



Full wwPDB X-ray Structure Validation Report ⓘ

May 22, 2020 – 01:12 pm BST

PDB ID : 6I5F
Title : Crystal structure of DNA-free E.coli MutS P839E dimer mutant
Authors : Bhairosing-Kok, D.; Groothuizen, F.S.; Fish, A.; Dharadhar, S.; Winterwerp, H.H.K.; Sixma, T.K.
Deposited on : 2018-11-13
Resolution : 2.60 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The 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 : 2.11
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) : 2.11

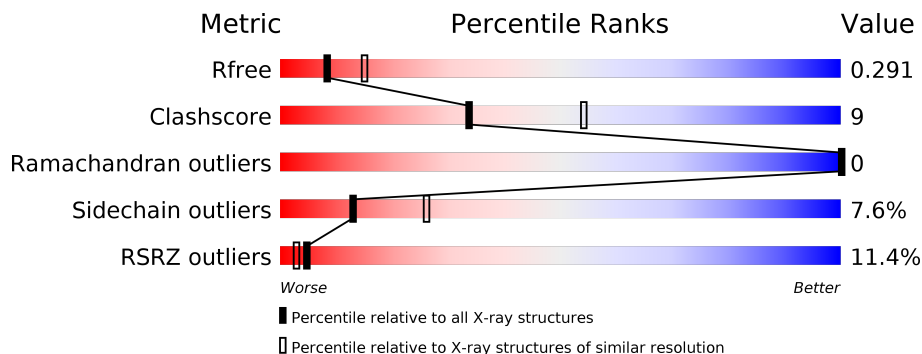
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	853	<div style="display: flex; align-items: center;"> <div style="width: 8%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 71%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 11%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center; margin-top: 5px;">8% 71% 16% • 11%</p>
1	B	853	<div style="display: flex; align-items: center;"> <div style="width: 12%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 71%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 9%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center; margin-top: 5px;">12% 71% 17% • 9%</p>

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 12451 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 DNA mismatch repair protein MutS.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	760	6000	3782	1065	1124	29	0	0	0
1	B	777	6134	3861	1093	1151	29	0	1	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	839	GLU	PRO	engineered mutation	UNP P23909
B	839	GLU	PRO	engineered mutation	UNP P23909

- Molecule 2 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



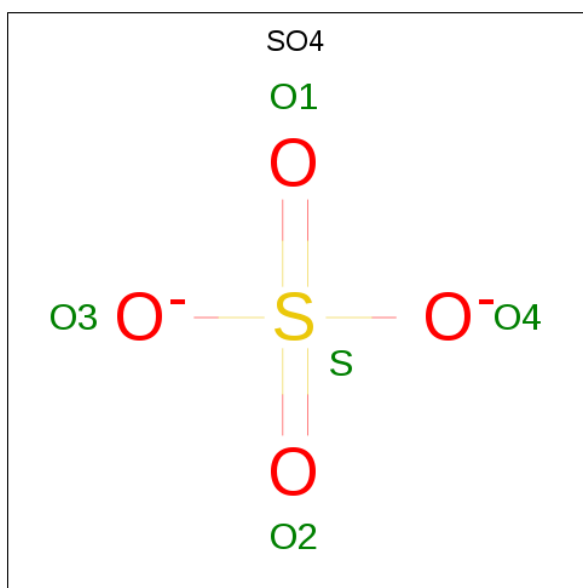
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
2	A	1	6	3	3	0	0

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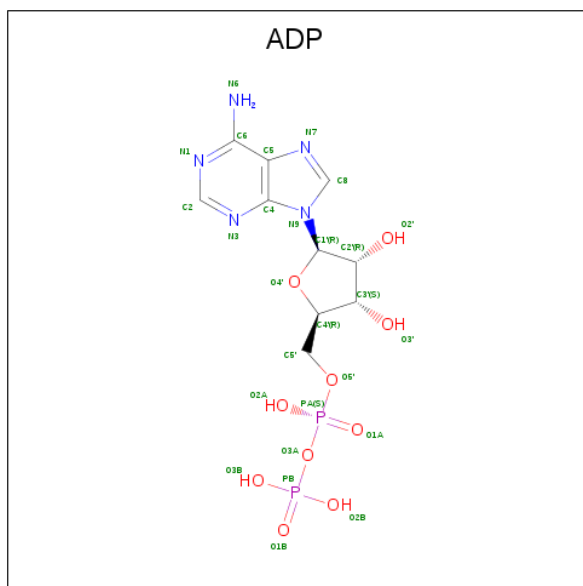
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 6 3 3	0	0
2	A	1	Total C O 6 3 3	0	0
2	A	1	Total C O 6 3 3	0	0
2	A	1	Total C O 6 3 3	0	0
2	A	1	Total C O 6 3 3	0	0
2	A	1	Total C O 6 3 3	0	0
2	A	1	Total C O 6 3 3	0	0
2	A	1	Total C O 6 3 3	0	0
2	A	1	Total C O 6 3 3	0	0
2	A	1	Total C O 6 3 3	0	0
2	B	1	Total C O 6 3 3	0	0
2	B	1	Total C O 6 3 3	0	0
2	B	1	Total C O 6 3 3	0	0

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



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

- Molecule 4 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).



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

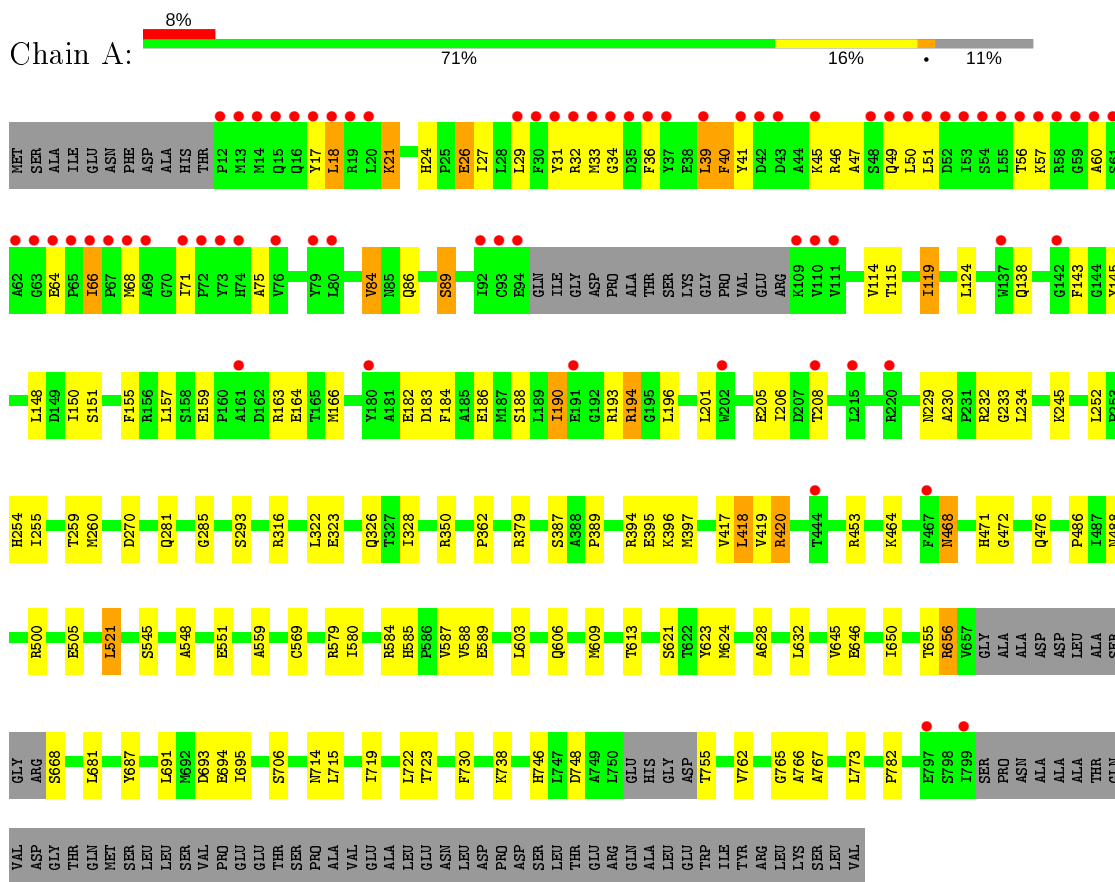
- Molecule 5 is water.

