



# Full wwPDB X-ray Structure Validation Report ⓘ

Jul 17, 2024 – 08:08 PM JST

PDB ID : 8WIIH  
Title : Crystal structure of E. coli ThrS catalytic domain mutant G463A in complex with ATP  
Authors : Qiao, H.; Wang, Z.; Wang, J.; Fang, P.  
Deposited on : 2023-09-24  
Resolution : 2.44 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 : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtrriage (Phenix) : 1.13  
EDS : 2.37.1  
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) : 2.37.1

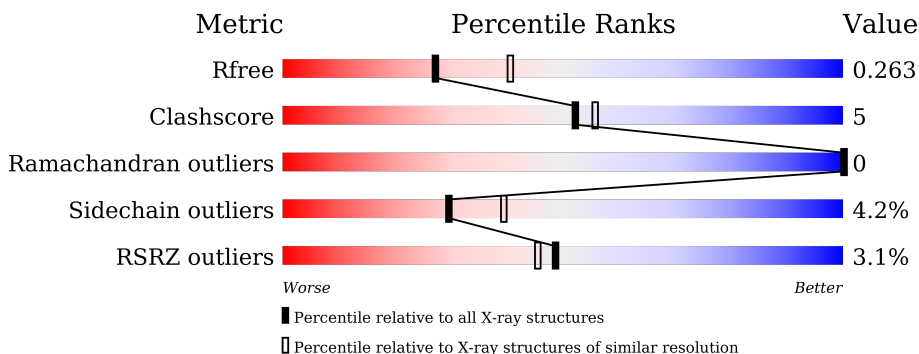
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.44 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))
$R_{free}$	130704	1564 (2.46-2.42)
Clashscore	141614	1631 (2.46-2.42)
Ramachandran outliers	138981	1617 (2.46-2.42)
Sidechain outliers	138945	1617 (2.46-2.42)
RSRZ outliers	127900	1547 (2.46-2.42)

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	410	
1	B	410	

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 6498 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 Threonine-tRNA ligase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	401	3204	2030	566	587	21	0	0	0
1	B	399	3194	2025	567	579	23	0	0	0

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	241	MET	-	initiating methionine	UNP A0A8S7FUD7
A	463	ALA	GLY	engineered mutation	UNP A0A8S7FUD7
A	643	LEU	-	expression tag	UNP A0A8S7FUD7
A	644	GLU	-	expression tag	UNP A0A8S7FUD7
A	645	HIS	-	expression tag	UNP A0A8S7FUD7
A	646	HIS	-	expression tag	UNP A0A8S7FUD7
A	647	HIS	-	expression tag	UNP A0A8S7FUD7
A	648	HIS	-	expression tag	UNP A0A8S7FUD7
A	649	HIS	-	expression tag	UNP A0A8S7FUD7
A	650	HIS	-	expression tag	UNP A0A8S7FUD7
B	241	MET	-	initiating methionine	UNP A0A8S7FUD7
B	463	ALA	GLY	engineered mutation	UNP A0A8S7FUD7
B	643	LEU	-	expression tag	UNP A0A8S7FUD7
B	644	GLU	-	expression tag	UNP A0A8S7FUD7
B	645	HIS	-	expression tag	UNP A0A8S7FUD7
B	646	HIS	-	expression tag	UNP A0A8S7FUD7
B	647	HIS	-	expression tag	UNP A0A8S7FUD7
B	648	HIS	-	expression tag	UNP A0A8S7FUD7
B	649	HIS	-	expression tag	UNP A0A8S7FUD7
B	650	HIS	-	expression tag	UNP A0A8S7FUD7

- Molecule 2 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula:  $C_{10}H_{16}N_5O_{13}P_3$ ).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	27	10	5	10	2	0	0
2	B	1	23	10	5	7	1	0	0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Zn		
3	A	1	1	1	0	0
3	B	1	1	1	0	0

