Full wwPDB EM Validation Report

Mar 5, 2026 – 05:22 PM UTC

PDB ID	:	8Q4D / pdb_00008q4d
EMDB ID	:	EMD-18144
Title	:	IstA-IstB(E167Q) Strand Transfer Complex
Authors	:	de la Gandara, A.; Spinola-Amilibia, M.; Araujo-Bazan, L.; Nunez-Ramirez, R.; Berger, J.M.; Arias-Palomo, E.
Deposited on	:	2023-08-06
Resolution	:	3.62 Å(reported)

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

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

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

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

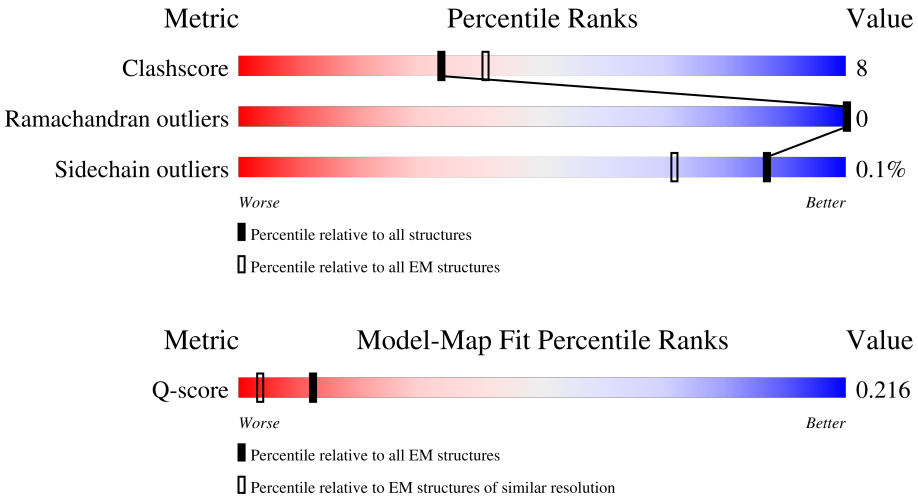
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.62 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	11773 (3.12 - 4.12)

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	373	7% 76% 18% 6%
1	B	373	7% 76% 18% 6%
1	C	373	43% 79% 21%
1	D	373	43% 79% 21%

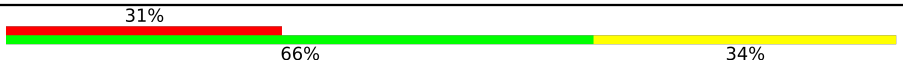
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Mol	Chain	Length	Quality of chain
2	E	247	78% 22%
2	F	247	87% 13%
2	G	247	80% 20%
2	H	247	6% 81% 19%
2	I	247	13% 84% 16%
2	J	247	18% 77% 23%
2	K	247	69% 80% 20%
2	L	247	59% 79% 21%
2	M	247	97% 79% 21%
2	N	247	98% 86% 14%
2	O	247	79% 21%
2	P	247	86% 14%
2	Q	247	80% 20%
2	R	247	6% 81% 19%
2	S	247	13% 84% 16%
2	T	247	18% 79% 21%
2	U	247	69% 80% 20%
2	V	247	59% 78% 22%
2	W	247	97% 80% 20%
2	X	247	98% 85% 15%
3	a	118	36% 53% 47%
3	d	118	36% 53% 47%
4	b	58	41% 66% 34%
4	e	58	41% 64% 36%
5	c	58	31% 62% 38%

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Mol	Chain	Length	Quality of chain
5	f	58	

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 121969 atoms, of which 59121 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 Putative transposase for insertion sequence element IS5376.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	352	Total	C	H	N	O	S	0	0
			5852	1882	2928	503	526	13		
1	B	352	Total	C	H	N	O	S	0	0
			5852	1882	2928	503	526	13		
1	C	373	Total	C	H	N	O	S	0	0
			6224	1994	3125	533	558	14		
1	D	373	Total	C	H	N	O	S	0	0
			6224	1994	3125	533	558	14		

- Molecule 2 is a protein called Insertion sequence IS5376 putative ATP-binding protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	E	247	Total	C	H	N	O	S	0	0
			4104	1301	2075	360	361	7		
2	F	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		
2	G	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		
2	H	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		
2	I	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		
2	J	247	Total	C	H	N	O	S	0	0
			4105	1301	2076	360	361	7		
2	K	247	Total	C	H	N	O	S	0	0
			4104	1301	2075	360	361	7		
2	L	247	Total	C	H	N	O	S	0	0
			4104	1301	2075	360	361	7		
2	M	247	Total	C	H	N	O	S	0	0
			4104	1301	2075	360	361	7		
2	N	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		
2	O	247	Total	C	H	N	O	S	0	0
			4104	1301	2075	360	361	7		

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Mol	Chain	Residues	Atoms						AltConf	Trace
2	P	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		
2	Q	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		
2	R	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		
2	S	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		
2	T	247	Total	C	H	N	O	S	0	0
			4105	1301	2076	360	361	7		
2	U	247	Total	C	H	N	O	S	0	0
			4104	1301	2075	360	361	7		
2	V	247	Total	C	H	N	O	S	0	0
			4104	1301	2075	360	361	7		
2	W	247	Total	C	H	N	O	S	0	0
			4104	1301	2075	360	361	7		
2	X	247	Total	C	H	N	O	S	0	0
			4103	1301	2074	360	361	7		

There are 40 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	0	ASN	-	expression tag	UNP Q45619
E	167	GLN	GLU	engineered mutation	UNP Q45619
F	0	ASN	-	expression tag	UNP Q45619
F	167	GLN	GLU	engineered mutation	UNP Q45619
G	0	ASN	-	expression tag	UNP Q45619
G	167	GLN	GLU	engineered mutation	UNP Q45619
H	0	ASN	-	expression tag	UNP Q45619
H	167	GLN	GLU	engineered mutation	UNP Q45619
I	0	ASN	-	expression tag	UNP Q45619
I	167	GLN	GLU	engineered mutation	UNP Q45619
J	0	ASN	-	expression tag	UNP Q45619
J	167	GLN	GLU	engineered mutation	UNP Q45619
K	0	ASN	-	expression tag	UNP Q45619
K	167	GLN	GLU	engineered mutation	UNP Q45619
L	0	ASN	-	expression tag	UNP Q45619
L	167	GLN	GLU	engineered mutation	UNP Q45619
M	0	ASN	-	expression tag	UNP Q45619
M	167	GLN	GLU	engineered mutation	UNP Q45619
N	0	ASN	-	expression tag	UNP Q45619
N	167	GLN	GLU	engineered mutation	UNP Q45619
O	0	ASN	-	expression tag	UNP Q45619

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Chain	Residue	Modelled	Actual	Comment	Reference
O	167	GLN	GLU	engineered mutation	UNP Q45619
P	0	ASN	-	expression tag	UNP Q45619
P	167	GLN	GLU	engineered mutation	UNP Q45619
Q	0	ASN	-	expression tag	UNP Q45619
Q	167	GLN	GLU	engineered mutation	UNP Q45619
R	0	ASN	-	expression tag	UNP Q45619
R	167	GLN	GLU	engineered mutation	UNP Q45619
S	0	ASN	-	expression tag	UNP Q45619
S	167	GLN	GLU	engineered mutation	UNP Q45619
T	0	ASN	-	expression tag	UNP Q45619
T	167	GLN	GLU	engineered mutation	UNP Q45619
U	0	ASN	-	expression tag	UNP Q45619
U	167	GLN	GLU	engineered mutation	UNP Q45619
V	0	ASN	-	expression tag	UNP Q45619
V	167	GLN	GLU	engineered mutation	UNP Q45619
W	0	ASN	-	expression tag	UNP Q45619
W	167	GLN	GLU	engineered mutation	UNP Q45619
X	0	ASN	-	expression tag	UNP Q45619
X	167	GLN	GLU	engineered mutation	UNP Q45619

- Molecule 3 is a DNA chain called DNA (118-MER) / TIR-transferred strand.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	a	118	Total	C	H	N	O	P	0	0
			3755	1155	1326	456	700	118		
3	d	118	Total	C	H	N	O	P	0	0
			3756	1155	1327	456	700	118		

There are 120 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
a	1	DC	-	expression tag	GB 1801971458
a	2	DC	-	expression tag	GB 1801971458
a	3	DT	-	expression tag	GB 1801971458
a	4	DT	-	expression tag	GB 1801971458
a	5	DC	-	expression tag	GB 1801971458
a	6	DT	-	expression tag	GB 1801971458
a	7	DG	-	expression tag	GB 1801971458
a	8	DG	-	expression tag	GB 1801971458
a	9	DG	-	expression tag	GB 1801971458
a	10	DG	-	expression tag	GB 1801971458
a	11	DA	-	expression tag	GB 1801971458

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Chain	Residue	Modelled	Actual	Comment	Reference
a	12	DA	-	expression tag	GB 1801971458
a	13	DT	-	expression tag	GB 1801971458
a	14	DT	-	expression tag	GB 1801971458
a	15	DT	-	expression tag	GB 1801971458
a	16	DT	-	expression tag	GB 1801971458
a	17	DA	-	expression tag	GB 1801971458
a	18	DA	-	expression tag	GB 1801971458
a	19	DA	-	expression tag	GB 1801971458
a	20	DC	-	expression tag	GB 1801971458
a	21	DC	-	expression tag	GB 1801971458
a	22	DG	-	expression tag	GB 1801971458
a	23	DG	-	expression tag	GB 1801971458
a	24	DC	-	expression tag	GB 1801971458
a	25	DG	-	expression tag	GB 1801971458
a	26	DA	-	expression tag	GB 1801971458
a	27	DT	-	expression tag	GB 1801971458
a	28	DT	-	expression tag	GB 1801971458
a	29	DT	-	expression tag	GB 1801971458
a	30	DT	-	expression tag	GB 1801971458
a	31	DG	-	expression tag	GB 1801971458
a	32	DG	-	expression tag	GB 1801971458
a	33	DG	-	expression tag	GB 1801971458
a	34	DG	-	expression tag	GB 1801971458
a	35	DA	-	expression tag	GB 1801971458
a	36	DA	-	expression tag	GB 1801971458
a	37	DA	-	expression tag	GB 1801971458
a	38	DA	-	expression tag	GB 1801971458
a	39	DA	-	expression tag	GB 1801971458
a	40	DA	-	expression tag	GB 1801971458
a	41	DT	-	expression tag	GB 1801971458
a	42	DA	-	expression tag	GB 1801971458
a	43	DA	-	expression tag	GB 1801971458
a	44	DT	-	expression tag	GB 1801971458
a	45	DC	-	expression tag	GB 1801971458
a	46	DG	-	expression tag	GB 1801971458
a	47	DG	-	expression tag	GB 1801971458
a	48	DC	-	expression tag	GB 1801971458
a	49	DC	-	expression tag	GB 1801971458
a	50	DT	-	expression tag	GB 1801971458
a	51	DT	-	expression tag	GB 1801971458
a	52	DG	-	expression tag	GB 1801971458
a	53	DA	-	expression tag	GB 1801971458

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Chain	Residue	Modelled	Actual	Comment	Reference
a	54	DC	-	expression tag	GB 1801971458
a	55	DA	-	expression tag	GB 1801971458
a	56	DG	-	expression tag	GB 1801971458
a	57	DC	-	expression tag	GB 1801971458
a	58	DT	-	expression tag	GB 1801971458
a	59	DG	-	expression tag	GB 1801971458
a	60	DC	-	expression tag	GB 1801971458
d	1	DC	-	expression tag	GB 1801971458
d	2	DC	-	expression tag	GB 1801971458
d	3	DT	-	expression tag	GB 1801971458
d	4	DT	-	expression tag	GB 1801971458
d	5	DC	-	expression tag	GB 1801971458
d	6	DT	-	expression tag	GB 1801971458
d	7	DG	-	expression tag	GB 1801971458
d	8	DG	-	expression tag	GB 1801971458
d	9	DG	-	expression tag	GB 1801971458
d	10	DG	-	expression tag	GB 1801971458
d	11	DA	-	expression tag	GB 1801971458
d	12	DA	-	expression tag	GB 1801971458
d	13	DT	-	expression tag	GB 1801971458
d	14	DT	-	expression tag	GB 1801971458
d	15	DT	-	expression tag	GB 1801971458
d	16	DT	-	expression tag	GB 1801971458
d	17	DA	-	expression tag	GB 1801971458
d	18	DA	-	expression tag	GB 1801971458
d	19	DA	-	expression tag	GB 1801971458
d	20	DC	-	expression tag	GB 1801971458
d	21	DC	-	expression tag	GB 1801971458
d	22	DG	-	expression tag	GB 1801971458
d	23	DG	-	expression tag	GB 1801971458
d	24	DC	-	expression tag	GB 1801971458
d	25	DG	-	expression tag	GB 1801971458
d	26	DA	-	expression tag	GB 1801971458
d	27	DT	-	expression tag	GB 1801971458
d	28	DT	-	expression tag	GB 1801971458
d	29	DT	-	expression tag	GB 1801971458
d	30	DT	-	expression tag	GB 1801971458
d	31	DG	-	expression tag	GB 1801971458
d	32	DG	-	expression tag	GB 1801971458
d	33	DG	-	expression tag	GB 1801971458
d	34	DG	-	expression tag	GB 1801971458
d	35	DA	-	expression tag	GB 1801971458

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Chain	Residue	Modelled	Actual	Comment	Reference
d	36	DA	-	expression tag	GB 1801971458
d	37	DA	-	expression tag	GB 1801971458
d	38	DA	-	expression tag	GB 1801971458
d	39	DA	-	expression tag	GB 1801971458
d	40	DA	-	expression tag	GB 1801971458
d	41	DT	-	expression tag	GB 1801971458
d	42	DA	-	expression tag	GB 1801971458
d	43	DA	-	expression tag	GB 1801971458
d	44	DT	-	expression tag	GB 1801971458
d	45	DC	-	expression tag	GB 1801971458
d	46	DG	-	expression tag	GB 1801971458
d	47	DG	-	expression tag	GB 1801971458
d	48	DC	-	expression tag	GB 1801971458
d	49	DC	-	expression tag	GB 1801971458
d	50	DT	-	expression tag	GB 1801971458
d	51	DT	-	expression tag	GB 1801971458
d	52	DG	-	expression tag	GB 1801971458
d	53	DA	-	expression tag	GB 1801971458
d	54	DC	-	expression tag	GB 1801971458
d	55	DA	-	expression tag	GB 1801971458
d	56	DG	-	expression tag	GB 1801971458
d	57	DC	-	expression tag	GB 1801971458
d	58	DT	-	expression tag	GB 1801971458
d	59	DG	-	expression tag	GB 1801971458
d	60	DC	-	expression tag	GB 1801971458

- Molecule 4 is a DNA chain called DNA (58-MER) / TIR non-transferred strand.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	b	58	Total	C	H	N	O	P	0	0
			1837	565	656	209	349	58		
4	e	58	Total	C	H	N	O	P	0	0
			1837	565	656	209	349	58		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
b	3	DT	-	expression tag	GB 1190175513
e	3	DT	-	expression tag	GB 1190175513

- Molecule 5 is a DNA chain called DNA (58-MER) / target-reverse complement.

Mol	Chain	Residues	Atoms						AltConf	Trace
5	c	58	Total 1844	C 567	H 659	N 204	O 356	P 58	0	0
5	f	58	Total 1844	C 567	H 659	N 204	O 356	P 58	0	0

- Molecule 6 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

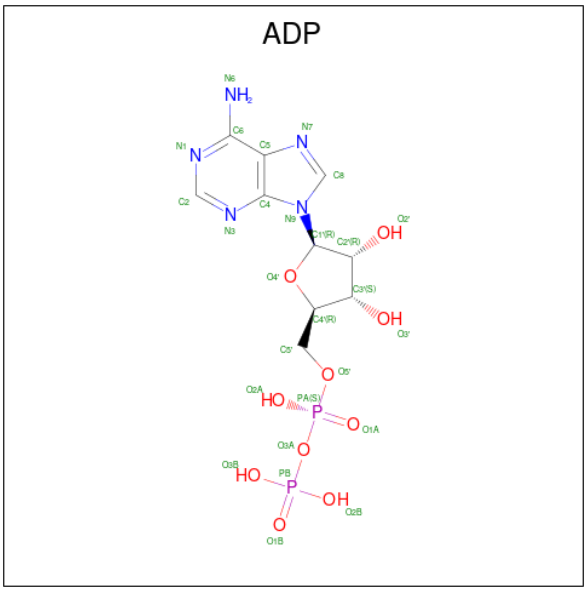
Mol	Chain	Residues	Atoms		AltConf
6	A	1	Total 1	Mg 1	0
6	B	1	Total 1	Mg 1	0
6	F	1	Total 1	Mg 1	0
6	G	1	Total 1	Mg 1	0
6	H	1	Total 1	Mg 1	0
6	I	1	Total 1	Mg 1	0
6	J	1	Total 1	Mg 1	0
6	K	1	Total 1	Mg 1	0
6	L	1	Total 1	Mg 1	0
6	M	1	Total 1	Mg 1	0
6	N	1	Total 1	Mg 1	0
6	P	1	Total 1	Mg 1	0
6	Q	1	Total 1	Mg 1	0
6	R	1	Total 1	Mg 1	0
6	S	1	Total 1	Mg 1	0
6	T	1	Total 1	Mg 1	0
6	U	1	Total 1	Mg 1	0

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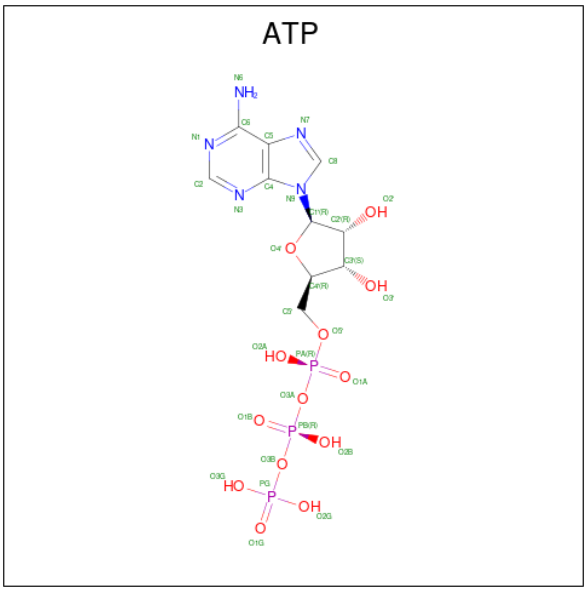
Mol	Chain	Residues	Atoms	AltConf
6	V	1	Total Mg 1 1	0
6	W	1	Total Mg 1 1	0
6	X	1	Total Mg 1 1	0

- Molecule 7 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
7	E	1	Total C H N O P 39 10 12 5 10 2	0
7	O	1	Total C H N O P 39 10 12 5 10 2	0

- Molecule 8 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						AltConf
8	F	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	G	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	H	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	I	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	J	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	K	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	L	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	M	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	N	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	P	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	Q	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	R	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	S	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	T	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	

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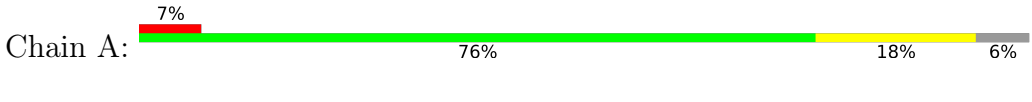
Mol	Chain	Residues	Atoms						AltConf
8	U	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	V	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	W	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
8	X	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	

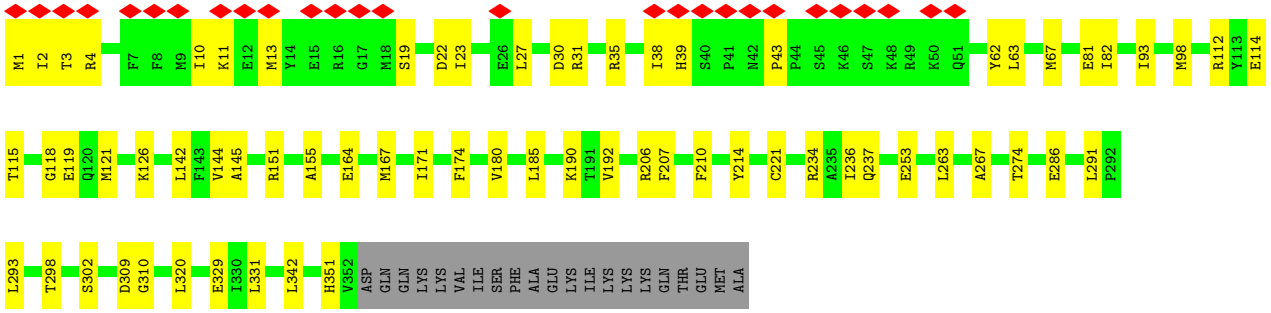
3 Residue-property plots (i)

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: Putative transposase for insertion sequence element IS5376

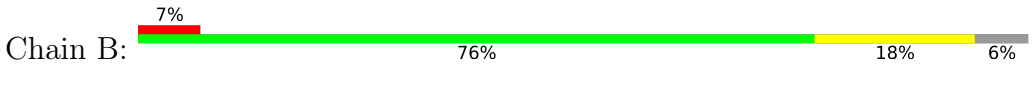
Chain A:

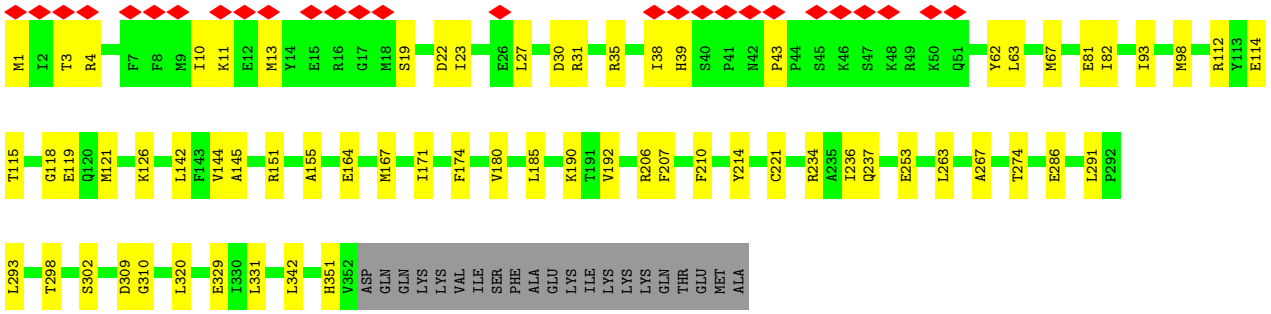




• Molecule 1: Putative transposase for insertion sequence element IS5376

Chain B:

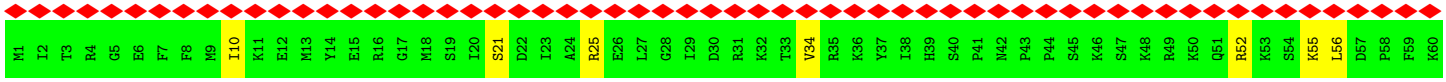


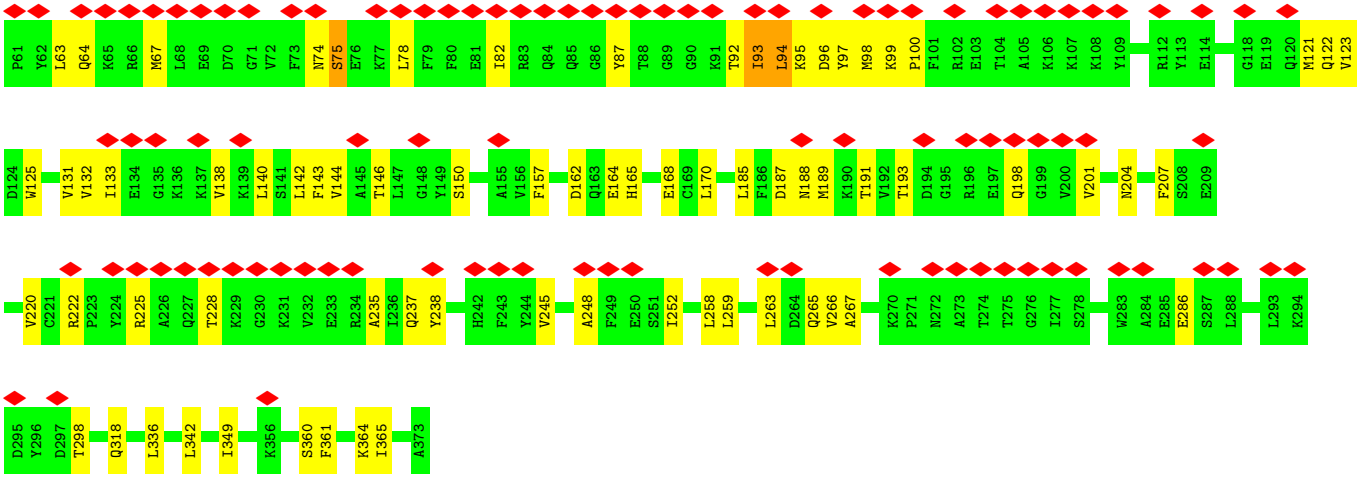


• Molecule 1: Putative transposase for insertion sequence element IS5376

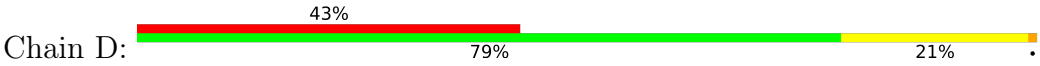
Chain C:

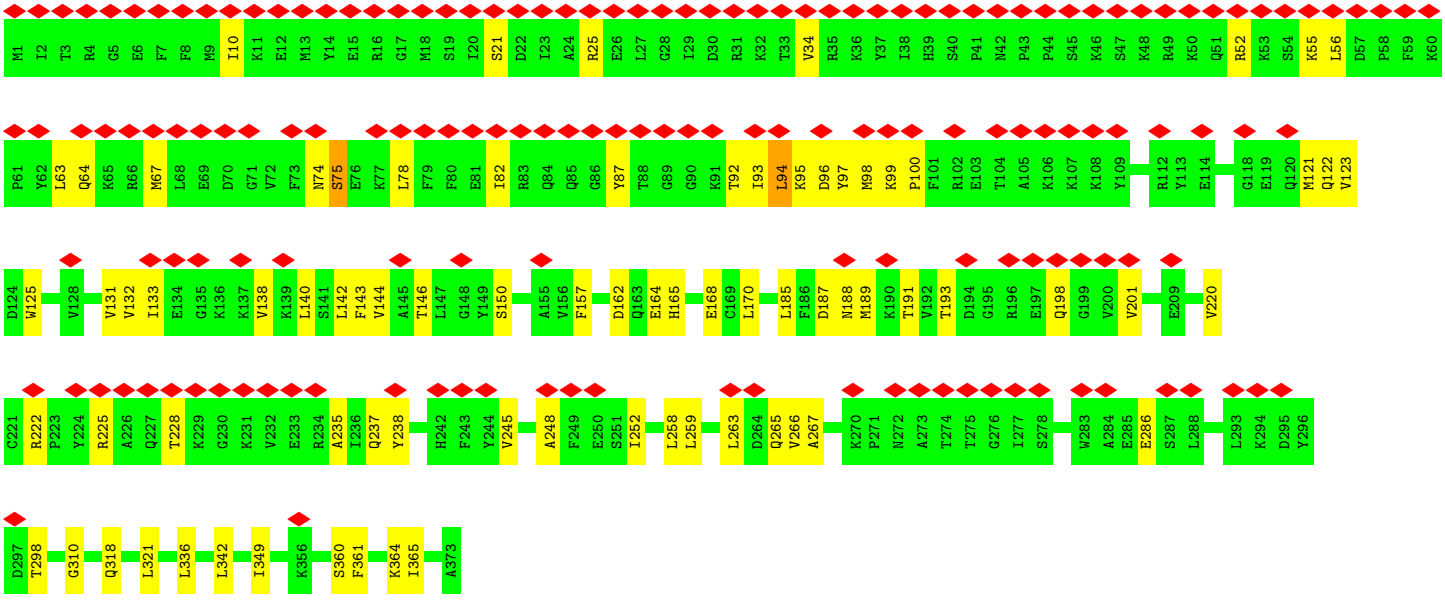




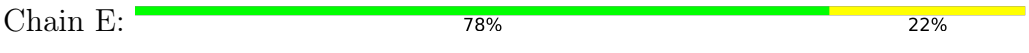


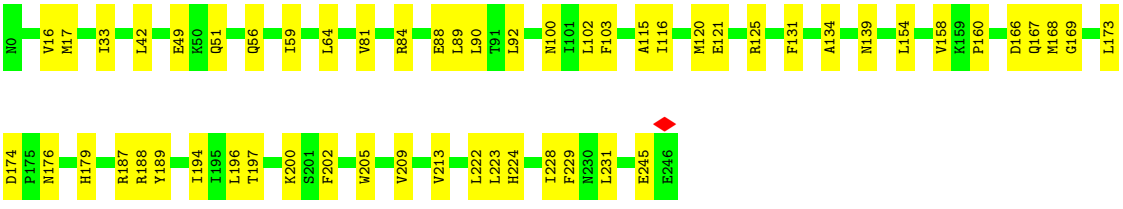
• Molecule 1: Putative transposase for insertion sequence element IS5376



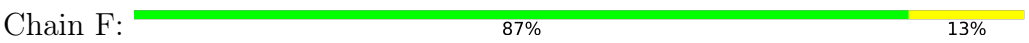


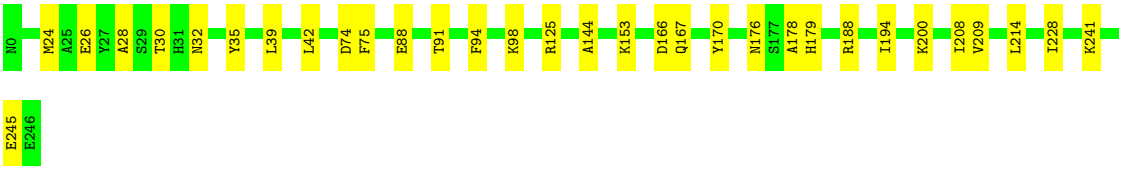
• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein





• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

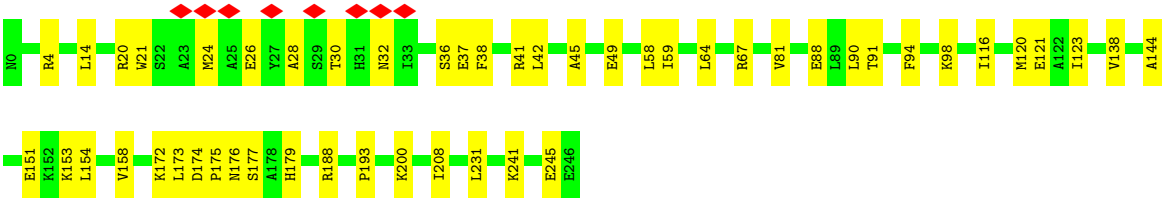




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain G:

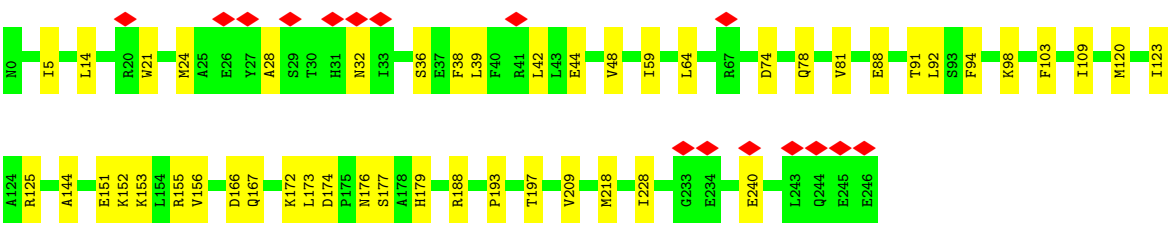




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain H:

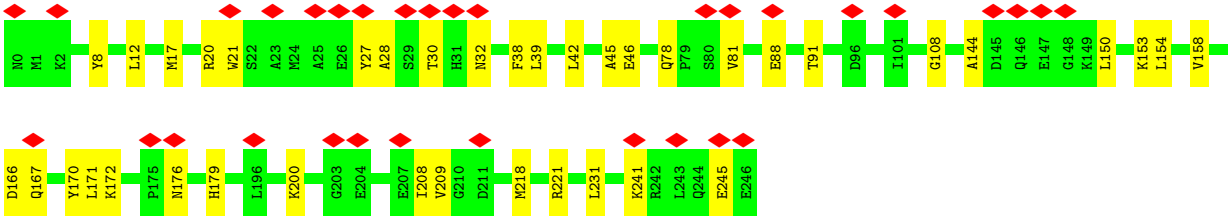




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain I:

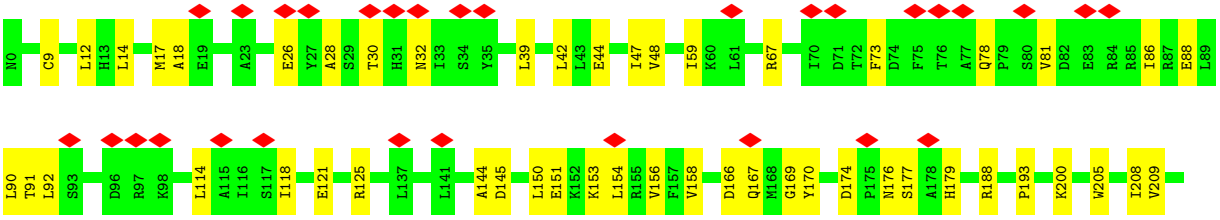


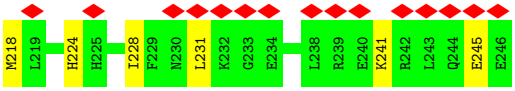


• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain J:



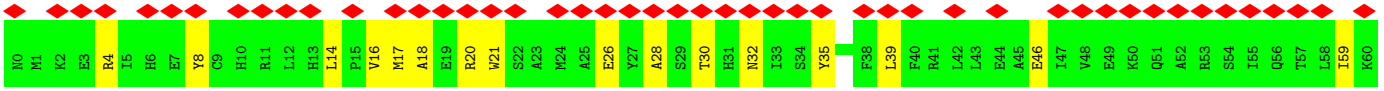


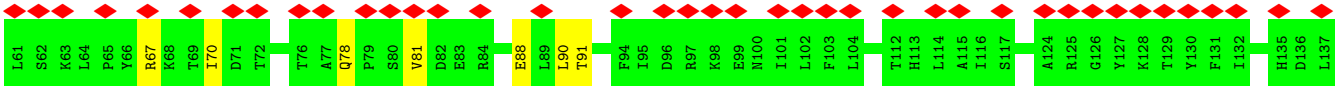


• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

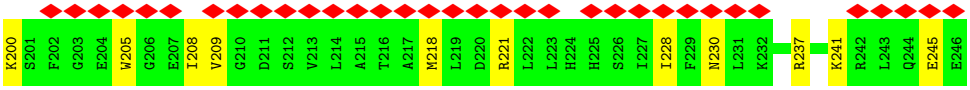
Chain K:







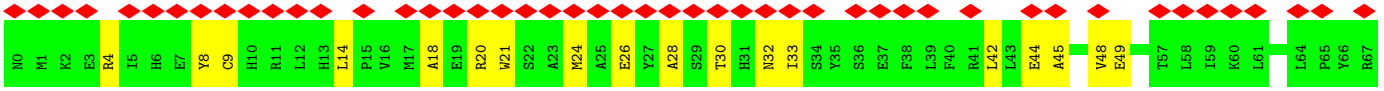


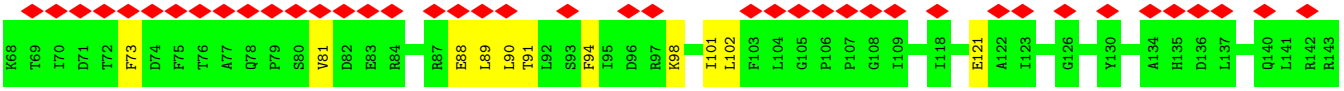


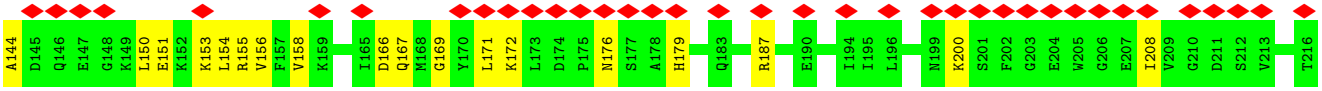
• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

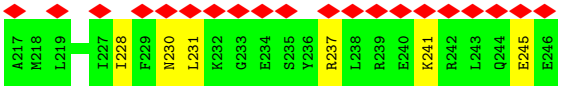
Chain L:





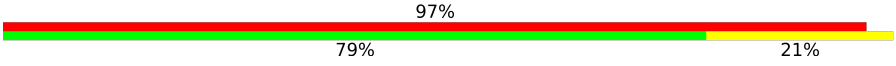


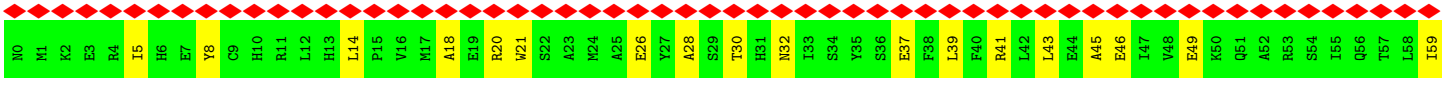




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain M:

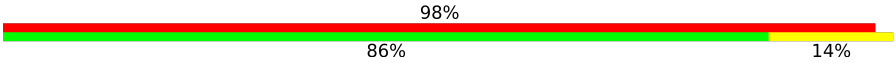


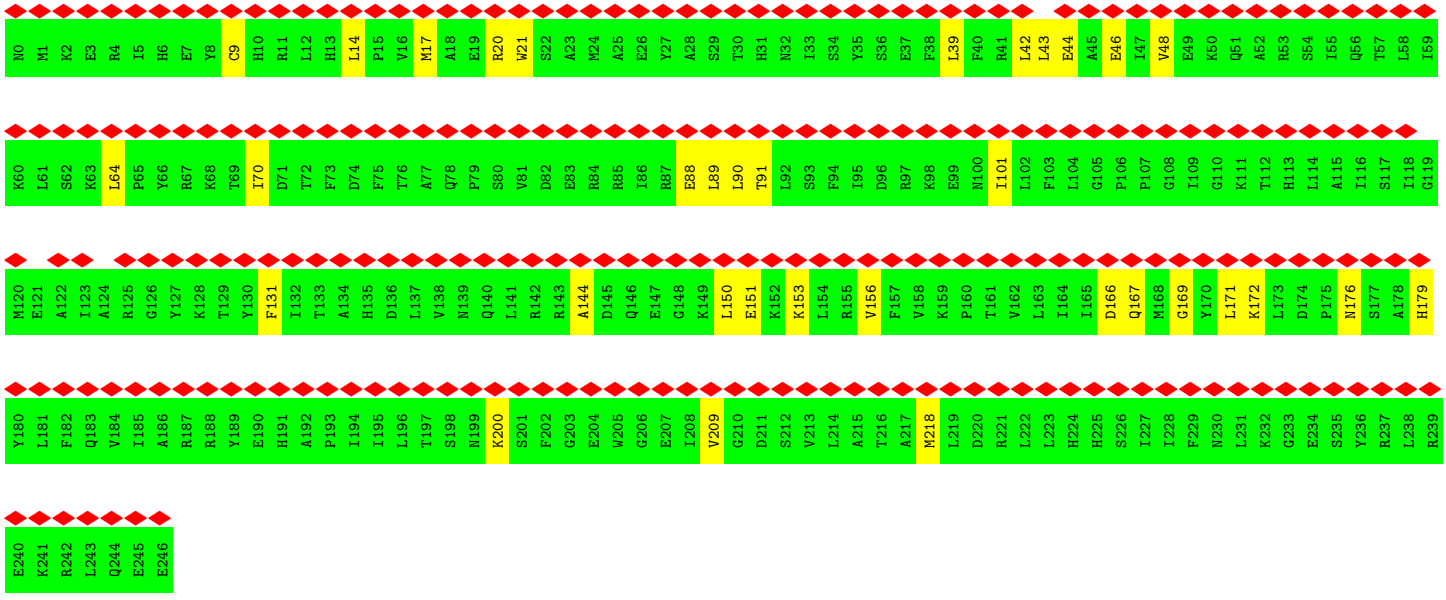




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain N:

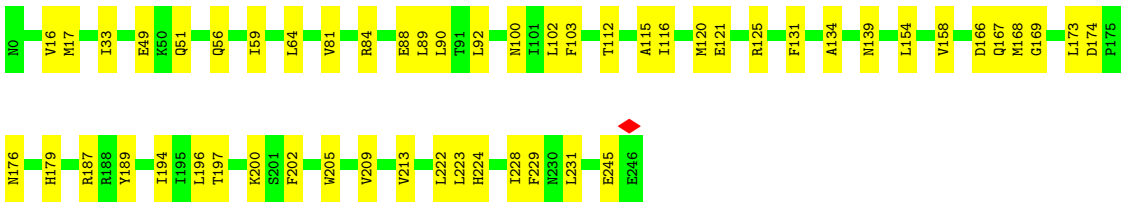




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain O:

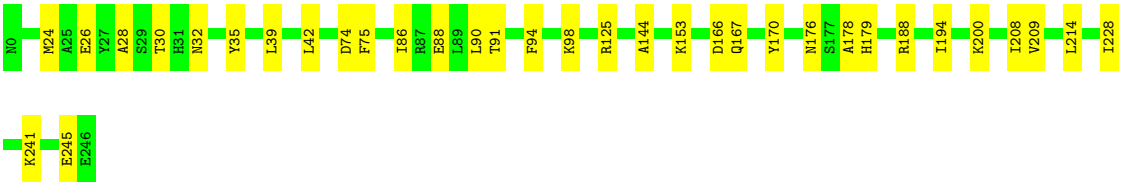




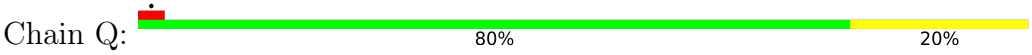
• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

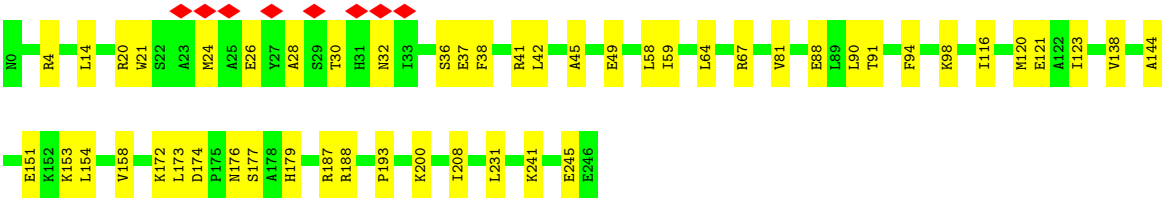
Chain P:



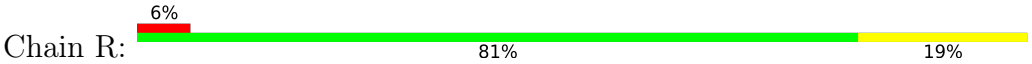


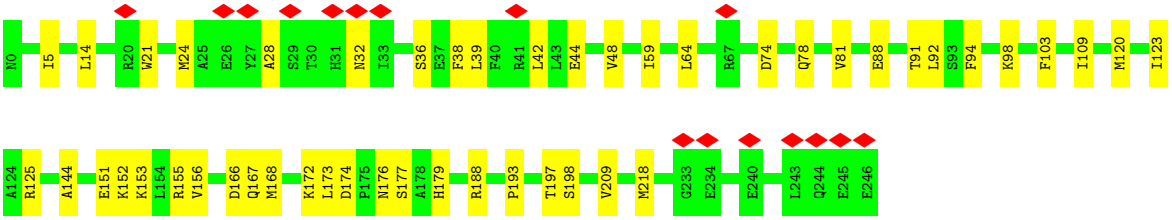
• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein



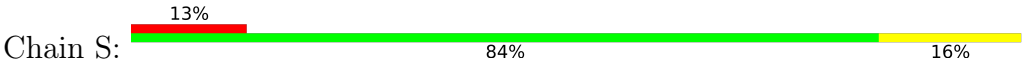


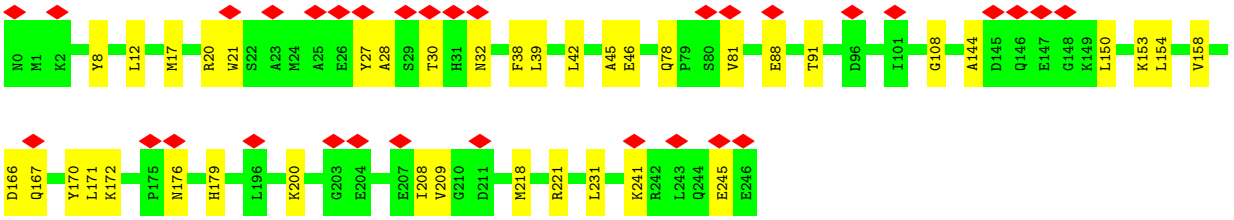
• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein



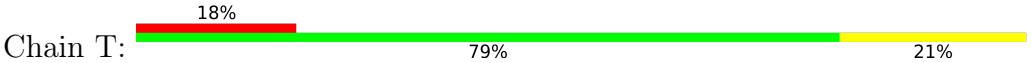


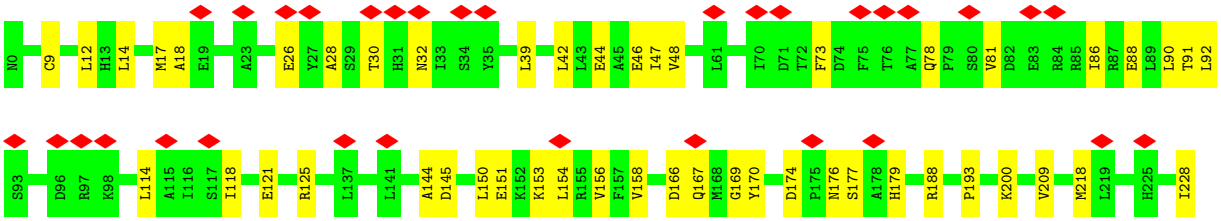
• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

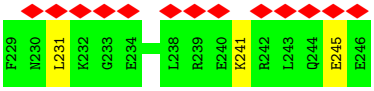




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein



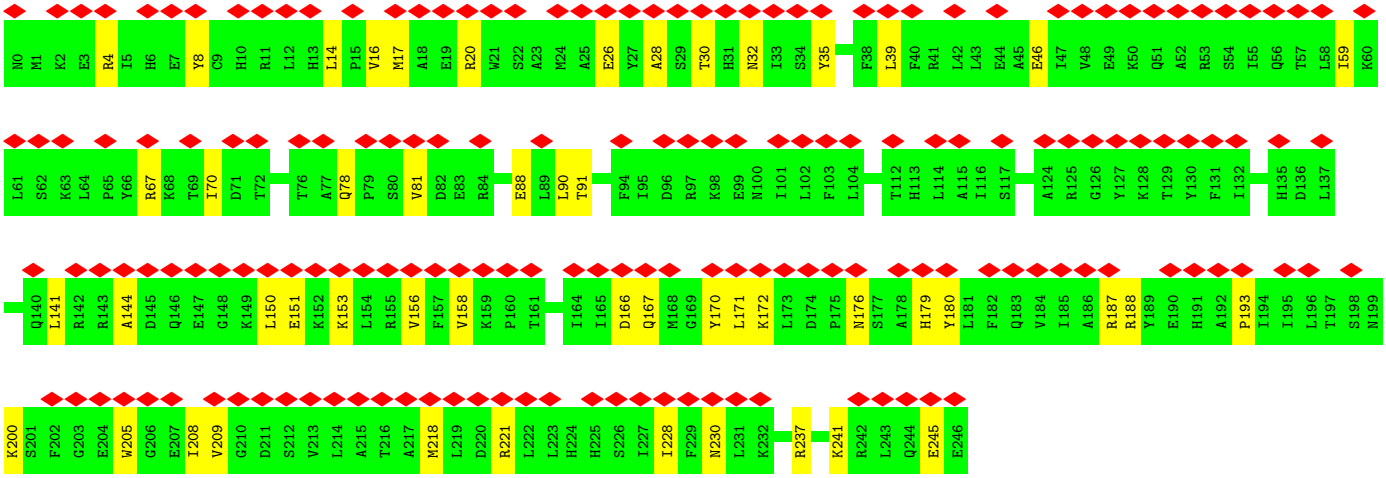




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain U:

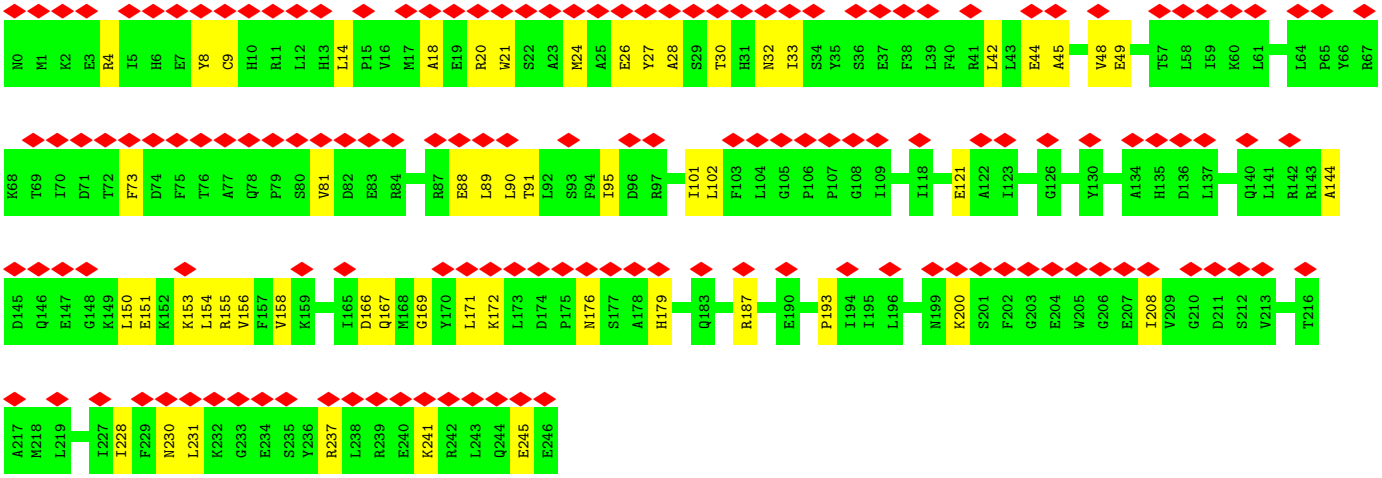




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

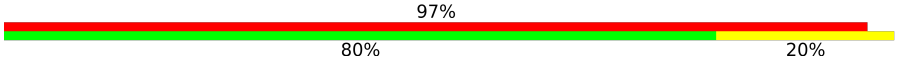
Chain V:

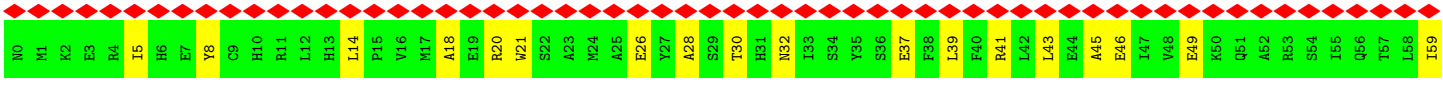




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain W:

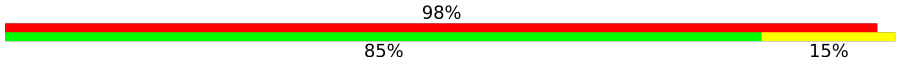


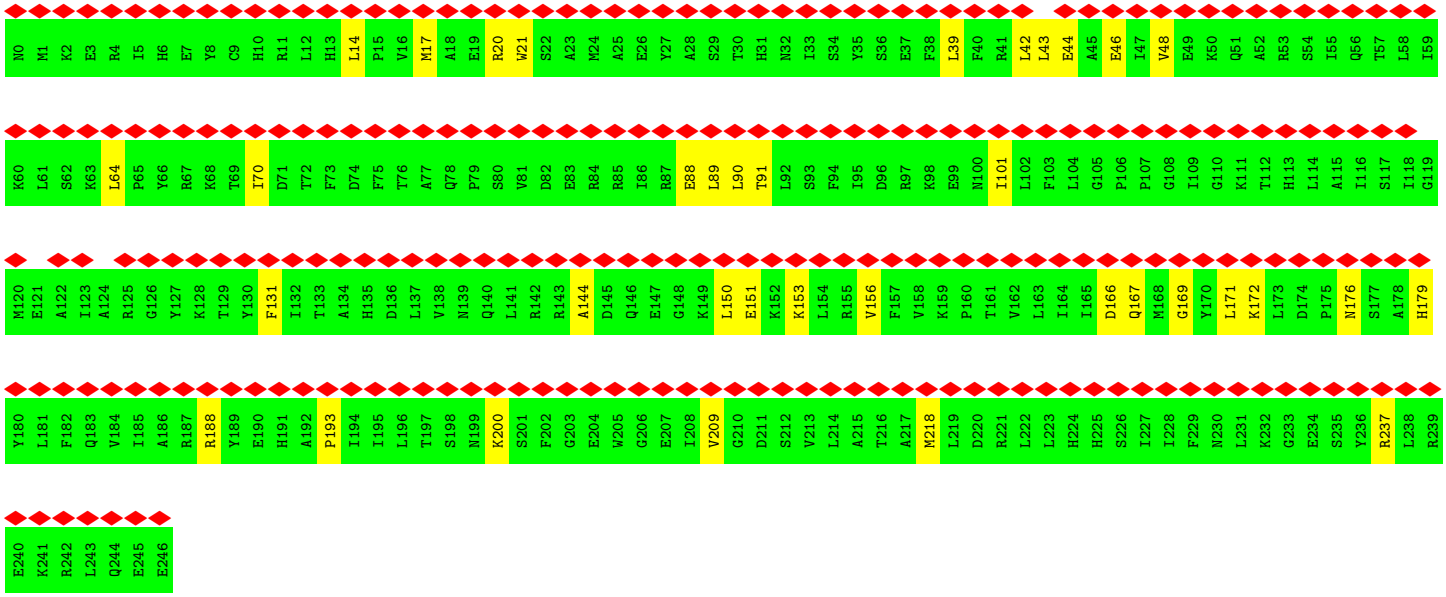




• Molecule 2: Insertion sequence IS5376 putative ATP-binding protein

Chain X:

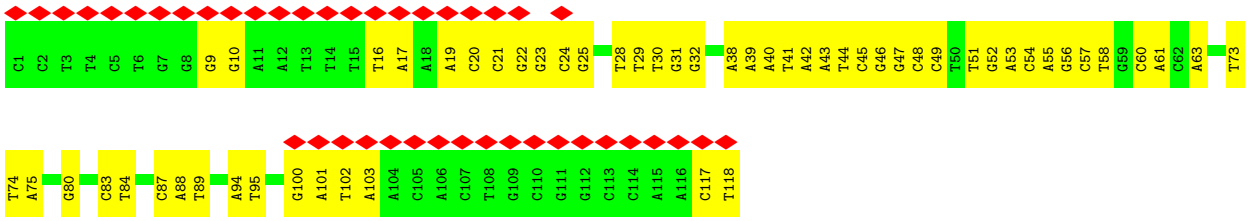




• Molecule 3: DNA (118-MER) / TIR-transferred strand

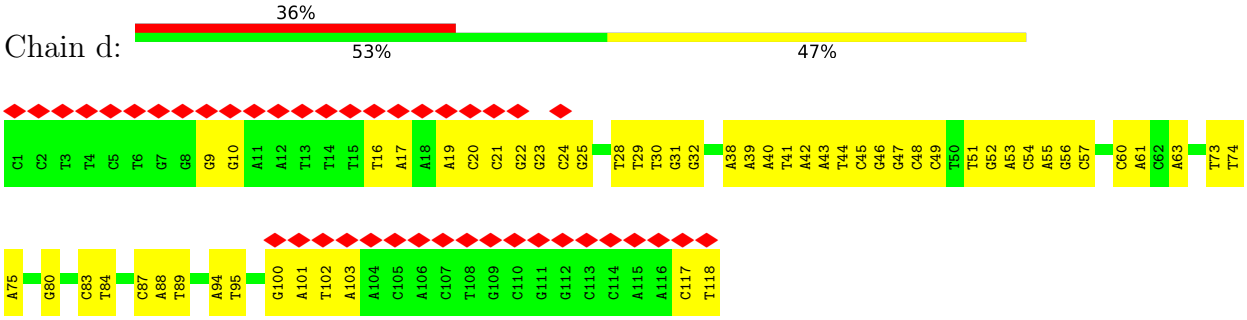
Chain a:





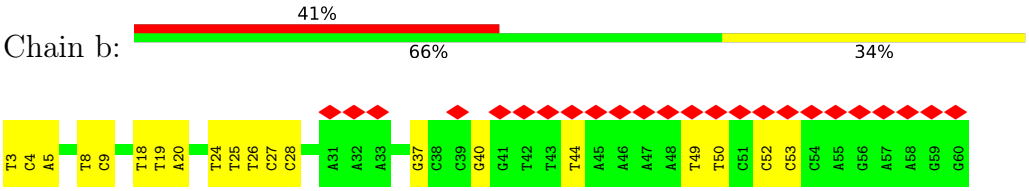
• Molecule 3: DNA (118-MER) / TIR-transferred strand

Chain d:



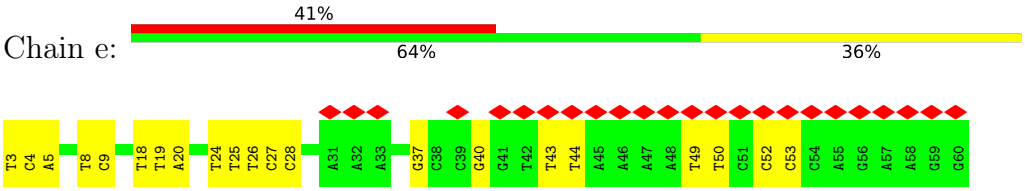
• Molecule 4: DNA (58-MER) / TIR non-transferred strand

Chain b:



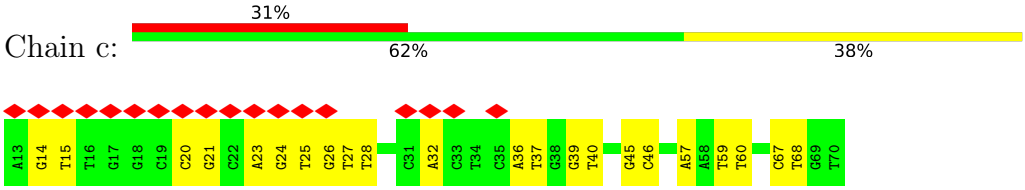
• Molecule 4: DNA (58-MER) / TIR non-transferred strand

Chain e:



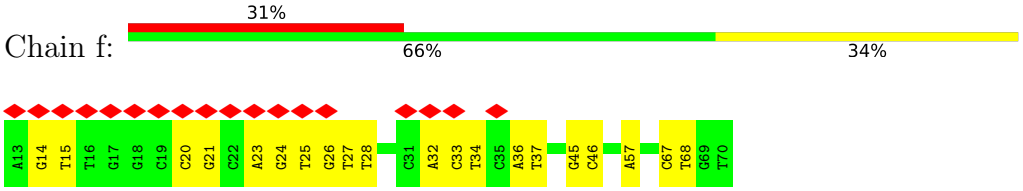
• Molecule 5: DNA (58-MER) / target-reverse complement

Chain c:



• Molecule 5: DNA (58-MER) / target-reverse complement

Chain f:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	272218	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	51.3	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.051	Depositor
Minimum map value	-0.021	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.0037	Depositor
Map size (Å)	453.0908, 453.0908, 453.0908	wwPDB
Map dimensions	460, 460, 460	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.98498, 0.98498, 0.98498	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.13	0/2996	0.27	0/4022
1	B	0.13	0/2996	0.27	0/4022
1	C	0.12	0/3172	0.31	0/4253
1	D	0.12	0/3172	0.31	0/4253
2	E	0.11	0/2071	0.24	0/2790
2	F	0.10	0/2071	0.21	0/2790
2	G	0.09	0/2071	0.21	0/2790
2	H	0.08	0/2071	0.21	0/2790
2	I	0.07	0/2071	0.20	0/2790
2	J	0.07	0/2071	0.20	0/2790
2	K	0.08	0/2071	0.21	0/2790
2	L	0.08	0/2071	0.21	0/2790
2	M	0.08	0/2071	0.22	0/2790
2	N	0.08	0/2071	0.21	0/2790
2	O	0.11	0/2071	0.24	0/2790
2	P	0.10	0/2071	0.21	0/2790
2	Q	0.09	0/2071	0.21	0/2790
2	R	0.08	0/2071	0.21	0/2790
2	S	0.07	0/2071	0.20	0/2790
2	T	0.07	0/2071	0.20	0/2790
2	U	0.08	0/2071	0.21	0/2790
2	V	0.08	0/2071	0.21	0/2790
2	W	0.08	0/2071	0.21	0/2790
2	X	0.08	0/2071	0.21	0/2790
3	a	0.20	0/2729	0.44	0/4211
3	d	0.21	0/2729	0.44	0/4211
4	b	0.28	0/1322	0.63	0/2036
4	e	0.28	0/1322	0.63	0/2036
5	c	0.28	0/1325	0.74	0/2043
5	f	0.28	0/1325	0.74	0/2043
All	All	0.13	0/64508	0.33	0/88930

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2924	2928	2928	58	0
1	B	2924	2928	2928	57	0
1	C	3099	3125	3126	73	0
1	D	3099	3125	3126	76	0
2	E	2029	2075	2075	41	0
2	F	2029	2074	2074	19	0
2	G	2029	2074	2074	39	0
2	H	2029	2074	2074	34	0
2	I	2029	2074	2074	30	0
2	J	2029	2076	2075	43	0
2	K	2029	2075	2075	32	0
2	L	2029	2075	2075	38	0
2	M	2029	2075	2075	41	0
2	N	2029	2074	2074	29	0
2	O	2029	2075	2075	40	0
2	P	2029	2074	2074	20	0
2	Q	2029	2074	2074	38	0
2	R	2029	2074	2074	33	0
2	S	2029	2074	2074	30	0
2	T	2029	2076	2075	41	0
2	U	2029	2075	2075	32	0
2	V	2029	2075	2075	38	0
2	W	2029	2075	2075	41	0
2	X	2029	2074	2074	30	0
3	a	2429	1326	1327	52	0
3	d	2429	1327	1327	52	0
4	b	1181	656	656	27	0
4	e	1181	656	656	27	0
5	c	1185	659	659	16	0
5	f	1185	659	659	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	A	1	0	0	0	0
6	B	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
6	J	1	0	0	0	0
6	K	1	0	0	0	0
6	L	1	0	0	0	0
6	M	1	0	0	0	0
6	N	1	0	0	0	0
6	P	1	0	0	0	0
6	Q	1	0	0	0	0
6	R	1	0	0	0	0
6	S	1	0	0	0	0
6	T	1	0	0	0	0
6	U	1	0	0	0	0
6	V	1	0	0	0	0
6	W	1	0	0	0	0
6	X	1	0	0	0	0
7	E	27	12	12	0	0
7	O	27	12	12	0	0
8	F	31	12	12	1	0
8	G	31	12	12	0	0
8	H	31	12	12	2	0
8	I	31	12	12	2	0
8	J	31	12	12	1	0
8	K	31	12	12	3	0
8	L	31	12	12	1	0
8	M	31	12	12	3	0
8	N	31	12	12	0	0
8	P	31	12	12	1	0
8	Q	31	12	12	0	0
8	R	31	12	12	2	0
8	S	31	12	12	2	0
8	T	31	12	12	1	0
8	U	31	12	12	3	0
8	V	31	12	12	1	0
8	W	31	12	12	4	0
8	X	31	12	12	1	0
All	All	62848	59121	59122	1016	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 8.