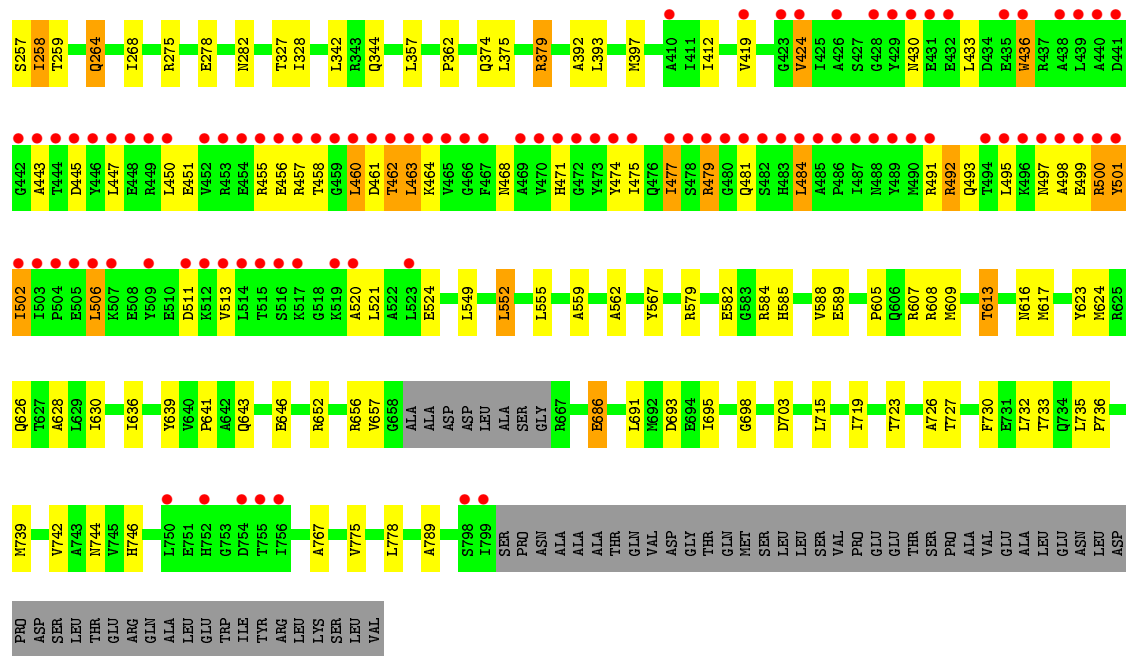
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	76	Total 76	O 76	0	0
5	B	64	Total 64	O 64	0	0

3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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: DNA mismatch repair protein MutS





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	113.38Å 113.53Å 158.90Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	71.61 – 2.60 71.61 – 2.60	Depositor EDS
% Data completeness (in resolution range)	97.6 (71.61-2.60) 97.6 (71.61-2.60)	Depositor EDS
R_{merge}	0.30	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.52 (at 2.62Å)	Xtrriage
Refinement program	BUSTER	Depositor
R, R_{free}	0.206 , 0.257 0.231 , 0.291	Depositor DCC
R_{free} test set	3051 reflections (4.91%)	wwPDB-VP
Wilson B-factor (Å ²)	32.2	Xtrriage
Anisotropy	0.224	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 72.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtrriage
Estimated twinning fraction	0.030 for k,h,-l	Xtrriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	12451	wwPDB-VP
Average B, all atoms (Å ²)	59.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.26% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, 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	0.54	0/6099	0.75	1/8251 (0.0%)
1	B	0.53	0/6248	0.82	4/8454 (0.0%)
All	All	0.53	0/12347	0.78	5/16705 (0.0%)

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	2
1	B	0	6
All	All	0	8

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	154[A]	ARG	CA-CB-CG	24.21	166.66	113.40
1	B	154[B]	ARG	CA-CB-CG	24.21	166.66	113.40
1	A	64	GLU	CB-CA-C	6.26	122.92	110.40
1	B	154[A]	ARG	CB-CA-C	5.05	120.50	110.40
1	B	154[B]	ARG	CB-CA-C	5.05	120.50	110.40

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	32	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	A	420	ARG	Sidechain
1	B	108	ARG	Sidechain
1	B	379	ARG	Sidechain
1	B	455	ARG	Sidechain
1	B	457	ARG	Sidechain
1	B	479	ARG	Sidechain
1	B	500	ARG	Sidechain

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	6000	0	6069	100	0
1	B	6134	0	6176	115	0
2	A	60	0	80	13	0
2	B	18	0	24	1	0
3	A	25	0	0	0	0
3	B	20	0	0	0	0
4	A	27	0	12	0	0
4	B	27	0	12	0	0
5	A	76	0	0	2	0
5	B	64	0	0	0	0
All	All	12451	0	12373	211	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.