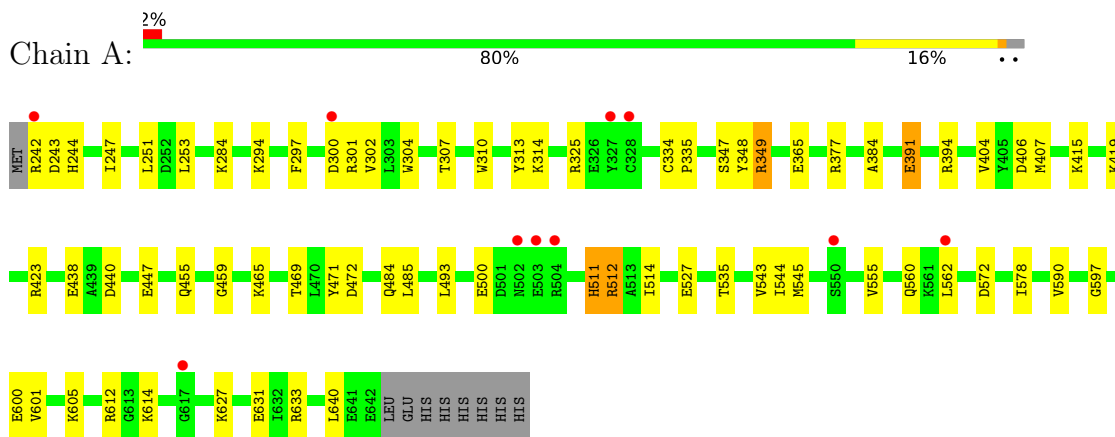
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
4	A	24	24	24	0	0
4	B	24	24	24	0	0

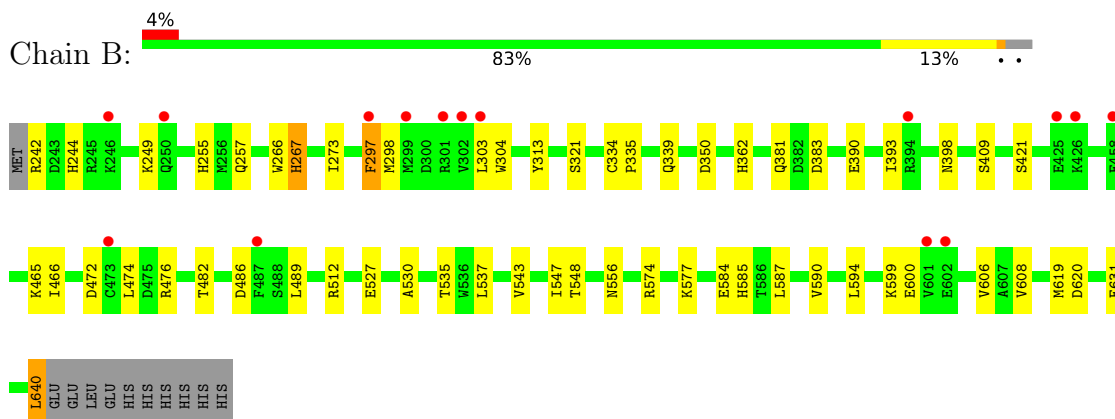
### 3 Residue-property plots [i](#)

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: Threonine-tRNA ligase



- Molecule 1: Threonine-tRNA ligase



## 4 Data and refinement statistics i

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	87.17Å 109.38Å 113.79Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.48 – 2.44 78.86 – 2.44	Depositor EDS
% Data completeness (in resolution range)	88.5 (50.48-2.44) 88.6 (78.86-2.44)	Depositor EDS
$R_{merge}$	0.11	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.32 (at 2.42Å)	Xtrriage
Refinement program	PHENIX (1.20.1_4487: ???)	Depositor
R, $R_{free}$	0.240 , 0.264 0.240 , 0.263	Depositor DCC
$R_{free}$ test set	1853 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	44.3	Xtrriage
Anisotropy	0.561	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.28 , 30.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.006 for -h,l,k	Xtrriage
$F_o, F_c$ correlation	0.92	EDS
Total number of atoms	6498	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	46.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.51% 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, ZN

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.26	0/3275	0.51	0/4422
1	B	0.27	0/3265	0.51	0/4407
All	All	0.26	0/6540	0.51	0/8829

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	3204	0	3091	39	0
1	B	3194	0	3099	31	0
2	A	27	0	12	0	0
2	B	23	0	12	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	A	24	0	0	2	0
4	B	24	0	0	0	0
All	All	6498	0	6214	69	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 5.

