



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 01:47 PM UTC

PDB ID : 2YJE / pdb_00002yje
Title : Oligomeric assembly of actin bound to MRTF-A
Authors : Mouilleron, S.; Langer, C.A.; Guettler, S.; McDonald, N.Q.; Treisman, R.
Deposited on : 2011-05-19
Resolution : 3.10 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

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>.

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

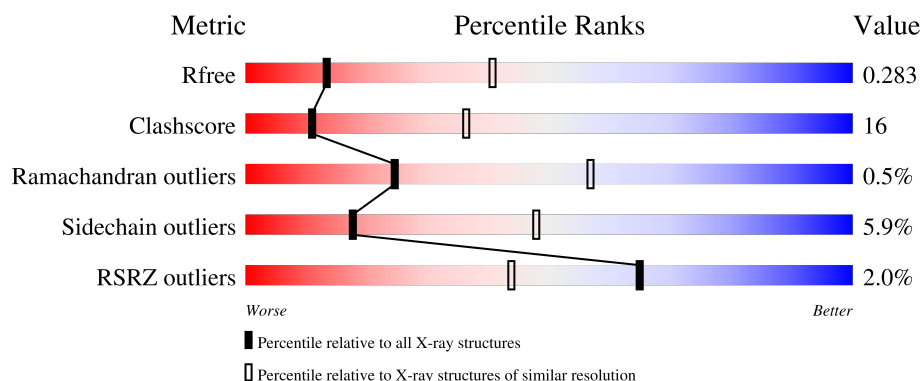
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 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	1456 (3.10-3.10)
Clashscore	190562	1539 (3.10-3.10)
Ramachandran outliers	187476	1467 (3.10-3.10)
Sidechain outliers	187428	1467 (3.10-3.10)
RSRZ outliers	180081	1456 (3.10-3.10)

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 ≥ 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	377	 2% 63% 24% 12%
1	B	377	 3% 69% 23% 7%
1	C	377	 0% 62% 29% 8%
2	M	137	 14% 18% 6% 62%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 8199 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 ACTIN, ALPHA SKELETAL MUSCLE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	333	Total	C	N	O	S	0	0	0
			2490	1586	412	474	18			
1	B	351	Total	C	N	O	S	0	0	0
			2517	1611	418	476	12			
1	C	345	Total	C	N	O	S	0	0	0
			2617	1667	434	498	18			

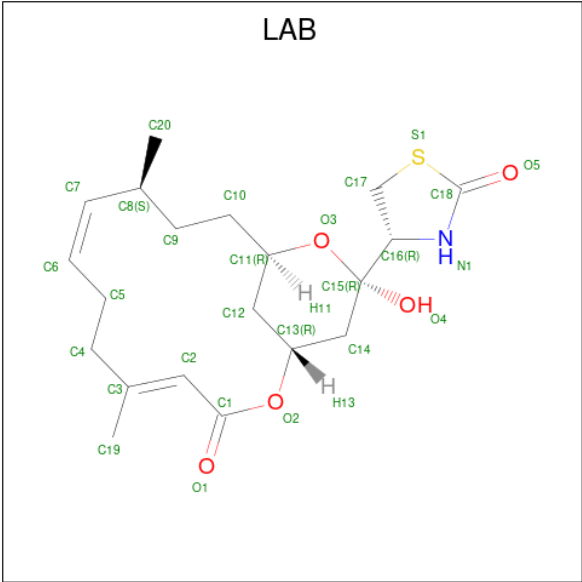
- Molecule 2 is a protein called MKL/MYOCARDIN-LIKE PROTEIN 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	M	52	Total	C	N	O	S	0	0	0
			398	244	79	74	1			

There are 10 discrepancies between the modelled and reference sequences:

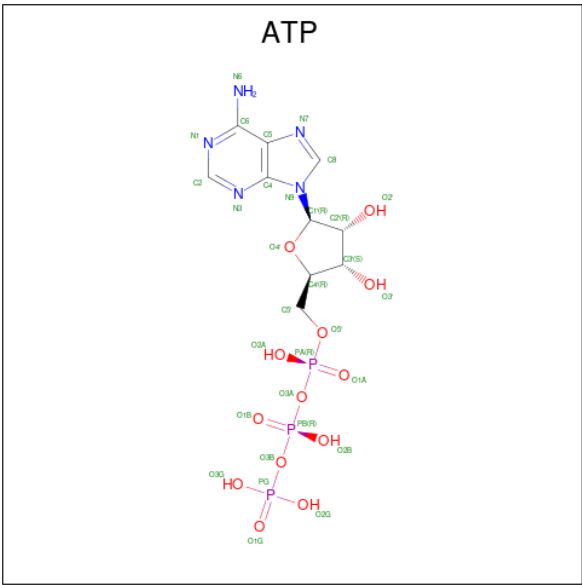
Chain	Residue	Modelled	Actual	Comment	Reference
M	63	GLY	-	expression tag	UNP Q8K4J6
M	64	PRO	-	expression tag	UNP Q8K4J6
M	65	GLY	-	expression tag	UNP Q8K4J6
M	66	SER	-	expression tag	UNP Q8K4J6
M	67	LEU	-	expression tag	UNP Q8K4J6
M	68	SER	-	expression tag	UNP Q8K4J6
M	69	GLU	-	expression tag	UNP Q8K4J6
M	70	ARG	-	expression tag	UNP Q8K4J6
M	71	LYS	-	expression tag	UNP Q8K4J6
M	72	ASN	-	expression tag	UNP Q8K4J6

- Molecule 3 is LATRUNCULIN B (CCD ID: LAB) (formula: C₂₀H₂₉NO₅S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	S	0	0
			27	20	1	5	1		
3	B	1	Total	C	N	O	S	0	0
			27	20	1	5	1		
3	C	1	Total	C	N	O	S	0	0
			27	20	1	5	1		

- Molecule 4 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	N	O	P	0	0
			31	10	5	13	3		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	B	1	Total	C	N	O	P	0	0
			31	10	5	13	3		
4	C	1	Total	C	N	O	P	0	0
			31	10	5	13	3		

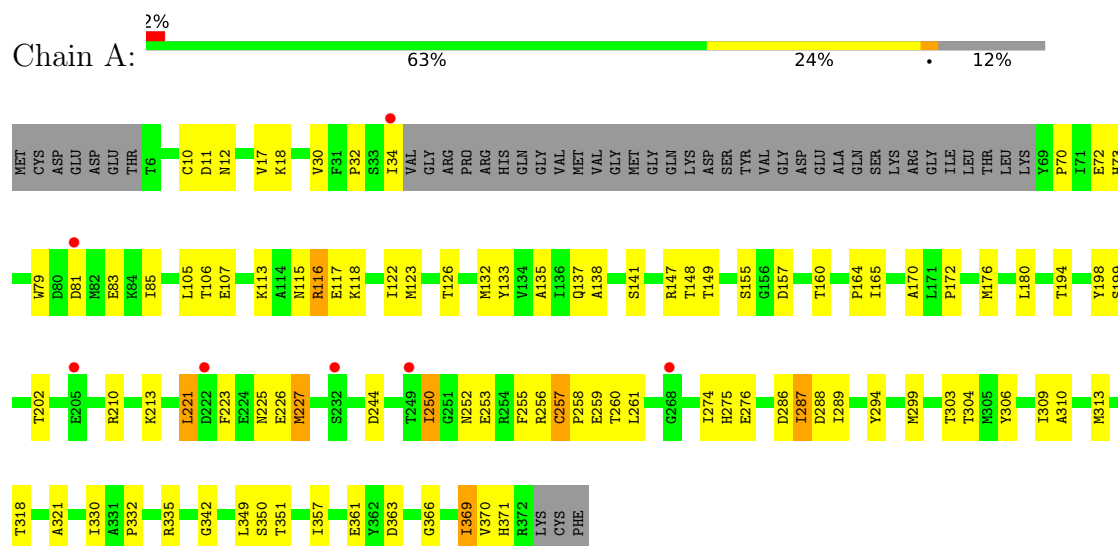
- Molecule 5 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	Mg	0	0
			1	1		
5	B	1	Total	Mg	0	0
			1	1		
5	C	1	Total	Mg	0	0
			1	1		

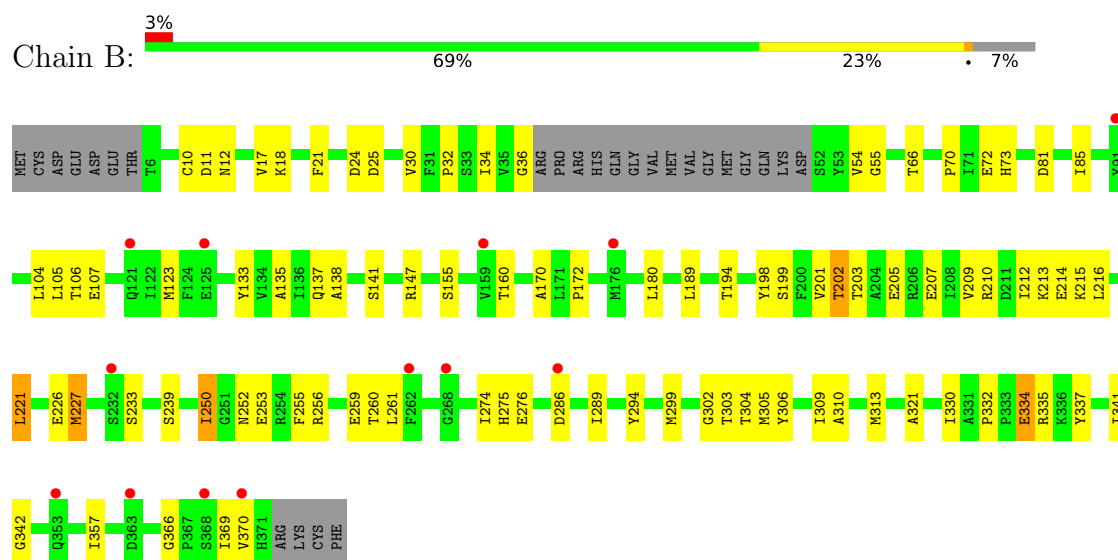
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron 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 dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). 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: ACTIN, ALPHA SKELETAL MUSCLE

