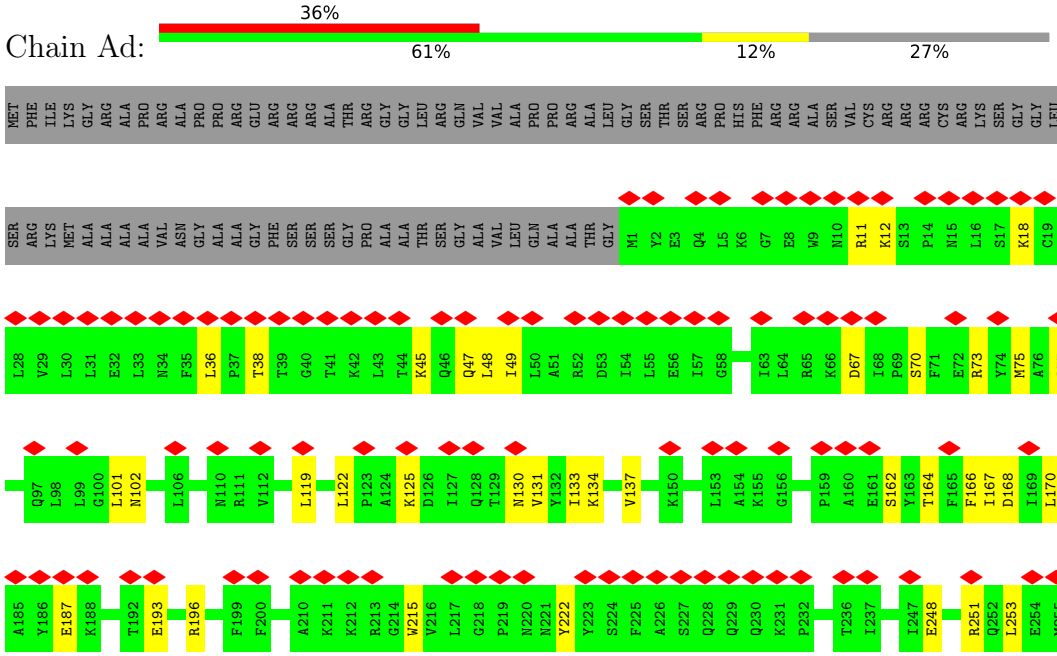


• Molecule 29: 26S proteasome non-ATPase regulatory subunit 14

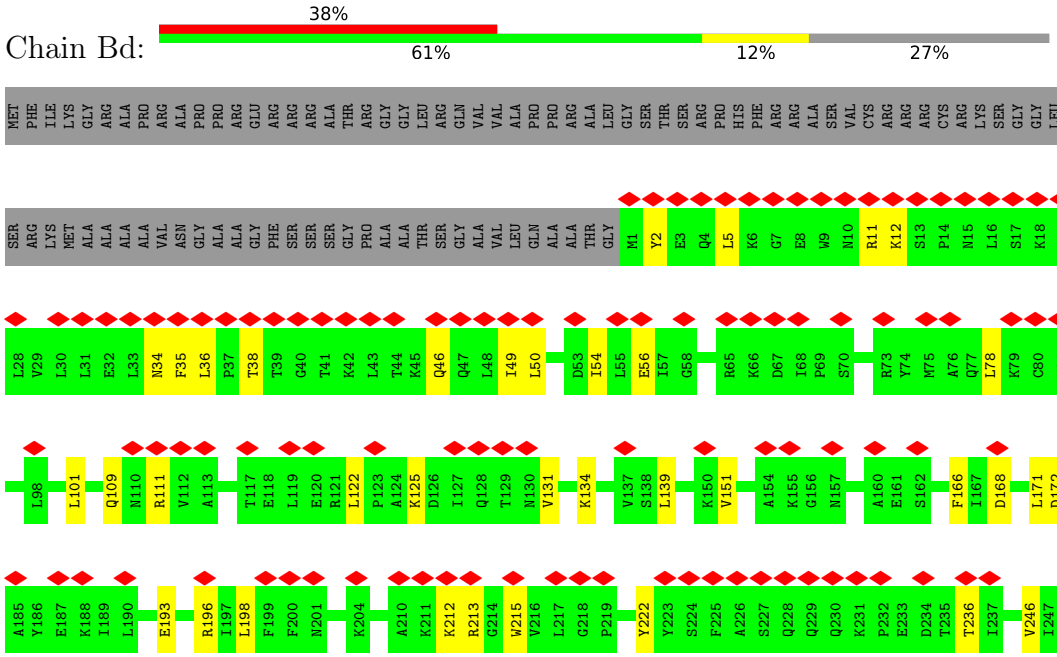
Chain Bc:



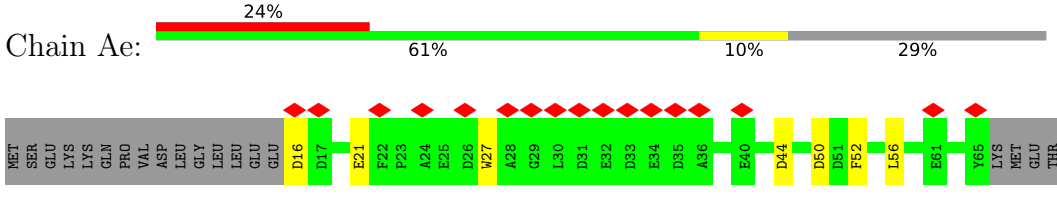
• Molecule 30: 26S proteasome non-ATPase regulatory subunit 8



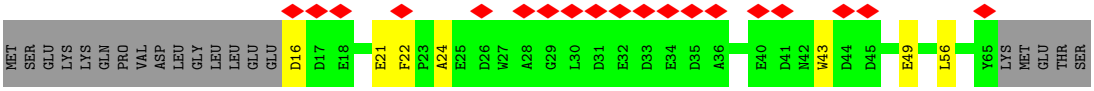
• Molecule 30: 26S proteasome non-ATPase regulatory subunit 8



• Molecule 31: 26S proteasome complex subunit SEM1

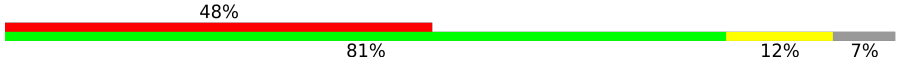


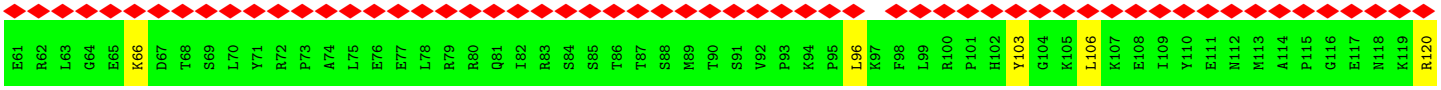
• Molecule 31: 26S proteasome complex subunit SEM1

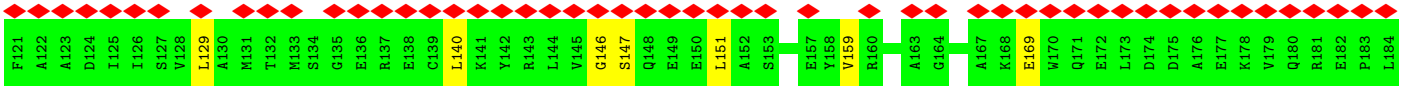


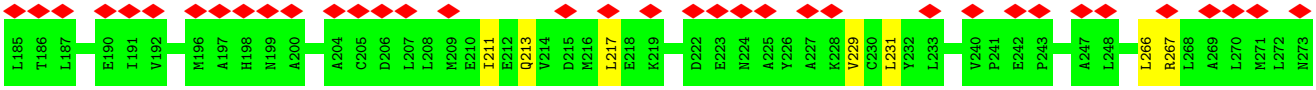
• Molecule 32: 26S proteasome non-ATPase regulatory subunit 2

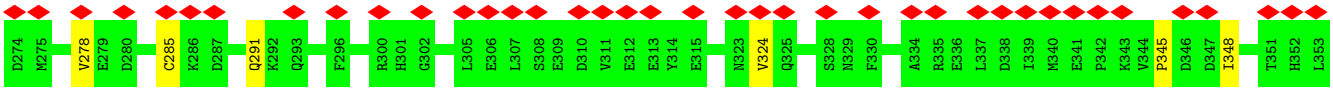
Chain Af:

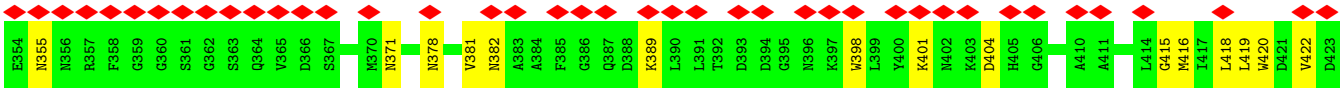


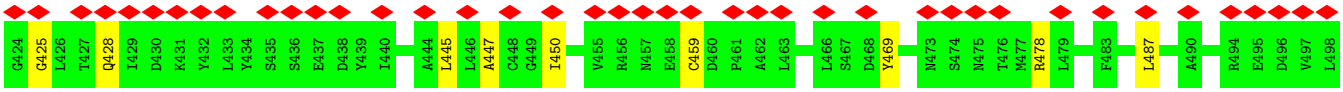


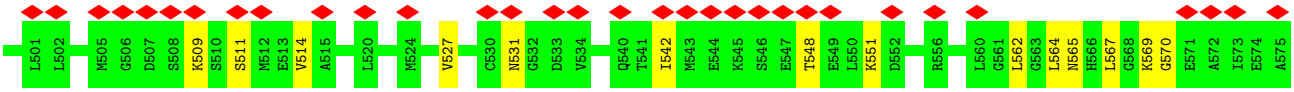


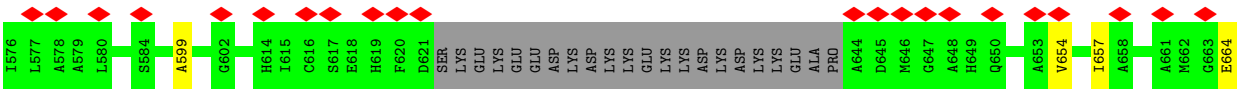


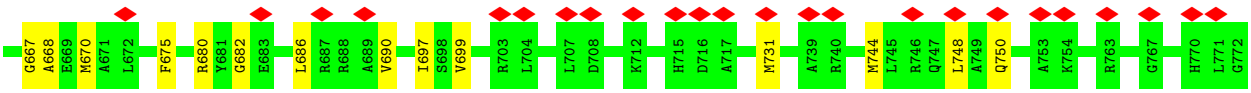


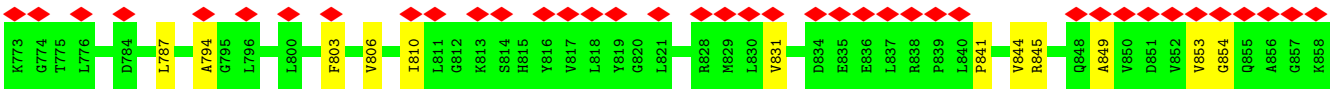


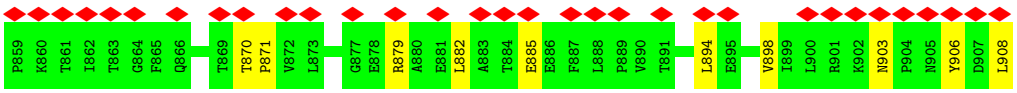






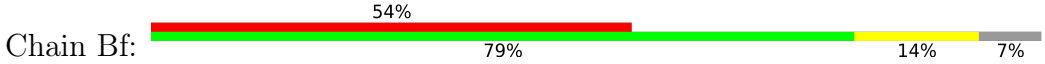


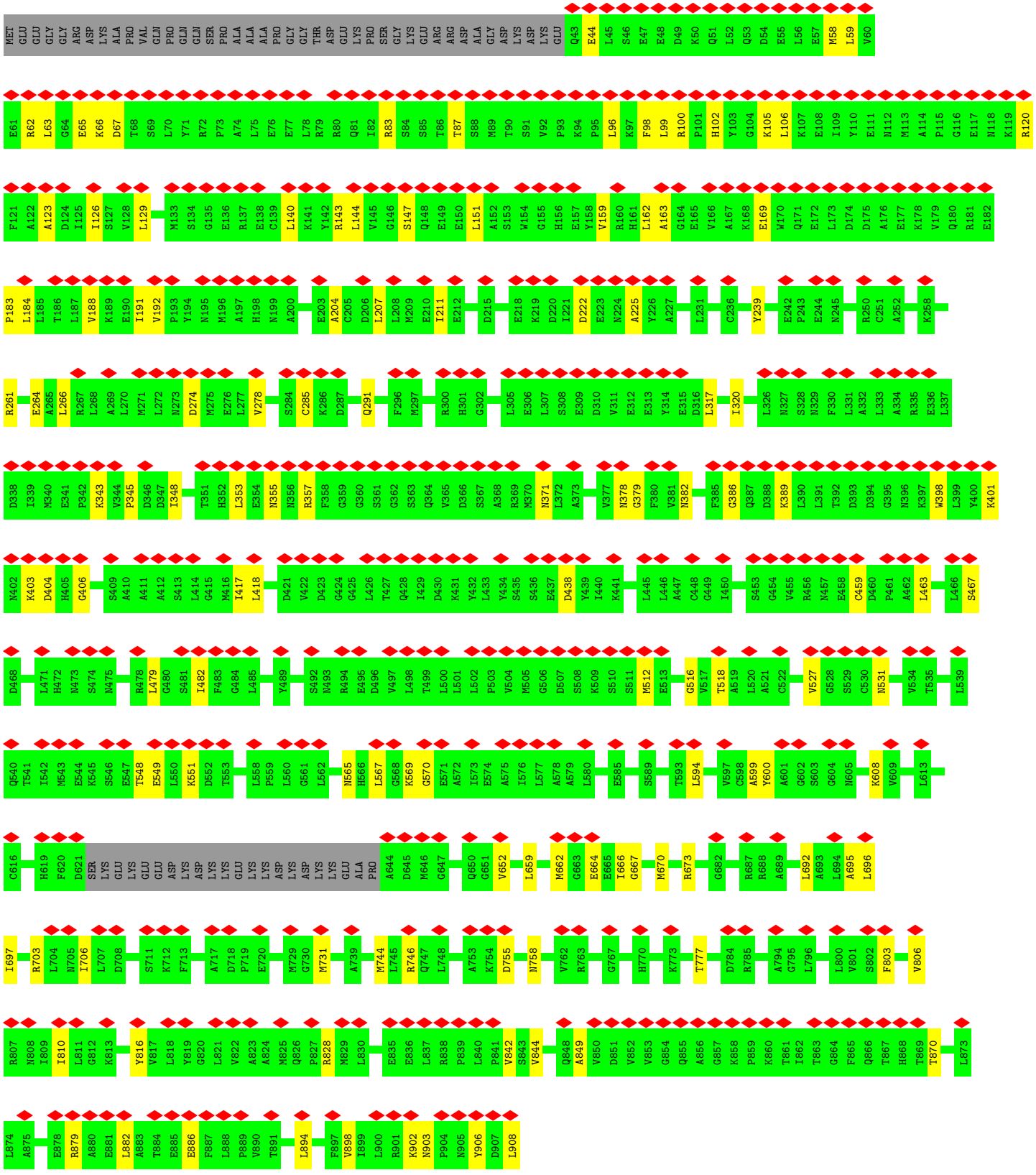




• Molecule 32: 26S proteasome non-ATPase regulatory subunit 2

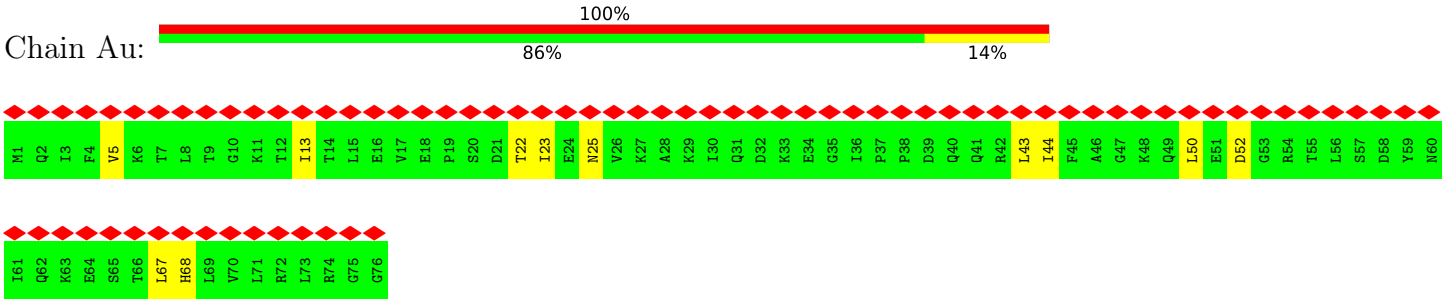
Chain Bf:





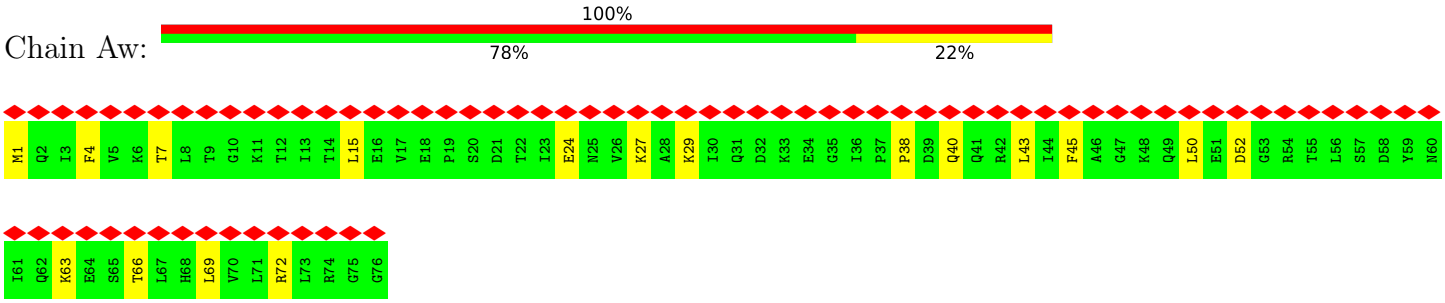
• Molecule 33: Ubiquitin

Chain Au:



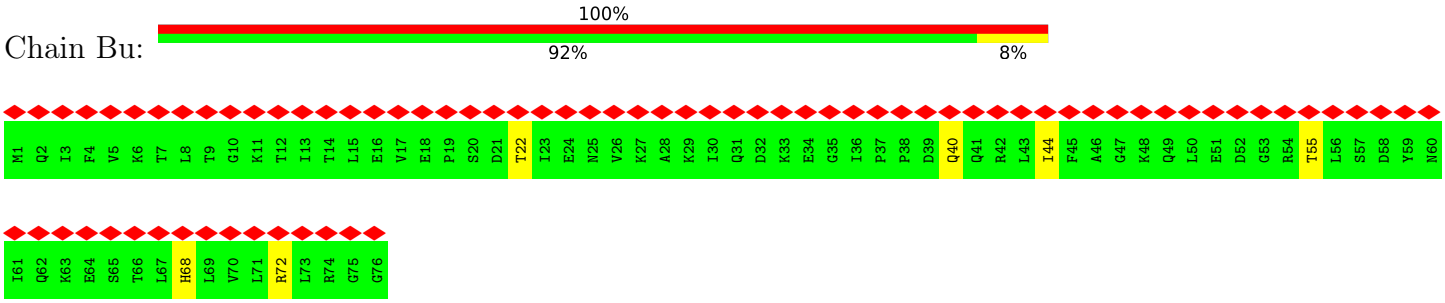
• Molecule 33: Ubiquitin

Chain Aw:



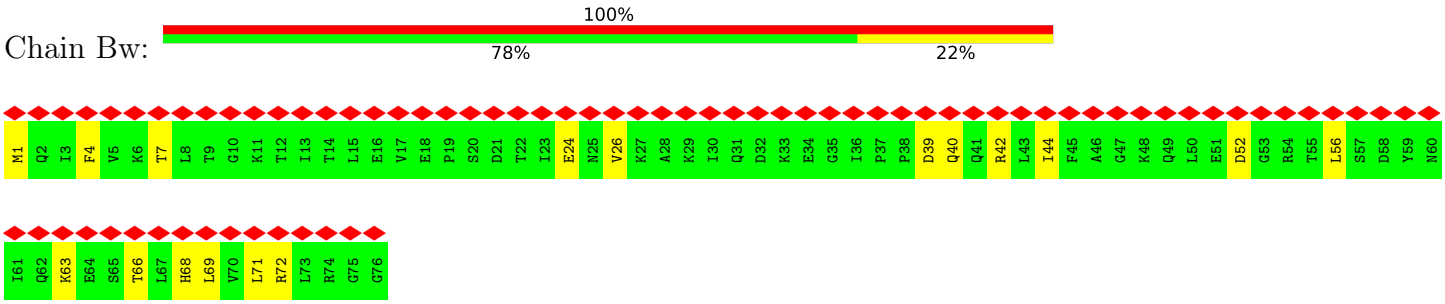
• Molecule 33: Ubiquitin

Chain Bu:



• Molecule 33: Ubiquitin

Chain Bw:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	14284	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	44	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.025	Depositor
Minimum map value	-0.004	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.006	Depositor
Map size (Å)	548.0, 548.0, 548.0	wwPDB
Map dimensions	800, 800, 800	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.685, 0.685, 0.685	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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	AA	0.18	0/3294	0.53	2/4447 (0.0%)
1	BA	0.20	0/3294	0.53	0/4447
2	AB	0.18	0/3086	0.48	1/4164 (0.0%)
2	BB	0.18	0/3086	0.47	0/4164
3	AC	0.22	0/2902	0.48	0/3904
3	BC	0.19	0/2902	0.46	0/3904
4	AD	0.21	0/3089	0.51	0/4168
4	BD	0.23	0/3089	0.54	0/4168
5	AE	0.18	0/2904	0.48	0/3924
5	BE	0.18	0/2904	0.48	1/3924 (0.0%)
6	AF	0.15	0/2896	0.42	0/3912
6	BF	0.15	0/2896	0.42	0/3912
7	AG	0.13	0/1923	0.41	0/2601
7	BG	0.12	0/1923	0.38	0/2601
8	AH	0.15	0/1848	0.38	0/2503
8	BH	0.13	0/1848	0.38	0/2503
9	AI	0.12	0/1987	0.36	0/2681
9	BI	0.12	0/1987	0.38	0/2681
10	AJ	0.17	0/1884	0.40	0/2549
10	BJ	0.19	0/1884	0.44	0/2549
11	AK	0.13	0/1800	0.38	0/2431
11	BK	0.13	0/1800	0.37	0/2431
12	AL	0.12	0/1901	0.33	0/2570
12	BL	0.13	0/1901	0.36	0/2570
13	AM	0.14	0/1917	0.37	0/2581
13	BM	0.15	0/1917	0.39	0/2581
14	AN	0.10	0/1540	0.29	0/2085
14	BN	0.11	0/1540	0.33	0/2085
15	AO	0.14	0/1676	0.41	0/2271
15	BO	0.13	0/1676	0.37	0/2271
16	AP	0.13	0/1616	0.39	0/2180
16	BP	0.14	0/1616	0.41	0/2180

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
17	AQ	0.17	0/1621	0.35	0/2194
17	BQ	0.14	0/1621	0.37	0/2194
18	AR	0.11	0/1590	0.30	0/2147
18	BR	0.12	0/1590	0.34	0/2147
19	AS	0.14	0/1671	0.40	0/2252
19	BS	0.13	0/1671	0.41	0/2252
20	AT	0.11	0/1716	0.33	0/2323
20	BT	0.13	0/1716	0.37	0/2323
21	AU	0.16	0/6903	0.44	0/9324
21	BU	0.15	0/6903	0.44	0/9324
22	AV	0.15	0/3824	0.41	0/5170
22	BV	0.15	0/3824	0.39	0/5170
23	AW	0.13	0/3644	0.37	0/4901
23	BW	0.13	0/3644	0.38	0/4901
24	AX	0.14	0/3381	0.40	0/4558
24	BX	0.14	0/3381	0.38	0/4558
25	AY	0.13	0/3261	0.41	0/4393
25	BY	0.14	0/3261	0.41	0/4393
26	AZ	0.17	0/2324	0.48	0/3150
26	BZ	0.20	0/2324	0.55	1/3150 (0.0%)
27	Aa	0.17	0/3053	0.51	1/4133 (0.0%)
27	Ba	0.18	0/3053	0.50	1/4133 (0.0%)
28	Ab	0.19	0/1478	0.53	0/2001
28	Bb	0.22	0/1478	0.55	1/2001 (0.0%)
29	Ac	0.28	0/2302	0.61	1/3110 (0.0%)
29	Bc	0.29	0/2302	0.64	0/3110
30	Ad	0.21	0/2162	0.53	2/2919 (0.1%)
30	Bd	0.19	0/2162	0.50	0/2919
31	Ae	0.20	0/437	0.55	0/595
31	Be	0.17	0/437	0.53	0/595
32	Af	0.15	0/6640	0.41	0/8988
32	Bf	0.14	0/6640	0.40	2/8988 (0.0%)
33	Au	0.11	0/607	0.30	0/816
33	Aw	0.12	0/607	0.38	0/816
33	Bu	0.12	0/607	0.32	0/816
33	Bw	0.15	0/607	0.38	0/816
All	All	0.16	0/166968	0.44	13/225522 (0.0%)

There are no bond length outliers.

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
29	Ac	155	VAL	N-CA-C	-7.62	106.47	113.71
27	Aa	221	VAL	N-CA-C	-6.16	107.86	113.71
1	AA	327	LEU	CA-C-N	5.91	128.89	120.49
1	AA	327	LEU	C-N-CA	5.91	128.89	120.49
27	Ba	220	PRO	CA-N-CD	-5.72	103.99	112.00
28	Bb	187	PRO	CA-N-CD	-5.66	104.07	112.00
2	AB	142	ASP	N-CA-C	-5.41	107.93	114.75
26	BZ	150	PRO	CA-N-CD	-5.31	104.57	112.00
30	Ad	67	ASP	CA-C-N	5.20	124.49	120.33
30	Ad	67	ASP	C-N-CA	5.20	124.49	120.33
5	BE	385	ASP	CA-C-O	-5.18	115.56	120.90
32	Bf	191	ILE	CA-C-N	5.04	124.36	120.33
32	Bf	191	ILE	C-N-CA	5.04	124.36	120.33