All (69) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:612:ARG:HA	4:A:813:HOH:O	1.52	1.09
1:A:419:LYS:HD3	1:A:455:GLN:HB2	1.75	0.68
1:B:547:ILE:HG22	1:B:548:THR:HG23	1.75	0.67
1:A:578:ILE:HD12	1:A:578:ILE:H	1.61	0.66
1:A:544:ILE:HG22	1:A:555:VAL:HG13	1.79	0.65
1:A:484:GLN:HB2	1:A:511:HIS:HB2	1.78	0.65
1:A:545:MET:HB3	1:A:572:ASP:HB3	1.80	0.63
1:B:297:PHE:HZ	1:B:362:HIS:CE1	2.18	0.61
1:A:627:LYS:HB3	1:A:640:LEU:HD21	1.83	0.60
1:A:244:HIS:HB3	1:A:527:GLU:HG3	1.85	0.58
1:B:381:GLN:NE2	1:B:383:ASP:OD2	2.37	0.57
1:B:599:LYS:NZ	1:B:600:GLU:OE2	2.35	0.55
1:B:255:HIS:ND1	1:B:267:HIS:HE1	2.05	0.54
1:B:242:ARG:HD3	1:B:530:ALA:HB2	1.90	0.54
1:B:486:ASP:OD2	1:B:489:LEU:HB2	2.07	0.54
1:B:303:LEU:HD21	1:B:339:GLN:HE21	1.73	0.54
1:A:459:GLY:HA2	1:A:465:LYS:HD3	1.91	0.53
1:A:415:LYS:HD3	1:A:471:TYR:CD1	2.46	0.51
1:A:300:ASP:OD1	1:A:301:ARG:N	2.45	0.50
1:A:404:VAL:HG22	1:A:514:ILE:HG23	1.94	0.49
1:A:535:THR:OG1	1:A:631:GLU:OE2	2.21	0.49
1:B:535:THR:OG1	1:B:631:GLU:OE2	2.20	0.48
1:B:543:VAL:HG11	1:B:585:HIS:CD2	2.47	0.48
1:B:594:LEU:HD22	1:B:608:VAL:HG22	1.95	0.48
1:B:466:ILE:O	1:B:482:THR:HA	2.13	0.48
1:A:472:ASP:HB2	1:A:527:GLU:OE1	2.13	0.48
1:A:600:GLU:HB3	1:A:605:LYS:O	2.12	0.48
1:A:612:ARG:HD3	4:A:810:HOH:O	2.12	0.48
1:A:391:GLU:H	1:A:391:GLU:CD	2.17	0.48
1:A:544:ILE:HD11	1:A:562:LEU:HD22	1.96	0.47
1:B:273:ILE:HG23	1:B:537:LEU:HD22	1.97	0.47
1:A:300:ASP:OD1	1:A:302:VAL:HG13	2.15	0.46
1:A:365:GLU:O	1:A:377:ARG:NH2	2.49	0.46
1:A:543:VAL:HG23	1:A:590:VAL:HG11	1.98	0.46
1:A:294:LYS:HB3	1:B:266:TRP:HB2	1.98	0.45
1:A:394:ARG:NH1	1:A:447:GLU:OE2	2.50	0.45
1:B:594:LEU:HB3	1:B:606:VAL:HG21	1.98	0.45
1:A:304:TRP:CZ3	1:A:335:PRO:HG2	2.51	0.45
1:B:304:TRP:CZ3	1:B:335:PRO:HG2	2.51	0.44
1:B:390:GLU:HA	1:B:393:ILE:HD12	1.97	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:249:LYS:HB3	1:B:249:LYS:HE3	1.73	0.44
1:A:348:TYR:CZ	1:A:500:GLU:HG2	2.52	0.44
1:A:391:GLU:OE1	1:A:391:GLU:N	2.44	0.44
1:A:423:ARG:HH21	1:A:438:GLU:CD	2.20	0.44
1:B:556:ASN:HD22	1:B:556:ASN:HA	1.66	0.43
1:B:303:LEU:HD11	1:B:335:PRO:HB3	2.00	0.43
1:B:608:VAL:HG21	1:B:619:MET:HE2	1.99	0.43
1:A:284:LYS:NZ	1:A:406:ASP:OD2	2.51	0.43
1:A:243:ASP:O	1:A:247:ILE:HG13	2.19	0.43
1:B:244:HIS:HB3	1:B:527:GLU:HG2	2.00	0.43
1:B:421:SER:HB2	1:B:465:LYS:HG3	1.99	0.43
1:A:511:HIS:CD2	1:A:511:HIS:N	2.87	0.42
1:A:251:LEU:HB2	1:A:253:LEU:HG	2.02	0.42
1:B:472:ASP:OD2	1:B:476:ARG:HB2	2.18	0.42
1:B:255:HIS:NE2	1:B:257:GLN:HG3	2.35	0.42
1:A:310:TRP:O	1:A:314:LYS:HD3	2.20	0.42
1:A:348:TYR:CE2	1:A:349:ARG:HD2	2.55	0.42
1:B:472:ASP:HB2	1:B:527:GLU:OE1	2.19	0.42
1:B:574:ARG:NH2	1:B:584:GLU:OE2	2.53	0.41
1:A:597:GLY:O	1:A:601:VAL:HG23	2.20	0.41
1:A:284:LYS:HG3	1:A:407:MET:SD	2.61	0.41
1:A:307:THR:HG22	1:A:493:LEU:HD21	2.01	0.41
1:A:347:SER:OG	1:A:349:ARG:HD3	2.21	0.41
1:A:384:ALA:HB3	1:A:512:ARG:HD3	2.02	0.41
1:B:543:VAL:HG23	1:B:590:VAL:HG11	2.02	0.41
1:B:255:HIS:HE2	1:B:257:GLN:HG3	1.84	0.41
1:B:587:LEU:HD23	1:B:587:LEU:HA	1.91	0.41
1:B:640:LEU:HD22	1:B:640:LEU:HA	1.83	0.41
1:A:485:LEU:HD12	1:A:485:LEU:HA	1.93	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	399/410 (97%)	396 (99%)	3 (1%)	0	100	100
1	B	397/410 (97%)	391 (98%)	6 (2%)	0	100	100
All	All	796/820 (97%)	787 (99%)	9 (1%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	336/365 (92%)	322 (96%)	14 (4%)	30	39
1	B	336/365 (92%)	322 (96%)	14 (4%)	30	39
All	All	672/730 (92%)	644 (96%)	28 (4%)	30	39