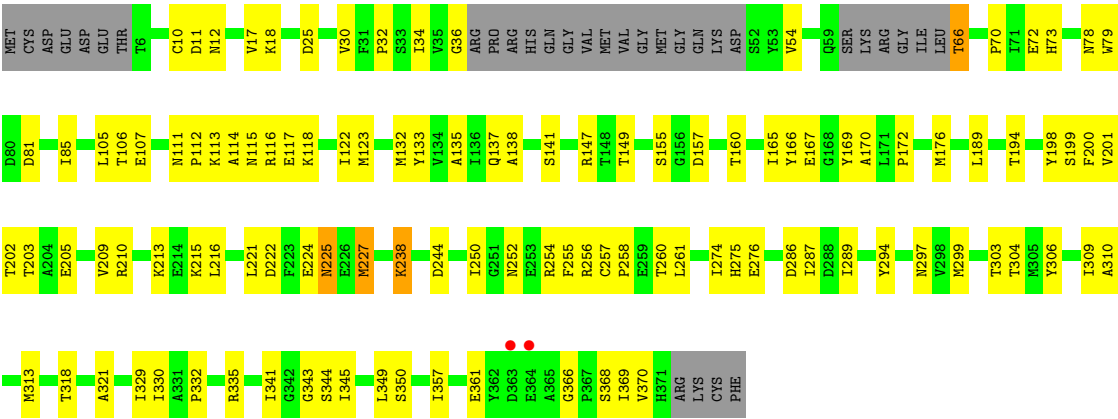


• Molecule 1: ACTIN, ALPHA SKELETAL MUSCLE

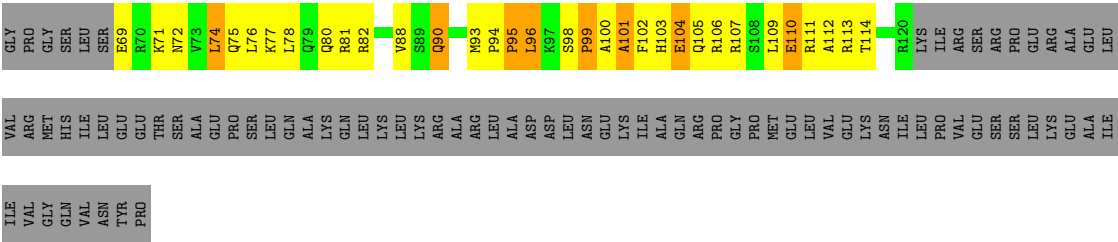


• Molecule 1: ACTIN, ALPHA SKELETAL MUSCLE





● Molecule 2: MKL/MYOCARDIN-LIKE PROTEIN 1



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	90.94Å 90.94Å 321.61Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.88 – 3.10 19.88 – 3.10	Depositor EDS
% Data completeness (in resolution range)	95.2 (19.88-3.10) 96.6 (19.88-3.10)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.66 (at 3.09Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, R_{free}	0.235 , 0.280 0.236 , 0.283	Depositor DCC
R_{free} test set	1258 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å ²)	91.3	Xtriage
Anisotropy	0.208	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.40 , 109.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	8199	wwPDB-VP
Average B, all atoms (Å ²)	88.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.46% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: LAB, MG, 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	0.48	0/2548	0.83	2/3479 (0.1%)
1	B	0.45	0/2574	0.84	3/3528 (0.1%)
1	C	0.51	0/2675	0.86	3/3644 (0.1%)
2	M	0.56	0/403	1.03	1/543 (0.2%)
All	All	0.48	0/8200	0.85	9/11194 (0.1%)

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	335	ARG	N-CA-C	7.14	119.92	111.71
1	C	335	ARG	N-CA-C	7.05	119.81	111.71
2	M	101	ALA	N-CA-C	-6.60	101.78	110.43
1	A	335	ARG	N-CA-C	6.50	119.19	111.71
1	C	111	ASN	CA-C-N	5.33	125.34	119.90
1	C	111	ASN	C-N-CA	5.33	125.34	119.90
1	B	342	GLY	N-CA-C	-5.21	106.33	112.64
1	A	342	GLY	N-CA-C	-5.18	106.38	112.64
1	B	233	SER	N-CA-C	5.06	114.92	108.24

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	2490	0	2335	85	0
1	B	2517	0	2306	72	0
1	C	2617	0	2518	80	1
2	M	398	0	369	39	0
3	A	27	0	29	3	0
3	B	27	0	29	2	0
3	C	27	0	29	7	0
4	A	31	0	12	2	0
4	B	31	0	12	2	0
4	C	31	0	12	1	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
All	All	8199	0	7651	261	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 16.

