Full wwPDB EM Validation Report ⓘ

Sep 2, 2025 – 02:21 PM JST

PDB ID	:	9UI9 / pdb_00009ui9
EMDB ID	:	EMD-64188
Title	:	structure of a 12 base pair Rad51 D-loop complex
Authors	:	Luo, S.C.; Ho, M.C.
Deposited on	:	2025-04-15
Resolution	:	3.42 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:

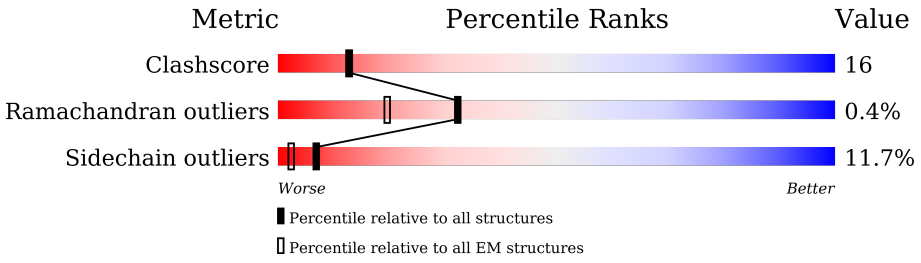
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

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 3.42 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.



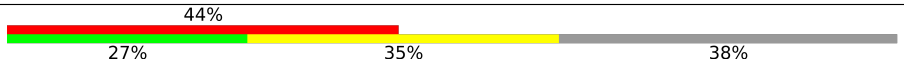
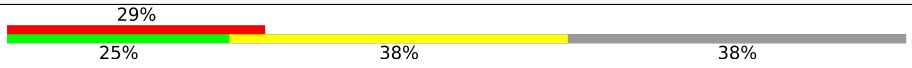
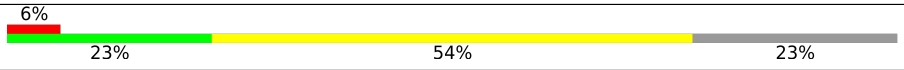
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	361	49% 34% 15%
1	B	361	52% 30% 15%
1	C	361	59% 22% 15%
1	D	361	54% 27% 5% 15%
1	E	361	52% 32% 13%
1	F	361	62% 23% 13%
1	G	361	12% 47% 33% 6% 13%
1	H	361	22% 47% 35% 5% 13%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	I	361	
2	U	48	
3	T	48	
4	L	35	

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 23613 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called DNA repair protein RAD51 homolog 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	E	315	Total	C	N	O	S	0	0
			2416	1513	424	465	14		
1	F	315	Total	C	N	O	S	0	0
			2416	1513	424	465	14		
1	G	315	Total	C	N	O	S	0	0
			2416	1513	424	465	14		
1	H	315	Total	C	N	O	S	0	0
			2416	1513	424	465	14		
1	I	315	Total	C	N	O	S	0	0
			2416	1513	424	465	14		
1	A	308	Total	C	N	O	S	0	0
			2369	1483	417	456	13		
1	B	308	Total	C	N	O	S	0	0
			2369	1483	417	456	13		
1	C	308	Total	C	N	O	S	0	0
			2369	1483	417	456	13		
1	D	308	Total	C	N	O	S	0	0
			2369	1483	417	456	13		

There are 216 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	-21	MET	-	initiating methionine	UNP Q08297
E	-20	ALA	-	expression tag	UNP Q08297
E	-19	SER	-	expression tag	UNP Q08297
E	-18	TRP	-	expression tag	UNP Q08297
E	-17	SER	-	expression tag	UNP Q08297
E	-16	HIS	-	expression tag	UNP Q08297
E	-15	PRO	-	expression tag	UNP Q08297
E	-14	GLN	-	expression tag	UNP Q08297
E	-13	PHE	-	expression tag	UNP Q08297
E	-12	GLU	-	expression tag	UNP Q08297
E	-11	LYS	-	expression tag	UNP Q08297
E	-10	GLY	-	expression tag	UNP Q08297

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
E	-9	ALA	-	expression tag	UNP Q08297
E	-8	ASP	-	expression tag	UNP Q08297
E	-7	ASP	-	expression tag	UNP Q08297
E	-6	ASP	-	expression tag	UNP Q08297
E	-5	ASP	-	expression tag	UNP Q08297
E	-4	LYS	-	expression tag	UNP Q08297
E	-3	VAL	-	expression tag	UNP Q08297
E	-2	PRO	-	expression tag	UNP Q08297
E	-1	ASP	-	expression tag	UNP Q08297
E	0	PRO	-	expression tag	UNP Q08297
E	208	GLU	SER	engineered mutation	UNP Q08297
E	209	ASP	ALA	engineered mutation	UNP Q08297
F	-21	MET	-	initiating methionine	UNP Q08297
F	-20	ALA	-	expression tag	UNP Q08297
F	-19	SER	-	expression tag	UNP Q08297
F	-18	TRP	-	expression tag	UNP Q08297
F	-17	SER	-	expression tag	UNP Q08297
F	-16	HIS	-	expression tag	UNP Q08297
F	-15	PRO	-	expression tag	UNP Q08297
F	-14	GLN	-	expression tag	UNP Q08297
F	-13	PHE	-	expression tag	UNP Q08297
F	-12	GLU	-	expression tag	UNP Q08297
F	-11	LYS	-	expression tag	UNP Q08297
F	-10	GLY	-	expression tag	UNP Q08297
F	-9	ALA	-	expression tag	UNP Q08297
F	-8	ASP	-	expression tag	UNP Q08297
F	-7	ASP	-	expression tag	UNP Q08297
F	-6	ASP	-	expression tag	UNP Q08297
F	-5	ASP	-	expression tag	UNP Q08297
F	-4	LYS	-	expression tag	UNP Q08297
F	-3	VAL	-	expression tag	UNP Q08297
F	-2	PRO	-	expression tag	UNP Q08297
F	-1	ASP	-	expression tag	UNP Q08297
F	0	PRO	-	expression tag	UNP Q08297
F	208	GLU	SER	engineered mutation	UNP Q08297
F	209	ASP	ALA	engineered mutation	UNP Q08297
G	-21	MET	-	initiating methionine	UNP Q08297
G	-20	ALA	-	expression tag	UNP Q08297
G	-19	SER	-	expression tag	UNP Q08297
G	-18	TRP	-	expression tag	UNP Q08297
G	-17	SER	-	expression tag	UNP Q08297
G	-16	HIS	-	expression tag	UNP Q08297

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
G	-15	PRO	-	expression tag	UNP Q08297
G	-14	GLN	-	expression tag	UNP Q08297
G	-13	PHE	-	expression tag	UNP Q08297
G	-12	GLU	-	expression tag	UNP Q08297
G	-11	LYS	-	expression tag	UNP Q08297
G	-10	GLY	-	expression tag	UNP Q08297
G	-9	ALA	-	expression tag	UNP Q08297
G	-8	ASP	-	expression tag	UNP Q08297
G	-7	ASP	-	expression tag	UNP Q08297
G	-6	ASP	-	expression tag	UNP Q08297
G	-5	ASP	-	expression tag	UNP Q08297
G	-4	LYS	-	expression tag	UNP Q08297
G	-3	VAL	-	expression tag	UNP Q08297
G	-2	PRO	-	expression tag	UNP Q08297
G	-1	ASP	-	expression tag	UNP Q08297
G	0	PRO	-	expression tag	UNP Q08297
G	208	GLU	SER	engineered mutation	UNP Q08297
G	209	ASP	ALA	engineered mutation	UNP Q08297
H	-21	MET	-	initiating methionine	UNP Q08297
H	-20	ALA	-	expression tag	UNP Q08297
H	-19	SER	-	expression tag	UNP Q08297
H	-18	TRP	-	expression tag	UNP Q08297
H	-17	SER	-	expression tag	UNP Q08297
H	-16	HIS	-	expression tag	UNP Q08297
H	-15	PRO	-	expression tag	UNP Q08297
H	-14	GLN	-	expression tag	UNP Q08297
H	-13	PHE	-	expression tag	UNP Q08297
H	-12	GLU	-	expression tag	UNP Q08297
H	-11	LYS	-	expression tag	UNP Q08297
H	-10	GLY	-	expression tag	UNP Q08297
H	-9	ALA	-	expression tag	UNP Q08297
H	-8	ASP	-	expression tag	UNP Q08297
H	-7	ASP	-	expression tag	UNP Q08297
H	-6	ASP	-	expression tag	UNP Q08297
H	-5	ASP	-	expression tag	UNP Q08297
H	-4	LYS	-	expression tag	UNP Q08297
H	-3	VAL	-	expression tag	UNP Q08297
H	-2	PRO	-	expression tag	UNP Q08297
H	-1	ASP	-	expression tag	UNP Q08297
H	0	PRO	-	expression tag	UNP Q08297
H	208	GLU	SER	engineered mutation	UNP Q08297
H	209	ASP	ALA	engineered mutation	UNP Q08297

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
I	-21	MET	-	initiating methionine	UNP Q08297
I	-20	ALA	-	expression tag	UNP Q08297
I	-19	SER	-	expression tag	UNP Q08297
I	-18	TRP	-	expression tag	UNP Q08297
I	-17	SER	-	expression tag	UNP Q08297
I	-16	HIS	-	expression tag	UNP Q08297
I	-15	PRO	-	expression tag	UNP Q08297
I	-14	GLN	-	expression tag	UNP Q08297
I	-13	PHE	-	expression tag	UNP Q08297
I	-12	GLU	-	expression tag	UNP Q08297
I	-11	LYS	-	expression tag	UNP Q08297
I	-10	GLY	-	expression tag	UNP Q08297
I	-9	ALA	-	expression tag	UNP Q08297
I	-8	ASP	-	expression tag	UNP Q08297
I	-7	ASP	-	expression tag	UNP Q08297
I	-6	ASP	-	expression tag	UNP Q08297
I	-5	ASP	-	expression tag	UNP Q08297
I	-4	LYS	-	expression tag	UNP Q08297
I	-3	VAL	-	expression tag	UNP Q08297
I	-2	PRO	-	expression tag	UNP Q08297
I	-1	ASP	-	expression tag	UNP Q08297
I	0	PRO	-	expression tag	UNP Q08297
I	208	GLU	SER	engineered mutation	UNP Q08297
I	209	ASP	ALA	engineered mutation	UNP Q08297
A	-21	MET	-	initiating methionine	UNP Q08297
A	-20	ALA	-	expression tag	UNP Q08297
A	-19	SER	-	expression tag	UNP Q08297
A	-18	TRP	-	expression tag	UNP Q08297
A	-17	SER	-	expression tag	UNP Q08297
A	-16	HIS	-	expression tag	UNP Q08297
A	-15	PRO	-	expression tag	UNP Q08297
A	-14	GLN	-	expression tag	UNP Q08297
A	-13	PHE	-	expression tag	UNP Q08297
A	-12	GLU	-	expression tag	UNP Q08297
A	-11	LYS	-	expression tag	UNP Q08297
A	-10	GLY	-	expression tag	UNP Q08297
A	-9	ALA	-	expression tag	UNP Q08297
A	-8	ASP	-	expression tag	UNP Q08297
A	-7	ASP	-	expression tag	UNP Q08297
A	-6	ASP	-	expression tag	UNP Q08297
A	-5	ASP	-	expression tag	UNP Q08297
A	-4	LYS	-	expression tag	UNP Q08297

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	VAL	-	expression tag	UNP Q08297
A	-2	PRO	-	expression tag	UNP Q08297
A	-1	ASP	-	expression tag	UNP Q08297
A	0	PRO	-	expression tag	UNP Q08297
A	208	GLU	SER	engineered mutation	UNP Q08297
A	209	ASP	ALA	engineered mutation	UNP Q08297
B	-21	MET	-	initiating methionine	UNP Q08297
B	-20	ALA	-	expression tag	UNP Q08297
B	-19	SER	-	expression tag	UNP Q08297
B	-18	TRP	-	expression tag	UNP Q08297
B	-17	SER	-	expression tag	UNP Q08297
B	-16	HIS	-	expression tag	UNP Q08297
B	-15	PRO	-	expression tag	UNP Q08297
B	-14	GLN	-	expression tag	UNP Q08297
B	-13	PHE	-	expression tag	UNP Q08297
B	-12	GLU	-	expression tag	UNP Q08297
B	-11	LYS	-	expression tag	UNP Q08297
B	-10	GLY	-	expression tag	UNP Q08297
B	-9	ALA	-	expression tag	UNP Q08297
B	-8	ASP	-	expression tag	UNP Q08297
B	-7	ASP	-	expression tag	UNP Q08297
B	-6	ASP	-	expression tag	UNP Q08297
B	-5	ASP	-	expression tag	UNP Q08297
B	-4	LYS	-	expression tag	UNP Q08297
B	-3	VAL	-	expression tag	UNP Q08297
B	-2	PRO	-	expression tag	UNP Q08297
B	-1	ASP	-	expression tag	UNP Q08297
B	0	PRO	-	expression tag	UNP Q08297
B	208	GLU	SER	engineered mutation	UNP Q08297
B	209	ASP	ALA	engineered mutation	UNP Q08297
C	-21	MET	-	initiating methionine	UNP Q08297
C	-20	ALA	-	expression tag	UNP Q08297
C	-19	SER	-	expression tag	UNP Q08297
C	-18	TRP	-	expression tag	UNP Q08297
C	-17	SER	-	expression tag	UNP Q08297
C	-16	HIS	-	expression tag	UNP Q08297
C	-15	PRO	-	expression tag	UNP Q08297
C	-14	GLN	-	expression tag	UNP Q08297
C	-13	PHE	-	expression tag	UNP Q08297
C	-12	GLU	-	expression tag	UNP Q08297
C	-11	LYS	-	expression tag	UNP Q08297
C	-10	GLY	-	expression tag	UNP Q08297

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	-9	ALA	-	expression tag	UNP Q08297
C	-8	ASP	-	expression tag	UNP Q08297
C	-7	ASP	-	expression tag	UNP Q08297
C	-6	ASP	-	expression tag	UNP Q08297
C	-5	ASP	-	expression tag	UNP Q08297
C	-4	LYS	-	expression tag	UNP Q08297
C	-3	VAL	-	expression tag	UNP Q08297
C	-2	PRO	-	expression tag	UNP Q08297
C	-1	ASP	-	expression tag	UNP Q08297
C	0	PRO	-	expression tag	UNP Q08297
C	208	GLU	SER	engineered mutation	UNP Q08297
C	209	ASP	ALA	engineered mutation	UNP Q08297
D	-21	MET	-	initiating methionine	UNP Q08297
D	-20	ALA	-	expression tag	UNP Q08297
D	-19	SER	-	expression tag	UNP Q08297
D	-18	TRP	-	expression tag	UNP Q08297
D	-17	SER	-	expression tag	UNP Q08297
D	-16	HIS	-	expression tag	UNP Q08297
D	-15	PRO	-	expression tag	UNP Q08297
D	-14	GLN	-	expression tag	UNP Q08297
D	-13	PHE	-	expression tag	UNP Q08297
D	-12	GLU	-	expression tag	UNP Q08297
D	-11	LYS	-	expression tag	UNP Q08297
D	-10	GLY	-	expression tag	UNP Q08297
D	-9	ALA	-	expression tag	UNP Q08297
D	-8	ASP	-	expression tag	UNP Q08297
D	-7	ASP	-	expression tag	UNP Q08297
D	-6	ASP	-	expression tag	UNP Q08297
D	-5	ASP	-	expression tag	UNP Q08297
D	-4	LYS	-	expression tag	UNP Q08297
D	-3	VAL	-	expression tag	UNP Q08297
D	-2	PRO	-	expression tag	UNP Q08297
D	-1	ASP	-	expression tag	UNP Q08297
D	0	PRO	-	expression tag	UNP Q08297
D	208	GLU	SER	engineered mutation	UNP Q08297
D	209	ASP	ALA	engineered mutation	UNP Q08297

- Molecule 2 is a DNA chain called DNA (48-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
2	U	30	Total	C	N	O	P	0	0
			607	295	92	190	30		

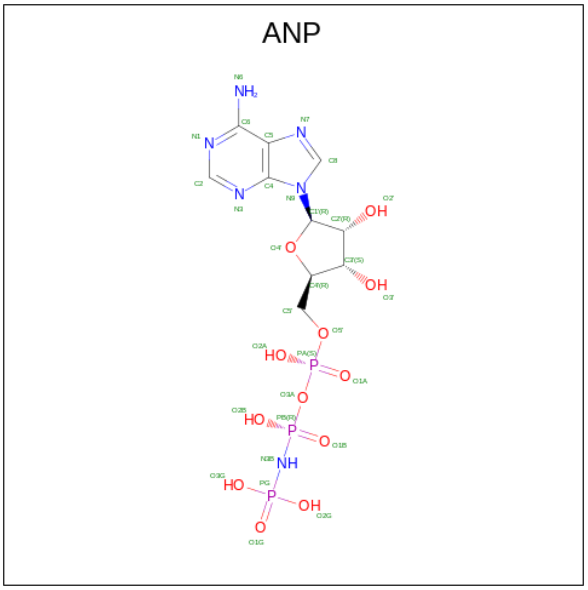
- Molecule 3 is a DNA chain called DNA (48-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
3	T	30	Total	C	N	O	P	0	0
			622	294	117	181	30		

- Molecule 4 is a DNA chain called DNA (35-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
4	L	27	Total	C	N	O	P	0	0
			540	263	73	177	27		

- Molecule 5 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (CCD ID: ANP) (formula: $C_{10}H_{17}N_6O_{12}P_3$).



Mol	Chain	Residues	Atoms					AltConf
5	E	1	Total	C	N	O	P	0
			31	10	6	12	3	
5	F	1	Total	C	N	O	P	0
			31	10	6	12	3	
5	G	1	Total	C	N	O	P	0
			31	10	6	12	3	
5	H	1	Total	C	N	O	P	0
			31	10	6	12	3	
5	I	1	Total	C	N	O	P	0
			31	10	6	12	3	
5	A	1	Total	C	N	O	P	0
			31	10	6	12	3	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf
5	B	1	Total	C	N	O	P	0
			31	10	6	12	3	
5	C	1	Total	C	N	O	P	0
			31	10	6	12	3	
5	D	1	Total	C	N	O	P	0
			31	10	6	12	3	

- Molecule 6 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

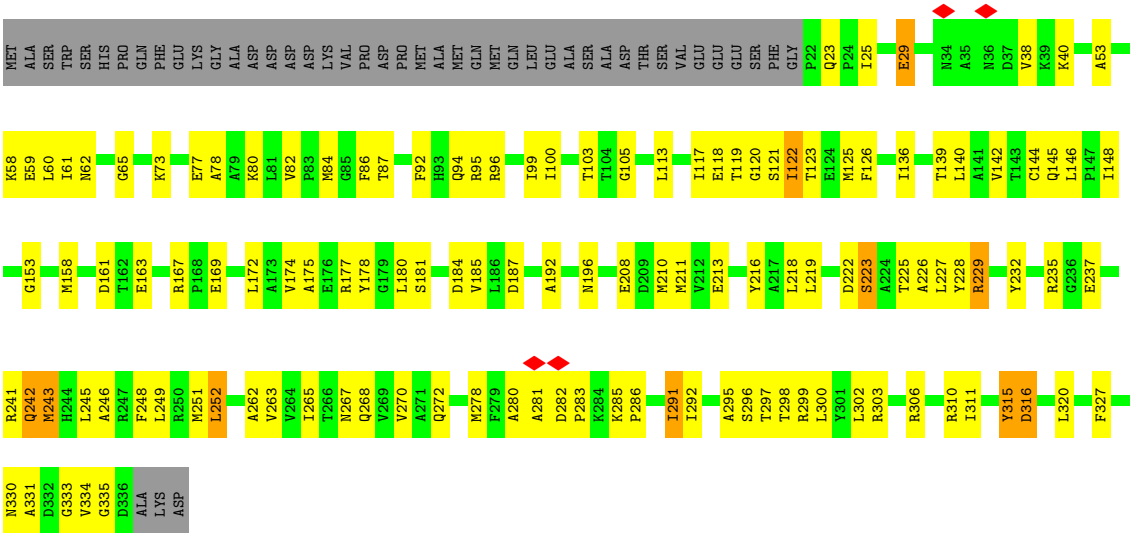
Mol	Chain	Residues	Atoms		AltConf
6	E	1	Total	Mg	0
			1	1	
6	F	1	Total	Mg	0
			1	1	
6	G	1	Total	Mg	0
			1	1	
6	H	1	Total	Mg	0
			1	1	
6	I	1	Total	Mg	0
			1	1	
6	A	1	Total	Mg	0
			1	1	
6	B	1	Total	Mg	0
			1	1	
6	C	1	Total	Mg	0
			1	1	
6	D	1	Total	Mg	0
			1	1	

3 Residue-property plots (i)

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

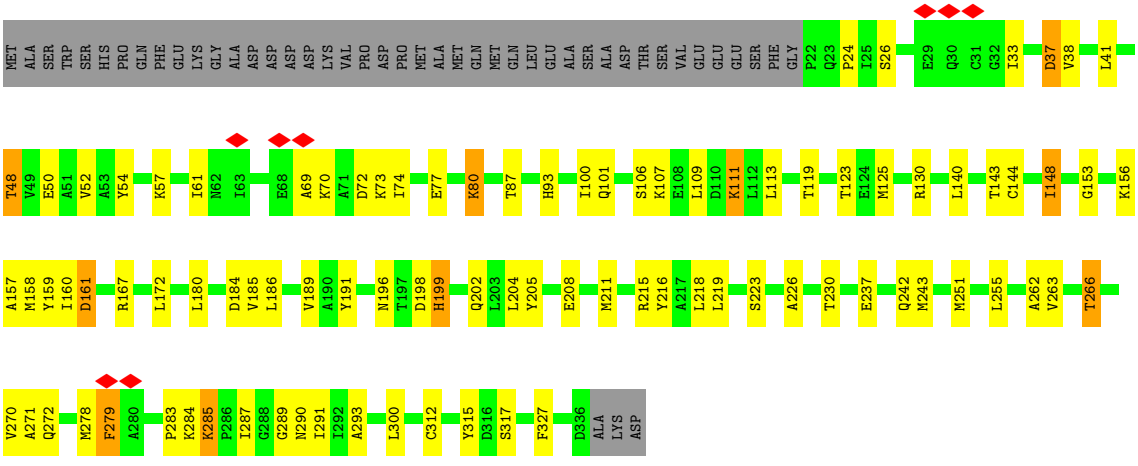
• Molecule 1: DNA repair protein RAD51 homolog 1

Chain E:



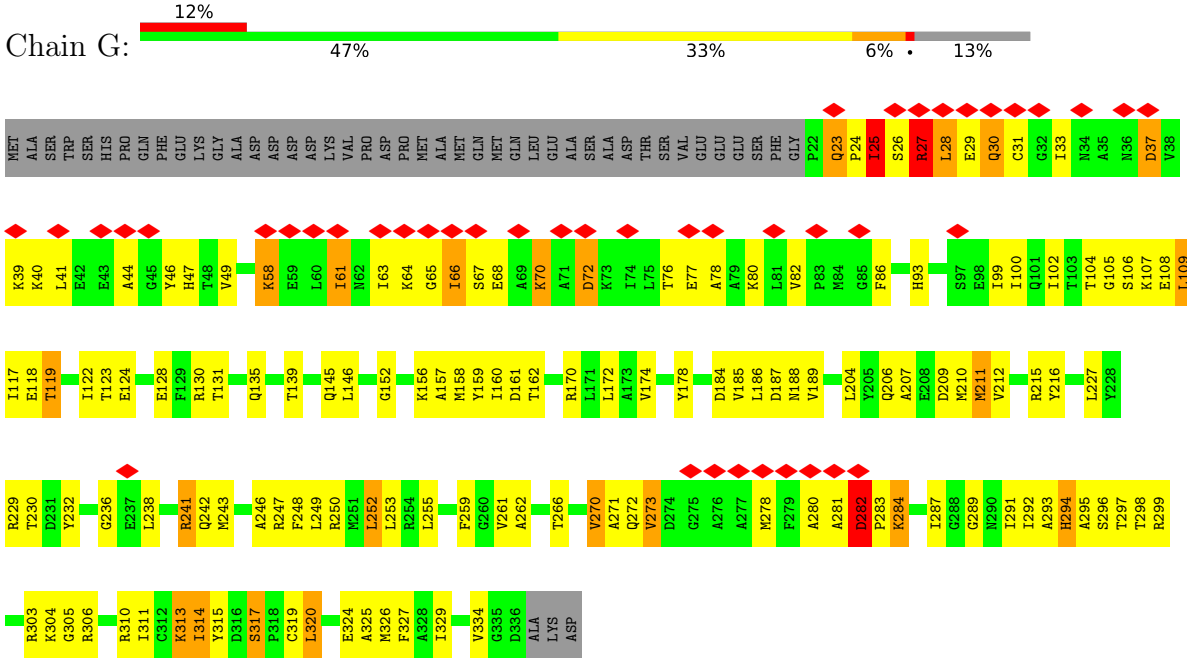
• Molecule 1: DNA repair protein RAD51 homolog 1

Chain F:



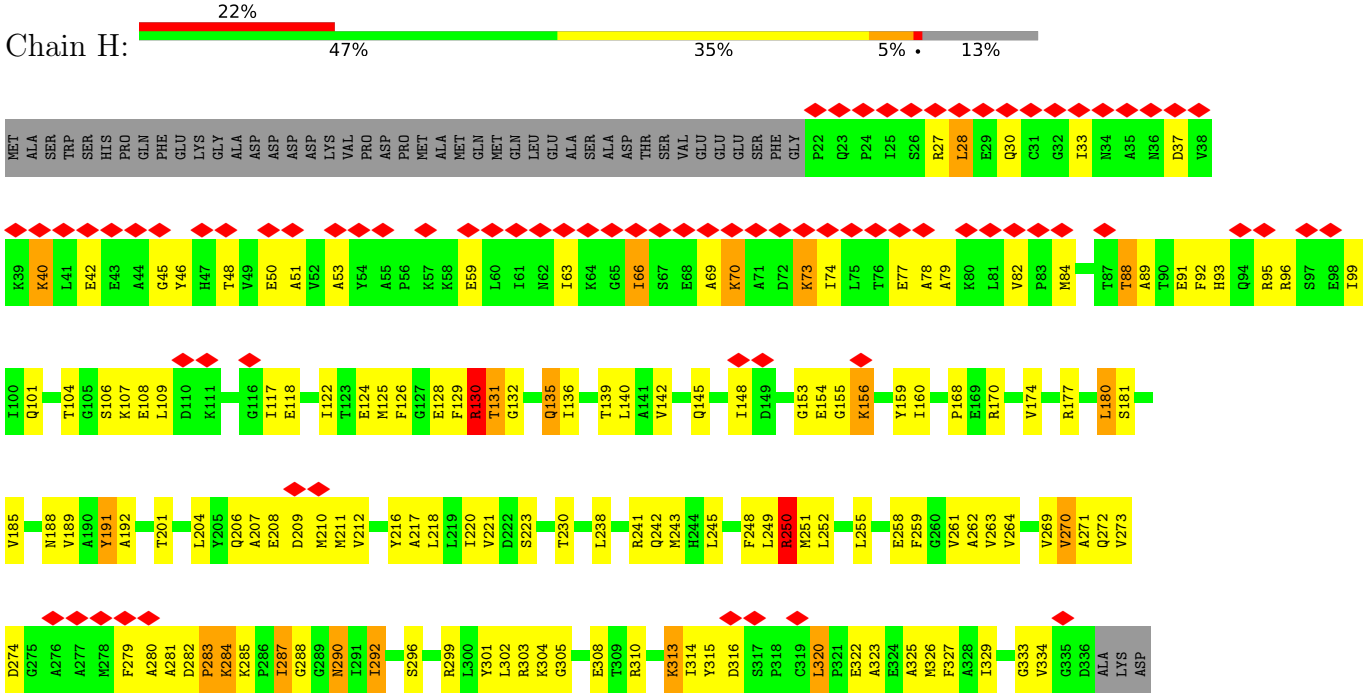
• Molecule 1: DNA repair protein RAD51 homolog 1

Chain G:



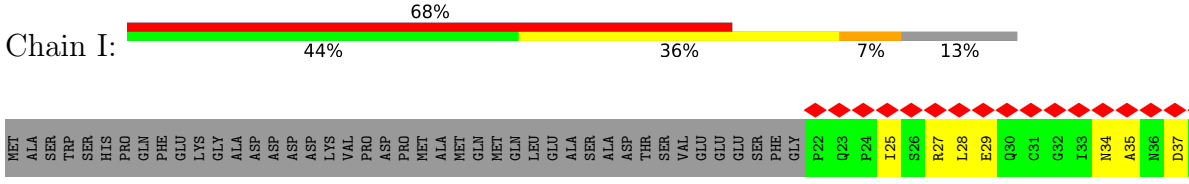
• Molecule 1: DNA repair protein RAD51 homolog 1

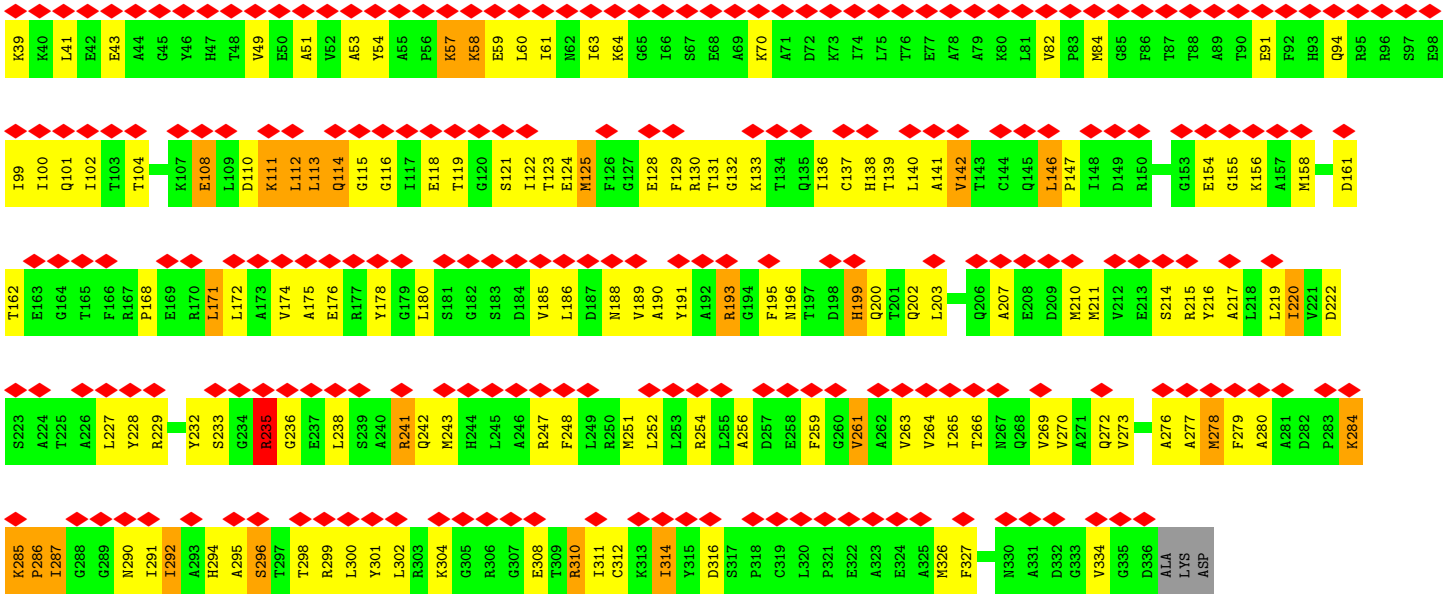
Chain H:



• Molecule 1: DNA repair protein RAD51 homolog 1

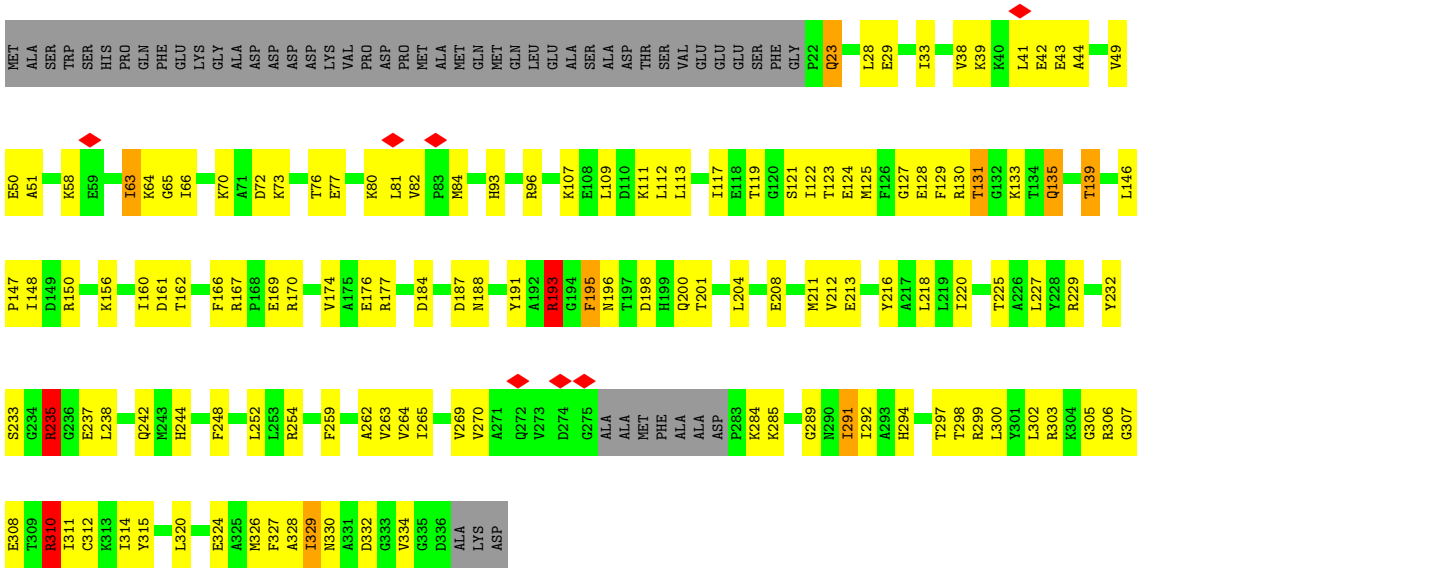
Chain I:





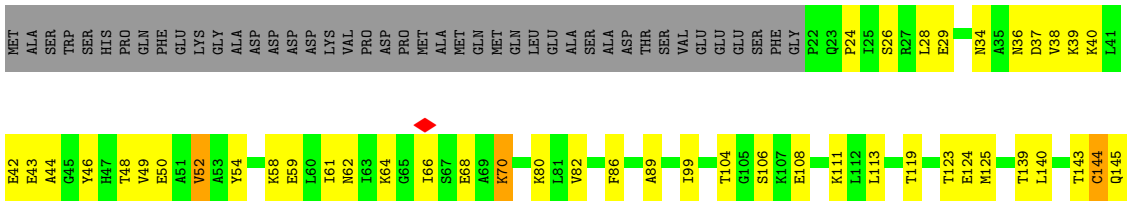
• Molecule 1: DNA repair protein RAD51 homolog 1

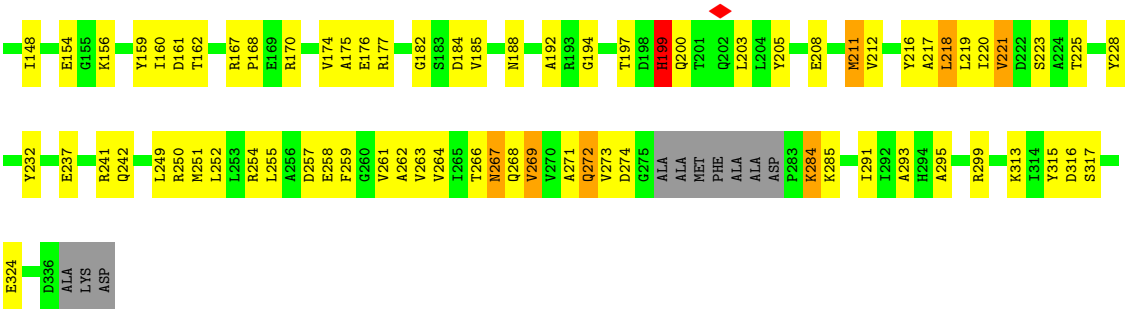
Chain A:



• Molecule 1: DNA repair protein RAD51 homolog 1

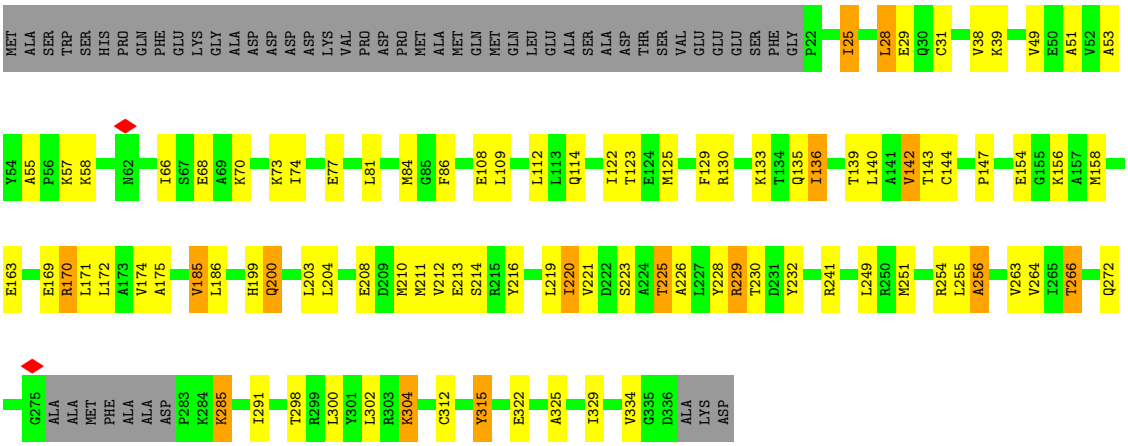
Chain B:





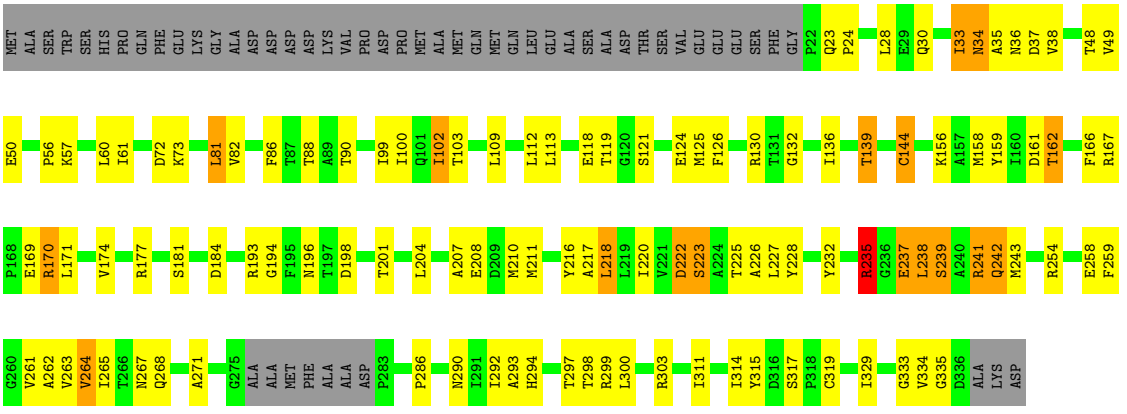
• Molecule 1: DNA repair protein RAD51 homolog 1

Chain C:



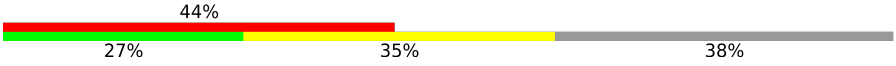
• Molecule 1: DNA repair protein RAD51 homolog 1

Chain D:

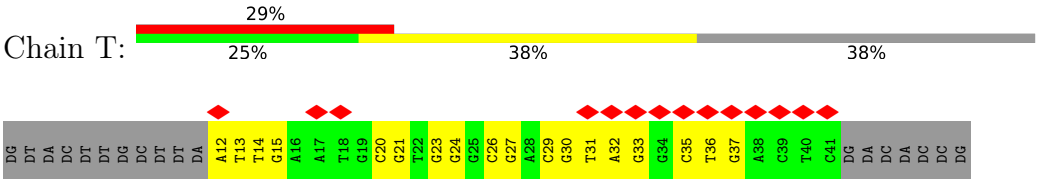


• Molecule 2: DNA (48-MER)

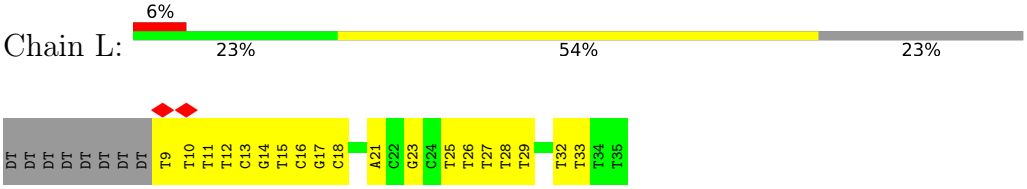
Chain U:



• Molecule 3: DNA (48-MER)



• Molecule 4: DNA (35-MER)



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	45865	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)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.699	Depositor
Minimum map value	-0.665	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.046	Depositor
Recommended contour level	0.212	Depositor
Map size (Å)	298.8, 298.8, 298.8	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.83, 0.83, 0.83	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.52	0/2403	0.82	2/3239 (0.1%)
1	B	0.54	0/2403	0.85	2/3239 (0.1%)
1	C	0.45	0/2403	0.76	3/3239 (0.1%)
1	D	0.49	0/2403	0.78	1/3239 (0.0%)
1	E	0.52	0/2452	0.82	1/3308 (0.0%)
1	F	0.45	0/2452	0.72	3/3308 (0.1%)
1	G	0.61	0/2452	0.91	2/3308 (0.1%)
1	H	0.66	0/2452	0.96	4/3308 (0.1%)
1	I	0.64	0/2452	0.95	1/3308 (0.0%)
2	U	0.28	0/675	0.63	0/1039
3	T	0.28	0/698	0.56	0/1077
4	L	0.26	0/597	0.57	0/918
All	All	0.53	0/23842	0.82	19/32530 (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
1	A	0	5
1	B	0	1
1	C	0	1
1	D	0	4
1	E	0	2
1	F	0	1
1	G	0	4
1	H	0	3
1	I	0	5
All	All	0	26

There are no bond length outliers.

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	G	294	HIS	CA-CB-CG	-8.38	105.42	113.80
1	A	291	ILE	N-CA-C	-8.06	104.89	112.96
1	E	243	MET	N-CA-C	-7.62	104.88	114.56
1	F	26	SER	N-CA-C	-6.84	106.13	114.75
1	A	139	THR	CA-C-O	-6.44	114.07	120.70
1	D	170	ARG	N-CA-C	-6.34	105.36	113.23
1	B	200	GLN	N-CA-C	-6.32	102.26	111.17
1	F	243	MET	N-CA-C	-5.68	106.03	113.12
1	F	199	HIS	N-CA-C	-5.67	105.62	112.54
1	C	226	ALA	N-CA-C	-5.62	106.78	113.97
1	H	37	ASP	CA-CB-CG	5.53	118.13	112.60
1	H	250	ARG	CA-C-O	-5.34	115.21	120.82
1	C	136	ILE	N-CA-C	-5.33	104.43	111.09
1	B	199	HIS	N-CA-C	-5.23	102.64	113.31
1	H	101	GLN	CB-CA-C	5.17	119.75	111.73
1	I	220	ILE	CB-CA-C	5.16	117.27	111.80
1	H	30	GLN	CA-C-O	-5.15	115.59	121.00
1	G	37	ASP	CA-C-O	-5.14	115.40	120.70
1	C	256	ALA	N-CA-C	-5.12	108.79	114.62

There are no chirality outliers.

All (26) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	130	ARG	Sidechain
1	A	193	ARG	Sidechain
1	A	235	ARG	Sidechain
1	A	299	ARG	Sidechain
1	A	310	ARG	Sidechain
1	B	177	ARG	Sidechain
1	C	229	ARG	Sidechain
1	D	167	ARG	Sidechain
1	D	170	ARG	Sidechain
1	D	235	ARG	Sidechain
1	D	241	ARG	Sidechain
1	E	229	ARG	Sidechain
1	E	235	ARG	Sidechain
1	F	167	ARG	Sidechain
1	G	215	ARG	Sidechain
1	G	241	ARG	Sidechain

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Group
1	G	27	ARG	Sidechain
1	G	306	ARG	Sidechain
1	H	130	ARG	Sidechain
1	H	177	ARG	Sidechain
1	H	250	ARG	Sidechain
1	I	130	ARG	Sidechain
1	I	193	ARG	Sidechain
1	I	235	ARG	Sidechain
1	I	241	ARG	Sidechain
1	I	310	ARG	Sidechain

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	2369	0	2385	88	0
1	B	2369	0	2385	78	0
1	C	2369	0	2384	57	0
1	D	2369	0	2385	72	0
1	E	2416	0	2427	74	0
1	F	2416	0	2426	57	0
1	G	2416	0	2427	96	0
1	H	2416	0	2426	123	0
1	I	2416	0	2427	115	0
2	U	607	0	347	26	0
3	T	622	0	338	18	0
4	L	540	0	314	31	0
5	A	31	0	13	0	0
5	B	31	0	13	0	0
5	C	31	0	13	2	0
5	D	31	0	13	0	0
5	E	31	0	13	1	0
5	F	31	0	13	0	0
5	G	31	0	13	0	0
5	H	31	0	13	2	0
5	I	31	0	13	1	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	C	1	0	0	0	0
6	D	1	0	0	0	0
6	E	1	0	0	0	0
6	F	1	0	0	0	0
6	G	1	0	0	0	0
6	H	1	0	0	0	0
6	I	1	0	0	0	0
All	All	23613	0	22788	763	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 16.

All (763) 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)
1:I:256:ALA:HA	1:I:261:VAL:HG23	1.43	0.99
1:G:289:GLY:HA3	4:L:15:DT:H5'	1.44	0.99
1:A:127:GLY:HA3	1:A:133:LYS:HD2	1.50	0.94
1:H:145:GLN:HA	1:H:155:GLY:HA3	1.49	0.93
1:H:148:ILE:HA	1:H:153:GLY:HA2	1.51	0.92
1:G:272:GLN:H	1:G:283:PRO:HB2	1.33	0.92
1:H:139:THR:HG22	1:H:174:VAL:HG21	1.51	0.91
1:B:269:VAL:HG21	1:B:284:LYS:HD3	1.55	0.89
1:H:40:LYS:HG3	1:H:66:ILE:HG13	1.58	0.83
1:H:122:ILE:HG22	1:H:263:VAL:HB	1.60	0.83
1:A:50:GLU:HG2	1:A:82:VAL:HG11	1.59	0.82
1:C:211:MET:HE1	1:C:219:LEU:HD12	1.61	0.82
1:H:272:GLN:HG2	4:L:14:DG:H2'	1.64	0.80
1:I:278:MET:C	1:I:280:ALA:H	1.91	0.79
1:G:272:GLN:N	1:G:283:PRO:HB2	2.02	0.75
1:D:207:ALA:HA	1:D:210:MET:HE3	1.67	0.74
1:E:252:LEU:HD23	1:E:265:ILE:HD11	1.69	0.73
1:H:130:ARG:HB2	1:H:304:LYS:NZ	2.03	0.73
1:H:281:ALA:C	1:H:283:PRO:HD3	2.16	0.71
1:H:288:GLY:HA3	1:H:292:ILE:HG21	1.71	0.71
1:G:232:TYR:HA	1:G:238:LEU:HD13	1.73	0.70
1:G:104:THR:HG21	1:G:109:LEU:HD13	1.74	0.70
1:H:272:GLN:HA	4:L:15:DT:H71	1.71	0.70
1:I:53:ALA:HB1	1:I:82:VAL:HG22	1.74	0.70
1:I:161:ASP:HB3	1:I:191:TYR:HE1	1.58	0.69
1:A:191:TYR:OH	1:A:193:ARG:HG2	1.93	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:228:TYR:HD2	1:D:241:ARG:HG3	1.58	0.68
1:I:131:THR:HB	1:I:302:LEU:HG	1.76	0.67
1:H:145:GLN:HA	1:H:155:GLY:CA	2.23	0.67
1:D:49:VAL:HG21	1:D:81:LEU:HD12	1.76	0.67
1:G:282:ASP:HB3	1:G:284:LYS:HE2	1.75	0.66
1:H:282:ASP:N	1:H:283:PRO:HD3	2.10	0.66
1:A:211:MET:HE2	1:A:216:TYR:HB3	1.78	0.66
1:H:220:ILE:HG13	1:H:264:VAL:HB	1.76	0.66
1:H:46:TYR:HA	1:H:51:ALA:HB1	1.78	0.66
1:D:228:TYR:HB3	1:D:241:ARG:HD2	1.78	0.66
1:A:161:ASP:HB3	1:A:191:TYR:HE1	1.60	0.66
1:I:125:MET:HB2	1:I:266:THR:HA	1.78	0.64
1:D:162:THR:HG22	1:D:227:LEU:HD22	1.79	0.64
1:E:303:ARG:HE	1:E:311:ILE:HD11	1.63	0.64
1:I:101:GLN:HE22	1:I:118:GLU:HG3	1.63	0.63
1:E:103:THR:HG22	1:E:105:GLY:H	1.64	0.63
1:G:280:ALA:CB	2:U:25:DT:H6	2.11	0.63
1:H:46:TYR:HA	1:H:51:ALA:CB	2.29	0.63
1:G:122:ILE:HB	1:G:296:SER:HA	1.81	0.62
1:H:131:THR:C	1:H:310:ARG:HH21	2.08	0.62
1:B:162:THR:OG1	1:B:223:SER:HB2	1.99	0.62
1:E:246:ALA:HB1	1:F:230:THR:HG22	1.81	0.62
1:G:281:ALA:HA	2:U:26:DT:OP1	2.00	0.61
1:H:145:GLN:CA	1:H:155:GLY:HA3	2.25	0.61
1:I:155:GLY:HA3	1:I:215:ARG:HH21	1.65	0.61
1:I:207:ALA:HA	1:I:210:MET:HE3	1.81	0.61
1:B:159:TYR:CE1	1:B:161:ASP:HB3	2.36	0.61
1:C:25:ILE:HG12	1:C:28:LEU:HD23	1.82	0.61
1:I:308:GLU:HA	1:I:310:ARG:HH12	1.66	0.60
1:H:243:MET:HE1	1:I:238:LEU:HD11	1.84	0.60
1:A:111:LYS:HD2	1:A:112:LEU:HD12	1.84	0.60
1:I:278:MET:C	1:I:280:ALA:N	2.56	0.60
4:L:16:DC:H2"	4:L:17:DG:C8	2.37	0.60
1:G:184:ASP:HA	1:G:187:ASP:HB2	1.83	0.60
1:A:233:SER:H	1:A:237:GLU:HB2	1.66	0.60
1:E:219:LEU:HD23	1:E:263:VAL:HG13	1.84	0.60
1:I:123:THR:HA	1:I:298:THR:H	1.67	0.60
1:A:220:ILE:HG23	1:A:264:VAL:HG13	1.84	0.60
1:F:278:MET:HE3	1:F:283:PRO:HD2	1.84	0.59
1:H:128:GLU:HG3	1:H:269:VAL:HG22	1.83	0.59
1:H:128:GLU:CG	1:H:269:VAL:HG22	2.32	0.59

