Full wwPDB X-ray Structure Validation Report (i)

May 9, 2026 – 11:06 pm BST

PDB ID	:	9R55 / pdb_00009r55
Title	:	Wee1-like kinase in complex wirh MIPS-54859
Authors	:	Kumar, A.; Knapp, S.; Structural Genomics Consortium
Deposited on	:	2025-05-08
Resolution	:	2.67 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 (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (i)) were used in the production of this report:

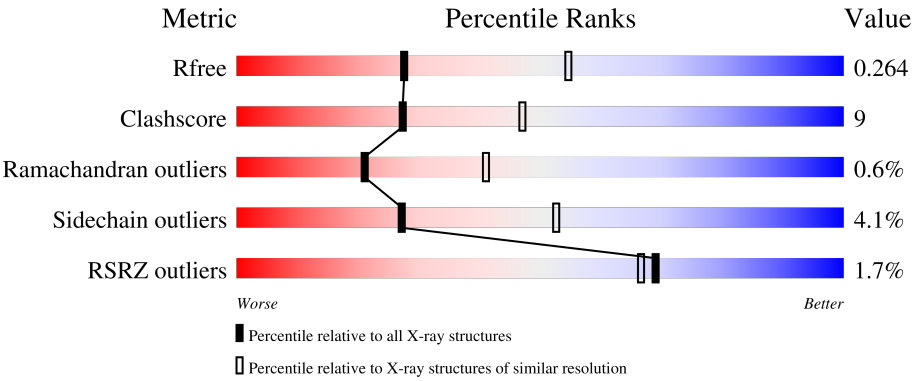
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

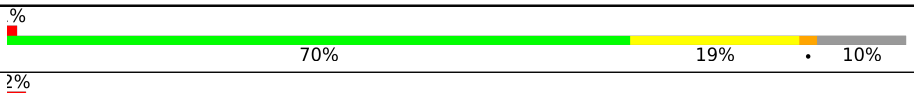
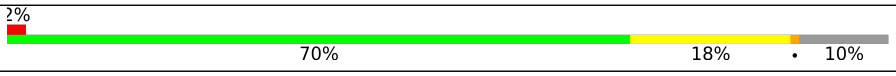
The reported resolution of this entry is 2.67 Å.

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}	180053	5070 (2.70-2.66)
Clashscore	190562	5409 (2.70-2.66)
Ramachandran outliers	187476	5324 (2.70-2.66)
Sidechain outliers	187428	5324 (2.70-2.66)
RSRZ outliers	180081	5070 (2.70-2.66)

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 >=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 <=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	288	
1	B	288	

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 4082 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.

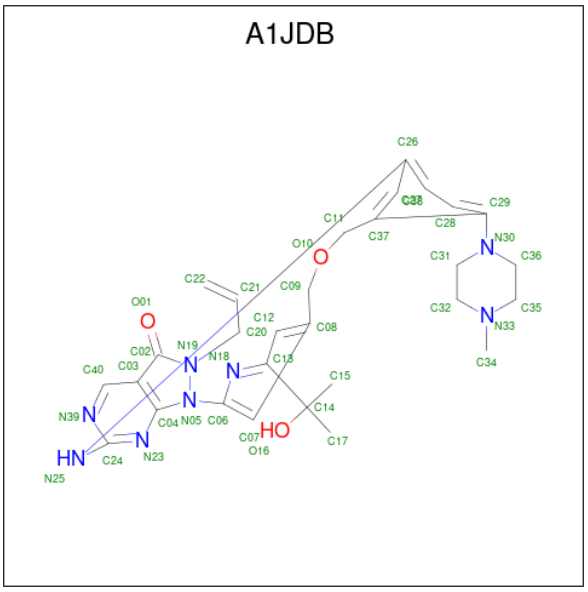
- Molecule 1 is a protein called Wee1-like protein kinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	260	Total	C	N	O	S	0	0	0
			1974	1256	347	362	9			
1	B	258	Total	C	N	O	S	0	0	0
			1965	1249	351	354	11			

There are 8 discrepancies between the modelled and reference sequences:

