Full wwPDB EM Validation Report

Jul 8, 2025 – 02:12 PM JST

PDB ID	:	8Z3K / pdb_00008z3k
EMDB ID	:	EMD-39746
Title	:	The structure of type III CRISPR-associated deaminase in complex 2cA6-2ATP
Authors	:	Chen, M.R.; Li, Z.X.; Xiao, Y.B.
Deposited on	:	2024-04-15
Resolution	:	3.19 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:

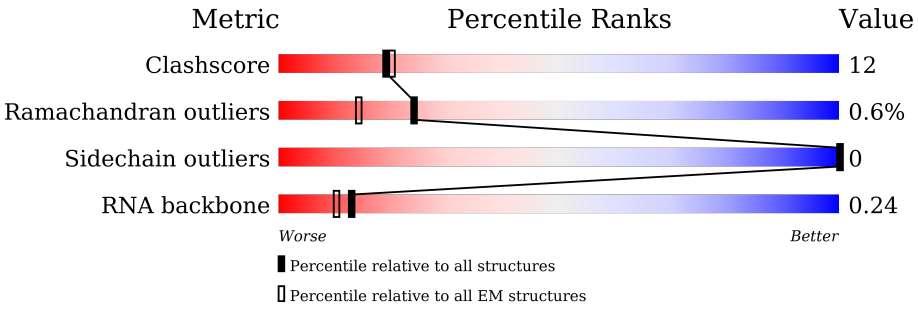
EMDB validation analysis	:	FAILED
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

1 Overall quality at a glance

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

The reported resolution of this entry is 3.19 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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%

Mol	Chain	Length	Quality of chain
1	A	635	72% 24% .
1	B	635	70% 26% . .
1	C	635	69% 27% . .
1	D	635	69% 27% .
1	E	635	44% 18% 38%
1	F	635	43% 19% 38%
2	H	6	33% 50% 17%
2	I	6	33% 33% 33%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	ATP	B	702	-	-	X	-

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 25475 atoms, of which 24 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 Adenosine deaminase domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	613	Total	C	N	O	S	0	0
			4741	2992	884	843	22		
1	B	615	Total	C	N	O	S	0	0
			4820	3044	895	859	22		
1	C	613	Total	C	N	O	S	0	0
			4810	3039	893	856	22		
1	D	614	Total	C	N	O	S	0	0
			4759	3003	885	849	22		
1	E	395	Total	C	N	O	S	0	0
			3014	1888	566	545	15		
1	F	394	Total	C	N	O	S	0	0
			2979	1870	559	536	14		

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	630	HIS	-	expression tag	UNP A0A6M1RED6
A	631	HIS	-	expression tag	UNP A0A6M1RED6
A	632	HIS	-	expression tag	UNP A0A6M1RED6
A	633	HIS	-	expression tag	UNP A0A6M1RED6
A	634	HIS	-	expression tag	UNP A0A6M1RED6
A	635	HIS	-	expression tag	UNP A0A6M1RED6
B	630	HIS	-	expression tag	UNP A0A6M1RED6
B	631	HIS	-	expression tag	UNP A0A6M1RED6
B	632	HIS	-	expression tag	UNP A0A6M1RED6
B	633	HIS	-	expression tag	UNP A0A6M1RED6
B	634	HIS	-	expression tag	UNP A0A6M1RED6
B	635	HIS	-	expression tag	UNP A0A6M1RED6
C	630	HIS	-	expression tag	UNP A0A6M1RED6
C	631	HIS	-	expression tag	UNP A0A6M1RED6
C	632	HIS	-	expression tag	UNP A0A6M1RED6
C	633	HIS	-	expression tag	UNP A0A6M1RED6
C	634	HIS	-	expression tag	UNP A0A6M1RED6
C	635	HIS	-	expression tag	UNP A0A6M1RED6

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Chain	Residue	Modelled	Actual	Comment	Reference
D	630	HIS	-	expression tag	UNP A0A6M1RED6
D	631	HIS	-	expression tag	UNP A0A6M1RED6
D	632	HIS	-	expression tag	UNP A0A6M1RED6
D	633	HIS	-	expression tag	UNP A0A6M1RED6
D	634	HIS	-	expression tag	UNP A0A6M1RED6
D	635	HIS	-	expression tag	UNP A0A6M1RED6
E	630	HIS	-	expression tag	UNP A0A6M1RED6
E	631	HIS	-	expression tag	UNP A0A6M1RED6
E	632	HIS	-	expression tag	UNP A0A6M1RED6
E	633	HIS	-	expression tag	UNP A0A6M1RED6
E	634	HIS	-	expression tag	UNP A0A6M1RED6
E	635	HIS	-	expression tag	UNP A0A6M1RED6
F	630	HIS	-	expression tag	UNP A0A6M1RED6
F	631	HIS	-	expression tag	UNP A0A6M1RED6
F	632	HIS	-	expression tag	UNP A0A6M1RED6
F	633	HIS	-	expression tag	UNP A0A6M1RED6
F	634	HIS	-	expression tag	UNP A0A6M1RED6
F	635	HIS	-	expression tag	UNP A0A6M1RED6

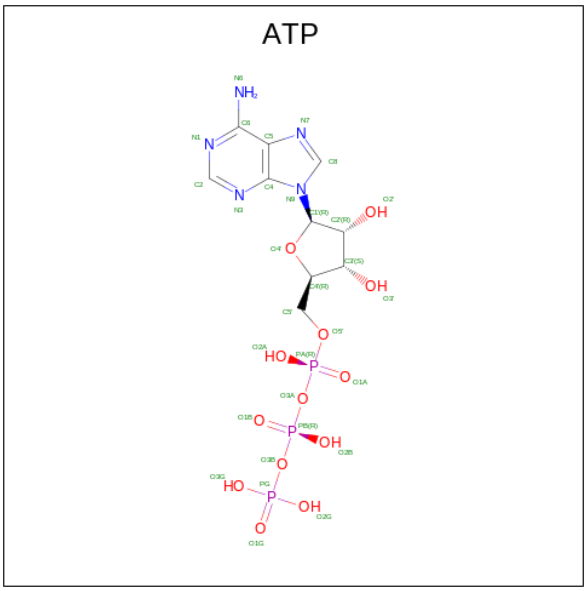
- Molecule 2 is a RNA chain called RNA (5'-R(P*AP*AP*AP*AP*AP*A)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
2	H	6	Total	C	N	O	P	0	0
			132	60	30	36	6		
2	I	6	Total	C	N	O	P	0	0
			132	60	30	36	6		

- Molecule 3 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
3	B	1	Total	Zn	0
			1	1	
3	C	1	Total	Zn	0
			1	1	

- Molecule 4 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).



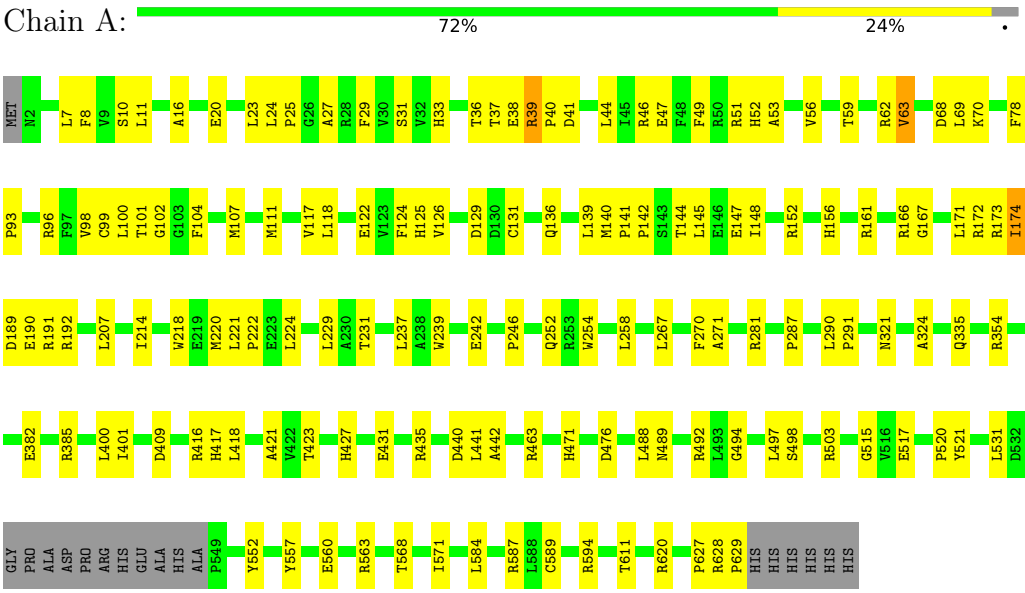
Mol	Chain	Residues	Atoms						AltConf
4	B	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	
4	C	1	Total	C	H	N	O	P	0
			43	10	12	5	13	3	

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. 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. 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.

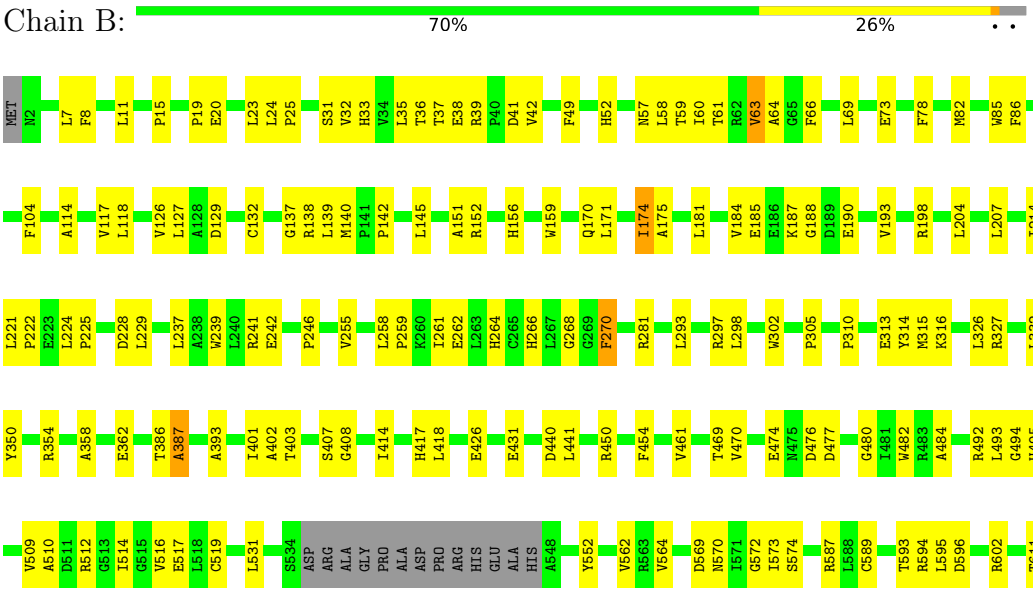
- Molecule 1: Adenosine deaminase domain-containing protein

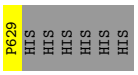
Chain A:



- Molecule 1: Adenosine deaminase domain-containing protein

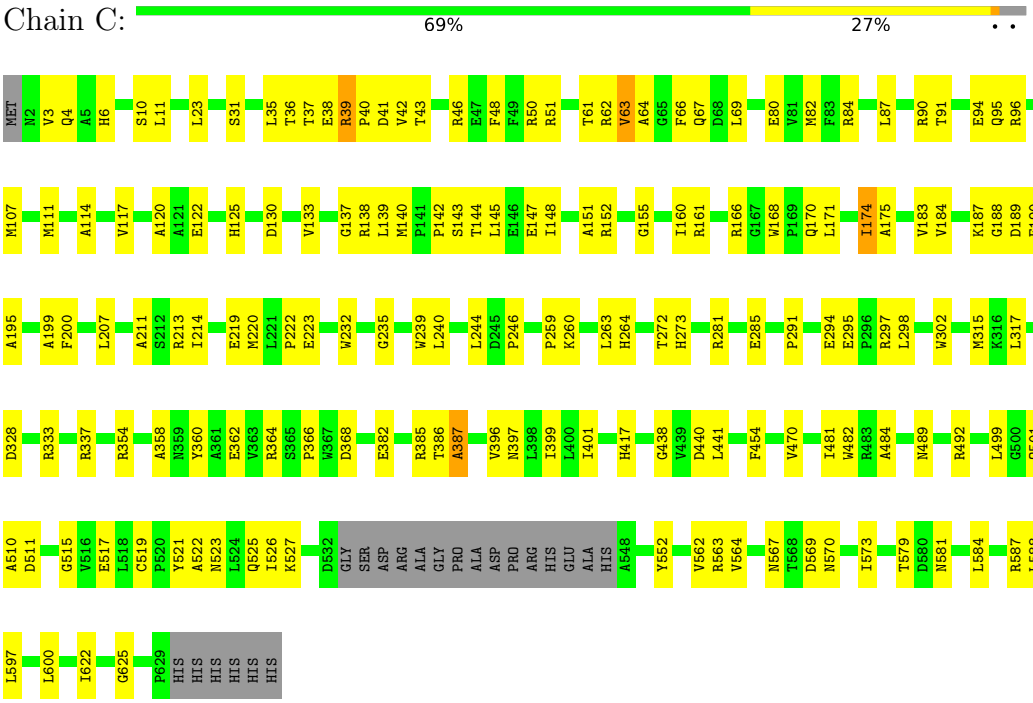
Chain B:





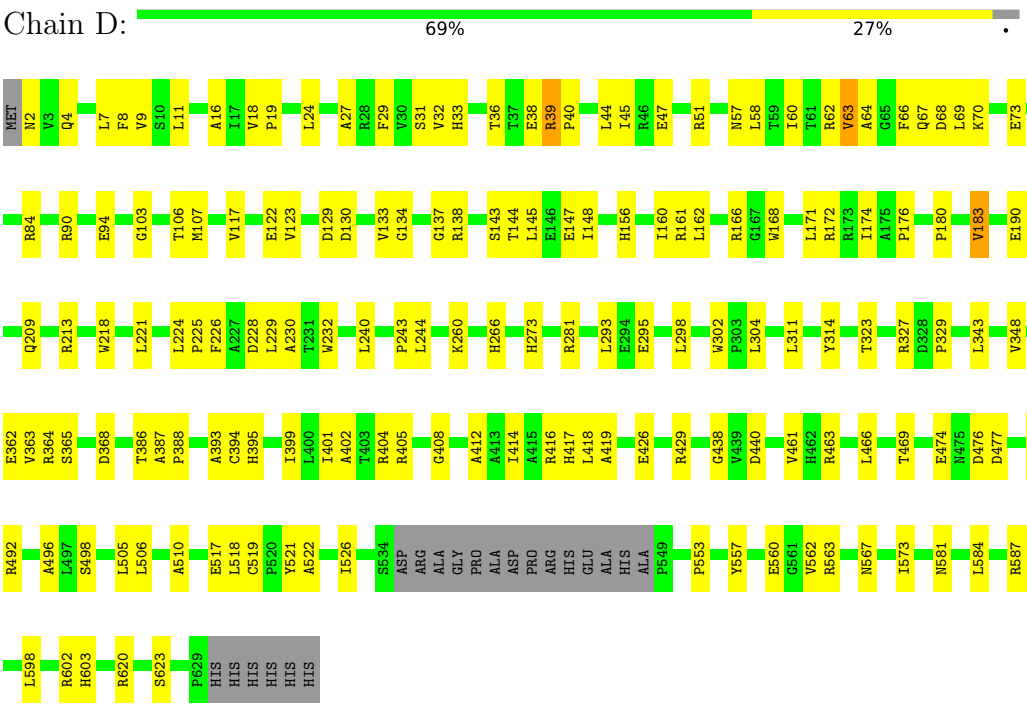
• Molecule 1: Adenosine deaminase domain-containing protein

Chain C:



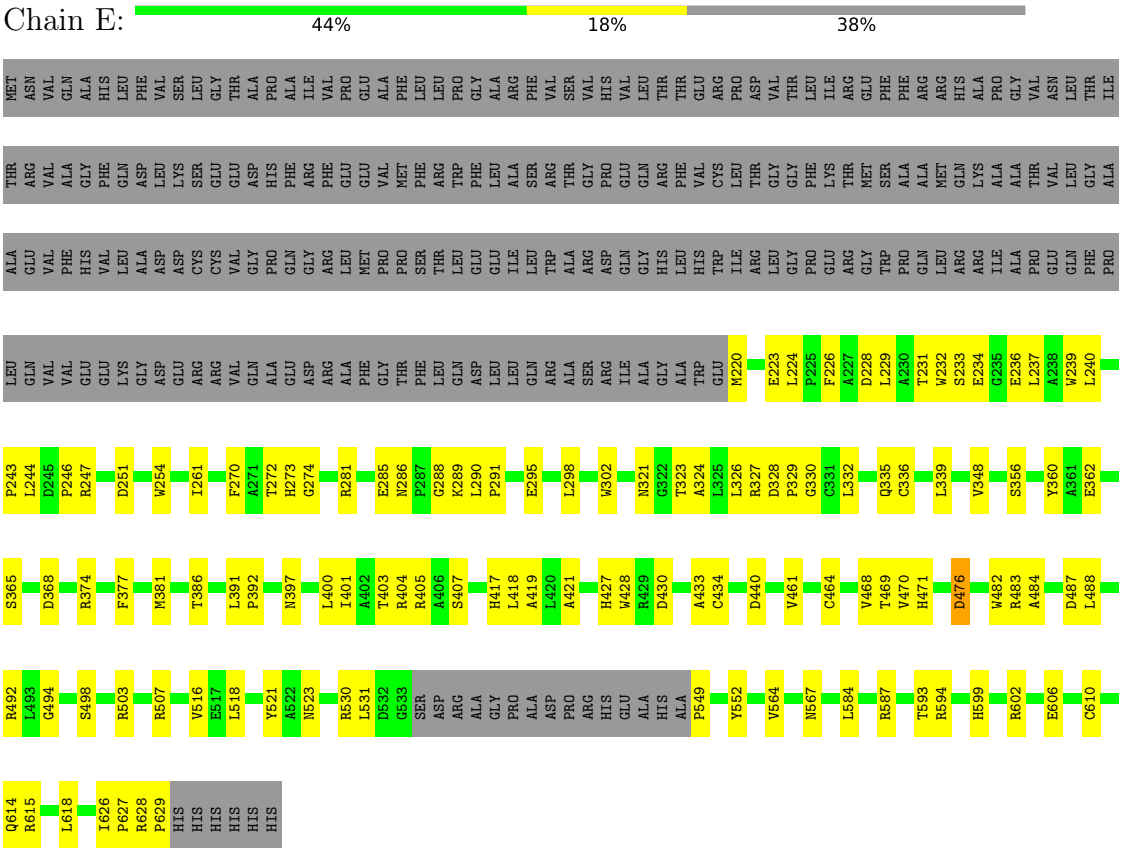
• Molecule 1: Adenosine deaminase domain-containing protein

Chain D:



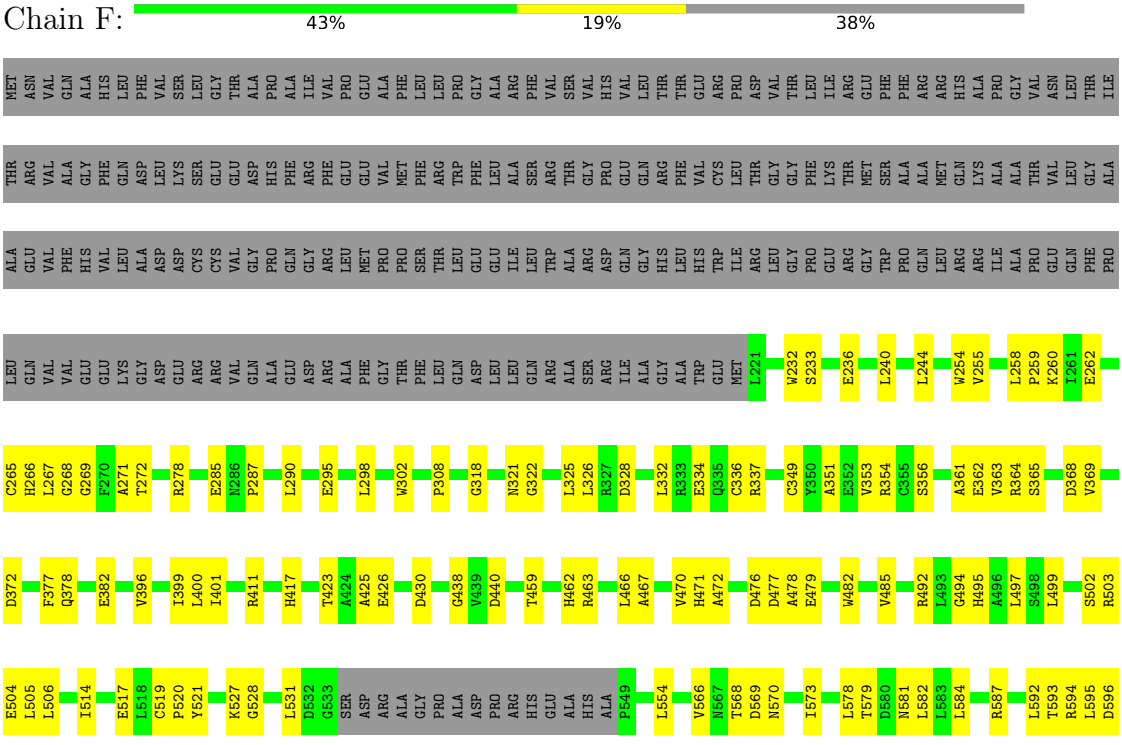
• Molecule 1: Adenosine deaminase domain-containing protein

Chain E:



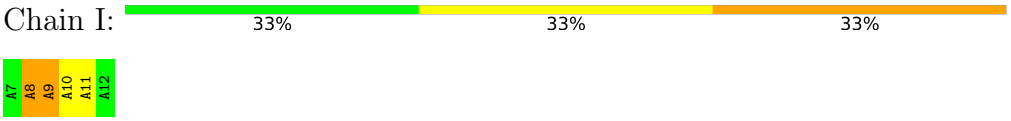
• Molecule 1: Adenosine deaminase domain-containing protein

Chain F:



• Molecule 2: RNA (5'-R(P*AP*AP*AP*AP*AP*A)-3')

• Molecule 2: RNA (5'-R(P*AP*AP*AP*AP*AP*A)-3')



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	67665	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 ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.19	0/4852	0.32	0/6603
1	B	0.19	0/4936	0.34	0/6712
1	C	0.17	0/4926	0.36	0/6699
1	D	0.16	0/4871	0.32	0/6628
1	E	0.16	0/3079	0.36	0/4196
1	F	0.16	0/3044	0.35	0/4152
2	H	0.21	0/149	0.16	0/230
2	I	0.15	0/149	0.19	0/230
All	All	0.17	0/26006	0.34	0/35450

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

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	4741	0	4688	108	0
1	B	4820	0	4786	133	0
1	C	4810	0	4778	131	0
1	D	4759	0	4701	124	0
1	E	3014	0	2983	79	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	2979	0	2932	81	0
2	H	132	0	67	3	0
2	I	132	0	67	3	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
4	B	31	12	11	11	0
4	C	31	12	12	7	0
All	All	25451	24	25025	630	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 12.

