



# Full wwPDB X-ray Structure Validation Report ⓘ

Jan 16, 2024 – 03:39 am GMT

PDB ID : 6RGZ  
Title : Revisiting pH-gated conformational switch. Complex HK853-RR468 pH 6.5  
Authors : Mideros-Mora, C.; Casino, P.; Marina, A.  
Deposited on : 2019-04-18  
Resolution : 2.35 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 : 1.8.4, CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
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) : 2.36

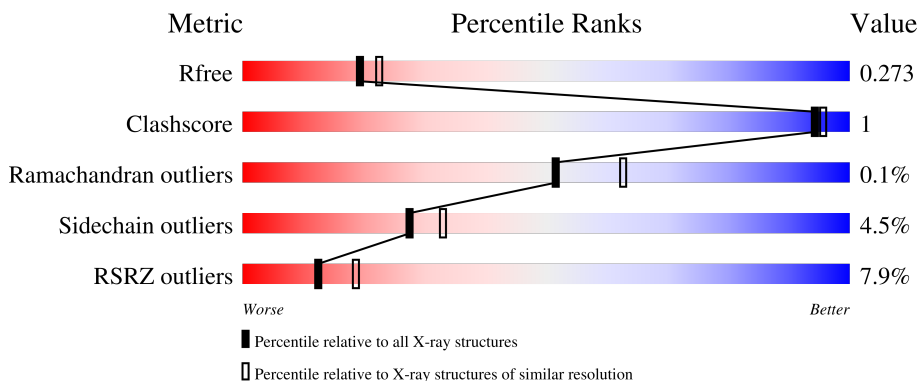
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.35 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	1164 (2.36-2.36)
Clashscore	141614	1232 (2.36-2.36)
Ramachandran outliers	138981	1211 (2.36-2.36)
Sidechain outliers	138945	1212 (2.36-2.36)
RSRZ outliers	127900	1150 (2.36-2.36)

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	258	 8% (poor fit), 87% (0-1 outliers), 5% (2 outliers), 8% (3+ outliers)
1	B	258	 8% (poor fit), 84% (0-1 outliers), 5% (2 outliers), 10% (3+ outliers)
2	C	122	 5% (poor fit), 91% (0-1 outliers), 7% (2 outliers), .. (3+ outliers)
2	D	122	 7% (poor fit), 89% (0-1 outliers), 10% (2 outliers), . (3+ outliers)

## 2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 5867 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.

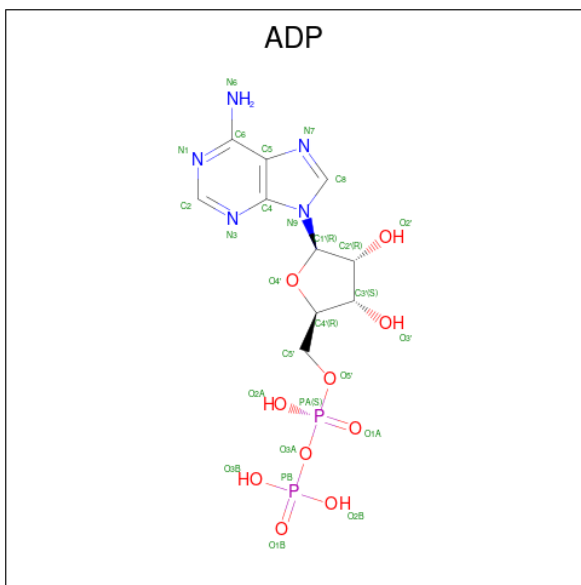
- Molecule 1 is a protein called Sensor histidine kinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	237	Total	C	N	O	S	0	3	0
			1849	1181	312	353	3			
1	B	233	Total	C	N	O	S	0	1	0
			1791	1144	309	335	3			

- Molecule 2 is a protein called Response regulator.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace	
			Total	Be	C	F	N	O				S
2	C	121	Total	Be	C	F	N	O	S	0	0	0
			945	1	607	3	153	177	4			
2	D	122	Total	Be	C	F	N	O	S	0	0	0
			957	1	614	3	154	180	5			

- Molecule 3 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula:  $C_{10}H_{15}N_5O_{10}P_2$ ).