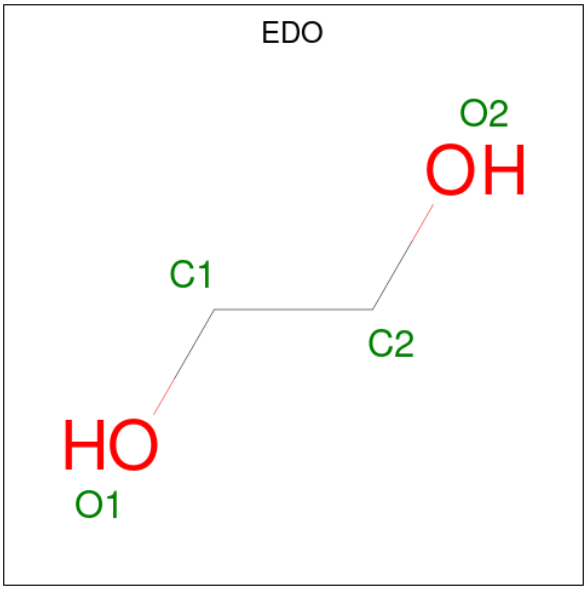
Chain	Residue	Modelled	Actual	Comment	Reference
A	288	GLY	-	expression tag	UNP P30291
A	289	ALA	-	expression tag	UNP P30291
A	290	MET	-	expression tag	UNP P30291
A	291	GLY	-	expression tag	UNP P30291
B	288	GLY	-	expression tag	UNP P30291
B	289	ALA	-	expression tag	UNP P30291
B	290	MET	-	expression tag	UNP P30291
B	291	GLY	-	expression tag	UNP P30291

- Molecule 2 is MIPS-54859 (CCD ID: A1JDB) (formula: $C_{29}H_{34}N_8O_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			40	29	8	3		
2	B	1	Total	C	N	O	0	0
			40	29	8	3		

- Molecule 3 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).



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

- Molecule 4 is water.

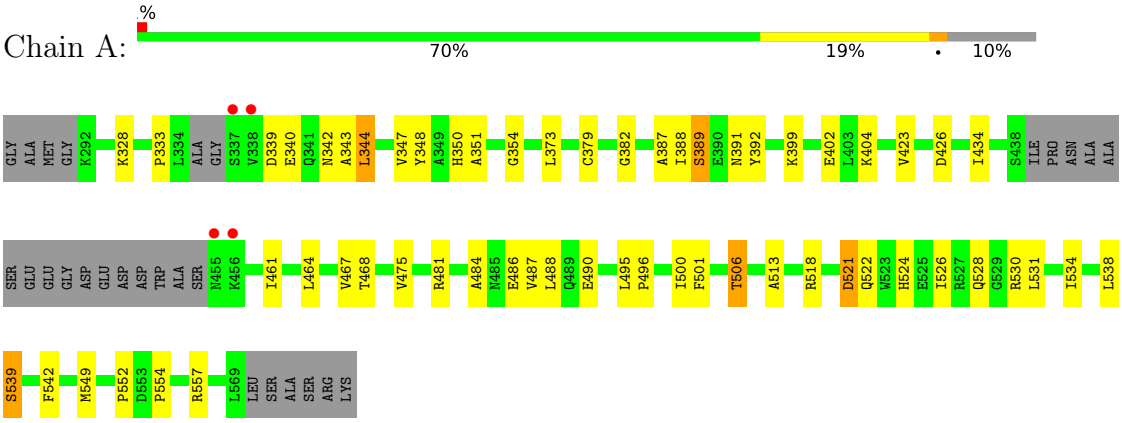
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	28	Total O 28 28	0	0
4	B	31	Total O 31 31	0	0

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.

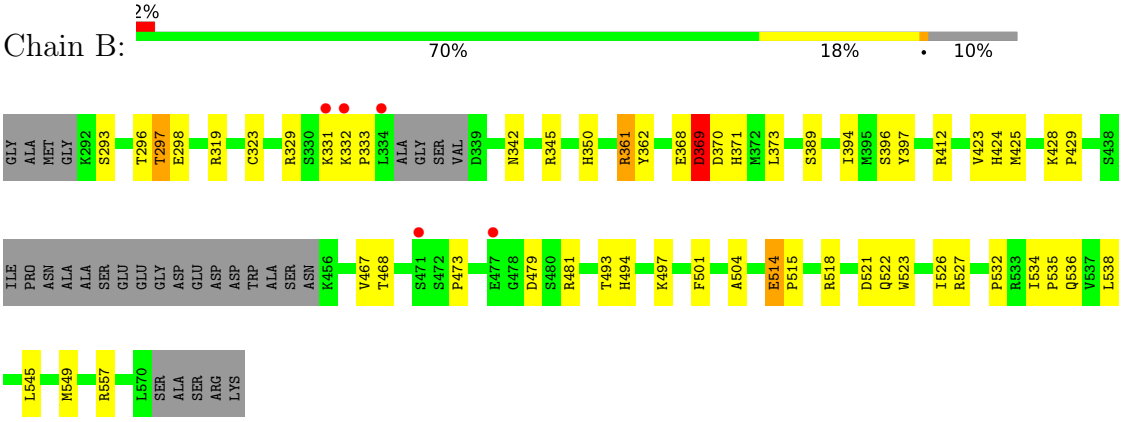
• Molecule 1: Wee1-like protein kinase

Chain A:



• Molecule 1: Wee1-like protein kinase

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	50.08Å 68.68Å 88.56Å 90.00° 91.47° 90.00°	Depositor
Resolution (Å)	54.32 – 2.67 54.32 – 2.67	Depositor EDS
% Data completeness (in resolution range)	99.9 (54.32-2.67) 99.9 (54.32-2.67)	Depositor EDS
R_{merge}	0.30	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.09 (at 2.65Å)	Xtriage
Refinement program	REFMAC 5.8.0425	Depositor
R, R_{free}	0.212 , 0.264 0.214 , 0.264	Depositor DCC
R_{free} test set	820 reflections (4.75%)	wwPDB-VP
Wilson B-factor (Å^2)	52.7	Xtriage
Anisotropy	0.043	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 50.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.025 for h,-k,-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	4082	wwPDB-VP
Average B, all atoms (Å^2)	58.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.77% of the height of the origin peak. No significant pseudotranslation is detected.*

[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: EDO, A1JDB

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	0.57	0/2016	1.11	1/2735 (0.0%)
1	B	0.58	0/2008	1.09	4/2722 (0.1%)
All	All	0.57	0/4024	1.10	5/5457 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
All	All	0	2

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	296	THR	CA-CB-OG1	-8.12	97.42	109.60
1	B	369	ASP	CA-CB-CG	5.81	118.41	112.60
1	B	428	LYS	CB-CA-C	-5.76	103.73	110.76
1	B	473	PRO	N-CA-C	5.68	120.00	111.14
1	A	506	THR	CA-CB-OG1	-5.20	101.80	109.60