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	AA	3240	0	3286	35	0
1	BA	3240	0	3287	46	0
2	AB	3042	0	3100	43	0
2	BB	3042	0	3100	45	0
3	AC	2864	0	2971	54	0
3	BC	2864	0	2971	47	0
4	AD	3039	0	3076	57	0
4	BD	3039	0	3076	55	0
5	AE	2860	0	2827	43	0
5	BE	2860	0	2827	58	0
6	AF	2858	0	2853	38	0
6	BF	2858	0	2853	54	0
7	AG	1889	0	1885	12	0
7	BG	1889	0	1885	13	0
8	AH	1809	0	1795	17	0
8	BH	1809	0	1795	13	0
9	AI	1954	0	1949	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	BI	1954	0	1949	13	0
10	AJ	1858	0	1844	17	0
10	BJ	1858	0	1844	18	0
11	AK	1773	0	1758	13	0
11	BK	1773	0	1758	13	0
12	AL	1866	0	1852	8	0
12	BL	1866	0	1852	14	0
13	AM	1879	0	1866	11	0
13	BM	1879	0	1866	9	0
14	AN	1514	0	1487	4	0
14	BN	1514	0	1487	6	0
15	AO	1649	0	1659	10	0
15	BO	1649	0	1659	18	0
16	AP	1587	0	1598	14	0
16	BP	1587	0	1598	15	0
17	AQ	1588	0	1584	6	0
17	BQ	1588	0	1584	10	0
18	AR	1559	0	1523	7	0
18	BR	1559	0	1523	8	0
19	AS	1641	0	1639	15	0
19	BS	1641	0	1639	14	0
20	AT	1683	0	1662	14	0
20	BT	1683	0	1662	16	0
21	AU	6787	0	6858	95	0
21	BU	6787	0	6858	88	0
22	AV	3754	0	3749	39	0
22	BV	3754	0	3749	39	0
23	AW	3596	0	3713	28	0
23	BW	3596	0	3713	27	0
24	AX	3335	0	3435	35	0
24	BX	3335	0	3435	25	0
25	AY	3202	0	3204	29	0
25	BY	3202	0	3204	26	0
26	AZ	2281	0	2312	40	0
26	BZ	2281	0	2312	37	0
27	Aa	2995	0	3012	44	0
27	Ba	2995	0	3012	35	0
28	Ab	1458	0	1505	21	0
28	Bb	1458	0	1505	24	0
29	Ac	2260	0	2276	45	0
29	Bc	2260	0	2276	54	0
30	Ad	2116	0	2146	27	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
30	Bd	2116	0	2146	29	0
31	Ae	425	0	328	8	0
31	Be	425	0	328	7	0
32	Af	6529	0	6541	62	0
32	Bf	6529	0	6541	76	0
33	Au	601	0	629	7	0
33	Aw	601	0	629	10	0
33	Bu	601	0	629	3	0
33	Bw	601	0	629	10	0
34	AA	31	0	12	2	0
34	AB	31	0	12	0	0
34	AD	31	0	12	2	0
34	AE	31	0	12	1	0
34	BA	31	0	12	2	0
34	BB	31	0	12	0	0
34	BD	31	0	12	2	0
34	BE	31	0	12	0	0
35	AA	1	0	0	0	0
35	AB	1	0	0	0	0
35	AD	1	0	0	0	0
35	AE	1	0	0	0	0
35	AF	1	0	0	0	0
35	BA	1	0	0	0	0
35	BB	1	0	0	0	0
35	BD	1	0	0	0	0
35	BE	1	0	0	0	0
35	BF	1	0	0	0	0
36	AC	27	0	12	1	0
36	AF	27	0	12	1	0
36	BC	27	0	12	0	0
36	BF	27	0	12	1	0
37	Ac	1	0	0	0	0
37	Bc	1	0	0	0	0
All	All	164552	0	165247	1615	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (1615) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:AC:89:VAL:HB	3:AC:92:GLU:HB3	1.43	0.98
29:Ac:113:HIS:HE1	29:Ac:144:VAL:HG22	1.34	0.92
10:BJ:208:LEU:HD22	10:BJ:220:LEU:HG	1.54	0.90
3:BC:90:HIS:HB2	3:BC:91:PRO:HD2	1.54	0.87
29:Bc:113:HIS:HE1	29:Bc:144:VAL:HG22	1.39	0.86
1:BA:399:ALA:HB3	1:BA:401:ARG:HH12	1.40	0.84
10:AJ:221:ASN:HD21	10:AJ:223:GLU:HB3	1.42	0.84
4:AD:92:PHE:HB3	4:AD:128:ALA:HB3	1.63	0.81
8:AH:173:PHE:HA	8:AH:176:LYS:HE3	1.67	0.77
4:BD:124:LEU:O	4:BD:125:LYS:HB2	1.85	0.74
29:Bc:146:ASP:HB3	29:Bc:156:VAL:HG21	1.70	0.74
32:Bf:512:MET:HE1	32:Bf:549:GLU:HB3	1.70	0.74
3:AC:90:HIS:HB2	3:AC:91:PRO:HD3	1.69	0.73
20:BT:51:LEU:HG	20:BT:110:MET:HE1	1.72	0.71
3:AC:89:VAL:CB	3:AC:92:GLU:HB3	2.20	0.71
1:BA:309:PHE:H	6:BF:238:ARG:HD3	1.56	0.71
6:BF:356:MET:HE3	6:BF:357:PRO:HD2	1.72	0.70
28:Ab:151:GLU:HG3	28:Ab:152:LYS:HG3	1.74	0.69
5:BE:198:VAL:HG12	5:BE:200:SER:H	1.58	0.69
5:AE:97:ARG:H	5:AE:113:ARG:HH22	1.39	0.69
26:BZ:134:PRO:HD2	29:Bc:220:LEU:HD21	1.72	0.69
15:AO:163:ILE:HG12	15:AO:170:GLY:HA2	1.75	0.69
21:AU:268:LEU:HB3	21:AU:325:MET:HE3	1.74	0.69
6:BF:232:GLY:HA2	36:BF:501:ADP:H5'2	1.75	0.69
21:BU:418:GLU:HG3	21:BU:421:GLN:HE21	1.57	0.68
23:AW:70:VAL:HA	23:AW:73:MET:HE2	1.75	0.68
1:BA:399:ALA:HB3	1:BA:401:ARG:NH1	2.09	0.68
29:Bc:146:ASP:HB3	29:Bc:156:VAL:CG2	2.24	0.68
10:AJ:221:ASN:ND2	10:AJ:223:GLU:HB3	2.10	0.67
29:Ac:157:ILE:HD13	29:Ac:205:ILE:HD13	1.76	0.67
1:BA:97:ARG:HE	2:BB:131:HIS:CE1	2.13	0.67
32:Bf:102:HIS:HB3	32:Bf:105:LYS:HE3	1.76	0.67
26:BZ:63:LYS:HE3	28:Bb:130:ARG:HH21	1.60	0.67
22:BV:175:MET:HE3	22:BV:180:ARG:HB2	1.77	0.67
29:Bc:191:ALA:O	29:Bc:196:LEU:HB3	1.95	0.67
23:BW:401:THR:HG23	23:BW:402:ILE:HD12	1.77	0.67
3:BC:90:HIS:CB	3:BC:91:PRO:HD2	2.25	0.66
3:AC:127:LEU:HD12	3:AC:128:PRO:HD2	1.77	0.66
27:Ba:14:SER:HB2	27:Ba:18:GLN:HG2	1.76	0.66
34:BA:501:ATP:H5'1	2:BB:343:ARG:HH12	1.59	0.66
26:AZ:73:ASP:H	28:Ab:63:THR:HG21	1.60	0.66
28:Ab:1:MET:HE2	28:Ab:44:ASN:HB2	1.77	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:Af:55:GLU:HA	32:Af:58:MET:HE2	1.78	0.66
4:AD:128:ALA:O	4:AD:130:VAL:HG13	1.95	0.66
3:BC:125:LYS:HZ1	4:BD:96:VAL:HG11	1.61	0.65
4:BD:368:ASP:CG	4:BD:409:LYS:HE3	2.22	0.65
5:AE:281:ARG:HB3	5:AE:386:TYR:CE2	2.33	0.64
33:Aw:1:MET:HE1	33:Aw:63:LYS:HD2	1.79	0.64
29:Bc:146:ASP:HB3	29:Bc:156:VAL:CB	2.28	0.64
5:BE:264:MET:HE3	5:BE:294:ARG:HD3	1.79	0.64
26:BZ:84:LYS:HE3	29:Bc:76:PRO:HG3	1.78	0.63
26:BZ:97:THR:HG23	26:BZ:99:PRO:HD3	1.80	0.63
30:Ad:75:MET:HE3	30:Ad:102:ASN:HB2	1.81	0.63
21:BU:770:TRP:HA	29:Bc:180:ASN:HB3	1.81	0.63
33:Aw:27:LYS:HB3	33:Aw:38:PRO:HB3	1.80	0.63
15:BO:163:ILE:HG12	15:BO:170:GLY:HA2	1.80	0.63
5:AE:198:VAL:HG12	5:AE:200:SER:H	1.64	0.63
10:AJ:50:VAL:HB	10:AJ:54:GLN:HB2	1.81	0.63
19:BS:172:MET:HE1	19:BS:195:ILE:HG21	1.80	0.63
23:BW:375:MET:HE2	23:BW:411:GLY:HA2	1.80	0.63
32:Af:459:CYS:HB3	33:Aw:66:THR:HB	1.80	0.62
2:BB:106:PRO:HB3	3:BC:121:TYR:HB2	1.79	0.62
29:Bc:33:ILE:O	29:Bc:34:SER:HB3	1.99	0.62
29:Ac:113:HIS:CE1	29:Ac:144:VAL:HG22	2.25	0.62
21:BU:179:TYR:HA	21:BU:182:LYS:HE3	1.81	0.62
16:AP:27:ARG:HB2	16:AP:183:MET:HB2	1.82	0.62
26:BZ:128:PRO:HG2	29:Bc:216:MET:HB2	1.80	0.62
26:AZ:39:LEU:HB2	26:AZ:95:TYR:HD1	1.65	0.61
27:Aa:14:SER:HB2	27:Aa:18:GLN:HG2	1.81	0.61
22:AV:255:LEU:HD21	22:AV:295:ILE:HD11	1.83	0.61
9:BI:136:TYR:HB2	9:BI:148:TYR:HB2	1.81	0.61
29:Bc:155:VAL:O	29:Bc:156:VAL:C	2.42	0.61
10:AJ:221:ASN:HD22	10:AJ:224:GLU:HG3	1.65	0.61
22:AV:263:LEU:HD22	22:AV:266:GLN:HE22	1.65	0.61
30:Ad:183:GLU:HA	30:Ad:215:TRP:HE1	1.66	0.61
32:Bf:570:GLY:H	32:Bf:599:ALA:HB1	1.66	0.61
7:AG:165:ALA:HB3	8:AH:56:LEU:HD22	1.81	0.61
9:AI:143:TYR:HB2	9:AI:146:GLN:HE21	1.66	0.61
6:BF:421:MET:HA	6:BF:424:ILE:HD12	1.83	0.61
21:AU:54:PHE:HB3	21:AU:57:ARG:HB2	1.83	0.60
27:Aa:324:ILE:HA	27:Aa:331:VAL:HG12	1.83	0.60
14:BN:4:MET:HG3	14:BN:127:ILE:HG22	1.82	0.60
3:AC:53:ASN:HD21	21:AU:643:SER:HA	1.66	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:Af:478:ARG:HH12	32:Af:509:LYS:HD2	1.66	0.60
32:Bf:386:GLY:HA2	32:Bf:418:LEU:HG	1.83	0.60
21:AU:694:ILE:HG23	21:AU:695:MET:HG2	1.82	0.60
33:Au:44:ILE:HB	33:Au:68:HIS:HB2	1.84	0.60
30:Bd:215:TRP:HE3	30:Bd:222:TYR:HB3	1.65	0.60
24:BX:106:GLU:HB3	24:BX:136:LEU:HD21	1.82	0.60
33:Bw:24:GLU:HG2	33:Bw:52:ASP:HB3	1.81	0.60
20:BT:43:MET:HB3	20:BT:51:LEU:HD22	1.84	0.60
24:AX:33:ARG:HH21	24:AX:35:ILE:HD11	1.66	0.60
13:BM:67:PHE:HB2	13:BM:75:MET:HB3	1.84	0.60
21:AU:250:PHE:HZ	21:AU:333:MET:HE3	1.66	0.60
28:Bb:16:MET:HE1	28:Bb:144:GLY:HA3	1.83	0.60
24:AX:314:ARG:HH22	24:AX:320:SER:HB3	1.66	0.59
19:BS:27:THR:HB	19:BS:40:SER:H	1.67	0.59
32:Bf:527:VAL:HG13	32:Bf:567:LEU:HD12	1.83	0.59
26:AZ:243:GLN:HG3	26:AZ:245:PHE:H	1.67	0.59
21:BU:328:ILE:HG13	21:BU:329:LEU:HG	1.84	0.59
2:AB:221:GLY:HA3	2:AB:347:ILE:HA	1.84	0.59
21:AU:328:ILE:HG13	21:AU:329:LEU:HG	1.83	0.59
27:Aa:33:LEU:HD13	27:Aa:36:GLN:HB2	1.84	0.59
32:Af:151:LEU:HB3	32:Af:159:VAL:HG22	1.84	0.59
2:AB:369:THR:HA	2:AB:372:MET:HE3	1.83	0.59
33:Aw:7:THR:HG22	33:Aw:69:LEU:HD23	1.83	0.59
1:BA:312:ARG:HB2	1:BA:315:ILE:HB	1.84	0.59
4:BD:115:ILE:HG22	4:BD:139:LEU:HD12	1.83	0.59
3:AC:352:PRO:HD2	3:AC:391:MET:HE2	1.85	0.59
32:Bf:755:ASP:OD2	32:Bf:758:ASN:ND2	2.36	0.59
4:AD:150:SER:HB2	4:AD:229:ARG:O	2.03	0.59
29:Ac:157:ILE:O	29:Ac:158:ASP:C	2.45	0.59
27:Aa:286:ALA:HA	27:Aa:289:ARG:HE	1.68	0.59
28:Ab:24:THR:HG22	28:Ab:26:LEU:H	1.68	0.59
4:BD:103:VAL:HG11	4:BD:139:LEU:HD21	1.84	0.59
32:Af:371:ASN:ND2	32:Af:401:LYS:O	2.37	0.58
8:AH:176:LYS:NZ	8:AH:177:ARG:HG2	2.19	0.58
32:Bf:96:LEU:HD13	32:Bf:129:LEU:HD13	1.85	0.58
1:AA:309:PHE:H	6:AF:238:ARG:HD3	1.66	0.58
26:AZ:109:ASN:ND2	26:AZ:140:SER:OG	2.36	0.58
26:AZ:214:LYS:NZ	26:AZ:223:ASN:OD1	2.37	0.58
29:Bc:64:ASP:O	29:Bc:139:ARG:NH1	2.35	0.58
32:Bf:151:LEU:HB3	32:Bf:159:VAL:HG22	1.84	0.58
4:AD:91:GLN:HE21	4:AD:127:ASN:HA	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:AE:62:LYS:HA	5:AE:94:PRO:HB3	1.85	0.58
30:Ad:215:TRP:HE3	30:Ad:222:TYR:HB3	1.68	0.58
1:BA:55:LEU:HD11	2:BB:76:GLU:HG2	1.84	0.58
23:BW:316:ARG:NH1	23:BW:380:GLN:O	2.36	0.58
6:AF:228:PRO:O	6:AF:233:LYS:NZ	2.37	0.58
28:Ab:124:LEU:HD21	28:Ab:152:LYS:HB3	1.85	0.58
32:Af:103:TYR:HA	32:Af:106:LEU:HB2	1.85	0.58
16:AP:189:ILE:HB	16:AP:196:THR:HB	1.85	0.58
2:BB:251:VAL:HG12	2:BB:253:SER:H	1.68	0.58
5:BE:355:ILE:HD11	6:BF:211:LYS:HG2	1.84	0.58
3:BC:53:ASN:ND2	21:BU:642:GLU:O	2.37	0.58
32:Bf:317:LEU:HA	32:Bf:320:ILE:HD12	1.86	0.58
1:AA:186:LYS:HE3	1:AA:341:ILE:HG22	1.86	0.58
27:Aa:197:ALA:HB2	27:Aa:222:LEU:HD22	1.86	0.58
5:BE:265:ASP:OD2	5:BE:291:ARG:NH2	2.37	0.58
21:AU:483:LEU:HD11	21:AU:781:LEU:HD11	1.84	0.58
17:BQ:24:ASN:C	17:BQ:24:ASN:HD22	2.10	0.58
30:Bd:2:TYR:O	30:Bd:25:ARG:NH2	2.37	0.58
20:AT:122:LEU:HG	20:AT:137:LEU:HD12	1.85	0.57
1:AA:390:THR:HA	2:AB:216:ILE:HD11	1.85	0.57
5:BE:67:GLU:OE2	5:BE:85:ARG:NH2	2.36	0.57
24:BX:203:PRO:HB2	24:BX:207:GLN:HB2	1.85	0.57
8:AH:213:CYS:HB2	8:AH:218:PHE:HD1	1.69	0.57
10:AJ:208:LEU:HD22	10:AJ:220:LEU:HG	1.86	0.57
26:AZ:25:ARG:HE	29:Ac:104:ARG:HG3	1.69	0.57
1:BA:284:ARG:O	6:BF:334:ARG:NH1	2.37	0.57
6:BF:318:ASP:OD2	6:BF:344:ARG:NH2	2.36	0.57
26:BZ:151:THR:HG23	27:Ba:146:PRO:HB2	1.86	0.57
5:AE:144:GLU:O	5:AE:297:ARG:NH2	2.36	0.57
5:BE:75:ASN:ND2	6:BF:130:GLN:OE1	2.37	0.57
22:BV:309:MET:HE1	22:BV:331:LEU:HB3	1.85	0.57
6:AF:252:ALA:HB3	6:AF:255:GLN:HB2	1.86	0.57
9:AI:136:TYR:HB2	9:AI:148:TYR:HB2	1.85	0.57
25:BY:387:ILE:HD12	26:BZ:275:LEU:HD22	1.86	0.57
27:Ba:273:GLN:HB3	27:Ba:310:LEU:HD11	1.86	0.57
15:AO:55:THR:HG23	15:AO:86:MET:HE1	1.87	0.57
32:Af:806:VAL:HG23	32:Af:810:ILE:HB	1.87	0.57
1:BA:99:THR:HG22	1:BA:115:VAL:HG12	1.87	0.57
17:BQ:4:LEU:HD22	17:BQ:45:LEU:HD23	1.86	0.57
27:Aa:270:ARG:NH1	27:Aa:273:GLN:OE1	2.37	0.57
32:Bf:371:ASN:ND2	32:Bf:401:LYS:O	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:AI:119:GLN:NE2	10:AJ:79:ASP:OD1	2.38	0.57
10:BJ:50:VAL:HB	10:BJ:54:GLN:HB2	1.86	0.57
17:BQ:21:ALA:HB3	17:BQ:29:LYS:HB3	1.87	0.57
27:Aa:129:GLN:HG2	27:Aa:130:VAL:HG23	1.86	0.57
29:Ac:115:HIS:HB3	29:Ac:118:PHE:HB2	1.85	0.57
4:AD:244:PRO:HB3	4:AD:291:GLU:HG3	1.87	0.57
11:AK:103:TYR:HE1	19:AS:91:MET:HE3	1.70	0.57
33:Au:5:VAL:HB	33:Au:13:ILE:HB	1.87	0.57
33:Aw:40:GLN:HB2	33:Aw:72:ARG:HB3	1.87	0.57
1:BA:190:VAL:HG21	1:BA:339:ARG:HG3	1.87	0.57
1:BA:390:THR:HA	2:BB:216:ILE:HD11	1.86	0.57
3:BC:49:ARG:NH2	21:BU:639:LEU:O	2.38	0.57
5:BE:385:ASP:O	5:BE:386:TYR:HB2	2.04	0.57
7:BG:165:ALA:HB1	7:BG:179:LEU:HD13	1.87	0.57
27:Ba:197:ALA:HB2	27:Ba:222:LEU:HD22	1.86	0.57
27:Ba:370:GLN:NE2	30:Bd:248:GLU:OE2	2.38	0.57
3:AC:130:LYS:HZ3	3:AC:131:VAL:HB	1.70	0.56
17:AQ:4:LEU:HD22	17:AQ:45:LEU:HD23	1.87	0.56
6:BF:252:ALA:HB3	6:BF:255:GLN:HB2	1.86	0.56
7:BG:141:ILE:HG22	7:BG:151:VAL:HG22	1.87	0.56
10:BJ:42:VAL:HG22	10:BJ:210:VAL:HG12	1.87	0.56
17:BQ:2:GLU:HG3	17:BQ:34:LYS:HE2	1.87	0.56
27:Ba:165:THR:HG22	27:Ba:166:ILE:H	1.69	0.56
33:Bw:40:GLN:HE22	33:Bw:71:LEU:HB3	1.70	0.56
5:AE:123:SER:O	5:AE:197:LYS:NZ	2.38	0.56
2:BB:141:LYS:HG3	2:BB:144:LEU:HD12	1.86	0.56
3:BC:167:LEU:HD21	25:BY:95:LEU:HD22	1.87	0.56
4:BD:67:ASN:ND2	21:BU:607:VAL:O	2.38	0.56
20:BT:27:LEU:HD22	20:BT:184:TYR:HB2	1.87	0.56
20:BT:110:MET:HB3	20:BT:125:VAL:HB	1.87	0.56
5:AE:288:ALA:O	5:AE:294:ARG:NH1	2.38	0.56
21:AU:542:GLU:OE1	21:AU:546:ARG:NH1	2.38	0.56
23:AW:375:MET:HA	23:AW:378:MET:HE2	1.87	0.56
24:AX:393:VAL:HB	25:AY:362:LYS:HD3	1.87	0.56
4:BD:233:SER:OG	5:BE:259:GLU:OE1	2.24	0.56
20:BT:25:ASP:HA	20:BT:187:PHE:HA	1.87	0.56
25:BY:12:PRO:O	25:BY:146:ARG:NH1	2.38	0.56
25:BY:301:ILE:HG13	25:BY:343:LEU:HD12	1.88	0.56
23:AW:178:GLU:HG3	23:AW:180:LYS:H	1.71	0.56
32:Af:664:GLU:HG3	32:Af:667:GLY:H	1.70	0.56
5:BE:277:MET:HE2	5:BE:295:LEU:HD21	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:Ba:33:LEU:HD13	27:Ba:36:GLN:HB2	1.86	0.56
4:AD:266:GLU:HB2	5:AE:258:MET:HE2	1.88	0.56
9:BI:143:TYR:HB2	9:BI:146:GLN:HE21	1.70	0.56
22:BV:120:PHE:HB3	22:BV:159:LEU:HD11	1.86	0.56
32:Bf:261:ARG:HG2	32:Bf:264:GLU:HB2	1.88	0.56
25:AY:142:PHE:HE2	25:AY:176:ARG:HD2	1.71	0.56
4:BD:374:ASP:HB3	5:BE:292:PRO:HG2	1.87	0.56
23:BW:372:ARG:HE	23:BW:417:ARG:HH12	1.52	0.56
28:Bb:124:LEU:HD21	28:Bb:152:LYS:HB3	1.87	0.56
9:AI:174:MET:HE1	9:AI:199:LYS:HG2	1.88	0.56
24:AX:16:LEU:O	24:AX:20:ARG:NH1	2.39	0.56
8:BH:119:GLN:NE2	9:BI:82:ASP:OD1	2.39	0.56
10:BJ:221:ASN:HD21	10:BJ:223:GLU:HB3	1.71	0.56
28:Bb:24:THR:HG22	28:Bb:26:LEU:H	1.70	0.56
32:Bf:285:CYS:O	32:Bf:291:GLN:NE2	2.38	0.56
32:Bf:777:THR:HB	32:Bf:828:ARG:HD2	1.88	0.56
2:AB:181:GLN:O	2:AB:241:ASN:ND2	2.39	0.56
2:AB:317:ASP:HB2	2:AB:346:ARG:HG2	1.88	0.56
5:AE:125:GLU:O	6:AF:321:GLN:NE2	2.39	0.56
13:AM:37:ILE:HD11	13:AM:193:VAL:HG13	1.88	0.56
27:Aa:255:TRP:O	27:Aa:258:GLN:NE2	2.38	0.56
4:BD:150:SER:HB2	4:BD:229:ARG:O	2.06	0.56
21:AU:402:PHE:HB2	21:AU:437:TYR:HB3	1.88	0.56
21:BU:609:ASP:O	21:BU:615:ARG:NH1	2.38	0.56
21:AU:613:ASP:OD1	21:AU:616:ARG:NH2	2.39	0.55
32:Af:345:PRO:HA	32:Af:348:ILE:HD12	1.87	0.55
23:BW:125:ILE:HG21	23:BW:149:LEU:HD13	1.87	0.55
29:Bc:113:HIS:CE1	29:Bc:144:VAL:HG22	2.30	0.55
29:Bc:196:LEU:O	29:Bc:197:ASN:HB2	2.07	0.55
4:AD:45:LYS:HB3	21:AU:187:LEU:HG	1.88	0.55
4:AD:67:ASN:ND2	21:AU:607:VAL:O	2.40	0.55
2:BB:315:GLN:O	2:BB:322:ARG:NH1	2.37	0.55
21:BU:243:LEU:HD11	21:BU:915:LYS:HG2	1.88	0.55
26:BZ:70:LEU:HD12	26:BZ:111:LEU:HD23	1.89	0.55
10:AJ:116:GLN:NE2	11:AK:84:ASP:OD1	2.38	0.55
32:Af:285:CYS:O	32:Af:291:GLN:NE2	2.40	0.55
3:BC:44:ARG:O	22:BV:495:ARG:NH1	2.38	0.55
19:AS:69:GLU:HA	19:AS:72:LEU:HD12	1.88	0.55
1:BA:85:GLN:HA	1:BA:88:GLN:HB3	1.88	0.55
13:BM:223:ARG:NH1	13:BM:225:GLU:OE2	2.39	0.55
15:BO:113:ILE:HG12	15:BO:119:THR:HG22	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:AF:180:ARG:NH1	6:AF:241:ALA:O	2.40	0.55
16:AP:65:GLN:OE1	17:AQ:86:ARG:NH2	2.39	0.55
19:AS:10:GLY:HA3	19:AS:42:LYS:HE2	1.88	0.55
21:AU:158:ARG:NH2	21:AU:192:GLN:OE1	2.40	0.55
21:AU:401:LYS:HE3	21:AU:438:GLN:HB2	1.88	0.55
6:BF:97:LEU:HB2	6:BF:121:CYS:HB2	1.89	0.55
16:BP:65:GLN:OE1	17:BQ:86:ARG:NH2	2.40	0.55
32:Bf:151:LEU:HD23	32:Bf:159:VAL:HA	1.88	0.55
19:AS:27:THR:HB	19:AS:40:SER:H	1.71	0.55
21:AU:424:ALA:HA	21:AU:427:LEU:HD13	1.88	0.55
30:Ad:122:LEU:HD11	30:Ad:133:ILE:HG21	1.89	0.55
1:BA:294:GLU:HA	1:BA:297:ARG:HH21	1.71	0.55
32:Bf:459:CYS:HB3	33:Bw:66:THR:HB	1.89	0.55
2:BB:221:GLY:HA3	2:BB:347:ILE:HA	1.88	0.55
13:BM:108:LEU:HD11	13:BM:137:LEU:HB3	1.88	0.55
4:AD:233:SER:OG	5:AE:259:GLU:OE1	2.25	0.55
21:AU:440:GLY:HA2	21:AU:473:VAL:HG13	1.87	0.55
23:BW:286:LEU:HD23	23:BW:289:ARG:HH22	1.72	0.55
6:AF:421:MET:HA	6:AF:424:ILE:HD12	1.88	0.55
8:AH:39:LYS:HG3	8:AH:44:VAL:HG22	1.88	0.55
22:AV:175:MET:HG3	22:AV:184:ALA:HB2	1.89	0.55
29:Ac:75:MET:HE1	29:Ac:87:VAL:HA	1.88	0.55
21:BU:402:PHE:HB2	21:BU:437:TYR:HB3	1.88	0.55
23:BW:420:ASP:OD1	23:BW:423:ASN:ND2	2.39	0.55
33:Bw:7:THR:HG22	33:Bw:69:LEU:HD23	1.89	0.55
15:AO:148:GLU:OE2	15:AO:182:LYS:NZ	2.39	0.55
6:AF:153:VAL:HG22	6:AF:160:ILE:HG22	1.90	0.54
19:AS:99:ARG:HH21	19:AS:102:PHE:HD2	1.53	0.54
3:BC:113:ARG:HG3	3:BC:130:LYS:HD2	1.88	0.54
30:Bd:122:LEU:HB3	30:Bd:125:LYS:HB2	1.87	0.54
3:AC:29:GLU:OE1	22:AV:201:ARG:NH2	2.39	0.54
6:AF:358:ASN:O	6:AF:362:ARG:NH1	2.39	0.54
16:AP:177:ARG:NH2	19:BS:150:ASP:OD2	2.39	0.54
21:AU:373:ASN:O	21:AU:377:HIS:ND1	2.40	0.54
15:BO:73:LEU:HD12	15:BO:74:PRO:HD2	1.89	0.54
19:BS:10:GLY:HA3	19:BS:42:LYS:HE2	1.89	0.54
21:BU:906:LEU:HD13	21:BU:912:ILE:HD13	1.88	0.54
22:BV:326:GLN:NE2	22:BV:352:SER:O	2.40	0.54
6:AF:195:ILE:HG12	6:AF:236:LEU:HD21	1.90	0.54
1:BA:347:ASP:O	1:BA:351:ARG:NH1	2.40	0.54
19:BS:148:LEU:HD23	19:BS:178:VAL:HG12	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:BT:122:LEU:HG	20:BT:137:LEU:HD12	1.90	0.54
21:BU:440:GLY:HA2	21:BU:473:VAL:HG13	1.89	0.54
29:Bc:113:HIS:O	29:Bc:145:VAL:HG12	2.07	0.54
29:Bc:146:ASP:HB3	29:Bc:156:VAL:HB	1.88	0.54
30:Bd:36:LEU:HD12	30:Bd:38:THR:H	1.72	0.54
24:AX:27:LEU:HD12	24:AX:56:LEU:HD12	1.89	0.54
29:Ac:146:ASP:OD2	29:Ac:149:GLN:NE2	2.40	0.54
4:BD:133:HIS:HB3	4:BD:137:ASN:H	1.72	0.54
29:Bc:27:THR:OG1	29:Bc:175:ARG:NH2	2.40	0.54
32:Bf:188:VAL:HG21	32:Bf:211:ILE:HD12	1.88	0.54
8:AH:119:GLN:NE2	9:AI:82:ASP:OD1	2.40	0.54
22:AV:450:SER:OG	22:AV:451:ILE:N	2.39	0.54
24:AX:398:GLU:OE1	25:AY:365:GLN:NE2	2.41	0.54
15:BO:148:GLU:OE2	15:BO:182:LYS:NZ	2.40	0.54
19:AS:148:LEU:HD23	19:AS:178:VAL:HG12	1.89	0.54
21:AU:243:LEU:HG	21:AU:913:ILE:HG12	1.90	0.54
5:BE:72:LYS:HB2	5:BE:78:ARG:HG2	1.89	0.54
6:BF:94:ILE:HD11	6:BF:125:LYS:HB2	1.90	0.54
6:BF:282:ILE:HG22	6:BF:327:LYS:HB2	1.90	0.54
13:BM:163:CYS:SG	13:BM:164:ALA:N	2.81	0.54
28:Bb:100:ARG:NH1	28:Bb:102:GLY:O	2.41	0.54
4:AD:146:GLU:O	4:AD:252:ARG:NH2	2.41	0.54
11:AK:13:ASN:HB3	12:AL:126:ARG:HB3	1.90	0.54
27:Aa:91:ASN:OD1	27:Aa:92:VAL:N	2.40	0.54
33:Au:23:ILE:HB	33:Au:52:ASP:HA	1.89	0.54
3:BC:90:HIS:HB2	3:BC:91:PRO:CD	2.32	0.54
7:BG:165:ALA:HB3	8:BH:56:LEU:HD22	1.88	0.54
10:BJ:148:ASP:OD1	10:BJ:152:THR:N	2.41	0.54
32:Bf:378:ASN:OD1	32:Bf:382:ASN:ND2	2.41	0.54
1:AA:366:ARG:NH1	32:Af:906:TYR:OH	2.41	0.54
3:AC:113:ARG:NE	3:AC:130:LYS:HB2	2.23	0.54
3:AC:355:SER:OG	3:AC:358:GLU:OE1	2.21	0.54
3:BC:332:HIS:ND1	3:BC:363:CYS:SG	2.79	0.54
27:Ba:341:LEU:HD13	27:Ba:345:GLN:HB2	1.90	0.54
32:Bf:403:LYS:HG3	32:Bf:406:GLY:H	1.73	0.54
32:Bf:531:ASN:O	32:Bf:565:ASN:ND2	2.41	0.54
1:AA:23:ARG:NH2	32:Af:44:GLU:OE2	2.41	0.54
22:AV:207:ALA:HA	22:AV:210:CYS:HB2	1.90	0.54
23:AW:47:LEU:HD22	23:AW:66:ILE:HG23	1.90	0.54
23:BW:409:LEU:HD23	24:BX:344:ARG:HH21	1.73	0.54
32:Bf:140:LEU:HD22	32:Bf:169:GLU:HB2	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:AB:387:LYS:HB3	2:AB:390:LEU:HB3	1.90	0.54
21:AU:27:LEU:HA	21:AU:30:VAL:HG22	1.90	0.54
32:Af:378:ASN:OD1	32:Af:382:ASN:ND2	2.41	0.54
2:BB:287:ILE:HD13	2:BB:329:MET:HE3	1.90	0.54
3:BC:163:GLU:HA	3:BC:167:LEU:HD13	1.90	0.54
6:BF:78:GLU:HA	6:BF:81:LYS:HD2	1.89	0.54
6:BF:228:PRO:O	6:BF:233:LYS:NZ	2.40	0.54
15:BO:143:ARG:NH2	15:BO:150:GLU:OE1	2.41	0.54
21:BU:613:ASP:OD1	21:BU:616:ARG:NH2	2.41	0.54
23:BW:166:LEU:O	23:BW:189:GLN:NE2	2.39	0.54
3:AC:147:THR:HG23	3:AC:149:GLU:H	1.72	0.53
25:AY:80:GLU:OE1	25:AY:83:ARG:NH1	2.40	0.53
29:Ac:64:ASP:OD1	29:Ac:139:ARG:NH2	2.40	0.53
6:BF:94:ILE:HD12	6:BF:123:VAL:HG12	1.90	0.53
1:AA:55:LEU:HD11	2:AB:76:GLU:HG2	1.89	0.53
7:AG:123:GLN:NE2	8:AH:82:ASP:OD1	2.41	0.53
14:AN:174:ILE:HB	14:AN:189:LEU:HB2	1.89	0.53
32:Af:266:LEU:HD11	32:Af:278:VAL:HG13	1.89	0.53
1:BA:293:ASN:ND2	6:BF:303:ASP:OD2	2.41	0.53
4:BD:84:SER:O	5:BE:68:LYS:NZ	2.41	0.53
10:BJ:116:GLN:NE2	11:BK:84:ASP:OD1	2.41	0.53
22:BV:343:PRO:O	31:Be:43:TRP:NE1	2.36	0.53
32:Bf:355:ASN:HB3	32:Bf:357:ARG:HE	1.73	0.53
21:AU:520:MET:HG2	21:AU:555:VAL:HG23	1.89	0.53
5:BE:144:GLU:O	5:BE:297:ARG:NH2	2.41	0.53
32:Bf:417:ILE:HG22	32:Bf:418:LEU:HD12	1.90	0.53
33:Bu:44:ILE:HB	33:Bu:68:HIS:HB2	1.89	0.53
4:BD:335:LEU:HD23	4:BD:369:LYS:HG3	1.90	0.53
7:BG:158:GLY:O	8:BH:84:ARG:NH2	2.41	0.53
9:BI:119:GLN:NE2	10:BJ:79:ASP:OD1	2.41	0.53
34:AA:501:ATP:H5'1	2:AB:343:ARG:HH12	1.73	0.53
3:AC:86:LEU:HD21	3:AC:94:LYS:HD3	1.90	0.53
4:AD:87:LEU:HB3	5:AE:80:VAL:HB	1.90	0.53
8:AH:16:SER:OG	8:AH:18:LYS:NZ	2.42	0.53
25:AY:387:ILE:HD12	26:AZ:275:LEU:HD22	1.90	0.53
3:BC:147:THR:HG23	3:BC:149:GLU:H	1.72	0.53
21:BU:749:GLN:NE2	21:BU:750:SER:O	2.41	0.53
26:BZ:238:PRO:HG2	29:Bc:309:PHE:HB3	1.88	0.53
32:Bf:345:PRO:HA	32:Bf:348:ILE:HD12	1.89	0.53
22:AV:284:GLU:OE2	22:AV:287:ARG:NH2	2.41	0.53
24:AX:203:PRO:HB2	24:AX:207:GLN:HB2	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:AD:173:GLN:HE22	4:AD:333:PHE:HA	1.73	0.53
7:AG:141:ILE:HG22	7:AG:151:VAL:HG22	1.89	0.53
5:AE:270:LEU:HD21	5:AE:275:MET:HE1	1.90	0.53
7:AG:234:GLU:O	7:AG:238:HIS:ND1	2.39	0.53
20:AT:214:MET:HE1	15:BO:144:PRO:HB3	1.91	0.53
22:AV:74:ASP:OD2	22:AV:107:ARG:NH2	2.42	0.53
7:BG:123:GLN:NE2	8:BH:82:ASP:OD1	2.42	0.53
12:BL:95:SER:OG	12:BL:101:ARG:NH1	2.42	0.53
21:BU:494:TYR:HD1	21:BU:516:LEU:HD11	1.72	0.53
21:BU:798:PRO:O	21:BU:880:ASN:ND2	2.41	0.53
5:AE:265:ASP:OD2	5:AE:291:ARG:NH2	2.42	0.53
10:AJ:148:ASP:OD1	10:AJ:152:THR:N	2.42	0.53
21:AU:522:GLY:O	21:AU:559:ARG:NH2	2.41	0.53
5:BE:126:ASP:HB2	5:BE:197:LYS:HE3	1.91	0.53
25:BY:80:GLU:OE1	25:BY:83:ARG:NH1	2.42	0.53
6:AF:97:LEU:HB2	6:AF:121:CYS:HB2	1.91	0.53
13:AM:163:CYS:SG	13:AM:164:ALA:N	2.82	0.53
5:BE:171:LEU:HD22	5:BE:295:LEU:HD13	1.90	0.53
21:BU:69:TYR:OH	22:BV:236:ARG:NH2	2.42	0.53
21:BU:416:GLU:OE1	21:BU:450:HIS:NE2	2.42	0.53
21:BU:483:LEU:HD11	21:BU:781:LEU:HD11	1.89	0.53
32:Bf:123:ALA:HA	32:Bf:126:ILE:HD12	1.90	0.53
2:AB:266:LEU:HD12	3:AC:229:ARG:HD2	1.90	0.52
2:AB:315:GLN:O	2:AB:322:ARG:NH1	2.43	0.52
34:AD:501:ATP:O2G	5:AE:294:ARG:NH2	2.42	0.52
1:BA:180:CYS:HB2	1:BA:183:GLN:HB2	1.90	0.52
3:BC:187:LEU:HD23	3:BC:314:LYS:HG2	1.89	0.52
21:BU:611:ASN:HB3	21:BU:614:VAL:HG12	1.91	0.52
23:BW:451:MET:HE1	26:BZ:101:LEU:HB3	1.90	0.52
29:Bc:51:MET:HG2	29:Bc:82:VAL:HA	1.91	0.52
4:AD:91:GLN:HG3	4:AD:127:ASN:O	2.08	0.52
23:AW:409:LEU:HD23	24:AX:344:ARG:HH21	1.75	0.52
29:Ac:146:ASP:CB	29:Ac:156:VAL:HG11	2.39	0.52
32:Af:894:LEU:HA	32:Af:898:VAL:HG21	1.90	0.52
1:BA:395:PHE:HA	1:BA:398:ARG:HG3	1.92	0.52
27:Ba:269:LEU:HD13	27:Ba:272:ILE:HD11	1.92	0.52
13:AM:108:LEU:HD11	13:AM:137:LEU:HB3	1.91	0.52
20:AT:27:LEU:HD22	20:AT:184:TYR:HB2	1.91	0.52
32:Af:744:MET:O	32:Af:748:LEU:N	2.41	0.52
26:AZ:97:THR:HG23	26:AZ:99:PRO:HD3	1.91	0.52
7:BG:67:THR:HG22	7:BG:69:LEU:H	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:BU:522:GLY:O	21:BU:559:ARG:NH2	2.42	0.52
21:BU:599:ILE:HD13	21:BU:625:ILE:HD11	1.92	0.52
32:Bf:806:VAL:HG23	32:Bf:810:ILE:HB	1.91	0.52
21:AU:599:ILE:HD13	21:AU:625:ILE:HD11	1.91	0.52
21:AU:628:ARG:NH1	21:AU:749:GLN:OE1	2.42	0.52
4:BD:95:ALA:HA	4:BD:101:ALA:HA	1.90	0.52
11:BK:41:GLN:NE2	11:BK:151:PRO:O	2.43	0.52
1:AA:351:ARG:NH1	1:AA:378:PRO:O	2.43	0.52
25:AY:300:ARG:NH1	25:AY:333:GLU:OE2	2.42	0.52
30:Ad:36:LEU:HD23	30:Ad:38:THR:H	1.74	0.52
32:Bf:266:LEU:HD11	32:Bf:278:VAL:HG13	1.92	0.52
1:AA:293:ASN:ND2	6:AF:303:ASP:OD2	2.43	0.52
3:AC:80:MET:HE1	3:AC:86:LEU:HB2	1.90	0.52
4:AD:98:GLN:HE21	29:Ac:271:ALA:HB1	1.74	0.52
23:AW:166:LEU:HD13	23:AW:189:GLN:HG2	1.92	0.52
1:BA:32:LEU:HD13	32:Bf:100:ARG:HH22	1.74	0.52
21:BU:71:LEU:HD23	22:BV:273:LYS:HE3	1.92	0.52
25:BY:228:MET:HG3	25:BY:299:MET:HE1	1.92	0.52
32:Bf:222:ASP:HB3	32:Bf:225:ALA:HB3	1.92	0.52
1:AA:281:GLY:HA3	1:AA:299:MET:HG3	1.91	0.52
5:AE:122:MET:HE1	5:AE:196:LEU:HB3	1.91	0.52
5:AE:180:LYS:HG2	5:AE:301:ILE:HD12	1.91	0.52
21:AU:749:GLN:NE2	21:AU:750:SER:O	2.40	0.52
23:AW:450:GLU:OE2	26:AZ:219:LYS:NZ	2.42	0.52
24:AX:130:GLU:HB3	24:AX:153:LEU:HD21	1.91	0.52
25:AY:14:ASN:HB2	25:AY:143:TYR:HE1	1.75	0.52
4:BD:164:TYR:O	4:BD:174:LYS:NZ	2.42	0.52
4:BD:336:PRO:HB3	4:BD:340:GLN:HB2	1.91	0.52
2:AB:251:VAL:HG12	2:AB:253:SER:H	1.75	0.52
2:AB:309:MET:HE1	2:AB:338:ASP:HB3	1.92	0.52
4:AD:339:ARG:NH1	24:AX:201:TYR:O	2.43	0.52
6:AF:150:LEU:HD21	6:AF:167:GLU:HB3	1.92	0.52
11:AK:59:MET:HE2	11:AK:64:ILE:HD11	1.91	0.52
2:BB:64:LYS:NZ	32:Bf:239:TYR:OH	2.40	0.52
19:BS:16:ALA:HB2	19:BS:121:VAL:HG23	1.92	0.52
22:BV:178:SER:HB3	22:BV:180:ARG:CZ	2.40	0.52
23:BW:119:PRO:HB2	23:BW:123:ARG:HH22	1.75	0.52
33:Bw:1:MET:HG2	33:Bw:63:LYS:HD2	1.92	0.52
3:AC:344:LEU:HD23	3:AC:347:ILE:HD12	1.92	0.52
21:AU:99:THR:HG22	21:AU:103:LYS:HZ1	1.75	0.52
21:AU:469:SER:OG	21:AU:470:ASN:N	2.42	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:Ab:9:CYS:HB2	28:Ab:111:ALA:HA	1.90	0.52
2:BB:196:GLU:OE2	2:BB:349:ARG:NH1	2.43	0.52
12:BL:132:LEU:HB2	12:BL:147:THR:HB	1.92	0.52
16:BP:66:ARG:NH1	16:BP:103:TYR:OH	2.43	0.52
3:AC:89:VAL:CG1	3:AC:92:GLU:HB3	2.40	0.51
25:AY:104:MET:HE3	25:AY:130:LYS:HD3	1.92	0.51
8:BH:39:LYS:HG3	8:BH:44:VAL:HG22	1.93	0.51
20:BT:174:ARG:NH1	20:BT:206:GLU:O	2.38	0.51
21:BU:376:MET:HA	21:BU:739:ALA:HA	1.92	0.51
22:BV:451:ILE:HG23	22:BV:458:VAL:HG22	1.91	0.51
32:Bf:894:LEU:HA	32:Bf:898:VAL:HG21	1.92	0.51
1:AA:258:ARG:NH2	1:AA:301:GLU:OE1	2.44	0.51
22:AV:90:GLU:HG3	22:AV:92:ARG:HG2	1.92	0.51
26:AZ:187:LEU:HD13	27:Aa:375:LEU:HD11	1.91	0.51
2:BB:193:GLN:HG3	2:BB:353:PHE:HE1	1.75	0.51
4:BD:337:ASP:OD1	4:BD:337:ASP:N	2.43	0.51
19:BS:198:VAL:HG22	19:BS:203:ILE:HG12	1.92	0.51
21:BU:21:GLU:HG2	21:BU:55:ARG:HE	1.73	0.51
21:BU:628:ARG:NH1	21:BU:749:GLN:OE1	2.40	0.51
1:AA:116:LYS:HD2	2:AB:129:SER:HA	1.92	0.51
29:Ac:146:ASP:HB3	29:Ac:156:VAL:HG11	1.91	0.51
5:BE:207:TYR:OH	6:BF:129:ARG:NH2	2.44	0.51
13:BM:68:ASN:OD1	13:BM:224:HIS:ND1	2.43	0.51
21:BU:469:SER:OG	21:BU:470:ASN:N	2.43	0.51
6:AF:336:ASP:N	6:AF:336:ASP:OD1	2.43	0.51
25:AY:379:ARG:HH12	25:AY:383:LEU:HB2	1.76	0.51
24:BX:393:VAL:HB	25:BY:362:LYS:HD3	1.91	0.51
20:AT:43:MET:HB3	20:AT:51:LEU:HB3	1.91	0.51
1:BA:119:ALA:HB2	6:BF:128:THR:HG23	1.93	0.51
1:BA:307:ASP:OD2	1:BA:333:ARG:NH2	2.43	0.51
6:BF:358:ASN:O	6:BF:362:ARG:NH1	2.44	0.51
19:BS:92:LEU:HD23	19:BS:124:PHE:HE2	1.76	0.51
24:BX:194:ARG:HG2	24:BX:210:LEU:HD21	1.92	0.51
4:AD:336:PRO:HB3	4:AD:340:GLN:HB2	1.92	0.51
21:AU:509:GLY:HA3	21:AU:544:ILE:HG22	1.91	0.51
22:AV:150:ARG:NH2	22:AV:155:ALA:O	2.43	0.51
32:Af:531:ASN:O	32:Af:565:ASN:ND2	2.43	0.51
4:AD:95:ALA:HA	4:AD:101:ALA:HA	1.92	0.51
21:AU:628:ARG:NH1	21:AU:753:GLY:O	2.44	0.51
4:BD:146:GLU:O	4:BD:252:ARG:NH2	2.42	0.51
5:BE:175:PRO:O	5:BE:180:LYS:NZ	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:BK:107:MET:HE3	11:BK:112:VAL:HG22	1.92	0.51
22:BV:393:THR:O	22:BV:397:ARG:NH2	2.39	0.51
16:AP:45:MET:HE3	16:AP:71:LEU:HD22	1.93	0.51
23:AW:377:ARG:HG3	23:AW:381:LEU:HD13	1.93	0.51
28:Ab:100:ARG:HH12	28:Ab:105:HIS:HB2	1.75	0.51
25:BY:276:ALA:HB2	31:Be:56:LEU:HD23	1.93	0.51
1:AA:312:ARG:HB2	1:AA:315:ILE:HB	1.92	0.51
6:BF:141:ASP:OD1	6:BF:144:LYS:NZ	2.40	0.51
6:BF:224:LEU:HB2	6:BF:348:LEU:HD23	1.93	0.51
21:BU:365:CYS:HA	21:BU:368:ALA:HB3	1.93	0.51
27:Ba:219:HIS:CE1	27:Ba:221:VAL:HG22	2.46	0.51
28:Bb:4:GLU:HA	28:Bb:106:LYS:H	1.75	0.51
2:AB:303:ARG:O	2:AB:307:ARG:NH1	2.44	0.51
3:AC:273:MET:HE2	3:AC:277:LEU:HD11	1.92	0.51
34:AE:402:ATP:O3G	6:AF:347:ARG:NH2	2.40	0.51
22:AV:306:ARG:NH1	22:AV:332:LEU:O	2.44	0.51