All (211) 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:183:ASP:OD1	1:A:201:LEU:HD21	1.68	0.93
1:B:463:LEU:HD21	1:B:475:ILE:HG22	1.55	0.87
1:B:479:ARG:HG2	1:B:498:ALA:CB	2.06	0.85
1:A:39:LEU:C	1:A:40:PHE:CD1	2.53	0.82
1:B:379:ARG:HG3	1:B:397:MET:CE	2.14	0.78
1:B:31:TYR:CZ	1:B:108:ARG:HD3	2.19	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:479:ARG:CG	1:B:498:ALA:CB	2.66	0.74
1:B:479:ARG:HG2	1:B:498:ALA:HB1	1.70	0.73
1:B:31:TYR:CZ	1:B:108:ARG:CD	2.73	0.71
1:A:39:LEU:C	1:A:40:PHE:HD1	1.94	0.70
1:B:443:ALA:HB1	1:B:513:VAL:HG13	1.75	0.68
1:B:93:CYS:SG	1:B:108:ARG:HG2	2.33	0.68
1:B:278:GLU:HG2	1:B:282:ASN:HA	1.76	0.66
1:B:31:TYR:OH	1:B:108:ARG:HD2	1.96	0.66
1:B:463:LEU:HD21	1:B:475:ILE:CG2	2.22	0.66
1:B:479:ARG:HG3	1:B:498:ALA:HB2	1.77	0.66
1:A:145:TYR:HB2	1:A:166:MET:HE1	1.77	0.65
1:A:56:THR:OG1	1:A:68:MET:HB3	1.96	0.65
1:B:479:ARG:NH2	1:B:497:ASN:O	2.29	0.64
1:B:730:PHE:HE2	1:B:767:ALA:HB3	1.62	0.64
1:A:60:ALA:HB2	1:A:66:ILE:HG13	1.78	0.64
1:B:479:ARG:CG	1:B:498:ALA:HB2	2.28	0.64
1:A:476:GLN:HG3	1:A:500:ARG:HG2	1.78	0.64
1:A:394:ARG:HH22	2:A:909:GOL:H12	1.62	0.63
1:B:463:LEU:CD2	1:B:475:ILE:CG2	2.77	0.63
1:A:656:ARG:HG2	1:A:656:ARG:HH11	1.64	0.63
1:A:190:ILE:HG13	1:A:190:ILE:O	1.99	0.62
1:B:463:LEU:CD2	1:B:475:ILE:HG22	2.28	0.62
1:A:328:ILE:HG23	1:A:559:ALA:HA	1.82	0.62
1:B:93:CYS:SG	1:B:108:ARG:CG	2.88	0.62
1:A:190:ILE:HG13	1:A:196:LEU:HD21	1.83	0.61
1:A:394:ARG:HH12	2:A:909:GOL:H31	1.64	0.61
1:A:316:ARG:HH22	2:A:910:GOL:H12	1.67	0.60
1:A:681:LEU:HD22	1:A:714:ASN:HD22	1.67	0.59
1:B:477:ILE:HG13	1:B:501:TYR:CE2	2.37	0.59
1:B:463:LEU:HG	1:B:477:ILE:HG23	1.84	0.59
1:A:39:LEU:HD12	1:A:40:PHE:H	1.67	0.59
1:A:766:ALA:H	2:A:903:GOL:H2	1.68	0.58
1:A:569:CYS:SG	2:A:902:GOL:H31	2.43	0.58
1:A:584:ARG:HD2	1:A:589:GLU:OE1	2.03	0.58
1:B:477:ILE:O	1:B:498:ALA:HB3	2.03	0.58
1:B:268:ILE:O	1:B:652:ARG:HG3	2.03	0.57
1:A:500:ARG:HH12	2:A:907:GOL:H2	1.68	0.57
1:B:579:ARG:HB2	1:B:646:GLU:HB2	1.86	0.57
1:B:605:PRO:O	1:B:608:ARG:HD3	2.05	0.57
1:A:40:PHE:N	1:A:40:PHE:CD1	2.73	0.57
1:A:39:LEU:O	1:A:40:PHE:HD1	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:477:ILE:HG13	1:B:501:TYR:HE2	1.70	0.56
1:A:281:GLN:HE21	1:A:285:GLY:HA2	1.71	0.56
1:B:379:ARG:CG	1:B:397:MET:CE	2.83	0.56
1:A:151:SER:HB3	1:A:350:ARG:HG2	1.88	0.56
1:A:379:ARG:HH22	2:A:909:GOL:H11	1.71	0.56
1:B:624:MET:HE3	1:B:726:ALA:HB2	1.87	0.56
1:B:31:TYR:CZ	1:B:108:ARG:HD2	2.41	0.55
1:A:603:LEU:HD13	1:A:722:LEU:HB3	1.88	0.55
1:B:10:HIS:HB3	1:B:14:MET:HB3	1.88	0.55
1:B:474:TYR:CD1	1:B:500:ARG:HB2	2.41	0.55
1:B:463:LEU:HG	1:B:477:ILE:HD13	1.87	0.55
1:A:163:ARG:HD2	1:A:186:GLU:OE1	2.07	0.54
1:A:505:GLU:HB2	5:A:1046:HOH:O	2.06	0.54
1:A:730:PHE:HE2	1:A:767:ALA:HB3	1.73	0.54
1:B:109:LYS:HG2	1:B:110:VAL:N	2.21	0.54
1:B:462:THR:O	1:B:462:THR:OG1	2.05	0.54
1:B:375:LEU:HD22	1:B:397:MET:HG2	1.90	0.54
1:A:34:GLY:O	1:A:36:PHE:CD2	2.61	0.54
1:B:477:ILE:HG22	1:B:481:GLN:HE21	1.73	0.54
1:A:603:LEU:HB3	1:A:722:LEU:HD22	1.90	0.53
1:A:193:ARG:HB3	1:A:196:LEU:HD13	1.90	0.53
1:A:782:PRO:HA	2:A:906:GOL:H11	1.90	0.53
1:A:27:ILE:HG13	1:A:89:SER:HB2	1.91	0.53
1:B:479:ARG:HG2	1:B:498:ALA:CA	2.38	0.53
1:A:585:HIS:HD2	1:A:587:VAL:H	1.55	0.52
1:B:479:ARG:CG	1:B:498:ALA:HA	2.39	0.52
1:A:45:LYS:O	1:A:49:GLN:HB2	2.10	0.52
1:B:268:ILE:HB	1:B:652:ARG:HD2	1.92	0.52
1:B:157:LEU:HD13	1:B:233:GLY:HA3	1.90	0.52
1:A:628:ALA:HB2	1:A:691:LEU:HD11	1.92	0.52
1:B:736:PRO:HG2	1:B:744:ASN:HD22	1.75	0.51
1:B:327:THR:HG21	1:B:555:LEU:HD13	1.93	0.51
1:B:562:ALA:HA	1:B:567:TYR:HB2	1.93	0.51
1:A:143:PHE:O	1:A:232:ARG:HD2	2.11	0.51
1:B:609:MET:HG3	1:B:723:THR:HB	1.92	0.51
1:B:628:ALA:HB2	1:B:691:LEU:HD11	1.91	0.51
1:B:137:TRP:HZ3	1:B:232:ARG:HG2	1.76	0.50
1:B:31:TYR:CE1	1:B:108:ARG:HD3	2.46	0.50
1:B:623:TYR:O	1:B:626:GLN:HG2	2.12	0.50
1:B:477:ILE:CG1	1:B:501:TYR:HE2	2.24	0.50
1:B:727:THR:HG21	1:B:732:LEU:HD12	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:205:GLU:HB3	1:A:208:THR:HG22	1.94	0.50
1:A:26:GLU:HG2	1:A:27:ILE:HD12	1.93	0.50
1:B:500:ARG:HG3	1:B:500:ARG:O	2.11	0.50
1:A:420:ARG:O	1:A:521:LEU:HD21	2.12	0.50
1:A:579:ARG:HB2	1:A:646:GLU:HB2	1.92	0.50
1:A:316:ARG:HH22	2:A:910:GOL:C1	2.25	0.49
1:A:387:SER:OG	1:A:389:PRO:HD2	2.12	0.49
1:A:746:HIS:HD2	1:A:765:GLY:O	1.95	0.49
1:B:179:LEU:HD12	1:B:197:ARG:HB2	1.92	0.49
1:B:328:ILE:HG23	1:B:559:ALA:HA	1.95	0.49
1:B:29:LEU:HD11	1:B:93:CYS:HB2	1.95	0.49
1:A:418:LEU:HD23	1:A:419:VAL:H	1.78	0.49
1:B:498:ALA:O	1:B:499:GLU:HG3	2.12	0.49
1:A:585:HIS:CD2	1:A:588:VAL:H	2.30	0.49
1:A:585:HIS:CD2	1:A:588:VAL:HG23	2.47	0.49
1:B:178:LEU:HB3	1:B:196:LEU:HD23	1.94	0.48
1:A:453:ARG:HD2	5:A:1007:HOH:O	2.12	0.48
1:B:342:LEU:HD11	1:B:552:LEU:HD23	1.95	0.48
1:B:492:ARG:HD3	1:B:502:ILE:HG12	1.96	0.48
1:B:436:TRP:HB3	1:B:520:ALA:HB2	1.95	0.48
1:A:362:PRO:HD2	1:A:417:VAL:O	2.13	0.48