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	461	ILE	Peptide

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Mol	Chain	Res	Type	Group
1	B	412	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	1974	0	1877	35	0
1	B	1965	0	1860	36	0
2	A	40	0	0	1	0
2	B	40	0	0	1	0
3	B	4	0	6	1	0
4	A	28	0	0	1	0
4	B	31	0	0	5	0
All	All	4082	0	3743	71	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 (71) 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:524:HIS:O	1:A:528:GLN:HG3	1.77	0.84
1:A:340:GLU:O	1:A:344:LEU:HD23	1.78	0.83
1:B:342:ASN:HB3	4:B:729:HOH:O	1.78	0.81
1:B:522:GLN:O	1:B:526:ILE:HG13	1.87	0.74
1:A:351:ALA:HB1	1:B:323:CYS:SG	2.28	0.73
1:B:523:TRP:CZ3	1:B:527:ARG:HG3	2.25	0.71
1:B:293:SER:O	1:B:297:THR:HG23	1.92	0.68
1:A:344:LEU:HD12	1:A:348:TYR:OH	1.95	0.66
1:B:369:ASP:OD1	1:B:370:ASP:N	2.31	0.64
1:B:361:ARG:NH2	4:B:702:HOH:O	2.31	0.63
1:B:493:THR:HG23	1:B:494:HIS:CD2	2.34	0.62
1:A:339:ASP:HA	1:A:342:ASN:ND2	2.14	0.61
1:B:481:ARG:HD3	1:B:518:ARG:HG2	1.83	0.61
1:A:350:HIS:CE1	1:A:464:LEU:HD13	2.37	0.59
1:B:424:HIS:HA	1:B:467:VAL:HG22	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:328:LYS:O	1:A:373:LEU:HA	2.05	0.56
1:B:526:ILE:HB	1:B:527:ARG:NH1	2.22	0.55
1:A:392:TYR:OH	1:A:513:ALA:O	2.24	0.54
1:A:389:SER:O	1:A:392:TYR:HB2	2.09	0.53
1:B:504:ALA:HB2	1:B:549:MET:HE2	1.91	0.53
1:A:379:CYS:HB3	1:A:434:ILE:O	2.08	0.52
1:B:429:PRO:HD2	4:B:727:HOH:O	2.10	0.51
1:A:344:LEU:HD12	1:A:348:TYR:CZ	2.46	0.51
1:A:339:ASP:HA	1:A:342:ASN:CG	2.37	0.50
1:B:331:LYS:HA	1:B:371:HIS:ND1	2.27	0.50
1:B:501:PHE:HZ	1:B:527:ARG:HD3	1.77	0.49
1:A:468:THR:HG21	1:A:475:VAL:HG12	1.95	0.49
1:B:332:LYS:N	1:B:333:PRO:CD	2.74	0.49
1:B:293:SER:O	1:B:297:THR:CG2	2.61	0.48
1:A:521:ASP:OD1	1:A:521:ASP:N	2.32	0.48
1:B:497:LYS:HD2	1:B:557:ARG:HB2	1.96	0.47
1:B:350:HIS:ND1	1:B:362:TYR:HB2	2.29	0.47
1:B:493:THR:HG23	1:B:494:HIS:CG	2.50	0.47
1:B:534:ILE:O	1:B:536:GLN:N	2.43	0.46
1:B:396:SER:OG	1:B:397:TYR:N	2.49	0.46
1:B:481:ARG:CD	1:B:518:ARG:HG2	2.44	0.46
1:A:333:PRO:CG	1:A:340:GLU:HA	2.45	0.46
1:A:524:HIS:O	1:A:528:GLN:CG	2.56	0.46
1:B:298:GLU:O	1:B:319:ARG:HG3	2.16	0.46
1:A:484:ALA:HB2	1:A:501:PHE:CG	2.51	0.45
1:A:354:GLY:HA2	4:A:703:HOH:O	2.16	0.45
1:B:369:ASP:OD2	4:B:701:HOH:O	2.21	0.45
1:A:481:ARG:HD2	1:A:518:ARG:CG	2.47	0.45
1:A:495:LEU:N	1:A:496:PRO:CD	2.80	0.45
1:A:526:ILE:HA	1:A:530:ARG:O	2.16	0.44
1:A:387:ALA:O	1:A:391:ASN:OD1	2.35	0.44
1:B:526:ILE:HG23	1:B:532:PRO:HD3	1.99	0.44
1:B:423:VAL:HG23	1:B:425:MET:HG2	2.00	0.44
1:A:423:VAL:O	1:A:467:VAL:HA	2.17	0.44
1:A:488:LEU:C	1:A:490:GLU:H	2.25	0.44
1:B:521:ASP:HB2	3:B:602:EDO:H22	2.00	0.43
2:B:601:A1JDB:N23	2:B:601:A1JDB:C07	2.81	0.43
1:A:531:LEU:CD2	1:A:534:ILE:HD11	2.49	0.43
1:A:538:LEU:O	1:A:539:SER:C	2.62	0.43
1:B:479:ASP:OD1	1:B:481:ARG:HG3	2.19	0.43
1:A:344:LEU:HB3	1:A:348:TYR:CE2	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:552:PRO:O	1:A:554:PRO:HD3	2.19	0.42
1:B:549:MET:O	1:B:557:ARG:HD3	2.20	0.42
1:B:329:ARG:NH2	4:B:701:HOH:O	2.53	0.42
1:B:545:LEU:O	1:B:549:MET:HG3	2.20	0.42
1:A:464:LEU:HA	1:A:467:VAL:HG23	2.02	0.41
1:B:501:PHE:CZ	1:B:527:ARG:HD3	2.53	0.41
1:B:514:GLU:O	1:B:515:PRO:C	2.63	0.41
1:A:404:LYS:HG2	1:A:542:PHE:CE1	2.56	0.41
1:B:345:ARG:HD2	1:B:467:VAL:O	2.21	0.41
1:A:382:GLY:HA2	2:A:601:A1JDB:C26	2.51	0.41
1:A:486:GLU:OE2	1:A:557:ARG:NH1	2.40	0.41
1:A:500:ILE:HG23	1:A:549:MET:HE3	2.02	0.40
1:B:329:ARG:HG3	1:B:373:LEU:CD1	2.51	0.40
1:A:343:ALA:O	1:A:347:VAL:HG23	2.22	0.40
1:A:399:LYS:HG3	1:A:402:GLU:OE1	2.21	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	254/288 (88%)	229 (90%)	23 (9%)	2 (1%)	16	34
1	B	252/288 (88%)	231 (92%)	20 (8%)	1 (0%)	30	51
All	All	506/576 (88%)	460 (91%)	43 (8%)	3 (1%)	21	41

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	539	SER
1	A	426	ASP
1	B	535	PRO

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	199/245 (81%)	192 (96%)	7 (4%)	32 58
1	B	195/245 (80%)	186 (95%)	9 (5%)	24 48
All	All	394/490 (80%)	378 (96%)	16 (4%)	27 52

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	344	LEU
1	A	388	ILE
1	A	389	SER
1	A	487	VAL
1	A	506	THR
1	A	521	ASP
1	A	522	GLN
1	B	297	THR
1	B	361	ARG
1	B	368	GLU
1	B	369	ASP
1	B	389	SER
1	B	394	ILE
1	B	468	THR
1	B	514	GLU
1	B	538	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	356	HIS
1	B	485	ASN
1	B	536	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

