Full wwPDB EM Validation Report ⓘ

Nov 25, 2024 – 10:56 AM JST

PDB ID	:	8XKS
EMDB ID	:	EMD-38424
Title	:	The cryo-EM structure of Orf2971-FtsHi motor complex
Authors	:	Wang, N.; Li, M.
Deposited on	:	2023-12-24
Resolution	:	3.20 Å(reported)

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

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

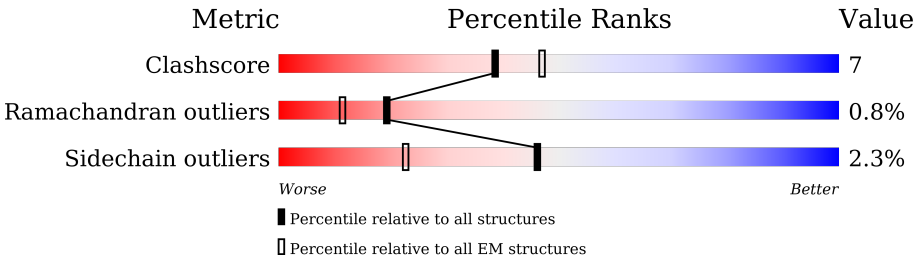
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

1 Overall quality at a glance

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

The reported resolution of this entry is 3.20 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
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	A	982	5% 59% 13% • 27%
2	B	1024	7% 49% 9% • 41%
3	C	462	• 69% 14% • 15%
4	D	1178	5% 66% 16% • 18%
5	E	2971	• 38% 11% • 51%
6	F	1058	• 50% 13% • 36%
6	G	1058	• 51% 12% • 36%
7	H	691	• 57% 15% 28%

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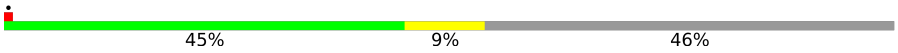
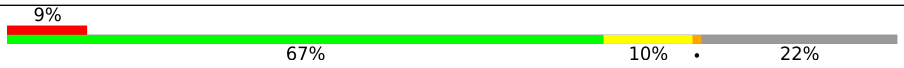
Mol	Chain	Length	Quality of chain
8	I	330	
9	J	365	
10	K	682	
11	L	255	
12	M	303	
13	N	324	
14	O	471	
15	P	555	
16	Q	495	
17	R	117	
18	S	137	
19	T	299	

2 Entry composition (i)

There are 25 unique types of molecules in this entry. The entry contains 67528 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 Ctap1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	715	5557	3504	1001	1038	14	0	0

- Molecule 2 is a protein called Fhl2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	603	4588	2880	830	859	19	0	0

- Molecule 3 is a protein called 4Fe-4S ferredoxin-type domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	391	3085	1940	555	569	21	0	0

- Molecule 4 is a protein called AAA+ ATPase domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	971	7551	4796	1323	1396	36	0	0

- Molecule 5 is a protein called Uncharacterized 341.7 kDa protein in psbD-psbC intergenic region.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	1458	12035	7819	2048	2142	26	0	0

- Molecule 6 is a protein called AAA+ ATPase domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	676	5216	3291	927	967	31	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	674	Total 5260	C 3327	N 928	O 977	S 28	0	0

- Molecule 7 is a protein called Flagellar associated protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	500	Total 3670	C 2289	N 681	O 690	S 10	0	0

- Molecule 8 is a protein called Tic22.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	I	204	Total 1619	C 1035	N 277	O 298	S 9	0	0

- Molecule 9 is a protein called FaxL.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	J	274	Total 2101	C 1326	N 393	O 368	S 14	0	0

- Molecule 10 is a protein called Fatty acid desaturase domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	K	370	Total 2853	C 1866	N 486	O 485	S 16	0	0

- Molecule 11 is a protein called Moc25.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	L	185	Total 1541	C 1017	N 267	O 250	S 7	0	0

- Molecule 12 is a protein called Moc29.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	M	135	Total 1127	C 762	N 185	O 176	S 4	0	0

- Molecule 13 is a protein called Moc34.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	N	125	Total	C	N	O	S	0	0
			1005	627	181	196	1		

- Molecule 14 is a protein called Moc45.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	O	197	Total	C	N	O	S	0	0
			1517	1012	246	253	6		

- Molecule 15 is a protein called PcyA1.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	P	406	Total	C	N	O	S	0	0
			3245	2061	547	616	21		

- Molecule 16 is a protein called ADP-ribosylglycohydrolase.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Q	386	Total	C	N	O	S	0	0
			2880	1811	531	534	4		

- Molecule 17 is a protein called Acyl carrier protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
17	R	85	Total	C	N	O	P	S	0	0
			633	393	99	137	1	3		

- Molecule 18 is a protein called Moc13.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	S	114	Total	C	N	O	S	0	0
			909	579	168	159	3		

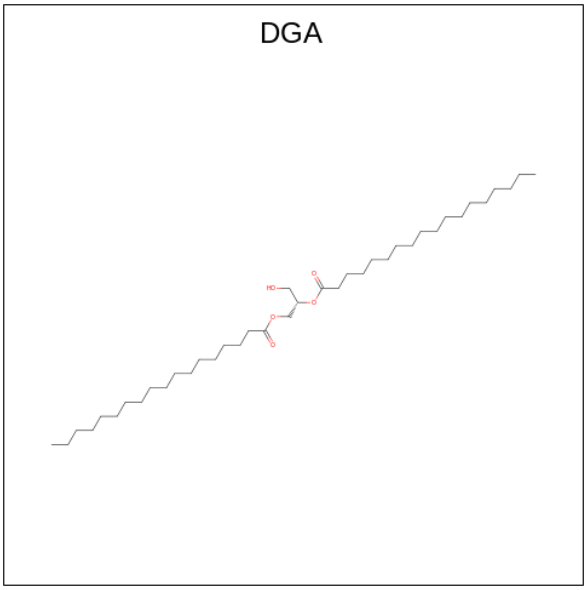
- Molecule 19 is a protein called Moc31.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	T	107	Total	C	N	O	S	0	0
			840	524	144	170	2		

- Molecule 20 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

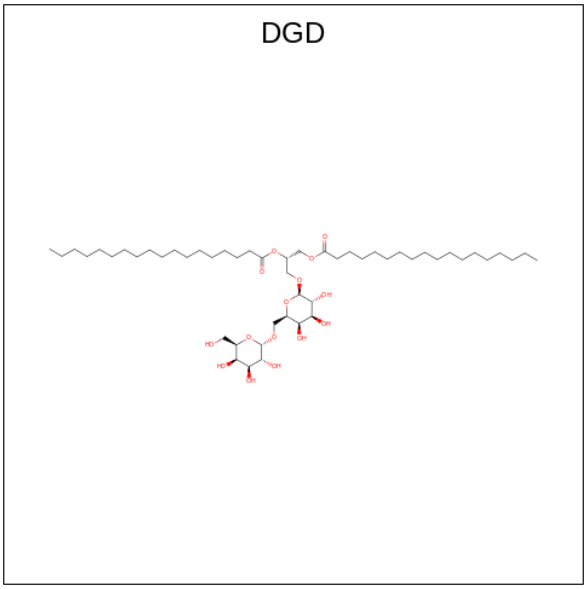
Mol	Chain	Residues	Atoms		AltConf
20	C	2	Total	Zn	0
			2	2	

- Molecule 21 is DIACYL GLYCEROL (three-letter code: DGA) (formula: $C_{39}H_{76}O_5$) (labeled as "Ligand of Interest" by depositor).



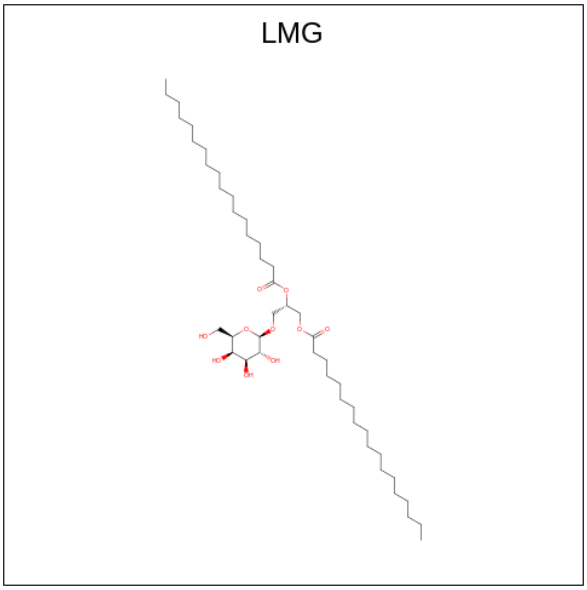
Mol	Chain	Residues	Atoms			AltConf
21	H	1	Total	C	O	0
			36	31	5	

- Molecule 22 is DIGALACTOSYL DIACYL GLYCEROL (DGDG) (three-letter code: DGD) (formula: $C_{51}H_{96}O_{15}$).



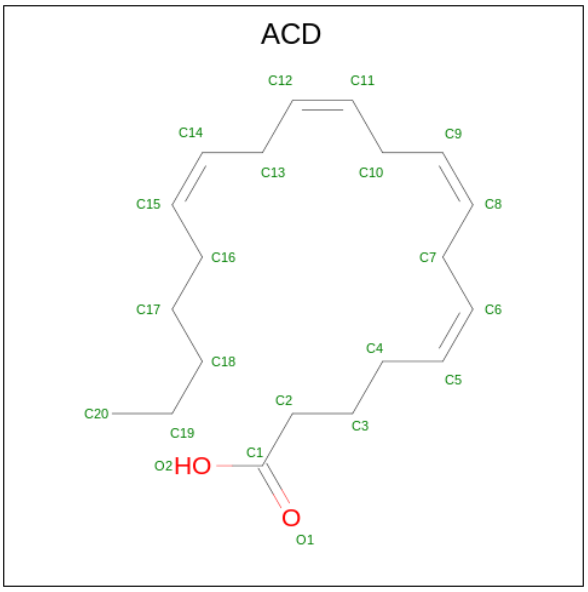
Mol	Chain	Residues	Atoms			AltConf
22	J	1	Total 47	C 32	O 15	0
22	L	1	Total 66	C 51	O 15	0

- Molecule 23 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (three-letter code: LMG) (formula: $C_{45}H_{86}O_{10}$).



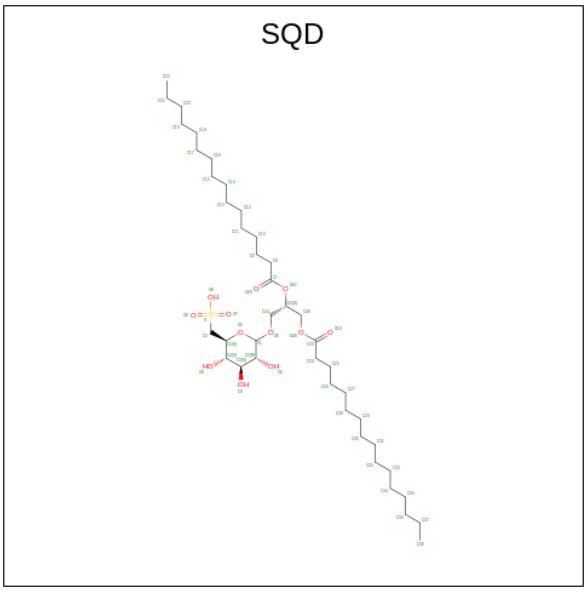
Mol	Chain	Residues	Atoms			AltConf
23	J	1	Total 41	C 31	O 10	0
23	L	1	Total 47	C 37	O 10	0

- Molecule 24 is ARACHIDONIC ACID (three-letter code: ACD) (formula: $C_{20}H_{32}O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
24	K	1	21	20	1	0

- Molecule 25 is 1,2-DI-O-ACYL-3-O-[6-DEOXY-6-SULFO-ALPHA-D-GLUCOPYRANOSYL]-SN-GLYCEROL (three-letter code: SQD) (formula: $C_{41}H_{78}O_{12}S$).



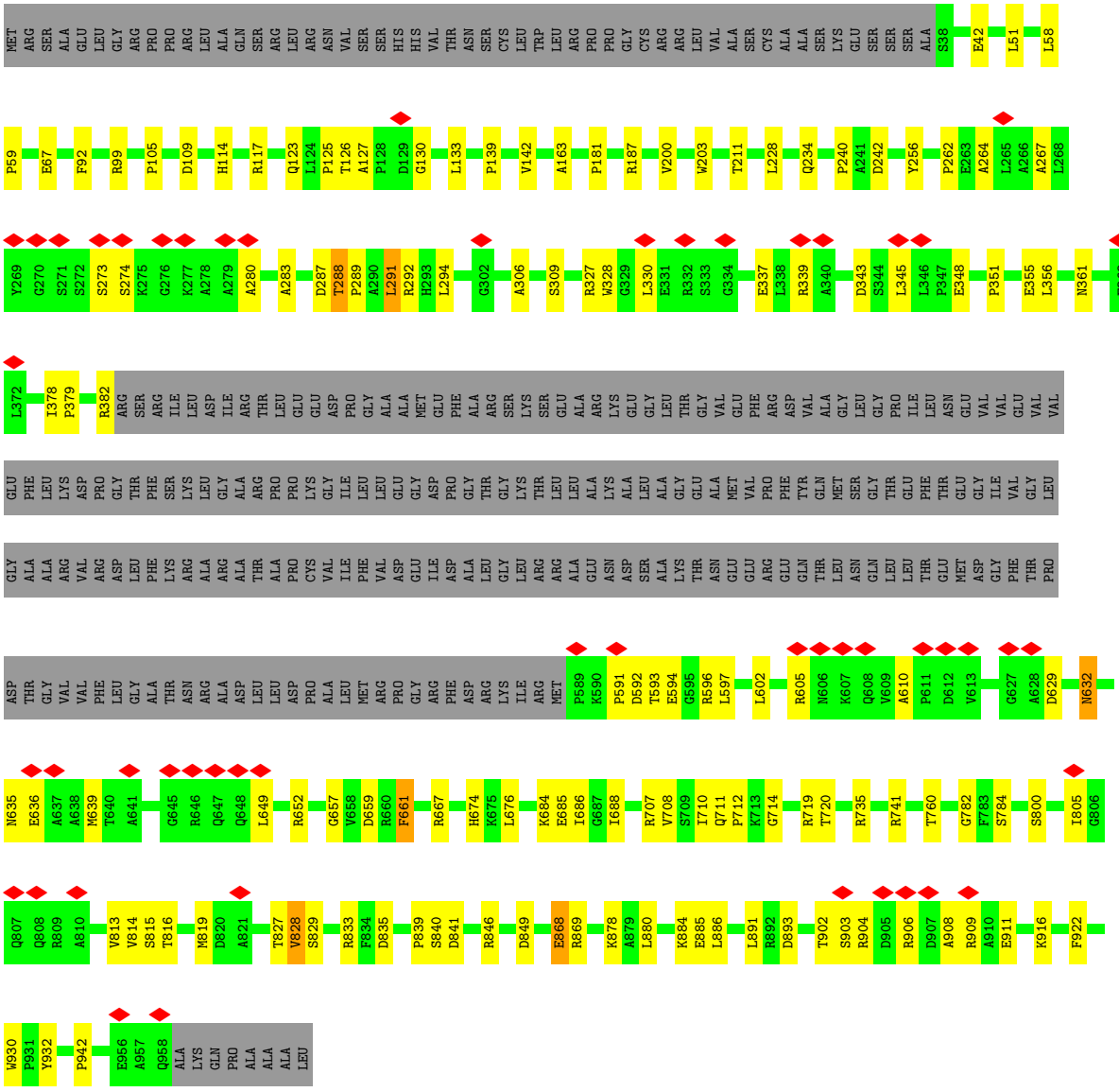
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	S	
25	L	1	36	23	12	1	0

3 Residue-property plots (i)

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

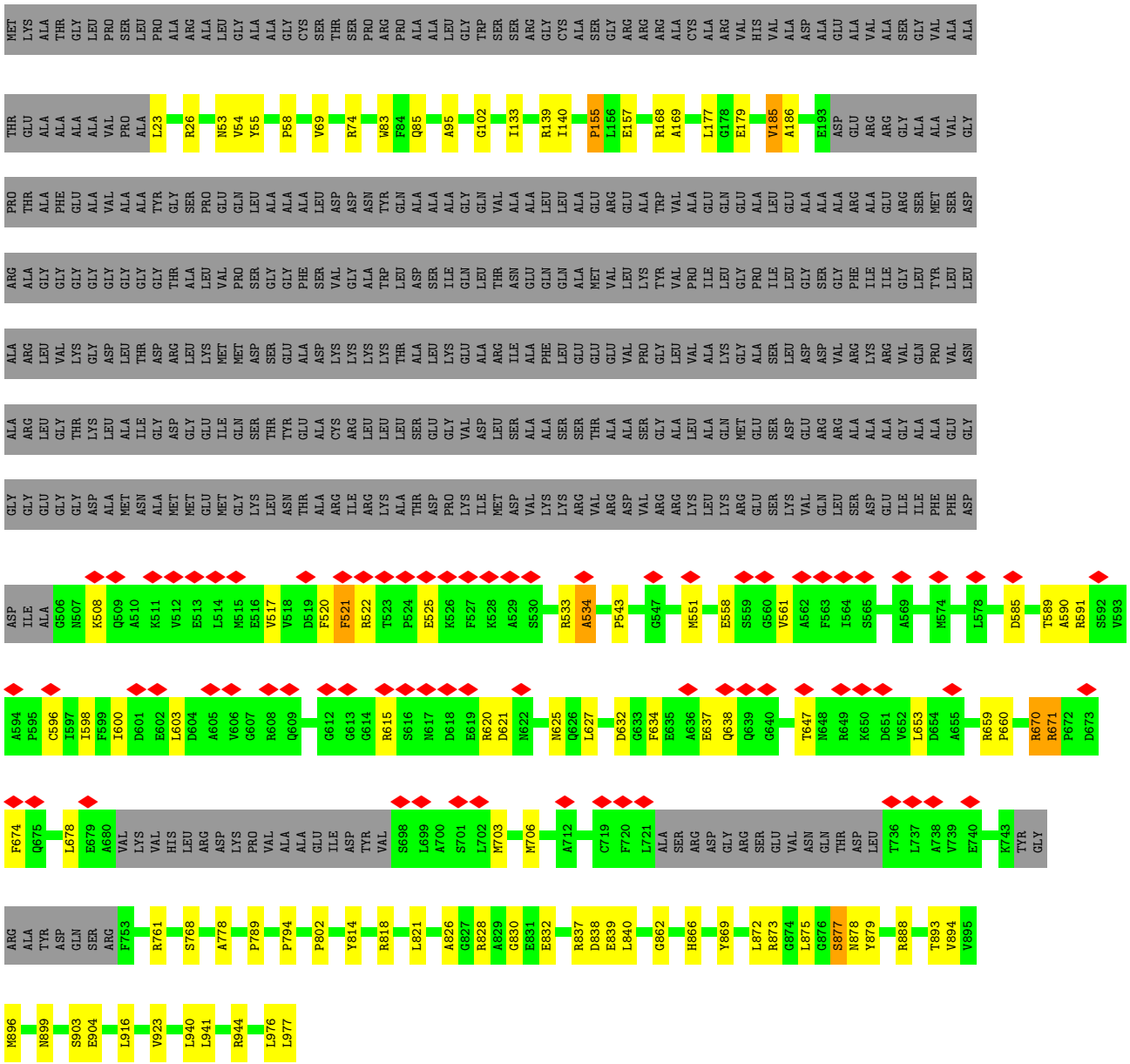
- Molecule 1: Ctap1

Chain A:



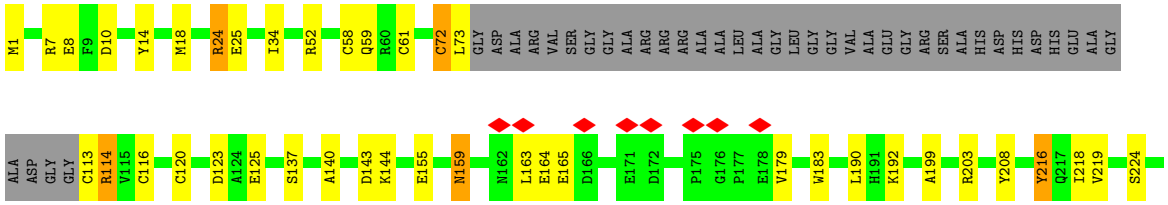
• Molecule 2: Fhl2

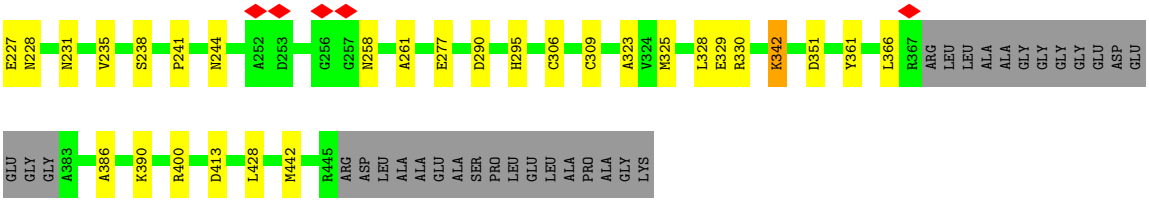
Chain B:



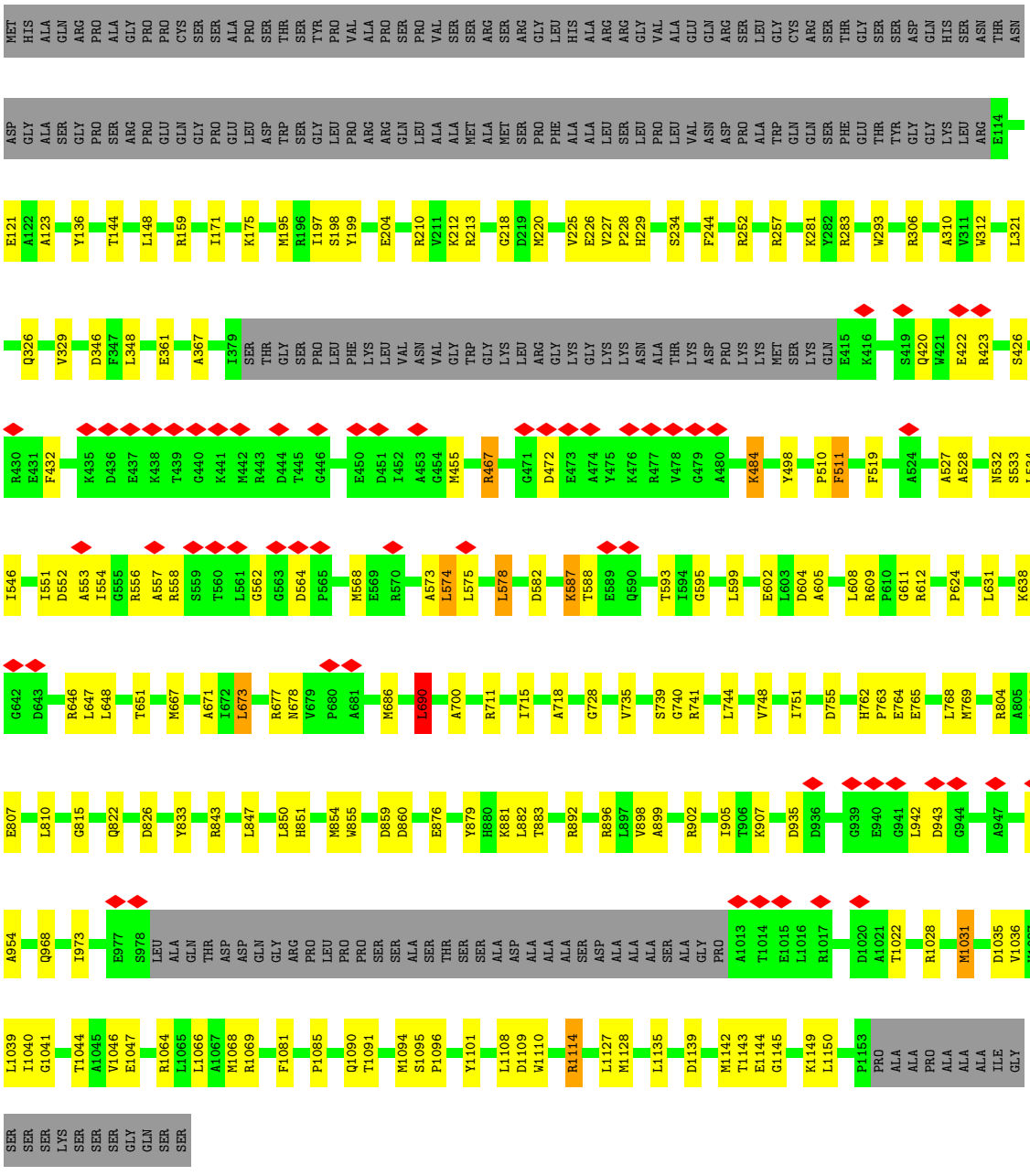
• Molecule 3: 4Fe-4S ferredoxin-type domain-containing protein

Chain C:

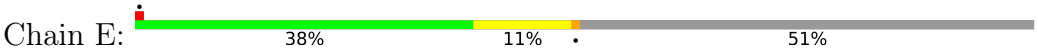


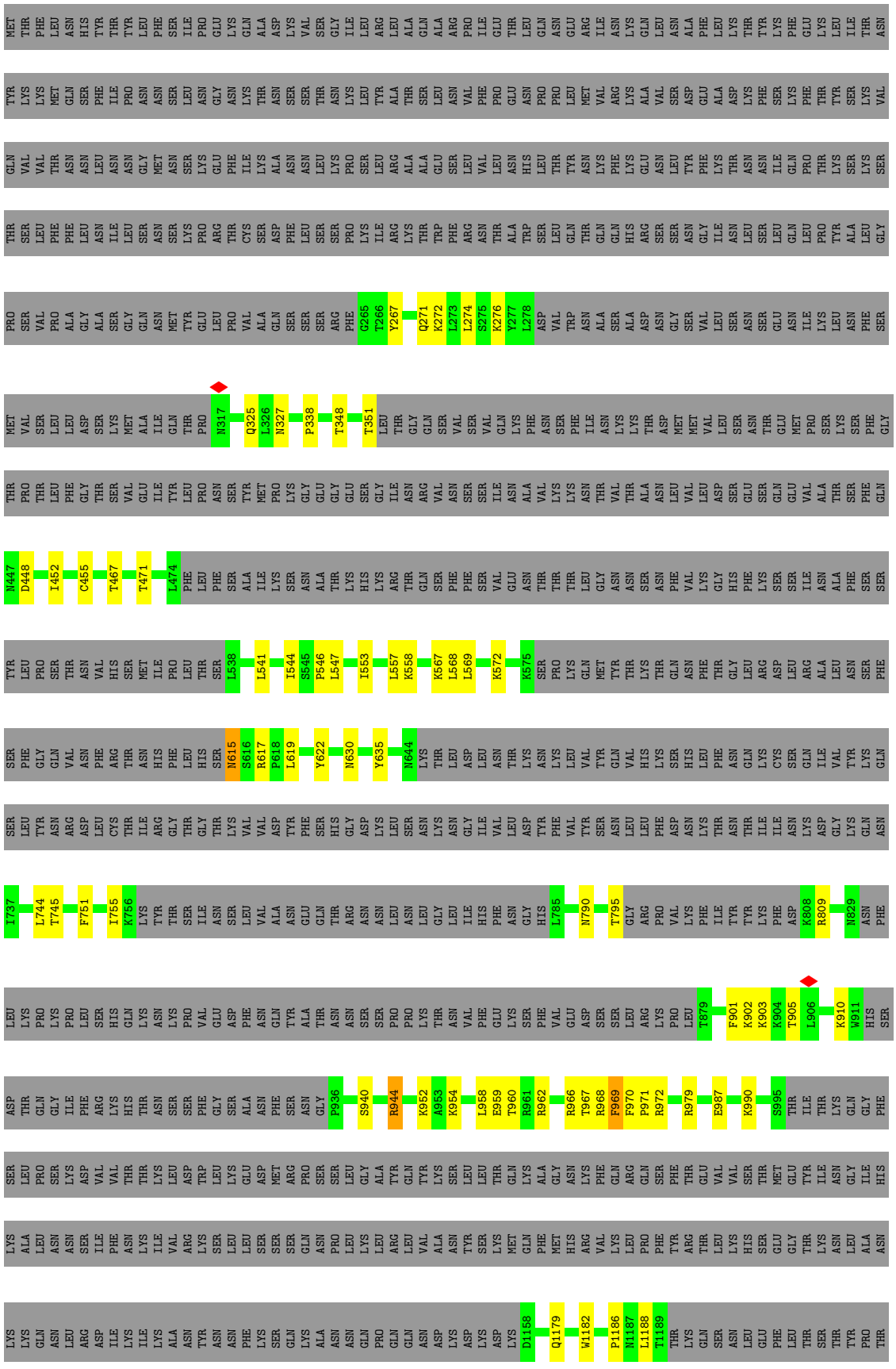


• Molecule 4: AAA+ ATPase domain-containing protein



• Molecule 5: Uncharacterized 341.7 kDa protein in psbD-psbC intergenic region




N317
Q325
L326
N327
P338
T348
T351
G265
T266
Y267
Q271
K272
L273
L274
S275
K276
Y277
L278
L538
L541
I544
S545
P546
L547
I553
L557
K558
K567
L568
L569
K572
K575
N615
S616
R617
P618
L619
Y622
N630
Y635
N644
I737
L744
T745
F751
I755
K756
L785
N790
T795
K808
R809
N829
T879
F901
K902
K903
K904
T905
L906
K910
W911
P936
S940
R944
K952
A953
K954
L958
E959
T960
R961
R962
R966
T967
R968
F969
F970
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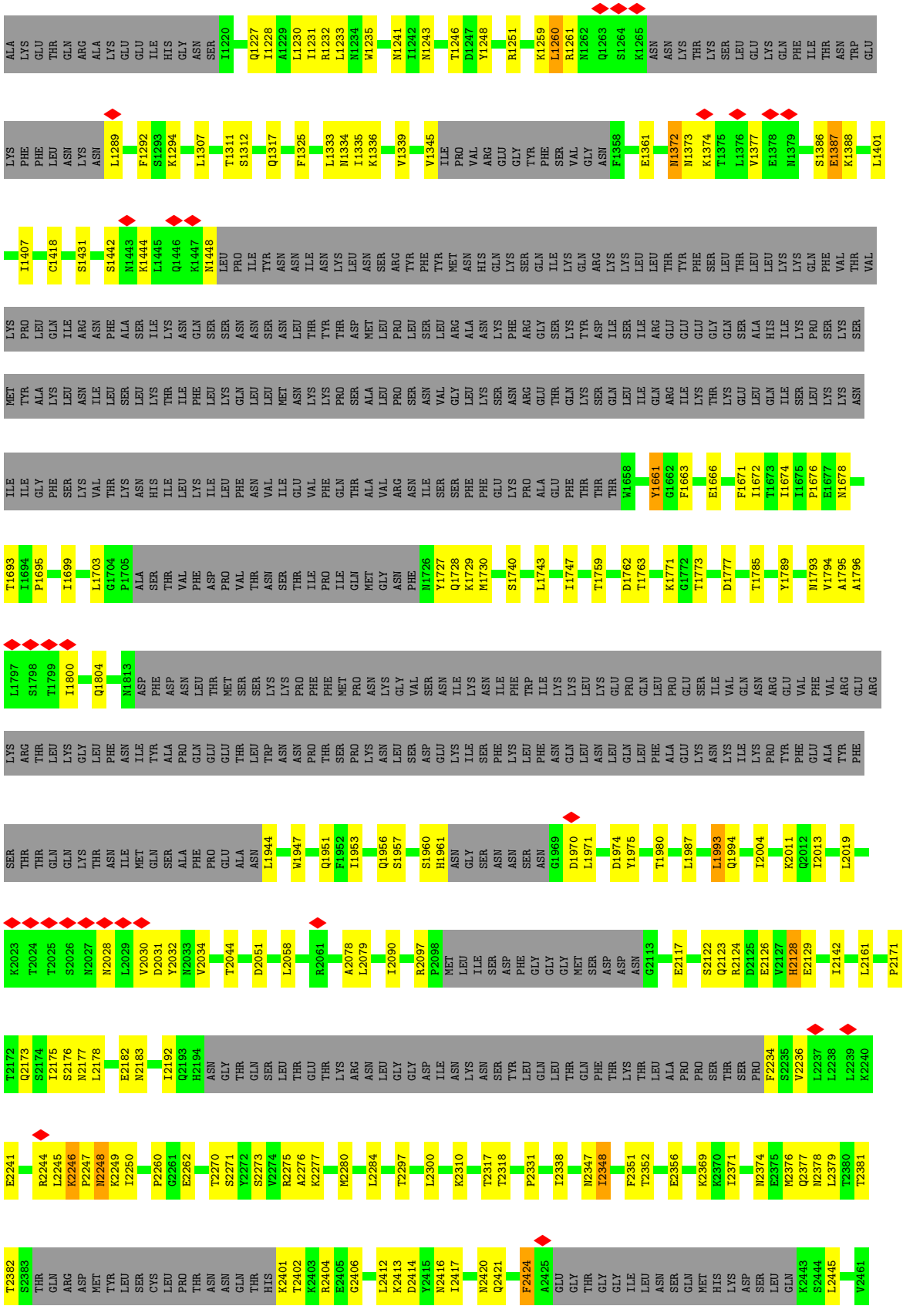
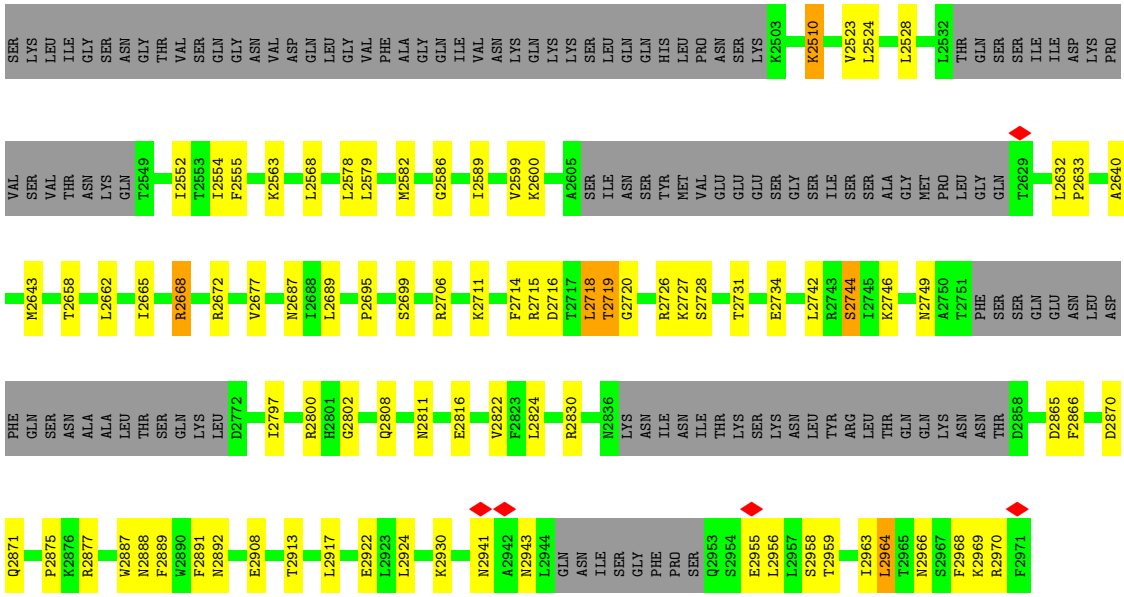
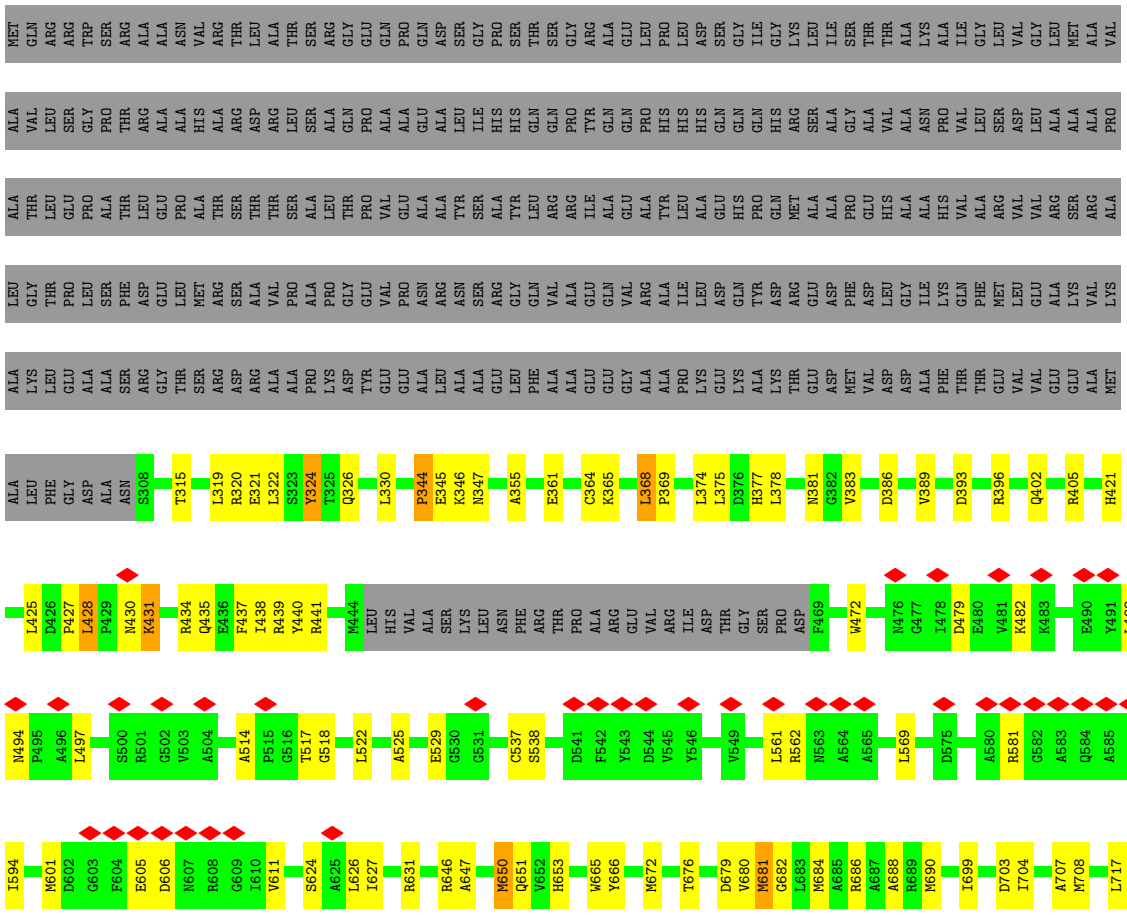
T1189

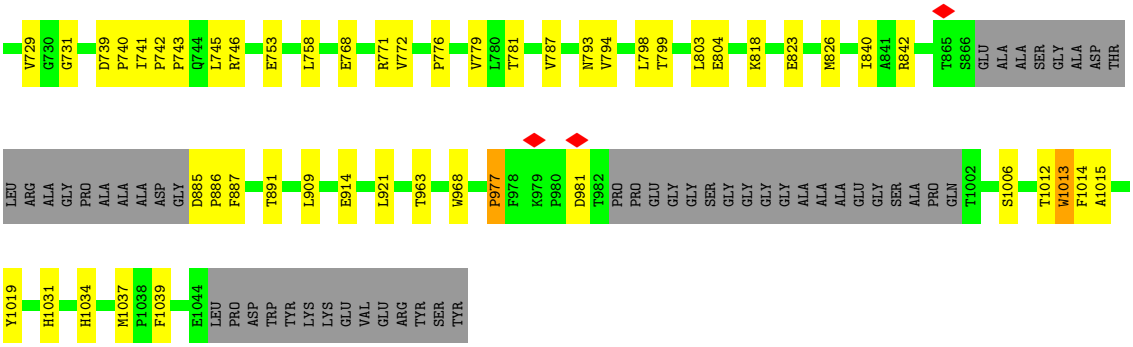




• Molecule 6: AAA+ ATPase domain-containing protein

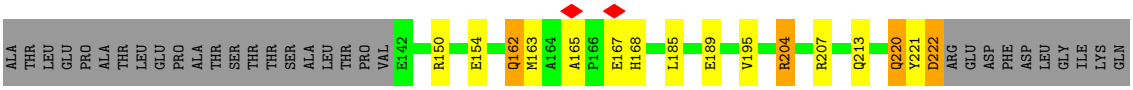
Chain F:

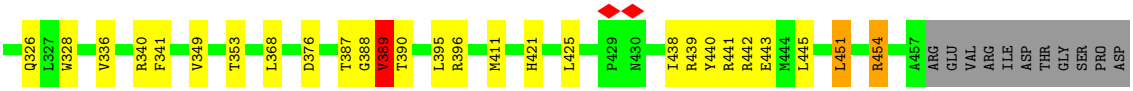


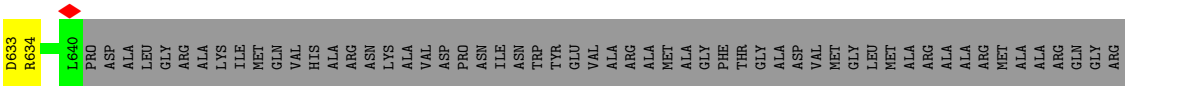


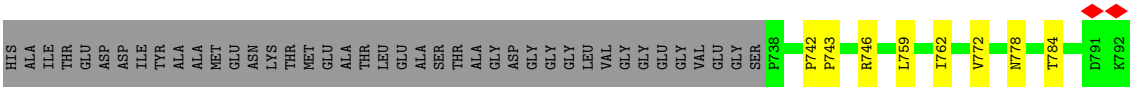
• Molecule 6: AAA+ ATPase domain-containing protein

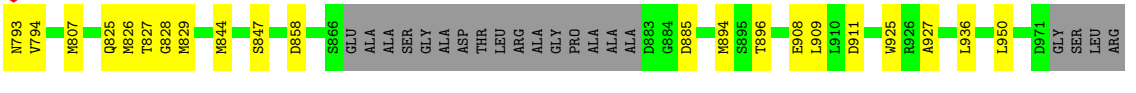
Chain G:

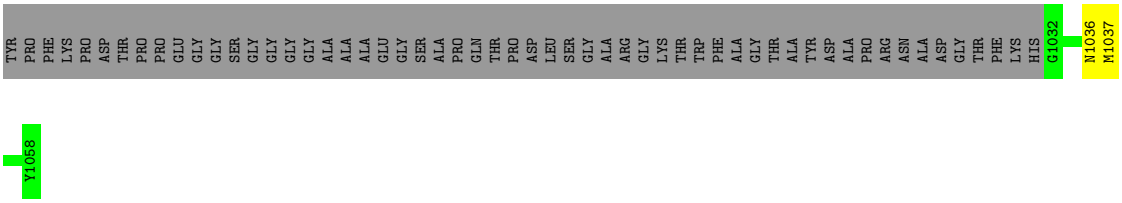






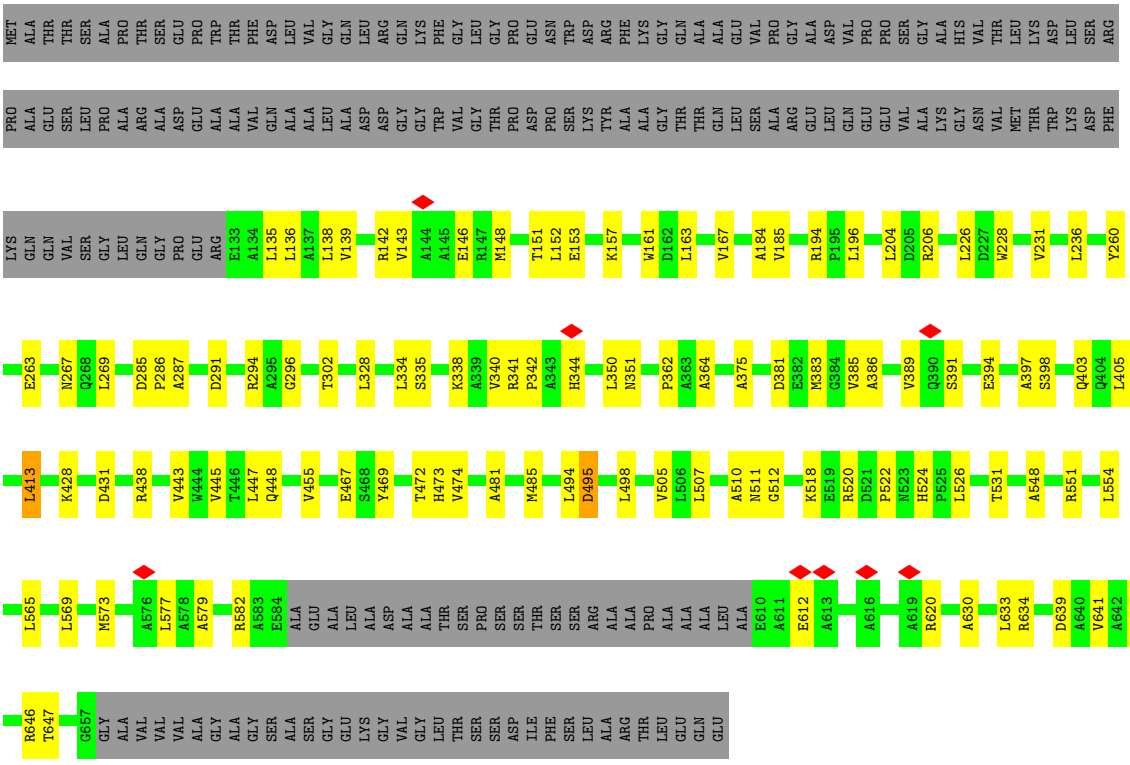






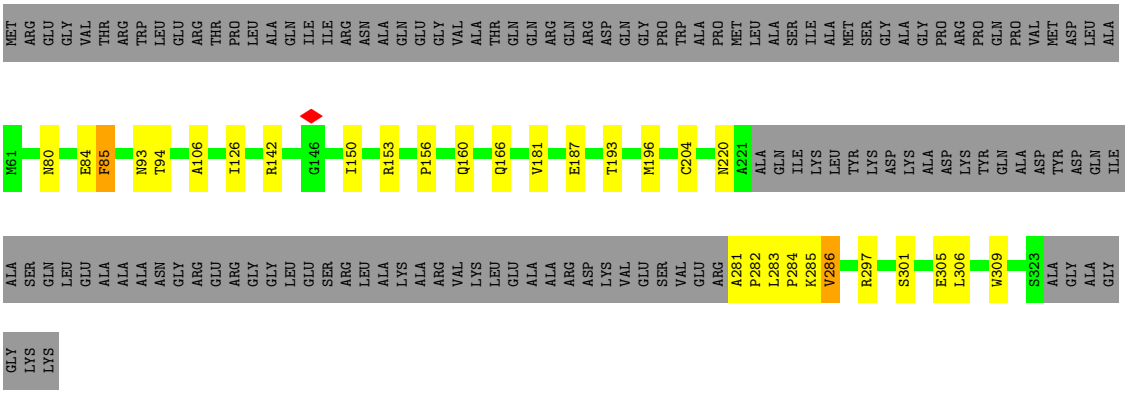
• Molecule 7: Flagellar associated protein

Chain H:



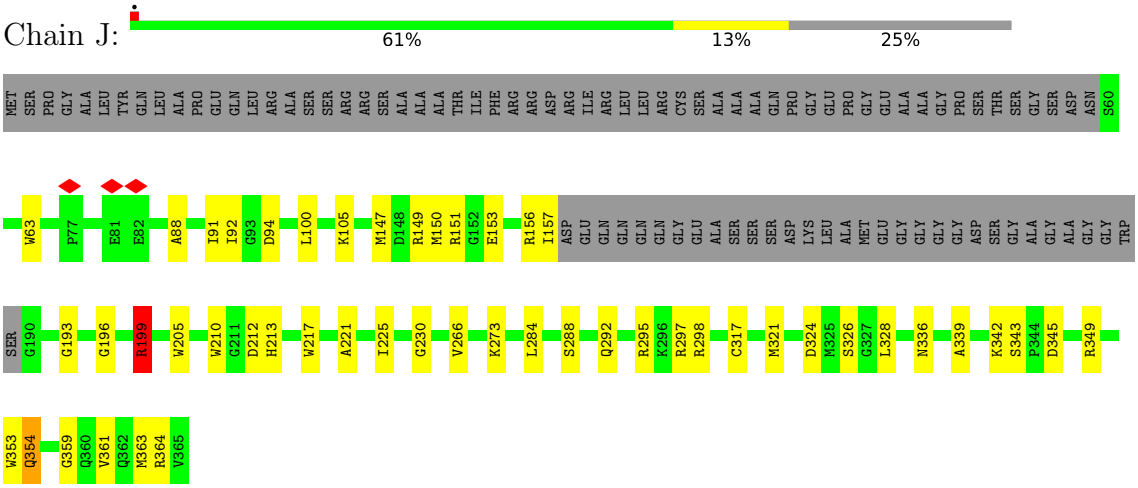
• Molecule 8: Tic22

Chain I:



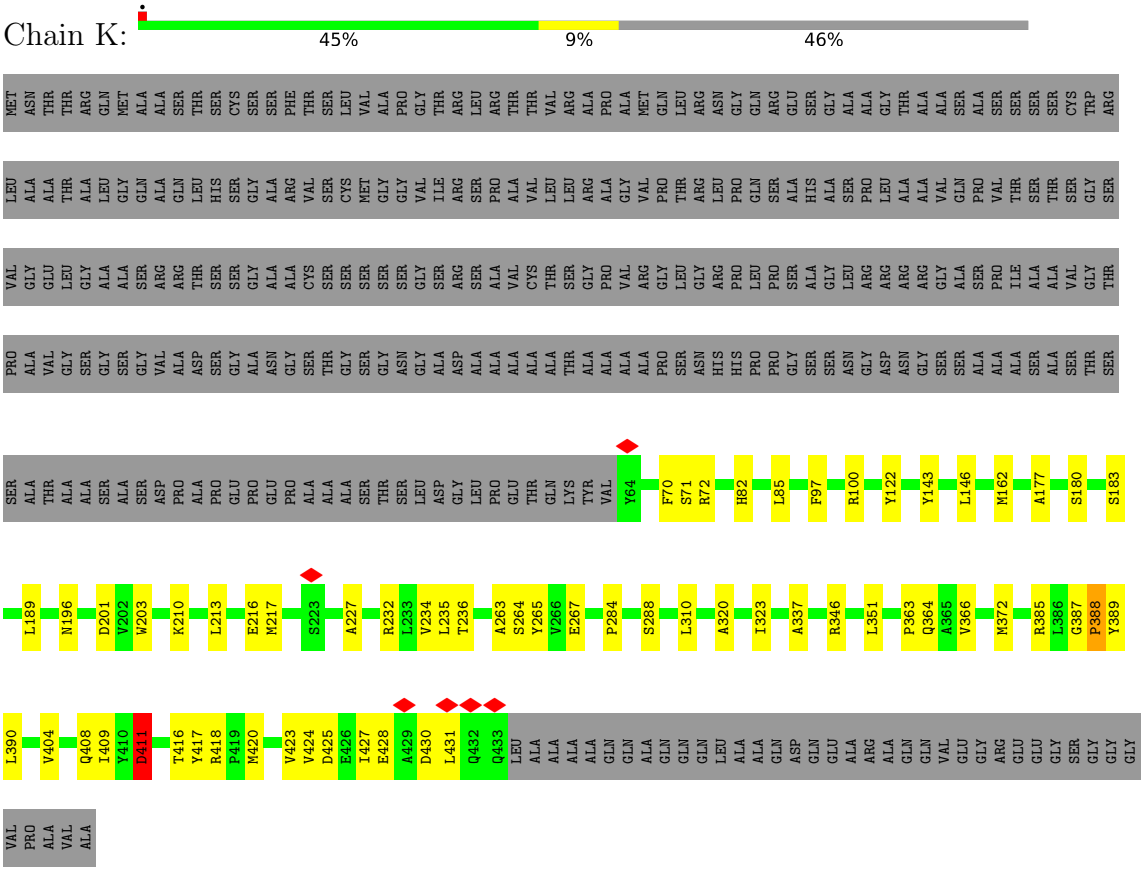
• Molecule 9: FaxL

Chain J:



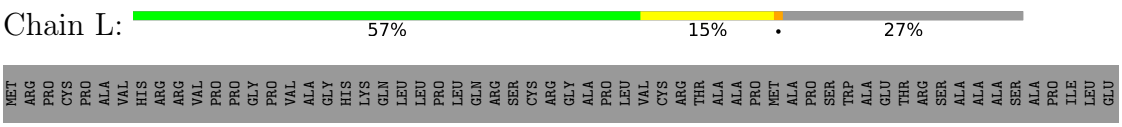
• Molecule 10: Fatty acid desaturase domain-containing protein

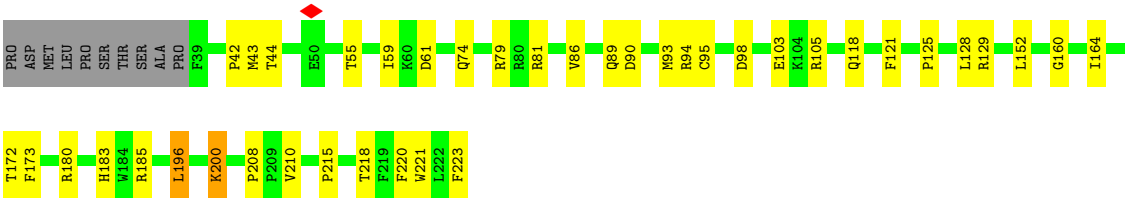
Chain K:



• Molecule 11: Moc25

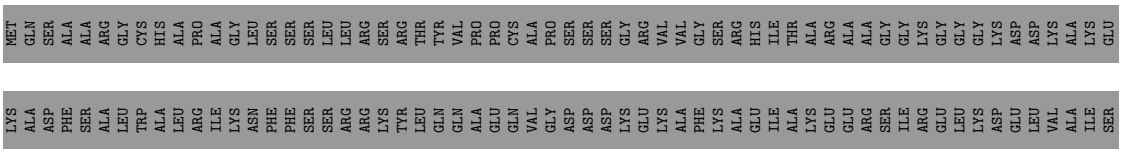
Chain L:

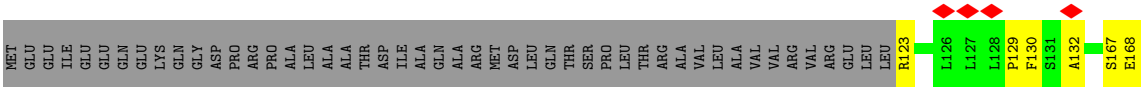


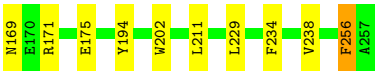


• Molecule 12: Moc29

Chain M:

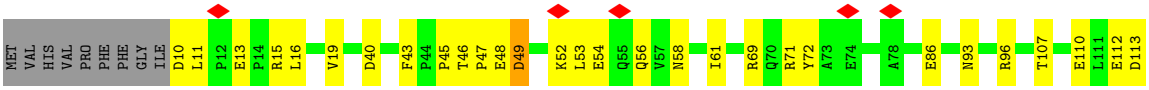


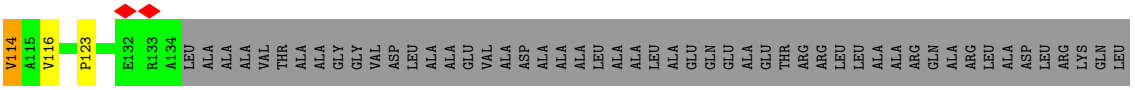


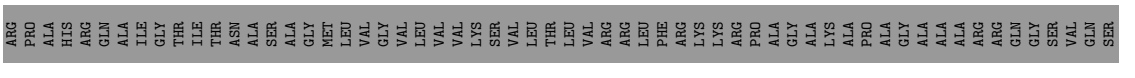


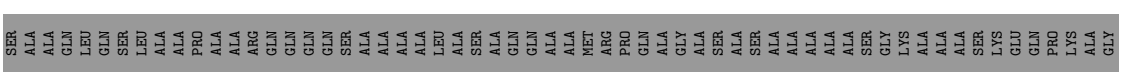
• Molecule 13: Moc34

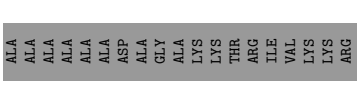
Chain N:





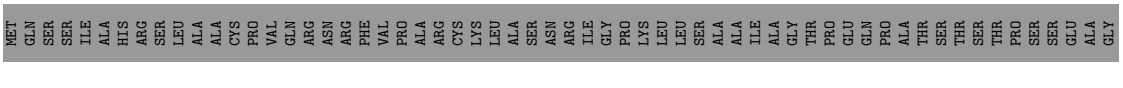


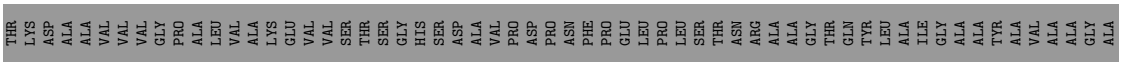


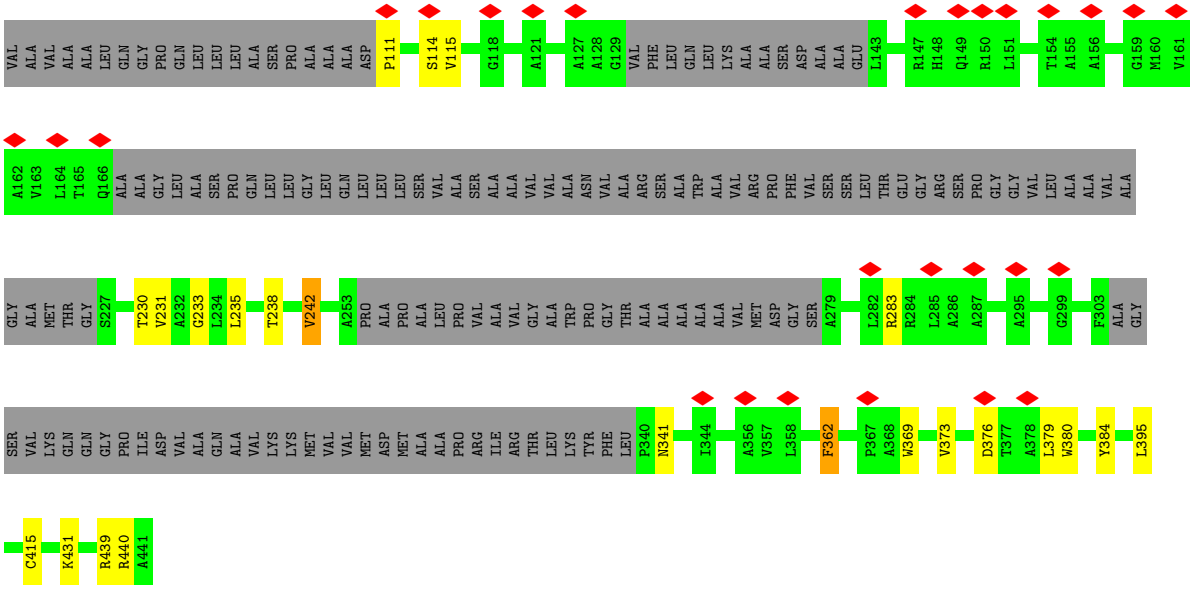


• Molecule 14: Moc45

Chain O:

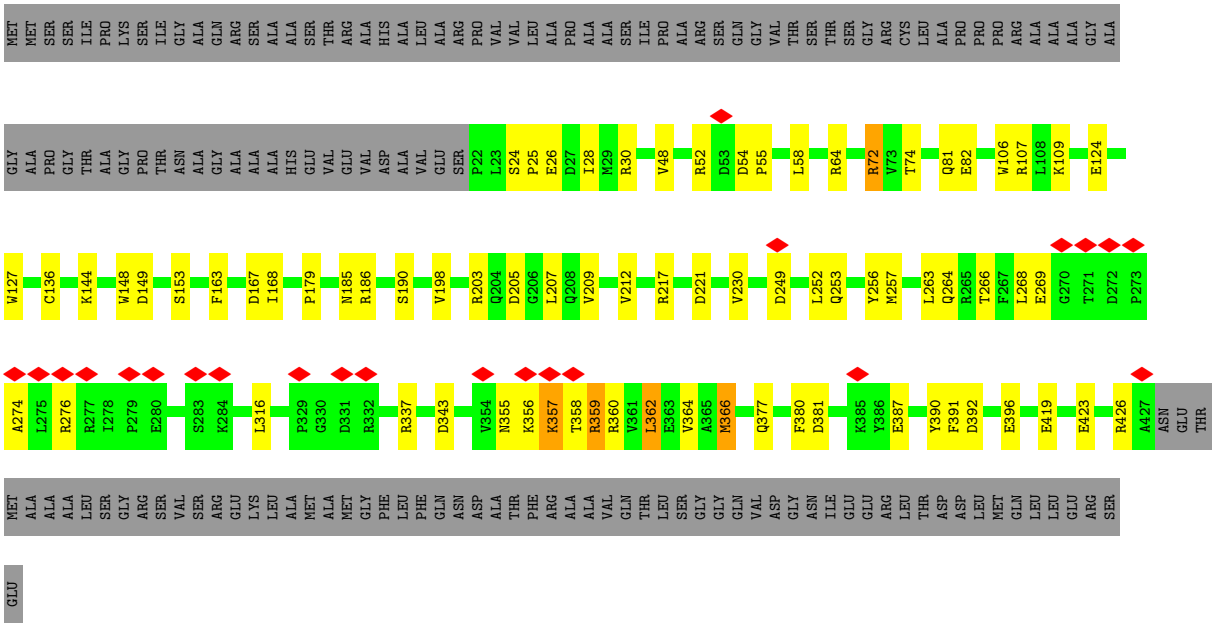






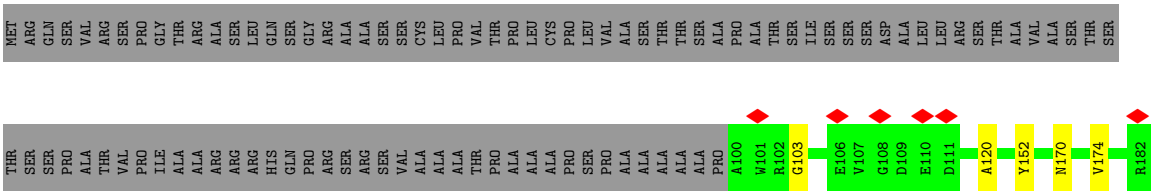
• Molecule 15: PcyA1

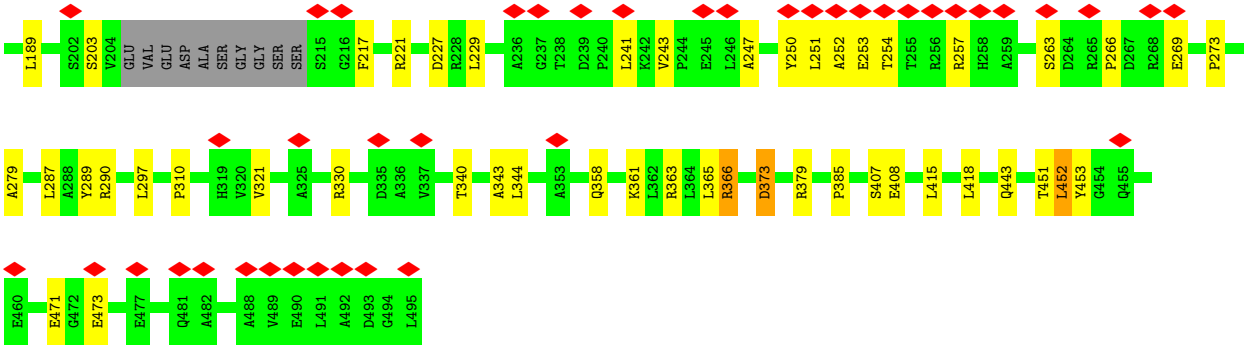
Chain P:



• Molecule 16: ADP-ribosylglycohydrolase

Chain Q:





• Molecule 17: Acyl carrier protein

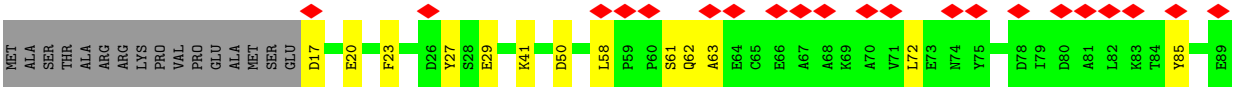
Chain R:

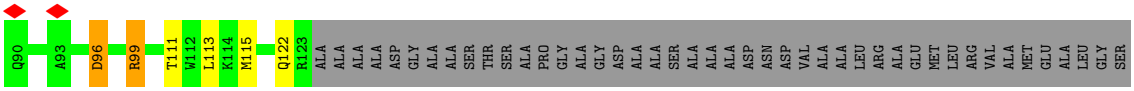
• Molecule 18: Moc13

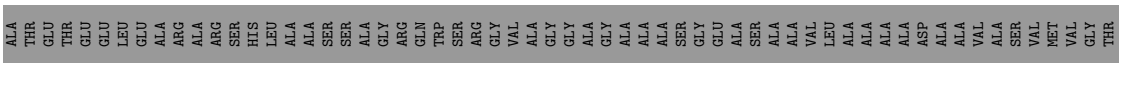
Chain S:

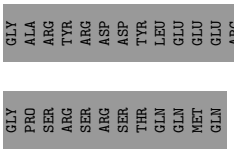
• Molecule 19: Moc31

Chain T:









4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	127613	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.099	Depositor
Minimum map value	-0.000	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.00943	Depositor
Map size (Å)	436.8, 436.8, 436.8	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.04, 1.04, 1.04	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: SEP, SQD, ZN, DGA, LMG, DGD, ACD

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.31	0/5693	0.62	5/7745 (0.1%)
2	B	0.30	0/4671	0.57	0/6328
3	C	0.33	0/3172	0.59	2/4315 (0.0%)
4	D	0.36	3/7715 (0.0%)	0.62	13/10469 (0.1%)
5	E	0.34	1/12285 (0.0%)	0.58	9/16600 (0.1%)
6	F	0.35	0/5322	0.65	4/7210 (0.1%)
6	G	0.33	0/5367	0.61	5/7277 (0.1%)
7	H	0.32	1/3747 (0.0%)	0.65	3/5108 (0.1%)
8	I	0.35	0/1652	0.61	0/2238
9	J	0.33	0/2159	0.61	2/2934 (0.1%)
10	K	0.33	0/2954	0.58	2/4054 (0.0%)
11	L	0.36	0/1600	0.73	4/2186 (0.2%)
12	M	0.42	1/1175 (0.1%)	0.57	0/1613
13	N	0.46	0/1024	0.72	1/1391 (0.1%)
14	O	0.31	0/1561	0.55	1/2135 (0.0%)
15	P	0.31	0/3323	0.59	4/4513 (0.1%)
16	Q	0.29	0/2946	0.56	0/4014
17	R	0.36	0/624	0.62	1/839 (0.1%)
18	S	0.51	1/933 (0.1%)	0.62	0/1266
19	T	0.35	0/856	0.61	0/1159
All	All	0.34	7/68779 (0.0%)	0.61	56/93394 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	1
4	D	0	2
5	E	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
6	F	0	2
6	G	0	1
13	N	0	1
All	All	0	8

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	1096	PRO	CG-CD	-11.26	1.13	1.50
18	S	106	VAL	CB-CG1	-9.18	1.33	1.52
4	D	1096	PRO	N-CD	6.60	1.57	1.47
5	E	1387	GLU	CG-CD	5.91	1.60	1.51
12	M	256	PHE	CD1-CE1	-5.70	1.27	1.39
7	H	413	LEU	CG-CD2	-5.66	1.30	1.51
4	D	574	LEU	CG-CD1	-5.13	1.32	1.51

All (56) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	D	1096	PRO	N-CD-CG	-13.31	83.23	103.20
6	F	428	LEU	CB-CG-CD1	-13.01	88.89	111.00
11	L	196	LEU	CB-CG-CD1	-12.67	89.46	111.00
5	E	1186	PRO	CA-N-CD	-11.99	94.72	111.50
1	A	262	PRO	CA-N-CD	-10.91	96.22	111.50
1	A	379	PRO	CA-N-CD	-10.58	96.68	111.50
5	E	1260	LEU	CB-CG-CD2	-9.38	95.06	111.00
5	E	1260	LEU	CB-CG-CD1	-8.97	95.75	111.00
11	L	196	LEU	CB-CG-CD2	8.96	126.24	111.00
11	L	200	LYS	CD-CE-NZ	-8.96	91.08	111.70
4	D	574	LEU	CB-CG-CD1	-8.11	97.22	111.00
5	E	1186	PRO	N-CD-CG	-8.06	91.11	103.20
15	P	362	LEU	CB-CG-CD1	-7.90	97.56	111.00
6	F	344	PRO	CA-N-CD	-7.81	100.56	111.50
13	N	114	VAL	CG1-CB-CG2	-7.81	98.41	110.90
10	K	388	PRO	CA-N-CD	-7.79	100.60	111.50
10	K	411	ASP	CB-CG-OD1	7.70	125.23	118.30
4	D	1096	PRO	CA-CB-CG	-7.68	89.41	104.00
15	P	343	ASP	CB-CG-OD1	7.55	125.10	118.30
6	G	222	ASP	CB-CG-OD2	7.55	125.09	118.30
1	A	262	PRO	N-CD-CG	-7.52	91.93	103.20
4	D	690	LEU	CA-CB-CG	7.42	132.38	115.30
17	R	31	VAL	CG1-CB-CG2	-7.25	99.30	110.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	D	1096	PRO	N-CA-CB	-7.21	94.66	103.30
6	G	451	LEU	CB-CG-CD2	-7.07	98.99	111.00
3	C	163	LEU	CA-CB-CG	6.98	131.36	115.30
9	J	199	ARG	NE-CZ-NH2	-6.96	116.82	120.30
5	E	1993	LEU	CB-CG-CD2	-6.75	99.53	111.00
5	E	2633	PRO	CA-N-CD	-6.52	102.38	111.50
4	D	582	ASP	CB-CG-OD2	6.39	124.05	118.30
11	L	196	LEU	CA-CB-CG	6.20	129.56	115.30
3	C	123	ASP	CB-CG-OD1	-6.19	112.73	118.30
15	P	74	THR	OG1-CB-CG2	-6.13	95.91	110.00
5	E	1387	GLU	OE1-CD-OE2	-6.00	116.10	123.30
6	F	977	PRO	CA-N-CD	-5.97	103.14	111.50
1	A	126	THR	C-N-CA	5.92	136.50	121.70
4	D	1031	MET	CG-SD-CE	-5.89	90.78	100.20
7	H	431	ASP	CB-CG-OD1	5.86	123.58	118.30
14	O	242	VAL	CA-CB-CG2	5.83	119.65	110.90
7	H	152	LEU	CA-CB-CG	5.78	128.59	115.30
4	D	578	LEU	CA-CB-CG	5.67	128.35	115.30
6	G	222	ASP	CB-CG-OD1	-5.66	113.20	118.30
4	D	673	LEU	CA-CB-CG	5.66	128.31	115.30
1	A	379	PRO	N-CD-CG	-5.65	94.72	103.20
15	P	366	MET	CG-SD-CE	-5.51	91.39	100.20
4	D	667	MET	CG-SD-CE	5.46	108.94	100.20
6	G	389	VAL	CA-CB-CG2	5.45	119.07	110.90
7	H	577	LEU	CB-CG-CD1	5.45	120.26	111.00
4	D	578	LEU	CB-CG-CD2	5.44	120.25	111.00
6	G	451	LEU	CA-CB-CG	5.30	127.50	115.30
5	E	2718	LEU	CA-CB-CG	5.26	127.41	115.30
9	J	199	ARG	NE-CZ-NH1	5.26	122.93	120.30
4	D	510	PRO	CA-N-CD	-5.18	104.25	111.50
4	D	582	ASP	CB-CG-OD1	-5.17	113.65	118.30
6	F	650	MET	CG-SD-CE	-5.16	91.94	100.20
5	E	1387	GLU	CG-CD-OE1	5.02	128.35	118.30

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	534	ALA	Peptide
4	D	1095	SER	Peptide
4	D	587	LYS	Peptide
5	E	970	PHE	Peptide

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Mol	Chain	Res	Type	Group
6	F	1013	TRP	Peptide
6	F	368	LEU	Peptide
6	G	565	ALA	Peptide
13	N	13	GLU	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5557	0	5450	84	0
2	B	4588	0	4601	70	0
3	C	3085	0	2929	48	0
4	D	7551	0	7556	125	0
5	E	12035	0	12354	246	0
6	F	5216	0	5183	104	0
6	G	5260	0	5225	95	0
7	H	3670	0	3637	70	0
8	I	1619	0	1621	18	0
9	J	2101	0	2056	46	0
10	K	2853	0	2798	40	0
11	L	1541	0	1534	29	0
12	M	1127	0	1096	18	0
13	N	1005	0	987	23	0
14	O	1517	0	1516	17	0
15	P	3245	0	3153	45	0
16	Q	2880	0	2825	32	0
17	R	633	0	636	18	0
18	S	909	0	904	26	0
19	T	840	0	810	11	0
20	C	2	0	0	0	0
21	H	36	0	57	3	0
22	J	47	0	52	2	0
22	L	66	0	96	0	0
23	J	41	0	52	6	0
23	L	47	0	64	2	0
24	K	21	0	31	1	0
25	L	36	0	36	2	0
All	All	67528	0	67259	959	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