All (630) 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:C:569:ASP:OD2	4:C:702:ATP:N6	1.94	1.00
1:D:63:VAL:HG12	1:D:64:ALA:H	1.35	0.90
1:C:63:VAL:HG12	1:C:64:ALA:H	1.36	0.89
1:B:268:GLY:HA3	4:B:702:ATP:PA	2.13	0.88
1:B:268:GLY:O	4:B:702:ATP:O1A	1.96	0.82
1:B:91:THR:HB	1:B:95:GLN:HG3	1.62	0.80
1:B:482:TRP:HB2	1:B:505:LEU:HD21	1.64	0.80
1:B:418:LEU:HD12	1:B:461:VAL:HG21	1.62	0.79
1:E:440:ASP:HB3	1:E:469:THR:HG23	1.64	0.78
1:D:60:ILE:HB	1:D:190:GLU:HA	1.66	0.78
1:A:62:ARG:NH2	1:A:190:GLU:OE2	2.17	0.78
1:B:327:ARG:NH1	1:B:362:GLU:OE2	2.19	0.76
1:E:298:LEU:HD12	1:E:302:TRP:HB3	1.67	0.75
1:F:582:LEU:HD12	1:F:597:LEU:HD11	1.69	0.75
1:C:80:GLU:OE2	1:C:84:ARG:NH1	2.19	0.73
1:D:144:THR:HB	1:D:147:GLU:HB2	1.69	0.73
1:A:423:THR:HG21	1:F:423:THR:HG21	1.68	0.73
1:C:315:MET:HE2	4:C:702:ATP:N3	2.04	0.73
1:C:521:TYR:HE1	1:C:584:LEU:HD13	1.52	0.73
1:F:308:PRO:HG3	1:F:528:GLY:HA3	1.72	0.71
1:D:84:ARG:NH1	1:D:180:PRO:O	2.23	0.71
1:A:140:MET:SD	1:A:140:MET:N	2.64	0.71
1:D:228:ASP:OD1	1:D:623:SER:OG	2.09	0.71
1:D:567:ASN:O	1:D:581:ASN:ND2	2.24	0.71
1:D:364:ARG:HH21	1:D:368:ASP:HB3	1.55	0.70
1:E:530:ARG:HH12	1:E:549:PRO:HD2	1.55	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:35:LEU:HD12	1:C:111:MET:HE1	1.72	0.70
1:B:268:GLY:HA3	4:B:702:ATP:O1A	1.91	0.70
1:C:244:LEU:HB3	1:C:594:ARG:HG2	1.74	0.70
1:C:327:ARG:HH11	1:C:362:GLU:HG2	1.57	0.70
1:A:231:THR:O	1:A:628:ARG:NH2	2.24	0.70
1:B:474:GLU:OE1	1:B:495:HIS:ND1	2.20	0.70
1:E:281:ARG:NH1	1:E:291:PRO:O	2.24	0.69
1:A:38:GLU:HA	1:A:62:ARG:HD2	1.72	0.69
1:E:281:ARG:HG3	1:E:290:LEU:HD11	1.73	0.69
1:D:229:LEU:HD11	1:D:598:LEU:HD13	1.73	0.69
1:E:232:TRP:CD1	1:E:236:GLU:HG2	2.27	0.68
1:E:243:PRO:HA	1:E:593:THR:HA	1.74	0.68
1:A:122:GLU:OE2	1:A:161:ARG:NH1	2.26	0.68
1:C:567:ASN:O	1:C:581:ASN:ND2	2.26	0.68
1:E:251:ASP:OD1	1:E:594:ARG:NH1	2.27	0.67
1:B:11:LEU:HD11	1:B:15:PRO:HA	1.76	0.67
1:B:184:VAL:HG12	1:B:185:GLU:H	1.59	0.67
1:C:264:HIS:HD2	1:C:569:ASP:HA	1.60	0.67
1:B:268:GLY:C	4:B:702:ATP:O1A	2.38	0.67
1:C:160:ILE:HD13	1:D:69:LEU:HD21	1.76	0.67
1:D:225:PRO:O	1:D:602:ARG:NH1	2.28	0.66
1:F:364:ARG:HH21	1:F:368:ASP:HB3	1.61	0.66
1:D:144:THR:O	1:D:148:ILE:N	2.27	0.66
1:C:569:ASP:CG	4:C:702:ATP:N6	2.54	0.66
1:C:239:TRP:O	1:C:594:ARG:NH1	2.29	0.66
1:E:476:ASP:OD2	1:E:498:SER:OG	2.13	0.65
1:F:520:PRO:HD2	1:F:581:ASN:HD22	1.61	0.65
1:C:501:GLN:NE2	1:E:407:SER:O	2.29	0.65
1:D:168:TRP:HB2	1:D:171:LEU:HB2	1.79	0.65
1:E:270:PHE:O	1:E:321:ASN:ND2	2.31	0.64
1:F:351:ALA:HB3	1:F:396:VAL:HG12	1.80	0.64
1:B:403:THR:CG2	4:B:702:ATP:O3'	2.46	0.63
1:D:426:GLU:O	1:D:429:ARG:NH1	2.31	0.63
1:B:302:TRP:NE1	1:B:573:ILE:O	2.25	0.63
1:A:281:ARG:NH2	1:A:291:PRO:O	2.32	0.63
1:B:470:VAL:HG11	1:B:484:ALA:HB1	1.80	0.63
1:C:386:THR:HG23	1:C:387:ALA:H	1.63	0.63
1:F:554:LEU:HD23	1:F:592:LEU:HD21	1.81	0.63
1:C:46:ARG:O	1:C:50:ARG:N	2.28	0.63
1:C:354:ARG:NH2	1:C:517:GLU:OE1	2.32	0.63
1:D:354:ARG:NH1	1:D:440:ASP:OD2	2.32	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:266:HIS:HB2	1:F:570:ASN:HB3	1.81	0.62
1:C:51:ARG:HD2	1:C:145:LEU:HD21	1.82	0.61
1:C:354:ARG:NH1	1:C:440:ASP:OD2	2.32	0.61
1:E:386:THR:HA	1:E:391:LEU:HD12	1.81	0.61
1:A:27:ALA:HB1	1:A:29:PHE:CD2	2.35	0.61
1:B:354:ARG:NH1	1:B:440:ASP:OD2	2.33	0.61
1:F:258:LEU:HD12	1:F:259:PRO:HD2	1.82	0.61
1:B:268:GLY:CA	4:B:702:ATP:O1A	2.48	0.61
1:C:94:GLU:HG2	1:C:95:GLN:HG3	1.82	0.61
1:F:322:GLY:H	1:F:326:LEU:HD13	1.65	0.61
1:C:39:ARG:NH2	1:C:67:GLN:OE1	2.34	0.61
1:C:569:ASP:CG	4:C:702:ATP:HN61	2.07	0.61
1:F:349:CYS:SG	1:F:621:ARG:NH1	2.74	0.61
1:B:225:PRO:O	1:B:602:ARG:NH1	2.34	0.61
1:E:606:GLU:HA	1:E:615:ARG:HH21	1.65	0.61
1:B:132:CYS:O	1:B:139:LEU:N	2.34	0.60
1:C:526:ILE:HG23	1:C:527:LYS:HG2	1.81	0.60
1:C:10:SER:HB3	1:C:111:MET:HE3	1.82	0.60
1:F:266:HIS:O	1:F:268:GLY:N	2.34	0.60
1:A:62:ARG:HB3	1:A:192:ARG:HA	1.84	0.60
1:B:255:VAL:HA	1:B:258:LEU:HD23	1.83	0.60
1:E:220:MET:SD	1:E:220:MET:N	2.75	0.60
1:A:49:PHE:HA	1:A:53:ALA:HB3	1.84	0.59
1:C:213:ARG:HD3	1:C:232:TRP:C	2.28	0.59
1:E:516:VAL:HB	1:E:564:VAL:HG12	1.83	0.59
1:C:6:HIS:ND1	1:C:31:SER:OG	2.29	0.59
1:D:359:ASN:HD22	1:D:404:ARG:NH1	2.00	0.59
1:B:386:THR:HG23	1:B:387:ALA:H	1.67	0.59
1:C:48:PHE:HA	1:C:145:LEU:HD23	1.83	0.59
1:E:530:ARG:NH2	1:E:549:PRO:O	2.36	0.59
1:F:262:GLU:HB3	1:F:578:LEU:HD11	1.84	0.59
1:A:37:THR:HG21	2:H:4:A:C2	2.38	0.58
1:D:302:TRP:NE1	1:D:573:ILE:O	2.36	0.58
1:B:281:ARG:HH12	1:B:293:LEU:HA	1.68	0.58
1:B:495:HIS:NE2	1:B:519:CYS:SG	2.74	0.58
1:A:267:LEU:O	1:A:335:GLN:NE2	2.36	0.58
1:C:6:HIS:HD1	1:C:31:SER:HG	1.51	0.58
1:A:171:LEU:HA	1:A:174:ILE:HD11	1.85	0.58
1:B:516:VAL:HB	1:B:564:VAL:HG12	1.85	0.58
1:B:23:LEU:HD12	1:B:152:ARG:HG3	1.85	0.58
1:D:117:VAL:HG11	1:D:204:LEU:HD11	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:266:HIS:CE1	1:D:354:ARG:HD2	2.38	0.58
1:C:511:ASP:OD1	1:D:491:ARG:NH2	2.37	0.58
1:F:364:ARG:NH2	1:F:372:ASP:OD2	2.37	0.58
1:A:31:SER:HA	1:A:56:VAL:O	2.03	0.58
1:A:44:LEU:HD11	1:A:144:THR:HA	1.86	0.58
1:C:470:VAL:HG21	1:C:484:ALA:HB1	1.86	0.58
1:B:314:TYR:OH	1:B:574:SER:OG	2.20	0.57
1:C:46:ARG:NH2	1:C:189:ASP:OD1	2.33	0.57
1:D:38:GLU:OE2	1:D:66:PHE:N	2.30	0.57
1:D:402:ALA:HB1	1:D:414:ILE:HD12	1.86	0.57
1:D:416:ARG:NE	1:E:464:CYS:SG	2.73	0.57
1:E:482:TRP:HB3	1:F:463:ARG:HH21	1.70	0.57
1:B:242:GLU:HG3	1:B:594:ARG:HH12	1.69	0.57
1:D:243:PRO:HA	1:D:593:THR:HA	1.86	0.57
1:D:469:THR:HG22	1:D:492:ARG:HB2	1.86	0.57
1:B:315:MET:HE1	4:B:702:ATP:C8	2.40	0.57
1:A:46:ARG:NH1	1:A:189:ASP:OD1	2.38	0.57
1:D:133:VAL:HA	1:D:137:GLY:HA2	1.87	0.57
1:B:403:THR:HG23	4:B:702:ATP:O3'	2.05	0.57
1:B:7:LEU:HD22	1:B:32:VAL:HG13	1.87	0.56
1:C:62:ARG:NH2	1:C:190:GLU:HB3	2.20	0.56
1:B:333:ARG:HB3	1:B:337:ARG:HH11	1.70	0.56
1:A:11:LEU:HA	1:A:102:GLY:HA3	1.87	0.56
1:B:450:ARG:NH1	1:B:476:ASP:OD2	2.38	0.56
1:C:246:PRO:HG2	1:C:587:ARG:HB2	1.87	0.56
1:E:327:ARG:HD3	1:E:362:GLU:HG3	1.86	0.56
1:E:400:LEU:HB3	1:E:417:HIS:CE1	2.40	0.56
1:F:566:VAL:HB	1:F:600:LEU:HD21	1.87	0.56
1:A:354:ARG:HB3	1:A:401:ILE:HD11	1.87	0.56
1:A:171:LEU:HD21	1:A:207:LEU:HD13	1.88	0.56
1:A:431:GLU:OE1	1:A:435:ARG:NH1	2.38	0.56
1:B:401:ILE:O	1:B:417:HIS:ND1	2.38	0.56
1:D:506:LEU:HD21	1:D:560:GLU:HG3	1.87	0.56
1:A:409:ASP:HB2	1:F:463:ARG:HH22	1.70	0.56
1:C:521:TYR:CE1	1:C:584:LEU:HD13	2.38	0.56
1:A:220:MET:SD	1:A:220:MET:N	2.79	0.56
1:F:378:GLN:O	1:F:382:GLU:N	2.39	0.56
1:A:96:ARG:NH1	1:A:118:LEU:O	2.34	0.56
1:D:7:LEU:HB3	1:D:32:VAL:HG23	1.86	0.56
1:E:321:ASN:HD21	1:E:335:GLN:NE2	2.04	0.55
1:A:93:PRO:HG3	1:A:172:ARG:HB2	1.87	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:620:ARG:HH21	1:B:222:PRO:HG2	1.71	0.55
1:B:313:GLU:O	1:B:316:LYS:HG3	2.05	0.55
1:D:365:SER:HB2	1:E:427:HIS:HA	1.88	0.55
1:C:219:GLU:OE1	1:C:219:GLU:N	2.35	0.55
1:D:73:GLU:OE2	1:D:77:ARG:NH2	2.39	0.55
1:B:431:GLU:OE2	1:B:611:THR:OG1	2.24	0.55
1:F:287:PRO:HA	1:F:290:LEU:HD13	1.88	0.55
1:E:239:TRP:CD1	1:E:629:PRO:HG3	2.42	0.55
1:C:502:SER:HB2	1:C:505:LEU:HB3	1.87	0.55