3 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	A1JDB	B	601	-	43,45,45	2.22	14 (32%)	52,67,67	2.35	21 (40%)
3	EDO	B	602	-	3,3,3	0.15	0	2,2,2	0.40	0
2	A1JDB	A	601	-	43,45,45	2.50	18 (41%)	52,67,67	2.81	17 (32%)

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	A1JDB	B	601	-	-	5/27/37/37	0/5/6/6
3	EDO	B	602	-	-	1/1/1/1	-
2	A1JDB	A	601	-	-	3/27/37/37	0/5/6/6

All (32) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	601	A1JDB	C20-N19	-7.71	1.36	1.46
2	B	601	A1JDB	C24-N39	6.31	1.43	1.34
2	A	601	A1JDB	C04-N05	5.64	1.44	1.37
2	B	601	A1JDB	C20-N19	-5.35	1.39	1.46
2	A	601	A1JDB	C31-N30	4.81	1.54	1.46
2	B	601	A1JDB	C03-C02	-4.24	1.41	1.48
2	B	601	A1JDB	C31-N30	4.22	1.53	1.46
2	A	601	A1JDB	C29-N30	3.78	1.49	1.41
2	A	601	A1JDB	C29-C37	3.72	1.45	1.40
2	B	601	A1JDB	C24-N25	3.60	1.43	1.36
2	A	601	A1JDB	C36-N30	3.49	1.52	1.46
2	A	601	A1JDB	C27-C28	3.26	1.44	1.38
2	A	601	A1JDB	C11-C37	3.17	1.59	1.50
2	A	601	A1JDB	C03-C02	-3.13	1.43	1.48
2	B	601	A1JDB	C04-N05	3.07	1.41	1.37
2	B	601	A1JDB	C17-C14	2.96	1.56	1.52
2	A	601	A1JDB	C34-N33	2.85	1.53	1.46
2	A	601	A1JDB	O16-C14	-2.77	1.40	1.44
2	A	601	A1JDB	N05-N19	2.70	1.46	1.41
2	A	601	A1JDB	C35-N33	2.70	1.52	1.46
2	B	601	A1JDB	C29-N30	2.63	1.47	1.41
2	B	601	A1JDB	C06-N05	-2.44	1.34	1.41
2	B	601	A1JDB	C27-C26	2.43	1.43	1.39
2	B	601	A1JDB	O16-C14	-2.39	1.41	1.44
2	A	601	A1JDB	C24-N39	2.37	1.38	1.34
2	A	601	A1JDB	C32-N33	2.37	1.51	1.46
2	A	601	A1JDB	C12-C08	-2.34	1.35	1.39
2	A	601	A1JDB	C24-N25	2.25	1.41	1.36
2	B	601	A1JDB	C27-C28	2.24	1.42	1.38
2	B	601	A1JDB	C07-C06	2.12	1.42	1.39
2	B	601	A1JDB	C09-C08	-2.10	1.45	1.50
2	A	601	A1JDB	C28-C29	2.05	1.43	1.39

All (38) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	601	A1JDB	C03-C04-N23	-10.15	120.14	126.71
2	A	601	A1JDB	C08-C07-C06	7.59	123.74	117.97
2	B	601	A1JDB	C03-C04-N23	-6.06	122.79	126.71
2	B	601	A1JDB	C06-N05-C04	-5.92	124.14	130.45
2	A	601	A1JDB	C03-C04-N05	5.43	109.34	106.58
2	A	601	A1JDB	C36-N30-C31	-5.06	100.34	111.52
2	A	601	A1JDB	C11-O10-C09	4.88	124.08	112.69