All (959) 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)
8:I:281:ALA:HB3	8:I:282:PRO:HD3	1.46	0.93
5:E:348:THR:HG23	5:E:1374:LYS:HB2	1.53	0.89
5:E:902:LYS:HD3	6:G:288:ASP:HB3	1.54	0.89
9:J:147:MET:HA	9:J:150:MET:HE2	1.56	0.88
5:E:615:ASN:N	5:E:615:ASN:HD22	1.76	0.83
11:L:90:ASP:O	11:L:94:ARG:HB2	1.80	0.81
3:C:113:CYS:HB3	3:C:116:CYS:SG	2.20	0.81
16:Q:340:THR:HG22	16:Q:343:ALA:H	1.46	0.81
6:F:672:MET:HE1	6:F:680:VAL:HG22	1.62	0.79
10:K:72:ARG:NH1	10:K:390:LEU:O	2.15	0.79
10:K:72:ARG:NH2	10:K:387:GLY:O	2.15	0.78
6:G:604:PHE:HD1	18:S:93:ARG:HD2	1.48	0.78
9:J:339:ALA:HB2	12:M:169:ASN:HD21	1.46	0.78
8:I:80:ASN:HB2	8:I:84:GLU:HB2	1.66	0.76
5:E:544:ILE:O	7:H:228:TRP:HB2	1.86	0.76
1:A:228:LEU:O	3:C:342:LYS:NZ	2.19	0.75
5:E:338:PRO:HG3	5:E:1401:LEU:HB3	1.70	0.74
9:J:153:GLU:HG2	9:J:156:ARG:HH21	1.52	0.74
5:E:1773:THR:O	5:E:1777:ASP:HB3	1.88	0.74
10:K:72:ARG:HH11	10:K:72:ARG:HG2	1.52	0.73
1:A:256:TYR:HA	1:A:289:PRO:HG3	1.70	0.72
14:O:440:ARG:HH22	18:S:96:ARG:N	1.88	0.71
5:E:272:LYS:HG3	5:E:276:LYS:HE2	1.71	0.71
18:S:95:GLY:O	18:S:99:ASN:ND2	2.24	0.71
6:F:561:LEU:HD22	6:F:569:LEU:HB2	1.73	0.71
5:E:2079:LEU:HD22	6:F:435:GLN:HG3	1.72	0.70
6:F:434:ARG:HH21	6:F:437:PHE:HD2	1.39	0.70
12:M:256:PHE:CE1	14:O:242:VAL:HG22	2.27	0.70
6:G:604:PHE:CD1	18:S:93:ARG:HD2	2.27	0.69
6:G:451:LEU:HD22	6:G:557:THR:HA	1.74	0.69
7:H:554:LEU:HD23	7:H:639:ASP:HB2	1.74	0.69
6:G:561:LEU:HD11	6:G:569:LEU:HB2	1.75	0.68
1:A:652:ARG:NH1	1:A:885:GLU:HG2	2.09	0.68
5:E:1248:TYR:CE2	13:N:15:ARG:HG3	2.29	0.67
5:E:1953:ILE:HG22	5:E:1975:TYR:HB2	1.75	0.67
6:F:321:GLU:HG2	6:F:365:LYS:HE3	1.74	0.67
3:C:8:GLU:OE1	18:S:105:ARG:NH1	2.28	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:146:GLU:HG3	7:H:161:TRP:HB2	1.76	0.67
4:D:810:LEU:HG	4:D:943:ASP:HB3	1.76	0.67
6:F:319:LEU:HD13	6:F:365:LYS:HB2	1.76	0.67
6:G:827:THR:HG23	6:G:829:MET:HG2	1.77	0.66
4:D:968:GLN:N	4:D:968:GLN:OE1	2.29	0.66
5:E:2378:ASN:OD1	10:K:267:GLU:HB2	1.95	0.66
5:E:2351:PHE:HA	5:E:2416:ASN:ND2	2.09	0.65
6:G:221:TYR:HE2	6:G:294:GLU:HB3	1.62	0.65
4:D:762:HIS:NE2	6:G:778:ASN:O	2.29	0.65
17:R:37:PHE:HE2	17:R:50:ILE:HG21	1.62	0.64
16:Q:273:PRO:HB3	16:Q:310:PRO:HD2	1.78	0.64
2:B:873:ARG:NH2	2:B:899:ASN:O	2.29	0.64
5:E:940:SER:O	5:E:944:ARG:HG3	1.98	0.64
6:G:493:ARG:HH21	15:P:426:ARG:HG3	1.62	0.64
1:A:904:ARG:H	1:A:909:ARG:HH21	1.44	0.64
5:E:547:LEU:HD21	7:H:448:GLN:HE21	1.63	0.64
2:B:789:PRO:HB3	2:B:794:PRO:HA	1.80	0.64
2:B:977:LEU:HD22	4:D:711:ARG:HD2	1.80	0.64
5:E:2959:THR:O	5:E:2963:ILE:HG13	1.98	0.64
7:H:579:ALA:HA	7:H:582:ARG:HE	1.63	0.64
10:K:320:ALA:HB3	10:K:323:ILE:HD12	1.80	0.63
15:P:207:LEU:HD21	15:P:362:LEU:HD11	1.80	0.63
7:H:135:LEU:HB3	7:H:138:LEU:HB3	1.78	0.63
5:E:1743:LEU:O	5:E:1747:ILE:HG13	1.99	0.63
6:G:222:ASP:OD1	6:G:222:ASP:N	2.28	0.63
4:D:226:GLU:HB3	4:D:281:LYS:HD2	1.80	0.63
6:G:547:SER:HA	6:G:589:GLU:HG3	1.80	0.62
5:E:1672:ILE:HD11	5:E:1759:THR:HB	1.81	0.62
5:E:2245:LEU:HD11	5:E:2284:LEU:HD11	1.79	0.62
16:Q:170:ASN:ND2	16:Q:227:ASP:OD2	2.33	0.62
6:F:324:TYR:HD2	6:F:369:PRO:HD2	1.64	0.62
5:E:2250:ILE:HD13	5:E:2715:ARG:HB2	1.82	0.62
3:C:330:ARG:NH2	4:D:218:GLY:O	2.33	0.62
7:H:185:VAL:HG23	7:H:196:LEU:HB2	1.80	0.62
7:H:524:HIS:ND1	7:H:526:LEU:O	2.33	0.62
18:S:117:VAL:HG22	18:S:119:LEU:HD23	1.82	0.61
16:Q:287:LEU:HD22	16:Q:451:THR:HG22	1.82	0.61
4:D:624:PRO:HG2	5:E:2744:SER:HB3	1.81	0.61
6:G:189:GLU:HG3	13:N:123:PRO:HG3	1.83	0.61
15:P:26:GLU:O	15:P:30:ARG:HG3	2.00	0.61
5:E:2177:ASN:OD1	5:E:2892:ASN:ND2	2.34	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:2331:PRO:HB3	6:F:682:GLY:HA3	1.81	0.61
5:E:2523:VAL:HG13	5:E:2968:PHE:HZ	1.66	0.61
10:K:404:VAL:O	10:K:408:GLN:NE2	2.31	0.61
5:E:2563:LYS:HG3	6:F:726:GLY:HA2	1.83	0.60
5:E:272:LYS:O	5:E:276:LYS:HD3	2.01	0.60
6:F:977:PRO:HA	9:J:63:TRP:CZ3	2.36	0.60
2:B:778:ALA:HA	2:B:976:LEU:HD13	1.83	0.60
4:D:220:MET:HB3	4:D:293:TRP:HE1	1.66	0.60
10:K:232:ARG:O	10:K:236:THR:OG1	2.18	0.60
5:E:615:ASN:N	5:E:615:ASN:ND2	2.49	0.60
5:E:2662:LEU:HD23	5:E:2665:ILE:HD11	1.84	0.60
4:D:527:ALA:HB1	4:D:573:ALA:HB2	1.83	0.60
5:E:1260:LEU:HD21	6:G:222:ASP:OD1	2.02	0.60
13:N:93:ASN:OD1	13:N:96:ARG:NH2	2.35	0.60
1:A:187:ARG:HA	1:A:294:LEU:HB2	1.83	0.60
12:M:256:PHE:CZ	14:O:242:VAL:HG22	2.36	0.60
15:P:377:GLN:N	15:P:377:GLN:OE1	2.35	0.60
14:O:230:THR:HG23	14:O:233:GLY:H	1.67	0.60
1:A:59:PRO:HD3	2:B:186:ALA:HB1	1.84	0.60
8:I:281:ALA:HB3	8:I:282:PRO:CD	2.27	0.60
16:Q:266:PRO:HA	16:Q:269:GLU:HG2	1.84	0.59
16:Q:363:ARG:HH21	16:Q:366:ARG:HH12	1.47	0.59
5:E:1227:GLN:NE2	5:E:1334:ASN:O	2.34	0.59
6:G:541:ASP:O	6:G:553:ARG:NH2	2.36	0.59
1:A:886:LEU:HD22	1:A:891:LEU:HG	1.84	0.59
4:D:197:ILE:HG13	4:D:198:SER:H	1.66	0.59
6:F:650:MET:HG2	6:F:684:MET:SD	2.43	0.59
1:A:784:SER:O	2:B:837:ARG:NH2	2.36	0.59
3:C:58:CYS:HB2	3:C:309:CYS:SG	2.42	0.59
15:P:355:ASN:HD21	15:P:359:ARG:HB3	1.66	0.59
6:G:516:GLY:H	6:G:519:LYS:HD3	1.68	0.59
1:A:287:ASP:C	1:A:289:PRO:HD2	2.22	0.59
2:B:866:HIS:HB3	2:B:869:TYR:HB2	1.83	0.59
3:C:258:ASN:HB3	3:C:261:ALA:HB3	1.83	0.59
4:D:765:GLU:O	4:D:769:MET:HG2	2.02	0.59
5:E:2250:ILE:HG21	5:E:2715:ARG:HD3	1.85	0.59
6:G:340:ARG:NH1	6:G:341:PHE:O	2.36	0.59
9:J:266:VAL:HG13	9:J:328:LEU:HD21	1.85	0.58
16:Q:365:LEU:HD21	16:Q:415:LEU:HB2	1.84	0.58
2:B:177:LEU:HG	2:B:179:GLU:H	1.66	0.58
2:B:761:ARG:NH1	2:B:839:GLU:O	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:428:LYS:O	7:H:438:ARG:NH1	2.36	0.58
2:B:826:ALA:HA	2:B:923:VAL:HG11	1.84	0.58
3:C:199:ALA:HB2	19:T:27:TYR:CE2	2.39	0.58
4:D:257:ARG:NH2	4:D:326:GLN:OE1	2.36	0.58
4:D:902:ARG:HD3	4:D:943:ASP:HB2	1.86	0.58
6:F:537:CYS:SG	6:F:538:SER:N	2.76	0.58
10:K:213:LEU:O	10:K:217:MET:HB2	2.03	0.58
9:J:193:GLY:H	9:J:217:TRP:HE1	1.50	0.58
1:A:123:GLN:HG3	1:A:125:PRO:HD2	1.84	0.58
2:B:517:VAL:HA	2:B:520:PHE:CE1	2.38	0.58
5:E:1307:LEU:O	5:E:1311:THR:OG1	2.21	0.58
5:E:2402:THR:OG1	5:E:2404:ARG:NH1	2.37	0.58
6:F:402:GLN:OE1	6:F:405:ARG:NH1	2.36	0.58
6:G:598:LEU:HD11	6:G:625:ALA:HB1	1.85	0.58
13:N:71:ARG:NH2	13:N:86:GLU:OE2	2.36	0.58
5:E:1246:THR:HG22	5:E:1248:TYR:H	1.68	0.58
6:F:703:ASP:OD1	11:L:81:ARG:NH2	2.34	0.58
1:A:711:GLN:O	1:A:719:ARG:NH2	2.36	0.57
4:D:422:GLU:O	4:D:426:SER:HB2	2.04	0.57
5:E:2297:THR:HA	5:E:2300:LEU:HD12	1.86	0.57
3:C:143:ASP:OD1	5:E:1241:ASN:ND2	2.36	0.57
6:F:768:GLU:OE2	6:F:787:VAL:HB	2.04	0.57
6:G:282:LYS:HB3	6:G:284:GLU:OE2	2.05	0.57
1:A:591:PRO:O	1:A:596:ARG:NH2	2.37	0.57
5:E:1188:LEU:HD21	5:E:1233:LEU:HD13	1.86	0.57
9:J:343:SER:O	9:J:349:ARG:NH2	2.37	0.57
4:D:599:LEU:HB3	4:D:602:GLU:HG3	1.86	0.57
11:L:43:MET:SD	11:L:43:MET:N	2.77	0.57
6:F:1019:TYR:HB3	6:G:1037:MET:HE1	1.87	0.57
2:B:517:VAL:HA	2:B:520:PHE:HE1	1.69	0.57
12:M:171:ARG:NH2	18:S:79:ASP:OD1	2.37	0.57
1:A:667:ARG:HB2	1:A:712:PRO:HB2	1.85	0.57
6:F:653:HIS:ND1	6:F:681:MET:SD	2.78	0.57
15:P:25:PRO:HA	15:P:28:ILE:HD12	1.87	0.57
1:A:105:PRO:HB3	2:B:58:PRO:HB2	1.87	0.57
8:I:281:ALA:CB	8:I:282:PRO:HD3	2.29	0.57
10:K:217:MET:HG2	10:K:427:ILE:HG13	1.86	0.56
15:P:356:LYS:HB3	15:P:360:ARG:HD2	1.88	0.56
1:A:187:ARG:HB3	1:A:211:THR:HB	1.86	0.56
3:C:386:ALA:HB1	7:H:194:ARG:HH22	1.70	0.56
4:D:213:ARG:HB3	4:D:226:GLU:HB2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:N:112:GLU:HA	13:N:116:VAL:HG22	1.86	0.56
15:P:190:SER:O	15:P:217:ARG:NH2	2.38	0.56
17:R:61:ALA:O	17:R:83:GLN:NE2	2.38	0.56
5:E:2004:ILE:HG21	5:E:2044:THR:HB	1.87	0.56
5:E:2888:ASN:ND2	5:E:2889:PHE:O	2.38	0.56
11:L:86:VAL:HG23	11:L:89:GLN:HB3	1.87	0.56
1:A:782:GLY:O	2:B:828:ARG:NH2	2.38	0.56
6:F:479:ASP:N	6:F:479:ASP:OD1	2.38	0.56
1:A:328:TRP:O	1:A:382:ARG:NH2	2.39	0.56
5:E:2248:ASN:O	5:E:2711:LYS:NZ	2.38	0.56
5:E:1182:TRP:HB3	5:E:1230:LEU:HD13	1.86	0.55
6:F:1034:HIS:ND1	15:P:167:ASP:OD2	2.35	0.55
1:A:688:ILE:HG21	1:A:720:THR:HG21	1.86	0.55
3:C:125:GLU:OE2	4:D:210:ARG:NH2	2.33	0.55
6:G:885:ASP:OD1	6:G:885:ASP:N	2.35	0.55
14:O:238:THR:O	14:O:242:VAL:HG23	2.07	0.55
4:D:528:ALA:O	4:D:532:ASN:ND2	2.39	0.55
6:G:440:TYR:HA	6:G:443:GLU:HB3	1.88	0.55
16:Q:361:LYS:HE3	16:Q:408:GLU:HG2	1.88	0.55
5:E:2352:THR:O	5:E:2356:GLU:HG3	2.07	0.55
6:F:421:HIS:ND1	6:F:421:HIS:O	2.39	0.55
15:P:198:VAL:HG22	15:P:212:VAL:HG22	1.88	0.55
5:E:1251:ARG:HH11	6:G:213:GLN:HG2	1.71	0.55
5:E:2677:VAL:O	6:F:842:ARG:NH1	2.39	0.55
6:F:731:GLY:HA2	6:F:739:ASP:HA	1.88	0.55
16:Q:229:LEU:HD21	16:Q:247:ALA:HA	1.87	0.55
5:E:1374:LYS:NZ	6:F:346:LYS:HE3	2.22	0.55
11:L:121:PHE:O	11:L:129:ARG:NH2	2.40	0.55
3:C:241:PRO:HA	3:C:244:ASN:HB2	1.89	0.55
4:D:1035:ASP:OD1	4:D:1035:ASP:N	2.39	0.55
5:E:910:LYS:HG3	13:N:116:VAL:HG11	1.88	0.55
7:H:285:ASP:OD1	7:H:286:PRO:HD2	2.07	0.55
7:H:633:LEU:HD12	7:H:641:VAL:HG22	1.89	0.55
12:M:256:PHE:HE1	14:O:242:VAL:HG22	1.71	0.55
15:P:153:SER:HA	15:P:366:MET:HE2	1.89	0.55
4:D:899:ALA:HB2	4:D:942:LEU:HD13	1.89	0.55
4:D:159:ARG:HG3	4:D:175:LYS:HG3	1.88	0.55
9:J:273:LYS:NZ	11:L:218:THR:O	2.39	0.55
2:B:814:TYR:OH	2:B:818:ARG:NH1	2.40	0.54
4:D:735:VAL:HG13	4:D:748:VAL:HG22	1.89	0.54
6:G:396:ARG:NH1	12:M:194:TYR:O	2.34	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:P:209:VAL:HG22	15:P:230:VAL:HG22	1.88	0.54
2:B:95:ALA:HA	3:C:120:CYS:HA	1.88	0.54
2:B:600:ILE:HD12	2:B:603:LEU:HD21	1.90	0.54
4:D:806:ALA:HA	4:D:898:VAL:HG11	1.88	0.54
4:D:1064:ARG:O	4:D:1068:MET:HG2	2.08	0.54
6:F:324:TYR:CD2	6:F:369:PRO:HD2	2.41	0.54
10:K:82:HIS:O	10:K:85:LEU:HB3	2.07	0.54
10:K:411:ASP:CG	10:K:418:ARG:HH12	2.10	0.54
14:O:376:ASP:O	14:O:380:TRP:HB2	2.07	0.54
16:Q:221:ARG:HH12	16:Q:471:GLU:HG3	1.72	0.54
3:C:224:SER:HB2	3:C:227:GLU:HG3	1.89	0.54
4:D:711:ARG:NH2	4:D:815:GLY:O	2.38	0.54
2:B:625:ASN:HD22	4:D:553:ALA:HB2	1.71	0.54
3:C:238:SER:OG	5:E:1232:ARG:NH1	2.40	0.54
4:D:833:TYR:OH	5:E:2726:ARG:NH1	2.40	0.54
6:F:686:ARG:HG3	6:F:707:ALA:HB1	1.90	0.54
6:G:555:ARG:HH12	18:S:96:ARG:N	2.05	0.54
5:E:1674:ILE:O	5:E:1674:ILE:HG13	2.07	0.54
15:P:252:LEU:HB2	15:P:257:MET:SD	2.48	0.54
3:C:7:ARG:HA	3:C:10:ASP:OD2	2.08	0.54
3:C:144:LYS:NZ	3:C:208:TYR:OH	2.41	0.54
4:D:631:LEU:HD13	4:D:651:THR:HG23	1.90	0.54
5:E:2706:ARG:NH1	5:E:2871:GLN:OE1	2.40	0.54
6:F:1037:MET:O	6:G:1036:ASN:ND2	2.38	0.54
10:K:201:ASP:O	10:K:203:TRP:N	2.40	0.54
16:Q:363:ARG:HE	16:Q:366:ARG:HH22	1.56	0.53
1:A:99:ARG:NH2	1:A:109:ASP:OD2	2.41	0.53
1:A:356:LEU:HD22	5:E:1442:SER:HB2	1.91	0.53
2:B:508:LYS:HE2	2:B:670:ARG:HB2	1.90	0.53
7:H:296:GLY:HA3	7:H:485:MET:HE2	1.90	0.53
3:C:183:TRP:HZ2	5:E:944:ARG:NH1	2.06	0.53
4:D:1046:VAL:HG12	4:D:1135:LEU:HD21	1.89	0.53
5:E:1785:THR:O	5:E:1789:TYR:HD1	1.92	0.53
5:E:2031:ASP:HB3	5:E:2034:VAL:HG12	1.91	0.53
1:A:902:THR:OG1	1:A:903:SER:N	2.40	0.53
4:D:367:ALA:HA	6:G:425:LEU:HD13	1.91	0.53
5:E:2013:ILE:HA	5:E:2310:LYS:HG2	1.90	0.53
5:E:2941:ASN:ND2	6:G:793:ASN:O	2.41	0.53
7:H:569:LEU:O	7:H:573:MET:HG3	2.08	0.53
1:A:51:LEU:HD12	1:A:117:ARG:HH21	1.72	0.53
6:F:518:GLY:O	6:F:522:LEU:HB2	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:163:ALA:HB1	6:F:375:LEU:HD11	1.91	0.53
4:D:608:LEU:HD22	5:E:2236:VAL:HB	1.90	0.53
11:L:59:ILE:HD11	17:R:88:GLY:HA2	1.91	0.53
2:B:543:PRO:HD3	2:B:670:ARG:HH11	1.73	0.53
5:E:2412:LEU:HB3	5:E:2445:LEU:HD21	1.90	0.53
6:F:345:GLU:HG2	6:F:347:ASN:HB2	1.91	0.53
2:B:85:GLN:NE2	2:B:155:PRO:O	2.40	0.53
2:B:133:ILE:HG21	2:B:140:ILE:HG21	1.89	0.53
4:D:587:LYS:HB2	4:D:588:THR:HA	1.90	0.53
5:E:2142:ILE:HG23	6:F:840:ILE:HG12	1.90	0.53
6:F:646:ARG:O	6:F:650:MET:HE3	2.09	0.53
14:O:115:VAL:HG13	14:O:362:PHE:HD1	1.74	0.53
6:F:440:TYR:HE1	18:S:117:VAL:HG21	1.74	0.53
9:J:199:ARG:CZ	11:L:200:LYS:HD3	2.39	0.52
2:B:877:SER:OG	2:B:878:ASN:N	2.40	0.52
5:E:622:TYR:CE1	7:H:185:VAL:HG13	2.43	0.52
5:E:2246:LYS:NZ	5:E:2271:SER:HA	2.24	0.52
7:H:495:ASP:HB3	7:H:498:LEU:HB3	1.90	0.52
18:S:83:PRO:HD2	18:S:89:ARG:HG3	1.91	0.52
5:E:2727:LYS:NZ	5:E:2728:SER:O	2.43	0.52
19:T:62:GLN:HG2	19:T:63:ALA:H	1.73	0.52
1:A:667:ARG:HG2	1:A:714:GLY:H	1.75	0.52
1:A:337:GLU:HB2	1:A:343:ASP:HB2	1.91	0.52
5:E:1231:ILE:HG12	5:E:1333:LEU:HD13	1.91	0.52
5:E:1678:ASN:ND2	18:S:115:GLU:OE1	2.42	0.52
15:P:274:ALA:O	15:P:276:ARG:NH1	2.34	0.52
12:M:129:PRO:HB2	12:M:132:ALA:HB3	1.89	0.52
1:A:58:LEU:HD12	1:A:114:HIS:HA	1.92	0.52
2:B:585:ASP:O	2:B:589:THR:HG23	2.10	0.52
1:A:256:TYR:O	2:B:74:ARG:NH2	2.39	0.52
4:D:1142:MET:HE1	4:D:1149:LYS:HE2	1.92	0.52
7:H:565:LEU:HB3	7:H:643:MET:HE1	1.92	0.52
1:A:273:SER:OG	1:A:274:SER:N	2.42	0.52
4:D:686:MET:O	4:D:690:LEU:HD12	2.09	0.52
6:F:977:PRO:HA	9:J:63:TRP:HZ3	1.74	0.52
2:B:879:TYR:OH	5:E:2716:ASP:OD1	2.26	0.52
7:H:405:LEU:HD21	7:H:474:VAL:HG11	1.92	0.52
2:B:862:GLY:O	4:D:804:ARG:NH1	2.40	0.51
6:G:487:GLU:HG3	6:G:498:LEU:HD11	1.90	0.51
14:O:440:ARG:HH22	18:S:95:GLY:C	2.13	0.51
15:P:356:LYS:HA	15:P:360:ARG:HB2	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:2970:ARG:HH21	9:J:151:ARG:HH21	1.59	0.51
2:B:802:PRO:HA	5:E:2811:ASN:HD21	1.75	0.51
4:D:420:GLN:OE1	4:D:423:ARG:NH2	2.44	0.51
6:G:532:VAL:HG23	6:G:566:PRO:HB2	1.90	0.51
6:G:746:ARG:HG2	6:G:936:LEU:HD23	1.92	0.51
10:K:180:SER:HB2	10:K:183:SER:HB2	1.92	0.51
2:B:615:ARG:HD3	4:D:562:GLY:HA2	1.92	0.51
4:D:575:LEU:HD22	6:G:540:THR:HG23	1.91	0.51
5:E:267:TYR:HB2	5:E:271:GLN:HE21	1.76	0.51
5:E:2377:GLN:HB2	10:K:264:SER:HB3	1.92	0.51
6:F:326:GLN:O	6:F:330:LEU:HG	2.10	0.51
7:H:448:GLN:OE1	7:H:473:HIS:NE2	2.39	0.51
4:D:226:GLU:HG3	4:D:283:ARG:HG2	1.92	0.51
4:D:850:LEU:HD22	4:D:1127:LEU:HD21	1.91	0.51
4:D:1040:ILE:HD12	4:D:1044:THR:HB	1.93	0.51
6:G:617:ASN:OD1	6:G:617:ASN:N	2.44	0.51
3:C:164:GLU:O	5:E:962:ARG:NH2	2.44	0.51
4:D:715:ILE:HD11	4:D:807:GLU:HG3	1.92	0.51
6:G:523:ALA:HA	6:G:526:ILE:HD12	1.92	0.51
17:R:13:LEU:HD21	17:R:33:PRO:HG3	1.93	0.51
4:D:558:ARG:HB3	6:G:583:ALA:HB3	1.93	0.51
5:E:2966:ASN:ND2	15:P:396:GLU:OE2	2.42	0.51
4:D:136:TYR:CZ	6:G:340:ARG:HG2	2.46	0.51
5:E:2714:PHE:O	5:E:2719:THR:OG1	2.27	0.51
7:H:285:ASP:OD2	7:H:287:ALA:HB3	2.11	0.51
1:A:708:VAL:HG23	1:A:880:LEU:HD21	1.93	0.50
4:D:826:ASP:OD1	5:E:2800:ARG:NH1	2.45	0.50
5:E:2273:SER:O	5:E:2275:ARG:N	2.43	0.50
1:A:800:SER:HB2	1:A:828:VAL:HG12	1.93	0.50
2:B:168:ARG:HH12	5:E:795:THR:HG23	1.75	0.50
3:C:413:ASP:O	4:D:252:ARG:NH1	2.44	0.50
6:F:717:LEU:HD22	6:F:729:VAL:HG22	1.94	0.50
4:D:557:ALA:HB2	4:D:604:ASP:HA	1.93	0.50
4:D:605:ALA:O	4:D:609:ARG:NH1	2.43	0.50
4:D:876:GLU:OE2	5:E:2887:TRP:NE1	2.42	0.50
6:F:1013:TRP:O	6:F:1015:ALA:N	2.44	0.50
5:E:2401:LYS:HA	5:E:2404:ARG:NH1	2.27	0.50
6:F:680:VAL:O	6:F:684:MET:HG2	2.11	0.50
7:H:260:TYR:HB2	7:H:302:THR:HG23	1.92	0.50
1:A:593:THR:OG1	1:A:594:GLU:N	2.42	0.50
4:D:1145:GLY:O	4:D:1149:LYS:HD3	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:1248:TYR:CZ	13:N:15:ARG:HG3	2.46	0.50
5:E:2347:ASN:OD1	5:E:2413:LYS:NZ	2.44	0.50
6:F:885:ASP:HB3	6:F:886:PRO:HD3	1.94	0.50
8:I:284:PRO:O	8:I:286:VAL:N	2.45	0.50
1:A:67:GLU:OE1	5:E:790:ASN:ND2	2.45	0.50
1:A:735:ARG:NH1	2:B:838:ASP:OD1	2.45	0.50
4:D:1040:ILE:HG13	4:D:1041:GLY:N	2.26	0.50
5:E:2718:LEU:HG	5:E:2719:THR:HG23	1.94	0.50
10:K:416:THR:HB	10:K:418:ARG:NH1	2.27	0.50
18:S:120:ASN:N	18:S:120:ASN:OD1	2.43	0.50
1:A:942:PRO:HD2	2:B:903:SER:HB3	1.94	0.50
7:H:142:ARG:O	7:H:146:GLU:N	2.45	0.50
5:E:2058:LEU:HD22	6:G:581:ARG:HD2	1.94	0.50
5:E:2126:GLU:HG3	5:E:2129:GLU:HB3	1.94	0.50
5:E:2351:PHE:HD1	5:E:2416:ASN:HD22	1.58	0.50
3:C:59:GLN:NE2	5:E:351:THR:O	2.45	0.49
15:P:127:TRP:HD1	15:P:316:LEU:HD11	1.77	0.49
15:P:357:LYS:HD2	15:P:358:THR:HG23	1.93	0.49
19:T:111:THR:O	19:T:115:MET:HG2	2.12	0.49
2:B:591:ARG:HE	2:B:637:GLU:HB3	1.77	0.49
5:E:960:THR:OG1	5:E:962:ARG:O	2.31	0.49
5:E:2182:GLU:OE2	5:E:2687:ASN:ND2	2.45	0.49
1:A:829:SER:HB2	5:E:2824:LEU:HD11	1.92	0.49
2:B:620:ARG:NH2	2:B:621:ASP:OD1	2.45	0.49
4:D:673:LEU:HD11	4:D:677:ARG:HH21	1.77	0.49
5:E:1728:GLN:HG2	5:E:1729:LYS:H	1.76	0.49
6:G:628:ARG:HD2	6:G:629:PRO:HD2	1.93	0.49
15:P:54:ASP:OD2	15:P:64:ARG:NH1	2.33	0.49
6:G:499:ARG:NH2	9:J:361:VAL:O	2.33	0.49
16:Q:254:THR:HG23	16:Q:257:ARG:HE	1.78	0.49
1:A:868:GLU:HG2	1:A:869:ARG:HG2	1.93	0.49
4:D:144:THR:O	12:M:202:TRP:NE1	2.42	0.49
4:D:953:GLU:OE1	4:D:954:ALA:N	2.37	0.49
5:E:274:LEU:HD22	10:K:189:LEU:HD13	1.94	0.49
6:F:355:ALA:O	9:J:297:ARG:NH1	2.46	0.49
6:G:844:MET:HE2	6:G:909:LEU:HD21	1.94	0.49
7:H:148:MET:HB2	7:H:350:LEU:HD11	1.95	0.49
7:H:236:LEU:HD21	7:H:494:LEU:HD13	1.94	0.49
19:T:96:ASP:HA	19:T:99:ARG:HG2	1.94	0.49
1:A:610:ALA:HB2	1:A:649:LEU:HA	1.95	0.49
5:E:1373:ASN:HA	6:F:389:VAL:HG21	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:2922:GLU:OE2	15:P:144:LYS:NZ	2.37	0.49
7:H:362:PRO:HB2	7:H:612:GLU:HG2	1.95	0.49
9:J:88:ALA:O	9:J:92:ILE:HG12	2.12	0.49
11:L:55:THR:OG1	11:L:103:GLU:OE1	2.30	0.49
11:L:105:ARG:NH1	11:L:223:PHE:O	2.46	0.49
1:A:849:ASP:OD2	1:A:922:PHE:N	2.45	0.49
5:E:567:LYS:NZ	7:H:512:GLY:O	2.46	0.49
5:E:2830:ARG:HD2	5:E:2865:ASP:HA	1.95	0.49
7:H:340:VAL:HG23	7:H:341:ARG:HE	1.77	0.49
5:E:467:THR:O	5:E:471:THR:HG23	2.12	0.49
9:J:149:ARG:NH2	11:L:44:THR:O	2.46	0.49
5:E:1289:LEU:HA	13:N:53:LEU:HD23	1.93	0.49
6:F:740:PRO:HG3	9:J:94:ASP:HB2	1.94	0.49
16:Q:250:TYR:HA	16:Q:253:GLU:HB3	1.94	0.49
4:D:1110:TRP:CE2	5:E:2640:ALA:HB3	2.48	0.49
5:E:2348:ILE:HD11	9:J:92:ILE:HD12	1.95	0.49
5:E:2421:GLN:OE1	15:P:81:GLN:NE2	2.41	0.49
6:F:377:HIS:O	6:F:381:ASN:ND2	2.46	0.49
9:J:339:ALA:HB2	12:M:169:ASN:ND2	2.21	0.49
10:K:416:THR:HB	10:K:418:ARG:HH11	1.78	0.49
15:P:253:GLN:HB2	15:P:256:TYR:HD2	1.76	0.49
2:B:561:VAL:HB	2:B:596:CYS:HA	1.94	0.48
5:E:1947:TRP:O	5:E:1951:GLN:NE2	2.46	0.48
5:E:2369:LYS:HE2	5:E:2406:GLY:H	1.77	0.48
11:L:172:THR:OG1	11:L:173:PHE:N	2.46	0.48
7:H:413:LEU:HD11	21:H:701:DGA:HA51	1.95	0.48
10:K:216:GLU:HG3	10:K:227:ALA:HB3	1.93	0.48
12:M:167:SER:OG	12:M:168:GLU:N	2.47	0.48
15:P:217:ARG:HH11	15:P:387:GLU:HG3	1.78	0.48
15:P:381:ASP:OD1	15:P:381:ASP:N	2.46	0.48
1:A:351:PRO:O	1:A:355:GLU:N	2.38	0.48
5:E:2090:ILE:HG22	5:E:2318:THR:HB	1.96	0.48
6:F:753:GLU:HG3	6:F:772:VAL:HG13	1.95	0.48
5:E:2555:PHE:HZ	5:E:2964:LEU:HD22	1.79	0.48
8:I:142:ARG:HD3	8:I:150:ILE:HG13	1.94	0.48
5:E:2078:ALA:HB1	6:F:431:LYS:HE2	1.96	0.48
7:H:630:ALA:O	7:H:634:ARG:HG2	2.13	0.48
9:J:153:GLU:HG2	9:J:156:ARG:NH2	2.27	0.48
13:N:110:GLU:HA	13:N:113:ASP:HB3	1.96	0.48
15:P:106:TRP:HB2	15:P:109:LYS:HB3	1.94	0.48
4:D:896:ARG:HH21	4:D:952:GLU:HG3	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:969:PHE:HD2	5:E:971:PRO:HD2	1.79	0.48
11:L:105:ARG:NH2	11:L:220:PHE:O	2.46	0.48
11:L:180:ARG:HG2	11:L:185:ARG:HB2	1.96	0.48
2:B:671:ARG:HH11	2:B:706:MET:HA	1.78	0.48
5:E:2376:MET:HB3	10:K:263:ALA:HB1	1.96	0.48
6:F:439:ARG:NH1	18:S:108:MET:SD	2.87	0.48
16:Q:203:SER:HA	16:Q:217:PHE:HA	1.96	0.48
1:A:652:ARG:HH12	1:A:885:GLU:HG2	1.78	0.48
4:D:1114:ARG:HH21	6:G:908:GLU:HG3	1.79	0.48
5:E:630:ASN:HD22	7:H:163:LEU:HD22	1.79	0.48
6:F:676:THR:O	6:F:680:VAL:HG23	2.14	0.48
10:K:143:TYR:HE2	10:K:177:ALA:HB2	1.76	0.48
2:B:508:LYS:HG3	2:B:670:ARG:H	1.79	0.48
3:C:190:LEU:HD23	5:E:979:ARG:HH21	1.79	0.48
4:D:533:SER:O	4:D:537:ASN:ND2	2.46	0.48
5:E:969:PHE:O	5:E:972:ARG:NH1	2.46	0.48
6:G:451:LEU:HD11	6:G:454:ARG:HD2	1.96	0.48
6:G:511:LEU:HD11	6:G:613:LEU:HD23	1.94	0.48
6:G:539:GLY:HA2	6:G:542:PHE:HD2	1.79	0.48
16:Q:174:VAL:HG22	16:Q:189:LEU:HD11	1.96	0.48
4:D:762:HIS:CD2	4:D:763:PRO:HD2	2.49	0.47
4:D:881:LYS:HD3	4:D:1139:ASP:HA	1.95	0.47
5:E:1672:ILE:HG22	18:S:94:PRO:HG3	1.96	0.47
5:E:2381:THR:HG23	5:E:2382:THR:HG22	1.95	0.47
5:E:2887:TRP:O	6:G:896:THR:OG1	2.32	0.47
10:K:210:LYS:HD2	10:K:411:ASP:HB2	1.95	0.47
16:Q:344:LEU:HD23	16:Q:418:LEU:HD21	1.95	0.47
17:R:43:ASP:OD1	17:R:46:ASP:N	2.44	0.47
6:F:493:ARG:NH2	6:F:529:GLU:O	2.47	0.47
6:G:927:ALA:HB1	6:G:950:LEU:HD22	1.95	0.47
10:K:72:ARG:NH1	10:K:72:ARG:HG2	2.25	0.47
5:E:2908:GLU:HG2	6:F:1031:HIS:HB3	1.95	0.47
5:E:755:ILE:HG12	7:H:531:THR:HA	1.96	0.47
5:E:1386:SER:O	5:E:1388:LYS:N	2.47	0.47
5:E:2019:LEU:HD12	5:E:2317:THR:HG22	1.95	0.47
6:G:479:ASP:OD1	6:G:479:ASP:N	2.47	0.47
1:A:280:ALA:O	1:A:283:ALA:HB3	2.14	0.47
2:B:185:VAL:HG22	2:B:186:ALA:H	1.79	0.47
2:B:888:ARG:NH2	5:E:2866:PHE:O	2.48	0.47
4:D:1038:ASP:OD1	4:D:1038:ASP:N	2.48	0.47
6:F:479:ASP:HA	6:F:482:LYS:HE2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:387:THR:HG22	6:G:388:GLY:H	1.79	0.47
14:O:283:ARG:HB3	14:O:379:LEU:HD11	1.95	0.47
17:R:68:GLU:HG3	17:R:69:LYS:HG2	1.96	0.47
5:E:905:THR:O	5:E:905:THR:OG1	2.30	0.47
5:E:1785:THR:HG23	5:E:1789:TYR:CE1	2.50	0.47
6:F:804:GLU:HB3	6:F:963:THR:HG23	1.97	0.47
10:K:363:PRO:HA	10:K:366:VAL:HG22	1.95	0.47
11:L:183:HIS:NE2	17:R:55:GLU:OE2	2.41	0.47
12:M:234:PHE:HA	12:M:238:VAL:HG22	1.95	0.47
16:Q:289:TYR:HB2	16:Q:297:LEU:HD13	1.97	0.47
1:A:264:ALA:HA	1:A:267:ALA:HB3	1.97	0.47
1:A:327:ARG:HH12	5:E:1345:VAL:HG21	1.79	0.47
1:A:835:ASP:OD2	5:E:2706:ARG:NH2	2.40	0.47
4:D:728:GLY:HA2	4:D:769:MET:HB3	1.97	0.47
5:E:2524:LEU:HG	5:E:2586:GLY:HA3	1.96	0.47
5:E:2554:ILE:HD11	9:J:100:LEU:HD23	1.97	0.47
6:G:509:VAL:HG13	6:G:634:ARG:HG2	1.96	0.47
7:H:263:GLU:OE1	7:H:518:LYS:NZ	2.48	0.47
16:Q:243:VAL:O	16:Q:247:ALA:HB3	2.14	0.47
2:B:940:LEU:HD11	2:B:944:ARG:HH21	1.80	0.47
5:E:448:ASP:OD1	5:E:448:ASP:N	2.39	0.47
1:A:827:THR:OG1	1:A:833:ARG:NH1	2.42	0.47
5:E:553:ILE:O	5:E:557:LEU:HB2	2.14	0.47
5:E:1695:PRO:HA	5:E:1740:SER:HB2	1.96	0.47
5:E:2969:LYS:HD3	15:P:391:PHE:CE2	2.50	0.47
6:F:492:LEU:HD11	6:F:611:VAL:HG11	1.96	0.47
8:I:193:THR:OG1	8:I:196:MET:O	2.29	0.47
1:A:234:GLN:OE1	3:C:361:TYR:OH	2.31	0.47
2:B:768:SER:OG	2:B:830:GLY:HA3	2.15	0.47
6:G:220:GLN:HG3	6:G:221:TYR:H	1.80	0.47
12:M:256:PHE:HD1	12:M:256:PHE:N	2.13	0.47
1:A:760:THR:HG22	6:F:799:THR:HG22	1.97	0.46
4:D:546:ILE:HD12	4:D:593:THR:HG22	1.97	0.46
5:E:952:LYS:HD2	5:E:952:LYS:HA	1.75	0.46
6:F:647:ALA:O	6:F:651:GLN:HG3	2.15	0.46
5:E:1796:ALA:HA	5:E:1800:ILE:HG21	1.97	0.46
6:F:315:THR:O	6:F:315:THR:OG1	2.29	0.46
23:J:402:LMG:H321	23:J:402:LMG:H292	1.65	0.46
4:D:310:ALA:H	4:D:321:LEU:HD12	1.80	0.46
4:D:1143:THR:OG1	4:D:1144:GLU:N	2.48	0.46
5:E:1372:ASN:HA	5:E:1388:LYS:HG2	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:2930:LYS:HB3	5:E:2963:ILE:HG21	1.96	0.46
6:F:601:MET:HA	6:F:601:MET:HE2	1.98	0.46
6:F:768:GLU:HG2	16:Q:263:SER:OG	2.14	0.46
7:H:391:SER:O	7:H:394:GLU:HG2	2.16	0.46
9:J:336:ASN:ND2	12:M:169:ASN:O	2.48	0.46
14:O:111:PRO:O	14:O:114:SER:OG	2.28	0.46
1:A:592:ASP:N	1:A:592:ASP:OD1	2.46	0.46
5:E:2719:THR:OG1	5:E:2720:GLY:N	2.49	0.46
6:G:590:SER:HA	6:G:593:ILE:HG12	1.97	0.46
6:G:827:THR:OG1	6:G:828:GLY:N	2.49	0.46
16:Q:452:LEU:HD22	16:Q:453:TYR:CE1	2.50	0.46
19:T:17:ASP:HA	19:T:20:GLU:HB3	1.97	0.46
4:D:741:ARG:HD2	4:D:744:LEU:HD12	1.98	0.46
4:D:1022:THR:HG23	4:D:1066:LEU:HD21	1.97	0.46
6:G:630:GLY:N	6:G:633:ASP:OD2	2.45	0.46
4:D:554:ILE:O	4:D:574:LEU:HD11	2.15	0.46
5:E:1727:TYR:HA	5:E:1730:MET:HB2	1.98	0.46
5:E:1987:LEU:O	5:E:1994:GLN:NE2	2.49	0.46
5:E:2260:PRO:HB2	5:E:2262:GLU:OE1	2.16	0.46
6:G:562:ARG:NH2	6:G:600:GLN:OE1	2.39	0.46
9:J:210:TRP:H	23:J:402:LMG:HC3	1.81	0.46
19:T:41:LYS:HB2	19:T:41:LYS:HE3	1.71	0.46
1:A:291:LEU:HD11	1:A:292:ARG:NH2	2.31	0.46
4:D:348:LEU:HD23	4:D:348:LEU:HA	1.84	0.46
6:F:776:PRO:O	6:F:779:VAL:HB	2.16	0.46
6:F:914:GLU:OE1	6:F:968:TRP:NE1	2.48	0.46
7:H:467:GLU:OE1	7:H:469:TYR:OH	2.32	0.46
4:D:121:GLU:HG3	4:D:123:ALA:H	1.81	0.46
4:D:843:ARG:HD2	4:D:882:LEU:HD11	1.97	0.46
10:K:385:ARG:HA	10:K:385:ARG:HD2	1.75	0.46
15:P:221:ASP:OD2	15:P:337:ARG:NH2	2.44	0.46
16:Q:290:ARG:O	16:Q:330:ARG:NH1	2.44	0.46
2:B:590:ALA:HB1	2:B:598:ILE:HD11	1.98	0.46
2:B:647:THR:HG21	2:B:653:LEU:HD11	1.98	0.46
3:C:52:ARG:NH2	4:D:346:ASP:OD2	2.37	0.46
3:C:61:CYS:HB3	3:C:306:CYS:SG	2.56	0.46
6:F:686:ARG:O	6:F:690:MET:HG2	2.15	0.46
7:H:151:THR:O	7:H:351:ASN:ND2	2.48	0.46
1:A:659:ASP:OD1	1:A:707:ARG:NH2	2.46	0.46
3:C:218:ILE:HG23	3:C:231:ASN:HB3	1.97	0.46
5:E:1260:LEU:HD23	5:E:1260:LEU:HA	1.60	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:896:MET:HG2	5:E:2875:PRO:HD2	1.97	0.45
3:C:140:ALA:HB2	5:E:987:GLU:HG3	1.98	0.45
4:D:578:LEU:HD12	4:D:612:ARG:NE	2.30	0.45
5:E:954:LYS:HG3	5:E:959:GLU:HB2	1.98	0.45
5:E:2917:LEU:HD22	5:E:2924:LEU:HD11	1.97	0.45
13:N:58:ASN:HA	13:N:61:ILE:HD12	1.98	0.45
15:P:163:PHE:O	15:P:167:ASP:HB2	2.16	0.45
16:Q:120:ALA:HB1	16:Q:443:GLN:HG3	1.97	0.45
1:A:686:ILE:HG12	1:A:880:LEU:HD12	1.98	0.45
2:B:522:ARG:NH1	2:B:558:GLU:OE2	2.40	0.45
4:D:244:PHE:O	13:N:114:VAL:HG21	2.16	0.45
4:D:638:LYS:HD3	4:D:671:ALA:HB2	1.98	0.45
4:D:1028:ARG:O	6:G:825:GLN:NE2	2.47	0.45
5:E:1804:GLN:HE22	6:G:441:ARG:HH21	1.64	0.45
5:E:2414:ASP:OD1	5:E:2958:SER:OG	2.31	0.45
8:I:150:ILE:HG21	8:I:150:ILE:HD13	1.74	0.45
12:M:123:ARG:HA	12:M:123:ARG:HD3	1.80	0.45
15:P:148:TRP:O	15:P:185:ASN:ND2	2.41	0.45
1:A:632:ASN:ND2	6:F:627:ILE:HG13	2.31	0.45
5:E:568:LEU:HD12	7:H:267:ASN:HB2	1.97	0.45
5:E:1374:LYS:HE2	6:F:344:PRO:HA	1.99	0.45
5:E:1676:PRO:HB3	18:S:111:LEU:HD13	1.99	0.45
5:E:1793:ASN:O	5:E:1795:ALA:N	2.49	0.45
6:F:594:ILE:HD11	6:F:626:LEU:HD23	1.99	0.45
6:G:571:ILE:HG13	6:G:614:GLY:HA2	1.98	0.45
7:H:291:ASP:OD1	7:H:294:ARG:NH2	2.36	0.45
9:J:221:ALA:O	9:J:225:ILE:HG23	2.16	0.45
1:A:684:LYS:NZ	1:A:685:GLU:OE2	2.43	0.45
5:E:1182:TRP:HE3	5:E:1230:LEU:HD22	1.82	0.45
5:E:2943:ASN:N	5:E:2943:ASN:OD1	2.49	0.45
6:F:378:LEU:HB3	6:F:383:VAL:HB	1.99	0.45
6:F:688:ALA:HB2	6:F:699:ILE:HD11	1.99	0.45
6:G:411:MET:HE1	14:O:431:LYS:HG3	1.98	0.45
9:J:156:ARG:NH1	9:J:157:ILE:HB	2.31	0.45
4:D:822:GLN:NE2	5:E:2808:GLN:OE1	2.50	0.45
5:E:1418:CYS:HG	5:E:1763:THR:HG1	1.64	0.45
5:E:2524:LEU:HD11	5:E:2913:THR:HG23	1.98	0.45
6:F:626:LEU:HA	6:F:631:ARG:HD3	1.98	0.45
6:F:779:VAL:HG12	6:F:781:THR:HG22	1.98	0.45
6:G:195:VAL:HG22	6:G:326:GLN:HG2	1.98	0.45
11:L:79:ARG:HG3	17:R:84:ILE:HG22	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:Q:250:TYR:O	16:Q:252:ALA:N	2.50	0.45
2:B:26:ARG:HH22	18:S:7:ARG:HG2	1.81	0.45
10:K:411:ASP:HB3	10:K:418:ARG:HH22	1.82	0.45
10:K:416:THR:O	10:K:418:ARG:HG3	2.15	0.45
2:B:522:ARG:NH1	2:B:558:GLU:O	2.50	0.45
5:E:1261:ARG:HA	5:E:1261:ARG:HD3	1.74	0.45
6:G:595:ASN:O	6:G:599:VAL:HG12	2.16	0.45
10:K:409:ILE:HD11	10:K:420:MET:HG3	1.98	0.45
1:A:51:LEU:HG	1:A:130:GLY:H	1.81	0.45
3:C:1:MET:N	3:C:25:GLU:OE2	2.48	0.45
4:D:519:PHE:HZ	4:D:534:LEU:HD13	1.81	0.45
5:E:1956:GLN:NE2	5:E:1970:ASP:OD1	2.45	0.45
6:F:494:ASN:HB3	6:F:497:LEU:HB3	1.99	0.45
6:G:150:ARG:O	6:G:154:GLU:HG2	2.17	0.45
6:G:562:ARG:NH1	6:G:605:GLU:OE1	2.50	0.45
10:K:310:LEU:HD13	24:K:501:ACD:H192	1.98	0.45
17:R:62:LEU:HD23	17:R:62:LEU:HA	1.87	0.45
9:J:354:GLN:HE21	9:J:354:GLN:HB3	1.50	0.45
23:J:402:LMG:H312	23:J:402:LMG:H341	1.71	0.45
13:N:46:THR:HG23	13:N:48:GLU:H	1.82	0.45
4:D:171:ILE:HA	5:E:1317:GLN:HE22	1.80	0.45
5:E:2178:LEU:O	5:E:2877:ARG:NH1	2.41	0.45
7:H:447:LEU:HD22	7:H:481:ALA:HA	1.99	0.45
16:Q:373:ASP:N	16:Q:373:ASP:OD1	2.50	0.45
1:A:288:THR:N	1:A:289:PRO:HD2	2.32	0.44
4:D:212:LYS:HB2	4:D:228:PRO:HG3	1.98	0.44
5:E:1693:THR:HB	18:S:66:LEU:HD23	1.99	0.44
5:E:2246:LYS:HZ3	5:E:2271:SER:HA	1.82	0.44
5:E:2510:LYS:HB2	5:E:2510:LYS:HE2	1.83	0.44
6:G:489:ILE:HD13	6:G:526:ILE:HG23	1.99	0.44
1:A:345:LEU:HA	1:A:348:GLU:HG3	1.98	0.44
5:E:1336:LYS:HB2	5:E:1336:LYS:HE2	1.70	0.44
7:H:236:LEU:HD23	7:H:236:LEU:HA	1.86	0.44
7:H:328:LEU:HD13	7:H:403:GLN:HG2	2.00	0.44
7:H:334:LEU:HD23	7:H:334:LEU:HA	1.86	0.44
1:A:684:LYS:HB2	1:A:684:LYS:HE2	1.76	0.44
4:D:536:TYR:O	4:D:540:LYS:HG2	2.17	0.44
5:E:630:ASN:OD1	7:H:167:VAL:HG13	2.16	0.44
5:E:1335:ILE:HG22	5:E:1339:VAL:HG23	2.00	0.44
5:E:2816:GLU:HB2	5:E:2822:VAL:HG22	1.99	0.44
6:F:818:LYS:HE2	6:F:826:MET:HE1	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:484:LYS:HD2	4:D:611:GLY:HA2	2.00	0.44
4:D:1142:MET:CE	4:D:1149:LYS:HE2	2.48	0.44
6:G:389:VAL:HG23	6:G:390:THR:H	1.81	0.44
7:H:204:LEU:HD23	7:H:204:LEU:HA	1.87	0.44
17:R:17:ARG:HB3	17:R:31:VAL:HG23	1.99	0.44
17:R:51:MET:HB2	17:R:51:MET:HE3	1.84	0.44
4:D:879:TYR:O	4:D:883:THR:OG1	2.30	0.44
10:K:196:ASN:HB2	10:K:337:ALA:HB1	2.00	0.44
11:L:125:PRO:HG2	11:L:128:LEU:HG	2.00	0.44
17:R:80:ILE:O	17:R:84:ILE:HG12	2.18	0.44
4:D:553:ALA:HA	4:D:556:ARG:HH21	1.81	0.44
4:D:762:HIS:CE1	4:D:764:GLU:HB2	2.53	0.44
5:E:1777:ASP:OD1	6:G:560:ARG:NE	2.46	0.44
5:E:2351:PHE:HA	5:E:2416:ASN:HD21	1.83	0.44
15:P:124:GLU:OE2	15:P:186:ARG:NH1	2.44	0.44
3:C:295:HIS:HB3	5:E:1339:VAL:HG11	2.00	0.44
5:E:1179:GLN:HA	5:E:1182:TRP:HD1	1.83	0.44
5:E:2270:THR:HG23	5:E:2277:LYS:HA	2.00	0.44
10:K:364:GLN:HE22	10:K:372:MET:HA	1.83	0.44
15:P:72:ARG:NH2	15:P:82:GLU:OE1	2.47	0.44
2:B:832:GLU:HB2	2:B:840:LEU:HD21	2.00	0.44
5:E:910:LYS:HE2	13:N:116:VAL:HG12	1.99	0.44
5:E:1259:LYS:HG2	6:G:221:TYR:HA	2.00	0.44
5:E:1661:TYR:HA	18:S:105:ARG:HH22	1.83	0.44
5:E:2192:ILE:HG12	5:E:2695:PRO:HG2	1.99	0.44
9:J:284:LEU:O	9:J:288:SER:HB3	2.17	0.44
9:J:326:SER:HB3	11:L:215:PRO:HB2	2.00	0.44
23:J:402:LMG:H162	23:J:402:LMG:H132	1.79	0.44
1:A:181:PRO:O	1:A:292:ARG:NH1	2.51	0.44
1:A:361:ASN:HB2	6:F:425:LEU:HD21	1.99	0.44
1:A:676:LEU:HD23	6:F:793:ASN:HB3	2.00	0.44
2:B:102:GLY:H	5:E:1228:ILE:HD13	1.82	0.44
5:E:2578:LEU:O	5:E:2582:MET:HG3	2.17	0.44
6:F:624:SER:HA	6:F:627:ILE:HD11	2.00	0.44
3:C:155:GLU:OE2	3:C:216:TYR:OH	2.33	0.43
3:C:203:ARG:HD2	19:T:23:PHE:HE2	1.83	0.43
4:D:855:TRP:CG	5:E:2719:THR:HG22	2.53	0.43
5:E:546:PRO:HA	5:E:744:LEU:HD22	2.00	0.43
7:H:381:ASP:O	7:H:383:MET:N	2.51	0.43
2:B:869:TYR:HE2	2:B:904:GLU:HG2	1.83	0.43
4:D:564:ASP:O	4:D:568:MET:HG3	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:718:ALA:HA	4:D:905:ILE:HG12	1.99	0.43
4:D:768:LEU:HD22	6:G:742:PRO:HD3	1.99	0.43
5:E:745:THR:HG22	7:H:226:LEU:HD21	2.00	0.43
5:E:2374:ASN:HB3	10:K:265:TYR:HB2	1.99	0.43
6:G:349:VAL:HG13	6:G:368:LEU:HD11	2.00	0.43
10:K:409:ILE:O	10:K:417:TYR:HA	2.18	0.43
11:L:103:GLU:O	25:L:303:SQD:O4	2.25	0.43
15:P:419:GLU:O	15:P:423:GLU:HG2	2.18	0.43
1:A:287:ASP:O	1:A:288:THR:CB	2.65	0.43
2:B:521:PHE:HE2	2:B:561:VAL:HG11	1.84	0.43
2:B:615:ARG:HH11	4:D:562:GLY:HA2	1.84	0.43
3:C:24:ARG:NH2	5:E:1771:LYS:HE3	2.33	0.43
5:E:558:LYS:HA	7:H:341:ARG:HG2	1.99	0.43
5:E:1993:LEU:HD23	5:E:2338:ILE:HG21	2.01	0.43
5:E:2731:THR:OG1	5:E:2734:GLU:OE2	2.31	0.43
5:E:2742:LEU:O	5:E:2746:LYS:HG3	2.17	0.43
8:I:156:PRO:HB3	8:I:181:VAL:HA	1.99	0.43
15:P:48:VAL:HG12	15:P:52:ARG:HG3	2.01	0.43
1:A:597:LEU:HD23	1:A:597:LEU:HA	1.89	0.43
3:C:72:CYS:O	3:C:73:LEU:HD23	2.18	0.43
3:C:328:LEU:HD11	6:G:395:LEU:HD13	2.01	0.43
5:E:1993:LEU:HD23	5:E:1993:LEU:HA	1.79	0.43
5:E:2126:GLU:OE1	5:E:2128:HIS:ND1	2.35	0.43
10:K:424:VAL:O	10:K:428:GLU:CB	2.66	0.43
11:L:93:MET:HB2	11:L:98:ASP:HB2	2.00	0.43
11:L:180:ARG:NH1	11:L:208:PRO:O	2.51	0.43
3:C:165:GLU:HA	5:E:971:PRO:HD3	2.00	0.43
4:D:648:LEU:HA	4:D:651:THR:HG22	2.01	0.43
4:D:1069:ARG:HA	4:D:1069:ARG:HD2	1.85	0.43
5:E:1666:GLU:O	5:E:1671:PHE:HE1	2.01	0.43
15:P:55:PRO:HB2	15:P:266:THR:HG21	2.00	0.43
2:B:894:VAL:HG12	2:B:896:MET:HG3	2.01	0.43
3:C:219:VAL:HG12	3:C:228:ASN:HB3	2.00	0.43
4:D:751:ILE:HB	4:D:755:ASP:HB2	2.01	0.43
5:E:2568:LEU:HD11	9:J:91:ILE:HD11	2.00	0.43
5:E:2668:ARG:NH1	6:F:826:MET:O	2.52	0.43
6:F:428:LEU:O	6:F:430:ASN:N	2.48	0.43
6:G:207:ARG:HD3	6:G:310:LYS:HA	2.01	0.43
6:G:561:LEU:HD23	6:G:561:LEU:HA	1.64	0.43
7:H:639:ASP:OD1	7:H:639:ASP:N	2.51	0.43
9:J:292:GLN:HE22	9:J:295:ARG:HH21	1.67	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:240:PRO:HB3	6:F:375:LEU:HD13	1.99	0.43
4:D:321:LEU:HB2	6:G:185:LEU:HD11	1.99	0.43
5:E:569:LEU:HD23	5:E:569:LEU:HA	1.83	0.43
5:E:1980:THR:HG23	9:J:342:LYS:HD2	2.01	0.43
7:H:136:LEU:HD23	7:H:136:LEU:HA	1.91	0.43
9:J:150:MET:HG3	11:L:42:PRO:HB3	2.00	0.43
13:N:54:GLU:O	13:N:56:GLN:N	2.52	0.43
1:A:635:ASN:O	1:A:639:MET:HG2	2.18	0.43
2:B:872:LEU:HB2	2:B:873:ARG:HG3	2.00	0.43
3:C:277:GLU:OE1	5:E:1235:TRP:NE1	2.49	0.43
4:D:225:VAL:HG12	4:D:227:VAL:HG23	2.00	0.43
4:D:234:SER:OG	4:D:329:VAL:O	2.26	0.43
5:E:1729:LYS:HD3	5:E:1729:LYS:HA	1.86	0.43
5:E:1957:SER:HB3	5:E:1971:LEU:HB2	2.00	0.43
5:E:2414:ASP:OD1	5:E:2414:ASP:N	2.52	0.43
5:E:2528:LEU:HD22	5:E:2579:LEU:HD22	2.01	0.43
5:E:2718:LEU:O	5:E:2720:GLY:N	2.52	0.43
6:F:672:MET:CE	6:F:680:VAL:HG22	2.42	0.43
6:G:442:ARG:HA	6:G:445:LEU:HB2	1.99	0.43
8:I:305:GLU:HG3	8:I:309:TRP:CD1	2.54	0.43
17:R:17:ARG:HH12	17:R:28:LEU:HD21	1.83	0.43
1:A:839:PRO:HD2	5:E:2689:LEU:HD12	1.99	0.43
3:C:428:LEU:HD23	3:C:428:LEU:HA	1.80	0.43
5:E:901:PHE:CZ	5:E:944:ARG:HD3	2.54	0.43
5:E:2241:GLU:OE1	5:E:2244:ARG:NH1	2.52	0.43
5:E:2555:PHE:CZ	5:E:2964:LEU:HD22	2.53	0.43
5:E:2599:VAL:HG13	5:E:2643:MET:HG3	2.00	0.43
7:H:151:THR:OG1	7:H:157:LYS:NZ	2.52	0.43
8:I:285:LYS:HA	8:I:285:LYS:HD3	1.75	0.43
19:T:72:LEU:HD23	19:T:72:LEU:HA	1.93	0.43
1:A:815:SER:OG	1:A:816:THR:N	2.51	0.43
4:D:859:ASP:OD1	4:D:860:ASP:N	2.52	0.43
5:E:452:ILE:HD11	7:H:505:VAL:HG23	2.01	0.43
6:F:562:ARG:NH2	6:F:605:GLU:OE1	2.52	0.43
6:F:743:PRO:HA	6:F:746:ARG:HG2	2.01	0.43
6:F:758:LEU:HD23	6:F:921:LEU:HD23	2.01	0.43
6:F:1012:THR:HA	15:P:168:ILE:HG12	2.01	0.43
7:H:643:MET:O	7:H:647:THR:OG1	2.33	0.43
13:N:11:LEU:HD23	13:N:11:LEU:HA	1.89	0.43
17:R:54:LEU:HB3	17:R:80:ILE:HD11	1.99	0.43
4:D:312:TRP:HD1	7:H:185:VAL:HG12	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:361:GLU:HG3	13:N:16:LEU:HG	2.01	0.42
5:E:1243:ASN:HA	5:E:1325:PHE:HD2	1.84	0.42
5:E:1361:GLU:HG2	6:F:405:ARG:HE	1.84	0.42
7:H:445:VAL:HG21	21:H:701:DGA:HBF1	2.01	0.42
1:A:306:ALA:HB3	1:A:309:SER:HB2	2.01	0.42
4:D:640:LEU:HD13	4:D:647:LEU:HD22	2.01	0.42
4:D:1036:VAL:HG12	4:D:1039:LEU:HD12	2.01	0.42
13:N:45:PRO:HB2	13:N:49:ASP:HB3	2.00	0.42
15:P:205:ASP:OD1	15:P:205:ASP:N	2.52	0.42
15:P:264:GLN:O	15:P:268:LEU:HB2	2.19	0.42
1:A:805:ILE:HD11	5:E:2699:SER:HB3	2.01	0.42
2:B:23:LEU:HB2	19:T:113:LEU:HD21	2.01	0.42
3:C:7:ARG:H	3:C:7:ARG:HG3	1.67	0.42
3:C:159:ASN:ND2	3:C:159:ASN:O	2.52	0.42
3:C:400:ARG:HD2	3:C:400:ARG:HA	1.83	0.42
4:D:306:ARG:HE	4:D:306:ARG:HB2	1.63	0.42
4:D:892:ARG:HD2	4:D:952:GLU:CD	2.39	0.42
5:E:2379:LEU:HA	5:E:2379:LEU:HD12	1.77	0.42
6:F:361:GLU:HG3	9:J:298:ARG:HA	2.01	0.42
7:H:231:VAL:HA	7:H:505:VAL:HG11	2.01	0.42
8:I:106:ALA:HB1	8:I:126:ILE:HD12	2.00	0.42
11:L:160:GLY:O	11:L:164:ILE:HG13	2.19	0.42
3:C:183:TRP:HZ2	5:E:944:ARG:HH12	1.67	0.42
3:C:323:ALA:HB1	3:C:329:GLU:HA	2.01	0.42
5:E:2175:ILE:HD12	5:E:2183:ASN:HB2	2.01	0.42
5:E:2706:ARG:HD3	5:E:2871:GLN:HB3	2.01	0.42
9:J:199:ARG:HE	11:L:200:LYS:HB2	1.84	0.42
14:O:111:PRO:HG2	14:O:362:PHE:HE1	1.85	0.42
16:Q:358:GLN:OE1	16:Q:407:SER:HA	2.20	0.42
17:R:11:LYS:HB3	17:R:11:LYS:HE2	1.77	0.42
1:A:741:ARG:NE	1:A:819:MET:SD	2.89	0.42
6:F:514:ALA:HB3	6:F:517:THR:HB	2.01	0.42
6:F:589:GLU:O	6:F:593:ILE:HG23	2.19	0.42
7:H:135:LEU:O	7:H:139:VAL:N	2.42	0.42
8:I:282:PRO:HD2	8:I:283:LEU:HD22	2.02	0.42
2:B:533:ARG:HG3	2:B:534:ALA:H	1.84	0.42
4:D:1031:MET:HE1	4:D:1040:ILE:HD13	2.01	0.42
5:E:572:LYS:HE3	5:E:572:LYS:HB3	1.85	0.42
5:E:2331:PRO:HG2	6:F:679:ASP:HA	2.01	0.42
5:E:2371:ILE:HD13	9:J:266:VAL:HB	2.02	0.42
6:F:472:TRP:HB2	6:F:525:ALA:HB1	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:772:VAL:HG22	6:G:784:THR:HG23	2.02	0.42
22:J:401:DGD:HA82	23:L:301:LMG:H362	2.02	0.42
10:K:351:LEU:HD23	10:K:351:LEU:HA	1.90	0.42
2:B:169:ALA:HB2	5:E:809:ARG:HH12	1.84	0.42
2:B:637:GLU:HG3	2:B:638:GLN:H	1.83	0.42
4:D:554:ILE:HD13	4:D:554:ILE:HA	1.89	0.42
5:E:967:THR:OG1	5:E:968:ARG:N	2.52	0.42
5:E:1699:ILE:O	5:E:1703:LEU:HB2	2.19	0.42
8:I:160:GLN:OE1	8:I:204:CYS:HA	2.20	0.42
10:K:409:ILE:HG21	10:K:423:VAL:HG11	2.02	0.42
15:P:249:ASP:OD1	15:P:249:ASP:N	2.43	0.42
16:Q:365:LEU:HD23	16:Q:365:LEU:HA	1.85	0.42
2:B:69:VAL:HG11	2:B:133:ILE:HD11	2.01	0.42
2:B:821:LEU:HD11	2:B:916:LEU:HD23	2.00	0.42
4:D:804:ARG:HA	4:D:804:ARG:HD3	1.88	0.42
5:E:619:LEU:HA	7:H:185:VAL:HG21	2.00	0.42
5:E:1762:ASP:OD1	5:E:1762:ASP:N	2.39	0.42
6:F:741:ILE:HA	6:F:742:PRO:HD3	1.90	0.42
6:G:742:PRO:HA	6:G:743:PRO:HD3	1.96	0.42
7:H:643:MET:HA	7:H:646:ARG:HG2	2.01	0.42
9:J:199:ARG:NH2	11:L:196:LEU:HD12	2.35	0.42
15:P:149:ASP:N	15:P:149:ASP:OD1	2.51	0.42
16:Q:279:ALA:HB1	16:Q:321:VAL:HG21	2.01	0.42
3:C:390:LYS:HD2	3:C:390:LYS:HA	1.87	0.42
4:D:467:ARG:NE	4:D:472:ASP:OD2	2.53	0.42
5:E:541:LEU:HD11	5:E:751:PHE:HB3	2.02	0.42
5:E:905:THR:H	13:N:107:THR:HG22	1.84	0.42
6:F:324:TYR:OH	6:F:374:LEU:HG	2.19	0.42
6:F:704:ILE:O	6:F:708:MET:HG3	2.20	0.42
6:G:485:ILE:O	6:G:489:ILE:HG12	2.20	0.42
15:P:127:TRP:CH2	15:P:198:VAL:HG23	2.55	0.42
2:B:941:LEU:HD12	2:B:941:LEU:HA	1.94	0.42
3:C:114:ARG:HD2	3:C:114:ARG:HA	1.75	0.42
6:G:376:ASP:OD1	7:H:206:ARG:NH1	2.51	0.42
6:G:438:ILE:HG13	6:G:441:ARG:HH11	1.85	0.42
7:H:296:GLY:CA	7:H:485:MET:HE2	2.50	0.42
7:H:338:LYS:HG2	7:H:386:ALA:HB3	2.01	0.42
9:J:156:ARG:HG2	9:J:156:ARG:HH11	1.85	0.42
9:J:213:HIS:HE2	9:J:324:ASP:HB3	1.85	0.42
10:K:234:VAL:HG12	10:K:235:LEU:HD23	2.01	0.42
10:K:387:GLY:O	10:K:389:TYR:N	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:L:303:SQD:H242	25:L:303:SQD:H272	1.87	0.42
12:M:169:ASN:HD22	12:M:169:ASN:HA	1.47	0.42
2:B:875:LEU:HB2	2:B:893:THR:HG21	2.01	0.41
4:D:484:LYS:H	4:D:484:LYS:HG2	1.44	0.41
4:D:851:HIS:HB3	4:D:854:MET:HG3	2.01	0.41
4:D:1108:LEU:HD23	4:D:1108:LEU:HA	1.87	0.41
5:E:2028:ASN:OD1	5:E:2028:ASN:N	2.52	0.41
6:F:650:MET:HB3	6:F:665:TRP:CE3	2.54	0.41
6:F:981:ASP:HB3	16:Q:385:PRO:HB3	2.01	0.41
1:A:200:VAL:HG12	6:F:405:ARG:HH12	1.86	0.41
1:A:636:GLU:HG3	1:A:657:GLY:HA2	2.01	0.41
2:B:139:ARG:HA	2:B:139:ARG:HD3	1.83	0.41
3:C:137:SER:HB2	5:E:990:LYS:HB2	2.02	0.41
4:D:1091:THR:HA	4:D:1094:MET:HB2	2.01	0.41
6:G:491:TYR:HB2	6:G:498:LEU:HG	2.02	0.41
11:L:185:ARG:HE	11:L:210:VAL:HG11	1.84	0.41
12:M:256:PHE:N	12:M:256:PHE:CD1	2.87	0.41
14:O:231:VAL:O	14:O:235:LEU:HG	2.20	0.41
14:O:373:VAL:HG13	14:O:380:TRP:CE3	2.54	0.41
19:T:58:LEU:O	19:T:61:SER:OG	2.30	0.41
1:A:139:PRO:HA	2:B:157:GLU:HG3	2.03	0.41
1:A:629:ASP:HA	1:A:632:ASN:OD1	2.19	0.41
4:D:422:GLU:O	4:D:426:SER:CB	2.68	0.41
4:D:1047:GLU:HB2	4:D:1135:LEU:HD23	2.02	0.41
5:E:2797:ILE:O	5:E:2802:GLY:N	2.48	0.41
6:F:428:LEU:HD11	6:F:435:GLN:OE1	2.20	0.41
6:F:742:PRO:HD2	6:F:745:LEU:HD12	2.02	0.41
9:J:317:CYS:O	9:J:321:MET:HG3	2.20	0.41
16:Q:241:LEU:HD12	16:Q:241:LEU:HA	1.91	0.41
2:B:674:PHE:O	2:B:678:LEU:HD23	2.20	0.41
4:D:306:ARG:HD2	6:G:328:TRP:CD1	2.56	0.41
5:E:267:TYR:O	5:E:271:GLN:HB2	2.21	0.41
5:E:2276:ALA:O	5:E:2280:MET:HG2	2.21	0.41
7:H:548:ALA:HB1	7:H:551:ARG:NH1	2.35	0.41
9:J:199:ARG:HH21	11:L:200:LYS:HB2	1.86	0.41
7:H:335:SER:HB3	7:H:389:VAL:HG12	2.03	0.41
7:H:455:VAL:HB	7:H:472:THR:HG22	2.01	0.41
1:A:42:GLU:HB3	1:A:133:LEU:HD11	2.03	0.41
1:A:846:ARG:HD3	1:A:932:TYR:CZ	2.56	0.41
2:B:877:SER:HG	2:B:894:VAL:H	1.64	0.41
4:D:551:ILE:HD13	4:D:595:GLY:HA3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:1259:LYS:HG2	6:G:221:TYR:HD1	1.86	0.41
5:E:1294:LYS:HB2	5:E:1294:LYS:HE2	1.94	0.41
5:E:2124:ARG:HB2	5:E:2124:ARG:NH1	2.36	0.41
6:F:440:TYR:CE1	18:S:117:VAL:HG21	2.55	0.41
7:H:522:PRO:HG3	8:I:306:LEU:HD22	2.03	0.41
9:J:196:GLY:HA2	9:J:205:TRP:CE2	2.56	0.41
10:K:146:LEU:HD23	10:K:146:LEU:HA	1.94	0.41
13:N:48:GLU:HG3	13:N:52:LYS:HG2	2.02	0.41
17:R:60:ILE:HG21	17:R:84:ILE:HD13	2.02	0.41
2:B:53:ASN:O	2:B:55:TYR:N	2.52	0.41
5:E:2176:SER:HB2	5:E:2178:LEU:HD12	2.02	0.41
15:P:358:THR:O	15:P:360:ARG:N	2.53	0.41
18:S:83:PRO:O	18:S:89:ARG:NH1	2.54	0.41
1:A:602:LEU:O	1:A:605:ARG:NH1	2.48	0.41
4:D:432:PHE:HB2	4:D:511:PHE:HB3	2.02	0.41
4:D:609:ARG:HD2	6:G:515:PRO:HG2	2.03	0.41
6:F:322:LEU:HD13	6:F:364:CYS:HB3	2.03	0.41
7:H:394:GLU:HB2	7:H:397:ALA:HB3	2.03	0.41
9:J:212:ASP:O	23:J:402:LMG:O3	2.30	0.41
10:K:284:PRO:O	10:K:288:SER:HB3	2.20	0.41
13:N:16:LEU:HA	13:N:19:VAL:HG22	2.03	0.41
15:P:179:PRO:HB2	15:P:203:ARG:HG2	2.02	0.41
1:A:878:LYS:HD2	16:Q:152:TYR:HA	2.03	0.41
3:C:14:TYR:O	3:C:18:MET:HG3	2.21	0.41
4:D:198:SER:OG	4:D:199:TYR:N	2.53	0.41
4:D:907:LYS:HB2	4:D:907:LYS:HE2	1.84	0.41
5:E:1182:TRP:HZ3	5:E:1233:LEU:HD23	1.85	0.41
5:E:1804:GLN:NE2	6:G:441:ARG:HH21	2.18	0.41
5:E:2090:ILE:HD12	5:E:2090:ILE:HA	1.91	0.41
5:E:2161:LEU:HB3	6:F:887:PHE:CZ	2.56	0.41
5:E:2417:ILE:HG12	5:E:2955:GLU:HB3	2.03	0.41
5:E:2552:ILE:HD11	9:J:105:LYS:HD3	2.02	0.41
5:E:2586:GLY:HA2	5:E:2913:THR:HG21	2.03	0.41
5:E:2589:ILE:HD13	5:E:2589:ILE:HA	1.86	0.41
6:F:581:ARG:NE	6:F:588:ASP:OD2	2.54	0.41
6:G:627:ILE:HD13	6:G:627:ILE:HA	1.91	0.41
7:H:269:LEU:HD23	7:H:383:MET:HG2	2.03	0.41
7:H:511:ASN:HD22	7:H:511:ASN:HA	1.68	0.41
7:H:565:LEU:HD12	7:H:565:LEU:HA	1.88	0.41
23:L:301:LMG:H381	23:L:301:LMG:H352	1.78	0.41
12:M:175:GLU:OE1	18:S:82:TRP:NE1	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:P:217:ARG:HH22	15:P:390:TYR:HB3	1.86	0.41
18:S:74:GLU:CD	18:S:74:GLU:H	2.24	0.41
18:S:106:VAL:O	18:S:110:TYR:HD1	2.03	0.41
1:A:378:ILE:HD13	1:A:378:ILE:HA	1.99	0.41
1:A:906:ARG:O	1:A:908:ALA:N	2.54	0.41
1:A:911:GLU:HA	16:Q:379:ARG:HH12	1.86	0.41
3:C:442:MET:SD	19:T:29:GLU:HG2	2.61	0.41
4:D:148:LEU:HD23	4:D:148:LEU:HA	1.96	0.41
4:D:739:SER:OG	4:D:740:GLY:N	2.52	0.41
5:E:1289:LEU:HB2	13:N:53:LEU:HB3	2.02	0.41
5:E:1407:ILE:HD13	5:E:1407:ILE:HA	1.93	0.41
7:H:443:VAL:HG21	21:H:701:DGA:HA61	2.03	0.41
10:K:213:LEU:O	10:K:217:MET:CB	2.67	0.41
12:M:211:LEU:HD12	12:M:229:LEU:HD11	2.02	0.41
2:B:627:LEU:HD12	2:B:627:LEU:HA	1.93	0.40
4:D:1135:LEU:HD12	4:D:1135:LEU:HA	1.91	0.40
6:F:393:ASP:OD1	6:F:396:ARG:NH1	2.54	0.40
6:G:759:LEU:HD13	6:G:762:ILE:HD11	2.03	0.40
8:I:93:ASN:HB3	8:I:94:THR:H	1.63	0.40
11:L:152:LEU:HD22	17:R:45:LEU:HG	2.03	0.40
2:B:551:MET:HE2	2:B:551:MET:HB2	1.87	0.40
2:B:659:ARG:HG2	2:B:660:PRO:HD2	2.02	0.40
5:E:325:GLN:HG2	5:E:1944:LEU:HD23	2.03	0.40
5:E:2079:LEU:HD11	6:F:438:ILE:HG13	2.03	0.40
5:E:2117:GLU:OE1	5:E:2123:GLN:HG3	2.22	0.40
6:G:504:ALA:HB1	9:J:363:MET:HB3	2.02	0.40
8:I:84:GLU:HB3	8:I:85:PHE:H	1.76	0.40
8:I:297:ARG:O	8:I:301:SER:HB3	2.21	0.40
9:J:230:GLY:N	22:J:401:DGD:HD2	2.37	0.40
14:O:395:LEU:HA	14:O:395:LEU:HD23	1.89	0.40
17:R:47:THR:O	17:R:51:MET:HG3	2.22	0.40
1:A:330:LEU:HD23	1:A:330:LEU:HA	1.94	0.40
1:A:661:PHE:CE2	6:F:627:ILE:HD12	2.56	0.40
1:A:878:LYS:HB2	16:Q:152:TYR:HB3	2.04	0.40
3:C:34:ILE:HG21	6:G:421:HIS:HB3	2.04	0.40
4:D:1085:PRO:HG3	6:G:925:TRP:CE3	2.56	0.40
5:E:1292:PHE:HE2	13:N:69:ARG:HA	1.87	0.40
6:F:368:LEU:HD13	6:F:374:LEU:HD11	2.03	0.40
6:F:909:LEU:HD23	6:F:909:LEU:HA	1.92	0.40
6:G:162:GLN:HB3	6:G:163:MET:H	1.53	0.40
14:O:440:ARG:NH2	18:S:97:TYR:H	2.19	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:P:58:LEU:HD12	15:P:263:LEU:HD21	2.03	0.40
4:D:847:LEU:HD21	4:D:1128:MET:HG2	2.04	0.40
5:E:903:LYS:HD3	5:E:903:LYS:HA	1.89	0.40
5:E:1292:PHE:CE2	13:N:69:ARG:HG2	2.57	0.40
5:E:1312:SER:OG	6:G:204:ARG:NH1	2.51	0.40
5:E:1960:SER:OG	5:E:1961:HIS:N	2.54	0.40
6:F:562:ARG:HD3	6:F:606:ASP:HB2	2.03	0.40
6:G:336:VAL:HA	6:G:353:THR:HA	2.02	0.40
6:G:499:ARG:NH1	9:J:359:GLY:O	2.54	0.40
7:H:507:LEU:HA	7:H:510:ALA:HB3	2.03	0.40
23:J:402:LMG:H201	23:J:402:LMG:H311	2.03	0.40
15:P:390:TYR:CE2	15:P:392:ASP:HB2	2.56	0.40
18:S:23:LYS:HE3	18:S:23:LYS:HB2	1.84	0.40
1:A:840:SER:OG	1:A:841:ASP:N	2.54	0.40
5:E:2658:THR:HG21	6:G:858:ASP:H	1.86	0.40
6:F:798:LEU:HD13	6:F:803:LEU:HD21	2.03	0.40
6:G:445:LEU:HA	6:G:445:LEU:HD23	1.85	0.40
6:G:505:ARG:HD2	9:J:364:ARG:HA	2.03	0.40
6:G:569:LEU:O	6:G:612:VAL:HA	2.21	0.40
11:L:93:MET:HA	11:L:98:ASP:H	1.85	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	A	711/982 (72%)	635 (89%)	66 (9%)	10 (1%)	9 40
2	B	593/1024 (58%)	536 (90%)	52 (9%)	5 (1%)	16 51
3	C	385/462 (83%)	348 (90%)	35 (9%)	2 (0%)	25 60
4	D	965/1178 (82%)	899 (93%)	63 (6%)	3 (0%)	37 69

