



# wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 22, 2023 – 06:58 PM EDT

PDB ID : 3DWL  
Title : Crystal Structure of Fission Yeast Arp2/3 Complex Lacking the Arp2 Subunit  
Authors : Nolen, B.J.; Pollard, T.D.  
Deposited on : 2008-07-22  
Resolution : 3.78 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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 : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.35  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.35

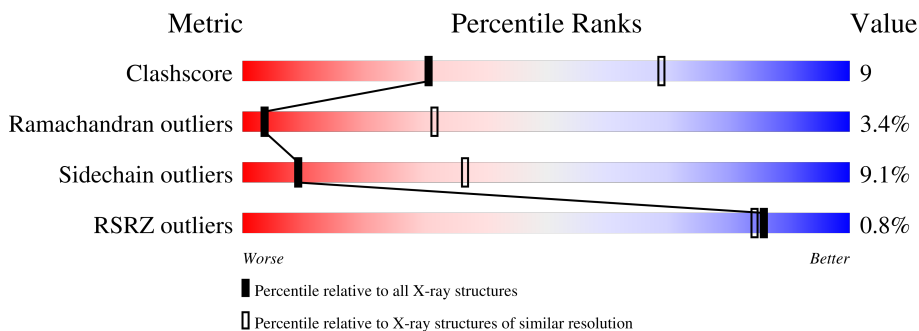
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.78 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))
Clashscore	141614	1100 (3.96-3.60)
Ramachandran outliers	138981	1062 (3.96-3.60)
Sidechain outliers	138945	1058 (3.96-3.60)
RSRZ outliers	127900	1009 (3.98-3.58)

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	427	
1	B	427	
2	C	377	
2	H	377	
3	D	317	
3	I	317	

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Mol	Chain	Length	Quality of chain
4	E	174	<p>% 28% 8% 64%</p>
4	J	174	<p>28% 8% 64%</p>
5	F	168	<p>% 75% 21% ..</p>
5	K	168	<p>2% 73% 23% ..</p>
6	G	152	<p>56% 18% • 25%</p>
6	L	152	<p>% 55% 20% • 25%</p>

## 2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 18705 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-related protein 3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	355	Total	C	N	O	S	1	0	0
			2555	1617	432	496	10			
1	B	355	Total	C	N	O	S	1	0	0
			2556	1617	432	497	10			

- Molecule 2 is a protein called Actin-related protein 2/3 complex subunit 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	C	336	Total	C	N	O	S	0	0	0
			2252	1413	402	432	5			
2	H	337	Total	C	N	O	S	0	0	0
			2262	1418	403	436	5			

- Molecule 3 is a protein called Actin-related protein 2/3 complex subunit 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	D	272	Total	C	N	O	S	0	0	0
			2028	1302	350	368	8			
3	I	272	Total	C	N	O	S	0	0	0
			2028	1302	350	368	8			

- Molecule 4 is a protein called Actin-related protein 2/3 complex subunit 3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	E	63	Total	C	N	O	S	0	0	0
			397	249	71	73	4			
4	J	63	Total	C	N	O	S	0	0	0
			397	249	71	73	4			

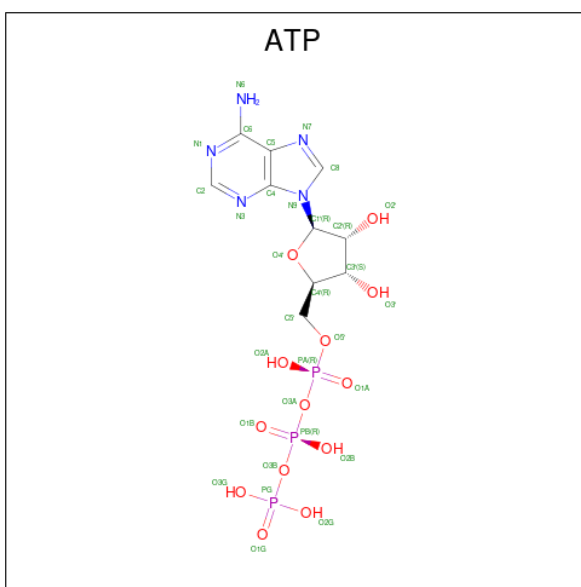
- Molecule 5 is a protein called Actin-related protein 2/3 complex subunit 4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	F	166	Total	C	N	O	S	1	0	0
			1294	825	215	247	7			
5	K	166	Total	C	N	O	S	1	0	0
			1294	825	215	247	7			

- Molecule 6 is a protein called Actin-related protein 2/3 complex subunit 5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	G	114	Total	C	N	O	S	0	0	0
			790	497	136	155	2			
6	L	114	Total	C	N	O	S	0	0	0
			790	497	136	155	2			

- Molecule 7 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>5</sub>O<sub>13</sub>P<sub>3</sub>).