1:B:51:LEU:HD11	1:B:83:LEU:HD21	1.95	0.48
1:B:477:ILE:CD1	1:B:501:TYR:HE2	2.26	0.48
1:B:616:ASN:HB2	1:B:775:VAL:HG21	1.95	0.48
1:A:245:LYS:HG3	1:A:252:LEU:HD12	1.96	0.48
1:A:468:ASN:ND2	1:A:471:HIS:H	2.12	0.48
1:B:630:ILE:HG12	1:B:641:PRO:HD2	1.96	0.48
1:A:31:TYR:CD1	1:A:40:PHE:HZ	2.32	0.47
1:A:396:LYS:HD3	1:A:548:ALA:HB2	1.97	0.47
1:A:46:ARG:O	1:A:49:GLN:N	2.46	0.47
1:A:624:MET:HE1	1:A:693:ASP:HB2	1.95	0.47
1:B:155:PHE:CD2	1:B:258:ILE:HG12	2.50	0.47
1:B:735:LEU:HD22	1:B:739:MET:HE1	1.97	0.47
1:B:227:VAL:HG21	1:B:258:ILE:CG2	2.44	0.47
1:B:479:ARG:HG2	1:B:498:ALA:HA	1.97	0.47
1:A:293:SER:HA	2:A:901:GOL:H2	1.97	0.47
1:A:138:GLN:HB2	1:A:184:PHE:CE1	2.50	0.47
1:B:375:LEU:O	1:B:379:ARG:HG3	2.14	0.47
1:B:468:ASN:HB3	1:B:471:HIS:HB2	1.96	0.46
1:A:186:GLU:C	1:A:188:SER:H	2.19	0.46
1:A:41:TYR:O	1:A:41:TYR:CG	2.69	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:495:LEU:C	1:B:495:LEU:HD13	2.36	0.46
1:A:694:GLU:OE1	1:B:698:GLY:HA2	2.15	0.46
1:B:264:GLN:H	1:B:264:GLN:HE21	1.63	0.46
1:B:160:PRO:HB3	1:B:165:THR:HG22	1.97	0.46
1:A:41:TYR:O	1:A:41:TYR:CD2	2.69	0.46
1:A:730:PHE:CE2	1:A:767:ALA:HB3	2.50	0.46
1:A:194:ARG:H	1:A:194:ARG:HD3	1.82	0.45
1:A:585:HIS:O	1:A:589:GLU:HG2	2.16	0.45
1:B:463:LEU:HD22	1:B:475:ILE:HG23	1.98	0.45
1:B:585:HIS:HB3	1:B:588:VAL:HB	1.98	0.45
1:B:609:MET:HB3	1:B:742:VAL:HG22	1.99	0.45
1:A:322:LEU:O	1:A:326:GLN:HG3	2.16	0.45
1:A:551:GLU:OE2	2:A:905:GOL:H32	2.17	0.45
1:A:60:ALA:CB	1:A:66:ILE:CG1	2.95	0.45
1:B:493:GLN:CB	1:B:499:GLU:HG2	2.47	0.45
1:B:392:ALA:HB2	2:B:902:GOL:H31	1.99	0.45
1:B:477:ILE:HD11	1:B:501:TYR:HE2	1.82	0.45
1:B:657:VAL:HA	1:B:693:ASP:HB3	1.98	0.45
1:B:344:GLN:HB2	1:B:374:GLN:HG3	1.99	0.44
1:B:21:LYS:HE2	1:B:43:ASP:OD1	2.17	0.44
1:A:650:ILE:HA	1:A:687:TYR:O	2.18	0.44
1:B:430:ASN:HD22	1:B:433:LEU:HB2	1.82	0.44
1:B:447:LEU:HD23	1:B:450:LEU:HD13	1.99	0.44
1:A:119:ILE:HG21	1:A:124:LEU:HB2	2.00	0.44
1:B:379:ARG:HG3	1:B:397:MET:HE2	1.95	0.44
1:B:479:ARG:HG3	1:B:498:ALA:CB	2.41	0.44
1:B:479:ARG:CG	1:B:498:ALA:CA	2.95	0.44
1:B:362:PRO:HB3	1:B:424:VAL:HG21	2.00	0.44
1:B:567:TYR:HB3	1:B:639:TYR:HB3	1.99	0.44
1:B:585:HIS:O	1:B:589:GLU:HG2	2.18	0.43
1:A:18:LEU:HD12	1:A:21:LYS:HB3	2.01	0.43
1:A:613:THR:HG23	1:A:767:ALA:H	1.83	0.43
1:A:47:ALA:O	1:A:51:LEU:HB2	2.18	0.43
1:B:450:LEU:HD11	1:B:506:LEU:HD13	1.99	0.43
1:A:715:LEU:HA	1:A:719:ILE:HB	1.99	0.43
1:A:24:HIS:HB2	1:A:27:ILE:HD13	2.01	0.43
1:A:148:LEU:HD11	1:A:255:ILE:HG12	2.00	0.43
1:B:156:ARG:HD3	1:B:259:THR:HB	2.01	0.43
1:B:206:ILE:HG13	1:B:206:ILE:H	1.49	0.43
1:B:493:GLN:HB3	1:B:499:GLU:HG2	2.01	0.42
1:A:706:SER:HB3	1:B:789:ALA:O	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:89:SER:HB3	1:A:115:THR:HG22	2.01	0.42
1:B:393:LEU:HD13	1:B:552:LEU:HD12	2.01	0.42
1:B:686:GLU:H	1:B:686:GLU:HG3	1.59	0.42
1:A:472:GLY:HA2	1:B:484:LEU:HD11	2.02	0.42
1:A:580:ILE:HG12	1:A:645:VAL:HG22	2.00	0.42
1:A:624:MET:HB3	1:A:691:LEU:HD22	2.02	0.42
1:A:84:VAL:HG21	1:A:114:VAL:HG12	2.01	0.42
1:B:375:LEU:HD21	1:B:549:LEU:HD11	2.01	0.42
1:B:613:THR:O	1:B:746:HIS:HA	2.19	0.42
1:B:436:TRP:HA	1:B:436:TRP:CE3	2.55	0.42
1:B:450:LEU:HD21	1:B:506:LEU:HD13	2.02	0.42
1:B:479:ARG:HD3	1:B:498:ALA:HA	2.02	0.42
1:A:655:THR:HG22	1:A:691:LEU:HD12	2.02	0.41
1:A:632:LEU:C	1:A:632:LEU:HD23	2.41	0.41
1:A:60:ALA:CB	1:A:66:ILE:HG13	2.49	0.41
1:B:184:PHE:CE2	1:B:190:ILE:HD12	2.56	0.41
1:A:163:ARG:CD	1:A:186:GLU:OE1	2.68	0.41
1:B:735:LEU:HD22	1:B:739:MET:CE	2.50	0.41
1:A:157:LEU:HD13	1:A:233:GLY:HA3	2.01	0.41
1:B:119:ILE:HG21	1:B:124:LEU:HB3	2.02	0.41
1:B:225:PHE:HB3	1:B:258:ILE:O	2.20	0.41
1:B:460:LEU:HD22	1:B:477:ILE:HG21	2.01	0.41
1:A:623:TYR:CE1	1:A:762:VAL:HG21	2.55	0.41
1:A:579:ARG:O	1:A:645:VAL:HA	2.21	0.41
1:A:163:ARG:HG3	1:A:186:GLU:OE1	2.21	0.41
1:B:27:ILE:CG2	1:B:89:SER:HB2	2.50	0.41
1:A:157:LEU:O	1:A:260:MET:HA	2.20	0.41
1:A:397:MET:HA	1:A:545:SER:HA	2.02	0.40
1:A:46:ARG:HA	1:A:49:GLN:HB3	2.03	0.40
1:A:75:ALA:HB2	1:B:74:HIS:HD2	1.86	0.40
1:A:230:ALA:O	1:A:234:LEU:HG	2.21	0.40
1:A:159:GLU:HG2	1:A:232:ARG:HB2	2.02	0.40
1:B:715:LEU:HA	1:B:719:ILE:HB	2.03	0.40
1:B:733:THR:HA	1:B:744:ASN:HD21	1.86	0.40
1:A:323:GLU:HB2	2:A:905:GOL:H11	2.03	0.40
1:A:486:PRO:HB2	1:A:488:ASN:OD1	2.22	0.40
1:A:609:MET:HA	1:A:723:THR:O	2.22	0.40
1:B:171:GLN:HE21	1:B:275:ARG:NH2	2.20	0.40
1:A:323:GLU:CB	2:A:905:GOL:H11	2.51	0.40
1:B:582:GLU:HB2	1:B:643:GLN:HB2	2.03	0.40
1:B:80:LEU:HD21	1:B:92:ILE:HD11	2.03	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	752/853 (88%)	715 (95%)	37 (5%)	0	100	100
1	B	772/853 (90%)	736 (95%)	36 (5%)	0	100	100
All	All	1524/1706 (89%)	1451 (95%)	73 (5%)	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	635/710 (89%)	594 (94%)	41 (6%)	17	34
1	B	649/710 (91%)	591 (91%)	58 (9%)	9	19
All	All	1284/1420 (90%)	1185 (92%)	99 (8%)	13	25