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	E	1402/2971 (47%)	1273 (91%)	114 (8%)	15 (1%)	12	44
6	F	668/1058 (63%)	598 (90%)	64 (10%)	6 (1%)	14	49
6	G	662/1058 (63%)	607 (92%)	50 (8%)	5 (1%)	16	51
7	H	496/691 (72%)	431 (87%)	57 (12%)	8 (2%)	8	37
8	I	200/330 (61%)	174 (87%)	24 (12%)	2 (1%)	13	47
9	J	270/365 (74%)	249 (92%)	21 (8%)	0	100	100
10	K	368/682 (54%)	346 (94%)	19 (5%)	3 (1%)	16	51
11	L	183/255 (72%)	164 (90%)	19 (10%)	0	100	100
12	M	133/303 (44%)	123 (92%)	10 (8%)	0	100	100
13	N	123/324 (38%)	107 (87%)	15 (12%)	1 (1%)	16	51
14	O	187/471 (40%)	181 (97%)	6 (3%)	0	100	100
15	P	404/555 (73%)	379 (94%)	21 (5%)	4 (1%)	13	47
16	Q	382/495 (77%)	365 (96%)	14 (4%)	3 (1%)	16	51
17	R	82/117 (70%)	75 (92%)	7 (8%)	0	100	100
18	S	112/137 (82%)	107 (96%)	5 (4%)	0	100	100
19	T	105/299 (35%)	96 (91%)	9 (9%)	0	100	100
All	All	8431/13757 (61%)	7693 (91%)	671 (8%)	67 (1%)	19	51