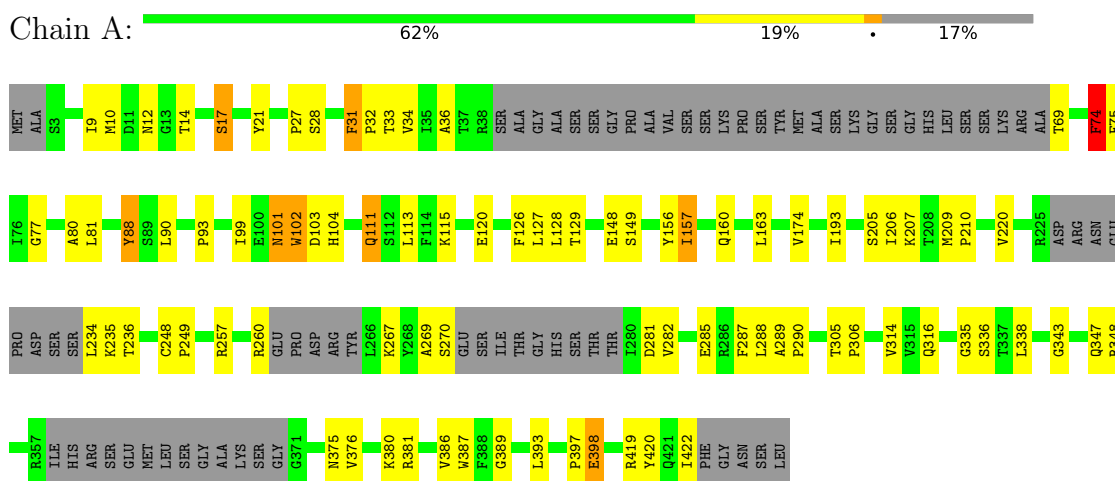


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
7	A	1	Total	C	N	O	P	0	0
			31	10	5	13	3		
7	B	1	Total	C	N	O	P	0	0
			31	10	5	13	3		