1:B:11:LEU:HB3	1:B:36:THR:HG22	1.88	0.55
4:C:702:ATP:H3'	4:C:702:ATP:O3A	2.07	0.55
1:D:311:LEU:HG	1:D:474:GLU:HG2	1.89	0.55
1:B:73:GLU:OE1	1:B:198:ARG:NH2	2.39	0.54
1:B:221:LEU:HA	1:B:224:LEU:HD13	1.88	0.54
1:C:151:ALA:O	1:C:155:GLY:N	2.40	0.54
1:F:495:HIS:NE2	1:F:519:CYS:SG	2.80	0.54
1:D:122:GLU:OE2	1:D:161:ARG:NE	2.41	0.54
1:B:140:MET:O	1:B:142:PRO:HD3	2.07	0.54
1:C:37:THR:OG1	1:C:66:PHE:O	2.24	0.54
1:E:226:PHE:HB3	1:E:602:ARG:NH2	2.22	0.54
1:C:482:TRP:CZ2	1:D:463:ARG:HD2	2.43	0.54
1:E:400:LEU:HD12	1:E:421:ALA:HB2	1.89	0.54
1:A:131:CYS:SG	1:A:156:HIS:NE2	2.77	0.54
1:C:382:GLU:OE1	1:C:385:ARG:NH1	2.40	0.54
1:D:63:VAL:CG1	1:D:64:ALA:H	2.15	0.54
1:C:63:VAL:HG12	1:C:64:ALA:N	2.15	0.54
1:C:259:PRO:HG2	1:C:622:ILE:HG23	1.89	0.54
1:D:47:GLU:OE2	1:D:51:ARG:NH2	2.40	0.54
1:D:78:PHE:CZ	1:D:107:MET:HG3	2.43	0.54
1:D:584:LEU:O	1:D:588:LEU:N	2.37	0.54
1:A:416:ARG:NE	1:F:426:GLU:OE2	2.40	0.54
1:D:45:ILE:HG22	1:D:58:LEU:HD21	1.89	0.53
1:D:240:LEU:HG	1:D:595:LEU:HB3	1.90	0.53
1:E:323:THR:O	1:E:327:ARG:NH2	2.41	0.53
1:E:418:LEU:HD12	1:E:461:VAL:HG11	1.88	0.53
1:F:336:CYS:HB2	1:F:377:PHE:CE1	2.44	0.53
1:C:69:LEU:HG	1:D:160:ILE:HG12	1.91	0.53
1:D:90:ARG:HD2	1:D:176:PRO:HG2	1.90	0.53
1:A:100:LEU:HD12	1:A:100:LEU:O	2.08	0.53
1:D:63:VAL:HG12	1:D:64:ALA:N	2.14	0.53
1:B:402:ALA:HB1	1:B:414:ILE:HG23	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:329:PRO:HG3	1:D:364:ARG:HH11	1.74	0.53
1:F:326:LEU:HB3	1:F:332:LEU:HD12	1.91	0.53
1:A:166:ARG:HD3	1:A:167:GLY:O	2.08	0.53
1:C:4:GLN:OE1	1:C:95:GLN:NE2	2.41	0.53
1:C:322:GLY:HA3	4:C:702:ATP:O3G	2.08	0.53
1:D:8:PHE:HD1	1:D:33:HIS:HB2	1.73	0.53
1:A:90:ARG:HE	1:A:176:PRO:HG3	1.74	0.53
1:F:244:LEU:HD21	1:F:594:ARG:HB2	1.91	0.53
1:A:497:LEU:O	1:A:557:TYR:OH	2.25	0.53
1:D:228:ASP:OD1	1:D:228:ASP:N	2.40	0.53
1:F:255:VAL:HG13	1:F:579:THR:HG23	1.90	0.53
1:A:10:SER:HB2	1:A:107:MET:HE2	1.91	0.52
1:C:401:ILE:HD13	4:C:702:ATP:H5'1	1.91	0.52
1:D:408:GLY:HA3	1:D:412:ALA:HB3	1.91	0.52
1:E:288:GLY:O	1:E:289:LYS:HE2	2.09	0.52
1:B:531:LEU:HD21	1:B:587:ARG:NE	2.24	0.52
1:C:240:LEU:O	1:C:240:LEU:HD23	2.09	0.52
1:D:221:LEU:HD12	1:D:230:ALA:HB3	1.91	0.52
1:D:129:ASP:OD1	1:D:156:HIS:HB3	2.10	0.52
1:F:492:ARG:NE	1:F:517:GLU:OE2	2.42	0.52
1:B:242:GLU:HG3	1:B:594:ARG:NH1	2.24	0.52
1:C:515:GLY:HA2	1:C:563:ARG:HB2	1.92	0.52
1:B:118:LEU:HD12	1:B:171:LEU:O	2.09	0.52
1:D:24:LEU:HB3	1:D:27:ALA:HB2	1.91	0.52
1:D:171:LEU:HA	1:D:174:ILE:HD11	1.91	0.52
1:A:442:ALA:HB2	1:A:471:HIS:HB3	1.92	0.52
1:A:476:ASP:O	1:A:498:SER:OG	2.28	0.52
1:B:492:ARG:NE	1:B:517:GLU:OE2	2.41	0.52
1:F:470:VAL:O	1:F:494:GLY:N	2.40	0.52
1:A:24:LEU:HD12	1:A:25:PRO:HD2	1.92	0.52
1:E:374:ARG:NH1	1:E:434:CYS:O	2.43	0.52
1:B:33:HIS:ND1	1:B:59:THR:OG1	2.39	0.52
1:A:270:PHE:HB3	1:A:335:GLN:HE21	1.75	0.51
1:C:105:LYS:HG2	2:I:9:A:OP1	2.10	0.51
1:D:7:LEU:HD12	1:D:29:PHE:CE2	2.45	0.51
1:A:117:VAL:HG23	1:A:118:LEU:HD12	1.92	0.51
1:B:8:PHE:HE1	1:B:33:HIS:HD2	1.58	0.51
1:B:224:LEU:HD23	1:B:229:LEU:HB3	1.93	0.51
1:C:260:LYS:HE2	1:C:579:THR:HG22	1.92	0.51
1:E:323:THR:HA	1:E:360:TYR:HE1	1.76	0.51
1:B:174:ILE:HG22	1:B:175:ALA:H	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:2:ASN:O	1:D:4:GLN:NE2	2.43	0.51
1:E:374:ARG:HE	1:E:428:TRP:NE1	2.08	0.51
1:F:272:THR:HG21	1:F:573:ILE:HD13	1.92	0.51
1:F:568:THR:HG21	1:F:578:LEU:HD22	1.92	0.51
1:A:63:VAL:HG22	1:A:81:VAL:HG11	1.91	0.51
1:D:80:GLU:HB2	1:D:198:ARG:HG3	1.93	0.51
1:F:438:GLY:HA2	1:F:467:ALA:O	2.09	0.51
1:F:459:THR:HA	1:F:462:HIS:CE1	2.45	0.51
1:F:278:ARG:NH1	1:F:295:GLU:OE2	2.44	0.51
1:C:62:ARG:HD2	1:C:192:ARG:HB2	1.93	0.51
1:C:144:THR:OG1	1:C:145:LEU:N	2.43	0.51
1:A:69:LEU:HD23	1:B:127:LEU:HD11	1.92	0.51
1:B:264:HIS:NE2	1:B:569:ASP:OD1	2.44	0.51
1:B:242:GLU:O	1:B:594:ARG:NH1	2.44	0.50
1:F:233:SER:OG	1:F:236:GLU:OE1	2.22	0.50
1:A:53:ALA:HB1	1:A:56:VAL:HG11	1.93	0.50
1:A:520:PRO:HB2	1:A:584:LEU:HD23	1.93	0.50
1:B:469:THR:HG22	1:B:492:ARG:HB2	1.93	0.50
1:F:271:ALA:O	1:F:321:ASN:ND2	2.45	0.50
1:B:450:ARG:HD3	1:B:480:GLY:HA2	1.93	0.50
1:C:482:TRP:CD1	1:C:505:LEU:HD13	2.46	0.50
1:B:137:GLY:O	1:B:138:ARG:HD3	2.11	0.50
1:B:426:GLU:OE1	1:C:366:PRO:HD2	2.11	0.50
1:E:324:ALA:HA	1:E:327:ARG:HH21	1.77	0.50
1:B:8:PHE:HE1	1:B:33:HIS:CD2	2.30	0.50
1:B:181:LEU:HD21	1:B:193:VAL:HG21	1.94	0.50
1:E:244:LEU:HD12	1:E:594:ARG:HD2	1.94	0.50
1:E:403:THR:O	1:E:405:ARG:N	2.44	0.50
1:A:52:HIS:HE1	1:A:145:LEU:HD22	1.77	0.50
1:B:37:THR:OG1	1:B:66:PHE:O	2.28	0.50
1:B:60:ILE:HB	1:B:190:GLU:HA	1.94	0.50
1:C:523:ASN:HA	1:C:526:ILE:HG22	1.92	0.50
1:A:492:ARG:NE	1:A:517:GLU:OE2	2.45	0.50
1:B:315:MET:HE1	4:B:702:ATP:N9	2.17	0.50
1:D:44:LEU:HG	1:D:145:LEU:HD21	1.94	0.50
1:F:497:LEU:HD21	1:F:527:LYS:HE3	1.92	0.50
1:D:440:ASP:OD1	1:D:440:ASP:N	2.42	0.50
1:F:302:TRP:NE1	1:F:573:ILE:O	2.42	0.50
1:B:220:MET:HE1	1:B:241:ARG:HH21	1.77	0.49
1:B:246:PRO:HG2	1:B:587:ARG:HB2	1.94	0.49
1:C:326:LEU:HB2	1:C:360:TYR:CE1	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:228:ASP:CG	1:E:231:THR:HA	2.37	0.49
1:E:521:TYR:CZ	1:E:584:LEU:HD13	2.47	0.49
1:A:291:PRO:HG3	1:A:324:ALA:HB1	1.93	0.49
1:B:259:PRO:HG2	1:B:622:ILE:HG23	1.95	0.49
1:C:298:LEU:HD13	1:C:302:TRP:HB2	1.95	0.49
1:E:483:ARG:NH1	1:E:487:ASP:OD2	2.45	0.49
1:D:80:GLU:HG3	1:D:198:ARG:HA	1.94	0.49
1:D:221:LEU:HA	1:D:224:LEU:HD12	1.93	0.49
1:D:260:LYS:HB2	1:D:348:VAL:HG12	1.92	0.49
1:A:7:LEU:HD12	1:A:29:PHE:CZ	2.48	0.49
1:A:39:ARG:H	1:A:40:PRO:HD2	1.77	0.49
1:B:298:LEU:HD13	1:B:302:TRP:HB2	1.94	0.49
1:A:427:HIS:HA	1:F:365:SER:HB2	1.93	0.49
1:B:262:GLU:OE2	1:B:264:HIS:N	2.37	0.49
1:C:584:LEU:HD12	1:C:587:ARG:HH21	1.77	0.49
1:D:510:ALA:HB2	1:D:562:VAL:HG22	1.94	0.49
1:A:129:ASP:OD1	1:A:129:ASP:N	2.41	0.49
1:B:117:VAL:HG21	1:B:204:LEU:HD11	1.94	0.49
1:B:171:LEU:HD13	1:B:174:ILE:HD11	1.94	0.49
1:C:166:ARG:NH1	1:D:209:GLN:OE1	2.35	0.49
1:E:427:HIS:HD2	1:E:428:TRP:CE2	2.30	0.49
1:A:418:LEU:HD21	1:A:441:LEU:HD21	1.94	0.49
1:E:336:CYS:HB2	1:E:377:PHE:CE1	2.48	0.49
1:A:354:ARG:NH2	1:A:440:ASP:OD2	2.33	0.49
1:B:354:ARG:NH2	1:B:517:GLU:OE1	2.46	0.49
1:B:476:ASP:OD1	1:B:477:ASP:N	2.40	0.49
1:C:584:LEU:O	1:C:588:LEU:N	2.35	0.49
1:C:100:LEU:HD12	1:C:100:LEU:O	2.13	0.49
1:F:471:HIS:HA	1:F:494:GLY:HA3	1.94	0.48
1:D:62:ARG:HH12	1:D:190:GLU:HB3	1.79	0.48
1:D:401:ILE:HA	1:D:440:ASP:OD1	2.12	0.48
1:B:129:ASP:HB2	1:B:156:HIS:HB2	1.96	0.48
1:C:133:VAL:HA	1:C:138:ARG:HE	1.79	0.48
1:C:386:THR:HG23	1:C:387:ALA:N	2.28	0.48
1:D:595:LEU:HA	1:D:598:LEU:HD12	1.96	0.48
1:A:463:ARG:HD3	1:F:411:ARG:HB3	1.95	0.48
1:C:440:ASP:OD1	1:C:441:LEU:N	2.47	0.48
1:D:31:SER:HA	1:D:57:ASN:HB2	1.94	0.48
1:C:223:GLU:OE1	1:C:223:GLU:N	2.43	0.48
1:F:477:ASP:OD1	1:F:479:GLU:N	2.45	0.48
1:A:214:ILE:HD11	1:B:218:TRP:CZ3	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:358:ALA:HB3	1:B:417:HIS:NE2	2.28	0.48
1:C:295:GLU:HG3	1:C:297:ARG:HH21	1.79	0.48
1:D:492:ARG:NE	1:D:517:GLU:OE2	2.46	0.48
1:C:160:ILE:HD11	1:D:106:THR:HG21	1.96	0.48
1:C:481:ILE:HG21	1:C:499:LEU:HD13	1.94	0.48
