Full wwPDB EM Validation Report ⓘ

Nov 11, 2024 – 05:33 PM JST

PDB ID	:	7V3V
EMDB ID	:	EMD-31685
Title	:	Cryo-EM structure of MCM double hexamer bound with DDK in State I
Authors	:	Cheng, J.; Li, N.; Huo, Y.; Dang, S.; Tye, B.; Gao, N.; Zhai, Y.
Deposited on	:	2021-08-11
Resolution	:	2.90 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:

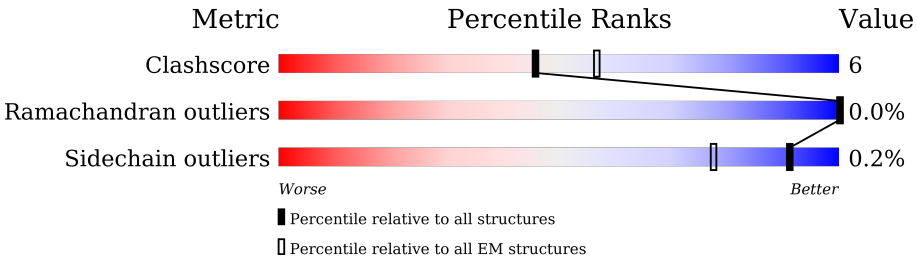
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.90 Å.

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



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

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	2	868	21% 62% 10% 28%
1	B	868	21% 60% 13% 28%
2	3	971	11% 56% 10% 34%
2	C	971	11% 57% 9% 34%
3	4	933	8% 59% 13% 28%
3	D	933	12% 61% 11% 28%
4	5	775	19% 72% 13% 15%
4	E	775	19% 71% 14% 15%

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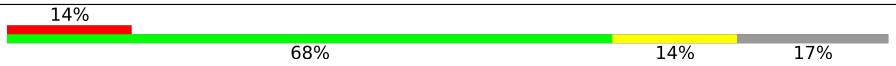
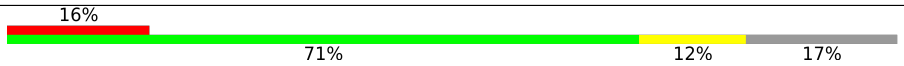
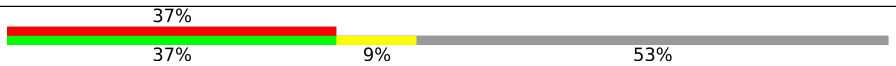
Mol	Chain	Length	Quality of chain
5	6	1017	
5	F	1017	
6	7	845	
6	G	845	
7	H	507	
8	I	704	

2 Entry composition (i)

There are 12 unique types of molecules in this entry. The entry contains 68356 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 DNA replication licensing factor MCM2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	2	628	Total	C	N	O	S	0	0
			4970	3133	883	935	19		
1	B	628	Total	C	N	O	S	0	0
			4970	3133	883	935	19		

- Molecule 2 is a protein called DNA replication licensing factor MCM3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	3	637	Total	C	N	O	S	0	0
			4987	3142	889	943	13		
2	C	637	Total	C	N	O	S	0	0
			4987	3142	889	943	13		

- Molecule 3 is a protein called DNA replication licensing factor MCM4.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	4	670	Total	C	N	O	S	0	0
			5323	3339	918	1036	30		
3	D	670	Total	C	N	O	S	0	0
			5323	3339	918	1036	30		

- Molecule 4 is a protein called Minichromosome maintenance protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	5	659	Total	C	N	O	S	0	0
			5148	3229	883	1011	25		
4	E	659	Total	C	N	O	S	0	0
			5148	3229	883	1011	25		

- Molecule 5 is a protein called DNA replication licensing factor MCM6.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	6	646	Total	C	N	O	S	0	0
			5109	3215	892	977	25		
5	F	646	Total	C	N	O	S	0	0
			5109	3215	892	977	25		

- Molecule 6 is a protein called DNA replication licensing factor MCM7.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	7	699	Total	C	N	O	S	0	0
			5505	3463	952	1059	31		
6	G	699	Total	C	N	O	S	0	0
			5505	3463	952	1059	31		

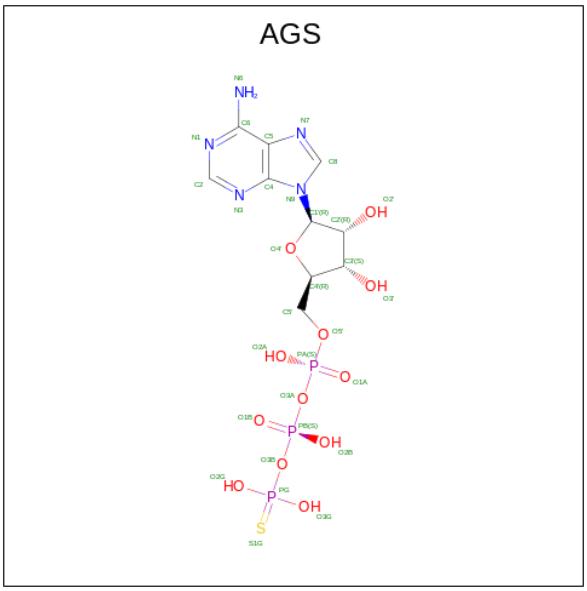
- Molecule 7 is a protein called Cell division control protein 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	381	Total	C	N	O	S	0	0
			3109	2014	520	562	13		

- Molecule 8 is a protein called DDK kinase regulatory subunit DBF4.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	I	328	Total	C	N	O	S	0	0
			2745	1756	478	499	12		

- Molecule 9 is PHOSPHOTHIOPHOSPHORIC ACID-ADENYLATE ESTER (three-letter code: AGS) (formula: $C_{10}H_{16}N_5O_{12}P_3S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						AltConf
9	2	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	4	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	5	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	6	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	7	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	B	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	D	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	E	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	F	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	G	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
9	H	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	

- Molecule 10 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
10	2	1	Total	Mg	0
			1	1	
10	3	1	Total	Mg	0
			1	1	
10	4	2	Total	Mg	0
			2	2	
10	5	1	Total	Mg	0
			1	1	
10	7	1	Total	Mg	0
			1	1	
10	B	1	Total	Mg	0
			1	1	
10	C	1	Total	Mg	0
			1	1	
10	D	2	Total	Mg	0
			2	2	

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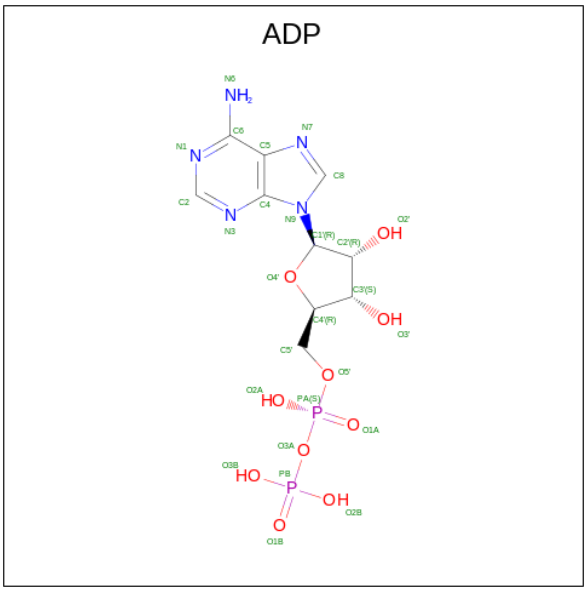
Mol	Chain	Residues	Atoms	AltConf
10	E	1	Total Mg 1 1	0
10	G	1	Total Mg 1 1	0

- Molecule 11 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	AltConf
11	2	1	Total Zn 1 1	0
11	4	1	Total Zn 1 1	0
11	5	1	Total Zn 1 1	0
11	6	1	Total Zn 1 1	0
11	7	1	Total Zn 1 1	0
11	B	1	Total Zn 1 1	0
11	D	1	Total Zn 1 1	0
11	E	1	Total Zn 1 1	0
11	F	1	Total Zn 1 1	0
11	G	1	Total Zn 1 1	0
11	I	1	Total Zn 1 1	0

- Molecule 12 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



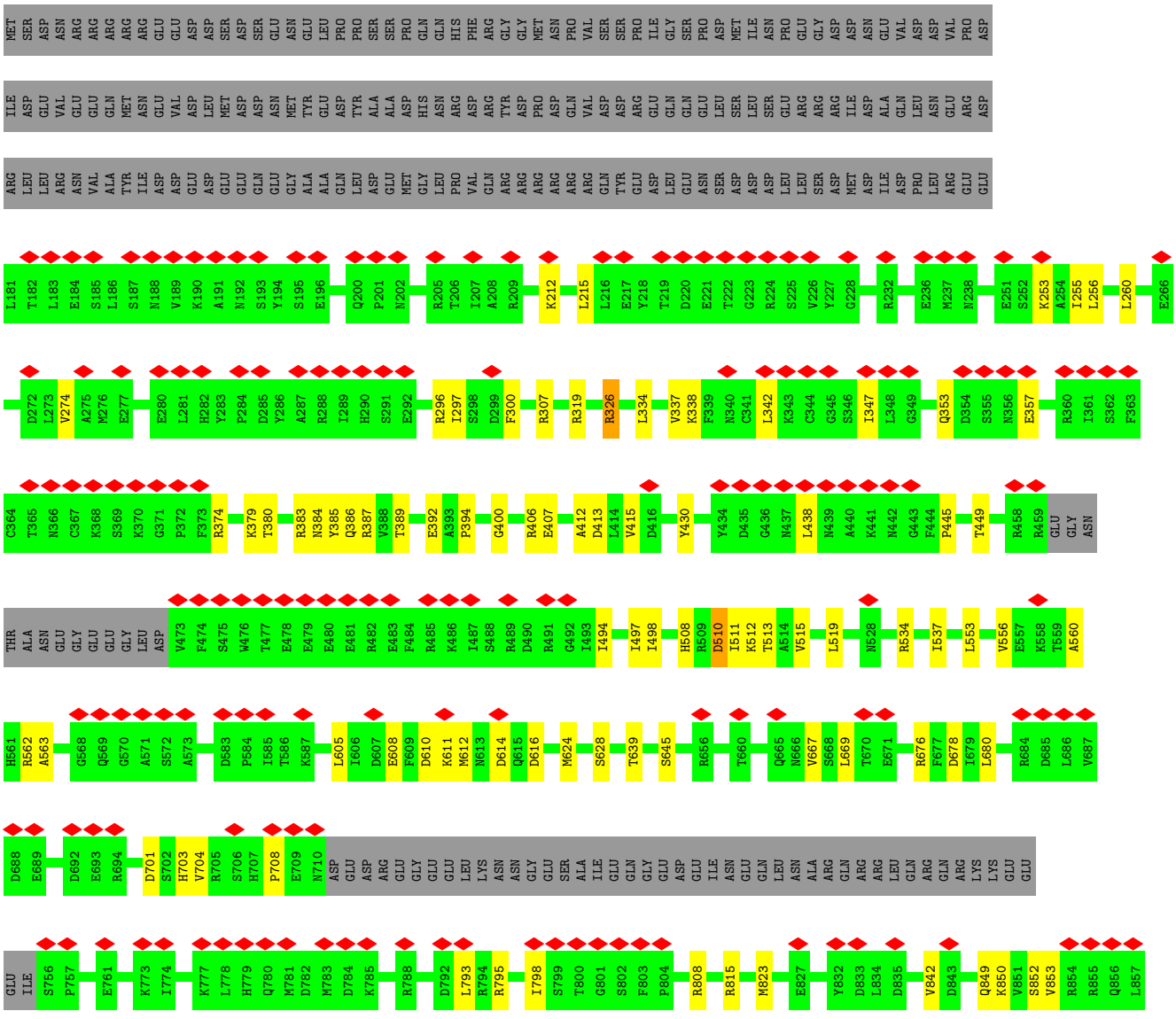
Mol	Chain	Residues	Atoms					AltConf
12	3	1	Total	C	N	O	P	0
			27	10	5	10	2	
12	C	1	Total	C	N	O	P	0
			27	10	5	10	2	

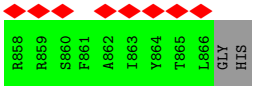
3 Residue-property plots (i)

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: DNA replication licensing factor MCM2

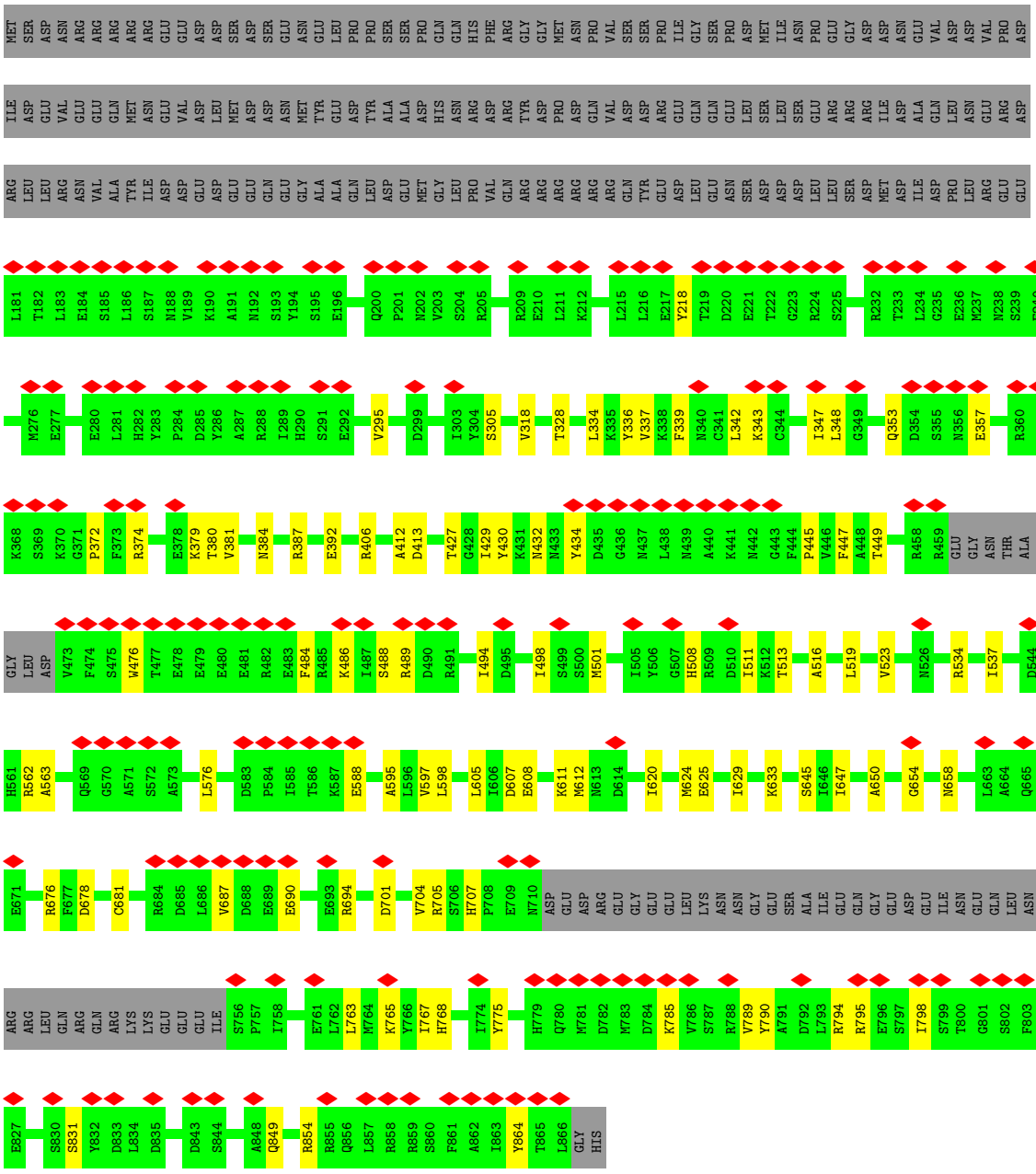
Chain 2:





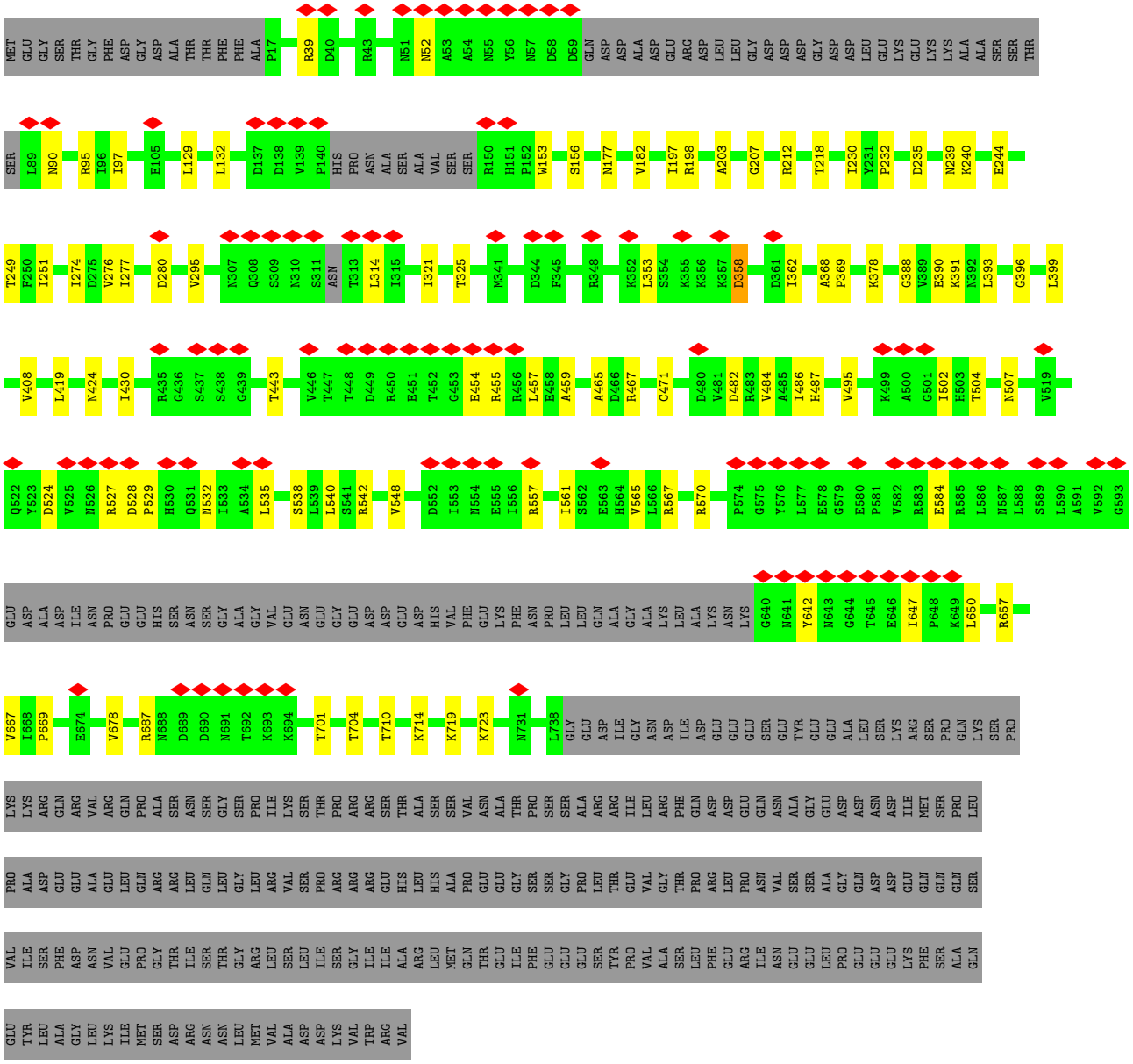
• Molecule 1: DNA replication licensing factor MCM2

Chain B:



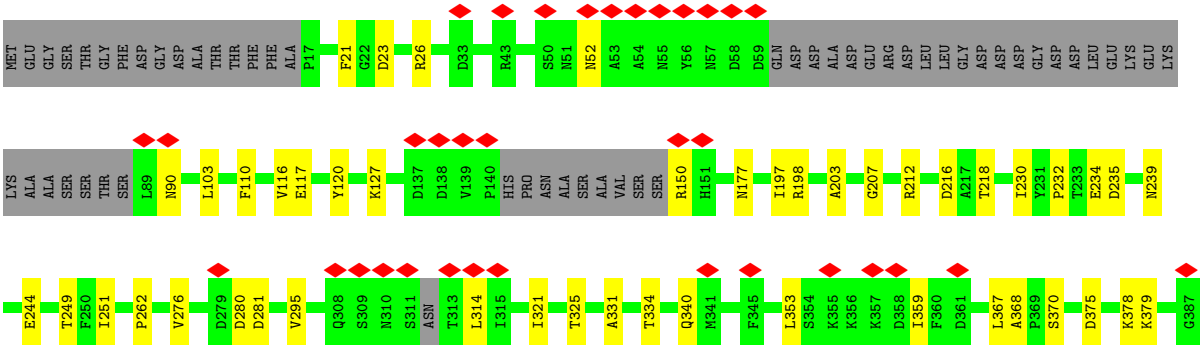
• Molecule 2: DNA replication licensing factor MCM3

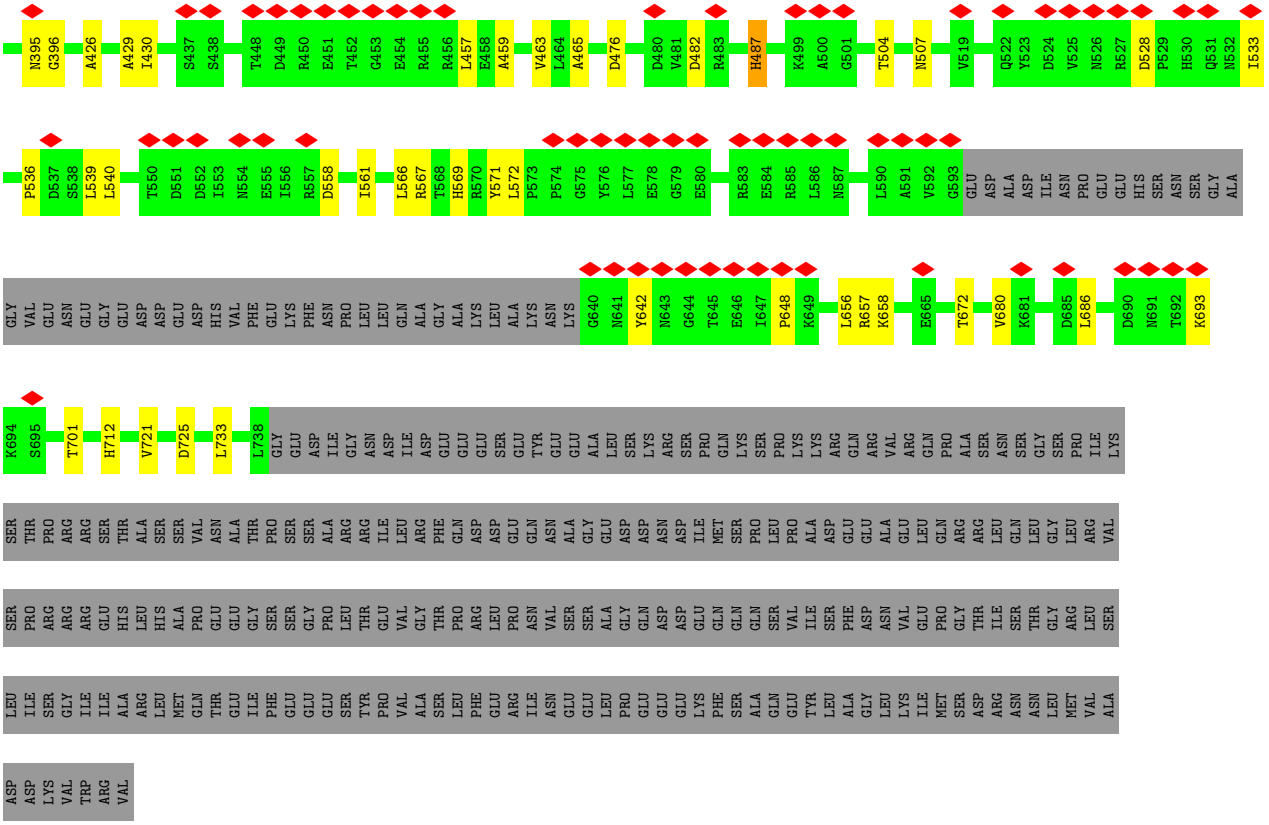
Chain 3:



• Molecule 2: DNA replication licensing factor MCM3

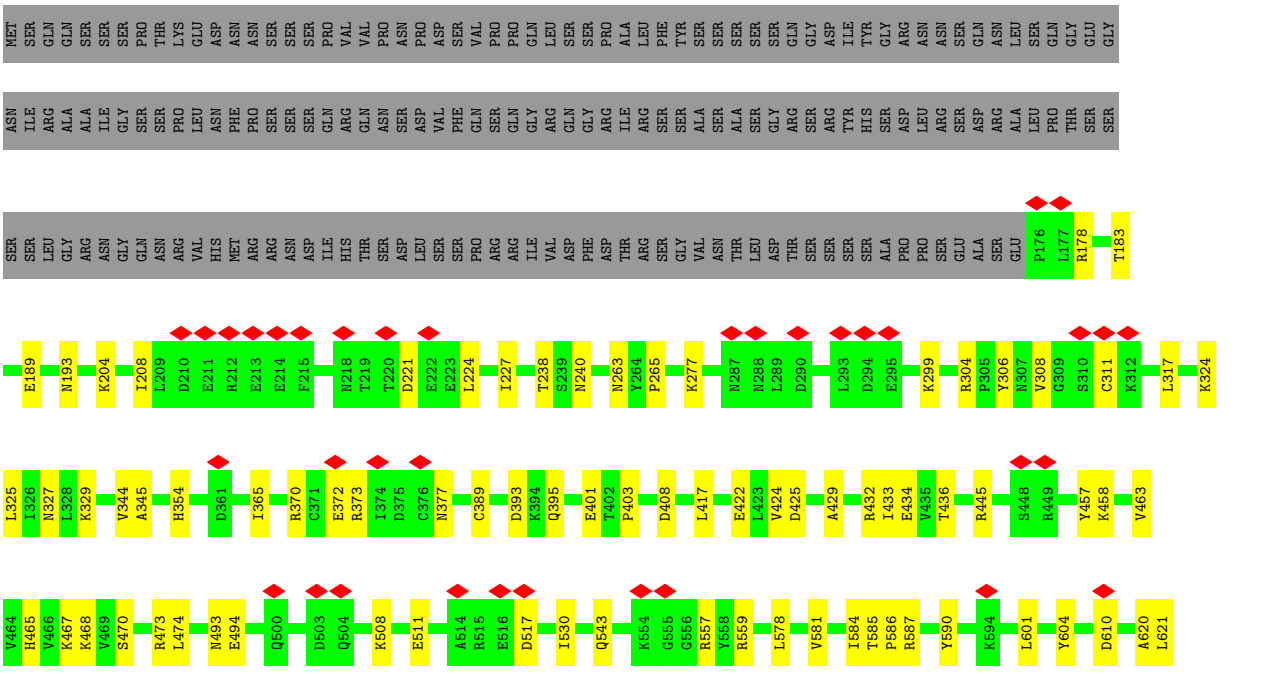
Chain C:

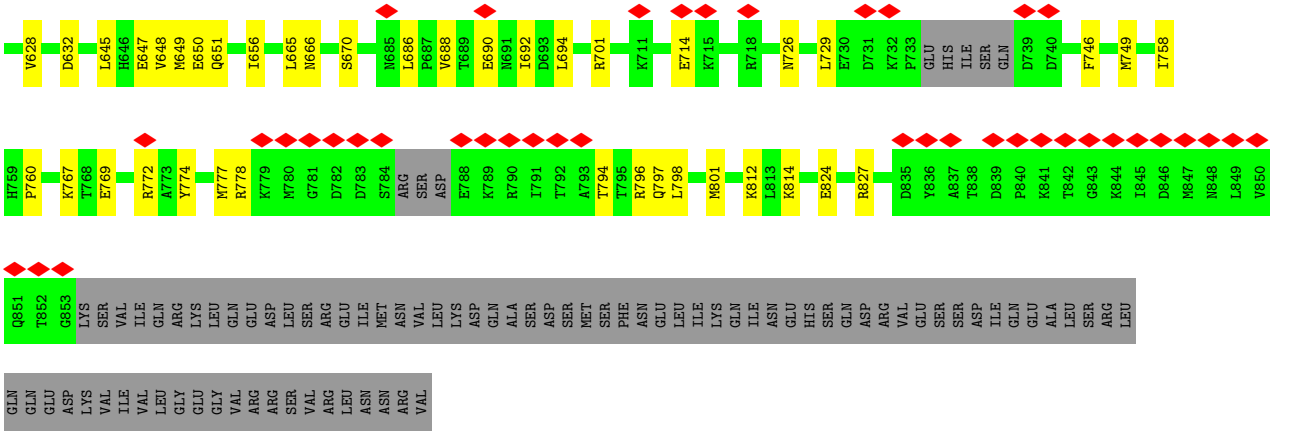




• Molecule 3: DNA replication licensing factor MCM4

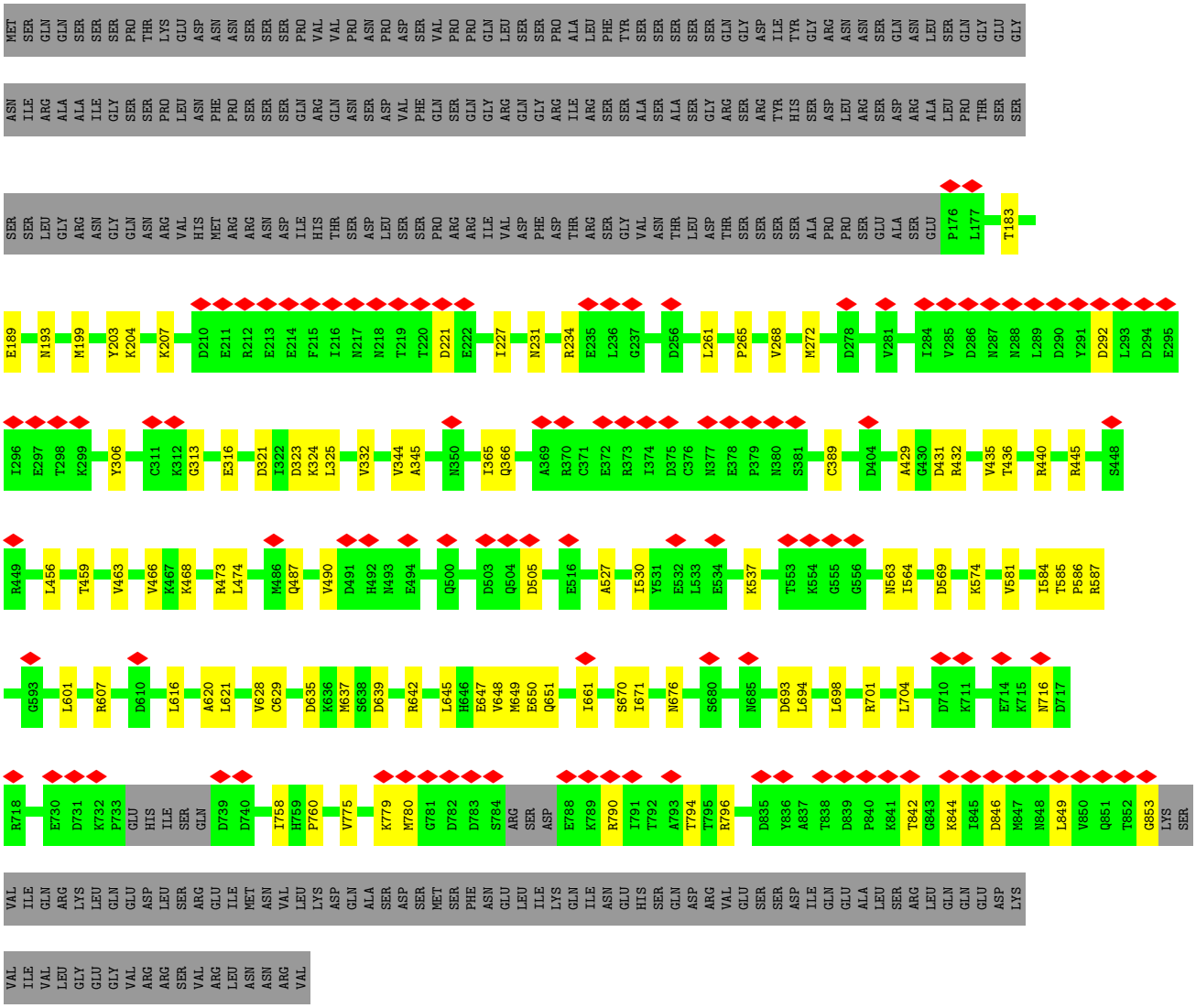
Chain 4:





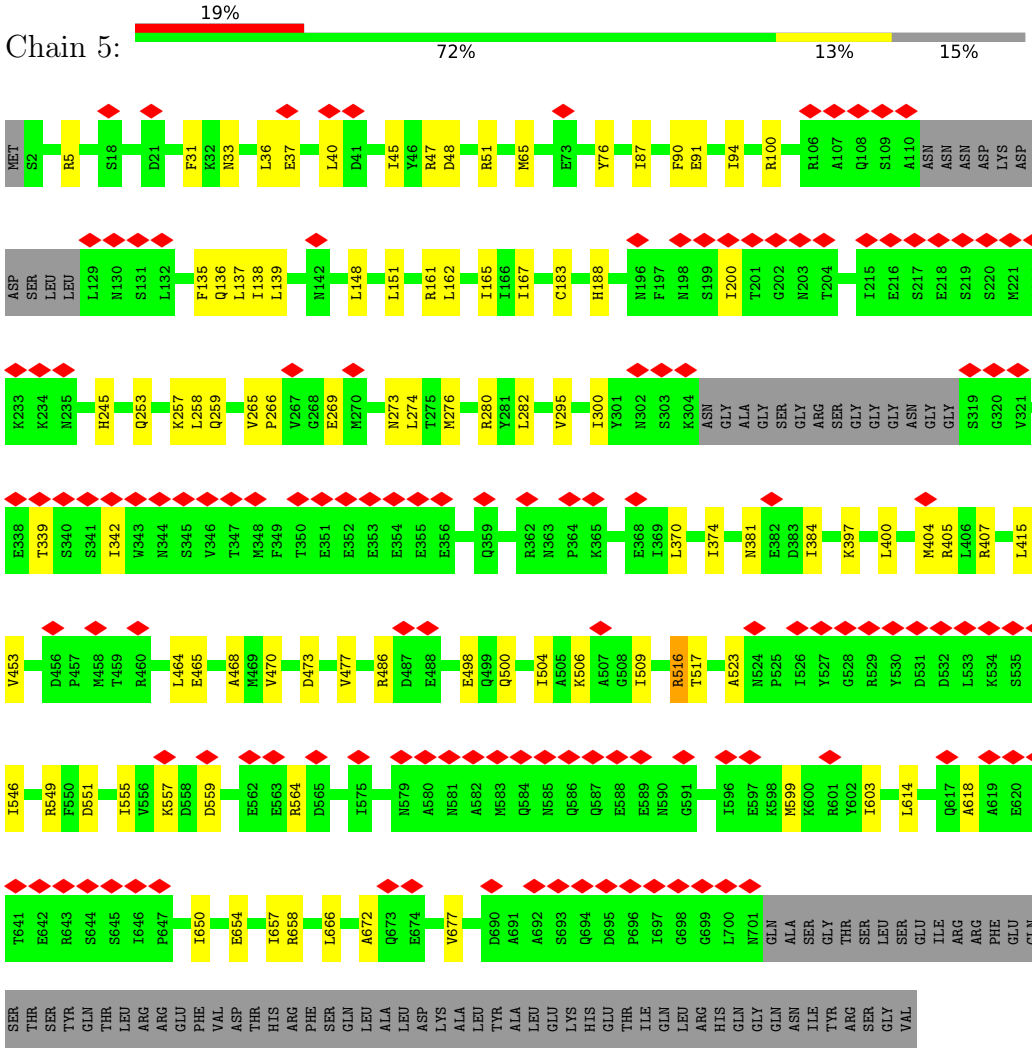
• Molecule 3: DNA replication licensing factor MCM4

Chain D:



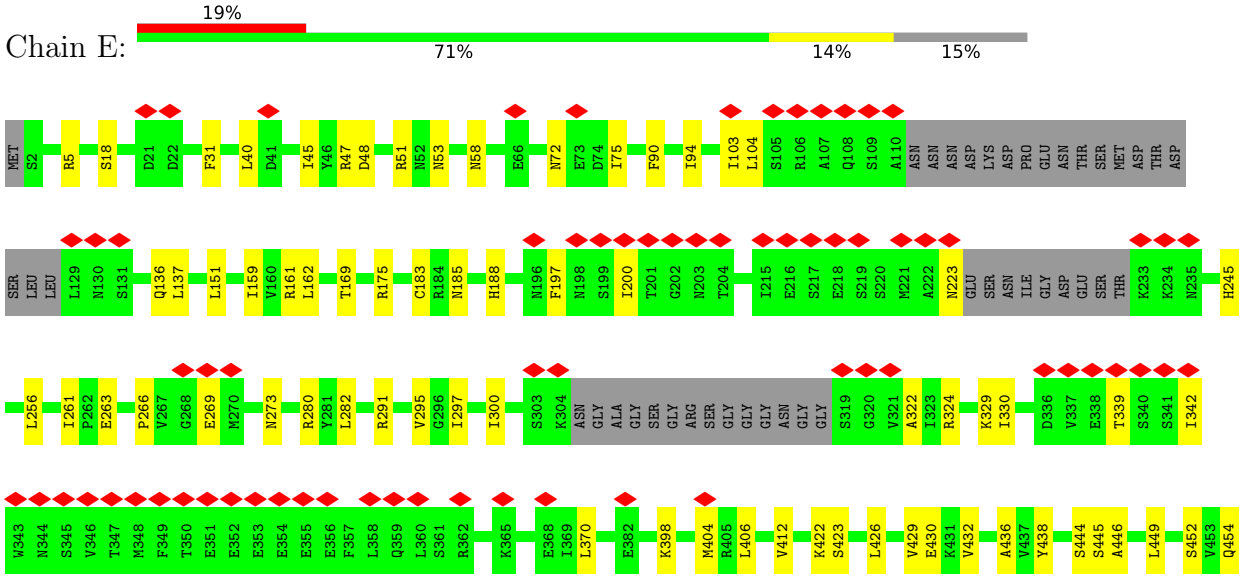
• Molecule 4: Minichromosome maintenance protein 5

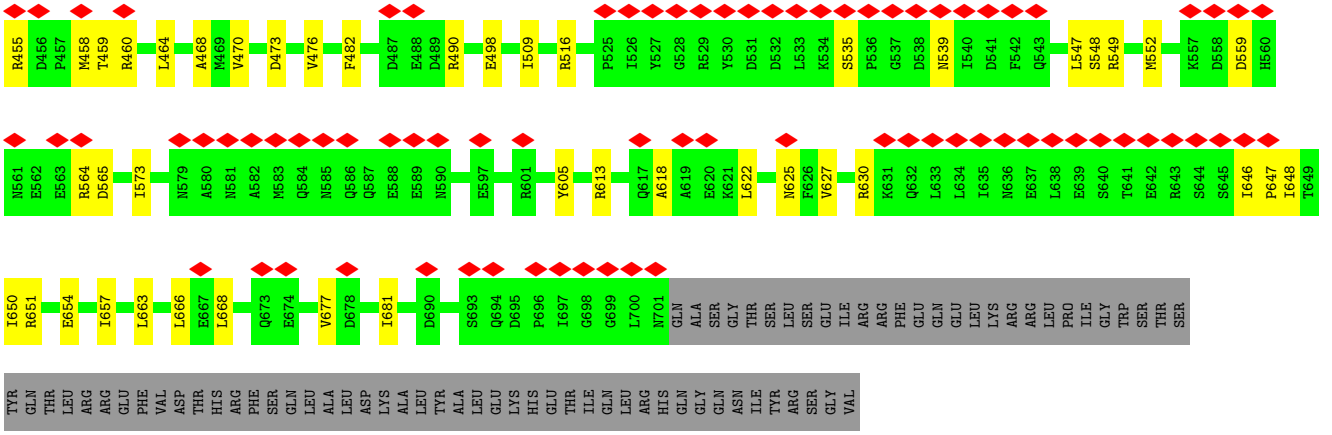
Chain 5:



• Molecule 4: Minichromosome maintenance protein 5

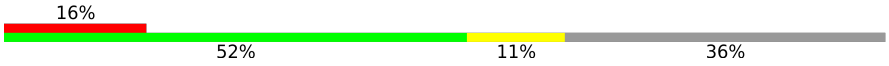
Chain E:

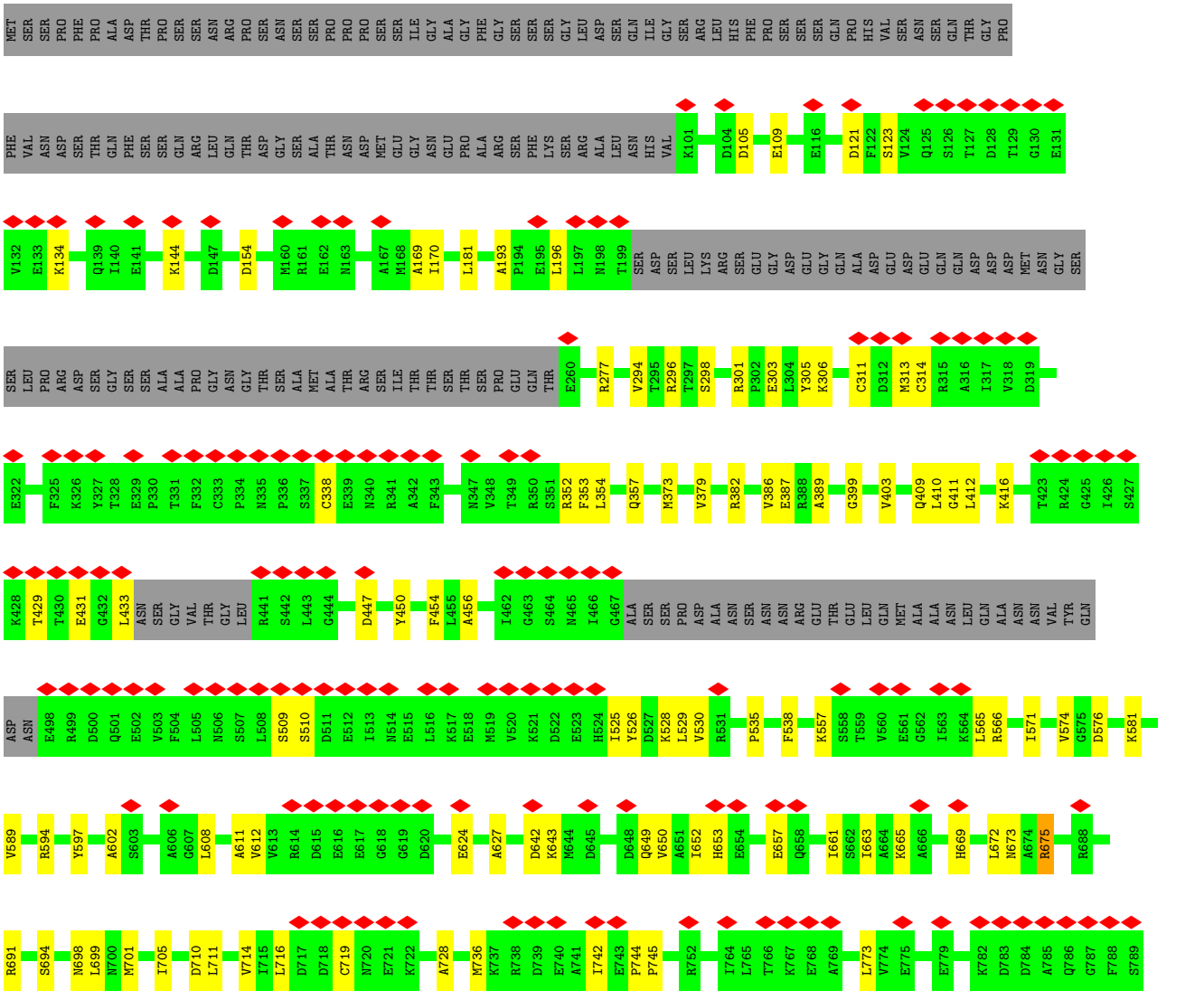


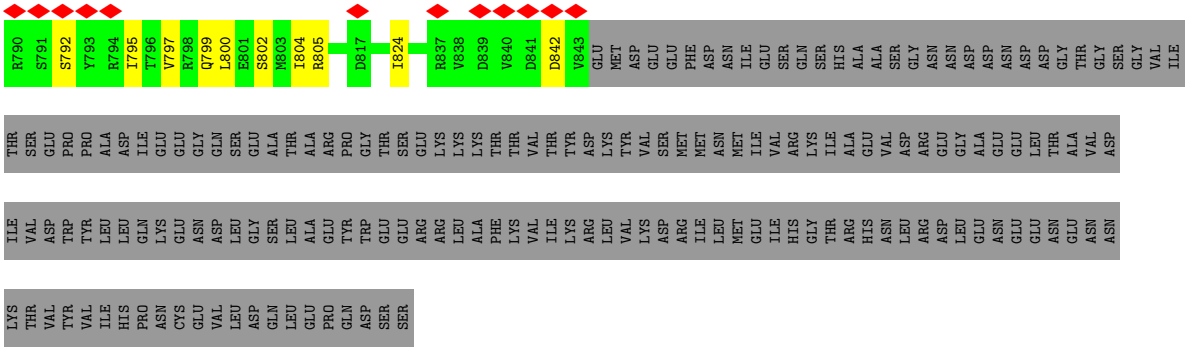


• Molecule 5: DNA replication licensing factor MCM6

Chain 6:

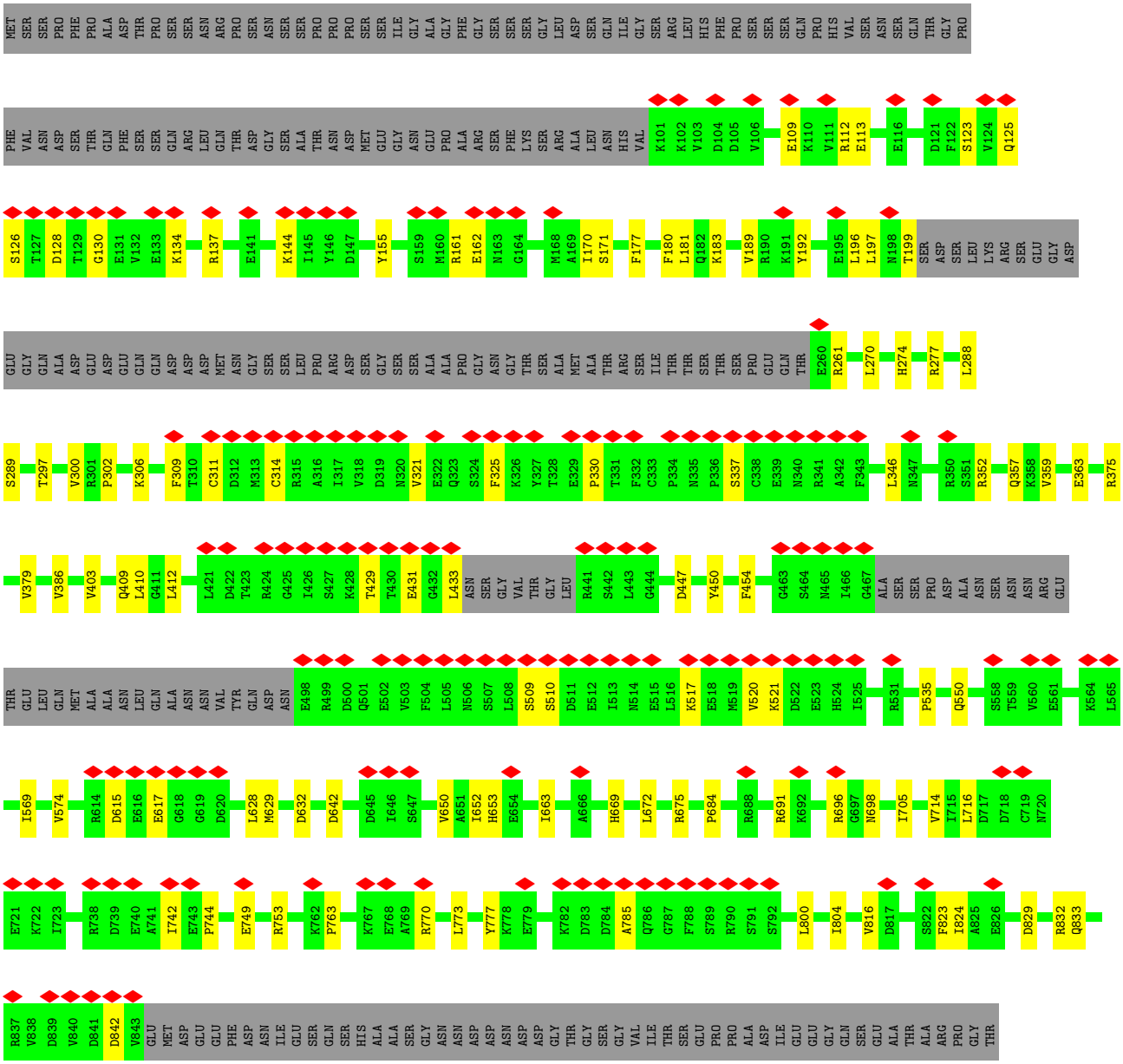


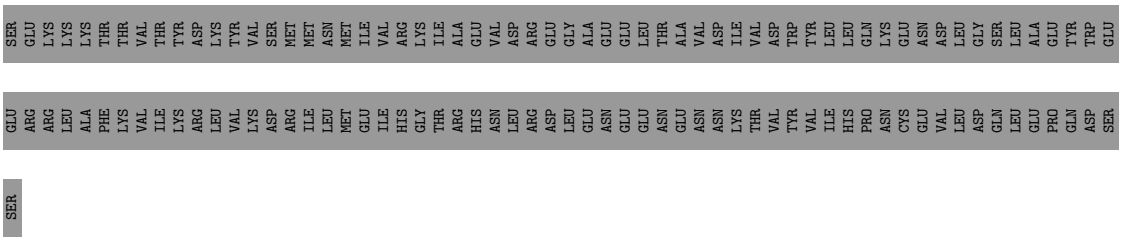




• Molecule 5: DNA replication licensing factor MCM6

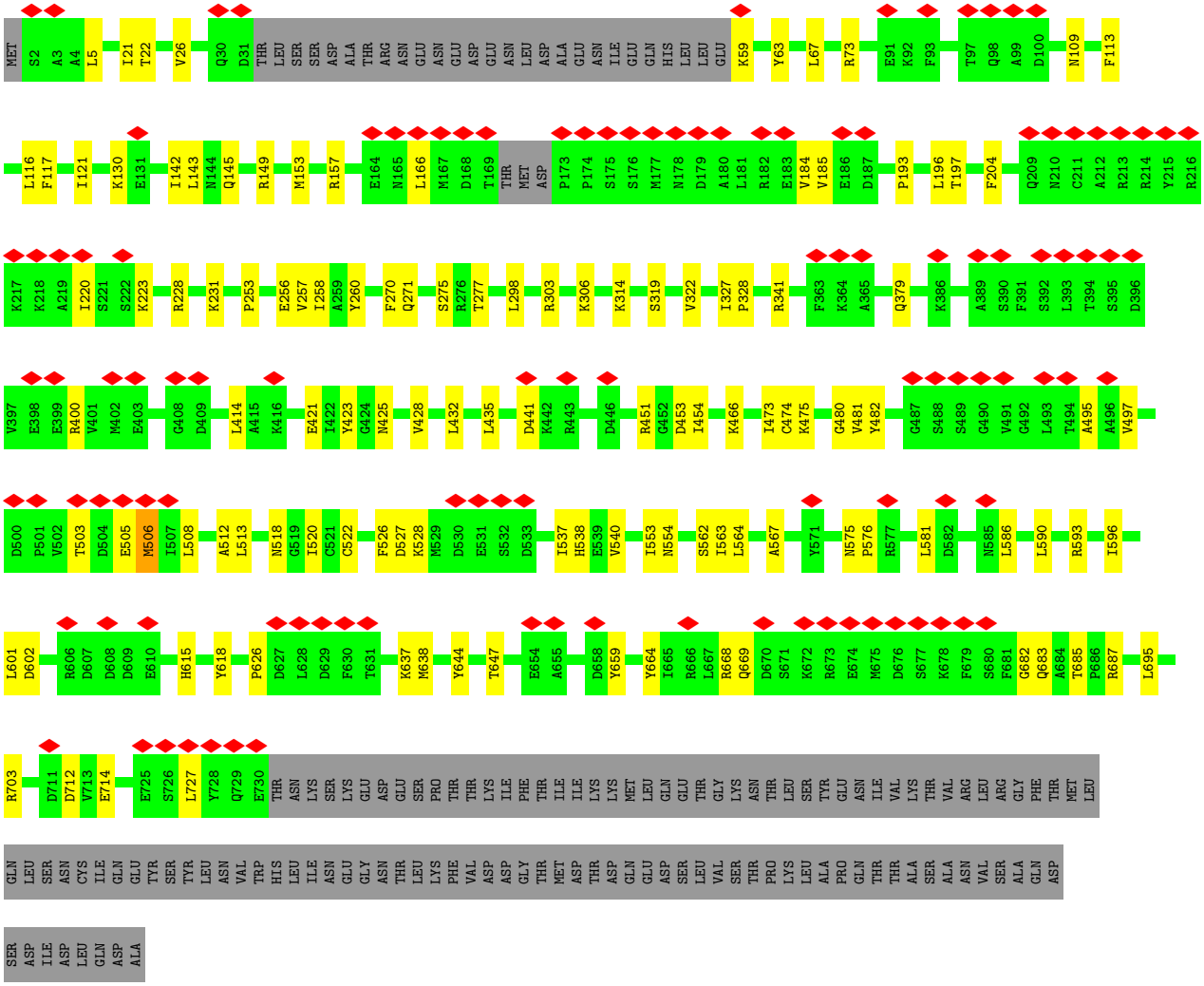
Chain F:





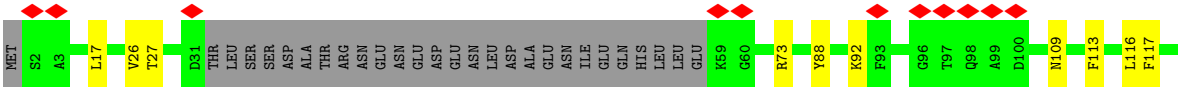
• Molecule 6: DNA replication licensing factor MCM7

