



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 14, 2026 – 06:03 PM UTC

PDB ID : 6S5N / pdb\_00006s5n  
Title : Non-square conformations of KtrA E125Q mutant rings with bound ATP  
Authors : Teixeira-Duarte, C.M.; Fonseca, F.; Morais-Cabral, J.H.  
Deposited on : 2019-07-02  
Resolution : 4.09 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

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>.

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

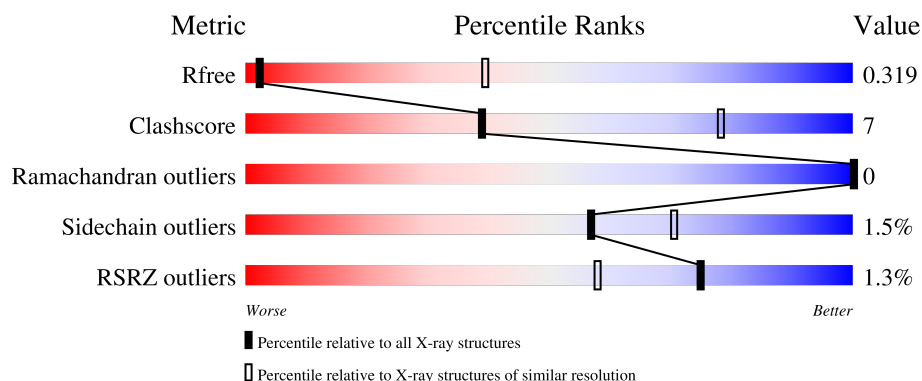
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 4.09 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)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	180053	1243 (4.40-3.80)
Clashscore	190562	1293 (4.40-3.80)
Ramachandran outliers	187476	1206 (4.40-3.80)
Sidechain outliers	187428	1193 (4.40-3.80)
RSRZ outliers	180081	1240 (4.40-3.80)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	222	<div> <div>2%</div> <div>80%</div> <div>17%</div> <div>.</div> </div>
1	B	222	<div> <div>2%</div> <div>82%</div> <div>16%</div> <div>.</div> </div>
1	C	222	<div> <div>%</div> <div>81%</div> <div>17%</div> <div>.</div> </div>
1	D	222	<div> <div>81%</div> <div>16%</div> <div>.</div> </div>
1	E	222	<div> <div>78%</div> <div>19%</div> <div>.</div> </div>

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Mol	Chain	Length	Quality of chain
1	F	222	<div><div><div></div><div></div><div></div></div><div><div>%</div><div>82%</div><div>15%</div><div>.</div></div></div>
1	G	222	<div><div><div></div><div></div><div></div></div><div><div>2%</div><div>51%</div><div>9%</div><div>39%</div></div></div>
1	H	222	<div><div><div></div><div></div><div></div></div><div><div></div><div>50%</div><div>10%</div><div>39%</div></div></div>

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 12594 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 Ktr system potassium uptake protein A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	217	Total	C	N	O	S	29	0	0
			1706	1081	295	322	8			
1	B	217	Total	C	N	O	S	29	0	0
			1706	1081	295	322	8			
1	C	217	Total	C	N	O	S	39	0	0
			1706	1081	295	322	8			
1	D	217	Total	C	N	O	S	24	0	0
			1706	1081	295	322	8			
1	E	217	Total	C	N	O	S	24	0	0
			1706	1081	295	322	8			
1	F	217	Total	C	N	O	S	31	0	0
			1706	1081	295	322	8			
1	G	135	Total	C	N	O	S	0	0	0
			1055	670	184	198	3			
1	H	135	Total	C	N	O	S	0	0	0
			1055	670	184	198	3			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	125	GLN	GLU	engineered mutation	UNP O32080
B	125	GLN	GLU	engineered mutation	UNP O32080
C	125	GLN	GLU	engineered mutation	UNP O32080
D	125	GLN	GLU	engineered mutation	UNP O32080
E	125	GLN	GLU	engineered mutation	UNP O32080
F	125	GLN	GLU	engineered mutation	UNP O32080
G	125	GLN	GLU	engineered mutation	UNP O32080
H	125	GLN	GLU	engineered mutation	UNP O32080

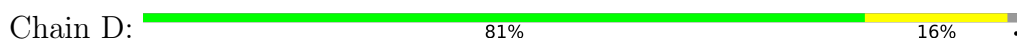
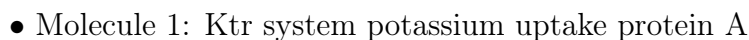
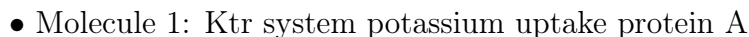
- Molecule 2 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula:  $C_{10}H_{16}N_5O_{13}P_3$ ) (labeled as "Ligand of Interest" by depositor).

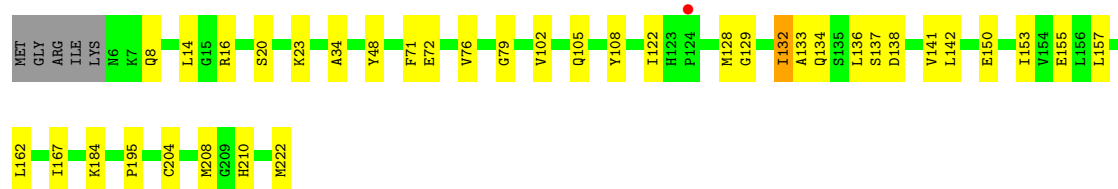


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 31	C 10	N 5	O 13	P 3	0	0
2	B	1	Total 31	C 10	N 5	O 13	P 3	0	0
2	C	1	Total 31	C 10	N 5	O 13	P 3	0	0
2	D	1	Total 31	C 10	N 5	O 13	P 3	0	0
2	E	1	Total 31	C 10	N 5	O 13	P 3	0	0
2	F	1	Total 31	C 10	N 5	O 13	P 3	0	0
2	G	1	Total 31	C 10	N 5	O 13	P 3	0	0
2	H	1	Total 31	C 10	N 5	O 13	P 3	0	0



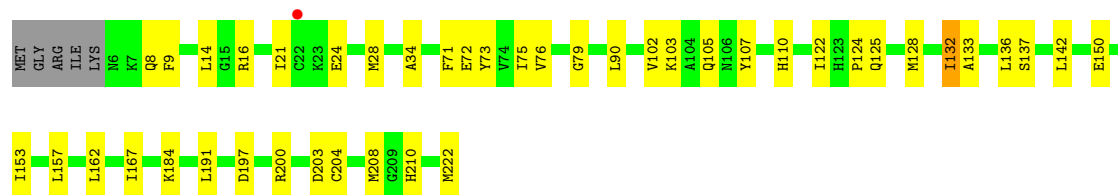
- Molecule 1: Ktr system potassium uptake protein A





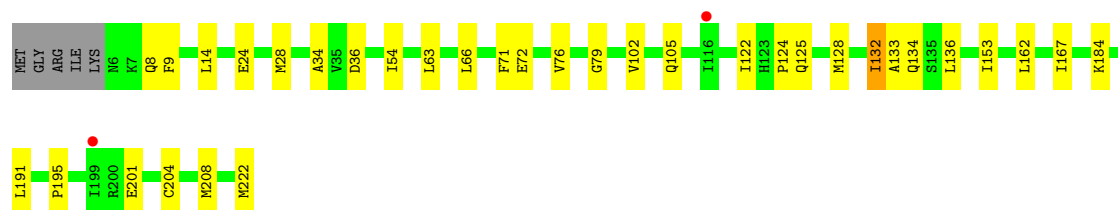
- Molecule 1: Ktr system potassium uptake protein A

Chain E: 78% 19%



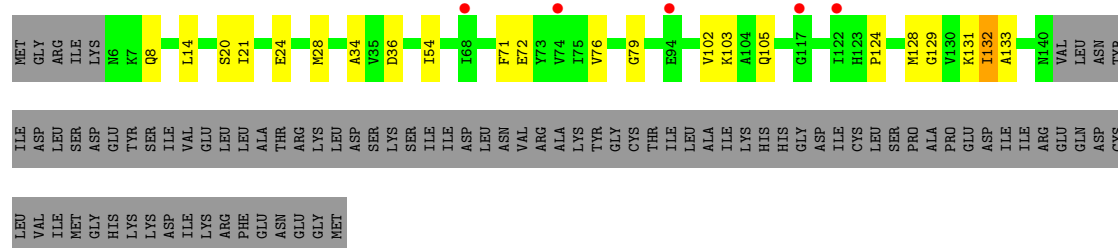
- Molecule 1: Ktr system potassium uptake protein A

Chain F: 82% 15%



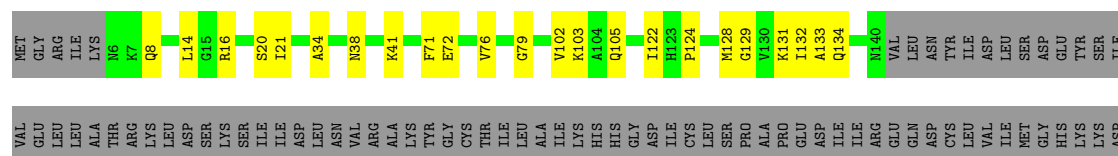
- Molecule 1: Ktr system potassium uptake protein A

Chain G: 51% 9% 39%



- Molecule 1: Ktr system potassium uptake protein A

Chain H: 50% 10% 39%



ILE
LYS
ARG
PHE
GLU
ASN
GLU
GLY
MET



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	109.11Å 156.53Å 286.35Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.24 – 4.09 48.24 – 4.09	Depositor EDS
% Data completeness (in resolution range)	99.3 (48.24-4.09) 99.6 (48.24-4.09)	Depositor EDS
$R_{merge}$	0.13	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.79 (at 4.14Å)	Xtriage
Refinement program	PHENIX 1.8.2_1309	Depositor
R, $R_{free}$	0.279 , 0.320 0.283 , 0.319	Depositor DCC
$R_{free}$ test set	2010 reflections (10.18%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	183.9	Xtriage
Anisotropy	0.471	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 149.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.40$ , $\langle L^2 \rangle = 0.23$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.87	EDS
Total number of atoms	12594	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	155.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.32% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 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

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	0.30	0/1732	0.75	0/2339
1	B	0.31	0/1732	0.77	0/2339
1	C	0.31	0/1732	0.74	0/2339
1	D	0.31	0/1732	0.76	0/2339
1	E	0.30	0/1732	0.77	0/2339
1	F	0.30	0/1732	0.75	0/2339
1	G	0.29	0/1072	0.76	0/1450
1	H	0.28	0/1072	0.76	0/1450
All	All	0.30	0/12536	0.76	0/16934

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	1706	0	1732	31	0
1	B	1706	0	1732	30	0
1	C	1706	0	1732	24	0
1	D	1706	0	1732	29	0
1	E	1706	0	1732	35	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	1706	0	1732	25	0
1	G	1055	0	1064	25	0
1	H	1055	0	1064	22	0
2	A	31	0	12	1	0
2	B	31	0	12	0	0
2	C	31	0	12	1	0
2	D	31	0	12	1	0
2	E	31	0	12	2	0
2	F	31	0	12	0	0
2	G	31	0	12	0	0
2	H	31	0	12	2	0
All	All	12594	0	12616	167	0