All (99) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	17	TYR
1	A	18	LEU
1	A	21	LYS
1	A	26	GLU
1	A	29	LEU

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Mol	Chain	Res	Type
1	A	33	MET
1	A	39	LEU
1	A	40	PHE
1	A	50	LEU
1	A	57	LYS
1	A	66	ILE
1	A	71	ILE
1	A	84	VAL
1	A	86	GLN
1	A	89	SER
1	A	119	ILE
1	A	150	ILE
1	A	155	PHE
1	A	164	GLU
1	A	182	GLU
1	A	190	ILE
1	A	194	ARG
1	A	206	ILE
1	A	229	ASN
1	A	254	HIS
1	A	259	THR
1	A	270	ASP
1	A	395	GLU
1	A	418	LEU
1	A	464	LYS
1	A	468	ASN
1	A	521	LEU
1	A	606	GLN
1	A	621	SER
1	A	656	ARG
1	A	668	SER
1	A	695	ILE
1	A	738	LYS
1	A	748	ASP
1	A	755	THR
1	A	773	LEU
1	B	13	MET
1	B	20	LEU
1	B	46	ARG
1	B	56	THR
1	B	78	ASN
1	B	107	GLU

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Mol	Chain	Res	Type
1	B	109	LYS
1	B	131	ASN
1	B	150	ILE
1	B	151	SER
1	B	154[A]	ARG
1	B	154[B]	ARG
1	B	155	PHE
1	B	163	ARG
1	B	183	ASP
1	B	190	ILE
1	B	201	LEU
1	B	206	ILE
1	B	229	ASN
1	B	239	CYS
1	B	257	SER
1	B	258	ILE
1	B	264	GLN
1	B	357	LEU
1	B	412	ILE
1	B	419	VAL
1	B	424	VAL
1	B	436	TRP
1	B	445	ASP
1	B	451	GLU
1	B	456	GLU
1	B	458	THR
1	B	460	LEU
1	B	461	ASP
1	B	462	THR
1	B	463	LEU
1	B	464	LYS
1	B	477	ILE
1	B	484	LEU
1	B	491	ARG
1	B	492	ARG
1	B	501	TYR
1	B	502	ILE
1	B	506	LEU
1	B	511	ASP
1	B	521	LEU
1	B	524	GLU
1	B	552	LEU

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Mol	Chain	Res	Type
1	B	584	ARG
1	B	607	ARG
1	B	613	THR
1	B	617	MET
1	B	636	ILE
1	B	656	ARG
1	B	686	GLU
1	B	695	ILE
1	B	703	ASP
1	B	778	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	281	GLN
1	A	468	ASN
1	A	471	HIS
1	A	483	HIS
1	A	585	HIS
1	A	643	GLN
1	A	714	ASN
1	A	744	ASN
1	A	746	HIS
1	A	791	GLN
1	B	264	GLN
1	B	276	ASN
1	B	430	ASN
1	B	481	GLN
1	B	616	ASN
1	B	744	ASN
1	B	763	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 carbohydrates in this entry.