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:329:ILE:HD12	1:H:329:ILE:H	1.67	0.59
4:L:33:DT:O5'	1:B:271:ALA:HB2	2.03	0.59
1:C:130:ARG:HH21	1:C:304:LYS:HG3	1.68	0.59
1:H:88:THR:HG23	1:H:91:GLU:HB3	1.84	0.59
1:I:278:MET:O	1:I:280:ALA:N	2.36	0.59
1:A:96:ARG:NH2	1:B:167:ARG:HE	2.00	0.59
1:D:136:ILE:HG23	1:D:334:VAL:HG21	1.85	0.59
2:U:16:DC:H41	3:T:33:DG:H22	1.51	0.58
1:H:142:VAL:HG22	1:H:180:LEU:HD13	1.85	0.58
1:A:123:THR:HG23	1:A:298:THR:HB	1.85	0.58
1:I:146:LEU:HD22	1:I:180:LEU:HG	1.85	0.58
1:A:308:GLU:HB3	1:A:328:ALA:HB1	1.85	0.58
1:G:145:GLN:HE21	1:G:188:ASN:HB2	1.68	0.58
1:F:41:LEU:HD11	1:F:74:ILE:HD13	1.86	0.58
1:E:280:ALA:HB3	1:E:283:PRO:HD3	1.86	0.58
1:I:35:ALA:O	1:I:39:LYS:HE2	2.04	0.58
2:U:37:DT:H71	3:T:12:DA:C2	2.39	0.58
1:H:124:GLU:HB3	1:H:299:ARG:HD3	1.85	0.58
4:L:33:DT:H5'	1:A:289:GLY:HA3	1.86	0.58
1:C:170:ARG:O	1:C:174:VAL:HG12	2.04	0.58
1:E:122:ILE:HG13	1:E:296:SER:HA	1.86	0.57
2:U:37:DT:C7	3:T:12:DA:N3	2.67	0.57
3:T:20:DC:H4'	3:T:21:DG:OP1	2.05	0.57
1:H:208:GLU:O	1:H:212:VAL:HG13	2.04	0.57
1:A:193:ARG:HB3	1:A:195:PHE:CE2	2.39	0.57
1:I:156:LYS:HG2	1:I:188:ASN:HB3	1.87	0.57
1:I:270:VAL:HG23	1:I:287:ILE:HA	1.86	0.57
1:A:225:THR:HG21	1:A:292:ILE:HD12	1.86	0.57
1:G:139:THR:HG21	1:G:334:VAL:HG13	1.87	0.57
1:I:284:LYS:HD2	1:I:301:TYR:HE1	1.69	0.57
1:G:232:TYR:CD1	1:G:238:LEU:HD22	2.39	0.57
1:H:96:ARG:HH11	1:H:99:ILE:HB	1.70	0.57
1:H:89:ALA:HA	1:H:92:PHE:HB3	1.86	0.57
1:C:147:PRO:HA	1:C:154:GLU:HG3	1.87	0.57
1:G:242:GLN:HB3	1:G:291:ILE:HG13	1.87	0.57
1:A:201:THR:HA	1:A:204:LEU:HD12	1.87	0.56
1:E:196:ASN:HD21	1:D:56:PRO:N	2.03	0.56
1:G:160:ILE:HG22	1:G:160:ILE:O	2.05	0.56
1:H:258:GLU:HG3	1:H:259:PHE:CD1	2.40	0.56
1:E:167:ARG:HG3	1:D:319:CYS:HB2	1.87	0.56
1:I:299:ARG:H	1:I:314:ILE:HG22	1.70	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:223:SER:HB2	1:E:226:ALA:HB2	1.86	0.56
1:H:272:GLN:HB2	4:L:14:DG:C8	2.41	0.56
1:I:215:ARG:HH22	1:I:217:ALA:CB	2.19	0.56
1:I:300:LEU:HG	1:I:314:ILE:HG23	1.86	0.56
1:A:252:LEU:HD22	1:A:263:VAL:HG11	1.86	0.56
1:H:139:THR:HG22	1:H:174:VAL:CG2	2.31	0.56
1:E:73:LYS:O	1:E:77:GLU:HG2	2.06	0.56
1:G:130:ARG:HG2	1:G:130:ARG:O	2.06	0.56
1:H:156:LYS:HA	1:H:188:ASN:C	2.31	0.56
1:I:156:LYS:HB2	1:I:216:TYR:HE1	1.71	0.56
1:A:177:ARG:HD2	1:A:332:ASP:HB3	1.87	0.56
1:E:77:GLU:HA	1:E:80:LYS:HD3	1.86	0.55
1:G:241:ARG:HD3	1:G:242:GLN:OE1	2.06	0.55
3:T:32:DA:H2'	3:T:33:DG:C2	2.41	0.55
1:A:51:ALA:HB1	1:A:254:ARG:HH21	1.71	0.55
1:G:271:ALA:HA	1:G:283:PRO:O	2.06	0.55
1:A:96:ARG:HH21	1:B:167:ARG:HE	1.54	0.55
1:D:162:THR:CG2	1:D:227:LEU:HD22	2.36	0.55
1:B:212:VAL:HA	1:B:259:PHE:HZ	1.71	0.55
1:C:302:LEU:HD23	1:C:312:CYS:HB2	1.87	0.55
1:G:37:ASP:HA	1:G:66:ILE:HG13	1.89	0.55
1:B:123:THR:HG22	1:B:264:VAL:HA	1.89	0.55
1:F:140:LEU:HA	1:F:143:THR:HG22	1.88	0.55
1:E:136:ILE:HD12	1:E:302:LEU:HD21	1.89	0.55
4:L:32:DT:H5'	1:A:291:ILE:HD11	1.88	0.55
1:B:192:ALA:HB1	1:B:203:LEU:HD11	1.89	0.55
1:B:232:TYR:HB2	1:B:241:ARG:HB2	1.89	0.55
1:H:271:ALA:HA	1:H:284:LYS:HA	1.89	0.55
2:U:36:DA:H2'	2:U:36:DA:N3	2.22	0.54
1:H:156:LYS:HB2	1:H:216:TYR:CD1	2.43	0.54
1:H:310:ARG:HH22	5:H:600:ANP:H4'	1.72	0.54
1:D:299:ARG:HD3	1:D:315:TYR:HD2	1.72	0.54
1:G:146:LEU:HB2	1:G:152:GLY:HA3	1.89	0.54
1:B:29:GLU:HG3	1:B:38:VAL:HG11	1.88	0.54
1:C:55:ALA:C	1:D:196:ASN:HD22	2.15	0.54
1:H:130:ARG:HB2	1:H:304:LYS:HZ2	1.71	0.54
1:A:117:ILE:HD12	1:A:123:THR:HG21	1.89	0.54
1:D:99:ILE:HG21	1:D:118:GLU:HB2	1.90	0.54
1:I:101:GLN:HB3	1:I:115:GLY:HA3	1.90	0.54
1:A:44:ALA:HB2	1:A:63:ILE:HD12	1.90	0.54
1:B:125:MET:HB2	1:B:266:THR:HG22	1.90	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:270:VAL:HG23	4:L:23:DG:H5”	1.89	0.54
1:I:301:TYR:O	1:I:312:CYS:HA	2.07	0.54
1:A:306:ARG:HG3	1:A:307:GLY:H	1.73	0.54
1:D:144:CYS:HB2	1:D:218:LEU:HD13	1.89	0.54
1:G:304:LYS:HA	1:G:310:ARG:HD2	1.90	0.53
1:A:39:LYS:HA	1:A:42:GLU:HB2	1.90	0.53
1:C:66:ILE:HD11	1:C:74:ILE:HG13	1.89	0.53
1:A:212:VAL:HG12	1:A:259:PHE:HZ	1.73	0.53
1:E:242:GLN:HB3	1:E:291:ILE:HG13	1.91	0.53
1:G:229:ARG:HH21	4:L:17:DG:H5’	1.74	0.53
1:F:123:THR:HG22	1:F:125:MET:HE3	1.90	0.53
1:A:162:THR:HB	1:A:227:LEU:HD11	1.89	0.53
1:G:211:MET:SD	1:G:216:TYR:CD2	3.02	0.53
1:C:86:PHE:CG	1:D:210:MET:HE1	2.44	0.53
1:C:139:THR:HG21	1:C:334:VAL:HB	1.90	0.53
1:G:119:THR:HA	1:G:262:ALA:HB2	1.91	0.53
1:F:279:PHE:HD1	1:F:279:PHE:O	1.91	0.53
1:G:270:VAL:HG23	4:L:17:DG:H3’	1.90	0.53
1:I:156:LYS:HE3	1:I:214:SER:HB2	1.91	0.53
1:F:144:CYS:SG	1:F:157:ALA:HB2	2.49	0.53
1:H:117:ILE:HG13	1:H:140:LEU:HD11	1.91	0.53
1:B:254:ARG:O	1:B:258:GLU:HB3	2.08	0.53
1:B:228:TYR:O	1:B:241:ARG:HD2	2.09	0.53
1:D:198:ASP:HA	1:D:201:THR:HG22	1.90	0.53
1:E:174:VAL:HG22	1:E:333:GLY:HA3	1.90	0.53
1:C:133:LYS:HB2	1:C:266:THR:HG22	1.91	0.53
1:F:205:TYR:CZ	1:F:251:MET:HE1	2.45	0.52
1:H:211:MET:HG3	1:H:259:PHE:CD2	2.45	0.52
1:I:178:TYR:HB3	1:I:180:LEU:HD23	1.91	0.52
1:A:269:VAL:HG21	1:A:284:LYS:HB3	1.91	0.52
1:B:28:LEU:HD13	1:B:49:VAL:HG22	1.90	0.52
1:B:250:ARG:HG2	1:C:230:THR:HG21	1.90	0.52
1:C:142:VAL:HG11	1:C:174:VAL:HG13	1.90	0.52
1:G:185:VAL:HG12	1:G:186:LEU:HD12	1.91	0.52
1:H:104:THR:HG21	1:H:109:LEU:HB2	1.91	0.52
1:C:140:LEU:HA	1:C:143:THR:HG22	1.91	0.52
1:C:300:LEU:HD23	1:C:312:CYS:SG	2.49	0.52
1:E:100:ILE:HG21	1:E:153:GLY:HA2	1.91	0.52
1:D:293:ALA:HA	1:D:299:ARG:NH2	2.24	0.52
1:E:117:ILE:HG23	1:E:123:THR:HG21	1.92	0.52
1:G:70:LYS:H	1:G:70:LYS:HZ2	1.56	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:34:ASN:HB2	1:I:70:LYS:NZ	2.24	0.52
1:G:249:LEU:HD22	1:G:295:ALA:HB3	1.91	0.52
1:A:119:THR:HA	1:A:262:ALA:HB2	1.92	0.52
1:A:208:GLU:O	1:A:212:VAL:HG13	2.10	0.52
1:C:199:HIS:CD2	1:C:203:LEU:HG	2.45	0.52
1:E:53:ALA:HB2	1:E:78:ALA:HB1	1.91	0.52
1:I:172:LEU:O	1:I:176:GLU:HG3	2.10	0.52
1:G:106:SER:HB2	1:G:109:LEU:HD12	1.92	0.52
1:I:161:ASP:HB3	1:I:191:TYR:CE1	2.43	0.52
1:B:44:ALA:HB2	1:B:64:LYS:HE3	1.92	0.52
1:D:126:PHE:CE2	1:D:286:PRO:HG3	2.45	0.52
1:A:170:ARG:O	1:A:174:VAL:HG23	2.10	0.52
1:D:124:GLU:HA	1:D:265:ILE:HG23	1.92	0.51
1:A:310:ARG:HH21	1:A:329:ILE:HD12	1.75	0.51
1:E:161:ASP:HA	1:E:222:ASP:HB2	1.92	0.51
2:U:25:DT:H2"	2:U:26:DT:H5"	1.92	0.51
1:D:121:SER:HB2	1:D:297:THR:HG21	1.92	0.51
1:E:142:VAL:HG22	1:E:185:VAL:HG21	1.92	0.51
1:B:104:THR:HG22	1:B:140:LEU:HD21	1.91	0.51
1:G:157:ALA:HB3	1:G:189:VAL:HG22	1.93	0.51
1:I:99:ILE:HG23	1:I:119:THR:H	1.74	0.51
1:I:168:PRO:HA	1:I:171:LEU:HB2	1.92	0.51
1:B:48:THR:HG21	1:B:258:GLU:OE1	2.10	0.51
1:H:218:LEU:HD12	1:H:262:ALA:O	2.10	0.51
1:I:311:ILE:HD12	1:I:311:ILE:H	1.76	0.51
1:H:89:ALA:HB3	1:I:186:LEU:O	2.10	0.51
1:H:201:THR:HG22	1:H:248:PHE:HD1	1.76	0.51
1:I:28:LEU:HB3	1:I:49:VAL:HG21	1.93	0.51
1:I:229:ARG:HH22	1:I:287:ILE:HG13	1.74	0.51
1:C:158:MET:O	1:C:220:ILE:HG13	2.11	0.51
1:D:208:GLU:HA	1:D:211:MET:HG3	1.92	0.51
1:F:270:VAL:HG22	1:F:271:ALA:H	1.74	0.51
1:H:290:ASN:ND2	4:L:12:DT:OP2	2.43	0.51
1:B:61:ILE:HD11	1:B:68:GLU:H	1.76	0.51
1:B:170:ARG:O	1:B:174:VAL:HG12	2.11	0.51
2:U:12:DC:H5	3:T:37:DG:H22	1.59	0.51
1:F:198:ASP:O	1:F:202:GLN:HG2	2.11	0.51
2:U:37:DT:H73	3:T:12:DA:O4'	2.10	0.51
1:H:104:THR:HG23	1:H:106:SER:H	1.76	0.51
1:H:270:VAL:HG12	1:H:287:ILE:HA	1.93	0.51
1:C:315:TYR:O	1:D:130:ARG:HD3	2.10	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:61:ILE:HA	1:G:67:SER:HB2	1.93	0.50
1:B:24:PRO:HG2	1:B:26:SER:HB2	1.93	0.50
1:F:107:LYS:O	1:F:111:LYS:HG2	2.11	0.50
1:G:25:ILE:HA	1:G:49:VAL:HG13	1.93	0.50
1:B:259:PHE:HB3	1:B:261:VAL:HG23	1.92	0.50
1:F:24:PRO:HA	1:F:48:THR:HA	1.94	0.50
1:F:211:MET:HG2	1:F:216:TYR:CG	2.46	0.50
1:G:41:LEU:HD12	1:G:63:ILE:HG21	1.92	0.50
3:T:32:DA:H5"	3:T:33:DG:H5"	1.93	0.50
1:H:272:GLN:NE2	4:L:14:DG:H3'	2.27	0.50
1:E:299:ARG:HB2	1:E:315:TYR:HB3	1.93	0.50
1:G:206:GLN:O	1:G:210:MET:HG3	2.11	0.50
1:H:109:LEU:HD22	1:H:325:ALA:HB3	1.94	0.50
1:H:130:ARG:HB2	1:H:304:LYS:HZ1	1.74	0.50
1:H:156:LYS:HG2	1:H:188:ASN:HB3	1.94	0.50
1:I:156:LYS:HB2	1:I:216:TYR:CE1	2.45	0.50
4:L:13:DC:H2"	4:L:14:DG:C8	2.46	0.50
1:E:163:GLU:HG3	1:E:223:SER:OG	2.12	0.50
1:H:252:LEU:HD11	1:H:263:VAL:HG11	1.93	0.50
1:I:215:ARG:HH22	1:I:217:ALA:HB2	1.76	0.50
1:C:204:LEU:HD12	1:C:255:LEU:HD12	1.94	0.50
1:E:140:LEU:HB3	1:E:218:LEU:HD21	1.93	0.50
1:F:159:TYR:HE1	1:F:161:ASP:HB2	1.76	0.50
2:U:19:DT:H1'	2:U:20:DT:C2	2.47	0.50
1:A:29:GLU:HB2	1:A:38:VAL:HG21	1.94	0.50
1:C:200:GLN:O	1:C:204:LEU:HD23	2.12	0.50
1:G:128:GLU:H	1:G:131:THR:HG21	1.77	0.50
1:H:59:GLU:O	1:H:63:ILE:HG13	2.11	0.50
1:I:54:TYR:CE1	1:I:254:ARG:HD3	2.47	0.50
1:A:139:THR:HG21	1:A:334:VAL:HG22	1.94	0.50
1:I:217:ALA:HA	1:I:261:VAL:HG12	1.94	0.49
1:B:197:THR:HG23	1:B:197:THR:O	2.11	0.49
1:C:108:GLU:HB3	1:C:325:ALA:HB1	1.93	0.49
1:D:34:ASN:HD22	1:D:36:ASN:HB3	1.77	0.49
1:E:310:ARG:HB2	1:E:327:PHE:CZ	2.46	0.49
1:F:278:MET:SD	4:L:21:DA:N6	2.85	0.49
1:A:84:MET:H	1:A:84:MET:HE3	1.77	0.49
1:H:125:MET:HB3	1:H:302:LEU:HD13	1.94	0.49
1:D:24:PRO:HA	1:D:48:THR:HA	1.95	0.49
1:H:279:PHE:HD1	1:H:280:ALA:O	1.95	0.49
1:H:299:ARG:N	1:H:316:ASP:O	2.46	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:133:LYS:HG3	1:I:302:LEU:HD23	1.95	0.49
1:B:293:ALA:HB1	1:C:129:PHE:HB3	1.94	0.49
1:G:310:ARG:HG3	1:G:310:ARG:HH11	1.77	0.49
2:U:20:DT:H5"	1:H:315:TYR:CE1	2.47	0.49
2:U:24:DT:H1'	2:U:25:DT:O4'	2.12	0.49
1:B:148:ILE:HD12	1:B:148:ILE:H	1.77	0.49
1:C:213:GLU:HG2	1:C:214:SER:N	2.26	0.49
1:G:313:LYS:HD2	1:G:315:TYR:HE1	1.77	0.49
1:I:211:MET:HE2	1:I:259:PHE:HZ	1.77	0.49
1:I:299:ARG:HB2	1:I:316:ASP:H	1.77	0.49
1:A:122:ILE:HG23	1:A:265:ILE:HD13	1.95	0.49
1:E:228:TYR:HB3	1:E:241:ARG:HD2	1.95	0.49
1:I:269:VAL:HG13	1:I:284:LYS:HG3	1.93	0.49
1:B:108:GLU:HA	1:B:111:LYS:NZ	2.27	0.49
1:G:204:LEU:HD11	1:G:248:PHE:CE1	2.48	0.49
1:E:249:LEU:HD11	1:E:292:ILE:HG13	1.94	0.49
1:B:211:MET:HE2	1:B:216:TYR:HB3	1.93	0.49
1:C:170:ARG:HD2	1:C:170:ARG:HA	1.53	0.49
1:D:125:MET:HE2	1:D:264:VAL:HG12	1.94	0.49
1:G:294:HIS:CE1	1:H:128:GLU:HB3	2.47	0.49
1:D:28:LEU:O	1:D:33:ILE:HG13	2.13	0.49
1:D:235:ARG:C	1:D:237:GLU:H	2.21	0.49
1:E:232:TYR:HD1	1:E:237:GLU:HB3	1.78	0.48
1:H:126:PHE:HB3	1:H:269:VAL:HG12	1.94	0.48
1:I:248:PHE:CE2	1:I:252:LEU:HD21	2.48	0.48
1:H:156:LYS:HB2	1:H:216:TYR:HD1	1.78	0.48
1:H:204:LEU:HA	1:H:207:ALA:HB3	1.94	0.48
1:I:285:LYS:HD2	1:I:286:PRO:HD2	1.95	0.48
1:B:313:LYS:HG3	1:B:324:GLU:HG2	1.94	0.48
1:E:218:LEU:HD12	1:E:262:ALA:O	2.12	0.48
1:G:65:GLY:C	1:G:66:ILE:HG12	2.38	0.48
1:H:40:LYS:CE	1:H:66:ILE:HA	2.43	0.48
1:I:41:LEU:HD12	1:I:63:ILE:HD13	1.94	0.48
1:I:99:ILE:HG23	1:I:119:THR:HG23	1.94	0.48
1:A:112:LEU:HB3	1:A:314:ILE:HD11	1.95	0.48
1:A:135:GLN:HG2	1:A:329:ILE:HD11	1.94	0.48
1:B:42:GLU:HA	1:B:46:TYR:O	2.13	0.48
1:F:106:SER:HB2	1:F:109:LEU:HB2	1.96	0.48
1:G:281:ALA:HA	2:U:26:DT:P	2.53	0.48
1:H:209:ASP:O	1:H:212:VAL:HG22	2.13	0.48
1:H:218:LEU:HG	1:H:220:ILE:CD1	2.44	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:162:THR:HG23	1:D:194:GLY:HA3	1.94	0.48
1:E:58:LYS:HD3	1:E:59:GLU:HG3	1.95	0.48
1:I:147:PRO:HA	1:I:154:GLU:HG3	1.95	0.48
4:L:27:DT:H1'	4:L:28:DT:H5'	1.95	0.48
1:F:312:CYS:HB2	1:F:327:PHE:HE1	1.78	0.48
2:U:23:DT:H5'	1:H:305:GLY:HA2	1.96	0.48
1:F:57:LYS:NZ	1:F:72:ASP:HB3	2.29	0.48
1:G:24:PRO:C	1:G:26:SER:N	2.71	0.48
1:H:50:GLU:HA	1:H:53:ALA:HB3	1.96	0.48
1:H:69:ALA:HB1	1:H:70:LYS:HZ2	1.78	0.48
1:H:109:LEU:HD23	1:H:327:PHE:HB3	1.95	0.48
1:A:167:ARG:HG3	1:A:169:GLU:OE2	2.14	0.48
1:H:93:HIS:CD2	1:I:186:LEU:HD11	2.48	0.48
1:A:58:LYS:HE3	1:A:58:LYS:HB3	1.62	0.48
1:B:299:ARG:HG3	1:B:316:ASP:OD1	2.13	0.48
1:D:259:PHE:HB2	1:D:261:VAL:HG13	1.96	0.48
1:H:122:ILE:HG13	1:H:296:SER:HA	1.96	0.48
1:I:232:TYR:HB2	1:I:241:ARG:HB2	1.96	0.48
1:I:256:ALA:HB2	1:I:263:VAL:HG21	1.96	0.48
1:A:232:TYR:HD1	1:A:237:GLU:HB3	1.79	0.48
1:B:108:GLU:HA	1:B:111:LYS:HZ3	1.79	0.48
1:G:39:LYS:HG3	1:G:40:LYS:HZ2	1.79	0.47
1:I:101:GLN:NE2	1:I:118:GLU:HG3	2.29	0.47
1:A:70:LYS:HA	1:A:73:LYS:HG2	1.96	0.47
1:A:148:ILE:HD12	1:A:148:ILE:H	1.78	0.47
1:C:272:GLN:HG3	1:C:285:LYS:HG2	1.96	0.47
1:G:317:SER:O	5:H:600:ANP:H8	2.14	0.47
1:H:40:LYS:HE3	1:H:66:ILE:HA	1.96	0.47
1:H:73:LYS:HD3	1:H:73:LYS:HA	1.50	0.47
1:H:140:LEU:HD23	1:H:220:ILE:HD11	1.96	0.47
1:H:208:GLU:HG2	1:H:255:LEU:HD21	1.95	0.47
1:E:316:ASP:HB2	1:F:130:ARG:HB2	1.96	0.47
1:H:252:LEU:HD21	1:H:263:VAL:HG11	1.96	0.47
1:I:123:THR:HB	1:I:298:THR:OG1	2.14	0.47
1:E:125:MET:HE1	1:E:136:ILE:HG21	1.95	0.47
1:E:192:ALA:HB2	1:D:86:PHE:HA	1.96	0.47
5:E:600:ANP:H3'	1:D:317:SER:O	2.15	0.47
1:I:132:GLY:HA2	5:I:600:ANP:H5'2	1.95	0.47
1:I:142:VAL:HG12	1:I:171:LEU:HD23	1.96	0.47
1:I:219:LEU:HB2	1:I:263:VAL:HA	1.95	0.47
1:I:292:ILE:HA	1:I:295:ALA:HB3	1.96	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:311:ILE:HG13	1:I:326:MET:HB2	1.97	0.47
1:A:201:THR:HG21	1:A:244:HIS:CE1	2.50	0.47
1:C:225:THR:HA	1:C:228:TYR:HD2	1.78	0.47
1:H:135:GLN:O	1:H:139:THR:HG23	2.14	0.47
1:A:64:LYS:HA	1:A:64:LYS:HD3	1.62	0.47
1:G:24:PRO:C	1:G:26:SER:H	2.23	0.47
1:H:27:ARG:NH1	1:H:27:ARG:HA	2.30	0.47
1:D:223:SER:HB2	1:D:226:ALA:HB3	1.96	0.47
1:G:77:GLU:HA	1:G:80:LYS:HE2	1.97	0.47
1:G:112:LEU:HD11	1:G:314:ILE:HG13	1.97	0.47
3:T:14:DT:H72	3:T:15:DG:C8	2.50	0.47
1:H:142:VAL:HG11	1:H:174:VAL:HB	1.95	0.47
1:H:242:GLN:HB2	4:L:11:DT:H4'	1.97	0.47
1:I:232:TYR:CB	1:I:241:ARG:HB2	2.45	0.47
1:I:272:GLN:HG3	4:L:11:DT:H72	1.96	0.47
1:A:161:ASP:HB3	1:A:191:TYR:CE1	2.46	0.47
1:B:124:GLU:HB3	1:B:299:ARG:HB3	1.97	0.47
1:C:208:GLU:HB2	1:C:255:LEU:HD21	1.95	0.47
1:C:256:ALA:HB2	1:C:263:VAL:HG21	1.96	0.47
1:D:119:THR:HG22	1:D:262:ALA:HB2	1.97	0.47
1:E:146:LEU:HD21	1:E:178:TYR:HB3	1.97	0.47
1:F:93:HIS:NE2	1:G:172:LEU:HD11	2.29	0.47
1:F:208:GLU:HB3	1:F:255:LEU:HD21	1.97	0.47
1:H:174:VAL:HG22	1:H:333:GLY:HA3	1.95	0.47
1:I:110:ASP:HA	1:I:113:LEU:HD11	1.97	0.47
1:I:276:ALA:O	1:I:277:ALA:HB3	2.15	0.47
1:B:175:ALA:HB2	1:B:185:VAL:HG21	1.96	0.47
1:F:223:SER:HB2	1:F:226:ALA:HB2	1.96	0.47
1:G:93:HIS:CD2	1:H:168:PRO:HB2	2.50	0.47
1:G:156:LYS:HD2	1:G:188:ASN:HB3	1.96	0.47
1:G:282:ASP:HB3	1:G:284:LYS:HG2	1.96	0.47
1:A:93:HIS:CD2	1:B:168:PRO:HB2	2.49	0.47
1:B:272:GLN:HE21	1:B:272:GLN:HB3	1.53	0.47
1:C:135:GLN:HB3	1:C:329:ILE:HD11	1.97	0.47
1:G:241:ARG:CD	1:G:242:GLN:OE1	2.63	0.47
2:U:37:DT:H71	3:T:12:DA:N3	2.30	0.47
1:I:156:LYS:HE2	1:I:216:TYR:CE1	2.49	0.47
1:C:251:MET:HE1	1:C:254:ARG:CZ	2.45	0.47
1:A:166:PHE:CD2	1:A:191:TYR:HB2	2.50	0.46
1:A:23:GLN:HB3	1:A:49:VAL:HG22	1.98	0.46
1:A:311:ILE:HG13	1:A:326:MET:HE1	1.97	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:86:PHE:CG	1:C:210:MET:HE1	2.50	0.46
1:D:124:GLU:OE1	1:D:292:ILE:HG12	2.15	0.46
1:G:117:ILE:HD12	1:G:123:THR:HG21	1.97	0.46
1:H:204:LEU:HD12	1:H:251:MET:HE1	1.98	0.46
1:H:258:GLU:HG3	1:H:259:PHE:CE1	2.50	0.46
1:I:128:GLU:HG2	1:I:129:PHE:N	2.31	0.46
1:B:182:GLY:HA2	1:B:185:VAL:HB	1.98	0.46
1:G:293:ALA:HB3	1:G:294:HIS:CE1	2.50	0.46
1:H:92:PHE:O	1:H:95:ARG:HG3	2.15	0.46
1:I:158:MET:HE2	1:I:190:ALA:HB3	1.97	0.46
4:L:29:DT:H4'	1:B:242:GLN:HB2	1.96	0.46
1:H:140:LEU:CD2	1:H:264:VAL:HG21	2.45	0.46
1:I:104:THR:HA	1:I:140:LEU:HD21	1.98	0.46
1:F:219:LEU:HB3	1:F:263:VAL:HG22	1.98	0.46
1:I:211:MET:HB2	1:I:259:PHE:CE2	2.51	0.46
1:D:177:ARG:HH12	1:D:335:GLY:HA3	1.79	0.46
1:A:147:PRO:HD2	1:A:150:ARG:HD3	1.98	0.46
1:B:219:LEU:HB3	1:B:263:VAL:HG13	1.97	0.46
1:C:49:VAL:HG11	1:C:81:LEU:HD12	1.98	0.46
1:D:158:MET:HG3	1:D:216:TYR:CD2	2.51	0.46
1:A:166:PHE:CE2	1:A:191:TYR:HB2	2.51	0.46
1:D:161:ASP:HA	1:D:222:ASP:OD1	2.16	0.46
1:D:136:ILE:HA	1:D:139:THR:HG22	1.97	0.46
1:F:157:ALA:HB3	1:F:189:VAL:HG12	1.97	0.46