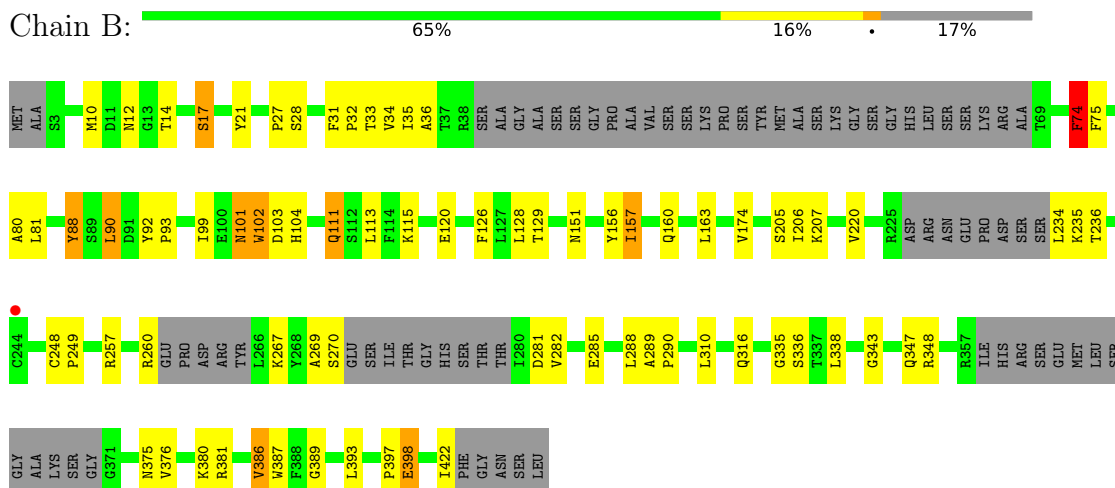
### 3 Residue-property plots

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-related protein 3

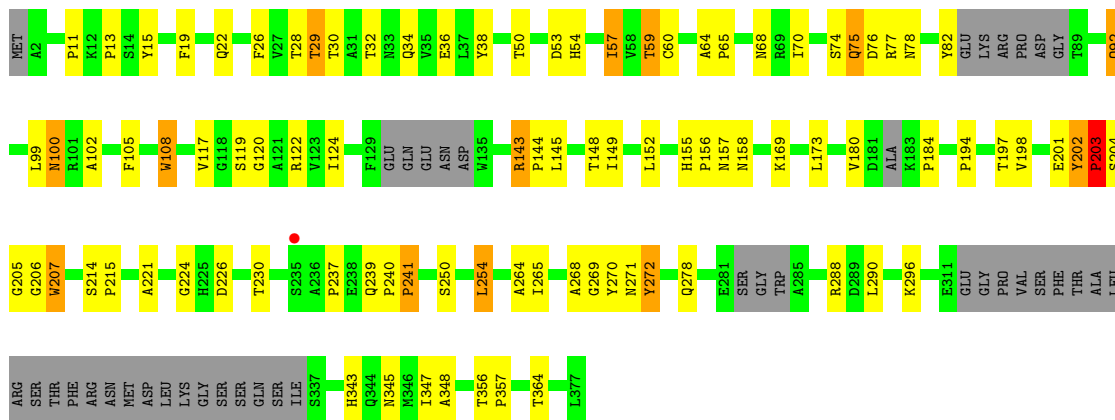


- Molecule 1: Actin-related protein 3

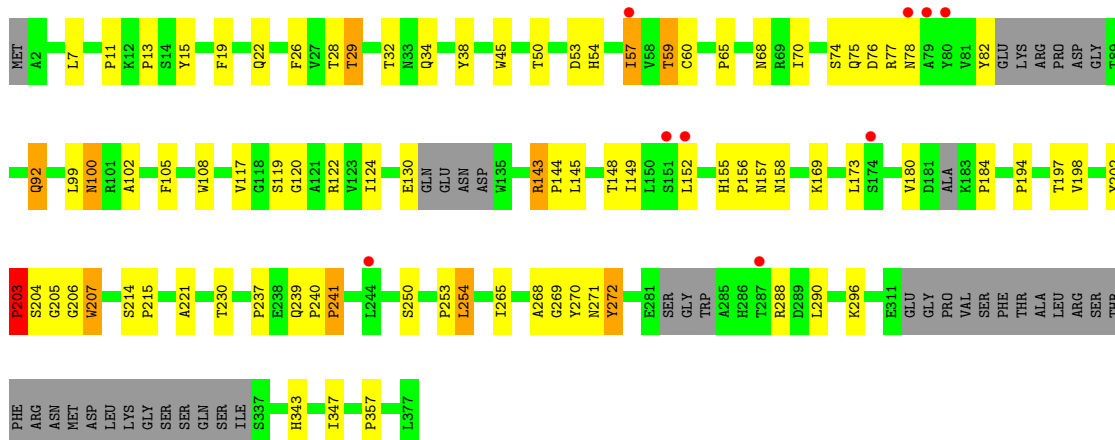


- Molecule 2: Actin-related protein 2/3 complex subunit 1

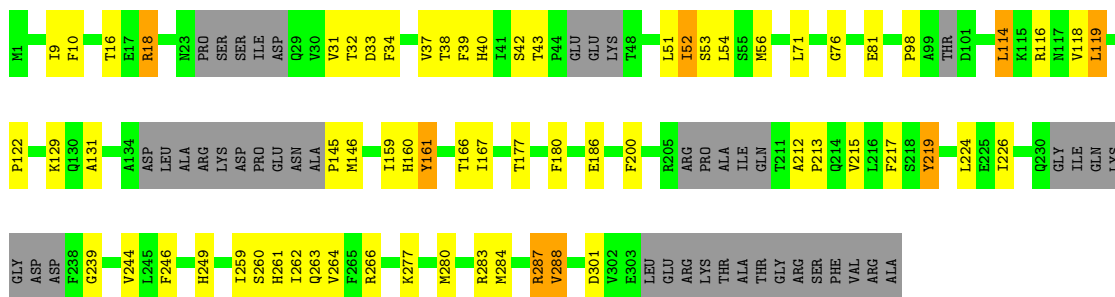




• Molecule 2: Actin-related protein 2/3 complex subunit 1

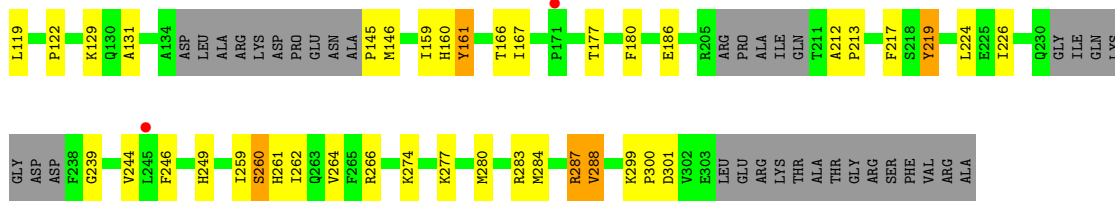


• Molecule 3: Actin-related protein 2/3 complex subunit 2

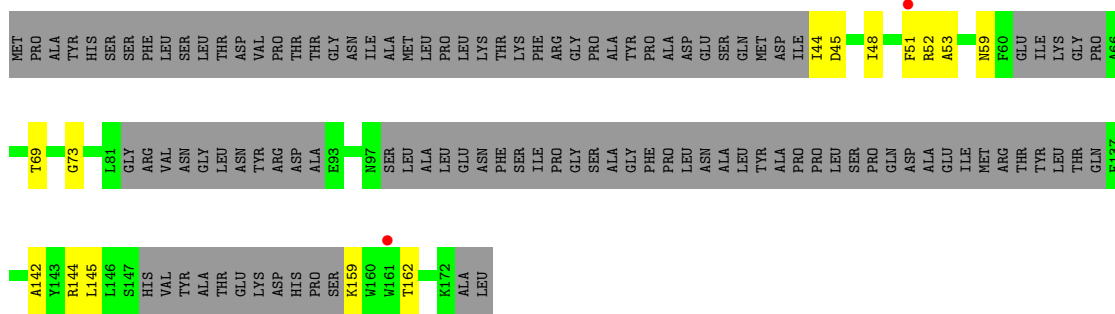


• Molecule 3: Actin-related protein 2/3 complex subunit 2

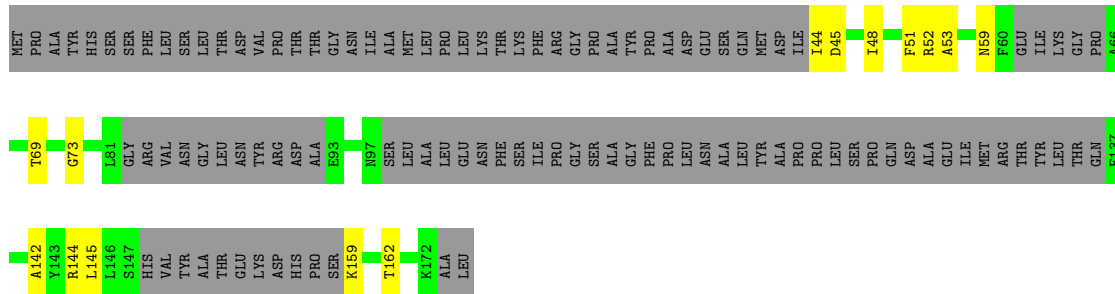




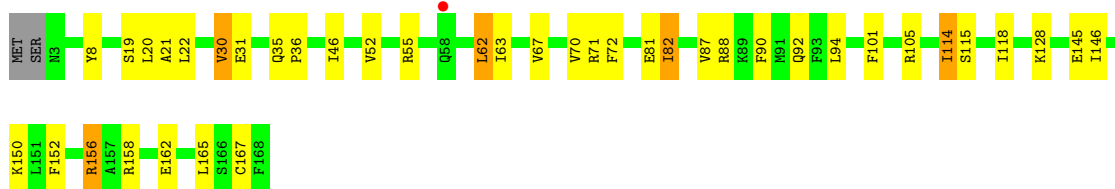
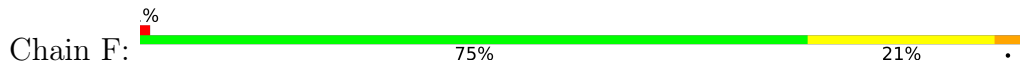
● Molecule 4: Actin-related protein 2/3 complex subunit 3



