



# Full wwPDB X-ray Structure Validation Report ⓘ

Jun 26, 2024 – 12:49 AM EDT

PDB ID : 6YCY  
Title : Plasmodium falciparum Myosin A full-length, post-rigor state  
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Deposited on : 2020-03-19  
Resolution : 2.55 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)  
Xtriage (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

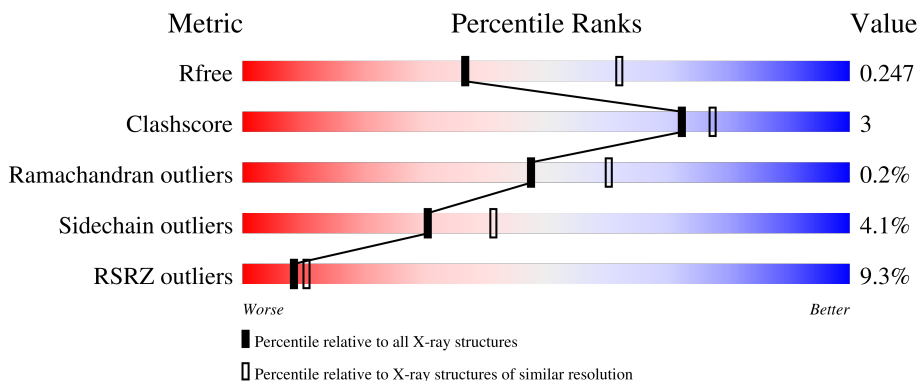
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.55 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	1284 (2.56-2.52)
Clashscore	141614	1332 (2.56-2.52)
Ramachandran outliers	138981	1315 (2.56-2.52)
Sidechain outliers	138945	1315 (2.56-2.52)
RSRZ outliers	127900	1272 (2.56-2.52)

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	818	
2	B	204	
3	E	134	

## 2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 8904 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 Myosin-A.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	N	O	P	S			
1	A	808	6439	4099	1097	1209	1	33	0	2	0

- Molecule 2 is a protein called Myosin A tail domain interacting protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	131	1051	661	167	218	5	0	0	0

- Molecule 3 is a protein called Myosin essential light chain ELC.

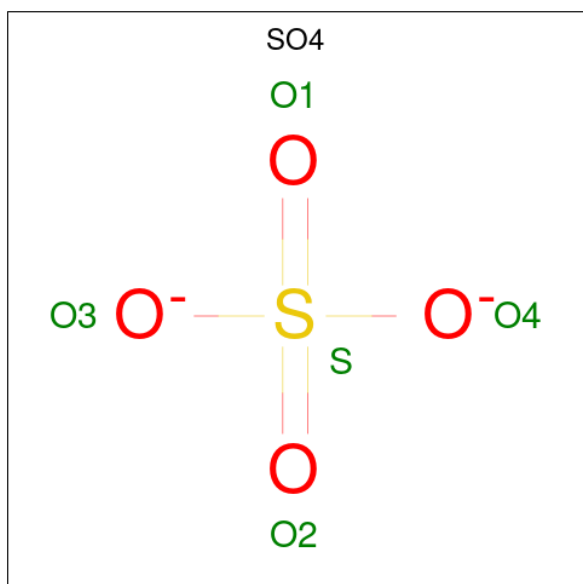
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	E	131	1077	687	175	209	6	0	0	0

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 4 2 2	0	0

- Molecule 5 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



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

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

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total Mg 1 1	0	0

- Molecule 7 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: C<sub>10</sub>H<sub>15</sub>N<sub>5</sub>O<sub>10</sub>P<sub>2</sub>) (labeled as "Ligand of Interest" by depositor).