1:A:28:LEU:HD13	1:A:49:VAL:HG12	1.97	0.46
1:E:126:PHE:HB3	1:E:267:ASN:HB3	1.98	0.45
1:E:272:GLN:HG2	1:E:285:LYS:HG2	1.98	0.45
1:F:172:LEU:HD21	1:F:186:LEU:HG	1.98	0.45
1:G:159:TYR:CE1	1:G:161:ASP:HB2	2.51	0.45
1:H:160:ILE:HB	1:H:221:VAL:HA	1.98	0.45
4:L:33:DT:C4	1:B:273:VAL:HA	2.52	0.45
1:A:310:ARG:NH2	1:A:329:ILE:HD12	2.31	0.45
1:D:238:LEU:HD12	1:D:242:GLN:HE22	1.82	0.45
1:E:29:GLU:CG	1:E:38:VAL:HG21	2.46	0.45
1:F:109:LEU:HD23	1:F:109:LEU:HA	1.81	0.45
1:F:125:MET:O	1:F:266:THR:HG22	2.16	0.45
1:G:313:LYS:HD2	1:G:315:TYR:CE1	2.51	0.45
1:H:313:LYS:HB3	1:H:313:LYS:HE3	1.43	0.45
1:I:121:SER:O	1:I:123:THR:HG23	2.16	0.45
1:I:142:VAL:HG11	1:I:174:VAL:HB	1.98	0.45
1:B:225:THR:OG1	1:B:267:ASN:ND2	2.46	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:86:PHE:CD1	1:H:192:ALA:HB2	2.51	0.45
1:H:329:ILE:HG13	1:H:334:VAL:HG22	1.98	0.45
1:A:84:MET:HE3	1:A:84:MET:N	2.30	0.45
1:A:112:LEU:HD21	1:A:324:GLU:C	2.41	0.45
1:C:29:GLU:HG2	1:C:38:VAL:HG11	1.97	0.45
1:E:82:VAL:HG13	1:E:84:MET:HG3	1.98	0.45
1:E:252:LEU:HG	1:E:263:VAL:HG11	1.98	0.45
1:E:280:ALA:O	1:E:281:ALA:C	2.59	0.45
3:T:29:DC:H2"	3:T:30:DG:H2'	1.97	0.45
1:H:50:GLU:HB3	1:H:258:GLU:OE2	2.17	0.45
1:H:108:GLU:H	1:H:108:GLU:CD	2.24	0.45
2:U:21:DC:H1'	2:U:22:DT:C6	2.51	0.45
1:H:308:GLU:O	1:H:310:ARG:HG3	2.17	0.45
4:L:27:DT:H72	1:D:271:ALA:HB1	1.98	0.45
1:A:128:GLU:HG2	1:A:129:PHE:H	1.82	0.45
1:C:125:MET:HE3	1:C:125:MET:HB2	1.79	0.45
1:E:330:ASN:HB3	1:E:331:ALA:H	1.59	0.45
1:F:204:LEU:HA	1:F:204:LEU:HD23	1.72	0.45
1:G:28:LEU:HB2	1:G:49:VAL:HG11	1.98	0.45
1:I:200:GLN:OE1	1:I:227:LEU:HD12	2.17	0.45
1:F:251:MET:HE2	1:F:251:MET:HB2	1.83	0.45
1:G:146:LEU:HD21	1:G:178:TYR:HB3	1.99	0.45
1:B:59:GLU:HA	1:B:62:ASN:HD21	1.82	0.45
1:B:89:ALA:HB3	1:C:186:LEU:O	2.17	0.45
1:B:162:THR:HB	1:B:194:GLY:O	2.16	0.45
1:D:102:ILE:HD13	1:D:102:ILE:H	1.82	0.45
1:D:158:MET:HE2	1:D:158:MET:HB3	1.89	0.45
1:D:174:VAL:HG22	1:D:333:GLY:HA3	1.97	0.45
1:D:217:ALA:O	1:D:218:LEU:HD12	2.16	0.45
1:A:300:LEU:HB3	1:A:312:CYS:SG	2.56	0.45
1:E:40:LYS:NZ	1:E:65:GLY:HA3	2.32	0.45
1:G:246:ALA:HB2	1:G:291:ILE:HD12	1.98	0.45
1:G:250:ARG:HA	1:G:253:LEU:HD12	1.97	0.45
1:H:42:GLU:HA	1:H:45:GLY:O	2.17	0.45
1:H:206:GLN:HB3	1:H:210:MET:HE3	1.99	0.45
1:A:77:GLU:O	1:A:81:LEU:HD13	2.16	0.45
1:A:229:ARG:NH2	1:A:270:VAL:HG12	2.32	0.45
1:B:119:THR:HA	1:B:262:ALA:HB2	1.99	0.45
1:E:118:GLU:C	1:E:120:GLY:H	2.25	0.44
1:F:77:GLU:HA	1:F:80:LYS:HD3	1.99	0.44
1:G:311:ILE:CG1	1:G:326:MET:HE1	2.46	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:325:ALA:C	1:H:326:MET:HE2	2.42	0.44
1:A:160:ILE:O	1:A:162:THR:HG23	2.16	0.44
1:H:77:GLU:C	1:H:79:ALA:H	2.25	0.44
1:H:217:ALA:HA	1:H:261:VAL:HG12	1.99	0.44
1:C:122:ILE:HA	1:C:263:VAL:HB	2.00	0.44
1:C:186:LEU:HD12	1:C:186:LEU:HA	1.76	0.44
1:E:96:ARG:HA	1:E:99:ILE:HG23	1.99	0.44
1:F:242:GLN:HB3	1:F:291:ILE:HG13	1.98	0.44
1:I:111:LYS:HB3	1:I:111:LYS:HE2	1.51	0.44
1:E:232:TYR:CD2	1:E:241:ARG:HG3	2.53	0.44
1:I:114:GLN:HE21	1:I:114:GLN:HB3	1.63	0.44
1:A:174:VAL:O	1:A:177:ARG:HB3	2.18	0.44
1:E:144:CYS:SG	1:E:218:LEU:HB2	2.58	0.44
1:H:170:ARG:O	1:H:174:VAL:HG23	2.17	0.44
1:I:51:ALA:HA	1:I:54:TYR:CE1	2.53	0.44
1:G:310:ARG:HG3	1:G:310:ARG:NH1	2.33	0.44
1:I:215:ARG:HH12	1:I:217:ALA:HB2	1.83	0.44
1:B:160:ILE:HG23	1:B:221:VAL:HB	2.00	0.44
1:C:57:LYS:HE3	1:C:57:LYS:HB2	1.79	0.44
1:C:251:MET:HE3	1:C:251:MET:O	2.18	0.44
1:D:159:TYR:CE1	1:D:222:ASP:HB3	2.53	0.44
1:G:109:LEU:HD11	1:G:327:PHE:HB3	2.00	0.44
1:H:139:THR:HG21	1:H:334:VAL:H	1.81	0.44
1:B:58:LYS:O	1:B:61:ILE:HG22	2.17	0.44
1:D:156:LYS:HD2	1:D:216:TYR:HE1	1.83	0.44
1:G:170:ARG:O	1:G:174:VAL:HG23	2.17	0.44
1:I:37:ASP:CG	1:I:70:LYS:HG2	2.43	0.44
1:B:211:MET:HE2	1:B:216:TYR:CB	2.48	0.44
1:E:139:THR:HG21	1:E:334:VAL:HG12	1.99	0.44
1:G:70:LYS:H	1:G:70:LYS:HG2	1.54	0.44
1:G:317:SER:OG	1:G:320:LEU:O	2.32	0.44
1:I:199:HIS:HA	1:I:202:GLN:HG3	1.99	0.44
1:B:267:ASN:HD22	1:B:267:ASN:HA	1.61	0.44
1:E:249:LEU:HD13	1:E:295:ALA:HB3	2.00	0.43
1:F:57:LYS:HE3	1:F:61:ILE:HD11	1.99	0.43
1:I:285:LYS:HD2	1:I:285:LYS:HA	1.57	0.43
1:B:34:ASN:ND2	1:B:37:ASP:H	2.16	0.43
1:B:249:LEU:HD13	1:B:295:ALA:HB3	2.00	0.43
1:C:123:THR:HG23	1:C:298:THR:HG23	1.99	0.43
1:E:145:GLN:HG3	1:E:185:VAL:HG23	2.00	0.43
1:H:92:PHE:CD1	1:H:92:PHE:C	2.96	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:126:PHE:HD2	1:H:301:TYR:HD1	1.66	0.43
1:H:282:ASP:N	1:H:283:PRO:CD	2.79	0.43
1:A:129:PHE:C	1:A:131:THR:N	2.75	0.43
1:D:232:TYR:CG	1:D:241:ARG:HB2	2.52	0.43
1:E:84:MET:HE3	1:F:199:HIS:CD2	2.54	0.43
1:F:285:LYS:HB3	1:F:285:LYS:HE2	1.32	0.43
1:G:78:ALA:O	1:G:82:VAL:HG12	2.18	0.43
3:T:26:DC:H1'	3:T:27:DG:H5"	2.00	0.43
1:B:317:SER:O	5:C:600:ANP:H8	2.19	0.43
1:C:58:LYS:HE3	1:C:58:LYS:HB2	1.89	0.43
1:C:169:GLU:HA	1:C:172:LEU:HD12	2.01	0.43
1:D:161:ASP:O	1:D:193:ARG:HA	2.18	0.43
1:G:30:GLN:O	1:G:33:ILE:HB	2.18	0.43
1:G:47:HIS:HB2	1:G:212:VAL:HG21	1.98	0.43
2:U:37:DT:H73	3:T:12:DA:C5'	2.48	0.43
3:T:23:DG:H4'	3:T:24:DG:OP1	2.17	0.43
1:H:28:LEU:HD13	1:H:33:ILE:HG13	2.01	0.43
1:I:108:GLU:HA	1:I:111:LYS:HB3	2.01	0.43
1:A:76:THR:O	1:A:80:LYS:HG3	2.19	0.43
1:A:125:MET:HG2	1:A:302:LEU:HD11	2.00	0.43
1:B:58:LYS:HD2	1:B:58:LYS:N	2.33	0.43
1:B:316:ASP:HB3	1:C:130:ARG:HB2	2.00	0.43
1:F:186:LEU:HD23	1:F:186:LEU:HA	1.83	0.43
1:G:303:ARG:NH2	1:G:311:ILE:HG21	2.33	0.43
1:H:148:ILE:HA	1:H:153:GLY:CA	2.36	0.43
1:I:156:LYS:HG2	1:I:188:ASN:ND2	2.33	0.43
1:C:53:ALA:HB1	1:C:84:MET:SD	2.59	0.43
1:D:112:LEU:HD22	1:D:314:ILE:HG13	2.00	0.43
1:E:113:LEU:HA	1:E:320:LEU:HD23	2.00	0.43
1:F:73:LYS:HA	1:F:73:LYS:HD2	1.75	0.43
1:I:118:GLU:HB2	1:I:121:SER:HB3	2.00	0.43
1:B:317:SER:O	5:C:600:ANP:H3'	2.18	0.43
1:C:31:CYS:HB2	1:C:77:GLU:OE2	2.19	0.43
1:D:329:ILE:HD13	1:D:334:VAL:HG22	2.00	0.43
1:E:92:PHE:HA	1:E:95:ARG:NH1	2.34	0.43
1:F:180:LEU:HD12	1:F:180:LEU:HA	1.79	0.43
2:U:36:DA:H2"	2:U:37:DT:N1	2.34	0.43
1:H:148:ILE:HD13	1:H:153:GLY:C	2.44	0.43
1:I:124:GLU:HB2	1:I:296:SER:HB2	1.99	0.43
1:I:136:ILE:HA	1:I:139:THR:HG22	2.01	0.43
1:I:222:ASP:HA	1:I:266:THR:HB	2.01	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:208:GLU:O	1:C:212:VAL:HG23	2.19	0.43
1:F:69:ALA:HA	1:F:72:ASP:OD2	2.18	0.43
1:I:175:ALA:HB2	1:I:185:VAL:HG11	2.00	0.43
1:I:247:ARG:HA	1:I:247:ARG:HD3	1.75	0.43
4:L:32:DT:C5'	1:A:291:ILE:HD11	2.48	0.43
1:A:218:LEU:HD11	1:A:264:VAL:HG12	2.01	0.43
1:B:70:LYS:HD2	1:B:70:LYS:HA	1.34	0.43
1:B:205:TYR:CE1	1:B:251:MET:HE2	2.53	0.43
1:D:113:LEU:HD21	1:D:300:LEU:HD21	2.01	0.43
1:B:39:LYS:O	1:B:43:GLU:HG2	2.19	0.43
1:D:218:LEU:HD23	1:D:220:ILE:CG1	2.48	0.43
1:G:162:THR:HB	1:G:227:LEU:HD11	1.99	0.43
1:G:248:PHE:O	1:G:252:LEU:HD22	2.19	0.43
1:G:319:CYS:O	1:G:320:LEU:HB2	2.18	0.43
1:H:290:ASN:OD1	1:H:290:ASN:N	2.52	0.43
1:I:196:ASN:HB2	1:I:199:HIS:HB3	2.01	0.43
1:D:60:LEU:HD23	1:D:60:LEU:HA	1.87	0.43
1:E:181:SER:OG	1:E:184:ASP:HB2	2.19	0.42
1:F:290:ASN:HA	1:F:293:ALA:HB3	2.01	0.42
1:G:124:GLU:O	1:G:299:ARG:HA	2.18	0.42
1:H:238:LEU:HD12	1:H:238:LEU:HA	1.90	0.42
1:I:91:GLU:HA	1:I:94:GLN:HG2	2.01	0.42
1:I:228:TYR:HB3	1:I:241:ARG:HG3	2.00	0.42
1:I:298:THR:HA	1:I:316:ASP:O	2.19	0.42
1:A:204:LEU:HD11	1:A:248:PHE:CD1	2.54	0.42
1:C:211:MET:HG2	1:C:216:TYR:HB2	2.00	0.42
1:E:86:PHE:CE1	1:F:158:MET:HE2	2.54	0.42
1:F:204:LEU:HD13	1:F:251:MET:HG2	2.01	0.42
1:G:284:LYS:HA	1:G:284:LYS:HD3	1.75	0.42
1:H:132:GLY:N	1:H:310:ARG:HH21	2.18	0.42
1:H:271:ALA:O	4:L:15:DT:H71	2.19	0.42
1:H:320:LEU:H	1:H:320:LEU:HG	1.69	0.42
1:I:207:ALA:O	1:I:211:MET:HG3	2.18	0.42
1:C:51:ALA:HB1	1:C:254:ARG:NH1	2.33	0.42
1:E:251:MET:O	1:E:251:MET:HG3	2.17	0.42
1:E:270:VAL:HG13	1:E:285:LYS:HG3	2.02	0.42
1:H:53:ALA:HB2	1:H:78:ALA:HB1	2.02	0.42
1:B:139:THR:O	1:B:143:THR:HG23	2.19	0.42
1:B:144:CYS:SG	1:B:217:ALA:HB3	2.59	0.42
1:B:232:TYR:HB3	1:B:237:GLU:HB3	2.01	0.42
1:D:57:LYS:O	1:D:61:ILE:HG13	2.20	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:25:ILE:HD13	1:E:25:ILE:N	2.34	0.42
1:G:47:HIS:CE1	1:G:209:ASP:HB2	2.54	0.42
4:L:10:DT:H2"	4:L:11:DT:C6	2.54	0.42
1:A:128:GLU:HG2	1:A:131:THR:HG23	2.01	0.42
1:C:66:ILE:HG13	1:C:70:LYS:HB2	2.01	0.42
1:C:232:TYR:HD2	1:C:241:ARG:HG3	1.84	0.42
1:D:303:ARG:HH21	1:D:311:ILE:HG21	1.83	0.42
1:F:100:ILE:HG22	1:F:101:GLN:N	2.35	0.42
2:U:18:DA:OP1	1:H:279:PHE:HD2	2.03	0.42
1:A:305:GLY:H	1:A:310:ARG:HA	1.85	0.42
1:B:162:THR:HG23	1:B:223:SER:HB3	2.01	0.42
1:B:175:ALA:CB	1:B:185:VAL:HG21	2.49	0.42
1:F:70:LYS:HD3	1:F:70:LYS:HA	1.80	0.42
1:F:161:ASP:HB3	1:F:191:TYR:HE1	1.85	0.42
1:G:58:LYS:HB3	1:G:58:LYS:HE3	1.50	0.42
1:I:161:ASP:CB	1:I:191:TYR:HE1	2.31	0.42
1:I:229:ARG:NH1	1:I:287:ILE:HD11	2.35	0.42
1:I:236:GLY:C	1:I:238:LEU:N	2.77	0.42
1:I:242:GLN:OE1	1:I:290:ASN:HB2	2.18	0.42
1:I:290:ASN:C	1:I:292:ILE:H	2.27	0.42
1:I:327:PHE:CD2	1:I:334:VAL:HG23	2.54	0.42
1:A:139:THR:HG21	1:A:334:VAL:H	1.83	0.42
1:A:156:LYS:HA	1:A:188:ASN:HB2	2.01	0.42
1:D:109:LEU:HD12	1:D:109:LEU:HA	1.90	0.42
1:D:239:SER:O	1:D:243:MET:HG3	2.20	0.42
1:E:158:MET:HE2	1:E:216:TYR:CZ	2.55	0.42
1:G:61:ILE:HA	1:G:61:ILE:HD12	1.84	0.42
2:U:35:DA:H2"	3:T:13:DT:H3	1.84	0.42
1:H:78:ALA:O	1:H:82:VAL:HG12	2.20	0.42
1:I:158:MET:HB2	1:I:219:LEU:HA	2.02	0.42
1:B:208:GLU:OE2	1:B:255:LEU:HD11	2.20	0.42
1:F:113:LEU:HD21	1:F:300:LEU:HD11	2.02	0.42
1:G:100:ILE:HG21	1:G:102:ILE:HG23	2.02	0.42
1:C:142:VAL:HG12	1:C:171:LEU:HD23	2.02	0.42
1:E:330:ASN:HB2	1:E:333:GLY:O	2.20	0.42
1:F:159:TYR:CE1	1:F:161:ASP:HB2	2.54	0.42
1:H:45:GLY:O	1:H:46:TYR:C	2.63	0.42
1:H:99:ILE:HD11	1:H:118:GLU:HB2	2.02	0.42
1:I:304:LYS:HD2	1:I:310:ARG:HH11	1.83	0.42
1:I:308:GLU:HG3	1:I:310:ARG:HH22	1.85	0.42
1:A:109:LEU:HD21	1:A:327:PHE:CD1	2.54	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:242:GLN:HA	1:A:242:GLN:HE21	1.85	0.42
1:C:73:LYS:O	1:C:77:GLU:HG3	2.19	0.42
1:E:172:LEU:HD12	1:E:172:LEU:HA	1.85	0.42
1:F:279:PHE:HB2	2:U:30:DT:C4	2.55	0.42
1:F:289:GLY:HA3	4:L:18:DC:O5'	2.20	0.42
1:G:236:GLY:HA3	3:T:29:DC:O4'	2.20	0.42
1:I:146:LEU:HD23	1:I:146:LEU:N	2.35	0.42
1:I:200:GLN:HG3	1:I:248:PHE:CE1	2.55	0.42
1:I:238:LEU:O	1:I:242:GLN:HG2	2.20	0.42
1:A:294:HIS:NE2	1:B:268:GLN:HB3	2.34	0.42
1:D:290:ASN:O	1:D:294:HIS:HD2	2.03	0.42
1:E:60:LEU:HD23	1:E:60:LEU:HA	1.82	0.41
1:E:252:LEU:HD23	1:E:265:ILE:CD1	2.45	0.41
1:F:33:ILE:HG23	1:F:37:ASP:HB2	2.01	0.41
1:G:23:GLN:HE21	1:G:27:ARG:HD2	1.83	0.41
1:G:294:HIS:NE2	1:H:128:GLU:HB3	2.34	0.41
1:H:145:GLN:HG2	1:H:156:LYS:H	1.85	0.41
4:L:25:DT:H2"	4:L:26:DT:C6	2.54	0.41
1:A:113:LEU:HD21	1:A:300:LEU:HD21	2.02	0.41
1:B:197:THR:C	1:B:199:HIS:H	2.28	0.41
1:B:249:LEU:HD12	1:B:291:ILE:O	2.19	0.41
1:E:125:MET:HE2	1:E:300:LEU:HD12	2.01	0.41
1:G:273:VAL:HG23	4:L:17:DG:H2'	2.02	0.41
2:U:26:DT:H2"	2:U:27:DT:C5	2.54	0.41
1:B:170:ARG:HD2	1:B:170:ARG:HA	1.64	0.41
1:B:218:LEU:HA	1:B:218:LEU:HD22	1.79	0.41
1:I:141:ALA:CB	1:I:171:LEU:HD21	2.50	0.41
1:A:72:ASP:O	1:A:76:THR:HG23	2.20	0.41
1:A:121:SER:HB2	1:A:297:THR:HG21	2.02	0.41
1:B:242:GLN:HB3	1:B:291:ILE:HG13	2.01	0.41
1:C:68:GLU:H	1:C:68:GLU:CD	2.27	0.41
1:C:175:ALA:HB2	1:C:185:VAL:HG21	2.02	0.41
1:D:88:THR:OG1	1:D:90:THR:HG22	2.20	0.41
1:F:50:GLU:HB3	1:F:54:TYR:CE2	2.56	0.41
1:G:305:GLY:CA	1:G:311:ILE:HD12	2.51	0.41
1:I:113:LEU:H	1:I:113:LEU:HG	1.60	0.41
1:I:141:ALA:HB3	1:I:171:LEU:HD21	2.02	0.41
1:B:50:GLU:HB3	1:B:54:TYR:CE2	2.54	0.41
1:C:49:VAL:HG11	1:C:81:LEU:CD1	2.50	0.41
1:G:108:GLU:HB2	1:G:325:ALA:HB1	2.02	0.41
1:G:135:GLN:HG3	1:G:329:ILE:HG21	2.01	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:U:17:DT:H6	2:U:17:DT:H2'	1.69	0.41
1:H:159:TYR:HB3	1:H:191:TYR:HB2	2.03	0.41
1:A:147:PRO:HB2	1:A:150:ARG:HG3	2.03	0.41
1:A:235:ARG:HA	1:A:238:LEU:HB2	2.02	0.41
1:E:126:PHE:CE2	1:E:286:PRO:HG3	2.55	0.41
1:E:146:LEU:HD11	1:E:178:TYR:CD2	2.55	0.41
1:E:249:LEU:HD23	1:E:252:LEU:HD22	2.02	0.41
1:G:299:ARG:HD3	1:H:129:PHE:CE1	2.55	0.41
2:U:16:DC:H2'	2:U:17:DT:C6	2.56	0.41
2:U:37:DT:H5'	1:A:33:ILE:HA	2.01	0.41
1:H:185:VAL:O	1:H:189:VAL:HG12	2.21	0.41
1:H:241:ARG:HH22	4:L:13:DC:H5"	1.86	0.41
1:H:313:LYS:HA	1:H:323:ALA:O	2.20	0.41
1:I:57:LYS:H	1:I:57:LYS:HG3	1.51	0.41
1:I:125:MET:HE1	1:I:300:LEU:HB2	2.03	0.41
1:B:40:LYS:HB3	1:B:64:LYS:HD2	2.03	0.41
1:D:125:MET:HE2	1:D:264:VAL:CG1	2.51	0.41
1:D:225:THR:HG21	1:D:267:ASN:OD1	2.21	0.41
1:D:254:ARG:O	1:D:258:GLU:HG3	2.21	0.41
1:H:250:ARG:HH12	1:I:227:LEU:HA	1.84	0.41
1:H:304:LYS:HD2	1:H:310:ARG:HG2	2.02	0.41
1:B:28:LEU:HD21	1:B:52:VAL:HG11	2.03	0.41
1:D:238:LEU:HD12	1:D:238:LEU:HA	1.73	0.41
1:F:300:LEU:HD13	1:F:312:CYS:SG	2.60	0.41
1:G:72:ASP:O	1:G:76:THR:HG23	2.21	0.41
1:G:250:ARG:HA	1:G:250:ARG:HD2	1.80	0.41
1:I:58:LYS:HB2	1:I:58:LYS:HE2	1.44	0.41
1:I:58:LYS:O	1:I:61:ILE:HG22	2.20	0.41
1:A:107:LYS:HD2	1:A:107:LYS:N	2.35	0.41
1:B:252:LEU:HD22	1:B:263:VAL:HG11	2.02	0.41
1:C:109:LEU:HD23	1:C:109:LEU:HA	1.92	0.41
1:D:50:GLU:H	1:D:50:GLU:HG2	1.71	0.41
1:D:166:PHE:CE1	1:D:171:LEU:HD11	2.56	0.41
1:E:61:ILE:H	1:E:61:ILE:HG13	1.77	0.41
1:E:177:ARG:HH12	1:E:335:GLY:HA3	1.85	0.41
1:F:70:LYS:O	1:F:74:ILE:HG13	2.21	0.41
2:U:36:DA:H2"	2:U:37:DT:C2	2.56	0.41
3:T:30:DG:N3	3:T:31:DT:H73	2.36	0.41
1:I:112:LEU:H	1:I:112:LEU:HG	1.71	0.41
1:I:162:THR:HB	1:I:227:LEU:HD11	2.03	0.41
4:L:27:DT:C7	1:D:271:ALA:HB1	2.50	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:41:LEU:HD13	1:A:63:ILE:HD13	2.02	0.41
1:A:65:GLY:C	1:A:66:ILE:HD13	2.46	0.41
1:A:303:ARG:NH2	1:A:311:ILE:HD13	2.36	0.41
1:B:34:ASN:HD21	1:B:36:ASN:HB2	1.86	0.41
1:D:35:ALA:HA	1:D:38:VAL:HB	2.03	0.41
1:D:181:SER:HB3	1:D:184:ASP:CG	2.46	0.41
1:G:105:GLY:HA2	1:G:178:TYR:OH	2.20	0.41
1:G:243:MET:O	1:G:247:ARG:HG3	2.20	0.41
1:C:29:GLU:CD	1:C:38:VAL:HG21	2.46	0.41
1:D:100:ILE:HB	1:D:119:THR:HG23	2.03	0.41
1:D:126:PHE:CD2	1:D:286:PRO:HG3	2.56	0.41
1:D:136:ILE:H	1:D:136:ILE:HG12	1.72	0.41
1:E:58:LYS:HE3	1:F:237:GLU:OE2	2.20	0.40
1:A:146:LEU:HB3	1:A:150:ARG:HB2	2.03	0.40
1:A:191:TYR:OH	1:A:193:ARG:CG	2.66	0.40
1:E:121:SER:HB3	1:E:297:THR:HB	2.02	0.40
1:F:140:LEU:HB3	1:F:218:LEU:HD21	2.02	0.40
1:F:215:ARG:O	1:F:215:ARG:HG3	2.20	0.40
1:G:99:ILE:HD13	1:G:99:ILE:HA	1.87	0.40
1:H:156:LYS:HA	1:H:188:ASN:O	2.21	0.40
1:I:235:ARG:O	1:I:238:LEU:HB2	2.20	0.40
1:I:273:VAL:HG23	4:L:12:DT:C2	2.55	0.40
4:L:9:DT:H6	4:L:9:DT:H2'	1.75	0.40
1:A:124:GLU:HA	1:A:265:ILE:O	2.21	0.40
1:A:184:ASP:O	1:A:188:ASN:ND2	2.54	0.40
1:B:54:TYR:HE2	1:B:258:GLU:HB2	1.86	0.40
1:E:180:LEU:HD23	1:E:180:LEU:HA	1.79	0.40
1:E:306:ARG:HA	1:E:306:ARG:NE	2.36	0.40
1:F:119:THR:HA	1:F:262:ALA:HB2	2.03	0.40
1:G:158:MET:HE3	1:G:207:ALA:HB1	2.03	0.40
1:H:27:ARG:HA	1:H:27:ARG:CZ	2.51	0.40
1:E:62:ASN:OD1	1:E:62:ASN:C	2.64	0.40
1:E:175:ALA:HB2	1:E:185:VAL:HG11	2.03	0.40
1:G:44:ALA:HB3	1:G:46:TYR:CE1	2.56	0.40
1:B:145:GLN:NE2	1:B:188:ASN:HB2	2.37	0.40
1:D:132:GLY:O	1:D:136:ILE:HG12	2.21	0.40
1:D:261:VAL:HG23	1:D:263:VAL:HG23	2.03	0.40
1:F:148:ILE:HD13	1:F:153:GLY:HA2	2.02	0.40
1:G:159:TYR:CD1	1:G:161:ASP:HB2	2.57	0.40
3:T:35:DC:H2"	3:T:36:DT:C2	2.56	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	304/361 (84%)	278 (91%)	26 (9%)	0	100	100
1	B	304/361 (84%)	271 (89%)	33 (11%)	0	100	100
1	C	304/361 (84%)	276 (91%)	28 (9%)	0	100	100
1	D	304/361 (84%)	269 (88%)	34 (11%)	1 (0%)	37	67
1	E	313/361 (87%)	297 (95%)	16 (5%)	0	100	100
1	F	313/361 (87%)	290 (93%)	22 (7%)	1 (0%)	37	67
1	G	313/361 (87%)	278 (89%)	30 (10%)	5 (2%)	8	29
1	H	313/361 (87%)	271 (87%)	41 (13%)	1 (0%)	37	67
1	I	313/361 (87%)	266 (85%)	43 (14%)	4 (1%)	10	34
All	All	2781/3249 (86%)	2496 (90%)	273 (10%)	12 (0%)	32	61