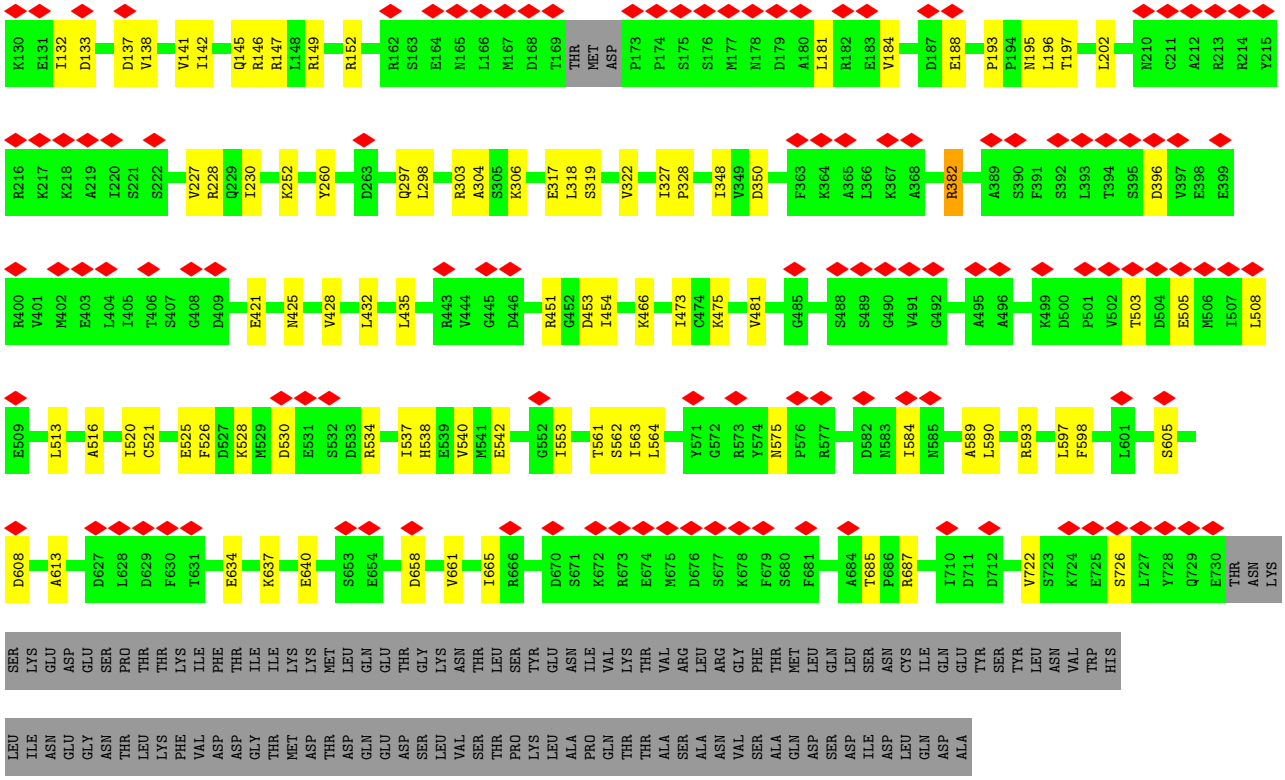
Chain 7:



• Molecule 6: DNA replication licensing factor MCM7

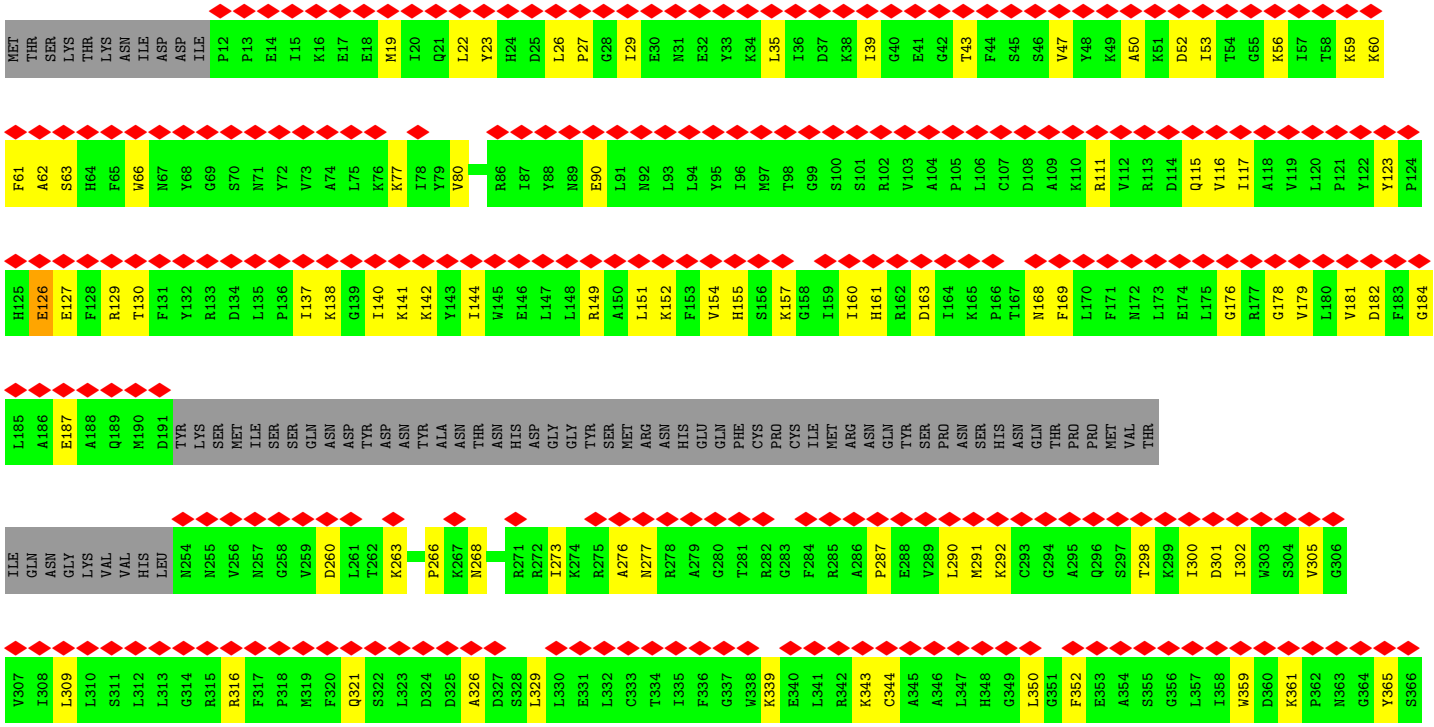
Chain G:

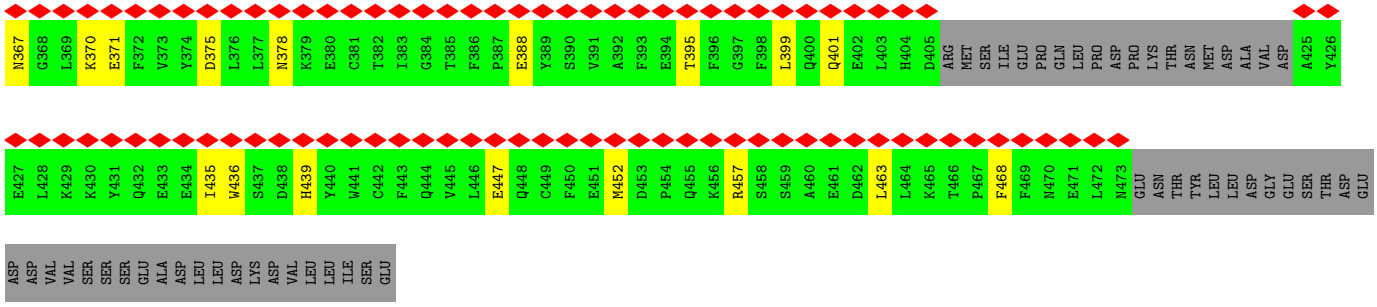




• Molecule 7: Cell division control protein 7

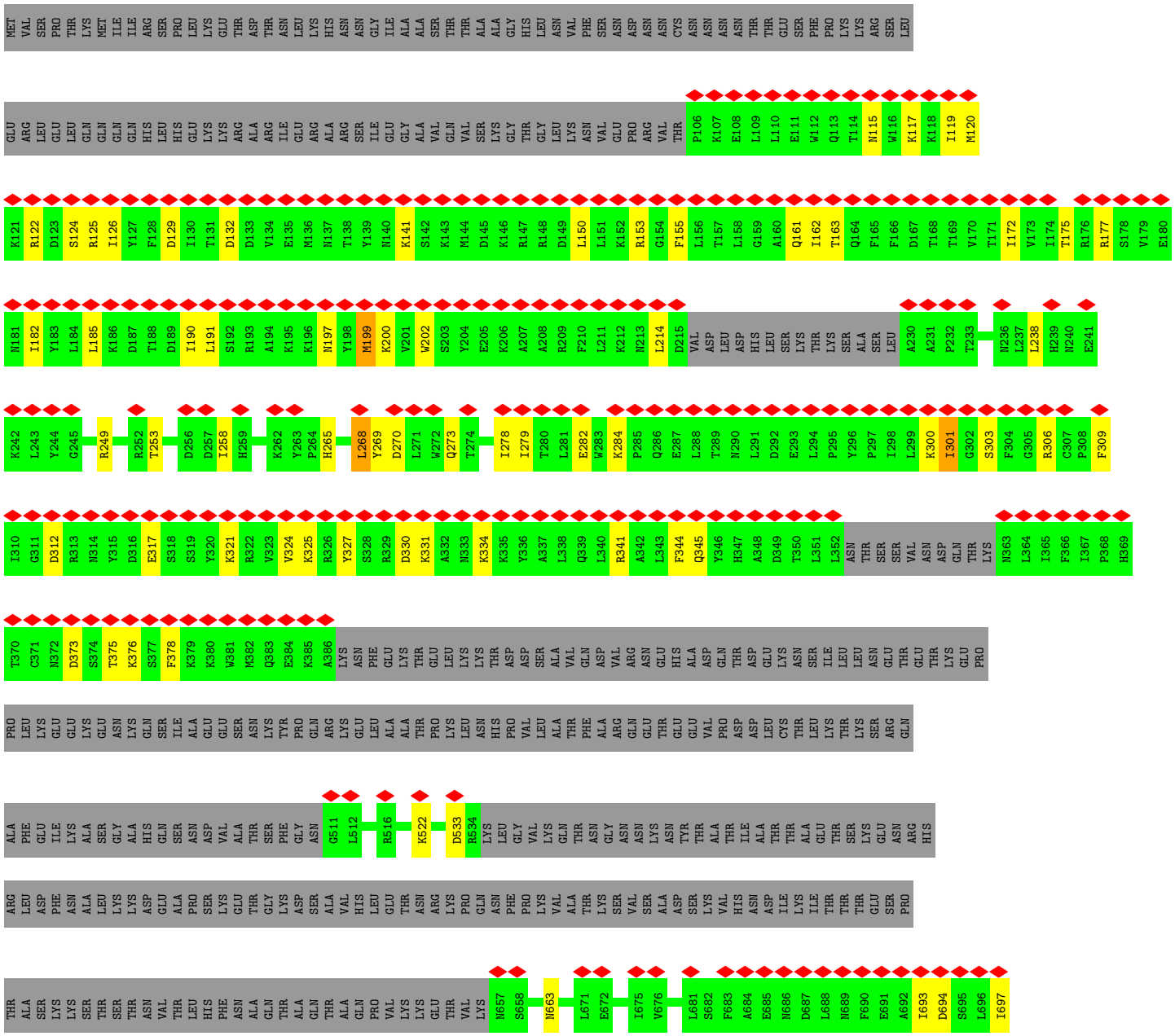
Chain H:

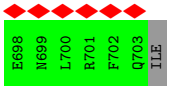




• Molecule 8: DDK kinase regulatory subunit DBF4

Chain I:




E698
N699
L700
R701
F702
Q703
ILE

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	258000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	46.0	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.562	Depositor
Minimum map value	-0.321	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.012	Depositor
Recommended contour level	0.07	Depositor
Map size (Å)	381.59998, 381.59998, 381.59998	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	2	0.27	0/5057	0.57	2/6834 (0.0%)
1	B	0.28	0/5057	0.58	0/6834
2	3	0.28	0/5073	0.56	1/6880 (0.0%)
2	C	0.27	0/5073	0.56	1/6880 (0.0%)
3	4	0.28	0/5400	0.56	0/7300
3	D	0.28	0/5400	0.56	2/7300 (0.0%)
4	5	0.28	0/5222	0.55	0/7061
4	E	0.28	0/5222	0.56	0/7061
5	6	0.28	0/5190	0.58	2/7001 (0.0%)
5	F	0.28	0/5190	0.57	1/7001 (0.0%)
6	7	0.29	0/5590	0.57	2/7554 (0.0%)
6	G	0.29	0/5590	0.57	2/7554 (0.0%)
7	H	0.34	0/3186	0.73	4/4298 (0.1%)
8	I	0.30	0/2805	0.70	3/3776 (0.1%)
All	All	0.28	0/69055	0.58	20/93334 (0.0%)

There are no bond length outliers.

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	D	693	ASP	CB-CG-OD2	7.37	124.93	118.30
6	G	658	ASP	CB-CG-OD1	7.03	124.63	118.30
3	D	505	ASP	CB-CG-OD1	6.48	124.13	118.30
2	C	482	ASP	CB-CG-OD1	6.40	124.06	118.30
5	F	829	ASP	CB-CG-OD1	6.39	124.06	118.30
5	6	121	ASP	CB-CG-OD1	6.15	123.84	118.30
5	6	154	ASP	CB-CG-OD2	5.91	123.62	118.30
7	H	316	ARG	CB-CG-CD	5.87	126.86	111.60
8	I	301	ILE	CG1-CB-CG2	-5.85	98.53	111.40
8	I	268	LEU	CA-CB-CG	5.77	128.56	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	3	358	ASP	CB-CG-OD1	5.64	123.37	118.30
6	7	506	MET	CA-CB-CG	5.58	122.78	113.30
6	G	133	ASP	CB-CG-OD1	5.45	123.21	118.30
8	I	199	MET	CB-CG-SD	5.43	128.70	112.40
6	7	441	ASP	CB-CG-OD1	5.41	123.17	118.30
7	H	126	GLU	CA-CB-CG	5.40	125.27	113.40
7	H	19	MET	CB-CG-SD	5.33	128.40	112.40
1	2	680	LEU	CA-CB-CG	5.22	127.32	115.30
7	H	126	GLU	CB-CA-C	5.11	120.62	110.40
1	2	510	ASP	CB-CG-OD2	5.02	122.81	118.30

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	2	4970	0	5026	57	0
1	B	4970	0	5026	69	0
2	3	4987	0	5049	60	0
2	C	4987	0	5050	56	0
3	4	5323	0	5373	79	0
3	D	5323	0	5373	60	0
4	5	5148	0	5193	60	0
4	E	5148	0	5193	74	0
5	6	5109	0	5134	74	0
5	F	5109	0	5134	68	0
6	7	5505	0	5563	76	0
6	G	5505	0	5563	62	0
7	H	3109	0	3090	69	0
8	I	2745	0	2746	56	0
9	2	31	0	12	0	0
9	4	31	0	12	2	0
9	5	31	0	12	1	0
9	6	31	0	12	2	0
9	7	31	0	12	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	B	31	0	12	0	0
9	D	31	0	12	4	0
9	E	31	0	12	1	0
9	F	31	0	12	1	0
9	G	31	0	12	1	0
9	H	31	0	12	5	0
10	2	1	0	0	0	0
10	3	1	0	0	0	0
10	4	2	0	0	0	0
10	5	1	0	0	0	0
10	7	1	0	0	0	0
10	B	1	0	0	0	0
10	C	1	0	0	0	0
10	D	2	0	0	0	0
10	E	1	0	0	0	0
10	G	1	0	0	0	0
11	2	1	0	0	0	0
11	4	1	0	0	0	0
11	5	1	0	0	0	0
11	6	1	0	0	0	0
11	7	1	0	0	0	0
11	B	1	0	0	0	0
11	D	1	0	0	0	0
11	E	1	0	0	0	0
11	F	1	0	0	0	0
11	G	1	0	0	0	0
11	I	1	0	0	0	0
12	3	27	0	12	1	0
12	C	27	0	12	0	0
All	All	68356	0	68669	827	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 6.