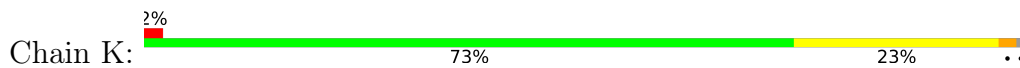
● Molecule 4: Actin-related protein 2/3 complex subunit 3



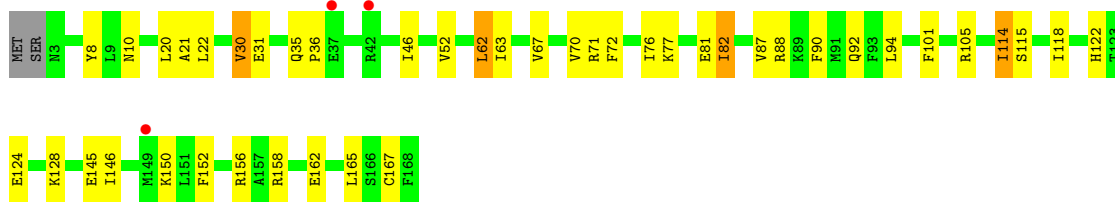
● Molecule 5: Actin-related protein 2/3 complex subunit 4



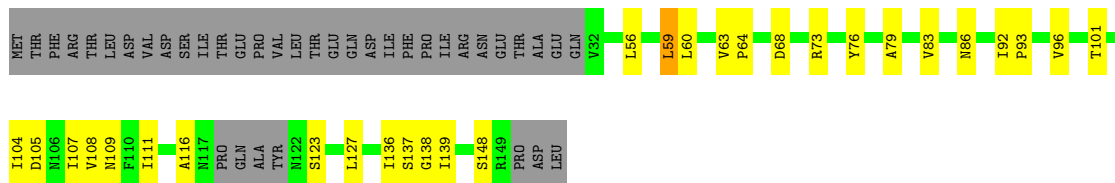
● Molecule 5: Actin-related protein 2/3 complex subunit 4



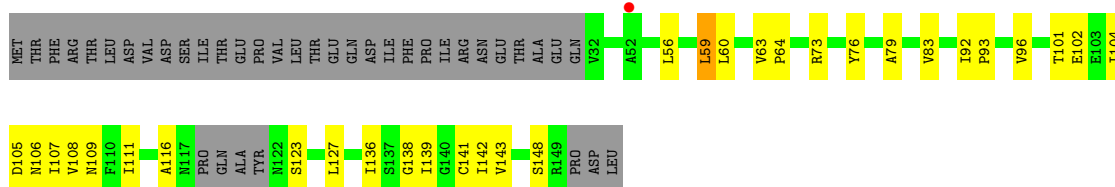




• Molecule 6: Actin-related protein 2/3 complex subunit 5



• Molecule 6: Actin-related protein 2/3 complex subunit 5



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 42 2 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	218.97Å 218.97Å 315.05Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.00 – 3.78 49.05 – 3.79	Depositor EDS
% Data completeness (in resolution range)	98.9 (29.00-3.78) 85.8 (49.05-3.79)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.20	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.82 (at 3.77Å)	Xtrriage
Refinement program	REFMAC 5.2.0005	Depositor
R, $R_{free}$	0.324 , 0.344 0.301 , (Not available)	Depositor DCC
$R_{free}$ test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	83.8	Xtrriage
Anisotropy	0.050	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 106.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.79	EDS
Total number of atoms	18705	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	74.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.68% 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	0.44	1/2610 (0.0%)	0.56	2/3567 (0.1%)
1	B	0.41	1/2611 (0.0%)	0.56	2/3569 (0.1%)
2	C	0.37	0/2300	0.61	8/3170 (0.3%)
2	H	0.37	1/2310 (0.0%)	0.61	8/3184 (0.3%)
3	D	0.39	0/2072	0.56	3/2816 (0.1%)
3	I	0.39	0/2072	0.56	3/2816 (0.1%)
4	E	0.35	0/399	0.45	0/540
4	J	0.39	0/399	0.45	0/540
5	F	0.37	0/1314	0.54	0/1777
5	K	0.43	1/1314 (0.1%)	0.54	1/1777 (0.1%)
6	G	0.38	0/799	0.53	0/1097
6	L	0.35	0/799	0.51	0/1097
All	All	0.40	4/18999 (0.0%)	0.56	27/25950 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
5	F	0	1
All	All	0	3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	88	TYR	C-O	12.02	1.46	1.23
5	K	167	CYS	C-O	-9.32	1.05	1.23
1	B	88	TYR	C-O	8.89	1.40	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	130	GLU	C-O	5.62	1.34	1.23

The worst 5 of 27 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	88	TYR	CA-C-O	-12.76	93.31	120.10
1	B	88	TYR	O-C-N	-12.05	103.42	122.70
1	B	88	TYR	CA-C-O	-8.63	101.97	120.10
1	A	88	TYR	O-C-N	-8.15	109.67	122.70
2	C	241	PRO	N-CA-CB	6.19	110.72	103.30

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	88	TYR	Mainchain
1	B	88	TYR	Mainchain
5	F	167	CYS	Mainchain

## 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	2555	0	2244	47	0
1	B	2556	0	2244	44	0
2	C	2252	0	1845	43	0
2	H	2262	0	1851	38	0
3	D	2028	0	1774	39	0
3	I	2028	0	1774	42	0
4	E	397	0	275	4	0
4	J	397	0	275	4	0
5	F	1294	0	1260	27	0
5	K	1294	0	1260	27	0
6	G	790	0	717	17	0
6	L	790	0	717	19	0
7	A	31	0	12	0	0
7	B	31	0	12	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	18705	0	16260	322	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 9.