23:AW:414:ASN:HB2	23:AW:417:ARG:HD3	1.93	0.51
32:Af:570:GLY:H	32:Af:599:ALA:HB1	1.76	0.51
3:BC:133:PRO:HG2	3:BC:237:MET:HE2	1.91	0.51
22:BV:287:ARG:NH1	31:Be:21:GLU:OE2	2.41	0.51
32:Bf:404:ASP:OD1	32:Bf:404:ASP:N	2.44	0.51
32:Bf:548:THR:HA	32:Bf:551:LYS:HE3	1.92	0.51
33:Bu:40:GLN:HG2	33:Bu:72:ARG:HD3	1.93	0.51
3:AC:53:ASN:ND2	21:AU:642:GLU:O	2.44	0.50
12:AL:45:VAL:HG12	12:AL:214:ILE:HG12	1.93	0.50
34:BA:501:ATP:O1G	2:BB:346:ARG:NH2	2.44	0.50
5:BE:57:VAL:HG13	5:BE:97:ARG:HD3	1.94	0.50
16:BP:35:VAL:HG12	16:BP:36:THR:HG23	1.94	0.50
26:BZ:25:ARG:HE	29:Bc:104:ARG:HG2	1.76	0.50
2:AB:54:PRO:HA	32:Af:854:GLY:HA3	1.93	0.50
21:AU:2:ILE:HD11	30:Ad:36:LEU:HG	1.93	0.50
32:Af:324:VAL:HG13	32:Af:422:VAL:HG11	1.92	0.50
6:BF:256:LEU:HD13	6:BF:268:VAL:HG22	1.93	0.50
8:BH:143:ARG:NH1	8:BH:144:PRO:O	2.44	0.50
25:BY:237:ARG:HH12	25:BY:242:LYS:HE3	1.77	0.50
26:BZ:14:LEU:HD22	29:Bc:43:LYS:HD3	1.93	0.50
32:Bf:567:LEU:O	32:Bf:569:LYS:NZ	2.40	0.50
22:AV:306:ARG:HH22	22:AV:332:LEU:HB2	1.76	0.50
2:BB:252:GLY:HA2	2:BB:255:LEU:HD23	1.93	0.50
6:BF:169:ASP:HB2	6:BF:172:VAL:HG23	1.93	0.50
21:BU:430:ASP:OD1	21:BU:431:THR:N	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:BW:55:ARG:NH1	23:BW:94:ARG:O	2.45	0.50
27:Ba:112:ILE:HB	27:Ba:151:VAL:HG21	1.93	0.50
12:AL:49:LEU:HB2	12:AL:195:LEU:HD21	1.94	0.50
23:AW:401:THR:HG23	23:AW:402:ILE:HD12	1.92	0.50
26:AZ:166:GLU:OE1	29:Ac:46:ARG:NH2	2.39	0.50
32:Af:548:THR:HA	32:Af:551:LYS:HE3	1.93	0.50
1:BA:366:ARG:NH2	32:Bf:908:LEU:OXT	2.43	0.50
4:BD:354:LEU:HG	4:BD:358:VAL:HB	1.93	0.50
23:BW:177:MET:O	23:BW:182:ARG:NH2	2.43	0.50
24:BX:377:ILE:HB	25:BY:358:ARG:HH12	1.77	0.50
27:Ba:19:PRO:HA	27:Ba:22:TRP:HD1	1.76	0.50
27:Ba:373:ASP:H	30:Bd:251:ARG:HH22	1.59	0.50
6:AF:282:ILE:HG22	6:AF:327:LYS:HB2	1.93	0.50
21:AU:13:ASP:OD1	21:AU:44:LYS:NZ	2.37	0.50
22:AV:336:GLU:HG3	22:AV:341:GLU:HG3	1.93	0.50
24:AX:417:LYS:HG3	26:AZ:276:ILE:HG21	1.92	0.50
29:Ac:41:MET:HE1	29:Ac:112:TYR:HB2	1.92	0.50
34:BD:501:ATP:O2G	5:BE:294:ARG:NH2	2.44	0.50
26:BZ:135:THR:HG21	26:BZ:162:ILE:HD11	1.92	0.50
3:AC:69:GLN:HB2	3:AC:118:ASN:HD21	1.77	0.50
9:AI:66:TYR:HD2	9:AI:87:THR:HG21	1.77	0.50
17:AQ:8:GLN:NE2	17:AQ:9:GLY:O	2.44	0.50
21:AU:758:PRO:HB2	21:AU:781:LEU:HB3	1.94	0.50
22:AV:287:ARG:NH1	31:Ae:21:GLU:OE2	2.42	0.50
5:BE:199:VAL:HG23	5:BE:201:SER:H	1.77	0.50
6:BF:195:ILE:HG12	6:BF:236:LEU:HD21	1.93	0.50
13:BM:50:GLU:OE2	13:BM:201:HIS:ND1	2.44	0.50
21:BU:900:TYR:HB3	21:BU:914:LEU:HG	1.92	0.50
24:BX:402:GLU:HA	24:BX:405:GLN:HG2	1.94	0.50
5:AE:72:LYS:HB2	5:AE:78:ARG:HG2	1.93	0.50
9:AI:197:LEU:HA	9:AI:200:THR:HG22	1.93	0.50
22:AV:178:SER:O	22:AV:180:ARG:NH1	2.45	0.50
26:AZ:173:GLU:HG3	29:Ac:152:LYS:HG3	1.93	0.50
1:BA:192:GLU:HB2	1:BA:196:LEU:HD13	1.94	0.50
3:BC:273:MET:HA	3:BC:276:LEU:HB2	1.93	0.50
8:BH:93:LEU:HD13	8:BH:113:ARG:HB3	1.94	0.50
30:Bd:101:LEU:HG	30:Bd:166:PHE:HE2	1.76	0.50
2:AB:135:ILE:HG22	2:AB:139:VAL:HG11	1.94	0.50
8:BH:111:VAL:HG22	8:BH:136:ILE:HD12	1.93	0.50
20:BT:63:LEU:HD21	20:BT:106:LEU:HD13	1.93	0.50
28:Bb:151:GLU:HG2	28:Bb:152:LYS:HG3	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:AU:643:SER:O	21:AU:649:ARG:NH1	2.43	0.50
21:AU:770:TRP:HA	29:Ac:180:ASN:HB3	1.94	0.50
21:AU:808:PRO:HB3	21:AU:874:ASN:HA	1.92	0.50
30:Ad:193:GLU:OE2	30:Ad:196:ARG:NH2	2.45	0.50
26:BZ:172:VAL:HG13	29:Bc:217:LEU:HD21	1.93	0.50
30:Bd:212:LYS:HD2	30:Bd:213:ARG:HG2	1.93	0.50
2:AB:337:LEU:HD11	2:AB:342:ILE:HD11	1.94	0.49
30:Ad:131:VAL:HG23	30:Ad:134:LYS:HE2	1.93	0.49
26:BZ:14:LEU:HG	29:Bc:39:LEU:HB3	1.92	0.49
29:Bc:307:VAL:HG22	30:Bd:236:THR:HG23	1.92	0.49
8:AH:143:ARG:NH1	8:AH:144:PRO:O	2.46	0.49
24:AX:157:LEU:HD21	24:AX:165:LEU:HB3	1.92	0.49
6:BF:389:ASP:OD1	6:BF:389:ASP:N	2.43	0.49
16:BP:189:ILE:HB	16:BP:196:THR:HB	1.94	0.49
28:Bb:58:CYS:HB2	28:Bb:92:VAL:HG21	1.94	0.49
33:Bw:40:GLN:HG2	33:Bw:72:ARG:HB3	1.94	0.49
21:AU:388:ASP:OD1	21:AU:388:ASP:N	2.44	0.49
23:AW:240:TYR:HA	23:AW:243:ILE:HD12	1.93	0.49
24:AX:255:LEU:HD22	24:AX:267:VAL:HG13	1.94	0.49
24:AX:412:ASP:HA	25:AY:379:ARG:HH21	1.77	0.49
27:Ba:235:ASP:OD1	27:Ba:247:ARG:NH2	2.44	0.49
32:Bf:386:GLY:O	32:Bf:389:LYS:NZ	2.44	0.49
5:AE:171:LEU:HD21	5:AE:298:LYS:HG2	1.94	0.49
21:AU:68:PHE:HB3	21:AU:73:ALA:HB3	1.95	0.49
23:AW:375:MET:HE3	23:AW:411:GLY:HA2	1.95	0.49
26:AZ:191:ILE:HG13	27:Aa:375:LEU:HD22	1.94	0.49
27:Aa:244:ASN:HD21	27:Aa:247:ARG:HD3	1.78	0.49
4:AD:154:LEU:HD12	4:AD:156:SER:H	1.77	0.49
5:AE:60:VAL:HA	5:AE:71:VAL:HG12	1.94	0.49
14:AN:30:VAL:HG11	20:BT:211:ILE:HG23	1.94	0.49
32:Af:419:LEU:HG	32:Af:420:TRP:HD1	1.76	0.49
32:Af:885:GLU:OE2	32:Af:903:ASN:ND2	2.46	0.49
1:BA:186:LYS:HE3	1:BA:341:ILE:HG22	1.94	0.49
32:Bf:664:GLU:HG3	32:Bf:667:GLY:H	1.77	0.49
5:AE:202:SER:HA	6:AF:269:ARG:HH22	1.78	0.49
16:AP:35:VAL:HG12	16:AP:36:THR:HG23	1.94	0.49
22:AV:355:ARG:NE	31:Ae:27:TRP:O	2.36	0.49
32:Af:415:GLY:HA3	32:Af:447:ALA:HB1	1.95	0.49
16:BP:62:THR:HG23	17:BQ:86:ARG:HH12	1.77	0.49
29:Bc:120:CYS:HA	29:Bc:144:VAL:HG11	1.93	0.49
29:Bc:270:LEU:HD13	29:Bc:273:LYS:HD2	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:Bf:849:ALA:HB2	32:Bf:879:ARG:HB2	1.95	0.49
4:AD:127:ASN:HB2	4:AD:252:ARG:HD3	1.94	0.49
15:BO:206:LYS:HD2	16:BP:161:ASP:HB3	1.94	0.49
25:BY:282:MET:SD	25:BY:288:PHE:HB3	2.53	0.49
3:AC:90:HIS:HB2	3:AC:91:PRO:CD	2.42	0.49
4:AD:116:LEU:HD23	4:AD:118:THR:H	1.77	0.49
21:AU:146:LYS:HE2	21:AU:148:LYS:HD3	1.95	0.49
22:AV:449:ALA:HB3	22:AV:460:SER:HA	1.94	0.49
25:AY:12:PRO:O	25:AY:146:ARG:NH1	2.45	0.49
6:BF:318:ASP:HB3	6:BF:347:ARG:HG2	1.94	0.49
19:BS:211:ARG:NH2	19:BS:213:ASP:OD2	2.45	0.49
21:BU:74:PHE:HB2	21:BU:103:LYS:HD2	1.94	0.49
19:AS:92:LEU:HB3	19:AS:124:PHE:HE2	1.78	0.49
21:AU:804:SER:OG	21:AU:805:ASN:N	2.46	0.49
22:AV:294:ARG:NH2	22:AV:390:GLY:O	2.46	0.49
27:Aa:374:ILE:HD11	30:Ad:251:ARG:HG2	1.93	0.49
5:BE:148:VAL:HG13	5:BE:149:ILE:HG23	1.95	0.49
20:BT:86:ARG:NH1	20:BT:133:GLU:OE2	2.45	0.49
15:AO:13:VAL:HG22	15:AO:177:VAL:HG22	1.95	0.49
21:AU:798:PRO:O	21:AU:880:ASN:ND2	2.46	0.49
23:AW:378:MET:HE3	23:AW:413:ILE:HD11	1.95	0.49
28:Ab:100:ARG:NH1	28:Ab:102:GLY:O	2.45	0.49
29:Ac:27:THR:HB	29:Ac:175:ARG:HB3	1.95	0.49
3:BC:89:VAL:O	3:BC:92:GLU:HB2	2.12	0.49
9:BI:66:TYR:HD2	9:BI:87:THR:HG21	1.78	0.49
20:BT:27:LEU:HD11	20:BT:34:ALA:HB1	1.94	0.49
21:BU:388:ASP:N	21:BU:388:ASP:OD1	2.46	0.49
21:BU:693:LEU:HD22	21:BU:736:ILE:HG21	1.95	0.49
28:Bb:8:VAL:HA	28:Bb:110:ILE:HG13	1.95	0.49
2:AB:71:TYR:HB3	32:Af:670:MET:HG2	1.95	0.48
5:AE:126:ASP:HB2	5:AE:197:LYS:HE3	1.96	0.48
2:BB:68:ILE:HA	32:Bf:670:MET:HE3	1.95	0.48
21:BU:583:MET:HA	21:BU:586:VAL:HG12	1.94	0.48
22:BV:407:VAL:HG13	22:BV:446:VAL:HG11	1.94	0.48
3:AC:83:LYS:HD2	3:AC:105:ILE:HD11	1.94	0.48
3:AC:90:HIS:CB	3:AC:91:PRO:HD3	2.42	0.48
7:AG:165:ALA:HB1	7:AG:179:LEU:HD13	1.96	0.48
11:AK:146:VAL:HG11	11:AK:222:PRO:HA	1.96	0.48
21:AU:69:TYR:OH	22:AV:236:ARG:NH2	2.46	0.48
21:AU:666:LYS:HA	21:AU:669:ILE:HD12	1.95	0.48
23:AW:31:CYS:HA	23:AW:43:VAL:HG11	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:AX:142:ARG:NH1	24:AX:145:GLU:OE2	2.42	0.48
5:BE:291:ARG:HG2	5:BE:293:GLY:H	1.79	0.48
21:BU:714:SER:O	21:BU:718:ASN:ND2	2.46	0.48
22:BV:265:ASP:OD1	22:BV:265:ASP:N	2.45	0.48
15:AO:143:ARG:NH2	15:AO:150:GLU:OE1	2.45	0.48
29:Ac:87:VAL:HG11	29:Ac:133:PHE:HZ	1.78	0.48
30:Ad:11:ARG:HE	30:Ad:12:LYS:H	1.60	0.48
21:BU:701:ILE:HG21	21:BU:810:THR:HA	1.94	0.48
24:BX:316:ASP:HB2	24:BX:319:ILE:HG12	1.95	0.48
4:AD:208:PRO:HB2	5:AE:291:ARG:HD3	1.95	0.48
5:AE:355:ILE:HD11	6:AF:211:LYS:HG2	1.95	0.48
13:AM:19:ARG:NH2	13:AM:24:GLU:OE1	2.42	0.48
27:Ba:70:ARG:NH2	28:Bb:79:GLN:OE1	2.46	0.48
29:Bc:164:ASN:HB3	29:Bc:167:MET:HB2	1.95	0.48
20:AT:22:ILE:HG12	20:AT:50:MET:HE3	1.96	0.48
21:AU:750:SER:OG	21:AU:754:HIS:O	2.32	0.48
24:AX:357:SER:OG	24:AX:358:LYS:N	2.46	0.48
27:Aa:165:THR:HG22	27:Aa:166:ILE:H	1.77	0.48
29:Ac:25:VAL:HG12	29:Ac:139:ARG:HH12	1.79	0.48
29:Ac:267:PRO:HA	29:Ac:270:LEU:HD23	1.94	0.48
4:BD:175:GLN:NE2	4:BD:179:GLU:OE2	2.45	0.48
6:BF:289:ASP:OD1	6:BF:289:ASP:N	2.45	0.48
12:BL:204:ASP:N	12:BL:204:ASP:OD1	2.46	0.48
15:BO:1:THR:N	15:BO:168:GLY:O	2.47	0.48
25:BY:293:ARG:NH2	31:Be:49:GLU:O	2.47	0.48
26:BZ:34:ARG:NH2	26:BZ:60:GLU:OE1	2.46	0.48
1:AA:24:ALA:HB3	32:Af:43:GLN:HB3	1.94	0.48
2:AB:49:LEU:HG	2:AB:51:LEU:HD23	1.95	0.48
24:AX:27:LEU:HD23	24:AX:30:ILE:HD12	1.95	0.48
26:AZ:11:VAL:HA	26:AZ:50:VAL:HB	1.95	0.48
5:BE:282:PRO:HD2	5:BE:386:TYR:HB3	1.95	0.48
28:Bb:14:GLU:HB3	28:Bb:82:GLY:H	1.78	0.48
3:AC:130:LYS:NZ	3:AC:131:VAL:HB	2.29	0.48
10:AJ:146:GLN:OE1	10:AJ:159:ASN:ND2	2.46	0.48
26:AZ:235:ASN:OD1	27:Aa:289:ARG:NH1	2.47	0.48
27:Aa:374:ILE:HG22	27:Aa:375:LEU:HD12	1.96	0.48
5:BE:56:ILE:HG12	5:BE:102:MET:HE1	1.96	0.48
19:BS:125:ASP:OD1	19:BS:129:SER:N	2.47	0.48
21:BU:700:GLU:H	21:BU:706:VAL:HG21	1.79	0.48
30:Ad:125:LYS:HB3	30:Ad:130:ASN:HD22	1.78	0.48
2:BB:118:ASP:OD1	2:BB:118:ASP:N	2.44	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:BU:162:VAL:HA	21:BU:165:LYS:HE3	1.96	0.48
27:Ba:27:GLU:O	27:Ba:30:THR:OG1	2.31	0.48
27:Ba:190:VAL:HB	27:Ba:225:LEU:HD11	1.95	0.48
30:Bd:5:LEU:HD22	30:Bd:54:ILE:HD12	1.96	0.48
18:AR:100:MET:HE2	18:AR:100:MET:HB3	1.70	0.48
27:Aa:289:ARG:NH1	27:Aa:334:THR:O	2.44	0.48
3:BC:86:LEU:HD21	3:BC:94:LYS:HD3	1.94	0.48
13:BM:19:ARG:NH2	13:BM:24:GLU:OE1	2.44	0.48
23:BW:171:VAL:HG12	23:BW:182:ARG:HG3	1.95	0.48
25:BY:2:PRO:HG2	25:BY:5:ASN:HB2	1.96	0.48
26:BZ:187:LEU:HA	26:BZ:190:ARG:HG2	1.94	0.48
30:Bd:11:ARG:HE	30:Bd:12:LYS:H	1.62	0.48
2:AB:378:VAL:HG12	2:AB:416:ASN:HA	1.95	0.48
4:AD:341:LYS:HB3	4:AD:364:VAL:HG13	1.96	0.48
6:AF:318:ASP:OD2	6:AF:344:ARG:NH2	2.44	0.48
10:AJ:222:PRO:HA	10:AJ:225:ILE:HD12	1.96	0.48
11:AK:168:ARG:NH2	12:AL:53:GLN:OE1	2.44	0.48
15:AO:42:TYR:HE2	15:AO:183:LEU:HD21	1.78	0.48
2:BB:84:GLN:NE2	21:BU:825:LYS:O	2.46	0.48
5:BE:180:LYS:HG2	5:BE:301:ILE:HD12	1.96	0.48
11:BK:96:THR:HA	11:BK:107:MET:HE2	1.94	0.48
21:BU:167:ILE:HA	21:BU:176:MET:HE1	1.95	0.48
21:BU:596:ASN:OD1	21:BU:597:LYS:N	2.47	0.48
26:BZ:109:ASN:HD21	26:BZ:119:SER:HB2	1.77	0.48
2:AB:324:ASP:OD1	2:AB:326:LYS:NZ	2.39	0.47
3:AC:135:VAL:HG12	3:AC:139:MET:HE1	1.96	0.47
6:AF:169:ASP:HB3	6:AF:172:VAL:HG23	1.95	0.47
13:AM:68:ASN:OD1	13:AM:224:HIS:ND1	2.47	0.47
17:AQ:19:ARG:NH1	17:AQ:179:SER:OG	2.41	0.47
20:AT:27:LEU:HD11	20:AT:34:ALA:HB1	1.96	0.47
24:AX:10:GLN:HA	24:AX:13:GLN:HB2	1.96	0.47
32:Af:416:MET:HB3	32:Af:450:ILE:HG21	1.95	0.47
33:Aw:45:PHE:HB2	33:Aw:50:LEU:HD11	1.95	0.47
30:Bd:175:ARG:HD3	30:Bd:198:LEU:HD22	1.95	0.47
4:AD:49:GLN:NE2	4:AD:52:GLU:OE1	2.47	0.47
19:AS:125:ASP:OD1	19:AS:129:SER:N	2.47	0.47
21:AU:117:ASP:OD1	21:AU:117:ASP:N	2.45	0.47
24:AX:71:LYS:HG2	24:AX:74:ARG:HH12	1.79	0.47
25:AY:276:ALA:HB2	31:Ae:56:LEU:HD23	1.96	0.47
27:Aa:228:THR:HA	27:Aa:231:GLN:NE2	2.28	0.47
4:BD:270:ILE:HD12	4:BD:288:ILE:HG21	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:BH:213:CYS:HB2	8:BH:218:PHE:HD1	1.79	0.47
32:Bf:99:LEU:HD22	32:Bf:106:LEU:HD11	1.96	0.47
12:AL:204:ASP:OD1	12:AL:204:ASP:N	2.46	0.47
23:AW:133:GLU:OE1	23:AW:142:ARG:NH2	2.47	0.47
24:AX:421:LEU:HD11	26:AZ:280:ILE:HD13	1.95	0.47
26:AZ:215:VAL:HG22	27:Aa:346:ILE:HD12	1.96	0.47
32:Af:404:ASP:OD1	32:Af:404:ASP:N	2.47	0.47
3:BC:53:ASN:HD21	21:BU:643:SER:HA	1.80	0.47
4:BD:87:LEU:HB3	5:BE:80:VAL:HB	1.96	0.47
12:BL:49:LEU:HB2	12:BL:195:LEU:HD21	1.95	0.47
27:Ba:28:LEU:HB3	27:Ba:33:LEU:HD11	1.95	0.47
29:Bc:54:MET:HE2	29:Bc:75:MET:HE1	1.96	0.47
2:AB:112:LEU:HD23	2:AB:123:VAL:HG12	1.97	0.47
9:BI:197:LEU:HA	9:BI:200:THR:HG22	1.95	0.47
21:BU:158:ARG:NH2	21:BU:192:GLN:OE1	2.47	0.47
22:BV:420:ALA:HA	22:BV:431:PRO:HB3	1.96	0.47
23:BW:172:GLU:HA	23:BW:182:ARG:HD3	1.96	0.47
25:BY:202:LEU:HD13	25:BY:239:LYS:HD2	1.96	0.47
4:AD:55:GLU:OE1	21:AU:600:ARG:NH2	2.46	0.47
4:AD:92:PHE:HA	4:AD:103:VAL:HG12	1.96	0.47
26:AZ:186:THR:HG21	30:Ad:253:LEU:HD23	1.97	0.47
7:BG:112:ASP:OD1	7:BG:112:ASP:N	2.47	0.47
18:BR:37:ILE:HD11	18:BR:56:GLU:HB3	1.96	0.47
26:BZ:180:LYS:HG2	26:BZ:182:THR:HG23	1.95	0.47
33:Bw:39:ASP:O	33:Bw:42:ARG:NH1	2.42	0.47
3:AC:218:GLU:HB3	4:AD:275:PHE:HB2	1.96	0.47
25:AY:56:ALA:HA	25:AY:59:LYS:HE3	1.95	0.47
32:Af:668:ALA:HA	32:Af:697:ILE:HD11	1.97	0.47
5:BE:360:ASP:OD1	5:BE:360:ASP:N	2.47	0.47
1:AA:74:PRO:HG2	1:AA:77:LEU:HD13	1.97	0.47
1:AA:347:ASP:OD1	1:AA:347:ASP:N	2.48	0.47
4:AD:103:VAL:HG21	4:AD:132:LEU:HD11	1.96	0.47
5:AE:57:VAL:HG13	5:AE:97:ARG:HD3	1.96	0.47
6:AF:94:ILE:HD11	6:AF:125:LYS:HB2	1.97	0.47
6:AF:256:LEU:HD13	6:AF:268:VAL:HG22	1.97	0.47
12:AL:95:SER:OG	12:AL:101:ARG:NH1	2.48	0.47
21:AU:506:ALA:HA	21:AU:544:ILE:HG23	1.96	0.47
21:AU:701:ILE:HG21	21:AU:810:THR:HA	1.96	0.47
21:AU:885:MET:HG2	21:AU:887:ALA:H	1.79	0.47
24:AX:30:ILE:HG23	24:AX:33:ARG:HH22	1.78	0.47
29:Ac:35:SER:OG	29:Ac:208:ARG:O	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:BB:168:ASP:HB3	2:BB:171:VAL:HB	1.96	0.47
3:BC:113:ARG:NH1	4:BD:94:GLU:OE2	2.47	0.47
3:BC:130:LYS:HG3	3:BC:131:VAL:H	1.80	0.47
10:BJ:35:VAL:HG11	10:BJ:190:LEU:HD23	1.97	0.47
10:BJ:222:PRO:HA	10:BJ:225:ILE:HD12	1.96	0.47
11:BK:38:ILE:HD12	11:BK:202:LEU:HG	1.96	0.47
11:BK:88:LEU:HD22	11:BK:116:VAL:HG13	1.96	0.47
13:BM:228:PRO:HD2	13:BM:231:ILE:HD12	1.97	0.47
22:BV:193:GLN:O	22:BV:197:THR:OG1	2.27	0.47
23:BW:439:VAL:O	23:BW:443:THR:OG1	2.29	0.47
26:BZ:62:ASP:OD1	26:BZ:62:ASP:N	2.48	0.47
4:AD:342:ARG:HB3	4:AD:364:VAL:HG11	1.96	0.47
10:AJ:5:ARG:O	10:AJ:123:GLY:N	2.45	0.47
10:AJ:211:MET:HB2	10:AJ:217:LEU:HD13	1.95	0.47
26:AZ:165:GLU:HB3	26:AZ:168:GLU:HG2	1.97	0.47
26:AZ:214:LYS:HA	26:AZ:218:GLY:HA3	1.97	0.47
27:Aa:321:LYS:HB2	27:Aa:335:TRP:HB3	1.96	0.47
29:Ac:151:VAL:HG23	29:Ac:152:LYS:H	1.80	0.47
30:Ad:45:LYS:O	30:Ad:49:ILE:N	2.41	0.47
33:Aw:24:GLU:HG2	33:Aw:52:ASP:HB3	1.97	0.47
8:BH:42:ASN:ND2	8:BH:183:GLU:OE1	2.48	0.47
1:AA:261:PHE:HB3	1:AA:265:ARG:HH12	1.80	0.47
2:AB:102:LEU:HD22	2:AB:138:PHE:HZ	1.80	0.47
13:AM:15:SER:HB3	13:AM:19:ARG:H	1.80	0.47
21:AU:126:ILE:HB	21:AU:130:LEU:HD21	1.97	0.47
22:AV:76:LYS:HE3	22:AV:149:PRO:HB3	1.97	0.47
26:AZ:263:ALA:HB1	29:Ac:288:VAL:HG13	1.97	0.47
29:Ac:146:ASP:HB3	29:Ac:156:VAL:HG21	1.97	0.47
31:Ae:50:ASP:OD1	31:Ae:50:ASP:N	2.47	0.47
3:BC:273:MET:HE3	3:BC:291:VAL:HB	1.97	0.47
23:BW:373:ILE:HD11	23:BW:377:ARG:HG2	1.96	0.47
29:Bc:56:LEU:O	29:Bc:112:TYR:HE1	1.97	0.47
30:Bd:56:GLU:HA	30:Bd:78:LEU:HD11	1.95	0.47
32:Bf:594:LEU:HD12	32:Bf:652:VAL:HG21	1.96	0.47
4:AD:159:LYS:HD2	4:AD:221:HIS:HA	1.96	0.47
15:AO:164:PHE:O	19:BS:38:ARG:NH2	2.39	0.47
20:AT:211:ILE:HG23	14:BN:30:VAL:HG11	1.97	0.47
27:Aa:370:GLN:NE2	30:Ad:248:GLU:OE2	2.48	0.47
32:Af:211:ILE:HG23	32:Af:213:GLN:H	1.80	0.47
33:Aw:27:LYS:HE2	33:Aw:43:LEU:HD23	1.96	0.47
2:BB:290:ILE:HG12	2:BB:305:ILE:HG23	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:Ba:127:ASP:OD1	27:Ba:127:ASP:N	2.48	0.47
31:Be:16:ASP:N	31:Be:16:ASP:OD1	2.48	0.47
1:AA:216:GLY:O	1:AA:222:LYS:NZ	2.46	0.46
1:AA:372:LEU:HD11	11:AK:207:GLU:HA	1.96	0.46
3:AC:125:LYS:HZ2	4:AD:96:VAL:HG11	1.80	0.46
3:AC:163:GLU:HA	3:AC:167:LEU:HD13	1.96	0.46
4:AD:152:MET:HE3	4:AD:257:ASN:HD22	1.79	0.46
16:AP:88:MET:HE2	16:AP:88:MET:HB3	1.82	0.46
26:AZ:193:ASN:HB3	29:Ac:228:GLY:HA3	1.96	0.46
32:Af:355:ASN:ND2	32:Af:750:GLN:OE1	2.48	0.46
4:BD:141:ASP:OD1	4:BD:142:VAL:N	2.49	0.46
5:BE:84:ARG:HG2	29:Bc:50:PRO:HG3	1.96	0.46
6:BF:303:ASP:OD1	6:BF:303:ASP:N	2.48	0.46
21:BU:857:ASP:N	21:BU:857:ASP:OD1	2.48	0.46
32:Bf:353:LEU:HD11	32:Bf:746:ARG:HE	1.79	0.46
19:AS:144:MET:HE1	19:AS:186:ASP:HB2	1.95	0.46
25:AY:66:ASP:HB3	25:AY:69:LEU:HB3	1.96	0.46
29:Ac:157:ILE:HG23	29:Ac:158:ASP:H	1.81	0.46
32:Af:675:PHE:HB3	32:Af:690:VAL:HG13	1.97	0.46
1:BA:366:ARG:NH1	32:Bf:906:TYR:OH	2.40	0.46
10:BJ:146:GLN:OE1	10:BJ:159:ASN:ND2	2.49	0.46
27:Ba:119:GLY:HA3	27:Ba:158:LEU:HD11	1.97	0.46
1:AA:85:GLN:HA	1:AA:88:GLN:HB3	1.97	0.46
1:AA:366:ARG:NH2	32:Af:908:LEU:OXT	2.48	0.46
4:AD:380:GLN:NE2	5:AE:165:ILE:O	2.43	0.46
5:AE:117:PRO:HD3	6:AF:94:ILE:HG23	1.97	0.46
12:AL:7:ASP:OD1	12:AL:7:ASP:N	2.48	0.46
2:BB:388:ASP:N	2:BB:388:ASP:OD1	2.46	0.46
12:BL:26:MET:HE1	12:BL:148:CYS:HB3	1.97	0.46
24:BX:357:SER:OG	24:BX:358:LYS:N	2.48	0.46
32:Bf:192:VAL:HG13	32:Bf:204:ALA:HB1	1.98	0.46
32:Bf:482:ILE:HD12	32:Bf:518:THR:HG23	1.97	0.46
4:AD:200:ARG:HH22	4:AD:301:GLN:HA	1.79	0.46
24:AX:96:PHE:HA	24:AX:99:MET:HE1	1.96	0.46
1:BA:400:ARG:H	1:BA:401:ARG:HH12	1.63	0.46
2:BB:48:LYS:O	32:Bf:673:ARG:NH2	2.48	0.46
4:BD:113:VAL:HB	4:BD:138:ALA:HA	1.97	0.46
5:BE:55:GLN:N	6:BF:133:PHE:O	2.46	0.46
18:BR:41:LEU:HD23	18:BR:103:GLY:HA3	1.97	0.46
18:BR:81:LYS:HE3	18:BR:120:ARG:HH11	1.80	0.46
21:BU:68:PHE:HB3	21:BU:73:ALA:HB3	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:BU:381:THR:HG22	21:BU:412:HIS:HA	1.97	0.46
21:BU:750:SER:OG	21:BU:754:HIS:O	2.32	0.46
21:BU:790:GLY:HA3	21:BU:914:LEU:HD22	1.98	0.46
1:AA:161:VAL:HA	1:AA:164:MET:HE3	1.98	0.46
3:AC:127:LEU:HD12	3:AC:127:LEU:HA	1.77	0.46
23:AW:293:ASP:HB3	23:AW:296:LEU:HB2	1.96	0.46
25:AY:297:ARG:NH2	31:Ae:44:ASP:O	2.48	0.46
2:BB:342:ILE:HA	2:BB:347:ILE:HD12	1.96	0.46
15:BO:42:TYR:HE2	15:BO:183:LEU:HD21	1.80	0.46
24:BX:412:ASP:HA	25:BY:379:ARG:HH21	1.80	0.46
25:BY:275:LEU:HD21	25:BY:296:VAL:HG22	1.97	0.46
4:AD:407:ILE:HG13	4:AD:408:LYS:H	1.80	0.46
5:AE:269:THR:O	5:AE:271:HIS:ND1	2.45	0.46
16:AP:135:ASP:OD1	16:AP:135:ASP:N	2.48	0.46
22:AV:255:LEU:HD22	22:AV:291:TYR:HB3	1.98	0.46
28:Ab:12:ASN:HB2	28:Ab:80:PRO:HA	1.96	0.46
30:Ad:101:LEU:HG	30:Ad:166:PHE:HE2	1.80	0.46
22:BV:150:ARG:NH1	22:BV:157:THR:O	2.48	0.46
24:BX:15:LEU:HD21	24:BX:22:ALA:HB3	1.96	0.46
24:BX:335:LEU:HD22	24:BX:368:MET:HE1	1.97	0.46
30:Bd:34:ASN:OD1	30:Bd:35:PHE:N	2.49	0.46
2:AB:264:PRO:HG3	2:AB:308:THR:HA	1.98	0.46
3:AC:44:ARG:HH22	22:AV:492:LYS:HA	1.80	0.46
4:AD:313:ARG:HD3	5:AE:242:ARG:HH11	1.79	0.46
4:AD:345:PHE:HB3	4:AD:360:LEU:HD23	1.98	0.46
5:AE:148:VAL:HG13	5:AE:149:ILE:HG23	1.98	0.46
9:AI:198:ASN:HA	9:AI:206:LEU:HD21	1.97	0.46
22:AV:76:LYS:HG2	22:AV:80:LYS:NZ	2.30	0.46
1:BA:161:VAL:HA	1:BA:164:MET:HE3	1.96	0.46
5:BE:290:LEU:HA	5:BE:295:LEU:HD12	1.97	0.46
21:BU:575:ASP:HB3	21:BU:578:LEU:HB2	1.98	0.46
32:Bf:512:MET:O	32:Bf:516:GLY:N	2.45	0.46
19:AS:16:ALA:HB2	19:AS:121:VAL:HG23	1.97	0.46
32:Af:699:VAL:HG23	32:Af:731:MET:HB3	1.96	0.46
10:BJ:67:ASP:OD1	10:BJ:67:ASP:N	2.49	0.46
12:BL:50:LYS:HB3	12:BL:59:HIS:HB3	1.98	0.46
26:BZ:73:ASP:H	28:Bb:63:THR:HG21	1.81	0.46
29:Bc:121:TRP:HZ3	29:Bc:190:GLN:HB3	1.80	0.46
32:Bf:144:LEU:HD22	32:Bf:183:PRO:HB3	1.98	0.46
3:AC:20:LEU:HD22	21:AU:149:GLN:HG3	1.98	0.46
7:AG:80:MET:HB3	7:AG:87:SER:HB3	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:AZ:172:VAL:HG13	29:Ac:217:LEU:HD21	1.98	0.46
27:Aa:27:GLU:O	27:Aa:30:THR:OG1	2.32	0.46
27:Aa:159:SER:OG	27:Aa:175:ASP:OD2	2.34	0.46
32:Af:418:LEU:HD22	32:Af:425:GLY:HA2	1.97	0.46
32:Af:803:PHE:HD1	32:Af:810:ILE:HG13	1.80	0.46
5:BE:60:VAL:HA	5:BE:71:VAL:HG12	1.96	0.46
7:BG:188:ASP:N	7:BG:188:ASP:OD1	2.48	0.46
10:BJ:5:ARG:O	10:BJ:123:GLY:N	2.47	0.46
11:BK:137:PHE:HB3	11:BK:139:VAL:HG22	1.98	0.46
12:BL:159:MET:HE3	12:BL:160:SER:H	1.80	0.46
27:Ba:115:LYS:HD3	27:Ba:118:ILE:HD12	1.97	0.46
2:AB:373:THR:OG1	2:AB:412:MET:O	2.33	0.46
21:AU:82:LEU:O	21:AU:129:ARG:NE	2.49	0.46
21:AU:898:CYS:SG	21:AU:899:ARG:N	2.89	0.46
24:AX:310:ARG:HG2	24:AX:314:ARG:HB3	1.98	0.46
24:AX:416:ASN:HA	24:AX:420:LYS:HE2	1.96	0.46
24:AX:419:LYS:HD2	24:AX:419:LYS:HA	1.76	0.46
26:AZ:83:LYS:NZ	26:AZ:87:ALA:O	2.41	0.46
32:Af:398:TRP:HA	32:Af:401:LYS:HD3	1.98	0.46
32:Af:527:VAL:HG12	32:Af:564:LEU:HG	1.98	0.46
3:BC:23:TYR:HD1	21:BU:102:ALA:HA	1.80	0.46
27:Ba:373:ASP:N	30:Bd:251:ARG:HH22	2.14	0.46
34:AA:501:ATP:O1G	2:AB:346:ARG:NH2	2.48	0.45
23:AW:68:VAL:HG12	23:AW:72:LYS:HE2	1.98	0.45
3:BC:235:PHE:HA	3:BC:238:ALA:HB3	1.97	0.45
23:BW:385:SER:OG	23:BW:386:VAL:N	2.49	0.45
25:BY:383:LEU:HD22	26:BZ:272:LEU:HD21	1.97	0.45
2:AB:249:ARG:HG3	2:AB:283:PHE:HD2	1.80	0.45
8:AH:111:VAL:HG22	8:AH:136:ILE:HD12	1.97	0.45
18:AR:1:THR:HA	18:AR:33:LYS:HZ3	1.80	0.45
23:AW:314:LEU:HD23	27:Aa:312:MET:HE2	1.99	0.45
26:AZ:283:ARG:NH1	26:AZ:284:ASP:OD1	2.49	0.45
29:Ac:270:LEU:O	29:Ac:274:ASN:ND2	2.45	0.45
4:BD:65:GLN:O	4:BD:69:LYS:NZ	2.46	0.45
6:BF:153:VAL:HG22	6:BF:160:ILE:HG22	1.98	0.45
8:BH:55:ILE:H	8:BH:55:ILE:HD12	1.80	0.45
22:BV:259:LEU:HA	22:BV:264:TYR:HE1	1.81	0.45
27:Ba:124:ASN:HB2	27:Ba:125:ILE:HD12	1.98	0.45
32:Bf:83:ARG:O	32:Bf:87:THR:OG1	2.33	0.45
6:AF:232:GLY:HA2	36:AF:501:ADP:H5'2	1.97	0.45
1:BA:277:ILE:HD13	1:BA:319:MET:HE2	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:BC:83:LYS:HD2	3:BC:105:ILE:HD11	1.99	0.45
6:BF:197:GLU:HB2	6:BF:350:ARG:HH21	1.82	0.45
20:BT:20:VAL:HG11	20:BT:122:LEU:HD13	1.97	0.45
22:BV:212:TYR:HA	22:BV:253:LEU:HD11	1.98	0.45
26:BZ:110:GLU:OE2	26:BZ:113:LYS:NZ	2.42	0.45
32:Bf:169:GLU:HG3	32:Bf:184:LEU:HD11	1.97	0.45
2:AB:183:THR:OG1	2:AB:184:TYR:N	2.48	0.45
4:AD:214:MET:HE1	34:AD:501:ATP:C4	2.52	0.45
20:AT:86:ARG:NH1	20:AT:133:GLU:OE2	2.49	0.45
22:AV:453:HIS:N	30:Ad:187:GLU:OE2	2.49	0.45
28:Ab:111:ALA:HB3	28:Ab:140:ILE:HG13	1.99	0.45
1:BA:297:ARG:HH12	6:BF:306:VAL:HG21	1.81	0.45
20:BT:126:ASP:OD1	20:BT:130:VAL:N	2.49	0.45
26:BZ:65:ASP:OD1	26:BZ:65:ASP:N	2.48	0.45
26:BZ:162:ILE:HG13	29:Bc:220:LEU:HB3	1.99	0.45
30:Bd:49:ILE:HD11	30:Bd:89:LEU:HD23	1.97	0.45
4:AD:200:ARG:HD2	4:AD:299:PHE:HD2	1.81	0.45
12:AL:44:ALA:HB2	12:AL:142:PRO:HB3	1.98	0.45
3:BC:340:ARG:NH2	25:BY:211:TYR:OH	2.40	0.45
5:BE:167:PRO:O	5:BE:274:LYS:NZ	2.42	0.45
21:BU:471:ASP:HB3	21:BU:508:THR:HB	1.98	0.45
30:Bd:131:VAL:HG23	30:Bd:134:LYS:HE2	1.99	0.45
32:Bf:274:ASP:OD1	32:Bf:274:ASP:N	2.50	0.45
2:AB:342:ILE:HG22	2:AB:350:LYS:HE3	1.99	0.45
6:AF:141:ASP:OD1	6:AF:144:LYS:NZ	2.45	0.45
20:AT:25:ASP:HA	20:AT:187:PHE:HA	1.99	0.45
23:AW:59:ASP:O	23:AW:63:THR:OG1	2.32	0.45
32:Af:389:LYS:HE3	32:Af:428:GLN:HG2	1.98	0.45
6:BF:212:PHE:HD1	6:BF:217:ILE:HD11	1.82	0.45
21:BU:625:ILE:HG13	21:BU:626:LEU:HG	1.97	0.45
24:BX:297:ARG:HB2	24:BX:337:ARG:HD2	1.98	0.45
28:Bb:97:LEU:O	28:Bb:100:ARG:NE	2.47	0.45
29:Bc:37:ALA:O	29:Bc:41:MET:N	2.48	0.45
6:AF:338:LEU:HB3	6:AF:342:LEU:HD11	1.98	0.45
13:AM:27:MET:HE1	13:AM:153:PRO:HD2	1.99	0.45
15:AO:86:MET:HE3	15:AO:86:MET:HB3	1.89	0.45
21:AU:707:ASN:HA	21:AU:710:ARG:HB2	1.99	0.45
27:Aa:54:ASP:HA	27:Aa:57:ILE:HG22	1.98	0.45
3:BC:139:MET:O	4:BD:326:ARG:NH2	2.50	0.45
3:BC:344:LEU:HD23	3:BC:347:ILE:HD12	1.99	0.45
4:BD:385:LEU:HD23	4:BD:398:ASP:HA	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:BE:380:LEU:HD22	6:BF:335:VAL:HG11	1.99	0.45
7:BG:11:ARG:O	7:BG:24:GLN:NE2	2.49	0.45
32:Bf:379:GLY:HA2	32:Bf:417:ILE:HD11	1.99	0.45
1:AA:213:LEU:HD22	1:AA:337:LEU:HD23	1.98	0.45
11:AK:166:ASP:OD2	11:AK:187:LYS:NZ	2.49	0.45
20:AT:174:ARG:NH1	20:AT:206:GLU:O	2.49	0.45
21:AU:857:ASP:OD1	21:AU:857:ASP:N	2.48	0.45
29:Ac:33:ILE:HG23	29:Ac:69:VAL:HG23	1.98	0.45
4:BD:322:LEU:HA	4:BD:327:LEU:HB2	1.99	0.45
15:BO:13:VAL:HG22	15:BO:177:VAL:HG22	1.99	0.45
15:BO:214:GLU:OE1	16:BP:198:ARG:NE	2.49	0.45
26:BZ:138:TYR:HA	26:BZ:157:HIS:HA	1.99	0.45
32:Bf:438:ASP:OD1	32:Bf:438:ASP:N	2.47	0.45
33:Bw:4:PHE:HB2	33:Bw:66:THR:HA	1.99	0.45
4:AD:115:ILE:HG22	4:AD:139:LEU:HD12	1.98	0.45
4:AD:145:PRO:HG2	4:AD:256:GLU:HG2	1.98	0.45
21:AU:625:ILE:HG13	21:AU:626:LEU:HG	1.99	0.45
28:Ab:124:LEU:HD13	28:Ab:156:PHE:HB2	1.99	0.45
29:Ac:54:MET:SD	29:Ac:55:GLY:N	2.90	0.45
30:Ad:18:LYS:O	30:Ad:22:GLU:N	2.48	0.45
33:Au:43:LEU:HB3	33:Au:50:LEU:HD12	1.99	0.45
1:BA:392:ALA:HA	1:BA:395:PHE:HD2	1.82	0.45
4:BD:103:VAL:HG21	4:BD:132:LEU:HD21	1.97	0.45
20:BT:9:THR:OG1	20:BT:10:SER:N	2.49	0.45
2:AB:212:GLU:O	32:Af:845:ARG:NH2	2.51	0.45
7:AG:11:ARG:O	7:AG:24:GLN:NE2	2.50	0.45
20:AT:44:ARG:NH2	20:AT:47:ASN:OD1	2.50	0.45
27:Aa:341:LEU:HD13	27:Aa:345:GLN:HB2	1.99	0.45
29:Ac:115:HIS:CD2	29:Ac:144:VAL:HG13	2.52	0.45
33:Aw:15:LEU:HD22	33:Aw:29:LYS:HG2	2.00	0.45
1:BA:105:ASP:OD1	1:BA:105:ASP:N	2.49	0.45
2:BB:324:ASP:OD1	2:BB:326:LYS:NZ	2.42	0.45
4:BD:171:ASP:OD1	4:BD:171:ASP:N	2.48	0.45
24:BX:255:LEU:HD22	24:BX:267:VAL:HG13	1.99	0.45
28:Bb:16:MET:HE3	28:Bb:114:GLY:HA3	1.99	0.45
3:AC:98:ASP:OD1	3:AC:98:ASP:N	2.45	0.44
4:AD:267:ILE:H	4:AD:267:ILE:HD12	1.82	0.44
5:AE:244:SER:HB2	6:AF:300:LYS:HA	1.98	0.44
5:AE:253:ILE:HG21	6:AF:308:ARG:NH2	2.32	0.44
8:AH:55:ILE:HD12	8:AH:55:ILE:H	1.82	0.44
13:AM:228:PRO:HD2	13:AM:231:ILE:HD12	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:AY:376:LEU:HD22	26:AZ:265:LEU:HD11	1.98	0.44
26:AZ:10:VAL:HG13	26:AZ:163:GLY:HA3	1.99	0.44
3:BC:371:LEU:HD12	4:BD:194:ILE:HD12	1.99	0.44
4:BD:125:LYS:HD2	4:BD:125:LYS:HA	1.45	0.44
15:BO:211:VAL:HG21	16:BP:198:ARG:HD3	1.99	0.44
21:BU:693:LEU:HD12	21:BU:746:ILE:HD13	1.99	0.44
22:BV:325:LYS:HA	22:BV:328:VAL:HG12	1.99	0.44
32:Bf:902:LYS:NZ	32:Bf:903:ASN:O	2.49	0.44
3:AC:89:VAL:HB	3:AC:92:GLU:CB	2.31	0.44
21:AU:900:TYR:HB3	21:AU:914:LEU:HG	1.99	0.44
23:AW:108:CYS:HB3	23:AW:128:LEU:HD11	1.98	0.44
27:Aa:149:THR:HA	27:Aa:152:HIS:HB3	1.99	0.44
6:BF:123:VAL:HG22	6:BF:133:PHE:HD1	1.82	0.44
17:BQ:35:MET:HG2	17:BQ:45:LEU:HG	1.98	0.44
24:BX:10:GLN:HA	24:BX:13:GLN:HB2	1.99	0.44
24:BX:27:LEU:HD23	24:BX:30:ILE:HD12	1.99	0.44
25:BY:379:ARG:HH12	25:BY:383:LEU:HB2	1.82	0.44
2:AB:76:GLU:HA	2:AB:79:ILE:HG22	1.99	0.44
4:AD:133:HIS:HB3	4:AD:137:ASN:H	1.82	0.44
8:AH:176:LYS:H	8:AH:176:LYS:HG3	1.56	0.44
19:AS:60:ASP:OD1	20:AT:97:TYR:OH	2.33	0.44
21:AU:172:ASP:OD1	21:AU:172:ASP:N	2.48	0.44
21:AU:376:MET:HG3	21:AU:735:GLY:HA2	2.00	0.44
23:AW:174:TYR:O	23:AW:182:ARG:NH2	2.49	0.44
27:Aa:273:GLN:HB3	27:Aa:310:LEU:HD11	1.99	0.44
9:BI:173:SER:O	9:BI:177:GLN:NE2	2.50	0.44
15:BO:198:ARG:NH1	16:BP:155:GLU:OE2	2.50	0.44
18:BR:122:SER:OG	18:BR:123:GLY:N	2.49	0.44
22:BV:430:SER:OG	22:BV:433:ASP:OD1	2.35	0.44
32:Bf:703:ARG:HB2	32:Bf:706:ILE:HG12	1.98	0.44
3:AC:184:LYS:N	3:AC:312:ASP:OD2	2.44	0.44
11:AK:52:LYS:NZ	11:AK:64:ILE:O	2.51	0.44
13:AM:150:MET:HE2	13:AM:160:TYR:HE2	1.82	0.44
19:AS:209:SER:OG	19:AS:212:LYS:NZ	2.51	0.44
23:AW:420:ASP:OD1	23:AW:423:ASN:ND2	2.50	0.44
27:Aa:193:GLN:HB3	27:Aa:225:LEU:HD21	1.99	0.44
1:BA:23:ARG:NE	32:Bf:44:GLU:O	2.50	0.44
2:BB:112:LEU:HD23	2:BB:123:VAL:HG12	1.99	0.44
6:BF:375:VAL:HG22	6:BF:415:LEU:HD12	1.99	0.44
10:BJ:220:LEU:HD23	10:BJ:220:LEU:HA	1.82	0.44