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

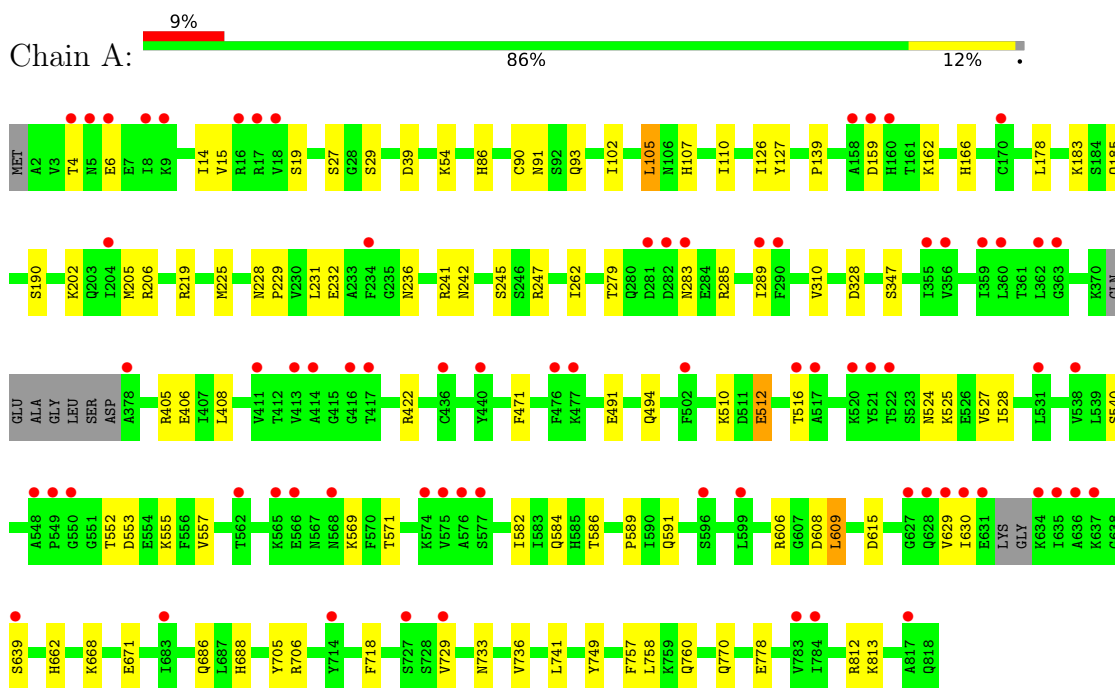
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	240	Total	O	0	0
			240	240		
8	B	16	Total	O	0	0
			16	16		
8	E	34	Total	O	0	0
			34	34		

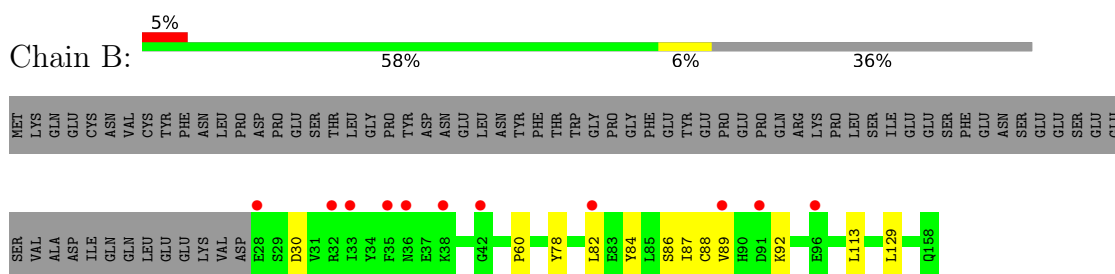
### 3 Residue-property plots [i](#)

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.

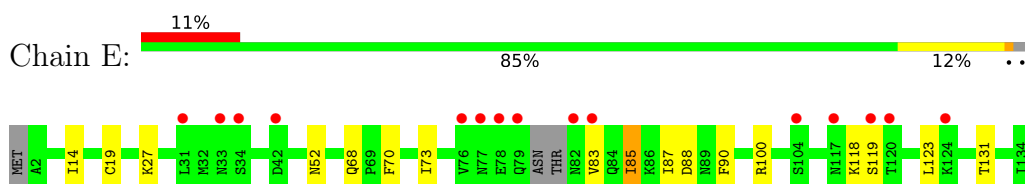
- Molecule 1: Myosin-A



- Molecule 2: Myosin A tail domain interacting protein



- Molecule 3: Myosin essential light chain ELC



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	89.67Å 114.69Å 169.46Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	25.70 – 2.55 25.57 – 2.55	Depositor EDS
% Data completeness (in resolution range)	99.8 (25.70-2.55) 99.8 (25.57-2.55)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.33 (at 2.54Å)	Xtrriage
Refinement program	BUSTER 2.10.2	Depositor
R, $R_{free}$	0.195 , 0.243 0.196 , 0.247	Depositor DCC
$R_{free}$ test set	2795 reflections (4.86%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	67.7	Xtrriage
Anisotropy	0.314	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.34 , 64.4	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	8904	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	79.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.08% 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: EDO, ADP, SEP, MG, SO4