The worst 5 of 322 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)
3:D:177:THR:HG22	3:D:244:VAL:HG12	1.58	0.86
1:B:21:TYR:CE1	3:I:32:THR:HG22	2.13	0.83
3:I:177:THR:HG22	3:I:244:VAL:HG12	1.59	0.83
1:B:31:PHE:HB2	1:B:32:PRO:HD2	1.61	0.82
3:D:18:ARG:CG	3:D:18:ARG:HH11	1.94	0.81

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 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	343/427 (80%)	299 (87%)	36 (10%)	8 (2%)	6	38
1	B	343/427 (80%)	300 (88%)	37 (11%)	6 (2%)	9	43
2	C	324/377 (86%)	245 (76%)	56 (17%)	23 (7%)	1	16
2	H	325/377 (86%)	245 (75%)	59 (18%)	21 (6%)	1	19
3	D	258/317 (81%)	215 (83%)	35 (14%)	8 (3%)	4	33
3	I	258/317 (81%)	217 (84%)	33 (13%)	8 (3%)	4	33
4	E	53/174 (30%)	40 (76%)	11 (21%)	2 (4%)	3	28
4	J	53/174 (30%)	40 (76%)	11 (21%)	2 (4%)	3	28
5	F	164/168 (98%)	144 (88%)	18 (11%)	2 (1%)	13	49

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	K	164/168 (98%)	143 (87%)	19 (12%)	2 (1%)	13	49
6	G	110/152 (72%)	97 (88%)	11 (10%)	2 (2%)	8	42
6	L	110/152 (72%)	97 (88%)	11 (10%)	2 (2%)	8	42
All	All	2505/3230 (78%)	2082 (83%)	337 (14%)	86 (3%)	3	31

5 of 86 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	102	TRP
1	A	206	ILE
2	C	54	HIS
2	C	108	TRP
2	C	143	ARG

### 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 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	240/364 (66%)	214 (89%)	26 (11%)	6	30
1	B	240/364 (66%)	215 (90%)	25 (10%)	7	31
2	C	181/317 (57%)	163 (90%)	18 (10%)	8	33
2	H	182/317 (57%)	165 (91%)	17 (9%)	9	36
3	D	185/287 (64%)	169 (91%)	16 (9%)	10	40
3	I	185/287 (64%)	169 (91%)	16 (9%)	10	40
4	E	23/150 (15%)	19 (83%)	4 (17%)	2	13
4	J	23/150 (15%)	19 (83%)	4 (17%)	2	13
5	F	140/157 (89%)	131 (94%)	9 (6%)	17	49
5	K	140/157 (89%)	132 (94%)	8 (6%)	20	52
6	G	74/134 (55%)	67 (90%)	7 (10%)	8	34
6	L	74/134 (55%)	70 (95%)	4 (5%)	22	54
All	All	1687/2818 (60%)	1533 (91%)	154 (9%)	9	36

5 of 154 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	H	122	ARG
5	K	30	VAL
2	H	207	TRP
3	I	217	PHE
6	L	59	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 36 such sidechains are listed below:

Mol	Chain	Res	Type
2	H	78	ASN
6	L	147	ASN
2	H	92	GLN
3	I	249	HIS
3	D	253	GLN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

2 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
7	ATP	B	428	-	26,33,33	0.97	2 (7%)	31,52,52	1.53	5 (16%)
7	ATP	A	428	-	26,33,33	0.90	1 (3%)	31,52,52	1.55	4 (12%)

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
7	ATP	B	428	-	-	5/18/38/38	0/3/3/3
7	ATP	A	428	-	-	4/18/38/38	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	B	428	ATP	C5-C4	2.57	1.47	1.40
7	A	428	ATP	C5-C4	2.47	1.47	1.40
7	B	428	ATP	C2-N3	2.08	1.35	1.32

The worst 5 of 9 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	A	428	ATP	PA-O3A-PB	-3.82	119.73	132.83
7	B	428	ATP	PB-O3B-PG	-3.74	120.00	132.83
7	A	428	ATP	PB-O3B-PG	-3.64	120.33	132.83
7	B	428	ATP	PA-O3A-PB	-3.25	121.68	132.83
7	B	428	ATP	N3-C2-N1	-3.22	123.64	128.68

There are no chirality outliers.

5 of 9 torsion outliers are listed below:

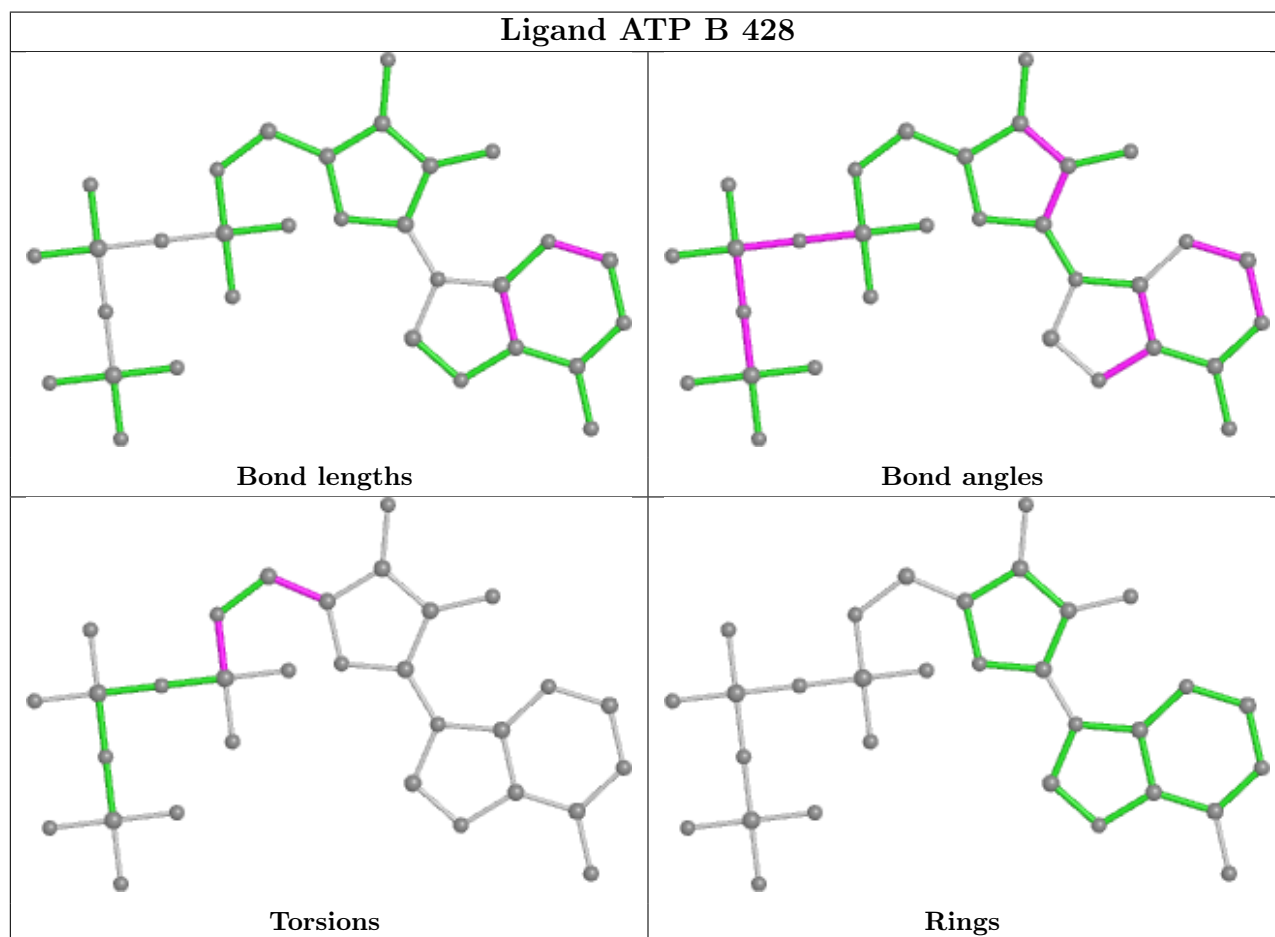
Mol	Chain	Res	Type	Atoms
7	B	428	ATP	C5'-O5'-PA-O3A
7	A	428	ATP	O4'-C4'-C5'-O5'
7	A	428	ATP	C3'-C4'-C5'-O5'
7	B	428	ATP	C3'-C4'-C5'-O5'
7	B	428	ATP	O4'-C4'-C5'-O5'

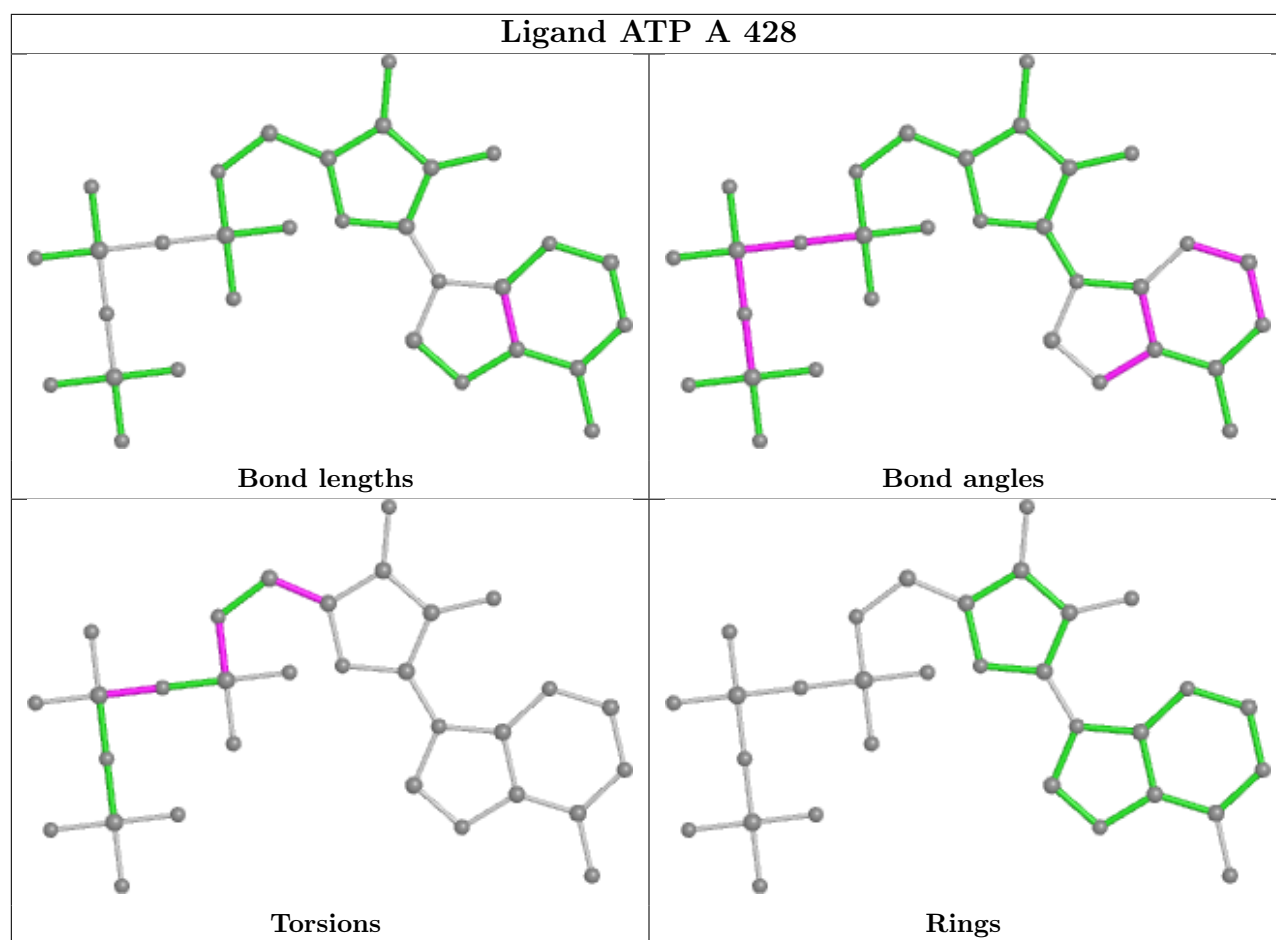
There are no ring outliers.