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

- Molecule 4 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	O	S		
4	A	1	5	4	1	0	0
4	A	1	5	4	1	0	0
4	A	1	5	4	1	0	0
4	B	1	5	4	1	0	0
4	B	1	5	4	1	0	0
4	B	1	5	4	1	0	0
4	B	1	5	4	1	0	0
4	B	1	5	4	1	0	0
4	C	1	5	4	1	0	0
4	C	1	5	4	1	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	C	1	Total	O	S	0	0
			5	4	1		
4	D	1	Total	O	S	0	0
			5	4	1		
4	D	1	Total	O	S	0	0
			5	4	1		
4	D	1	Total	O	S	0	0
			5	4	1		

- Molecule 5 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	1	Total	Cl	0	0
			1	1		

- Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	C	1	Total	Mg	0	0
			1	1		
6	D	1	Total	Mg	0	0
			1	1		

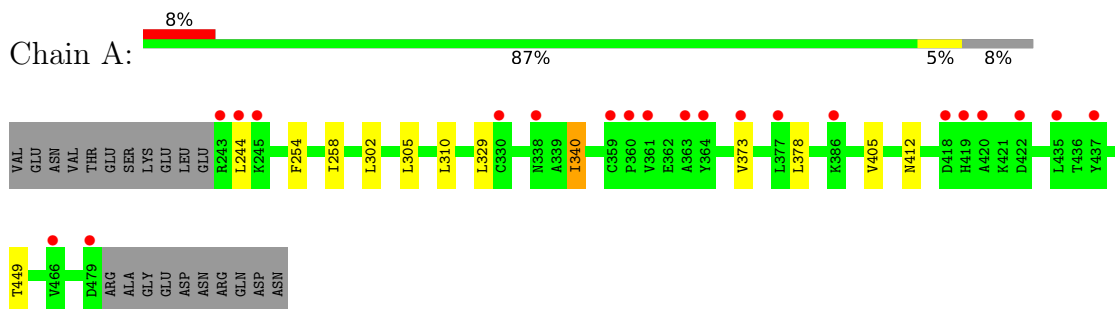
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	62	Total	O	0	0
			62	62		
7	B	63	Total	O	0	0
			63	63		
7	C	40	Total	O	0	0
			40	40		
7	D	33	Total	O	0	0
			33	33		

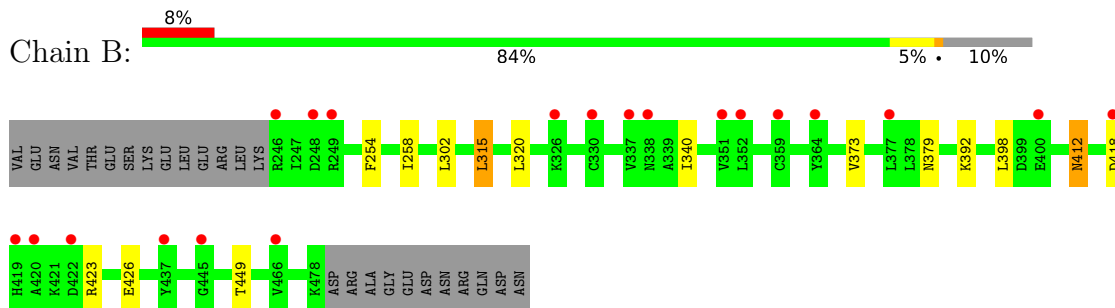
### 3 Residue-property plots [i](#)

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.