All (827) 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)
5:6:311:CYS:HB3	5:6:314:CYS:SG	2.12	0.90
4:5:167:ILE:HD11	4:5:259:GLN:HB2	1.62	0.81
3:D:650:GLU:HG3	3:D:651:GLN:HG3	1.62	0.80
6:7:586:LEU:HD11	6:7:590:LEU:HD22	1.68	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:270:LEU:HD12	5:F:289:SER:HB2	1.70	0.74
8:I:125:ARG:NH2	8:I:161:GLN:O	2.18	0.73
7:H:138:LYS:HB2	8:I:344:PHE:HB3	1.72	0.72
2:3:353:LEU:HD21	2:3:647:ILE:HG21	1.72	0.71
8:I:200:LYS:HD2	8:I:202:TRP:HE1	1.53	0.71
1:2:676:ARG:HA	1:2:808:ARG:HH22	1.54	0.71
2:C:251:ILE:HG23	2:C:280:ASP:HB3	1.73	0.70
3:D:445:ARG:HD3	5:F:410:LEU:HD11	1.72	0.70
6:7:685:THR:HG22	6:7:687:ARG:H	1.57	0.69
3:4:726:ASN:HA	3:4:729:LEU:HD23	1.75	0.68
7:H:142:LYS:NZ	7:H:176:GLY:O	2.27	0.67
8:I:126:ILE:HG21	8:I:155:PHE:HE2	1.59	0.67
1:B:624:MET:O	1:B:676:ARG:NH2	2.28	0.67
7:H:292:LYS:HZ1	8:I:278:ILE:HG21	1.58	0.67
3:4:434:GLU:HB2	3:4:467:LYS:HB3	1.76	0.67
5:6:589:VAL:HG21	5:6:597:TYR:HB2	1.75	0.67
7:H:457:ARG:HH12	7:H:463:LEU:HD21	1.61	0.66
6:G:685:THR:HG22	6:G:687:ARG:H	1.59	0.66
4:5:477:VAL:HG23	4:5:517:THR:HG21	1.76	0.66
2:3:570:ARG:NH1	4:5:614:LEU:O	2.27	0.66
6:G:228:ARG:NH2	6:G:327:ILE:O	2.29	0.66
2:C:459:ALA:HB2	6:G:327:ILE:HD11	1.79	0.65
4:E:548:SER:HB3	4:E:647:PRO:HG2	1.78	0.65
3:4:445:ARG:NH1	5:6:447:ASP:OD1	2.29	0.65
4:E:161:ARG:HG3	4:E:295:VAL:HG22	1.79	0.64
6:G:513:LEU:HD13	6:G:540:VAL:HG21	1.79	0.64
4:E:630:ARG:NH1	4:E:648:ILE:O	2.31	0.64
3:4:650:GLU:HG3	3:4:651:GLN:HG3	1.80	0.64
5:6:699:LEU:HB3	5:6:701:MET:HG2	1.79	0.64
4:E:342:ILE:HD11	4:E:473:ASP:HB3	1.79	0.64
7:H:111:ARG:NH1	8:I:694:ASP:OD1	2.31	0.64
1:B:701:ASP:OD2	1:B:705:ARG:NH1	2.31	0.64
5:6:296:ARG:NH2	5:6:624:GLU:OE2	2.30	0.64
4:E:430:GLU:HG3	4:E:438:TYR:HB2	1.80	0.64
5:6:773:LEU:HD13	5:6:824:ILE:HD12	1.80	0.63
4:E:458:MET:HG3	4:E:459:THR:HG23	1.81	0.63
3:4:777:MET:SD	3:4:797:GLN:NE2	2.71	0.63
7:H:395:THR:HA	7:H:439:HIS:HE1	1.62	0.63
5:F:125:GLN:HE21	5:F:130:GLY:HA2	1.64	0.63
5:F:311:CYS:HB3	5:F:314:CYS:HB2	1.79	0.62
3:4:417:LEU:HD13	3:4:463:VAL:HG21	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:384:ASN:HB2	1:B:412:ALA:HA	1.81	0.62
3:D:621:LEU:HD13	3:D:648:VAL:HG21	1.80	0.62
7:H:155:HIS:NE2	7:H:301:ASP:OD2	2.24	0.62
5:F:773:LEU:HD21	5:F:804:ILE:HG12	1.81	0.62
2:3:244:GLU:OE1	6:7:109:ASN:ND2	2.28	0.62
3:D:780:MET:HG2	3:D:790:ARG:HH22	1.65	0.62
4:5:5:ARG:NH1	2:C:234:GLU:OE2	2.33	0.62
2:C:367:LEU:HD23	2:C:656:LEU:HD21	1.80	0.62
3:D:431:ASP:OD2	3:D:468:LYS:NZ	2.33	0.62
2:3:424:ASN:O	2:3:657:ARG:NH2	2.33	0.61
4:5:87:ILE:HG23	4:5:137:LEU:HD13	1.83	0.61
3:4:204:LYS:HB3	3:4:221:ASP:HB3	1.82	0.61
5:6:169:ALA:HB2	8:I:238:LEU:HD11	1.82	0.61
5:6:123:SER:HB3	5:6:134:LYS:HG2	1.83	0.61
5:6:611:ALA:HB3	5:6:624:GLU:HB2	1.81	0.61
7:H:61:PHE:O	7:H:63:SER:N	2.33	0.61
2:3:52:ASN:ND2	2:3:90:ASN:O	2.33	0.60
6:7:260:TYR:HE2	6:7:271:GLN:HG2	1.66	0.60
1:B:488:SER:HB3	1:B:825:LEU:HD12	1.82	0.60
3:4:769:GLU:OE2	3:4:772:ARG:NH2	2.33	0.60
3:D:189:GLU:OE2	3:D:193:ASN:ND2	2.34	0.60
3:4:621:LEU:HD13	3:4:648:VAL:HG21	1.83	0.60
1:B:353:GLN:NE2	1:B:357:GLU:O	2.34	0.60
4:5:654:GLU:HA	4:5:657:ILE:HD12	1.83	0.60
3:4:445:ARG:HB2	5:6:410:LEU:HD21	1.82	0.60
3:4:601:LEU:HD23	3:4:620:ALA:HB3	1.83	0.60
2:C:567:ARG:O	2:C:642:TYR:OH	2.16	0.60
3:D:701:ARG:NH2	9:F:2001:AGS:S1G	2.75	0.60
1:2:300:PHE:O	1:2:319:ARG:NH1	2.35	0.60
3:D:758:ILE:HG22	3:D:760:PRO:HD3	1.84	0.60
4:E:40:LEU:HB2	4:E:45:ILE:HD13	1.84	0.60
2:C:368:ALA:HB3	2:C:378:LYS:HE2	1.83	0.59
6:G:26:VAL:HG23	6:G:27:THR:HG23	1.83	0.59
5:6:306:LYS:HB2	5:6:352:ARG:HB2	1.84	0.59
1:2:307:ARG:NH1	1:2:392:GLU:OE2	2.35	0.59
4:E:136:GLN:HG3	4:E:280:ARG:HH21	1.68	0.59
6:G:149:ARG:HH11	6:G:152:ARG:HH21	1.51	0.59
7:H:144:ILE:HG13	7:H:309:LEU:HD13	1.85	0.59
8:I:278:ILE:HG22	8:I:279:ILE:HG13	1.85	0.59
1:2:624:MET:O	1:2:676:ARG:NH2	2.35	0.59
2:3:390:GLU:OE1	2:3:467:ARG:NH1	2.34	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:4:458:LYS:NZ	5:6:411:GLY:O	2.36	0.59
7:H:161:HIS:NE2	7:H:182:ASP:O	2.36	0.59
7:H:268:ASN:HD21	8:I:522:LYS:HD3	1.67	0.59
2:3:701:THR:O	2:3:704:THR:HB	2.03	0.58
5:6:773:LEU:HD21	5:6:804:ILE:HG12	1.85	0.58
8:I:177:ARG:HH21	8:I:191:LEU:HD23	1.68	0.58
8:I:126:ILE:HG21	8:I:155:PHE:CE2	2.38	0.58
1:2:384:ASN:HB2	1:2:412:ALA:HA	1.83	0.58
4:5:551:ASP:OD2	4:5:658:ARG:NH1	2.36	0.58
3:4:656:ILE:HD13	5:6:602:ALA:HB1	1.86	0.58
6:G:428:VAL:HA	6:G:598:PHE:CE2	2.39	0.58
3:4:686:LEU:HD22	3:4:690:GLU:HG2	1.86	0.58
5:F:161:ARG:HG3	5:F:162:GLU:HG3	1.85	0.57
6:7:451:ARG:NH1	6:7:453:ASP:O	2.37	0.57
1:B:549:LYS:NZ	1:B:650:ALA:O	2.37	0.57
2:C:262:PRO:HG3	4:E:509:ILE:HD11	1.86	0.57
3:D:445:ARG:NH1	5:F:447:ASP:OD2	2.37	0.57
4:E:282:LEU:HD13	4:E:330:ILE:HG22	1.86	0.57
7:H:276:ALA:HB2	7:H:292:LYS:HB3	1.86	0.57
9:E:2001:AGS:S1G	9:E:2001:AGS:O2B	2.62	0.57
2:C:52:ASN:ND2	2:C:90:ASN:O	2.37	0.57
2:C:340:GLN:HE22	2:C:657:ARG:HG3	1.69	0.57
6:7:482:TYR:HA	6:7:522:CYS:HB2	1.86	0.57
1:B:654:GLY:O	5:F:696:ARG:NH1	2.38	0.57
2:C:177:ASN:ND2	4:E:245:HIS:O	2.38	0.57
9:D:2001:AGS:O3G	6:G:593:ARG:NH2	2.37	0.57
3:D:628:VAL:HG22	3:D:670:SER:HB2	1.87	0.57
5:F:306:LYS:HB2	5:F:352:ARG:HB2	1.87	0.57
5:F:650:VAL:HA	5:F:653:HIS:CE1	2.40	0.57
1:B:511:ILE:HG22	1:B:681:CYS:HB3	1.86	0.56
2:C:370:SER:OG	4:E:404:MET:SD	2.63	0.56
2:3:457:LEU:HD21	2:3:502:ILE:HG21	1.86	0.56
1:B:498:ILE:HD12	1:B:513:THR:HA	1.86	0.56
2:C:353:LEU:HB3	2:C:359:ILE:HD13	1.87	0.56
3:4:345:ALA:HB2	3:4:365:ILE:HD13	1.87	0.56
3:4:474:LEU:HB2	3:4:586:PRO:HD3	1.87	0.56
5:6:170:ILE:HD12	5:6:181:LEU:HD11	1.88	0.56
5:6:653:HIS:HB3	5:6:705:ILE:HD13	1.87	0.56
3:D:474:LEU:HB2	3:D:586:PRO:HD3	1.87	0.56
6:G:605:SER:OG	6:G:608:ASP:OD1	2.23	0.56
1:2:406:ARG:NH1	1:2:449:THR:OG1	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:534:ARG:O	1:B:815:ARG:NH1	2.38	0.56
3:4:311:CYS:SG	3:4:329:LYS:NZ	2.79	0.56
5:6:313:MET:HE2	5:6:338:CYS:HB2	1.87	0.56
5:6:357:GLN:HB2	5:6:386:VAL:HG13	1.87	0.56
1:2:347:ILE:HD11	5:F:429:THR:HG23	1.88	0.56
3:D:306:TYR:HA	3:D:436:THR:HG21	1.86	0.56
8:I:268:LEU:HD13	8:I:279:ILE:HD12	1.88	0.56
6:G:534:ARG:O	6:G:538:HIS:HB2	2.04	0.56
7:H:137:ILE:HD13	7:H:140:ILE:HD12	1.88	0.56
1:B:588:GLU:OE2	4:E:273:ASN:ND2	2.38	0.56
3:D:183:THR:O	6:G:145:GLN:NE2	2.39	0.56
4:E:654:GLU:HA	4:E:657:ILE:HD12	1.88	0.56
3:4:758:ILE:HG22	3:4:760:PRO:HD3	1.88	0.56
3:D:601:LEU:HD23	3:D:620:ALA:HB3	1.86	0.56
1:2:406:ARG:NH1	1:2:430:TYR:OH	2.39	0.56
1:2:608:GLU:OE1	1:2:611:LYS:NZ	2.37	0.56
5:6:379:VAL:HG23	5:6:454:PHE:HB3	1.88	0.56
4:5:433:SER:HB2	4:5:436:ALA:HB2	1.88	0.55
2:C:457:LEU:HD11	2:C:504:THR:HG21	1.87	0.55
4:E:18:SER:HG	8:I:284:LYS:HZ3	1.50	0.55
8:I:268:LEU:HD22	8:I:278:ILE:HB	1.89	0.55
4:5:464:LEU:HD21	4:5:470:VAL:HG11	1.88	0.55
5:6:691:ARG:HH12	5:6:716:LEU:HD22	1.70	0.55
6:7:414:LEU:HD22	6:7:638:MET:HG2	1.88	0.55
1:B:305:SER:OG	1:B:392:GLU:OE2	2.25	0.55
3:D:321:ASP:HA	3:D:324:LYS:HE3	1.89	0.55
7:H:39:ILE:HG13	7:H:47:VAL:HG13	1.87	0.55
5:6:661:ILE:HB	5:6:672:LEU:HB2	1.88	0.55
4:E:605:TYR:HE2	4:E:668:LEU:HD21	1.71	0.55
1:B:343:LYS:HE3	1:B:372:PRO:HD2	1.88	0.55
2:3:177:ASN:ND2	4:5:245:HIS:O	2.39	0.55
2:3:39:ARG:HG2	2:3:132:LEU:HD21	1.88	0.55
1:B:704:VAL:HG11	5:F:770:ARG:HH21	1.72	0.55
4:E:48:ASP:OD1	4:E:51:ARG:NH2	2.39	0.55
4:E:266:PRO:HG2	4:E:269:GLU:HB3	1.88	0.55
8:I:306:ARG:NH2	8:I:317:GLU:OE2	2.38	0.55
6:7:21:ILE:HG12	6:7:117:PHE:HE1	1.71	0.55
4:5:100:ARG:NH2	6:G:188:GLU:OE2	2.40	0.55
5:6:710:ASP:OD1	5:6:805:ARG:NH1	2.40	0.55
2:C:244:GLU:OE1	6:G:109:ASN:ND2	2.28	0.55
3:D:459:THR:OG1	6:G:252:LYS:NZ	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:132:ILE:HD11	6:G:141:VAL:HG12	1.87	0.55
1:2:498:ILE:HD12	1:2:513:THR:HA	1.89	0.55
3:4:189:GLU:OE2	3:4:193:ASN:ND2	2.39	0.55
3:4:372:GLU:OE1	8:I:249:ARG:NH2	2.40	0.55
3:4:408:ASP:OD1	6:7:518:ASN:ND2	2.40	0.55
4:E:297:ILE:HB	4:E:329:LYS:HB2	1.89	0.54
7:H:182:ASP:OD2	9:H:2001:AGS:O2A	2.25	0.54
7:H:326:ALA:HB2	8:I:279:ILE:HG21	1.88	0.54
8:I:129:ASP:HB3	8:I:175:THR:HA	1.88	0.54
2:C:686:LEU:O	2:C:693:LYS:NZ	2.40	0.54
3:D:345:ALA:HB2	3:D:365:ILE:HD13	1.88	0.54
6:G:508:LEU:HD22	6:G:553:ILE:HD13	1.88	0.54
2:3:565:VAL:HG21	4:5:650:ILE:HD11	1.89	0.54
1:B:790:TYR:HE1	4:E:565:ASP:HB2	1.72	0.54
6:G:466:LYS:NZ	9:G:2001:AGS:S1G	2.72	0.54
3:D:429:ALA:O	3:D:587:ARG:NH2	2.39	0.54
5:F:277:ARG:NE	5:F:363:GLU:OE2	2.40	0.54
5:6:409:GLN:NE2	5:6:450:TYR:O	2.41	0.54
1:B:337:VAL:HA	1:B:380:THR:HG23	1.88	0.54
7:H:266:PRO:HA	8:I:258:ILE:HA	1.90	0.53
4:E:482:PHE:O	4:E:490:ARG:NH2	2.41	0.53
2:3:95:ARG:NH1	2:3:156:SER:OG	2.39	0.53
1:B:576:LEU:HD23	1:B:595:ALA:HB3	1.88	0.53
2:3:368:ALA:HB3	2:3:378:LYS:HE2	1.89	0.53
7:H:352:PHE:CE1	8:I:268:LEU:HG	2.44	0.53
1:2:562:ARG:NH2	4:5:265:VAL:O	2.42	0.53
4:5:65:MET:HB3	4:5:76:TYR:HE1	1.74	0.53
7:H:350:LEU:HB2	8:I:269:TYR:O	2.09	0.53
3:4:692:ILE:HG22	3:4:694:LEU:HD13	1.91	0.53
4:5:40:LEU:HB2	4:5:45:ILE:HD13	1.91	0.53
1:B:271:PHE:HD2	1:B:295:VAL:HG21	1.74	0.53
3:D:313:GLY:N	3:D:316:GLU:OE2	2.41	0.53
5:F:170:ILE:HD12	5:F:181:LEU:HD11	1.89	0.53
6:G:195:ASN:OD1	6:G:306:LYS:NZ	2.41	0.53
3:4:317:LEU:O	6:7:341:ARG:NH2	2.42	0.53
7:H:90:GLU:HB2	7:H:184:GLY:HA2	1.91	0.53
7:H:182:ASP:OD2	9:H:2001:AGS:O2B	2.27	0.53
2:3:314:LEU:HD11	4:5:200:ILE:HA	1.91	0.53
3:D:569:ASP:O	3:D:574:LYS:NZ	2.42	0.53
5:F:742:ILE:HG22	5:F:744:PRO:HD3	1.90	0.53
2:3:396:GLY:HA3	6:7:475:LYS:HE3	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:6:386:VAL:HG12	5:6:387:GLU:HG2	1.91	0.53
5:F:535:PRO:HB2	5:F:742:ILE:HG23	1.91	0.53
7:H:273:ILE:HD11	7:H:292:LYS:HE3	1.91	0.53
5:6:571:ILE:HG12	5:6:711:LEU:HB2	1.89	0.53
6:7:508:LEU:HD22	6:7:553:ILE:HD13	1.91	0.53
9:H:2001:AGS:O2B	9:H:2001:AGS:O3G	2.26	0.53
1:2:337:VAL:HA	1:2:380:THR:HG23	1.91	0.52
1:2:560:ALA:HB3	1:2:563:ALA:HB2	1.91	0.52
2:3:669:PRO:HG2	2:3:710:THR:HG23	1.91	0.52
5:6:144:LYS:HG3	5:6:193:ALA:HB1	1.91	0.52
6:7:513:LEU:HD13	6:7:540:VAL:HG21	1.90	0.52
4:E:444:SER:OG	4:E:445:SER:N	2.43	0.52
5:F:137:ARG:NH2	5:F:192:TYR:OH	2.42	0.52
7:H:22:LEU:HD13	7:H:77:LYS:HD2	1.91	0.52
8:I:132:ASP:OD2	8:I:141:LYS:NZ	2.40	0.52
3:4:183:THR:O	6:7:145:GLN:NE2	2.42	0.52
3:4:767:LYS:HD2	5:6:736:MET:HE1	1.90	0.52
2:3:391:LYS:HB2	2:3:399:LEU:HB2	1.92	0.52
6:7:659:TYR:OH	6:7:714:GLU:OE2	2.26	0.52
2:C:216:ASP:OD2	2:C:218:THR:OG1	2.25	0.52
6:G:228:ARG:NH1	6:G:317:GLU:OE1	2.43	0.52
1:2:534:ARG:O	1:2:815:ARG:NH1	2.41	0.52
5:6:663:ILE:O	5:6:669:HIS:HA	2.10	0.52
1:2:353:GLN:NE2	1:2:357:GLU:O	2.41	0.52
5:F:109:GLU:O	5:F:113:GLU:HG2	2.10	0.52
2:3:203:ALA:O	2:3:207:GLY:N	2.42	0.52
4:5:36:LEU:O	4:5:47:ARG:NH2	2.34	0.52
3:D:204:LYS:HB3	3:D:221:ASP:HB3	1.92	0.52
3:D:842:THR:HG23	3:D:844:LYS:H	1.74	0.52
1:B:605:LEU:HD23	1:B:647:ILE:HB	1.92	0.52
3:D:487:GLN:HA	3:D:490:VAL:HG12	1.92	0.52
3:D:794:THR:HG22	3:D:796:ARG:H	1.74	0.52
4:E:261:ILE:HD12	4:E:291:ARG:HH11	1.74	0.52
4:5:167:ILE:HD13	4:5:257:LYS:HG3	1.92	0.52
7:H:115:GLN:NE2	7:H:116:VAL:O	2.42	0.52
7:H:149:ARG:HD3	7:H:152:LYS:HE3	1.92	0.52
3:4:265:PRO:HB3	3:4:325:LEU:HG	1.92	0.52
3:4:628:VAL:HG22	3:4:670:SER:HB2	1.92	0.52
2:C:276:VAL:HG22	2:C:321:ILE:HB	1.92	0.52
2:C:295:VAL:HB	2:C:325:THR:HB	1.92	0.52
2:3:455:ARG:HB2	2:3:502:ILE:HD11	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:4:778:ARG:NH1	5:6:719:CYS:SG	2.83	0.51
5:F:574:VAL:O	5:F:714:VAL:HA	2.11	0.51
6:G:147:ARG:NH2	6:G:197:THR:O	2.43	0.51
1:B:241:SER:OG	1:B:413:ASP:OD2	2.28	0.51
3:D:199:MET:HA	3:D:227:ILE:HD11	1.91	0.51
4:E:72:ASN:HB3	4:E:75:ILE:HG12	1.92	0.51
4:E:300:ILE:HG23	4:E:324:ARG:HB3	1.92	0.51
6:G:525:GLU:OE1	6:G:528:LYS:NZ	2.32	0.51
2:3:584:GLU:OE2	4:5:516:ARG:NH1	2.42	0.51
3:4:604:TYR:OH	6:7:554:ASN:ND2	2.41	0.51
6:7:664:TYR:CZ	6:7:668:ARG:HD2	2.45	0.51
5:6:574:VAL:HG21	5:6:699:LEU:HD11	1.92	0.51
6:7:481:VAL:HG11	6:7:512:ALA:HB1	1.92	0.51
6:7:644:TYR:O	6:7:647:THR:OG1	2.27	0.51
1:B:218:TYR:OH	1:B:251:GLU:OE2	2.29	0.51
6:G:425:ASN:HB3	6:G:428:VAL:HB	1.92	0.51
4:5:300:ILE:HG23	4:5:324:ARG:HB3	1.93	0.51
1:B:690:GLU:HB2	1:B:694:ARG:HH12	1.76	0.51
3:D:261:LEU:HD13	3:D:272:MET:HE1	1.92	0.51
6:G:146:ARG:NH2	6:G:304:ALA:O	2.44	0.51
5:F:126:SER:OG	5:F:128:ASP:OD1	2.24	0.51
5:F:379:VAL:HG23	5:F:454:PHE:HB3	1.93	0.51
6:G:88:TYR:CZ	6:G:92:LYS:HD2	2.46	0.51
5:6:710:ASP:HB3	5:6:802:SER:HB2	1.93	0.51
4:E:398:LYS:HZ1	4:E:406:LEU:HD22	1.76	0.51
7:H:344:CYS:SG	7:H:452:MET:HB3	2.50	0.51
2:3:524:ASP:OD2	2:3:527:ARG:NH1	2.38	0.51
3:D:585:THR:HG21	3:D:628:VAL:HB	1.93	0.51
4:E:464:LEU:HD21	4:E:470:VAL:HG11	1.92	0.50
5:F:691:ARG:HE	5:F:716:LEU:HD22	1.75	0.50
6:G:350:ASP:HB2	6:G:382:ARG:HG3	1.93	0.50
5:F:357:GLN:HB2	5:F:386:VAL:HG13	1.93	0.50
8:I:270:ASP:O	8:I:273:GLN:NE2	2.44	0.50
5:6:509:SER:OG	5:6:510:SER:N	2.45	0.50
4:E:473:ASP:OD1	4:E:516:ARG:N	2.43	0.50
7:H:326:ALA:HB2	8:I:279:ILE:HD13	1.93	0.50
1:B:406:ARG:NH1	1:B:430:TYR:OH	2.43	0.50
2:C:487:HIS:CE1	2:C:539:LEU:HD13	2.47	0.50
4:E:455:ARG:NH2	4:E:460:ARG:O	2.33	0.50
4:E:559:ASP:N	4:E:564:ARG:HH22	2.09	0.50
2:3:529:PRO:HA	2:3:532:ASN:HB2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:537:ILE:HG23	1:B:678:ASP:HB2	1.92	0.50
2:3:251:ILE:HG23	2:3:280:ASP:HB3	1.94	0.50
2:3:276:VAL:HG22	2:3:321:ILE:HB	1.94	0.50
4:E:559:ASP:H	4:E:564:ARG:HH22	1.59	0.50
6:G:589:ALA:HB1	6:G:593:ARG:HH12	1.77	0.50
2:C:314:LEU:HD11	4:E:200:ILE:HA	1.93	0.50
5:6:277:ARG:NH2	5:6:373:MET:O	2.44	0.50
6:7:538:HIS:HE1	6:7:593:ARG:NH1	2.10	0.50
1:B:597:VAL:HG23	1:B:629:ILE:HD12	1.94	0.50
5:F:125:GLN:NE2	5:F:126:SER:O	2.45	0.50
6:G:634:GLU:HB3	6:G:637:LYS:HE2	1.94	0.50
1:2:385:TYR:OH	1:2:387:ARG:NH2	2.44	0.50
3:4:493:ASN:OD1	3:4:494:GLU:N	2.45	0.50
6:7:220:ILE:HD12	6:7:223:LYS:HD3	1.93	0.50
1:2:296:ARG:HH21	1:2:413:ASP:HB3	1.77	0.49
5:6:433:LEU:HD13	1:B:342:LEU:HB3	1.94	0.49
6:7:526:PHE:HB3	6:7:567:ALA:HB2	1.94	0.49
5:F:550:GLN:NE2	5:F:569:ILE:O	2.45	0.49
6:G:451:ARG:NH1	6:G:453:ASP:O	2.43	0.49
3:4:812:LYS:HE3	3:4:814:LYS:HE2	1.93	0.49
1:B:625:GLU:HA	1:B:676:ARG:HH12	1.78	0.49
7:H:52:ASP:OD1	7:H:52:ASP:N	2.45	0.49
1:2:701:ASP:HA	1:2:704:VAL:HG22	1.94	0.49
3:4:432:ARG:NH1	3:4:585:THR:O	2.45	0.49
4:5:276:MET:HG2	4:5:328:ILE:HB	1.94	0.49
6:G:181:LEU:HA	6:G:184:VAL:HG12	1.93	0.49
6:G:432:LEU:HB3	6:G:473:ILE:HD11	1.94	0.49
7:H:56:LYS:HE3	7:H:60:LYS:HZ2	1.77	0.49
2:3:667:VAL:HG23	2:3:719:LYS:HD2	1.95	0.49
5:F:297:THR:HA	5:F:359:VAL:HG12	1.94	0.49
7:H:375:ASP:HA	7:H:378:ASN:HB2	1.95	0.49
1:2:676:ARG:HA	1:2:808:ARG:NH2	2.26	0.49
4:E:412:VAL:HG22	4:E:552:MET:HB2	1.94	0.49
6:G:454:ILE:O	6:G:562:SER:OG	2.29	0.49
1:B:658:ASN:H	1:B:666:ASN:HD21	1.60	0.49
3:D:607:ARG:NH2	5:F:617:GLU:OE2	2.46	0.49
3:D:616:LEU:HD22	3:D:661:ILE:HD11	1.94	0.49
7:H:115:GLN:HE22	7:H:117:ILE:HD13	1.78	0.49
3:4:263:ASN:OD1	3:4:324:LYS:NZ	2.45	0.49
5:6:403:VAL:HG22	5:6:450:TYR:HB3	1.94	0.49
6:7:166:LEU:HA	4:E:47:ARG:HH11	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:690:GLU:HB2	1:B:694:ARG:NH1	2.28	0.49
5:F:842:ASP:OD1	5:F:842:ASP:N	2.46	0.49
6:G:350:ASP:OD2	6:G:382:ARG:NH1	2.46	0.49
1:2:342:LEU:HB3	5:F:433:LEU:HD13	1.95	0.49
2:3:528:ASP:OD1	2:3:528:ASP:N	2.44	0.49
4:E:663:LEU:HA	4:E:666:LEU:HD12	1.93	0.49
6:G:227:VAL:HA	6:G:230:ILE:HD12	1.94	0.49
7:H:127:GLU:O	7:H:130:THR:OG1	2.31	0.49
3:4:457:TYR:HB2	6:7:253:PRO:HG2	1.94	0.49
4:5:374:ILE:HD13	4:5:428:PHE:HE2	1.78	0.49
5:F:300:VAL:HG13	5:F:386:VAL:HG11	1.95	0.49
7:H:169:PHE:CZ	7:H:178:GLY:HA3	2.48	0.49
3:4:204:LYS:O	3:4:208:ILE:HG13	2.13	0.48
3:4:393:ASP:HB3	3:4:424:VAL:HG21	1.94	0.48
5:F:314:CYS:SG	5:F:337:SER:OG	2.70	0.48
6:G:521:CYS:HB2	6:G:561:THR:HG21	1.95	0.48
3:4:238:THR:HG22	3:4:240:ASN:H	1.78	0.48
4:E:452:SER:HB3	4:E:454:GLN:HE22	1.77	0.48
1:2:334:LEU:HB3	1:2:337:VAL:HG22	1.94	0.48
2:3:212:ARG:HD2	2:3:232:PRO:HD3	1.95	0.48
1:B:608:GLU:OE2	1:B:611:LYS:NZ	2.39	0.48
3:4:370:ARG:NH2	3:4:377:ASN:O	2.40	0.48
3:4:774:TYR:HD2	5:6:728:ALA:HB2	1.78	0.48
4:5:48:ASP:OD1	4:5:51:ARG:NH2	2.46	0.48
4:5:137:LEU:HD21	4:5:139:LEU:HD23	1.96	0.48
2:C:395:ASN:ND2	6:G:421:GLU:OE1	2.44	0.48
2:3:419:LEU:HD12	2:3:471:CYS:HB3	1.95	0.48
2:3:482:ASP:O	2:3:486:ILE:HG12	2.13	0.48
6:7:260:TYR:HB3	6:7:298:LEU:HB3	1.94	0.48
4:E:136:GLN:HB2	4:E:280:ARG:HE	1.78	0.48
7:H:339:LYS:HB3	7:H:343:LYS:NZ	2.28	0.48
8:I:341:ARG:O	8:I:345:GLN:HG2	2.14	0.48
3:4:395:GLN:NE2	3:4:425:ASP:OD1	2.42	0.48
4:5:453:VAL:HG21	4:5:504:ILE:HG21	1.95	0.48
6:7:581:LEU:HD11	6:7:682:GLY:HA2	1.96	0.48
1:B:633:LYS:HE2	4:E:446:ALA:HB1	1.96	0.48
4:5:370:LEU:HG	4:5:666:LEU:HD11	1.96	0.48
6:7:322:VAL:HG21	6:7:328:PRO:HG3	1.96	0.48
1:B:560:ALA:HB3	1:B:563:ALA:HB2	1.96	0.48
6:G:142:ILE:HD11	6:G:303:ARG:HG3	1.96	0.48
7:H:260:ASP:OD2	7:H:263:LYS:NZ	2.43	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:553:LEU:HD22	1:2:605:LEU:HD23	1.96	0.48
3:D:676:ASN:ND2	9:D:2001:AGS:S1G	2.81	0.48
7:H:321:GLN:NE2	8:I:309:PHE:HB2	2.29	0.48
1:2:255:ILE:HG23	1:2:256:LEU:HD12	1.95	0.48
1:2:537:ILE:O	1:2:645:SER:OG	2.31	0.48
6:7:503:THR:HG23	6:7:505:GLU:HG2	1.96	0.48
1:B:328:THR:HG22	1:B:387:ARG:H	1.79	0.48
1:B:334:LEU:HD13	4:E:322:ALA:HB1	1.95	0.47
1:B:406:ARG:NH1	1:B:449:THR:OG1	2.47	0.47
1:B:625:GLU:OE2	1:B:676:ARG:NH1	2.46	0.47
3:D:231:ASN:OD1	3:D:234:ARG:NH2	2.46	0.47
6:G:637:LYS:HA	6:G:640:GLU:HG2	1.96	0.47
8:I:115:ASN:O	8:I:119:ILE:HG13	2.14	0.47
2:3:235:ASP:OD1	2:3:239:ASN:N	2.45	0.47
6:7:193:PRO:HD2	6:7:196:LEU:HD12	1.95	0.47
1:B:339:PHE:HB2	1:B:348:LEU:HD12	1.94	0.47
2:C:426:ALA:HB3	2:C:429:ALA:HB2	1.97	0.47
7:H:160:ILE:HG12	7:H:298:THR:HA	1.96	0.47
2:3:678:VAL:HG21	2:3:723:LYS:HG3	1.96	0.47
6:7:157:ARG:HG3	6:7:185:VAL:HG22	1.95	0.47
1:B:501:MET:HG3	1:B:516:ALA:HB2	1.95	0.47
2:C:572:LEU:HD21	4:E:613:ARG:HD2	1.95	0.47
6:G:318:LEU:HD21	6:G:348:ILE:HD12	1.96	0.47
8:I:373:ASP:H	8:I:376:LYS:HG2	1.78	0.47
3:4:581:VAL:HA	3:4:584:ILE:HG22	1.97	0.47
4:5:449:LEU:HD12	4:5:468:ALA:HB3	1.97	0.47
6:7:435:LEU:HD21	6:7:564:LEU:HB2	1.97	0.47
6:7:466:LYS:NZ	9:7:2001:AGS:S1G	2.80	0.47
5:F:628:LEU:HD11	5:F:652:ILE:HG13	1.96	0.47
2:3:388:GLY:O	2:3:714:LYS:NZ	2.44	0.47
4:5:148:LEU:HD11	4:5:274:LEU:HD12	1.97	0.47
5:6:673:ASN:HB3	5:6:675:ARG:HH11	1.80	0.47
6:7:149:ARG:O	6:7:153:MET:HG3	2.13	0.47
1:B:264:PRO:HB2	1:B:429:ILE:HG12	1.97	0.47
1:B:814:LEU:HD21	4:E:573:ILE:HD13	1.96	0.47
1:2:260:LEU:HD21	1:2:297:ILE:HG13	1.97	0.47
2:3:567:ARG:O	2:3:642:TYR:OH	2.27	0.47
3:4:308:VAL:HG22	3:4:327:ASN:HB2	1.97	0.47
3:4:508:LYS:HG2	3:4:746:PHE:CE1	2.50	0.47
3:4:543:GLN:HE21	3:4:670:SER:HB3	1.78	0.47
6:7:400:ARG:HB3	6:7:637:LYS:HE3	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:795:ARG:HA	1:B:798:ILE:HD12	1.96	0.47
5:F:509:SER:OG	5:F:510:SER:N	2.48	0.47
6:G:117:PHE:HB3	6:G:202:LEU:HD11	1.97	0.47
8:I:268:LEU:O	8:I:278:ILE:N	2.48	0.47
3:4:578:LEU:HB3	3:4:590:TYR:HE2	1.80	0.47
1:B:347:ILE:HG21	1:B:379:LYS:HZ1	1.79	0.47