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	601	A1JDB	C08-C07-C06	4.60	121.47	117.97
2	A	601	A1JDB	N23-C04-N05	4.42	130.46	125.92
2	B	601	A1JDB	C11-C37-C29	-4.28	119.11	123.63
2	A	601	A1JDB	C26-C38-C37	4.25	126.79	120.94
2	A	601	A1JDB	C12-C13-C14	-4.17	115.92	122.19
2	B	601	A1JDB	C03-C04-N05	4.05	108.64	106.58
2	A	601	A1JDB	C27-C26-C38	-3.97	114.95	119.65
2	B	601	A1JDB	C11-O10-C09	3.91	121.81	112.69
2	B	601	A1JDB	C27-C26-C38	-3.76	115.19	119.65
2	A	601	A1JDB	C28-C29-C37	-3.69	114.39	119.87
2	B	601	A1JDB	C36-C35-N33	-3.64	106.69	110.80
2	B	601	A1JDB	N39-C24-N23	-3.58	123.16	126.55
2	B	601	A1JDB	C36-N30-C31	-3.46	103.87	111.52
2	A	601	A1JDB	C06-N05-C04	-3.06	127.18	130.45
2	B	601	A1JDB	C28-C29-C37	-2.94	115.49	119.87
2	A	601	A1JDB	C36-N30-C29	2.91	123.18	116.27
2	B	601	A1JDB	O10-C09-C08	-2.88	101.56	110.80
2	A	601	A1JDB	N39-C24-N23	-2.87	123.83	126.55
2	B	601	A1JDB	C12-C13-C14	-2.77	118.02	122.19
2	A	601	A1JDB	C07-C06-N18	-2.65	117.98	123.15
2	B	601	A1JDB	C21-C20-N19	-2.64	107.63	112.60
2	A	601	A1JDB	C27-C28-C29	2.57	124.46	119.19
2	B	601	A1JDB	N23-C04-N05	2.52	128.51	125.92
2	B	601	A1JDB	C38-C37-C29	2.42	121.18	118.95
2	B	601	A1JDB	C26-C38-C37	2.41	124.27	120.94
2	B	601	A1JDB	C07-C06-N18	-2.37	118.52	123.15
2	B	601	A1JDB	O16-C14-C13	-2.36	104.71	108.93
2	A	601	A1JDB	O10-C11-C37	2.29	117.00	109.83
2	B	601	A1JDB	C28-C29-N30	2.23	125.85	122.30
2	B	601	A1JDB	C27-C28-C29	2.10	123.51	119.19
2	A	601	A1JDB	O16-C14-C13	-2.07	105.23	108.93

There are no chirality outliers.

All (9) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	601	A1JDB	N19-C20-C21-C22
2	B	601	A1JDB	C37-C11-O10-C09
2	B	601	A1JDB	N19-C20-C21-C22
2	B	601	A1JDB	C21-C20-N19-C02
3	B	602	EDO	O1-C1-C2-O2
2	A	601	A1JDB	N18-C13-C14-C15

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Mol	Chain	Res	Type	Atoms
2	A	601	A1JDB	N18-C13-C14-C17
2	B	601	A1JDB	N18-C13-C14-C15
2	B	601	A1JDB	C07-C06-N05-C04

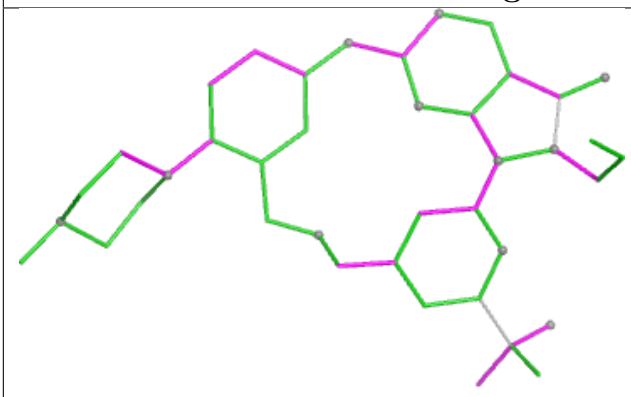
There are no ring outliers.

3 monomers are involved in 3 short contacts:

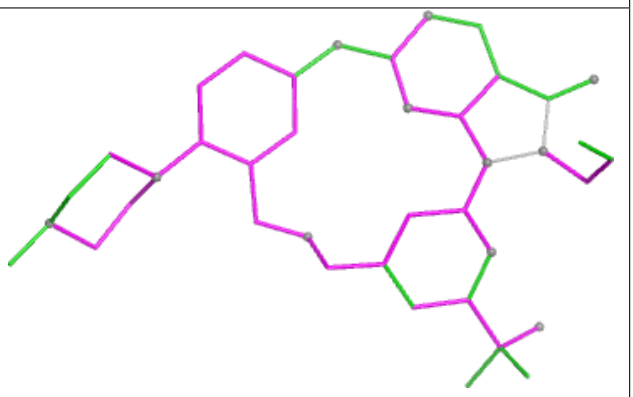
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	601	A1JDB	1	0
3	B	602	EDO	1	0
2	A	601	A1JDB	1	0

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 then 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.