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	I	279	PHE
1	D	30	GLN
1	F	279	PHE
1	G	317	SER
1	G	320	LEU
1	G	25	ILE
1	G	68	GLU
1	I	278	MET
1	I	286	PRO
1	I	116	GLY
1	H	283	PRO
1	G	282	ASP

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	249/290 (86%)	229 (92%)	20 (8%)	10 32
1	B	249/290 (86%)	223 (90%)	26 (10%)	5 21
1	C	249/290 (86%)	223 (90%)	26 (10%)	5 21
1	D	249/290 (86%)	223 (90%)	26 (10%)	5 21
1	E	252/290 (87%)	223 (88%)	29 (12%)	4 17
1	F	252/290 (87%)	231 (92%)	21 (8%)	9 30
1	G	252/290 (87%)	216 (86%)	36 (14%)	2 11
1	H	252/290 (87%)	216 (86%)	36 (14%)	2 11
1	I	252/290 (87%)	207 (82%)	45 (18%)	1 5
All	All	2256/2610 (86%)	1991 (88%)	265 (12%)	7 16

All (265) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	23	GLN
1	E	29	GLU
1	E	87	THR
1	E	94	GLN
1	E	119	THR
1	E	122	ILE
1	E	148	ILE
1	E	169	GLU
1	E	187	ASP
1	E	208	GLU
1	E	210	MET
1	E	211	MET
1	E	213	GLU
1	E	223	SER
1	E	225	THR
1	E	227	LEU
1	E	229	ARG
1	E	242	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	E	243	MET
1	E	245	LEU
1	E	248	PHE
1	E	252	LEU
1	E	268	GLN
1	E	278	MET
1	E	282	ASP
1	E	291	ILE
1	E	298	THR
1	E	315	TYR
1	E	316	ASP
1	F	37	ASP
1	F	38	VAL
1	F	48	THR
1	F	52	VAL
1	F	80	LYS
1	F	87	THR
1	F	111	LYS
1	F	148	ILE
1	F	156	LYS
1	F	160	ILE
1	F	161	ASP
1	F	184	ASP
1	F	185	VAL
1	F	196	ASN
1	F	266	THR
1	F	272	GLN
1	F	284	LYS
1	F	285	LYS
1	F	287	ILE
1	F	315	TYR
1	F	317	SER
1	G	23	GLN
1	G	25	ILE
1	G	27	ARG
1	G	28	LEU
1	G	29	GLU
1	G	30	GLN
1	G	31	CYS
1	G	58	LYS
1	G	61	ILE
1	G	64	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	G	66	ILE
1	G	70	LYS
1	G	72	ASP
1	G	107	LYS
1	G	109	LEU
1	G	118	GLU
1	G	119	THR
1	G	211	MET
1	G	230	THR
1	G	252	LEU
1	G	255	LEU
1	G	259	PHE
1	G	261	VAL
1	G	266	THR
1	G	270	VAL
1	G	273	VAL
1	G	278	MET
1	G	282	ASP
1	G	284	LYS
1	G	287	ILE
1	G	292	ILE
1	G	297	THR
1	G	298	THR
1	G	313	LYS
1	G	314	ILE
1	G	324	GLU
1	H	28	LEU
1	H	40	LYS
1	H	48	THR
1	H	66	ILE
1	H	70	LYS
1	H	73	LYS
1	H	74	ILE
1	H	84	MET
1	H	88	THR
1	H	107	LYS
1	H	130	ARG
1	H	131	THR
1	H	135	GLN
1	H	136	ILE
1	H	154	GLU
1	H	156	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	H	180	LEU
1	H	181	SER
1	H	191	TYR
1	H	223	SER
1	H	230	THR
1	H	245	LEU
1	H	249	LEU
1	H	270	VAL
1	H	273	VAL
1	H	274	ASP
1	H	284	LYS
1	H	285	LYS
1	H	287	ILE
1	H	290	ASN
1	H	292	ILE
1	H	303	ARG
1	H	313	LYS
1	H	314	ILE
1	H	320	LEU
1	H	322	GLU
1	I	25	ILE
1	I	27	ARG
1	I	29	GLU
1	I	43	GLU
1	I	57	LYS
1	I	58	LYS
1	I	59	GLU
1	I	60	LEU
1	I	64	LYS
1	I	84	MET
1	I	100	ILE
1	I	102	ILE
1	I	108	GLU
1	I	111	LYS
1	I	112	LEU
1	I	113	LEU
1	I	114	GLN
1	I	122	ILE
1	I	125	MET
1	I	137	CYS
1	I	138	HIS
1	I	142	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	I	146	LEU
1	I	171	LEU
1	I	189	VAL
1	I	193	ARG
1	I	195	PHE
1	I	199	HIS
1	I	203	LEU
1	I	220	ILE
1	I	233	SER
1	I	235	ARG
1	I	243	MET
1	I	251	MET
1	I	261	VAL
1	I	264	VAL
1	I	265	ILE
1	I	284	LYS
1	I	285	LYS
1	I	287	ILE
1	I	291	ILE
1	I	292	ILE
1	I	294	HIS
1	I	296	SER
1	I	314	ILE
1	A	23	GLN
1	A	43	GLU
1	A	63	ILE
1	A	131	THR
1	A	135	GLN
1	A	176	GLU
1	A	187	ASP
1	A	193	ARG
1	A	195	PHE
1	A	196	ASN
1	A	198	ASP
1	A	200	GLN
1	A	213	GLU
1	A	235	ARG
1	A	285	LYS
1	A	310	ARG
1	A	315	TYR
1	A	320	LEU
1	A	329	ILE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	330	ASN
1	B	52	VAL
1	B	66	ILE
1	B	70	LYS
1	B	80	LYS
1	B	82	VAL
1	B	99	ILE
1	B	106	SER
1	B	113	LEU
1	B	144	CYS
1	B	154	GLU
1	B	156	LYS
1	B	176	GLU
1	B	184	ASP
1	B	199	HIS
1	B	211	MET
1	B	218	LEU
1	B	220	ILE
1	B	221	VAL
1	B	257	ASP
1	B	267	ASN
1	B	269	VAL
1	B	272	GLN
1	B	274	ASP
1	B	284	LYS
1	B	285	LYS
1	B	315	TYR
1	C	25	ILE
1	C	28	LEU
1	C	39	LYS
1	C	112	LEU
1	C	114	GLN
1	C	136	ILE
1	C	142	VAL
1	C	144	CYS
1	C	156	LYS
1	C	163	GLU
1	C	170	ARG
1	C	185	VAL
1	C	200	GLN
1	C	220	ILE
1	C	221	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	C	223	SER
1	C	225	THR
1	C	229	ARG
1	C	249	LEU
1	C	264	VAL
1	C	266	THR
1	C	285	LYS
1	C	291	ILE
1	C	304	LYS
1	C	315	TYR
1	C	322	GLU
1	D	23	GLN
1	D	33	ILE
1	D	34	ASN
1	D	37	ASP
1	D	72	ASP
1	D	73	LYS
1	D	81	LEU
1	D	82	VAL
1	D	102	ILE
1	D	103	THR
1	D	139	THR
1	D	144	CYS
1	D	162	THR
1	D	169	GLU
1	D	204	LEU
1	D	218	LEU
1	D	222	ASP
1	D	223	SER
1	D	235	ARG
1	D	237	GLU
1	D	238	LEU
1	D	239	SER
1	D	242	GLN
1	D	264	VAL
1	D	268	GLN
1	D	298	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	E	23	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	E	268	GLN
1	G	23	GLN
1	G	30	GLN
1	G	62	ASN
1	G	135	GLN
1	H	114	GLN
1	H	135	GLN
1	H	272	GLN
1	I	101	GLN
1	I	114	GLN
1	I	206	GLN
1	I	267	ASN
1	A	138	HIS
1	A	202	GLN
1	A	242	GLN
1	B	62	ASN
1	B	267	ASN
1	B	268	GLN
1	B	272	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)

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 18 ligands modelled in this entry, 9 are monoatomic - leaving 9 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	$\#\|Z\| > 2$
5	ANP	D	600	6	29,33,33	2.38	6 (20%)	31,52,52	1.59	5 (16%)
5	ANP	F	600	-	29,33,33	2.49	6 (20%)	31,52,52	1.48	4 (12%)
5	ANP	H	600	-	29,33,33	2.38	6 (20%)	31,52,52	1.63	4 (12%)
5	ANP	E	600	6	29,33,33	2.41	6 (20%)	31,52,52	1.50	4 (12%)
5	ANP	B	600	6	29,33,33	2.48	6 (20%)	31,52,52	1.57	4 (12%)
5	ANP	G	600	-	29,33,33	2.44	6 (20%)	31,52,52	1.46	4 (12%)
5	ANP	I	600	6	29,33,33	2.51	6 (20%)	31,52,52	1.39	3 (9%)
5	ANP	A	600	6	29,33,33	2.47	6 (20%)	31,52,52	1.51	4 (12%)
5	ANP	C	600	-	29,33,33	2.45	6 (20%)	31,52,52	1.61	3 (9%)

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
5	ANP	D	600	6	-	4/14/38/38	0/3/3/3
5	ANP	F	600	-	-	5/14/38/38	0/3/3/3
5	ANP	H	600	-	-	6/14/38/38	0/3/3/3
5	ANP	E	600	6	-	6/14/38/38	0/3/3/3
5	ANP	B	600	6	-	8/14/38/38	0/3/3/3
5	ANP	G	600	-	-	4/14/38/38	0/3/3/3
5	ANP	I	600	6	-	8/14/38/38	0/3/3/3
5	ANP	A	600	6	-	7/14/38/38	0/3/3/3
5	ANP	C	600	-	-	10/14/38/38	0/3/3/3

All (54) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	I	600	ANP	PB-O3A	9.22	1.70	1.59
5	F	600	ANP	PB-O3A	9.19	1.70	1.59
5	B	600	ANP	PB-O3A	9.18	1.70	1.59
5	C	600	ANP	PB-O3A	8.95	1.70	1.59
5	A	600	ANP	PB-O3A	8.88	1.70	1.59
5	G	600	ANP	PB-O3A	8.63	1.69	1.59

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	H	600	ANP	PB-O3A	8.49	1.69	1.59
5	E	600	ANP	PB-O3A	8.38	1.69	1.59
5	D	600	ANP	PB-O3A	8.29	1.69	1.59
5	I	600	ANP	PG-N3B	6.35	1.79	1.63
5	A	600	ANP	PG-N3B	6.33	1.79	1.63
5	G	600	ANP	PG-N3B	6.28	1.79	1.63
5	F	600	ANP	PG-N3B	6.18	1.79	1.63
5	E	600	ANP	PG-N3B	6.16	1.79	1.63
5	D	600	ANP	PG-N3B	6.10	1.79	1.63
5	B	600	ANP	PG-N3B	6.10	1.79	1.63
5	C	600	ANP	PG-N3B	6.05	1.79	1.63
5	H	600	ANP	PG-N3B	5.90	1.78	1.63
5	H	600	ANP	PG-O1G	4.67	1.53	1.46
5	G	600	ANP	PG-O1G	4.63	1.53	1.46
5	E	600	ANP	PG-O1G	4.62	1.53	1.46
5	D	600	ANP	PG-O1G	4.61	1.53	1.46
5	A	600	ANP	PG-O1G	4.57	1.53	1.46
5	B	600	ANP	PG-O1G	4.45	1.53	1.46
5	C	600	ANP	PG-O1G	4.45	1.53	1.46
5	I	600	ANP	PG-O1G	4.41	1.53	1.46
5	F	600	ANP	PG-O1G	4.33	1.53	1.46
5	I	600	ANP	PB-O1B	2.75	1.50	1.46
5	H	600	ANP	PB-O1B	2.60	1.50	1.46
5	F	600	ANP	PB-O1B	2.58	1.50	1.46
5	B	600	ANP	PB-O1B	2.58	1.50	1.46
5	A	600	ANP	PB-O1B	2.55	1.50	1.46
5	G	600	ANP	PB-O1B	2.51	1.50	1.46
5	E	600	ANP	PB-O1B	2.47	1.50	1.46
5	C	600	ANP	PB-O1B	2.46	1.50	1.46
5	I	600	ANP	C8-N7	-2.42	1.30	1.34
5	E	600	ANP	C8-N7	-2.41	1.30	1.34
5	D	600	ANP	PB-O1B	2.40	1.50	1.46
5	G	600	ANP	C8-N7	-2.36	1.30	1.34
5	C	600	ANP	C8-N7	-2.36	1.30	1.34
5	A	600	ANP	C8-N7	-2.33	1.30	1.34
5	B	600	ANP	C8-N7	-2.32	1.30	1.34
5	D	600	ANP	PB-O2B	-2.30	1.50	1.56
5	F	600	ANP	C8-N7	-2.29	1.30	1.34
5	D	600	ANP	C8-N7	-2.26	1.30	1.34
5	H	600	ANP	PB-O2B	-2.24	1.50	1.56
5	E	600	ANP	PB-O2B	-2.24	1.50	1.56
5	H	600	ANP	C8-N7	-2.23	1.30	1.34

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	G	600	ANP	PB-O2B	-2.23	1.50	1.56
5	C	600	ANP	PB-O2B	-2.18	1.50	1.56
5	F	600	ANP	PB-O2B	-2.16	1.50	1.56
5	B	600	ANP	PB-O2B	-2.14	1.51	1.56
5	A	600	ANP	PB-O2B	-2.07	1.51	1.56
5	I	600	ANP	PB-O2B	-2.07	1.51	1.56

All (35) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	B	600	ANP	O2B-PB-O1B	5.21	120.84	109.92
5	H	600	ANP	O2B-PB-O1B	5.06	120.54	109.92
5	C	600	ANP	O1G-PG-N3B	-5.06	104.32	111.77
5	E	600	ANP	O2B-PB-O1B	5.04	120.50	109.92
5	D	600	ANP	O2B-PB-O1B	4.87	120.13	109.92
5	C	600	ANP	O2B-PB-O1B	4.73	119.84	109.92
5	I	600	ANP	O2B-PB-O1B	4.66	119.69	109.92
5	A	600	ANP	O2B-PB-O1B	4.64	119.65	109.92
5	H	600	ANP	O1G-PG-N3B	-4.62	104.97	111.77
5	G	600	ANP	O2B-PB-O1B	4.61	119.59	109.92
5	F	600	ANP	O2B-PB-O1B	4.61	119.58	109.92
5	B	600	ANP	O1G-PG-N3B	-3.98	105.90	111.77
5	E	600	ANP	O1G-PG-N3B	-3.81	106.17	111.77
5	D	600	ANP	O1G-PG-N3B	-3.65	106.39	111.77
5	F	600	ANP	O1G-PG-N3B	-3.58	106.49	111.77
5	A	600	ANP	O1G-PG-N3B	-3.50	106.61	111.77
5	G	600	ANP	O1G-PG-N3B	-3.46	106.67	111.77
5	I	600	ANP	O1G-PG-N3B	-3.39	106.77	111.77
5	D	600	ANP	PB-O3A-PA	-3.01	122.00	132.62
5	B	600	ANP	O2G-PG-O3G	2.71	114.85	107.64
5	F	600	ANP	O2G-PG-O3G	2.66	114.72	107.64
5	C	600	ANP	O2G-PG-O3G	2.62	114.62	107.64
5	A	600	ANP	PB-O3A-PA	-2.61	123.42	132.62
5	H	600	ANP	O2G-PG-O3G	2.61	114.59	107.64
5	G	600	ANP	O2G-PG-O3G	2.56	114.45	107.64
5	A	600	ANP	O2G-PG-O3G	2.53	114.39	107.64
5	I	600	ANP	O2G-PG-O3G	2.53	114.36	107.64
5	D	600	ANP	O2G-PG-O3G	2.48	114.25	107.64
5	E	600	ANP	O2G-PG-O3G	2.46	114.18	107.64
5	G	600	ANP	PB-O3A-PA	-2.38	124.24	132.62
5	H	600	ANP	PB-O3A-PA	-2.25	124.67	132.62
5	B	600	ANP	O3A-PB-N3B	-2.17	100.56	106.59

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	E	600	ANP	PB-O3A-PA	-2.11	125.19	132.62
5	D	600	ANP	O4'-C4'-C3'	-2.04	101.07	105.11
5	F	600	ANP	O3A-PB-N3B	-2.03	100.95	106.59

There are no chirality outliers.