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

All (167) 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:E:21:ILE:HA	1:F:133:ALA:HB2	1.57	0.86
1:B:184:LYS:HB3	1:B:204:CYS:HB2	1.58	0.86
1:D:184:LYS:HB3	1:D:204:CYS:HB2	1.58	0.85
1:E:184:LYS:HB3	1:E:204:CYS:HB2	1.58	0.84
1:C:184:LYS:HB3	1:C:204:CYS:HB2	1.59	0.83
1:A:184:LYS:HB3	1:A:204:CYS:HB2	1.60	0.83
1:F:184:LYS:HB3	1:F:204:CYS:HB2	1.60	0.82
1:G:21:ILE:HA	1:H:133:ALA:HB2	1.67	0.77
1:A:21:ILE:HA	1:B:133:ALA:HB2	1.70	0.74
1:E:24:GLU:HG3	1:E:28:MET:HE2	1.68	0.74
1:A:124:PRO:HA	1:B:128:MET:HG2	1.73	0.70
1:A:125:GLN:HG3	1:B:125:GLN:HG3	1.73	0.69
1:E:125:GLN:HG3	1:F:125:GLN:HG3	1.76	0.68
1:A:128:MET:HG2	1:B:124:PRO:HA	1.76	0.67
1:G:103:LYS:NZ	1:G:124:PRO:HG2	2.10	0.66
1:E:191:LEU:HG	1:F:208:MET:HE2	1.78	0.66
1:A:133:ALA:HB2	1:B:21:ILE:HA	1.78	0.66
1:G:133:ALA:HB2	1:H:21:ILE:HA	1.78	0.65
1:E:124:PRO:HA	1:F:128:MET:HG2	1.79	0.64
1:B:69:ARG:HE	1:F:201:GLU:HG2	1.62	0.64
1:G:28:MET:HE1	1:H:134:GLN:HA	1.79	0.64
1:G:128:MET:HG2	1:H:124:PRO:HA	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:208:MET:HE2	1:F:191:LEU:HG	1.80	0.63
1:D:108:TYR:HD1	1:E:90:LEU:HD23	1.62	0.63
1:A:76:VAL:HB	1:A:102:VAL:HG13	1.81	0.63
1:G:131:LYS:HZ2	1:H:131:LYS:HE3	1.65	0.62
1:A:208:MET:HE2	1:B:191:LEU:HG	1.82	0.62
1:F:76:VAL:HB	1:F:102:VAL:HG13	1.82	0.61
1:E:76:VAL:HB	1:E:102:VAL:HG13	1.82	0.61
1:E:153:ILE:HG12	1:E:208:MET:HG3	1.83	0.61
1:H:16:ARG:HB2	2:H:601:ATP:O2G	2.01	0.61
1:C:16:ARG:H	2:C:601:ATP:PG	2.24	0.60
1:D:138:ASP:HB3	1:D:141:VAL:HG22	1.82	0.60
1:B:76:VAL:HB	1:B:102:VAL:HG13	1.83	0.60
1:E:128:MET:HG2	1:F:124:PRO:HA	1.83	0.60
1:H:76:VAL:HB	1:H:102:VAL:HG13	1.84	0.59
1:G:76:VAL:HB	1:G:102:VAL:HG13	1.83	0.59
1:C:76:VAL:HB	1:C:102:VAL:HG13	1.84	0.58
1:F:153:ILE:HG12	1:F:208:MET:HG3	1.84	0.58
1:G:24:GLU:HG3	1:G:28:MET:HE2	1.86	0.58
1:D:16:ARG:N	2:D:601:ATP:O1G	2.22	0.57
1:D:108:TYR:CD1	1:E:90:LEU:HD23	2.40	0.57
1:D:142:LEU:HD21	1:D:157:LEU:HB2	1.86	0.56
1:C:153:ILE:HG12	1:C:208:MET:HG3	1.89	0.55
1:E:162:LEU:HD11	1:E:222:MET:HE2	1.88	0.55
1:H:103:LYS:NZ	1:H:124:PRO:HG2	2.21	0.55
1:D:138:ASP:OD2	1:D:141:VAL:HG13	2.07	0.54
1:G:103:LYS:HZ2	1:G:124:PRO:HG2	1.70	0.54
1:B:153:ILE:HG12	1:B:208:MET:HG3	1.89	0.54
1:A:145:ILE:HD11	1:B:155:GLU:OE2	2.07	0.54
1:H:103:LYS:HZ3	1:H:124:PRO:HG2	1.72	0.54
1:C:21:ILE:HA	1:D:133:ALA:HB2	1.89	0.54
1:E:24:GLU:O	1:E:28:MET:HG3	2.08	0.54
1:G:124:PRO:HA	1:H:128:MET:HG2	1.89	0.53
1:C:142:LEU:HD21	1:C:157:LEU:HB2	1.90	0.52
1:A:153:ILE:HG12	1:A:208:MET:HG3	1.91	0.52
1:E:103:LYS:NZ	1:E:124:PRO:HG2	2.25	0.52
1:C:16:ARG:NH1	1:D:105:GLN:HG3	2.25	0.52
1:D:76:VAL:HB	1:D:102:VAL:HG13	1.91	0.52
1:D:162:LEU:HD11	1:D:222:MET:HE2	1.93	0.51
1:A:162:LEU:HD11	1:A:222:MET:HE2	1.92	0.51
1:G:24:GLU:HG3	1:G:28:MET:CE	2.41	0.50
1:H:38:ASN:OD1	1:H:41:LYS:HG2	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:162:LEU:HD11	1:C:222:MET:HE2	1.94	0.50
1:E:16:ARG:HB2	2:E:601:ATP:O2G	2.12	0.49
1:B:161:LYS:HB2	1:B:222:MET:HA	1.94	0.49
1:C:20:SER:HB3	1:D:129:GLY:HA3	1.94	0.49
1:E:167:ILE:HD12	1:E:197:ASP:HB2	1.95	0.49
1:A:9:PHE:CZ	1:B:137:SER:HA	2.46	0.49
1:G:131:LYS:HE3	1:H:131:LYS:HZ2	1.78	0.49
1:A:147:LEU:O	1:B:184:LYS:HD2	2.13	0.49
1:A:16:ARG:H	2:A:601:ATP:PG	2.35	0.49
1:B:162:LEU:HD11	1:B:222:MET:HE2	1.93	0.49
1:C:138:ASP:O	1:C:141:VAL:HG22	2.14	0.48
1:E:24:GLU:HG3	1:E:28:MET:CE	2.41	0.48
1:G:20:SER:HB3	1:H:129:GLY:HA3	1.94	0.48
1:G:131:LYS:NZ	1:H:131:LYS:HE3	2.28	0.48
1:E:16:ARG:H	2:E:601:ATP:PG	2.37	0.47
1:E:137:SER:HA	1:F:9:PHE:CZ	2.49	0.47
1:B:79:GLY:O	1:B:105:GLN:HB2	2.14	0.47
1:D:138:ASP:CG	1:D:141:VAL:HG13	2.39	0.47
1:F:162:LEU:HD11	1:F:222:MET:HE2	1.96	0.47
1:C:124:PRO:HA	1:D:128:MET:HG2	1.96	0.47
1:B:128:MET:HG3	1:B:132:ILE:HD13	1.97	0.47
1:E:79:GLY:O	1:E:105:GLN:HB2	2.15	0.46
1:D:153:ILE:HG12	1:D:208:MET:HG3	1.96	0.46
1:H:16:ARG:H	2:H:601:ATP:PG	2.39	0.46
1:D:142:LEU:HD12	1:D:155:GLU:HG2	1.97	0.46
1:A:25:LEU:CD2	1:B:137:SER:HB3	2.46	0.46
1:B:14:LEU:HD21	1:B:34:ALA:HB1	1.98	0.46
1:C:9:PHE:CZ	1:D:137:SER:HA	2.50	0.46
1:F:167:ILE:HB	1:F:195:PRO:HA	1.98	0.46
1:G:14:LEU:HD21	1:G:34:ALA:HB1	1.98	0.46
1:C:14:LEU:HD21	1:C:34:ALA:HB1	1.97	0.46
1:E:14:LEU:HD21	1:E:34:ALA:HB1	1.98	0.45
1:A:79:GLY:O	1:A:105:GLN:HB2	2.16	0.45
1:E:28:MET:HE1	1:F:134:GLN:HA	1.98	0.45
1:E:200:ARG:HB3	1:E:203:ASP:OD2	2.16	0.45
1:C:75:ILE:HG12	1:D:136:LEU:HD11	1.98	0.45
1:C:79:GLY:O	1:C:105:GLN:HB2	2.16	0.45
1:H:14:LEU:HD21	1:H:34:ALA:HB1	1.99	0.45
1:F:14:LEU:HD21	1:F:34:ALA:HB1	1.99	0.45
1:G:128:MET:HG3	1:G:132:ILE:HD13	1.99	0.45
1:G:24:GLU:O	1:G:28:MET:HG3	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:131:LYS:HE3	1:H:131:LYS:NZ	2.32	0.45
1:A:150:GLU:HB3	1:A:210:HIS:CE1	2.52	0.44
1:A:134:GLN:HA	1:B:28:MET:HE1	1.99	0.44
1:E:142:LEU:HD21	1:E:157:LEU:HB2	2.00	0.44
1:F:128:MET:HG3	1:F:132:ILE:HD13	1.99	0.44
1:A:142:LEU:HD21	1:A:157:LEU:HB2	1.99	0.44
1:E:133:ALA:HA	1:E:136:LEU:HD12	2.00	0.44
1:G:8:GLN:HB3	1:G:71:PHE:CD2	2.53	0.44
1:E:128:MET:HG3	1:E:132:ILE:HD13	2.00	0.44
1:A:185:HIS:HD1	1:A:203:ASP:CG	2.27	0.43
1:A:124:PRO:HB3	1:B:128:MET:HB3	2.00	0.43
1:C:24:GLU:HG3	1:C:28:MET:HE2	2.00	0.43
1:A:28:MET:HE1	1:B:134:GLN:HA	2.01	0.43
1:C:25:LEU:HG	1:D:133:ALA:HB1	2.00	0.43
1:C:30:HIS:NE2	1:D:137:SER:HB2	2.33	0.43
1:C:126:LYS:O	1:D:20:SER:OG	2.36	0.43
1:D:23:LYS:HE2	1:D:48:TYR:CZ	2.53	0.43
1:E:9:PHE:CD1	1:E:73:TYR:HB2	2.54	0.43
1:G:24:GLU:OE1	1:H:134:GLN:NE2	2.51	0.43
1:F:79:GLY:O	1:F:105:GLN:HB2	2.18	0.43
1:A:122:ILE:HG21	1:B:132:ILE:HG12	2.00	0.42
1:A:137:SER:HA	1:B:9:PHE:CZ	2.53	0.42
1:C:8:GLN:HB3	1:C:71:PHE:CD2	2.53	0.42
1:E:103:LYS:HZ3	1:E:124:PRO:HG2	1.84	0.42
1:F:24:GLU:HG3	1:F:28:MET:HE2	2.01	0.42
1:A:8:GLN:HB3	1:A:71:PHE:CD2	2.55	0.42
1:C:28:MET:HE1	1:D:134:GLN:HA	2.01	0.42
1:A:14:LEU:HD21	1:A:34:ALA:HB1	2.01	0.42
1:F:24:GLU:O	1:F:28:MET:HG3	2.20	0.42
1:G:79:GLY:O	1:G:105:GLN:HB2	2.19	0.42
1:A:137:SER:HB3	1:B:25:LEU:CD2	2.50	0.42
1:A:16:ARG:HD3	1:B:105:GLN:O	2.20	0.42
1:E:124:PRO:HB3	1:F:128:MET:HB3	2.02	0.42
1:C:167:ILE:HB	1:C:195:PRO:HA	2.02	0.41
1:D:14:LEU:HD21	1:D:34:ALA:HB1	2.02	0.41
1:D:79:GLY:O	1:D:105:GLN:HB2	2.20	0.41
1:C:63:LEU:HA	1:C:66:LEU:HD12	2.02	0.41
1:E:107:TYR:O	1:E:110:HIS:HB3	2.19	0.41
1:H:8:GLN:HB3	1:H:71:PHE:CD2	2.55	0.41
1:G:132:ILE:HG12	1:H:122:ILE:HG21	2.01	0.41
1:A:128:MET:HG3	1:A:132:ILE:HD13	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:8:GLN:HB3	1:E:71:PHE:CD2	2.56	0.41
1:F:8:GLN:HB3	1:F:71:PHE:CD2	2.56	0.41
1:D:167:ILE:HB	1:D:195:PRO:HA	2.03	0.41
1:B:36:ASP:O	1:B:54:ILE:HA	2.21	0.41
1:E:132:ILE:HG12	1:F:122:ILE:HG21	2.03	0.41
1:F:63:LEU:HA	1:F:66:LEU:HD12	2.01	0.41
1:B:167:ILE:HB	1:B:195:PRO:HA	2.02	0.41
1:C:36:ASP:O	1:C:54:ILE:HA	2.21	0.41
1:D:8:GLN:HB3	1:D:71:PHE:CD2	2.56	0.41
1:E:75:ILE:HG12	1:F:136:LEU:HD11	2.03	0.41
1:F:36:ASP:O	1:F:54:ILE:HA	2.21	0.41
1:B:9:PHE:CD1	1:B:73:TYR:HB2	2.56	0.41
1:D:128:MET:HG3	1:D:132:ILE:HD13	2.03	0.41
1:G:36:ASP:O	1:G:54:ILE:HA	2.21	0.41
1:B:107:TYR:O	1:B:110:HIS:HB3	2.22	0.40
1:H:79:GLY:O	1:H:105:GLN:HB2	2.20	0.40
1:A:103:LYS:NZ	1:A:124:PRO:HG2	2.35	0.40
1:E:150:GLU:HB3	1:E:210:HIS:CE1	2.56	0.40
1:G:129:GLY:HA3	1:H:20:SER:HB3	2.03	0.40
1:D:150:GLU:HB3	1:D:210:HIS:CE1	2.56	0.40
1:A:36:ASP:O	1:A:54:ILE:HA	2.21	0.40
1:G:103:LYS:HZ3	1:G:124:PRO:HG2	1.83	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	215/222 (97%)	211 (98%)	4 (2%)	0	100	100
1	B	215/222 (97%)	211 (98%)	4 (2%)	0	100	100
1	C	215/222 (97%)	211 (98%)	4 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	D	215/222 (97%)	210 (98%)	5 (2%)	0	100	100
1	E	215/222 (97%)	211 (98%)	4 (2%)	0	100	100
1	F	215/222 (97%)	212 (99%)	3 (1%)	0	100	100
1	G	133/222 (60%)	131 (98%)	2 (2%)	0	100	100
1	H	133/222 (60%)	131 (98%)	2 (2%)	0	100	100
All	All	1556/1776 (88%)	1528 (98%)	28 (2%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	186/190 (98%)	184 (99%)	2 (1%)	65	74
1	B	186/190 (98%)	183 (98%)	3 (2%)	55	69
1	C	186/190 (98%)	183 (98%)	3 (2%)	55	69
1	D	186/190 (98%)	183 (98%)	3 (2%)	55	69
1	E	186/190 (98%)	183 (98%)	3 (2%)	55	69
1	F	186/190 (98%)	184 (99%)	2 (1%)	65	74
1	G	112/190 (59%)	110 (98%)	2 (2%)	51	67
1	H	112/190 (59%)	110 (98%)	2 (2%)	51	67
All	All	1340/1520 (88%)	1320 (98%)	20 (2%)	57	70