1:B:707:HIS:NE2	5:F:763:PRO:O	2.37	0.47
2:C:235:ASP:OD1	2:C:239:ASN:N	2.48	0.47
2:C:672:THR:OG1	2:C:721:VAL:O	2.27	0.47
3:D:842:THR:OG1	3:D:844:LYS:NZ	2.40	0.47
2:3:484:VAL:HG22	6:7:528:LYS:HD2	1.96	0.47
4:5:614:LEU:HA	4:5:672:ALA:HB3	1.97	0.47
4:E:31:PHE:CG	4:E:90:PHE:HD1	2.33	0.47
5:F:109:GLU:OE1	5:F:112:ARG:NH2	2.48	0.47
7:H:187:GLU:OE2	7:H:277:ASN:ND2	2.48	0.47
7:H:367:ASN:HB2	7:H:371:GLU:OE2	2.14	0.47
9:H:2001:AGS:O2A	9:H:2001:AGS:O2B	2.32	0.47
1:2:387:ARG:HG2	1:2:407:GLU:OE2	2.15	0.47
2:3:97:ILE:HD13	2:3:156:SER:HB2	1.97	0.47
5:6:742:ILE:HG22	5:6:744:PRO:HD3	1.96	0.47
6:7:454:ILE:O	6:7:562:SER:OG	2.30	0.47
1:B:607:ASP:OD2	1:B:608:GLU:N	2.48	0.47
2:C:203:ALA:O	2:C:207:GLY:N	2.48	0.47
3:D:366:GLN:NE2	6:G:297:GLN:OE1	2.43	0.47
5:F:632:ASP:OD1	5:F:675:ARG:N	2.47	0.47
1:B:523:VAL:HG11	1:B:775:TYR:HA	1.96	0.46
3:D:635:ASP:OD1	3:D:635:ASP:N	2.48	0.46
4:E:151:LEU:HD11	4:E:162:LEU:HD22	1.97	0.46
7:H:151:LEU:HA	7:H:154:VAL:HG22	1.97	0.46
7:H:157:LYS:HA	7:H:157:LYS:HD3	1.75	0.46
4:5:223:ASN:HD21	2:C:230:ILE:HA	1.80	0.46
4:5:257:LYS:HD2	4:5:273:ASN:HD22	1.80	0.46
5:6:305:TYR:HB2	5:6:354:LEU:HG	1.96	0.46
2:C:430:ILE:HD12	2:C:465:ALA:HB2	1.96	0.46
2:3:129:LEU:HD23	2:3:153:TRP:HB3	1.96	0.46
2:3:280:ASP:OD1	2:3:280:ASP:N	2.49	0.46
3:4:585:THR:HG21	3:4:628:VAL:HB	1.96	0.46
1:2:400:GLY:HA2	5:6:594:ARG:HH22	1.81	0.46
3:4:645:LEU:O	3:4:649:MET:HG3	2.16	0.46
1:B:519:LEU:HD11	1:B:556:VAL:HG13	1.98	0.46
3:D:344:VAL:O	3:D:389:CYS:HB2	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:4:304:ARG:HB3	3:4:465:HIS:HB2	1.97	0.46
3:4:647:GLU:HA	3:4:650:GLU:HG2	1.96	0.46
4:5:555:ILE:HG22	4:5:557:LYS:HE3	1.97	0.46
6:7:495:ALA:HB1	6:7:508:LEU:HD11	1.97	0.46
6:G:481:VAL:HG12	6:G:516:ALA:HB2	1.98	0.46
6:G:542:GLU:HG3	6:G:687:ARG:HH21	1.81	0.46
7:H:292:LYS:HZ1	8:I:278:ILE:HD13	1.79	0.46
3:4:344:VAL:O	3:4:389:CYS:HB2	2.16	0.46
3:4:559:ARG:HE	3:4:559:ARG:HB3	1.57	0.46
3:4:746:PHE:HA	3:4:749:MET:HG2	1.98	0.46
5:6:795:ILE:HG23	5:6:799:GLN:HB2	1.98	0.46
2:C:507:ASN:ND2	6:G:319:SER:O	2.47	0.46
3:D:564:ILE:HG12	3:D:704:LEU:HB2	1.98	0.46
3:D:581:VAL:HA	3:D:584:ILE:HG22	1.96	0.46
6:G:137:ASP:OD1	6:G:138:VAL:N	2.48	0.46
3:4:798:LEU:HA	3:4:801:MET:HE2	1.97	0.46
4:5:136:GLN:HG2	4:5:138:ILE:HG13	1.98	0.46
5:6:412:LEU:O	5:6:416:LYS:NZ	2.40	0.46
5:6:842:ASP:N	5:6:842:ASP:OD1	2.45	0.46
6:7:256:GLU:OE1	6:7:306:LYS:NZ	2.42	0.46
2:C:280:ASP:OD1	2:C:281:ASP:N	2.49	0.46
3:D:268:VAL:HG12	3:D:272:MET:HE2	1.98	0.46
5:F:629:MET:HE3	5:F:672:LEU:HB3	1.98	0.46
1:2:556:VAL:HB	1:2:605:LEU:HD21	1.97	0.46
2:3:197:ILE:HB	2:3:249:THR:HG23	1.97	0.46
4:5:407:ARG:HB2	4:5:500:GLN:NE2	2.31	0.46
6:7:618:TYR:HB3	6:7:626:PRO:HG3	1.98	0.46
2:C:396:GLY:HA3	6:G:475:LYS:HE2	1.96	0.46
5:F:777:TYR:CG	5:F:800:LEU:HD12	2.51	0.46
8:I:693:ILE:O	8:I:697:ILE:HG12	2.16	0.46
3:4:306:TYR:HA	3:4:436:THR:HG21	1.97	0.46
2:C:340:GLN:NE2	2:C:658:LYS:HG3	2.31	0.46
2:3:218:THR:HG21	2:3:277:ILE:HG21	1.98	0.46
3:D:527:ALA:HB3	3:D:537:LYS:HE2	1.97	0.46
4:E:473:ASP:OD2	4:E:516:ARG:NH2	2.46	0.46
6:G:584:ILE:HD13	6:G:597:LEU:HD21	1.98	0.46
7:H:302:ILE:HA	7:H:305:VAL:HG12	1.98	0.46
1:2:708:PRO:HD3	5:6:557:LYS:HG2	1.98	0.45
3:4:373:ARG:HA	8:I:253:THR:HG21	1.96	0.45
6:7:703:ARG:NH2	6:7:712:ASP:OD2	2.43	0.45
6:G:193:PRO:HD2	6:G:196:LEU:HD12	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:2:519:LEU:HD21	1:2:556:VAL:HG13	1.98	0.45
2:C:459:ALA:HB1	2:C:463:VAL:HB	1.98	0.45
7:H:43:THR:N	9:H:2001:AGS:O1B	2.47	0.45
7:H:126:GLU:OE1	7:H:130:THR:OG1	2.23	0.45
3:4:470:SER:HB3	3:4:473:ARG:HG2	1.98	0.45
6:7:257:VAL:HG12	6:7:306:LYS:HB3	1.99	0.45
1:B:476:TRP:HZ3	1:B:768:HIS:HD2	1.64	0.45
5:F:321:VAL:HG11	5:F:330:PRO:HD3	1.97	0.45
7:H:59:LYS:HE3	7:H:59:LYS:HB2	1.81	0.45
4:5:151:LEU:HD11	4:5:162:LEU:HD22	1.98	0.45
2:C:117:GLU:HB3	2:C:120:TYR:HD2	1.81	0.45
5:F:177:PHE:HA	5:F:180:PHE:HD2	1.82	0.45
7:H:35:LEU:HA	7:H:50:ALA:HA	1.97	0.45
7:H:80:VAL:O	8:I:663:ASN:ND2	2.49	0.45
5:6:566:ARG:O	5:6:805:ARG:NE	2.47	0.45
5:6:650:VAL:HA	5:6:653:HIS:ND1	2.32	0.45
1:2:394:PRO:O	5:6:673:ASN:ND2	2.47	0.45
4:5:452:SER:O	4:5:465:GLU:N	2.48	0.45
5:6:429:THR:HG23	1:B:347:ILE:HD11	1.98	0.45
5:6:535:PRO:HB2	5:6:742:ILE:HD12	1.98	0.45
3:D:265:PRO:HB3	3:D:325:LEU:HG	1.99	0.45
6:G:537:ILE:HG23	6:G:563:ILE:HD13	1.97	0.45
4:5:599:MET:O	4:5:603:ILE:HG12	2.16	0.45
2:C:533:ILE:HG21	2:C:540:LEU:HD11	1.98	0.45
4:E:423:SER:HA	4:E:426:LEU:HD12	1.98	0.45
5:F:663:ILE:O	5:F:669:HIS:HA	2.17	0.45
1:2:383:ARG:HB2	1:2:412:ALA:HB2	1.99	0.45
2:3:687:ARG:NH2	6:7:602:ASP:OD1	2.43	0.45
3:4:714:GLU:OE2	6:7:669:GLN:NE2	2.50	0.45
4:5:161:ARG:HG2	4:5:295:VAL:HG22	1.99	0.45
6:7:142:ILE:HD11	6:7:303:ARG:HG3	1.99	0.45
3:D:846:ASP:HB3	3:D:849:LEU:HB2	1.99	0.45
3:4:433:ILE:HG22	3:4:468:LYS:HG2	1.99	0.45
3:4:530:ILE:HA	9:4:2001:AGS:H2	1.97	0.45
4:5:618:ALA:HB1	4:5:677:VAL:HG21	1.99	0.45
3:D:435:VAL:HG13	3:D:463:VAL:HG13	1.99	0.45
3:D:647:GLU:HA	3:D:650:GLU:HG2	1.98	0.45
4:E:547:LEU:HD23	4:E:646:ILE:HD12	1.98	0.45
5:F:642:ASP:OD2	5:F:642:ASP:N	2.46	0.45
8:I:324:VAL:HG22	8:I:378:PHE:HE1	1.82	0.45
1:2:703:HIS:CE1	5:6:565:LEU:HD22	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:4:701:ARG:NH2	9:6:2001:AGS:S1G	2.90	0.45
9:4:2001:AGS:O2B	9:4:2001:AGS:O2A	2.35	0.45
4:5:342:ILE:HD11	4:5:473:ASP:HB3	1.99	0.45
4:5:506:LYS:HB2	4:5:509:ILE:HG22	1.99	0.45
6:7:67:LEU:HD21	6:7:121:ILE:HG23	2.00	0.45
5:F:403:VAL:HG22	5:F:450:TYR:HB3	1.98	0.45
6:G:113:PHE:HA	6:G:116:LEU:HB2	1.98	0.45
7:H:181:VAL:HG22	7:H:182:ASP:H	1.82	0.45
1:2:676:ARG:HD2	1:2:808:ARG:HH12	1.82	0.44
3:4:794:THR:HG22	3:4:796:ARG:H	1.82	0.44
1:B:790:TYR:CZ	1:B:794:ARG:HD2	2.53	0.44
4:E:618:ALA:HB1	4:E:677:VAL:HG21	1.98	0.44
4:5:282:LEU:HD13	4:5:330:ILE:HG22	1.99	0.44
5:F:773:LEU:HD13	5:F:824:ILE:HD12	1.99	0.44
8:I:327:TYR:HE1	8:I:375:THR:HG22	1.82	0.44
6:7:5:LEU:HD12	6:7:5:LEU:HA	1.88	0.44
6:7:258:ILE:O	6:7:270:PHE:HA	2.17	0.44
6:7:527:ASP:OD1	6:7:527:ASP:N	2.50	0.44
2:C:197:ILE:HB	2:C:249:THR:HG23	1.99	0.44
5:F:517:LYS:HA	5:F:520:VAL:HG22	1.99	0.44
7:H:127:GLU:OE1	7:H:129:ARG:NH1	2.51	0.44
7:H:388:GLU:OE2	8:I:373:ASP:HB3	2.17	0.44
7:H:401:GLN:HB3	7:H:436:TRP:HH2	1.82	0.44
5:6:526:TYR:O	5:6:530:VAL:HG23	2.17	0.44
3:D:775:VAL:HG12	3:D:779:LYS:NZ	2.33	0.44
1:2:374:ARG:NE	5:F:431:GLU:OE2	2.51	0.44
1:2:610:ASP:OD1	1:2:611:LYS:N	2.51	0.44
6:7:143:LEU:HG	6:7:197:THR:HA	1.99	0.44
6:7:537:ILE:HG23	6:7:563:ILE:HD13	1.99	0.44
1:2:537:ILE:HG23	1:2:678:ASP:HB2	1.99	0.44
2:3:295:VAL:HB	2:3:325:THR:HB	1.99	0.44
4:5:266:PRO:HG2	4:5:269:GLU:HB2	1.99	0.44
5:6:608:LEU:HD13	5:6:627:ALA:HB3	1.99	0.44
6:7:423:TYR:HB2	6:7:615:HIS:CG	2.52	0.44
2:C:680:VAL:HG22	6:G:613:ALA:HB1	1.99	0.44
4:E:436:ALA:HA	4:E:476:VAL:O	2.17	0.44
5:F:155:TYR:OH	5:F:171:SER:OG	2.35	0.44
6:G:260:TYR:HB3	6:G:298:LEU:HB3	1.99	0.44
8:I:117:LYS:HG3	8:I:214:LEU:HD11	2.00	0.44
8:I:268:LEU:HB3	8:I:279:ILE:H	1.83	0.44
1:2:795:ARG:HA	1:2:798:ILE:HD12	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:322:VAL:HG21	6:G:328:PRO:HG3	1.99	0.44
2:3:443:THR:HB	2:3:495:VAL:HG11	2.00	0.44
3:4:458:LYS:NZ	3:4:610:ASP:OD1	2.47	0.44
4:5:415:LEU:HA	4:5:523:ALA:O	2.17	0.44
4:E:159:ILE:HG22	4:E:161:ARG:HH11	1.83	0.44
4:E:169:THR:HG22	4:E:256:LEU:HD22	1.98	0.44
4:E:535:SER:O	4:E:539:ASN:ND2	2.49	0.44
1:2:338:LYS:HD2	1:2:379:LYS:HB3	1.99	0.44
2:3:240:LYS:NZ	4:E:5:ARG:O	2.50	0.44
5:6:574:VAL:O	5:6:714:VAL:HA	2.17	0.44
6:7:59:LYS:HE2	6:7:59:LYS:HB2	1.89	0.44
6:7:596:ILE:HD11	6:7:695:LEU:HD11	2.00	0.44
1:B:445:PRO:HD3	5:F:325:PHE:O	2.18	0.44
2:3:557:ARG:O	2:3:561:ILE:HG12	2.18	0.43
4:5:546:ILE:HD12	4:5:546:ILE:H	1.82	0.43
5:6:105:ASP:O	5:6:109:GLU:HG2	2.18	0.43
1:B:432:ASN:OD1	1:B:447:PHE:HB3	2.18	0.43
2:C:558:ASP:HB3	4:E:627:VAL:HG12	2.00	0.43
5:F:277:ARG:HG2	5:F:375:ARG:HD2	2.00	0.43
5:F:653:HIS:HB3	5:F:705:ILE:HD13	2.00	0.43
8:I:155:PHE:HD2	8:I:162:ILE:HD11	1.82	0.43
1:2:386:GLN:HB2	1:2:415:VAL:HG12	1.99	0.43
1:2:508:HIS:O	1:2:512:LYS:HG3	2.17	0.43
4:5:165:ILE:O	4:5:258:LEU:HD12	2.18	0.43
1:B:484:PHE:HZ	1:B:765:LYS:HB2	1.83	0.43
3:D:456:LEU:HD12	3:D:456:LEU:HA	1.91	0.43
3:D:563:ASN:ND2	3:D:649:MET:SD	2.92	0.43
1:2:614:ASP:OD2	4:5:486:ARG:NH2	2.43	0.43
1:2:850:LYS:HE3	1:2:852:SER:HB3	2.00	0.43
2:3:182:VAL:HG11	2:3:274:ILE:HD11	2.00	0.43
3:4:401:GLU:HG2	3:4:403:PRO:HD3	1.99	0.43
5:6:294:VAL:HG21	5:6:389:ALA:HB1	1.99	0.43
2:C:536:PRO:HG2	2:C:539:LEU:HB2	2.00	0.43
3:D:716:ASN:ND2	3:D:853:GLY:O	2.51	0.43
7:H:375:ASP:HA	7:H:378:ASN:HD22	1.83	0.43
2:3:358:ASP:O	2:3:362:ILE:HG13	2.19	0.43
3:4:224:LEU:HD13	3:4:227:ILE:HG13	2.00	0.43
1:B:486:LYS:HA	1:B:489:ARG:HH21	1.83	0.43
1:B:789:VAL:HG23	1:B:864:TYR:CZ	2.53	0.43
6:G:520:ILE:HA	6:G:562:SER:O	2.19	0.43
7:H:23:TYR:HA	7:H:29:ILE:HD11	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:5:559:ASP:H	4:5:564:ARG:NH1	2.16	0.43
2:C:198:ARG:HB3	2:C:249:THR:HG22	2.01	0.43
3:D:629:CYS:HB3	3:D:671:ILE:HD13	2.01	0.43
3:D:639:ASP:OD1	3:D:642:ARG:NH2	2.51	0.43
5:F:199:THR:OG1	5:F:261:ARG:NH1	2.51	0.43
7:H:302:ILE:HD12	7:H:457:ARG:CZ	2.49	0.43
7:H:399:LEU:HD12	7:H:399:LEU:HA	1.90	0.43
1:2:326:ARG:NH1	1:2:389:THR:OG1	2.51	0.43
2:3:230:ILE:HA	4:E:223:ASN:HD21	1.84	0.43
5:6:525:ILE:HG13	5:6:529:LEU:HD23	2.01	0.43
5:6:144:LYS:HA	5:6:196:LEU:HD11	2.00	0.43
6:7:474:CYS:HB2	6:7:480:GLY:HA3	2.00	0.43
1:2:212:LYS:HE3	1:2:274:VAL:HG13	2.01	0.43
3:4:590:TYR:OH	3:4:632:ASP:OD2	2.36	0.43
6:7:473:ILE:HD13	6:7:473:ILE:HA	1.87	0.43
3:D:432:ARG:O	3:D:473:ARG:NH2	2.52	0.43
4:E:498:GLU:OE2	4:E:651:ARG:NH1	2.52	0.43
6:G:530:ASP:N	6:G:530:ASP:OD1	2.51	0.43
3:4:665:LEU:HD13	5:6:373:MET:HE1	2.01	0.42
5:6:303:GLU:O	5:6:353:PHE:HA	2.18	0.42
5:6:694:SER:O	5:6:698:ASN:ND2	2.52	0.42
5:6:797:VAL:O	5:6:800:LEU:N	2.51	0.42
6:7:113:PHE:HA	6:7:116:LEU:HB2	2.01	0.42
1:B:562:ARG:NE	1:B:598:LEU:O	2.49	0.42
4:E:622:LEU:HD23	4:E:622:LEU:HA	1.82	0.42
5:F:123:SER:HB3	5:F:134:LYS:HG2	2.01	0.42
7:H:141:LYS:NZ	7:H:468:PHE:O	2.49	0.42
1:2:628:SER:OG	1:2:639:THR:OG1	2.37	0.42
4:5:257:LYS:HD2	4:5:273:ASN:ND2	2.34	0.42
5:6:431:GLU:OE2	1:B:374:ARG:NE	2.52	0.42
6:7:601:LEU:HD12	6:7:727:LEU:HG	2.00	0.42
2:C:116:VAL:HG12	2:C:117:GLU:HG3	2.01	0.42
5:F:409:GLN:HG2	5:F:412:LEU:HD12	2.01	0.42
6:G:428:VAL:HA	6:G:598:PHE:HE2	1.83	0.42
8:I:126:ILE:HD12	8:I:172:ILE:O	2.19	0.42
8:I:150:LEU:HD13	8:I:153:ARG:HE	1.83	0.42
8:I:197:ASN:HB2	8:I:199:MET:HE1	2.01	0.42
8:I:300:LYS:NZ	8:I:309:PHE:O	2.45	0.42
1:2:510:ASP:OD2	1:2:511:ILE:N	2.52	0.42
3:4:178:ARG:NH1	8:I:533:ASP:OD1	2.52	0.42
3:4:688:VAL:O	3:4:692:ILE:HG12	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:6:298:SER:HB2	5:6:301:ARG:HH12	1.83	0.42
6:7:166:LEU:HD12	4:E:104:LEU:HD12	2.00	0.42
1:B:763:LEU:O	1:B:767:ILE:HG13	2.20	0.42
7:H:163:ASP:O	7:H:168:ASN:ND2	2.51	0.42
7:H:339:LYS:HB3	7:H:343:LYS:HZ3	1.83	0.42
6:7:520:ILE:HA	6:7:562:SER:O	2.19	0.42
1:B:537:ILE:O	1:B:645:SER:OG	2.36	0.42
1:B:785:LYS:NZ	1:B:831:SER:OG	2.49	0.42
1:2:253:LYS:HB3	1:2:256:LEU:HD13	2.02	0.42
1:2:494:ILE:O	1:2:498:ILE:HG12	2.20	0.42
1:2:849:GLN:HB3	1:2:853:VAL:HB	2.01	0.42
2:3:487:HIS:CE1	6:7:528:LYS:HE3	2.55	0.42
2:C:375:ASP:O	2:C:379:LYS:HG2	2.19	0.42
3:D:694:LEU:HG	3:D:698:LEU:HD23	2.01	0.42
4:E:261:ILE:HG22	4:E:263:GLU:H	1.83	0.42
8:I:182:ILE:HA	8:I:185:LEU:HD12	2.01	0.42
1:B:336:TYR:HB2	1:B:381:VAL:HB	2.01	0.42
2:C:566:LEU:HD23	2:C:566:LEU:HA	1.87	0.42
9:D:2001:AGS:O2A	9:D:2001:AGS:O2B	2.38	0.42
4:E:90:PHE:CE2	4:E:137:LEU:HD13	2.54	0.42
4:E:398:LYS:NZ	4:E:406:LEU:HD22	2.33	0.42
6:G:17:LEU:HD13	6:G:113:PHE:HZ	1.85	0.42
8:I:125:ARG:NH2	8:I:162:ILE:HA	2.35	0.42
2:3:408:VAL:O	2:3:548:VAL:HA	2.19	0.42
4:5:429:VAL:HA	4:5:432:VAL:HG12	2.01	0.42
2:C:528:ASP:N	2:C:528:ASP:OD1	2.53	0.42
7:H:123:TYR:CG	7:H:179:VAL:HG11	2.54	0.42
7:H:359:TRP:NE1	7:H:361:LYS:O	2.52	0.42
2:3:430:ILE:HD12	2:3:465:ALA:HB2	2.01	0.42
4:5:90:PHE:CE2	4:5:94:ILE:HD11	2.54	0.42
4:5:498:GLU:OE2	4:5:549:ARG:HG3	2.20	0.42
5:6:354:LEU:HD12	5:6:382:ARG:HH21	1.84	0.42
3:D:292:ASP:N	3:D:292:ASP:OD1	2.48	0.42
3:D:323:ASP:OD1	3:D:440:ARG:NH1	2.51	0.42
4:E:185:ASN:OD1	4:E:185:ASN:N	2.50	0.42
4:E:677:VAL:O	4:E:681:ILE:HG12	2.19	0.42
2:3:535:LEU:HB3	2:3:540:LEU:HD11	2.02	0.42
5:F:144:LYS:HA	5:F:196:LEU:HD21	2.02	0.42
5:F:180:PHE:HA	5:F:183:LYS:HG2	2.00	0.42
5:F:684:PRO:HB3	5:F:698:ASN:HB3	2.01	0.42
6:G:503:THR:HG23	6:G:505:GLU:HG2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:66:TRP:NE1	7:H:123:TYR:HD1	2.17	0.42
7:H:287:PRO:O	7:H:291:MET:HG3	2.20	0.42
7:H:300:ILE:HD12	7:H:300:ILE:H	1.85	0.42
7:H:435:ILE:O	7:H:439:HIS:CB	2.68	0.42
1:2:667:VAL:HG12	1:2:669:LEU:H	1.84	0.42
5:6:538:PHE:H	9:6:2001:AGS:H2	1.85	0.42
5:6:642:ASP:OD1	5:6:643:LYS:N	2.53	0.42
4:E:429:VAL:HA	4:E:432:VAL:HG12	2.01	0.42
5:F:155:TYR:HH	5:F:171:SER:HG	1.65	0.42
2:3:459:ALA:HB2	6:7:327:ILE:HD11	2.01	0.41
6:7:538:HIS:CE1	6:7:593:ARG:CZ	3.03	0.41
1:B:494:ILE:O	1:B:498:ILE:HG12	2.20	0.41
2:C:331:ALA:HB3	2:C:334:THR:HG21	2.02	0.41
2:C:476:ASP:N	2:C:476:ASP:OD2	2.52	0.41
5:F:274:HIS:ND1	5:F:288:LEU:HD11	2.35	0.41
5:F:615:ASP:OD1	5:F:615:ASP:N	2.52	0.41
8:I:303:SER:OG	8:I:312:ASP:OD2	2.27	0.41
8:I:321:LYS:HB3	8:I:325:LYS:HZ2	1.85	0.41
1:2:497:ILE:HD13	1:2:823:MET:HB3	2.02	0.41
1:2:793:LEU:HD21	1:2:842:VAL:HG22	2.01	0.41
2:3:538:SER:O	2:3:542:ARG:HG2	2.20	0.41
3:D:435:VAL:HG22	3:D:466:VAL:HG22	2.02	0.41
6:G:435:LEU:HD21	6:G:564:LEU:HB2	2.01	0.41
6:G:722:VAL:HA	6:G:726:SER:HB3	2.02	0.41
3:4:422:GLU:HB3	3:4:493:ASN:HA	2.02	0.41
3:4:650:GLU:HB3	3:4:701:ARG:NH1	2.35	0.41
3:4:824:GLU:OE2	3:4:827:ARG:NH2	2.52	0.41
4:5:397:LYS:HE2	4:5:405:ARG:HH21	1.85	0.41
5:6:612:VAL:HB	5:6:665:LYS:HD2	2.01	0.41
1:B:508:HIS:HB3	1:B:511:ILE:HG12	2.02	0.41
2:C:23:ASP:OD1	2:C:26:ARG:NH2	2.53	0.41
2:C:561:ILE:HG21	4:E:650:ILE:HG12	2.02	0.41
7:H:290:LEU:HD23	7:H:329:LEU:HD22	2.01	0.41
8:I:125:ARG:NH1	8:I:163:THR:HG23	2.35	0.41
4:5:91:GLU:HG3	4:5:135:PHE:O	2.20	0.41
4:5:183:CYS:HB3	4:5:188:HIS:H	1.85	0.41
6:7:63:TYR:O	6:7:67:LEU:HD13	2.20	0.41
6:7:130:LYS:HB3	6:7:130:LYS:HE3	1.85	0.41
6:7:275:SER:OG	6:7:277:THR:O	2.36	0.41
1:B:434:TYR:HE1	5:F:346:LEU:HD23	1.85	0.41
3:D:203:TYR:CE2	3:D:207:LYS:HE3	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:26:LEU:HA	7:H:27:PRO:HD3	1.96	0.41
8:I:265:HIS:HA	8:I:282:GLU:HA	2.02	0.41
5:6:528:LYS:HD2	5:6:745:PRO:HB3	2.01	0.41
1:B:687:VAL:HG11	5:F:785:ALA:HB2	2.02	0.41
4:E:422:LYS:HB2	4:E:422:LYS:HE2	1.92	0.41
6:G:396:ASP:N	6:G:396:ASP:OD1	2.52	0.41
1:2:438:LEU:HD13	1:2:445:PRO:HA	2.02	0.41
2:3:198:ARG:HB3	2:3:249:THR:HG22	2.03	0.41
4:E:183:CYS:HB3	4:E:188:HIS:H	1.85	0.41
2:3:203:ALA:O	2:3:207:GLY:CA	2.68	0.41
5:6:653:HIS:O	5:6:657:GLU:HG2	2.20	0.41
8:I:330:ASP:O	8:I:334:LYS:HD2	2.21	0.41
12:3:2001:ADP:C4	4:5:650:ILE:HD13	2.56	0.41
2:C:569:HIS:HA	4:E:398:LYS:HE2	2.02	0.41
4:E:370:LEU:HD23	4:E:370:LEU:HA	1.90	0.41
5:F:521:LYS:HA	5:F:521:LYS:HD2	1.89	0.41
5:F:832:ARG:HH22	5:F:833:GLN:HE22	1.68	0.41
7:H:370:LYS:NZ	7:H:447:GLU:OE2	2.33	0.41
1:2:511:ILE:O	1:2:515:VAL:HG23	2.21	0.41
2:3:369:PRO:HB3	2:3:650:LEU:HD11	2.03	0.41
2:3:507:ASN:ND2	6:7:319:SER:O	2.48	0.41
3:4:325:LEU:HD23	3:4:325:LEU:HA	1.97	0.41
3:4:429:ALA:O	3:4:587:ARG:NH2	2.46	0.41
3:4:517:ASP:OD1	3:4:517:ASP:N	2.51	0.41
4:5:31:PHE:CG	4:5:90:PHE:HD1	2.39	0.41
4:5:381:ASN:HB3	4:5:384:ILE:HD12	2.03	0.41
5:6:694:SER:OG	5:6:792:SER:O	2.34	0.41
6:7:204:PHE:H	6:7:379:GLN:HB3	1.86	0.41
6:7:425:ASN:HB3	6:7:428:VAL:HB	2.03	0.41
1:B:318:VAL:O	1:B:427:THR:HA	2.20	0.41
2:C:21:PHE:HE1	2:C:127:LYS:HD3	1.86	0.41
2:C:571:TYR:HB2	2:C:642:TYR:CZ	2.56	0.41
2:C:701:THR:HG23	2:C:733:LEU:HD21	2.03	0.41
2:C:712:HIS:ND1	2:C:725:ASP:OD1	2.43	0.41
3:D:530:ILE:HA	9:D:2001:AGS:H2	2.03	0.41
3:D:637:MET:HG2	3:D:642:ARG:HG3	2.03	0.41
3:D:645:LEU:O	3:D:649:MET:HG2	2.21	0.41
5:F:749:GLU:OE1	5:F:753:ARG:NH2	2.52	0.41
6:G:526:PHE:HE2	6:G:590:LEU:HD21	1.84	0.41
8:I:190:ILE:HG13	8:I:191:LEU:HD22	2.03	0.41
8:I:327:TYR:CE2	8:I:331:LYS:HE3	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:3:457:LEU:HD11	2:3:504:THR:HG21	2.03	0.41
5:6:576:ASP:O	5:6:581:LYS:NZ	2.51	0.41
6:7:432:LEU:HB3	6:7:473:ILE:HD11	2.03	0.41
2:C:212:ARG:HD2	2:C:232:PRO:HD3	2.02	0.41
3:D:642:ARG:HH11	3:D:698:LEU:HD22	1.86	0.41
4:E:53:ASN:HB3	4:E:58:ASN:O	2.21	0.41
2:3:393:LEU:HD13	6:7:421:GLU:HG2	2.03	0.40
3:4:434:GLU:HG3	3:4:467:LYS:HE3	2.02	0.40
4:5:400:LEU:HD12	4:5:404:MET:SD	2.61	0.40
6:7:184:VAL:HB	4:E:103:ILE:HG21	2.03	0.40
6:7:228:ARG:O	6:7:231:LYS:NZ	2.54	0.40
4:E:175:ARG:NH1	4:E:197:PHE:O	2.54	0.40
5:F:816:VAL:HG21	5:F:823:PHE:HE2	1.86	0.40
3:4:508:LYS:HA	3:4:511:GLU:HG3	2.03	0.40
6:7:575:ASN:HA	6:7:576:PRO:HD3	1.96	0.40
1:B:271:PHE:CD2	1:B:295:VAL:HG21	2.54	0.40
4:E:498:GLU:CD	4:E:549:ARG:HH11	2.25	0.40
5:F:189:VAL:HG13	5:F:197:LEU:HD11	2.02	0.40
7:H:365:TYR:HB3	7:H:371:GLU:OE2	2.22	0.40
1:2:215:LEU:HD12	1:2:215:LEU:HA	1.96	0.40
3:4:277:LYS:NZ	3:4:299:LYS:O	2.39	0.40
3:4:557:ARG:NH1	3:4:666:ASN:OD1	2.48	0.40
5:6:649:GLN:HA	5:6:652:ILE:HG22	2.03	0.40
2:C:150:ARG:HD3	2:C:150:ARG:HA	1.92	0.40
8:I:120:MET:O	8:I:124:SER:OG	2.23	0.40
1:2:612:MET:HE2	1:2:616:ASP:HB3	2.03	0.40
2:3:454:GLU:OE1	6:7:314:LYS:NZ	2.54	0.40
4:5:33:ASN:O	4:5:37:GLU:HB2	2.21	0.40
5:6:399:GLY:HA3	5:6:456:ALA:HA	2.04	0.40
5:6:699:LEU:HD13	5:6:701:MET:SD	2.62	0.40
2:C:103:LEU:HD11	2:C:110:PHE:HD2	1.85	0.40
3:D:332:VAL:HG12	3:D:429:ALA:HA	2.04	0.40
4:E:90:PHE:CE2	4:E:94:ILE:HD11	2.56	0.40
4:E:449:LEU:HD12	4:E:468:ALA:HB3	2.03	0.40
5:F:309:PHE:CD2	5:F:330:PRO:HD2	2.57	0.40
8:I:327:TYR:CE1	8:I:375:THR:HG22	2.57	0.40
3:4:354:HIS:CE1	8:I:249:ARG:HB2	2.57	0.40
9:5:2001:AGS:S1G	9:5:2001:AGS:O2B	2.79	0.40
6:7:22:THR:O	6:7:26:VAL:HG23	2.21	0.40
6:7:497:VAL:HG12	6:7:506:MET:HE3	2.03	0.40
1:B:447:PHE:HB2	5:F:302:PRO:HG2	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:612:MET:HE1	1:B:620:ILE:HG13	2.02	0.40
1:B:849:GLN:HB2	1:B:854:ARG:HG3	2.03	0.40
6:G:661:VAL:O	6:G:665:ILE:HG12	2.21	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	2	622/868 (72%)	605 (97%)	17 (3%)	0	100	100
1	B	622/868 (72%)	608 (98%)	14 (2%)	0	100	100
2	3	627/971 (65%)	611 (97%)	16 (3%)	0	100	100
2	C	627/971 (65%)	609 (97%)	17 (3%)	1 (0%)	44	73
3	4	664/933 (71%)	647 (97%)	17 (3%)	0	100	100
3	D	664/933 (71%)	648 (98%)	16 (2%)	0	100	100
4	5	651/775 (84%)	632 (97%)	19 (3%)	0	100	100
4	E	651/775 (84%)	632 (97%)	19 (3%)	0	100	100
5	6	638/1017 (63%)	619 (97%)	19 (3%)	0	100	100
5	F	638/1017 (63%)	623 (98%)	15 (2%)	0	100	100
6	7	693/845 (82%)	678 (98%)	15 (2%)	0	100	100
6	G	693/845 (82%)	681 (98%)	12 (2%)	0	100	100
7	H	375/507 (74%)	351 (94%)	22 (6%)	2 (0%)	25	56
8	I	318/704 (45%)	311 (98%)	6 (2%)	1 (0%)	37	66
All	All	8483/12029 (70%)	8255 (97%)	224 (3%)	4 (0%)	100	100