All (261) 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:B:227:MET:HE1	1:B:252:ASN:HD22	1.27	0.96
1:A:227:MET:HE1	1:A:252:ASN:HD22	1.31	0.95
1:C:227:MET:HE1	1:C:252:ASN:HD22	1.31	0.93
1:A:357:ILE:HD11	1:A:370:VAL:HA	1.52	0.91
1:C:357:ILE:HD11	1:C:370:VAL:HA	1.55	0.89
1:B:357:ILE:HD11	1:B:370:VAL:HA	1.53	0.88
1:A:257:CYS:HB3	1:A:258:PRO:HD3	1.54	0.88
1:B:299:MET:HE1	1:B:309:ILE:HG23	1.61	0.81
1:C:345:ILE:HG23	2:M:106:ARG:HG3	1.61	0.80
1:A:299:MET:HE1	1:A:309:ILE:HG23	1.62	0.80
1:C:252:ASN:O	1:C:256:ARG:HG3	1.81	0.79
1:C:299:MET:HE1	1:C:309:ILE:HG23	1.65	0.77
1:A:157:ASP:HB2	4:A:377:ATP:H5'1	1.67	0.76
1:C:274:ILE:HG13	1:C:313:MET:HE1	1.68	0.76
1:C:215:LYS:O	1:C:216:LEU:HD23	1.86	0.75
1:C:25:ASP:OD2	2:M:101:ALA:HB3	1.87	0.74
1:A:83:GLU:OE1	1:A:126:THR:HG21	1.90	0.71
1:C:257:CYS:HB3	1:C:258:PRO:HD3	1.72	0.71
2:M:105:GLN:N	2:M:105:GLN:OE1	2.25	0.69
1:A:274:ILE:HG13	1:A:313:MET:HE1	1.74	0.68
1:C:72:GLU:HB3	1:C:73:HIS:HD2	1.59	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:72:GLU:HB3	1:A:73:HIS:HD2	1.60	0.67
1:C:123:MET:HG3	1:C:132:MET:HE3	1.77	0.67
1:C:261:LEU:HB3	1:C:274:ILE:HD13	1.77	0.67
1:A:32:PRO:HG3	3:A:376:LAB:H6	1.77	0.66
1:B:72:GLU:HB3	1:B:73:HIS:HD2	1.59	0.66
2:M:95:PRO:HA	2:M:96:LEU:CB	2.25	0.66
1:A:257:CYS:CB	1:A:258:PRO:HD3	2.26	0.66
1:B:334:GLU:OE1	2:M:107:ARG:HD3	1.95	0.66
1:B:274:ILE:HG13	1:B:313:MET:HE1	1.77	0.65
1:A:330:ILE:HG22	1:A:332:PRO:HD3	1.77	0.65
1:C:107:GLU:O	1:C:137:GLN:HG3	1.95	0.65
1:B:207:GLU:OE2	3:C:376:LAB:H172	1.94	0.65
1:C:79:TRP:CD2	1:C:118:LYS:HG2	2.32	0.65
1:A:123:MET:HG3	1:A:132:MET:HE3	1.79	0.64
1:A:261:LEU:HB3	1:A:274:ILE:HD13	1.80	0.64
1:C:194:THR:HA	1:C:198:TYR:O	1.98	0.64
1:C:147:ARG:HG3	1:C:147:ARG:HH11	1.63	0.64
1:B:105:LEU:HD11	1:B:123:MET:HE3	1.81	0.63
1:B:194:THR:HA	1:B:198:TYR:O	1.98	0.63
3:C:376:LAB:H51	3:C:376:LAB:H11	1.81	0.63
1:B:330:ILE:HG22	1:B:332:PRO:HD3	1.79	0.63
1:B:215:LYS:HG2	2:M:82:ARG:NH2	2.14	0.63
1:C:330:ILE:HG22	1:C:332:PRO:HD3	1.80	0.62
1:A:194:THR:HA	1:A:198:TYR:O	1.99	0.62
1:C:170:ALA:O	1:C:172:PRO:HD3	1.99	0.62
1:C:105:LEU:HD11	1:C:123:MET:HE3	1.82	0.62
1:C:238:LYS:HG3	1:C:254:ARG:NH1	2.14	0.62
1:B:261:LEU:HB3	1:B:274:ILE:HD13	1.81	0.61
1:B:70:PRO:HG2	1:B:85:ILE:CD1	2.30	0.61
1:A:147:ARG:HG3	1:A:147:ARG:HH11	1.66	0.61
1:C:157:ASP:HB2	4:C:377:ATP:H5'1	1.82	0.61
1:B:107:GLU:O	1:B:137:GLN:HG3	2.00	0.60
1:A:357:ILE:CD1	1:A:370:VAL:HA	2.28	0.60
1:B:299:MET:HE1	1:B:309:ILE:CG2	2.30	0.60
1:C:252:ASN:ND2	1:C:256:ARG:HD2	2.16	0.60
1:A:70:PRO:HG2	1:A:85:ILE:CD1	2.32	0.60
2:M:102:PHE:HA	2:M:105:GLN:OE1	2.02	0.59
1:A:107:GLU:O	1:A:137:GLN:HG3	2.02	0.59
2:M:101:ALA:O	2:M:102:PHE:HB2	2.02	0.59
1:A:299:MET:HE1	1:A:309:ILE:CG2	2.31	0.58
1:A:105:LEU:HD11	1:A:123:MET:HE3	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:72:GLU:HB3	1:C:73:HIS:CD2	2.39	0.58
1:C:357:ILE:CD1	1:C:370:VAL:HA	2.32	0.58
2:M:95:PRO:CA	2:M:96:LEU:CB	2.82	0.58
1:C:79:TRP:CE3	1:C:118:LYS:HG2	2.38	0.57
1:A:10:CYS:HB3	1:A:105:LEU:HD23	1.86	0.57
1:B:72:GLU:HB3	1:B:73:HIS:CD2	2.38	0.57
1:B:239:SER:HB2	2:M:80:GLN:HG3	1.87	0.57
1:C:10:CYS:HB3	1:C:105:LEU:HD23	1.87	0.57
1:B:10:CYS:HB3	1:B:105:LEU:HD23	1.87	0.56
1:B:305:MET:CE	2:M:90:GLN:O	2.53	0.56
1:A:210:ARG:NH1	3:A:376:LAB:H2	2.19	0.56
2:M:110:GLU:O	2:M:114:THR:HG23	2.05	0.56
1:A:303:THR:O	1:A:303:THR:HG22	2.05	0.56
1:C:70:PRO:HG2	1:C:85:ILE:CD1	2.36	0.56
1:B:54:VAL:HG12	1:B:55:GLY:N	2.21	0.56
1:B:70:PRO:HG2	1:B:85:ILE:HD11	1.87	0.56
1:B:180:LEU:HD21	1:B:260:THR:HG22	1.88	0.55
1:A:70:PRO:HG2	1:A:85:ILE:HD11	1.87	0.55
3:B:376:LAB:H2	1:C:210:ARG:NH1	2.20	0.55
1:A:79:TRP:CE2	1:A:118:LYS:HG2	2.42	0.55
1:B:170:ALA:O	1:B:172:PRO:HD3	2.07	0.55
1:C:303:THR:HG22	1:C:303:THR:O	2.07	0.55
1:C:361:GLU:HB3	1:C:369:ILE:CD1	2.37	0.55
1:C:238:LYS:HE2	1:C:254:ARG:NH2	2.22	0.54
1:A:180:LEU:HD21	1:A:260:THR:HG22	1.88	0.54
1:B:357:ILE:CD1	1:B:370:VAL:HA	2.30	0.54
3:C:376:LAB:O2	3:C:376:LAB:O4	2.24	0.54
1:A:170:ALA:O	1:A:172:PRO:HD3	2.09	0.53
1:B:155:SER:HB2	1:B:160:THR:HG23	1.90	0.53
1:A:18:LYS:HG3	1:A:30:VAL:HG22	1.88	0.53
1:B:302:GLY:HA3	4:B:377:ATP:O4'	2.08	0.53
1:C:17:VAL:O	1:C:30:VAL:HA	2.09	0.53
2:M:98:SER:O	2:M:99:PRO:C	2.52	0.53
1:C:299:MET:HE1	1:C:309:ILE:CG2	2.36	0.53
1:A:72:GLU:HB3	1:A:73:HIS:CD2	2.41	0.53
1:A:147:ARG:CZ	1:A:330:ILE:HD13	2.39	0.53
1:B:147:ARG:HG3	1:B:147:ARG:HH11	1.74	0.52
1:B:305:MET:HE3	2:M:90:GLN:O	2.09	0.52
1:A:155:SER:HB2	1:A:160:THR:HG23	1.90	0.52
1:B:32:PRO:HG3	3:C:376:LAB:H6	1.91	0.52
1:B:305:MET:HE3	2:M:90:GLN:C	2.34	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:117:GLU:CG	1:A:371:HIS:HE2	2.22	0.52
1:B:18:LYS:HG3	1:B:30:VAL:HG22	1.91	0.52
1:C:54:VAL:HG11	1:C:85:ILE:HA	1.92	0.52
2:M:99:PRO:O	2:M:101:ALA:O	2.28	0.51
1:A:257:CYS:HB3	1:A:258:PRO:CD	2.34	0.51
1:C:147:ARG:HG3	1:C:147:ARG:NH1	2.26	0.51
2:M:103:HIS:O	2:M:104:GLU:C	2.52	0.51
1:A:113:LYS:HG2	1:A:371:HIS:ND1	2.25	0.51
1:C:114:ALA:O	1:C:117:GLU:HB2	2.11	0.51
1:B:303:THR:HG22	1:B:303:THR:O	2.11	0.51
1:A:252:ASN:O	1:A:256:ARG:HG3	2.11	0.50
1:B:202:THR:HG23	1:B:205:GLU:CD	2.36	0.50
1:A:17:VAL:O	1:A:30:VAL:HA	2.10	0.50
1:C:252:ASN:C	1:C:256:ARG:HG3	2.37	0.50
1:C:341:ILE:HD13	2:M:102:PHE:CZ	2.47	0.50
1:A:113:LYS:HB3	1:A:371:HIS:CE1	2.47	0.50
1:A:118:LYS:HE3	1:A:122:ILE:HD11	1.94	0.50
1:C:238:LYS:HG3	1:C:254:ARG:CZ	2.41	0.50
1:B:17:VAL:O	1:B:30:VAL:HA	2.12	0.49
1:A:113:LYS:HG2	1:A:371:HIS:CE1	2.47	0.49
1:A:117:GLU:HG3	1:A:371:HIS:HE2	1.77	0.49
1:C:70:PRO:HG2	1:C:85:ILE:HD11	1.93	0.49
1:A:70:PRO:HG3	1:A:81:ASP:HB3	1.94	0.49
3:C:376:LAB:H11	3:C:376:LAB:C5	2.42	0.49
1:A:361:GLU:HB3	1:A:369:ILE:CD1	2.42	0.49
1:C:118:LYS:O	1:C:122:ILE:HG13	2.12	0.49
1:A:157:ASP:HB2	4:A:377:ATP:C5'	2.39	0.48
1:A:252:ASN:ND2	1:A:256:ARG:HD3	2.28	0.48
2:M:88:VAL:HG22	2:M:94:PRO:O	2.13	0.48
2:M:112:ALA:O	2:M:113:ARG:C	2.56	0.48
1:B:256:ARG:O	1:B:259:GLU:HB3	2.13	0.48
1:C:155:SER:HB2	1:C:160:THR:HG23	1.95	0.48
1:A:117:GLU:HG3	1:A:371:HIS:NE2	2.29	0.48
1:A:148:THR:HG23	2:M:77:LYS:HD3	1.96	0.48
1:A:257:CYS:CB	1:A:258:PRO:CD	2.92	0.48
1:C:252:ASN:CG	1:C:256:ARG:HD2	2.39	0.48
1:A:252:ASN:HA	1:A:255:PHE:CE1	2.49	0.47
1:C:213:LYS:HD2	1:C:306:TYR:OH	2.14	0.47
1:B:70:PRO:HG2	1:B:85:ILE:HD12	1.96	0.47
1:B:210:ARG:NH1	3:C:376:LAB:H2	2.28	0.47
1:C:189:LEU:HD23	1:C:209:VAL:HG13	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:70:PRO:HG3	1:B:81:ASP:HB3	1.97	0.47
1:C:349:LEU:HD23	2:M:106:ARG:HD2	1.97	0.47
1:A:294:TYR:CE1	1:A:321:ALA:HB2	2.50	0.47
1:B:202:THR:OG1	1:B:205:GLU:HG3	2.15	0.47
1:B:294:TYR:CE1	1:B:321:ALA:HB2	2.50	0.47
2:M:100:ALA:O	2:M:103:HIS:HB2	2.15	0.47
1:C:11:ASP:HA	1:C:106:THR:HG23	1.96	0.46
1:C:349:LEU:HD21	2:M:106:ARG:HG2	1.98	0.46
2:M:74:LEU:HD22	2:M:78:LEU:HG	1.98	0.46
1:C:297:ASN:HD22	1:C:329:ILE:HD12	1.81	0.46
1:A:309:ILE:HG23	1:A:310:ALA:N	2.30	0.46
1:B:212:ILE:HG23	1:B:216:LEU:HD12	1.96	0.46
1:B:299:MET:HE3	1:B:304:THR:HB	1.98	0.46
1:B:147:ARG:CZ	1:B:330:ILE:HD13	2.46	0.46
1:C:167:GLU:O	1:C:169:TYR:CD2	2.69	0.46
1:A:369:ILE:O	1:A:369:ILE:HG12	2.15	0.45
1:A:117:GLU:CD	1:A:371:HIS:HE2	2.24	0.45
1:A:227:MET:HE3	1:A:227:MET:HA	1.98	0.45
1:C:258:PRO:C	1:C:260:THR:N	2.70	0.45
3:C:376:LAB:O2	3:C:376:LAB:H42	2.16	0.45
1:B:309:ILE:HG23	1:B:310:ALA:N	2.31	0.45
1:C:18:LYS:HG3	1:C:30:VAL:HG22	1.99	0.45
2:M:101:ALA:O	2:M:102:PHE:CB	2.62	0.45
1:C:70:PRO:HG3	1:C:81:ASP:HB3	1.98	0.45
1:C:227:MET:HE3	1:C:227:MET:HA	1.97	0.45
1:A:252:ASN:O	1:A:256:ARG:CG	2.65	0.45
1:A:147:ARG:HG3	1:A:147:ARG:NH1	2.30	0.44
1:B:11:ASP:HA	1:B:106:THR:HG23	1.99	0.44
1:B:226:GLU:HG3	1:B:255:PHE:CE2	2.51	0.44
1:B:286:ASP:O	1:B:289:ILE:HG12	2.17	0.44
1:C:255:PHE:O	1:C:258:PRO:HD2	2.17	0.44
1:A:210:ARG:CZ	3:A:376:LAB:H2	2.48	0.44
1:A:213:LYS:HD2	1:A:306:TYR:OH	2.17	0.44
1:B:104:LEU:HD23	1:B:104:LEU:C	2.42	0.44
1:B:213:LYS:HD2	1:B:306:TYR:OH	2.17	0.44
1:A:164:PRO:C	1:A:165:ILE:HG13	2.43	0.44
1:C:133:TYR:HE1	1:C:135:ALA:HB2	1.83	0.44
1:C:309:ILE:HG23	1:C:310:ALA:N	2.32	0.44
2:M:75:GLN:O	2:M:76:LEU:C	2.61	0.44
1:B:138:ALA:O	1:B:141:SER:HB2	2.18	0.43
1:C:258:PRO:C	1:C:260:THR:H	2.26	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:138:ALA:O	1:A:141:SER:HB2	2.19	0.43
1:A:351:THR:HG23	2:M:75:GLN:NE2	2.33	0.43
1:B:239:SER:HB2	2:M:80:GLN:CG	2.48	0.43
1:C:294:TYR:CE1	1:C:321:ALA:HB2	2.53	0.43
1:A:118:LYS:O	1:A:122:ILE:HG13	2.18	0.43
1:A:133:TYR:HE1	1:A:135:ALA:HB2	1.84	0.43
1:A:116:ARG:H	1:A:116:ARG:HG2	1.61	0.43
1:A:252:ASN:C	1:A:256:ARG:HG3	2.43	0.43
1:A:286:ASP:O	1:A:289:ILE:HG12	2.17	0.43
1:C:147:ARG:CZ	1:C:330:ILE:HD13	2.48	0.43
1:B:214:GLU:HG2	4:B:377:ATP:C4	2.54	0.43
1:A:113:LYS:CB	1:A:371:HIS:CE1	3.01	0.43
1:C:200:PHE:HA	1:C:205:GLU:OE1	2.19	0.43
1:B:369:ILE:O	1:B:369:ILE:HG12	2.18	0.43
1:C:149:THR:HG23	1:C:166:TYR:HA	2.00	0.43
2:M:94:PRO:C	2:M:95:PRO:O	2.62	0.43
1:C:138:ALA:O	1:C:141:SER:HB2	2.17	0.43
1:A:11:ASP:HA	1:A:106:THR:HG23	2.01	0.43
1:A:70:PRO:HG2	1:A:85:ILE:HD12	2.01	0.43
1:A:303:THR:O	1:A:303:THR:CG2	2.67	0.43
1:B:305:MET:CE	2:M:90:GLN:C	2.92	0.43
1:B:337:TYR:O	1:B:341:ILE:HG13	2.19	0.43
2:M:74:LEU:HD22	2:M:74:LEU:O	2.19	0.43
1:C:343:GLY:O	1:C:344:SER:C	2.62	0.42
2:M:93:MET:HE3	2:M:94:PRO:HD2	2.00	0.42
1:A:287:ILE:HG23	1:B:337:TYR:OH	2.19	0.42
1:B:25:ASP:HA	2:M:111:ARG:HH12	1.83	0.42
1:C:369:ILE:O	1:C:369:ILE:HG12	2.19	0.42
1:B:227:MET:HA	1:B:227:MET:HE3	1.99	0.42
1:B:133:TYR:HE1	1:B:135:ALA:HB2	1.84	0.42
2:M:101:ALA:C	2:M:103:HIS:H	2.28	0.42
1:A:349:LEU:HD11	2:M:74:LEU:HD13	2.01	0.42
1:C:132:MET:HB2	1:C:132:MET:HE2	1.68	0.42
1:C:275:HIS:CG	1:C:276:GLU:N	2.87	0.42
1:C:349:LEU:O	1:C:350:SER:C	2.62	0.42
1:A:349:LEU:O	1:A:350:SER:C	2.63	0.42
1:B:221:LEU:HD12	1:B:221:LEU:O	2.19	0.42
1:C:366:GLY:O	1:C:369:ILE:HG22	2.20	0.42
1:C:11:ASP:HA	1:C:106:THR:CG2	2.50	0.41
1:C:70:PRO:HG2	1:C:85:ILE:HD12	2.01	0.41
1:C:78:ASN:C	1:C:78:ASN:OD1	2.62	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:32:PRO:HB2	1:A:34:ILE:HG12	2.02	0.41
1:B:250:ILE:HG13	1:B:253:GLU:HB2	2.01	0.41
1:B:366:GLY:O	1:B:369:ILE:HG22	2.20	0.41
1:B:72:GLU:O	1:B:73:HIS:C	2.64	0.41
1:B:334:GLU:H	1:B:334:GLU:HG2	1.50	0.41
1:C:303:THR:O	1:C:303:THR:CG2	2.69	0.41
2:M:69:GLU:N	2:M:71:LYS:HG2	2.36	0.41
1:A:226:GLU:HB3	1:A:255:PHE:CE2	2.55	0.41
1:C:32:PRO:HB2	1:C:34:ILE:HG12	2.02	0.41
1:C:244:ASP:OD1	1:C:244:ASP:C	2.62	0.41
1:C:149:THR:HA	1:C:165:ILE:O	2.20	0.41
1:A:149:THR:HA	1:A:165:ILE:O	2.21	0.41
1:A:113:LYS:CG	1:A:371:HIS:CE1	3.04	0.41
1:B:275:HIS:CG	1:B:276:GLU:N	2.88	0.41
1:A:223:PHE:CD1	1:A:259:GLU:HG2	2.56	0.41
3:B:376:LAB:H51	3:B:376:LAB:H11	2.03	0.41
1:C:36:GLY:HA2	1:C:66:THR:O	2.21	0.41
1:C:299:MET:HE3	1:C:304:THR:HB	2.02	0.41
2:M:109:LEU:O	2:M:110:GLU:C	2.64	0.41
1:A:244:ASP:OD1	1:A:244:ASP:C	2.64	0.41
1:A:275:HIS:CG	1:A:276:GLU:N	2.89	0.41
1:B:32:PRO:HB2	1:B:34:ILE:HG12	2.03	0.41
1:B:36:GLY:HA2	1:B:66:THR:O	2.20	0.41
1:A:221:LEU:O	1:A:221:LEU:HD12	2.21	0.40
1:A:256:ARG:O	1:A:259:GLU:HB3	2.20	0.40
1:A:287:ILE:HD13	1:B:30:VAL:HG21	2.03	0.40
1:B:21:PHE:HB2	1:B:24:ASP:OD2	2.21	0.40
1:C:286:ASP:O	1:C:289:ILE:HG12	2.20	0.40
1:B:189:LEU:HD23	1:B:209:VAL:HG13	2.02	0.40
1:C:112:PRO:O	1:C:113:LYS:C	2.64	0.40
1:A:366:GLY:O	1:A:369:ILE:HG22	2.22	0.40
1:B:147:ARG:HG3	1:B:147:ARG:NH1	2.35	0.40
1:A:299:MET:HE3	1:A:304:THR:HB	2.02	0.40
1:A:250:ILE:HG13	1:A:253:GLU:HB2	2.03	0.40
1:B:239:SER:HB2	2:M:80:GLN:CD	2.46	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:222:ASP:N	1:C:225:ASN:OD1[7_645]	2.11	0.09