All (58) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	E	600	ANP	PG-N3B-PB-O1B
5	E	600	ANP	PG-N3B-PB-O3A
5	E	600	ANP	C5'-O5'-PA-O1A
5	E	600	ANP	C5'-O5'-PA-O2A
5	F	600	ANP	PG-N3B-PB-O1B
5	F	600	ANP	PA-O3A-PB-O1B
5	F	600	ANP	PA-O3A-PB-O2B
5	F	600	ANP	O4'-C4'-C5'-O5'
5	G	600	ANP	PB-N3B-PG-O1G
5	G	600	ANP	C5'-O5'-PA-O1A
5	H	600	ANP	PB-N3B-PG-O1G
5	H	600	ANP	PG-N3B-PB-O1B
5	H	600	ANP	PG-N3B-PB-O3A
5	H	600	ANP	C5'-O5'-PA-O3A
5	I	600	ANP	PB-N3B-PG-O1G
5	I	600	ANP	PG-N3B-PB-O1B
5	I	600	ANP	PG-N3B-PB-O3A
5	I	600	ANP	PA-O3A-PB-O1B
5	I	600	ANP	PA-O3A-PB-O2B
5	I	600	ANP	C5'-O5'-PA-O2A
5	I	600	ANP	C5'-O5'-PA-O3A
5	A	600	ANP	PB-N3B-PG-O1G
5	A	600	ANP	PG-N3B-PB-O1B
5	A	600	ANP	C5'-O5'-PA-O2A
5	A	600	ANP	C3'-C4'-C5'-O5'
5	B	600	ANP	PB-N3B-PG-O1G
5	B	600	ANP	PA-O3A-PB-O1B
5	B	600	ANP	PA-O3A-PB-O2B
5	B	600	ANP	C5'-O5'-PA-O1A
5	B	600	ANP	C5'-O5'-PA-O2A
5	C	600	ANP	PB-N3B-PG-O1G
5	C	600	ANP	PG-N3B-PB-O1B
5	C	600	ANP	PG-N3B-PB-O3A
5	C	600	ANP	PA-O3A-PB-O1B

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
5	C	600	ANP	PA-O3A-PB-O2B
5	C	600	ANP	C5'-O5'-PA-O1A
5	C	600	ANP	C5'-O5'-PA-O2A
5	D	600	ANP	PG-N3B-PB-O1B
5	D	600	ANP	PG-N3B-PB-O3A
5	D	600	ANP	PA-O3A-PB-O1B
5	D	600	ANP	PA-O3A-PB-O2B
5	F	600	ANP	C3'-C4'-C5'-O5'
5	B	600	ANP	O4'-C4'-C5'-O5'
5	B	600	ANP	C3'-C4'-C5'-O5'
5	A	600	ANP	O4'-C4'-C5'-O5'
5	G	600	ANP	C4'-C5'-O5'-PA
5	E	600	ANP	C5'-O5'-PA-O3A
5	A	600	ANP	C5'-O5'-PA-O3A
5	B	600	ANP	C5'-O5'-PA-O3A
5	H	600	ANP	C5'-O5'-PA-O1A
5	H	600	ANP	C5'-O5'-PA-O2A
5	A	600	ANP	C5'-O5'-PA-O1A
5	G	600	ANP	O4'-C4'-C5'-O5'
5	C	600	ANP	O4'-C4'-C5'-O5'
5	I	600	ANP	O4'-C4'-C5'-O5'
5	C	600	ANP	PB-O3A-PA-O2A
5	C	600	ANP	C5'-O5'-PA-O3A
5	E	600	ANP	O4'-C4'-C5'-O5'

There are no ring outliers.

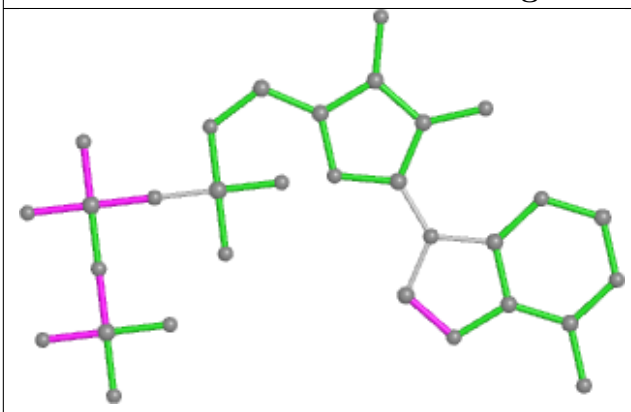
4 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	H	600	ANP	2	0
5	E	600	ANP	1	0
5	I	600	ANP	1	0
5	C	600	ANP	2	0

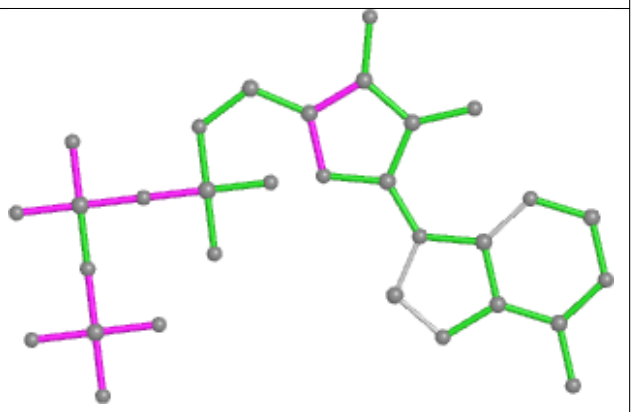
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