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	H	62	ALA
7	H	53	ILE
8	I	301	ILE
2	C	648	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	2	552/770 (72%)	551 (100%)	1 (0%)	92	98
1	B	552/770 (72%)	551 (100%)	1 (0%)	92	98
2	3	550/835 (66%)	550 (100%)	0	100	100
2	C	550/835 (66%)	549 (100%)	1 (0%)	92	98
3	4	606/848 (72%)	606 (100%)	0	100	100
3	D	606/848 (72%)	606 (100%)	0	100	100
4	5	588/688 (86%)	584 (99%)	4 (1%)	81	94
4	E	588/688 (86%)	586 (100%)	2 (0%)	91	97
5	6	565/886 (64%)	564 (100%)	1 (0%)	92	98
5	F	565/886 (64%)	565 (100%)	0	100	100
6	7	618/753 (82%)	616 (100%)	2 (0%)	91	97
6	G	618/753 (82%)	615 (100%)	3 (0%)	86	96
7	H	334/454 (74%)	334 (100%)	0	100	100
8	I	303/639 (47%)	302 (100%)	1 (0%)	91	97
All	All	7595/10653 (71%)	7579 (100%)	16 (0%)	91	98

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

Mol	Chain	Res	Type
1	2	326	ARG
4	5	253	GLN
4	5	280	ARG
4	5	339	THR

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Mol	Chain	Res	Type
4	5	516	ARG
5	6	675	ARG
6	7	73	ARG
6	7	683	GLN
1	B	366	ASN
2	C	487	HIS
4	E	339	THR
4	E	625	ASN
6	G	73	ARG
6	G	382	ARG
6	G	575	ASN
8	I	122	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
4	5	253	GLN
5	6	340	ASN
6	7	538	HIS
1	B	666	ASN
2	C	340	GLN
2	C	569	HIS
4	E	499	GLN
4	E	625	ASN
5	F	125	GLN
7	H	115	GLN
7	H	439	HIS
8	I	273	GLN

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 (i)

Of 36 ligands modelled in this entry, 23 are monoatomic - leaving 13 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	$\#\|Z\| > 2$
12	ADP	C	2001	10	24,29,29	0.93	1 (4%)	29,45,45	1.45	4 (13%)
9	AGS	B	2001	10	26,33,33	0.70	1 (3%)	26,52,52	1.07	2 (7%)
9	AGS	D	2001	10	26,33,33	0.72	1 (3%)	26,52,52	1.09	2 (7%)
9	AGS	5	2001	10	26,33,33	0.74	1 (3%)	26,52,52	1.31	2 (7%)
9	AGS	F	2001	10	26,33,33	0.71	1 (3%)	26,52,52	1.04	2 (7%)
9	AGS	H	2001	-	26,33,33	0.71	1 (3%)	26,52,52	1.01	2 (7%)
9	AGS	6	2001	10	26,33,33	0.70	1 (3%)	26,52,52	1.06	2 (7%)
9	AGS	4	2001	10	26,33,33	0.71	1 (3%)	26,52,52	1.06	2 (7%)
9	AGS	E	2001	10	26,33,33	0.72	1 (3%)	26,52,52	1.13	2 (7%)
9	AGS	G	2001	10	26,33,33	0.71	1 (3%)	26,52,52	1.01	2 (7%)
9	AGS	7	2001	10	26,33,33	0.72	1 (3%)	26,52,52	1.04	2 (7%)
9	AGS	2	2001	10	26,33,33	0.71	1 (3%)	26,52,52	1.04	2 (7%)
12	ADP	3	2001	10	24,29,29	0.92	1 (4%)	29,45,45	1.46	4 (13%)

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
12	ADP	C	2001	10	-	2/12/32/32	0/3/3/3
9	AGS	B	2001	10	-	7/17/38/38	0/3/3/3
9	AGS	D	2001	10	-	8/17/38/38	0/3/3/3
9	AGS	5	2001	10	-	5/17/38/38	0/3/3/3
9	AGS	F	2001	10	-	5/17/38/38	0/3/3/3
9	AGS	H	2001	-	-	4/17/38/38	0/3/3/3
9	AGS	6	2001	10	-	3/17/38/38	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	AGS	4	2001	10	-	5/17/38/38	0/3/3/3
9	AGS	E	2001	10	-	6/17/38/38	0/3/3/3
9	AGS	G	2001	10	-	6/17/38/38	0/3/3/3
9	AGS	7	2001	10	-	4/17/38/38	0/3/3/3
9	AGS	2	2001	10	-	5/17/38/38	0/3/3/3
12	ADP	3	2001	10	-	2/12/32/32	0/3/3/3

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	C	2001	ADP	C5-C4	2.40	1.47	1.40
12	3	2001	ADP	C5-C4	2.37	1.47	1.40
9	5	2001	AGS	PG-S1G	2.17	1.95	1.90
9	7	2001	AGS	PG-S1G	2.14	1.95	1.90
9	D	2001	AGS	PG-S1G	2.12	1.95	1.90
9	H	2001	AGS	PG-S1G	2.12	1.95	1.90
9	B	2001	AGS	PG-S1G	2.11	1.95	1.90
9	G	2001	AGS	PG-S1G	2.11	1.95	1.90
9	4	2001	AGS	PG-S1G	2.11	1.95	1.90
9	2	2001	AGS	PG-S1G	2.09	1.95	1.90
9	E	2001	AGS	PG-S1G	2.08	1.95	1.90
9	6	2001	AGS	PG-S1G	2.07	1.95	1.90
9	F	2001	AGS	PG-S1G	2.06	1.95	1.90

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	5	2001	AGS	PA-O3A-PB	-5.29	114.66	132.83
9	E	2001	AGS	PA-O3A-PB	-4.32	118.01	132.83
9	D	2001	AGS	PA-O3A-PB	-4.17	118.52	132.83
9	B	2001	AGS	PA-O3A-PB	-3.96	119.25	132.83
9	4	2001	AGS	PA-O3A-PB	-3.95	119.27	132.83
9	2	2001	AGS	PA-O3A-PB	-3.75	119.94	132.83
9	6	2001	AGS	PA-O3A-PB	-3.73	120.03	132.83
9	F	2001	AGS	PA-O3A-PB	-3.66	120.26	132.83
9	7	2001	AGS	PA-O3A-PB	-3.63	120.36	132.83
9	H	2001	AGS	PA-O3A-PB	-3.54	120.68	132.83
9	G	2001	AGS	PA-O3A-PB	-3.52	120.75	132.83
12	C	2001	ADP	PA-O3A-PB	-3.42	121.08	132.83
12	3	2001	ADP	N3-C2-N1	-3.30	123.52	128.68
12	3	2001	ADP	C3'-C2'-C1'	3.26	105.89	100.98

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
12	C	2001	ADP	C3'-C2'-C1'	3.25	105.87	100.98
12	C	2001	ADP	N3-C2-N1	-3.14	123.78	128.68
12	3	2001	ADP	PA-O3A-PB	-3.08	122.25	132.83
12	3	2001	ADP	C4-C5-N7	-2.67	106.62	109.40
12	C	2001	ADP	C4-C5-N7	-2.55	106.75	109.40
9	2	2001	AGS	C5-C6-N6	2.29	123.83	120.35
9	B	2001	AGS	C5-C6-N6	2.29	123.83	120.35
9	H	2001	AGS	C5-C6-N6	2.29	123.83	120.35
9	4	2001	AGS	C5-C6-N6	2.28	123.82	120.35
9	G	2001	AGS	C5-C6-N6	2.28	123.81	120.35
9	7	2001	AGS	C5-C6-N6	2.27	123.80	120.35
9	5	2001	AGS	C5-C6-N6	2.27	123.80	120.35
9	E	2001	AGS	C5-C6-N6	2.27	123.80	120.35
9	F	2001	AGS	C5-C6-N6	2.27	123.80	120.35
9	6	2001	AGS	C5-C6-N6	2.25	123.78	120.35
9	D	2001	AGS	C5-C6-N6	2.23	123.74	120.35

There are no chirality outliers.

All (62) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	2	2001	AGS	C5'-O5'-PA-O1A
9	2	2001	AGS	C5'-O5'-PA-O2A
9	2	2001	AGS	C5'-O5'-PA-O3A
9	2	2001	AGS	O4'-C4'-C5'-O5'
9	4	2001	AGS	C5'-O5'-PA-O2A
9	5	2001	AGS	C5'-O5'-PA-O2A
9	6	2001	AGS	PB-O3B-PG-O2G
9	7	2001	AGS	C5'-O5'-PA-O3A
9	B	2001	AGS	PB-O3B-PG-O2G
9	B	2001	AGS	PB-O3B-PG-O3G
9	B	2001	AGS	C5'-O5'-PA-O3A
9	D	2001	AGS	PB-O3B-PG-O2G
9	D	2001	AGS	PB-O3B-PG-O3G
9	D	2001	AGS	C5'-O5'-PA-O2A
9	E	2001	AGS	C5'-O5'-PA-O2A
9	F	2001	AGS	PB-O3B-PG-O2G
9	F	2001	AGS	C5'-O5'-PA-O3A
9	G	2001	AGS	C5'-O5'-PA-O3A
9	H	2001	AGS	C5'-O5'-PA-O3A
12	C	2001	ADP	O4'-C4'-C5'-O5'
9	4	2001	AGS	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
9	D	2001	AGS	O4'-C4'-C5'-O5'
9	E	2001	AGS	O4'-C4'-C5'-O5'
12	C	2001	ADP	C3'-C4'-C5'-O5'
9	D	2001	AGS	C3'-C4'-C5'-O5'
9	E	2001	AGS	C3'-C4'-C5'-O5'
9	F	2001	AGS	O4'-C4'-C5'-O5'
9	G	2001	AGS	O4'-C4'-C5'-O5'
12	3	2001	ADP	O4'-C4'-C5'-O5'
12	3	2001	ADP	C3'-C4'-C5'-O5'
9	4	2001	AGS	C3'-C4'-C5'-O5'
9	4	2001	AGS	C5'-O5'-PA-O3A
9	D	2001	AGS	C5'-O5'-PA-O3A
9	E	2001	AGS	C5'-O5'-PA-O3A
9	B	2001	AGS	PA-O3A-PB-O1B
9	4	2001	AGS	C5'-O5'-PA-O1A
9	5	2001	AGS	C5'-O5'-PA-O1A
9	7	2001	AGS	C5'-O5'-PA-O1A
9	7	2001	AGS	C5'-O5'-PA-O2A
9	B	2001	AGS	C5'-O5'-PA-O1A
9	B	2001	AGS	C5'-O5'-PA-O2A
9	D	2001	AGS	C5'-O5'-PA-O1A
9	E	2001	AGS	C5'-O5'-PA-O1A
9	F	2001	AGS	C5'-O5'-PA-O2A
9	G	2001	AGS	C5'-O5'-PA-O2A
9	H	2001	AGS	C5'-O5'-PA-O1A
9	E	2001	AGS	PG-O3B-PB-O2B
9	G	2001	AGS	PA-O3A-PB-O2B
9	H	2001	AGS	PA-O3A-PB-O2B
9	6	2001	AGS	O4'-C4'-C5'-O5'
9	5	2001	AGS	PG-O3B-PB-O2B
9	H	2001	AGS	PG-O3B-PB-O2B
9	D	2001	AGS	C4'-C5'-O5'-PA
9	6	2001	AGS	PB-O3B-PG-O3G
9	7	2001	AGS	O4'-C4'-C5'-O5'
9	5	2001	AGS	C5'-O5'-PA-O3A
9	2	2001	AGS	PA-O3A-PB-O1B
9	G	2001	AGS	PA-O3A-PB-O1B
9	F	2001	AGS	C5'-O5'-PA-O1A
9	G	2001	AGS	C5'-O5'-PA-O1A
9	5	2001	AGS	O4'-C4'-C5'-O5'
9	B	2001	AGS	O4'-C4'-C5'-O5'

There are no ring outliers.

10 monomers are involved in 19 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	D	2001	AGS	4	0
9	5	2001	AGS	1	0
9	F	2001	AGS	1	0
9	H	2001	AGS	5	0
9	6	2001	AGS	2	0
9	4	2001	AGS	2	0
9	E	2001	AGS	1	0
9	G	2001	AGS	1	0
9	7	2001	AGS	1	0
12	3	2001	ADP	1	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.

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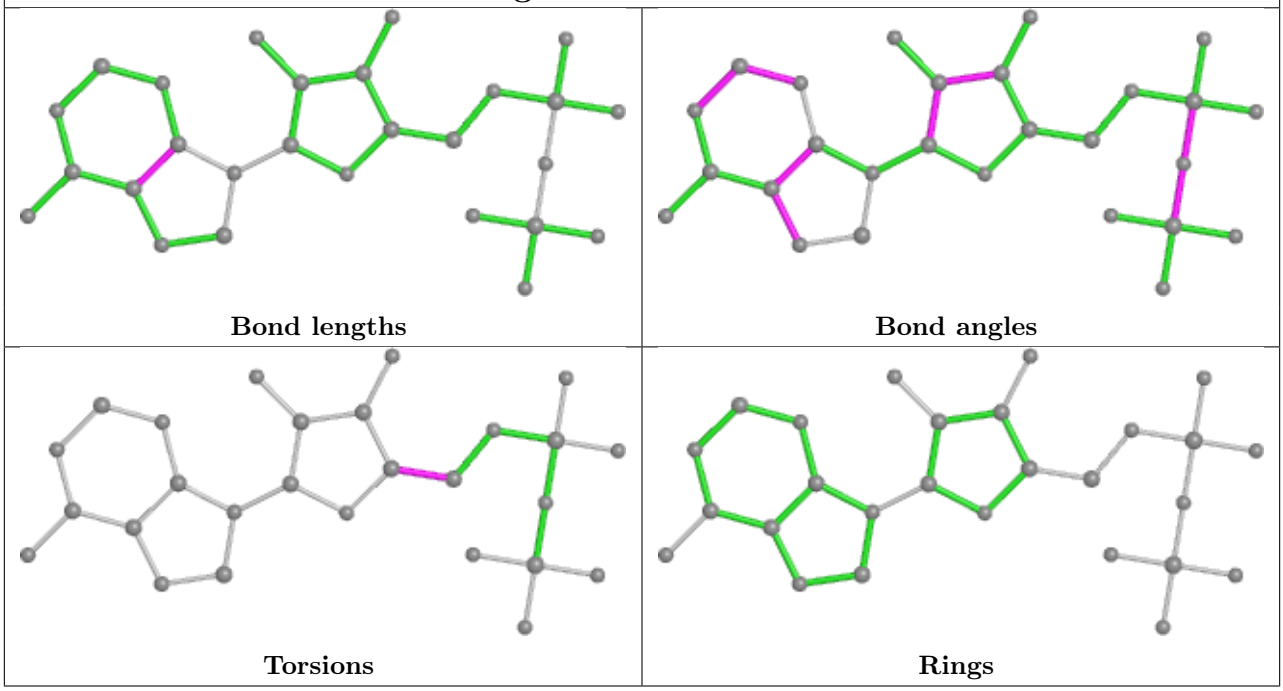
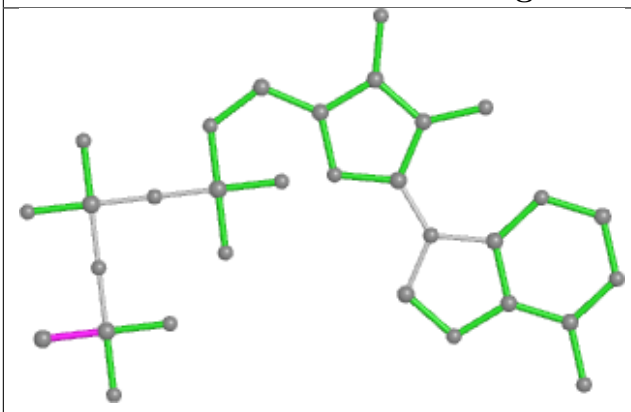


Ligand AGS B 2001



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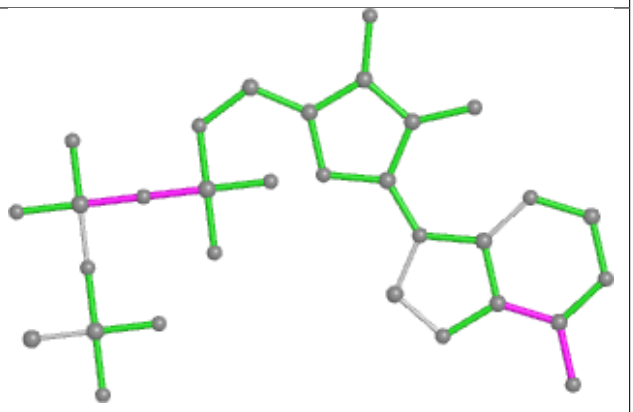
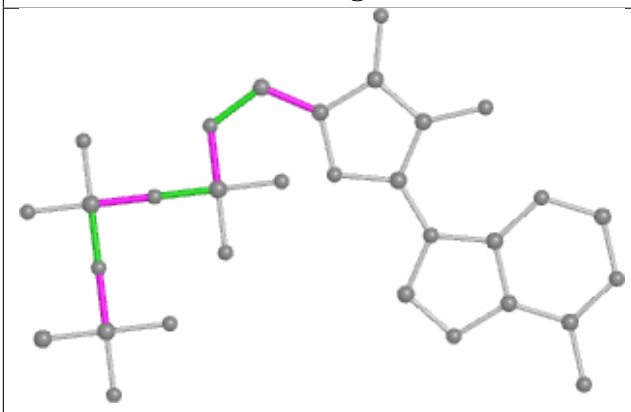
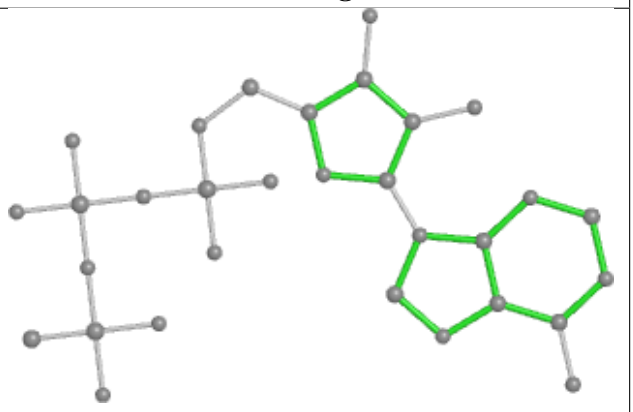


Bond angles

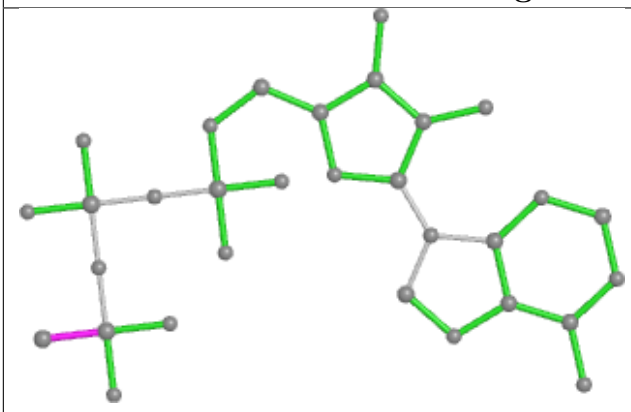


Torsions



Rings

Ligand AGS D 2001



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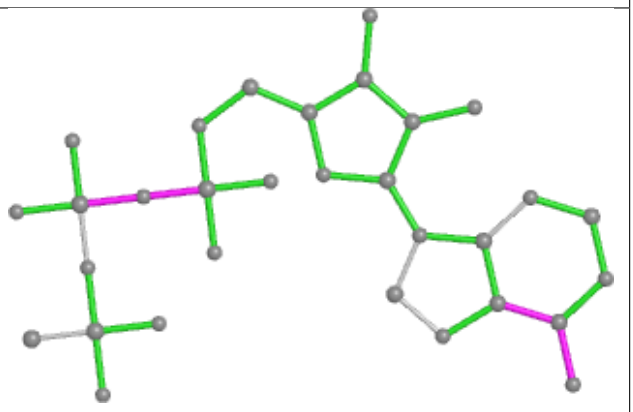

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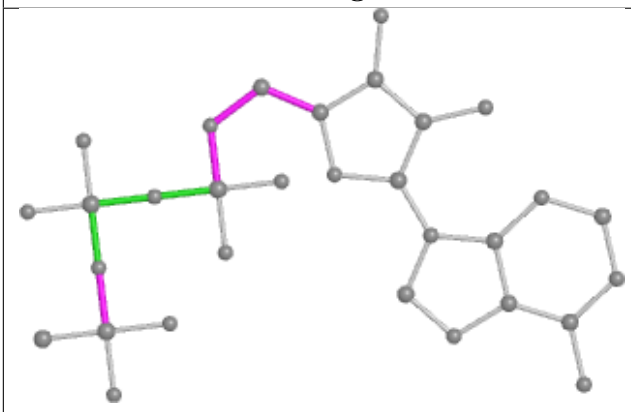

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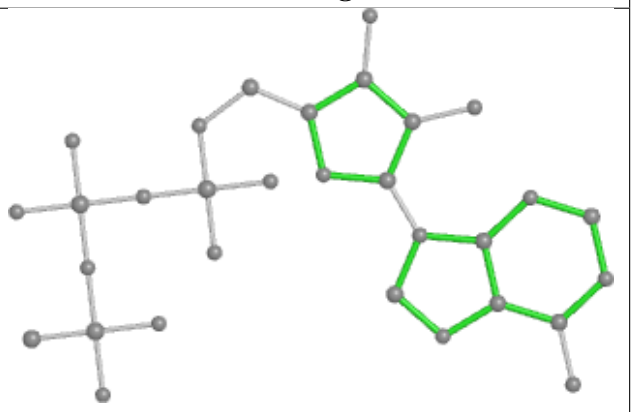
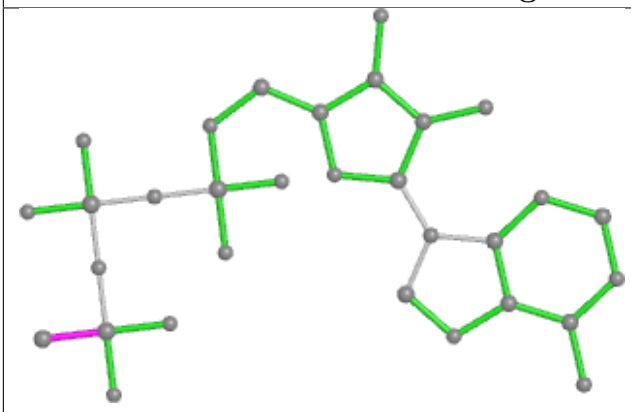


Rings

Ligand AGS 5 2001



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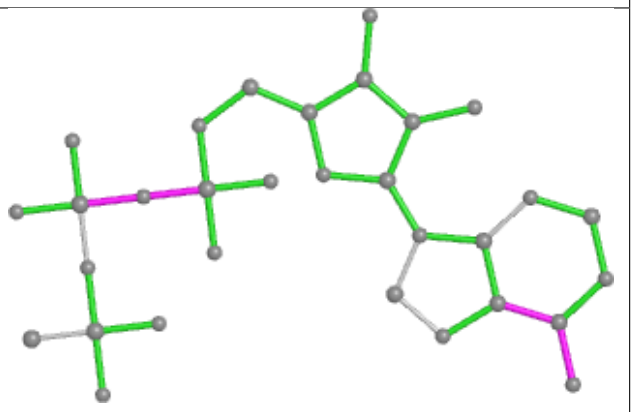

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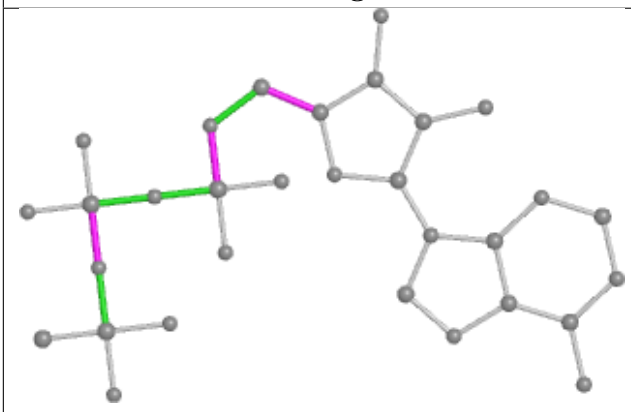

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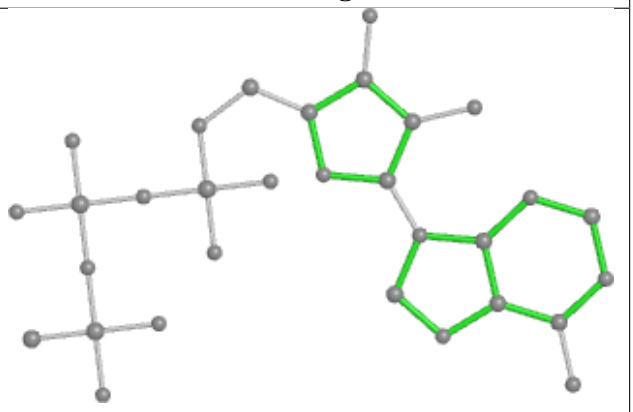
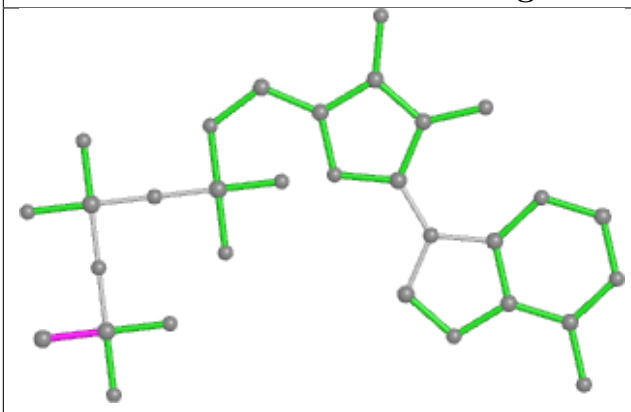