1:D:298:LEU:HB3	1:D:302:TRP:HB2	1.95	0.48
1:A:136:GLN:O	1:A:139:LEU:HD23	2.13	0.48
1:B:225:PRO:HD3	1:B:595:LEU:HD11	1.95	0.48
1:C:519:CYS:SG	1:C:522:ALA:HB3	2.54	0.48
1:D:476:ASP:O	1:D:498:SER:OG	2.32	0.48
1:F:502:SER:O	1:F:504:GLU:N	2.47	0.48
1:A:378:GLN:HE21	1:A:382:GLU:HG2	1.79	0.48
1:D:80:GLU:OE2	1:D:84:ARG:NE	2.46	0.48
1:D:304:LEU:HD13	1:D:587:ARG:HH22	1.79	0.47
1:E:285:GLU:HB2	1:E:330:GLY:HA3	1.95	0.47
1:A:224:LEU:HD23	1:A:229:LEU:HB2	1.97	0.47
1:C:489:ASN:ND2	1:D:486:PHE:O	2.35	0.47
1:D:226:PHE:HB2	1:D:229:LEU:HB2	1.95	0.47
1:F:232:TRP:HZ3	1:F:240:LEU:HD21	1.79	0.47
1:D:394:CYS:SG	1:D:395:HIS:N	2.87	0.47
1:F:232:TRP:CZ3	1:F:240:LEU:HD21	2.50	0.47
1:D:244:LEU:HD13	1:D:594:ARG:HG2	1.95	0.47
1:D:521:TYR:HE1	1:D:584:LEU:HD13	1.79	0.47
1:C:519:CYS:SG	1:C:569:ASP:HB2	2.55	0.47
1:D:133:VAL:HG23	1:D:137:GLY:HA2	1.95	0.47
1:B:297:ARG:HH21	1:B:298:LEU:HG	1.79	0.47
1:C:214:ILE:HD11	1:D:218:TRP:CD1	2.49	0.47
1:C:263:LEU:HD13	1:C:492:ARG:HH11	1.78	0.47
1:C:294:GLU:N	1:C:294:GLU:OE1	2.48	0.47
1:A:24:LEU:O	1:A:27:ALA:HB2	2.15	0.47
1:A:271:ALA:O	1:A:321:ASN:ND2	2.47	0.47
1:B:52:HIS:CD2	1:B:145:LEU:HD12	2.50	0.47
1:B:69:LEU:HB2	1:B:104:PHE:CE2	2.49	0.47
1:B:393:ALA:O	1:B:621:ARG:NH2	2.41	0.47
1:C:11:LEU:HB2	1:C:36:THR:HG22	1.97	0.47
1:D:405:ARG:O	1:D:405:ARG:HD3	2.14	0.47
1:E:223:GLU:HG2	1:E:224:LEU:N	2.30	0.47
1:E:336:CYS:HA	1:E:339:LEU:HD12	1.95	0.47
1:A:46:ARG:NH2	1:A:190:GLU:OE1	2.46	0.47
1:B:137:GLY:C	1:B:138:ARG:HD3	2.40	0.47
1:F:593:THR:HG23	1:F:596:ASP:H	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:386:THR:HG23	1:B:387:ALA:N	2.29	0.46
1:C:143:SER:OG	1:C:147:GLU:OE1	2.17	0.46
1:E:391:LEU:N	1:E:392:PRO:HD3	2.30	0.46
1:F:361:ALA:HB2	1:F:369:VAL:HG21	1.97	0.46
1:A:174:ILE:HG22	1:A:175:ALA:H	1.80	0.46
1:B:237:LEU:HB3	1:B:241:ARG:HH12	1.80	0.46
1:C:84:ARG:HH22	1:C:199:ALA:HB3	1.81	0.46
1:A:515:GLY:HA2	1:A:563:ARG:HB2	1.97	0.46
1:C:144:THR:O	1:C:148:ILE:HD13	2.15	0.46
1:C:222:PRO:HG2	1:D:620:ARG:HH21	1.80	0.46
1:C:364:ARG:HG2	1:C:368:ASP:HB2	1.97	0.46
1:A:242:GLU:HB2	1:A:594:ARG:HH12	1.80	0.46
1:B:151:ALA:HA	1:B:156:HIS:CE1	2.51	0.46
1:B:502:SER:OG	1:B:505:LEU:HD13	2.15	0.46
1:B:552:TYR:HB3	1:B:589:CYS:SG	2.55	0.46
1:E:274:GLY:N	1:E:295:GLU:OE2	2.47	0.46
1:F:499:LEU:HB3	1:F:506:LEU:HD12	1.98	0.46
1:B:41:ASP:OD1	1:B:42:VAL:N	2.49	0.46
1:C:358:ALA:HB3	1:C:417:HIS:CE1	2.51	0.46
1:D:166:ARG:HH22	1:D:172:ARG:HD3	1.80	0.46
1:E:503:ARG:NH2	1:E:507:ARG:HH21	2.13	0.46
1:F:430:ASP:OD1	1:F:430:ASP:N	2.48	0.46
1:E:531:LEU:HD12	1:E:587:ARG:HD2	1.98	0.46
1:F:425:ALA:HB2	1:F:466:LEU:HD21	1.97	0.46
1:A:568:THR:HG21	1:A:571:ILE:HG12	1.98	0.46
1:D:183:VAL:HG13	1:D:191:ARG:HD2	1.98	0.46
1:D:461:VAL:HG13	1:D:466:LEU:HB2	1.97	0.46
1:B:139:LEU:HD23	1:B:140:MET:N	2.31	0.46
1:B:261:ILE:HG23	1:B:350:TYR:HB3	1.98	0.46
1:D:122:GLU:CD	1:D:161:ARG:HE	2.24	0.46
1:E:365:SER:N	1:E:368:ASP:OD2	2.41	0.46
1:B:170:GLN:HE21	1:B:207:LEU:HD11	1.81	0.46
1:B:510:ALA:HB2	1:B:562:VAL:HG22	1.97	0.46
1:C:211:ALA:HA	1:C:214:ILE:HG22	1.97	0.46
1:C:441:LEU:HD21	1:C:454:PHE:HD2	1.81	0.46
1:C:552:TYR:HB3	1:C:589:CYS:SG	2.56	0.46
1:A:221:LEU:N	1:A:222:PRO:HD2	2.31	0.45
1:B:63:VAL:HG11	1:B:78:PHE:HD1	1.79	0.45
1:A:254:TRP:NE1	1:A:627:PRO:O	2.46	0.45
1:C:23:LEU:HD21	1:C:152:ARG:HD2	1.99	0.45
1:D:103:GLY:HA3	1:D:107:MET:SD	2.56	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:419:ALA:HA	1:E:419:ALA:HB1	1.97	0.45
1:E:240:LEU:HA	1:E:594:ARG:HB2	1.98	0.45
1:E:518:LEU:O	1:E:567:ASN:N	2.46	0.45
1:B:310:PRO:HG2	1:B:313:GLU:OE1	2.17	0.45
1:C:96:ARG:HB2	1:C:120:ALA:HA	1.99	0.45
1:D:343:LEU:HD22	1:D:348:VAL:HG21	1.98	0.45
1:E:223:GLU:HB3	1:F:620:ARG:HD3	1.98	0.45
1:A:11:LEU:HD23	1:A:11:LEU:H	1.81	0.45
1:A:400:LEU:HD12	1:A:421:ALA:HB2	1.98	0.45
1:B:174:ILE:HG22	1:B:175:ALA:N	2.31	0.45
1:D:133:VAL:HG13	1:D:134:GLY:N	2.31	0.45
1:F:298:LEU:HD12	1:F:302:TRP:HB3	1.98	0.45
1:A:49:PHE:CD1	1:A:56:VAL:HG21	2.52	0.45
1:A:140:MET:O	1:A:142:PRO:HD3	2.17	0.45
1:B:8:PHE:HB3	1:B:85:TRP:HH2	1.82	0.45
1:D:477:ASP:N	1:D:477:ASP:OD1	2.48	0.45
1:D:519:CYS:SG	1:D:522:ALA:HB3	2.56	0.45
1:D:563:ARG:HG3	1:D:603:HIS:ND1	2.31	0.45
1:E:234:GLU:HA	1:E:237:LEU:HD12	1.99	0.45
1:B:313:GLU:OE1	1:B:313:GLU:N	2.50	0.45
1:B:407:SER:OG	1:B:408:GLY:N	2.49	0.45
1:D:7:LEU:HD21	1:D:9:VAL:HB	1.99	0.45
1:E:469:THR:OG1	1:E:492:ARG:HB3	2.17	0.45
1:B:138:ARG:O	1:B:138:ARG:HG2	2.16	0.45
1:D:273:HIS:HD2	1:D:295:GLU:HB3	1.82	0.45
1:D:387:ALA:HB1	1:D:388:PRO:HD2	1.99	0.45
1:E:229:LEU:HD22	1:E:626:ILE:HD11	1.98	0.45
1:B:270:PHE:O	1:B:572:GLY:HA3	2.17	0.45
1:F:356:SER:HB2	1:F:401:ILE:HG23	1.98	0.45
1:F:618:LEU:O	1:F:622:ILE:HG12	2.16	0.45
1:C:333:ARG:HG2	1:C:337:ARG:HH21	1.81	0.45
1:E:261:ILE:HA	1:E:348:VAL:HG23	1.98	0.45
1:C:10:SER:HB2	1:C:107:MET:HE2	1.98	0.44
1:F:265:CYS:HB2	1:F:353:VAL:HA	1.99	0.44
1:A:47:GLU:OE2	1:A:51:ARG:NE	2.50	0.44
1:A:503:ARG:NH1	1:A:560:GLU:OE2	2.50	0.44
1:B:38:GLU:O	1:B:38:GLU:HG2	2.17	0.44
1:C:482:TRP:HD1	1:C:505:LEU:HD22	1.81	0.44
1:C:521:TYR:O	1:C:525:GLN:HG2	2.18	0.44
1:D:11:LEU:HB2	1:D:36:THR:HB	2.00	0.44
1:E:503:ARG:HH12	1:E:507:ARG:HE	1.66	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:218:TRP:CH2	1:B:228:ASP:HA	2.53	0.44
1:A:435:ARG:HH22	1:A:611:THR:HG23	1.83	0.44
1:A:552:TYR:HB3	1:A:589:CYS:SG	2.58	0.44
1:C:41:ASP:OD1	1:C:42:VAL:N	2.50	0.44
1:D:39:ARG:HD3	1:D:67:GLN:HB2	1.99	0.44
1:F:265:CYS:HA	1:F:569:ASP:O	2.17	0.44
1:F:400:LEU:HB3	1:F:417:HIS:NE2	2.33	0.44
1:C:48:PHE:HD1	1:C:145:LEU:HB3	1.83	0.44
1:C:63:VAL:CG1	1:C:64:ALA:H	2.18	0.44
1:D:362:GLU:OE1	1:D:363:VAL:N	2.51	0.44
1:E:286:ASN:ND2	1:E:289:LYS:HG3	2.33	0.44
1:E:377:PHE:O	1:E:381:MET:N	2.40	0.44
1:E:599:HIS:HA	1:E:602:ARG:HB3	2.00	0.44
1:A:78:PHE:CZ	1:A:107:MET:HG3	2.53	0.44
1:C:80:GLU:OE1	1:C:195:ALA:HB2	2.18	0.44
1:D:7:LEU:HD12	1:D:29:PHE:HE2	1.82	0.44
1:C:37:THR:HG21	2:I:10:A:N1	2.32	0.44
1:A:37:THR:HG21	2:H:4:A:N1	2.33	0.44
1:A:258:LEU:HD23	1:A:627:PRO:HD2	2.00	0.44
1:B:31:SER:HA	1:B:57:ASN:O	2.17	0.44
1:B:33:HIS:HB3	1:B:85:TRP:HZ2	1.82	0.44
1:A:8:PHE:HE1	1:A:33:HIS:CD2	2.36	0.44
1:B:20:GLU:HB3	1:B:126:VAL:HG11	1.98	0.44
1:B:90:ARG:O	1:B:91:THR:OG1	2.31	0.44
1:E:468:VAL:HG12	1:E:470:VAL:HG23	2.00	0.44
1:F:477:ASP:OD1	1:F:478:ALA:N	2.51	0.44
1:A:98:VAL:HG13	1:A:111:MET:HE3	2.00	0.43
1:A:287:PRO:HA	1:A:290:LEU:HD23	2.00	0.43
1:B:24:LEU:HD12	1:B:25:PRO:HD2	2.00	0.43
1:B:333:ARG:HB3	1:B:337:ARG:NH1	2.32	0.43
1:A:11:LEU:HD21	1:A:36:THR:HG22	1.99	0.43
1:A:172:ARG:NH1	1:A:173:ARG:HG2	2.33	0.43
1:A:364:ARG:NH1	1:A:372:ASP:OD2	2.34	0.43
1:A:33:HIS:ND1	1:A:59:THR:OG1	2.47	0.43
1:A:531:LEU:HD21	1:A:587:ARG:CZ	2.47	0.43
1:B:187:LYS:HG2	1:B:188:GLY:H	1.83	0.43
1:F:610:CYS:HB2	1:F:614:GLN:HB3	2.01	0.43
1:D:440:ASP:HB3	1:D:469:THR:OG1	2.18	0.43
1:E:272:THR:O	1:E:273:HIS:ND1	2.50	0.43
1:A:183:VAL:HG23	1:A:191:ARG:HG3	2.01	0.43
1:A:218:TRP:CD1	1:B:214:ILE:HD11	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:218:TRP:CZ3	1:B:221:LEU:HD22	2.53	0.43