All (1016) 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:A:112:ARG:NE	4:e:8:DT:OP2	2.05	0.90
1:B:112:ARG:NE	4:b:8:DT:OP2	2.04	0.90
1:D:131:VAL:HG21	1:D:252:ILE:HD11	1.53	0.90
1:C:131:VAL:HG21	1:C:252:ILE:HD11	1.53	0.88
1:B:151:ARG:NH1	4:b:9:DC:OP1	2.08	0.86
1:A:151:ARG:NH1	4:e:9:DC:OP1	2.09	0.86
1:B:274:THR:OG1	4:b:9:DC:OP2	1.97	0.83
1:A:234:ARG:NE	4:e:9:DC:O2	2.12	0.82
2:I:88:GLU:O	2:I:91:THR:OG1	1.99	0.81
2:F:170:TYR:OH	8:F:302:ATP:O1G	1.99	0.81
1:B:234:ARG:NE	4:b:9:DC:O2	2.13	0.80
2:O:33:ILE:O	2:P:35:TYR:OH	1.99	0.80
2:G:88:GLU:O	2:G:91:THR:OG1	2.00	0.79
1:D:92:THR:OG1	3:a:22:DG:O6	2.00	0.79
2:S:88:GLU:O	2:S:91:THR:OG1	1.99	0.79
2:M:39:LEU:HD11	2:N:17:MET:HE2	1.63	0.79
1:A:274:THR:OG1	4:e:9:DC:OP2	1.98	0.79
2:E:33:ILE:O	2:F:35:TYR:OH	1.99	0.79
2:P:170:TYR:OH	8:P:302:ATP:O1G	1.99	0.78
2:H:88:GLU:O	2:H:91:THR:OG1	2.01	0.78
2:R:88:GLU:O	2:R:91:THR:OG1	2.01	0.78
3:d:29:DT:H2”	3:d:30:DT:H71	1.66	0.78
2:Q:88:GLU:O	2:Q:91:THR:OG1	2.00	0.78
2:V:88:GLU:O	2:V:91:THR:OG1	2.02	0.78
3:a:29:DT:H2”	3:a:30:DT:H71	1.65	0.78
2:W:39:LEU:HD11	2:X:17:MET:HE2	1.63	0.78
2:L:88:GLU:O	2:L:91:THR:OG1	2.02	0.77
2:M:88:GLU:O	2:M:91:THR:OG1	2.03	0.76
2:J:88:GLU:O	2:J:91:THR:OG1	2.03	0.76
2:U:88:GLU:O	2:U:91:THR:OG1	2.04	0.76
2:E:139:ASN:OD1	2:E:173:LEU:HD22	1.86	0.76
2:K:88:GLU:O	2:K:91:THR:OG1	2.04	0.76
1:C:82:ILE:HD11	1:C:94:LEU:CD1	2.16	0.75
2:T:88:GLU:O	2:T:91:THR:OG1	2.03	0.75
2:I:17:MET:HE1	2:J:17:MET:HE1	1.68	0.75
2:W:88:GLU:O	2:W:91:THR:OG1	2.03	0.75
1:D:82:ILE:HD11	1:D:94:LEU:CD1	2.16	0.75
2:M:39:LEU:HD22	2:N:21:TRP:CD1	2.22	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:237:ARG:NH2	8:L:302:ATP:O2A	2.21	0.74
1:D:318:GLN:O	1:D:364:LYS:NZ	2.13	0.74
2:K:39:LEU:HD22	2:L:21:TRP:CD1	2.23	0.74
2:W:39:LEU:HD22	2:X:21:TRP:CD1	2.22	0.74
2:U:39:LEU:HD22	2:V:21:TRP:CD1	2.23	0.73
1:D:56:LEU:HD23	3:a:20:DC:OP1	1.88	0.73
2:Q:174:ASP:O	2:Q:177:SER:OG	2.06	0.73
2:S:17:MET:HE1	2:T:17:MET:HE1	1.68	0.73
2:V:237:ARG:NH2	8:V:302:ATP:O2A	2.21	0.73
2:J:28:ALA:O	2:J:32:ASN:N	2.22	0.73
1:A:1:MET:N	4:b:25:DT:OP1	2.21	0.73
1:A:3:THR:OG1	1:D:198:GLN:NE2	2.22	0.72
2:T:209:VAL:HG11	2:T:218:MET:HE1	1.71	0.72
2:J:209:VAL:HG11	2:J:218:MET:HE1	1.71	0.72
2:T:28:ALA:O	2:T:32:ASN:N	2.22	0.72
1:B:114:GLU:OE1	1:B:151:ARG:NH2	2.22	0.72
1:C:21:SER:OG	1:C:25:ARG:NH1	2.23	0.72
2:M:237:ARG:NH2	8:M:302:ATP:O2A	2.23	0.72
2:O:139:ASN:OD1	2:O:173:LEU:HD22	1.86	0.72
1:A:114:GLU:OE1	1:A:151:ARG:NH2	2.23	0.72
2:K:144:ALA:HB2	2:K:153:LYS:HG3	1.72	0.72
1:B:3:THR:OG1	1:C:198:GLN:NE2	2.23	0.72
2:G:174:ASP:O	2:G:177:SER:OG	2.06	0.72
2:M:241:LYS:NZ	2:M:245:GLU:OE2	2.24	0.71
2:W:237:ARG:NH2	8:W:302:ATP:O2A	2.23	0.71
1:A:35:ARG:NH1	3:a:31:DG:OP2	2.24	0.71
1:A:253:GLU:N	1:A:253:GLU:OE1	2.23	0.71
2:W:241:LYS:NZ	2:W:245:GLU:OE2	2.24	0.71
1:D:21:SER:OG	1:D:25:ARG:NH1	2.23	0.71
1:B:1:MET:N	4:e:25:DT:OP1	2.21	0.71
2:H:59:ILE:HG23	2:H:64:LEU:HD12	1.73	0.71
2:R:59:ILE:HG23	2:R:64:LEU:HD12	1.73	0.71
2:U:144:ALA:HB2	2:U:153:LYS:HG3	1.72	0.71
1:B:35:ARG:NH1	3:d:31:DG:OP2	2.23	0.70
1:B:253:GLU:N	1:B:253:GLU:OE1	2.23	0.70
1:D:185:LEU:HD11	1:D:222:ARG:HG3	1.74	0.70
1:A:329:GLU:OE2	2:E:51:GLN:NE2	2.25	0.70
1:B:329:GLU:OE2	2:O:51:GLN:NE2	2.25	0.69
1:C:185:LEU:HD11	1:C:222:ARG:HG3	1.74	0.69
1:C:318:GLN:O	1:C:364:LYS:NZ	2.13	0.69
2:I:28:ALA:O	2:I:32:ASN:N	2.25	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:T:144:ALA:HB2	2:T:153:LYS:HG3	1.75	0.69
2:S:28:ALA:O	2:S:32:ASN:N	2.25	0.69
2:L:28:ALA:O	2:L:32:ASN:N	2.25	0.69
1:C:92:THR:OG1	3:d:22:DG:O6	2.08	0.68
2:T:17:MET:HE3	2:T:42:LEU:HD13	1.76	0.68
2:V:28:ALA:O	2:V:32:ASN:N	2.25	0.67
2:J:144:ALA:HB2	2:J:153:LYS:HG3	1.75	0.67
2:F:88:GLU:O	2:F:91:THR:OG1	2.11	0.66
1:A:237:GLN:NE2	3:d:53:DA:O4'	2.28	0.66
2:E:16:VAL:HG21	2:E:49:GLU:HG3	1.78	0.66
4:e:49:DT:H2"	4:e:50:DT:H71	1.76	0.66
2:J:17:MET:HE3	2:J:42:LEU:HD13	1.76	0.66
2:K:144:ALA:HB1	2:K:150:LEU:HA	1.78	0.66
2:O:16:VAL:HG21	2:O:49:GLU:HG3	1.78	0.66
5:c:27:DT:H2"	5:c:28:DT:H71	1.77	0.66
5:f:27:DT:H2"	5:f:28:DT:H71	1.77	0.65
1:A:126:LYS:NZ	3:d:55:DA:OP1	2.17	0.65
1:C:56:LEU:HD23	3:d:20:DC:OP1	1.95	0.65
4:b:49:DT:H2"	4:b:50:DT:H71	1.76	0.65
2:U:144:ALA:HB1	2:U:150:LEU:HA	1.78	0.65
3:d:29:DT:C2'	3:d:30:DT:H71	2.27	0.65
2:O:100:ASN:OD1	2:O:194:ILE:N	2.29	0.65
1:D:82:ILE:HD11	1:D:94:LEU:HD11	1.79	0.64
2:M:39:LEU:HD22	2:N:21:TRP:CG	2.33	0.64
1:A:11:LYS:NZ	1:A:38:ILE:O	2.30	0.64
3:a:29:DT:C2'	3:a:30:DT:H71	2.27	0.64
1:B:126:LYS:NZ	3:a:55:DA:OP1	2.17	0.64
2:E:102:LEU:HD12	2:E:228:ILE:HG12	1.80	0.64
1:B:237:GLN:NE2	3:a:53:DA:O4'	2.29	0.64
2:E:100:ASN:OD1	2:E:194:ILE:N	2.29	0.64
2:O:102:LEU:HD12	2:O:228:ILE:HG12	1.80	0.64
2:W:39:LEU:HD22	2:X:21:TRP:CG	2.33	0.64
2:O:166:ASP:OD1	2:O:167:GLN:N	2.31	0.63
2:W:144:ALA:HB2	2:W:153:LYS:HG3	1.80	0.63
2:V:155:ARG:NH1	3:d:102:DT:OP1	2.31	0.63
1:A:121:MET:HE3	1:A:145:ALA:HB1	1.81	0.63
2:E:166:ASP:OD1	2:E:167:GLN:N	2.31	0.63
2:K:17:MET:N	2:K:46:GLU:OE1	2.32	0.63
2:U:28:ALA:O	2:U:32:ASN:N	2.32	0.63
1:B:63:LEU:HD21	1:B:82:ILE:HG21	1.81	0.63
1:C:142:LEU:HD23	1:C:143:PHE:N	2.14	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:63:LEU:HD21	1:A:82:ILE:HG21	1.81	0.62
1:B:62:TYR:OH	1:B:81:GLU:OE1	2.17	0.62
1:C:94:LEU:N	1:C:94:LEU:HD23	2.14	0.62
2:F:94:PHE:O	2:F:98:LYS:N	2.32	0.62
2:M:144:ALA:HB2	2:M:153:LYS:HG3	1.80	0.62
1:D:94:LEU:HD23	1:D:94:LEU:N	2.14	0.62
2:U:17:MET:N	2:U:46:GLU:OE1	2.32	0.62
2:L:101:ILE:O	2:L:102:LEU:HD23	1.99	0.62
2:L:155:ARG:NH1	3:a:102:DT:OP1	2.31	0.62
1:B:121:MET:HE3	1:B:145:ALA:HB1	1.81	0.62
2:Q:151:GLU:OE1	2:Q:151:GLU:N	2.32	0.62
2:T:78:GLN:O	2:T:81:VAL:HG22	2.00	0.62
1:D:142:LEU:HD23	1:D:143:PHE:N	2.14	0.62
2:R:151:GLU:N	2:R:151:GLU:OE1	2.33	0.62
1:C:82:ILE:HD11	1:C:94:LEU:HD11	1.79	0.62
2:P:94:PHE:O	2:P:98:LYS:N	2.32	0.62
2:S:38:PHE:CZ	2:S:42:LEU:HD11	2.35	0.62
2:G:90:LEU:HD22	2:G:121:GLU:CD	2.25	0.62
2:K:28:ALA:O	2:K:32:ASN:N	2.32	0.62
2:V:101:ILE:O	2:V:102:LEU:HD23	1.99	0.62
2:J:26:GLU:O	2:J:30:THR:HG23	2.00	0.62
2:T:26:GLU:O	2:T:30:THR:HG23	2.00	0.62
2:V:144:ALA:HB2	2:V:153:LYS:HG3	1.82	0.62
1:C:162:ASP:OD2	1:C:165:HIS:ND1	2.33	0.61
2:J:78:GLN:O	2:J:81:VAL:HG22	2.00	0.61
2:Q:138:VAL:HG11	2:Q:177:SER:CB	2.30	0.61
1:D:162:ASP:OD2	1:D:165:HIS:ND1	2.33	0.61
2:E:169:GLY:O	2:E:200:LYS:NZ	2.29	0.61
1:B:302:SER:O	1:B:331:LEU:HD12	2.00	0.61
2:P:28:ALA:O	2:P:32:ASN:N	2.33	0.61
2:F:28:ALA:O	2:F:32:ASN:N	2.33	0.61
2:F:241:LYS:NZ	2:F:245:GLU:OE2	2.34	0.61
2:I:38:PHE:CZ	2:I:42:LEU:HD11	2.35	0.61
2:G:138:VAL:HG11	2:G:177:SER:CB	2.30	0.61
2:H:151:GLU:N	2:H:151:GLU:OE1	2.33	0.61
2:P:241:LYS:NZ	2:P:245:GLU:OE2	2.34	0.61
1:C:140:LEU:HD21	1:C:157:PHE:CD1	2.35	0.61
2:E:154:LEU:O	2:E:158:VAL:HG23	2.01	0.61
2:J:176:ASN:O	2:J:179:HIS:ND1	2.34	0.61
1:A:302:SER:O	1:A:331:LEU:HD12	2.00	0.61
1:D:140:LEU:HD21	1:D:157:PHE:CD1	2.35	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:62:TYR:OH	1:A:81:GLU:OE1	2.17	0.60
2:G:36:SER:O	2:H:5:ILE:HD11	2.02	0.60
2:Q:90:LEU:HD22	2:Q:121:GLU:CD	2.25	0.60
2:T:176:ASN:O	2:T:179:HIS:ND1	2.34	0.60
2:G:151:GLU:OE1	2:G:151:GLU:N	2.32	0.60
2:P:88:GLU:O	2:P:91:THR:OG1	2.11	0.60
1:B:11:LYS:NZ	1:B:38:ILE:O	2.30	0.60
2:J:9:CYS:CB	2:J:18:ALA:HB2	2.32	0.60
1:D:133:ILE:HD11	1:D:252:ILE:CG1	2.32	0.60
1:B:144:VAL:HG21	1:B:236:ILE:CG1	2.32	0.60
1:C:133:ILE:HD11	1:C:252:ILE:CG1	2.32	0.60
2:L:144:ALA:HB2	2:L:153:LYS:HG3	1.82	0.60
1:C:157:PHE:CE2	1:C:259:LEU:HD22	2.37	0.60
1:A:144:VAL:HG21	1:A:236:ILE:CG1	2.32	0.59
2:O:154:LEU:O	2:O:158:VAL:HG23	2.01	0.59
2:Q:36:SER:O	2:R:5:ILE:HD11	2.01	0.59
2:S:39:LEU:HD13	2:T:17:MET:HE2	1.84	0.59
2:L:73:PHE:HE1	2:L:81:VAL:HG21	1.68	0.59
2:S:170:TYR:OH	8:S:302:ATP:O1G	2.18	0.59
2:T:9:CYS:CB	2:T:18:ALA:HB2	2.32	0.59
2:G:28:ALA:O	2:G:32:ASN:N	2.33	0.59
1:A:118:GLY:N	1:A:286:GLU:OE1	2.37	0.58
1:D:157:PHE:CE2	1:D:259:LEU:HD22	2.37	0.58
2:R:152:LYS:O	2:R:156:VAL:HG23	2.03	0.58
2:G:81:VAL:HG12	2:G:231:LEU:HD22	1.85	0.58
2:H:152:LYS:O	2:H:156:VAL:HG23	2.03	0.58
2:Q:28:ALA:O	2:Q:32:ASN:N	2.33	0.58
2:V:151:GLU:OE1	2:V:151:GLU:N	2.35	0.58
2:I:39:LEU:HD13	2:J:17:MET:HE2	1.84	0.58
2:O:169:GLY:O	2:O:200:LYS:NZ	2.29	0.58
2:L:151:GLU:OE1	2:L:151:GLU:N	2.35	0.58
2:J:144:ALA:HB1	2:J:150:LEU:HA	1.86	0.58
2:T:144:ALA:HB1	2:T:150:LEU:HA	1.86	0.58
2:W:89:LEU:HD22	2:W:101:ILE:HD13	1.85	0.58
1:A:93:ILE:HD11	3:a:44:DT:H2'	1.86	0.58
2:E:84:ARG:NH1	2:E:88:GLU:OE2	2.36	0.58
2:M:89:LEU:HD22	2:M:101:ILE:HD13	1.85	0.58
5:c:59:DT:H2"	5:c:60:DT:H71	1.84	0.58
2:M:144:ALA:HB1	2:M:150:LEU:HA	1.86	0.58
2:N:70:ILE:HG12	2:N:90:LEU:HD11	1.86	0.58
2:Q:58:LEU:HB3	2:Q:123:ILE:HD11	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S:81:VAL:HG12	2:S:231:LEU:HD22	1.86	0.58
1:A:142:LEU:HD21	1:A:155:ALA:HB1	1.86	0.57
2:H:38:PHE:CZ	2:H:42:LEU:HD11	2.39	0.57
1:B:118:GLY:N	1:B:286:GLU:OE1	2.37	0.57
1:D:133:ILE:HD11	1:D:252:ILE:HG12	1.86	0.57
2:I:81:VAL:HG12	2:I:231:LEU:HD22	1.86	0.57
2:O:84:ARG:NH1	2:O:88:GLU:OE2	2.36	0.57
1:B:142:LEU:HD21	1:B:155:ALA:HB1	1.86	0.57
1:A:93:ILE:HD11	3:a:44:DT:C2'	2.35	0.57
2:J:12:LEU:HD23	2:J:14:LEU:HD12	1.87	0.57
2:J:151:GLU:N	2:J:151:GLU:OE1	2.36	0.57
2:Q:81:VAL:HG12	2:Q:231:LEU:HD22	1.85	0.57
1:B:93:ILE:HD11	3:d:44:DT:H2'	1.86	0.57
1:C:123:VAL:HG13	1:C:143:PHE:CE2	2.40	0.57
1:C:133:ILE:HD11	1:C:252:ILE:HG12	1.86	0.57
1:D:142:LEU:CD2	1:D:144:VAL:HG23	2.35	0.57
2:J:73:PHE:HE2	2:J:81:VAL:HG21	1.70	0.57
2:L:166:ASP:OD1	2:L:167:GLN:N	2.38	0.57
1:C:142:LEU:CD2	1:C:144:VAL:HG23	2.35	0.57
1:C:263:LEU:HA	1:C:267:ALA:HB3	1.87	0.57
2:V:73:PHE:HE1	2:V:81:VAL:HG21	1.68	0.57
2:U:241:LYS:NZ	2:U:245:GLU:OE2	2.38	0.56
2:V:166:ASP:OD1	2:V:167:GLN:N	2.38	0.56
2:E:103:PHE:HB2	2:E:197:THR:HG22	1.86	0.56
2:R:38:PHE:CZ	2:R:42:LEU:HD11	2.39	0.56
2:S:221:ARG:NH2	8:U:302:ATP:O3G	2.38	0.56
2:W:144:ALA:HB1	2:W:150:LEU:HA	1.86	0.56
2:M:209:VAL:HG11	2:M:218:MET:HE1	1.88	0.56
2:O:103:PHE:HB2	2:O:197:THR:HG22	1.86	0.56
2:P:91:THR:O	2:P:125:ARG:NH1	2.38	0.56
2:T:12:LEU:HD23	2:T:14:LEU:HD12	1.87	0.56
2:W:209:VAL:HG11	2:W:218:MET:HE1	1.88	0.56
2:X:70:ILE:HG12	2:X:90:LEU:HD11	1.86	0.56
1:B:93:ILE:HD11	3:d:44:DT:C2'	2.35	0.56
1:B:342:LEU:HD12	1:B:351:HIS:HB3	1.87	0.56
1:D:67:MET:SD	1:D:98:MET:HE1	2.46	0.56
1:D:263:LEU:HA	1:D:267:ALA:HB3	1.87	0.56
2:I:170:TYR:OH	8:I:302:ATP:O1G	2.18	0.56
2:I:221:ARG:NH2	8:K:302:ATP:O3G	2.38	0.56
2:F:91:THR:O	2:F:125:ARG:NH1	2.38	0.56
2:N:144:ALA:HB2	2:N:153:LYS:HG3	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:67:MET:SD	1:C:98:MET:HE1	2.46	0.56
2:G:58:LEU:HB3	2:G:123:ILE:HD11	1.86	0.56
2:W:102:LEU:HD22	2:W:196:LEU:HB3	1.88	0.56
2:X:176:ASN:O	2:X:179:HIS:ND1	2.39	0.56
2:J:166:ASP:OD1	2:J:167:GLN:N	2.39	0.56
2:M:5:ILE:HG21	2:M:21:TRP:CZ2	2.41	0.56
2:V:176:ASN:O	2:V:179:HIS:ND1	2.39	0.56
2:W:5:ILE:HG21	2:W:21:TRP:CZ2	2.41	0.56
1:A:342:LEU:HD12	1:A:351:HIS:HB3	1.87	0.56
1:C:248:ALA:HB2	1:C:258:LEU:HD12	1.87	0.56
1:D:123:VAL:HG13	1:D:143:PHE:CE2	2.40	0.56
2:E:154:LEU:HD21	2:E:187:ARG:NE	2.21	0.56
2:M:102:LEU:HD22	2:M:196:LEU:HB3	1.88	0.55
1:A:190:LYS:NZ	5:c:68:DT:O2	2.38	0.55
1:D:82:ILE:HD12	1:D:87:TYR:CD1	2.42	0.55
2:L:176:ASN:O	2:L:179:HIS:ND1	2.39	0.55
2:T:9:CYS:HB3	2:T:18:ALA:HB2	1.88	0.55
2:I:176:ASN:O	2:I:179:HIS:ND1	2.39	0.55
2:N:176:ASN:O	2:N:179:HIS:ND1	2.39	0.55
2:O:154:LEU:HD21	2:O:187:ARG:NE	2.21	0.55
2:S:176:ASN:O	2:S:179:HIS:ND1	2.39	0.55
2:T:73:PHE:HE2	2:T:81:VAL:HG21	1.70	0.55
3:a:101:DA:C2'	3:a:102:DT:H71	2.36	0.55
2:K:241:LYS:NZ	2:K:245:GLU:OE2	2.38	0.55
2:R:24:MET:SD	2:R:42:LEU:HD23	2.47	0.55
2:G:37:GLU:OE2	2:G:41:ARG:NH2	2.40	0.55
2:X:144:ALA:HB2	2:X:153:LYS:HG3	1.88	0.55
3:d:101:DA:C2'	3:d:102:DT:H71	2.36	0.55
2:Q:21:TRP:HA	2:Q:42:LEU:HD22	1.89	0.55
2:T:166:ASP:OD1	2:T:167:GLN:N	2.39	0.55
1:D:96:ASP:O	1:D:100:PRO:HD2	2.07	0.55
2:H:24:MET:SD	2:H:42:LEU:HD23	2.47	0.55
1:C:201:VAL:HG23	1:C:201:VAL:O	2.06	0.55
1:D:248:ALA:HB2	1:D:258:LEU:HD12	1.87	0.55
2:H:188:ARG:NH2	2:H:193:PRO:O	2.39	0.55
1:B:19:SER:OG	1:C:74:ASN:ND2	2.38	0.55
2:R:94:PHE:O	2:R:98:LYS:N	2.40	0.55
2:J:9:CYS:HB3	2:J:18:ALA:HB2	1.88	0.55
2:T:92:LEU:HD12	2:T:125:ARG:HD3	1.89	0.55
1:C:82:ILE:HD12	1:C:87:TYR:CD1	2.42	0.54
2:S:209:VAL:HG11	2:S:218:MET:HE1	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:13:MET:HE2	1:A:23:ILE:HG12	1.89	0.54
1:B:13:MET:HE2	1:B:23:ILE:HG12	1.89	0.54
2:F:188:ARG:HB2	2:F:194:ILE:HD11	1.90	0.54
2:H:94:PHE:O	2:H:98:LYS:N	2.40	0.54
2:K:221:ARG:NH2	8:M:302:ATP:O3G	2.40	0.54
2:S:21:TRP:HA	2:S:42:LEU:HD21	1.89	0.54
2:I:144:ALA:HB2	2:I:153:LYS:HG3	1.90	0.54
2:I:209:VAL:HG11	2:I:218:MET:HE1	1.89	0.54
2:S:144:ALA:HB2	2:S:153:LYS:HG3	1.90	0.54
1:C:142:LEU:HD21	1:C:144:VAL:HG23	1.90	0.54
2:L:169:GLY:O	2:L:200:LYS:NZ	2.40	0.54
2:Q:37:GLU:OE2	2:Q:41:ARG:NH2	2.40	0.54
1:C:96:ASP:O	1:C:100:PRO:HD2	2.07	0.54
1:D:142:LEU:HD21	1:D:144:VAL:HG23	1.90	0.54
2:I:17:MET:N	2:I:46:GLU:OE1	2.39	0.54
2:U:166:ASP:OD1	2:U:167:GLN:N	2.41	0.54
1:A:293:LEU:HD21	2:E:245:GLU:HG3	1.90	0.54
2:M:92:LEU:HD12	2:M:125:ARG:HD3	1.90	0.54
2:O:17:MET:HE2	2:P:39:LEU:HD11	1.90	0.54
2:U:221:ARG:NH2	8:W:302:ATP:O3G	2.40	0.54
1:B:263:LEU:HA	1:B:267:ALA:HB3	1.89	0.54
1:D:201:VAL:O	1:D:201:VAL:HG23	2.06	0.54
2:G:26:GLU:O	2:G:30:THR:HG23	2.08	0.54
2:S:17:MET:N	2:S:46:GLU:OE1	2.39	0.54
1:A:263:LEU:HA	1:A:267:ALA:HB3	1.88	0.54
2:E:196:LEU:HD21	2:E:205:TRP:HH2	1.73	0.54
2:K:166:ASP:OD1	2:K:167:GLN:N	2.41	0.54
2:L:73:PHE:CE1	2:L:81:VAL:HG21	2.43	0.54
2:P:188:ARG:HB2	2:P:194:ILE:HD11	1.90	0.54
2:Q:26:GLU:O	2:Q:30:THR:HG23	2.08	0.54
2:L:158:VAL:HG21	2:L:187:ARG:HB3	1.90	0.54
2:M:89:LEU:HD22	2:M:101:ILE:CD1	2.38	0.54
2:T:151:GLU:N	2:T:151:GLU:OE1	2.36	0.54
2:I:27:TYR:O	2:I:30:THR:OG1	2.26	0.53
2:W:170:TYR:OH	8:W:302:ATP:O1G	2.21	0.53
1:A:19:SER:OG	1:D:74:ASN:ND2	2.41	0.53
2:I:21:TRP:HA	2:I:42:LEU:HD21	1.89	0.53
2:O:196:LEU:HD21	2:O:205:TRP:HH2	1.73	0.53
2:U:59:ILE:HG21	2:U:67:ARG:HE	1.73	0.53
2:W:89:LEU:HD22	2:W:101:ILE:CD1	2.38	0.53
2:G:21:TRP:HA	2:G:42:LEU:HD22	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:V:158:VAL:HG21	2:V:187:ARG:HB3	1.90	0.53
2:M:151:GLU:OE1	2:M:151:GLU:N	2.40	0.53
2:W:92:LEU:HD12	2:W:125:ARG:HD3	1.90	0.53
2:E:17:MET:HE2	2:F:39:LEU:HD11	1.90	0.53
2:K:205:TRP:O	2:K:209:VAL:HG22	2.09	0.53
2:V:73:PHE:CE1	2:V:81:VAL:HG21	2.43	0.53
2:J:92:LEU:HD12	2:J:125:ARG:HD3	1.89	0.53
2:R:28:ALA:O	2:R:32:ASN:N	2.42	0.53
1:A:180:VAL:HG13	1:A:291:LEU:HD23	1.91	0.53
2:M:26:GLU:O	2:M:30:THR:HG23	2.09	0.53
2:W:5:ILE:HG23	2:X:43:LEU:CD1	2.39	0.53
1:A:309:ASP:OD1	1:A:310:GLY:N	2.42	0.53
2:E:89:LEU:HD11	2:E:229:PHE:HE2	1.74	0.53
2:V:26:GLU:O	2:V:30:THR:HG23	2.09	0.53
4:e:43:DT:H2"	4:e:44:DT:H71	1.90	0.53
1:B:144:VAL:HG21	1:B:236:ILE:HG13	1.90	0.53
2:M:5:ILE:HG23	2:N:43:LEU:CD1	2.39	0.53
2:O:89:LEU:HD11	2:O:229:PHE:HE2	1.74	0.53
2:O:168:MET:HE2	2:O:205:TRP:CE2	2.44	0.53
2:S:27:TYR:O	2:S:30:THR:OG1	2.26	0.53
2:W:26:GLU:O	2:W:30:THR:HG23	2.09	0.53
1:D:187:ASP:OD1	1:D:188:ASN:N	2.42	0.53
2:E:213:VAL:HG11	2:G:200:LYS:HE3	1.91	0.53
2:H:28:ALA:O	2:H:32:ASN:N	2.42	0.53
2:K:59:ILE:HG21	2:K:67:ARG:HE	1.73	0.53
2:Q:4:ARG:NH2	2:R:44:GLU:OE2	2.42	0.53
2:V:169:GLY:O	2:V:200:LYS:NZ	2.40	0.53
2:H:174:ASP:O	2:H:177:SER:OG	2.26	0.52
2:U:205:TRP:O	2:U:209:VAL:HG22	2.09	0.52
1:B:180:VAL:HG13	1:B:291:LEU:HD23	1.91	0.52
1:C:187:ASP:OD1	1:C:188:ASN:N	2.42	0.52
2:H:166:ASP:OD1	2:H:167:GLN:N	2.41	0.52
2:M:166:ASP:OD1	2:M:167:GLN:N	2.41	0.52
2:R:166:ASP:OD1	2:R:167:GLN:N	2.41	0.52
1:C:121:MET:HE3	1:C:170:LEU:HD22	1.91	0.52
2:W:166:ASP:OD1	2:W:167:GLN:N	2.41	0.52
1:B:164:GLU:O	1:B:298:THR:HG21	2.10	0.52
1:D:133:ILE:HD12	1:D:138:VAL:HG11	1.92	0.52
2:G:4:ARG:NH2	2:H:44:GLU:OE2	2.42	0.52
2:H:21:TRP:HA	2:H:42:LEU:HD21	1.92	0.52
1:A:144:VAL:HG21	1:A:236:ILE:HG13	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:93:ILE:HD12	1:B:93:ILE:H	1.75	0.52
1:B:293:LEU:HD21	2:O:245:GLU:HG3	1.90	0.52
1:B:309:ASP:OD1	1:B:310:GLY:N	2.42	0.52
2:S:241:LYS:NZ	2:S:245:GLU:OE2	2.43	0.52
2:Q:94:PHE:O	2:Q:98:LYS:N	2.42	0.52
2:T:169:GLY:O	2:T:200:LYS:NZ	2.42	0.52
1:C:75:SER:HB3	1:C:95:LYS:HA	1.91	0.52
2:G:94:PHE:O	2:G:98:LYS:N	2.42	0.52
1:A:93:ILE:H	1:A:93:ILE:HD12	1.75	0.52
1:A:164:GLU:O	1:A:298:THR:HG21	2.10	0.52
2:E:168:MET:HE2	2:E:205:TRP:CE2	2.44	0.52
2:L:26:GLU:O	2:L:30:THR:HG23	2.09	0.52
2:N:209:VAL:HG11	2:N:218:MET:HE1	1.92	0.52
2:P:24:MET:SD	2:P:42:LEU:HD23	2.50	0.52
1:D:191:THR:O	1:D:193:THR:N	2.43	0.51
2:I:17:MET:HE2	2:J:39:LEU:HD11	1.92	0.51
2:I:241:LYS:NZ	2:I:245:GLU:OE2	2.43	0.51
2:K:170:TYR:OH	8:K:302:ATP:O1G	2.28	0.51
2:N:151:GLU:OE1	2:N:151:GLU:N	2.41	0.51
1:C:298:THR:O	1:C:336:LEU:HD13	2.10	0.51
2:G:138:VAL:HG11	2:G:177:SER:HB2	1.92	0.51
2:O:213:VAL:HG11	2:Q:200:LYS:HE3	1.91	0.51
2:Q:59:ILE:HG21	2:Q:67:ARG:NE	2.25	0.51
3:d:30:DT:C2	3:d:31:DG:N7	2.78	0.51
1:D:121:MET:HE3	1:D:170:LEU:HD22	1.91	0.51
2:G:59:ILE:HG21	2:G:67:ARG:NE	2.25	0.51
2:R:59:ILE:HG13	2:R:123:ILE:HG21	1.92	0.51
2:T:73:PHE:CE2	2:T:81:VAL:HG21	2.45	0.51
2:V:200:LYS:HG3	2:V:208:ILE:HD11	1.92	0.51
2:X:209:VAL:HG11	2:X:218:MET:HE1	1.92	0.51
3:a:30:DT:C2	3:a:31:DG:N7	2.78	0.51
2:F:24:MET:SD	2:F:42:LEU:HD23	2.50	0.51
2:K:176:ASN:O	2:K:179:HIS:ND1	2.44	0.51
5:f:67:DC:H2”	5:f:68:DT:H71	1.93	0.51
1:D:75:SER:HB3	1:D:95:LYS:HA	1.91	0.51
1:D:298:THR:O	1:D:336:LEU:HD13	2.10	0.51
2:H:59:ILE:HG13	2:H:123:ILE:HG21	1.92	0.51
2:Q:138:VAL:HG11	2:Q:177:SER:HB2	1.92	0.51
2:U:176:ASN:O	2:U:179:HIS:ND1	2.44	0.51
1:C:191:THR:O	1:C:193:THR:N	2.43	0.51
2:R:176:ASN:O	2:R:179:HIS:ND1	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:V:144:ALA:HB1	2:V:150:LEU:HA	1.93	0.51
2:J:169:GLY:O	2:J:200:LYS:NZ	2.42	0.51
2:R:21:TRP:HA	2:R:42:LEU:HD21	1.91	0.51
2:R:174:ASP:O	2:R:177:SER:OG	2.26	0.51
2:U:237:ARG:NH2	8:U:302:ATP:O2A	2.44	0.51
3:d:73:DT:H2'	3:d:74:DT:H72	1.93	0.51
2:H:176:ASN:O	2:H:179:HIS:ND1	2.43	0.51
1:B:142:LEU:HD22	1:B:144:VAL:HG13	1.92	0.51
5:c:39:DG:H2"	5:c:40:DT:H71	1.93	0.51
1:A:63:LEU:HD21	1:A:82:ILE:CG2	2.41	0.51
1:A:142:LEU:HD22	1:A:144:VAL:HG13	1.92	0.51
1:B:190:LYS:NZ	5:f:68:DT:O2	2.38	0.51
1:B:13:MET:SD	1:B:23:ILE:HG23	2.51	0.50
1:C:133:ILE:HD12	1:C:138:VAL:HG11	1.92	0.50
2:E:223:LEU:HD22	2:E:228:ILE:HD11	1.93	0.50
2:S:17:MET:HE2	2:T:39:LEU:HD11	1.92	0.50
2:J:73:PHE:CE2	2:J:81:VAL:HG21	2.45	0.50
1:C:185:LEU:HD12	1:C:220:VAL:HA	1.94	0.50
2:G:144:ALA:HB2	2:G:153:LYS:HG3	1.92	0.50
2:K:209:VAL:HG11	2:K:218:MET:HE1	1.93	0.50
2:L:144:ALA:HB1	2:L:150:LEU:HA	1.93	0.50
1:B:63:LEU:HD21	1:B:82:ILE:CG2	2.41	0.50
2:K:237:ARG:NH2	8:K:302:ATP:O2A	2.44	0.50
2:L:200:LYS:HG3	2:L:208:ILE:HD11	1.92	0.50
2:S:166:ASP:OD1	2:S:167:GLN:N	2.45	0.50
2:T:241:LYS:NZ	2:T:245:GLU:OE2	2.45	0.50
2:U:209:VAL:HG11	2:U:218:MET:HE1	1.93	0.50
1:A:13:MET:SD	1:A:23:ILE:HG23	2.51	0.50
2:N:64:LEU:HD23	2:N:131:PHE:HB2	1.94	0.50
3:a:73:DT:H2'	3:a:74:DT:H72	1.93	0.50
1:D:185:LEU:HD12	1:D:220:VAL:HA	1.94	0.50
2:T:90:LEU:HD22	2:T:121:GLU:CD	2.37	0.50
2:U:170:TYR:OH	8:U:302:ATP:O1G	2.28	0.50
1:C:131:VAL:HG12	1:C:132:VAL:N	2.27	0.50
2:Q:144:ALA:HB2	2:Q:153:LYS:HG3	1.92	0.50
2:T:188:ARG:NH2	2:T:193:PRO:O	2.45	0.50
5:c:67:DC:H2"	5:c:68:DT:H71	1.93	0.50
2:O:168:MET:HE2	2:O:205:TRP:CZ2	2.47	0.49
2:X:14:LEU:HD22	2:X:46:GLU:OE2	2.12	0.49
2:X:151:GLU:OE1	2:X:151:GLU:N	2.41	0.49
2:I:166:ASP:OD1	2:I:167:GLN:N	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:90:LEU:HD22	2:J:121:GLU:CD	2.37	0.49
2:M:176:ASN:O	2:M:179:HIS:ND1	2.45	0.49
2:U:35:TYR:OH	2:V:33:ILE:O	2.22	0.49
2:U:151:GLU:OE1	2:U:151:GLU:N	2.42	0.49
2:W:176:ASN:O	2:W:179:HIS:ND1	2.45	0.49
1:C:164:GLU:HB3	1:C:336:LEU:HD11	1.95	0.49
2:E:168:MET:HE2	2:E:205:TRP:CZ2	2.47	0.49
1:A:13:MET:SD	1:A:27:LEU:HD11	2.53	0.49
1:D:150:SER:N	1:D:286:GLU:OE2	2.44	0.49
1:D:164:GLU:HB3	1:D:336:LEU:HD11	1.94	0.49
2:F:228:ILE:HD12	2:F:228:ILE:N	2.27	0.49
2:J:241:LYS:NZ	2:J:245:GLU:OE2	2.45	0.49
2:O:223:LEU:HD22	2:O:228:ILE:HD11	1.93	0.49
2:P:228:ILE:N	2:P:228:ILE:HD12	2.27	0.49
2:X:64:LEU:HD23	2:X:131:PHE:HB2	1.94	0.49
2:M:43:LEU:HD21	2:N:17:MET:SD	2.53	0.49
2:N:88:GLU:O	2:N:91:THR:OG1	2.30	0.49
2:N:89:LEU:HD22	2:N:101:ILE:HD11	1.95	0.49
2:X:89:LEU:HD22	2:X:101:ILE:HD11	1.95	0.49
2:E:115:ALA:HB2	2:E:197:THR:HG21	1.95	0.49
2:M:14:LEU:HD22	2:M:46:GLU:OE2	2.13	0.49
2:W:59:ILE:HG21	2:W:67:ARG:HE	1.78	0.49
1:B:13:MET:SD	1:B:27:LEU:HD11	2.53	0.49
2:K:39:LEU:HD22	2:L:21:TRP:CG	2.47	0.49
2:M:28:ALA:O	2:M:32:ASN:N	2.46	0.49
2:N:14:LEU:HD22	2:N:46:GLU:OE2	2.12	0.49
2:N:20:ARG:NE	2:N:46:GLU:OE1	2.34	0.49
2:O:176:ASN:O	2:O:179:HIS:ND1	2.43	0.49
1:D:131:VAL:HG12	1:D:132:VAL:N	2.27	0.48
2:E:158:VAL:HG21	2:E:187:ARG:HD2	1.94	0.48
2:L:4:ARG:NH2	2:L:8:TYR:OH	2.46	0.48
2:M:18:ALA:HA	2:M:21:TRP:CD1	2.48	0.48
2:W:8:TYR:OH	2:X:44:GLU:OE2	2.31	0.48
5:f:27:DT:C2'	5:f:28:DT:H71	2.43	0.48
1:C:225:ARG:CZ	4:e:26:DT:H5"	2.43	0.48
1:D:125:TRP:HB2	1:D:189:MET:HE1	1.95	0.48
1:D:168:GLU:HB2	1:D:298:THR:HG21	1.95	0.48
2:L:24:MET:SD	2:L:42:LEU:HD23	2.53	0.48
3:d:102:DT:C2	3:d:103:DA:N7	2.81	0.48
2:O:158:VAL:HG21	2:O:187:ARG:HD2	1.94	0.48
2:U:26:GLU:O	2:U:30:THR:HG23	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:W:18:ALA:HA	2:W:21:TRP:CD1	2.49	0.48
2:F:26:GLU:O	2:F:30:THR:HG23	2.13	0.48
2:Q:38:PHE:O	2:Q:42:LEU:HG	2.13	0.48
2:X:88:GLU:O	2:X:91:THR:OG1	2.30	0.48
1:D:96:ASP:O	1:D:100:PRO:CD	2.62	0.48
2:F:166:ASP:OD1	2:F:167:GLN:N	2.46	0.48
3:a:102:DT:C2	3:a:103:DA:N7	2.81	0.48
1:C:96:ASP:O	1:C:100:PRO:CD	2.62	0.48
2:I:39:LEU:CD1	2:J:17:MET:HE2	2.44	0.48
2:J:188:ARG:NH2	2:J:193:PRO:O	2.45	0.48
2:L:241:LYS:NZ	2:L:245:GLU:OE2	2.46	0.48
2:P:26:GLU:O	2:P:30:THR:HG23	2.13	0.48
2:U:39:LEU:HD22	2:V:21:TRP:CG	2.47	0.48
2:W:28:ALA:O	2:W:32:ASN:N	2.46	0.48
2:W:151:GLU:N	2:W:151:GLU:OE1	2.40	0.48
1:C:125:TRP:HB2	1:C:189:MET:HE1	1.95	0.48
1:D:92:THR:CB	3:a:22:DG:O6	2.61	0.48
2:W:43:LEU:HD21	2:X:17:MET:SD	2.53	0.48
2:G:38:PHE:O	2:G:42:LEU:HG	2.13	0.48
2:G:176:ASN:O	2:G:179:HIS:ND1	2.46	0.48
2:K:26:GLU:O	2:K:30:THR:HG23	2.13	0.48
2:M:59:ILE:HG21	2:M:67:ARG:HE	1.78	0.48
2:V:24:MET:SD	2:V:42:LEU:HD23	2.53	0.48
3:a:54:DC:H2'	3:a:55:DA:O4'	2.13	0.48
3:a:101:DA:H2'	3:a:102:DT:H71	1.95	0.48
2:E:59:ILE:HD13	2:E:120:MET:SD	2.54	0.48
2:H:64:LEU:HD11	2:H:123:ILE:CD1	2.44	0.48
2:J:174:ASP:O	2:J:177:SER:OG	2.32	0.48
2:L:20:ARG:NH2	2:L:49:GLU:OE2	2.47	0.48
2:W:237:ARG:NH1	8:W:302:ATP:O2G	2.47	0.48
3:d:54:DC:H2'	3:d:55:DA:O4'	2.14	0.48
1:D:123:VAL:HG13	1:D:143:PHE:HE2	1.79	0.48
2:G:138:VAL:HG11	2:G:177:SER:HB3	1.96	0.48
2:O:115:ALA:HB2	2:O:197:THR:HG21	1.95	0.48
2:S:39:LEU:CD1	2:T:17:MET:HE2	2.44	0.48
2:V:89:LEU:HD22	2:V:101:ILE:HD13	1.96	0.48
1:A:10:ILE:HG12	1:A:27:LEU:HD12	1.96	0.47
2:V:20:ARG:NH2	2:V:49:GLU:OE2	2.47	0.47
2:W:14:LEU:HD22	2:W:46:GLU:OE2	2.13	0.47
2:E:176:ASN:O	2:E:179:HIS:ND1	2.43	0.47
2:M:8:TYR:OH	2:N:44:GLU:OE2	2.31	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:342:LEU:N	1:C:342:LEU:HD12	2.30	0.47
1:D:75:SER:CB	1:D:95:LYS:HA	2.44	0.47
2:H:39:LEU:HA	2:H:42:LEU:HD12	1.95	0.47