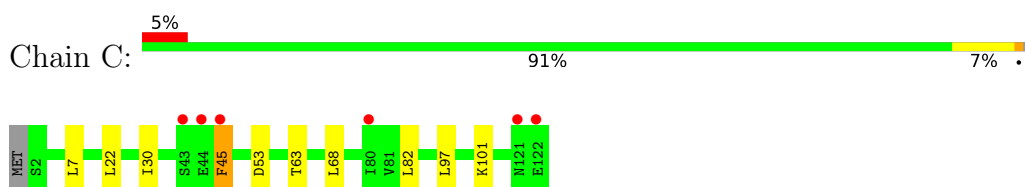
- Molecule 1: Sensor histidine kinase



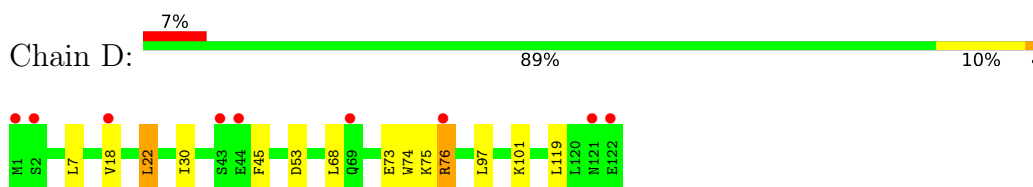
- Molecule 1: Sensor histidine kinase



- Molecule 2: Response regulator



- Molecule 2: Response regulator



## 4 Data and refinement statistics

Property	Value	Source
Space group	I 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	68.74Å 93.61Å 173.93Å 90.00° 93.35° 90.00°	Depositor
Resolution (Å)	28.90 – 2.35 28.94 – 2.35	Depositor EDS
% Data completeness (in resolution range)	99.3 (28.90-2.35) 99.2 (28.94-2.35)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.33 (at 2.34Å)	Xtrriage
Refinement program	REFMAC 5.8.0158	Depositor
R, $R_{free}$	0.215 , 0.265 0.228 , 0.273	Depositor DCC
$R_{free}$ test set	2195 reflections (4.80%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	48.3	Xtrriage
Anisotropy	0.352	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 47.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	5867	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	66.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.28% 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: BFD, MG, CL, SO4, ADP

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	0.45	0/1890	0.58	0/2570
1	B	0.43	0/1826	0.59	0/2486
2	C	0.39	0/945	0.62	0/1272
2	D	0.43	0/957	0.61	0/1287
All	All	0.43	0/5618	0.60	0/7615

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	1849	0	1817	4	0
1	B	1791	0	1752	7	0
2	C	945	0	970	1	0
2	D	957	0	986	3	0
3	A	27	0	12	0	0
3	B	27	0	12	0	0
4	A	15	0	0	0	0
4	B	25	0	0	0	0
4	C	15	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	15	0	0	0	0
5	B	1	0	0	0	0
6	C	1	0	0	0	0
6	D	1	0	0	0	0
7	A	62	0	0	0	0
7	B	63	0	0	0	0
7	C	40	0	0	0	0
7	D	33	0	0	0	0
All	All	5867	0	5549	15	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 1.

All (15) 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)
2:D:74:TRP:O	2:D:76:ARG:N	2.22	0.72
1:A:373:VAL:HG13	1:A:449:THR:HG23	1.76	0.68
1:B:254:PHE:CZ	1:B:258:ILE:HD11	2.32	0.65
1:A:254:PHE:CZ	1:A:258:ILE:HD11	2.32	0.64
1:B:423:ARG:O	1:B:426:GLU:HG2	2.03	0.58
1:B:373:VAL:HG13	1:B:449:THR:HG23	1.85	0.57
1:B:340:ILE:HD11	1:B:379:ASN:OD1	2.11	0.50
1:A:329:LEU:HD13	1:A:405:VAL:HG11	1.97	0.47
1:B:315:LEU:HD13	1:B:320:LEU:HD13	1.96	0.47
1:B:315:LEU:CD1	1:B:320:LEU:HD13	2.46	0.46
2:D:18:VAL:HG12	2:D:22:LEU:HD22	1.97	0.46
2:C:30:ILE:HD13	2:C:45:PHE:CE2	2.51	0.45
1:A:340:ILE:HD12	1:A:378:LEU:HB3	2.00	0.43
2:D:30:ILE:HD13	2:D:45:PHE:CE2	2.54	0.42
1:B:392:LYS:HA	1:B:412:ASN:HD21	1.85	0.41