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	72	GLU
1	A	132	ILE
1	B	72	GLU
1	B	122	ILE
1	B	132	ILE

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Mol	Chain	Res	Type
1	C	72	GLU
1	C	122	ILE
1	C	132	ILE
1	D	72	GLU
1	D	122	ILE
1	D	132	ILE
1	E	72	GLU
1	E	122	ILE
1	E	132	ILE
1	F	72	GLU
1	F	132	ILE
1	G	72	GLU
1	G	132	ILE
1	H	72	GLU
1	H	132	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	105	GLN
1	C	171	ASN
1	E	134	GLN
1	F	171	ASN
1	G	30	HIS
1	G	105	GLN
1	H	105	GLN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry

8 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	ATP	E	601	-	32,33,33	1.43	5 (15%)	48,52,52	1.74	9 (18%)
2	ATP	D	601	-	32,33,33	1.42	4 (12%)	48,52,52	1.75	9 (18%)
2	ATP	G	601	-	32,33,33	1.41	4 (12%)	48,52,52	1.74	8 (16%)
2	ATP	F	601	-	32,33,33	1.41	4 (12%)	48,52,52	1.75	9 (18%)
2	ATP	C	601	-	32,33,33	1.42	5 (15%)	48,52,52	1.73	9 (18%)
2	ATP	B	601	-	32,33,33	1.41	5 (15%)	48,52,52	1.74	9 (18%)
2	ATP	H	601	-	32,33,33	1.39	4 (12%)	48,52,52	1.73	9 (18%)
2	ATP	A	601	-	32,33,33	1.43	5 (15%)	48,52,52	1.74	9 (18%)

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
2	ATP	E	601	-	-	7/22/38/38	0/3/3/3
2	ATP	D	601	-	-	11/22/38/38	0/3/3/3
2	ATP	G	601	-	-	8/22/38/38	0/3/3/3
2	ATP	F	601	-	-	8/22/38/38	0/3/3/3
2	ATP	C	601	-	-	8/22/38/38	0/3/3/3
2	ATP	B	601	-	-	9/22/38/38	0/3/3/3
2	ATP	H	601	-	-	4/22/38/38	0/3/3/3
2	ATP	A	601	-	-	8/22/38/38	0/3/3/3

All (36) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	601	ATP	C5-C4	4.75	1.47	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	601	ATP	C5-C4	4.73	1.47	1.39
2	E	601	ATP	C5-C4	4.72	1.47	1.39
2	C	601	ATP	C5-C4	4.71	1.47	1.39
2	B	601	ATP	C5-C4	4.71	1.47	1.39
2	G	601	ATP	C5-C4	4.71	1.47	1.39
2	D	601	ATP	C5-C4	4.70	1.47	1.39
2	H	601	ATP	C5-C4	4.69	1.47	1.39
2	C	601	ATP	C5-C6	2.78	1.48	1.41
2	E	601	ATP	C5-C6	2.78	1.48	1.41
2	F	601	ATP	C5-C6	2.78	1.48	1.41
2	H	601	ATP	C5-C6	2.76	1.48	1.41
2	D	601	ATP	C5-C6	2.75	1.48	1.41
2	A	601	ATP	C5-C6	2.74	1.48	1.41
2	G	601	ATP	C5-C6	2.73	1.48	1.41
2	B	601	ATP	C5-C6	2.71	1.48	1.41
2	C	601	ATP	C8-N7	2.42	1.36	1.31
2	A	601	ATP	C8-N7	2.41	1.36	1.31
2	H	601	ATP	C8-N7	2.40	1.36	1.31
2	D	601	ATP	C8-N7	2.38	1.36	1.31
2	E	601	ATP	C8-N7	2.38	1.36	1.31
2	B	601	ATP	C8-N7	2.36	1.36	1.31
2	F	601	ATP	C8-N7	2.35	1.36	1.31
2	G	601	ATP	C8-N7	2.32	1.36	1.31
2	A	601	ATP	C5-N7	-2.22	1.35	1.39
2	G	601	ATP	C5-N7	-2.22	1.35	1.39
2	D	601	ATP	C5-N7	-2.21	1.35	1.39
2	F	601	ATP	C5-N7	-2.21	1.35	1.39
2	E	601	ATP	C5-N7	-2.21	1.35	1.39
2	B	601	ATP	C5-N7	-2.19	1.35	1.39
2	H	601	ATP	C5-N7	-2.19	1.35	1.39
2	C	601	ATP	C5-N7	-2.14	1.35	1.39
2	E	601	ATP	PB-O3B	2.13	1.61	1.59
2	A	601	ATP	PB-O3B	2.07	1.61	1.59
2	B	601	ATP	PB-O3B	2.02	1.61	1.59
2	C	601	ATP	PA-O3A	2.01	1.61	1.59

All (71) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	601	ATP	C5-C4-N3	-5.79	118.75	126.72
2	F	601	ATP	C5-C4-N3	-5.77	118.78	126.72
2	B	601	ATP	C5-C4-N3	-5.76	118.79	126.72