2:O:59:ILE:HD13	2:O:120:MET:SD	2.54	0.47
2:R:39:LEU:HA	2:R:42:LEU:HD12	1.95	0.47
1:B:30:ASP:OD1	1:B:31:ARG:N	2.48	0.47
2:L:89:LEU:HD22	2:L:101:ILE:HD13	1.96	0.47
2:Q:176:ASN:O	2:Q:179:HIS:ND1	2.47	0.47
2:R:188:ARG:NH2	2:R:193:PRO:O	2.39	0.47
2:T:90:LEU:HD23	2:T:118:ILE:HG12	1.97	0.47
2:G:24:MET:SD	2:G:42:LEU:HD23	2.55	0.47
2:M:237:ARG:NH1	8:M:302:ATP:O2G	2.47	0.47
2:R:92:LEU:HD12	2:R:125:ARG:HD3	1.96	0.47
2:V:4:ARG:NH2	2:V:8:TYR:OH	2.46	0.47
2:W:141:LEU:HD11	2:W:184:VAL:HG21	1.96	0.47
2:X:166:ASP:OD1	2:X:167:GLN:N	2.45	0.47
1:C:168:GLU:HB2	1:C:298:THR:HG21	1.95	0.47
1:D:123:VAL:O	1:D:222:ARG:NH2	2.47	0.47
1:D:342:LEU:HD12	1:D:342:LEU:N	2.30	0.47
2:H:92:LEU:HD12	2:H:125:ARG:HD3	1.96	0.47
2:K:200:LYS:HG3	2:K:208:ILE:HD11	1.96	0.47
2:R:64:LEU:HD11	2:R:123:ILE:CD1	2.44	0.47
1:C:123:VAL:O	1:C:222:ARG:NH2	2.48	0.47
1:C:150:SER:N	1:C:286:GLU:OE2	2.44	0.47
2:E:189:TYR:OH	2:E:224:HIS:ND1	2.42	0.47
2:J:17:MET:CE	2:J:42:LEU:HD13	2.45	0.47
2:K:158:VAL:HG21	2:K:187:ARG:HB3	1.97	0.47
2:N:166:ASP:OD1	2:N:167:GLN:N	2.45	0.47
2:Q:138:VAL:HG11	2:Q:177:SER:HB3	1.96	0.47
2:W:158:VAL:HG21	2:W:187:ARG:HB3	1.97	0.47
1:B:10:ILE:HG12	1:B:27:LEU:HD12	1.96	0.47
2:I:108:GLY:N	8:I:302:ATP:O1B	2.48	0.47
2:S:108:GLY:N	8:S:302:ATP:O1B	2.48	0.47
2:U:70:ILE:HG21	2:U:90:LEU:HD11	1.97	0.47
2:V:89:LEU:HD22	2:V:101:ILE:CD1	2.45	0.47
3:a:60:DC:C2	3:a:61:DA:N7	2.83	0.47
3:d:75:DA:C2	5:f:57:DA:C2	3.03	0.47
1:D:96:ASP:O	1:D:99:LYS:N	2.46	0.47
2:H:38:PHE:CE2	2:H:42:LEU:HD11	2.50	0.47
2:J:81:VAL:HG12	2:J:231:LEU:HD22	1.97	0.47
2:J:90:LEU:HD23	2:J:118:ILE:HG12	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:9:CYS:SG	2:L:18:ALA:HB2	2.55	0.47
2:L:101:ILE:C	2:L:102:LEU:HD23	2.40	0.47
2:L:154:LEU:O	2:L:158:VAL:HG23	2.15	0.47
2:M:37:GLU:OE2	2:M:41:ARG:NH2	2.47	0.47
3:a:117:DC:H2'	3:a:118:DT:H72	1.96	0.47
3:d:101:DA:H2'	3:d:102:DT:H71	1.96	0.47
2:Q:20:ARG:NH2	2:Q:49:GLU:OE2	2.46	0.47
2:Q:174:ASP:OD1	2:Q:177:SER:OG	2.34	0.47
3:d:60:DC:C2	3:d:61:DA:N7	2.83	0.47
4:e:4:DC:H2'	4:e:5:DA:C8	2.50	0.47
1:C:75:SER:CB	1:C:95:LYS:HA	2.44	0.46
1:C:123:VAL:HG13	1:C:143:PHE:HE2	1.79	0.46
2:M:141:LEU:HD11	2:M:184:VAL:HG21	1.96	0.46
2:M:211:ASP:OD1	2:M:213:VAL:HG22	2.16	0.46
2:X:20:ARG:NE	2:X:46:GLU:OE1	2.34	0.46
1:A:30:ASP:OD1	1:A:31:ARG:N	2.48	0.46
2:G:174:ASP:OD1	2:G:177:SER:OG	2.33	0.46
2:U:200:LYS:HG3	2:U:208:ILE:HD11	1.96	0.46
2:V:241:LYS:NZ	2:V:245:GLU:OE2	2.46	0.46
2:E:92:LEU:HD12	2:E:125:ARG:HD3	1.97	0.46
2:E:174:ASP:OD2	2:E:176:ASN:ND2	2.49	0.46
2:L:89:LEU:HD22	2:L:101:ILE:CD1	2.45	0.46
2:N:144:ALA:HB1	2:N:150:LEU:HA	1.97	0.46
2:O:174:ASP:OD2	2:O:176:ASN:ND2	2.49	0.46
2:Q:24:MET:SD	2:Q:42:LEU:HD23	2.55	0.46
2:X:144:ALA:HB1	2:X:150:LEU:HA	1.97	0.46
2:N:20:ARG:NH1	2:N:42:LEU:HB3	2.30	0.46
2:U:158:VAL:HG21	2:U:187:ARG:HB3	1.97	0.46
2:X:20:ARG:NH1	2:X:42:LEU:HB3	2.30	0.46
3:a:75:DA:C2	5:c:57:DA:C2	3.03	0.46
2:M:158:VAL:HG21	2:M:187:ARG:HB3	1.97	0.46
2:W:37:GLU:OE2	2:W:41:ARG:NH2	2.47	0.46
2:K:70:ILE:HG21	2:K:90:LEU:HD11	1.97	0.46
1:C:63:LEU:HD22	1:C:78:LEU:HB3	1.98	0.46
2:G:188:ARG:NH2	2:G:193:PRO:O	2.45	0.46
2:U:4:ARG:NH2	2:U:8:TYR:OH	2.48	0.46
1:A:167:MET:O	1:A:171:ILE:HG12	2.16	0.46
1:C:245:VAL:HG22	1:C:245:VAL:O	2.16	0.46
2:K:4:ARG:NH2	2:K:8:TYR:OH	2.48	0.46
2:K:14:LEU:HD11	2:L:14:LEU:HD11	1.98	0.46
2:K:16:VAL:O	2:K:20:ARG:HG2	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:R:38:PHE:CE2	2:R:42:LEU:HD11	2.50	0.46
2:T:81:VAL:HG12	2:T:231:LEU:HD22	1.97	0.46
2:U:14:LEU:HD11	2:V:14:LEU:HD11	1.98	0.46
2:V:9:CYS:SG	2:V:18:ALA:HB2	2.55	0.46
2:V:101:ILE:C	2:V:102:LEU:HD23	2.40	0.46
3:d:42:DA:H2"	3:d:43:DA:C8	2.50	0.46
1:B:22:ASP:OD1	1:B:22:ASP:N	2.46	0.46
2:J:170:TYR:OH	8:J:302:ATP:O1G	2.34	0.46
2:O:90:LEU:HD22	2:O:121:GLU:HG3	1.98	0.46
4:b:4:DC:H2'	4:b:5:DA:C8	2.50	0.46
1:A:192:VAL:HG13	1:A:207:PHE:CE2	2.51	0.46
1:A:320:LEU:C	1:A:320:LEU:HD13	2.41	0.46
1:D:225:ARG:CZ	4:b:26:DT:H5"	2.46	0.46
2:E:90:LEU:HD22	2:E:121:GLU:HG3	1.98	0.46
2:M:20:ARG:NH2	2:M:49:GLU:OE2	2.49	0.46
2:Q:38:PHE:CE1	2:Q:42:LEU:HD21	2.51	0.46
2:V:154:LEU:O	2:V:158:VAL:HG23	2.15	0.46
4:e:27:DC:H2"	4:e:28:DC:C6	2.51	0.46
1:C:52:ARG:NH2	4:e:44:DT:O2	2.49	0.45
2:W:211:ASP:OD1	2:W:213:VAL:HG22	2.16	0.45
2:X:17:MET:HA	2:X:20:ARG:NE	2.31	0.45
1:B:320:LEU:HD13	1:B:320:LEU:C	2.41	0.45
2:G:20:ARG:NH2	2:G:49:GLU:OE2	2.46	0.45
2:J:153:LYS:HA	2:J:156:VAL:HG12	1.98	0.45
2:W:20:ARG:NH2	2:W:49:GLU:OE2	2.49	0.45
3:d:56:DG:H2'	3:d:57:DC:C6	2.51	0.45
1:A:22:ASP:OD1	1:A:22:ASP:N	2.46	0.45
2:N:17:MET:HA	2:N:20:ARG:NE	2.31	0.45
2:O:189:TYR:OH	2:O:224:HIS:ND1	2.42	0.45
3:a:42:DA:H2"	3:a:43:DA:C8	2.51	0.45
2:T:44:GLU:O	2:T:48:VAL:HG23	2.16	0.45
2:U:16:VAL:O	2:U:20:ARG:HG2	2.16	0.45
2:V:90:LEU:HD22	2:V:121:GLU:CD	2.42	0.45
3:a:47:DG:H2"	3:a:48:DC:C5	2.51	0.45
3:a:56:DG:H2'	3:a:57:DC:C6	2.51	0.45
1:D:63:LEU:HD22	1:D:78:LEU:HB3	1.98	0.45
1:D:122:GLN:HB2	1:D:146:THR:HB	1.99	0.45
1:D:245:VAL:HG22	1:D:245:VAL:O	2.16	0.45
2:J:44:GLU:O	2:J:48:VAL:HG23	2.16	0.45
2:O:196:LEU:HD22	2:O:222:LEU:HD21	1.99	0.45
2:T:174:ASP:O	2:T:177:SER:OG	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:W:20:ARG:HD3	2:W:45:ALA:HB1	1.98	0.45
4:b:52:DC:H2"	4:b:53:DC:C5	2.52	0.45
5:c:14:DG:H2"	5:c:15:DT:H72	1.98	0.45
3:d:87:DC:H2"	3:d:88:DA:C8	2.52	0.45
1:C:99:LYS:HG2	4:e:37:DG:H3'	1.98	0.45
1:D:55:LYS:HG2	3:a:19:DA:P	2.57	0.45
2:E:196:LEU:HD21	2:E:205:TRP:CH2	2.51	0.45
2:F:214:LEU:HD13	2:M:213:VAL:HG21	1.99	0.45
2:O:92:LEU:HD12	2:O:125:ARG:HD3	1.97	0.45
2:P:214:LEU:HD13	2:W:213:VAL:HG21	1.99	0.45
5:c:27:DT:C2'	5:c:28:DT:H71	2.43	0.45
2:K:35:TYR:OH	2:L:33:ILE:O	2.21	0.45
2:M:20:ARG:HD3	2:M:45:ALA:HB1	1.98	0.45
3:a:20:DC:H2"	3:a:21:DC:C6	2.52	0.45
3:a:87:DC:H2"	3:a:88:DA:C8	2.52	0.45
1:A:171:ILE:HD11	1:A:210:PHE:HE1	1.82	0.45
1:B:174:PHE:HB3	1:B:291:LEU:HD21	1.99	0.45
1:C:122:GLN:HB2	1:C:146:THR:HB	1.99	0.45
2:F:200:LYS:HG3	2:F:208:ILE:HD11	1.98	0.45
2:G:38:PHE:CE1	2:G:42:LEU:HD21	2.51	0.45
2:K:151:GLU:OE1	2:K:151:GLU:N	2.42	0.45
2:O:196:LEU:HD21	2:O:205:TRP:CH2	2.51	0.45
4:b:49:DT:C2'	4:b:50:DT:H71	2.47	0.45
3:d:94:DA:H2'	3:d:95:DT:H72	1.98	0.45
1:A:174:PHE:HB3	1:A:291:LEU:HD21	1.99	0.45
2:I:12:LEU:HD12	2:J:14:LEU:CD2	2.47	0.45
2:V:228:ILE:HG22	2:V:230:ASN:OD1	2.17	0.45
3:a:94:DA:H2'	3:a:95:DT:H72	1.98	0.45
2:S:8:TYR:CG	2:T:47:ILE:HG13	2.52	0.45
2:S:20:ARG:HD3	2:S:45:ALA:HB1	1.99	0.45
2:X:20:ARG:NE	2:X:46:GLU:HB2	2.32	0.45
3:d:25:DG:N2	4:e:37:DG:C2	2.85	0.45
3:d:47:DG:H2"	3:d:48:DC:C5	2.52	0.45
1:A:112:ARG:CD	4:e:8:DT:OP2	2.65	0.44
1:C:121:MET:CE	1:C:170:LEU:HD22	2.48	0.44
1:C:298:THR:O	1:C:298:THR:HG22	2.17	0.44
2:L:90:LEU:HD22	2:L:121:GLU:CD	2.42	0.44
2:L:228:ILE:HG22	2:L:230:ASN:OD1	2.17	0.44
2:P:200:LYS:HG3	2:P:208:ILE:HD11	1.98	0.44
2:Q:174:ASP:N	2:Q:177:SER:OG	2.50	0.44
2:Q:188:ARG:NH2	2:Q:193:PRO:O	2.45	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:X:153:LYS:HA	2:X:156:VAL:HG12	1.99	0.44
3:a:43:DA:H2"	3:a:44:DT:C6	2.52	0.44
3:d:43:DA:H2"	3:d:44:DT:C6	2.52	0.44
2:I:144:ALA:HB1	2:I:150:LEU:HA	2.00	0.44
3:d:88:DA:H2"	3:d:89:DT:C6	2.53	0.44
1:B:167:MET:O	1:B:171:ILE:HG12	2.16	0.44
1:B:192:VAL:HG13	1:B:207:PHE:CE2	2.51	0.44
2:E:196:LEU:HD22	2:E:222:LEU:HD21	1.99	0.44
2:G:174:ASP:N	2:G:177:SER:OG	2.50	0.44
2:N:44:GLU:O	2:N:48:VAL:HG23	2.18	0.44
2:S:144:ALA:HB1	2:S:150:LEU:HA	1.99	0.44
4:b:27:DC:H2"	4:b:28:DC:C6	2.52	0.44
4:e:52:DC:H2"	4:e:53:DC:C5	2.52	0.44
1:D:265:GLN:HG2	1:D:266:VAL:HG13	1.99	0.44
2:I:171:LEU:HD23	2:I:172:LYS:O	2.17	0.44
2:S:171:LEU:HD23	2:S:172:LYS:O	2.17	0.44
2:V:20:ARG:HD3	2:V:45:ALA:HB1	2.00	0.44
3:d:20:DC:H2"	3:d:21:DC:C6	2.52	0.44
1:B:39:HIS:O	1:B:39:HIS:ND1	2.50	0.44
1:C:265:GLN:HG2	1:C:266:VAL:HG13	1.99	0.44
1:C:298:THR:HG22	1:C:336:LEU:HD13	2.00	0.44
2:S:12:LEU:HD12	2:T:14:LEU:CD2	2.47	0.44
2:W:21:TRP:CD2	2:X:39:LEU:HD21	2.52	0.44
5:c:24:DG:H2"	5:c:25:DT:H72	2.00	0.44
3:d:41:DT:H2"	3:d:42:DA:C8	2.52	0.44
1:B:164:GLU:OE2	1:B:206:ARG:NH1	2.49	0.44
1:D:121:MET:CE	1:D:170:LEU:HD22	2.48	0.44
1:D:298:THR:O	1:D:298:THR:HG22	2.18	0.44
2:G:154:LEU:O	2:G:158:VAL:HG23	2.18	0.44
2:T:17:MET:CE	2:T:42:LEU:HD13	2.45	0.44
1:B:112:ARG:CD	4:b:8:DT:OP2	2.65	0.44
1:B:171:ILE:HD11	1:B:210:PHE:HE1	1.82	0.44
2:I:8:TYR:CG	2:J:47:ILE:HG13	2.52	0.44
2:K:188:ARG:NH2	2:K:193:PRO:O	2.49	0.44
2:N:20:ARG:NE	2:N:46:GLU:HB2	2.33	0.44
2:N:153:LYS:HA	2:N:156:VAL:HG12	1.99	0.44
2:T:170:TYR:OH	8:T:302:ATP:O1G	2.34	0.44
3:a:25:DG:N2	4:b:37:DG:C2	2.86	0.44
3:d:48:DC:H2"	3:d:49:DC:C6	2.53	0.44
4:e:3:DT:O2	4:e:4:DC:C6	2.71	0.44
1:B:185:LEU:HD21	1:B:221:CYS:SG	2.58	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:64:GLN:HA	1:C:67:MET:HE2	2.00	0.44
2:L:20:ARG:HD3	2:L:45:ALA:HB1	2.00	0.44
2:P:166:ASP:OD1	2:P:167:GLN:N	2.46	0.44
2:Q:154:LEU:O	2:Q:158:VAL:HG23	2.18	0.44
2:V:27:TYR:O	2:V:30:THR:OG1	2.34	0.44
2:X:44:GLU:O	2:X:48:VAL:HG23	2.18	0.44
3:a:88:DA:H2"	3:a:89:DT:C6	2.53	0.44
4:b:3:DT:O2	4:b:4:DC:C6	2.71	0.44
2:O:116:ILE:O	2:O:120:MET:HG2	2.18	0.44
2:U:141:LEU:HD13	2:U:180:TYR:HB3	2.00	0.44
2:V:171:LEU:HD23	2:V:172:LYS:O	2.18	0.44
2:W:20:ARG:HE	2:W:49:GLU:HG3	1.83	0.44
1:D:99:LYS:O	1:D:100:PRO:C	2.60	0.43
1:D:99:LYS:HB3	1:D:100:PRO:HD3	2.00	0.43
1:D:298:THR:HG22	1:D:336:LEU:HD13	2.00	0.43
2:K:70:ILE:HG21	2:K:90:LEU:CD1	2.48	0.43
2:N:171:LEU:HD23	2:N:172:LYS:O	2.18	0.43
2:Q:20:ARG:CD	2:Q:45:ALA:HB1	2.48	0.43
2:Q:64:LEU:HD22	2:Q:116:ILE:HG23	2.00	0.43
2:U:70:ILE:HG21	2:U:90:LEU:CD1	2.48	0.43
3:a:41:DT:H2"	3:a:42:DA:C8	2.52	0.43
1:A:4:ARG:HE	1:A:43:PRO:HG2	1.83	0.43
1:A:185:LEU:HD21	1:A:221:CYS:SG	2.58	0.43
2:M:101:ILE:O	2:M:102:LEU:HD23	2.18	0.43
2:X:171:LEU:HD23	2:X:172:LYS:O	2.18	0.43
3:a:16:DT:H2"	3:a:17:DA:C8	2.53	0.43
1:A:171:ILE:HD12	1:A:214:TYR:CZ	2.53	0.43
1:B:171:ILE:HD12	1:B:214:TYR:CZ	2.53	0.43
1:C:162:ASP:OD1	1:C:162:ASP:N	2.52	0.43
2:L:171:LEU:HD23	2:L:172:LYS:O	2.18	0.43
2:O:81:VAL:HG11	2:O:231:LEU:HD23	2.00	0.43
2:Q:81:VAL:HG12	2:Q:231:LEU:CD2	2.49	0.43
2:T:153:LYS:HA	2:T:156:VAL:HG12	1.98	0.43
1:B:4:ARG:HE	1:B:43:PRO:HG2	1.83	0.43
1:C:131:VAL:HG12	1:C:132:VAL:H	1.84	0.43
1:D:248:ALA:CB	1:D:258:LEU:HD12	2.48	0.43
2:G:20:ARG:CD	2:G:45:ALA:HB1	2.48	0.43
2:H:209:VAL:HG11	2:H:218:MET:HE1	2.00	0.43
2:T:86:ILE:HD12	2:T:114:LEU:HD13	2.01	0.43
2:V:81:VAL:HG12	2:V:231:LEU:HD22	2.01	0.43
3:a:38:DA:H2"	3:a:39:DA:C8	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:a:48:DC:H2"	3:a:49:DC:C6	2.53	0.43
3:d:40:DA:H2"	3:d:41:DT:C6	2.53	0.43
1:C:92:THR:CB	3:d:22:DG:O6	2.66	0.43
1:C:99:LYS:O	1:C:100:PRO:C	2.60	0.43
1:D:52:ARG:NH2	4:b:44:DT:O2	2.52	0.43
2:E:116:ILE:O	2:E:120:MET:HG2	2.18	0.43
2:G:21:TRP:HZ2	2:H:36:SER:HA	1.84	0.43
2:I:12:LEU:HD23	2:J:47:ILE:CD1	2.49	0.43
2:M:21:TRP:CD2	2:N:39:LEU:HD21	2.52	0.43
2:R:64:LEU:HD13	2:R:120:MET:SD	2.59	0.43
3:d:45:DC:H2"	3:d:46:DG:C8	2.54	0.43
4:e:49:DT:C2'	4:e:50:DT:H71	2.47	0.43
1:A:39:HIS:O	1:A:39:HIS:ND1	2.50	0.43
1:A:164:GLU:OE2	1:A:206:ARG:NH1	2.49	0.43
2:H:64:LEU:HD13	2:H:120:MET:SD	2.59	0.43
2:J:86:ILE:HD12	2:J:114:LEU:HD13	2.01	0.43
2:E:64:LEU:HD23	2:E:131:PHE:HB2	2.00	0.43
2:I:20:ARG:HD3	2:I:45:ALA:HB1	1.99	0.43
2:J:145:ASP:OD1	2:J:150:LEU:HD13	2.19	0.43
2:L:81:VAL:HG12	2:L:231:LEU:HD22	2.01	0.43
2:X:20:ARG:HD2	2:X:42:LEU:O	2.19	0.43
4:b:3:DT:C2	4:b:4:DC:C5	3.07	0.43
5:f:14:DG:H2"	5:f:15:DT:H72	1.98	0.43
2:R:155:ARG:HH12	3:d:80:DG:C5'	2.32	0.43
5:c:23:DA:H2"	5:c:24:DG:C8	2.54	0.43
3:d:42:DA:C2	4:e:20:DA:C2	3.07	0.43
1:C:121:MET:O	1:C:122:GLN:C	2.62	0.43
1:D:10:ILE:HG21	1:D:34:VAL:HG13	2.01	0.43
2:T:145:ASP:OD1	2:T:150:LEU:HD13	2.19	0.43
2:W:154:LEU:O	2:W:158:VAL:HG23	2.19	0.43
3:a:28:DT:H2"	3:a:29:DT:C6	2.54	0.43
3:a:40:DA:H2"	3:a:41:DT:C6	2.53	0.43
3:d:16:DT:H2"	3:d:17:DA:C8	2.53	0.43
4:e:3:DT:C2	4:e:4:DC:C5	3.07	0.43
1:C:10:ILE:HG21	1:C:34:VAL:HG13	2.01	0.43
1:D:64:GLN:HA	1:D:67:MET:HE2	2.00	0.43
1:D:162:ASP:OD1	1:D:162:ASP:N	2.52	0.43
2:H:78:GLN:O	2:H:81:VAL:HG22	2.19	0.43
2:H:103:PHE:HD2	2:H:197:THR:HG22	1.84	0.43
2:P:74:ASP:OD1	2:P:75:PHE:N	2.52	0.43
2:T:228:ILE:HD12	2:T:228:ILE:N	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:W:101:ILE:O	2:W:102:LEU:HD23	2.18	0.43
5:c:26:DG:C8	5:c:27:DT:H72	2.54	0.43
3:d:28:DT:H2"	3:d:29:DT:C6	2.53	0.43
5:f:23:DA:H2"	5:f:24:DG:C8	2.54	0.43
1:C:248:ALA:CB	1:C:258:LEU:HD12	2.48	0.42
2:F:178:ALA:HB2	2:F:209:VAL:HB	2.01	0.42
2:L:153:LYS:HA	2:L:156:VAL:HG12	2.01	0.42
2:M:39:LEU:HD11	2:N:17:MET:CE	2.43	0.42
2:P:176:ASN:HA	2:P:179:HIS:CD2	2.54	0.42
2:V:153:LYS:HA	2:V:156:VAL:HG12	2.01	0.42
5:f:24:DG:H2"	5:f:25:DT:H72	2.00	0.42
2:G:81:VAL:HG12	2:G:231:LEU:CD2	2.49	0.42
2:H:44:GLU:O	2:H:48:VAL:HG23	2.19	0.42
2:J:154:LEU:O	2:J:158:VAL:HG23	2.19	0.42
2:K:141:LEU:HD13	2:K:180:TYR:HB3	2.00	0.42
2:M:20:ARG:HE	2:M:49:GLU:HG3	1.83	0.42
2:N:20:ARG:HD2	2:N:42:LEU:O	2.19	0.42
2:O:134:ALA:HB3	2:O:168:MET:HA	2.00	0.42
2:T:154:LEU:O	2:T:158:VAL:HG23	2.19	0.42
3:a:45:DC:H2"	3:a:46:DG:C8	2.54	0.42
1:A:67:MET:HE2	1:A:98:MET:SD	2.59	0.42
1:A:171:ILE:HD11	1:A:210:PHE:CE1	2.54	0.42
2:M:154:LEU:O	2:M:158:VAL:HG23	2.19	0.42
2:R:44:GLU:O	2:R:48:VAL:HG23	2.19	0.42
2:S:12:LEU:HD23	2:T:47:ILE:CD1	2.49	0.42
1:C:10:ILE:CG2	1:C:34:VAL:HG13	2.50	0.42
1:D:99:LYS:HG2	4:b:37:DG:H3'	2.01	0.42
1:D:121:MET:O	1:D:122:GLN:C	2.62	0.42
2:F:74:ASP:OD1	2:F:75:PHE:N	2.52	0.42
2:G:64:LEU:HD22	2:G:116:ILE:HG23	2.00	0.42
2:H:155:ARG:HH12	3:a:80:DG:C5'	2.32	0.42
2:I:12:LEU:HD23	2:J:47:ILE:HD11	2.02	0.42
2:R:109:ILE:N	8:R:302:ATP:O1B	2.53	0.42
5:f:26:DG:C8	5:f:27:DT:H72	2.54	0.42
1:D:92:THR:HG21	3:a:23:DG:O6	2.18	0.42
2:E:81:VAL:HG11	2:E:231:LEU:HD23	2.00	0.42
2:E:134:ALA:HB3	2:E:168:MET:HA	2.00	0.42
2:I:154:LEU:O	2:I:158:VAL:HG23	2.19	0.42
2:R:78:GLN:O	2:R:81:VAL:HG22	2.19	0.42
2:S:154:LEU:O	2:S:158:VAL:HG23	2.19	0.42
1:C:237:GLN:OE1	1:C:238:TYR:N	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:R:103:PHE:HD2	2:R:197:THR:HG22	1.83	0.42
2:R:209:VAL:HG11	2:R:218:MET:HE1	2.00	0.42
5:f:20:DC:H2"	5:f:21:DG:C8	2.55	0.42
1:B:171:ILE:HD11	1:B:210:PHE:CE1	2.54	0.42
1:D:10:ILE:CG2	1:D:34:VAL:HG13	2.50	0.42
2:F:176:ASN:HA	2:F:179:HIS:CD2	2.54	0.42
2:G:200:LYS:HG3	2:G:208:ILE:HD11	2.02	0.42
2:H:74:ASP:N	8:H:302:ATP:HN62	2.17	0.42
2:O:64:LEU:HD23	2:O:131:PHE:HB2	2.00	0.42
2:O:102:LEU:HD11	2:O:223:LEU:HD23	2.01	0.42
3:a:52:DG:H2"	3:a:53:DA:C8	2.54	0.42
3:a:83:DC:C2'	3:a:84:DT:H71	2.50	0.42
3:d:23:DG:H2"	3:d:24:DC:C6	2.55	0.42
1:C:99:LYS:HB3	1:C:100:PRO:HD3	2.00	0.42
2:M:21:TRP:CE3	2:M:21:TRP:C	2.97	0.42
2:P:178:ALA:HB2	2:P:209:VAL:HB	2.01	0.42
2:Q:21:TRP:HZ2	2:R:36:SER:HA	1.84	0.42
2:S:200:LYS:HG3	2:S:208:ILE:HD11	2.02	0.42
2:W:21:TRP:CE3	2:W:21:TRP:C	2.97	0.42
3:d:38:DA:H2"	3:d:39:DA:C8	2.54	0.42
1:B:67:MET:HE2	1:B:98:MET:SD	2.59	0.42
2:U:228:ILE:HG22	2:U:230:ASN:OD1	2.20	0.42
2:X:169:GLY:O	2:X:200:LYS:NZ	2.51	0.42
3:d:22:DG:C2	4:e:40:DG:C2	3.08	0.42
2:E:154:LEU:HD21	2:E:187:ARG:HE	1.85	0.42
2:H:109:ILE:N	8:H:302:ATP:O1B	2.53	0.42
2:I:200:LYS:HG3	2:I:208:ILE:HD11	2.02	0.42
2:N:169:GLY:O	2:N:200:LYS:NZ	2.51	0.42
2:O:154:LEU:HD21	2:O:187:ARG:HE	1.85	0.42
2:Q:14:LEU:HD11	2:R:14:LEU:HD11	2.02	0.42
2:Q:200:LYS:HG3	2:Q:208:ILE:HD11	2.02	0.42
1:C:93:ILE:HD12	3:d:20:DC:C5	2.55	0.41
2:H:240:GLU:OE1	2:J:224:HIS:NE2	2.46	0.41
2:J:228:ILE:HD12	2:J:228:ILE:N	2.34	0.41
2:R:144:ALA:HB2	2:R:153:LYS:HG3	2.02	0.41
2:V:44:GLU:O	2:V:48:VAL:HG23	2.20	0.41
3:a:22:DG:C2	4:b:40:DG:C2	3.08	0.41
3:a:42:DA:C2	4:b:20:DA:C2	3.08	0.41
3:d:52:DG:H2"	3:d:53:DA:C8	2.54	0.41
2:L:44:GLU:O	2:L:48:VAL:HG23	2.20	0.41
2:O:202:PHE:HA	2:O:205:TRP:CD1	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:O:205:TRP:O	2:O:209:VAL:HG22	2.20	0.41
2:P:144:ALA:HB2	2:P:153:LYS:HG3	2.02	0.41
2:U:153:LYS:HA	2:U:156:VAL:HG12	2.02	0.41
2:X:237:ARG:NH1	8:X:302:ATP:O2G	2.52	0.41
3:a:51:DT:H2"	3:a:52:DG:N7	2.34	0.41
4:b:25:DT:H2"	4:b:26:DT:H71	2.02	0.41
3:d:31:DG:H2"	3:d:32:DG:C8	2.55	0.41
1:A:190:LYS:HG3	3:a:63:DA:C2	2.55	0.41
1:D:131:VAL:HG12	1:D:132:VAL:H	1.84	0.41
1:D:342:LEU:CB	1:D:349:ILE:HD11	2.50	0.41
3:a:39:DA:H2"	3:a:40:DA:C8	2.55	0.41
5:c:59:DT:C2'	5:c:60:DT:H71	2.49	0.41
4:e:25:DT:H2"	4:e:26:DT:H71	2.02	0.41
1:D:94:LEU:N	1:D:94:LEU:CD2	2.83	0.41
2:E:205:TRP:O	2:E:209:VAL:HG22	2.20	0.41
2:R:172:LYS:C	2:R:173:LEU:HD12	2.46	0.41
2:U:78:GLN:O	2:U:81:VAL:HG22	2.21	0.41
3:a:23:DG:H2"	3:a:24:DC:C6	2.55	0.41
3:d:51:DT:H2"	3:d:52:DG:N7	2.34	0.41
3:d:117:DC:C2'	3:d:118:DT:H71	2.51	0.41
1:A:274:THR:O	1:C:360:SER:OG	2.38	0.41
1:D:310:GLY:O	1:D:321:LEU:N	2.46	0.41
2:G:172:LYS:C	2:G:173:LEU:HD12	2.45	0.41
2:K:78:GLN:O	2:K:81:VAL:HG22	2.21	0.41
2:Q:241:LYS:NZ	2:Q:245:GLU:OE2	2.53	0.41
5:c:20:DC:H2"	5:c:21:DG:C8	2.55	0.41
5:c:36:DA:H2"	5:c:37:DT:C7	2.51	0.41
1:D:237:GLN:OE1	1:D:238:TYR:N	2.53	0.41
2:E:56:GLN:O	2:E:59:ILE:HG22	2.21	0.41
2:G:90:LEU:HD22	2:G:121:GLU:OE2	2.21	0.41
2:G:116:ILE:O	2:G:120:MET:HG2	2.21	0.41
2:G:241:LYS:NZ	2:G:245:GLU:OE2	2.53	0.41
2:H:144:ALA:HB2	2:H:153:LYS:HG3	2.02	0.41
2:M:112:THR:HG22	2:M:116:ILE:CD1	2.50	0.41
2:R:74:ASP:N	8:R:302:ATP:HN62	2.17	0.41
3:a:31:DG:H2"	3:a:32:DG:C8	2.55	0.41
1:B:274:THR:O	1:D:360:SER:OG	2.38	0.41
2:E:102:LEU:HD11	2:E:223:LEU:HD23	2.01	0.41
2:I:78:GLN:CG	2:I:81:VAL:HG13	2.51	0.41
2:K:228:ILE:HG22	2:K:230:ASN:OD1	2.20	0.41
2:X:188:ARG:NH2	2:X:193:PRO:O	2.48	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:d:83:DC:C2'	3:d:84:DT:H71	2.50	0.41
1:C:96:ASP:O	1:C:99:LYS:N	2.46	0.41
1:C:342:LEU:CB	1:C:349:ILE:HD11	2.50	0.41
2:F:144:ALA:HB2	2:F:153:LYS:HG3	2.02	0.41
2:H:172:LYS:C	2:H:173:LEU:HD12	2.46	0.41
2:Q:158:VAL:HG21	2:Q:187:ARG:HB3	2.03	0.41
3:d:39:DA:H2"	3:d:40:DA:C8	2.55	0.41
4:e:18:DT:H2"	4:e:19:DT:H72	2.02	0.41
1:A:167:MET:HE3	1:A:298:THR:HG23	2.03	0.41
1:C:55:LYS:HG2	3:d:19:DA:P	2.60	0.41
1:D:361:PHE:CE1	1:D:365:ILE:HD11	2.56	0.41
2:G:174:ASP:HB2	2:G:175:PRO:HD2	2.03	0.41
2:J:59:ILE:HG21	2:J:67:ARG:HE	1.86	0.41
2:K:153:LYS:HA	2:K:156:VAL:HG12	2.02	0.41
2:Q:172:LYS:C	2:Q:173:LEU:HD12	2.45	0.41
2:S:78:GLN:CG	2:S:81:VAL:HG13	2.51	0.41
2:U:188:ARG:NH2	2:U:193:PRO:O	2.49	0.41
3:a:100:DG:H2"	3:a:101:DA:H8	1.85	0.41
4:b:24:DT:H2"	4:b:25:DT:H72	2.03	0.41
4:e:18:DT:C2'	4:e:19:DT:H72	2.51	0.41
4:e:26:DT:H2"	4:e:27:DC:C6	2.56	0.41
1:A:2:ILE:CD1	1:A:10:ILE:HD12	2.51	0.41
1:D:75:SER:OG	4:b:37:DG:OP2	2.33	0.41
2:E:202:PHE:HA	2:E:205:TRP:CD1	2.55	0.41
2:J:205:TRP:HA	2:J:208:ILE:HD12	2.03	0.41
2:O:56:GLN:O	2:O:59:ILE:HG22	2.21	0.41
2:R:168:MET:O	2:R:198:SER:OG	2.36	0.41
2:S:12:LEU:HD23	2:T:47:ILE:HD11	2.02	0.41
2:W:112:THR:HG22	2:W:116:ILE:CD1	2.50	0.41
3:a:9:DG:H2"	3:a:10:DG:C8	2.56	0.41
3:a:57:DC:H2'	3:a:58:DT:H72	2.03	0.41
3:d:100:DG:C2	5:f:32:DA:C2	3.09	0.41
3:d:100:DG:H2"	3:d:101:DA:H8	1.85	0.41
1:C:361:PHE:CE1	1:C:365:ILE:HD11	2.56	0.40
2:G:14:LEU:HD11	2:H:14:LEU:HD11	2.02	0.40
2:O:112:THR:OG1	2:O:166:ASP:OD2	2.24	0.40
2:Q:116:ILE:O	2:Q:120:MET:HG2	2.21	0.40
4:e:3:DT:H2"	4:e:4:DC:OP1	2.21	0.40
1:B:115:THR:OG1	1:B:119:GLU:OE1	2.39	0.40
1:C:235:ALA:HA	1:C:238:TYR:CE2	2.56	0.40
2:I:78:GLN:HG3	2:I:81:VAL:HG13	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:94:PHE:O	2:L:98:LYS:N	2.55	0.40
2:L:228:ILE:H	2:L:228:ILE:HD12	1.87	0.40
2:P:86:ILE:O	2:P:90:LEU:HG	2.21	0.40
2:V:95:ILE:HA	2:V:193:PRO:HG2	2.04	0.40
4:b:24:DT:H2"	4:b:25:DT:C7	2.51	0.40
3:d:117:DC:H2"	3:d:118:DT:H71	2.02	0.40
4:e:24:DT:H2"	4:e:25:DT:H72	2.03	0.40
5:f:36:DA:H2"	5:f:37:DT:C7	2.51	0.40
1:C:204:ASN:HB2	1:C:207:PHE:HB3	2.03	0.40
1:D:99:LYS:HB2	4:b:37:DG:H3'	2.03	0.40
1:D:235:ALA:HA	1:D:238:TYR:CE2	2.57	0.40
2:E:17:MET:HE3	2:E:42:LEU:HB3	2.04	0.40
2:N:9:CYS:O	2:N:14:LEU:N	2.52	0.40
2:S:78:GLN:HG3	2:S:81:VAL:HG13	2.03	0.40
2:W:39:LEU:HD11	2:X:17:MET:CE	2.43	0.40
4:b:26:DT:H2"	4:b:27:DC:C6	2.56	0.40
3:d:9:DG:H2"	3:d:10:DG:C8	2.56	0.40
4:e:24:DT:H2"	4:e:25:DT:C7	2.51	0.40
1:B:167:MET:HE3	1:B:298:THR:HG23	2.03	0.40
1:C:228:THR:HG22	1:C:228:THR:O	2.22	0.40
1:D:228:THR:HG22	1:D:228:THR:O	2.22	0.40
2:E:160:PRO:O	2:E:188:ARG:NH1	2.48	0.40
2:H:228:ILE:HD12	2:H:228:ILE:N	2.36	0.40
2:K:18:ALA:HA	2:K:21:TRP:CD1	2.57	0.40
3:a:100:DG:C2	5:c:32:DA:C2	3.09	0.40
4:b:18:DT:H2"	4:b:19:DT:H72	2.02	0.40
4:b:18:DT:C2'	4:b:19:DT:H72	2.51	0.40
5:c:45:DG:H2"	5:c:46:DC:C6	2.57	0.40
5:f:45:DG:H2"	5:f:46:DC:C6	2.57	0.40
1:A:115:THR:OG1	1:A:119:GLU:OE1	2.39	0.40
1:B:190:LYS:HG3	3:d:63:DA:C2	2.56	0.40
2:M:132:ILE:HD11	2:M:136:ASP:HB3	2.04	0.40
2:T:17:MET:N	2:T:46:GLU:OE1	2.54	0.40
2:U:171:LEU:HD23	2:U:172:LYS:O	2.22	0.40
5:f:33:DC:H2"	5:f:34:DT:H72	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	350/373 (94%)	339 (97%)	11 (3%)	0	100	100
1	B	350/373 (94%)	339 (97%)	11 (3%)	0	100	100
1	C	371/373 (100%)	343 (92%)	28 (8%)	0	100	100
1	D	371/373 (100%)	343 (92%)	28 (8%)	0	100	100
2	E	245/247 (99%)	239 (98%)	6 (2%)	0	100	100
2	F	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	G	245/247 (99%)	244 (100%)	1 (0%)	0	100	100
2	H	245/247 (99%)	245 (100%)	0	0	100	100
2	I	245/247 (99%)	245 (100%)	0	0	100	100
2	J	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	K	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	L	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	M	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	N	245/247 (99%)	242 (99%)	3 (1%)	0	100	100
2	O	245/247 (99%)	239 (98%)	6 (2%)	0	100	100
2	P	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	Q	245/247 (99%)	244 (100%)	1 (0%)	0	100	100
2	R	245/247 (99%)	245 (100%)	0	0	100	100
2	S	245/247 (99%)	245 (100%)	0	0	100	100
2	T	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	U	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	V	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	W	245/247 (99%)	243 (99%)	2 (1%)	0	100	100
2	X	245/247 (99%)	242 (99%)	3 (1%)	0	100	100
All	All	6342/6432 (99%)	6224 (98%)	118 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	314/334 (94%)	314 (100%)	0	100	100
1	B	314/334 (94%)	314 (100%)	0	100	100
1	C	334/334 (100%)	330 (99%)	4 (1%)	63	70
1	D	334/334 (100%)	330 (99%)	4 (1%)	63	70
2	E	219/219 (100%)	219 (100%)	0	100	100
2	F	219/219 (100%)	219 (100%)	0	100	100
2	G	219/219 (100%)	219 (100%)	0	100	100
2	H	219/219 (100%)	219 (100%)	0	100	100
2	I	219/219 (100%)	219 (100%)	0	100	100
2	J	219/219 (100%)	219 (100%)	0	100	100
2	K	219/219 (100%)	219 (100%)	0	100	100
2	L	219/219 (100%)	219 (100%)	0	100	100
2	M	219/219 (100%)	219 (100%)	0	100	100
2	N	219/219 (100%)	219 (100%)	0	100	100
2	O	219/219 (100%)	219 (100%)	0	100	100
2	P	219/219 (100%)	219 (100%)	0	100	100
2	Q	219/219 (100%)	219 (100%)	0	100	100
2	R	219/219 (100%)	219 (100%)	0	100	100
2	S	219/219 (100%)	219 (100%)	0	100	100
2	T	219/219 (100%)	219 (100%)	0	100	100
2	U	219/219 (100%)	219 (100%)	0	100	100
2	V	219/219 (100%)	219 (100%)	0	100	100
2	W	219/219 (100%)	219 (100%)	0	100	100
2	X	219/219 (100%)	219 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	5676/5716 (99%)	5668 (100%)	8 (0%)	87 87