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	238/258 (92%)	237 (100%)	1 (0%)	0	100	100
1	B	232/258 (90%)	230 (99%)	2 (1%)	0	100	100
2	C	118/122 (97%)	116 (98%)	2 (2%)	0	100	100
2	D	119/122 (98%)	115 (97%)	3 (2%)	1 (1%)	19	20
All	All	707/760 (93%)	698 (99%)	8 (1%)	1 (0%)	51	63

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	75	LYS

### 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	200/232 (86%)	194 (97%)	6 (3%)	41	50
1	B	190/232 (82%)	185 (97%)	5 (3%)	46	56
2	C	103/109 (94%)	95 (92%)	8 (8%)	12	12
2	D	105/109 (96%)	97 (92%)	8 (8%)	13	13
All	All	598/682 (88%)	571 (96%)	27 (4%)	27	33

All (27) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	244	LEU
1	A	302	LEU
1	A	305	LEU
1	A	310	LEU
1	A	340	ILE
1	A	412	ASN
1	B	302	LEU

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Mol	Chain	Res	Type
1	B	315	LEU
1	B	398	LEU
1	B	412	ASN
1	B	418	ASP
2	C	7	LEU
2	C	22	LEU
2	C	45	PHE
2	C	63	THR
2	C	68	LEU
2	C	82	LEU
2	C	97	LEU
2	C	101	LYS
2	D	7	LEU
2	D	22	LEU
2	D	68	LEU
2	D	73	GLU
2	D	76	ARG
2	D	97	LEU
2	D	101	LYS
2	D	119	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	380	ASN
1	A	412	ASN
1	B	380	ASN
1	B	412	ASN
2	C	111	GLN
2	D	111	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](#)

2 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	BFD	C	53	6,2	8,11,12	1.13	0	3,15,17	2.00	1 (33%)
2	BFD	D	53	6,2	8,11,12	1.21	0	3,15,17	1.90	1 (33%)

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	BFD	C	53	6,2	-	2/5/11/13	-
2	BFD	D	53	6,2	-	2/5/11/13	-

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	53	BFD	OD2-CG-CB	-3.42	117.18	124.73
2	D	53	BFD	OD2-CG-CB	-3.20	117.67	124.73

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	53	BFD	CA-CB-CG-OD1
2	C	53	BFD	CA-CB-CG-OD2
2	D	53	BFD	CA-CB-CG-OD1
2	D	53	BFD	CA-CB-CG-OD2

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 19 ligands modelled in this entry, 3 are monoatomic - leaving 16 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	SO4	C	203	-	4,4,4	0.34	0	6,6,6	0.09	0
3	ADP	A	501	-	24,29,29	0.99	1 (4%)	29,45,45	1.38	4 (13%)
4	SO4	B	502	-	4,4,4	0.33	0	6,6,6	0.07	0
4	SO4	D	203	-	4,4,4	0.31	0	6,6,6	0.12	0
4	SO4	B	504	-	4,4,4	0.31	0	6,6,6	0.07	0
4	SO4	A	503	-	4,4,4	0.34	0	6,6,6	0.06	0
4	SO4	C	202	-	4,4,4	0.34	0	6,6,6	0.07	0
4	SO4	D	202	-	4,4,4	0.33	0	6,6,6	0.08	0
4	SO4	A	504	-	4,4,4	0.32	0	6,6,6	0.05	0
4	SO4	C	204	-	4,4,4	0.33	0	6,6,6	0.05	0
4	SO4	B	505	-	4,4,4	0.33	0	6,6,6	0.06	0
4	SO4	B	503	-	4,4,4	0.33	0	6,6,6	0.06	0
4	SO4	D	204	-	4,4,4	0.33	0	6,6,6	0.05	0
3	ADP	B	501	-	24,29,29	0.98	1 (4%)	29,45,45	1.37	4 (13%)
4	SO4	B	506	-	4,4,4	0.33	0	6,6,6	0.09	0
4	SO4	A	502	-	4,4,4	0.33	0	6,6,6	0.09	0

