Full wwPDB X-ray Structure Validation Report (i)

Jun 16, 2024 – 05:56 PM EDT

PDB ID	:	2WO6
Title	:	Human Dual-Specificity Tyrosine-Phosphorylation-Regulated Kinase 1A in complex with a consensus substrate peptide
Authors	:	Roos, A.K.; Soundararajan, M.; Elkins, J.M.; Fedorov, O.; Eswaran, J.; Phillips, C.; Pike, A.C.W.; Ugochukwu, E.; Muniz, J.R.C.; Burgess-Brown, N.; von Delft, F.; Arrowsmith, C.H.; Wikstrom, M.; Edwards, A.; Bountra, C.; Knapp, S.
Deposited on	:	2009-07-22
Resolution	:	2.50 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:

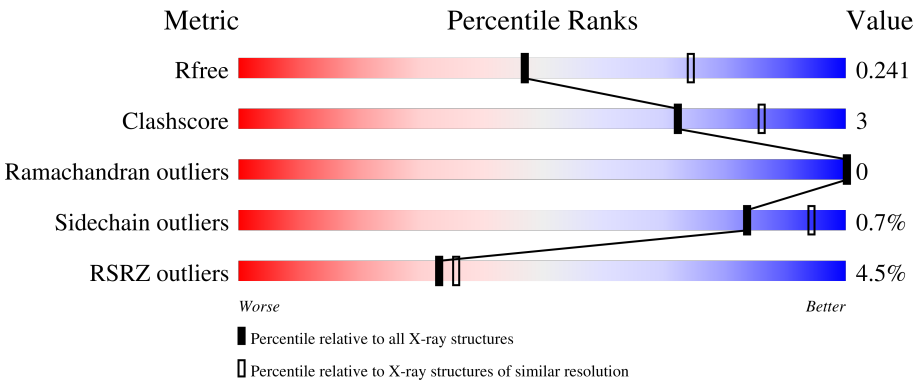
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.37.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)

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 2.50 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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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	382	% 83% 8% 10%
1	B	382	7% 82% 7% 11%
2	C	8	25% 62% 38%

Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	CL	B	700	-	-	X	-

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 5978 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.

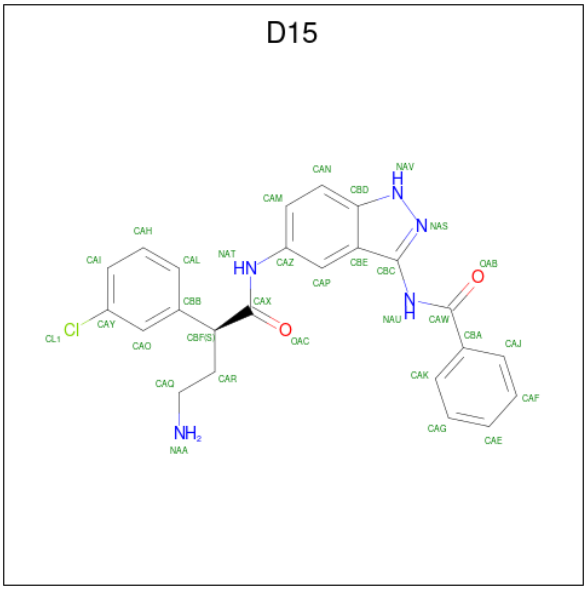
- Molecule 1 is a protein called DUAL SPECIFICITY TYROSINE-PHOSPHORYLATION-REGULATED KINASE 1A.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	N	O	P	S			
1	A	345	2821	1814	486	503	1	17	0	1	0
1	B	340	2766	1782	471	495	1	17	0	0	0

- Molecule 2 is a protein called ARTIFICIAL CONSENSUS SEQUENCE.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	C	8	54	34	11	9	0	0	0

- Molecule 3 is N-(5-{[(2S)-4-amino-2-(3-chlorophenyl)butanoyl]amino}-1H-indazol-3-yl)benzamide (three-letter code: D15) (formula: $C_{24}H_{22}ClN_5O_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	Cl	N	O		
3	A	1	32	24	1	5	2	0	0
3	B	1	32	24	1	5	2	0	0

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

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

- Molecule 5 is water.

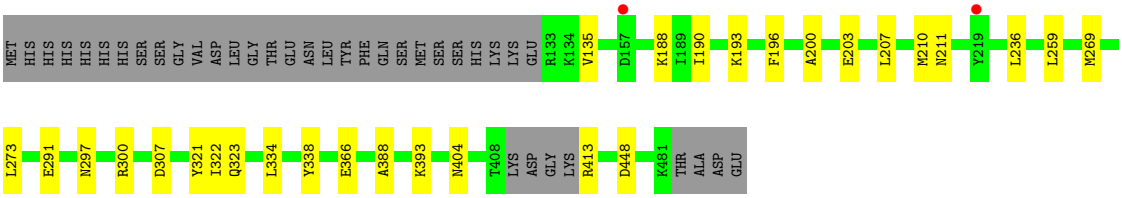
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
5	A	191	191	191	0	0
5	B	81	81	81	0	0

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.