Rings

Ligand AGS F 2001



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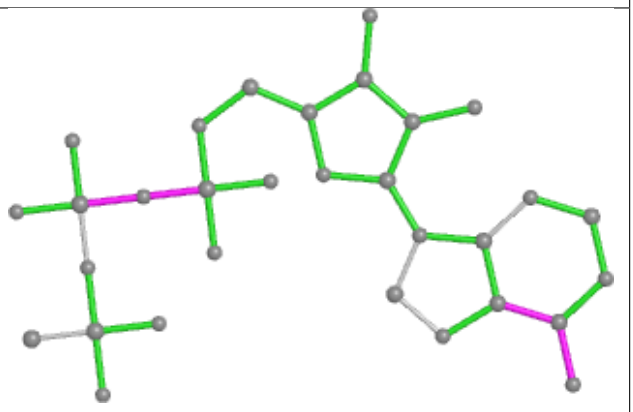
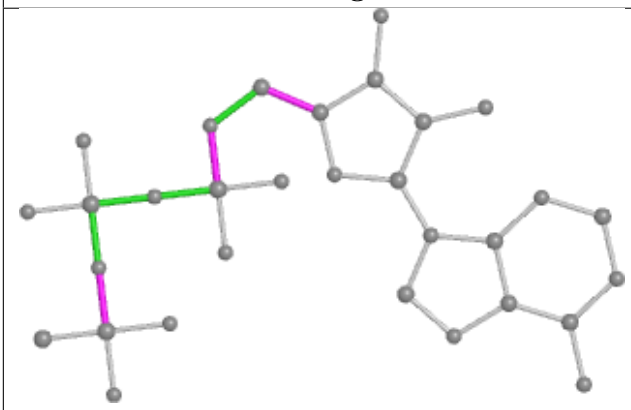


Bond angles



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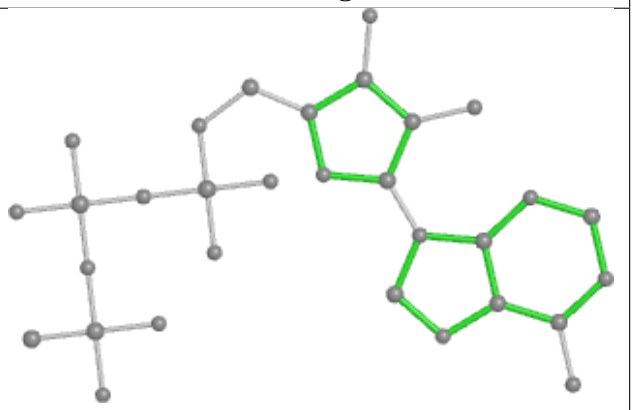
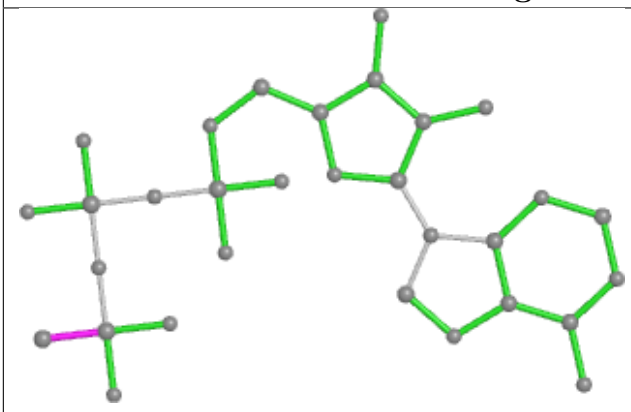


Rings

Ligand AGS H 2001



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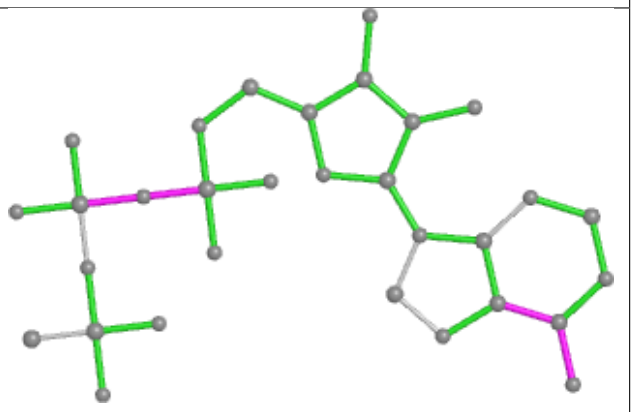

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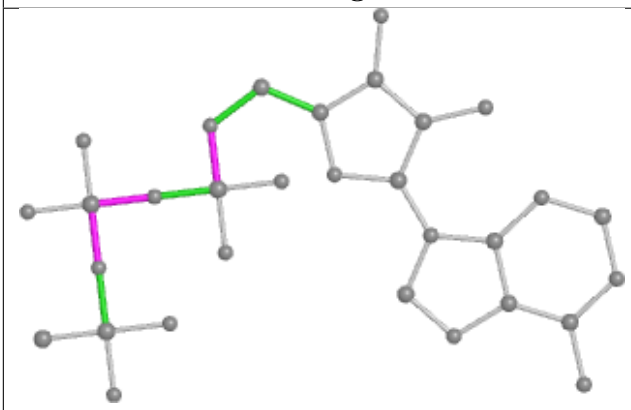

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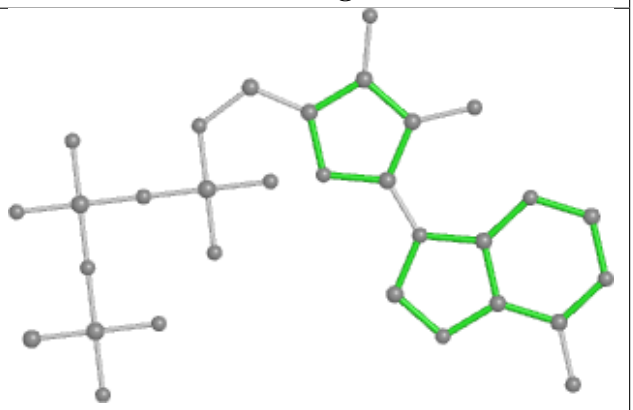

Rings

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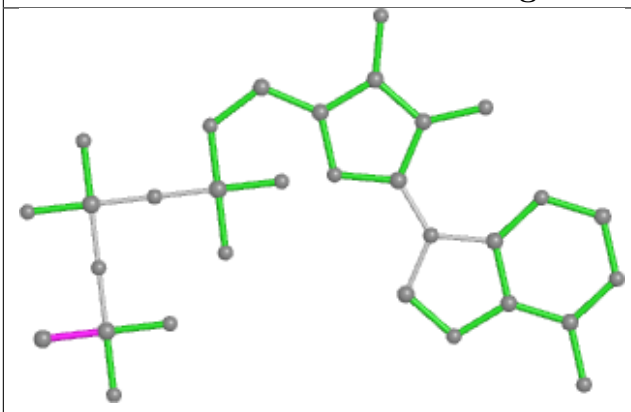

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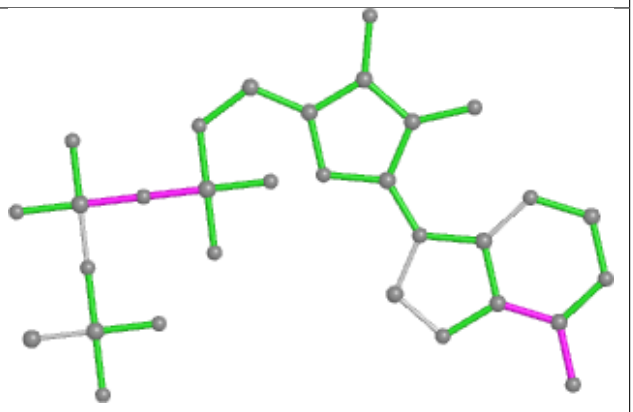

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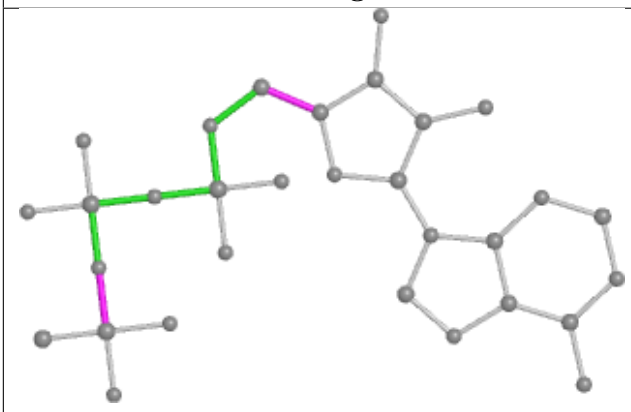

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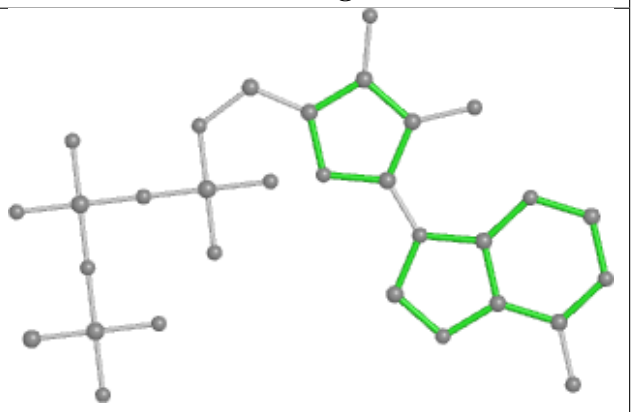
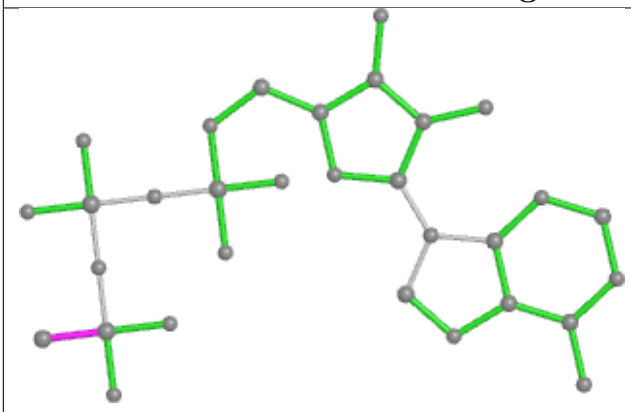


Rings

Ligand AGS 4 2001



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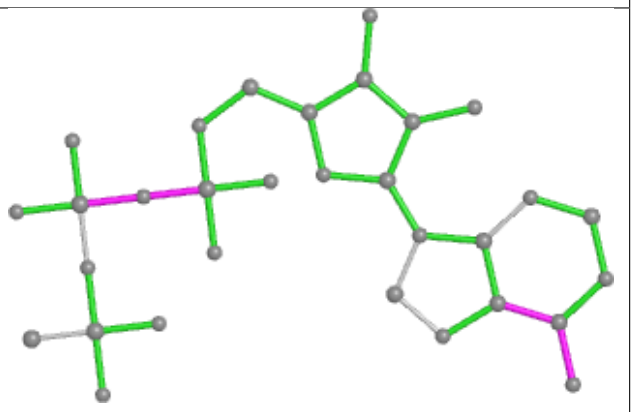

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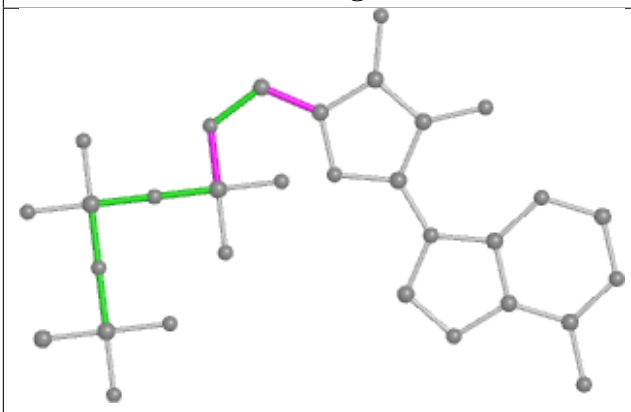

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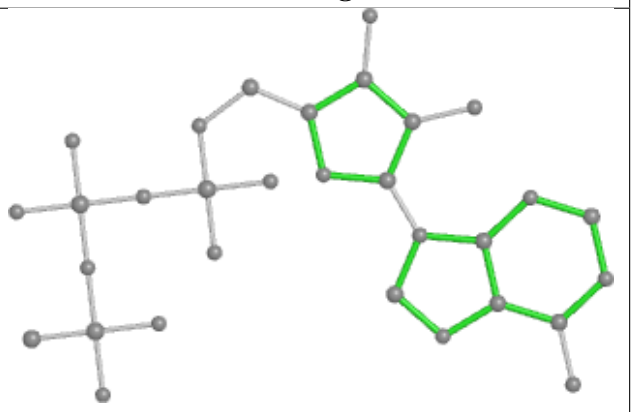
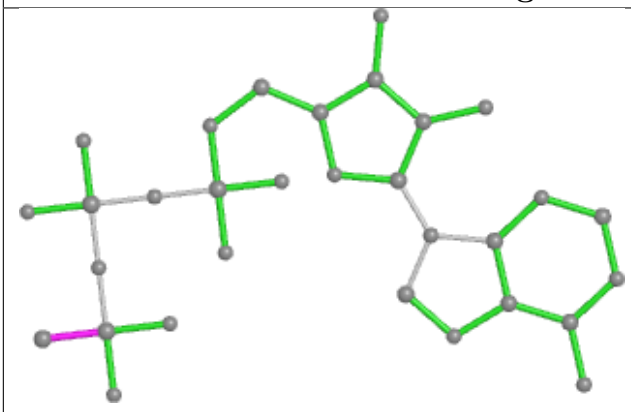


Rings

Ligand AGS E 2001



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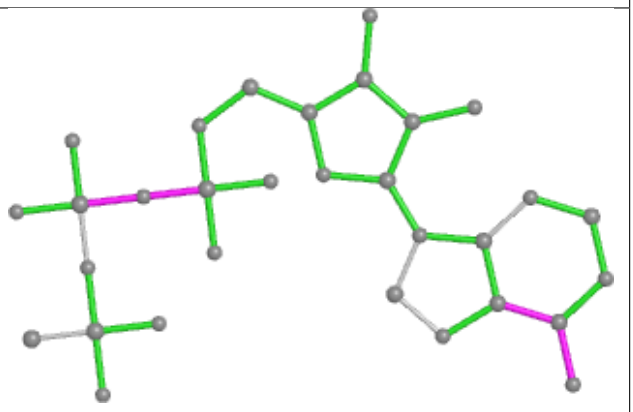

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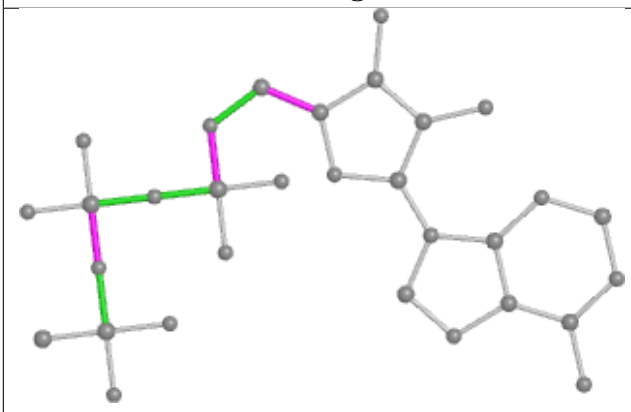

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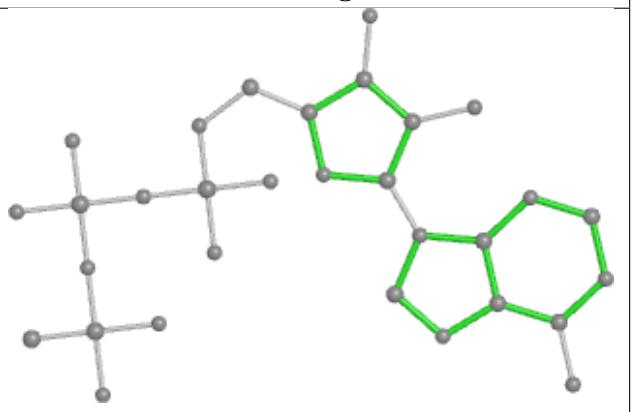
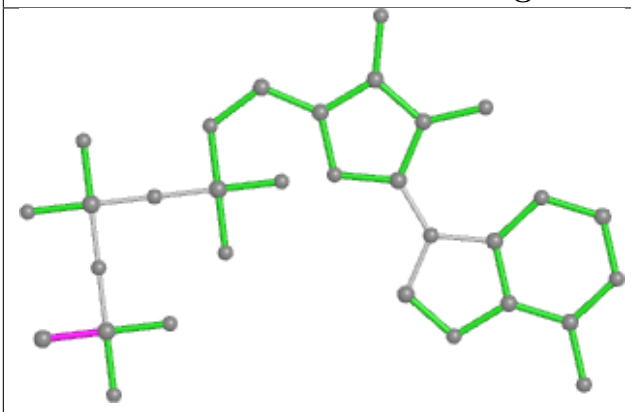


Rings

Ligand AGS G 2001



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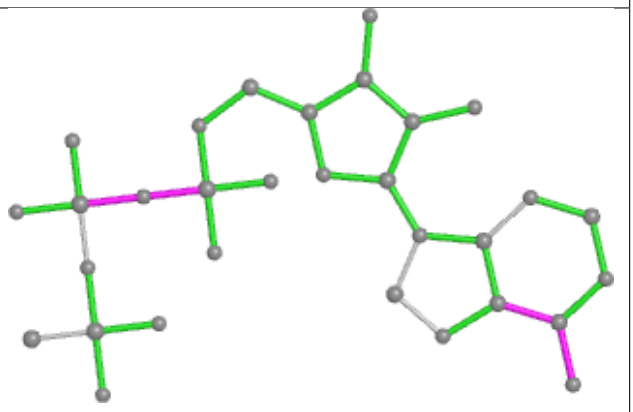
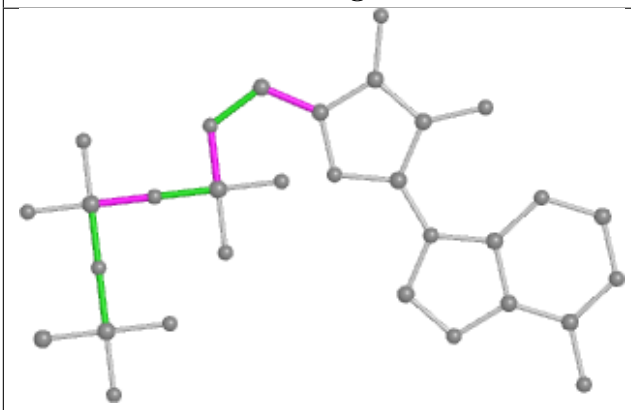


Bond angles



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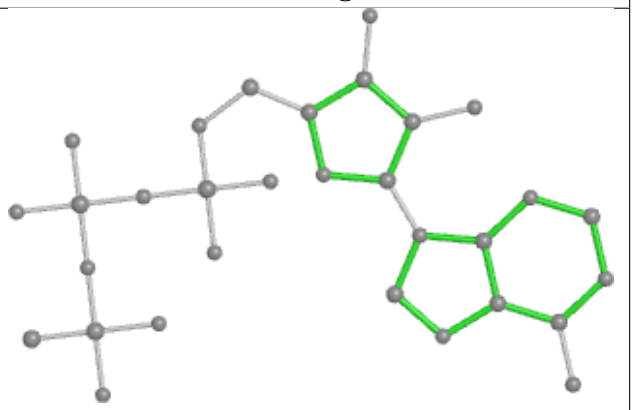
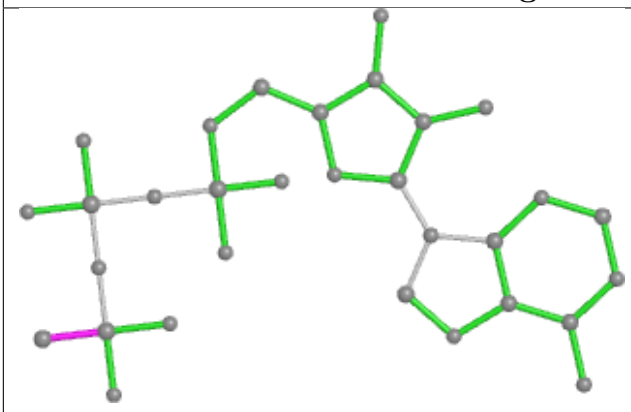


Rings

Ligand AGS 7 2001



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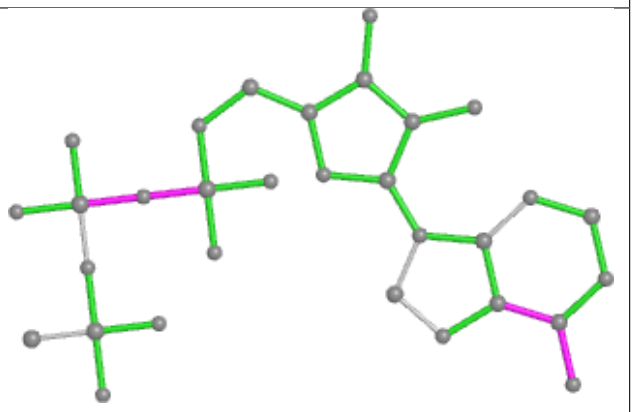
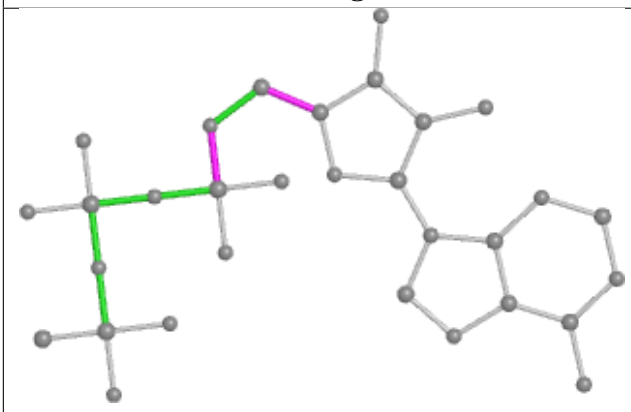
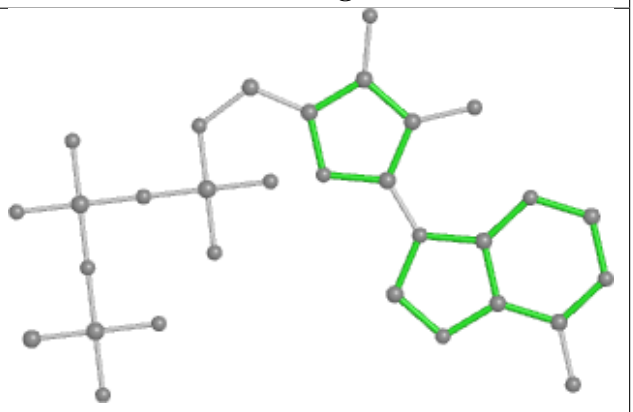


Bond angles

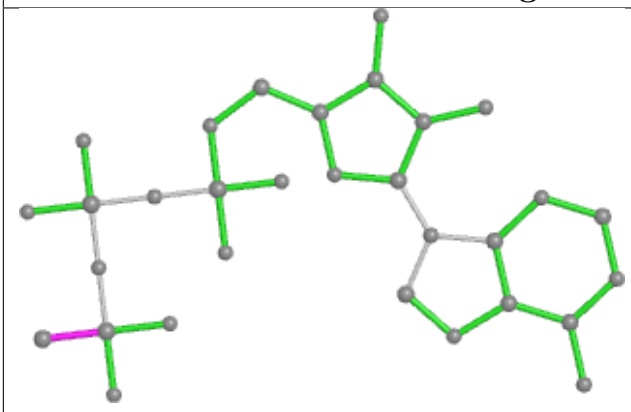


Torsions

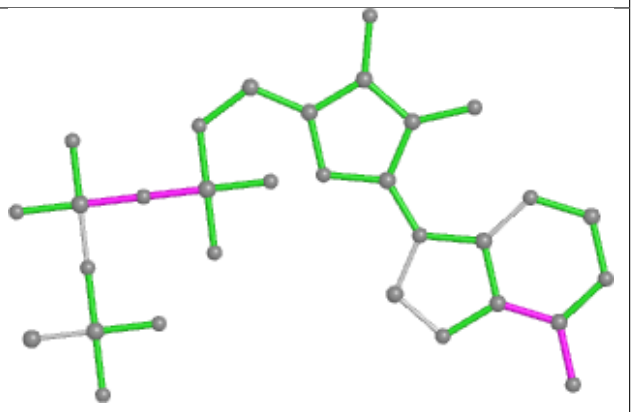


Rings

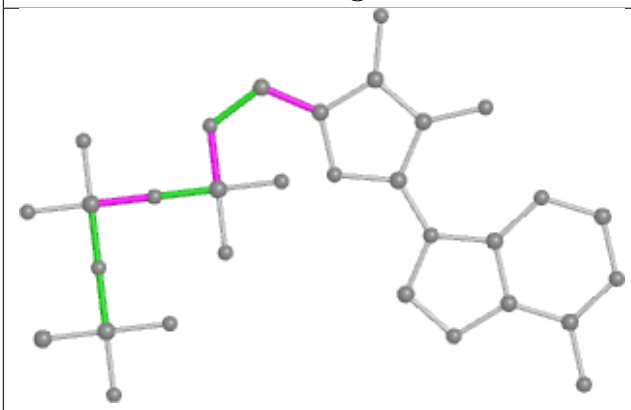
Ligand AGS 2 2001



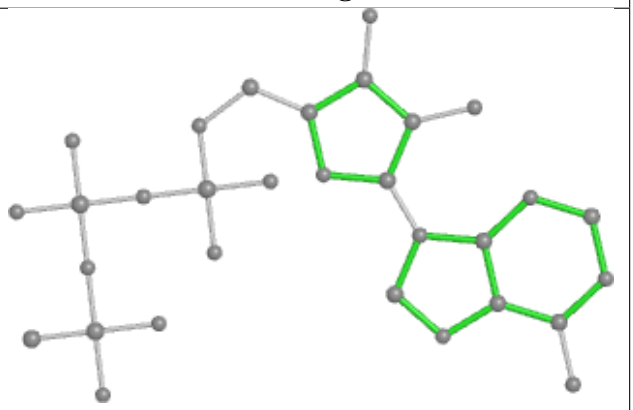
Bond lengths



Bond angles

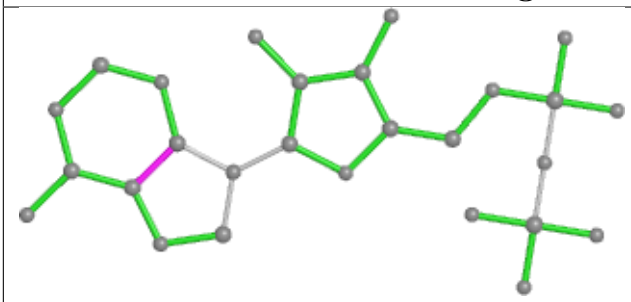


Torsions

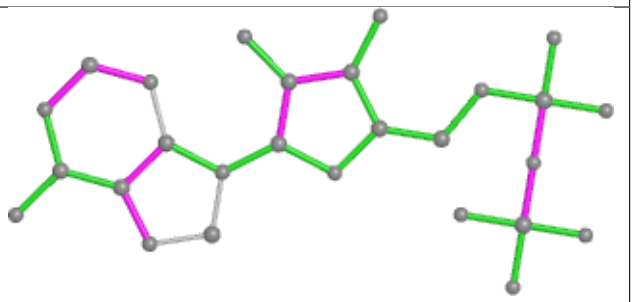


Rings

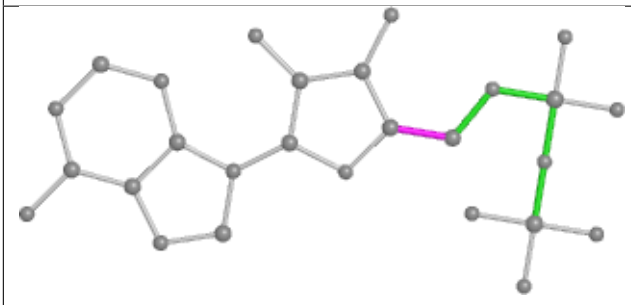
Ligand ADP 3 2001



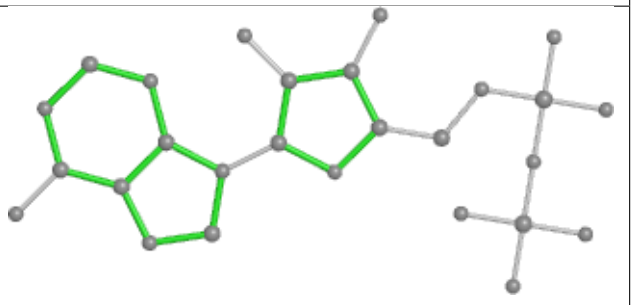
Bond lengths



Bond angles



Torsions



Rings

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.