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	0.50	0/6539	0.71	0/8813
2	B	0.47	0/1068	0.66	0/1440
3	E	0.51	0/1096	0.69	0/1476
All	All	0.50	0/8703	0.70	0/11729

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	6439	0	6552	48	0
2	B	1051	0	1005	5	0
3	E	1077	0	1057	7	0
4	A	4	0	6	0	0
5	A	10	0	0	1	0
5	E	5	0	0	0	0
6	A	1	0	0	0	0
7	A	27	0	12	0	0
8	A	240	0	0	1	0
8	B	16	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	E	34	0	0	0	0
All	All	8904	0	8632	58	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 3.

All (58) 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:93:GLN:HB3	3:E:100:ARG:HD2	1.65	0.79
1:A:91:ASN:HD21	1:A:107:HIS:H	1.31	0.77
1:A:185:GLN:NE2	1:A:662:HIS:HE1	1.89	0.71
1:A:668:LYS:H	1:A:686:GLN:HE22	1.39	0.68
3:E:85:ILE:HD13	3:E:90:PHE:HB2	1.77	0.67
1:A:705:TYR:HB3	1:A:758:LEU:HB2	1.79	0.64
1:A:91:ASN:HD21	1:A:107:HIS:N	1.98	0.62
1:A:185:GLN:HE21	1:A:662:HIS:HE1	1.47	0.62
1:A:582:ILE:HD11	1:A:589:PRO:HB2	1.82	0.62
1:A:185:GLN:HE21	1:A:662:HIS:CE1	2.18	0.61
1:A:571:THR:HB	1:A:582:ILE:HG23	1.85	0.59
1:A:39:ASP:OD1	1:A:86:HIS:HD2	1.86	0.57
3:E:70:PHE:HD2	3:E:131:THR:HG23	1.71	0.56
1:A:718:PHE:H	1:A:770:GLN:HE21	1.52	0.56
3:E:83:VAL:HG23	3:E:123:LEU:HB2	1.87	0.55
3:E:70:PHE:HB3	3:E:73:ILE:HD12	1.88	0.54
1:A:241:ARG:HD2	5:A:902:SO4:O4	2.06	0.54
2:B:60:PRO:HB3	2:B:88:CYS:SG	2.48	0.54
1:A:569:LYS:HA	1:A:584:GLN:HB2	1.90	0.54
1:A:408:LEU:HB3	1:A:422:ARG:HH12	1.72	0.53
1:A:494:GLN:HG2	1:A:586:THR:HG21	1.91	0.52
1:A:159:ASP:O	1:A:162:LYS:HG2	2.10	0.52
1:A:512:GLU:HG2	1:A:757:PHE:HE1	1.75	0.51
1:A:102:ILE:O	1:A:105:LEU:HB2	2.11	0.50
1:A:285:ARG:HD3	8:A:1003:HOH:O	2.11	0.50
1:A:527:VAL:HB	1:A:569:LYS:HD2	1.93	0.50
1:A:232:GLU:O	1:A:236:ASN:HB2	2.12	0.49
1:A:202:LYS:O	1:A:206[A]:ARG:HG3	2.13	0.49
1:A:159:ASP:HB3	1:A:162:LYS:HD3	1.95	0.48
1:A:4:THR:HG22	1:A:6:GLU:H	1.79	0.48
1:A:242:ASN:HB3	1:A:245:SER:HB2	1.96	0.48
1:A:512:GLU:HG2	1:A:757:PHE:CE1	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:14:ILE:HB	3:E:19:CYS:HA	1.97	0.47
1:A:15:VAL:HA	1:A:110:ILE:HD13	1.98	0.46
1:A:185:GLN:NE2	1:A:662:HIS:CE1	2.75	0.46
1:A:228:ASN:HB2	1:A:229:PRO:HD3	1.97	0.46
1:A:205:MET:HB3	1:A:225:MET:HE1	1.98	0.45
1:A:178:LEU:HA	1:A:183:LYS:O	2.17	0.45
1:A:225:MET:HE3	1:A:262:ILE:HD12	2.00	0.44
2:B:84:TYR:HA	2:B:87:ILE:HD12	2.00	0.43
2:B:86:SER:O	2:B:89:VAL:HG12	2.18	0.43
1:A:733:ASN:O	1:A:736:VAL:HG22	2.18	0.43
1:A:553:ASP:O	1:A:557:VAL:HG23	2.18	0.43
1:A:491:GLU:HB3	1:A:528:ILE:HD13	2.01	0.43
1:A:749:TYR:HB3	1:A:758:LEU:HD23	2.01	0.43
3:E:87:ILE:HD11	3:E:118:LYS:O	2.18	0.43
1:A:127:TYR:CD2	1:A:166:HIS:HA	2.54	0.43
1:A:126:ILE:HD13	1:A:139:PRO:HD3	2.01	0.42
1:A:524:ASN:O	1:A:528:ILE:HG12	2.19	0.42
1:A:582:ILE:HD12	1:A:591:GLN:HB2	2.01	0.42
1:A:285:ARG:HH22	1:A:328:ASP:CG	2.23	0.41
1:A:552:THR:HG23	1:A:555:LYS:H	1.85	0.41
1:A:14:ILE:HG21	1:A:688:HIS:HB2	2.02	0.41
1:A:406:GLU:HB3	1:A:609:LEU:HG	2.03	0.41
2:B:78:TYR:O	2:B:82:LEU:HG	2.21	0.41
1:A:510:LYS:HE3	1:A:516:THR:HG21	2.03	0.41
1:A:812:ARG:CZ	2:B:129:LEU:HD23	2.51	0.40
1:A:289:ILE:HD12	1:A:289:ILE:HA	1.97	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	803/818 (98%)	776 (97%)	26 (3%)	1 (0%)	51 65
2	B	129/204 (63%)	127 (98%)	2 (2%)	0	100 100
3	E	127/134 (95%)	118 (93%)	8 (6%)	1 (1%)	19 27
All	All	1059/1156 (92%)	1021 (96%)	36 (3%)	2 (0%)	47 60