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	329/377 (87%)	310 (94%)	18 (6%)	1 (0%)	36	67
1	B	347/377 (92%)	322 (93%)	25 (7%)	0	100	100
1	C	339/377 (90%)	313 (92%)	25 (7%)	1 (0%)	36	67
2	M	50/137 (36%)	38 (76%)	9 (18%)	3 (6%)	1	7
All	All	1065/1268 (84%)	983 (92%)	77 (7%)	5 (0%)	24	57

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	M	96	LEU
2	M	99	PRO
1	A	257	CYS
1	C	368	SER
2	M	95	PRO

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	250/320 (78%)	235 (94%)	15 (6%)	17	47
1	B	236/320 (74%)	227 (96%)	9 (4%)	29	60
1	C	272/320 (85%)	255 (94%)	17 (6%)	16	45
2	M	37/122 (30%)	31 (84%)	6 (16%)	2	11
All	All	795/1082 (74%)	748 (94%)	47 (6%)	18	48

All (47) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	12	ASN
1	A	115	ASN
1	A	116	ARG
1	A	176	MET
1	A	199	SER
1	A	202	THR
1	A	221	LEU
1	A	225	ASN
1	A	227	MET
1	A	250	ILE
1	A	287	ILE
1	A	288	ASP
1	A	318	THR
1	A	363	ASP
1	A	369	ILE
1	B	12	ASN
1	B	199	SER
1	B	201	VAL
1	B	202	THR
1	B	203	THR
1	B	221	LEU
1	B	227	MET
1	B	250	ILE
1	B	334	GLU
1	C	12	ASN
1	C	66	THR
1	C	115	ASN
1	C	116	ARG
1	C	176	MET
1	C	199	SER
1	C	201	VAL
1	C	202	THR
1	C	203	THR
1	C	221	LEU
1	C	224	GLU
1	C	225	ASN
1	C	227	MET
1	C	238	LYS
1	C	250	ILE
1	C	287	ILE
1	C	318	THR
2	M	72	ASN

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Mol	Chain	Res	Type
2	M	74	LEU
2	M	81	ARG
2	M	90	GLN
2	M	104	GLU
2	M	110	GLU

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

Mol	Chain	Res	Type
1	A	73	HIS
1	A	252	ASN
1	A	314	GLN
1	B	73	HIS
1	B	371	HIS
1	C	73	HIS
1	C	161	HIS
1	C	252	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 9 ligands modelled in this entry, 3 are monoatomic - leaving 6 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	$\# Z > 2$
3	LAB	A	376	-	28,29,29	1.66	2 (7%)	29,41,41	2.83	11 (37%)
3	LAB	C	376	-	28,29,29	1.69	2 (7%)	29,41,41	2.98	12 (41%)
4	ATP	B	377	5	32,33,33	1.59	5 (15%)	48,52,52	1.83	11 (22%)
4	ATP	A	377	5	32,33,33	1.63	5 (15%)	48,52,52	1.84	11 (22%)
3	LAB	B	376	-	28,29,29	1.70	2 (7%)	29,41,41	3.03	9 (31%)
4	ATP	C	377	5	32,33,33	1.55	5 (15%)	48,52,52	1.71	10 (20%)

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
3	LAB	A	376	-	-	5/21/49/49	0/2/3/3
3	LAB	C	376	-	-	3/21/49/49	0/2/3/3
4	ATP	B	377	5	-	1/22/38/38	0/3/3/3
4	ATP	A	377	5	-	5/22/38/38	0/3/3/3
3	LAB	B	376	-	-	3/21/49/49	0/2/3/3
4	ATP	C	377	5	-	5/22/38/38	0/3/3/3

All (21) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	376	LAB	C18-S1	-6.46	1.64	1.77
3	A	376	LAB	C18-S1	-5.85	1.65	1.77
3	C	376	LAB	C18-S1	-5.82	1.65	1.77
3	C	376	LAB	O2-C1	5.36	1.45	1.34
3	A	376	LAB	O2-C1	5.35	1.45	1.34
4	A	377	ATP	C2'-C3'	-5.16	1.39	1.53
4	B	377	ATP	C2'-C3'	-5.03	1.39	1.53
3	B	376	LAB	O2-C1	4.82	1.44	1.34
4	C	377	ATP	C2'-C3'	-4.43	1.41	1.53
4	A	377	ATP	C6-N6	3.39	1.42	1.34
4	C	377	ATP	C6-N6	3.38	1.42	1.34
4	B	377	ATP	C6-N6	3.31	1.42	1.34
4	A	377	ATP	O4'-C4'	-2.91	1.38	1.45
4	C	377	ATP	O4'-C4'	-2.78	1.38	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	377	ATP	O4'-C4'	-2.67	1.39	1.45
4	A	377	ATP	C3'-C4'	-2.35	1.47	1.53
4	B	377	ATP	C3'-C4'	-2.30	1.47	1.53
4	A	377	ATP	C2'-C1'	-2.14	1.46	1.53
4	C	377	ATP	C3'-C4'	-2.08	1.47	1.53
4	C	377	ATP	C4-N9	-2.05	1.33	1.37
4	B	377	ATP	PB-O3A	2.00	1.61	1.59