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	75	SER
1	C	93	ILE
1	C	94	LEU
1	C	97	TYR
1	D	75	SER
1	D	93	ILE
1	D	94	LEU
1	D	97	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	84	GLN
1	C	198	GLN
1	C	354	GLN
1	D	84	GLN
1	D	198	GLN
1	D	354	GLN
2	E	230	ASN
2	F	31	HIS
2	F	183	GLN
2	G	135	HIS
2	K	183	GLN
2	L	113	HIS
2	P	31	HIS
2	P	183	GLN
2	V	113	HIS
2	W	225	HIS

5.3.3 RNA

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 40 ligands modelled in this entry, 20 are monoatomic - leaving 20 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	$\#\|Z\| > 2$
8	ATP	J	302	6	32,33,33	0.26	0	48,52,52	0.67	0
7	ADP	E	401	-	28,29,29	1.39	4 (14%)	43,45,45	1.91	9 (20%)
8	ATP	V	302	6	32,33,33	0.28	0	48,52,52	0.69	0
8	ATP	S	302	6	32,33,33	0.27	0	48,52,52	0.68	0
8	ATP	L	302	6	32,33,33	0.28	0	48,52,52	0.69	0
8	ATP	Q	302	6	32,33,33	0.30	0	48,52,52	0.69	0
8	ATP	T	302	6	32,33,33	0.26	0	48,52,52	0.67	0
8	ATP	G	302	6	32,33,33	0.30	0	48,52,52	0.69	0
8	ATP	X	302	6	32,33,33	0.26	0	48,52,52	0.66	0
7	ADP	O	401	-	28,29,29	1.39	4 (14%)	43,45,45	1.90	9 (20%)
8	ATP	K	302	6	32,33,33	0.26	0	48,52,52	0.66	0
8	ATP	U	302	6	32,33,33	0.26	0	48,52,52	0.66	0
8	ATP	P	302	6	32,33,33	0.42	0	48,52,52	0.70	0
8	ATP	F	302	6	32,33,33	0.43	0	48,52,52	0.69	0
8	ATP	M	302	6	32,33,33	0.26	0	48,52,52	0.66	0
8	ATP	W	302	6	32,33,33	0.26	0	48,52,52	0.67	0
8	ATP	N	302	6	32,33,33	0.26	0	48,52,52	0.66	0
8	ATP	R	302	6	32,33,33	0.27	0	48,52,52	0.66	0
8	ATP	H	302	6	32,33,33	0.27	0	48,52,52	0.66	0
8	ATP	I	302	6	32,33,33	0.26	0	48,52,52	0.68	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral

centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	ATP	J	302	6	-	1/22/38/38	0/3/3/3
7	ADP	E	401	-	-	1/16/32/32	0/3/3/3
8	ATP	V	302	6	-	5/22/38/38	0/3/3/3
8	ATP	S	302	6	-	5/22/38/38	0/3/3/3
8	ATP	L	302	6	-	5/22/38/38	0/3/3/3
8	ATP	Q	302	6	-	2/22/38/38	0/3/3/3
8	ATP	T	302	6	-	1/22/38/38	0/3/3/3
8	ATP	G	302	6	-	2/22/38/38	0/3/3/3
8	ATP	X	302	6	-	6/22/38/38	0/3/3/3
7	ADP	O	401	-	-	1/16/32/32	0/3/3/3
8	ATP	K	302	6	-	3/22/38/38	0/3/3/3
8	ATP	U	302	6	-	3/22/38/38	0/3/3/3
8	ATP	P	302	6	-	6/22/38/38	0/3/3/3
8	ATP	F	302	6	-	6/22/38/38	0/3/3/3
8	ATP	M	302	6	-	5/22/38/38	0/3/3/3
8	ATP	W	302	6	-	5/22/38/38	0/3/3/3
8	ATP	N	302	6	-	6/22/38/38	0/3/3/3
8	ATP	R	302	6	-	4/22/38/38	0/3/3/3
8	ATP	H	302	6	-	4/22/38/38	0/3/3/3
8	ATP	I	302	6	-	5/22/38/38	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	E	401	ADP	C5-C4	4.57	1.47	1.39
7	O	401	ADP	C5-C4	4.57	1.47	1.39
7	O	401	ADP	C5-C6	2.62	1.48	1.41
7	E	401	ADP	C5-C6	2.59	1.48	1.41
7	O	401	ADP	C5-N7	-2.45	1.34	1.39
7	E	401	ADP	C5-N7	-2.43	1.34	1.39
7	E	401	ADP	C8-N7	2.21	1.35	1.31
7	O	401	ADP	C8-N7	2.16	1.35	1.31

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	O	401	ADP	C5-C4-N3	-5.86	118.65	126.72
7	E	401	ADP	C5-C4-N3	-5.84	118.67	126.72
7	O	401	ADP	N3-C4-N9	5.02	135.70	127.17
7	E	401	ADP	N3-C4-N9	5.00	135.68	127.17
7	E	401	ADP	N3-C2-N1	-3.92	122.65	128.58
7	O	401	ADP	N3-C2-N1	-3.88	122.71	128.58
7	O	401	ADP	C2-N3-C4	3.85	121.24	111.83
7	E	401	ADP	C2-N3-C4	3.85	121.22	111.83
7	E	401	ADP	C4-N9-C8	3.15	109.05	105.74
7	E	401	ADP	C4-C5-N7	-3.11	107.02	110.58
7	O	401	ADP	C4-C5-N7	-3.10	107.04	110.58
7	O	401	ADP	C4-N9-C8	3.08	108.97	105.74
7	E	401	ADP	C5-N7-C8	2.66	107.63	103.45
7	O	401	ADP	C5-N7-C8	2.63	107.59	103.45
7	E	401	ADP	N9-C8-N7	-2.31	110.65	113.94
7	E	401	ADP	C2-N1-C6	2.29	122.50	118.73
7	O	401	ADP	C2-N1-C6	2.26	122.44	118.73
7	O	401	ADP	N9-C8-N7	-2.24	110.75	113.94

There are no chirality outliers.

All (76) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	F	302	ATP	PB-O3B-PG-O3G
8	F	302	ATP	C5'-O5'-PA-O3A
8	I	302	ATP	C5'-O5'-PA-O1A
8	I	302	ATP	C5'-O5'-PA-O2A
8	I	302	ATP	C5'-O5'-PA-O3A
8	K	302	ATP	PB-O3B-PG-O2G
8	L	302	ATP	C5'-O5'-PA-O3A
8	M	302	ATP	PB-O3B-PG-O2G
8	M	302	ATP	C5'-O5'-PA-O1A
8	M	302	ATP	C5'-O5'-PA-O2A
8	M	302	ATP	C5'-O5'-PA-O3A
8	N	302	ATP	PB-O3B-PG-O3G
8	N	302	ATP	C5'-O5'-PA-O2A
8	N	302	ATP	C5'-O5'-PA-O3A
8	P	302	ATP	PB-O3B-PG-O3G
8	P	302	ATP	C5'-O5'-PA-O3A
8	S	302	ATP	C5'-O5'-PA-O1A
8	S	302	ATP	C5'-O5'-PA-O2A
8	S	302	ATP	C5'-O5'-PA-O3A
8	U	302	ATP	PB-O3B-PG-O2G

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Mol	Chain	Res	Type	Atoms
8	V	302	ATP	C5'-O5'-PA-O3A
8	W	302	ATP	PB-O3B-PG-O2G
8	W	302	ATP	C5'-O5'-PA-O1A
8	W	302	ATP	C5'-O5'-PA-O2A
8	W	302	ATP	C5'-O5'-PA-O3A
8	X	302	ATP	PB-O3B-PG-O3G
8	X	302	ATP	C5'-O5'-PA-O2A
8	X	302	ATP	C5'-O5'-PA-O3A
8	H	302	ATP	C3'-C4'-C5'-O5'
8	R	302	ATP	C3'-C4'-C5'-O5'
8	H	302	ATP	O4'-C4'-C5'-O5'
8	I	302	ATP	O4'-C4'-C5'-O5'
8	I	302	ATP	C3'-C4'-C5'-O5'
8	R	302	ATP	O4'-C4'-C5'-O5'
8	S	302	ATP	O4'-C4'-C5'-O5'
8	S	302	ATP	C3'-C4'-C5'-O5'
8	K	302	ATP	C3'-C4'-C5'-O5'
8	U	302	ATP	C3'-C4'-C5'-O5'
8	L	302	ATP	PB-O3B-PG-O2G
8	V	302	ATP	PB-O3B-PG-O2G
8	H	302	ATP	PA-O3A-PB-O2B
8	N	302	ATP	PB-O3A-PA-O2A
8	R	302	ATP	PA-O3A-PB-O2B
8	X	302	ATP	PB-O3A-PA-O2A
7	E	401	ADP	C5'-O5'-PA-O1A
7	O	401	ADP	C5'-O5'-PA-O1A
8	F	302	ATP	C5'-O5'-PA-O1A
8	J	302	ATP	C5'-O5'-PA-O1A
8	L	302	ATP	C5'-O5'-PA-O1A
8	P	302	ATP	C5'-O5'-PA-O1A
8	T	302	ATP	C5'-O5'-PA-O1A
8	V	302	ATP	C5'-O5'-PA-O1A
8	F	302	ATP	C4'-C5'-O5'-PA
8	P	302	ATP	C4'-C5'-O5'-PA
8	L	302	ATP	O4'-C4'-C5'-O5'
8	F	302	ATP	PG-O3B-PB-O2B
8	G	302	ATP	PA-O3A-PB-O1B
8	G	302	ATP	PA-O3A-PB-O2B
8	P	302	ATP	PG-O3B-PB-O2B
8	Q	302	ATP	PA-O3A-PB-O1B
8	Q	302	ATP	PA-O3A-PB-O2B
8	V	302	ATP	O4'-C4'-C5'-O5'

Continued on next page...

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Mol	Chain	Res	Type	Atoms
8	L	302	ATP	C4'-C5'-O5'-PA
8	V	302	ATP	C4'-C5'-O5'-PA
8	F	302	ATP	PB-O3B-PG-O2G
8	P	302	ATP	PB-O3B-PG-O2G
8	M	302	ATP	C4'-C5'-O5'-PA
8	W	302	ATP	C4'-C5'-O5'-PA
8	N	302	ATP	C3'-C4'-C5'-O5'
8	X	302	ATP	C3'-C4'-C5'-O5'
8	H	302	ATP	PA-O3A-PB-O1B
8	N	302	ATP	PB-O3A-PA-O1A
8	R	302	ATP	PA-O3A-PB-O1B
8	X	302	ATP	PB-O3A-PA-O1A
8	K	302	ATP	O4'-C4'-C5'-O5'
8	U	302	ATP	O4'-C4'-C5'-O5'

There are no ring outliers.

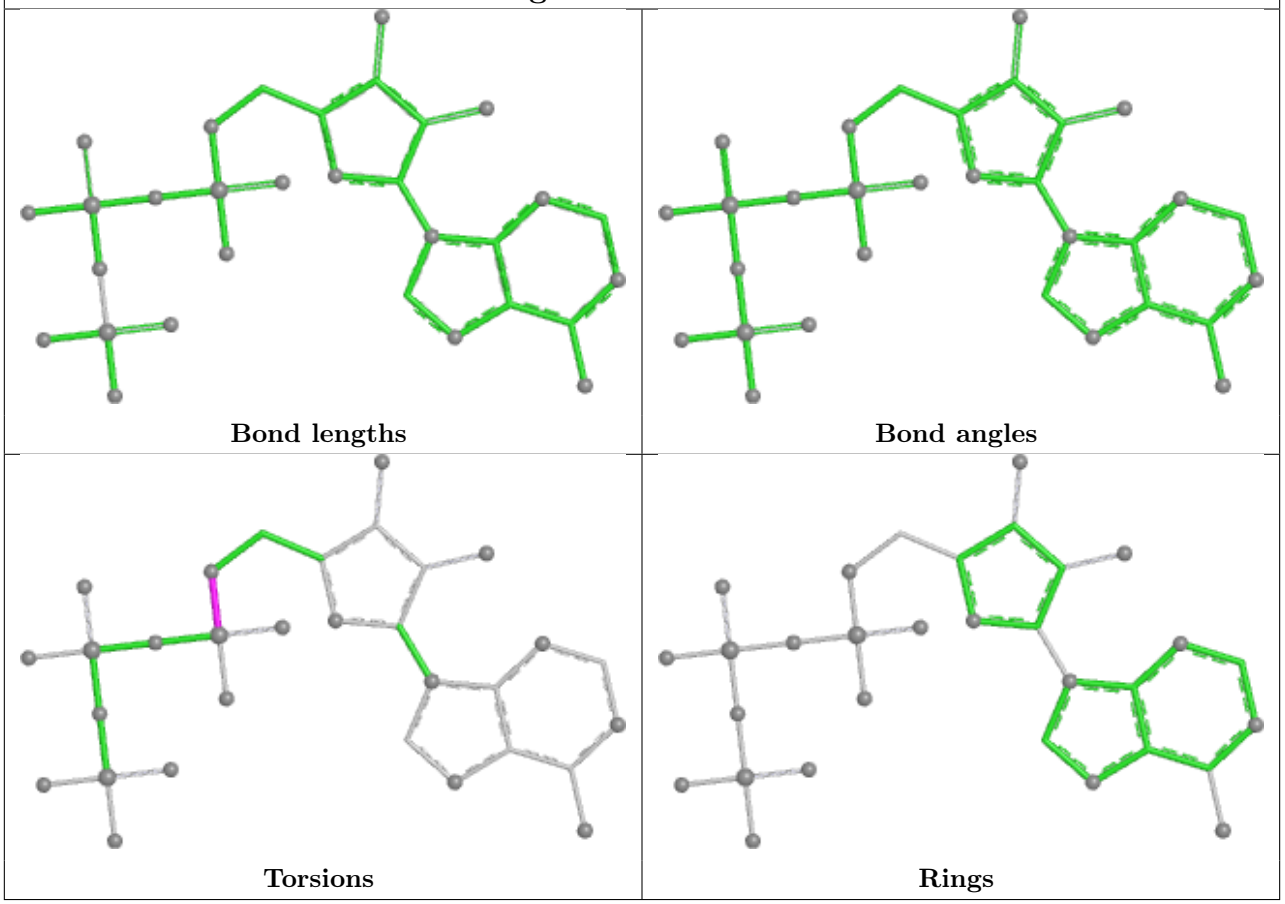
15 monomers are involved in 28 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	J	302	ATP	1	0
8	V	302	ATP	1	0
8	S	302	ATP	2	0
8	L	302	ATP	1	0
8	T	302	ATP	1	0
8	X	302	ATP	1	0
8	K	302	ATP	3	0
8	U	302	ATP	3	0
8	P	302	ATP	1	0
8	F	302	ATP	1	0
8	M	302	ATP	3	0
8	W	302	ATP	4	0
8	R	302	ATP	2	0
8	H	302	ATP	2	0
8	I	302	ATP	2	0