5.6 Ligand geometry [i](#)

24 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
2	GOL	A	902	-	5,5,5	0.21	0	5,5,5	0.41	0
4	ADP	A	916	-	24,29,29	0.68	0	29,45,45	1.14	2 (6%)
2	GOL	B	903	-	5,5,5	0.12	0	5,5,5	0.12	0
3	SO4	A	914	-	4,4,4	0.21	0	6,6,6	0.14	0
3	SO4	B	907	-	4,4,4	0.13	0	6,6,6	0.16	0
3	SO4	A	912	-	4,4,4	0.20	0	6,6,6	0.28	0
2	GOL	A	901	-	5,5,5	0.10	0	5,5,5	0.29	0
3	SO4	B	905	-	4,4,4	0.12	0	6,6,6	0.33	0
2	GOL	A	908	-	5,5,5	0.10	0	5,5,5	0.20	0
2	GOL	A	904	-	5,5,5	0.08	0	5,5,5	0.28	0
3	SO4	B	906	-	4,4,4	0.14	0	6,6,6	0.12	0
2	GOL	A	903	-	5,5,5	0.10	0	5,5,5	0.23	0
2	GOL	B	901	-	5,5,5	0.07	0	5,5,5	0.13	0
2	GOL	A	906	-	5,5,5	0.08	0	5,5,5	0.23	0
2	GOL	B	902	-	5,5,5	0.16	0	5,5,5	0.33	0
3	SO4	A	913	-	4,4,4	0.12	0	6,6,6	0.12	0
4	ADP	B	908	-	24,29,29	0.76	1 (4%)	29,45,45	0.86	1 (3%)
2	GOL	A	910	-	5,5,5	0.14	0	5,5,5	0.55	0
2	GOL	A	909	-	5,5,5	0.11	0	5,5,5	0.34	0
3	SO4	A	915	-	4,4,4	0.16	0	6,6,6	0.14	0
3	SO4	B	904	-	4,4,4	0.09	0	6,6,6	0.45	0
2	GOL	A	905	-	5,5,5	0.13	0	5,5,5	0.46	0
3	SO4	A	911	-	4,4,4	0.21	0	6,6,6	0.17	0
2	GOL	A	907	-	5,5,5	0.14	0	5,5,5	0.25	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
2	GOL	A	910	-	-	0/4/4/4	-
2	GOL	A	909	-	-	0/4/4/4	-
2	GOL	A	906	-	-	2/4/4/4	-
2	GOL	A	905	-	-	2/4/4/4	-
2	GOL	A	902	-	-	0/4/4/4	-
4	ADP	A	916	-	-	2/12/32/32	0/3/3/3
2	GOL	A	901	-	-	0/4/4/4	-
2	GOL	B	902	-	-	0/4/4/4	-
2	GOL	B	903	-	-	0/4/4/4	-
2	GOL	A	908	-	-	0/4/4/4	-
2	GOL	A	904	-	-	2/4/4/4	-
2	GOL	A	907	-	-	2/4/4/4	-
4	ADP	B	908	-	-	2/12/32/32	0/3/3/3
2	GOL	A	903	-	-	0/4/4/4	-
2	GOL	B	901	-	-	2/4/4/4	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	908	ADP	C8-N7	-2.24	1.30	1.34

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	916	ADP	O2B-PB-O3A	3.15	115.19	104.64
4	B	908	ADP	C5-C6-N6	2.09	123.53	120.35
4	A	916	ADP	C5-C6-N6	2.05	123.47	120.35

There are no chirality outliers.

All (14) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	908	ADP	PA-O3A-PB-O3B
2	A	904	GOL	O1-C1-C2-C3
2	B	901	GOL	C1-C2-C3-O3
2	A	906	GOL	C1-C2-C3-O3
2	A	905	GOL	O1-C1-C2-C3
2	A	907	GOL	C1-C2-C3-O3

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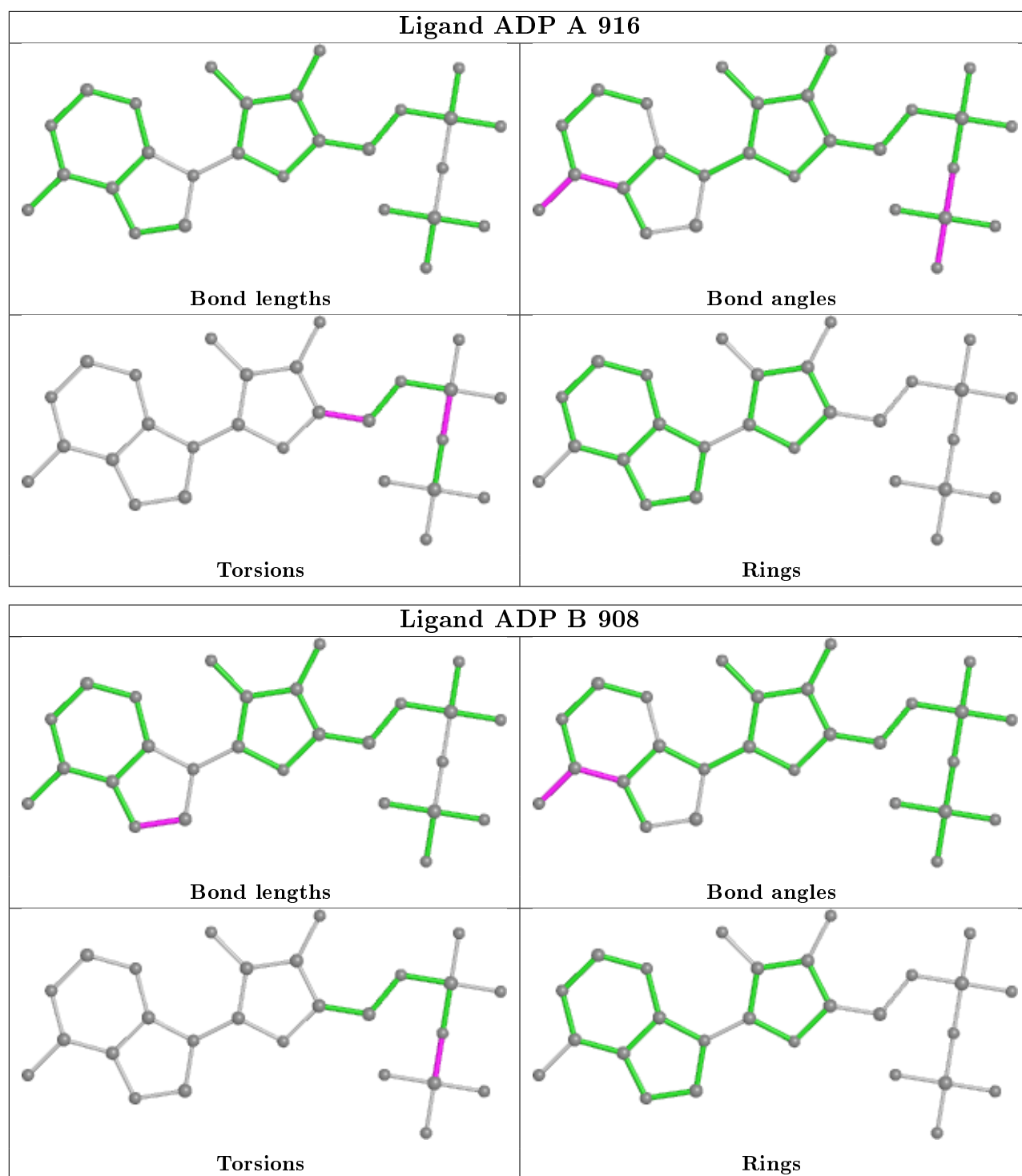
Mol	Chain	Res	Type	Atoms
2	A	904	GOL	O1-C1-C2-O2
2	A	905	GOL	O1-C1-C2-O2
4	A	916	ADP	PB-O3A-PA-O2A
2	A	906	GOL	O2-C2-C3-O3
2	A	907	GOL	O2-C2-C3-O3
4	B	908	ADP	PA-O3A-PB-O1B
4	A	916	ADP	O4'-C4'-C5'-O5'
2	B	901	GOL	O2-C2-C3-O3