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	629	VAL
3	E	119	SER

### 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	720/725 (99%)	689 (96%)	31 (4%)	29 39
2	B	117/186 (63%)	114 (97%)	3 (3%)	46 61
3	E	123/126 (98%)	118 (96%)	5 (4%)	30 41
All	All	960/1037 (93%)	921 (96%)	39 (4%)	30 41

All (39) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	27	SER
1	A	29	SER
1	A	54	LYS
1	A	90	CYS
1	A	105	LEU
1	A	190	SER
1	A	219	ARG
1	A	231	LEU
1	A	247	ARG
1	A	279	THR
1	A	283	ASN

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Mol	Chain	Res	Type
1	A	310	VAL
1	A	347	SER
1	A	405	ARG
1	A	471	PHE
1	A	512	GLU
1	A	525	LYS
1	A	540	SER
1	A	606	ARG
1	A	608	ASP
1	A	609	LEU
1	A	615	ASP
1	A	630	ILE
1	A	639	SER
1	A	671	GLU
1	A	706	ARG
1	A	729	VAL
1	A	741	LEU
1	A	760	GLN
1	A	778	GLU
1	A	813	LYS
2	B	30	ASP
2	B	92	LYS
2	B	113	LEU
3	E	27	LYS
3	E	52	ASN
3	E	68	GLN
3	E	85	ILE
3	E	88	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	20	ASN
1	A	86	HIS
1	A	91	ASN
1	A	185	GLN
1	A	288	HIS
1	A	545	GLN
1	A	585	HIS
1	A	591	GLN
1	A	654	ASN
1	A	662	HIS

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Mol	Chain	Res	Type
1	A	686	GLN
1	A	731	ASN
1	A	760	GLN
1	A	770	GLN
1	A	810	HIS
2	B	104	HIS
3	E	33	ASN
3	E	74	ASN
3	E	117	ASN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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
1	SEP	A	19	1	8,9,10	1.75	2 (25%)	8,12,14	3.62	3 (37%)

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
1	SEP	A	19	1	-	1/5/8/10	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	19	SEP	P-OG	-3.25	1.49	1.60
1	A	19	SEP	P-O1P	2.79	1.59	1.50