All (64) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	376	LAB	C17-S1-C18	9.34	97.45	92.04
3	C	376	LAB	C17-S1-C18	9.34	97.45	92.04
3	B	376	LAB	C17-S1-C18	9.12	97.32	92.04
3	B	376	LAB	O3-C15-C16	6.97	113.18	104.25
3	C	376	LAB	O3-C15-C16	6.76	112.92	104.25
3	B	376	LAB	O2-C1-O1	-5.46	114.59	123.34
4	B	377	ATP	C5-C4-N3	-5.22	119.52	126.72
4	A	377	ATP	C5-C4-N3	-4.95	119.90	126.72
3	A	376	LAB	O3-C15-C16	4.95	110.59	104.25
3	A	376	LAB	C10-C9-C8	-4.87	105.94	114.11
3	B	376	LAB	O2-C1-C2	4.83	122.40	111.20
4	C	377	ATP	N3-C2-N1	-4.72	121.44	128.58
3	B	376	LAB	C12-C13-C14	-4.67	101.81	111.02
3	A	376	LAB	O2-C1-C2	4.56	121.78	111.20
3	B	376	LAB	C14-C15-C16	-4.40	105.17	113.75
3	C	376	LAB	C14-C15-C16	-4.26	105.44	113.75
4	A	377	ATP	N3-C2-N1	-4.19	122.23	128.58
3	C	376	LAB	C9-C10-C11	-4.18	106.44	114.06
3	C	376	LAB	C10-C9-C8	-3.97	107.44	114.11
4	B	377	ATP	N3-C2-N1	-3.80	122.83	128.58
4	B	377	ATP	C4-C5-N7	-3.79	106.25	110.58
3	C	376	LAB	C3-C2-C1	-3.76	118.39	127.36
4	C	377	ATP	O3G-PG-O3B	3.61	116.73	104.64
4	A	377	ATP	N9-C8-N7	-3.52	108.94	113.94
4	C	377	ATP	C5-C4-N3	-3.49	121.91	126.72
4	A	377	ATP	N3-C4-N9	3.43	133.00	127.17
3	A	376	LAB	O2-C1-O1	-3.42	117.86	123.34
4	B	377	ATP	C5-N7-C8	3.41	108.81	103.45
4	A	377	ATP	O5'-C5'-C4'	3.39	120.54	108.99
4	C	377	ATP	N9-C8-N7	-3.35	109.18	113.94
4	B	377	ATP	N9-C8-N7	-3.31	109.24	113.94

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	376	LAB	C13-O2-C1	-3.26	109.05	117.35
4	B	377	ATP	N3-C4-N9	3.25	132.69	127.17
4	A	377	ATP	C4-C5-N7	-3.20	106.92	110.58
4	A	377	ATP	C2-N3-C4	3.20	119.64	111.83
4	A	377	ATP	C5-N7-C8	3.18	108.44	103.45
4	B	377	ATP	C2-N3-C4	3.15	119.53	111.83
3	B	376	LAB	C3-C2-C1	-3.07	120.04	127.36
3	C	376	LAB	O2-C1-C2	2.94	118.02	111.20
4	C	377	ATP	C2-N3-C4	2.84	118.77	111.83
3	A	376	LAB	C3-C2-C1	-2.76	120.77	127.36
4	B	377	ATP	O2B-PB-O3A	2.75	114.70	107.27
4	B	377	ATP	O4'-C1'-N9	2.75	113.36	108.09
4	A	377	ATP	C4-N9-C8	2.72	108.59	105.74
4	C	377	ATP	C4-N9-C8	2.71	108.58	105.74
3	A	376	LAB	C19-C3-C4	2.66	119.84	115.23
3	C	376	LAB	O4-C15-O3	-2.64	104.87	110.00
3	A	376	LAB	C12-C11-C10	-2.61	108.44	113.28
4	C	377	ATP	C4-C5-N7	-2.52	107.70	110.58
4	C	377	ATP	C5-N7-C8	2.52	107.41	103.45
4	A	377	ATP	O3G-PG-O3B	2.45	112.87	104.64
3	A	376	LAB	C12-C13-C14	-2.45	106.19	111.02
3	B	376	LAB	C13-O2-C1	-2.38	111.29	117.35
3	A	376	LAB	O1-C1-C2	-2.37	120.33	126.23
3	C	376	LAB	O2-C1-O1	-2.27	119.71	123.34
3	C	376	LAB	C19-C3-C4	2.25	119.13	115.23
4	C	377	ATP	N3-C4-N9	2.23	130.96	127.17
3	B	376	LAB	C12-C11-C10	-2.22	109.17	113.28
4	B	377	ATP	O5'-C5'-C4'	2.21	116.50	108.99
3	C	376	LAB	O3-C11-C12	2.14	112.79	109.02
4	B	377	ATP	C4-N9-C8	2.08	107.92	105.74
3	C	376	LAB	C12-C13-C14	-2.06	106.95	111.02
4	C	377	ATP	O2A-PA-O3A	2.03	112.75	107.27
4	A	377	ATP	O2B-PB-O3B	2.00	112.69	107.27

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	376	LAB	O3-C15-C16-C17
4	A	377	ATP	O4'-C4'-C5'-O5'
4	A	377	ATP	C3'-C4'-C5'-O5'
4	C	377	ATP	C3'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
4	C	377	ATP	O4'-C4'-C5'-O5'
3	B	376	LAB	C11-C10-C9-C8
3	A	376	LAB	C9-C10-C11-O3
3	C	376	LAB	O2-C1-C2-C3
4	A	377	ATP	C5'-O5'-PA-O1A
4	A	377	ATP	C5'-O5'-PA-O2A
4	A	377	ATP	C5'-O5'-PA-O3A
4	C	377	ATP	C5'-O5'-PA-O1A
4	C	377	ATP	C5'-O5'-PA-O2A
4	C	377	ATP	C5'-O5'-PA-O3A
3	A	376	LAB	O2-C1-C2-C3
3	B	376	LAB	O2-C1-C2-C3
3	A	376	LAB	O1-C1-C2-C3
3	C	376	LAB	O1-C1-C2-C3
3	B	376	LAB	O1-C1-C2-C3
3	A	376	LAB	C9-C10-C11-C12
3	A	376	LAB	C4-C5-C6-C7
4	B	377	ATP	PB-O3A-PA-O2A

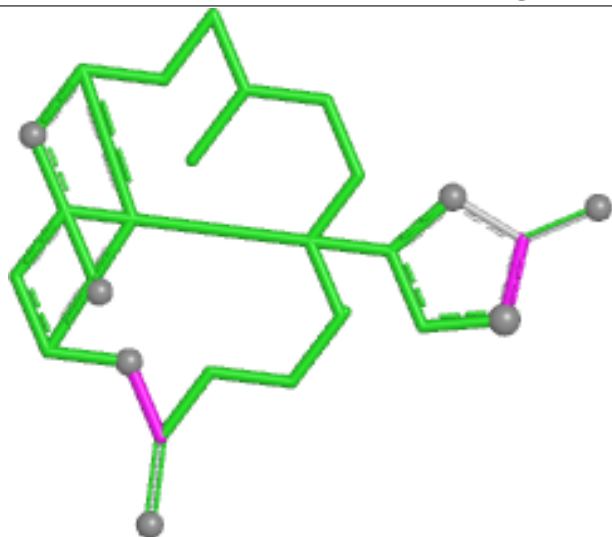
There are no ring outliers.

6 monomers are involved in 17 short contacts:

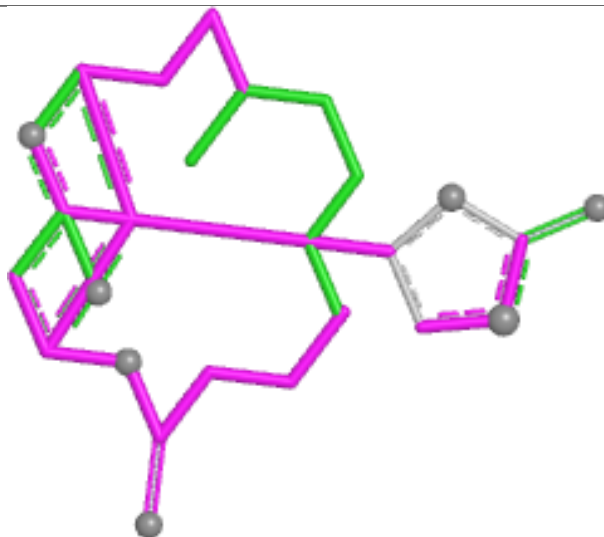
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	376	LAB	3	0
3	C	376	LAB	7	0
4	B	377	ATP	2	0
4	A	377	ATP	2	0
3	B	376	LAB	2	0
4	C	377	ATP	1	0

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.