There are no ring outliers.

9 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	902	GOL	1	0
2	A	901	GOL	1	0
2	A	903	GOL	1	0
2	A	906	GOL	1	0
2	B	902	GOL	1	0
2	A	910	GOL	2	0
2	A	909	GOL	3	0
2	A	905	GOL	3	0
2	A	907	GOL	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

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	760/853 (89%)	0.49	71 (9%) 8 6	12, 45, 135, 158	0
1	B	777/853 (91%)	0.65	104 (13%) 3 2	14, 56, 130, 169	0
All	All	1537/1706 (90%)	0.57	175 (11%) 5 3	12, 51, 132, 169	0

All (175) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	63	GLY	12.3
1	B	480	GLY	10.5
1	A	12	PRO	10.4
1	A	67	PRO	10.2
1	A	14	MET	9.6
1	A	62	ALA	8.8
1	B	452	VAL	8.4
1	B	446	TYR	8.2
1	B	457	ARG	7.9
1	B	473	TYR	7.7
1	A	34	GLY	7.7
1	B	449	ARG	7.4
1	A	79	TYR	6.6
1	A	66	ILE	6.5
1	A	65	PRO	6.4
1	B	498	ALA	6.4
1	A	18	LEU	6.3
1	A	17	TYR	6.3
1	B	461	ASP	6.2
1	B	447	LEU	6.1
1	B	463	LEU	6.1
1	A	110	VAL	6.0
1	A	35	ASP	5.9
1	A	31	TYR	5.9

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Mol	Chain	Res	Type	RSRZ
1	A	15	GLN	5.8
1	A	64	GLU	5.7
1	B	471	HIS	5.7
1	B	465	VAL	5.6
1	B	799	ILE	5.6
1	B	503	ILE	5.5
1	A	799	ILE	5.4
1	B	445	ASP	5.3
1	B	453	ARG	5.3
1	B	424	VAL	5.3
1	A	71	ILE	5.2
1	B	513	VAL	5.2
1	A	61	SER	5.2
1	A	33	MET	5.2
1	B	478	SER	5.1
1	B	511	ASP	5.1
1	B	442	GLY	5.1
1	A	51	LEU	5.1
1	A	55	LEU	4.9
1	B	506	LEU	4.9
1	A	161	ALA	4.9
1	B	438	ALA	4.9
1	B	106	VAL	4.8
1	B	500	ARG	4.8
1	B	755	THR	4.8
1	B	484	LEU	4.8
1	B	485	ALA	4.8
1	A	49	GLN	4.8
1	A	48	SER	4.7
1	A	76	VAL	4.7
1	B	439	LEU	4.6
1	B	501	TYR	4.6
1	A	142	GLY	4.6
1	B	429	TYR	4.6
1	A	60	ALA	4.5
1	A	68	MET	4.5
1	B	509	TYR	4.5
1	A	58	ARG	4.5
1	B	514	LEU	4.5
1	A	69	ALA	4.4
1	A	53	ILE	4.4
1	A	56	THR	4.4

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Mol	Chain	Res	Type	RSRZ
1	B	450	LEU	4.4
1	A	32	ARG	4.3
1	B	466	GLY	4.3
1	A	41	TYR	4.3
1	B	477	ILE	4.3
1	B	481	GLN	4.2
1	A	29	LEU	4.2
1	A	13	MET	4.2
1	B	419	VAL	4.2
1	B	467	PHE	4.2
1	A	74	HIS	4.2
1	B	515	THR	4.2
1	B	430	ASN	4.1
1	A	93	CYS	4.1
1	B	444	THR	4.0
1	B	209	ALA	4.0
1	A	43	ASP	4.0
1	B	443	ALA	4.0
1	A	52	ASP	3.9
1	B	486	PRO	3.9
1	B	464	LYS	3.9
1	B	475	ILE	3.9
1	A	36	PHE	3.8
1	B	105	PRO	3.7
1	B	520	ALA	3.7
1	B	490	MET	3.7
1	B	458	THR	3.7
1	B	470	VAL	3.7
1	B	756	ILE	3.7
1	A	72	PRO	3.7
1	A	215	LEU	3.6
1	B	517	LYS	3.6
1	B	489	TYR	3.6
1	B	512	LYS	3.5
1	B	495	LEU	3.5
1	A	73	TYR	3.4
1	B	474	TYR	3.4
1	B	496	LYS	3.4
1	B	487	ILE	3.4
1	B	456	GLU	3.4
1	B	472	GLY	3.3
1	A	42	ASP	3.2

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Mol	Chain	Res	Type	RSRZ
1	B	754	ASP	3.2
1	B	494	THR	3.2
1	B	488	ASN	3.2
1	B	479	ARG	3.2
1	B	516	SER	3.1
1	B	504	PRO	3.0
1	B	507	LYS	3.0
1	B	499	GLU	3.0
1	B	441	ASP	3.0
1	B	519	LYS	3.0
1	B	431	GLU	3.0
1	B	497	ASN	3.0
1	A	191	GLU	3.0
1	A	111	VAL	2.9
1	B	448	GLU	2.9
1	A	80	LEU	2.8
1	A	37	TYR	2.8
1	A	19	ARG	2.8
1	B	423	GLY	2.8
1	A	57	LYS	2.8
1	A	50	LEU	2.7
1	A	20	LEU	2.7
1	B	462	THR	2.7
1	A	54	SER	2.7
1	B	410	ALA	2.7
1	B	798	SER	2.7
1	B	523	LEU	2.7
1	B	459	GLY	2.6
1	B	35	ASP	2.6
1	A	109	LYS	2.5
1	B	460	LEU	2.5
1	B	141	LYS	2.5
1	A	59	GLY	2.5
1	A	202	TRP	2.5
1	A	180	TYR	2.5
1	A	45	LYS	2.5
1	B	750	LEU	2.5
1	A	92	ILE	2.5
1	B	505	GLU	2.4
1	B	455	ARG	2.4
1	B	202	TRP	2.4
1	B	440	ALA	2.4