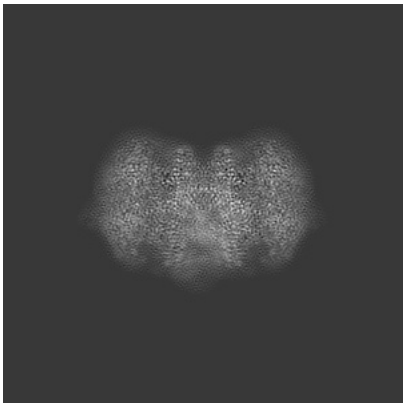
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-31685. These allow visual inspection of the internal detail of the map and identification of artifacts.

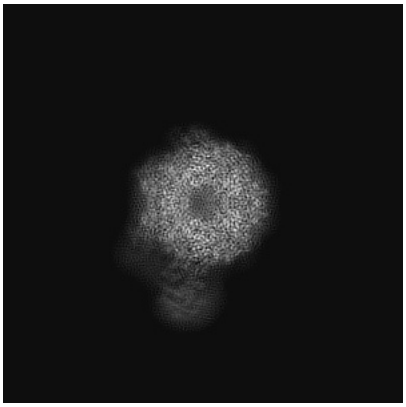
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

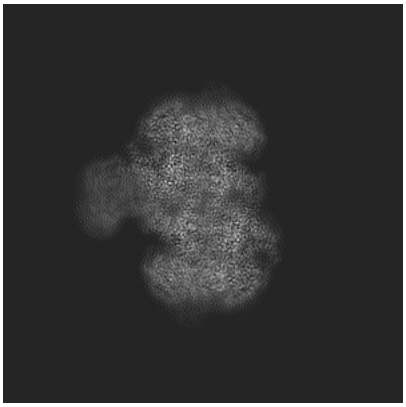
6.1.1 Primary map



X



Y

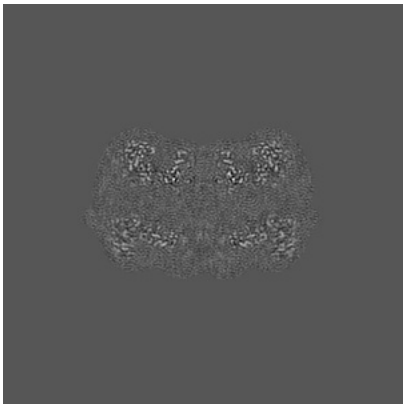


Z

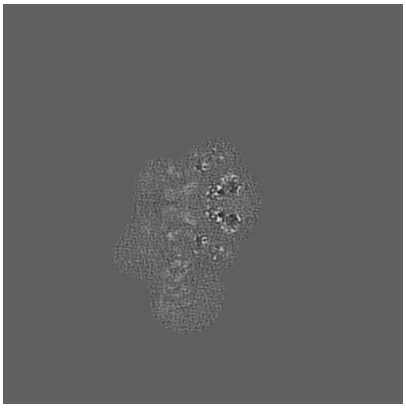
The images above show the map projected in three orthogonal directions.

6.2 Central slices

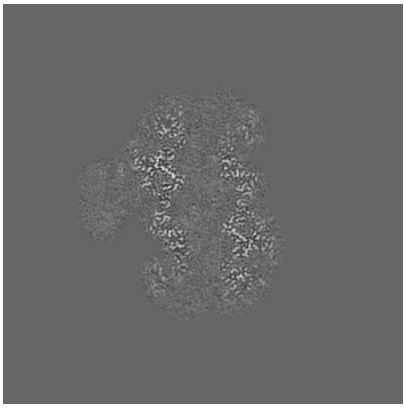
6.2.1 Primary map



X Index: 180



Y Index: 180

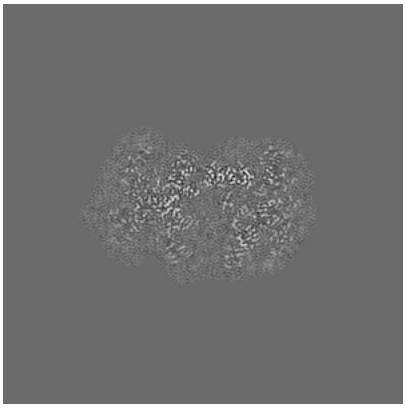


Z Index: 180

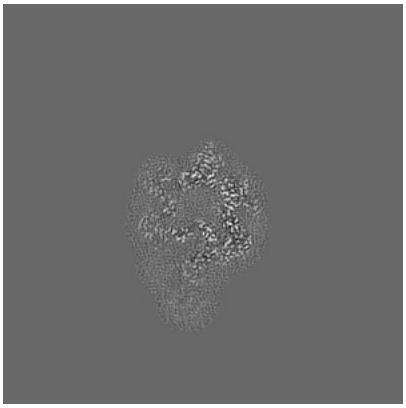
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

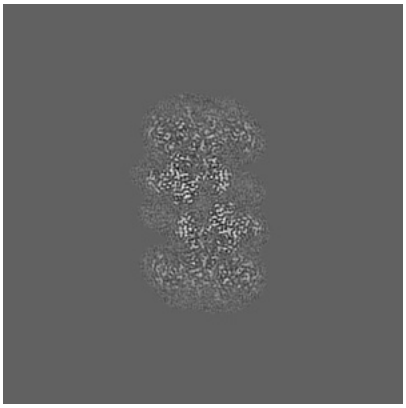
6.3.1 Primary map



X Index: 161



Y Index: 204

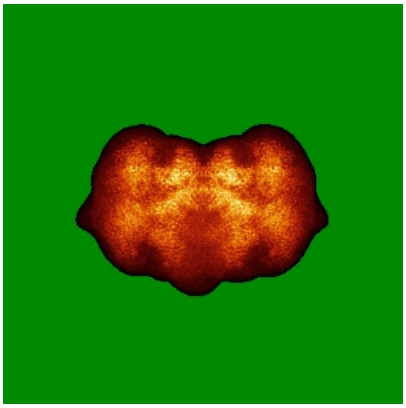


Z Index: 206

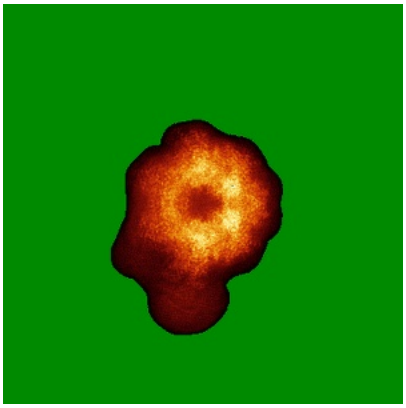
The images above show the largest variance slices of the map in three orthogonal directions.

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

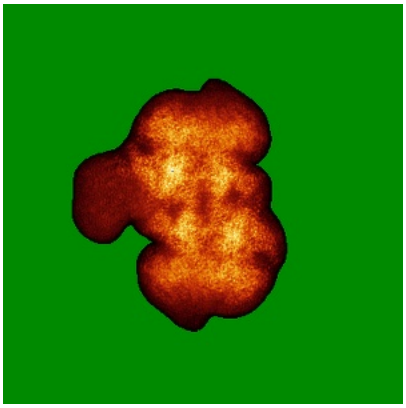
6.4.1 Primary map



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 0.07. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

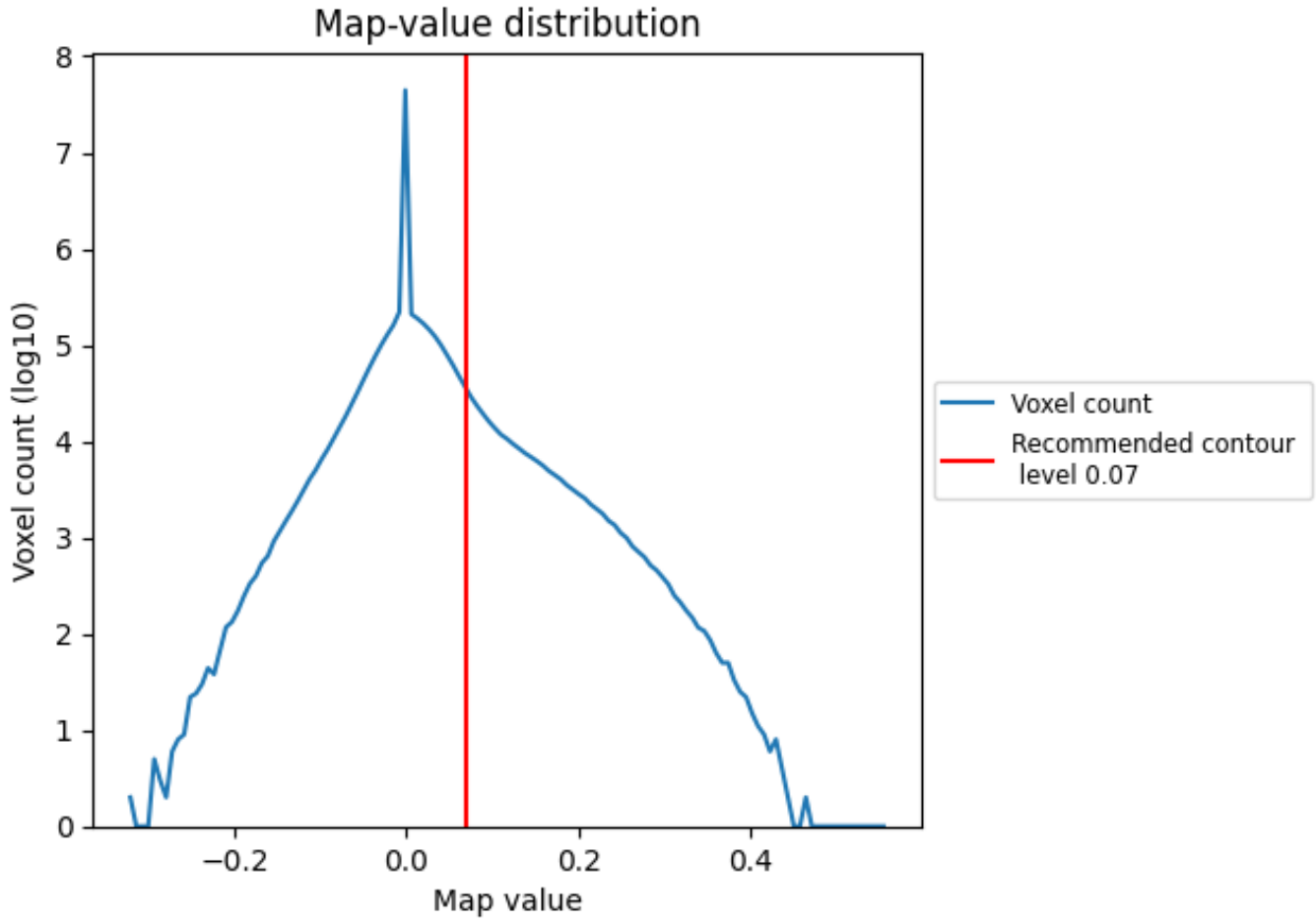
6.6 Mask visualisation (i)

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

7 Map analysis

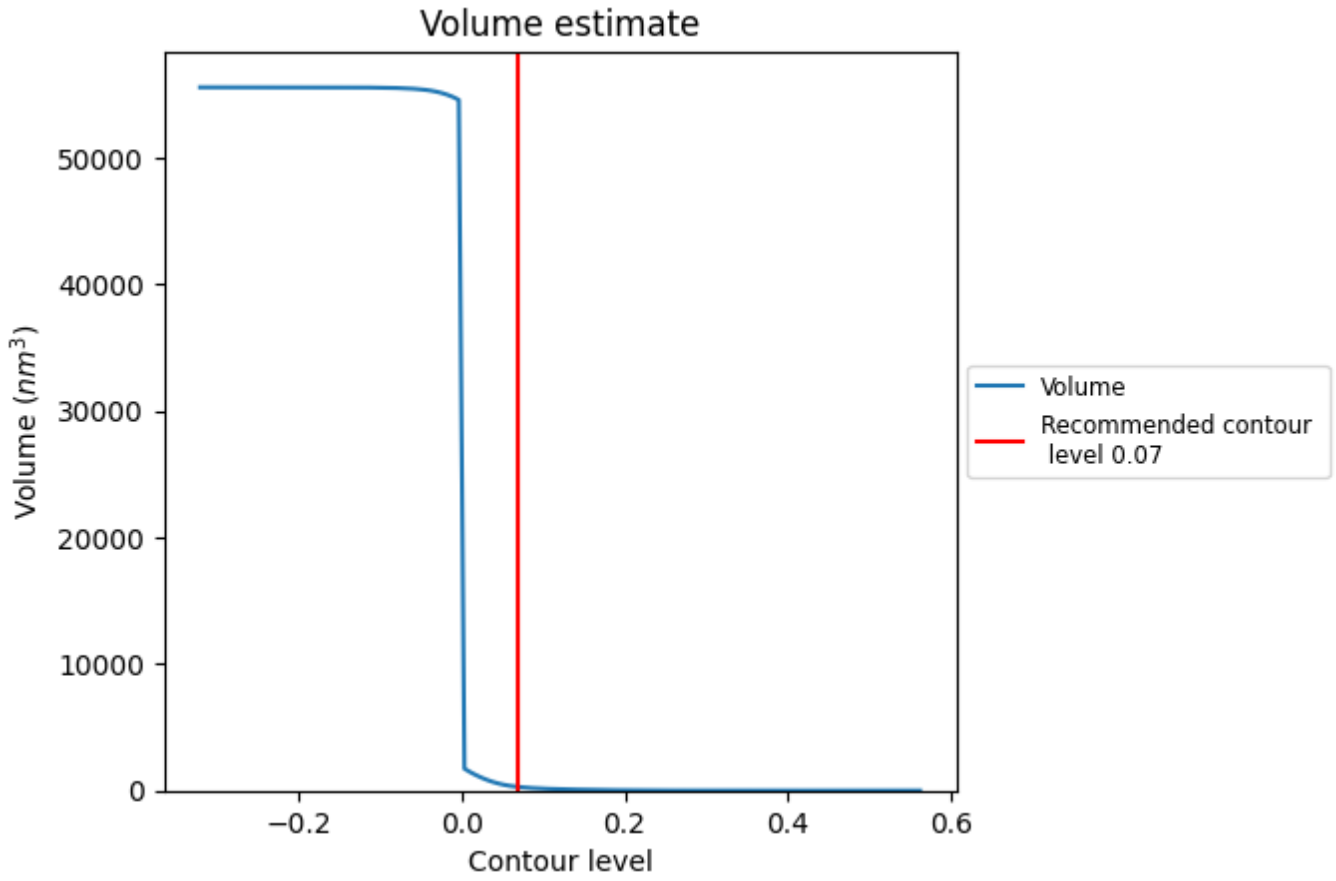
This section contains the results of statistical analysis of the map.

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.

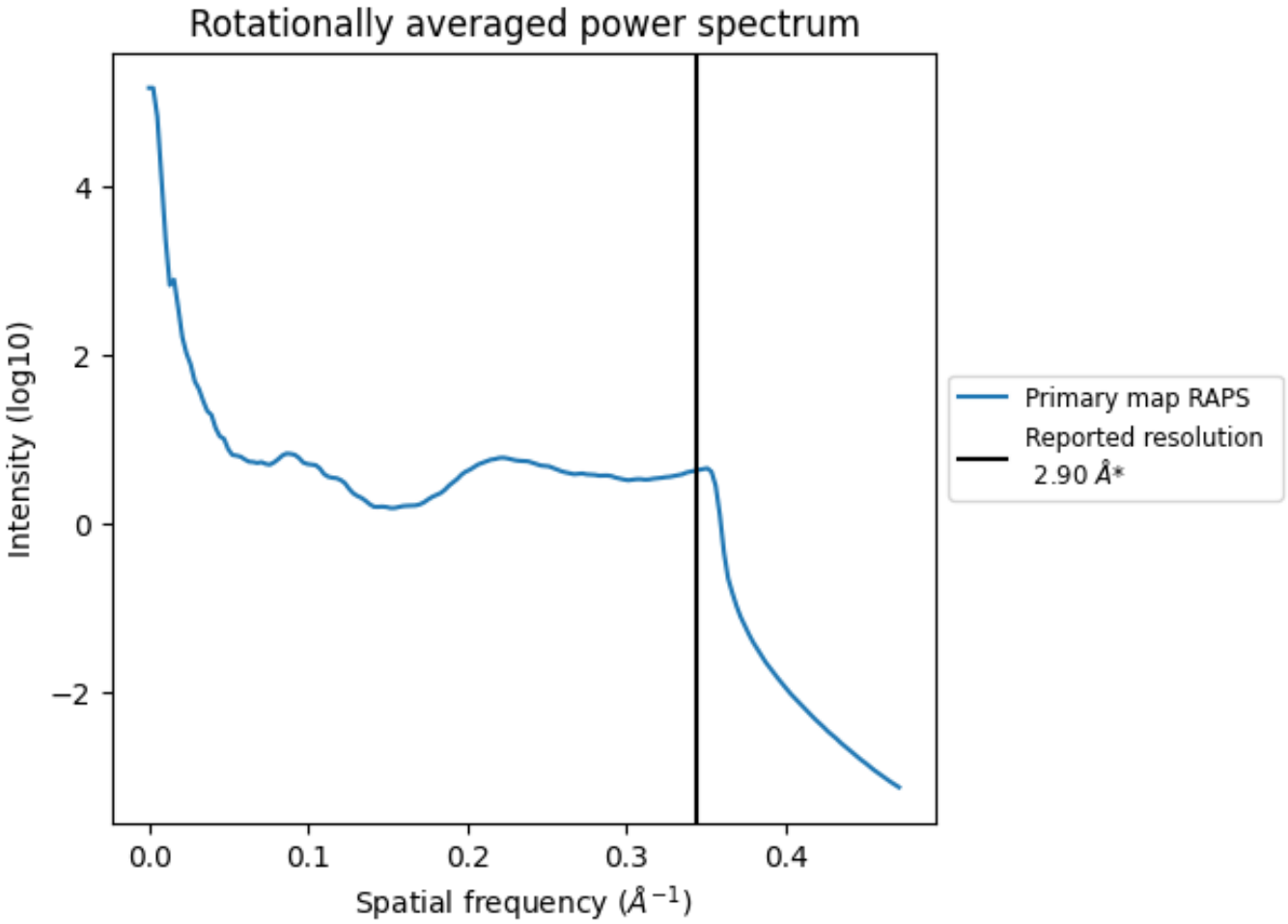
7.2 Volume estimate



The volume at the recommended contour level is 284 nm^3; this corresponds to an approximate mass of 257 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 0.345 $Å^{-1}$

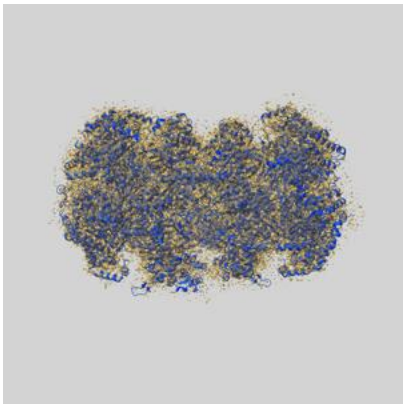
8 Fourier-Shell correlation

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

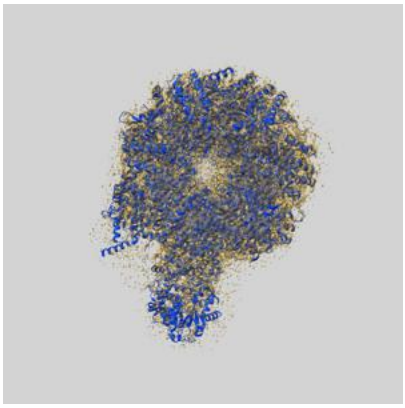
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-31685 and PDB model 7V3V. Per-residue inclusion information can be found in section 3 on page 9.

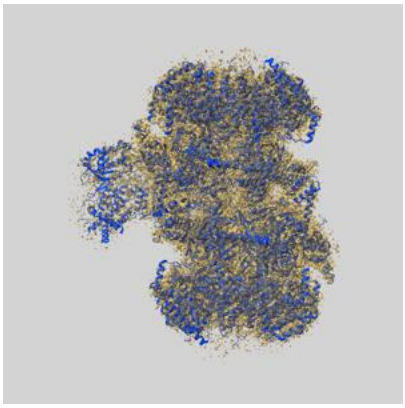
9.1 Map-model overlay



X



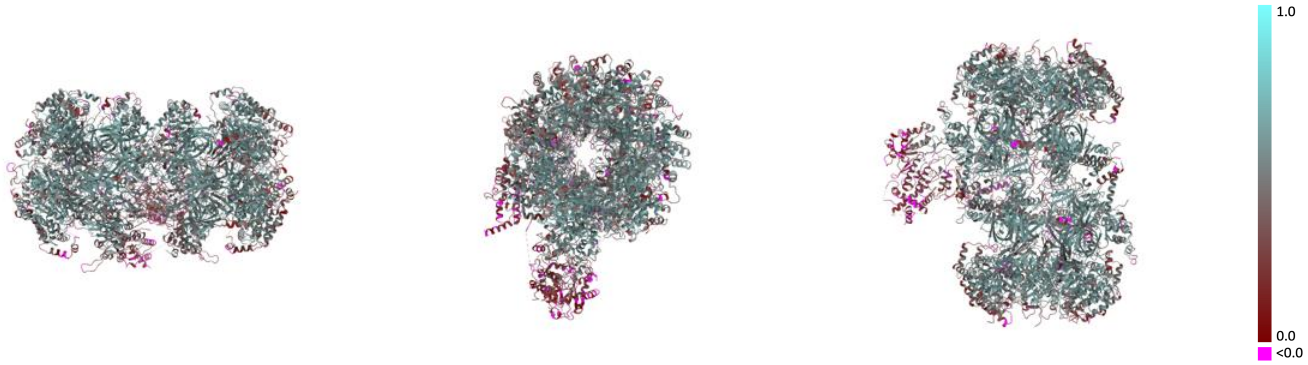
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.07 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.

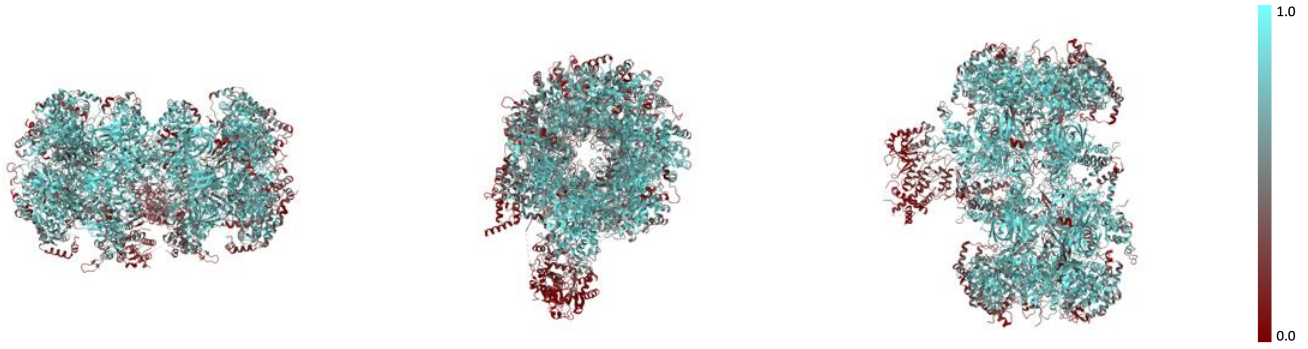
9.2 Q-score mapped to coordinate model



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.

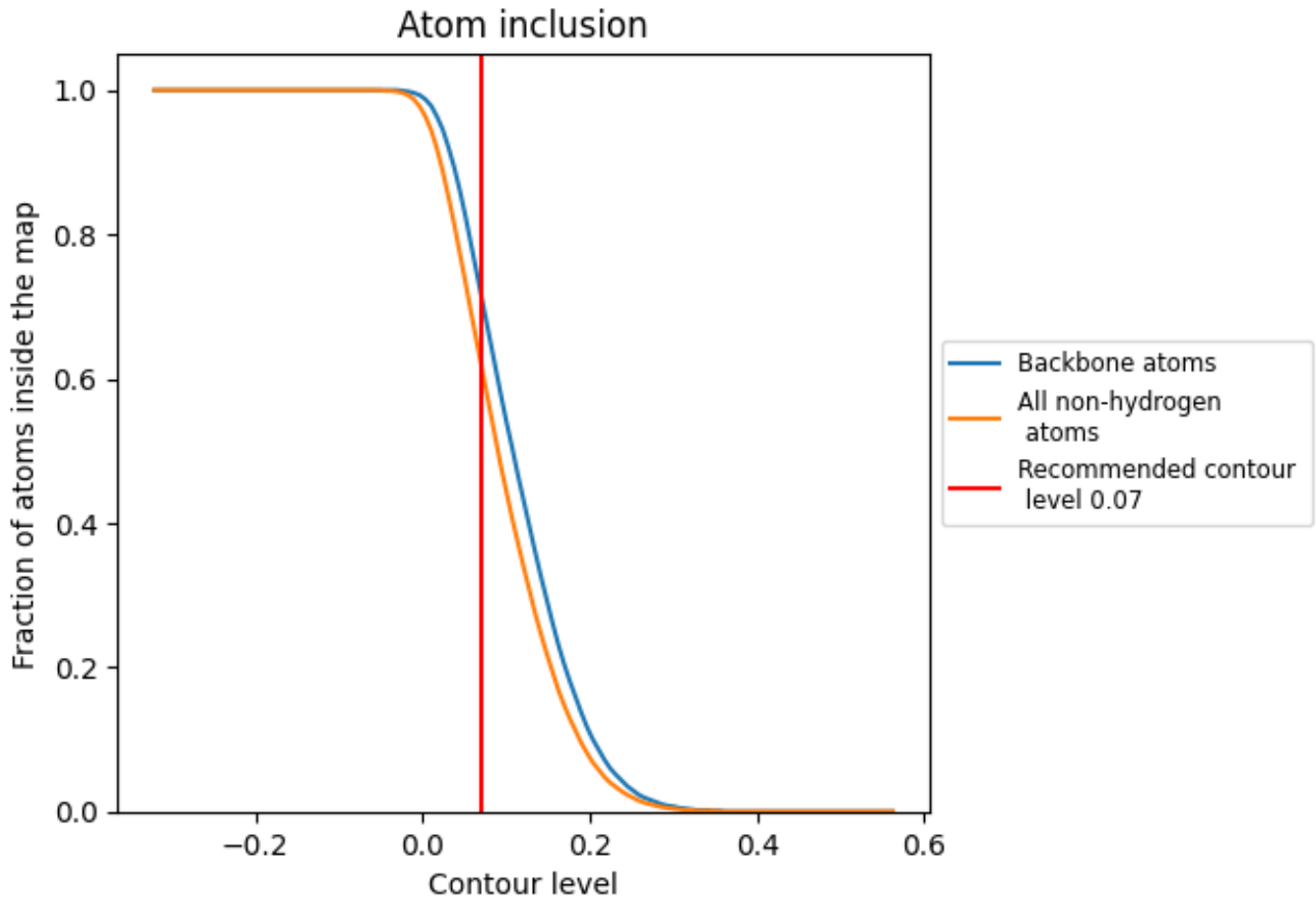
9.3 Atom inclusion mapped to coordinate model



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 (0.07).

9.4 Atom inclusion (i)



At the recommended contour level, 72% of all backbone atoms, 62% 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 (0.07) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6190	0.4770
2	0.5770	0.4640
3	0.7200	0.5300
4	0.7470	0.5450
5	0.6450	0.4940
6	0.6110	0.4710
7	0.7210	0.5310
B	0.5720	0.4580
C	0.7240	0.5360
D	0.7010	0.5250
E	0.6490	0.4970
F	0.5880	0.4610
G	0.6950	0.5190
H	0.1200	0.1960
I	0.1840	0.2110