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	19	SEP	OG-CB-CA	8.00	115.93	108.14
1	A	19	SEP	O2P-P-OG	4.30	118.17	106.73
1	A	19	SEP	P-OG-CB	-3.88	107.61	118.30

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	19	SEP	N-CA-CB-OG

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 6 ligands modelled in this entry, 1 is monoatomic - leaving 5 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	EDO	A	901	-	3,3,3	0.64	0	2,2,2	0.22	0
5	SO4	A	902	-	4,4,4	0.37	0	6,6,6	0.59	0
5	SO4	A	903	-	4,4,4	0.29	0	6,6,6	0.25	0
5	SO4	E	201	-	4,4,4	0.44	0	6,6,6	0.46	0
7	ADP	A	905	6	24,29,29	0.68	0	29,45,45	0.92	3 (10%)

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
4	EDO	A	901	-	-	0/1/1/1	-
7	ADP	A	905	6	-	0/12/32/32	0/3/3/3

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	A	905	ADP	O5'-PA-O1A	2.18	117.59	109.07
7	A	905	ADP	C5-C6-N6	2.16	123.64	120.35
7	A	905	ADP	O3'-C3'-C2'	2.02	118.34	111.82

There are no chirality outliers.

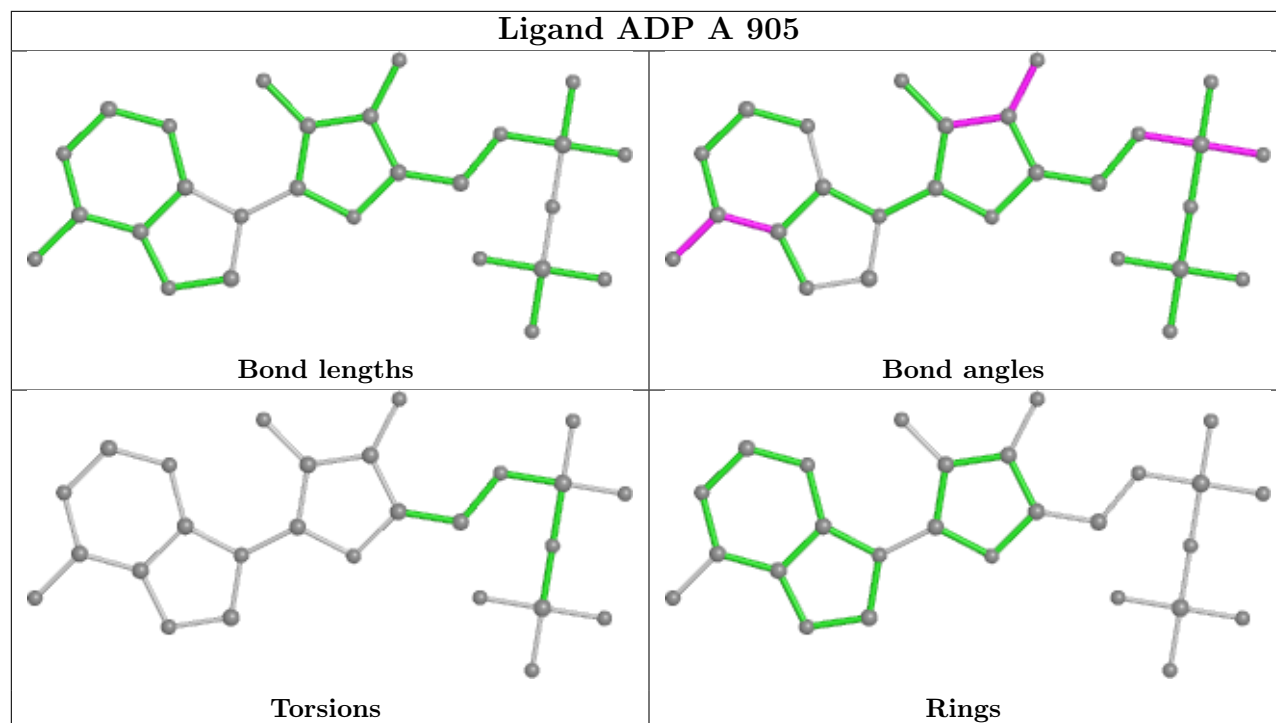
There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	902	SO4	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.