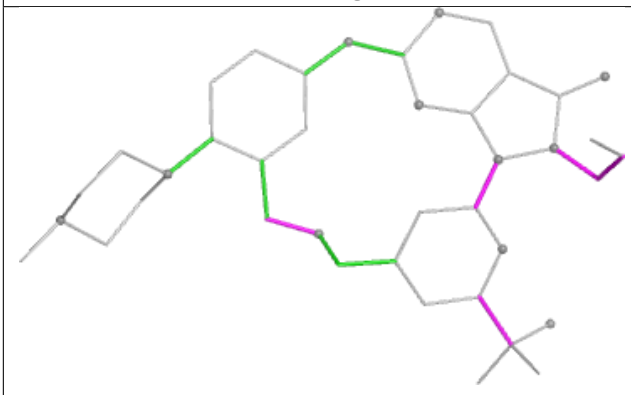
Ligand A1JDB B 601



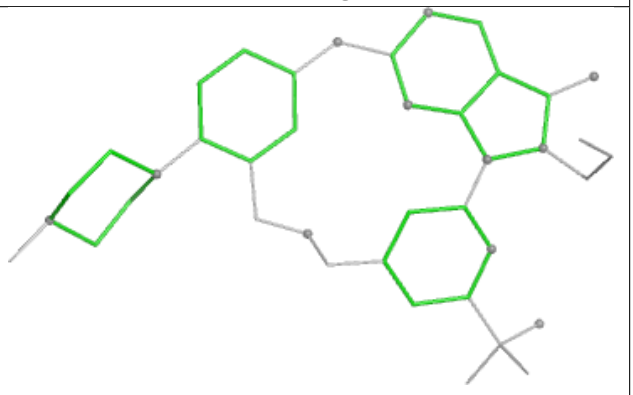
Bond lengths



Bond angles

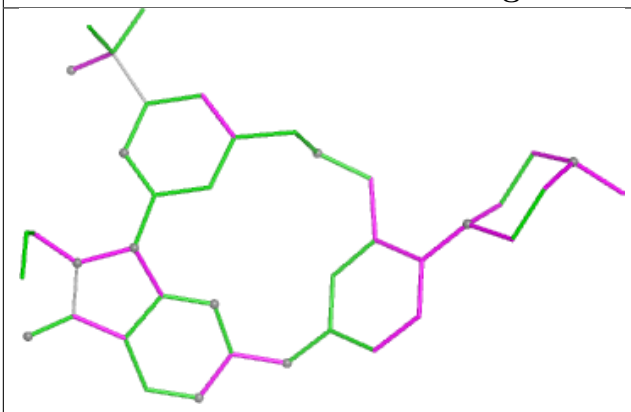


Torsions

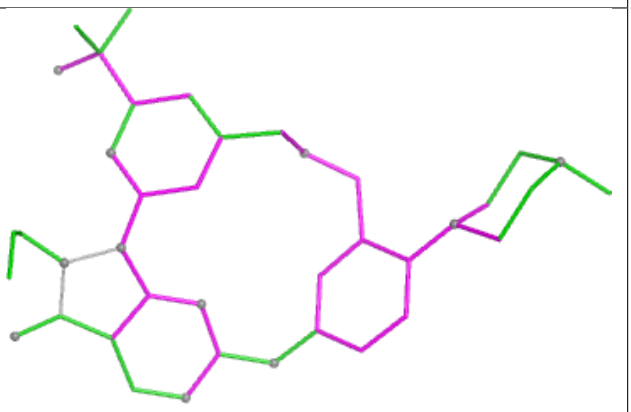


Rings

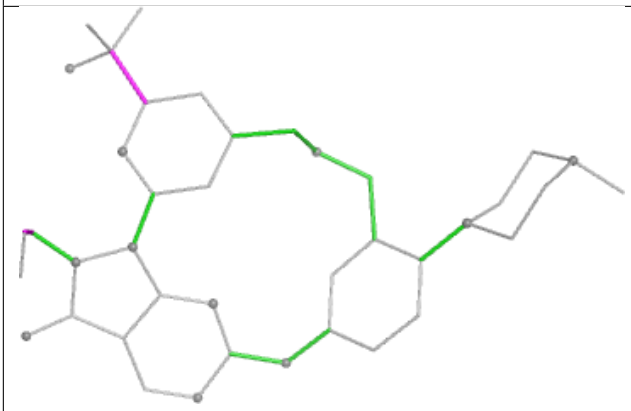
Ligand A1JDB A 601



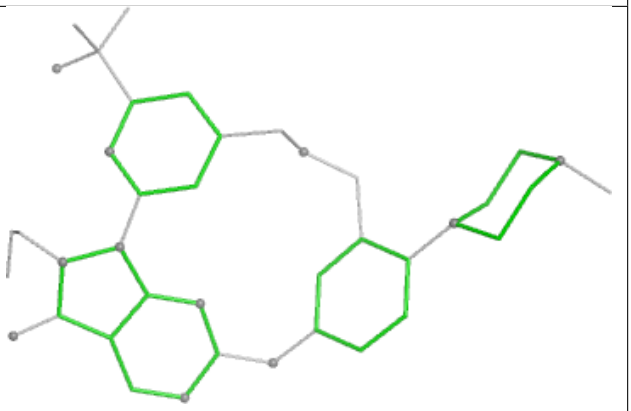
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