All (67) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	127	ALA
1	A	288	THR
1	A	828	VAL
2	B	185	VAL
3	C	179	VAL
5	E	2122	SER
5	E	2171	PRO
5	E	2249	LYS
6	F	320	ARG
6	G	220	GLN
7	H	143	VAL
10	K	71	SER
3	C	235	VAL
5	E	1387	GLU
5	E	1794	VAL

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Mol	Chain	Res	Type
5	E	2247	PRO
5	E	2348	ILE
5	E	2424	PHE
6	F	794	VAL
6	F	1014	PHE
6	G	389	VAL
6	G	794	VAL
7	H	375	ALA
7	H	398	SER
10	K	388	PRO
15	P	359	ARG
16	Q	251	LEU
1	A	930	TRP
2	B	525	GLU
2	B	877	SER
5	E	1377	VAL
5	E	2173	GLN
5	E	2248	ASN
5	E	2719	THR
6	F	1006	SER
7	H	184	ALA
15	P	269	GLU
16	Q	473	GLU
4	D	1150	LEU
7	H	385	VAL
8	I	220	ASN
10	K	431	LEU
16	Q	103	GLY
1	A	814	VAL
5	E	2030	VAL
6	F	891	THR
6	G	566	PRO
1	A	674	HIS
1	A	710	ILE
1	A	884	LYS
5	E	2956	LEU
7	H	153	GLU
7	H	344	HIS
7	H	364	ALA
8	I	286	VAL
15	P	364	VAL
15	P	24	SER

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Mol	Chain	Res	Type
1	A	142	VAL
4	D	973	ILE
6	G	165	ALA
1	A	813	VAL
2	B	54	VAL
4	D	700	ALA
6	F	427	PRO
13	N	47	PRO
2	B	155	PRO
5	E	2632	LEU

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	561/774 (72%)	551 (98%)	10 (2%)	54 77
2	B	472/773 (61%)	465 (98%)	7 (2%)	60 81
3	C	309/347 (89%)	298 (96%)	11 (4%)	30 62
4	D	776/934 (83%)	758 (98%)	18 (2%)	45 72
5	E	1367/2762 (50%)	1333 (98%)	34 (2%)	42 71
6	F	536/819 (65%)	527 (98%)	9 (2%)	56 78
6	G	548/819 (67%)	532 (97%)	16 (3%)	37 67
7	H	347/485 (72%)	343 (99%)	4 (1%)	67 85
8	I	174/268 (65%)	170 (98%)	4 (2%)	45 72
9	J	199/261 (76%)	195 (98%)	4 (2%)	50 75
10	K	283/492 (58%)	274 (97%)	9 (3%)	34 65
11	L	160/215 (74%)	155 (97%)	5 (3%)	35 66
12	M	110/243 (45%)	109 (99%)	1 (1%)	75 89
13	N	107/229 (47%)	102 (95%)	5 (5%)	22 55
14	O	149/340 (44%)	143 (96%)	6 (4%)	27 59
15	P	345/451 (76%)	340 (99%)	5 (1%)	62 82

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
16	Q	277/358 (77%)	274 (99%)	3 (1%)	70 86
17	R	64/87 (74%)	63 (98%)	1 (2%)	58 79
18	S	91/107 (85%)	90 (99%)	1 (1%)	70 86
19	T	83/200 (42%)	78 (94%)	5 (6%)	16 48
All	All	6958/10964 (64%)	6800 (98%)	158 (2%)	46 72

All (158) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	92	PHE
1	A	203	TRP
1	A	242	ASP
1	A	291	LEU
1	A	339	ARG
1	A	632	ASN
1	A	661	PHE
1	A	868	GLU
1	A	893	ASP
1	A	916	LYS
2	B	83	TRP
2	B	521	PHE
2	B	632	ASP
2	B	634	PHE
2	B	670	ARG
2	B	671	ARG
2	B	703	MET
3	C	24	ARG
3	C	72	CYS
3	C	114	ARG
3	C	159	ASN
3	C	192	LYS
3	C	216	TYR
3	C	290	ASP
3	C	325	MET
3	C	342	LYS
3	C	351	ASP
3	C	366	LEU
4	D	195	MET
4	D	204	GLU
4	D	229	HIS
4	D	455	MET

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Mol	Chain	Res	Type
4	D	467	ARG
4	D	484	LYS
4	D	498	TYR
4	D	511	PHE
4	D	552	ASP
4	D	646	ARG
4	D	678	ASN
4	D	690	LEU
4	D	935	ASP
4	D	1081	PHE
4	D	1090	GLN
4	D	1101	TYR
4	D	1109	ASP
4	D	1114	ARG
5	E	327	ASN
5	E	455	CYS
5	E	615	ASN
5	E	617	ARG
5	E	635	TYR
5	E	944	ARG
5	E	958	LEU
5	E	966	ARG
5	E	969	PHE
5	E	1372	ASN
5	E	1431	SER
5	E	1444	LYS
5	E	1448	ASN
5	E	1661	TYR
5	E	1663	PHE
5	E	1974	ASP
5	E	2011	LYS
5	E	2032	TYR
5	E	2051	ASP
5	E	2097	ARG
5	E	2128	HIS
5	E	2234	PHE
5	E	2246	LYS
5	E	2420	ASN
5	E	2424	PHE
5	E	2510	LYS
5	E	2600	LYS
5	E	2668	ARG

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Mol	Chain	Res	Type
5	E	2672	ARG
5	E	2744	SER
5	E	2749	ASN
5	E	2870	ASP
5	E	2891	PHE
5	E	2964	LEU
6	F	324	TYR
6	F	386	ASP
6	F	431	LYS
6	F	441	ARG
6	F	666	TYR
6	F	681	MET
6	F	771	ARG
6	F	823	GLU
6	F	1039	PHE
6	G	162	GLN
6	G	167	GLU
6	G	168	HIS
6	G	204	ARG
6	G	288	ASP
6	G	303	PHE
6	G	439	ARG
6	G	454	ARG
6	G	493	ARG
6	G	541	ASP
6	G	561	LEU
6	G	807	MET
6	G	826	MET
6	G	847	SER
6	G	894	MET
6	G	911	ASP
7	H	342	PRO
7	H	495	ASP
7	H	520	ARG
7	H	620	ARG
8	I	85	PHE
8	I	153	ARG
8	I	166	GLN
8	I	187	GLU
9	J	199	ARG
9	J	345	ASP
9	J	353	TRP

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Mol	Chain	Res	Type
9	J	354	GLN
10	K	70	PHE
10	K	97	PHE
10	K	100	ARG
10	K	122	TYR
10	K	162	MET
10	K	346	ARG
10	K	411	ASP
10	K	425	ASP
10	K	430	ASP
11	L	61	ASP
11	L	74	GLN
11	L	95	CYS
11	L	118	GLN
11	L	221	TRP
12	M	130	PHE
13	N	10	ASP
13	N	40	ASP
13	N	43	PHE
13	N	49	ASP
13	N	72	TYR
14	O	341	ASN
14	O	362	PHE
14	O	369	TRP
14	O	384	TYR
14	O	415	CYS
14	O	439	ARG
15	P	72	ARG
15	P	107	ARG
15	P	136	CYS
15	P	357	LYS
15	P	380	PHE
16	Q	366	ARG
16	Q	373	ASP
16	Q	452	LEU
17	R	89	ASN
18	S	99	ASN
19	T	50	ASP
19	T	85	TYR
19	T	96	ASP
19	T	99	ARG
19	T	122	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	891	GLN
3	C	228	ASN
5	E	2416	ASN
5	E	2420	ASN
5	E	2892	ASN
12	M	169	ASN
15	P	355	ASN
17	R	83	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
17	SEP	R	44	17	8,9,10	1.58	1 (12%)	8,12,14	1.36	2 (25%)

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
17	SEP	R	44	17	-	3/5/8/10	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	R	44	SEP	P-O1P	3.38	1.61	1.50

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
17	R	44	SEP	P-OG-CB	-2.28	112.01	118.30
17	R	44	SEP	OG-CB-CA	2.28	110.36	108.14

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
17	R	44	SEP	CB-OG-P-O2P
17	R	44	SEP	CB-OG-P-O3P
17	R	44	SEP	CB-OG-P-O1P

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 9 ligands modelled in this entry, 2 are monoatomic - leaving 7 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	$\#\|Z\| > 2$
22	DGD	L	302	-	67,67,67	1.15	6 (8%)	81,81,81	1.09	8 (9%)
25	SQD	L	303	-	35,36,54	1.75	5 (14%)	44,47,65	2.27	11 (25%)
23	LMG	J	402	-	41,41,55	1.02	1 (2%)	49,49,63	1.12	5 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
23	LMG	L	301	-	47,47,55	0.95	1 (2%)	55,55,63	1.03	4 (7%)
21	DGA	H	701	-	35,35,43	0.69	0	37,37,45	0.89	2 (5%)
24	ACD	K	501	-	20,20,21	2.48	5 (25%)	19,19,21	1.30	1 (5%)
22	DGD	J	401	-	48,48,67	1.20	3 (6%)	62,62,81	1.29	9 (14%)

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
22	DGD	L	302	-	-	38/55/95/95	0/2/2/2
25	SQD	L	303	-	-	13/31/51/69	0/1/1/1
23	LMG	J	402	-	-	19/36/56/70	0/1/1/1
23	LMG	L	301	-	-	20/42/62/70	0/1/1/1
21	DGA	H	701	-	-	21/37/37/45	-
24	ACD	K	501	-	-	10/17/18/19	-
22	DGD	J	401	-	-	13/36/76/95	0/2/2/2

All (21) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
25	L	303	SQD	O9-S	5.30	1.60	1.45
24	K	501	ACD	O1-C1	5.20	1.49	1.19
25	L	303	SQD	O7-S	4.95	1.59	1.45
24	K	501	ACD	C9-C8	4.46	1.57	1.31
24	K	501	ACD	C12-C11	4.44	1.57	1.31
24	K	501	ACD	C15-C14	4.42	1.57	1.31
24	K	501	ACD	C6-C5	4.39	1.57	1.31
25	L	303	SQD	O8-S	3.95	1.61	1.47
22	L	302	DGD	C3G-C2G	2.65	1.58	1.50
22	J	401	DGD	C3G-C2G	2.57	1.58	1.50
23	L	301	LMG	C7-C8	2.57	1.58	1.50
23	J	402	LMG	C7-C8	2.45	1.58	1.50
25	L	303	SQD	C46-C45	2.39	1.58	1.50
25	L	303	SQD	O4-C4	-2.35	1.37	1.43
22	L	302	DGD	O5D-C1E	2.35	1.44	1.40
22	J	401	DGD	C1G-C2G	2.30	1.57	1.50
22	L	302	DGD	C1G-C2G	2.19	1.57	1.50
22	L	302	DGD	C6D-C5D	2.18	1.58	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
22	J	401	DGD	C4D-C5D	2.18	1.57	1.53
22	L	302	DGD	C3E-C2E	2.14	1.57	1.52
22	L	302	DGD	C4D-C5D	2.03	1.57	1.53

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
25	L	303	SQD	O9-S-C6	9.56	118.30	106.94
25	L	303	SQD	O8-S-C6	4.95	113.63	105.74
25	L	303	SQD	O7-S-C6	4.46	112.24	106.94
22	J	401	DGD	O2G-C1B-C2B	3.65	119.38	111.50
24	K	501	ACD	O1-C1-C2	-3.64	102.99	126.89
22	J	401	DGD	O3G-C1D-C2D	3.56	113.87	108.30
25	L	303	SQD	O8-S-O7	-3.52	102.68	111.27
22	L	302	DGD	O3G-C1D-C2D	3.36	113.55	108.30
25	L	303	SQD	O8-S-O9	-3.28	103.25	111.27
25	L	303	SQD	O47-C7-C8	3.23	118.46	111.50
22	L	302	DGD	O2G-C1B-C2B	3.15	118.30	111.50
22	J	401	DGD	O6E-C1E-O5D	-3.14	102.53	109.97
23	L	301	LMG	O7-C10-C11	3.03	118.02	111.50
23	J	402	LMG	O7-C10-C11	3.00	117.96	111.50
25	L	303	SQD	O5-C1-O6	-2.99	102.90	109.97
23	J	402	LMG	O2-C2-C1	-2.95	102.88	110.05
21	H	701	DGA	OXT-CG3-CG2	-2.79	104.39	111.78
25	L	303	SQD	O9-S-O7	-2.55	105.13	113.95
23	L	301	LMG	O2-C2-C1	-2.48	104.02	110.05
22	J	401	DGD	O6D-C1D-O3G	-2.47	104.12	109.97
23	L	301	LMG	O4-C4-C3	-2.46	104.67	110.35
22	L	302	DGD	O3E-C3E-C4E	-2.44	104.71	110.35
23	J	402	LMG	O7-C10-O9	-2.44	117.82	123.70
23	L	301	LMG	O7-C10-O9	-2.40	117.90	123.70
23	J	402	LMG	O4-C4-C3	-2.34	104.93	110.35
22	L	302	DGD	O1G-C1G-C2G	2.34	115.24	108.43
22	L	302	DGD	C6D-O5D-C1E	2.32	118.27	113.74
22	L	302	DGD	O5E-C6E-C5E	-2.32	103.34	111.29
25	L	303	SQD	O6-C1-C2	2.31	111.91	108.30
22	J	401	DGD	O5E-C6E-C5E	-2.29	103.42	111.29
22	J	401	DGD	O2G-C1B-O1B	-2.26	118.23	123.70
23	J	402	LMG	O6-C1-O1	-2.14	104.90	109.97
25	L	303	SQD	O48-C23-O10	-2.11	118.26	123.59
22	L	302	DGD	O2G-C1B-O1B	-2.11	118.61	123.70
22	J	401	DGD	O3E-C3E-C4E	-2.10	105.49	110.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
22	J	401	DGD	O1G-C1G-C2G	2.09	114.51	108.43
22	L	302	DGD	O6E-C5E-C4E	2.08	113.47	109.69
22	J	401	DGD	C6E-C5E-C4E	-2.03	108.26	113.00
25	L	303	SQD	C1-C2-C3	-2.02	105.78	110.00
21	H	701	DGA	CG2-OG2-CB1	2.02	122.76	117.79

There are no chirality outliers.