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	ADP	A	501	-	-	3/12/32/32	0/3/3/3
3	ADP	B	501	-	-	2/12/32/32	0/3/3/3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	501	ADP	C5-C4	2.52	1.47	1.40
3	B	501	ADP	C5-C4	2.46	1.47	1.40

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	501	ADP	N3-C2-N1	-3.75	122.82	128.68
3	B	501	ADP	N3-C2-N1	-3.51	123.19	128.68
3	A	501	ADP	C3'-C2'-C1'	2.84	105.25	100.98
3	B	501	ADP	C3'-C2'-C1'	2.57	104.85	100.98
3	B	501	ADP	C4-C5-N7	-2.55	106.74	109.40
3	A	501	ADP	C4-C5-N7	-2.39	106.91	109.40
3	A	501	ADP	C2-N1-C6	2.33	122.74	118.75
3	B	501	ADP	C2-N1-C6	2.24	122.59	118.75

There are no chirality outliers.

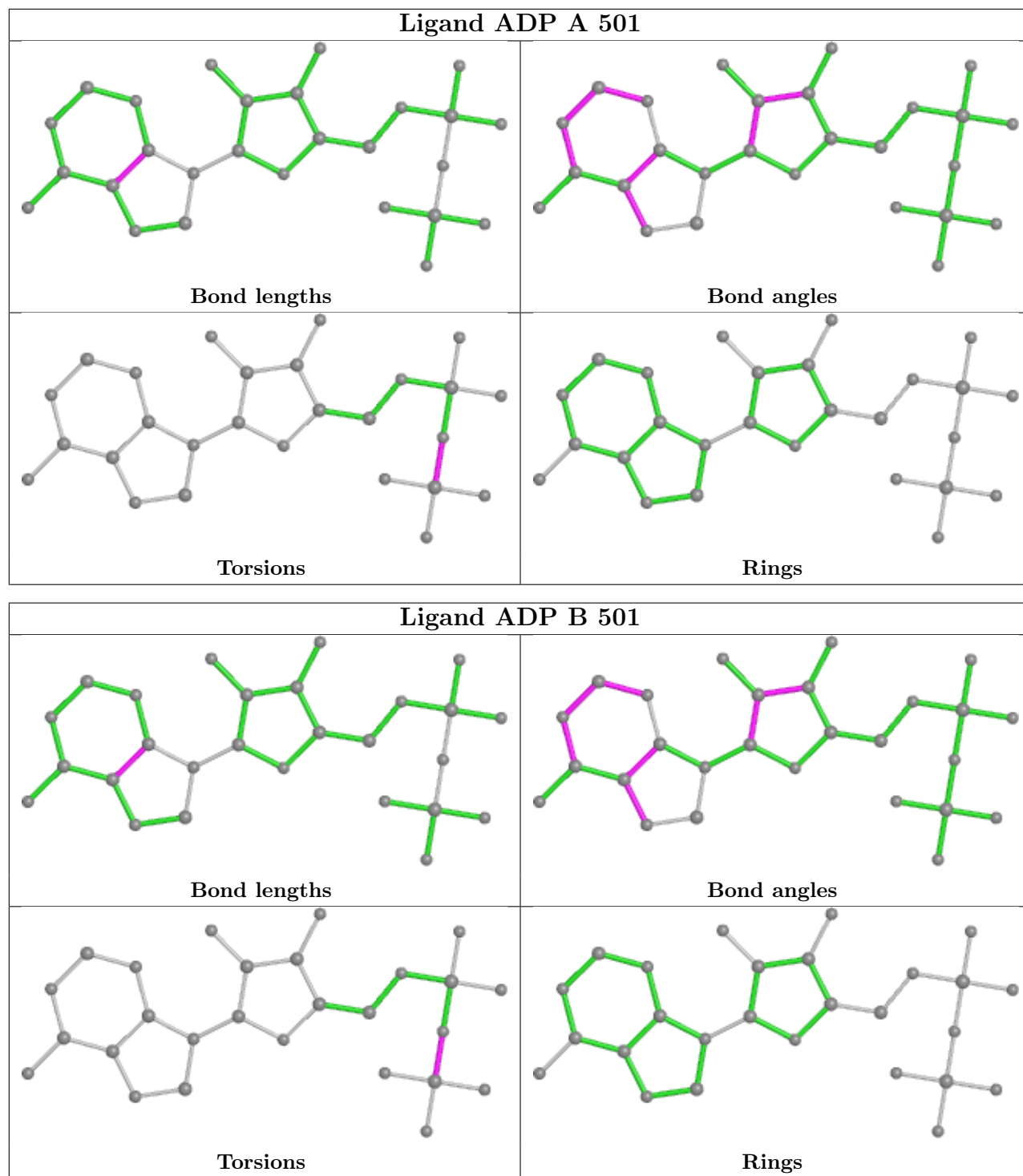
All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	501	ADP	PA-O3A-PB-O2B
3	A	501	ADP	PA-O3A-PB-O3B
3	B	501	ADP	PA-O3A-PB-O2B
3	B	501	ADP	PA-O3A-PB-O3B
3	A	501	ADP	PA-O3A-PB-O1B