1:C:3:VAL:HB	1:C:95:GLN:HG2	2.00	0.43
1:F:240:LEU:HD12	1:F:595:LEU:HD22	2.00	0.43
1:D:130:ASP:OD1	1:D:130:ASP:N	2.50	0.43
1:E:254:TRP:CD1	1:E:627:PRO:HG2	2.53	0.43
1:A:141:PRO:HB3	1:A:147:GLU:HG3	1.99	0.43
1:D:553:PRO:HB2	1:D:557:TYR:CZ	2.54	0.43
1:E:328:ASP:OD1	1:E:329:PRO:HD2	2.19	0.43
1:E:523:ASN:HD22	1:E:552:TYR:HE1	1.67	0.43
1:A:417:HIS:HE1	1:A:440:ASP:O	2.01	0.43
1:B:35:LEU:HD13	1:B:61:THR:HG23	2.00	0.43
1:B:302:TRP:O	1:B:305:PRO:HD3	2.19	0.43
1:C:219:GLU:C	1:C:220:MET:HG3	2.44	0.43
1:E:484:ALA:O	1:E:488:LEU:HB2	2.19	0.43
1:F:354:ARG:HG2	1:F:399:ILE:HB	1.99	0.43
1:A:23:LEU:HD13	1:A:152:ARG:HG3	2.00	0.43
1:C:140:MET:O	1:C:142:PRO:HD3	2.18	0.43
1:A:20:GLU:HB3	1:A:126:VAL:HG21	2.00	0.43
1:A:41:ASP:OD1	1:A:41:ASP:N	2.51	0.43
1:A:69:LEU:HD22	1:A:104:PHE:CD2	2.54	0.43
1:C:187:LYS:HA	1:C:187:LYS:HD3	1.76	0.43
1:D:417:HIS:ND1	1:D:418:LEU:HD12	2.34	0.43
1:D:440:ASP:HA	1:D:469:THR:O	2.19	0.43
1:E:232:TRP:HE1	1:E:237:LEU:HA	1.84	0.43
1:B:49:PHE:HD2	1:B:58:LEU:HB2	1.84	0.42
1:D:323:THR:O	1:D:327:ARG:HG3	2.18	0.42
1:F:362:GLU:HG2	1:F:363:VAL:N	2.34	0.42
1:F:611:THR:HG23	1:F:614:GLN:H	1.83	0.42
1:A:52:HIS:CE1	1:A:145:LEU:HD22	2.54	0.42
1:B:593:THR:OG1	1:B:596:ASP:OD2	2.30	0.42
1:C:143:SER:OG	1:C:143:SER:O	2.36	0.42
1:C:174:ILE:HG22	1:C:175:ALA:H	1.84	0.42
1:D:16:ALA:C	1:D:19:PRO:HD2	2.45	0.42
1:E:226:PHE:HB3	1:E:602:ARG:HH21	1.82	0.42
1:F:334:GLU:HA	1:F:337:ARG:HG2	2.02	0.42
1:C:38:GLU:HG2	1:C:192:ARG:HH21	1.84	0.42
1:E:430:ASP:OD2	1:E:433:ALA:HB3	2.19	0.42
1:E:471:HIS:HB2	1:E:494:GLY:HA3	2.00	0.42
1:A:382:GLU:OE1	1:A:385:ARG:NH2	2.52	0.42
1:B:64:ALA:N	1:B:193:VAL:O	2.50	0.42
1:D:94:GLU:OE1	1:D:94:GLU:N	2.44	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:123:VAL:HG23	1:D:162:LEU:HB2	2.01	0.42
1:D:314:TYR:CD2	1:D:526:ILE:HD11	2.54	0.42
1:D:354:ARG:HA	1:D:399:ILE:O	2.20	0.42
1:C:510:ALA:HB2	1:C:562:VAL:HG22	2.00	0.42
2:I:8:A:O2'	2:I:9:A:H5'	2.19	0.42
1:C:87:LEU:HD11	1:C:200:PHE:CE2	2.55	0.42
1:D:18:VAL:HB	1:D:19:PRO:HD3	2.01	0.42
1:F:531:LEU:HD12	1:F:587:ARG:HG3	2.01	0.42
1:A:99:CYS:HB2	1:A:124:PHE:CZ	2.55	0.42
1:B:441:LEU:HD21	1:B:454:PHE:HD2	1.84	0.42
1:B:470:VAL:O	1:B:494:GLY:N	2.52	0.42
1:B:509:VAL:HG13	1:B:514:ILE:HB	2.01	0.42
1:D:39:ARG:H	1:D:40:PRO:CD	2.32	0.42
1:A:101:THR:OG1	1:A:125:HIS:ND1	2.50	0.42
1:C:122:GLU:HG2	1:C:161:ARG:HE	1.84	0.42
1:F:364:ARG:NH2	1:F:368:ASP:HB3	2.31	0.42
1:F:531:LEU:HB2	1:F:587:ARG:O	2.20	0.42
1:A:36:THR:OG1	1:A:62:ARG:HA	2.19	0.42
1:A:246:PRO:O	1:A:252:GLN:NE2	2.51	0.42
1:B:82:MET:HE3	1:B:114:ALA:HB2	2.02	0.42
1:B:281:ARG:HH12	1:B:293:LEU:CA	2.32	0.42
1:C:281:ARG:NH2	1:C:291:PRO:O	2.51	0.42
1:D:386:THR:HG22	1:D:393:ALA:HB2	2.02	0.42
1:E:231:THR:O	1:E:628:ARG:NH2	2.53	0.42
1:E:246:PRO:HG2	1:E:247:ARG:NH1	2.35	0.42
1:C:90:ARG:O	1:C:91:THR:OG1	2.27	0.42
1:C:272:THR:HG23	1:C:273:HIS:ND1	2.35	0.42
1:D:68:ASP:O	1:D:70:LYS:HG2	2.20	0.42
1:E:326:LEU:HB3	1:E:332:LEU:HD13	2.02	0.42
1:E:356:SER:OG	1:E:401:ILE:HG23	2.20	0.42
1:A:16:ALA:HB1	1:A:148:ILE:HD11	2.02	0.41
1:A:218:TRP:CZ2	1:B:228:ASP:HA	2.55	0.41
1:B:86:PHE:HB3	1:B:118:LEU:HD21	2.01	0.41
1:B:129:ASP:OD1	2:H:3:A:N6	2.51	0.41
1:B:239:TRP:CZ3	1:B:629:PRO:HG3	2.54	0.41
1:D:476:ASP:OD1	1:D:496:ALA:HA	2.20	0.41
1:C:171:LEU:O	1:C:171:LEU:HD23	2.20	0.41
1:D:44:LEU:HD11	1:D:143:SER:HA	2.01	0.41
1:D:482:TRP:HD1	1:D:505:LEU:HD13	1.85	0.41
1:F:318:GLY:HA3	1:F:573:ILE:CD1	2.50	0.41
1:C:562:VAL:O	1:C:564:VAL:HG23	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:67:GLN:N	1:D:67:GLN:OE1	2.54	0.41
1:E:397:ASN:HD22	1:E:397:ASN:HA	1.70	0.41
1:A:239:TRP:CZ3	1:A:629:PRO:HG3	2.56	0.41
1:B:326:LEU:HD22	1:B:332:LEU:HA	2.02	0.41
1:B:493:LEU:HG	1:B:514:ILE:HG21	2.00	0.41
1:D:39:ARG:HB2	1:D:40:PRO:HD3	2.03	0.41
1:D:518:LEU:HD23	1:D:518:LEU:HA	1.89	0.41
1:C:43:THR:HA	1:C:46:ARG:HB2	2.02	0.41
1:C:62:ARG:HH21	1:C:190:GLU:HB3	1.85	0.41
1:C:396:VAL:C	1:C:397:ASN:HD22	2.29	0.41
1:D:399:ILE:HG13	1:D:438:GLY:O	2.21	0.41
1:E:614:GLN:HG2	1:E:618:LEU:HD23	2.01	0.41
1:A:494:GLY:HA2	1:A:517:GLU:HB2	2.03	0.41
1:C:100:LEU:O	1:C:125:HIS:ND1	2.50	0.41
1:C:187:LYS:HG3	1:C:188:GLY:H	1.85	0.41
1:C:597:LEU:HA	1:C:600:LEU:HD12	2.03	0.41
1:A:68:ASP:HB2	1:A:70:LYS:NZ	2.35	0.41
1:A:237:LEU:HD23	1:A:237:LEU:HA	1.88	0.41
1:B:441:LEU:HD12	1:B:441:LEU:HA	1.94	0.41
1:C:39:ARG:H	1:C:40:PRO:CD	2.34	0.41
1:C:117:VAL:HG12	1:C:168:TRP:HE1	1.86	0.41
1:C:235:GLY:O	1:C:239:TRP:N	2.39	0.41
1:C:570:ASN:CG	1:C:573:ILE:HB	2.45	0.41
1:F:519:CYS:SG	1:F:569:ASP:HB2	2.60	0.41
1:F:594:ARG:HH11	1:F:597:LEU:HD23	1.85	0.41
1:A:7:LEU:HB2	1:A:29:PHE:CE1	2.56	0.41
1:F:254:TRP:HZ3	1:F:258:LEU:HD22	1.85	0.41
1:F:260:LYS:H	1:F:260:LYS:HG2	1.69	0.41
1:F:521:TYR:CZ	1:F:584:LEU:HD22	2.55	0.41
1:B:266:HIS:HB2	1:B:570:ASN:OD1	2.21	0.41
1:B:268:GLY:HA3	4:B:702:ATP:O2A	2.21	0.41
1:C:170:GLN:NE2	1:C:207:LEU:HD21	2.36	0.41
1:C:184:VAL:HG13	1:C:194:GLN:OE1	2.20	0.41
1:C:259:PRO:HG3	1:C:625:GLY:HA3	2.03	0.41
1:C:285:GLU:N	1:C:328:ASP:OD2	2.44	0.41
1:D:213:ARG:HD3	1:D:232:TRP:C	2.46	0.41
1:D:281:ARG:CZ	1:D:293:LEU:HB3	2.51	0.41
1:D:281:ARG:NH1	1:D:293:LEU:HB3	2.36	0.41
1:F:269:GLY:HA3	1:F:570:ASN:HB2	2.03	0.41
1:F:325:LEU:HD12	1:F:326:LEU:HD12	2.03	0.41
1:F:401:ILE:HA	1:F:440:ASP:OD1	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:472:ALA:HB1	1:F:476:ASP:HB3	2.03	0.41
1:C:41:ASP:OD1	1:C:43:THR:HG22	2.21	0.41
1:C:137:GLY:O	1:C:139:LEU:HD12	2.21	0.41
1:C:317:LEU:HD23	1:C:573:ILE:HG23	2.03	0.41
1:C:399:ILE:HG13	1:C:438:GLY:C	2.46	0.41
1:D:130:ASP:HB2	1:D:138:ARG:C	2.46	0.41
1:D:130:ASP:HB2	1:D:138:ARG:O	2.21	0.41
1:E:298:LEU:HD23	1:E:298:LEU:H	1.85	0.41
1:E:610:CYS:SG	1:E:614:GLN:HB3	2.61	0.41
1:B:19:PRO:O	1:B:23:LEU:HD23	2.22	0.40
1:B:126:VAL:HG22	1:B:159:TRP:CD1	2.56	0.40
1:B:570:ASN:ND2	1:B:573:ILE:HD12	2.36	0.40
1:C:35:LEU:HD23	1:C:61:THR:HB	2.03	0.40
1:F:240:LEU:HB3	1:F:595:LEU:CD2	2.52	0.40
1:F:554:LEU:HA	1:F:554:LEU:HD12	1.87	0.40
1:A:488:LEU:HD23	1:A:488:LEU:H	1.86	0.40
1:B:37:THR:HG23	1:B:37:THR:O	2.22	0.40
1:C:82:MET:HE3	1:C:114:ALA:HB2	2.03	0.40
1:C:130:ASP:O	1:C:138:ARG:HB3	2.21	0.40
1:D:595:LEU:HD23	1:D:595:LEU:H	1.87	0.40
1:F:285:GLU:HG2	1:F:328:ASP:OD1	2.21	0.40
1:F:482:TRP:CE2	1:F:505:LEU:HD13	2.56	0.40
1:A:489:ASN:HB3	1:B:512:ARG:HH12	1.86	0.40
1:E:232:TRP:HD1	1:E:233:SER:O	2.04	0.40
1:E:323:THR:HA	1:E:360:TYR:CE1	2.54	0.40
1:F:485:VAL:HG23	1:F:514:ILE:HG13	2.03	0.40
1:A:521:TYR:CE1	1:A:584:LEU:HD22	2.57	0.40
1:B:171:LEU:HD23	1:B:207:LEU:HD22	2.04	0.40
1:B:403:THR:HG21	4:B:702:ATP:O3'	2.21	0.40
1:F:298:LEU:HD12	1:F:302:TRP:CB	2.52	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	609/635 (96%)	560 (92%)	46 (8%)	3 (0%)	25	60
1	B	611/635 (96%)	562 (92%)	44 (7%)	5 (1%)	16	51
1	C	609/635 (96%)	544 (89%)	60 (10%)	5 (1%)	16	51
1	D	610/635 (96%)	560 (92%)	47 (8%)	3 (0%)	25	60
1	E	391/635 (62%)	349 (89%)	40 (10%)	2 (0%)	25	60
1	F	390/635 (61%)	349 (90%)	39 (10%)	2 (0%)	25	60
All	All	3220/3810 (84%)	2924 (91%)	276 (9%)	20 (1%)	24	57