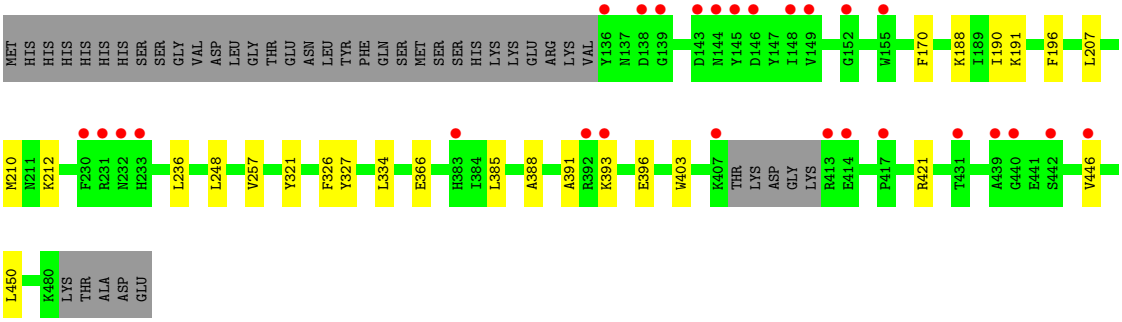
• Molecule 1: DUAL SPECIFICITY TYROSINE-PHOSPHORYLATION- REGULATED KINASE 1A

Chain A:



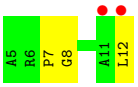
• Molecule 1: DUAL SPECIFICITY TYROSINE-PHOSPHORYLATION- REGULATED KINASE 1A

Chain B:



• Molecule 2: ARTIFICIAL CONSENSUS SEQUENCE

Chain C:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 65	Depositor
Cell constants a, b, c, α, β, γ	168.43Å 168.43Å 62.42Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	40.00 – 2.50 38.36 – 2.50	Depositor EDS
% Data completeness (in resolution range)	100.0 (40.00-2.50) 100.0 (38.36-2.50)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.17 (at 2.51Å)	Xtriage
Refinement program	REFMAC 5.5.0089	Depositor
R, R_{free}	0.188 , 0.229 0.200 , 0.241	Depositor DCC
R_{free} test set	1606 reflections (4.55%)	wwPDB-VP
Wilson B-factor (Å^2)	21.4	Xtriage
Anisotropy	0.201	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 46.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.028 for h,-h-k,-l	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	5978	wwPDB-VP
Average B, all atoms (Å^2)	23.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.45% 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 (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: PTR, CL, D15

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	0.76	1/2874 (0.0%)	0.76	1/3874 (0.0%)
1	B	0.64	0/2814	0.69	1/3797 (0.0%)
2	C	0.47	0/55	0.68	0/75
All	All	0.70	1/5743 (0.0%)	0.72	2/7746 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	291	GLU	CD-OE1	5.34	1.31	1.25

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	413	ARG	NE-CZ-NH1	5.42	123.01	120.30
1	B	421	ARG	NE-CZ-NH1	5.35	122.98	120.30