12:BL:47:VAL:HG12	12:BL:195:LEU:HD22	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:BR:7:LYS:HD2	18:BR:109:PRO:HB2	2.00	0.44
26:BZ:167:ALA:HB2	29:Bc:46:ARG:HG2	2.00	0.44
3:AC:76:VAL:HG22	3:AC:87:VAL:HG22	1.99	0.44
11:AK:186:HIS:NE2	11:AK:189:MET:SD	2.90	0.44
21:AU:336:GLU:HA	21:AU:339:LEU:HB3	1.99	0.44
22:AV:90:GLU:HB2	22:AV:92:ARG:HE	1.81	0.44
24:AX:377:ILE:HD13	25:AY:358:ARG:HH22	1.82	0.44
5:BE:243:PHE:HE2	6:BF:304:ARG:HE	1.64	0.44
22:BV:412:LEU:HD22	25:BY:339:ALA:HA	1.99	0.44
23:BW:384:LEU:HD13	23:BW:388:GLU:HB3	1.98	0.44
28:Bb:68:THR:HA	28:Bb:71:ILE:HD13	2.00	0.44
29:Bc:59:GLY:HA3	29:Bc:69:VAL:HA	1.99	0.44
32:Bf:163:ALA:HB1	32:Bf:207:LEU:HD21	1.98	0.44
32:Bf:842:VAL:H	32:Bf:870:THR:HB	1.81	0.44
3:AC:295:THR:OG1	3:AC:296:ASN:N	2.51	0.44
5:AE:55:GLN:N	6:AF:133:PHE:O	2.46	0.44
9:AI:161:ALA:HB3	10:AJ:53:LEU:HD23	1.98	0.44
22:AV:280:ALA:HB3	22:AV:285:TRP:CD1	2.53	0.44
32:Af:419:LEU:HG	32:Af:420:TRP:CD1	2.51	0.44
5:BE:116:ASP:O	5:BE:118:LEU:N	2.51	0.44
6:BF:356:MET:HE1	6:BF:392:ASN:HB3	1.99	0.44
7:BG:90:GLN:HE21	7:BG:134:LEU:HD23	1.83	0.44
16:BP:155:GLU:H	16:BP:158:MET:HE2	1.82	0.44
21:BU:172:ASP:OD1	21:BU:172:ASP:N	2.50	0.44
22:BV:449:ALA:HB3	22:BV:460:SER:HA	1.99	0.44
28:Bb:147:GLU:HG2	28:Bb:150:THR:HA	2.00	0.44
29:Bc:36:LEU:HD11	29:Bc:71:ASP:HA	1.99	0.44
29:Bc:252:ALA:O	29:Bc:256:ASN:N	2.48	0.44
30:Bd:183:GLU:HA	30:Bd:215:TRP:HE1	1.83	0.44
5:AE:83:CYS:HB2	5:AE:89:LYS:HE2	2.00	0.44
14:AN:165:GLU:OE2	20:BT:37:ARG:NH1	2.50	0.44
21:AU:906:LEU:HD13	21:AU:912:ILE:HD13	2.00	0.44
23:AW:267:LEU:HD12	23:AW:267:LEU:HA	1.90	0.44
26:AZ:70:LEU:HD12	26:AZ:111:LEU:HD23	1.99	0.44
11:BK:105:GLU:OE2	19:BS:75:TYR:OH	2.28	0.44
21:BU:337:LEU:HD21	21:BU:789:ILE:HG21	2.00	0.44
22:BV:258:TYR:HE2	22:BV:270:LEU:HD12	1.83	0.44
22:BV:324:PHE:HB3	31:Be:22:PHE:CG	2.53	0.44
24:BX:407:MET:HE3	26:BZ:266:ILE:HG23	2.00	0.44
29:Bc:52:GLU:H	29:Bc:82:VAL:HG13	1.82	0.44
29:Bc:196:LEU:O	29:Bc:197:ASN:CB	2.66	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:AC:198:LEU:HD23	36:AC:501:ADP:H5'2	1.98	0.44
4:AD:150:SER:OG	4:AD:228:ILE:HG23	2.17	0.44
19:AS:13:LEU:HD12	19:AS:145:LEU:HD13	2.00	0.44
21:AU:209:GLU:HG2	21:AU:210:LYS:HG2	1.99	0.44
21:AU:804:SER:HA	21:AU:892:LEU:HA	2.00	0.44
23:AW:316:ARG:NH1	23:AW:380:GLN:O	2.38	0.44
26:AZ:198:LEU:HD11	29:Ac:308:VAL:HG21	2.00	0.44
28:Ab:6:THR:HB	28:Ab:49:VAL:HG22	2.00	0.44
31:Ae:16:ASP:OD1	31:Ae:16:ASP:N	2.51	0.44
32:Af:849:ALA:HB2	32:Af:879:ARG:HB2	1.98	0.44
2:BB:303:ARG:O	2:BB:307:ARG:NH1	2.50	0.44
4:BD:337:ASP:HB3	4:BD:369:LYS:HE3	2.00	0.44
6:BF:178:ASP:N	6:BF:178:ASP:OD1	2.49	0.44
10:BJ:39:ASP:OD1	10:BJ:39:ASP:N	2.50	0.44
21:BU:16:GLU:OE1	30:Bd:27:LYS:NZ	2.48	0.44
32:Bf:120:ARG:HE	32:Bf:147:SER:HB3	1.82	0.44
4:AD:267:ILE:HD11	4:AD:309:MET:HB3	2.00	0.44
23:AW:359:VAL:HG23	23:AW:382:LEU:HD22	2.00	0.44
26:AZ:70:LEU:HD11	26:AZ:108:ILE:HG23	1.99	0.44
1:BA:74:PRO:HG2	1:BA:77:LEU:HD13	1.98	0.44
21:BU:505:ASP:HB3	21:BU:508:THR:HG22	2.00	0.44
21:BU:801:GLN:HB3	21:BU:877:LEU:HD22	1.99	0.44
22:BV:344:ASP:O	22:BV:347:GLN:NE2	2.48	0.44
26:BZ:235:ASN:OD1	27:Ba:289:ARG:NH1	2.50	0.44
30:Bd:172:ASP:N	30:Bd:172:ASP:OD1	2.45	0.44
6:AF:317:LEU:HD13	6:AF:328:VAL:HG21	1.99	0.43
7:AG:46:ASP:OD1	7:AG:46:ASP:N	2.51	0.43
18:AR:7:LYS:HG2	18:AR:12:VAL:HG22	1.99	0.43
21:AU:243:LEU:HD11	21:AU:915:LYS:HG2	2.00	0.43
24:AX:360:ASP:N	24:AX:360:ASP:OD1	2.51	0.43
26:AZ:62:ASP:OD1	26:AZ:62:ASP:N	2.51	0.43
2:BB:317:ASP:HB2	2:BB:346:ARG:HG2	1.99	0.43
2:BB:387:LYS:HB3	2:BB:390:LEU:HB3	2.00	0.43
4:BD:208:PRO:HB2	5:BE:291:ARG:HD3	1.99	0.43
5:BE:56:ILE:HB	5:BE:100:LEU:HB2	2.00	0.43
12:BL:7:ASP:OD1	12:BL:7:ASP:N	2.49	0.43
21:BU:113:VAL:HA	21:BU:158:ARG:HD3	2.00	0.43
28:Bb:9:CYS:HB3	28:Bb:111:ALA:HA	2.00	0.43
32:Bf:886:GLU:HG2	32:Bf:906:TYR:CZ	2.53	0.43
23:AW:170:GLN:NE2	23:AW:172:GLU:OE1	2.51	0.43
29:Ac:59:GLY:HA2	29:Ac:70:ILE:H	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:Ad:167:ILE:O	30:Ad:171:LEU:N	2.44	0.43
32:Af:682:GLY:HA2	32:Af:686:LEU:HD23	1.99	0.43
3:BC:71:SER:HB3	4:BD:112:TYR:HD2	1.83	0.43
4:BD:153:MET:HE2	4:BD:227:PHE:HB3	1.99	0.43
5:BE:62:LYS:HA	5:BE:94:PRO:HB3	2.00	0.43
24:BX:416:ASN:HA	24:BX:420:LYS:HE2	2.00	0.43
29:Bc:157:ILE:HG13	29:Bc:158:ASP:H	1.82	0.43
3:AC:127:LEU:O	3:AC:128:PRO:C	2.61	0.43
4:AD:339:ARG:HH22	24:AX:203:PRO:HD2	1.83	0.43
11:AK:38:ILE:HD12	11:AK:202:LEU:HG	1.99	0.43
11:AK:41:GLN:NE2	11:AK:151:PRO:O	2.51	0.43
18:AR:1:THR:HG21	18:AR:46:ALA:HA	1.99	0.43
1:BA:140:VAL:HG12	1:BA:152:PRO:HA	1.99	0.43
1:BA:400:ARG:H	1:BA:401:ARG:NH1	2.16	0.43
7:BG:46:ASP:N	7:BG:46:ASP:OD1	2.51	0.43
15:BO:42:TYR:HB2	15:BO:178:ILE:HD11	2.00	0.43
15:BO:187:ARG:HA	15:BO:188:PRO:HA	1.91	0.43
21:BU:772:TRP:HB3	21:BU:775:LEU:HB2	2.00	0.43
26:BZ:15:VAL:HG11	26:BZ:50:VAL:HG12	2.01	0.43
30:Bd:46:GLN:HA	30:Bd:50:LEU:HD13	2.00	0.43
33:Bw:26:VAL:HG21	33:Bw:56:LEU:HD21	2.01	0.43
3:AC:69:GLN:NE2	3:AC:119:ASP:OD2	2.49	0.43
21:AU:101:ILE:HG22	21:AU:133:ILE:HD11	2.00	0.43
22:AV:200:ARG:HB3	22:AV:203:LEU:HB2	2.00	0.43
1:BA:293:ASN:O	1:BA:297:ARG:NE	2.51	0.43
3:BC:89:VAL:HG12	3:BC:90:HIS:CD2	2.53	0.43
3:BC:368:MET:HE3	3:BC:368:MET:HB3	1.89	0.43
29:Bc:52:GLU:OE2	29:Bc:113:HIS:CD2	2.71	0.43
18:AR:138:VAL:HG23	17:BQ:141:SER:HB3	2.01	0.43
2:BB:249:ARG:HG3	2:BB:283:PHE:HD2	1.83	0.43
12:BL:72:ILE:HG22	12:BL:134:ILE:HG12	2.00	0.43
18:BR:7:LYS:HG2	18:BR:12:VAL:HG22	2.01	0.43
25:BY:14:ASN:HB2	25:BY:143:TYR:HE1	1.84	0.43
27:Ba:75:SER:HA	27:Ba:78:GLU:HG2	1.99	0.43
32:Bf:143:ARG:HG3	32:Bf:162:LEU:HD11	2.00	0.43
32:Bf:398:TRP:HA	32:Bf:401:LYS:HD3	2.01	0.43
32:Bf:659:LEU:HB3	32:Bf:696:LEU:HD21	2.00	0.43
32:Bf:844:VAL:HG12	32:Bf:882:LEU:HD23	2.00	0.43
2:AB:252:GLY:HA3	2:AB:287:ILE:HA	1.99	0.43
21:AU:904:LYS:HD3	21:AU:912:ILE:HG22	2.00	0.43
33:Au:5:VAL:HA	33:Au:67:LEU:HB2	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:BA:429:TYR:HE2	2:BB:340:ALA:HB2	1.84	0.43
2:BB:135:ILE:HG22	2:BB:139:VAL:HG11	2.01	0.43
4:BD:313:ARG:HD3	5:BE:242:ARG:HH11	1.84	0.43
21:BU:471:ASP:O	21:BU:475:HIS:NE2	2.51	0.43
24:BX:360:ASP:OD1	24:BX:360:ASP:N	2.51	0.43
29:Bc:270:LEU:HD22	29:Bc:273:LYS:HZ3	1.84	0.43
30:Bd:193:GLU:OE2	30:Bd:196:ARG:NH2	2.51	0.43
1:AA:429:TYR:HE2	2:AB:340:ALA:HB2	1.83	0.43
2:AB:357:ASP:OD1	10:AJ:200:GLN:NE2	2.52	0.43
3:AC:72:TYR:N	3:AC:116:LEU:O	2.51	0.43
8:AH:175:GLU:HG2	9:AI:54:LYS:HE2	1.99	0.43
21:AU:381:THR:HG22	21:AU:412:HIS:HA	2.00	0.43
33:Au:22:THR:OG1	33:Au:25:ASN:OD1	2.33	0.43
1:BA:278:ASP:OD1	1:BA:278:ASP:N	2.52	0.43
4:BD:150:SER:OG	4:BD:228:ILE:HG23	2.18	0.43
5:BE:43:SER:OG	6:BF:75:GLU:OE1	2.33	0.43
14:BN:29:ARG:NH2	15:BO:139:GLU:OE2	2.51	0.43
21:BU:791:LEU:O	21:BU:914:LEU:N	2.52	0.43
27:Ba:286:ALA:HA	27:Ba:289:ARG:HE	1.83	0.43
32:Bf:695:ALA:HB1	32:Bf:731:MET:HB2	2.00	0.43
5:AE:144:GLU:OE2	5:AE:297:ARG:NH1	2.52	0.43
21:AU:766:PHE:O	21:AU:776:SER:OG	2.29	0.43
25:AY:137:ARG:HA	25:AY:140:ILE:HD12	1.99	0.43
30:Ad:119:LEU:HD11	30:Ad:137:VAL:HG11	2.00	0.43
32:Af:542:ILE:HG13	32:Af:562:LEU:HD11	2.00	0.43
21:BU:400:ALA:O	21:BU:404:ALA:N	2.50	0.43
21:BU:898:CYS:SG	21:BU:899:ARG:N	2.92	0.43
22:BV:131:LEU:HD22	22:BV:171:VAL:HG11	2.00	0.43
26:BZ:10:VAL:HG13	26:BZ:163:GLY:HA3	1.99	0.43
29:Bc:55:GLY:HA2	29:Bc:75:MET:HE2	2.00	0.43
6:AF:178:ASP:OD1	6:AF:178:ASP:N	2.52	0.43
22:AV:250:LEU:HD23	22:AV:253:LEU:HD12	2.00	0.43
29:Ac:164:ASN:HB3	29:Ac:167:MET:HB2	2.00	0.43
32:Af:96:LEU:HD13	32:Af:129:LEU:HD13	2.00	0.43
1:BA:115:VAL:HG21	1:BA:118:PHE:HB2	2.01	0.43
1:BA:248:LYS:NZ	4:BD:278:GLN:OE1	2.42	0.43
3:BC:48:GLN:HB2	22:BV:495:ARG:NH1	2.33	0.43
3:BC:89:VAL:O	3:BC:90:HIS:C	2.62	0.43
4:BD:328:ASP:OD1	4:BD:328:ASP:N	2.50	0.43
7:BG:119:ALA:HB3	8:BH:84:ARG:HH12	1.84	0.43
9:BI:161:ALA:HB1	9:BI:175:LEU:HD13	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:BP:158:MET:HE1	16:BP:166:THR:HG21	2.01	0.43
3:AC:147:THR:OG1	3:AC:206:HIS:NE2	2.47	0.43
17:AQ:25:ILE:HG22	17:AQ:26:VAL:HG13	2.01	0.43
2:BB:102:LEU:HD22	2:BB:138:PHE:HZ	1.84	0.43
2:BB:183:THR:OG1	2:BB:184:TYR:N	2.49	0.43
5:BE:126:ASP:HB2	6:BF:320:PHE:HZ	1.84	0.43
12:BL:84:LEU:HD23	12:BL:132:LEU:HD11	2.01	0.43
21:BU:43:ASP:N	21:BU:43:ASP:OD1	2.48	0.43
21:BU:474:ARG:NH2	21:BU:500:ASN:OD1	2.51	0.43
21:BU:834:SER:HB2	21:BU:836:THR:HG23	2.00	0.43
23:BW:369:TYR:HB3	27:Ba:324:ILE:HD12	2.01	0.43
24:BX:99:MET:SD	24:BX:100:GLU:N	2.92	0.43
4:AD:126:PRO:O	4:AD:127:ASN:C	2.61	0.42
22:AV:314:ARG:HH11	25:AY:385:ARG:HD3	1.84	0.42
32:Af:511:SER:HB3	32:Af:514:VAL:HG23	2.01	0.42
33:Au:5:VAL:HG22	33:Au:67:LEU:HD12	2.00	0.42
5:BE:125:GLU:O	6:BF:321:GLN:NE2	2.52	0.42
5:BE:385:ASP:O	5:BE:386:TYR:CB	2.67	0.42
17:BQ:43:LEU:HD12	17:BQ:183:ILE:HD11	2.01	0.42
20:BT:43:MET:HE2	20:BT:51:LEU:HD13	2.00	0.42
21:BU:835:ILE:HB	21:BU:838:LYS:HE3	2.00	0.42
23:BW:377:ARG:HG3	23:BW:381:LEU:HD13	2.00	0.42
21:AU:265:ILE:O	21:AU:269:ARG:NH1	2.52	0.42
24:AX:77:LEU:HD12	24:AX:88:LEU:HD22	2.01	0.42
24:AX:260:MET:SD	24:AX:325:LYS:NZ	2.88	0.42
32:Af:450:ILE:HA	32:Af:487:LEU:HD22	2.01	0.42
3:BC:196:LYS:HG2	3:BC:317:PHE:HD2	1.84	0.42
4:BD:231:VAL:HG23	5:BE:262:ASN:HD22	1.82	0.42
27:Ba:137:ASP:OD1	27:Ba:138:VAL:N	2.52	0.42
4:AD:385:LEU:HD21	4:AD:401:LYS:HD2	2.00	0.42
16:AP:193:ASP:OD1	16:AP:193:ASP:N	2.52	0.42
24:AX:183:LEU:HD11	24:AX:221:GLU:HG3	2.00	0.42
27:Aa:99:LYS:HA	27:Aa:99:LYS:HD3	1.80	0.42
32:Af:654:VAL:HA	32:Af:657:ILE:HD12	2.02	0.42
2:BB:106:PRO:HG2	2:BB:154:HIS:CG	2.55	0.42
4:BD:214:MET:N	34:BD:501:ATP:O1A	2.53	0.42
22:BV:146:GLN:HG3	22:BV:148:ARG:HG2	2.00	0.42
23:BW:444:HIS:CG	26:BZ:157:HIS:HD2	2.38	0.42
29:Bc:49:VAL:HG23	29:Bc:148:ILE:HD11	2.00	0.42
30:Bd:139:LEU:HD11	30:Bd:151:VAL:HG13	2.02	0.42
32:Bf:662:MET:HB3	32:Bf:697:ILE:HG13	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:AC:57:ARG:NH1	21:AU:642:GLU:OE1	2.51	0.42
6:AF:263:ASP:OD1	6:AF:266:LYS:NZ	2.53	0.42
8:AH:140:ASN:OD1	8:AH:140:ASN:N	2.52	0.42
20:AT:110:MET:SD	20:AT:110:MET:N	2.93	0.42
22:AV:428:LEU:HD21	22:AV:437:ILE:HG13	2.01	0.42
26:AZ:98:GLY:HA3	26:AZ:123:ILE:HG23	2.02	0.42
28:Ab:30:GLN:HG3	28:Ab:75:LEU:HD13	2.01	0.42
32:Af:841:PRO:HA	32:Af:870:THR:HB	2.01	0.42
3:BC:214:VAL:HG22	3:BC:216:GLY:H	1.85	0.42
5:BE:202:SER:HA	6:BF:269:ARG:HH22	1.84	0.42
5:BE:379:LYS:HB3	5:BE:379:LYS:HE2	1.66	0.42
11:BK:90:ASP:OD1	18:BR:69:ARG:NH2	2.53	0.42
15:BO:21:THR:HG22	15:BO:26:VAL:HA	2.01	0.42
21:BU:210:LYS:NZ	21:BU:211:PRO:O	2.52	0.42
33:Bw:44:ILE:O	33:Bw:68:HIS:N	2.51	0.42
5:AE:237:ALA:HB1	6:AF:308:ARG:HG3	2.01	0.42
21:AU:475:HIS:CE1	21:AU:507:VAL:HG22	2.55	0.42
25:AY:315:THR:HG23	25:AY:318:TYR:H	1.84	0.42
1:BA:97:ARG:HE	2:BB:131:HIS:HE1	1.66	0.42
2:BB:173:VAL:HG21	3:BC:233:GLU:HG3	2.01	0.42
3:BC:90:HIS:CB	3:BC:91:PRO:CD	2.95	0.42
21:BU:268:LEU:HD23	21:BU:325:MET:HB3	2.01	0.42
21:BU:707:ASN:HA	21:BU:710:ARG:HB2	2.00	0.42
23:BW:395:ASN:HA	23:BW:398:VAL:HG22	2.02	0.42
32:Bf:343:LYS:HG3	32:Bf:348:ILE:HD11	2.01	0.42
32:Bf:666:ILE:HG22	32:Bf:670:MET:HE1	2.01	0.42
1:AA:399:ALA:O	1:AA:400:ARG:HD2	2.19	0.42
2:AB:173:VAL:HG13	3:AC:232:ARG:HB3	2.02	0.42
2:AB:235:LEU:HD13	2:AB:353:PHE:HZ	1.84	0.42
4:AD:171:ASP:OD1	4:AD:171:ASP:N	2.51	0.42
14:AN:192:ASP:OD1	14:AN:192:ASP:N	2.52	0.42
21:AU:198:LEU:HD21	21:AU:219:CYS:HA	2.02	0.42
25:AY:300:ARG:HH21	31:Ae:52:PHE:HB2	1.84	0.42
30:Ad:70:SER:HA	30:Ad:73:ARG:HE	1.84	0.42
2:BB:264:PRO:HG3	2:BB:308:THR:HA	2.02	0.42
4:BD:126:PRO:O	4:BD:127:ASN:C	2.63	0.42
24:BX:157:LEU:HD21	24:BX:165:LEU:HB3	2.00	0.42
30:Bd:109:GLN:OE1	30:Bd:111:ARG:NH2	2.53	0.42
32:Bf:692:LEU:HD11	32:Bf:803:PHE:HD2	1.84	0.42
2:AB:193:GLN:HG3	2:AB:353:PHE:CE1	2.55	0.42
3:AC:68:GLU:O	4:AD:136:SER:OG	2.38	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:AC:187:LEU:HD23	3:AC:314:LYS:HG2	2.00	0.42
16:AP:38:ASP:N	16:AP:38:ASP:OD1	2.52	0.42
18:AR:18:SER:OG	18:AR:173:ALA:N	2.52	0.42
21:AU:110:LYS:HA	21:AU:113:VAL:HG22	2.01	0.42
28:Ab:68:THR:HA	28:Ab:71:ILE:HD13	2.02	0.42
32:Af:445:LEU:HD22	32:Af:469:TYR:HD2	1.84	0.42
32:Af:564:LEU:HD21	32:Af:794:ALA:HB1	2.00	0.42
1:BA:100:LYS:O	1:BA:114:ASN:N	2.41	0.42
3:BC:302:ASP:OD1	3:BC:302:ASP:N	2.53	0.42
4:BD:353:ASN:ND2	4:BD:392:TYR:O	2.53	0.42
21:BU:475:HIS:CE1	21:BU:507:VAL:HG22	2.54	0.42
24:BX:233:TYR:HA	24:BX:254:MET:HE1	2.02	0.42
29:Bc:151:VAL:HG23	29:Bc:152:LYS:H	1.84	0.42
1:AA:76:ALA:HA	32:Af:680:ARG:HD3	2.02	0.42
1:AA:325:ASP:N	1:AA:325:ASP:OD1	2.52	0.42
2:AB:343:ARG:HE	2:AB:346:ARG:NH1	2.17	0.42
11:AK:25:GLU:HA	11:AK:28:ILE:HD12	2.01	0.42
26:AZ:231:GLN:HE21	27:Aa:341:LEU:HD23	1.85	0.42
32:Af:140:LEU:HD22	32:Af:169:GLU:HB2	2.01	0.42
3:BC:218:GLU:HB3	4:BD:275:PHE:HB2	2.01	0.42
11:BK:203:LYS:HB2	11:BK:210:LEU:HD22	2.01	0.42
21:BU:94:SER:HA	21:BU:98:GLU:HG3	2.01	0.42
3:AC:44:ARG:CZ	22:AV:495:ARG:HG2	2.50	0.42
5:AE:84:ARG:HG2	29:Ac:50:PRO:HG3	2.01	0.42
16:AP:30:ILE:HG22	16:AP:31:GLN:H	1.84	0.42
27:Aa:33:LEU:HA	28:Ab:18:ASN:HD22	1.85	0.42
28:Ab:176:GLY:HA2	28:Ab:177:PRO:HD3	1.94	0.42
30:Ad:168:ASP:HA	30:Ad:171:LEU:HB2	2.01	0.42
1:BA:74:PRO:HA	1:BA:75:PRO:HD3	1.91	0.42
2:BB:153:ASN:HD22	2:BB:156:VAL:HG22	1.85	0.42
5:BE:177:GLY:N	6:BF:344:ARG:HD2	2.35	0.42
5:BE:237:ALA:O	6:BF:308:ARG:NE	2.50	0.42
5:BE:322:LYS:HD3	5:BE:326:ILE:HG13	2.01	0.42
10:BJ:2:SER:OG	10:BJ:3:TYR:N	2.53	0.42
21:BU:243:LEU:HG	21:BU:913:ILE:HG12	2.02	0.42
22:BV:306:ARG:NH1	22:BV:332:LEU:O	2.52	0.42
4:AD:86:PRO:HB2	4:AD:134:LYS:HD2	2.01	0.42
10:AJ:220:LEU:HA	10:AJ:220:LEU:HD22	1.76	0.42
21:AU:583:MET:HE1	21:AU:602:LEU:HA	2.02	0.42
22:AV:212:TYR:OH	31:Ae:21:GLU:OE1	2.37	0.42
25:AY:124:PHE:HD1	25:AY:140:ILE:HG23	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:AZ:153:LYS:HB2	26:AZ:153:LYS:HE3	1.89	0.42
32:Af:217:LEU:HD21	32:Af:229:VAL:HG11	2.02	0.42
32:Af:231:LEU:HD13	32:Af:853:VAL:HG22	2.01	0.42
6:BF:93:VAL:HA	6:BF:124:ILE:HG22	2.02	0.42
6:BF:247:THR:HG21	6:BF:278:LYS:HG3	2.02	0.42
17:BQ:26:VAL:HG21	18:BR:136:TYR:HE2	1.85	0.42
22:BV:351:PRO:O	22:BV:355:ARG:NH1	2.51	0.42
28:Bb:20:ASP:N	28:Bb:20:ASP:OD1	2.53	0.42
1:AA:189:GLU:OE2	6:AF:409:ARG:NH2	2.47	0.41
1:AA:293:ASN:O	1:AA:297:ARG:NE	2.53	0.41
2:AB:133:VAL:HG11	2:AB:157:HIS:HB2	2.01	0.41
2:AB:153:ASN:HD22	2:AB:156:VAL:HG22	1.84	0.41
2:AB:166:ASP:O	2:AB:167:THR:C	2.62	0.41
4:AD:91:GLN:NE2	4:AD:127:ASN:HA	2.34	0.41
4:AD:234:GLU:OE2	5:AE:216:ARG:NH1	2.53	0.41
5:AE:117:PRO:HG3	6:AF:94:ILE:HA	2.02	0.41
21:AU:93:ASN:HD21	21:AU:95:GLU:HB2	1.85	0.41
22:AV:367:VAL:HA	22:AV:402:VAL:HG22	2.02	0.41
25:AY:282:MET:HE1	25:AY:292:TYR:HA	2.02	0.41
27:Aa:77:VAL:HG21	27:Aa:113:LEU:HD13	2.01	0.41
27:Aa:148:VAL:HG13	27:Aa:152:HIS:HB2	2.02	0.41
29:Ac:57:MET:SD	29:Ac:112:TYR:HD1	2.43	0.41
4:BD:274:ARG:NE	5:BE:245:GLU:O	2.52	0.41
22:BV:207:ALA:HA	22:BV:210:CYS:HB2	2.02	0.41
27:Ba:280:MET:H	27:Ba:280:MET:HG2	1.73	0.41
28:Bb:62:THR:HG21	28:Bb:71:ILE:HG13	2.01	0.41
32:Bf:479:LEU:HD11	32:Bf:816:TYR:CZ	2.55	0.41
1:AA:69:ASP:OD1	1:AA:69:ASP:N	2.53	0.41
1:AA:140:VAL:HG12	1:AA:152:PRO:HA	2.01	0.41
1:AA:143:ASP:OD1	1:AA:143:ASP:N	2.53	0.41
16:AP:12:MET:HG3	16:AP:138:VAL:HG12	2.02	0.41
20:AT:37:ARG:NH1	14:BN:165:GLU:OE2	2.54	0.41
21:AU:43:ASP:OD1	21:AU:43:ASP:N	2.51	0.41
21:AU:94:SER:HA	21:AU:98:GLU:HG3	2.01	0.41
21:AU:834:SER:HB2	21:AU:836:THR:HG23	2.02	0.41
25:AY:312:ARG:HA	25:AY:356:THR:HG22	2.03	0.41
32:Af:831:VAL:HG22	32:Af:871:PRO:HB3	2.03	0.41
5:BE:242:ARG:HD3	5:BE:242:ARG:HA	1.84	0.41
19:BS:64:LEU:HD11	19:BS:92:LEU:HD11	2.01	0.41
3:AC:235:PHE:HA	3:AC:238:ALA:HB3	2.02	0.41
17:AQ:24:ASN:ND2	17:AQ:25:ILE:HG12	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:AS:151:ASN:HB2	16:BP:149:MET:HE1	2.03	0.41
25:AY:155:ASP:N	25:AY:155:ASP:OD1	2.52	0.41
32:Af:267:ARG:HG3	32:Af:787:LEU:HD11	2.02	0.41
1:BA:189:GLU:OE2	6:BF:409:ARG:NH2	2.41	0.41
2:BB:376:ASP:OD1	2:BB:376:ASP:N	2.46	0.41
4:BD:159:LYS:HA	4:BD:160:PRO:HD3	1.92	0.41
4:BD:354:LEU:HD11	4:BD:360:LEU:HD11	2.02	0.41
5:BE:295:LEU:HD23	5:BE:295:LEU:HA	1.93	0.41
21:BU:63:VAL:O	21:BU:67:VAL:N	2.49	0.41
22:BV:323:GLY:HA2	31:Be:24:ALA:HA	2.03	0.41
23:BW:272:LEU:HD22	23:BW:341:PHE:HE2	1.85	0.41
24:BX:421:LEU:O	26:BZ:283:ARG:NH2	2.54	0.41
25:BY:121:LEU:HD23	25:BY:144:LEU:HD22	2.03	0.41
26:BZ:138:TYR:HB3	26:BZ:155:PHE:HB3	2.01	0.41
32:Bf:98:PHE:O	32:Bf:102:HIS:ND1	2.46	0.41
3:AC:23:TYR:HD1	21:AU:102:ALA:HA	1.85	0.41
3:AC:49:ARG:HH21	21:AU:639:LEU:HG	1.85	0.41
3:AC:150:MET:HA	3:AC:331:ILE:HG21	2.03	0.41
9:AI:143:TYR:HB2	9:AI:146:GLN:NE2	2.35	0.41
13:AM:227:VAL:O	13:AM:232:ARG:NH2	2.53	0.41
24:AX:30:ILE:HA	24:AX:33:ARG:HH12	1.86	0.41
27:Aa:97:LEU:O	27:Aa:100:THR:OG1	2.37	0.41
27:Aa:213:PHE:O	27:Aa:241:ASN:ND2	2.44	0.41
1:BA:346:PRO:HB3	1:BA:350:GLY:HA3	2.01	0.41
2:BB:378:VAL:HG12	2:BB:416:ASN:HA	2.01	0.41
4:BD:234:GLU:OE2	5:BE:216:ARG:NH1	2.53	0.41
8:BH:203:MET:HA	8:BH:207:ASN:HD21	1.85	0.41
12:BL:44:ALA:HB2	12:BL:142:PRO:HB3	2.03	0.41
21:BU:560:MET:HE1	21:BU:590:TYR:HA	2.01	0.41
26:BZ:34:ARG:HH11	26:BZ:58:PHE:HE2	1.67	0.41
29:Bc:51:MET:HE1	29:Bc:77:GLN:HG3	2.03	0.41
29:Bc:157:ILE:HD12	29:Bc:157:ILE:HA	1.96	0.41
29:Bc:291:LEU:O	29:Bc:295:ASN:ND2	2.53	0.41
5:AE:281:ARG:HB3	5:AE:386:TYR:CZ	2.55	0.41
25:AY:195:LYS:HE3	25:AY:195:LYS:HB3	1.81	0.41
26:AZ:151:THR:HG23	27:Aa:146:PRO:HB2	2.02	0.41
1:BA:215:PHE:CD2	1:BA:324:PRO:HG3	2.56	0.41
4:BD:150:SER:O	4:BD:151:ILE:C	2.62	0.41
5:BE:281:ARG:HB3	5:BE:386:TYR:CE2	2.54	0.41
6:BF:314:LEU:HD21	6:BF:342:LEU:HB3	2.01	0.41
9:BI:3:ARG:NH2	12:BL:9:ASP:OD1	2.48	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:BN:19:ARG:CZ	14:BN:171:GLY:HA3	2.51	0.41
1:AA:119:ALA:HB2	6:AF:128:THR:HG23	2.01	0.41
1:AA:333:ARG:HH11	6:AF:394:ALA:HB2	1.86	0.41
3:AC:66:LEU:O	4:AD:136:SER:OG	2.28	0.41
21:AU:580:ARG:NH2	21:AU:768:GLN:OE1	2.40	0.41
21:AU:810:THR:O	21:AU:888:GLN:NE2	2.47	0.41
26:AZ:134:PRO:HD2	29:Ac:220:LEU:HD11	2.03	0.41
27:Aa:70:ARG:HA	27:Aa:70:ARG:HD2	1.92	0.41
28:Ab:109:ILE:HB	28:Ab:138:VAL:HG22	2.01	0.41
30:Ad:162:SER:OG	30:Ad:164:THR:OG1	2.30	0.41
4:BD:64:GLU:HG2	21:BU:607:VAL:HG22	2.02	0.41
5:BE:108:MET:HE1	29:Bc:50:PRO:HB2	2.03	0.41
5:BE:168:LYS:N	5:BE:296:ASP:OD2	2.47	0.41
21:BU:666:LYS:HA	21:BU:669:ILE:HD12	2.02	0.41
25:BY:74:LYS:HA	25:BY:77:ASN:HD22	1.85	0.41
4:AD:341:LYS:NZ	4:AD:370:ILE:O	2.54	0.41
15:AO:211:VAL:HG21	16:AP:198:ARG:HD3	2.01	0.41
19:AS:38:ARG:NH2	15:BO:164:PHE:O	2.41	0.41
21:AU:10:SER:OG	30:Ad:77:GLN:NE2	2.51	0.41
21:AU:249:CYS:HB3	21:AU:328:ILE:HB	2.01	0.41
22:AV:109:ASN:HB2	22:AV:112:VAL:HG23	2.01	0.41
25:AY:377:LEU:HA	25:AY:380:VAL:HG22	2.03	0.41
27:Aa:70:ARG:HE	28:Ab:17:ARG:HB3	1.85	0.41
27:Aa:127:ASP:HB2	27:Aa:162:TYR:HE1	1.85	0.41
27:Aa:221:VAL:HG23	27:Aa:222:LEU:HG	2.01	0.41
28:Ab:26:LEU:HD11	28:Ab:80:PRO:HG3	2.02	0.41
29:Ac:53:VAL:O	29:Ac:113:HIS:HB2	2.20	0.41
2:BB:266:LEU:HB2	3:BC:229:ARG:HH21	1.85	0.41
4:BD:374:ASP:OD1	4:BD:374:ASP:N	2.53	0.41
16:BP:12:MET:HG3	16:BP:138:VAL:HG12	2.02	0.41
16:BP:193:ASP:OD1	16:BP:193:ASP:N	2.51	0.41
21:BU:462:LEU:HG	21:BU:496:LEU:HD21	2.03	0.41
21:BU:576:PRO:HA	21:BU:579:ARG:HE	1.86	0.41
21:BU:764:LEU:O	21:BU:767:THR:OG1	2.36	0.41
22:BV:395:ILE:HA	22:BV:398:LEU:HD23	2.03	0.41
22:BV:470:ARG:HG2	22:BV:473:GLN:HE21	1.85	0.41
25:BY:81:LEU:HD23	25:BY:81:LEU:HA	1.95	0.41
27:Ba:156:TYR:HB3	27:Ba:179:PHE:HB2	2.02	0.41
27:Ba:198:PHE:HZ	27:Ba:257:GLN:HB2	1.86	0.41
28:Bb:142:ASN:HD22	28:Bb:172:THR:HA	1.85	0.41
32:Bf:59:LEU:O	32:Bf:63:LEU:N	2.52	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:AC:48:GLN:HB2	22:AV:495:ARG:NH1	2.36	0.41
3:AC:168:PRO:HG3	3:AC:175:PHE:CE2	2.56	0.41
3:AC:299:ASP:OD1	3:AC:299:ASP:N	2.52	0.41
7:AG:71:LYS:HE3	7:AG:74:GLU:HA	2.01	0.41
10:AJ:52:LYS:HB3	10:AJ:53:LEU:HD12	2.03	0.41
10:AJ:208:LEU:O	10:AJ:220:LEU:HB2	2.20	0.41
21:AU:164:GLU:HA	21:AU:167:ILE:HG12	2.03	0.41
27:Aa:184:ASP:OD1	27:Aa:185:ILE:N	2.53	0.41
28:Ab:21:PHE:CD2	28:Ab:25:ARG:HG2	2.56	0.41
29:Ac:163:ILE:HD12	29:Ac:163:ILE:HA	1.95	0.41
2:BB:343:ARG:HE	2:BB:346:ARG:NH1	2.18	0.41
4:BD:87:LEU:HD11	4:BD:131:ALA:HB1	2.03	0.41
11:BK:121:LEU:HD12	12:BL:79:ALA:HB3	2.03	0.41
22:BV:289:LEU:HB2	22:BV:312:ALA:HB2	2.03	0.41
28:Bb:26:LEU:HD21	28:Bb:80:PRO:HD3	2.03	0.41
29:Bc:120:CYS:HB3	29:Bc:160:PHE:HE2	1.86	0.41
1:AA:115:VAL:HG21	1:AA:118:PHE:HB2	2.03	0.41
5:AE:281:ARG:HB3	5:AE:386:TYR:CD2	2.55	0.41
5:AE:360:ASP:OD1	5:AE:360:ASP:N	2.53	0.41
6:AF:94:ILE:HD12	6:AF:123:VAL:HG12	2.01	0.41
7:AG:72:ILE:HG21	7:AG:114:LEU:HD21	2.02	0.41
8:AH:11:THR:HG22	8:AH:19:LEU:HD22	2.02	0.41
8:AH:176:LYS:HZ2	8:AH:177:ARG:HG2	1.86	0.41
21:AU:26:LYS:HZ1	30:Ad:36:LEU:HB2	1.86	0.41
21:AU:247:GLN:HE22	21:AU:912:ILE:HA	1.86	0.41
22:AV:258:TYR:HE2	22:AV:270:LEU:HD12	1.86	0.41
22:AV:451:ILE:HG13	22:AV:458:VAL:HG13	2.03	0.41
23:AW:67:LEU:HB3	23:AW:104:MET:SD	2.60	0.41
24:AX:377:ILE:HG12	25:AY:312:ARG:HB3	2.03	0.41
29:Ac:168:MET:HE2	29:Ac:198:ARG:O	2.20	0.41
30:Ad:170:LEU:HA	30:Ad:173:THR:HG22	2.03	0.41
30:Ad:215:TRP:CE3	30:Ad:222:TYR:HB3	2.53	0.41
32:Af:348:ILE:HD13	32:Af:381:VAL:HG21	2.03	0.41
32:Af:567:LEU:O	32:Af:569:LYS:NZ	2.54	0.41
33:Aw:4:PHE:HB2	33:Aw:66:THR:HA	2.02	0.41
2:BB:262:ASP:O	3:BC:229:ARG:NH2	2.53	0.41
3:BC:305:LEU:HD12	3:BC:310:ARG:HG2	2.02	0.41
3:BC:327:ASP:OD1	3:BC:327:ASP:N	2.54	0.41
6:BF:82:VAL:O	6:BF:85:THR:OG1	2.36	0.41
6:BF:249:LEU:HD23	6:BF:283:ILE:HD13	2.02	0.41
19:BS:144:MET:HE3	19:BS:144:MET:HB2	2.00	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:BU:210:LYS:HD2	21:BU:210:LYS:HA	1.83	0.41
21:BU:580:ARG:NH2	21:BU:584:TYR:OH	2.54	0.41
21:BU:759:SER:HA	21:BU:782:ALA:HA	2.02	0.41
23:BW:407:ASP:OD1	23:BW:408:ARG:N	2.54	0.41
24:BX:414:LEU:HD23	24:BX:414:LEU:HA	1.89	0.41
27:Ba:97:LEU:O	27:Ba:100:THR:OG1	2.33	0.41
27:Ba:371:ALA:HA	30:Bd:251:ARG:HH21	1.85	0.41
28:Bb:109:ILE:HB	28:Bb:138:VAL:HG22	2.03	0.41
28:Bb:157:VAL:HG21	28:Bb:170:LEU:HD13	2.03	0.41
32:Bf:65:GLU:O	32:Bf:67:ASP:N	2.54	0.41
32:Bf:463:LEU:O	32:Bf:467:SER:OG	2.29	0.41
1:AA:75:PRO:HA	1:AA:78:TRP:NE1	2.36	0.41
7:AG:195:VAL:HG11	7:AG:238:HIS:CD2	2.56	0.41
21:AU:342:LEU:HD23	21:AU:342:LEU:HA	1.96	0.41
23:AW:357:ARG:HA	23:AW:357:ARG:HD3	1.89	0.41
29:Ac:196:LEU:HD23	29:Ac:197:ASN:OD1	2.21	0.41
30:Ad:47:GLN:HG2	30:Ad:48:LEU:HG	2.03	0.41
3:BC:113:ARG:NE	3:BC:130:LYS:HB3	2.36	0.41
3:BC:184:LYS:N	3:BC:312:ASP:OD2	2.42	0.41
4:BD:155:THR:HG23	4:BD:159:LYS:NZ	2.36	0.41
4:BD:401:LYS:HA	4:BD:404:LYS:HE2	2.02	0.41
5:BE:55:GLN:HB2	6:BF:133:PHE:HB3	2.03	0.41
21:BU:126:ILE:HB	21:BU:130:LEU:HD21	2.03	0.41
27:Ba:278:MET:HE2	27:Ba:278:MET:HB3	1.99	0.41
27:Ba:374:ILE:HG13	30:Bd:251:ARG:NH2	2.36	0.41
29:Bc:266:THR:HG23	29:Bc:269:GLN:HB2	2.02	0.41
29:Bc:270:LEU:HA	29:Bc:273:LYS:HG2	2.03	0.41
32:Bf:600:TYR:CZ	32:Bf:608:LYS:HE3	2.55	0.41
32:Bf:744:MET:HE2	32:Bf:744:MET:HB3	2.00	0.41
2:AB:197:ILE:HG13	2:AB:235:LEU:HD21	2.02	0.40
3:AC:57:ARG:NH2	21:AU:643:SER:O	2.44	0.40
5:AE:196:LEU:HD11	5:AE:221:TYR:HD2	1.85	0.40
5:AE:243:PHE:HB2	5:AE:254:GLN:HE22	1.86	0.40
6:AF:224:LEU:HD22	6:AF:348:LEU:HD23	2.02	0.40
21:AU:187:LEU:O	21:AU:188:MET:HE2	2.21	0.40
22:AV:441:ALA:HB1	22:AV:446:VAL:HB	2.03	0.40
24:AX:394:ASP:OD1	24:AX:394:ASP:N	2.54	0.40
26:AZ:17:LEU:HD12	29:Ac:39:LEU:HD12	2.03	0.40
26:AZ:256:GLN:NE2	29:Ac:295:ASN:O	2.54	0.40
32:Af:120:ARG:HE	32:Af:147:SER:HB3	1.86	0.40
2:BB:387:LYS:HB3	2:BB:390:LEU:HD23	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:BE:253:ILE:HG21	6:BF:308:ARG:NH2	2.36	0.40
21:BU:161:ASP:OD1	21:BU:161:ASP:N	2.52	0.40
23:BW:387:ASP:OD1	23:BW:387:ASP:N	2.54	0.40
24:BX:368:MET:HG3	24:BX:373:LYS:HB3	2.02	0.40
2:AB:388:ASP:N	2:AB:388:ASP:OD1	2.54	0.40
21:AU:1:MET:HB3	21:AU:2:ILE:H	1.76	0.40
21:AU:913:ILE:HD12	21:AU:913:ILE:HA	1.95	0.40
26:AZ:35:VAL:HB	26:AZ:97:THR:HB	2.03	0.40
27:Aa:302:ILE:HD12	27:Aa:302:ILE:HA	1.95	0.40
9:BI:49:ARG:NH2	9:BI:63:GLU:OE2	2.55	0.40
22:BV:306:ARG:HH22	22:BV:332:LEU:HB2	1.86	0.40
22:BV:468:SER:HB3	26:BZ:247:LYS:HD3	2.02	0.40
23:BW:406:VAL:HG12	23:BW:413:ILE:HB	2.04	0.40
25:BY:377:LEU:HA	25:BY:380:VAL:HG22	2.04	0.40
4:AD:337:ASP:OD1	4:AD:338:ARG:N	2.48	0.40
8:AH:176:LYS:HD2	24:AX:161:ASP:CB	2.52	0.40
15:AO:206:LYS:HD2	16:AP:161:ASP:HB3	2.03	0.40
21:AU:63:VAL:O	21:AU:67:VAL:N	2.47	0.40
21:AU:770:TRP:O	29:Ac:179:SER:OG	2.37	0.40
28:Ab:124:LEU:O	28:Ab:128:ALA:N	2.52	0.40
32:Af:120:ARG:HG2	32:Af:146:GLY:HA2	2.04	0.40
32:Af:844:VAL:HG12	32:Af:882:LEU:HD23	2.03	0.40
1:BA:97:ARG:NE	2:BB:131:HIS:CE1	2.85	0.40
6:BF:209:LYS:HE2	6:BF:209:LYS:HB2	1.91	0.40
7:BG:132:ARG:HB2	13:BM:14:PHE:CE2	2.56	0.40
9:BI:38:LEU:HD23	9:BI:160:LYS:HG2	2.04	0.40
14:BN:196:LYS:HA	14:BN:196:LYS:HD2	1.84	0.40
21:BU:62:LEU:HB3	21:BU:84:ALA:HB2	2.03	0.40
25:BY:360:ASP:OD1	25:BY:363:ASN:ND2	2.54	0.40
30:Bd:168:ASP:HA	30:Bd:171:LEU:HD12	2.03	0.40
33:Bu:22:THR:HG22	33:Bu:55:THR:HG22	2.03	0.40
13:AM:43:ASP:HB2	13:AM:218:GLU:HG2	2.02	0.40
21:AU:401:LYS:HB3	21:AU:438:GLN:HB2	2.04	0.40
21:AU:445:ALA:HA	21:AU:448:LEU:HD12	2.03	0.40
25:AY:99:GLU:HA	25:AY:102:ASP:HB2	2.04	0.40
27:Aa:7:PHE:HD2	27:Aa:60:TYR:HD1	1.69	0.40
29:Ac:163:ILE:HD13	29:Ac:201:TYR:HE2	1.86	0.40
3:BC:73:VAL:O	3:BC:89:VAL:HG13	2.21	0.40
9:BI:11:ILE:HG22	10:BJ:7:ILE:HG23	2.03	0.40
10:BJ:120:GLN:HG2	11:BK:133:MET:HB3	2.04	0.40
16:BP:70:ARG:HD2	16:BP:94:LEU:HD12	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:BU:632:GLN:O	21:BU:635:SER:OG	2.34	0.40
22:BV:79:VAL:HG22	22:BV:163:VAL:HG13	2.03	0.40
29:Bc:163:ILE:HD12	29:Bc:163:ILE:HA	1.94	0.40
29:Bc:300:LEU:HD12	30:Bd:246:VAL:HG12	2.03	0.40
32:Bf:58:MET:HE3	32:Bf:62:ARG:HB2	2.02	0.40
4:AD:153:MET:HE2	4:AD:227:PHE:HB3	2.03	0.40
4:AD:175:GLN:NE2	4:AD:179:GLU:OE2	2.44	0.40
7:AG:10:ASP:N	7:AG:10:ASP:OD1	2.55	0.40
18:AR:41:LEU:HD23	18:AR:103:GLY:HA3	2.04	0.40
22:AV:208:ALA:HB1	22:AV:249:THR:HG21	2.03	0.40
1:BA:372:LEU:HD11	11:BK:207:GLU:HA	2.04	0.40
9:BI:176:LYS:HA	10:BJ:53:LEU:HD11	2.02	0.40
26:BZ:226:ILE:HD12	26:BZ:226:ILE:HA	1.97	0.40
28:Bb:72:LEU:O	28:Bb:76:HIS:ND1	2.50	0.40
30:Bd:122:LEU:HD22	30:Bd:125:LYS:HG3	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	AA	411/433 (95%)	373 (91%)	38 (9%)	0	100	100
1	BA	411/433 (95%)	368 (90%)	42 (10%)	1 (0%)	43	73
2	AB	386/440 (88%)	360 (93%)	25 (6%)	1 (0%)	36	67
2	BB	386/440 (88%)	361 (94%)	24 (6%)	1 (0%)	36	67
3	AC	359/398 (90%)	331 (92%)	26 (7%)	2 (1%)	21	54
3	BC	359/398 (90%)	337 (94%)	20 (6%)	2 (1%)	21	54
4	AD	378/418 (90%)	333 (88%)	43 (11%)	2 (0%)	24	57
4	BD	378/418 (90%)	336 (89%)	41 (11%)	1 (0%)	36	67