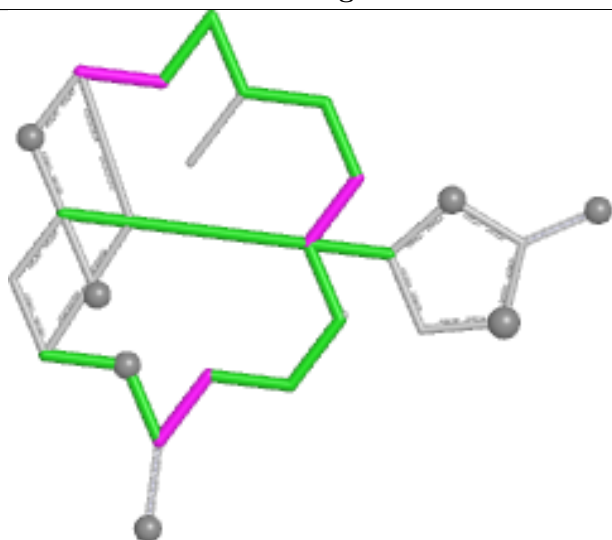
Ligand LAB A 376



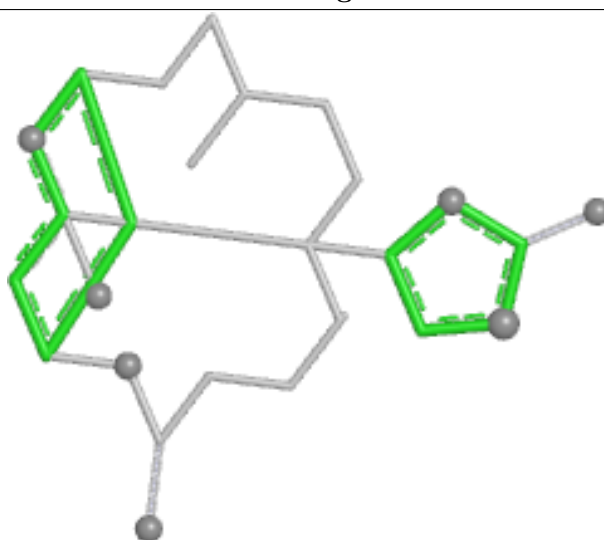
Bond lengths



Bond angles

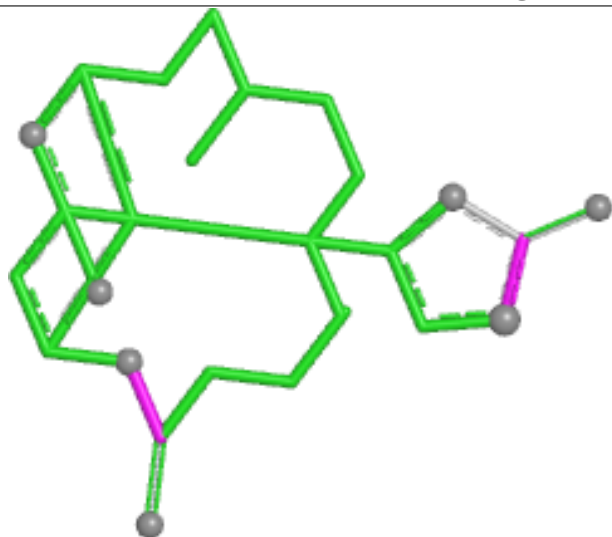


Torsions

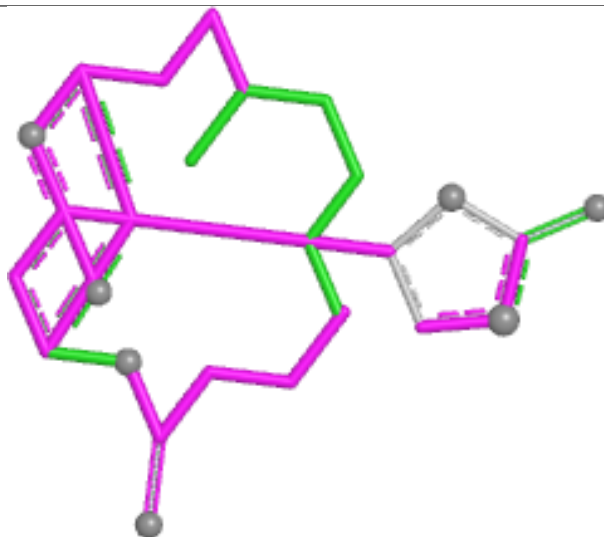


Rings

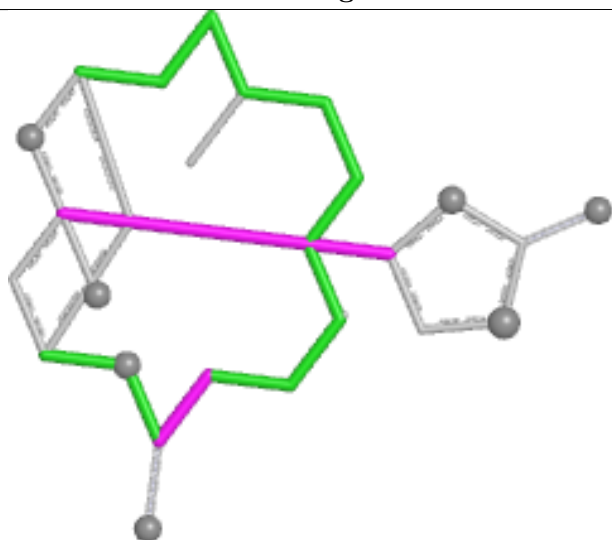
Ligand LAB C 376



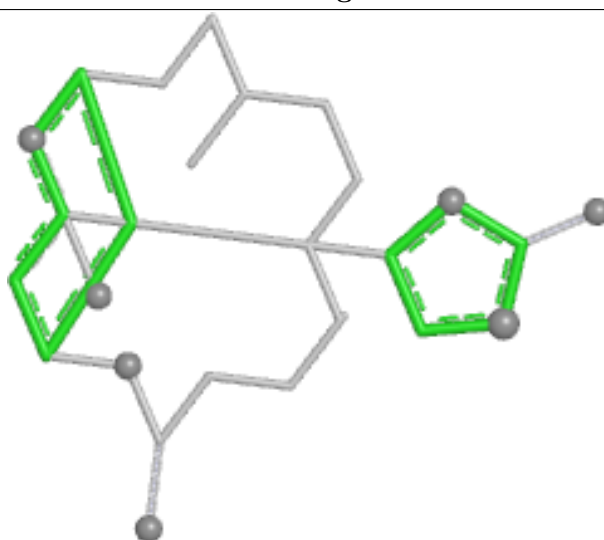
Bond lengths



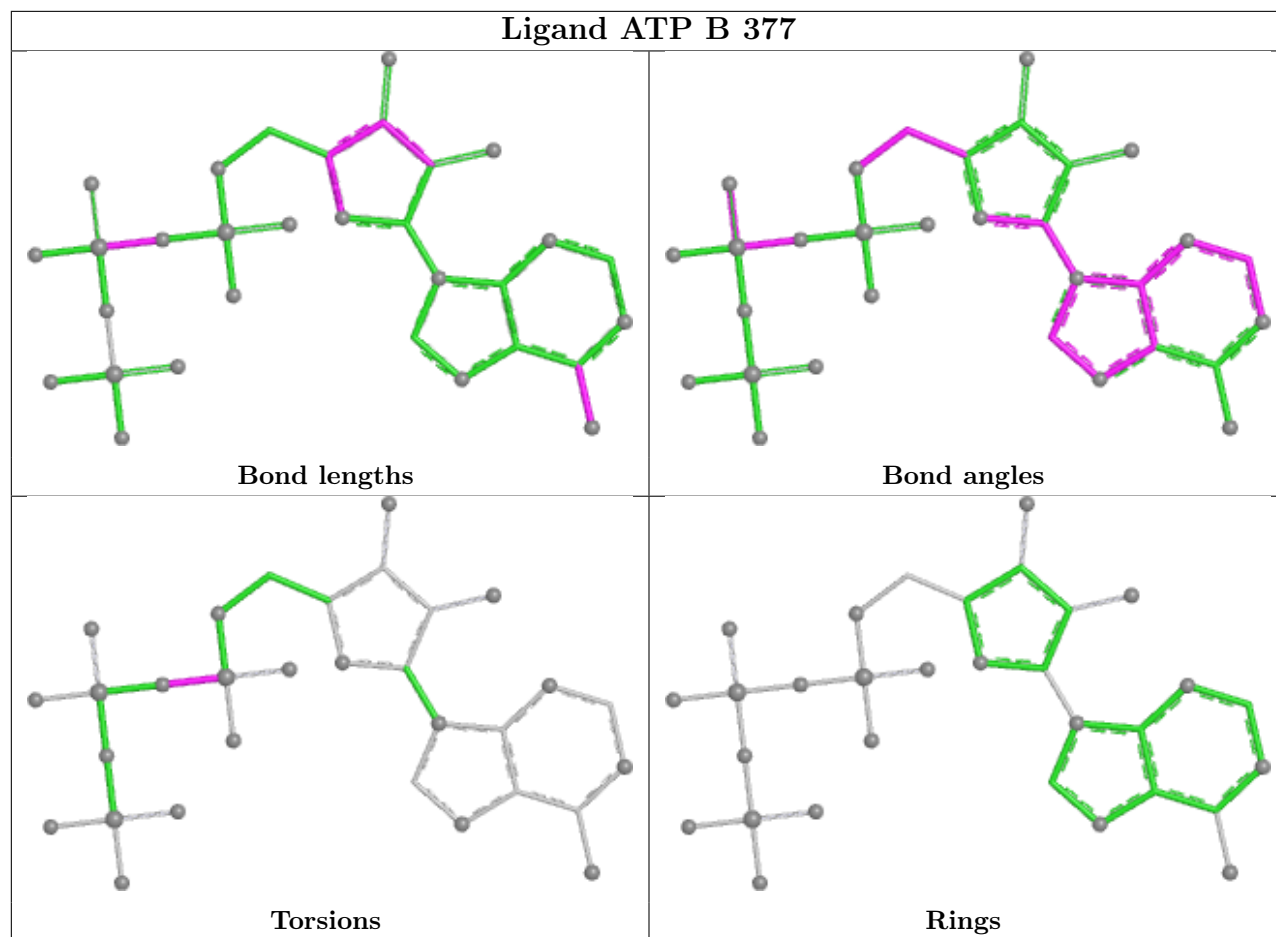
Bond angles

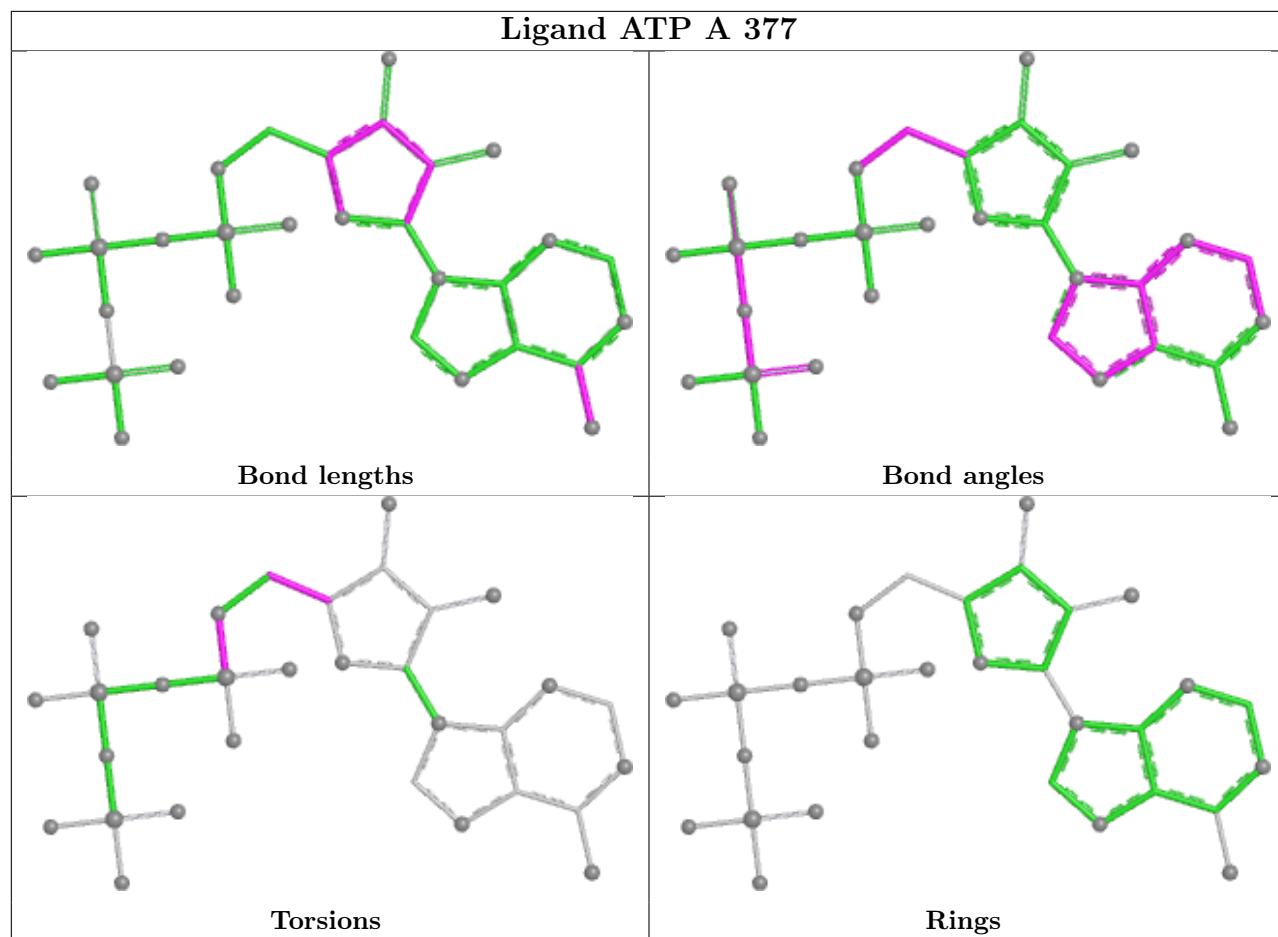


Torsions

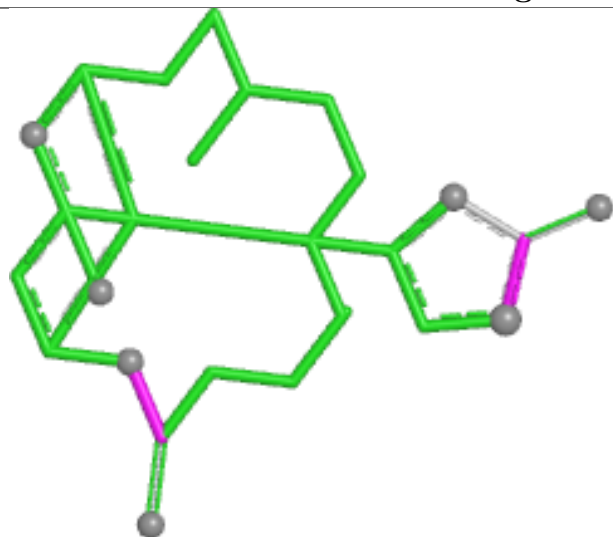


Rings

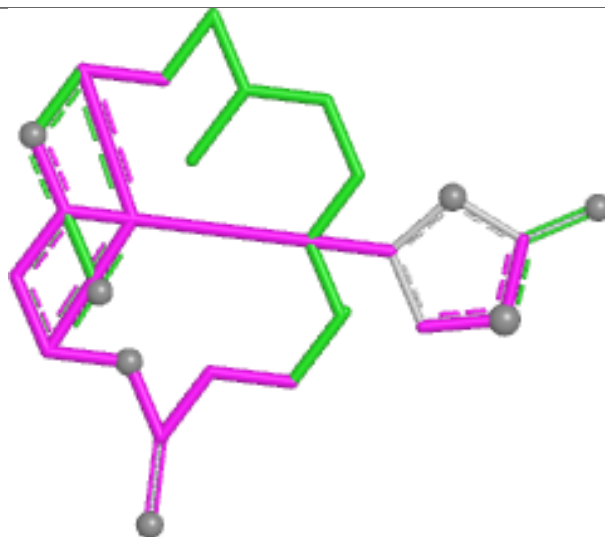




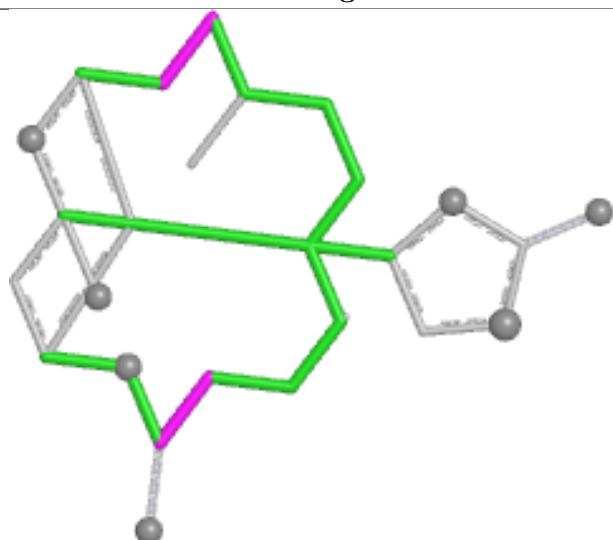
Ligand LAB B 376



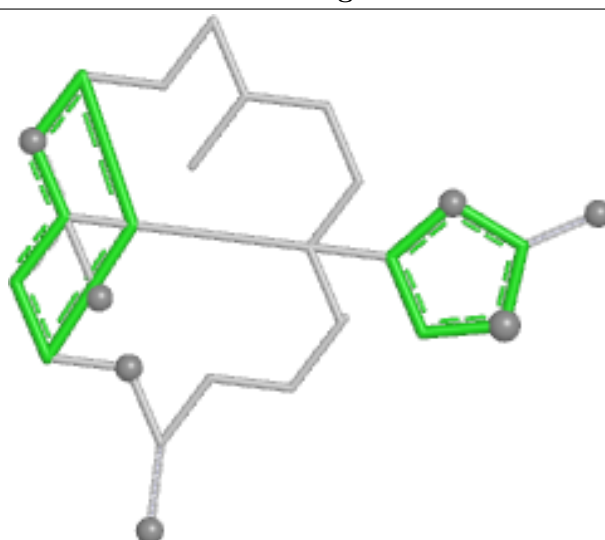
Bond lengths



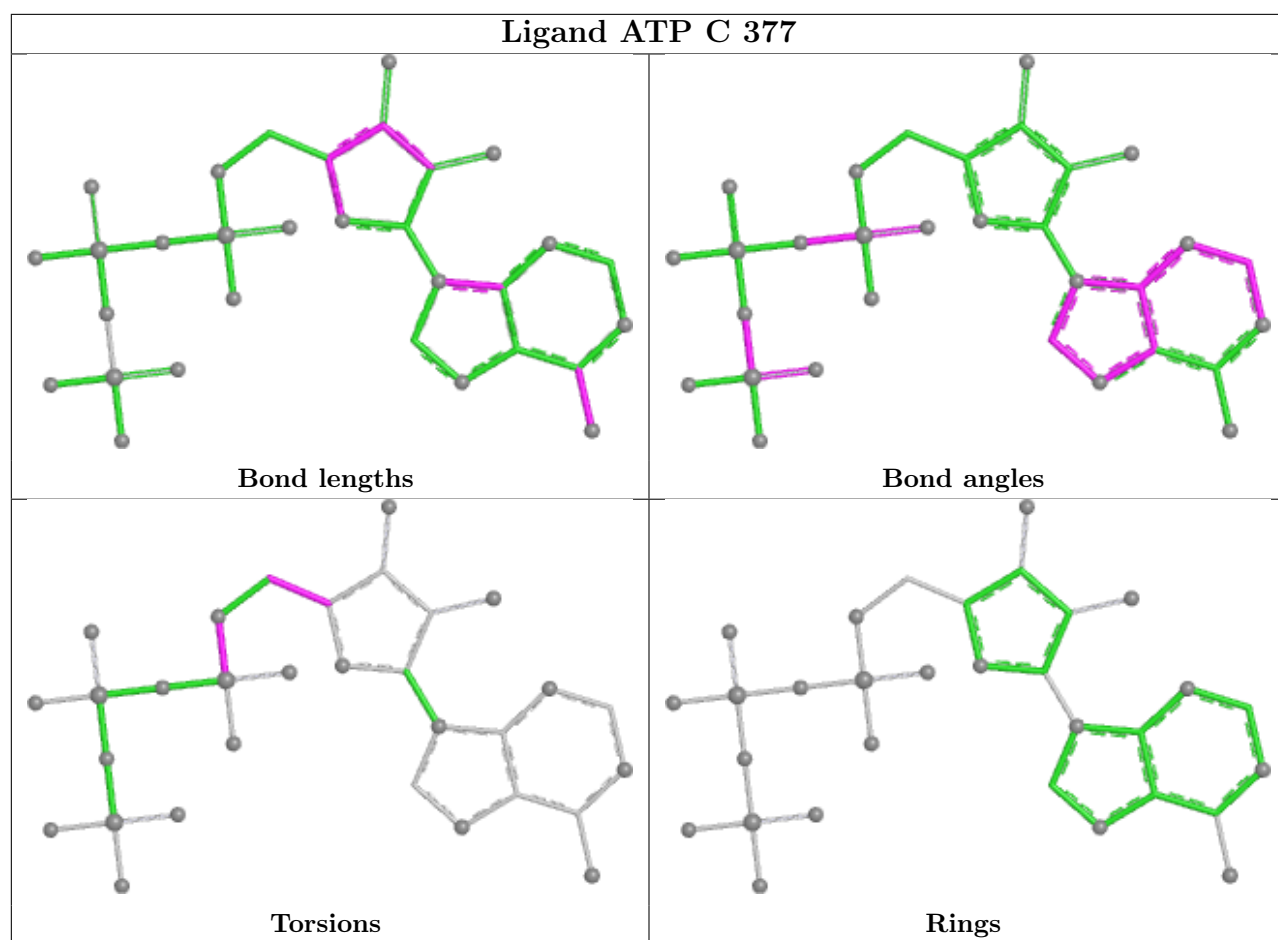
Bond angles



Torsions



Rings



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, 95th 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 ²)	Q<0.9
1	A	333/377 (88%)	0.05	7 (2%) 63 42	39, 79, 144, 217	0
1	B	351/377 (93%)	0.28	13 (3%) 45 25	59, 103, 162, 244	0
1	C	345/377 (91%)	-0.20	2 (0%) 85 70	37, 68, 123, 189	0
2	M	52/137 (37%)	-0.08	0 100 100	52, 86, 122, 131	0
All	All	1081/1268 (85%)	0.04	22 (2%) 65 44	37, 85, 148, 244	0

All (22) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	363	ASP	4.9
1	B	125	GLU	3.7
1	A	232	SER	3.6
1	B	268	GLY	3.4
1	B	232	SER	2.8
1	A	268	GLY	2.7
1	B	176	MET	2.6
1	A	249	THR	2.5
1	A	222	ASP	2.4
1	B	121	GLN	2.3
1	B	353	GLN	2.3
1	A	205	GLU	2.2
1	C	363	ASP	2.2
1	B	262	PHE	2.2
1	B	368	SER	2.1
1	B	91	TYR	2.1
1	B	370	VAL	2.1
1	A	81	ASP	2.1
1	C	364	GLU	2.0
1	B	286	ASP	2.0
1	B	159	VAL	2.0
1	A	34	ILE	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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