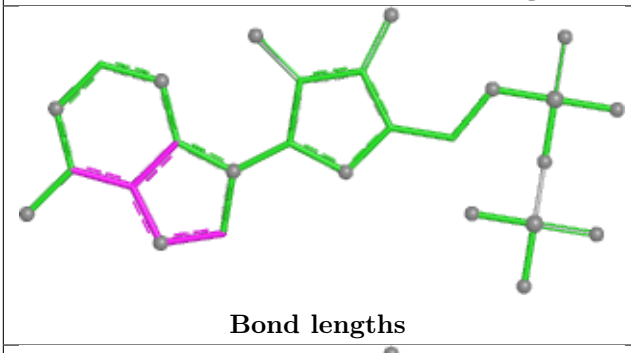
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring

in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

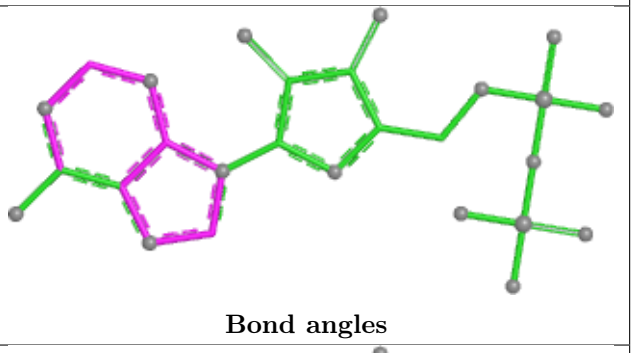
Ligand ATP J 302



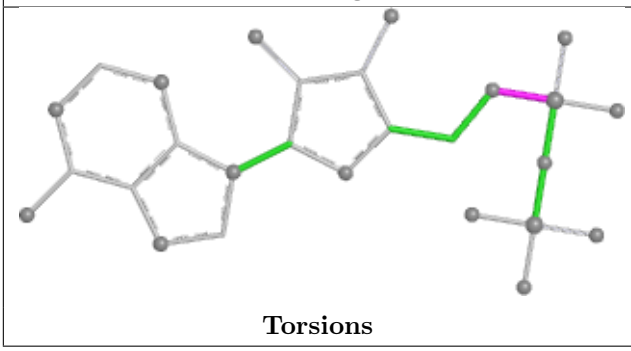
Ligand ADP E 401



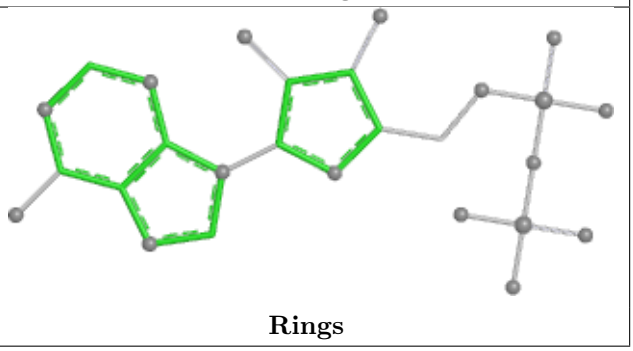
Bond lengths



Bond angles

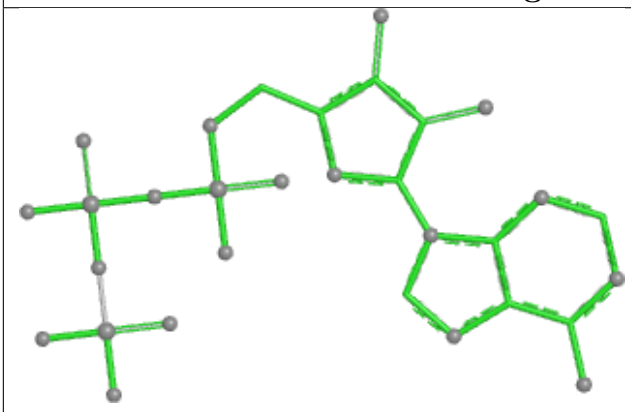


Torsions

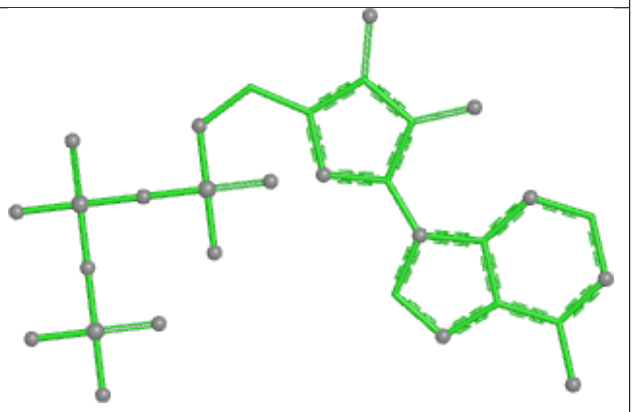


Rings

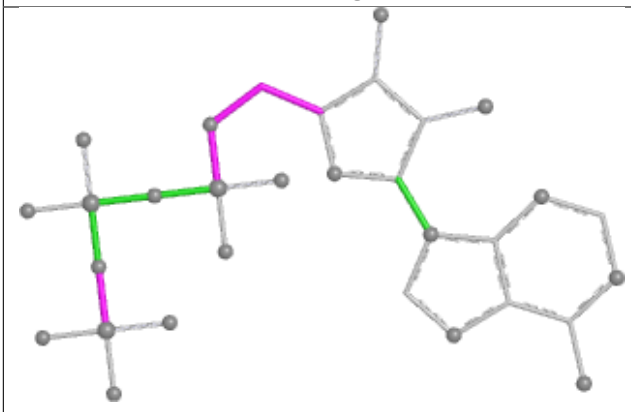
Ligand ATP V 302



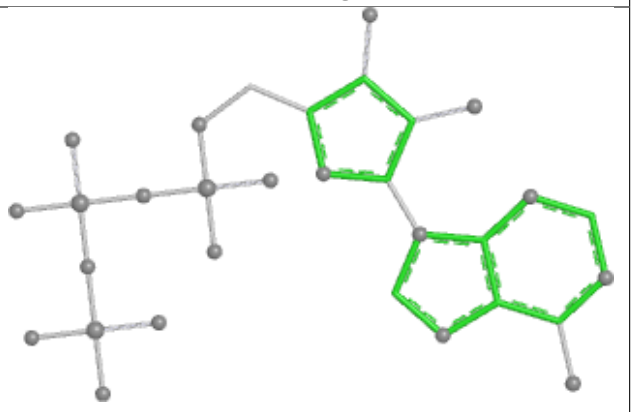
Bond lengths



Bond angles

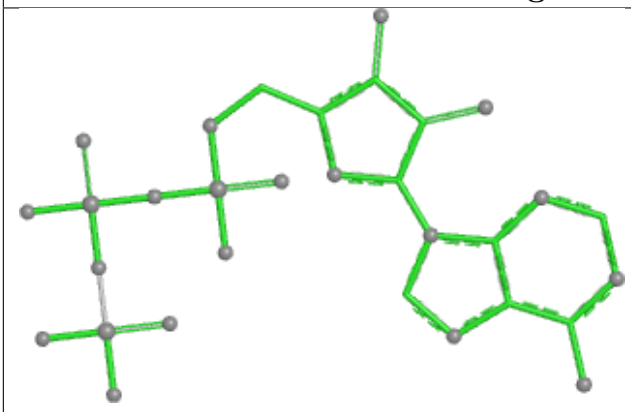


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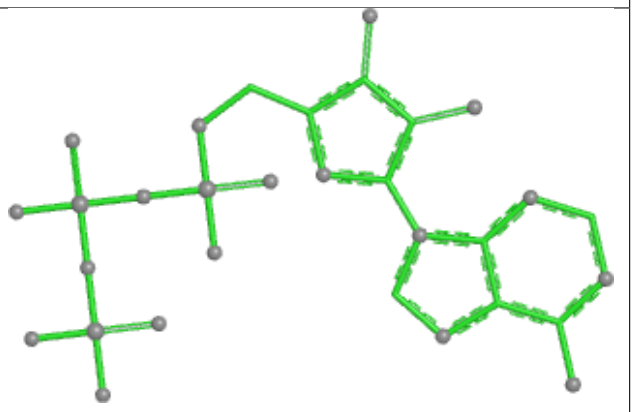


Rings

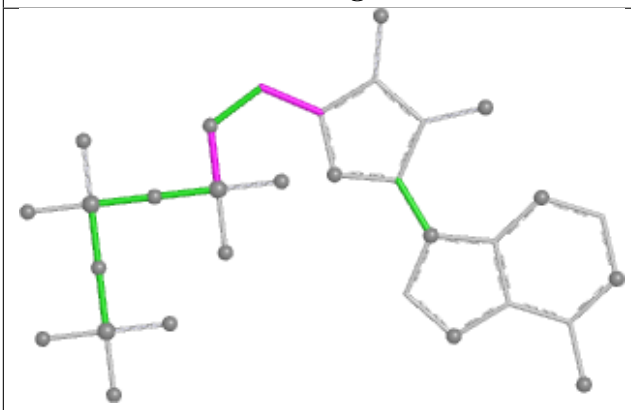
Ligand ATP S 302



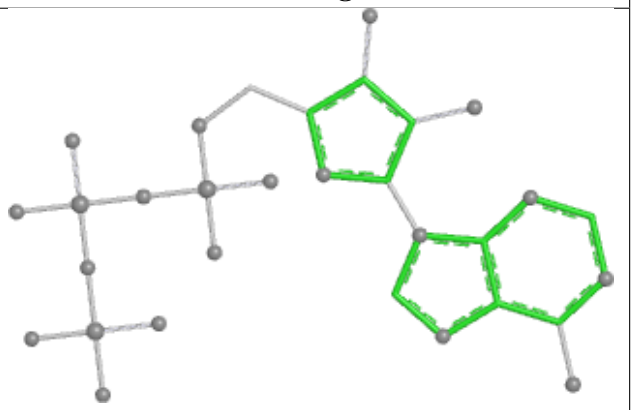
Bond lengths



Bond angles

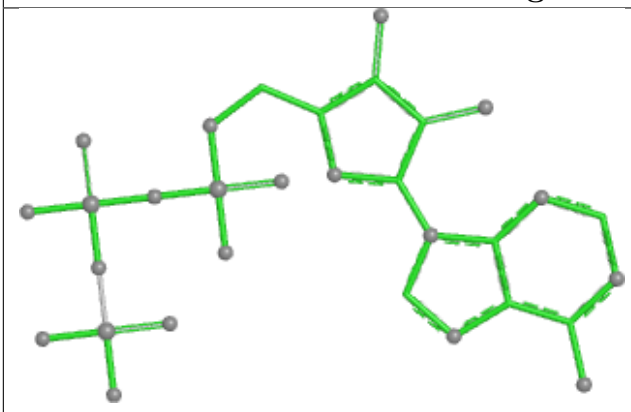


Torsions

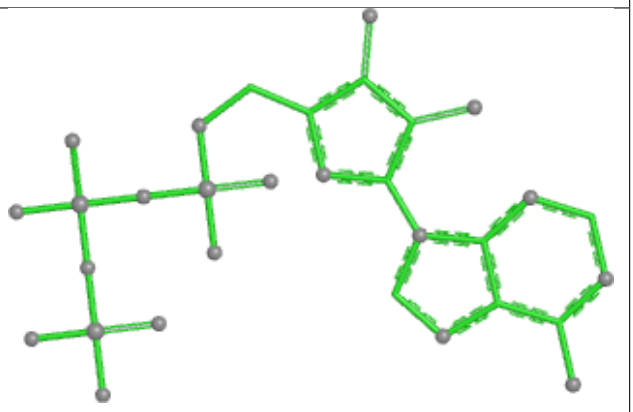


Rings

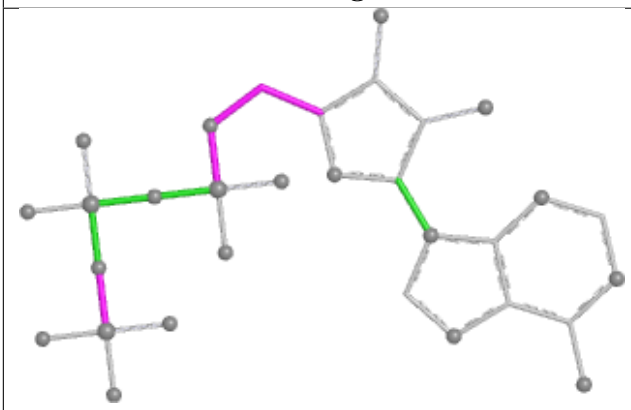
Ligand ATP L 302



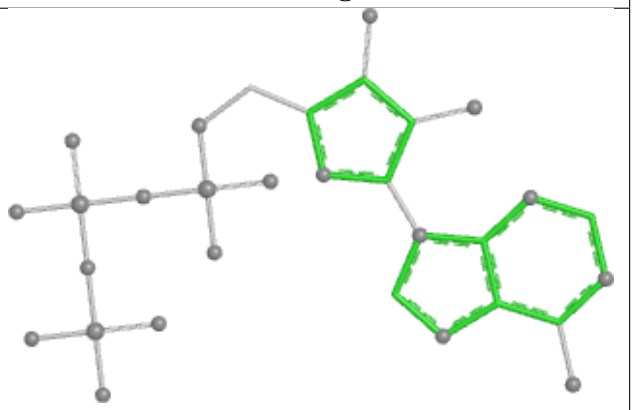
Bond lengths



Bond angles

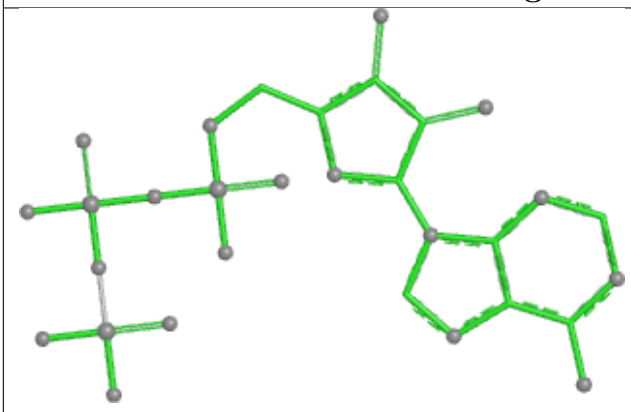


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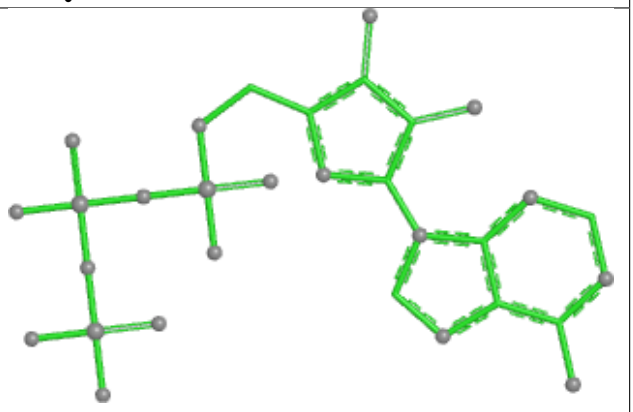


Rings

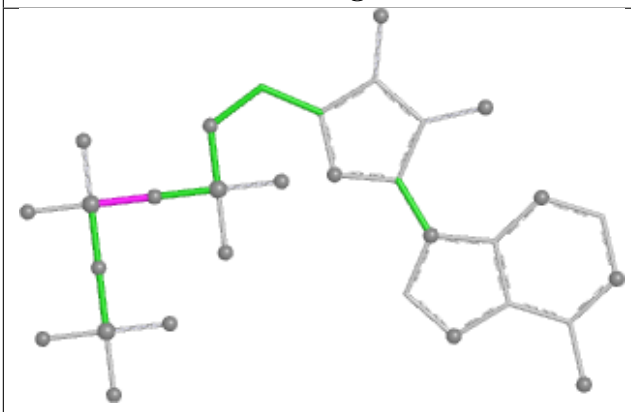
Ligand ATP Q 302



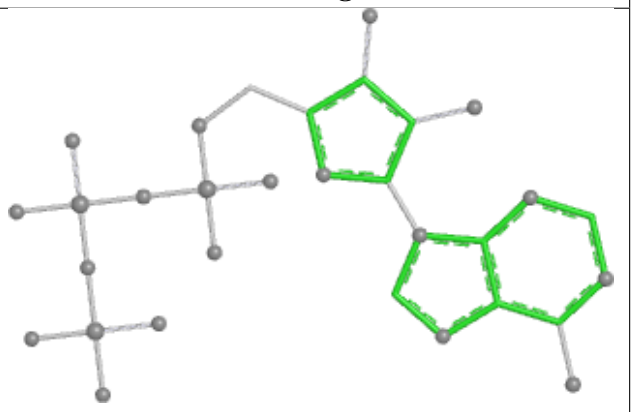
Bond lengths



Bond angles

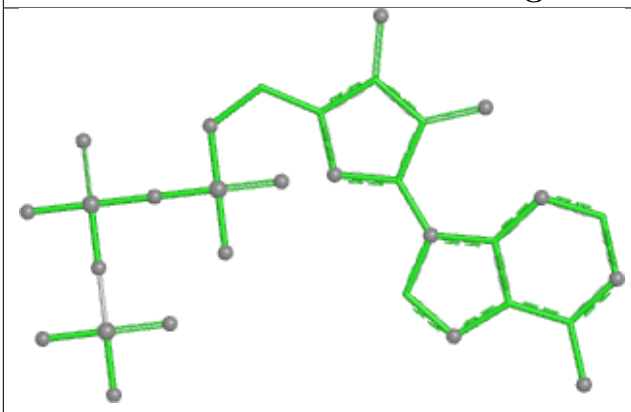


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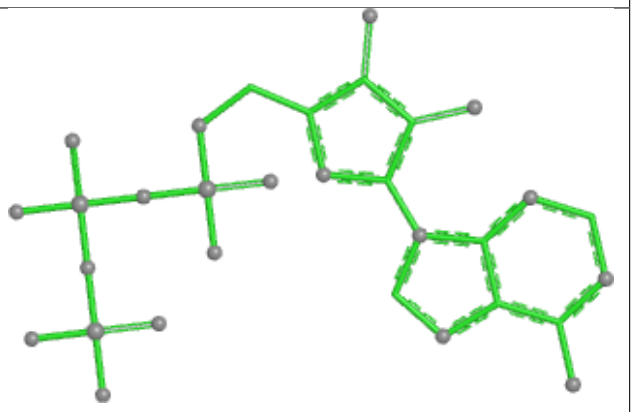


Rings

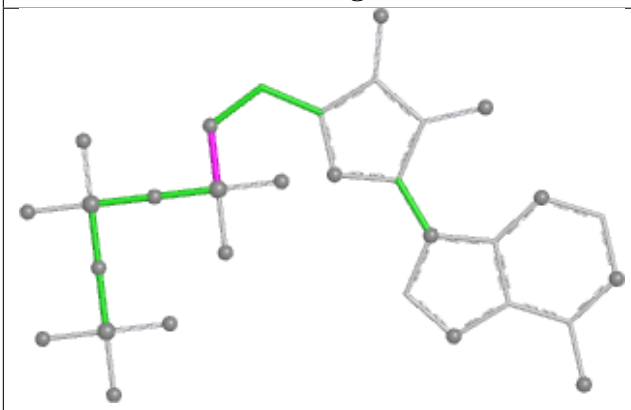
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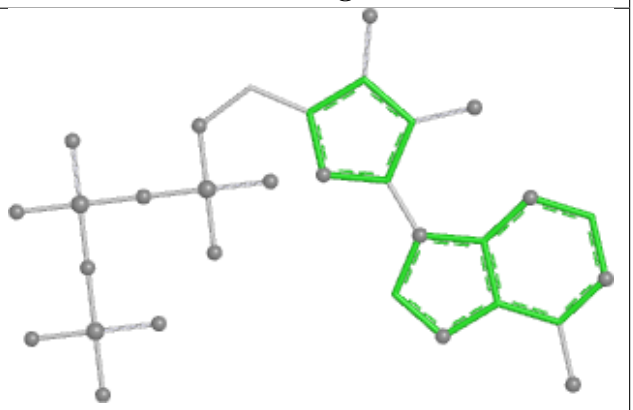
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Bond angles

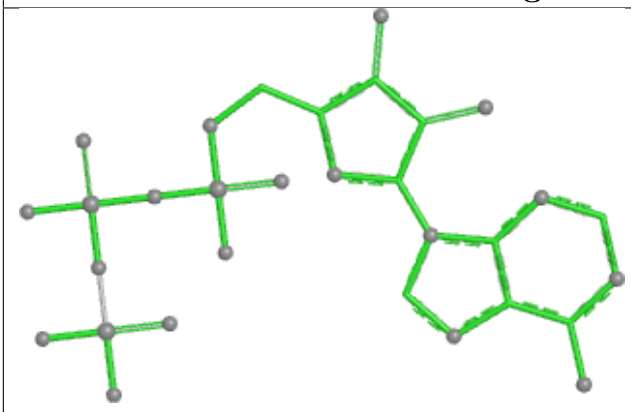


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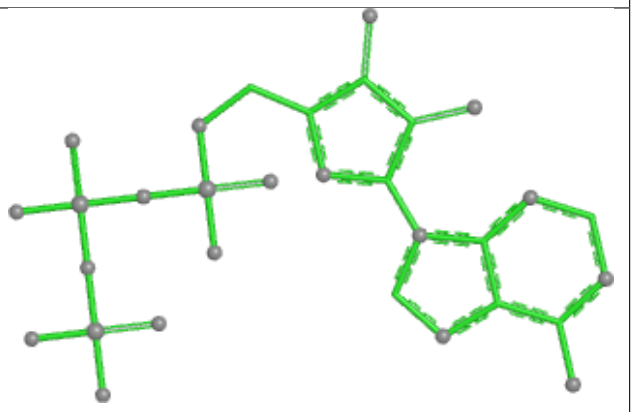


Rings

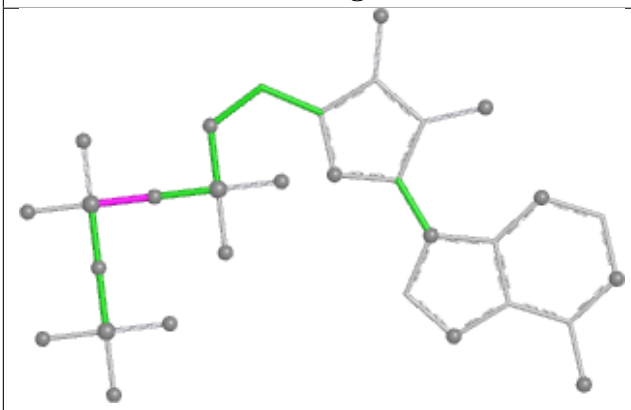
Ligand ATP G 302



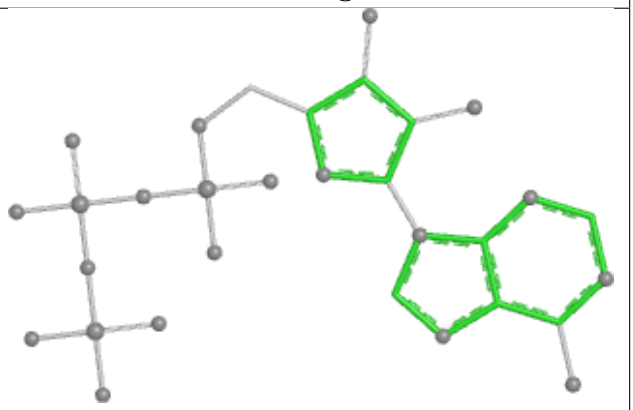
Bond lengths



Bond angles

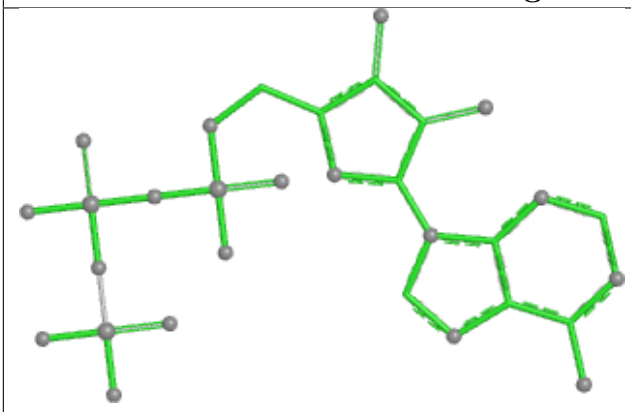


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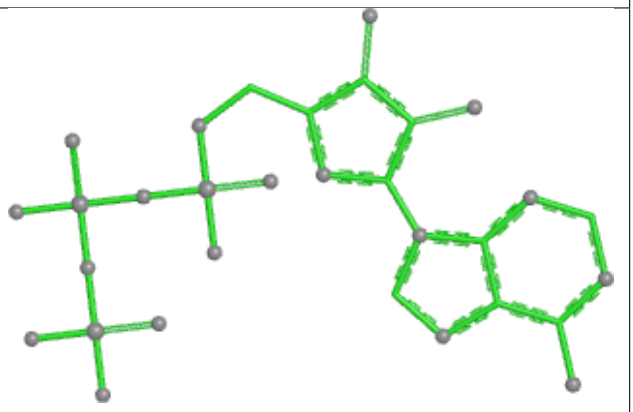


Rings

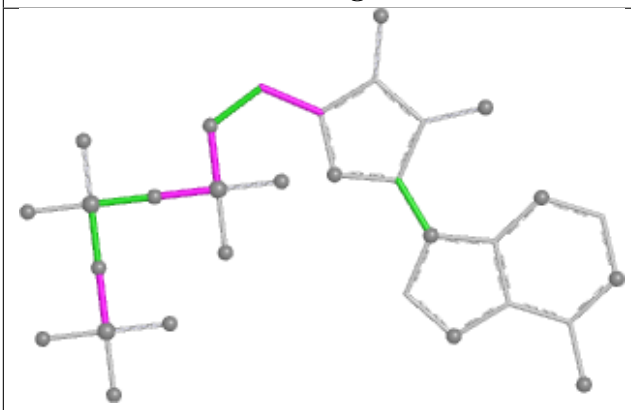
Ligand ATP X 302



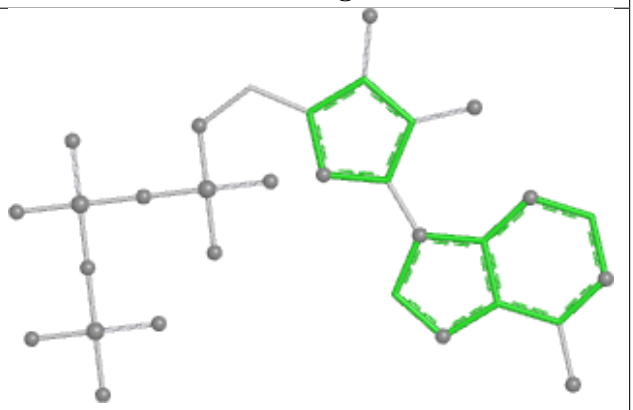
Bond lengths



Bond angles

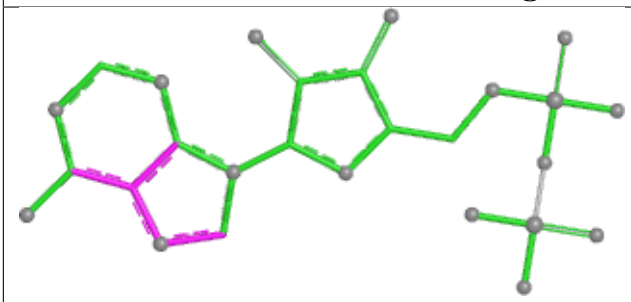


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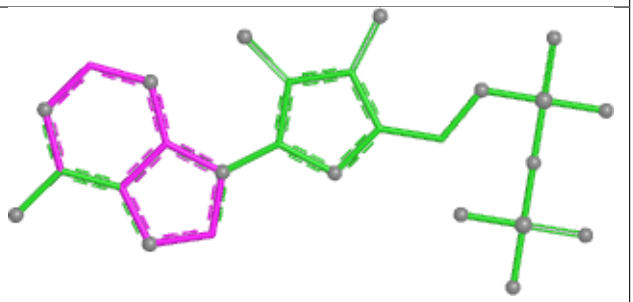


Rings

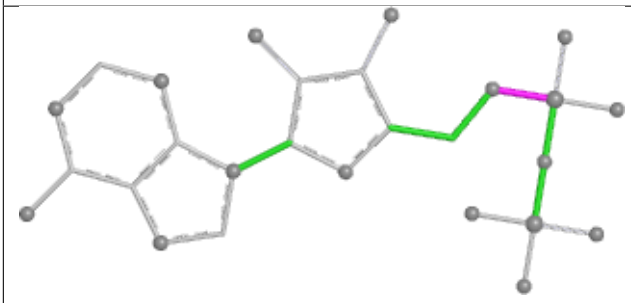
Ligand ADP O 401



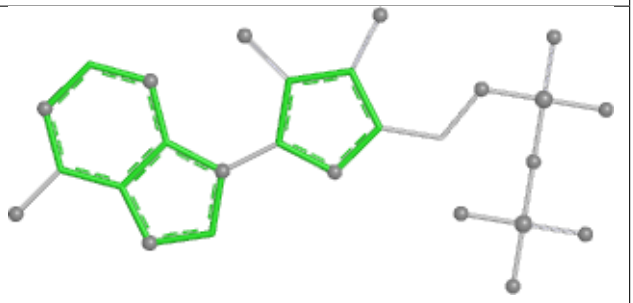
Bond lengths



Bond angles

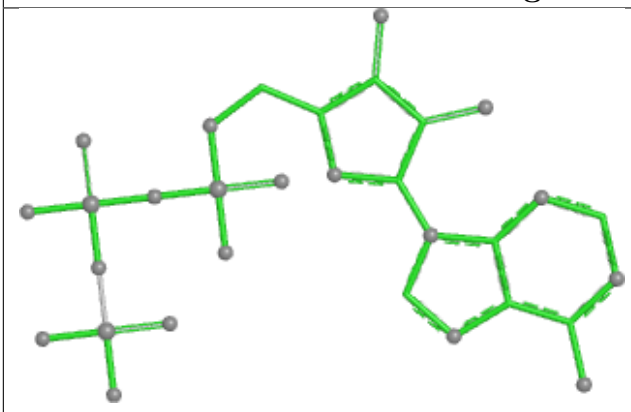


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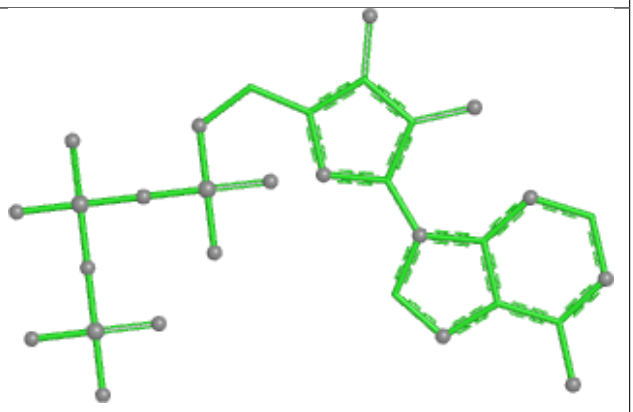


Rings

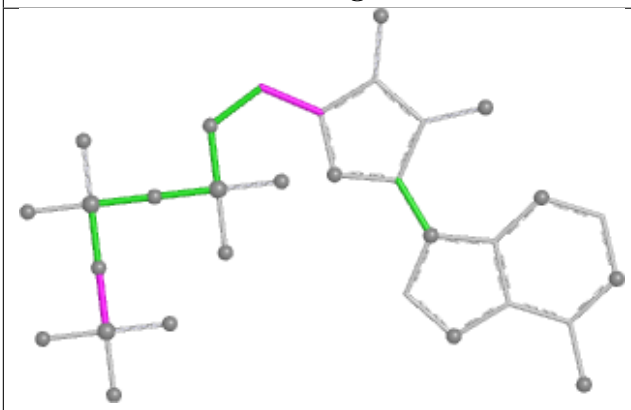
Ligand ATP K 302



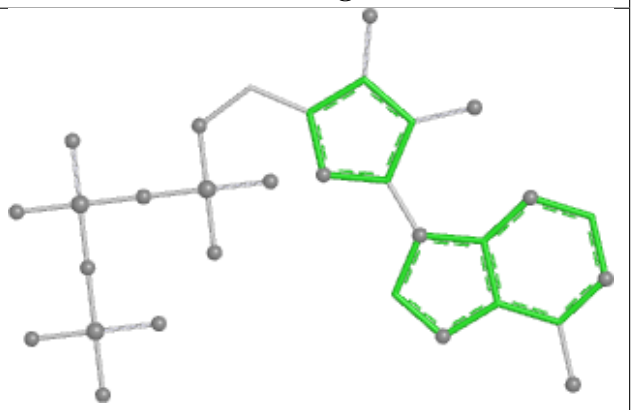
Bond lengths



Bond angles

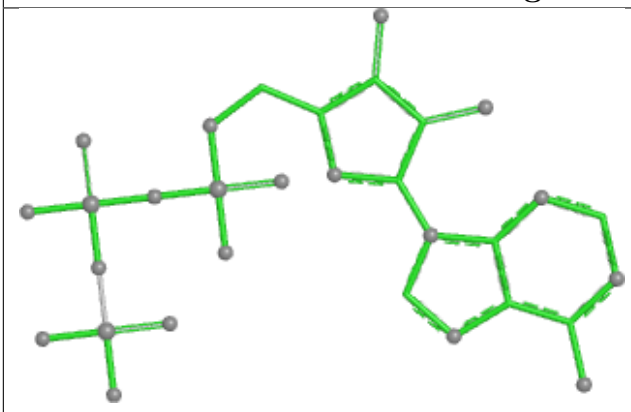


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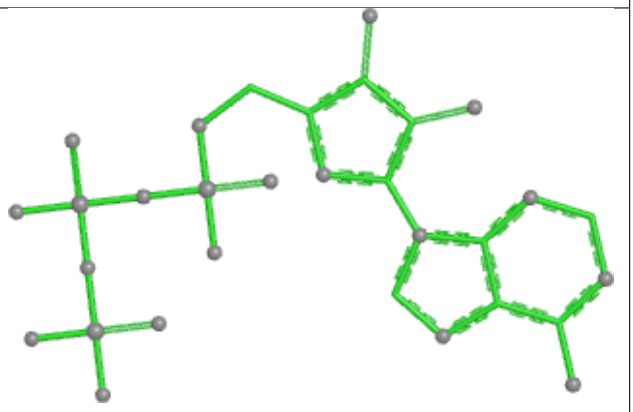


Rings

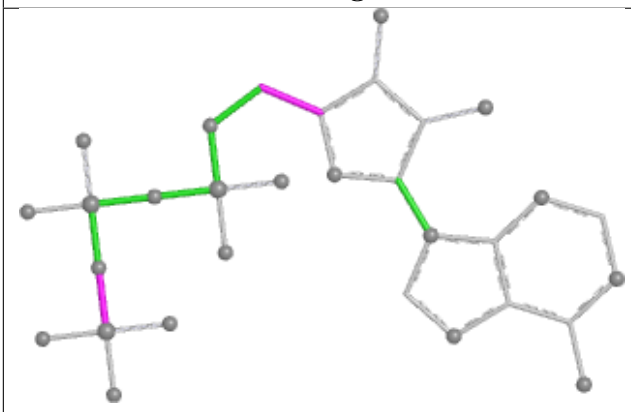
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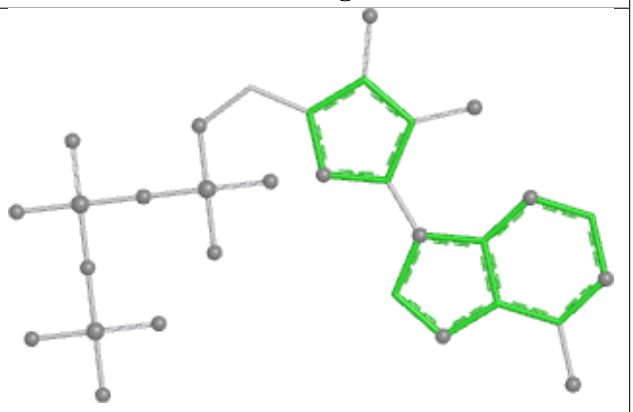
Bond lengths