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
5	AE	373/403 (93%)	348 (93%)	23 (6%)	2 (0%)	24 57
5	BE	373/403 (93%)	348 (93%)	24 (6%)	1 (0%)	36 67
6	AF	372/439 (85%)	347 (93%)	25 (7%)	0	100 100
6	BF	372/439 (85%)	347 (93%)	25 (7%)	0	100 100
7	AG	242/246 (98%)	234 (97%)	8 (3%)	0	100 100
7	BG	242/246 (98%)	234 (97%)	8 (3%)	0	100 100
8	AH	230/234 (98%)	220 (96%)	10 (4%)	0	100 100
8	BH	230/234 (98%)	222 (96%)	8 (4%)	0	100 100
9	AI	249/261 (95%)	241 (97%)	8 (3%)	0	100 100
9	BI	249/261 (95%)	242 (97%)	7 (3%)	0	100 100
10	AJ	237/248 (96%)	231 (98%)	6 (2%)	0	100 100
10	BJ	237/248 (96%)	227 (96%)	10 (4%)	0	100 100
11	AK	232/241 (96%)	221 (95%)	10 (4%)	1 (0%)	30 62
11	BK	232/241 (96%)	224 (97%)	8 (3%)	0	100 100
12	AL	236/263 (90%)	233 (99%)	3 (1%)	0	100 100
12	BL	236/263 (90%)	233 (99%)	3 (1%)	0	100 100
13	AM	239/255 (94%)	233 (98%)	6 (2%)	0	100 100
13	BM	239/255 (94%)	232 (97%)	7 (3%)	0	100 100
14	AN	200/239 (84%)	192 (96%)	8 (4%)	0	100 100
14	BN	200/239 (84%)	198 (99%)	2 (1%)	0	100 100
15	AO	218/277 (79%)	211 (97%)	7 (3%)	0	100 100
15	BO	218/277 (79%)	211 (97%)	7 (3%)	0	100 100
16	AP	202/205 (98%)	195 (96%)	7 (4%)	0	100 100
16	BP	202/205 (98%)	197 (98%)	5 (2%)	0	100 100
17	AQ	197/201 (98%)	189 (96%)	7 (4%)	1 (0%)	24 57
17	BQ	197/201 (98%)	190 (96%)	7 (4%)	0	100 100
18	AR	199/263 (76%)	195 (98%)	4 (2%)	0	100 100
18	BR	199/263 (76%)	194 (98%)	5 (2%)	0	100 100
19	AS	211/241 (88%)	204 (97%)	7 (3%)	0	100 100
19	BS	211/241 (88%)	206 (98%)	5 (2%)	0	100 100
20	AT	214/264 (81%)	210 (98%)	4 (2%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
20	BT	214/264 (81%)	206 (96%)	8 (4%)	0	100	100
21	AU	864/953 (91%)	816 (94%)	48 (6%)	0	100	100
21	BU	864/953 (91%)	824 (95%)	40 (5%)	0	100	100
22	AV	470/534 (88%)	450 (96%)	20 (4%)	0	100	100
22	BV	470/534 (88%)	451 (96%)	19 (4%)	0	100	100
23	AW	439/456 (96%)	433 (99%)	6 (1%)	0	100	100
23	BW	439/456 (96%)	433 (99%)	6 (1%)	0	100	100
24	AX	420/422 (100%)	400 (95%)	20 (5%)	0	100	100
24	BX	420/422 (100%)	405 (96%)	15 (4%)	0	100	100
25	AY	387/389 (100%)	369 (95%)	18 (5%)	0	100	100
25	BY	387/389 (100%)	371 (96%)	16 (4%)	0	100	100
26	AZ	284/324 (88%)	252 (89%)	32 (11%)	0	100	100
26	BZ	284/324 (88%)	251 (88%)	33 (12%)	0	100	100
27	Aa	371/376 (99%)	342 (92%)	29 (8%)	0	100	100
27	Ba	371/376 (99%)	346 (93%)	25 (7%)	0	100	100
28	Ab	189/377 (50%)	176 (93%)	13 (7%)	0	100	100
28	Bb	189/377 (50%)	173 (92%)	16 (8%)	0	100	100
29	Ac	285/310 (92%)	250 (88%)	32 (11%)	3 (1%)	11	41
29	Bc	285/310 (92%)	246 (86%)	34 (12%)	5 (2%)	6	33
30	Ad	255/350 (73%)	223 (88%)	32 (12%)	0	100	100
30	Bd	255/350 (73%)	223 (88%)	32 (12%)	0	100	100
31	Ae	48/70 (69%)	40 (83%)	8 (17%)	0	100	100
31	Be	48/70 (69%)	38 (79%)	10 (21%)	0	100	100
32	Af	840/908 (92%)	805 (96%)	34 (4%)	1 (0%)	48	79
32	Bf	840/908 (92%)	808 (96%)	31 (4%)	1 (0%)	48	79
33	Au	74/76 (97%)	73 (99%)	1 (1%)	0	100	100
33	Aw	74/76 (97%)	70 (95%)	4 (5%)	0	100	100
33	Bu	74/76 (97%)	72 (97%)	2 (3%)	0	100	100
33	Bw	74/76 (97%)	73 (99%)	1 (1%)	0	100	100
All	All	20770/23180 (90%)	19627 (94%)	1118 (5%)	25 (0%)	49	79