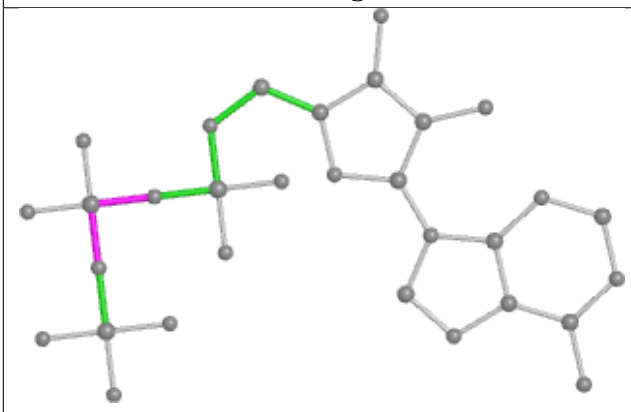
Ligand ANP D 600



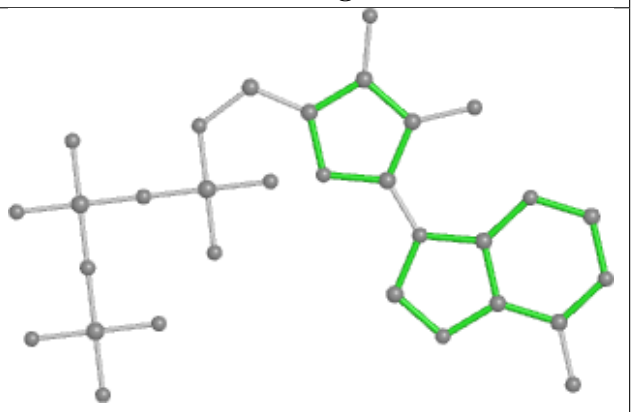
Bond lengths



Bond angles

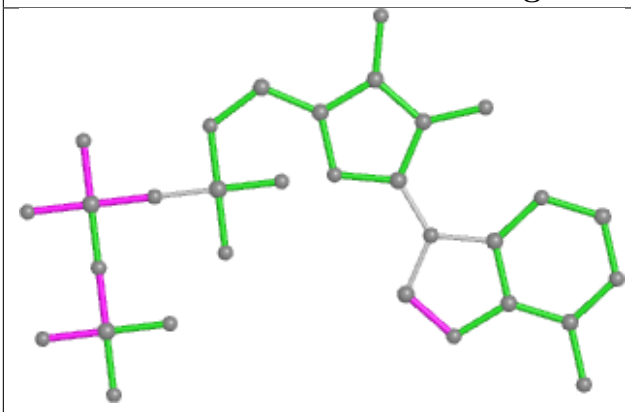


Torsions

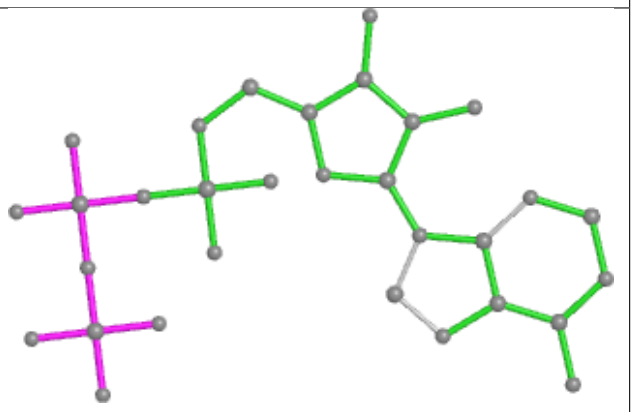


Rings

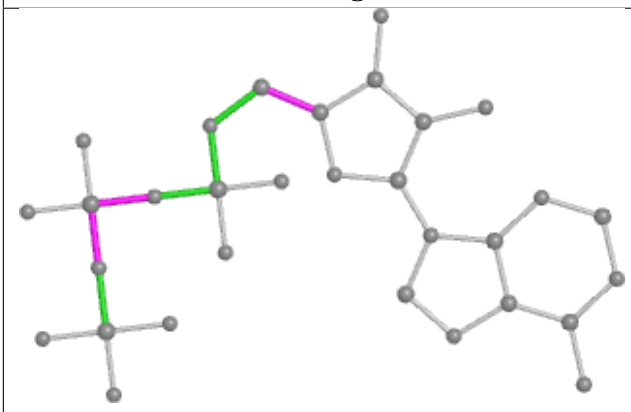
Ligand ANP F 600



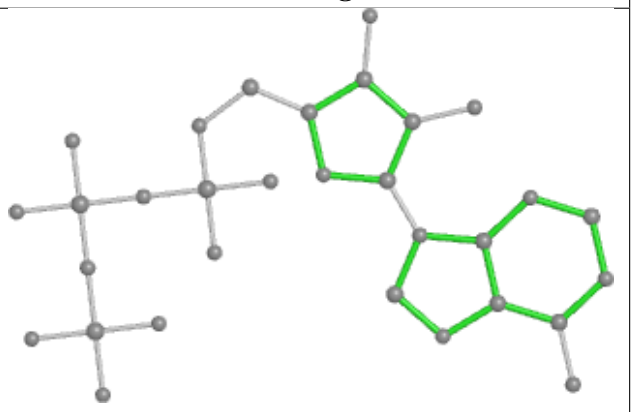
Bond lengths



Bond angles

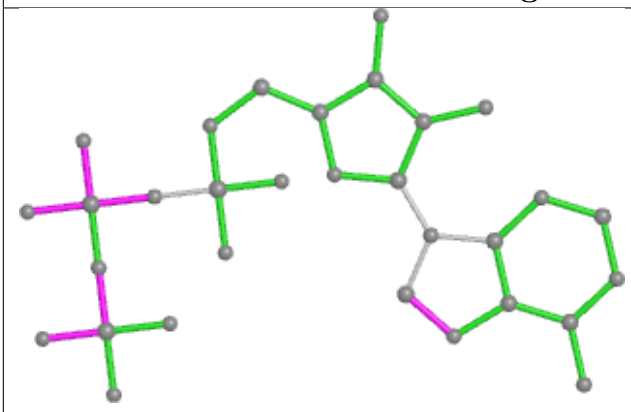


Torsions

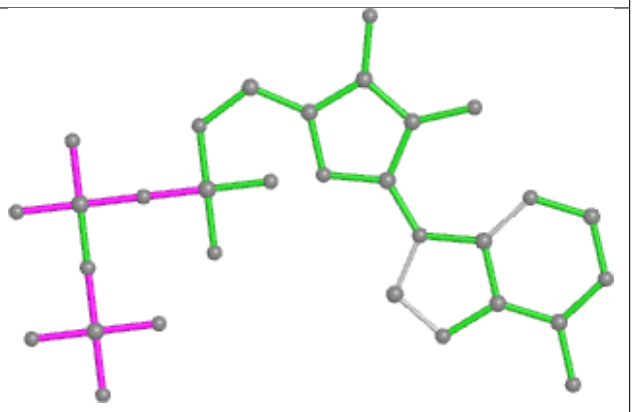


Rings

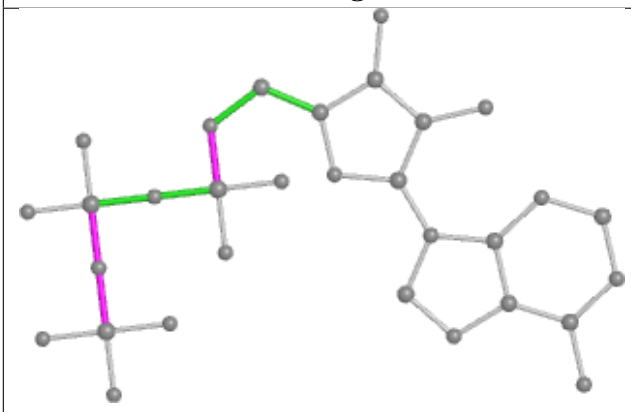
Ligand ANP H 600



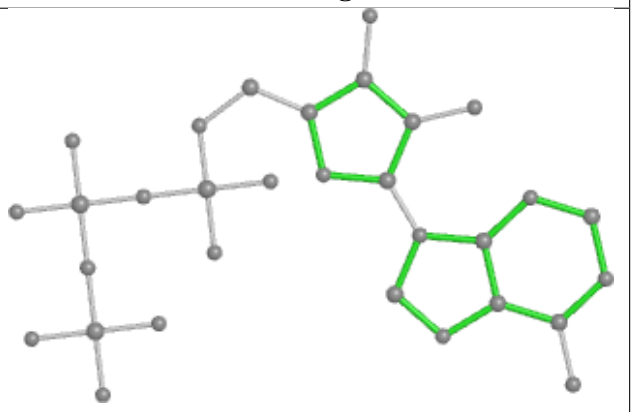
Bond lengths



Bond angles

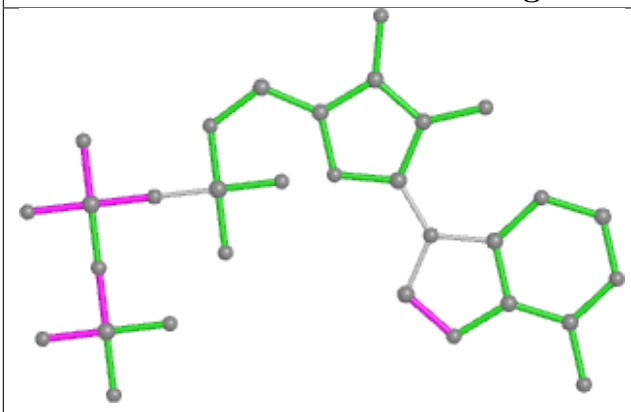


Torsions

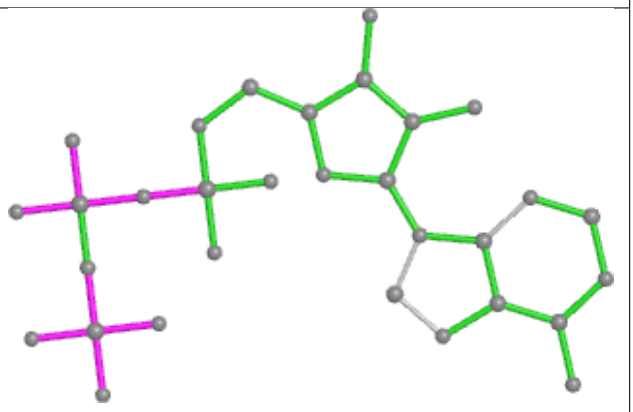


Rings

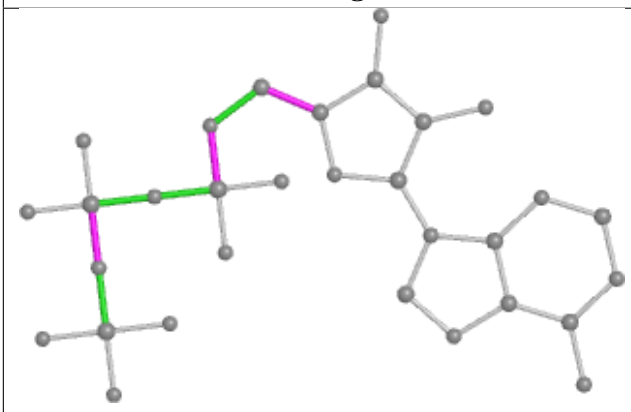
Ligand ANP E 600



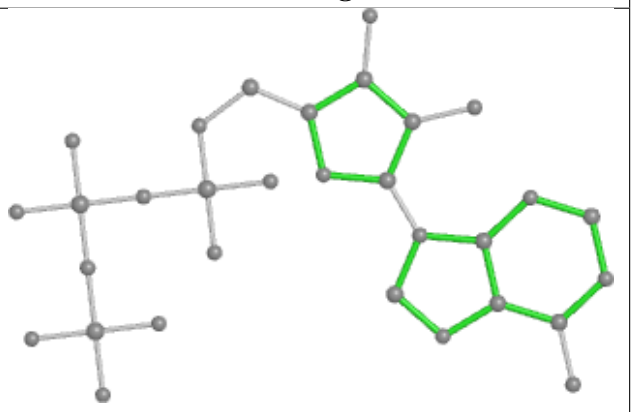
Bond lengths



Bond angles

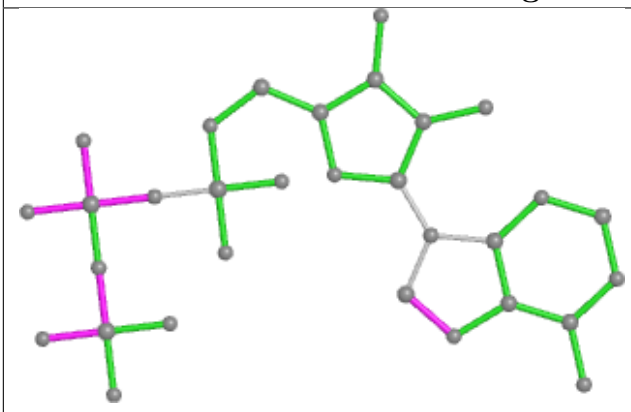


Torsions

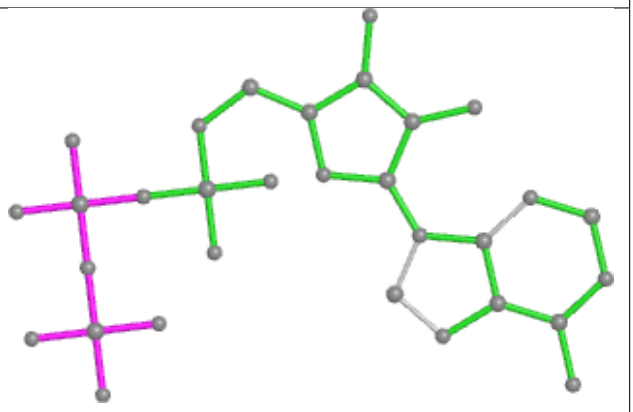


Rings

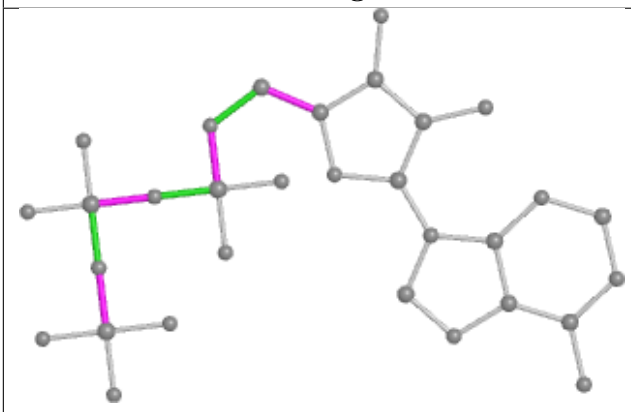
Ligand ANP B 600



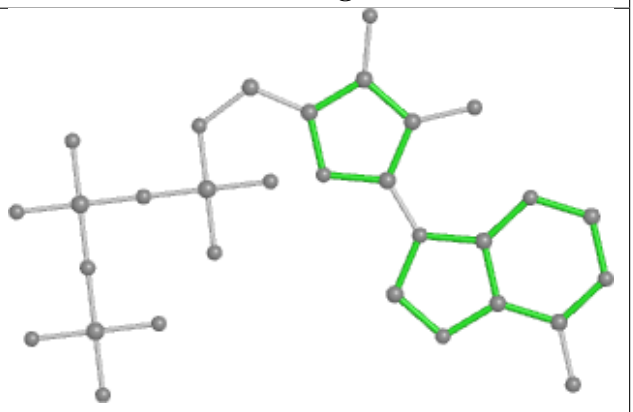
Bond lengths



Bond angles

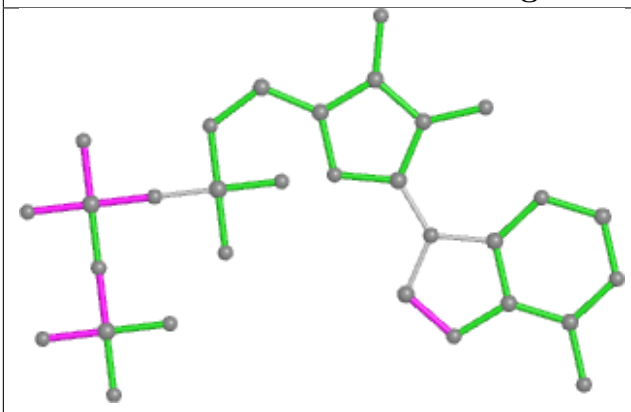


Torsions

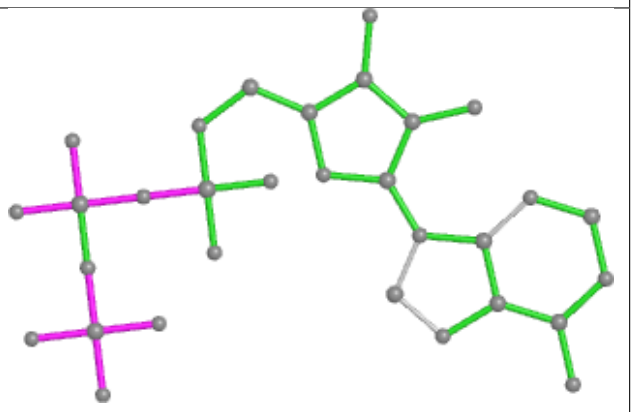


Rings

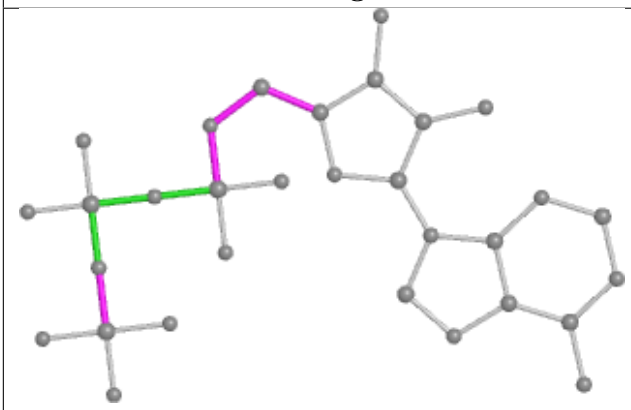
Ligand ANP G 600



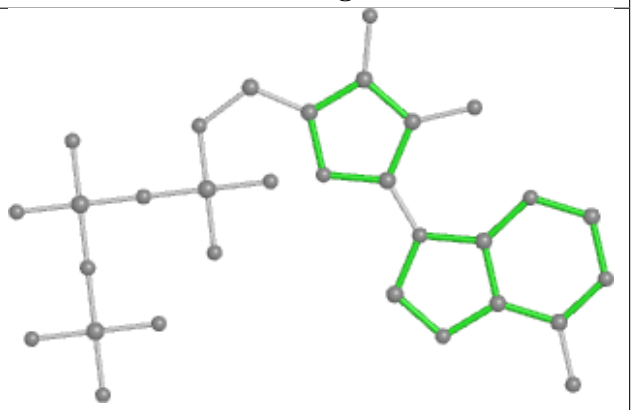
Bond lengths



Bond angles

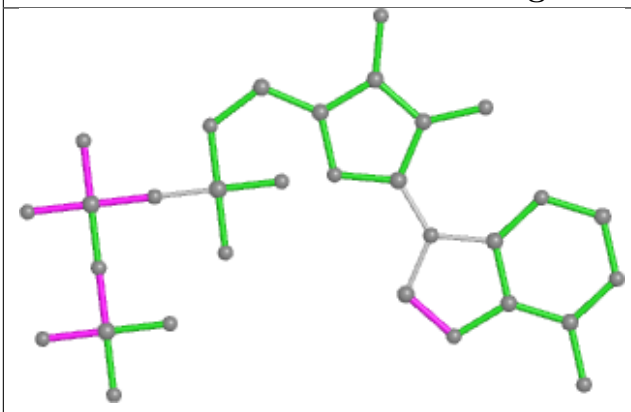


Torsions

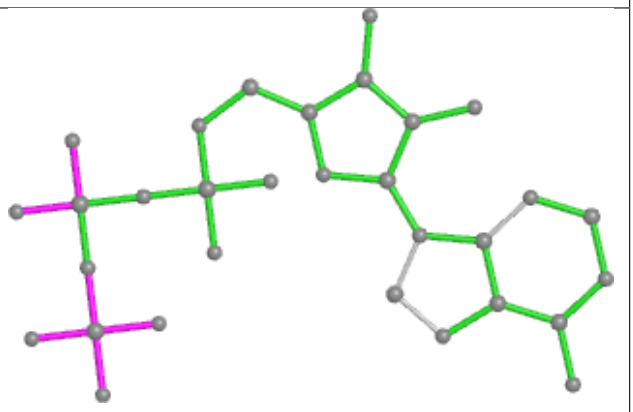


Rings

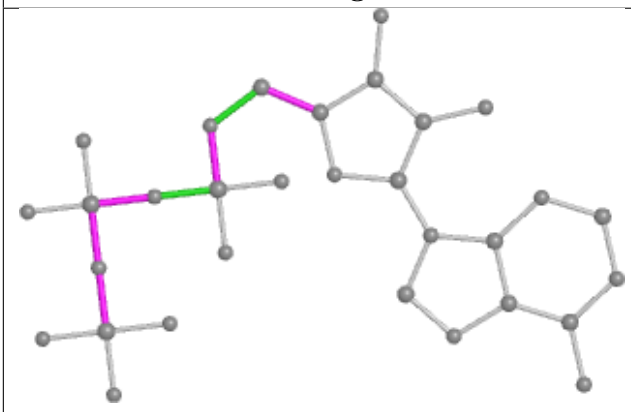
Ligand ANP I 600



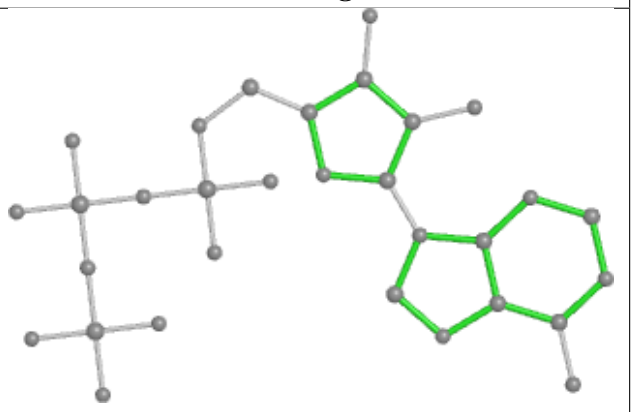
Bond lengths



Bond angles

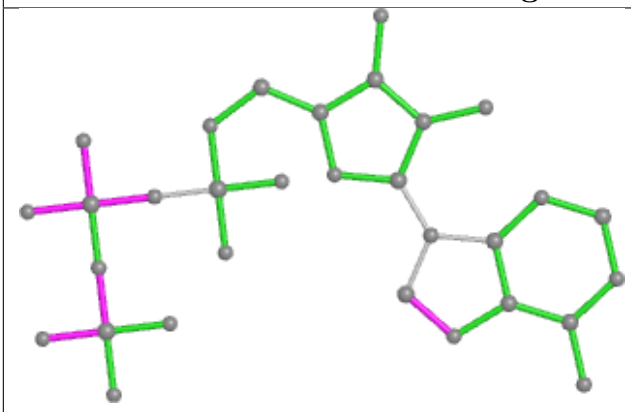


Torsions

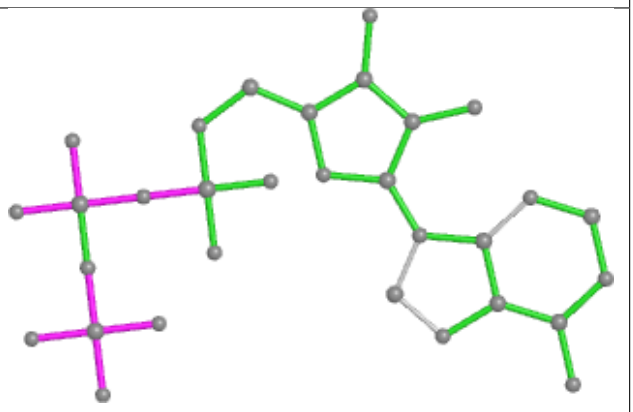


Rings

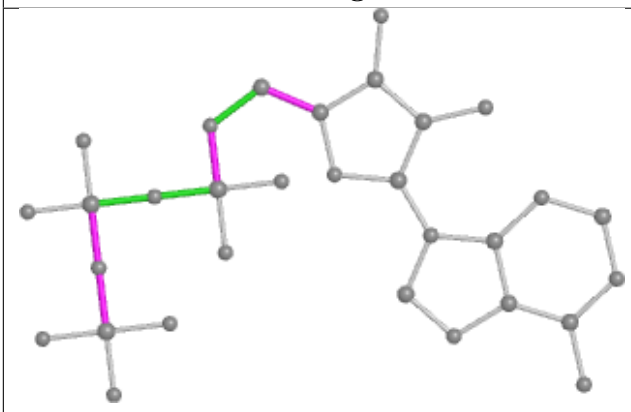
Ligand ANP A 600



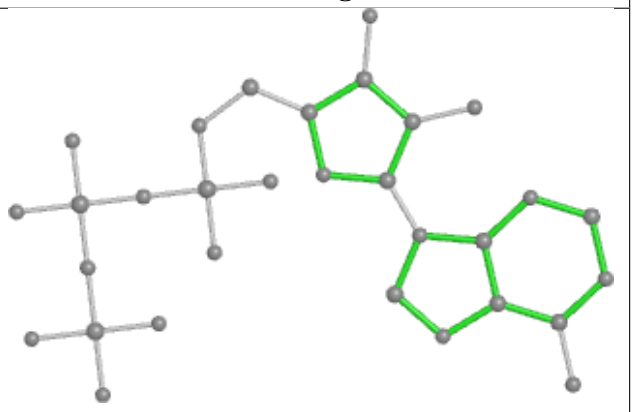
Bond lengths



Bond angles

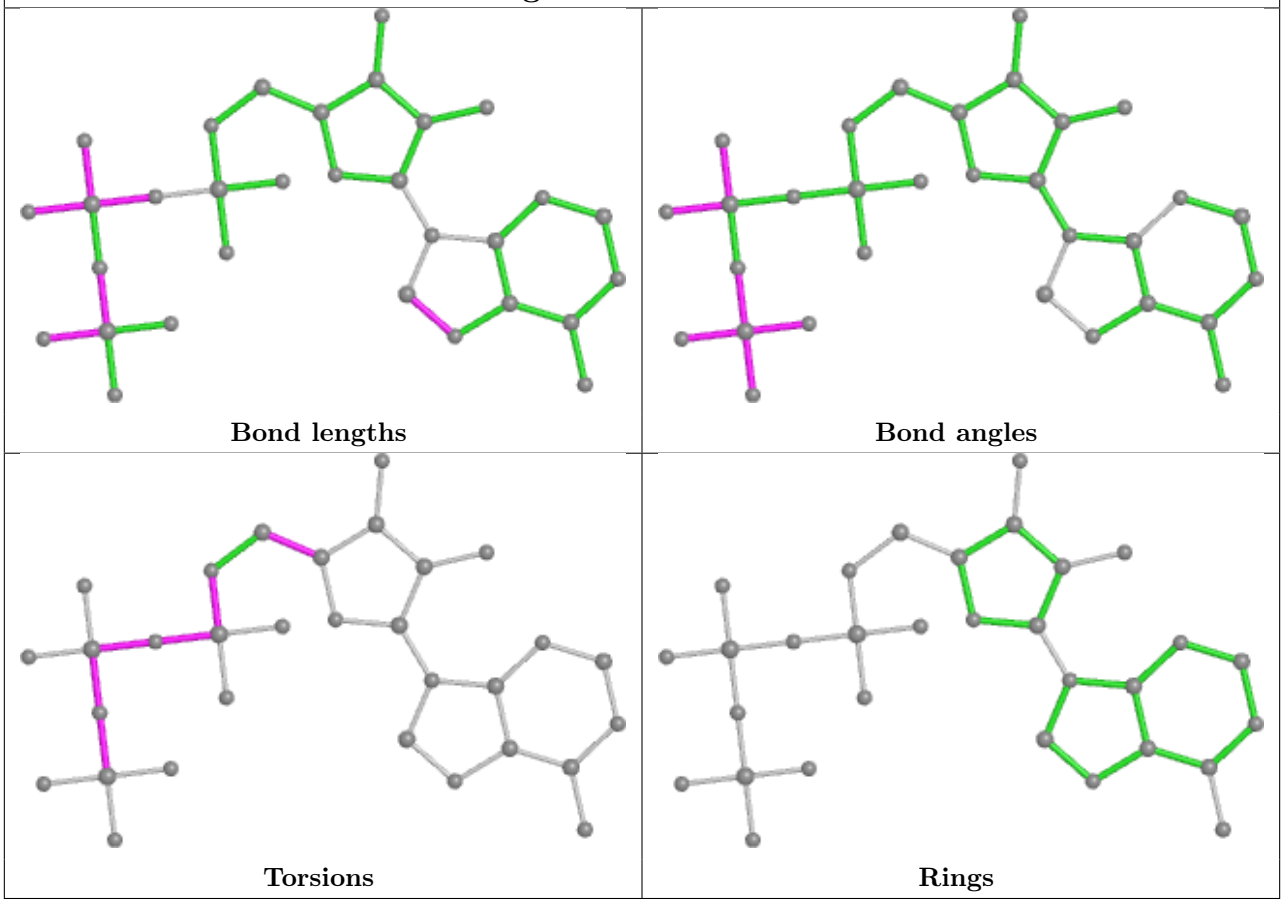


Torsions



Rings

Ligand ANP C 600



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

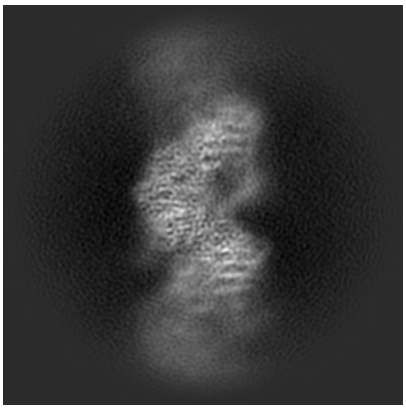
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-64188. These allow visual inspection of the internal detail of the map and identification of artifacts.

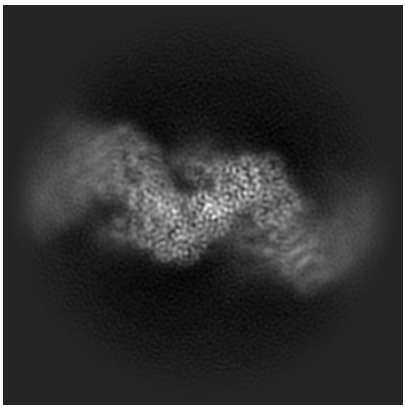
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

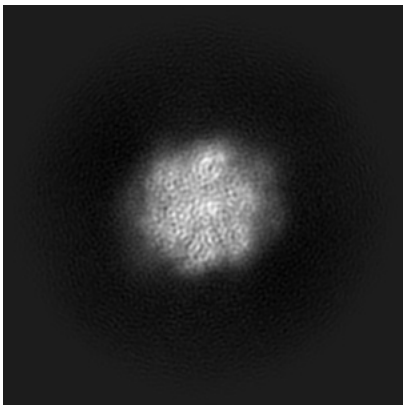
6.1.1 Primary map



X

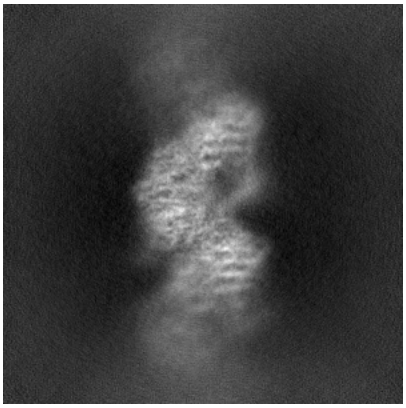


Y

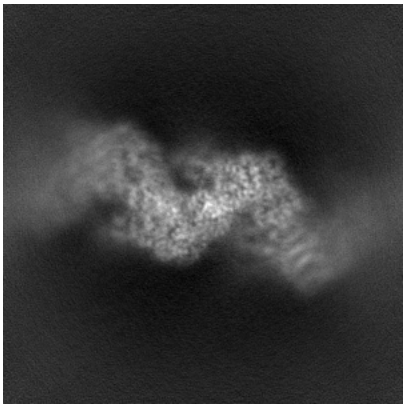


Z

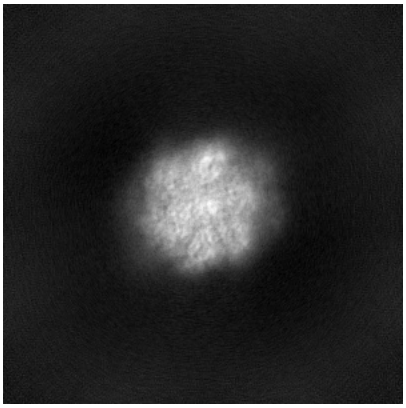
6.1.2 Raw map



X



Y

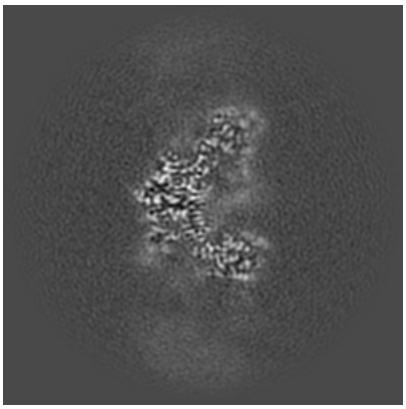


Z

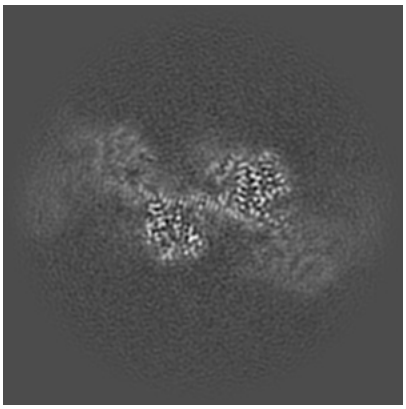
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

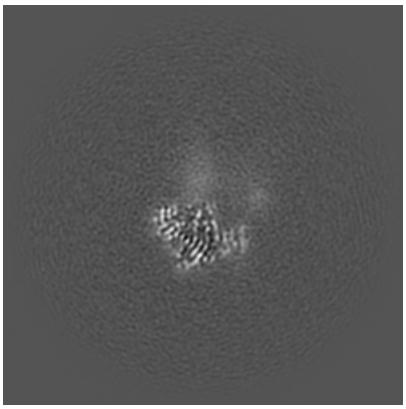
6.2.1 Primary map



X Index: 180

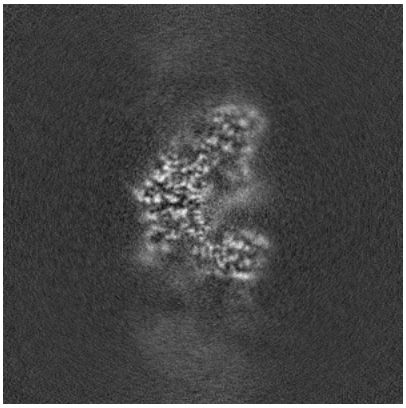


Y Index: 180

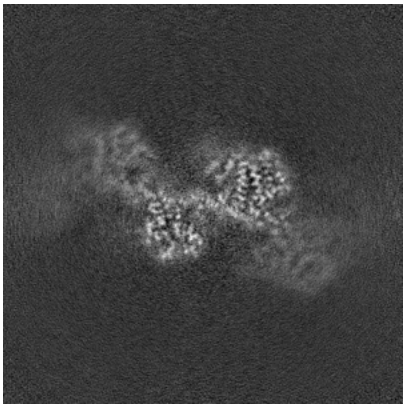


Z Index: 180

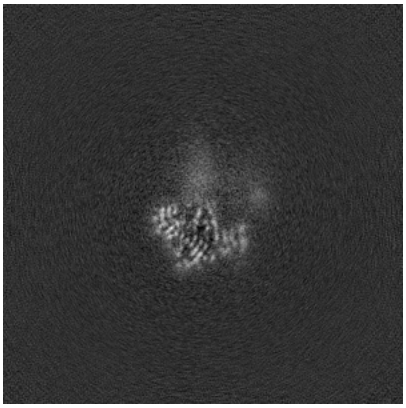
6.2.2 Raw map



X Index: 180



Y Index: 180

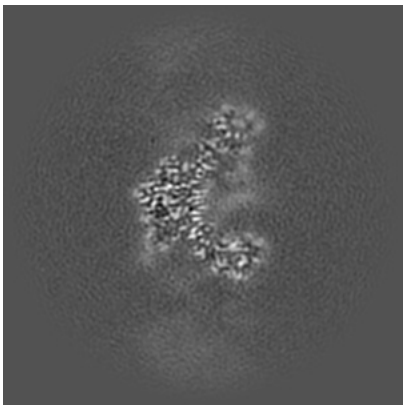


Z Index: 180

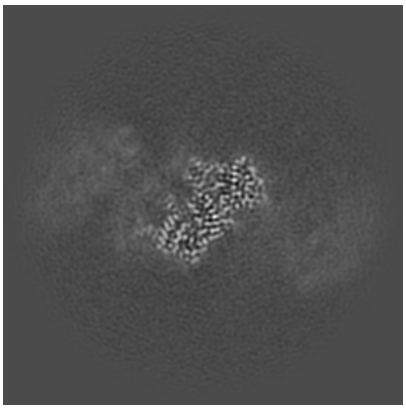
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

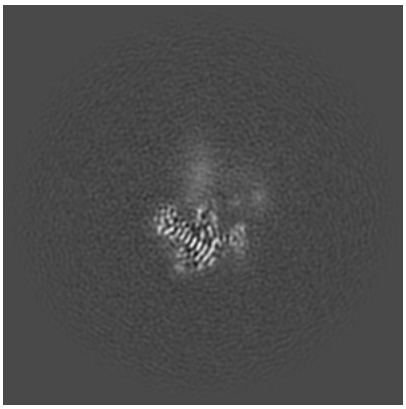
6.3.1 Primary map



X Index: 178

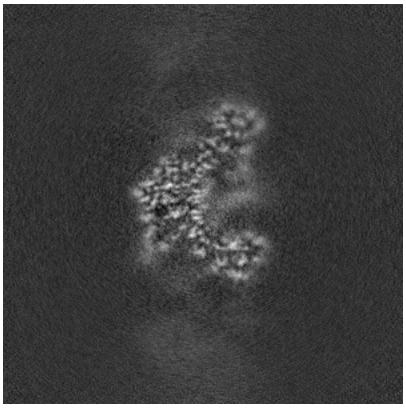


Y Index: 154

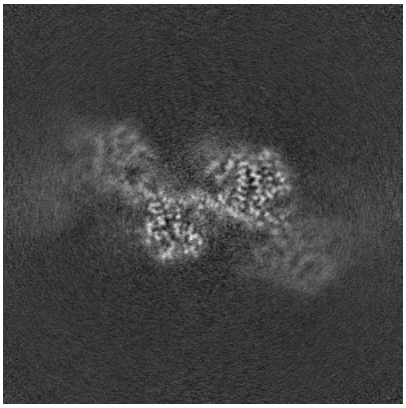


Z Index: 182

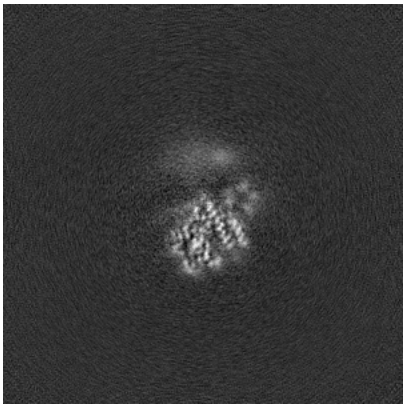
6.3.2 Raw map



X Index: 178



Y Index: 180

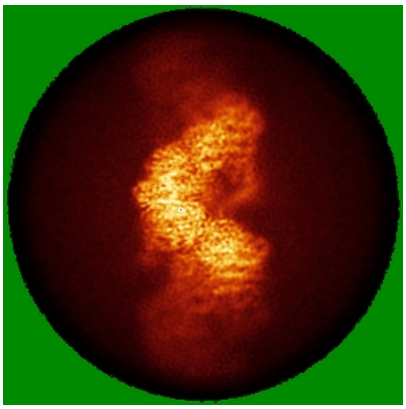


Z Index: 195

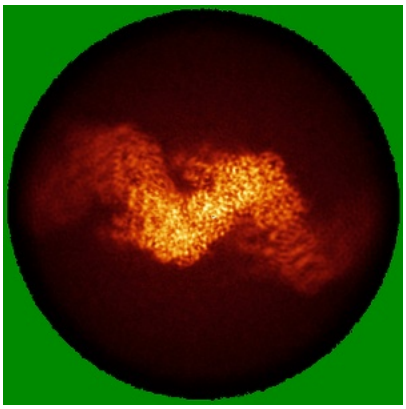
The images above show the largest variance slices of the map in three orthogonal directions.