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

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	237/258 (91%)	0.47	21 (8%) <b>9</b> <b>14</b>	31, 64, 102, 130	5 (2%)
1	B	233/258 (90%)	0.45	20 (8%) <b>10</b> <b>16</b>	30, 66, 110, 142	5 (2%)
2	C	120/122 (98%)	0.31	6 (5%) <b>28</b> <b>41</b>	35, 61, 104, 123	0
2	D	121/122 (99%)	0.37	9 (7%) <b>14</b> <b>22</b>	37, 61, 107, 132	0
All	All	711/760 (93%)	0.42	56 (7%) <b>12</b> <b>19</b>	30, 63, 106, 142	10 (1%)

All (56) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	244	LEU	7.1
2	D	122	GLU	6.6
1	B	351	VAL	6.0
2	C	122	GLU	5.7
1	B	359	CYS	5.4
1	B	466	VAL	4.8
1	A	435	LEU	4.4
2	D	1	MET	4.3
2	C	43	SER	4.3
2	D	43	SER	3.6
1	A	422	ASP	3.6
1	B	364	TYR	3.5
1	A	466	VAL	3.3
1	A	364	TYR	3.3
2	D	76	ARG	3.3
1	A	419	HIS	3.3
1	A	418	ASP	3.2
1	A	243	ARG	3.2
1	B	352	LEU	3.1
1	A	360	PRO	3.0
1	B	326	LYS	3.0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	A	359	CYS	2.8
2	C	121	ASN	2.8
1	B	338	ASN	2.8
1	B	377	LEU	2.7
1	A	338	ASN	2.7
2	D	44	GLU	2.6
1	B	418	ASP	2.6
2	C	44	GLU	2.6
1	B	437	TYR	2.5
1	A	361	VAL	2.4
1	B	337	VAL	2.4
2	D	18	VAL	2.4
1	B	422	ASP	2.4
1	B	249	ARG	2.3
1	B	445	GLY	2.3
1	B	248	ASP	2.3
1	A	377	LEU	2.3
1	B	419	HIS	2.3
1	A	479	ASP	2.3
1	A	437	TYR	2.2
1	A	330	CYS	2.2
1	A	386	LYS	2.2
2	D	2	SER	2.2
1	A	363	ALA	2.2
1	B	330	CYS	2.2
2	D	121	ASN	2.2
1	A	245	LYS	2.1
2	C	45	PHE	2.1
1	A	373	VAL	2.1
2	D	69	GLN	2.1
1	B	246	ARG	2.1
1	A	420	ALA	2.1
1	B	420	ALA	2.1
2	C	80	ILE	2.0
1	B	400	GLU	2.0