All (25) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	AD	125	LYS
5	AE	385	ASP
5	AE	386	TYR
2	BB	167	THR
4	BD	125	LYS
5	BE	386	TYR
29	Bc	156	VAL
32	Bf	66	LYS
2	AB	167	THR
3	AC	90	HIS
29	Ac	158	ASP
32	Af	66	LYS
3	BC	90	HIS
29	Bc	197	ASN
4	AD	126	PRO
29	Bc	116	PRO
17	AQ	24	ASN
29	Bc	34	SER
29	Ac	156	VAL
29	Ac	157	ILE
3	AC	128	PRO
1	BA	400	ARG
11	AK	130	PRO
3	BC	91	PRO
29	Bc	157	ILE

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	AA	352/372 (95%)	350 (99%)	2 (1%)	78	79
1	BA	352/372 (95%)	349 (99%)	3 (1%)	70	74
2	AB	341/385 (89%)	340 (100%)	1 (0%)	86	84
2	BB	341/385 (89%)	340 (100%)	1 (0%)	86	84
3	AC	314/346 (91%)	309 (98%)	5 (2%)	55	68

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	BC	314/346 (91%)	313 (100%)	1 (0%)	86	84
4	AD	333/366 (91%)	332 (100%)	1 (0%)	86	84
4	BD	333/366 (91%)	331 (99%)	2 (1%)	78	79
5	AE	298/353 (84%)	297 (100%)	1 (0%)	86	84
5	BE	298/353 (84%)	297 (100%)	1 (0%)	86	84
6	AF	296/379 (78%)	296 (100%)	0	100	100
6	BF	296/379 (78%)	296 (100%)	0	100	100
7	AG	205/210 (98%)	205 (100%)	0	100	100
7	BG	205/210 (98%)	205 (100%)	0	100	100
8	AH	189/191 (99%)	188 (100%)	1 (0%)	81	81
8	BH	189/191 (99%)	189 (100%)	0	100	100
9	AI	206/221 (93%)	206 (100%)	0	100	100
9	BI	206/221 (93%)	206 (100%)	0	100	100
10	AJ	196/211 (93%)	194 (99%)	2 (1%)	68	74
10	BJ	196/211 (93%)	194 (99%)	2 (1%)	68	74
11	AK	192/203 (95%)	192 (100%)	0	100	100
11	BK	192/203 (95%)	192 (100%)	0	100	100
12	AL	202/224 (90%)	202 (100%)	0	100	100
12	BL	202/224 (90%)	202 (100%)	0	100	100
13	AM	197/212 (93%)	197 (100%)	0	100	100
13	BM	197/212 (93%)	196 (100%)	1 (0%)	81	81
14	AN	157/181 (87%)	157 (100%)	0	100	100
14	BN	157/181 (87%)	157 (100%)	0	100	100
15	AO	179/228 (78%)	179 (100%)	0	100	100
15	BO	179/228 (78%)	179 (100%)	0	100	100
16	AP	172/174 (99%)	172 (100%)	0	100	100
16	BP	172/174 (99%)	172 (100%)	0	100	100
17	AQ	168/171 (98%)	166 (99%)	2 (1%)	63	72
17	BQ	168/171 (98%)	167 (99%)	1 (1%)	78	79
18	AR	156/202 (77%)	156 (100%)	0	100	100
18	BR	156/202 (77%)	156 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
19	AS	175/199 (88%)	175 (100%)	0	100	100
19	BS	175/199 (88%)	175 (100%)	0	100	100
20	AT	178/215 (83%)	178 (100%)	0	100	100
20	BT	178/215 (83%)	178 (100%)	0	100	100
21	AU	742/816 (91%)	741 (100%)	1 (0%)	88	89
21	BU	742/816 (91%)	742 (100%)	0	100	100
22	AV	391/460 (85%)	390 (100%)	1 (0%)	86	84
22	BV	391/460 (85%)	391 (100%)	0	100	100
23	AW	406/416 (98%)	406 (100%)	0	100	100
23	BW	406/416 (98%)	406 (100%)	0	100	100
24	AX	362/362 (100%)	362 (100%)	0	100	100
24	BX	362/362 (100%)	362 (100%)	0	100	100
25	AY	344/344 (100%)	344 (100%)	0	100	100
25	BY	344/344 (100%)	344 (100%)	0	100	100
26	AZ	257/295 (87%)	256 (100%)	1 (0%)	84	83
26	BZ	257/295 (87%)	257 (100%)	0	100	100
27	Aa	333/336 (99%)	333 (100%)	0	100	100
27	Ba	333/336 (99%)	333 (100%)	0	100	100
28	Ab	167/312 (54%)	167 (100%)	0	100	100
28	Bb	167/312 (54%)	167 (100%)	0	100	100
29	Ac	252/268 (94%)	249 (99%)	3 (1%)	63	72
29	Bc	252/268 (94%)	249 (99%)	3 (1%)	63	72
30	Ad	231/294 (79%)	231 (100%)	0	100	100
30	Bd	231/294 (79%)	230 (100%)	1 (0%)	84	83
31	Ae	44/63 (70%)	44 (100%)	0	100	100
31	Be	44/63 (70%)	44 (100%)	0	100	100
32	Af	711/763 (93%)	711 (100%)	0	100	100
32	Bf	711/763 (93%)	711 (100%)	0	100	100
33	Au	68/68 (100%)	68 (100%)	0	100	100
33	Aw	68/68 (100%)	68 (100%)	0	100	100
33	Bu	68/68 (100%)	68 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
33	Bw	68/68 (100%)	68 (100%)	0	100 100
All	All	17764/19816 (90%)	17727 (100%)	37 (0%)	85 87

All (37) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	AA	307	ASP
1	AA	403	ILE
2	AB	168	ASP
3	AC	90	HIS
3	AC	109	THR
3	AC	129	ASN
3	AC	130	LYS
3	AC	210	THR
4	AD	125	LYS
5	AE	274	LYS
8	AH	176	LYS
10	AJ	220	LEU
10	AJ	221	ASN
17	AQ	24	ASN
17	AQ	46	CYS
21	AU	527	GLN
22	AV	494	MET
26	AZ	44	GLN
29	Ac	113	HIS
29	Ac	157	ILE
29	Ac	196	LEU
1	BA	400	ARG
1	BA	401	ARG
1	BA	403	ILE
2	BB	168	ASP
3	BC	210	THR
4	BD	125	LYS
4	BD	369	LYS
5	BE	385	ASP
10	BJ	219	ILE
10	BJ	220	LEU
13	BM	34	SER
17	BQ	46	CYS
29	Bc	113	HIS
29	Bc	155	VAL
29	Bc	196	LEU

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Mol	Chain	Res	Type
30	Bd	251	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (187) such sidechains are listed below:

Mol	Chain	Res	Type
1	AA	53	GLN
1	AA	88	GLN
1	AA	203	ASN
1	AA	379	ASN
2	AB	57	GLN
2	AB	82	GLN
2	AB	242	GLN
2	AB	257	GLN
3	AC	22	GLN
3	AC	32	GLN
3	AC	48	GLN
3	AC	53	ASN
3	AC	64	GLN
3	AC	67	GLN
4	AD	49	GLN
4	AD	67	ASN
4	AD	110	ASN
4	AD	173	GLN
4	AD	221	HIS
4	AD	257	ASN
4	AD	353	ASN
5	AE	226	GLN
6	AF	417	HIS
7	AG	75	ASN
7	AG	90	GLN
8	AH	88	HIS
8	AH	95	GLN
8	AH	148	GLN
8	AH	169	ASN
9	AI	102	GLN
9	AI	123	GLN
9	AI	177	GLN
10	AJ	18	GLN
11	AK	41	GLN
11	AK	204	GLN
12	AL	5	GLN
12	AL	59	HIS

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Mol	Chain	Res	Type
12	AL	86	ASN
12	AL	143	HIS
13	AM	97	ASN
13	AM	105	ASN
15	AO	91	GLN
15	AO	116	HIS
15	AO	193	ASN
16	AP	157	ASN
17	AQ	8	GLN
17	AQ	27	GLN
17	AQ	32	HIS
17	AQ	87	ASN
17	AQ	101	ASN
17	AQ	168	GLN
18	AR	70	ASN
18	AR	162	GLN
19	AS	146	GLN
20	AT	81	HIS
21	AU	70	HIS
21	AU	111	GLN
21	AU	247	GLN
21	AU	267	ASN
21	AU	338	HIS
21	AU	346	ASN
21	AU	384	GLN
21	AU	632	GLN
21	AU	697	GLN
21	AU	698	GLN
21	AU	718	ASN
21	AU	742	HIS
22	AV	279	GLN
22	AV	401	ASN
22	AV	427	GLN
22	AV	452	ASN
23	AW	264	GLN
24	AX	182	ASN
25	AY	49	ASN
25	AY	94	ASN
25	AY	273	GLN
25	AY	365	GLN
26	AZ	72	HIS
26	AZ	86	ASN

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Mol	Chain	Res	Type
26	AZ	109	ASN
26	AZ	194	GLN
26	AZ	202	ASN
26	AZ	256	GLN
27	Aa	9	GLN
27	Aa	18	GLN
27	Aa	23	HIS
27	Aa	193	GLN
27	Aa	288	HIS
27	Aa	337	GLN
28	Ab	47	ASN
29	Ac	30	GLN
29	Ac	128	ASN
29	Ac	149	GLN
29	Ac	237	HIS
29	Ac	241	ASN
29	Ac	298	GLN
30	Ad	96	HIS
30	Ad	130	ASN
30	Ad	149	ASN
32	Af	245	ASN
32	Af	293	GLN
32	Af	493	ASN
32	Af	565	ASN
32	Af	650	GLN
1	BA	94	GLN
1	BA	379	ASN
2	BB	57	GLN
2	BB	131	HIS
3	BC	32	GLN
3	BC	36	ASN
3	BC	40	GLN
3	BC	48	GLN
3	BC	53	ASN
4	BD	340	GLN
4	BD	412	GLN
4	BD	414	HIS
5	BE	226	GLN
5	BE	254	GLN
5	BE	359	HIS
7	BG	75	ASN
7	BG	90	GLN

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Mol	Chain	Res	Type
7	BG	147	GLN
7	BG	172	GLN
8	BH	88	HIS
8	BH	95	GLN
8	BH	102	GLN
8	BH	166	ASN
8	BH	189	HIS
9	BI	88	ASN
9	BI	102	GLN
9	BI	109	GLN
9	BI	123	GLN
10	BJ	54	GLN
10	BJ	175	ASN
11	BK	97	GLN
11	BK	204	GLN
11	BK	227	HIS
12	BL	86	ASN
14	BN	123	GLN
14	BN	158	ASN
15	BO	57	GLN
15	BO	91	GLN
17	BQ	24	ASN
17	BQ	87	ASN
17	BQ	101	ASN
17	BQ	168	GLN
18	BR	162	GLN
20	BT	81	HIS
20	BT	108	ASN
20	BT	147	GLN
21	BU	247	GLN
21	BU	258	GLN
21	BU	259	GLN
21	BU	267	ASN
21	BU	338	HIS
21	BU	355	ASN
21	BU	421	GLN
21	BU	756	HIS
21	BU	777	HIS
21	BU	805	ASN
22	BV	110	HIS
22	BV	266	GLN
22	BV	376	ASN

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Mol	Chain	Res	Type
22	BV	427	GLN
23	BW	444	HIS
24	BX	170	GLN
24	BX	178	HIS
24	BX	406	ASN
25	BY	31	HIS
25	BY	136	HIS
26	BZ	157	HIS
26	BZ	225	GLN
27	Ba	9	GLN
27	Ba	18	GLN
27	Ba	23	HIS
27	Ba	164	GLN
28	Bb	47	ASN
29	Bc	128	ASN
29	Bc	210	ASN
29	Bc	214	GLN
30	Bd	15	ASN
32	Bf	171	GLN
32	Bf	198	HIS
32	Bf	245	ASN
32	Bf	329	ASN
32	Bf	472	HIS
33	Bw	68	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 24 ligands modelled in this entry, 12 are monoatomic - leaving 12 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	$\#\|Z\| > 2$
34	ATP	BD	501	35	29,33,33	0.28	0	44,52,52	0.46	1 (2%)
34	ATP	BB	502	35	29,33,33	0.28	0	44,52,52	0.45	1 (2%)
34	ATP	AD	501	35	29,33,33	0.29	0	44,52,52	0.52	1 (2%)
34	ATP	AE	402	35	29,33,33	0.27	0	44,52,52	0.45	1 (2%)
36	ADP	BF	501	35	27,29,29	1.36	4 (14%)	42,45,45	1.96	11 (26%)
36	ADP	AF	501	35	27,29,29	1.36	4 (14%)	42,45,45	1.97	10 (23%)
34	ATP	BA	501	35	29,33,33	0.28	0	44,52,52	0.47	1 (2%)
34	ATP	BE	401	35	29,33,33	0.27	0	44,52,52	0.45	1 (2%)
36	ADP	AC	501	-	27,29,29	1.37	4 (14%)	42,45,45	2.05	9 (21%)
34	ATP	AA	501	35	29,33,33	0.28	0	44,52,52	0.45	1 (2%)
36	ADP	BC	501	-	27,29,29	1.36	4 (14%)	42,45,45	2.01	9 (21%)
34	ATP	AB	501	35	29,33,33	0.28	0	44,52,52	0.45	1 (2%)

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
34	ATP	BD	501	35	-	11/22/38/38	0/3/3/3
34	ATP	BB	502	35	-	6/22/38/38	0/3/3/3
34	ATP	AD	501	35	-	10/22/38/38	0/3/3/3
34	ATP	AE	402	35	-	5/22/38/38	0/3/3/3
36	ADP	BF	501	35	-	7/16/32/32	0/3/3/3
36	ADP	AF	501	35	-	7/16/32/32	0/3/3/3
34	ATP	BA	501	35	-	6/22/38/38	0/3/3/3
34	ATP	BE	401	35	-	3/22/38/38	0/3/3/3
36	ADP	AC	501	-	-	2/16/32/32	0/3/3/3
34	ATP	AA	501	35	-	4/22/38/38	0/3/3/3
36	ADP	BC	501	-	-	5/16/32/32	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
34	ATP	AB	501	35	-	6/22/38/38	0/3/3/3

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
36	BC	501	ADP	C5-C4	4.64	1.47	1.39
36	AC	501	ADP	C5-C4	4.63	1.47	1.39
36	AF	501	ADP	C5-C4	4.55	1.47	1.39
36	BF	501	ADP	C5-C4	4.52	1.47	1.39
36	BC	501	ADP	C5-C6	2.69	1.48	1.41
36	AC	501	ADP	C5-C6	2.69	1.48	1.41
36	BF	501	ADP	C5-C6	2.67	1.48	1.41
36	AF	501	ADP	C5-C6	2.66	1.48	1.41
36	AF	501	ADP	C8-N7	2.44	1.36	1.31
36	BF	501	ADP	C8-N7	2.42	1.36	1.31
36	AC	501	ADP	C8-N7	2.37	1.36	1.31
36	BC	501	ADP	C8-N7	2.33	1.36	1.31
36	AC	501	ADP	C5-N7	-2.27	1.34	1.39
36	BF	501	ADP	C5-N7	-2.22	1.34	1.39
36	AF	501	ADP	C5-N7	-2.21	1.34	1.39
36	BC	501	ADP	C5-N7	-2.21	1.34	1.39

All (47) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
36	AC	501	ADP	C5-C4-N3	-6.73	117.97	126.75
36	BC	501	ADP	C5-C4-N3	-6.66	118.06	126.75
36	AF	501	ADP	C5-C4-N3	-6.22	118.63	126.75
36	BF	501	ADP	C5-C4-N3	-6.20	118.67	126.75
36	AC	501	ADP	N3-C4-N9	5.28	135.77	127.08
36	BC	501	ADP	N3-C4-N9	5.22	135.69	127.08
36	AF	501	ADP	N3-C4-N9	4.85	135.07	127.08
36	BF	501	ADP	N3-C4-N9	4.78	134.97	127.08
36	AC	501	ADP	C2-N3-C4	4.05	121.31	111.75
36	BC	501	ADP	C2-N3-C4	4.03	121.26	111.75
36	AF	501	ADP	C2-N3-C4	3.87	120.90	111.75
36	BF	501	ADP	C2-N3-C4	3.86	120.86	111.75
36	AF	501	ADP	PA-O3A-PB	-3.79	119.81	132.83
36	AC	501	ADP	PA-O3A-PB	-3.77	119.88	132.83
36	BF	501	ADP	PA-O3A-PB	-3.59	120.50	132.83
36	BC	501	ADP	PA-O3A-PB	-3.39	121.20	132.83
36	BF	501	ADP	C4-C5-N7	-3.32	106.57	110.62

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
36	AF	501	ADP	C4-C5-N7	-3.22	106.70	110.62
36	BC	501	ADP	C4-C5-N7	-3.21	106.71	110.62
36	AC	501	ADP	C4-C5-N7	-3.18	106.75	110.62
36	BF	501	ADP	N3-C2-N1	-3.14	123.69	128.60
36	AF	501	ADP	N3-C2-N1	-3.13	123.70	128.60
36	BC	501	ADP	N3-C2-N1	-3.12	123.72	128.60
36	AC	501	ADP	N3-C2-N1	-3.11	123.74	128.60
36	BF	501	ADP	C5-N7-C8	2.80	107.49	103.51
36	BC	501	ADP	C5-N7-C8	2.73	107.38	103.51
36	AC	501	ADP	C5-N7-C8	2.71	107.36	103.51
36	AF	501	ADP	C5-N7-C8	2.70	107.34	103.51
36	AC	501	ADP	C3'-C2'-C1'	2.64	106.44	101.43
36	BC	501	ADP	C3'-C2'-C1'	2.47	106.13	101.43
36	BF	501	ADP	C4-N9-C8	2.46	108.39	105.73
36	AF	501	ADP	C4-N9-C8	2.45	108.39	105.73
36	BF	501	ADP	C3'-C2'-C1'	2.33	105.84	101.43
36	AF	501	ADP	C3'-C2'-C1'	2.29	105.77	101.43
36	AC	501	ADP	C4-N9-C8	2.25	108.17	105.73
36	BC	501	ADP	C4-N9-C8	2.23	108.14	105.73
36	BF	501	ADP	C6-C5-N7	2.18	136.08	132.02
36	AF	501	ADP	C6-C5-N7	2.14	136.01	132.02
34	BE	401	ATP	PB-O3B-PG	2.05	139.86	132.83
34	AB	501	ATP	PB-O3B-PG	2.04	139.84	132.83
34	AD	501	ATP	PB-O3B-PG	2.04	139.84	132.83
34	BB	502	ATP	PB-O3B-PG	2.04	139.82	132.83
34	AE	402	ATP	PB-O3B-PG	2.04	139.82	132.83
34	BA	501	ATP	PB-O3B-PG	2.03	139.79	132.83
34	AA	501	ATP	PB-O3B-PG	2.03	139.78	132.83
36	BF	501	ADP	N9-C8-N7	-2.00	111.17	113.91
34	BD	501	ATP	PB-O3B-PG	2.00	139.70	132.83

There are no chirality outliers.

All (72) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
34	AB	501	ATP	PB-O3B-PG-O3G
34	AB	501	ATP	C5'-O5'-PA-O1A
34	AD	501	ATP	C5'-O5'-PA-O1A
34	AD	501	ATP	C5'-O5'-PA-O2A
34	AD	501	ATP	C5'-O5'-PA-O3A
34	AE	402	ATP	PB-O3B-PG-O2G
34	BA	501	ATP	PB-O3B-PG-O3G

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Mol	Chain	Res	Type	Atoms
34	BA	501	ATP	C5'-O5'-PA-O1A
34	BB	502	ATP	PB-O3B-PG-O3G
34	BD	501	ATP	C5'-O5'-PA-O3A
34	BE	401	ATP	PB-O3B-PG-O2G
36	AC	501	ADP	C5'-O5'-PA-O3A
36	AF	501	ADP	C5'-O5'-PA-O1A
36	BC	501	ADP	C5'-O5'-PA-O1A
36	BF	501	ADP	C5'-O5'-PA-O1A
36	AF	501	ADP	O4'-C4'-C5'-O5'
36	AF	501	ADP	C3'-C4'-C5'-O5'
36	BF	501	ADP	O4'-C4'-C5'-O5'
36	BF	501	ADP	C3'-C4'-C5'-O5'
34	AD	501	ATP	O4'-C4'-C5'-O5'
34	AD	501	ATP	C3'-C4'-C5'-O5'
34	AE	402	ATP	O4'-C4'-C5'-O5'
34	BB	502	ATP	O4'-C4'-C5'-O5'
34	BD	501	ATP	O4'-C4'-C5'-O5'
36	BC	501	ADP	C3'-C4'-C5'-O5'
34	BD	501	ATP	PA-O3A-PB-O1B
36	BF	501	ADP	C2'-C1'-N9-C8
34	AE	402	ATP	C3'-C4'-C5'-O5'
36	BC	501	ADP	O4'-C4'-C5'-O5'
34	BA	501	ATP	PB-O3B-PG-O2G
34	AD	501	ATP	O4'-C1'-N9-C4
34	BD	501	ATP	O4'-C1'-N9-C4
36	AF	501	ADP	O4'-C1'-N9-C4
34	AB	501	ATP	C5'-O5'-PA-O3A
34	BA	501	ATP	C5'-O5'-PA-O3A
34	BB	502	ATP	C5'-O5'-PA-O3A
36	BC	501	ADP	C5'-O5'-PA-O3A
36	BF	501	ADP	C5'-O5'-PA-O3A
34	BB	502	ATP	C3'-C4'-C5'-O5'
34	AB	501	ATP	PA-O3A-PB-O1B
34	BB	502	ATP	PA-O3A-PB-O1B
34	AD	501	ATP	C2'-C1'-N9-C8
34	BD	501	ATP	C2'-C1'-N9-C8
36	AF	501	ADP	C2'-C1'-N9-C8
34	AB	501	ATP	C5'-O5'-PA-O2A
34	BA	501	ATP	C5'-O5'-PA-O2A
34	BD	501	ATP	C5'-O5'-PA-O1A
34	BD	501	ATP	C5'-O5'-PA-O2A
36	AC	501	ADP	C5'-O5'-PA-O1A

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Mol	Chain	Res	Type	Atoms
36	BC	501	ADP	C5'-O5'-PA-O2A
34	AD	501	ATP	O4'-C1'-N9-C8
34	BD	501	ATP	O4'-C1'-N9-C8
36	AF	501	ADP	O4'-C1'-N9-C8
34	AA	501	ATP	PG-O3B-PB-O2B
34	AE	402	ATP	PA-O3A-PB-O2B
34	BD	501	ATP	PG-O3B-PB-O2B
34	BD	501	ATP	PA-O3A-PB-O2B
34	BE	401	ATP	PA-O3A-PB-O1B
34	BE	401	ATP	PA-O3A-PB-O2B
36	BF	501	ADP	C2'-C1'-N9-C4
36	BF	501	ADP	O4'-C1'-N9-C8
34	AA	501	ATP	PA-O3A-PB-O1B
34	AE	402	ATP	PA-O3A-PB-O1B
34	BB	502	ATP	PB-O3B-PG-O1G
34	AD	501	ATP	C2'-C1'-N9-C4
34	BD	501	ATP	C2'-C1'-N9-C4
34	AA	501	ATP	PB-O3B-PG-O2G
34	AD	501	ATP	PB-O3B-PG-O3G
34	AA	501	ATP	PA-O3A-PB-O2B
36	AF	501	ADP	C2'-C1'-N9-C4
34	AB	501	ATP	PB-O3B-PG-O1G
34	BA	501	ATP	PB-O3B-PG-O1G

There are no ring outliers.