All (134) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
21	H	701	DGA	CB2-CB1-OG2-CG2
22	J	401	DGD	C2B-C1B-O2G-C2G
22	J	401	DGD	O1B-C1B-O2G-C2G
22	L	302	DGD	C2B-C1B-O2G-C2G
22	L	302	DGD	O2G-C2G-C3G-O3G
22	L	302	DGD	O6D-C1D-O3G-C3G
22	L	302	DGD	C2E-C1E-O5D-C6D
22	L	302	DGD	O6E-C1E-O5D-C6D
23	L	301	LMG	O9-C10-O7-C8
24	K	501	ACD	C9-C10-C11-C12
25	L	303	SQD	O49-C7-O47-C45
25	L	303	SQD	C8-C7-O47-C45
21	H	701	DGA	OB1-CB1-OG2-CG2
22	L	302	DGD	O1B-C1B-O2G-C2G
23	L	301	LMG	C11-C10-O7-C8
22	L	302	DGD	O1A-C1A-O1G-C1G
22	L	302	DGD	C2A-C1A-O1G-C1G
23	J	402	LMG	C29-C30-C31-C32
22	L	302	DGD	O6E-C5E-C6E-O5E
23	J	402	LMG	O6-C5-C6-O5
22	L	302	DGD	CAA-CBA-CCA-CDA
22	L	302	DGD	CCA-CDA-CEA-CFA
23	J	402	LMG	C13-C14-C15-C16
22	L	302	DGD	C6B-C7B-C8B-C9B
23	J	402	LMG	C4-C5-C6-O5
22	L	302	DGD	C3A-C4A-C5A-C6A
23	L	301	LMG	O6-C1-O1-C7
25	L	303	SQD	C24-C25-C26-C27
21	H	701	DGA	CBB-CAB-CB9-CB8
23	J	402	LMG	C29-C28-O8-C9
22	L	302	DGD	C1A-C2A-C3A-C4A
25	L	303	SQD	C23-C24-C25-C26

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Mol	Chain	Res	Type	Atoms
21	H	701	DGA	CB1-CB2-CB3-CB4
24	K	501	ACD	C13-C14-C15-C16
22	J	401	DGD	C2A-C1A-O1G-C1G
23	J	402	LMG	O10-C28-O8-C9
22	L	302	DGD	C2B-C3B-C4B-C5B
23	J	402	LMG	C28-C29-C30-C31
23	J	402	LMG	C10-C11-C12-C13
23	L	301	LMG	C4-C5-C6-O5
23	L	301	LMG	C33-C34-C35-C36
23	J	402	LMG	C11-C10-O7-C8
22	L	302	DGD	C2A-C3A-C4A-C5A
23	L	301	LMG	C12-C13-C14-C15
23	L	301	LMG	C31-C32-C33-C34
22	J	401	DGD	O1A-C1A-O1G-C1G
22	L	302	DGD	C4E-C5E-C6E-O5E
22	L	302	DGD	CDB-CEB-CFB-CGB
23	J	402	LMG	O9-C10-O7-C8
21	H	701	DGA	CCB-CDB-CEB-CFB
22	L	302	DGD	C2D-C1D-O3G-C3G
22	L	302	DGD	CDA-CEA-CFA-CGA
23	L	301	LMG	C14-C15-C16-C17
24	K	501	ACD	C16-C17-C18-C19
21	H	701	DGA	CB4-CB5-CB6-CB7
23	J	402	LMG	C14-C15-C16-C17
23	L	301	LMG	C18-C19-C20-C21
23	J	402	LMG	C11-C12-C13-C14
22	L	302	DGD	CAB-CBB-CCB-CDB
21	H	701	DGA	CA2-CA1-OG1-CG1
23	L	301	LMG	C15-C16-C17-C18
21	H	701	DGA	CB9-CAB-CBB-CCB
23	J	402	LMG	C17-C18-C19-C20
23	J	402	LMG	C30-C31-C32-C33
22	L	302	DGD	CBA-CCA-CDA-CEA
21	H	701	DGA	CAB-CBB-CCB-CDB
23	L	301	LMG	C30-C31-C32-C33
22	L	302	DGD	C3B-C4B-C5B-C6B
21	H	701	DGA	CB6-CB7-CB8-CB9
22	J	401	DGD	C1B-C2B-C3B-C4B
23	J	402	LMG	C12-C13-C14-C15
21	H	701	DGA	OA1-CA1-OG1-CG1
23	J	402	LMG	C18-C19-C20-C21
23	L	301	LMG	C35-C36-C37-C38

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Mol	Chain	Res	Type	Atoms
22	J	401	DGD	C2A-C3A-C4A-C5A
22	L	302	DGD	CEB-CFB-CGB-CHB
21	H	701	DGA	CA5-CA6-CA7-CA8
21	H	701	DGA	CB2-CB3-CB4-CB5
23	L	301	LMG	O1-C7-C8-O7
25	L	303	SQD	C24-C23-O48-C46
24	K	501	ACD	C2-C3-C4-C5
23	J	402	LMG	C31-C32-C33-C34
23	L	301	LMG	C11-C12-C13-C14
22	L	302	DGD	CCB-CDB-CEB-CFB
23	J	402	LMG	C32-C33-C34-C35
23	L	301	LMG	O6-C5-C6-O5
22	L	302	DGD	CFA-CGA-CHA-CIA
25	L	303	SQD	O10-C23-O48-C46
23	L	301	LMG	C20-C21-C22-C23
22	J	401	DGD	C3B-C4B-C5B-C6B
22	L	302	DGD	O1G-C1G-C2G-O2G
22	J	401	DGD	C3A-C4A-C5A-C6A
22	L	302	DGD	CEA-CFA-CGA-CHA
24	K	501	ACD	C7-C8-C9-C10
22	L	302	DGD	C6A-C7A-C8A-C9A
22	L	302	DGD	C8A-C9A-CAA-CBA
21	H	701	DGA	CB3-CB4-CB5-CB6
24	K	501	ACD	C17-C18-C19-C20
22	L	302	DGD	C1G-C2G-C3G-O3G
23	L	301	LMG	O1-C7-C8-C9
25	L	303	SQD	C44-C45-C46-O48
22	L	302	DGD	C4A-C5A-C6A-C7A
22	L	302	DGD	CBB-CCB-CDB-CEB
24	K	501	ACD	C6-C7-C8-C9
24	K	501	ACD	C11-C10-C9-C8
25	L	303	SQD	C7-C8-C9-C10
22	L	302	DGD	CFB-CGB-CHB-CIB
23	L	301	LMG	C37-C38-C39-C40
22	J	401	DGD	C2B-C3B-C4B-C5B
23	L	301	LMG	C34-C35-C36-C37
22	J	401	DGD	C4A-C5A-C6A-C7A
21	H	701	DGA	CA7-CA8-CA9-CAA
25	L	303	SQD	C27-C28-C29-C30
21	H	701	DGA	OG1-CG1-CG2-CG3
25	L	303	SQD	C5-C6-S-O8
25	L	303	SQD	C5-C6-S-O7

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Mol	Chain	Res	Type	Atoms
25	L	303	SQD	C5-C6-S-O9
22	L	302	DGD	O1G-C1G-C2G-C3G
25	L	303	SQD	O47-C45-C46-O48
22	L	302	DGD	C2G-C3G-O3G-C1D
21	H	701	DGA	CFB-CGB-CHB-CIB
21	H	701	DGA	CDB-CEB-CFB-CGB
21	H	701	DGA	CBB-CCB-CDB-CEB
22	J	401	DGD	O6E-C1E-O5D-C6D
21	H	701	DGA	CG3-CG2-OG2-CB1
24	K	501	ACD	C12-C13-C14-C15
22	L	302	DGD	C1B-C2B-C3B-C4B
22	J	401	DGD	C2E-C1E-O5D-C6D
22	L	302	DGD	O1G-C1A-C2A-C3A
24	K	501	ACD	C10-C11-C12-C13
22	J	401	DGD	O6D-C1D-O3G-C3G
23	J	402	LMG	O7-C10-C11-C12
23	L	301	LMG	C29-C30-C31-C32
21	H	701	DGA	CA1-CA2-CA3-CA4

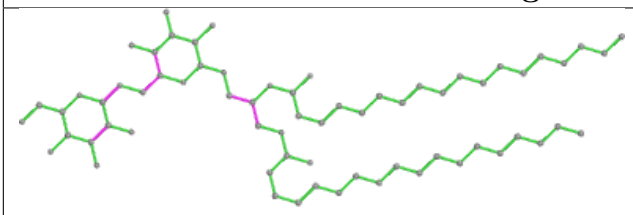
There are no ring outliers.

6 monomers are involved in 15 short contacts:

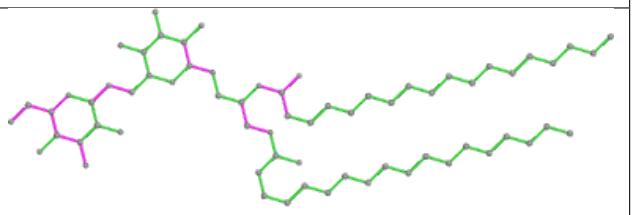
Mol	Chain	Res	Type	Clashes	Symm-Clashes
25	L	303	SQD	2	0
23	J	402	LMG	6	0
23	L	301	LMG	2	0
21	H	701	DGA	3	0
24	K	501	ACD	1	0
22	J	401	DGD	2	0

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

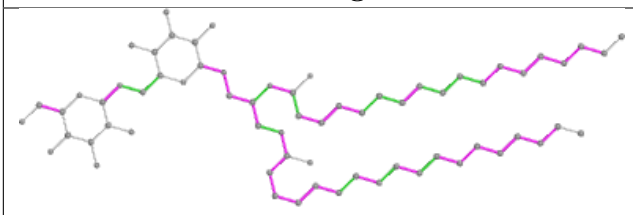
Ligand DGD L 302



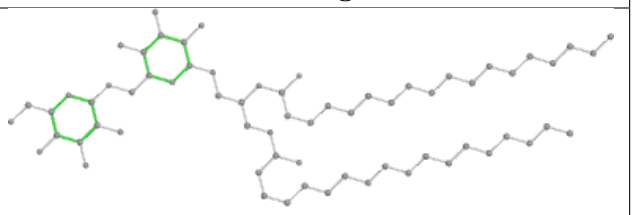
Bond lengths



Bond angles

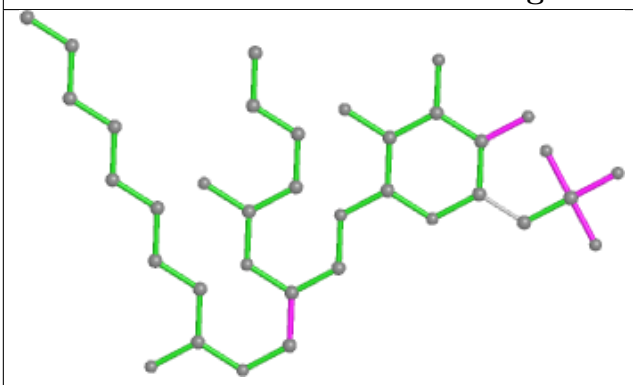


Torsions

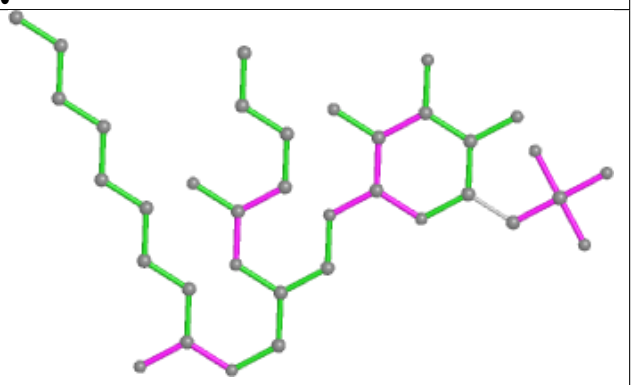


Rings

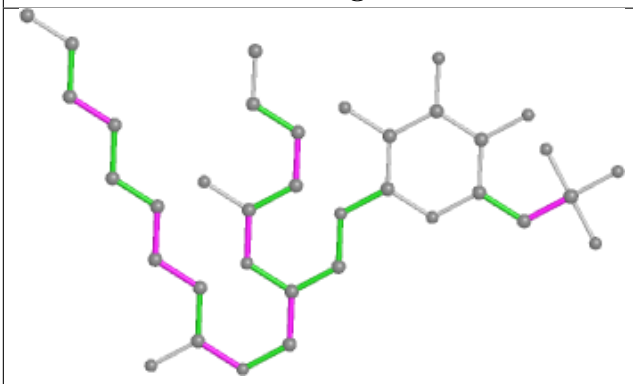
Ligand SQD L 303



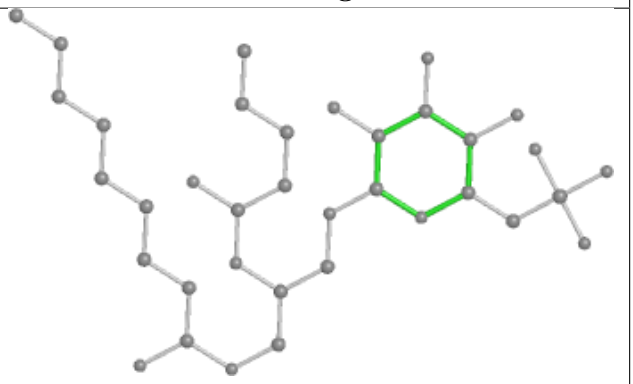
Bond lengths



Bond angles

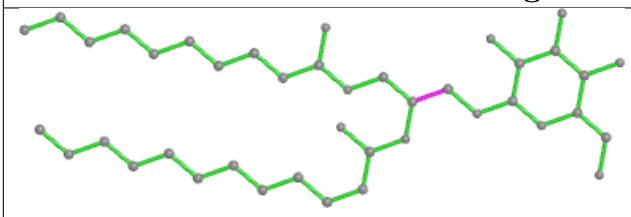


Torsions

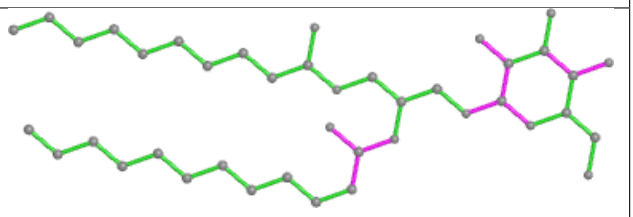


Rings

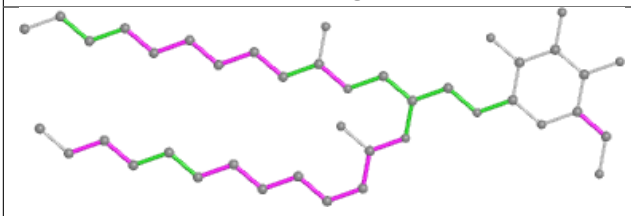
Ligand LMG J 402



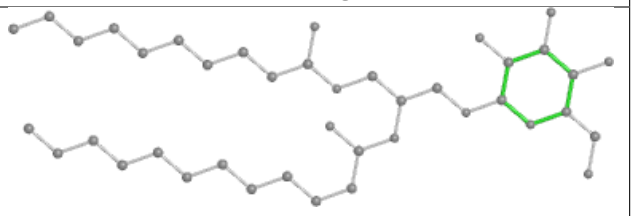
Bond lengths



Bond angles

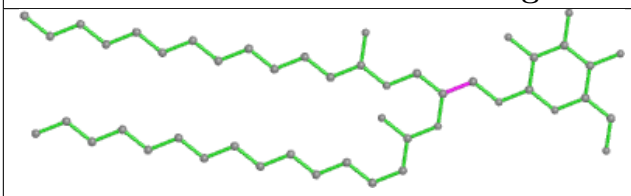


Torsions

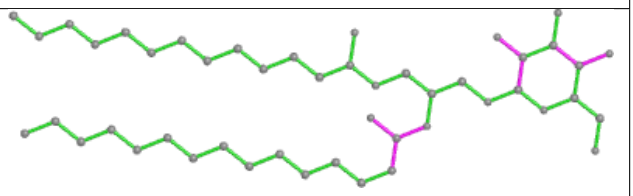


Rings

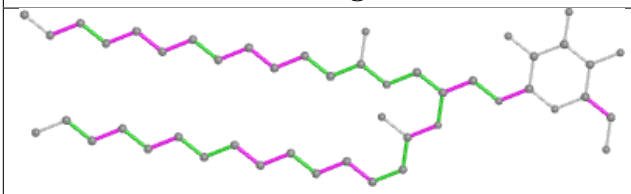
Ligand LMG L 301



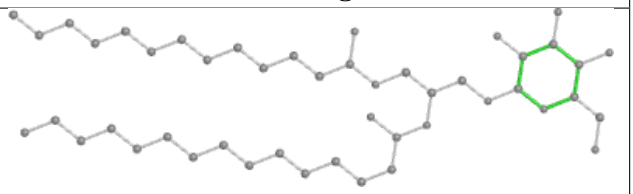
Bond lengths



Bond angles

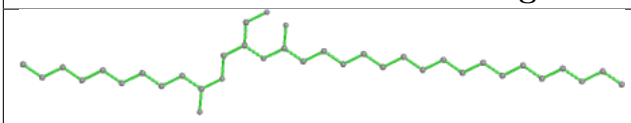


Torsions

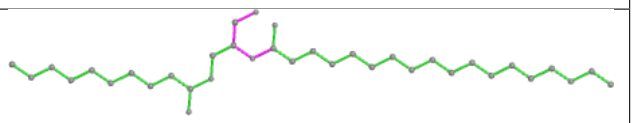


Rings

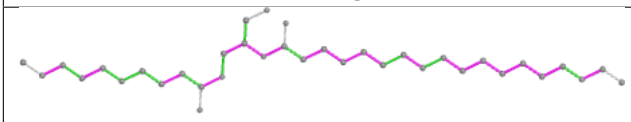
Ligand DGA H 701



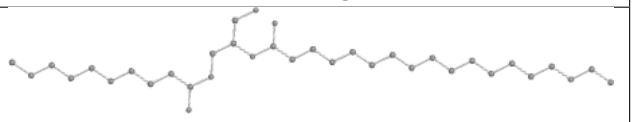
Bond lengths



Bond angles

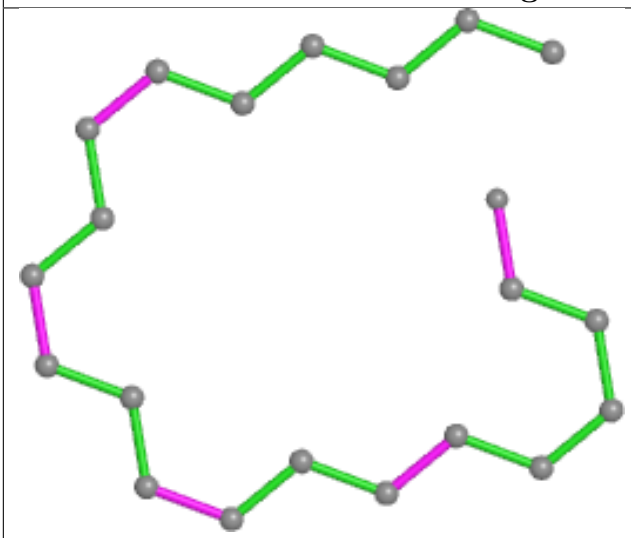


Torsions

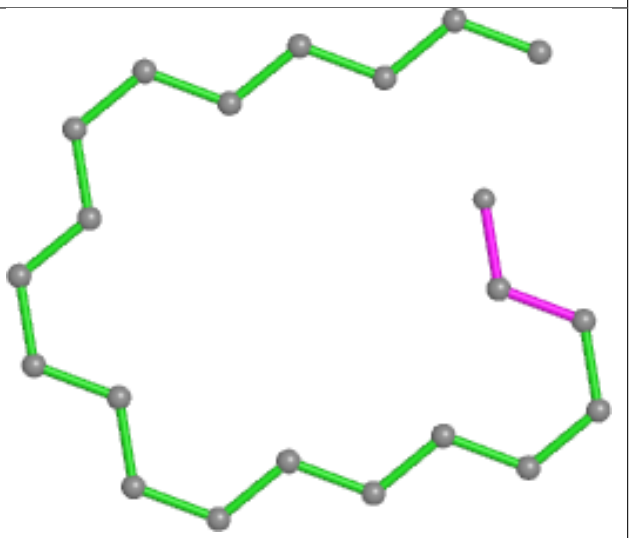


Rings

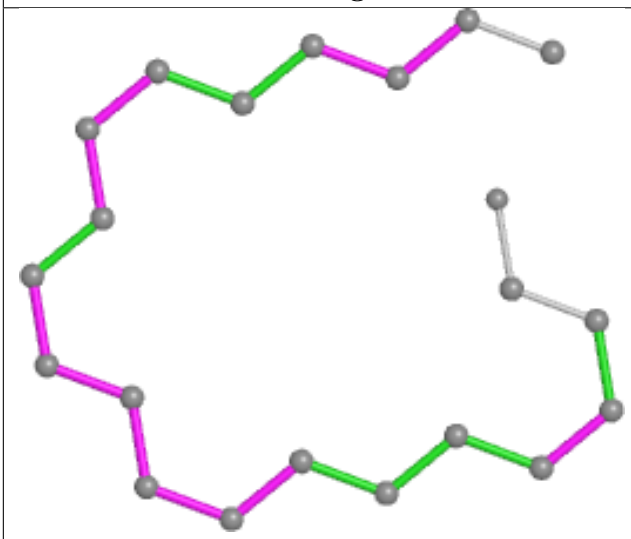
Ligand ACD K 501



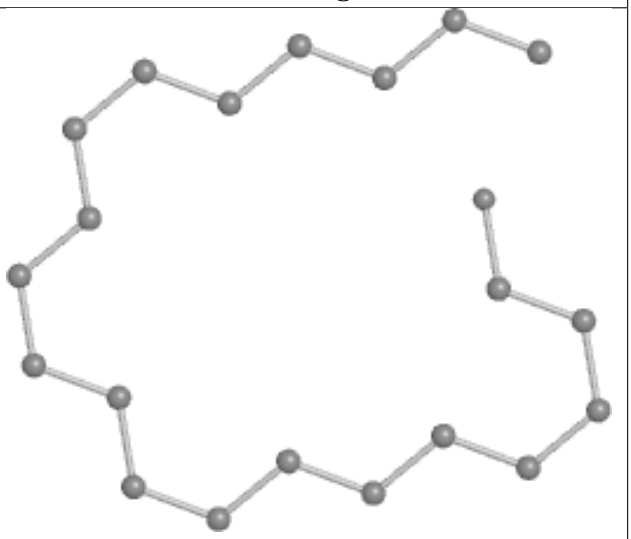
Bond lengths



Bond angles

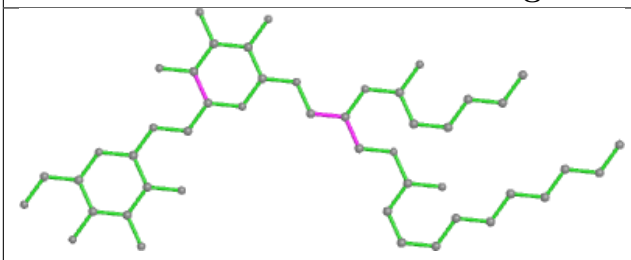


Torsions

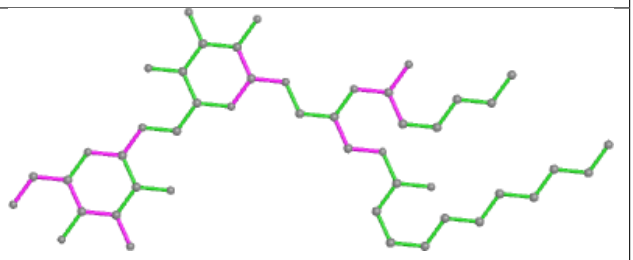


Rings

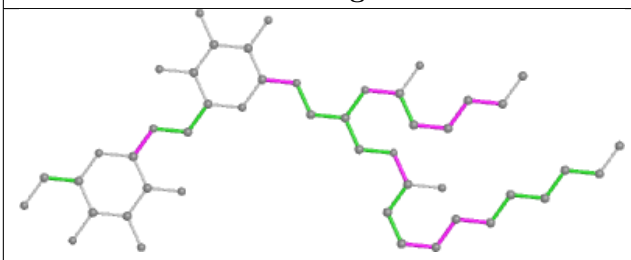
Ligand DGD J 401



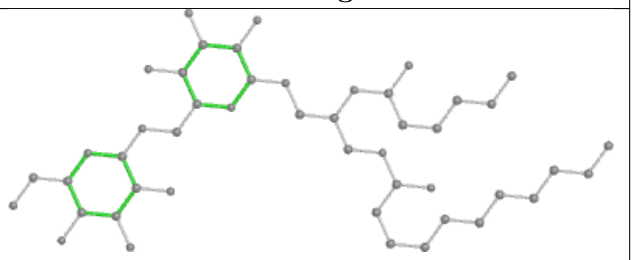
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

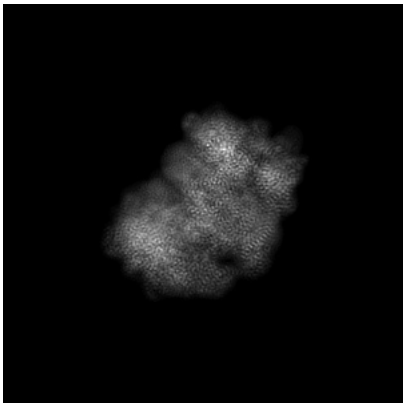
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-38424. These allow visual inspection of the internal detail of the map and identification of artifacts.