No monomer is involved in short contacts.



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.





## 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 [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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	355/427 (83%)	-0.24	0 <span style="border: 1px solid blue; padding: 2px;">100</span> <span style="border: 1px solid blue; padding: 2px;">100</span>	65, 74, 88, 94	1 (0%)
1	B	355/427 (83%)	-0.23	1 (0%) <span style="border: 1px solid blue; padding: 2px;">94</span> <span style="border: 1px solid blue; padding: 2px;">94</span>	65, 74, 88, 94	1 (0%)
2	C	336/377 (89%)	-0.29	1 (0%) <span style="border: 1px solid blue; padding: 2px;">94</span> <span style="border: 1px solid blue; padding: 2px;">94</span>	65, 76, 86, 95	0
2	H	337/377 (89%)	0.03	9 (2%) <span style="border: 1px solid gray; padding: 2px;">54</span> <span style="border: 1px solid gray; padding: 2px;">48</span>	65, 76, 86, 95	0
3	D	272/317 (85%)	-0.30	0 <span style="border: 1px solid blue; padding: 2px;">100</span> <span style="border: 1px solid blue; padding: 2px;">100</span>	65, 72, 86, 96	0
3	I	272/317 (85%)	-0.30	2 (0%) <span style="border: 1px solid blue; padding: 2px;">87</span> <span style="border: 1px solid blue; padding: 2px;">86</span>	65, 72, 86, 96	0
4	E	63/174 (36%)	0.01	2 (3%) <span style="border: 1px solid gray; padding: 2px;">47</span> <span style="border: 1px solid gray; padding: 2px;">41</span>	66, 73, 83, 84	0
4	J	63/174 (36%)	-0.39	0 <span style="border: 1px solid blue; padding: 2px;">100</span> <span style="border: 1px solid blue; padding: 2px;">100</span>	66, 73, 83, 84	0
5	F	166/168 (98%)	-0.15	1 (0%) <span style="border: 1px solid blue; padding: 2px;">89</span> <span style="border: 1px solid blue; padding: 2px;">88</span>	65, 74, 84, 99	1 (0%)
5	K	166/168 (98%)	0.05	3 (1%) <span style="border: 1px solid gray; padding: 2px;">68</span> <span style="border: 1px solid gray; padding: 2px;">65</span>	65, 74, 84, 99	1 (0%)
6	G	114/152 (75%)	-0.30	0 <span style="border: 1px solid blue; padding: 2px;">100</span> <span style="border: 1px solid blue; padding: 2px;">100</span>	66, 73, 82, 84	0
6	L	114/152 (75%)	-0.04	1 (0%) <span style="border: 1px solid blue; padding: 2px;">84</span> <span style="border: 1px solid blue; padding: 2px;">82</span>	66, 73, 82, 84	0
All	All	2613/3230 (80%)	-0.19	20 (0%) <span style="border: 1px solid blue; padding: 2px;">86</span> <span style="border: 1px solid blue; padding: 2px;">84</span>	65, 74, 86, 99	4 (0%)

The worst 5 of 20 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	H	287	THR	3.4
4	E	161	TRP	3.0
5	K	42	ARG	2.7
2	H	174	SER	2.5
2	H	151	SER	2.5