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

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	BFD	C	53	12/13	0.96	0.16	37,40,42,44	4
2	BFD	D	53	12/13	0.96	0.17	37,42,45,46	4

### 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 6.4 Ligands [i](#)

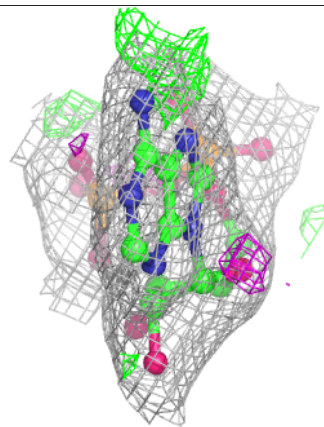
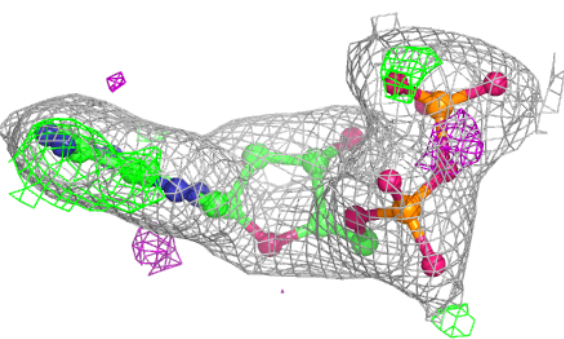
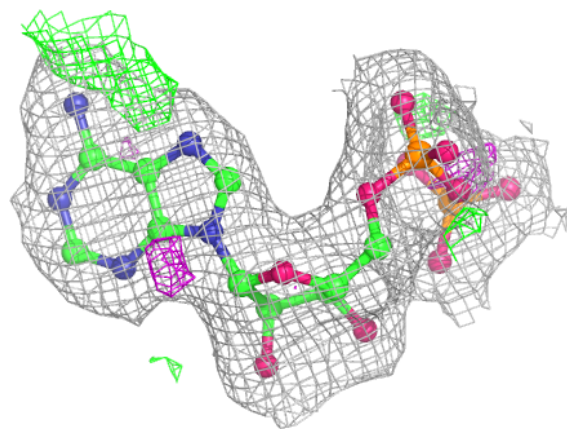
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