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	242	ARG
1	A	297	PHE
1	A	313	TYR
1	A	325	ARG
1	A	334	CYS
1	A	349	ARG
1	A	391	GLU
1	A	440	ASP
1	A	469	THR
1	A	511	HIS
1	A	512	ARG
1	A	560	GLN
1	A	614	LYS
1	A	633	ARG
1	B	267	HIS
1	B	297	PHE
1	B	298	MET
1	B	313	TYR

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Mol	Chain	Res	Type
1	B	321	SER
1	B	334	CYS
1	B	350	ASP
1	B	398	ASN
1	B	409	SER
1	B	474	LEU
1	B	512	ARG
1	B	577	LYS
1	B	620	ASP
1	B	640	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	250	GLN
1	A	339	GLN
1	A	629	GLN
1	B	257	GLN
1	B	267	HIS
1	B	362	HIS
1	B	371	HIS
1	B	381	GLN
1	B	556	ASN
1	B	564	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 monosaccharides in this entry.

## 5.6 Ligand geometry

Of 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	ATP	A	701	-	24,29,33	0.95	1 (4%)	29,45,52	0.95	3 (10%)
2	ATP	B	701	-	22,25,33	0.78	0	25,38,52	0.91	1 (4%)

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	A	701	-	-	5/12/32/38	0/3/3/3
2	ATP	B	701	-	-	5/6/26/38	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	701	ATP	PB-O1B	2.88	1.59	1.50

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	701	ATP	C5-C6-N6	2.34	123.90	120.35
2	A	701	ATP	C5-C6-N6	2.31	123.86	120.35
2	A	701	ATP	O3B-PB-O3A	2.24	112.15	104.64
2	A	701	ATP	O3B-PB-O2B	2.08	115.57	107.64

There are no chirality outliers.