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	601	ATP	C5-C4-N3	-5.74	118.81	126.72
2	G	601	ATP	C5-C4-N3	-5.72	118.85	126.72
2	E	601	ATP	C5-C4-N3	-5.70	118.87	126.72
2	C	601	ATP	C5-C4-N3	-5.67	118.91	126.72
2	H	601	ATP	C5-C4-N3	-5.65	118.93	126.72
2	D	601	ATP	N3-C4-N9	4.56	134.93	127.17
2	F	601	ATP	N3-C4-N9	4.55	134.90	127.17
2	B	601	ATP	N3-C4-N9	4.52	134.85	127.17
2	A	601	ATP	N3-C4-N9	4.51	134.84	127.17
2	G	601	ATP	N3-C4-N9	4.51	134.84	127.17
2	E	601	ATP	N3-C4-N9	4.47	134.77	127.17
2	H	601	ATP	N3-C4-N9	4.46	134.74	127.17
2	C	601	ATP	N3-C4-N9	4.39	134.63	127.17
2	F	601	ATP	C2-N3-C4	3.70	120.86	111.83
2	C	601	ATP	C2-N3-C4	3.70	120.86	111.83
2	D	601	ATP	C2-N3-C4	3.70	120.86	111.83
2	E	601	ATP	C2-N3-C4	3.69	120.84	111.83
2	G	601	ATP	C2-N3-C4	3.69	120.84	111.83
2	A	601	ATP	C2-N3-C4	3.69	120.84	111.83
2	H	601	ATP	C2-N3-C4	3.68	120.82	111.83
2	B	601	ATP	C2-N3-C4	3.66	120.78	111.83
2	C	601	ATP	C4-C5-N7	-3.60	106.47	110.58
2	E	601	ATP	C4-C5-N7	-3.53	106.55	110.58
2	B	601	ATP	C4-C5-N7	-3.50	106.58	110.58
2	D	601	ATP	C4-C5-N7	-3.50	106.58	110.58
2	H	601	ATP	C4-C5-N7	-3.50	106.58	110.58
2	F	601	ATP	C4-C5-N7	-3.50	106.58	110.58
2	A	601	ATP	C4-C5-N7	-3.49	106.59	110.58
2	G	601	ATP	C4-C5-N7	-3.46	106.63	110.58
2	G	601	ATP	N3-C2-N1	-3.30	123.58	128.58
2	C	601	ATP	N3-C2-N1	-3.29	123.60	128.58
2	H	601	ATP	N3-C2-N1	-3.28	123.62	128.58
2	E	601	ATP	N3-C2-N1	-3.27	123.63	128.58
2	F	601	ATP	N3-C2-N1	-3.24	123.67	128.58
2	A	601	ATP	N3-C2-N1	-3.24	123.67	128.58
2	B	601	ATP	N3-C2-N1	-3.22	123.71	128.58
2	D	601	ATP	N3-C2-N1	-3.20	123.74	128.58
2	H	601	ATP	C4-N9-C8	2.78	108.66	105.74
2	E	601	ATP	C4-N9-C8	2.71	108.58	105.74
2	D	601	ATP	C4-N9-C8	2.71	108.58	105.74
2	A	601	ATP	C4-N9-C8	2.67	108.55	105.74
2	C	601	ATP	C4-N9-C8	2.67	108.55	105.74

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	601	ATP	C4-N9-C8	2.67	108.54	105.74
2	B	601	ATP	C4-N9-C8	2.64	108.51	105.74
2	G	601	ATP	C4-N9-C8	2.63	108.50	105.74
2	C	601	ATP	C5-N7-C8	2.58	107.51	103.45
2	D	601	ATP	C5-N7-C8	2.57	107.48	103.45
2	B	601	ATP	C5-N7-C8	2.55	107.46	103.45
2	E	601	ATP	C5-N7-C8	2.55	107.45	103.45
2	A	601	ATP	C5-N7-C8	2.55	107.45	103.45
2	F	601	ATP	C5-N7-C8	2.54	107.44	103.45
2	H	601	ATP	C5-N7-C8	2.53	107.43	103.45
2	G	601	ATP	C5-N7-C8	2.53	107.43	103.45
2	C	601	ATP	C6-C5-N7	2.32	136.56	132.09
2	E	601	ATP	C6-C5-N7	2.23	136.39	132.09
2	H	601	ATP	C6-C5-N7	2.23	136.39	132.09
2	F	601	ATP	C6-C5-N7	2.15	136.24	132.09
2	D	601	ATP	C6-C5-N7	2.15	136.24	132.09
2	A	601	ATP	C6-C5-N7	2.14	136.22	132.09
2	G	601	ATP	C6-C5-N7	2.14	136.21	132.09
2	B	601	ATP	C6-C5-N7	2.13	136.20	132.09
2	H	601	ATP	N9-C8-N7	-2.07	111.01	113.94
2	C	601	ATP	N9-C8-N7	-2.05	111.03	113.94
2	D	601	ATP	N9-C8-N7	-2.05	111.03	113.94
2	B	601	ATP	C3'-C2'-C1'	2.05	105.34	101.46
2	F	601	ATP	C3'-C2'-C1'	2.03	105.30	101.46
2	A	601	ATP	N9-C8-N7	-2.02	111.06	113.94
2	E	601	ATP	N9-C8-N7	-2.02	111.07	113.94

There are no chirality outliers.

All (63) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	601	ATP	PB-O3B-PG-O2G
2	A	601	ATP	PB-O3B-PG-O3G
2	A	601	ATP	PB-O3A-PA-O5'
2	A	601	ATP	C5'-O5'-PA-O1A
2	A	601	ATP	C5'-O5'-PA-O2A
2	A	601	ATP	C5'-O5'-PA-O3A
2	B	601	ATP	PB-O3B-PG-O3G
2	B	601	ATP	C5'-O5'-PA-O2A
2	B	601	ATP	C5'-O5'-PA-O3A
2	C	601	ATP	PB-O3B-PG-O3G
2	C	601	ATP	C5'-O5'-PA-O1A

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Mol	Chain	Res	Type	Atoms
2	C	601	ATP	C5'-O5'-PA-O2A
2	C	601	ATP	C5'-O5'-PA-O3A
2	D	601	ATP	PB-O3B-PG-O3G
2	D	601	ATP	C5'-O5'-PA-O1A
2	D	601	ATP	C5'-O5'-PA-O2A
2	D	601	ATP	C5'-O5'-PA-O3A
2	E	601	ATP	PB-O3A-PA-O5'
2	E	601	ATP	C5'-O5'-PA-O1A
2	E	601	ATP	C5'-O5'-PA-O2A
2	E	601	ATP	C5'-O5'-PA-O3A
2	F	601	ATP	PB-O3B-PG-O3G
2	F	601	ATP	C5'-O5'-PA-O1A
2	F	601	ATP	C5'-O5'-PA-O2A
2	F	601	ATP	C5'-O5'-PA-O3A
2	G	601	ATP	PB-O3B-PG-O3G
2	G	601	ATP	PB-O3A-PA-O5'
2	G	601	ATP	C5'-O5'-PA-O1A
2	G	601	ATP	C5'-O5'-PA-O2A
2	G	601	ATP	C5'-O5'-PA-O3A
2	H	601	ATP	C5'-O5'-PA-O1A
2	H	601	ATP	C5'-O5'-PA-O2A
2	H	601	ATP	C5'-O5'-PA-O3A
2	C	601	ATP	O4'-C4'-C5'-O5'
2	H	601	ATP	O4'-C4'-C5'-O5'
2	A	601	ATP	O4'-C4'-C5'-O5'
2	D	601	ATP	O4'-C4'-C5'-O5'
2	E	601	ATP	O4'-C4'-C5'-O5'
2	F	601	ATP	O4'-C4'-C5'-O5'
2	G	601	ATP	O4'-C4'-C5'-O5'
2	D	601	ATP	PB-O3A-PA-O1A
2	B	601	ATP	PB-O3A-PA-O5'
2	C	601	ATP	PB-O3A-PA-O5'
2	D	601	ATP	PB-O3A-PA-O5'
2	F	601	ATP	PB-O3A-PA-O5'
2	G	601	ATP	PB-O3B-PG-O2G
2	D	601	ATP	PA-O3A-PB-O1B
2	B	601	ATP	O4'-C4'-C5'-O5'
2	B	601	ATP	C5'-O5'-PA-O1A
2	A	601	ATP	PG-O3B-PB-O1B
2	C	601	ATP	C4'-C5'-O5'-PA
2	C	601	ATP	PB-O3B-PG-O1G
2	D	601	ATP	PB-O3B-PG-O1G

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Mol	Chain	Res	Type	Atoms
2	F	601	ATP	PB-O3B-PG-O1G
2	G	601	ATP	PB-O3B-PG-O1G
2	B	601	ATP	PB-O3B-PG-O2G
2	D	601	ATP	C4'-C5'-O5'-PA
2	B	601	ATP	PG-O3B-PB-O2B
2	D	601	ATP	PA-O3A-PB-O2B
2	E	601	ATP	PG-O3B-PB-O1B
2	B	601	ATP	PA-O3A-PB-O2B
2	E	601	ATP	PG-O3B-PB-O2B
2	F	601	ATP	PA-O3A-PB-O2B

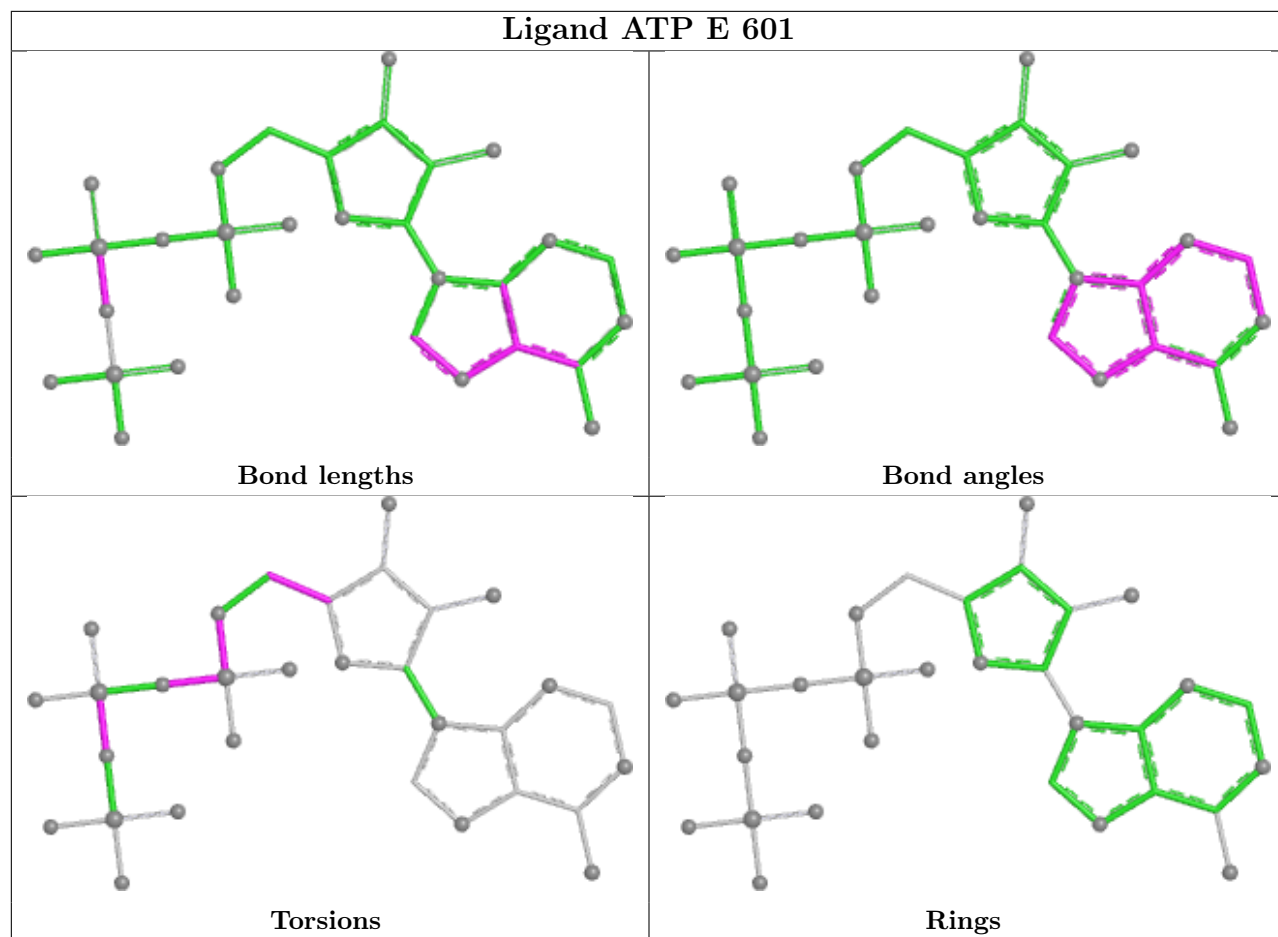
There are no ring outliers.