6.3 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

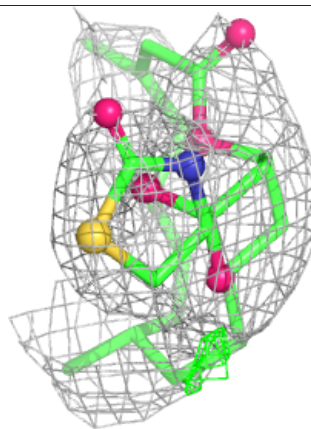
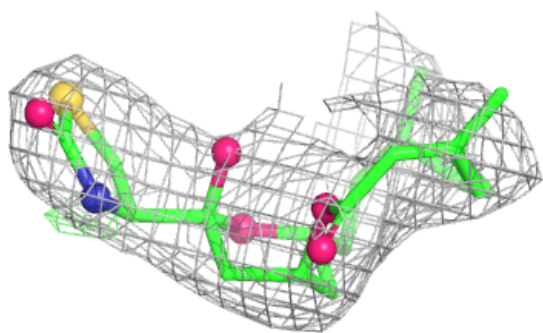
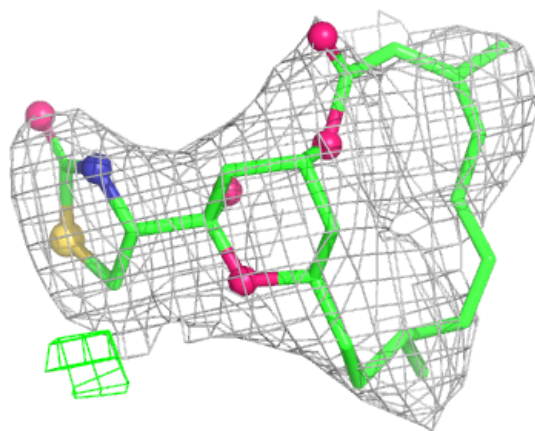
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists 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
5	MG	B	378	1/1	0.86	0.20	64,64,64,64	0
3	LAB	A	376	27/27	0.87	0.11	100,103,106,108	0
5	MG	C	378	1/1	0.88	0.31	45,45,45,45	0
3	LAB	C	376	27/27	0.89	0.10	68,71,74,76	0
4	ATP	B	377	31/31	0.90	0.11	81,83,86,86	0
5	MG	A	378	1/1	0.90	0.20	51,51,51,51	0
3	LAB	B	376	27/27	0.94	0.07	53,56,60,62	0
4	ATP	C	377	31/31	0.95	0.07	47,49,51,52	0
4	ATP	A	377	31/31	0.95	0.08	68,71,73,74	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.

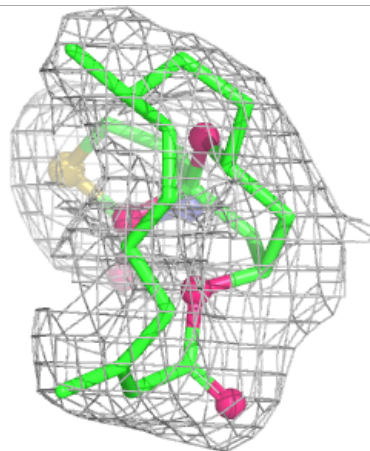
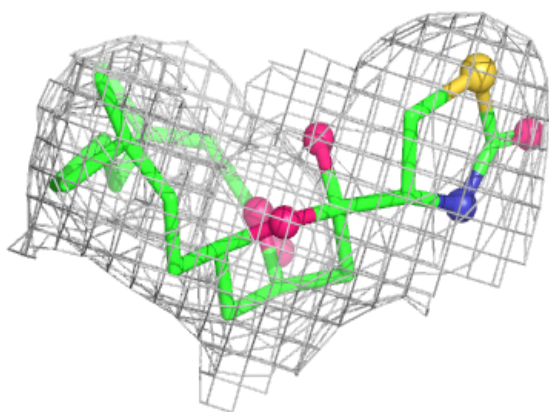
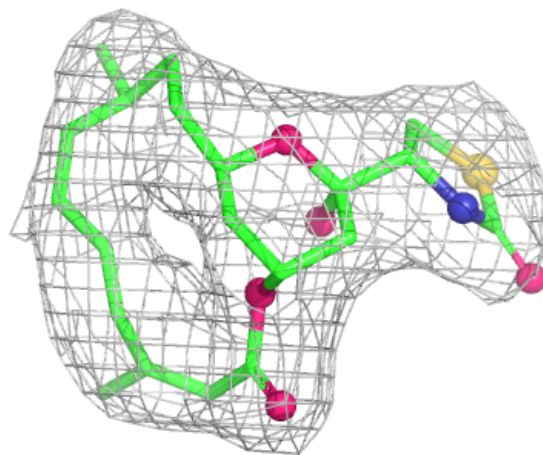
Electron density around LAB A 376:

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



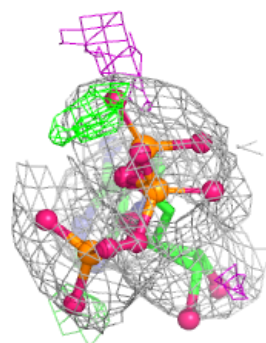
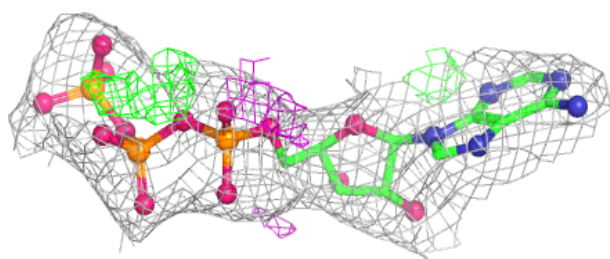
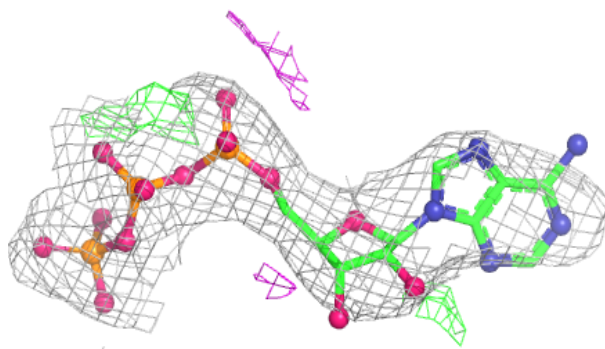
Electron density around LAB C 376:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

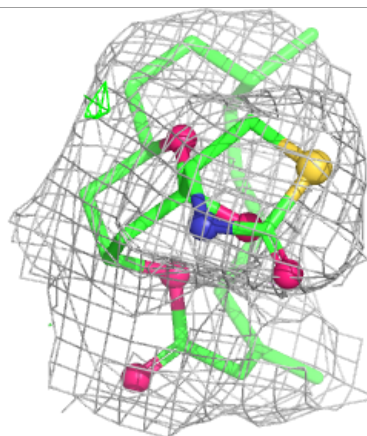
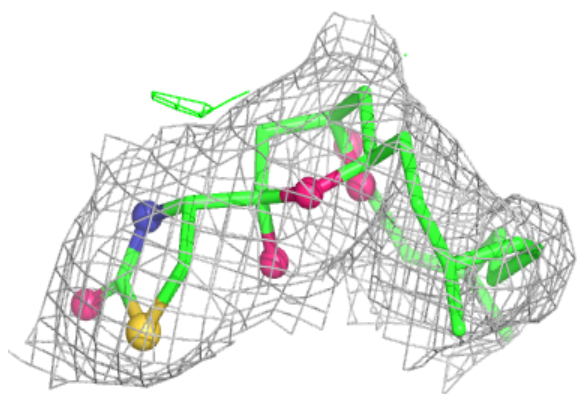
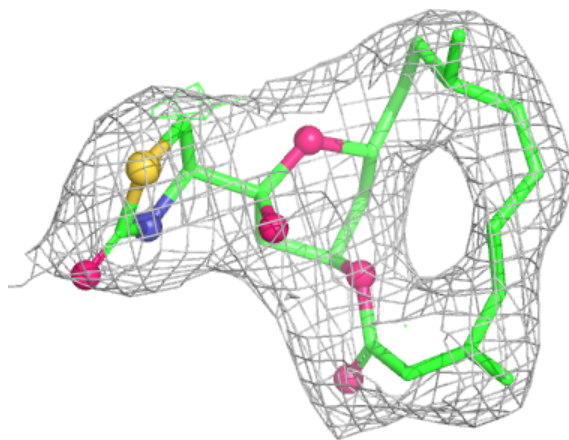


Electron density around ATP B 377:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

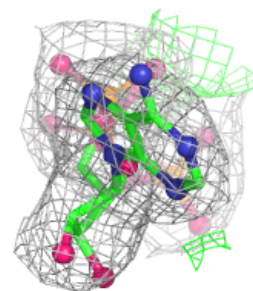
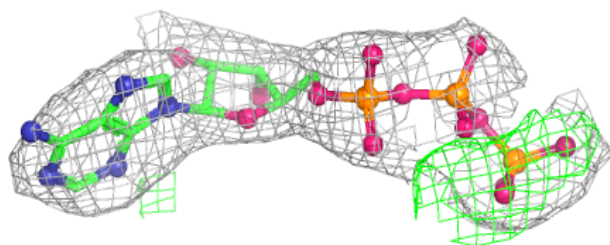
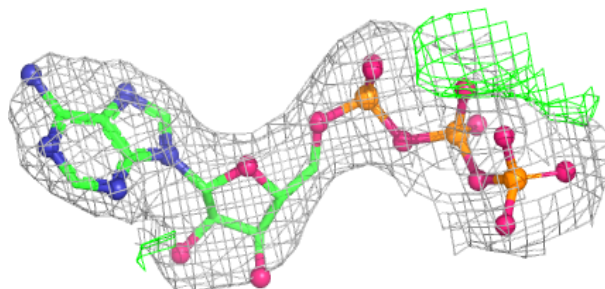
**Electron density around LAB B 376:**

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

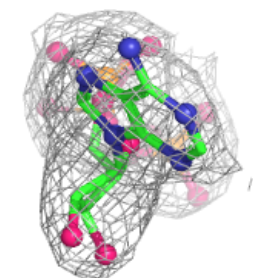
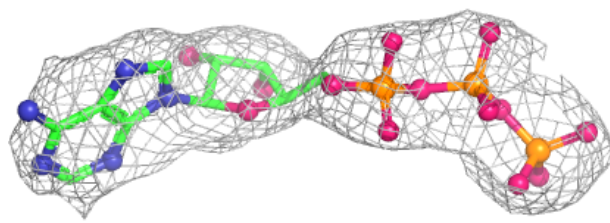
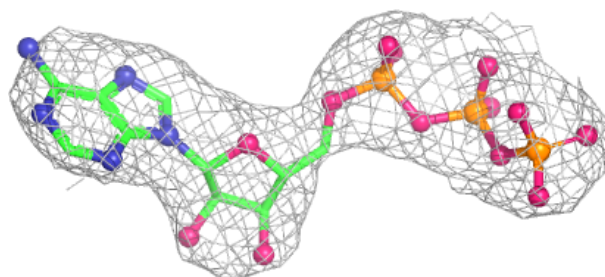


Electron density around ATP C 377:

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

**Electron density around ATP A 377:**

$2mF_o-DF_c$ (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.