Bond angles

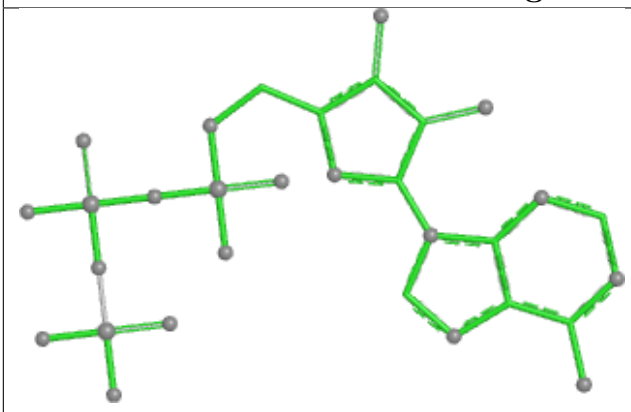


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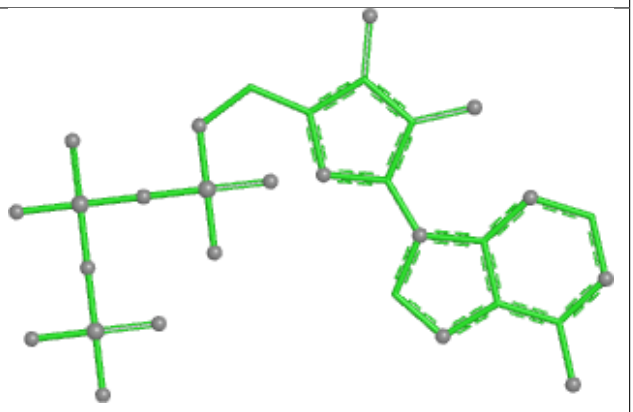


Rings

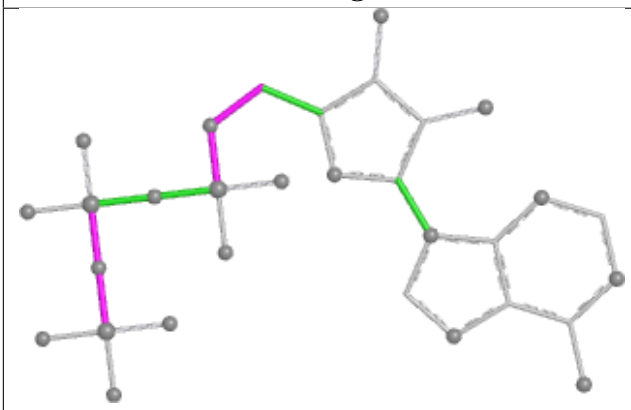
Ligand ATP P 302



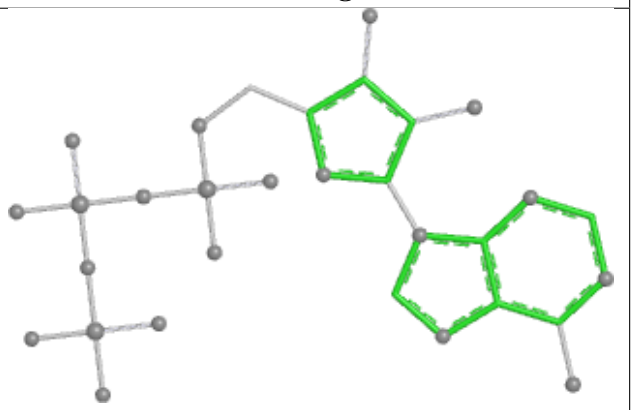
Bond lengths



Bond angles

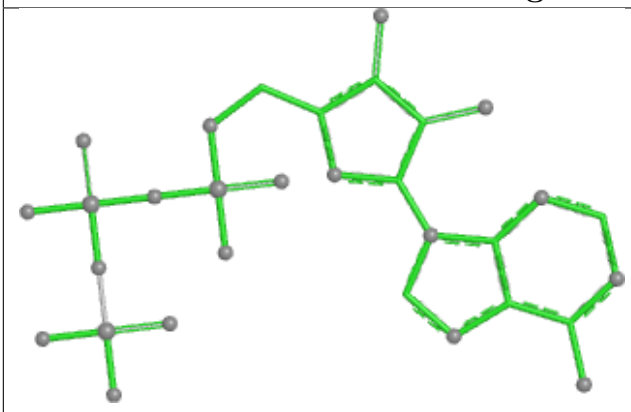


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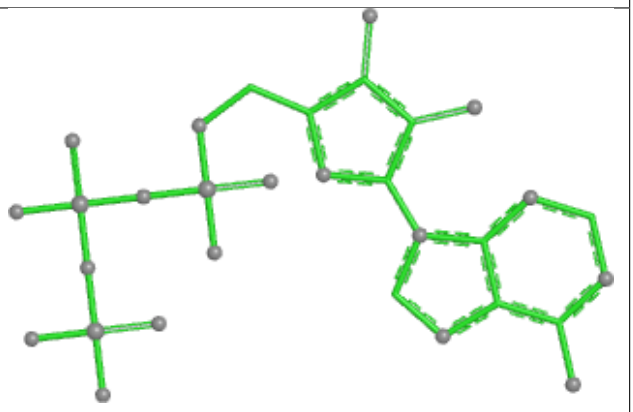


Rings

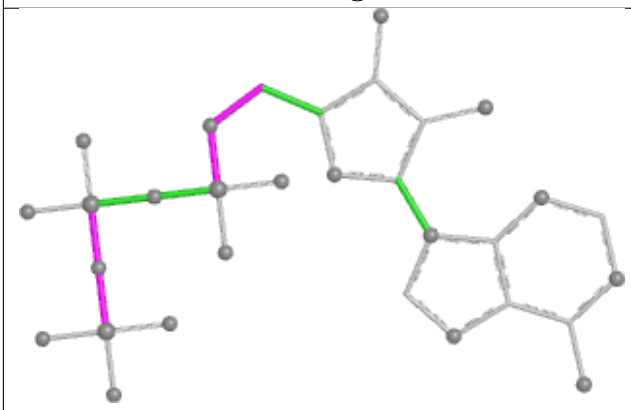
Ligand ATP F 302



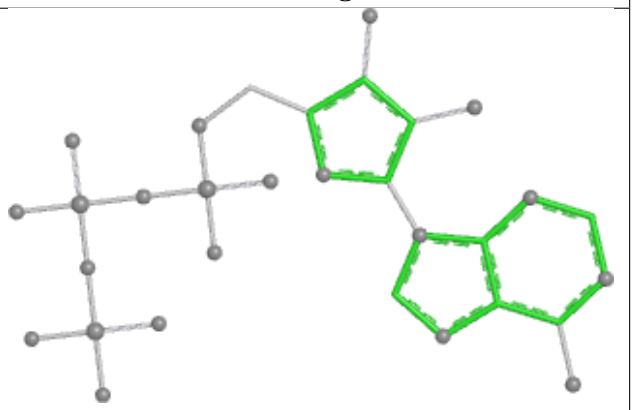
Bond lengths



Bond angles

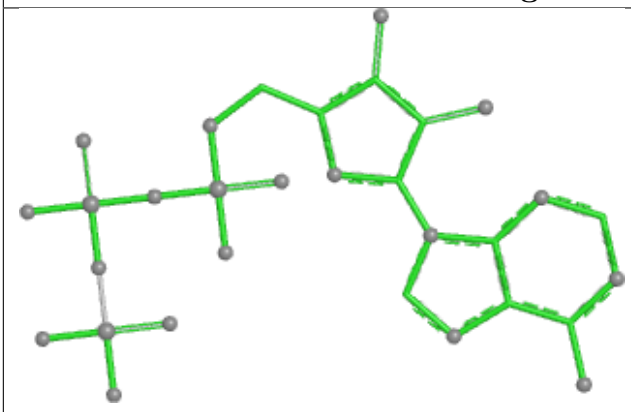


Torsions

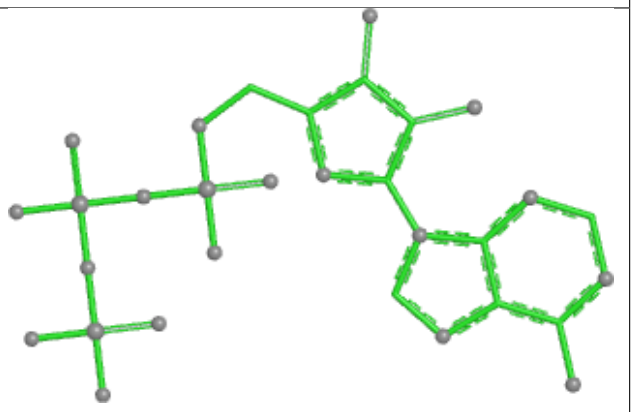


Rings

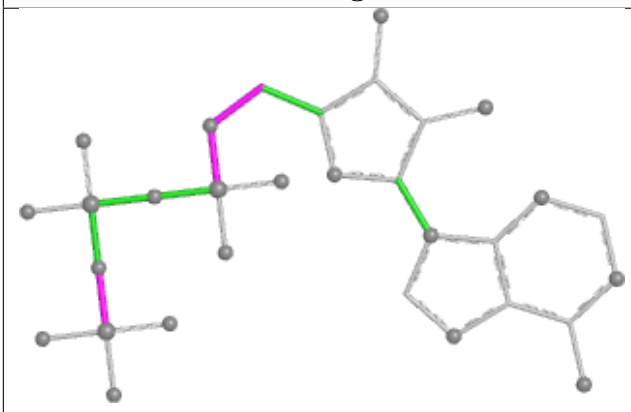
Ligand ATP M 302



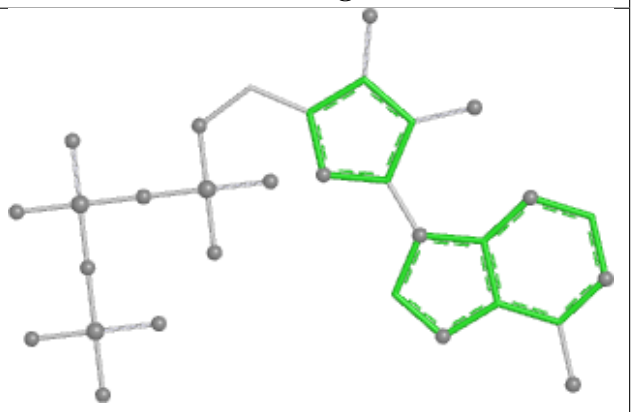
Bond lengths



Bond angles

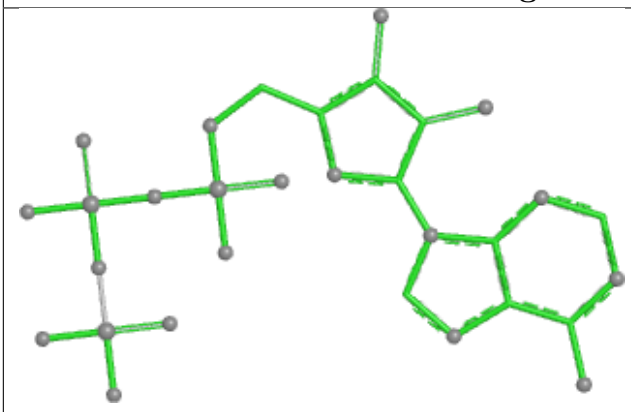


Torsions

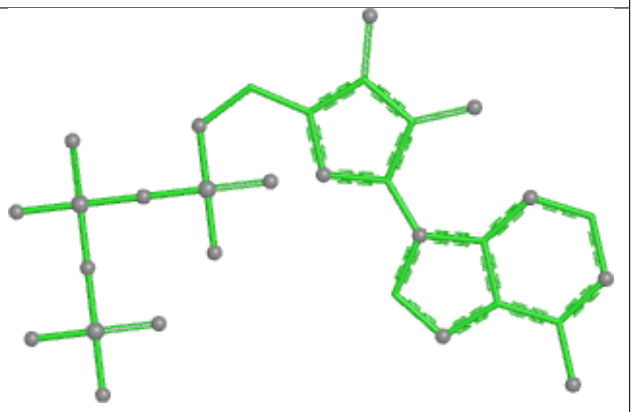


Rings

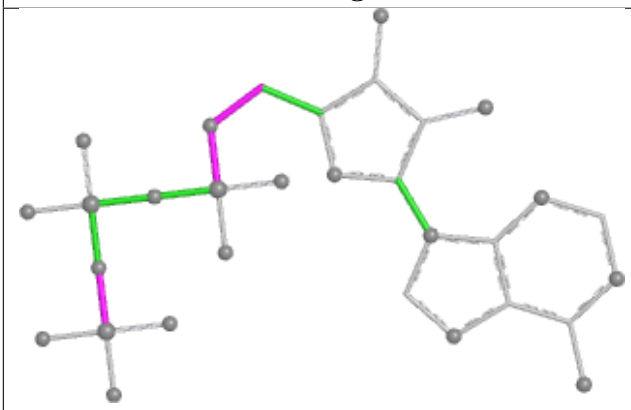
Ligand ATP W 302



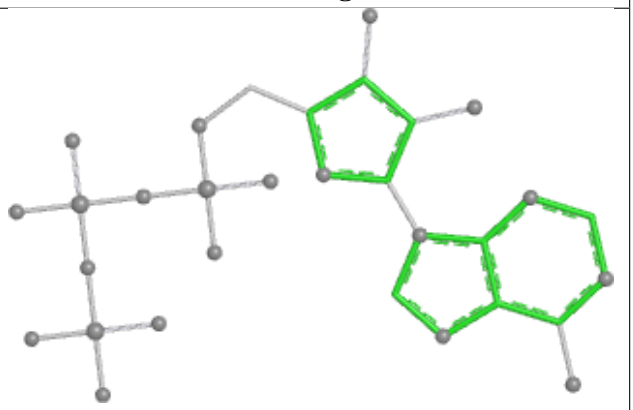
Bond lengths



Bond angles

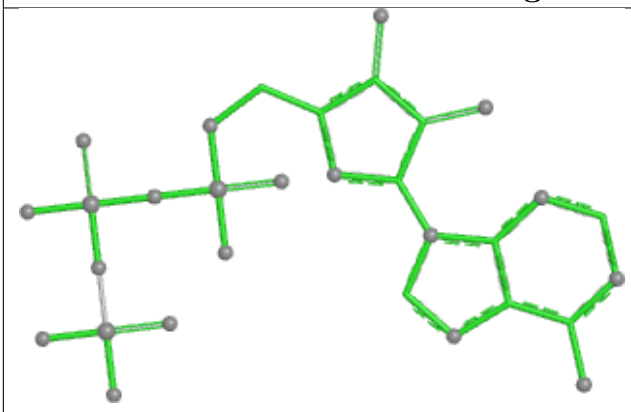


Torsions

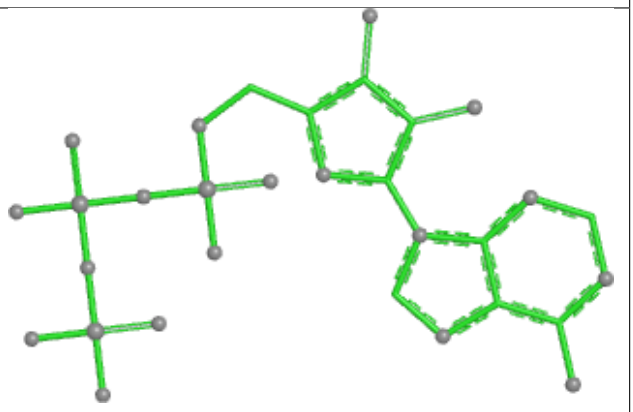


Rings

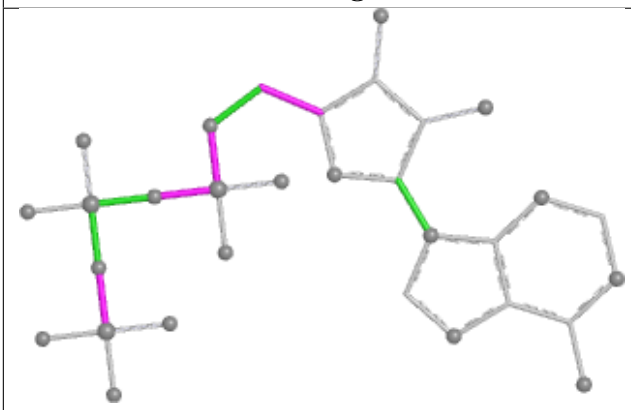
Ligand ATP N 302



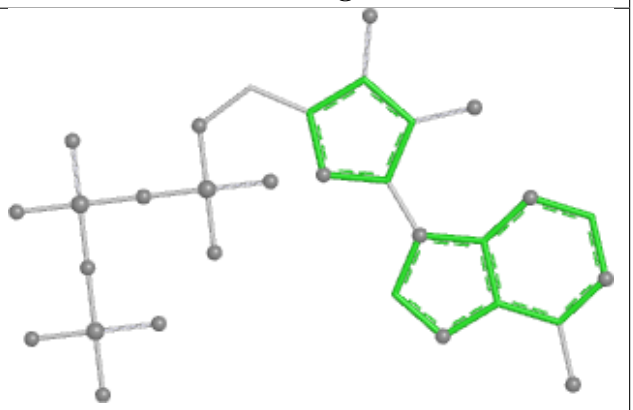
Bond lengths



Bond angles

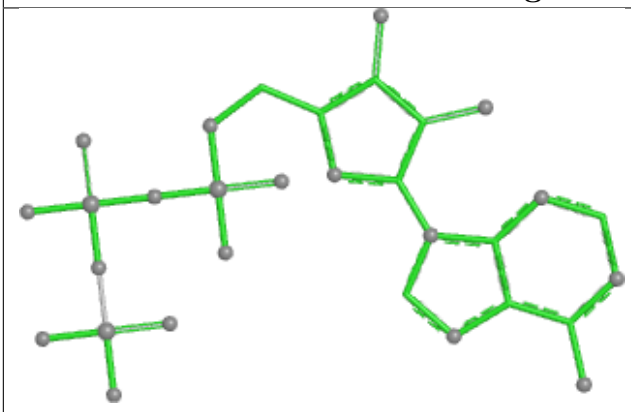


Torsions

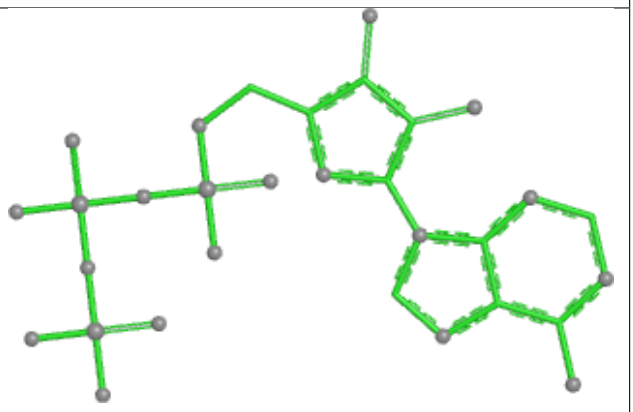


Rings

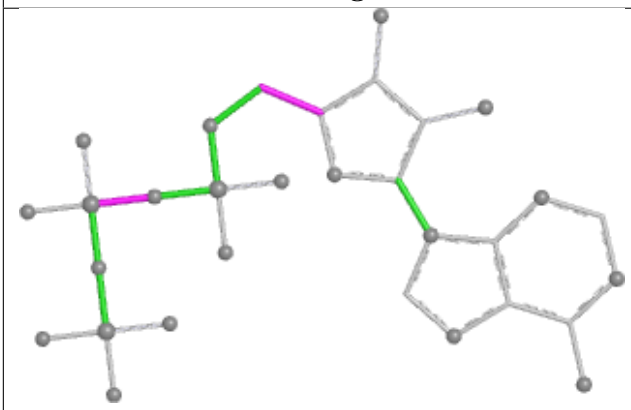
Ligand ATP R 302



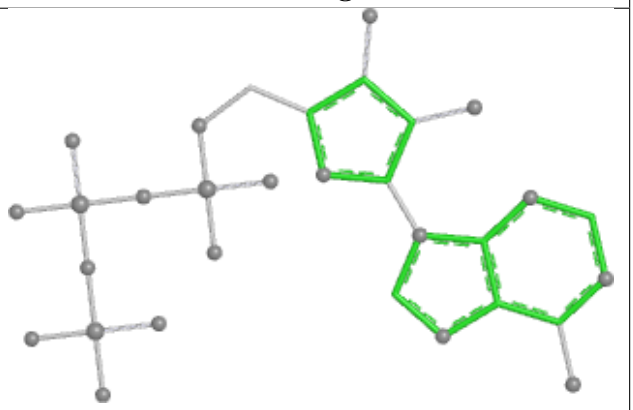
Bond lengths



Bond angles

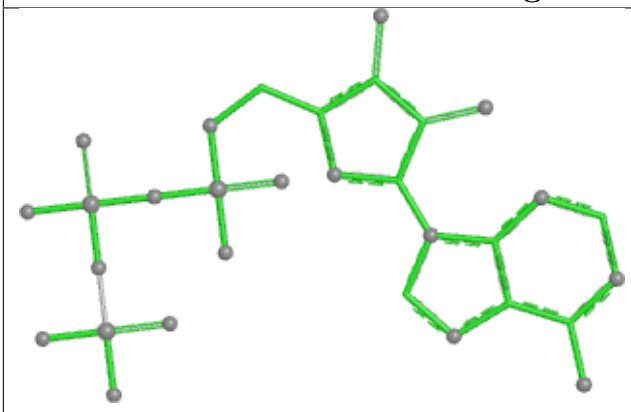


Torsions

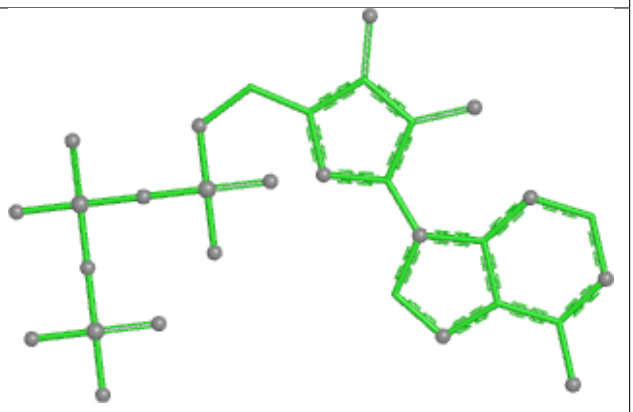


Rings

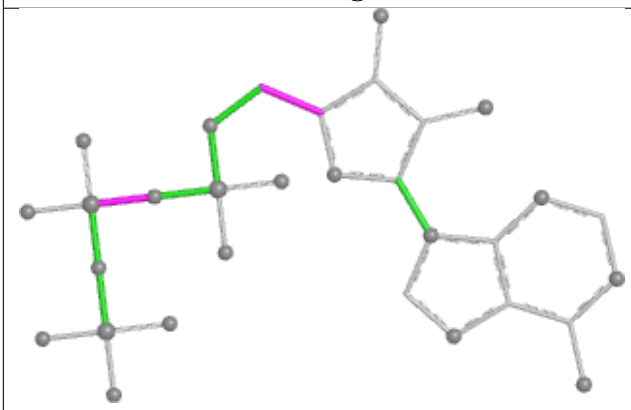
Ligand ATP H 302



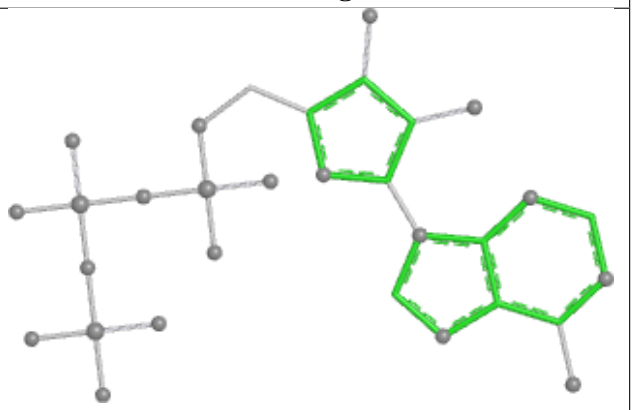
Bond lengths



Bond angles

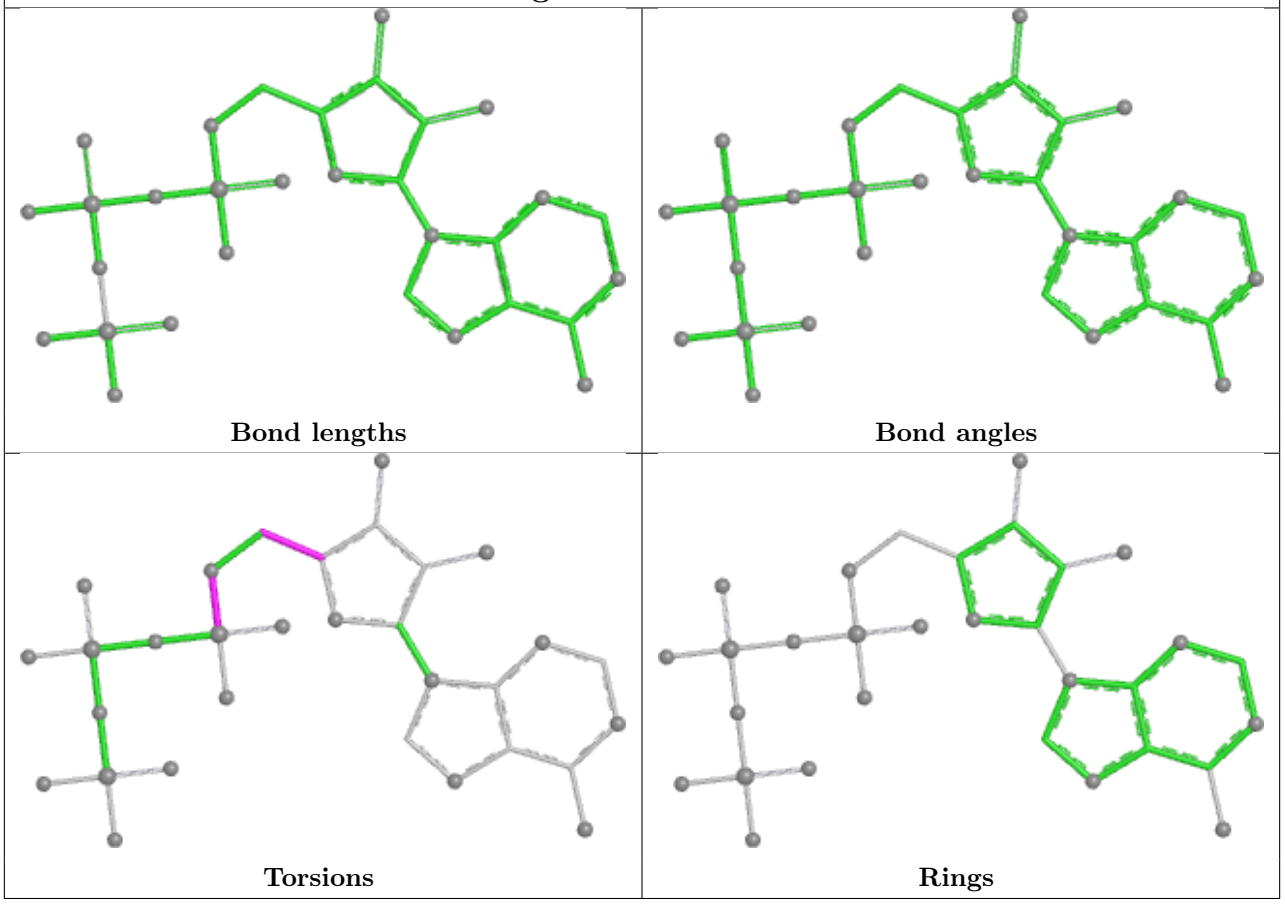


Torsions



Rings

Ligand ATP I 302



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.

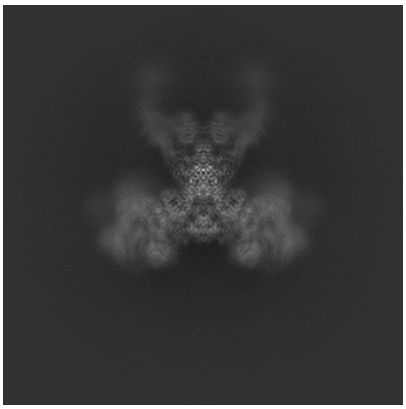
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-18144. These allow visual inspection of the internal detail of the map and identification of artifacts.

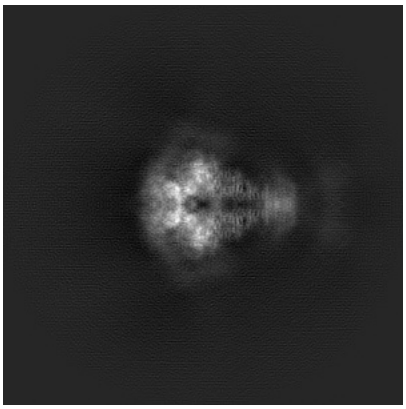
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

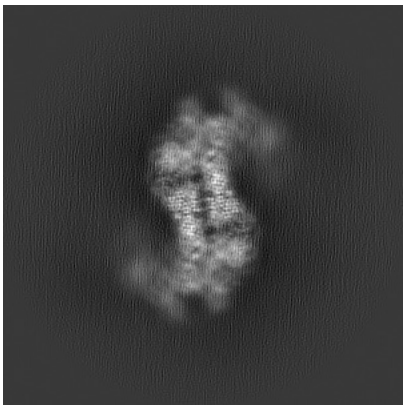
6.1.1 Primary map



X

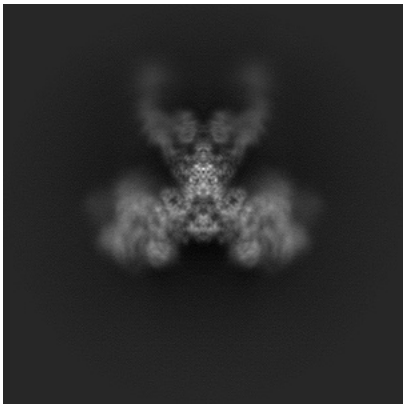


Y

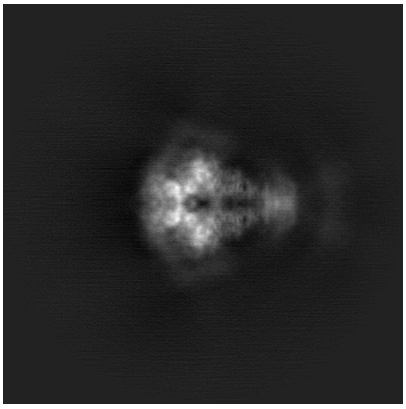


Z

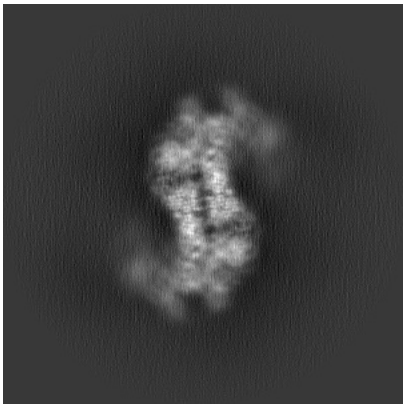
6.1.2 Raw map



X



Y

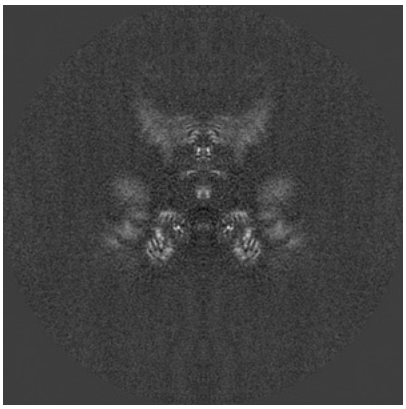


Z

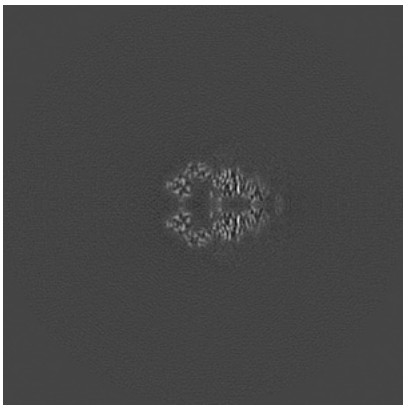
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

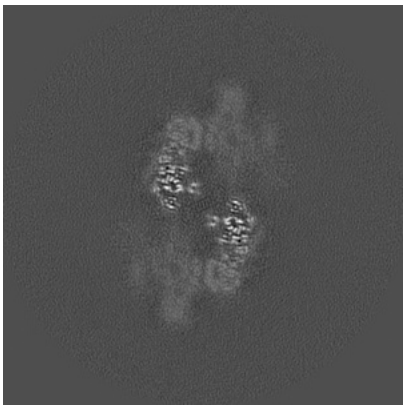
6.2.1 Primary map



X Index: 230

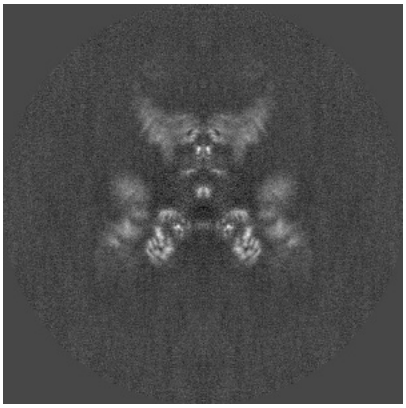


Y Index: 230

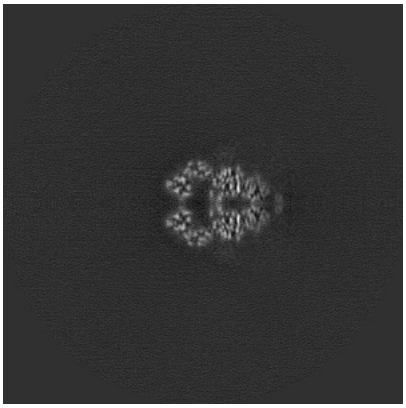


Z Index: 230

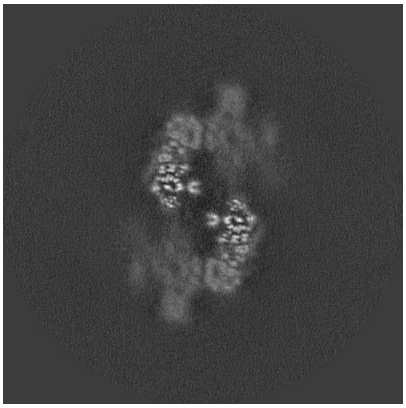
6.2.2 Raw map



X Index: 230



Y Index: 230

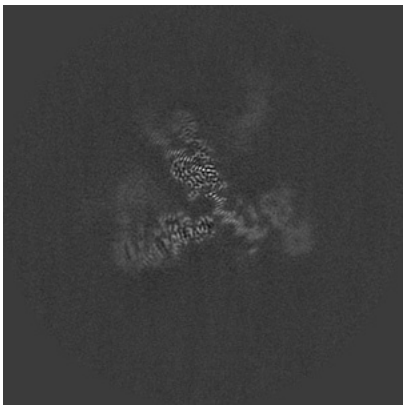


Z Index: 230

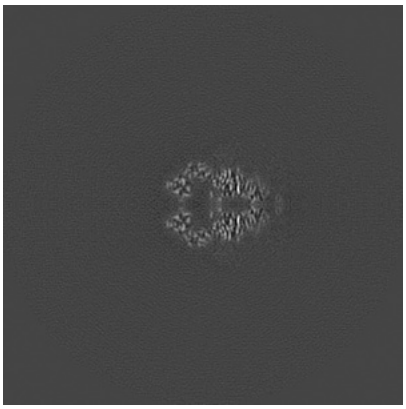
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

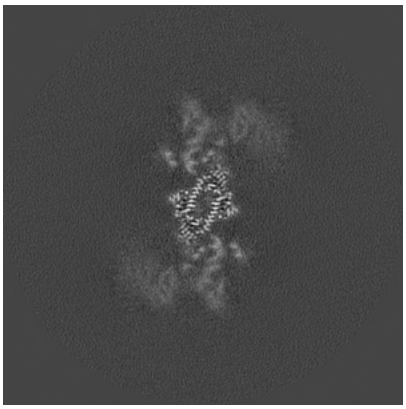
6.3.1 Primary map



X Index: 213

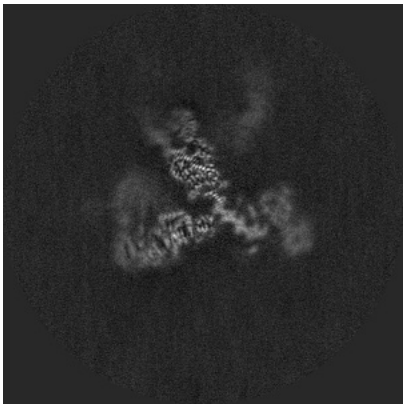


Y Index: 230

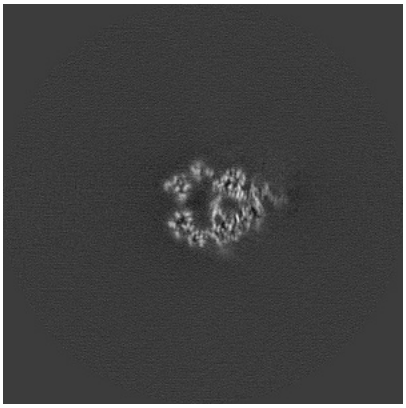


Z Index: 201

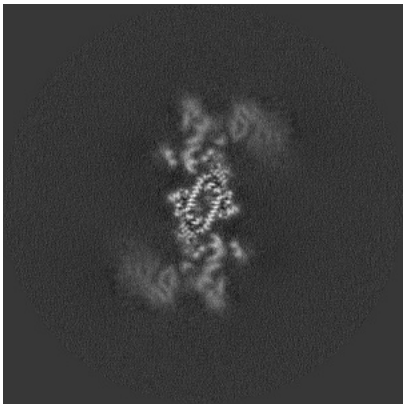
6.3.2 Raw map



X Index: 214



Y Index: 235

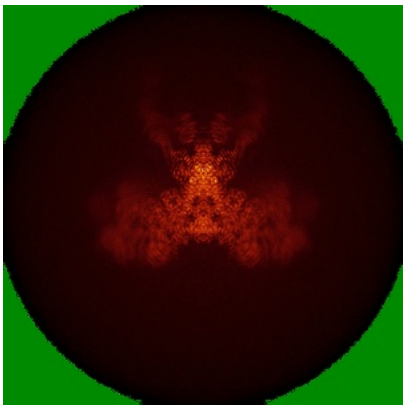


Z Index: 201

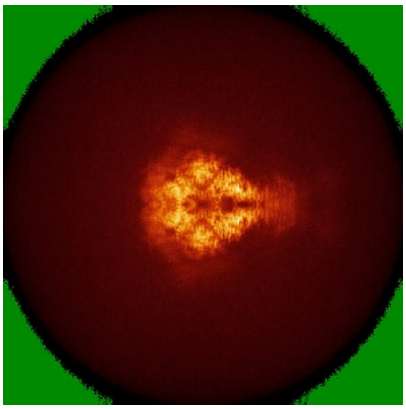
The images above show the largest variance slices of the map in three orthogonal directions.