5 monomers are involved in 7 short contacts:

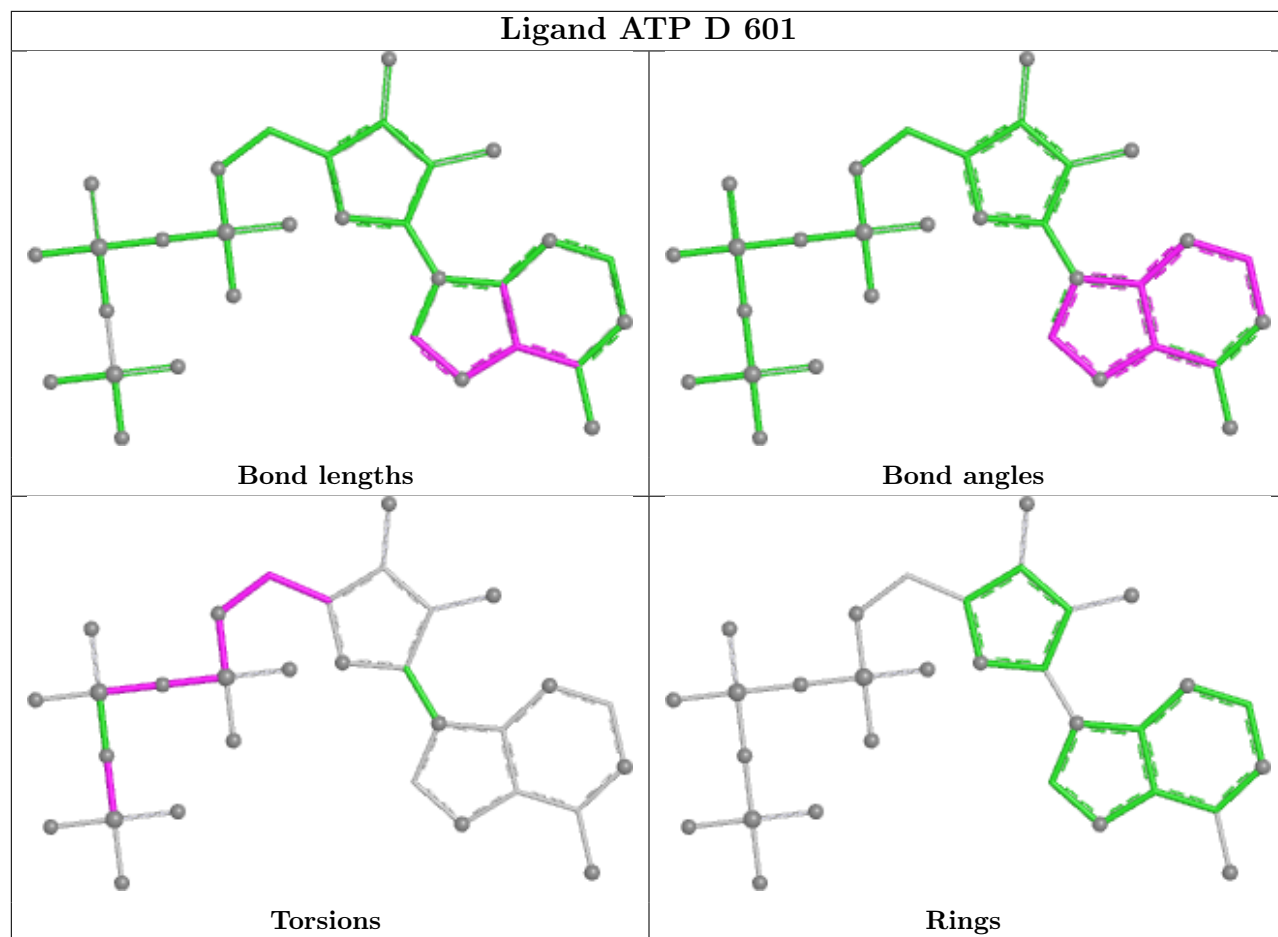
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	601	ATP	2	0
2	D	601	ATP	1	0
2	C	601	ATP	1	0
2	H	601	ATP	2	0
2	A	601	ATP	1	0

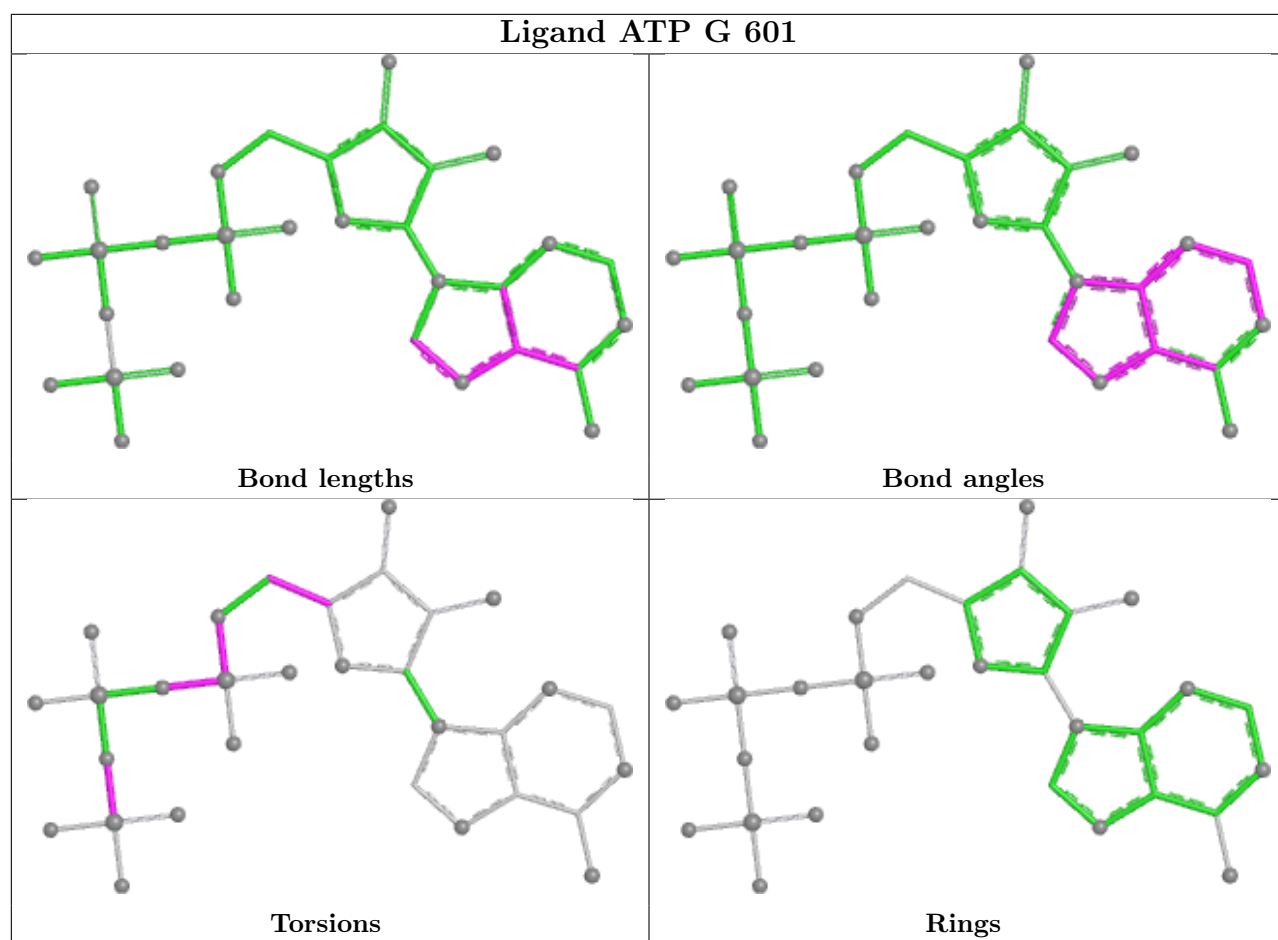
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 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 E 601