All (20) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	387	ALA
1	C	39	ARG
1	C	387	ALA
1	B	39	ARG
1	C	63	VAL
1	D	63	VAL
1	F	503	ARG
1	A	39	ARG
1	D	39	ARG
1	E	404	ARG
1	F	267	LEU
1	A	174	ILE
1	B	174	ILE
1	C	174	ILE
1	E	476	ASP
1	B	270	PHE
1	A	63	VAL
1	C	183	VAL
1	D	183	VAL
1	B	63	VAL

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	480/511 (94%)	480 (100%)	0	100	100
1	B	495/511 (97%)	495 (100%)	0	100	100
1	C	494/511 (97%)	494 (100%)	0	100	100
1	D	483/511 (94%)	483 (100%)	0	100	100
1	E	304/511 (60%)	304 (100%)	0	100	100
1	F	296/511 (58%)	296 (100%)	0	100	100
All	All	2552/3066 (83%)	2552 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (30) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	194	GLN
1	A	273	HIS
1	A	286	ASN
1	A	378	GLN
1	A	501	GLN
1	A	523	ASN
1	B	158	HIS
1	B	209	GLN
1	C	182	GLN
1	C	205	GLN
1	C	335	GLN
1	C	397	ASN
1	C	501	GLN
1	C	599	HIS
1	D	154	GLN
1	D	156	HIS
1	D	266	HIS
1	D	273	HIS
1	D	359	ASN
1	D	501	GLN
1	E	321	ASN
1	E	495	HIS
1	E	523	ASN
1	E	599	HIS
1	E	614	GLN