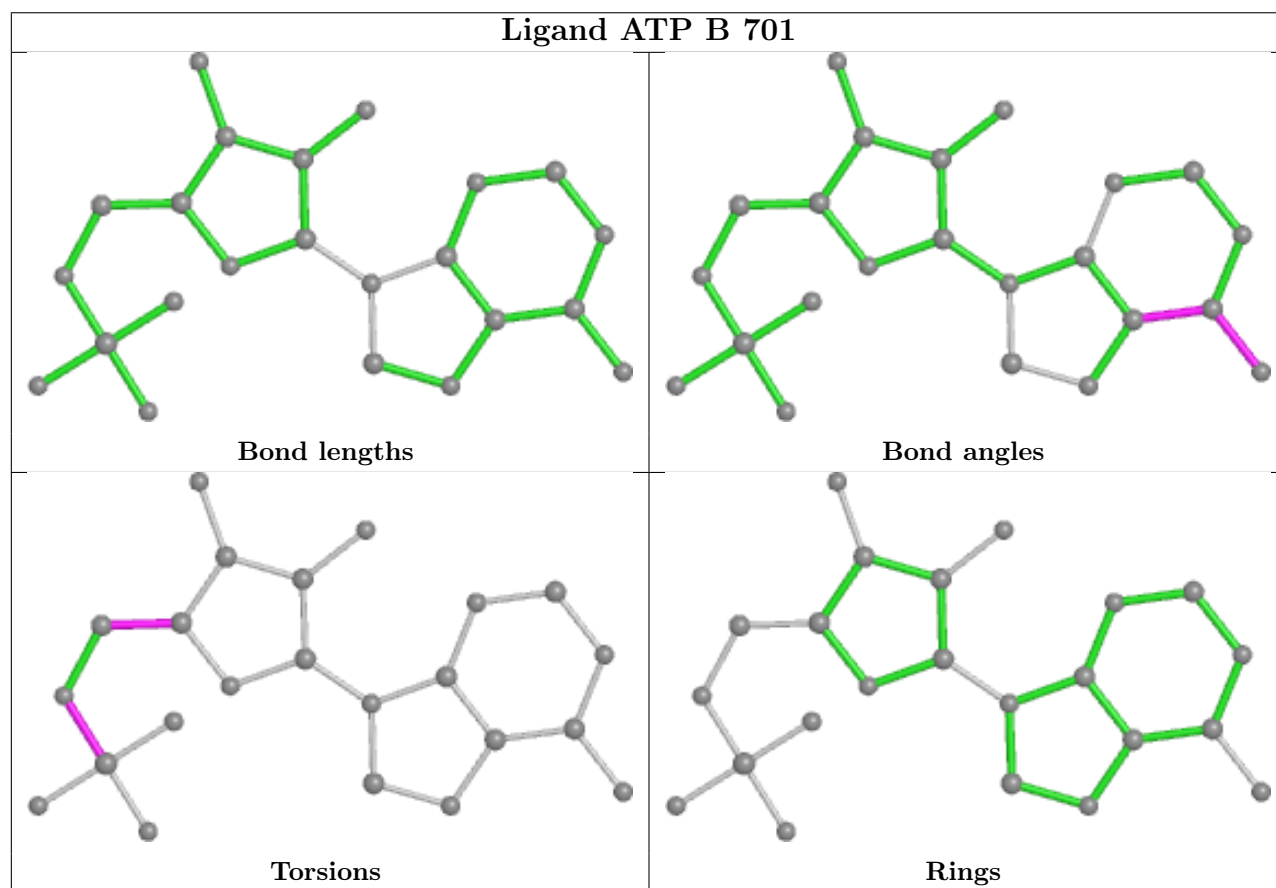
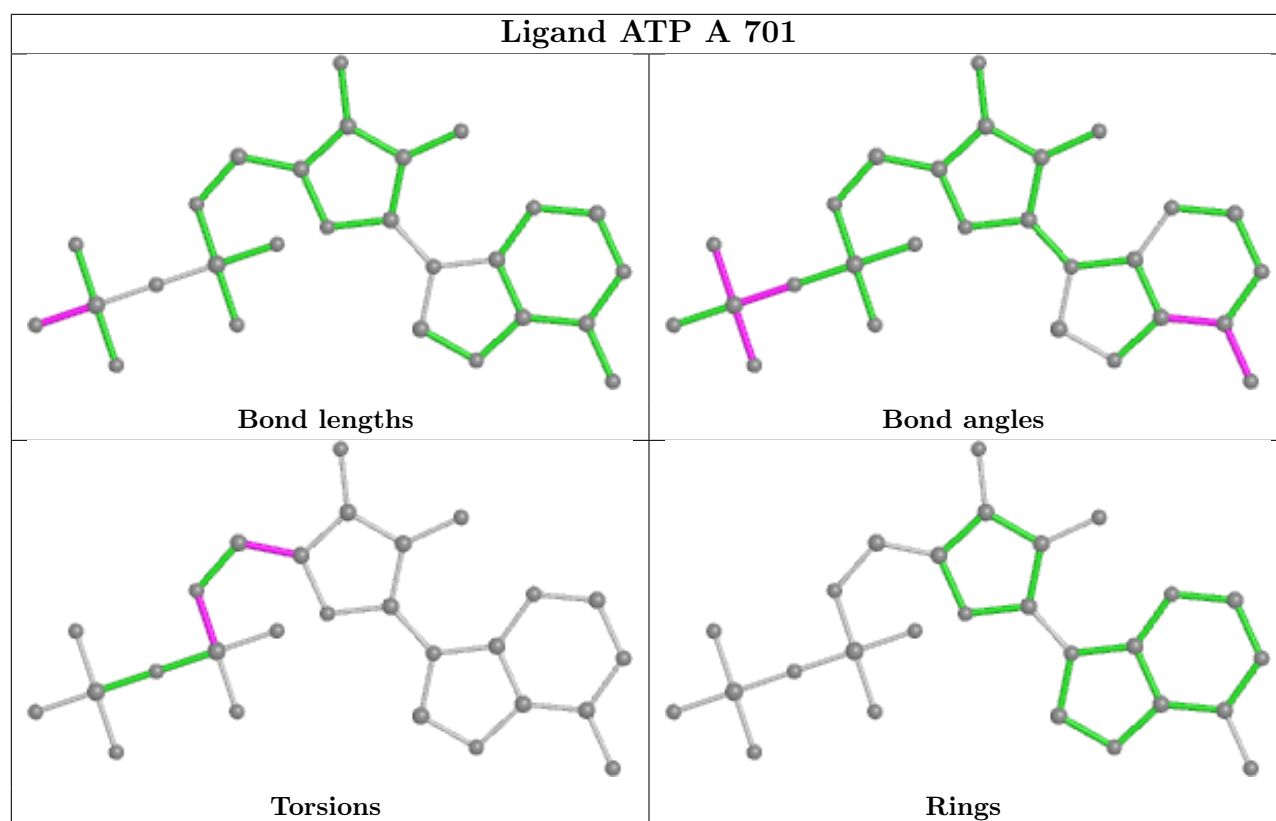
All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	701	ATP	C5'-O5'-PA-O1A
2	B	701	ATP	C5'-O5'-PA-O1A
2	B	701	ATP	C5'-O5'-PA-O2A
2	B	701	ATP	C5'-O5'-PA-O3A
2	B	701	ATP	O4'-C4'-C5'-O5'
2	A	701	ATP	O4'-C4'-C5'-O5'
2	A	701	ATP	C5'-O5'-PA-O3A
2	A	701	ATP	C5'-O5'-PA-O2A
2	B	701	ATP	C3'-C4'-C5'-O5'
2	A	701	ATP	C3'-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