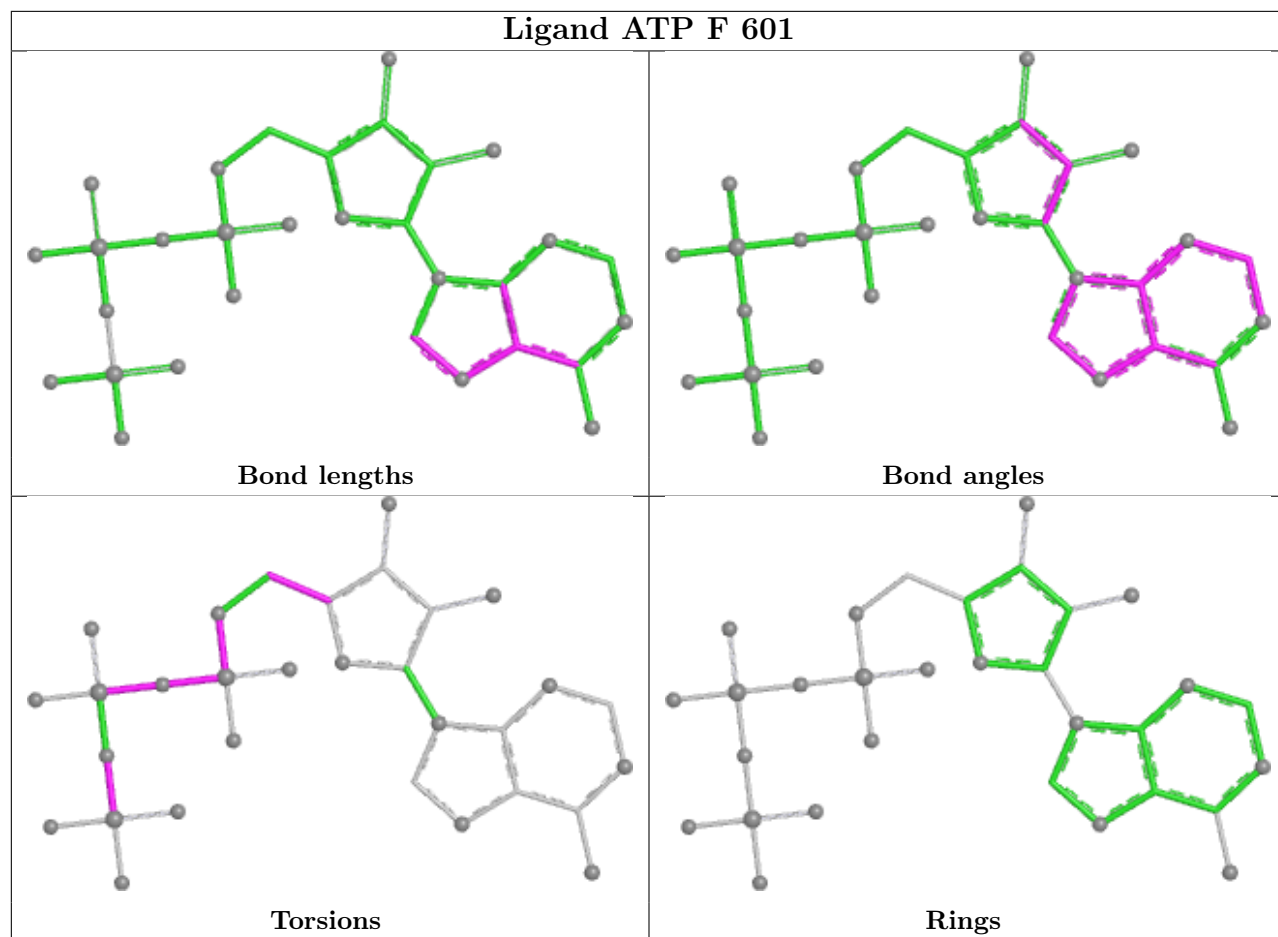


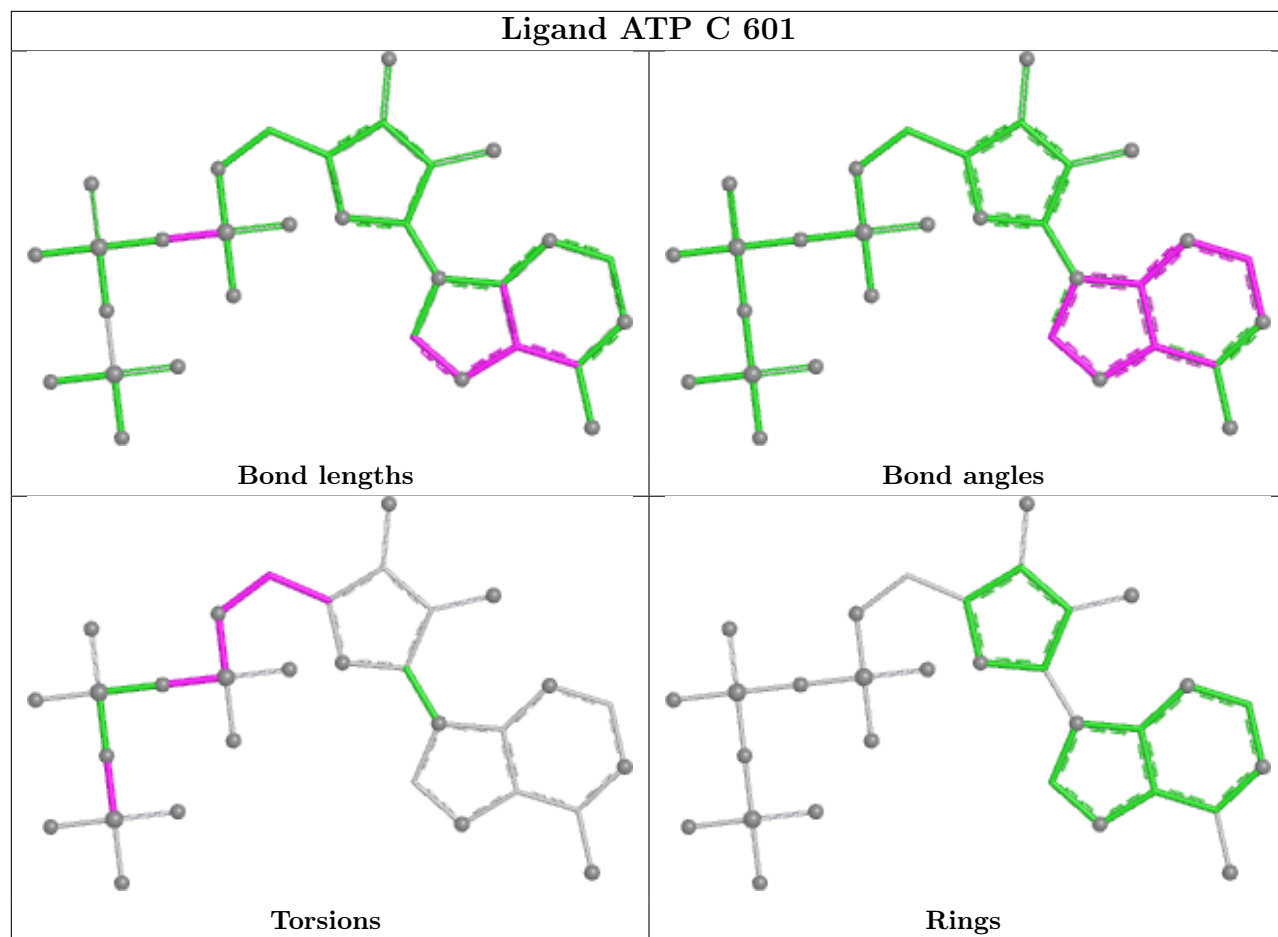


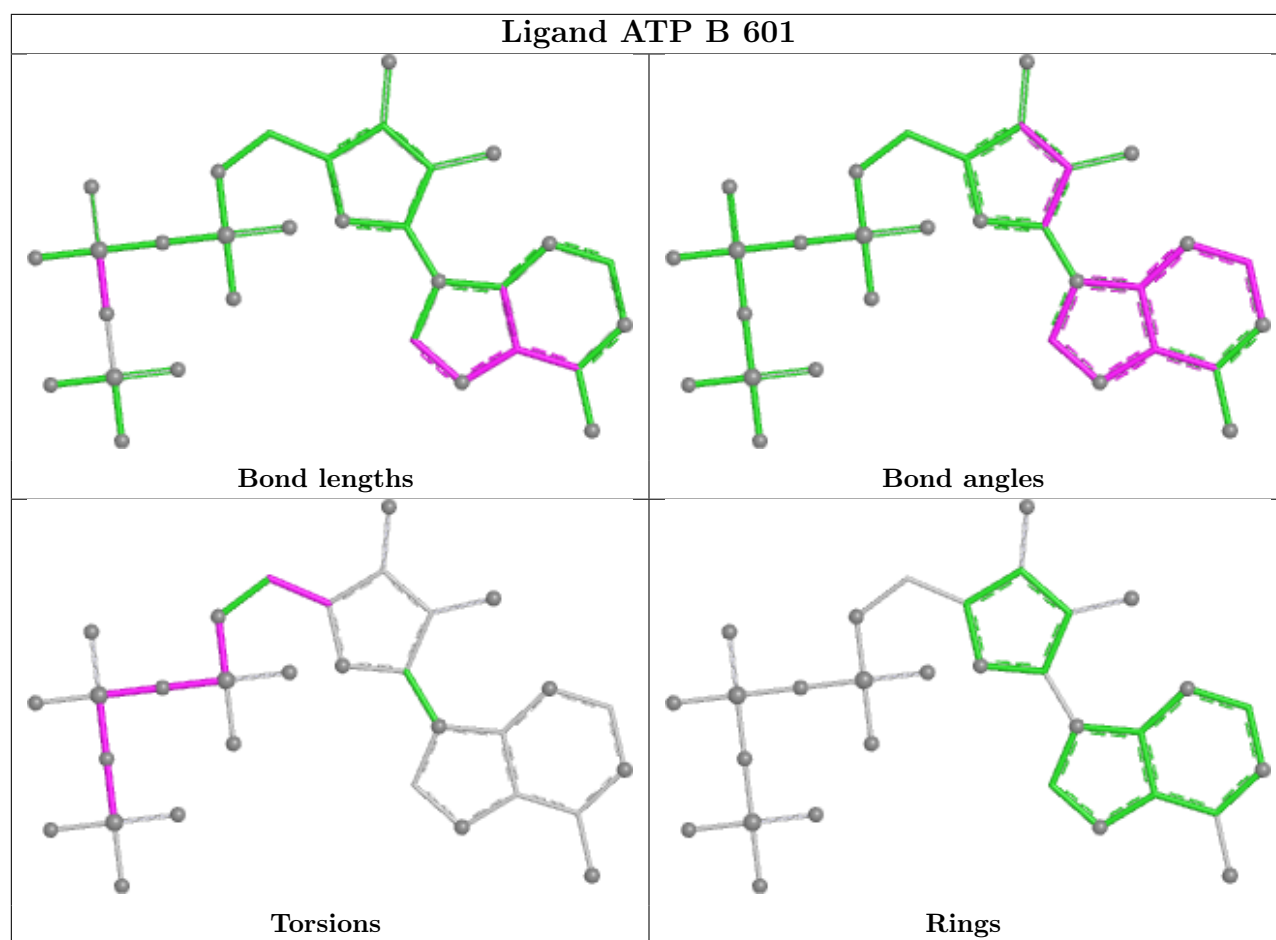


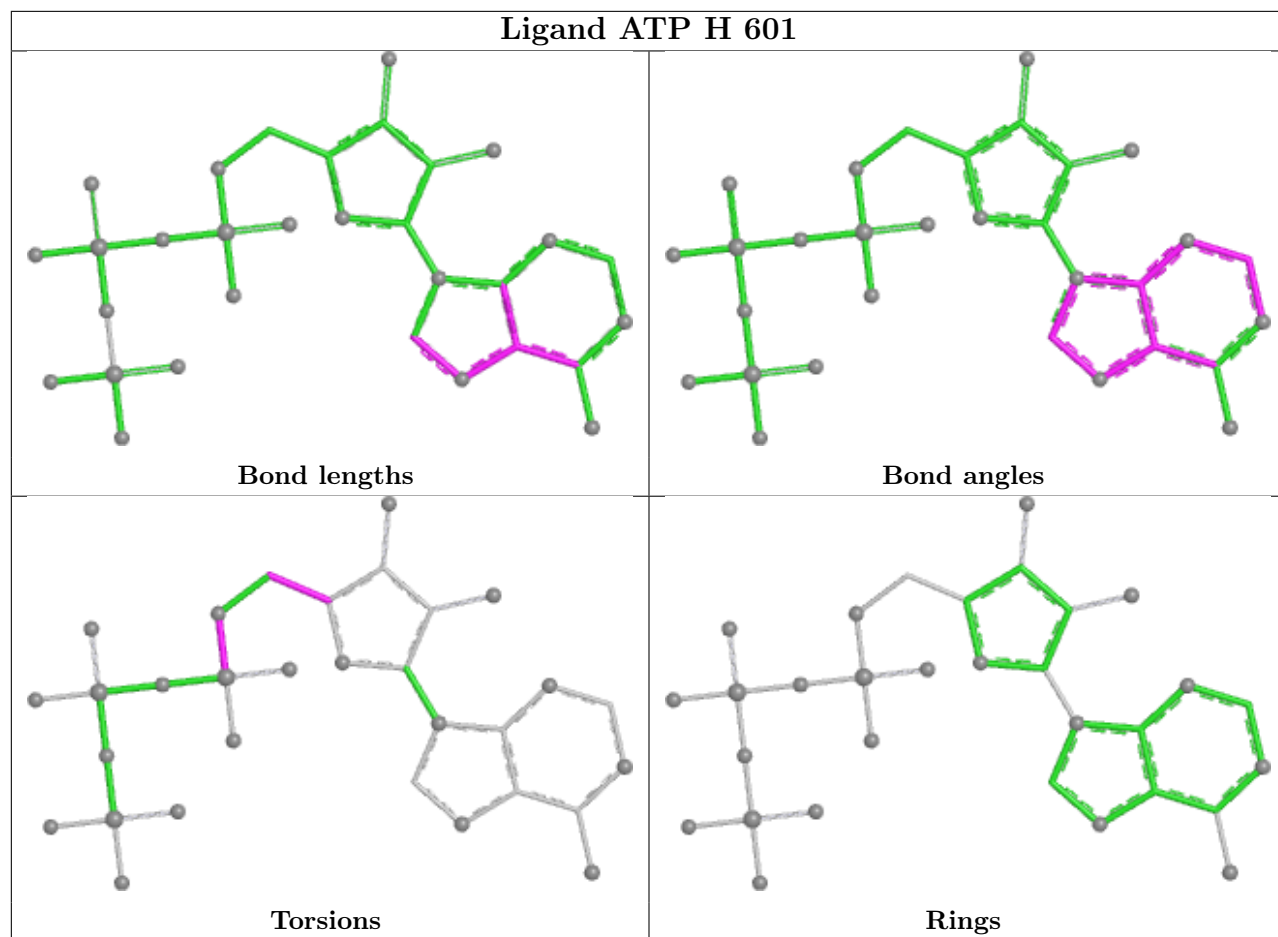


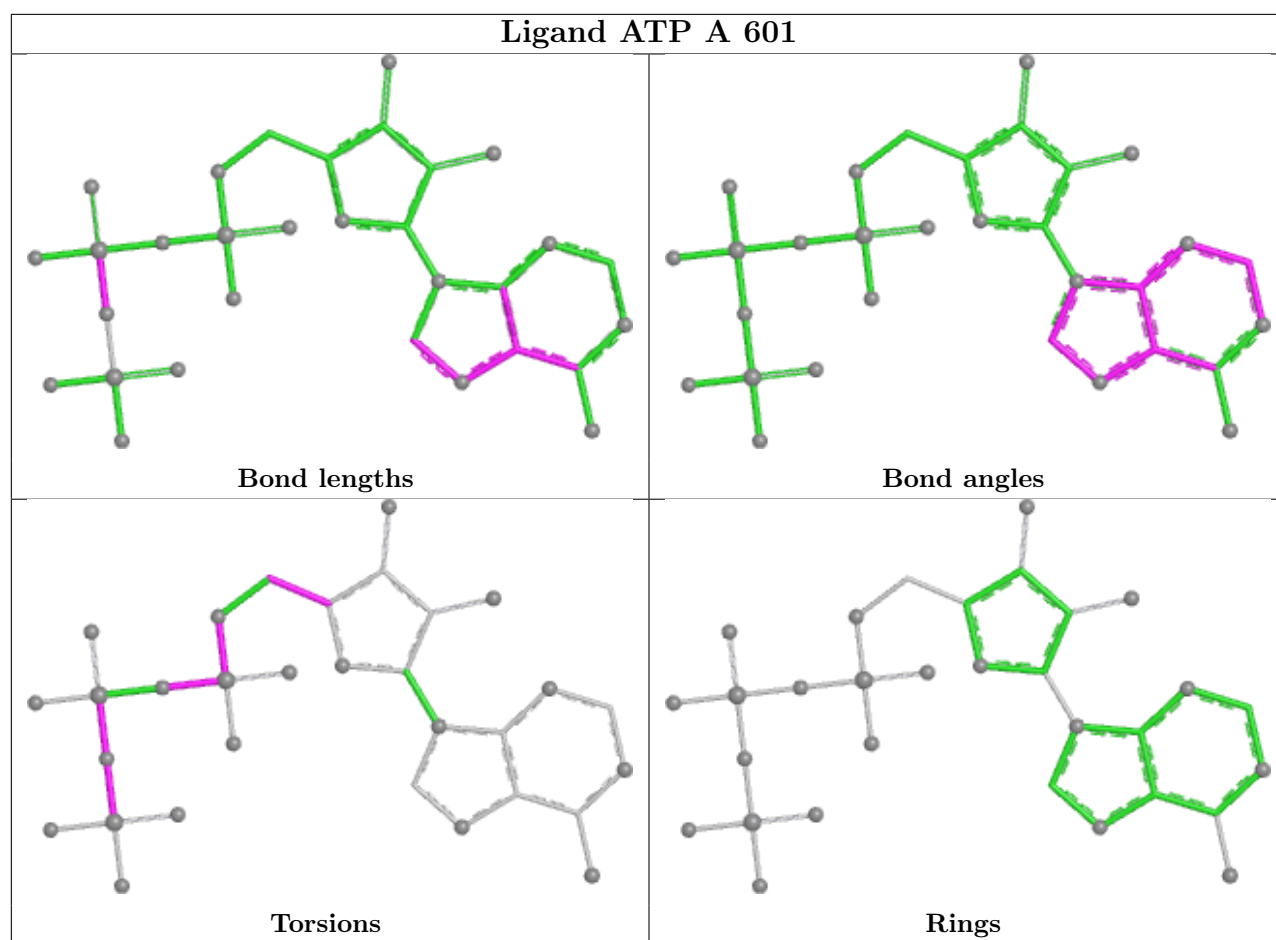
## Ligand ATP F 601











## 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 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ > 2		OWAB(Å <sup>2</sup> )	Q < 0.9
1	A	217/222 (97%)	-0.06	4 (1%)	67 51	58, 146, 226, 277	6 (2%)
1	B	217/222 (97%)	-0.10	4 (1%)	67 51	40, 138, 232, 322	6 (2%)
1	C	216/222 (97%)	0.00	3 (1%)	73 56	61, 174, 259, 300	6 (2%)
1	D	217/222 (97%)	-0.10	1 (0%)	87 74	60, 130, 220, 317	5 (2%)
1	E	217/222 (97%)	-0.09	1 (0%)	87 74	34, 137, 224, 251	5 (2%)
1	F	217/222 (97%)	-0.08	2 (0%)	81 65	63, 127, 218, 302	6 (2%)
1	G	135/222 (60%)	0.13	5 (3%)	45 35	79, 159, 242, 324	0
1	H	135/222 (60%)	-0.08	0	100 100	132, 164, 262, 282	0
All	All	1571/1776 (88%)	-0.05	20 (1%)	75 58	34, 148, 239, 324	34 (2%)

All (20) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	117	GLY	4.4
1	G	68	ILE	3.5