## 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	807/818 (98%)	0.41	73 (9%) <b>9</b> <b>11</b>	46, 73, 115, 153	0
2	B	131/204 (64%)	0.25	11 (8%) <b>11</b> <b>13</b>	57, 86, 116, 138	0
3	E	131/134 (97%)	0.53	15 (11%) <b>4</b> <b>6</b>	55, 84, 139, 161	0
All	All	1069/1156 (92%)	0.41	99 (9%) <b>8</b> <b>10</b>	46, 75, 120, 161	0

All (99) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	575	VAL	7.6
1	A	630	ILE	6.5
1	A	566	GLU	5.7
2	B	28	GLU	5.6
3	E	82	ASN	5.4
1	A	18	VAL	5.4
1	A	289	ILE	5.2
2	B	91	ASP	5.1
1	A	577	SER	5.1
3	E	119	SER	4.2
1	A	538	VAL	4.1
1	A	576	ALA	4.0
1	A	574	LYS	4.0
1	A	550	GLY	4.0
2	B	42	GLY	4.0
1	A	9	LYS	3.9
1	A	5	ASN	3.9
3	E	76	VAL	3.8
3	E	34	SER	3.7
1	A	549	PRO	3.7
1	A	548	ALA	3.7
1	A	356	VAL	3.5
1	A	784	ILE	3.4

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
3	E	79	GLN	3.4
1	A	568	ASN	3.4
1	A	783	VAL	3.4
1	A	4	THR	3.4
1	A	520	LYS	3.3
1	A	362	LEU	3.3
1	A	359	ILE	3.3
1	A	521	TYR	3.3
1	A	158	ALA	3.2
3	E	77	ASN	3.2
1	A	517	ALA	3.1
1	A	378	ALA	3.1
1	A	414	ALA	3.1
1	A	629	VAL	3.1
1	A	160	HIS	3.1
1	A	636	ALA	3.0
1	A	635	ILE	3.0
1	A	631	GLU	3.0
1	A	440	TYR	3.0
1	A	729	VAL	2.9
3	E	117	ASN	2.9
3	E	120	THR	2.9
1	A	683	ILE	2.9
1	A	234	PHE	2.9
1	A	413	VAL	2.8
3	E	78	GLU	2.8
1	A	204	ILE	2.8
1	A	290	PHE	2.8
1	A	355	ILE	2.8
2	B	89	VAL	2.8
1	A	714	TYR	2.8
1	A	634	LYS	2.8
1	A	436	CYS	2.7
2	B	36	ASN	2.7
1	A	360	LEU	2.7
1	A	531	LEU	2.7
3	E	33	ASN	2.7
1	A	159	ASP	2.7
1	A	416	GLY	2.7
1	A	477	LYS	2.6
1	A	282	ASP	2.6
1	A	562	THR	2.6

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Mol	Chain	Res	Type	RSRZ
2	B	33	ILE	2.5
1	A	6	GLU	2.5
1	A	283	ASN	2.5
1	A	363	GLY	2.5
1	A	502	PHE	2.4
1	A	281	ASP	2.4
2	B	38	LYS	2.4
2	B	96	GLU	2.4
1	A	8	ILE	2.4
1	A	599	LEU	2.4
1	A	417	THR	2.4
1	A	627	GLY	2.3
1	A	637	LYS	2.3
2	B	82	LEU	2.3
1	A	17	ARG	2.3
1	A	522	THR	2.3
3	E	83	VAL	2.3
1	A	516	THR	2.3
1	A	565	LYS	2.3
1	A	16	ARG	2.2
1	A	476	PHE	2.2
1	A	596	SER	2.2
1	A	639	SER	2.2
1	A	170	CYS	2.2
3	E	42	ASP	2.1
2	B	35	PHE	2.1
3	E	31	LEU	2.1
3	E	104	SER	2.1
3	E	124	LYS	2.1
1	A	817	ALA	2.1
1	A	411	VAL	2.1
2	B	32	ARG	2.1
1	A	628	GLN	2.0
1	A	727	SER	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
1	SEP	A	19	10/11	0.88	0.20	96,99,105,106	0