### 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	401/410 (97%)	0.17	10 (2%) 57 53	36, 45, 65, 96	220 (54%)
1	B	399/410 (97%)	0.29	15 (3%) 40 37	34, 44, 60, 76	238 (59%)
All	All	800/820 (97%)	0.23	25 (3%) 49 45	34, 45, 62, 96	458 (57%)

All (25) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	503	GLU	4.4
1	A	504	ARG	4.0
1	A	327	TYR	3.7
1	B	302	VAL	3.5
1	A	242	ARG	3.5
1	B	301	ARG	3.4
1	B	426	LYS	3.2
1	B	297	PHE	3.2
1	B	602	GLU	3.0
1	B	246	LYS	3.0
1	B	303	LEU	2.9
1	B	425	GLU	2.9
1	A	562	LEU	2.7
1	A	300	ASP	2.7
1	B	601	VAL	2.6
1	B	458	GLU	2.4
1	A	550	SER	2.4
1	A	328	CYS	2.4
1	B	473	CYS	2.4
1	A	502	ASN	2.3
1	B	299	MET	2.3
1	B	394	ARG	2.2
1	A	617	GLY	2.1
1	B	250	GLN	2.1

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	B	487	PHE	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 monosaccharides in this entry.

## 6.4 Ligands [i](#)

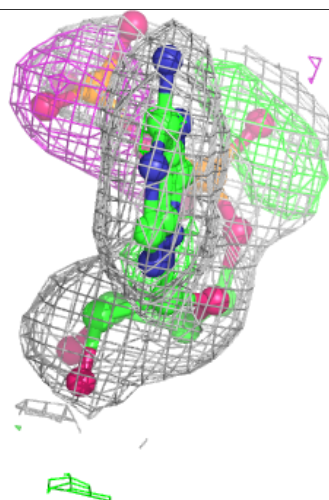
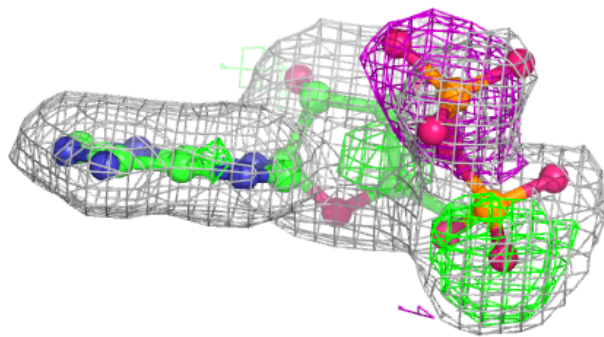
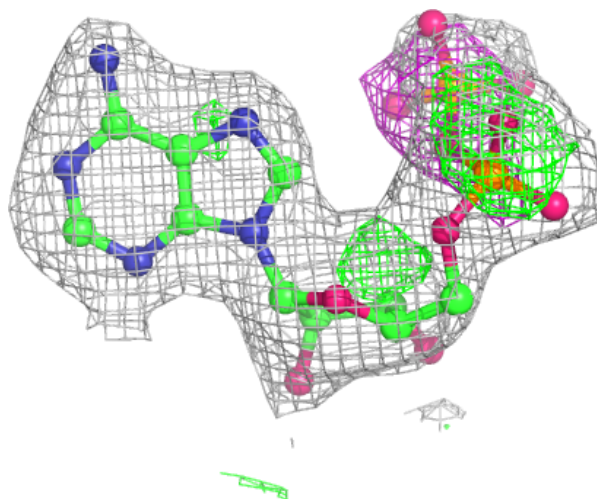
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