1	F	199	ILE	3.0
1	A	132	ILE	2.8
1	D	124	PRO	2.8
1	B	136	LEU	2.8
1	B	74	VAL	2.7
1	F	116	ILE	2.6
1	G	122	ILE	2.6
1	E	22	CYS	2.6
1	A	199	ILE	2.5
1	C	92	LEU	2.5
1	C	25	LEU	2.4
1	B	172	VAL	2.3
1	C	136	LEU	2.3
1	B	217	PHE	2.2

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Mol	Chain	Res	Type	RSRZ
1	G	94	GLU	2.2
1	A	136	LEU	2.1
1	G	74	VAL	2.1
1	A	49	ALA	2.0

## 6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

## 6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 6.4 Ligands [i](#)

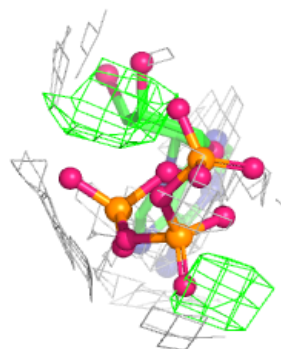
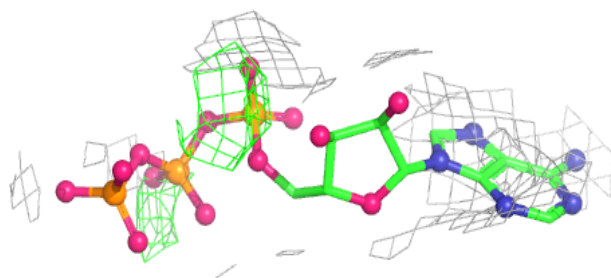
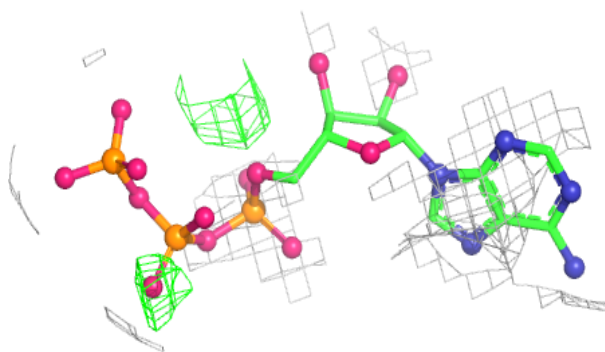
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	ATP	C	601	31/31	0.78	0.10	232,239,246,251	0
2	ATP	G	601	31/31	0.80	0.10	168,173,181,188	0
2	ATP	F	601	31/31	0.82	0.09	159,163,169,179	0
2	ATP	E	601	31/31	0.84	0.08	201,207,213,219	0
2	ATP	H	601	31/31	0.88	0.09	199,205,212,215	0
2	ATP	A	601	31/31	0.90	0.07	136,145,155,156	0
2	ATP	D	601	31/31	0.90	0.07	115,120,124,135	0
2	ATP	B	601	31/31	0.91	0.07	164,170,176,182	0