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^{th} 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	260/288 (90%)	0.01	4 (1%)	72	69	29, 55, 96, 150	0
1	B	258/288 (89%)	-0.08	5 (1%)	66	63	32, 54, 97, 137	0
All	All	518/576 (89%)	-0.03	9 (1%)	69	66	29, 55, 97, 150	0

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	477	GLU	3.2
1	B	331	LYS	3.1
1	B	332	LYS	2.9
1	A	455	ASN	2.7
1	A	337	SER	2.6
1	B	471	SER	2.6
1	B	334	LEU	2.3
1	A	338	VAL	2.1
1	A	456	LYS	2.0

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

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

6.3 Carbohydrates

There are no oligosaccharides in this entry.

6.4 Ligands

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,

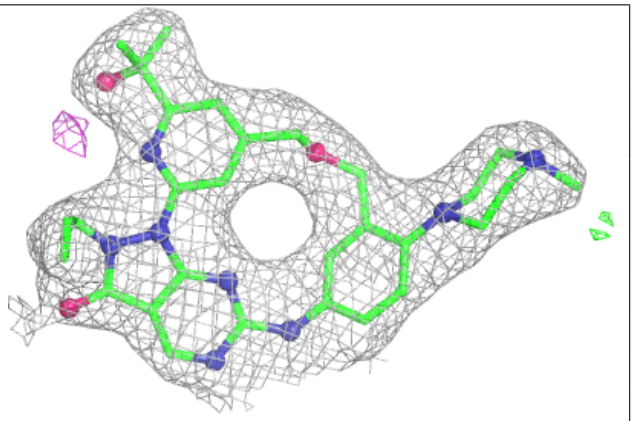
median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

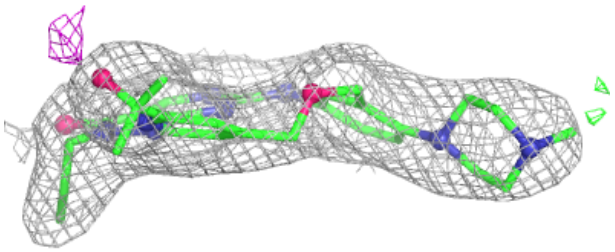
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	EDO	B	602	4/4	0.85	0.13	67,72,73,77	0
2	A1JDB	A	601	40/40	0.93	0.08	38,45,70,72	0
2	A1JDB	B	601	40/40	0.95	0.07	34,43,61,61	0

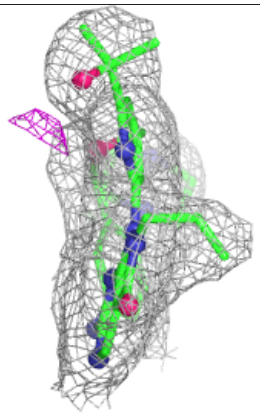
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around A1JDB A 601:

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

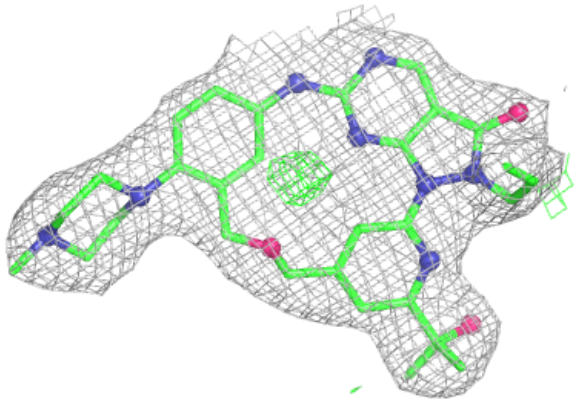


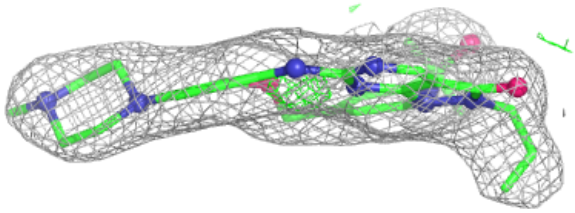


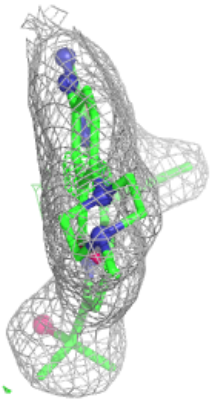


Electron density around A1JDB B 601:

$2mF_o$-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.