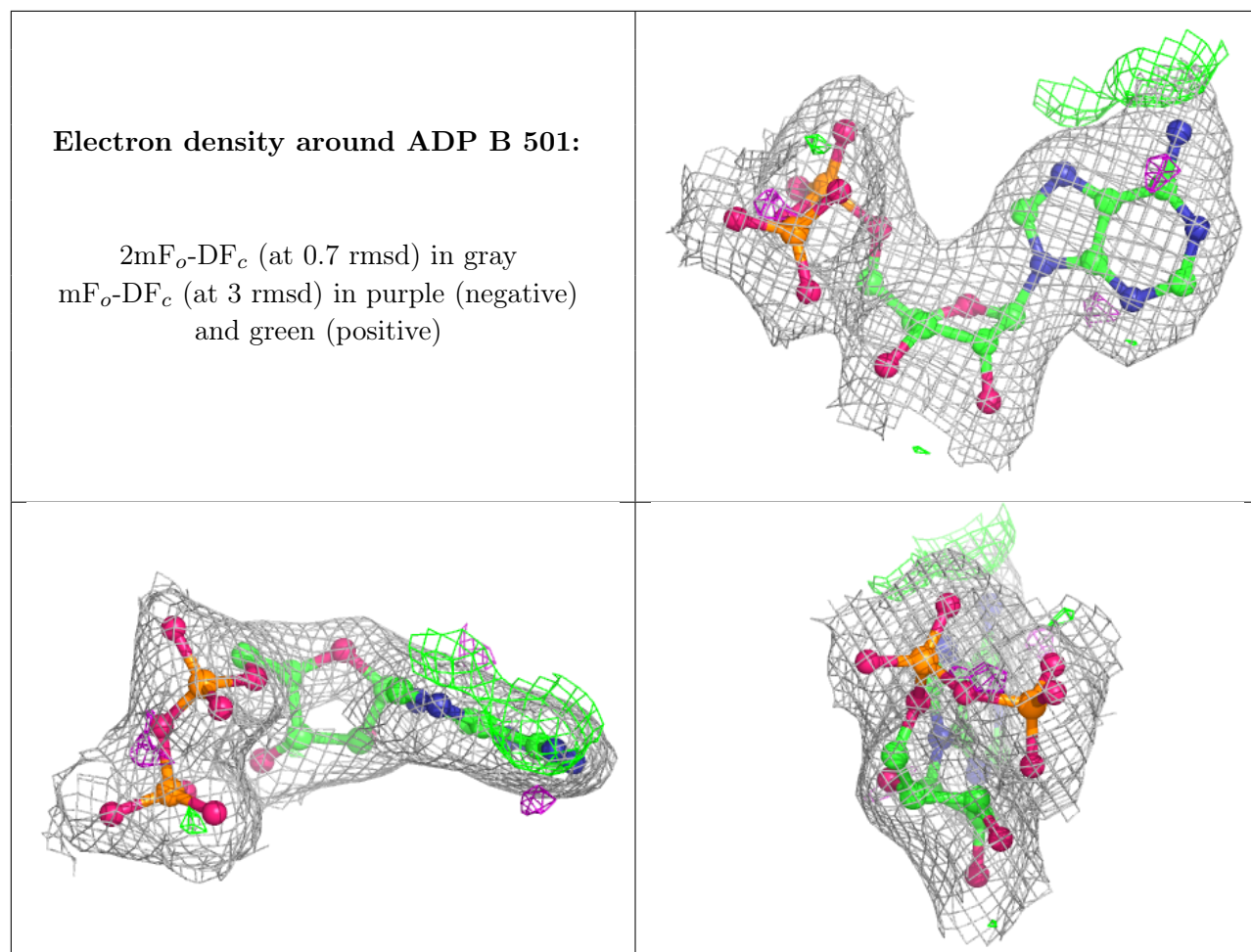
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
4	SO4	C	204	5/5	0.84	0.26	123,124,126,126	0
6	MG	C	201	1/1	0.87	0.07	43,43,43,43	0
5	CL	B	507	1/1	0.88	0.07	86,86,86,86	0
4	SO4	D	204	5/5	0.88	0.20	127,128,129,130	0
4	SO4	A	503	5/5	0.90	0.30	103,104,105,105	0
4	SO4	B	506	5/5	0.91	0.33	103,104,105,105	0
4	SO4	C	203	5/5	0.91	0.20	88,89,90,91	0
4	SO4	A	504	5/5	0.93	0.51	30,30,30,30	0
4	SO4	B	502	5/5	0.93	0.15	90,94,95,96	0
4	SO4	B	503	5/5	0.93	0.10	95,98,99,100	0
4	SO4	D	203	5/5	0.94	0.18	84,85,86,86	0
4	SO4	A	502	5/5	0.94	0.24	105,105,105,105	0
4	SO4	B	504	5/5	0.94	0.21	91,91,92,93	0
4	SO4	B	505	5/5	0.94	0.18	97,99,100,102	0
6	MG	D	201	1/1	0.94	0.08	44,44,44,44	0
3	ADP	A	501	27/27	0.95	0.13	38,40,41,41	0
4	SO4	C	202	5/5	0.96	0.09	70,71,74,74	0
3	ADP	B	501	27/27	0.96	0.12	38,39,42,44	0
4	SO4	D	202	5/5	0.97	0.10	79,80,82,82	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 ADP A 501:**

$2mF_o-DF_c$  (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.