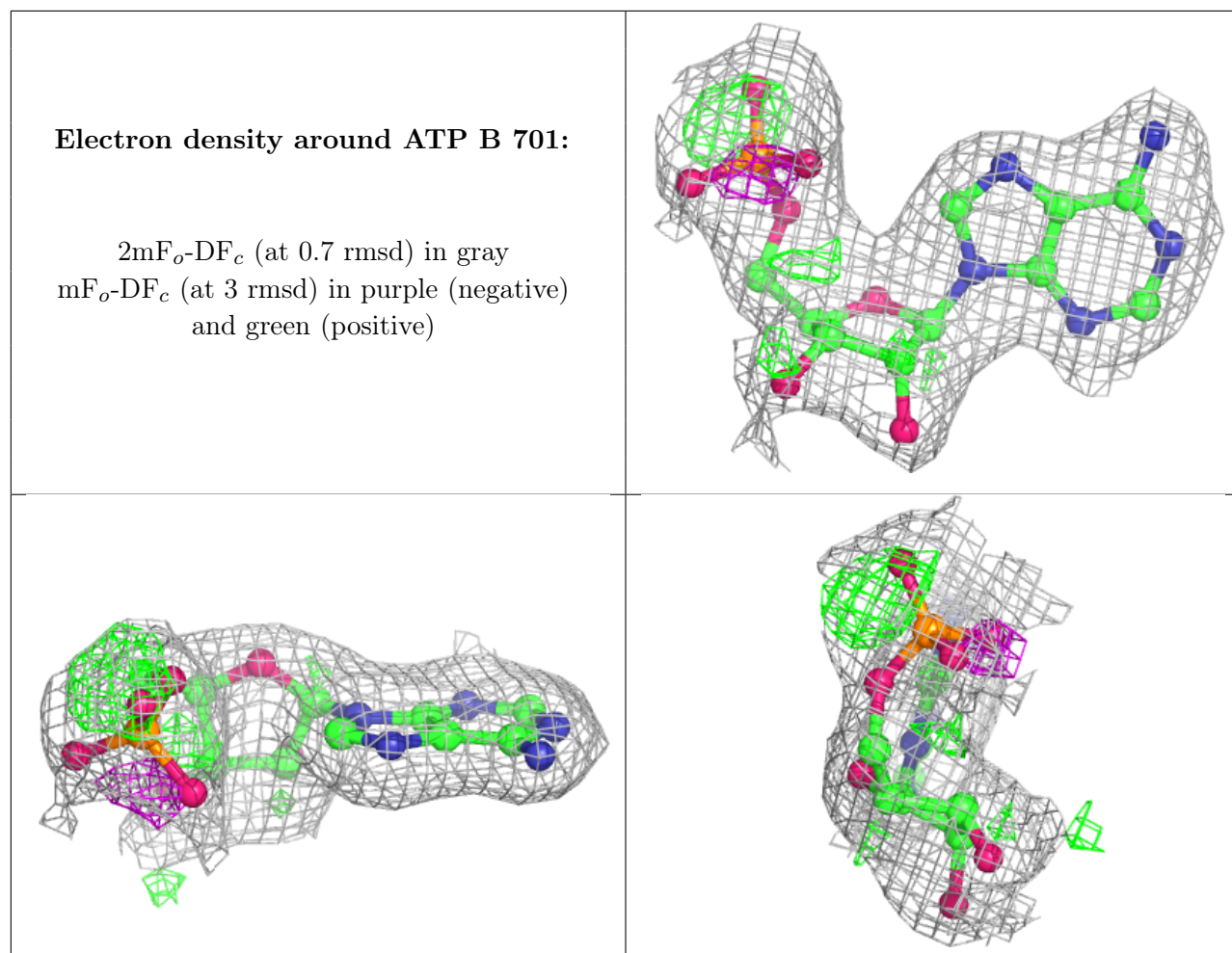
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	ATP	A	701	27/31	0.75	0.29	39,40,44,44	27
2	ATP	B	701	23/31	0.90	0.20	38,38,39,40	23
3	ZN	A	702	1/1	0.98	0.15	38,38,38,38	1
3	ZN	B	702	1/1	0.98	0.14	38,38,38,38	0

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 A 701:**

$2mF_o-DF_c$  (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.