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

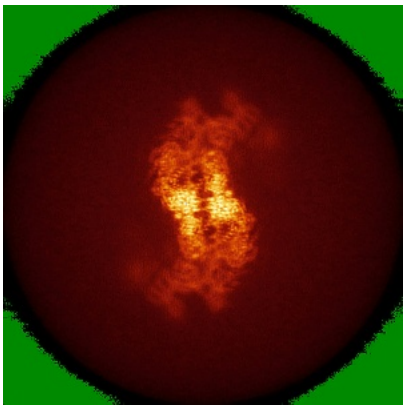
6.4.1 Primary map



X

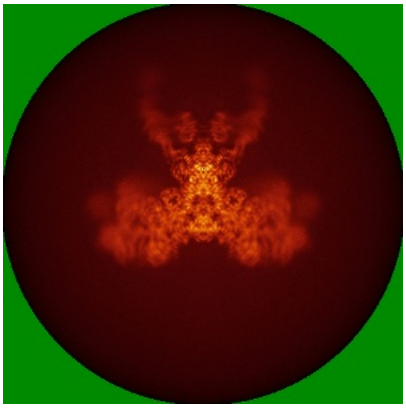


Y

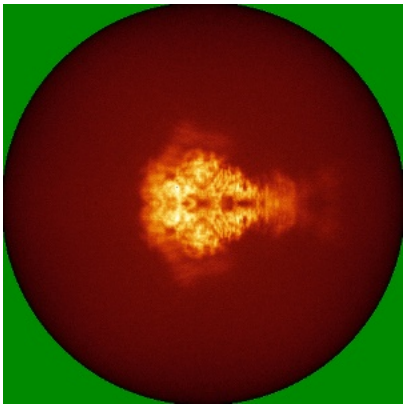


Z

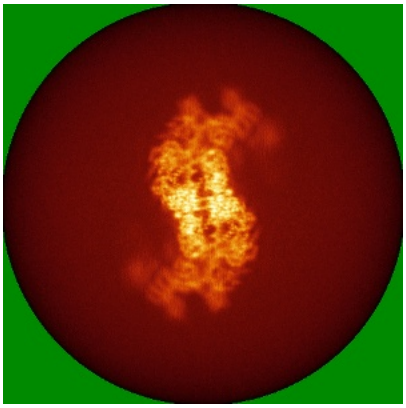
6.4.2 Raw map



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 0.0037. 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.

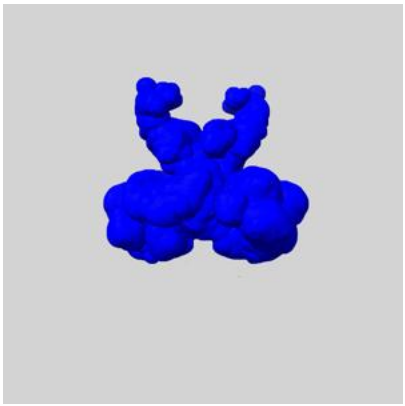
6.6 Mask visualisation (i)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

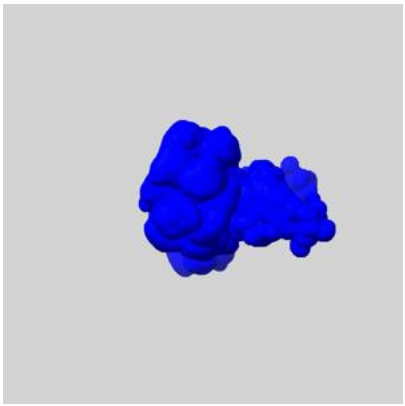
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

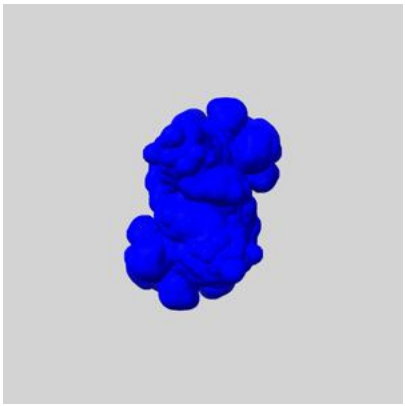
6.6.1 emd_18144_msk_1.map (i)



X



Y

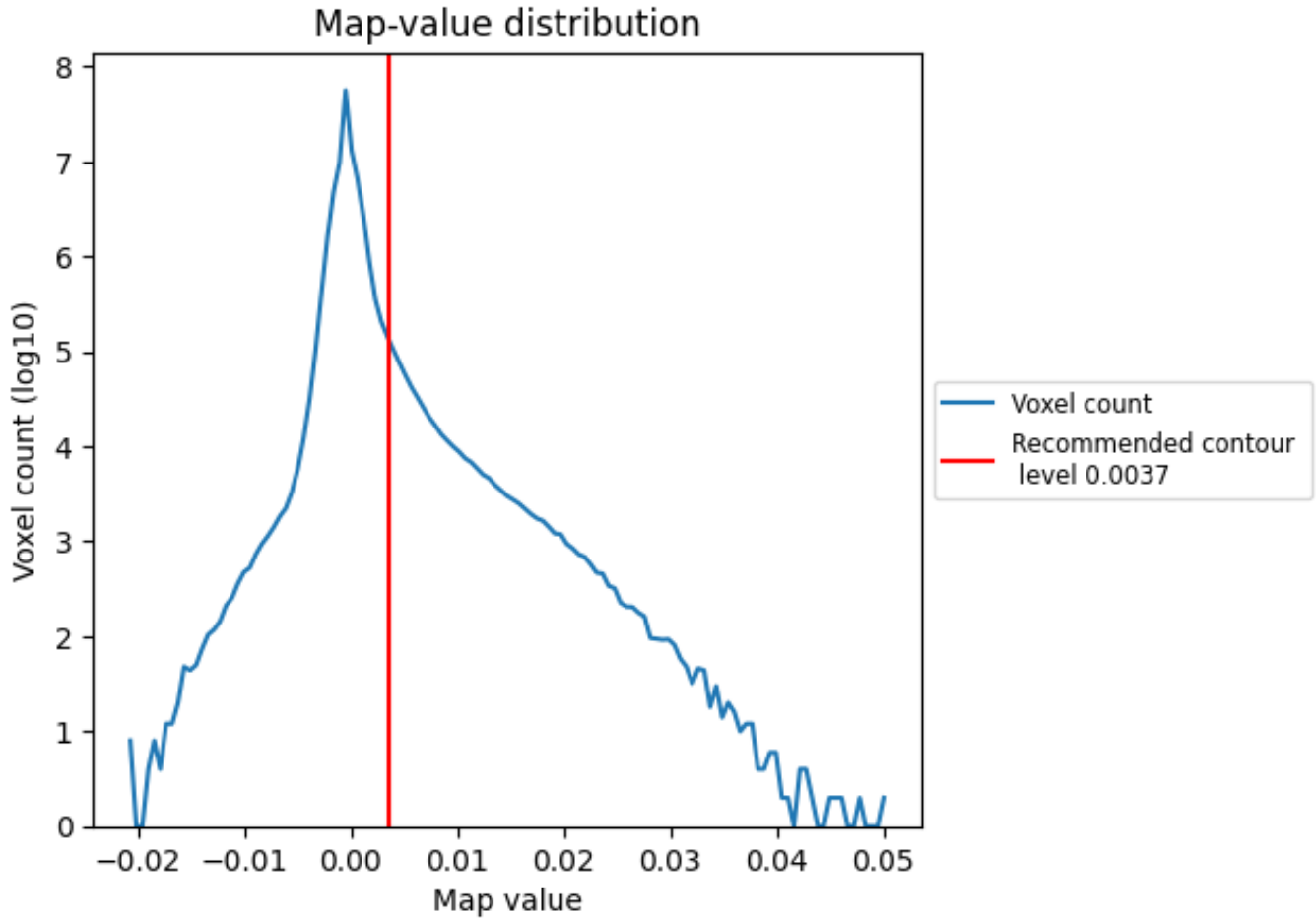


Z

7 Map analysis

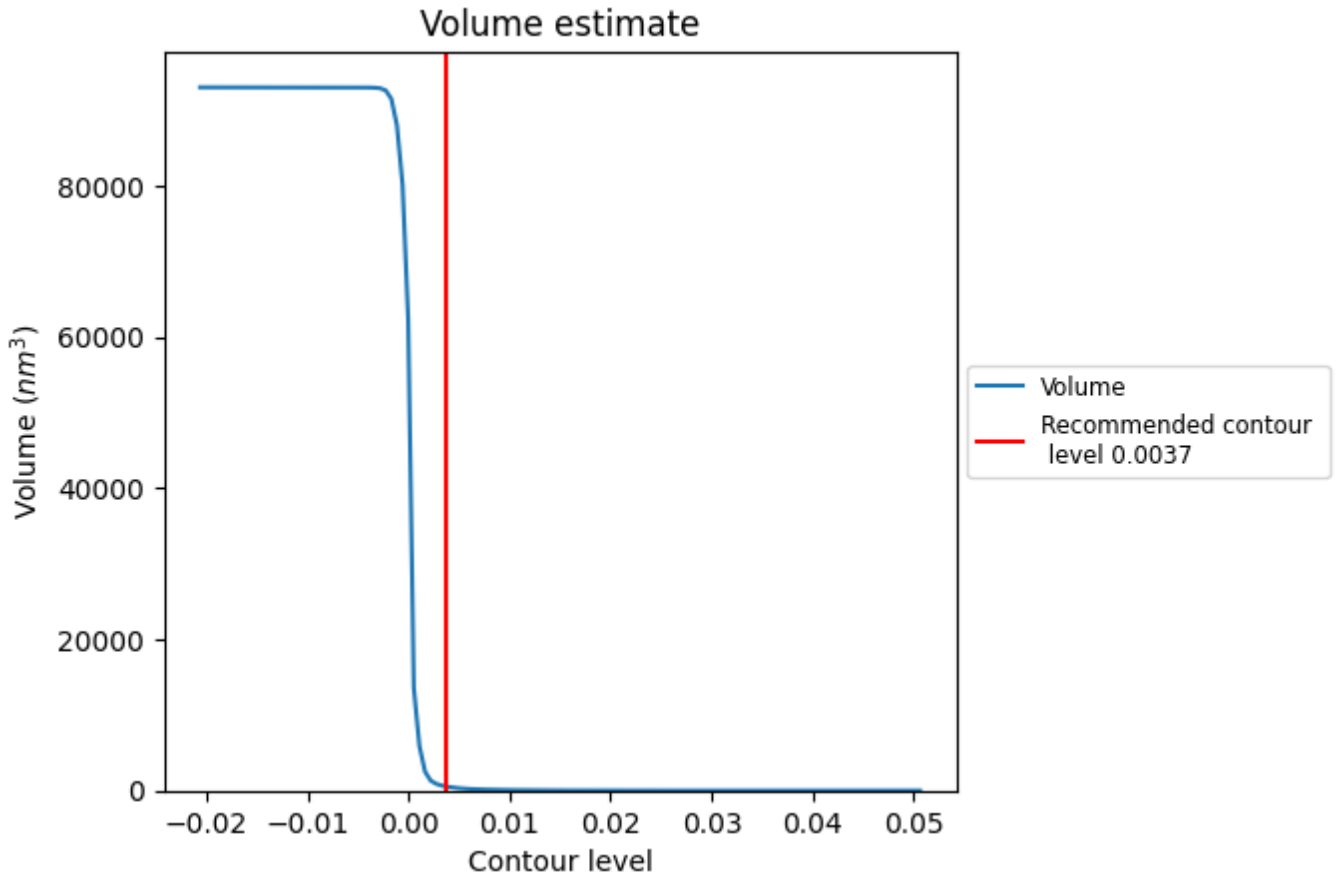
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

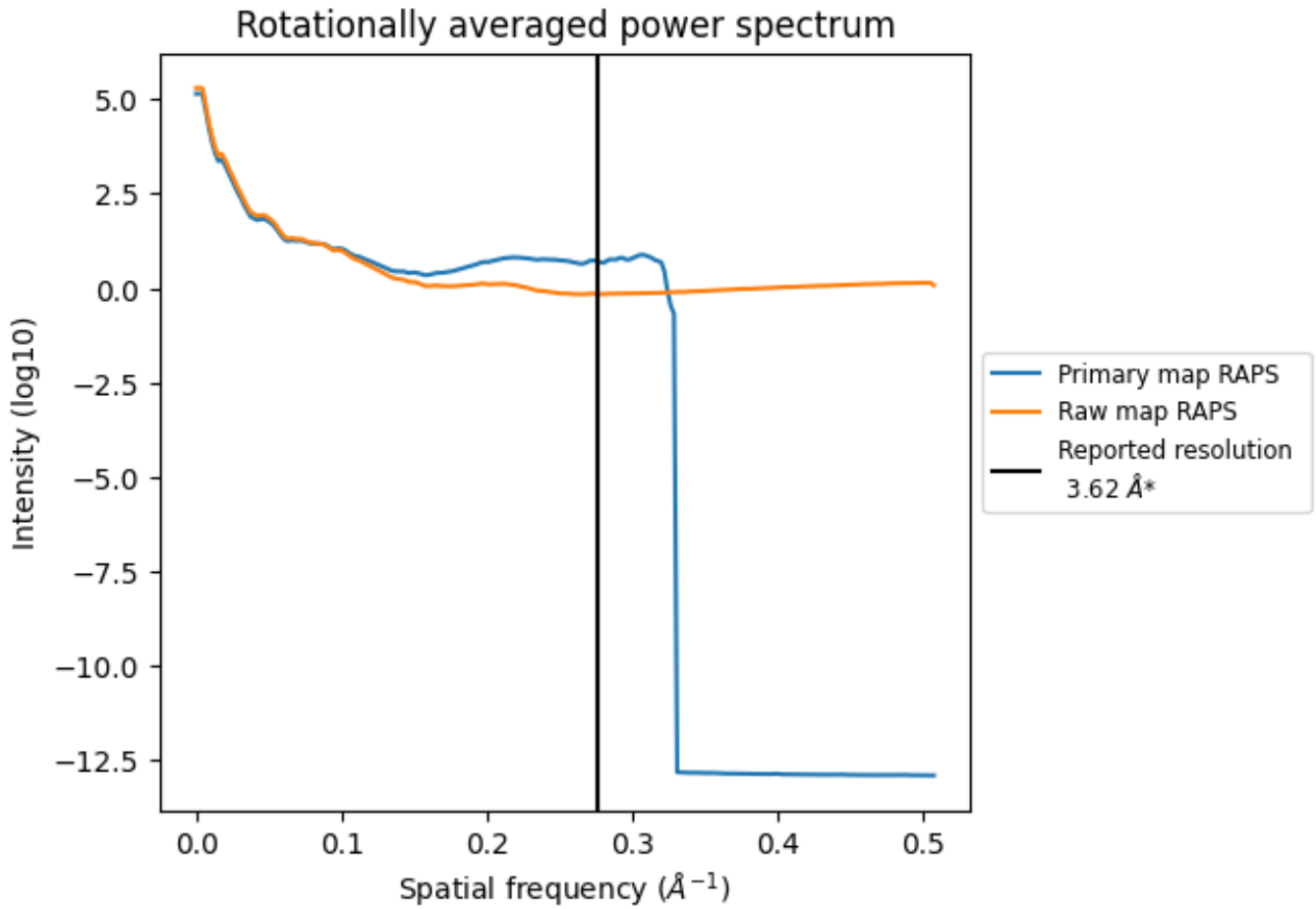
7.2 Volume estimate



The volume at the recommended contour level is 544 nm^3; this corresponds to an approximate mass of 492 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)

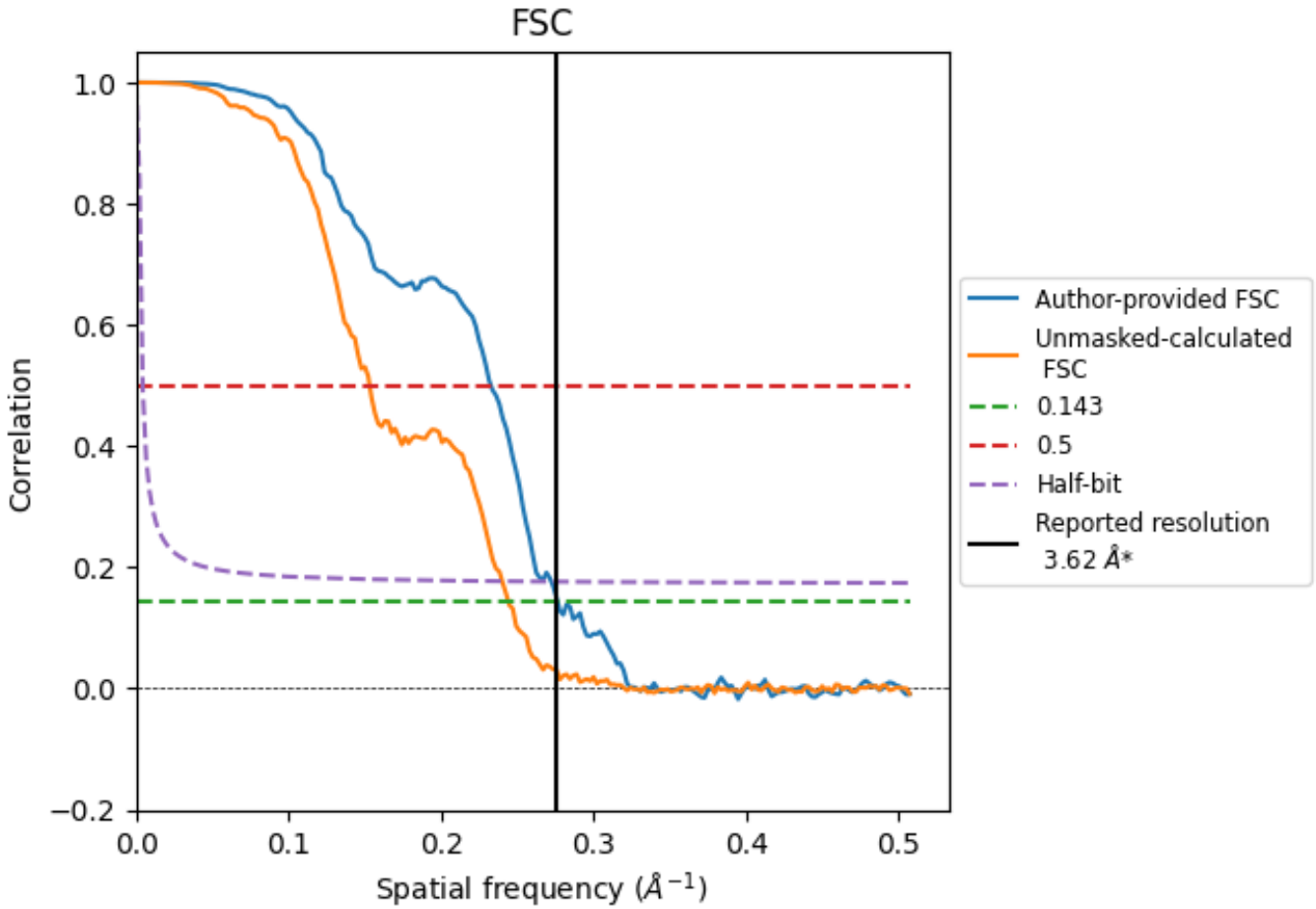


*Reported resolution corresponds to spatial frequency of 0.276 $Å^{-1}$

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 0.276 Å^{-1}

8.2 Resolution estimates (i)

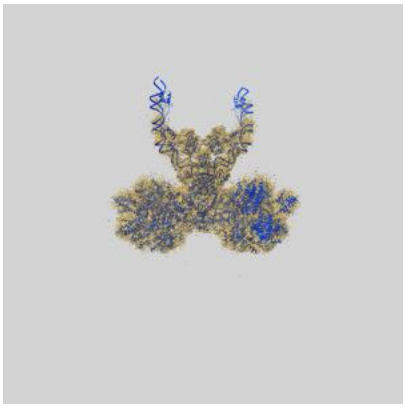
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.62	-	-
Author-provided FSC curve	3.62	4.29	3.67
Unmasked-calculated*	4.09	6.53	4.16

*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 4.09 differs from the reported value 3.62 by more than 10 %

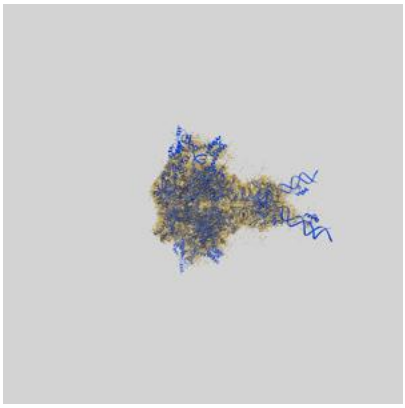
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-18144 and PDB model 8Q4D. Per-residue inclusion information can be found in section 3 on page 15.

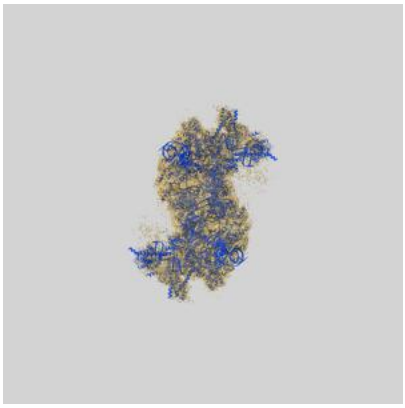
9.1 Map-model overlay



X



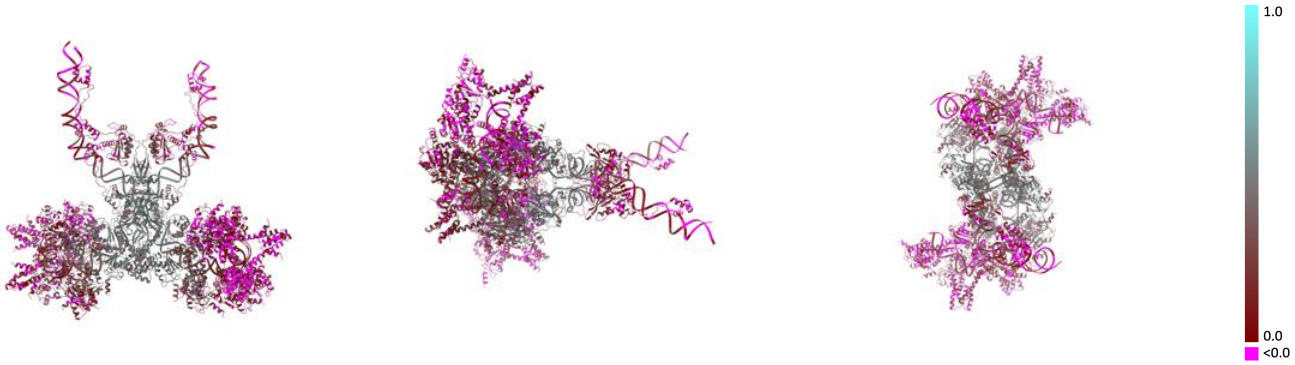
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0037 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

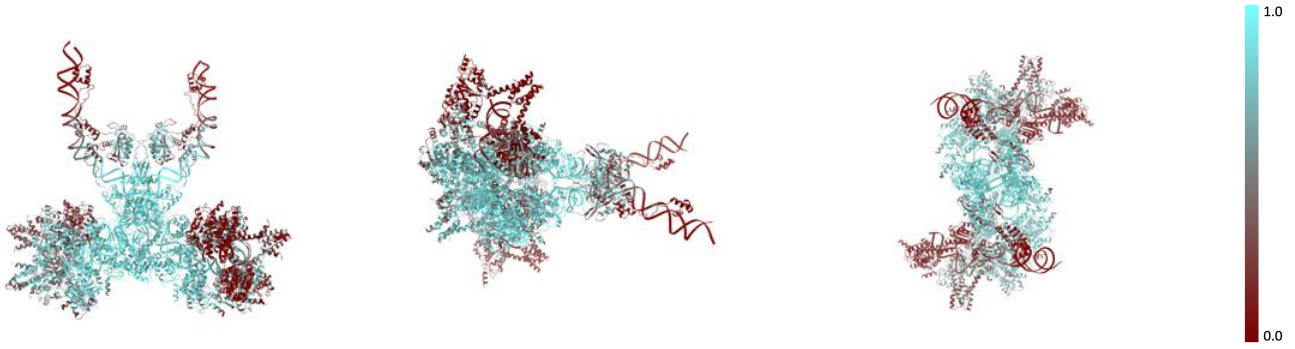
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

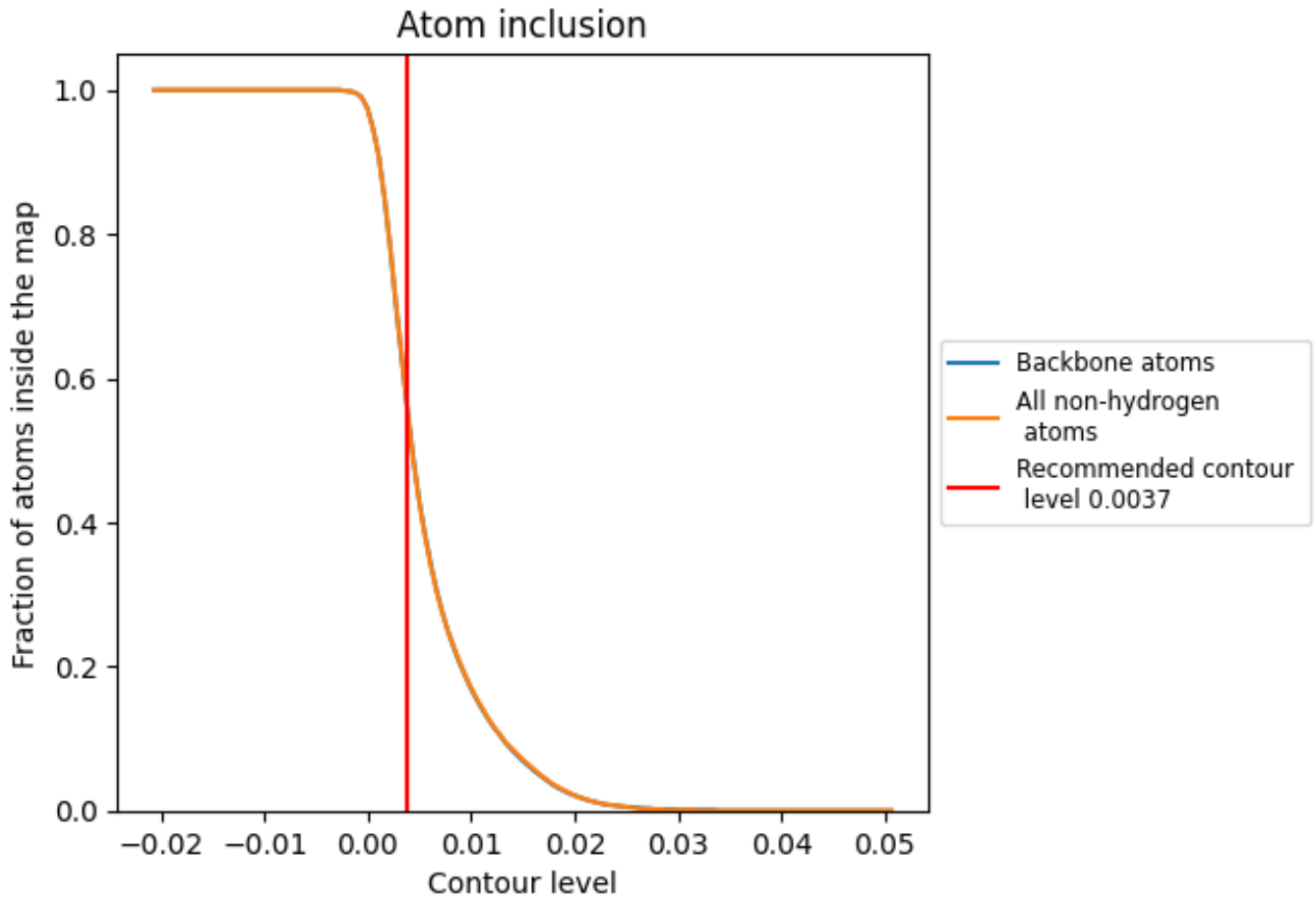
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0037).

9.4 Atom inclusion (i)



At the recommended contour level, 57% of all backbone atoms, 57% 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 (0.0037) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5710	0.2160
A	0.8370	0.4140
B	0.8370	0.4120
C	0.4790	0.1980
D	0.4790	0.1970
E	0.9180	0.4510
F	0.9160	0.4240
G	0.8230	0.3040
H	0.8000	0.2880
I	0.6950	0.1720
J	0.6450	0.1400
K	0.3220	0.0450
L	0.3620	0.0480
M	0.0760	0.0230
N	0.0440	-0.0010
O	0.9180	0.4500
P	0.9160	0.4230
Q	0.8230	0.3040
R	0.8000	0.2870
S	0.6950	0.1700
T	0.6450	0.1400
U	0.3220	0.0460
V	0.3620	0.0470
W	0.0750	0.0230
X	0.0440	-0.0030
a	0.5740	0.2370
b	0.5040	0.2180
c	0.6160	0.2020
d	0.5740	0.2360
e	0.5040	0.2190
f	0.6160	0.1980