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

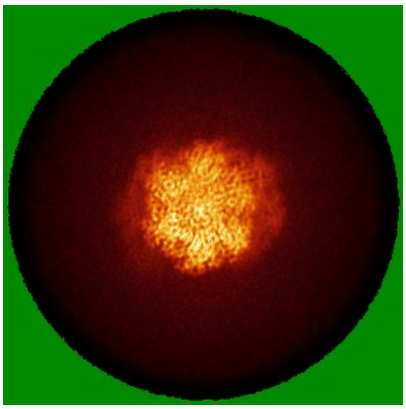
6.4.1 Primary map



X

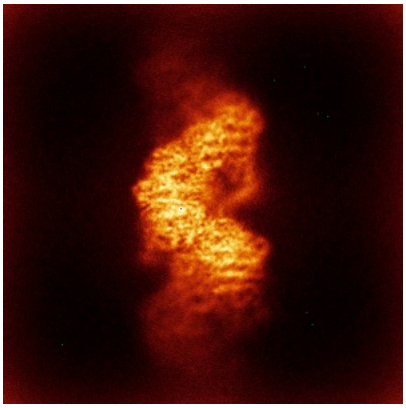


Y

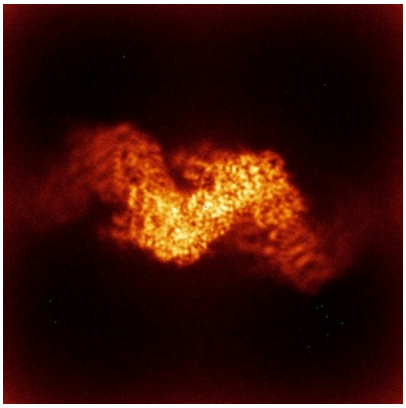


Z

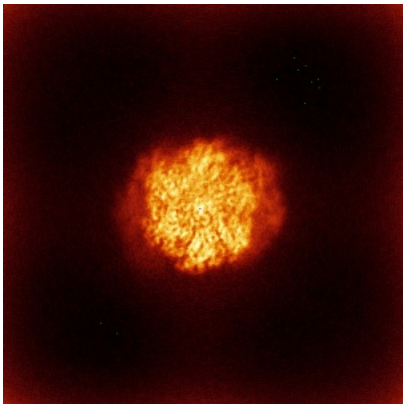
6.4.2 Raw map



X



Y



Z

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

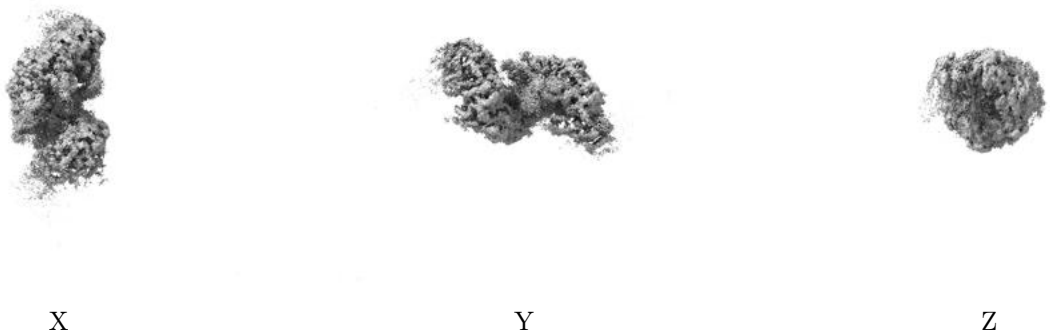
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.212. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

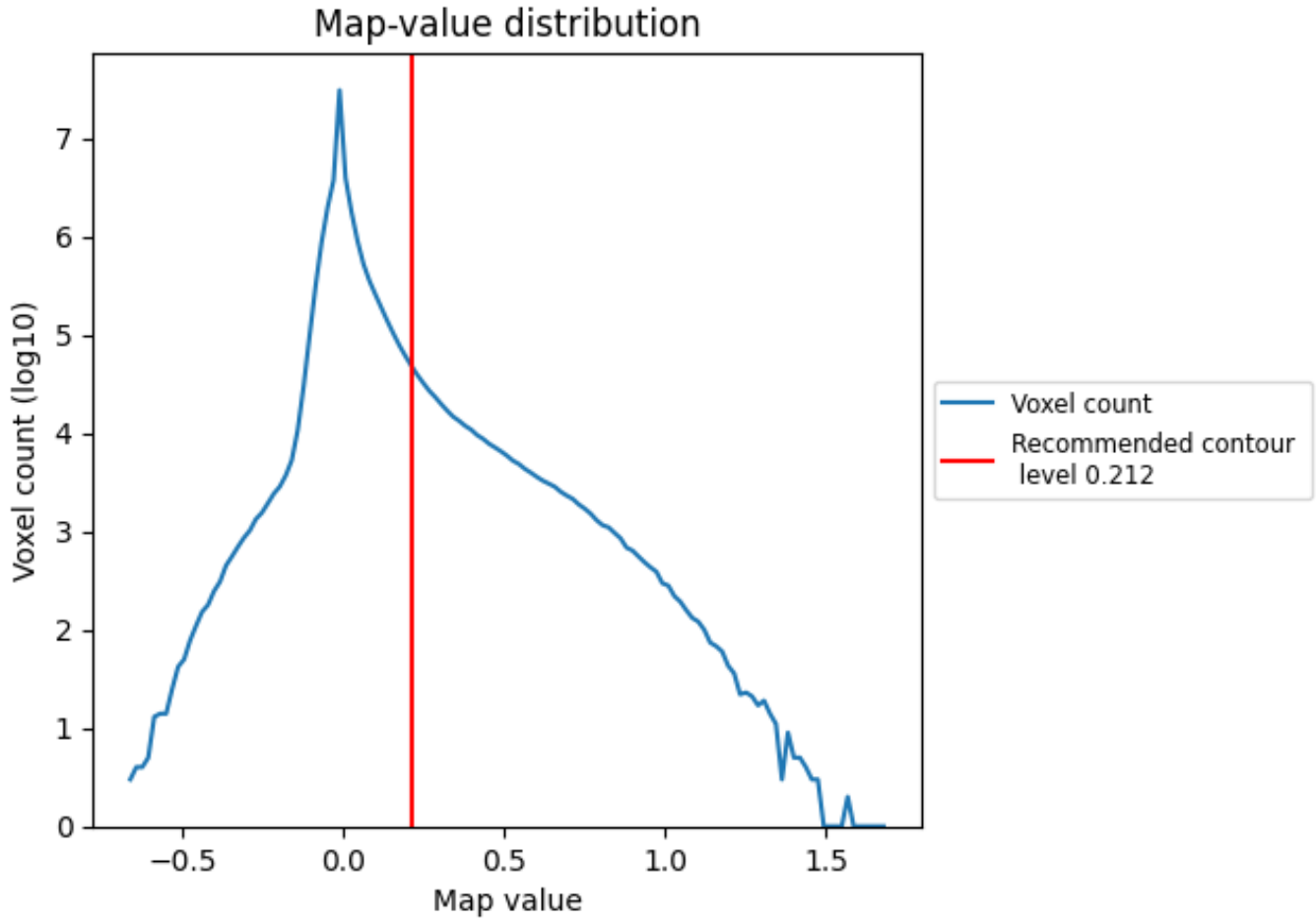
6.6 Mask visualisation (i)

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

7 Map analysis

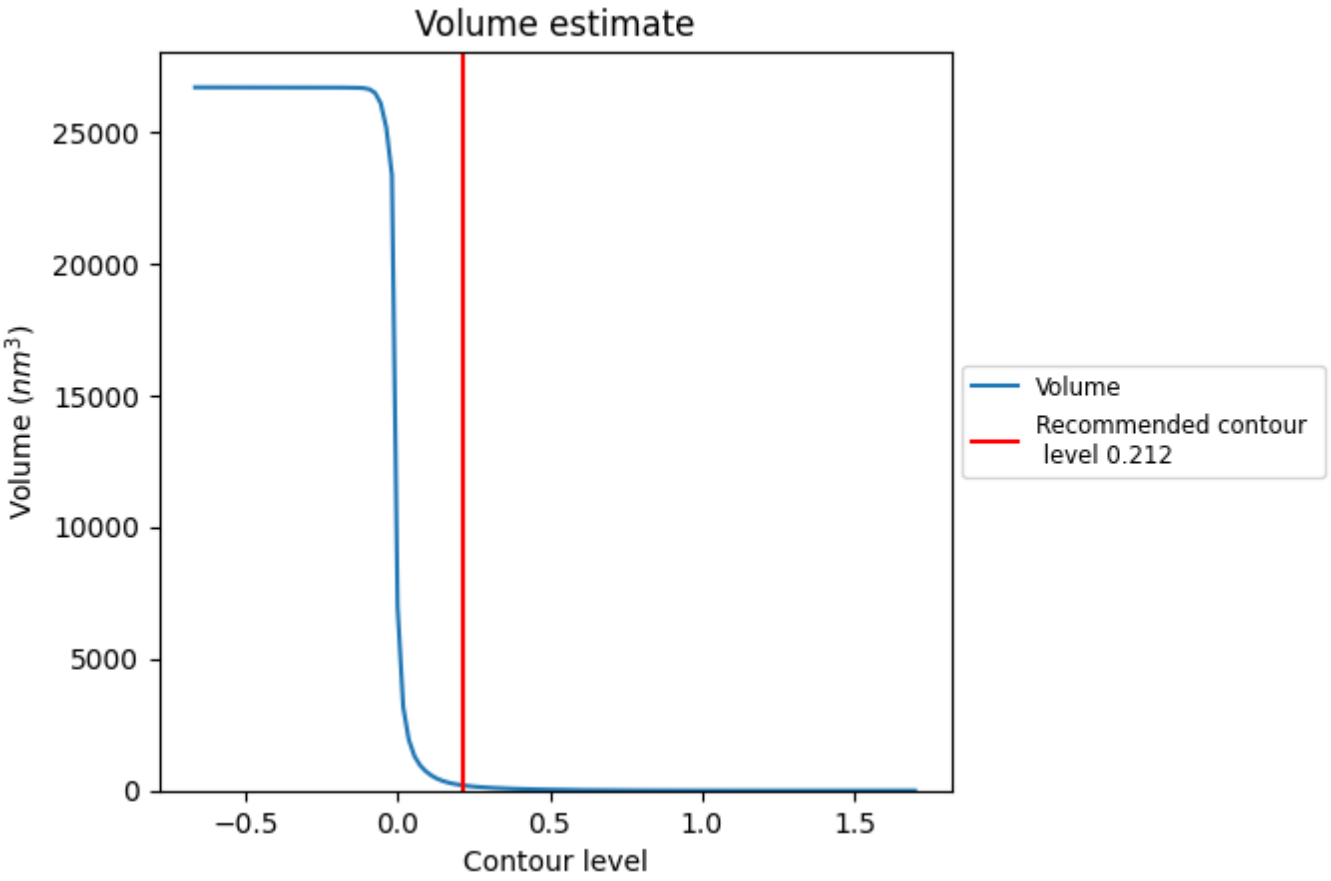
This section contains the results of statistical analysis of the map.

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.

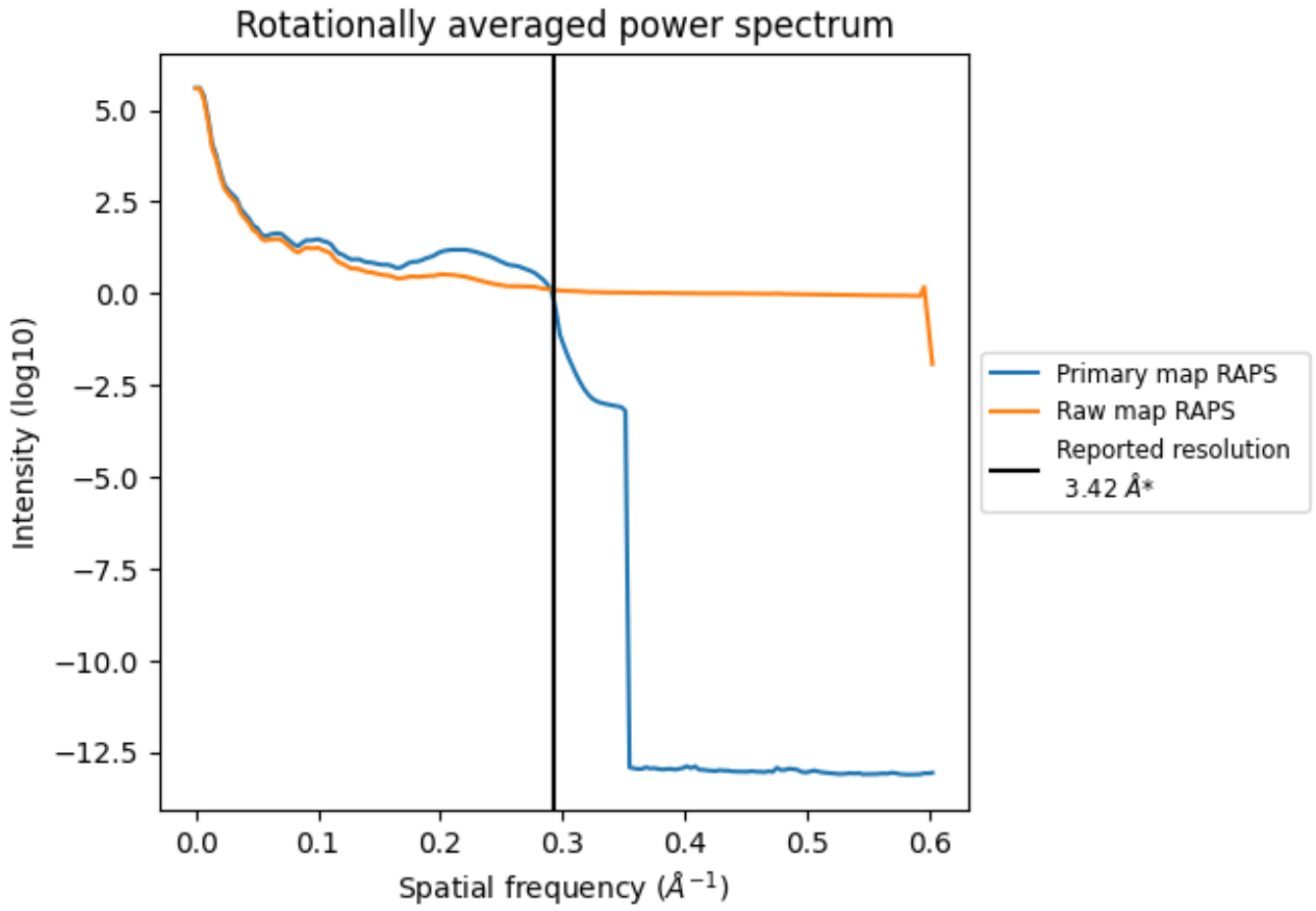
7.2 Volume estimate (i)



The volume at the recommended contour level is 202 nm^3; this corresponds to an approximate mass of 183 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)

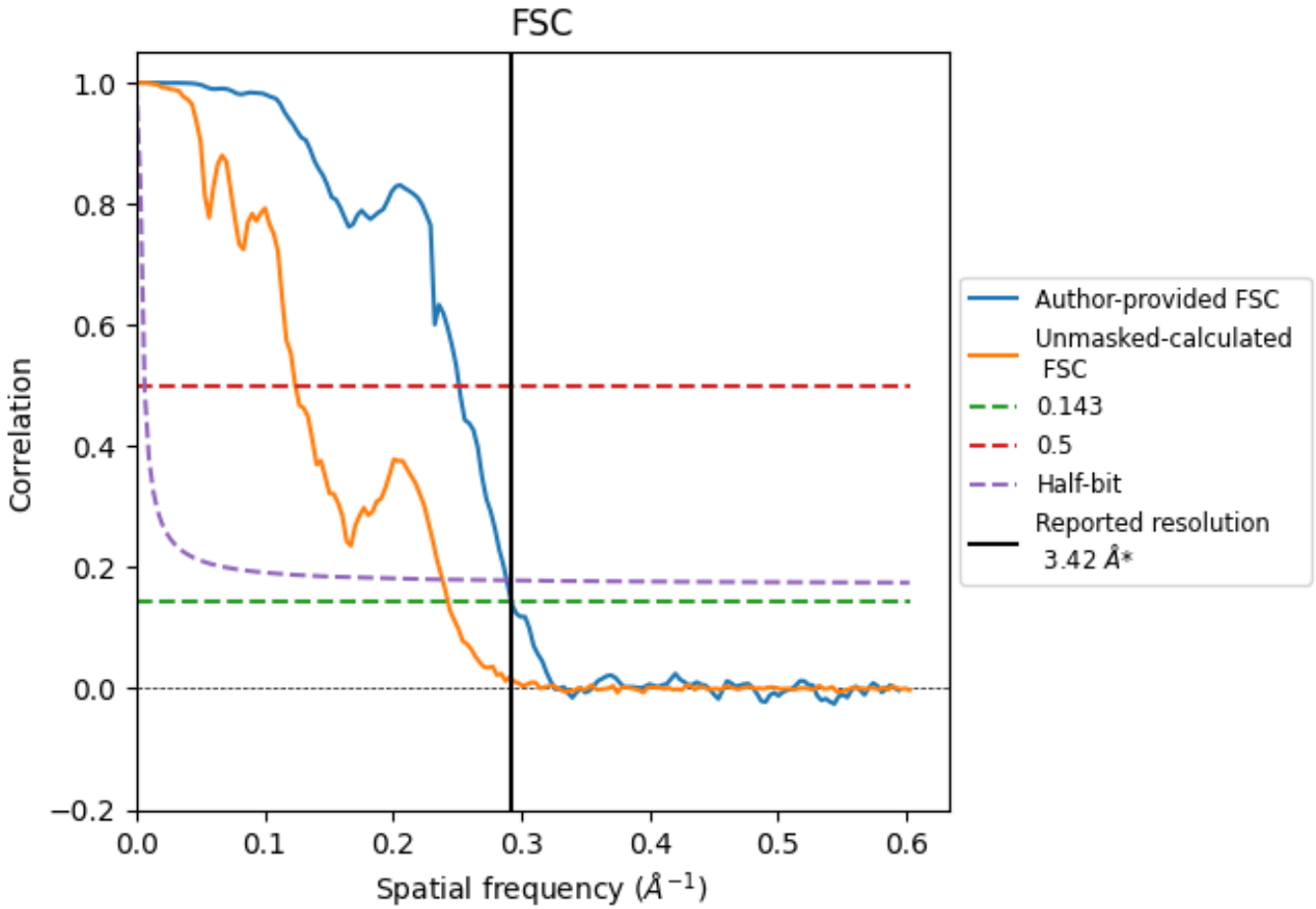


*Reported resolution corresponds to spatial frequency of 0.292 $Å^{-1}$

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.292 Å^{-1}

8.2 Resolution estimates (i)

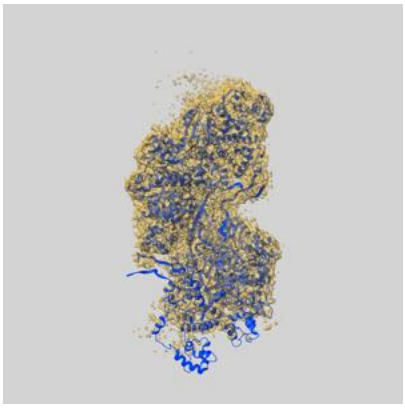
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.42	-	-
Author-provided FSC curve	3.42	3.98	3.46
Unmasked-calculated*	4.12	8.06	4.19

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.12 differs from the reported value 3.42 by more than 10 %

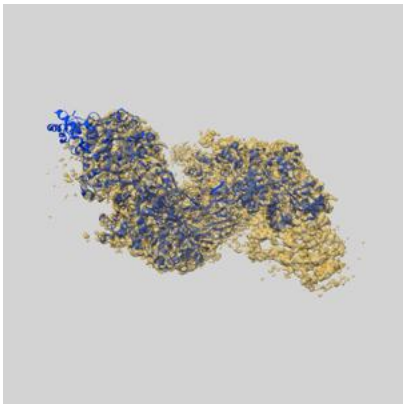
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-64188 and PDB model 9UI9. Per-residue inclusion information can be found in section 3 on page 12.

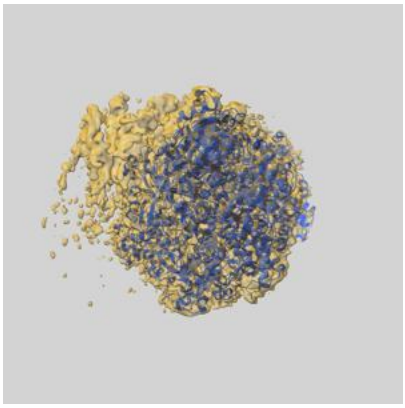
9.1 Map-model overlay



X



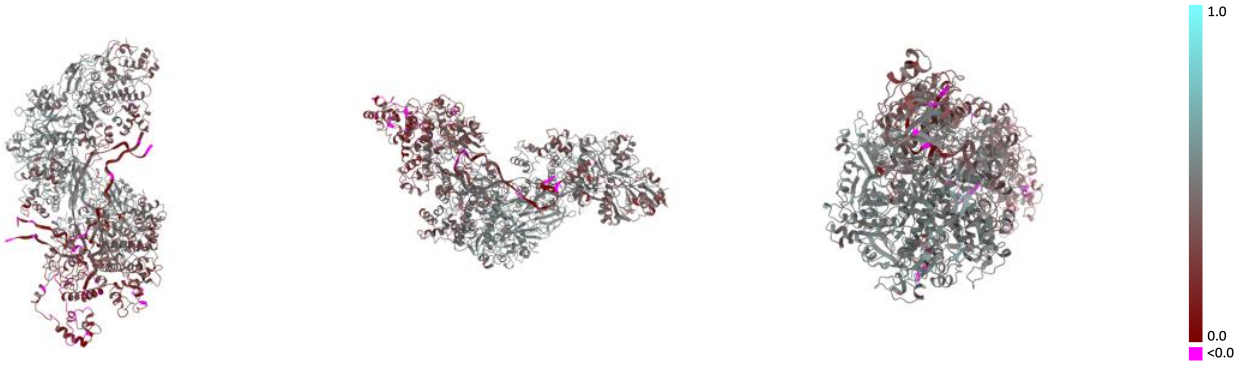
Y



Z

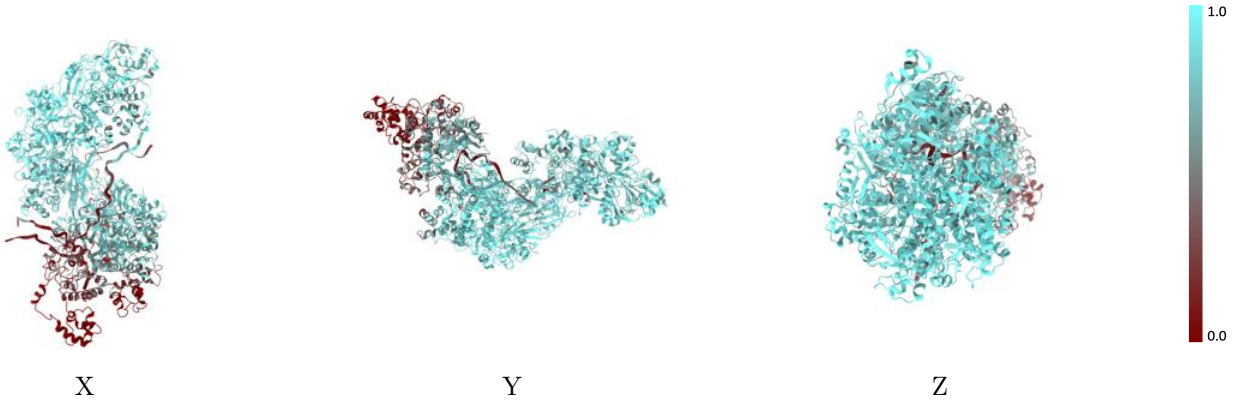
The images above show the 3D surface view of the map at the recommended contour level 0.212 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model (i)



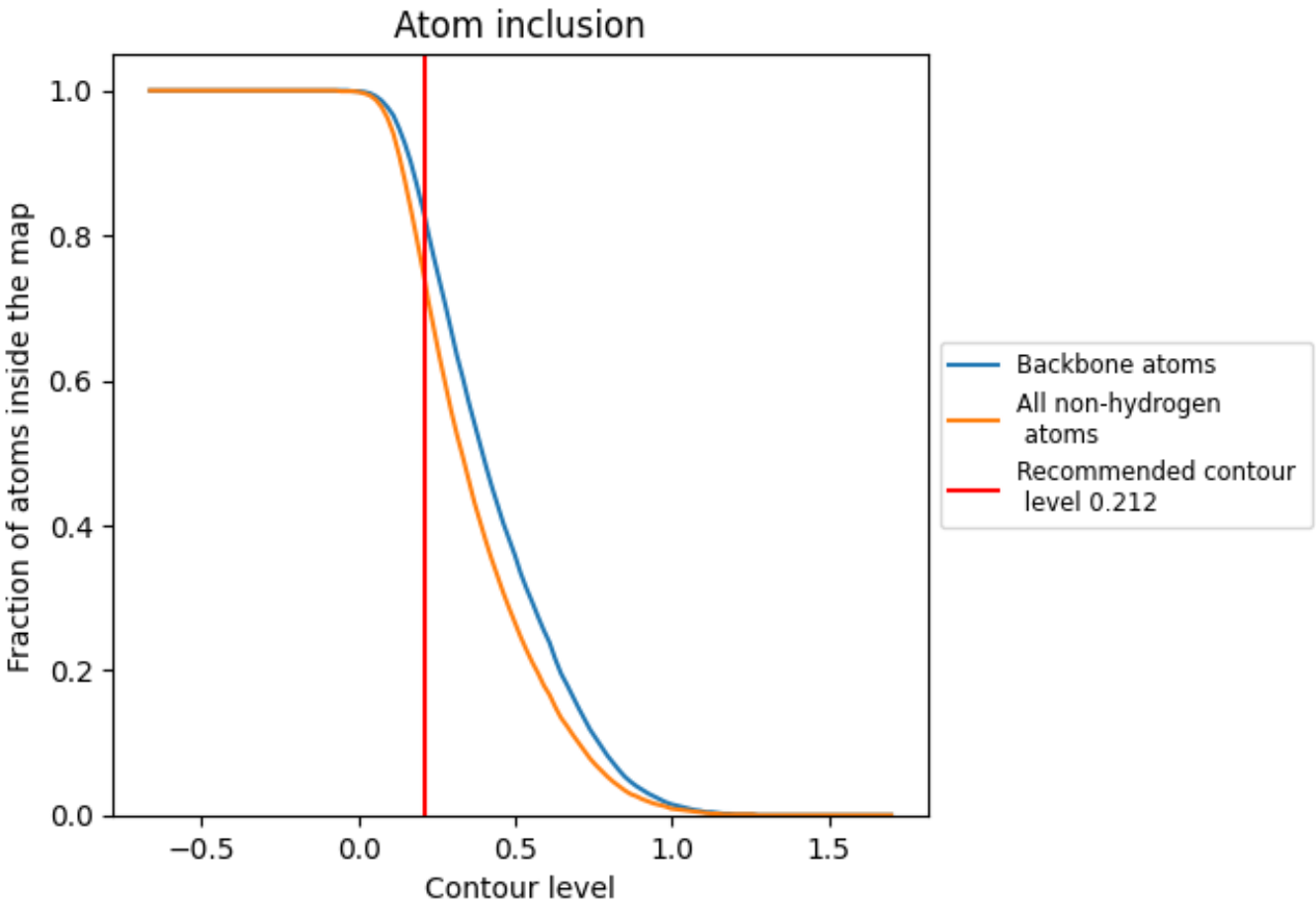
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model (i)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.212).

9.4 Atom inclusion (i)



At the recommended contour level, 82% of all backbone atoms, 74% 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 (0.212) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7370	0.4010
A	0.8150	0.3860
B	0.8730	0.4470
C	0.9080	0.4870
D	0.9100	0.4870
E	0.9040	0.4860
F	0.8620	0.4710
G	0.7370	0.4070
H	0.5640	0.3290
I	0.2310	0.2230
L	0.8830	0.4650
T	0.4240	0.2240
U	0.2850	0.0790