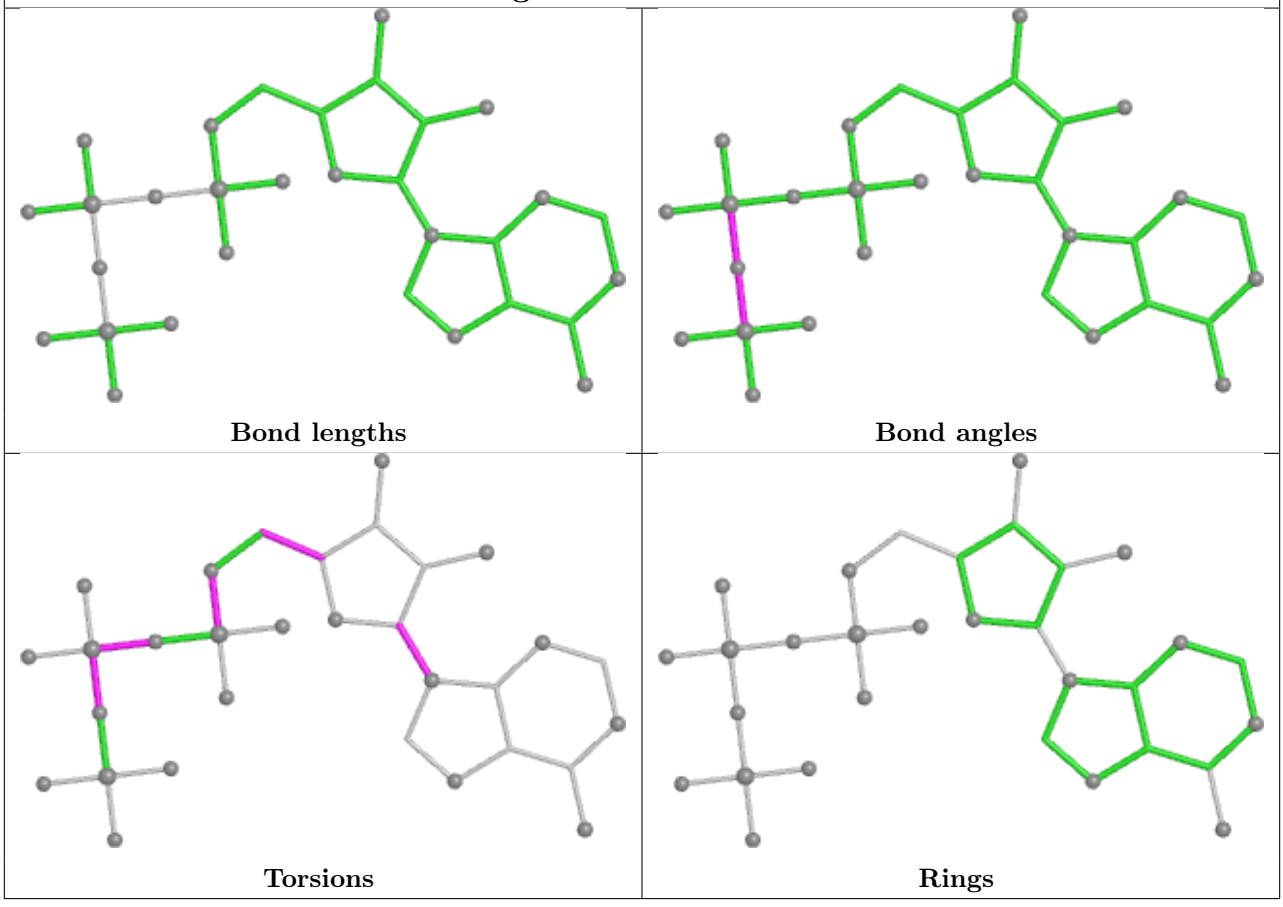
8 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
34	BD	501	ATP	2	0
34	AD	501	ATP	2	0
34	AE	402	ATP	1	0
36	BF	501	ADP	1	0
36	AF	501	ADP	1	0
34	BA	501	ATP	2	0
36	AC	501	ADP	1	0
34	AA	501	ATP	2	0

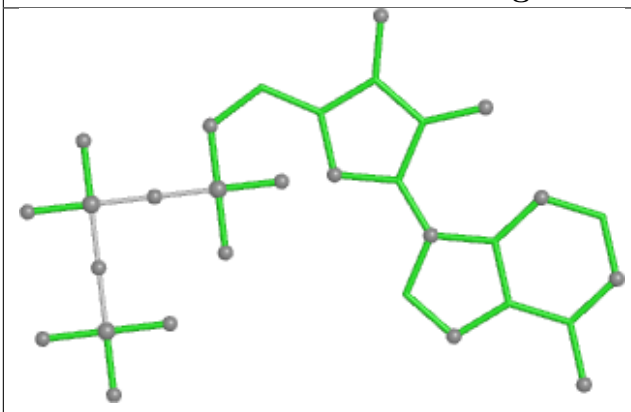
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

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

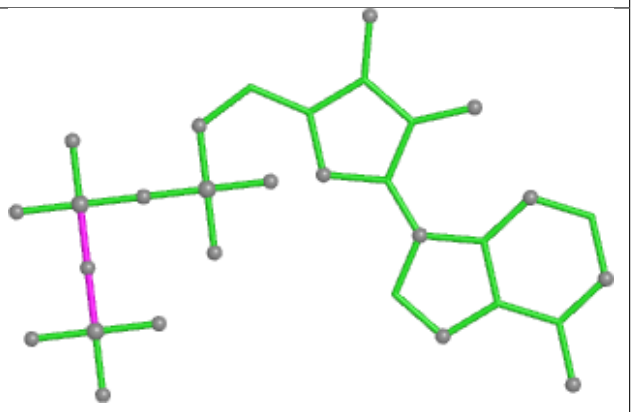
Ligand ATP BD 501



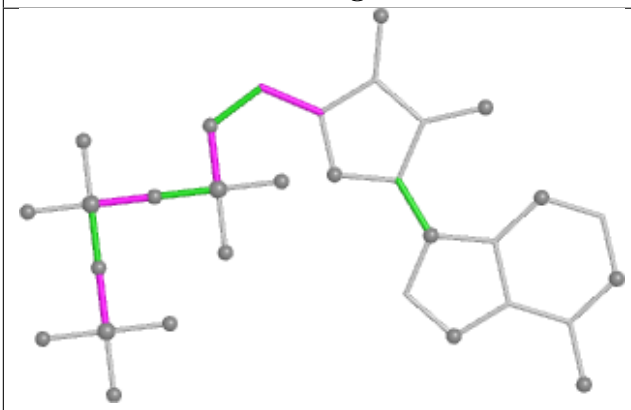
Ligand ATP BB 502



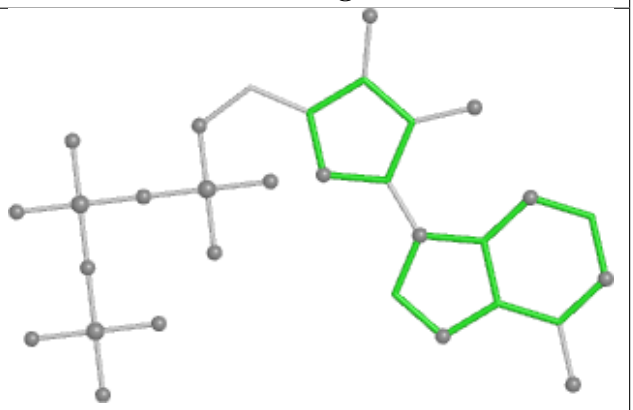
Bond lengths



Bond angles

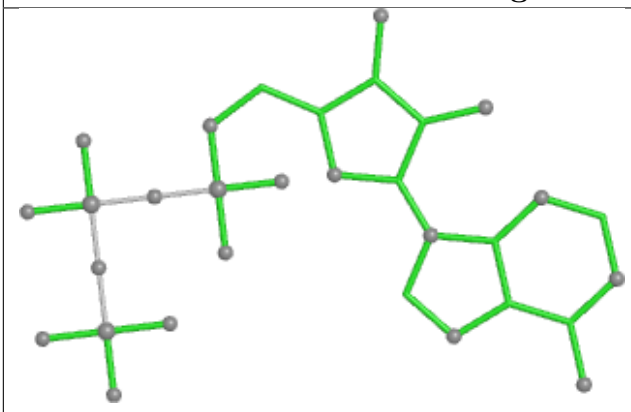


Torsions

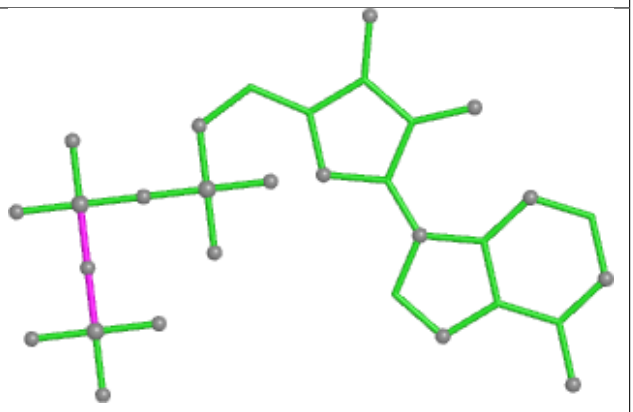


Rings

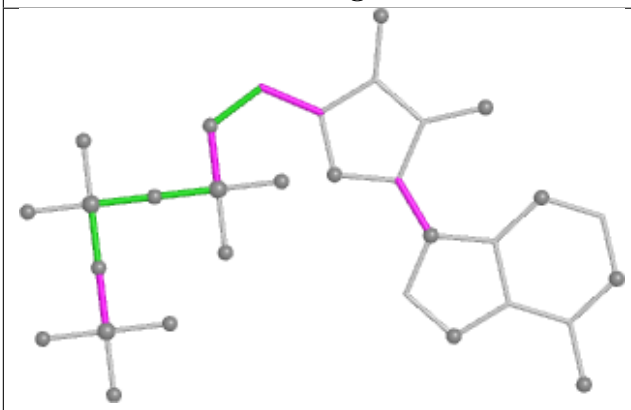
Ligand ATP AD 501



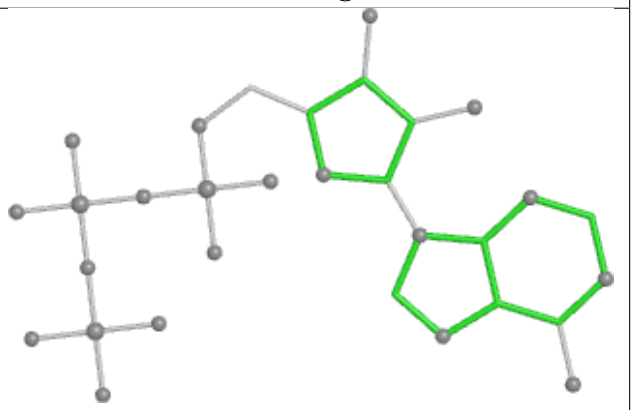
Bond lengths



Bond angles

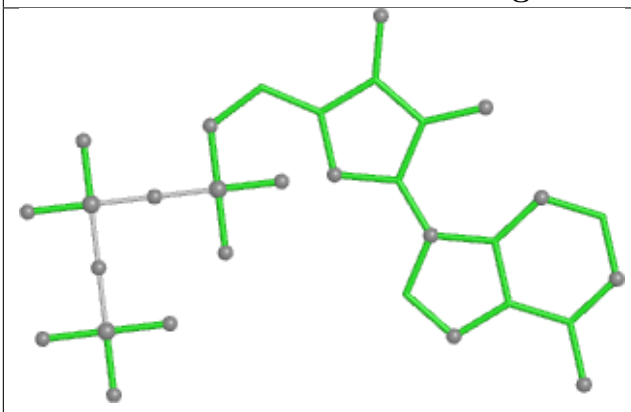


Torsions

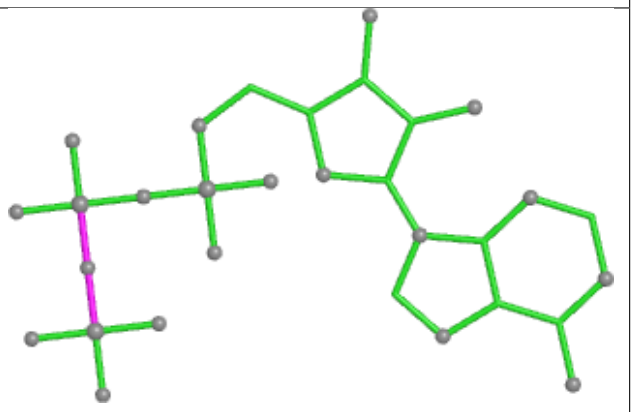


Rings

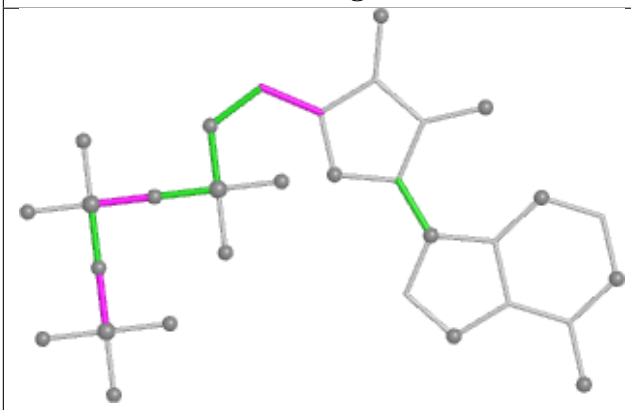
Ligand ATP AE 402



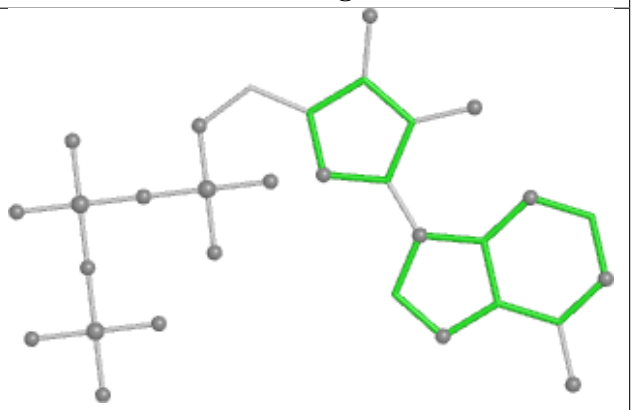
Bond lengths



Bond angles

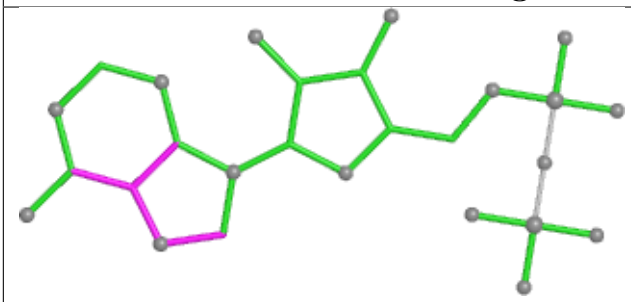


Torsions

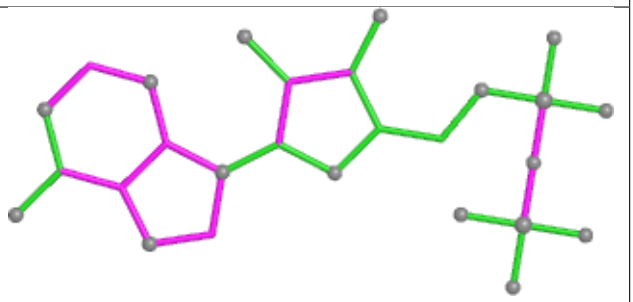


Rings

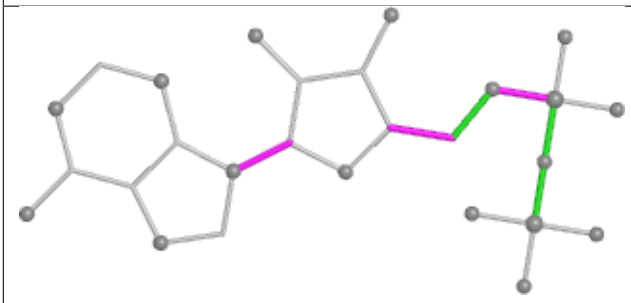
Ligand ADP BF 501



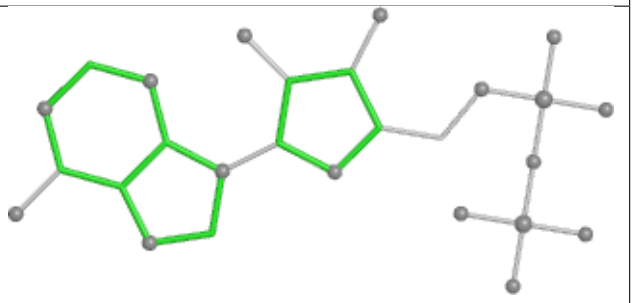
Bond lengths



Bond angles

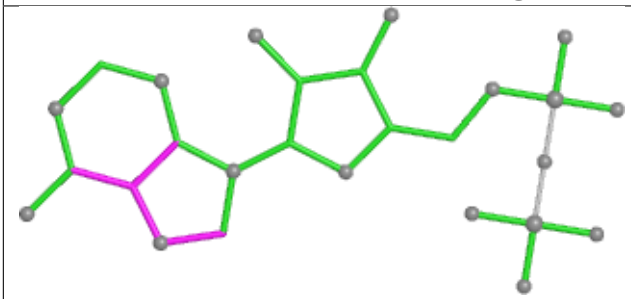


Torsions

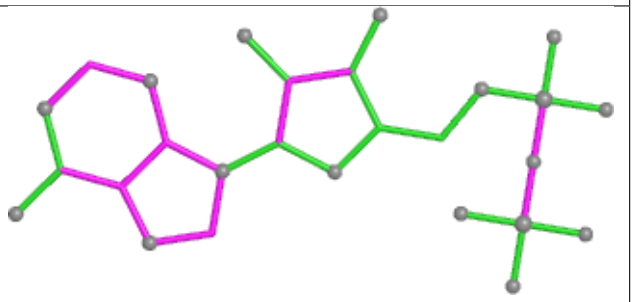


Rings

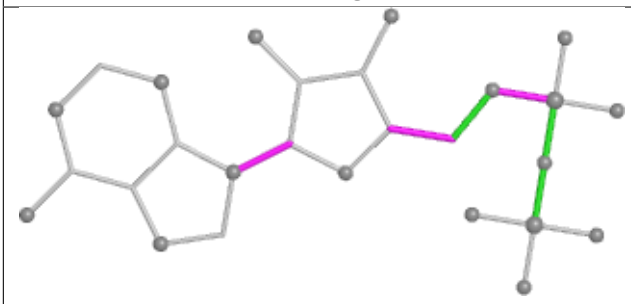
Ligand ADP AF 501



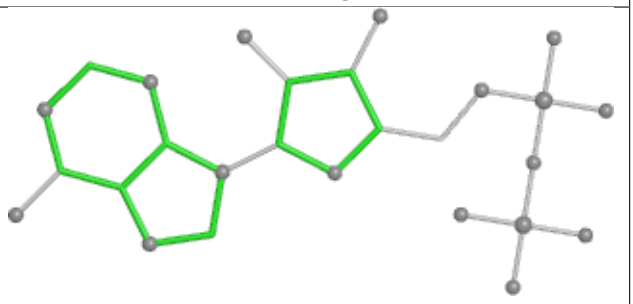
Bond lengths



Bond angles

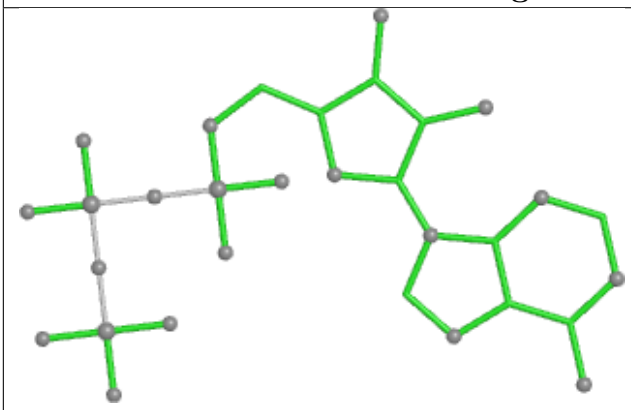


Torsions

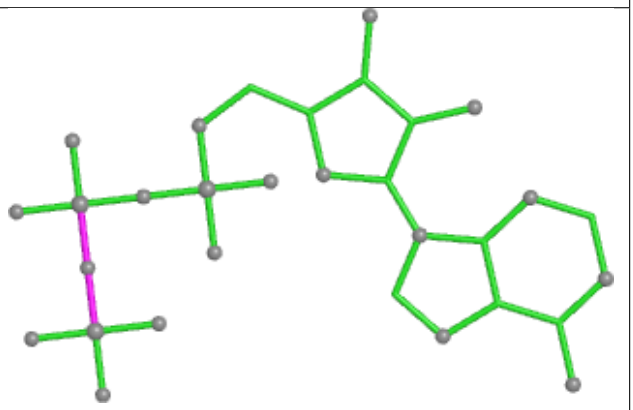


Rings

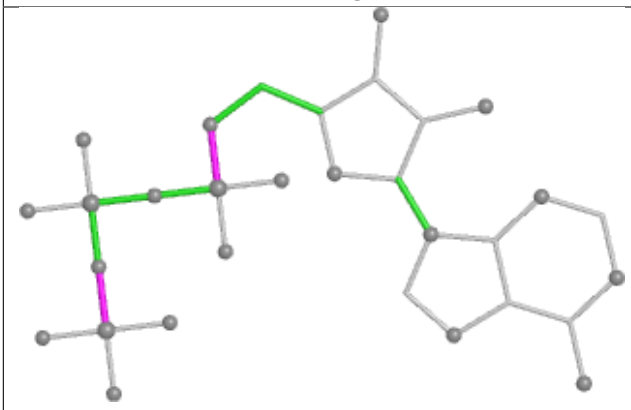
Ligand ATP BA 501



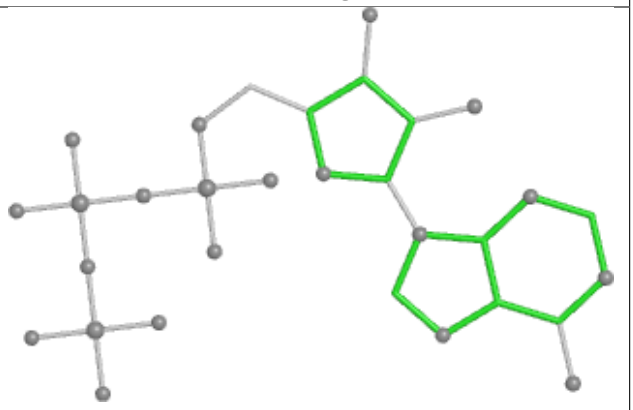
Bond lengths



Bond angles

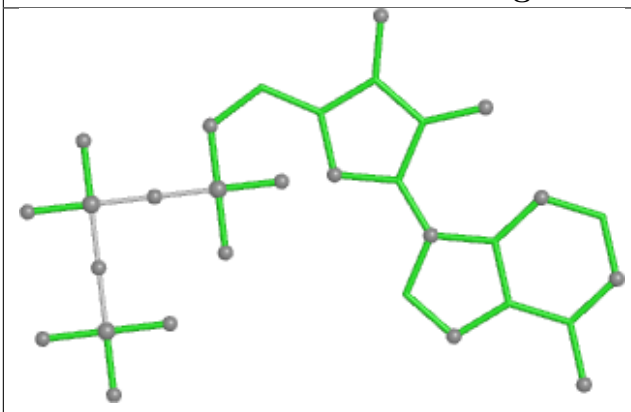


Torsions

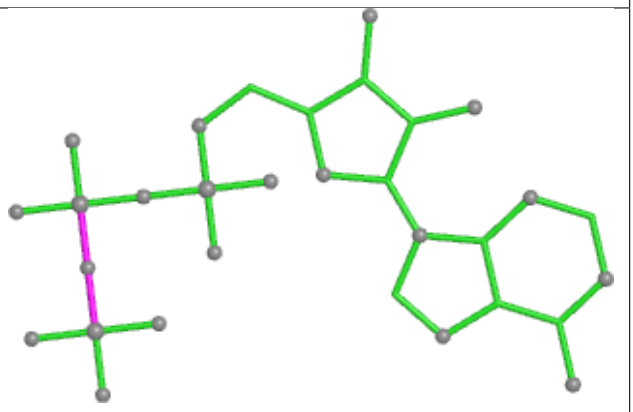


Rings

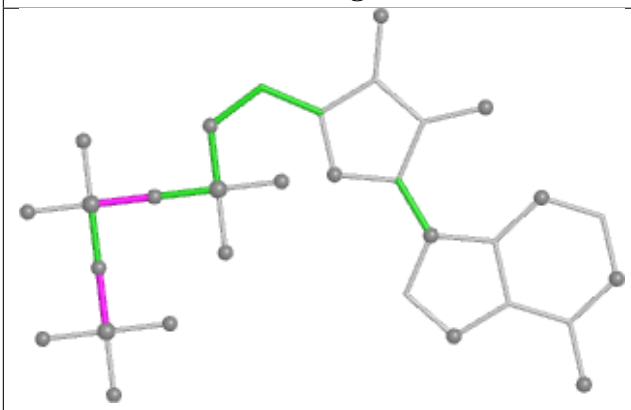
Ligand ATP BE 401



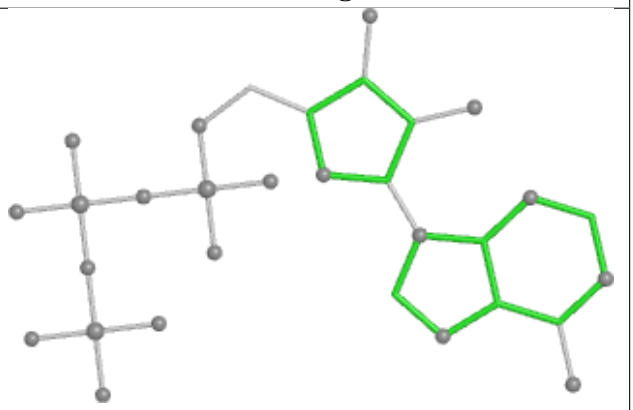
Bond lengths



Bond angles

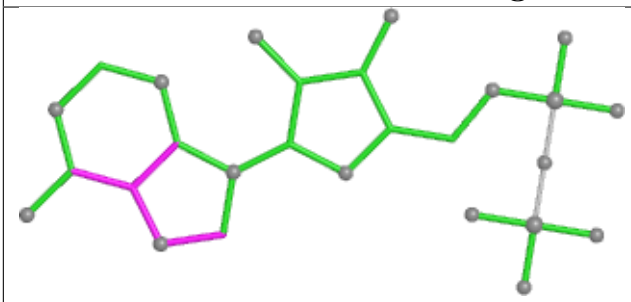


Torsions

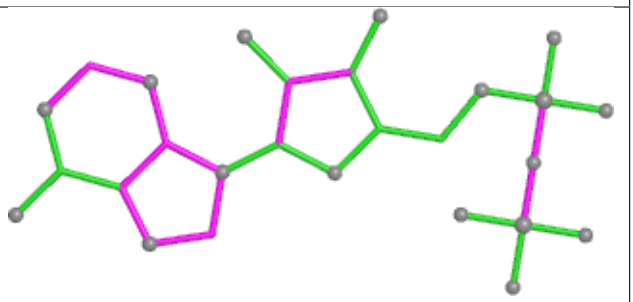


Rings

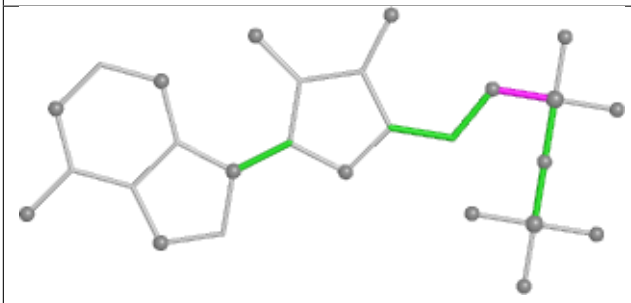
Ligand ADP AC 501



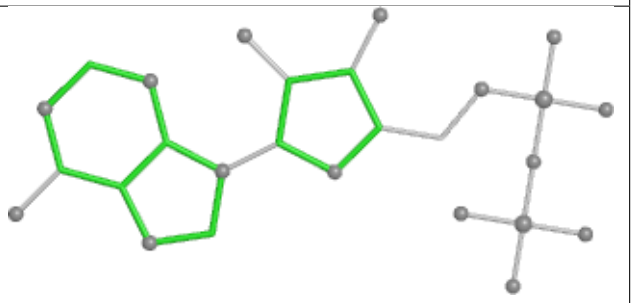
Bond lengths



Bond angles

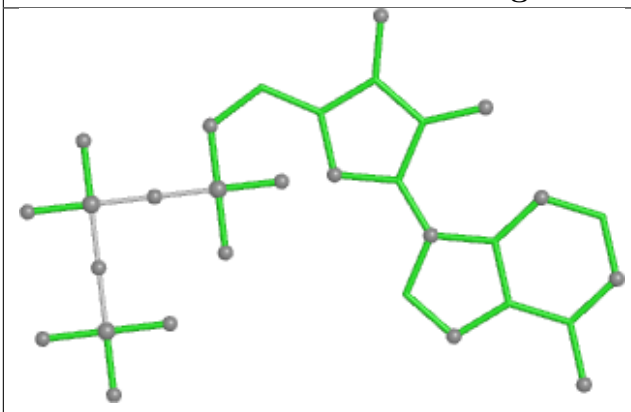


Torsions

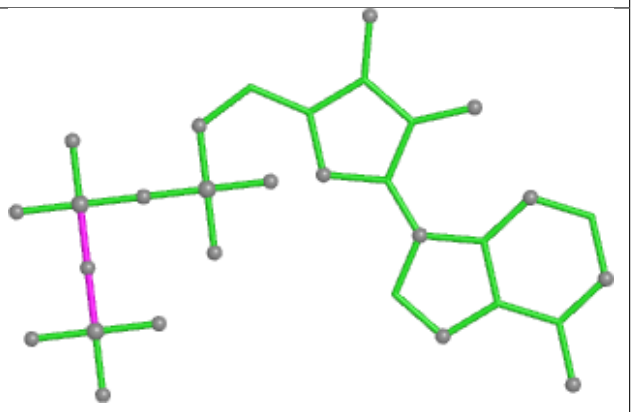


Rings

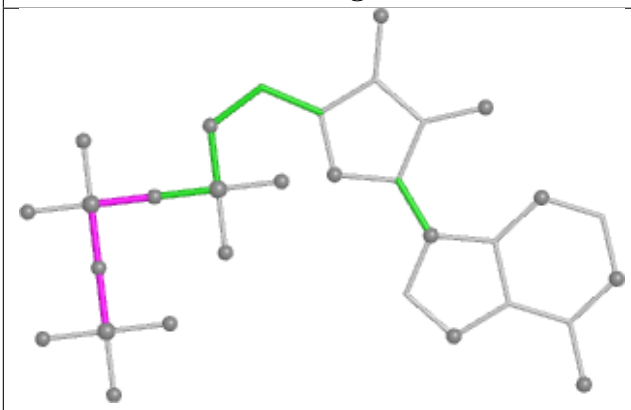
Ligand ATP AA 501



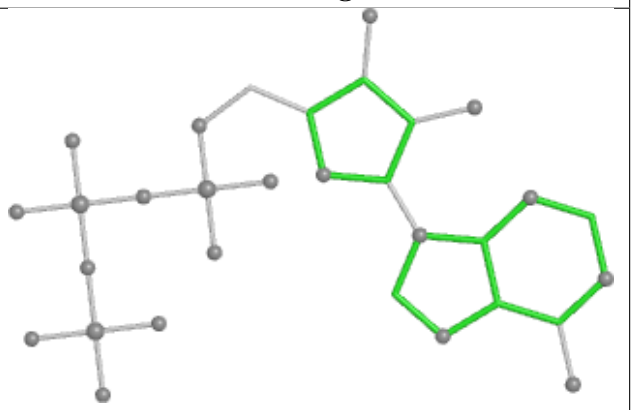
Bond lengths



Bond angles

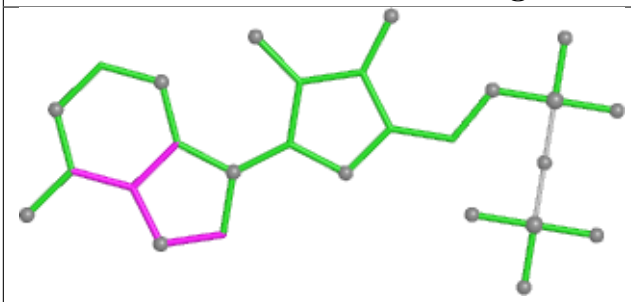


Torsions

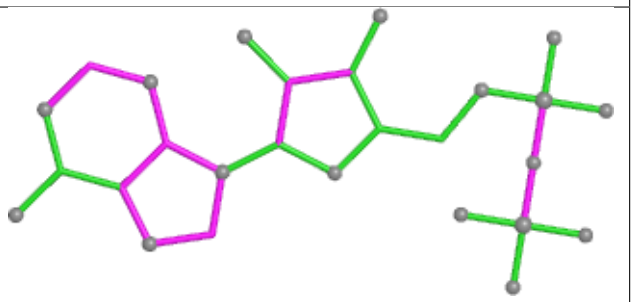


Rings

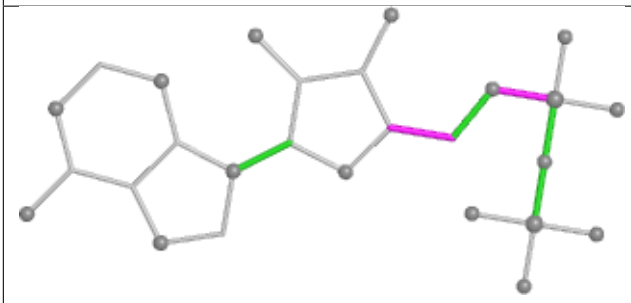
Ligand ADP BC 501



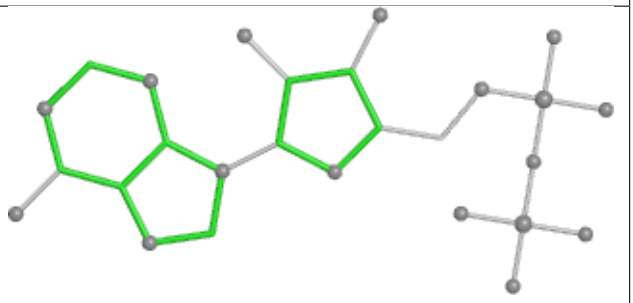
Bond lengths



Bond angles

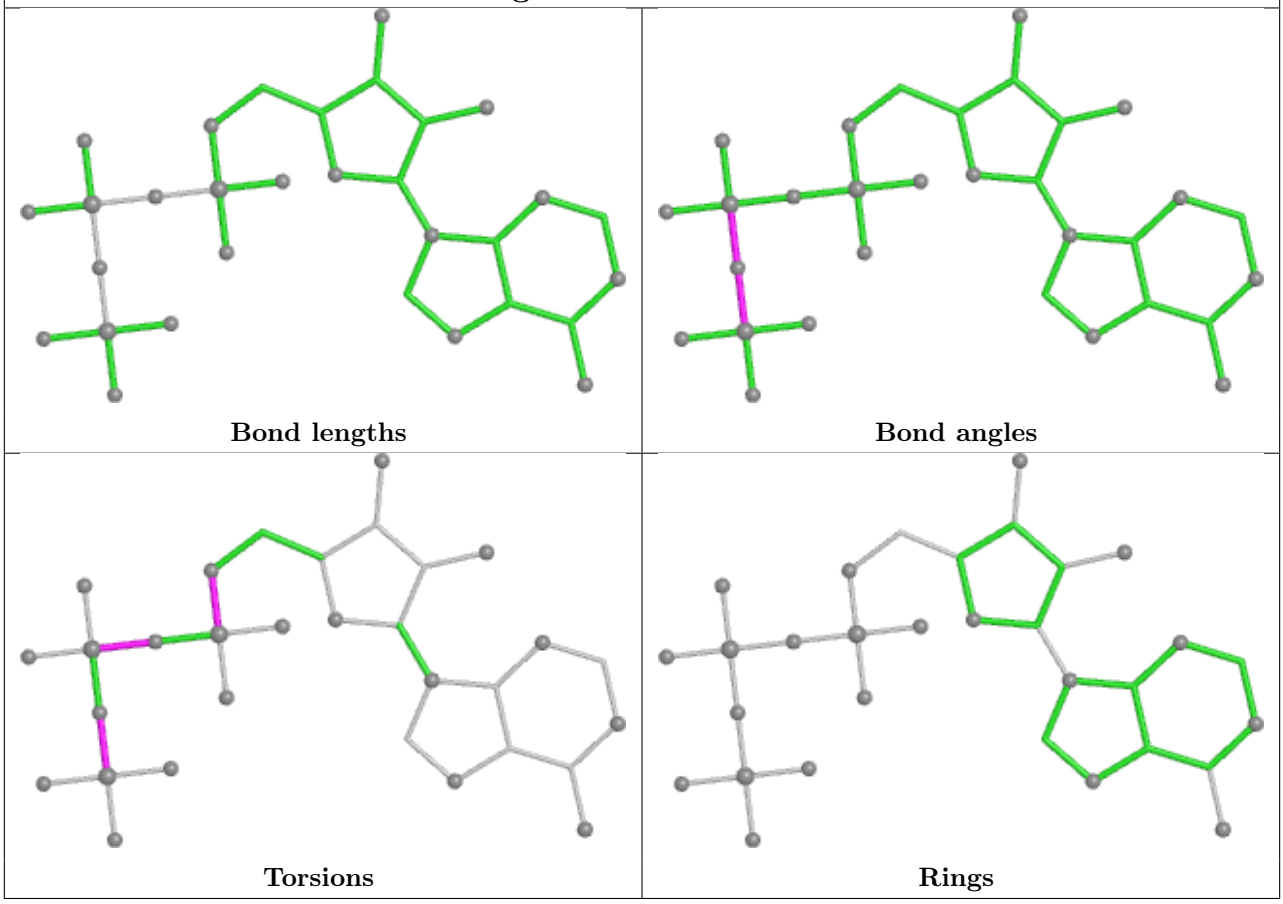


Torsions



Rings

Ligand ATP AB 501



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.