### 6.3 Carbohydrates [i](#)

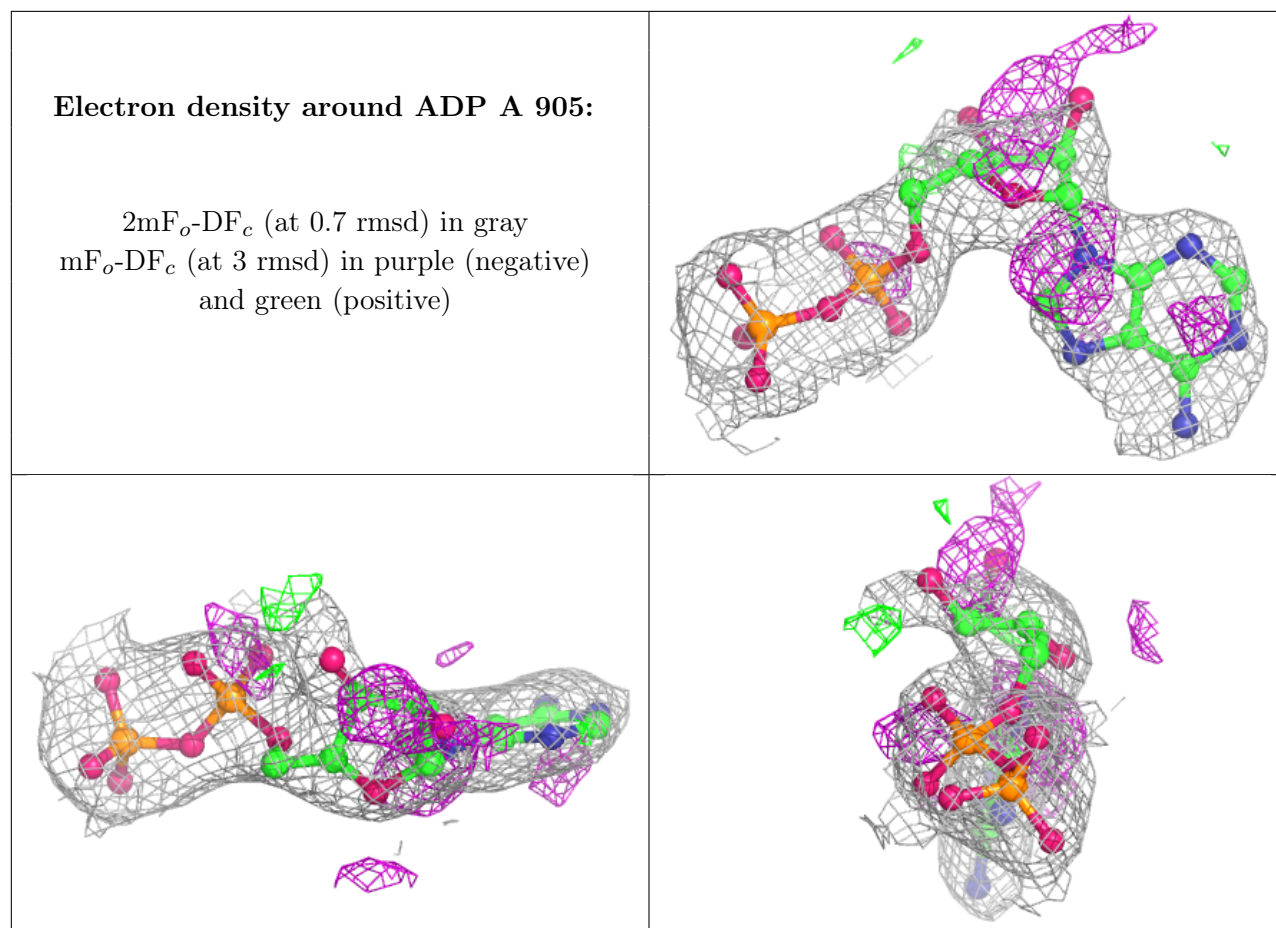
There are no monosaccharides in this entry.

### 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	EDO	A	901	4/4	0.90	0.16	75,76,76,76	0
6	MG	A	904	1/1	0.90	0.06	68,68,68,68	0
7	ADP	A	905	27/27	0.94	0.22	61,81,88,91	0
5	SO4	A	902	5/5	0.95	0.11	81,83,88,90	0
5	SO4	A	903	5/5	0.95	0.20	101,103,105,106	0
5	SO4	E	201	5/5	0.96	0.12	85,88,90,90	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.