### 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](#)

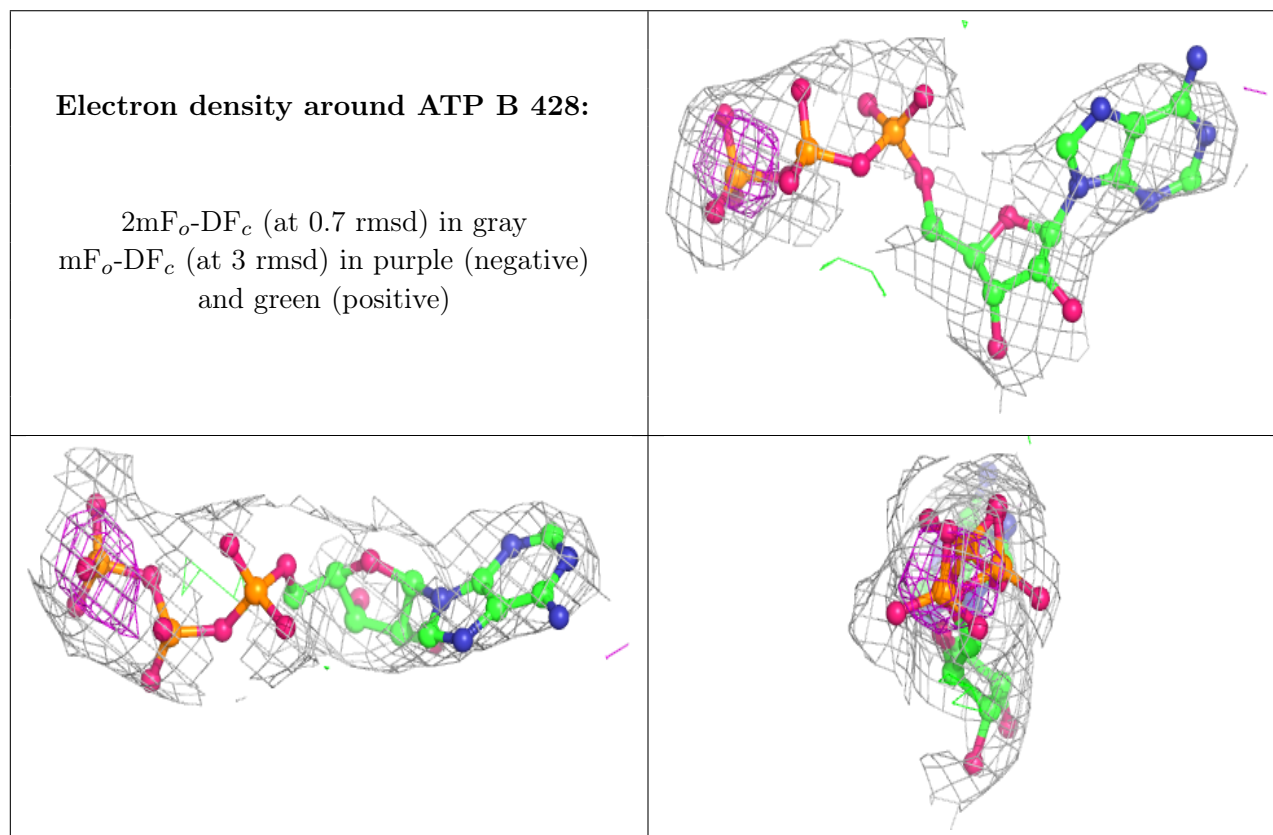
There are no monosaccharides in this entry.

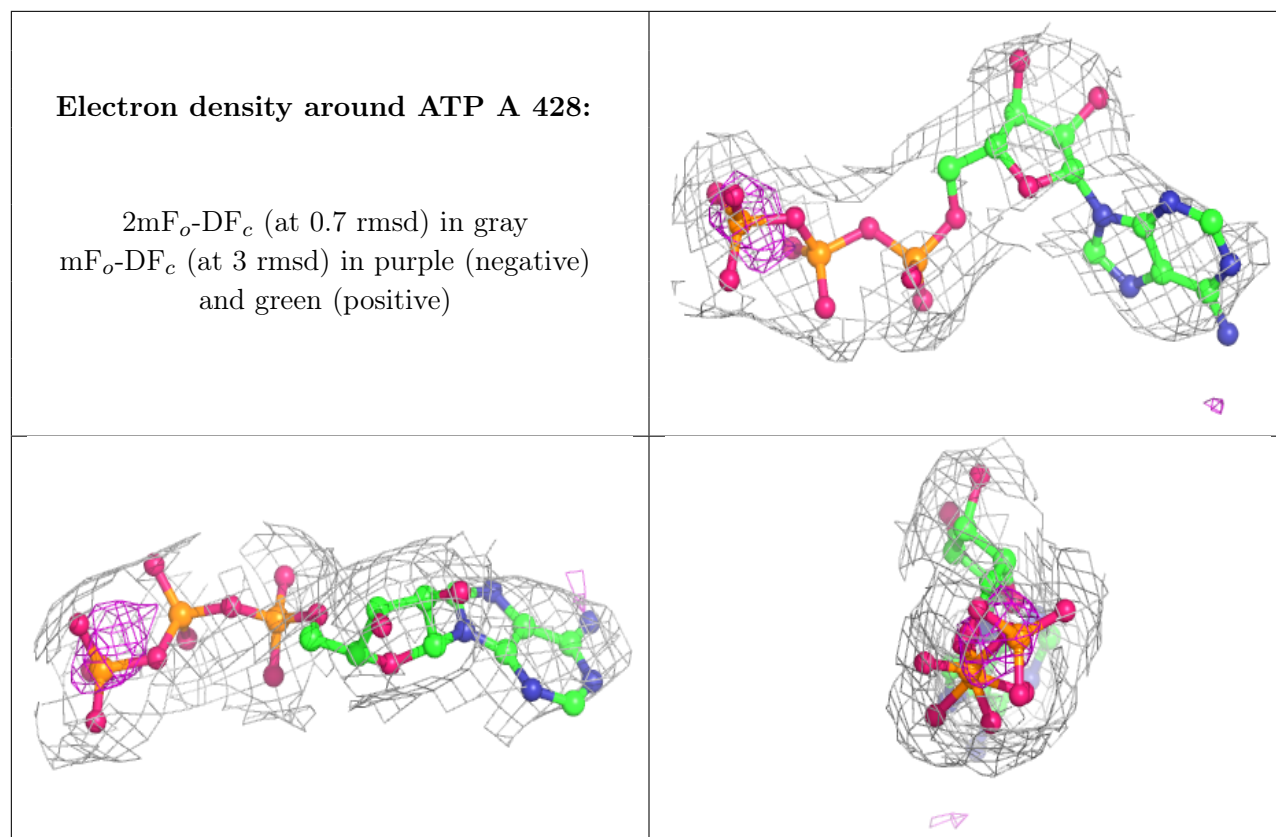
### 6.4 Ligands [i](#)

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(Å <sup>2</sup> )	Q<0.9
7	ATP	B	428	31/31	0.89	0.27	102,102,108,108	0
7	ATP	A	428	31/31	0.90	0.21	97,98,106,106	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.





## 6.5 Other polymers [i](#)

There are no such residues in this entry.