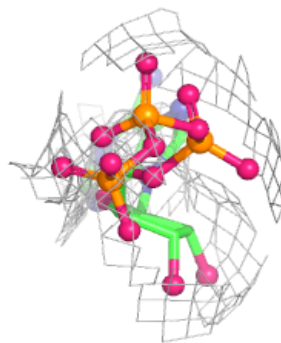
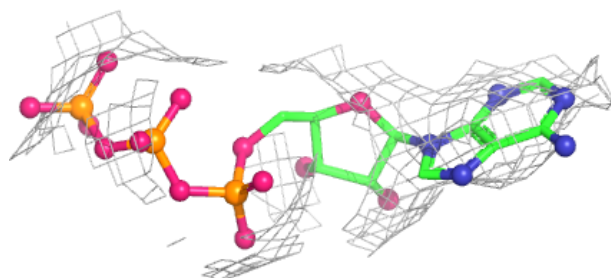
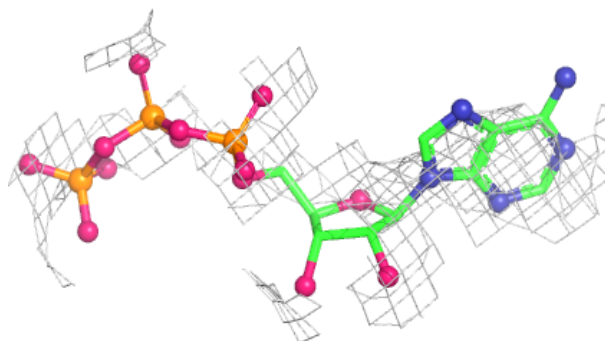
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around ATP C 601:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

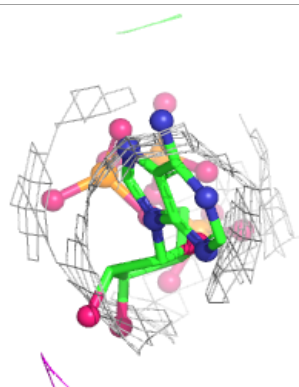
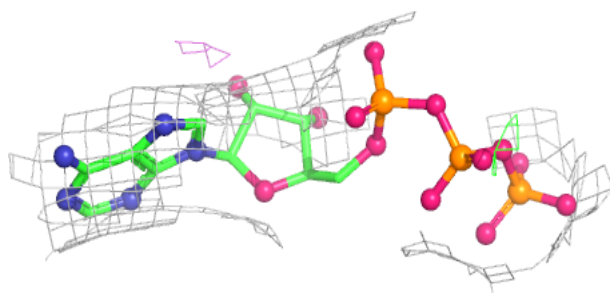
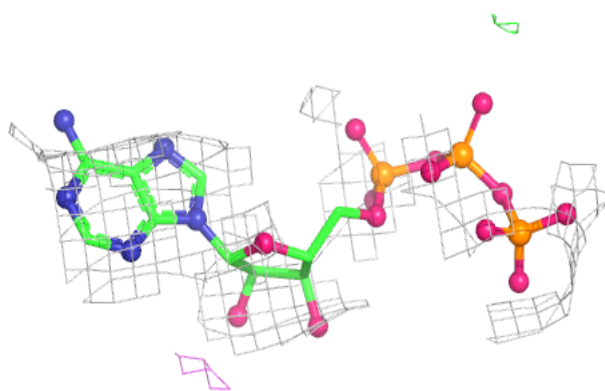
**Electron density around ATP G 601:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

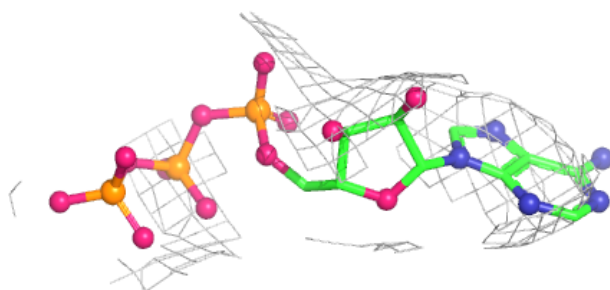
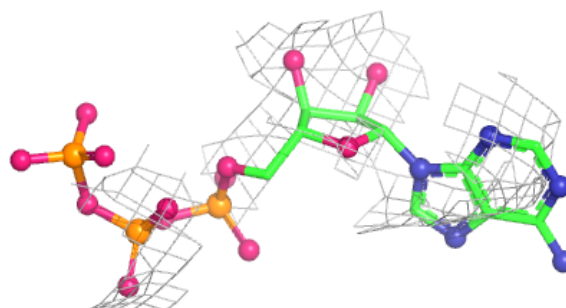


**Electron density around ATP F 601:**

$2mF_o - DF_c$  (at 0.7 rmsd) in gray  
 $mF_o - DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

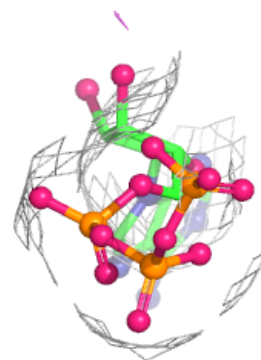
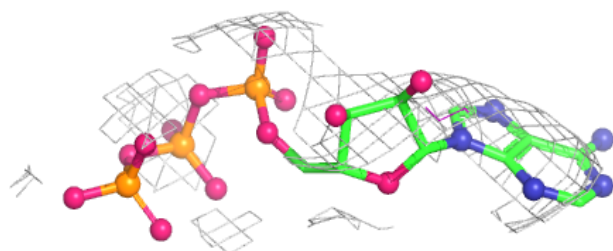
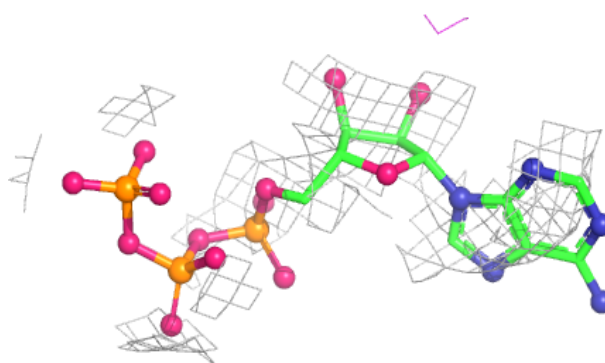
**Electron density around ATP E 601:**

$2mF_o - DF_c$  (at 0.7 rmsd) in gray  
 $mF_o - DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

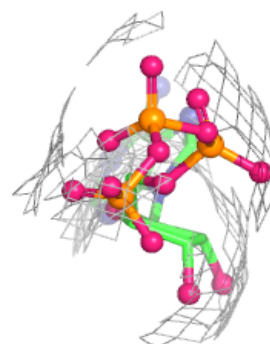
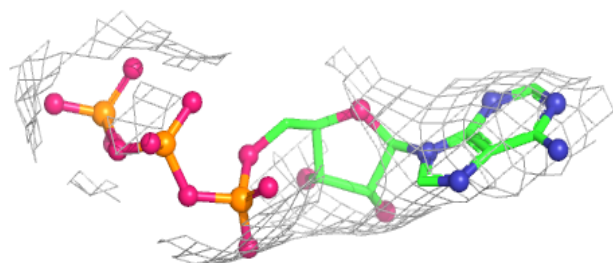
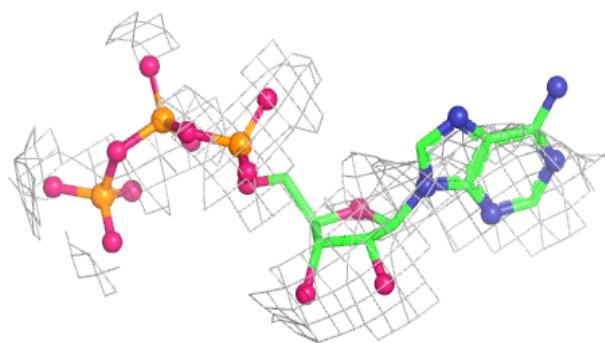


**Electron density around ATP H 601:**

$2mF_o - DF_c$  (at 0.7 rmsd) in gray  
 $mF_o - DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

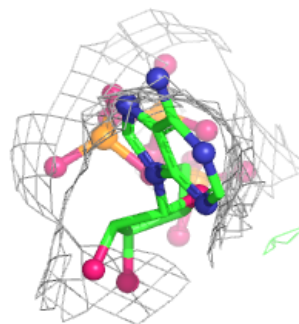
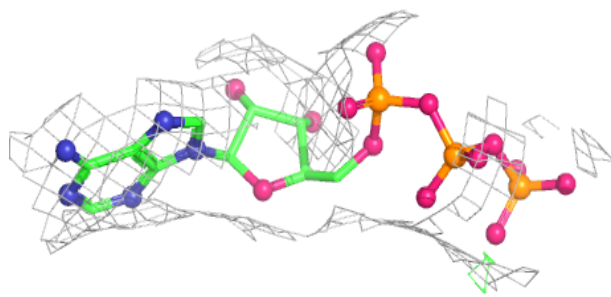
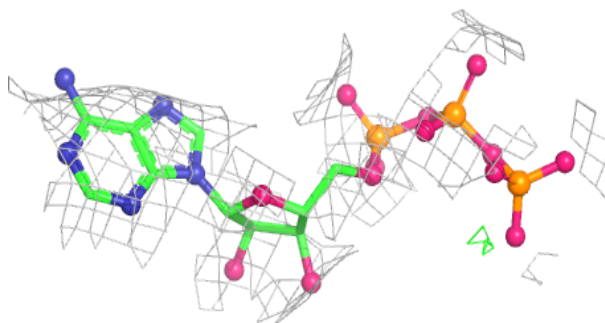
**Electron density around ATP A 601:**

$2mF_o - DF_c$  (at 0.7 rmsd) in gray  
 $mF_o - DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

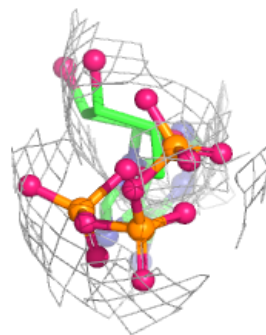
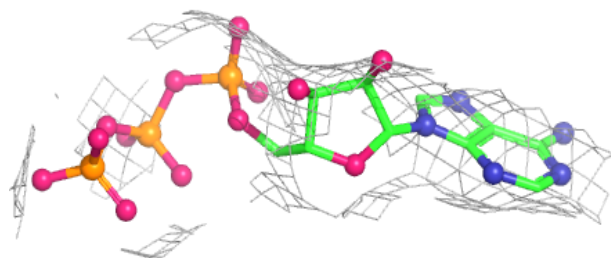
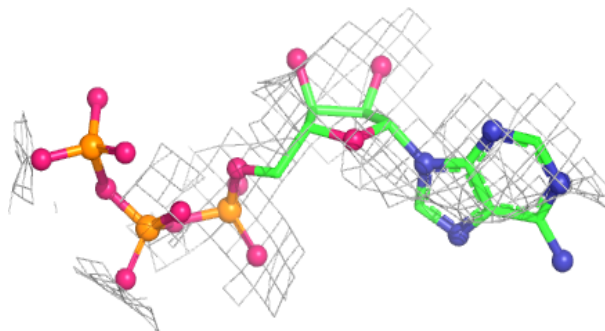


**Electron density around ATP D 601:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

**Electron density around ATP B 601:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



## 6.5 Other polymers [i](#)

There are no such residues in this entry.