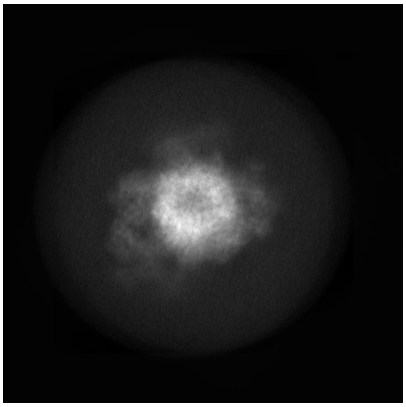
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-62090. These allow visual inspection of the internal detail of the map and identification of artifacts.

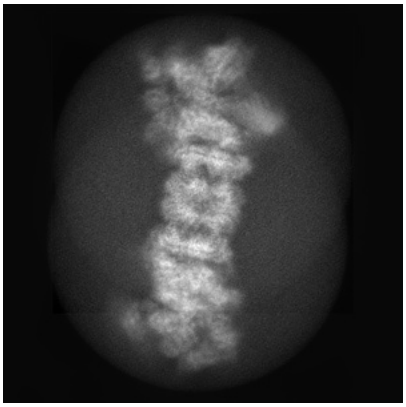
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

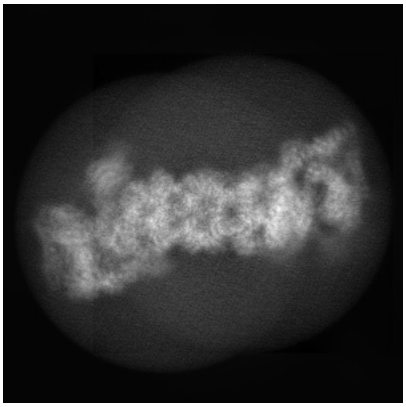
6.1.1 Primary map



X



Y

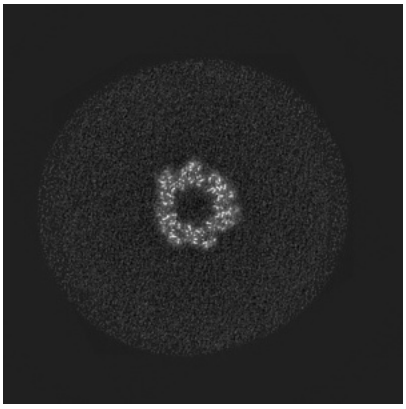


Z

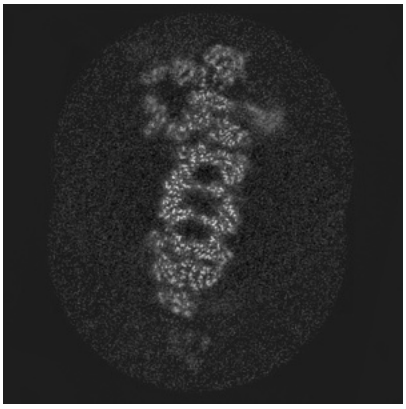
The images above show the map projected in three orthogonal directions.

6.2 Central slices

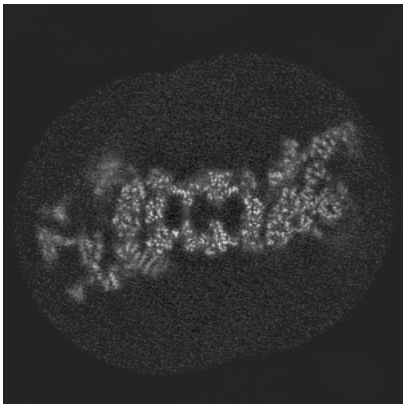
6.2.1 Primary map



X Index: 400



Y Index: 400

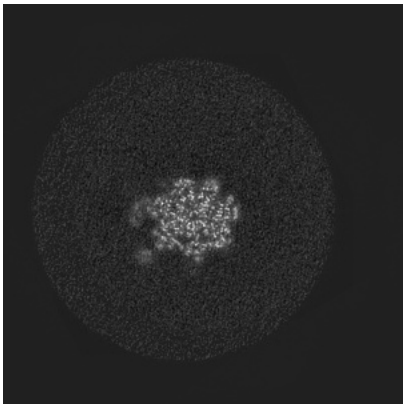


Z Index: 400

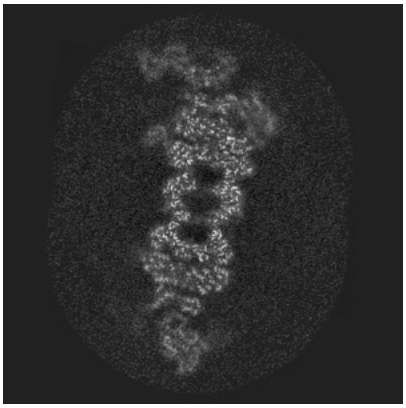
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

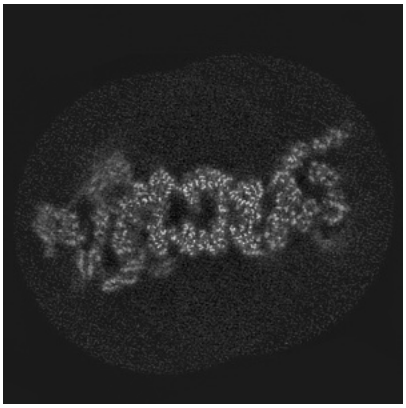
6.3.1 Primary map



X Index: 318



Y Index: 369

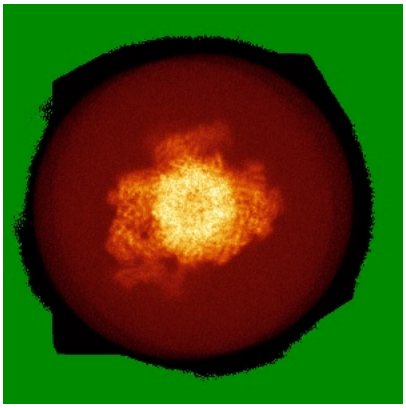


Z Index: 379

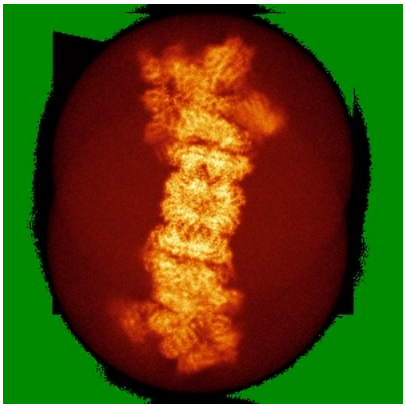
The images above show the largest variance slices of the map in three orthogonal directions.

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

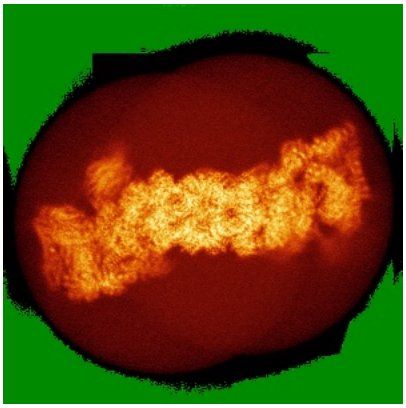
6.4.1 Primary map



X



Y

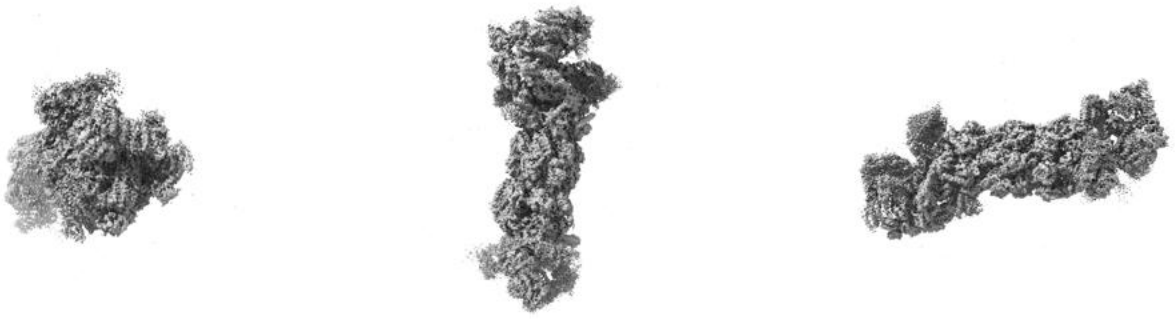


Z

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



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.006. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

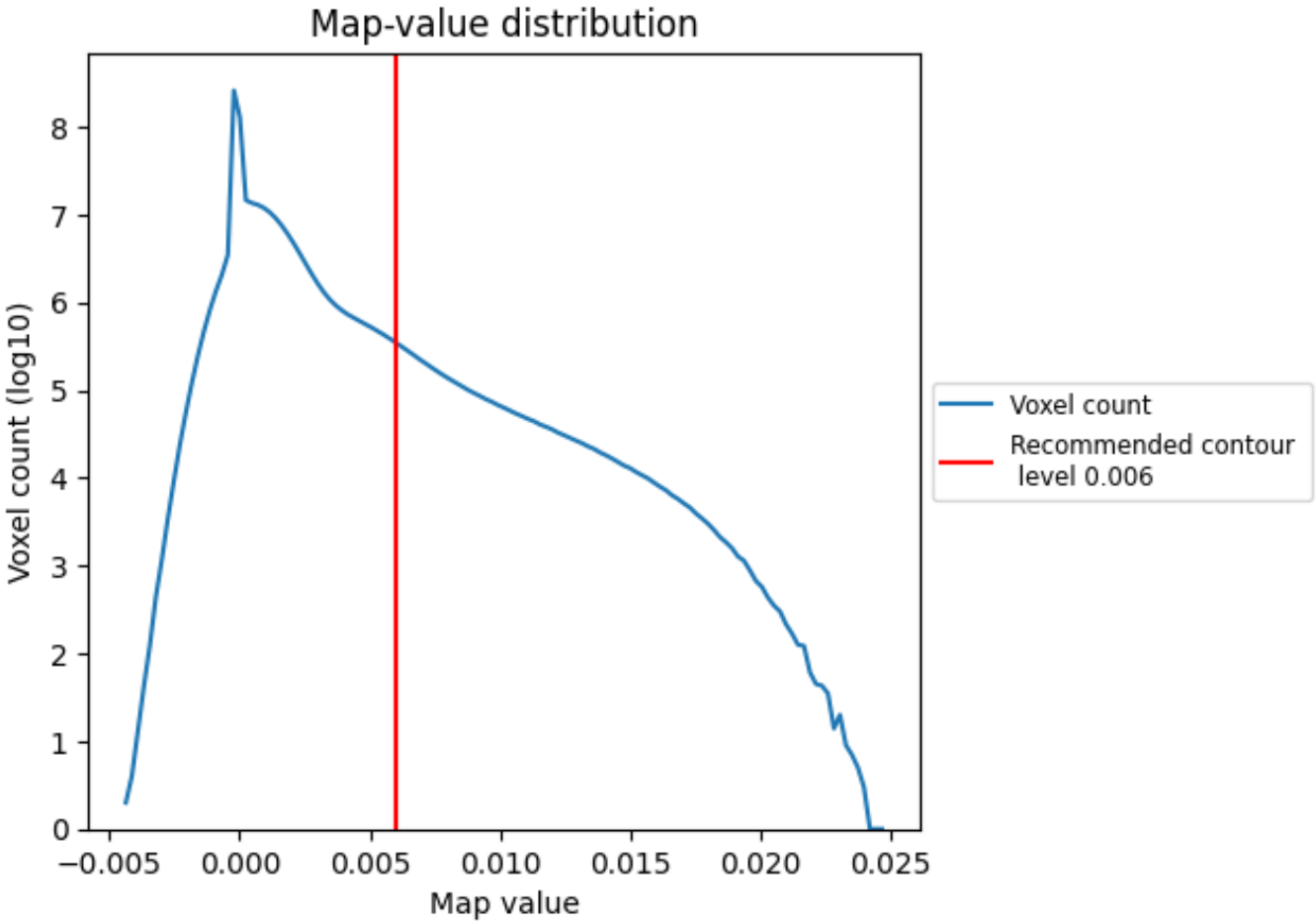
6.6 Mask visualisation (i)

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

7 Map analysis

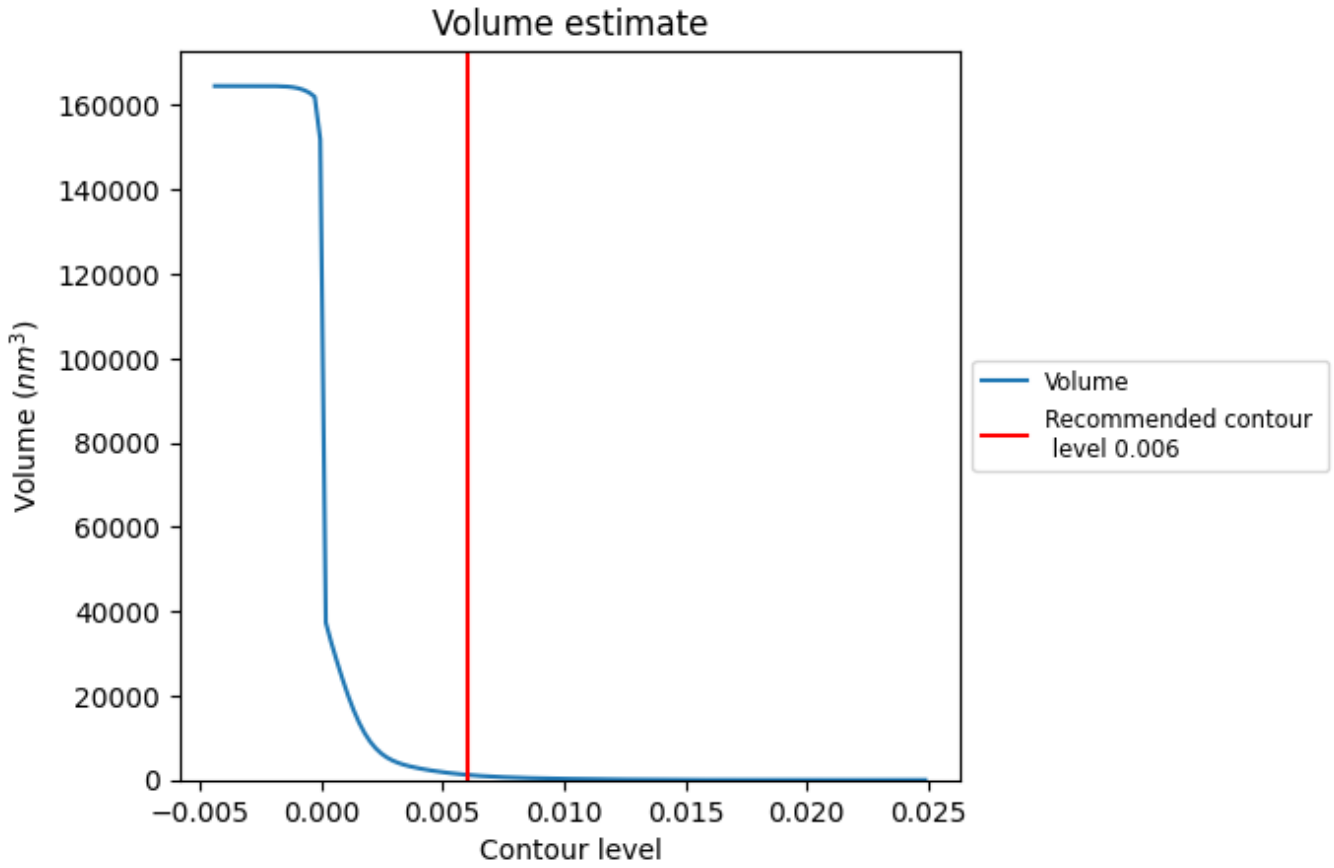
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

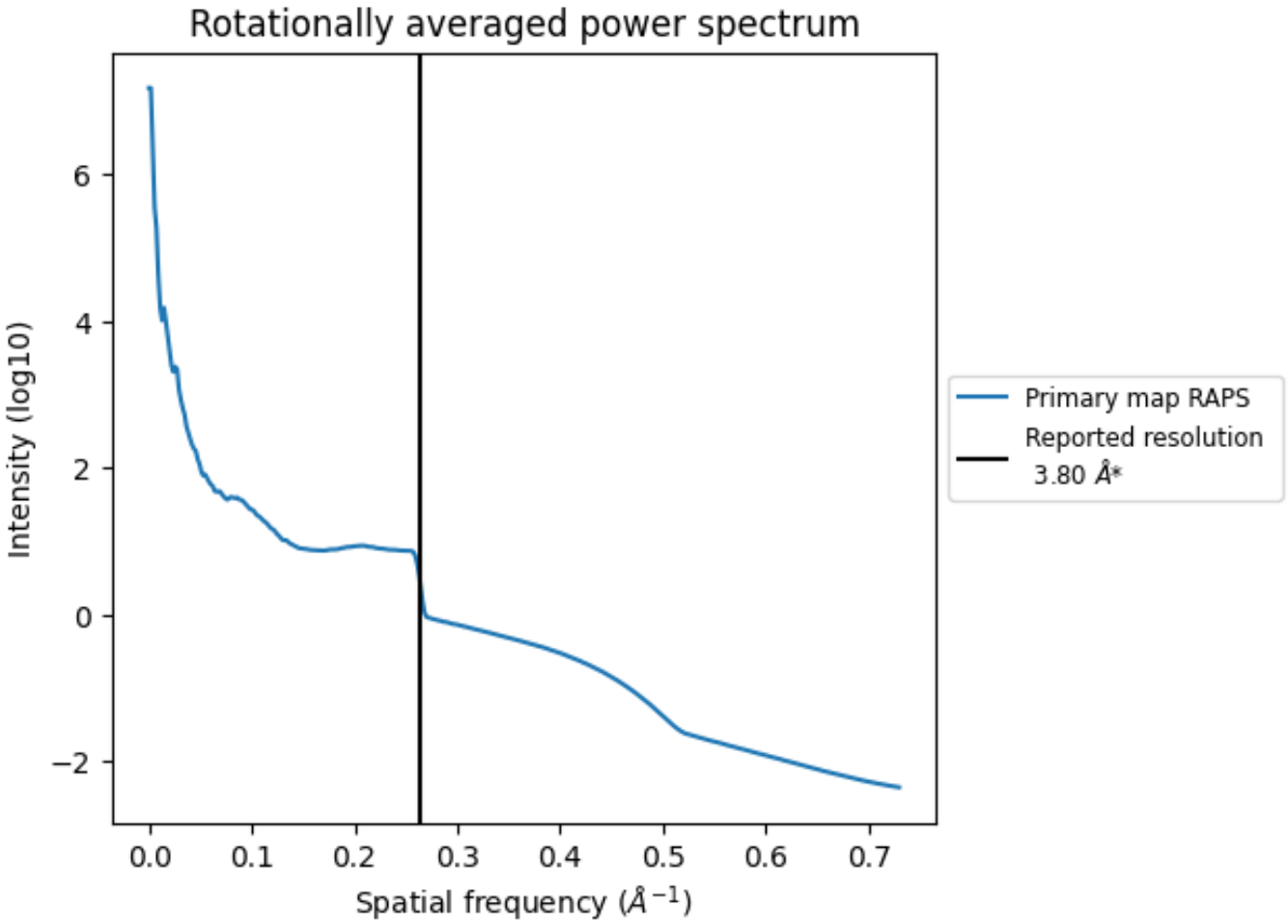
7.2 Volume estimate



The volume at the recommended contour level is 1220 nm^3; this corresponds to an approximate mass of 1102 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 0.263 Å^{-1}

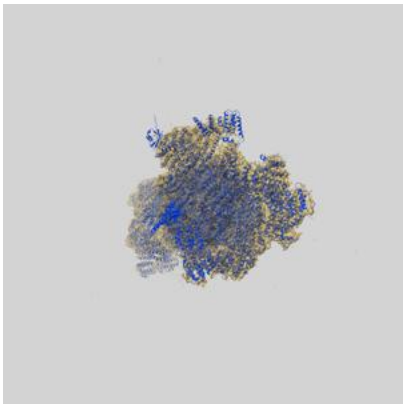
8 Fourier-Shell correlation

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

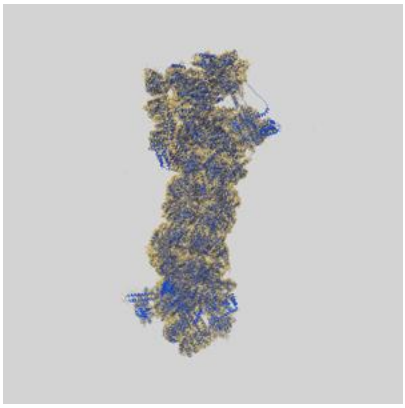
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-62090 and PDB model 9K5E. Per-residue inclusion information can be found in section 3 on page 15.

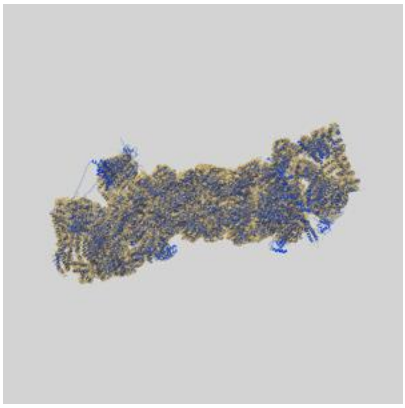
9.1 Map-model overlay



X



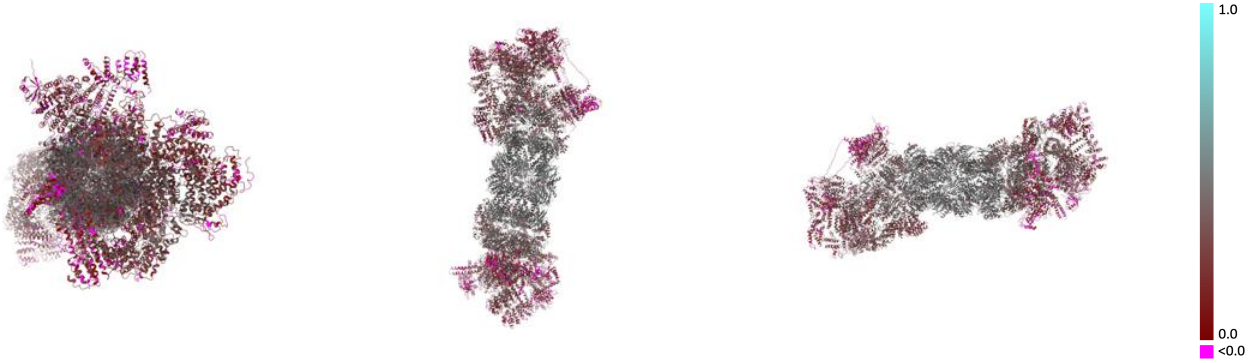
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.006 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.

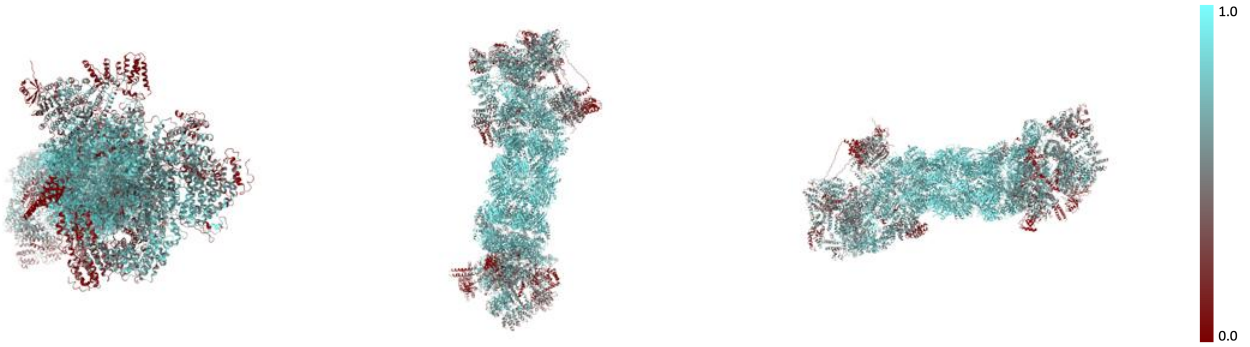
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according 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.

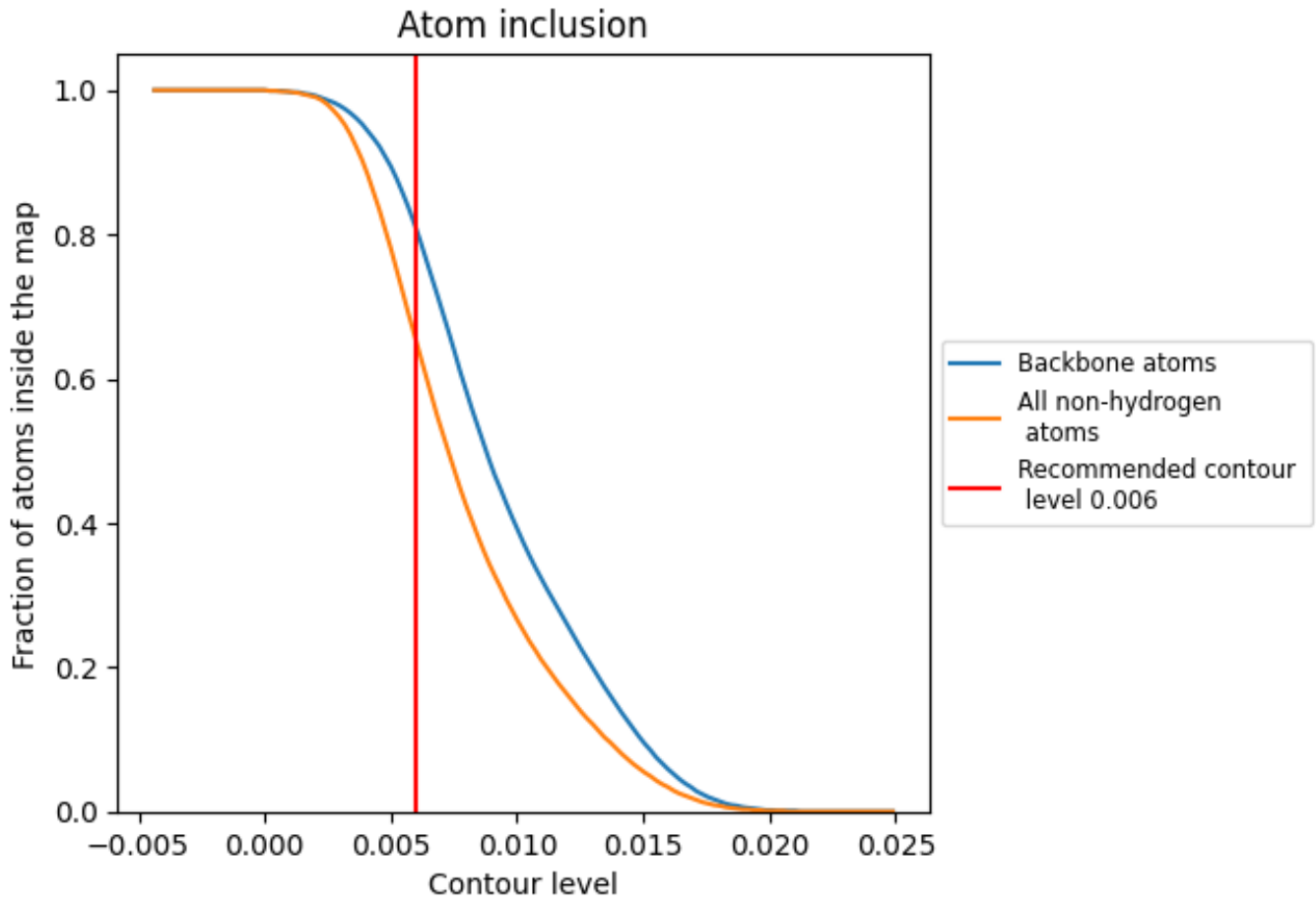
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.006).

9.4 Atom inclusion (i)



At the recommended contour level, 81% of all backbone atoms, 65% 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 (0.006) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6520	0.3260
AA	0.7320	0.3500
AB	0.7240	0.3530
AC	0.7510	0.3710
AD	0.7320	0.3610
AE	0.7400	0.3610
AF	0.7410	0.3720
AG	0.8700	0.4430
AH	0.8690	0.4540
AI	0.8460	0.4350
AJ	0.8370	0.4210
AK	0.8530	0.4460
AL	0.8890	0.4590
AM	0.8560	0.4370
AN	0.9030	0.4630
AO	0.9160	0.4690
AP	0.9030	0.4610
AQ	0.8870	0.4620
AR	0.9240	0.4720
AS	0.8910	0.4600
AT	0.8930	0.4620
AU	0.5340	0.2320
AV	0.4860	0.2480
AW	0.5730	0.2760
AX	0.4900	0.2710
AY	0.7270	0.3140
AZ	0.5390	0.2720
Aa	0.4310	0.2070
Ab	0.1880	0.1460
Ac	0.6150	0.3230
Ad	0.4070	0.1900
Ae	0.5270	0.2850
Af	0.3860	0.1700
Au	0.0030	0.0460
Aw	0.0070	0.0790

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Chain	Atom inclusion	Q-score
BA	0.7430	0.3510
BB	0.7260	0.3540
BC	0.7410	0.3710
BD	0.7220	0.3610
BE	0.7410	0.3610
BF	0.7580	0.3740
BG	0.8610	0.4380
BH	0.8660	0.4470
BI	0.8360	0.4330
BJ	0.8300	0.4210
BK	0.8390	0.4410
BL	0.8880	0.4530
BM	0.8590	0.4490
BN	0.8950	0.4650
BO	0.9060	0.4630
BP	0.8990	0.4660
BQ	0.8990	0.4630
BR	0.9070	0.4680
BS	0.9020	0.4680
BT	0.8950	0.4690
BU	0.5260	0.2310
BV	0.4660	0.2290
BW	0.5720	0.2860
BX	0.4920	0.2750
BY	0.7130	0.3060
BZ	0.5400	0.2780
Ba	0.4350	0.2210
Bb	0.1830	0.1610
Bc	0.6170	0.3250
Bd	0.3980	0.1900
Be	0.4650	0.2530
Bf	0.3600	0.1780
Bu	0.0030	0.0970
Bw	0.0080	0.0740