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Mol	Chain	Res	Type
1	F	264	HIS
1	F	395	HIS
1	F	581	ASN
1	F	601	GLN
1	F	614	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	H	5/6 (83%)	3 (60%)	0
2	I	5/6 (83%)	3 (60%)	0
All	All	10/12 (83%)	6 (60%)	0

All (6) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	H	2	A
2	H	3	A
2	H	5	A
2	I	8	A
2	I	9	A
2	I	11	A

There are no RNA pucker outliers to report.

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 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 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	$\#\|Z\| > 2$
4	ATP	C	702	-	26,33,33	0.90	1 (3%)	31,52,52	1.69	5 (16%)
4	ATP	B	702	-	26,33,33	0.61	0	31,52,52	1.04	2 (6%)

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
4	ATP	C	702	-	-	8/18/38/38	0/3/3/3
4	ATP	B	702	-	-	3/18/38/38	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	C	702	ATP	C5-C4	2.20	1.46	1.40

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	C	702	ATP	PB-O3B-PG	-4.57	117.15	132.83
4	C	702	ATP	N3-C2-N1	-3.53	123.16	128.68
4	C	702	ATP	C3'-C2'-C1'	3.20	105.79	100.98
4	C	702	ATP	PA-O3A-PB	-3.02	122.46	132.83
4	C	702	ATP	C4-C5-N7	-2.71	106.57	109.40
4	B	702	ATP	C5-C6-N6	2.33	123.89	120.35
4	B	702	ATP	PB-O3B-PG	2.05	139.85	132.83

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	C	702	ATP	C5'-O5'-PA-O2A
4	C	702	ATP	O4'-C4'-C5'-O5'
4	B	702	ATP	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
4	B	702	ATP	C5'-O5'-PA-O3A
4	C	702	ATP	C5'-O5'-PA-O3A
4	C	702	ATP	C3'-C4'-C5'-O5'
4	B	702	ATP	C5'-O5'-PA-O2A
4	C	702	ATP	C5'-O5'-PA-O1A
4	C	702	ATP	C4'-C5'-O5'-PA
4	C	702	ATP	PA-O3A-PB-O1B
4	C	702	ATP	PB-O3A-PA-O1A

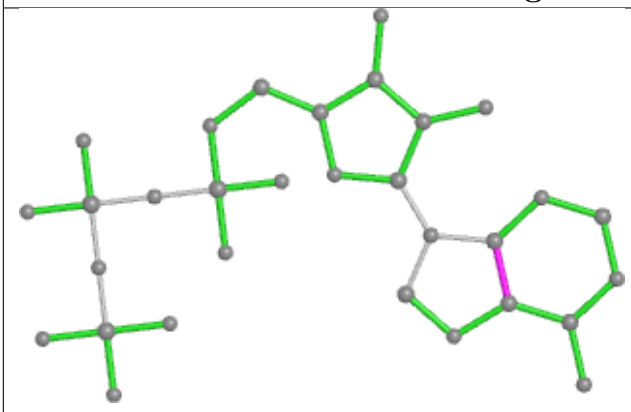
There are no ring outliers.

2 monomers are involved in 18 short contacts:

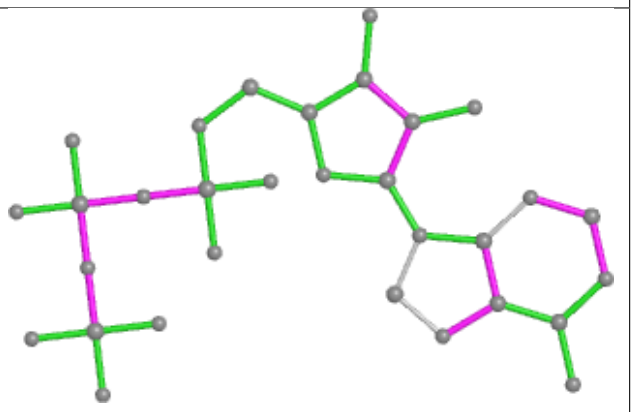
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	702	ATP	7	0
4	B	702	ATP	11	0

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.

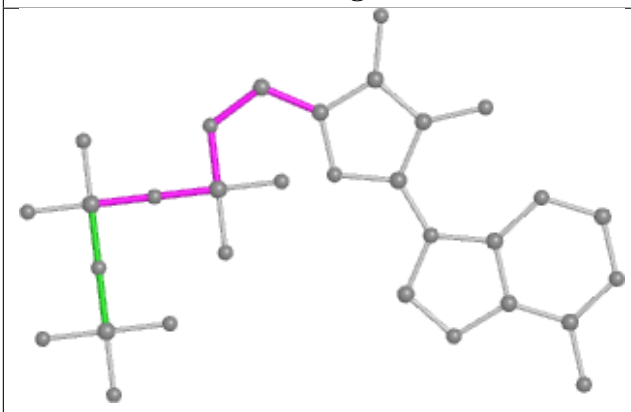
Ligand ATP C 702



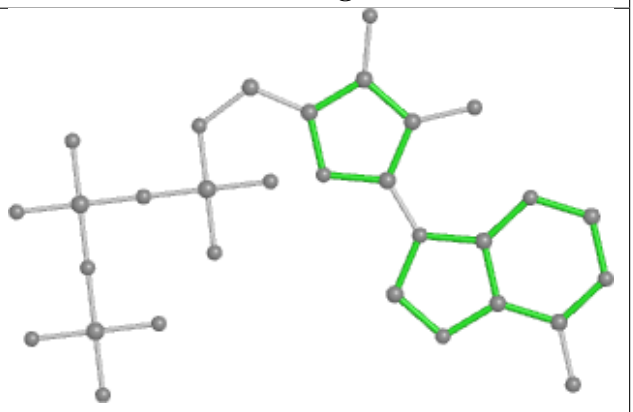
Bond lengths



Bond angles

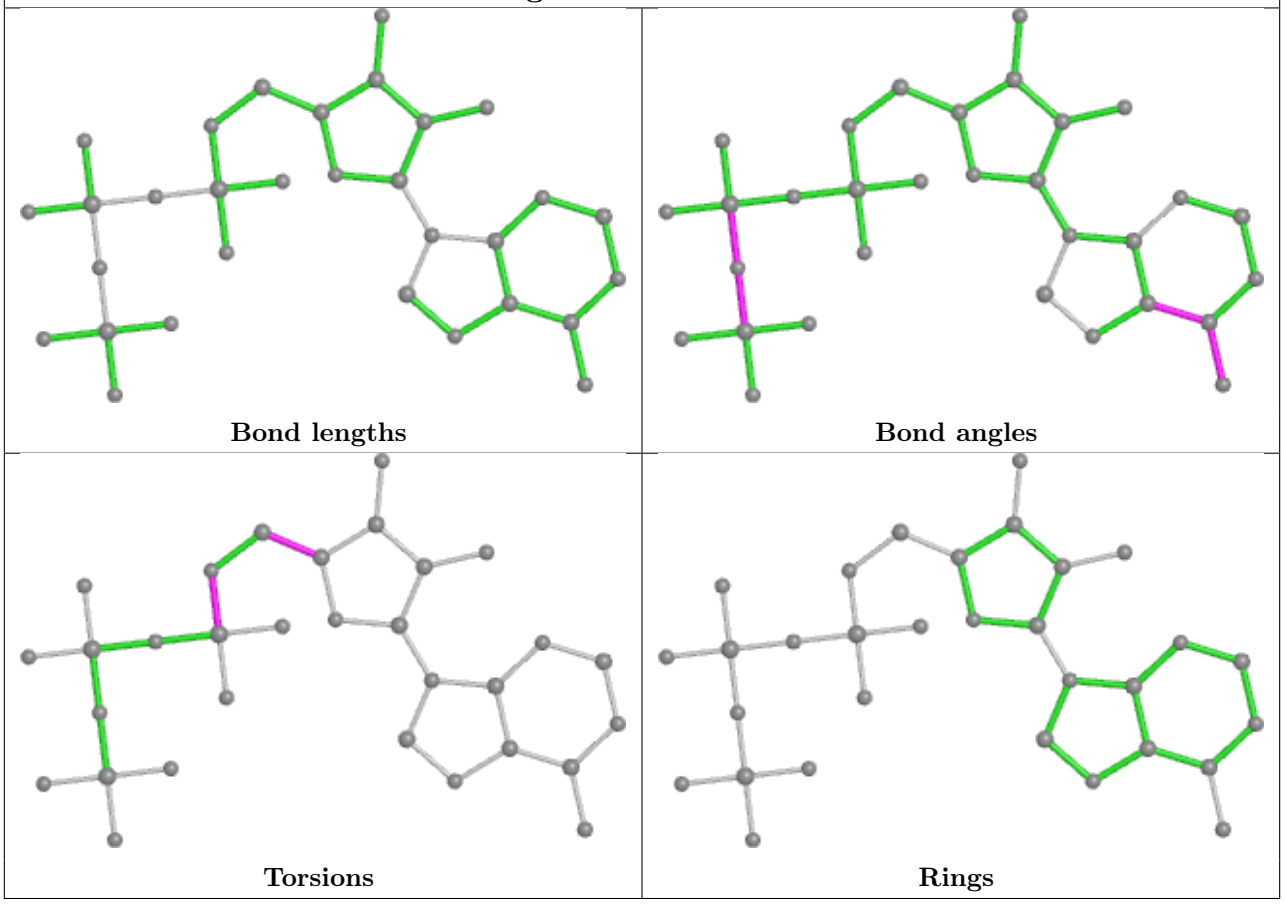


Torsions



Rings

Ligand ATP B 702



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.