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Mol	Chain	Res	Type	RSRZ
1	A	797	GLU	2.4
1	B	432	GLU	2.3
1	A	137	TRP	2.3
1	A	30	PHE	2.3
1	A	16	GLN	2.3
1	B	428	GLY	2.2
1	A	39	LEU	2.2
1	B	483	HIS	2.2
1	A	220	ARG	2.2
1	B	436	TRP	2.2
1	B	74	HIS	2.2
1	B	435	GLU	2.2
1	B	482	SER	2.2
1	B	454	GLU	2.2
1	A	94	GLU	2.2
1	B	220	ARG	2.2
1	A	467	PHE	2.2
1	A	208	THR	2.1
1	B	491	ARG	2.1
1	B	752	HIS	2.1
1	A	444	THR	2.1
1	B	502	ILE	2.1
1	B	469	ALA	2.1
1	B	426	ALA	2.0
1	B	211	GLN	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 carbohydrates in this entry.

6.4 Ligands [i](#)

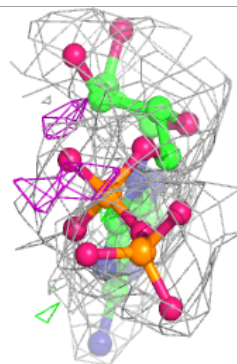
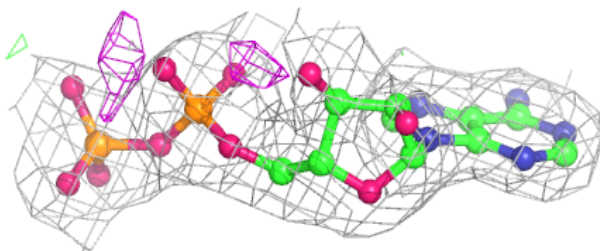
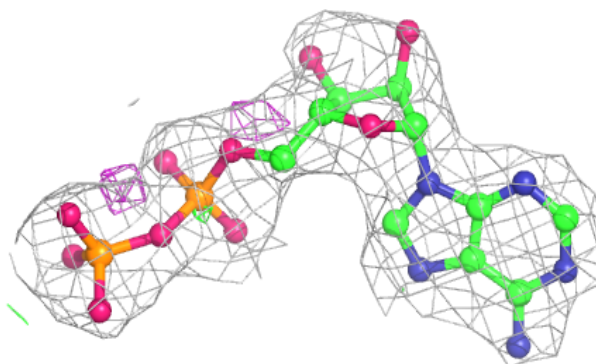
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	GOL	A	910	6/6	0.71	0.24	50,52,53,54	0
2	GOL	B	902	6/6	0.81	0.35	46,55,56,57	0
2	GOL	A	901	6/6	0.84	0.28	49,53,55,55	0
2	GOL	B	903	6/6	0.85	0.18	61,63,63,64	0
3	SO4	A	914	5/5	0.86	0.25	114,114,115,115	0
3	SO4	B	905	5/5	0.88	0.33	78,81,82,85	0
2	GOL	A	908	6/6	0.89	0.34	64,67,67,68	0
2	GOL	A	902	6/6	0.90	0.21	34,35,37,38	0
2	GOL	A	909	6/6	0.90	0.15	41,42,44,45	0
2	GOL	A	907	6/6	0.90	0.12	41,43,46,47	0
2	GOL	A	904	6/6	0.91	0.19	51,53,57,59	0
3	SO4	B	906	5/5	0.91	0.19	108,108,108,109	0
3	SO4	B	907	5/5	0.92	0.15	91,93,94,94	0
2	GOL	A	906	6/6	0.92	0.20	55,56,57,59	0
2	GOL	A	905	6/6	0.93	0.16	27,33,37,38	0
3	SO4	A	915	5/5	0.93	0.24	106,106,107,107	0
2	GOL	A	903	6/6	0.94	0.12	49,52,55,56	0
3	SO4	A	913	5/5	0.95	0.12	98,98,98,99	0
3	SO4	A	911	5/5	0.95	0.21	89,89,90,92	0
2	GOL	B	901	6/6	0.95	0.19	31,34,36,36	0
4	ADP	A	916	27/27	0.96	0.17	49,57,64,68	0
4	ADP	B	908	27/27	0.98	0.15	48,51,53,54	0
3	SO4	B	904	5/5	0.99	0.18	37,37,38,41	0
3	SO4	A	912	5/5	0.99	0.17	34,36,37,40	0

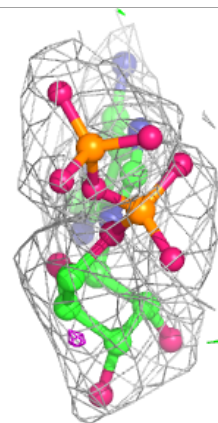
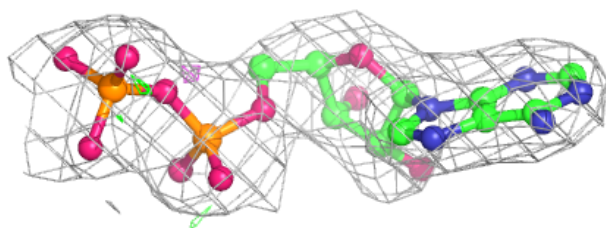
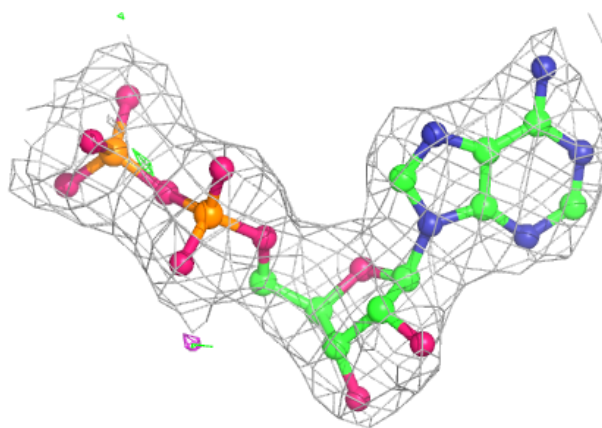
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around ADP A 916:

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

**Electron density around ADP B 908:**

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



6.5 Other polymers

There are no such residues in this entry.