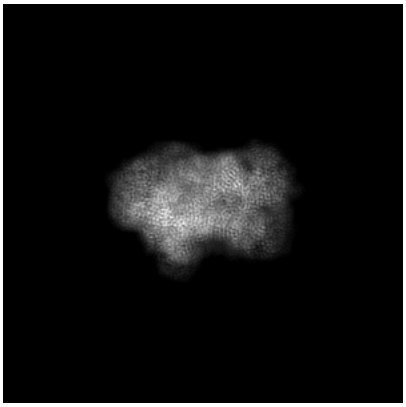
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

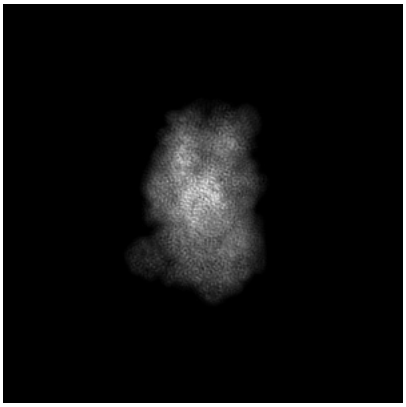
6.1.1 Primary map



X



Y

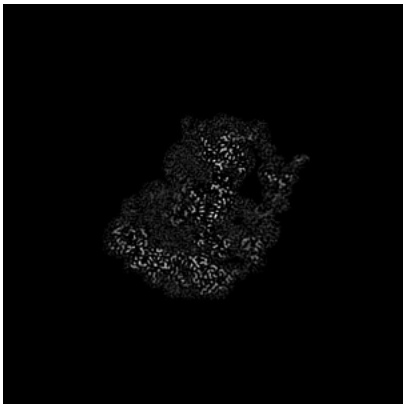


Z

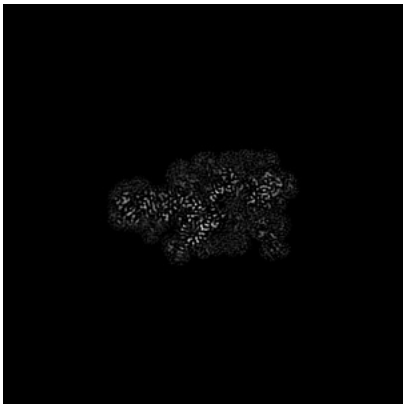
The images above show the map projected in three orthogonal directions.

6.2 Central slices

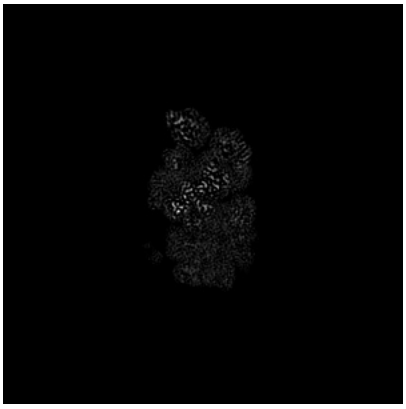
6.2.1 Primary map



X Index: 210



Y Index: 210

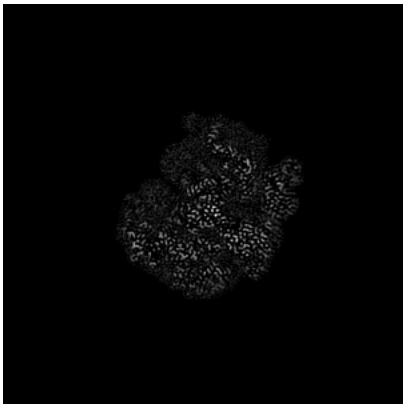


Z Index: 210

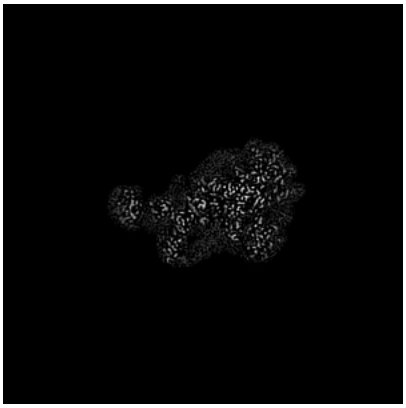
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

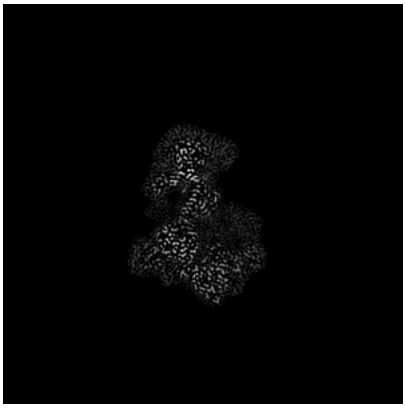
6.3.1 Primary map



X Index: 195



Y Index: 228

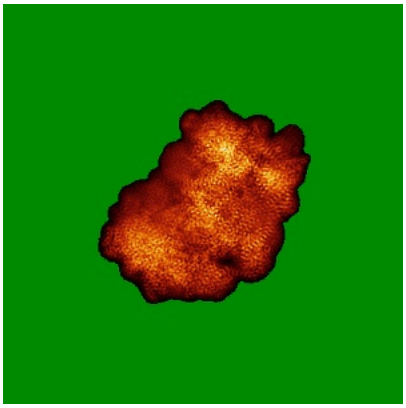


Z Index: 171

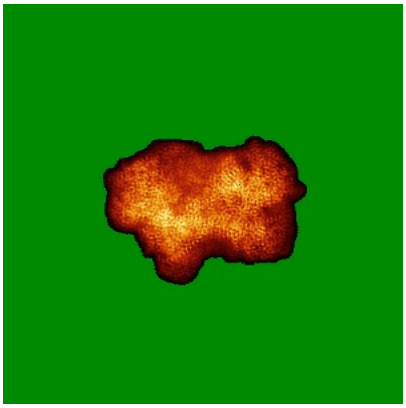
The images above show the largest variance slices of the map in three orthogonal directions.

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

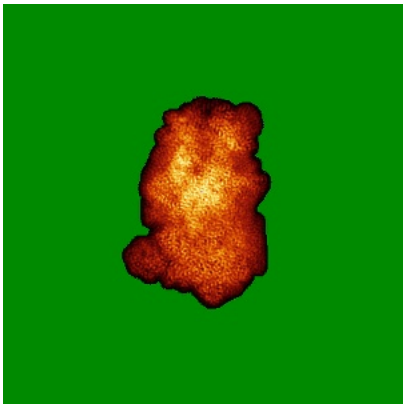
6.4.1 Primary map



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 0.00943. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

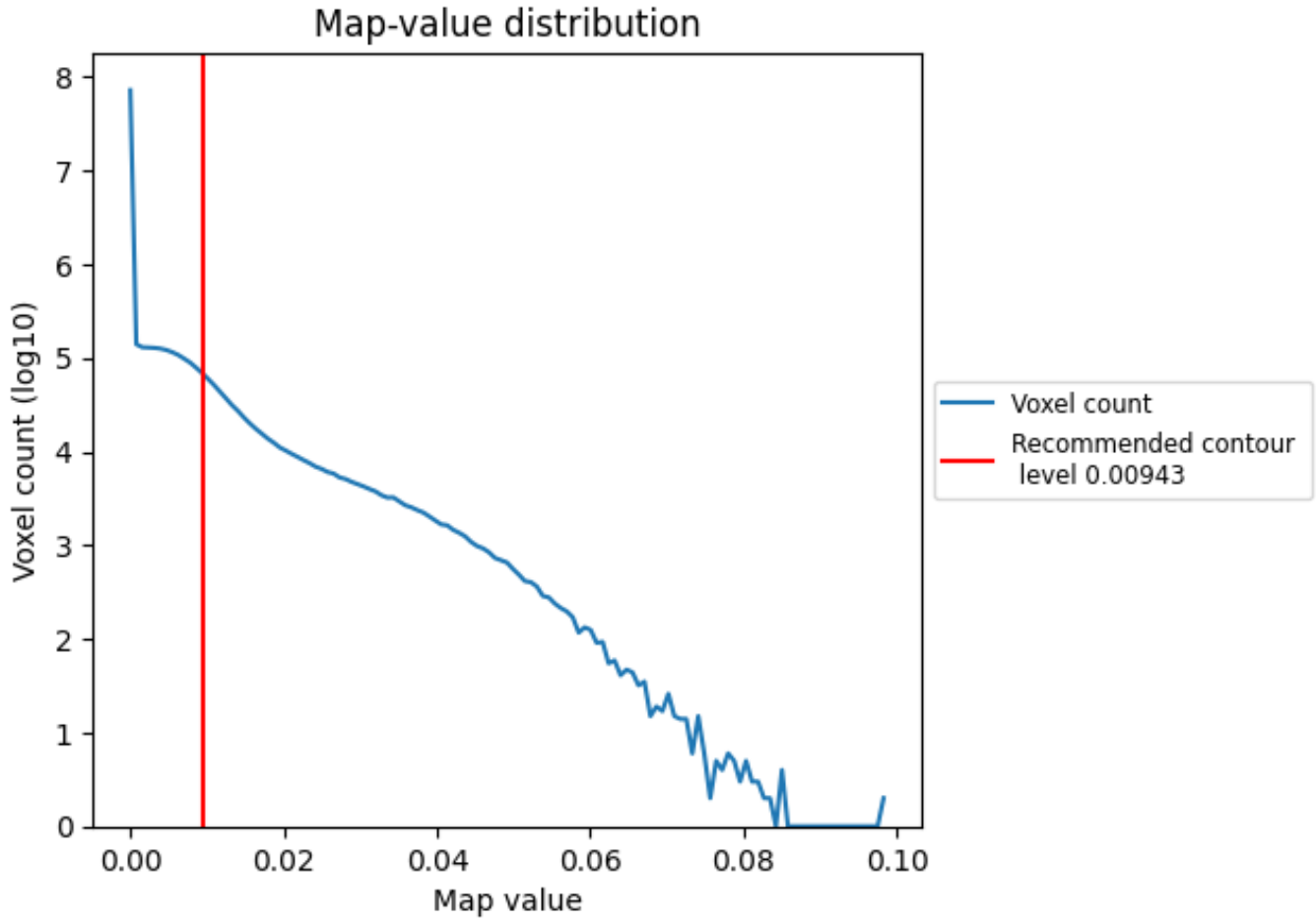
6.6 Mask visualisation (i)

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

7 Map analysis

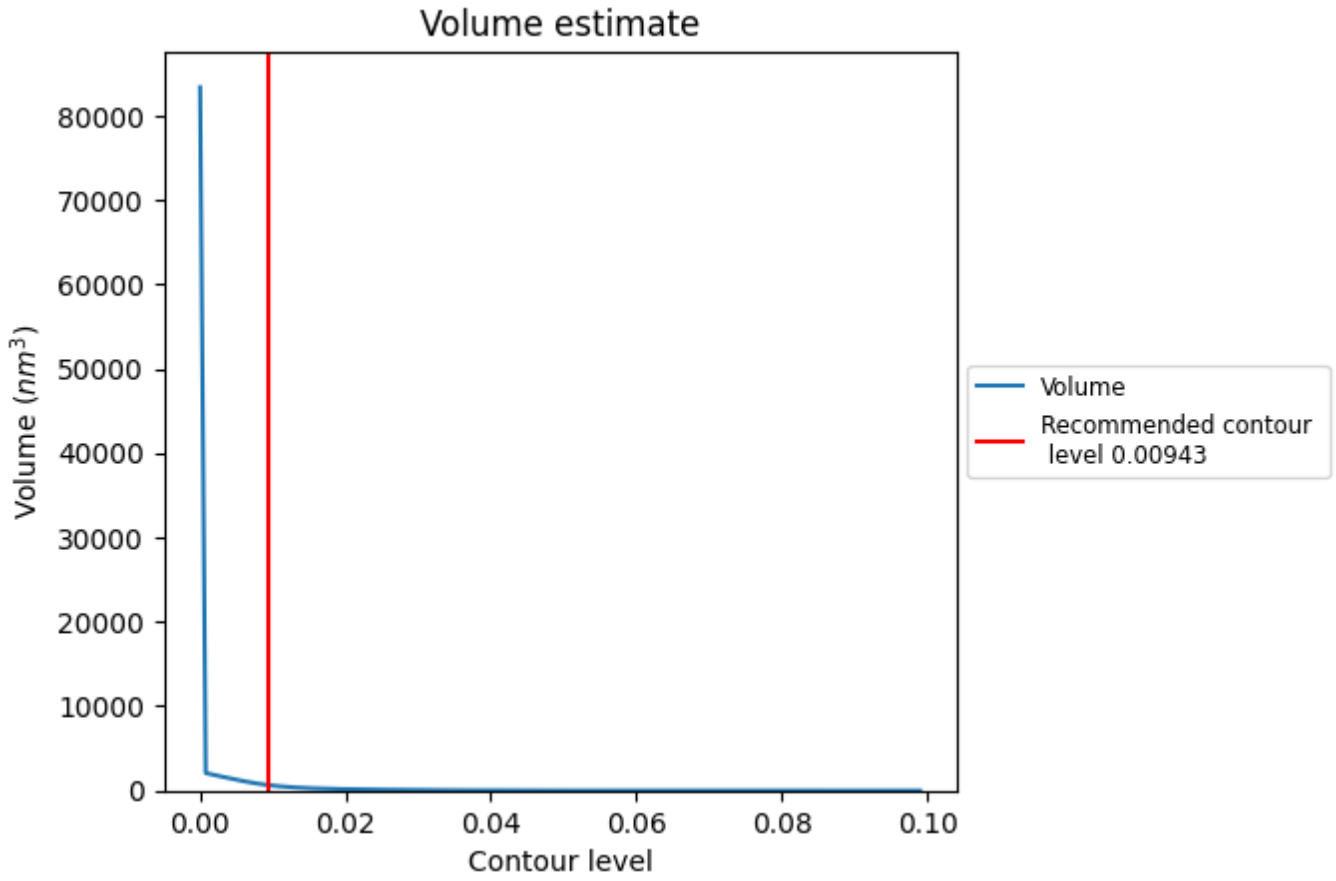
This section contains the results of statistical analysis of the map.

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.

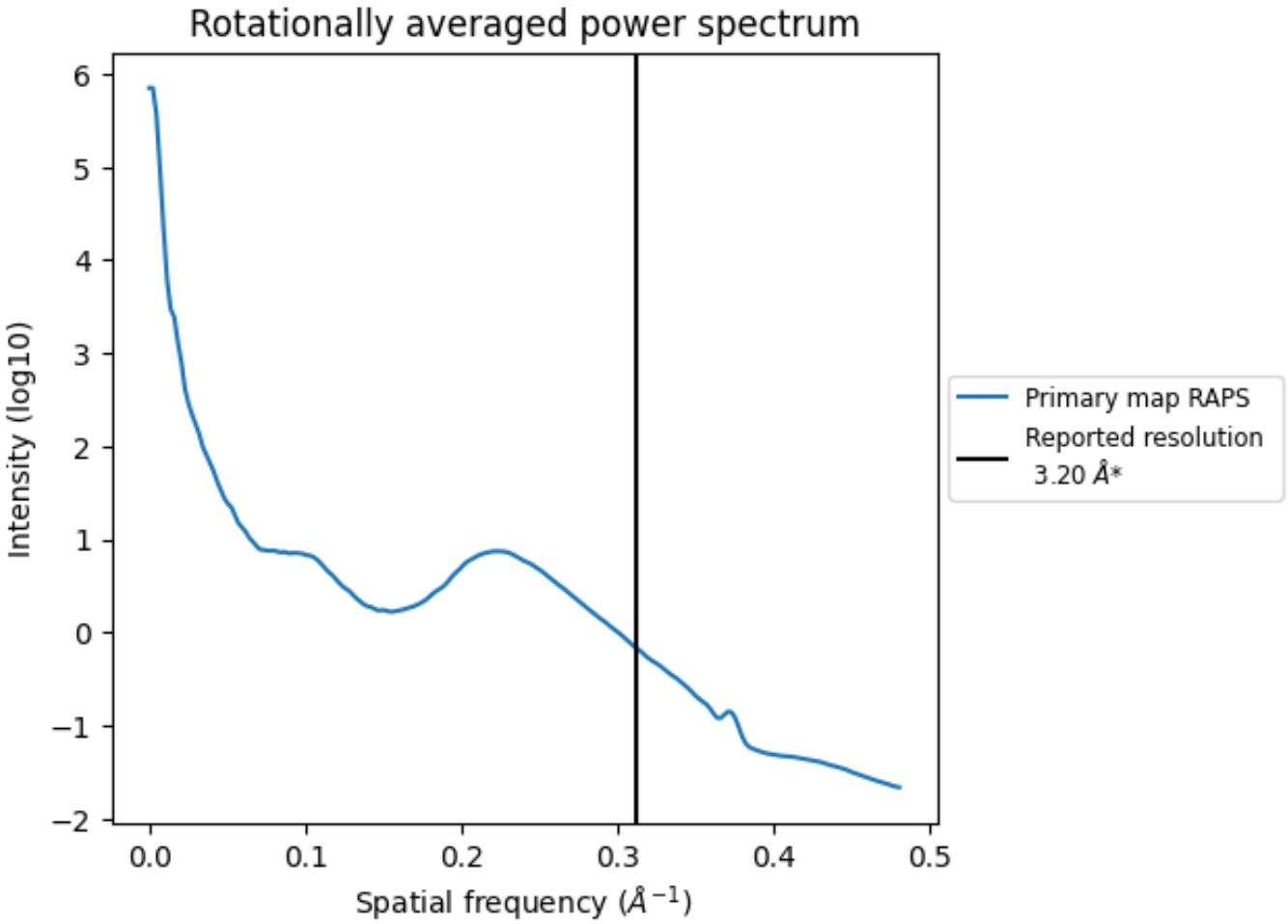
7.2 Volume estimate



The volume at the recommended contour level is 644 nm^3; this corresponds to an approximate mass of 582 kDa.

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

7.3 Rotationally averaged power spectrum (i)



*Reported resolution corresponds to spatial frequency of 0.312 Å^{-1}

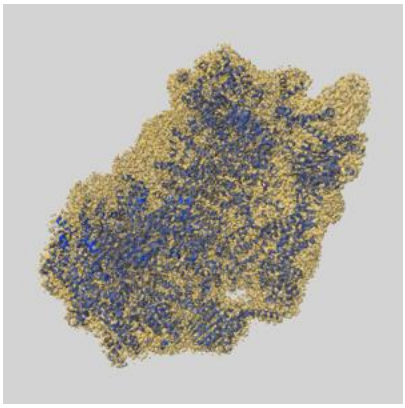
8 Fourier-Shell correlation (i)

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

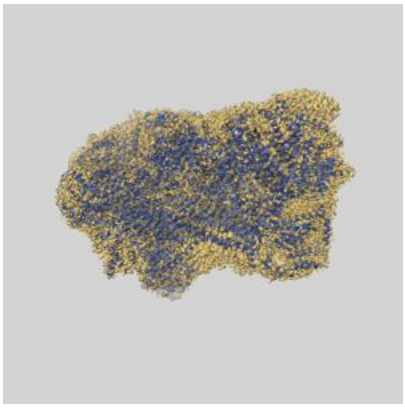
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-38424 and PDB model 8XKS. Per-residue inclusion information can be found in section 3 on page 10.

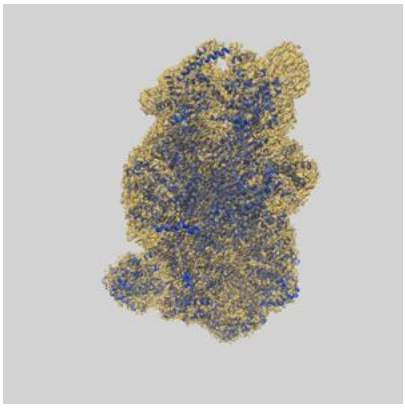
9.1 Map-model overlay



X



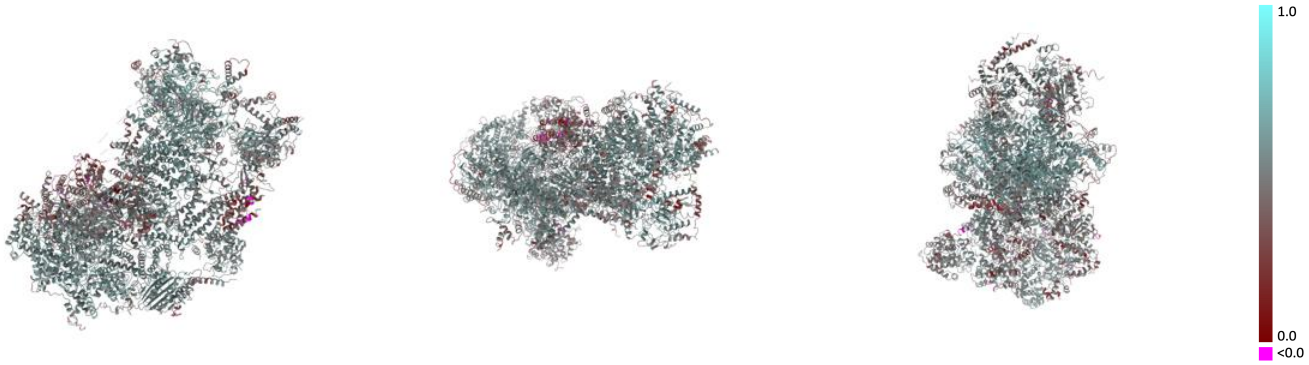
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.00943 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.

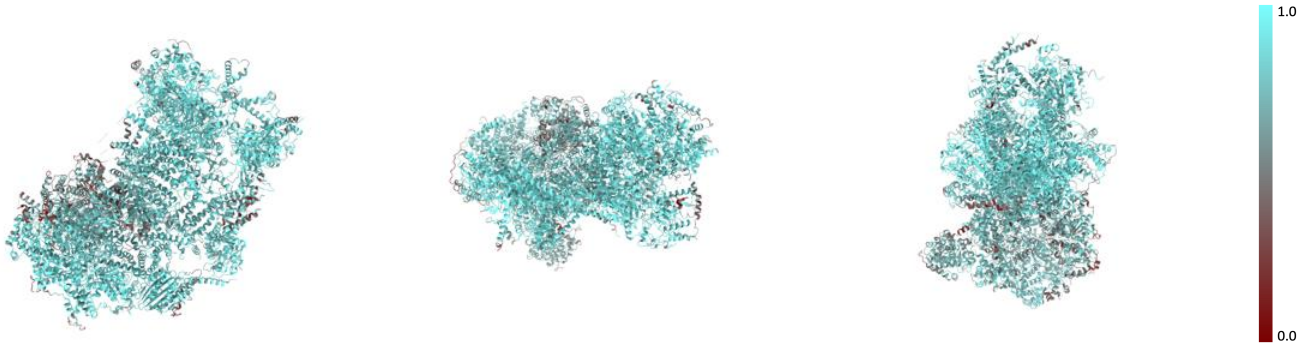
9.2 Q-score mapped to coordinate model



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.

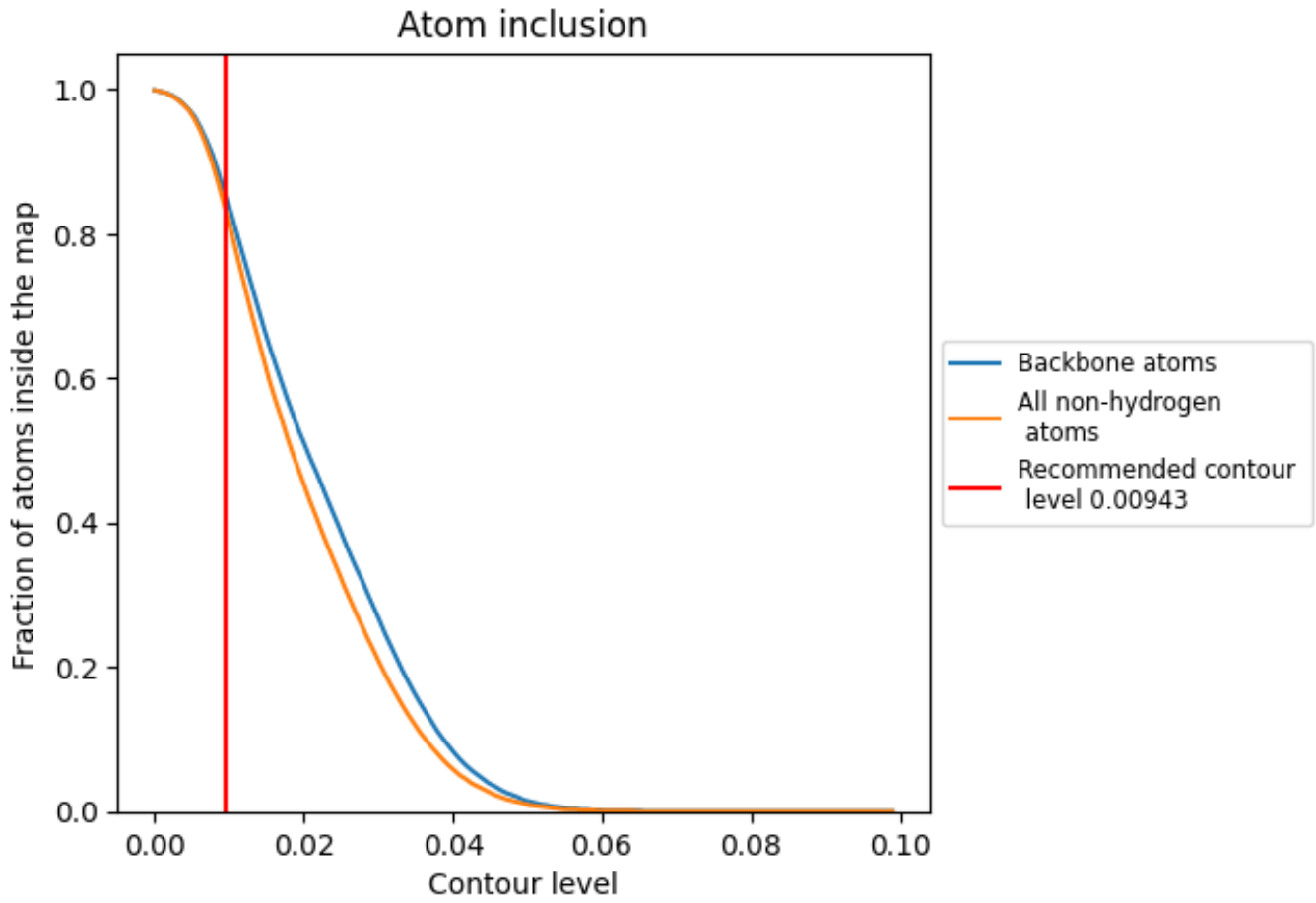
9.3 Atom inclusion mapped to coordinate model



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 (0.00943).

9.4 Atom inclusion (i)



At the recommended contour level, 86% of all backbone atoms, 84% 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 (0.00943) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8370	0.5110
A	0.8280	0.5030
B	0.7880	0.5030
C	0.8910	0.5550
D	0.8360	0.5250
E	0.8710	0.5370
F	0.8080	0.4820
G	0.8420	0.5100
H	0.8520	0.4910
I	0.8730	0.4820
J	0.8950	0.5490
K	0.8880	0.5240
L	0.9040	0.5420
M	0.8900	0.5450
N	0.8020	0.4790
O	0.7080	0.3800
P	0.8280	0.5150
Q	0.7010	0.4660
R	0.8300	0.4890
S	0.8830	0.5530
T	0.6920	0.4480