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	2821	0	2818	18	0
1	B	2766	0	2740	20	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	C	54	0	57	4	0
3	A	32	0	22	1	0
3	B	32	0	22	0	0
4	B	1	0	0	3	0
5	A	191	0	0	2	0
5	B	81	0	0	0	0
All	All	5978	0	5659	39	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 (39) 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:404:ASN:ND2	5:A:2134:HOH:O	2.21	0.73
1:B:188:LYS:HE3	4:B:700:CL:CL	2.28	0.70
1:B:334:LEU:HB3	1:B:388:ALA:HB1	1.83	0.60
1:A:334:LEU:HB3	1:A:388:ALA:HB1	1.86	0.57
1:B:391:ALA:HB1	1:B:403:TRP:CZ3	2.41	0.56
1:A:366:GLU:OE1	1:A:393:LYS:NZ	2.40	0.54
1:B:170:PHE:HZ	2:C:12:LEU:HD13	1.72	0.54
1:B:366:GLU:OE1	1:B:393:LYS:NZ	2.39	0.54
1:B:190:ILE:HG22	1:B:191:LYS:N	2.23	0.51
1:B:188:LYS:CE	4:B:700:CL:CL	2.94	0.51
1:B:170:PHE:CZ	2:C:12:LEU:HD13	2.46	0.51
1:A:259:LEU:HD23	1:A:448:ASP:HB3	1.93	0.49
1:A:322:ILE:HD13	1:A:338:TYR:CZ	2.48	0.49
1:B:188:LYS:NZ	4:B:700:CL:CL	2.83	0.49
1:A:236:LEU:HD23	1:A:236:LEU:N	2.28	0.48
1:A:322:ILE:CD1	1:A:338:TYR:CZ	2.96	0.48
1:B:446:VAL:O	1:B:450:LEU:HG	2.15	0.46
1:A:269:MET:O	1:A:273:LEU:HG	2.16	0.46
1:A:203:GLU:HG2	1:A:207:LEU:HD12	1.98	0.45
1:B:326:PHE:HB2	1:B:327:TYR:CE2	2.51	0.45
1:A:203:GLU:HG2	1:A:207:LEU:CD1	2.47	0.45
1:A:207:LEU:HA	1:A:210:MET:HE3	1.99	0.44
1:A:307:ASP:OD2	3:A:600:D15:NAA	2.42	0.44
1:A:190:ILE:HG13	1:A:200:ALA:CB	2.47	0.44
1:B:196:PHE:CD1	2:C:12:LEU:HD22	2.53	0.43
1:B:207:LEU:HD23	1:B:210:MET:HE3	2.00	0.43
1:A:297:ASN:HB2	1:A:300:ARG:NH2	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:248:LEU:CD2	1:B:257:VAL:HG11	2.49	0.43
1:A:300:ARG:NH2	5:A:2085:HOH:O	2.51	0.43
1:B:248:LEU:HD21	1:B:257:VAL:HG11	2.01	0.43
1:A:188:LYS:NZ	1:A:203:GLU:OE1	2.48	0.41
1:B:170:PHE:CD1	1:B:196:PHE:HD1	2.38	0.41
1:A:193:LYS:HB3	1:A:196:PHE:HD2	1.86	0.41
1:B:366:GLU:HB2	1:B:393:LYS:NZ	2.36	0.41
1:A:322:ILE:O	1:A:323:GLN:HB2	2.21	0.41
1:B:190:ILE:CG2	1:B:191:LYS:N	2.84	0.41
2:C:7:PRO:HA	2:C:8:GLY:HA3	1.85	0.40
1:B:236:LEU:N	1:B:236:LEU:HD23	2.36	0.40
1:B:385:LEU:HB3	1:B:403:TRP:CE2	2.56	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	341/382 (89%)	327 (96%)	14 (4%)	0	100	100
1	B	335/382 (88%)	320 (96%)	15 (4%)	0	100	100
2	C	6/8 (75%)	5 (83%)	1 (17%)	0	100	100
All	All	682/772 (88%)	652 (96%)	30 (4%)	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	303/339 (89%)	301 (99%)	2 (1%)	84	94
1	B	294/339 (87%)	292 (99%)	2 (1%)	84	94
2	C	5/5 (100%)	5 (100%)	0	100	100
All	All	602/683 (88%)	598 (99%)	4 (1%)	84	94

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	135	VAL
1	A	211	ASN
1	B	212	LYS
1	B	396	GLU

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	198	ASN
1	A	199	GLN
1	B	144	ASN
1	B	198	ASN
1	B	251	ASN
1	B	316	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	$\#\|Z\| > 2$
1	PTR	B	321	1	15,16,17	1.88	1 (6%)	17,22,24	0.61	0
1	PTR	A	321	1	15,16,17	2.08	1 (6%)	17,22,24	1.03	1 (5%)

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	PTR	B	321	1	-	4/10/11/13	0/1/1/1
1	PTR	A	321	1	-	2/10/11/13	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	321	PTR	OH-CZ	-7.80	1.23	1.40
1	B	321	PTR	OH-CZ	-6.75	1.25	1.40

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	321	PTR	P-OH-CZ	-2.65	114.43	123.88

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	B	321	PTR	CZ-OH-P-O1P
1	A	321	PTR	CZ-OH-P-O1P
1	B	321	PTR	CA-CB-CG-CD2
1	B	321	PTR	CA-CB-CG-CD1
1	B	321	PTR	CZ-OH-P-O3P
1	A	321	PTR	CZ-OH-P-O2P

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 3 ligands modelled in this entry, 1 is monoatomic - leaving 2 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	D15	A	600	-	32,35,35	1.06	2 (6%)	38,48,48	1.06	3 (7%)
3	D15	B	600	-	32,35,35	1.08	2 (6%)	38,48,48	2.22	8 (21%)

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	D15	A	600	-	-	0/21/23/23	0/4/4/4
3	D15	B	600	-	-	6/21/23/23	0/4/4/4

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	600	D15	CAY-CL1	2.41	1.80	1.74
3	A	600	D15	CAY-CL1	2.31	1.79	1.74
3	B	600	D15	CAP-CAZ	2.04	1.41	1.37
3	A	600	D15	NAV-NAS	2.02	1.41	1.37

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	600	D15	OAC-CAX-CBF	-9.16	113.95	122.31
3	B	600	D15	CAO-CAY-CL1	4.11	124.33	119.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	600	D15	CAO-CBB-CBF	3.90	127.29	120.44
3	B	600	D15	CAL-CBB-CBF	-3.66	114.23	120.90
3	B	600	D15	CBB-CBF-CAX	3.62	117.92	109.50
3	B	600	D15	CAI-CAY-CL1	-3.05	114.85	119.36
3	B	600	D15	CBC-CBE-CBD	-2.73	102.86	106.59
3	A	600	D15	CAZ-NAT-CAX	2.67	133.47	127.37
3	A	600	D15	CAR-CBF-CBB	-2.61	108.70	113.10
3	B	600	D15	CAM-CAZ-CAP	-2.44	115.93	119.37
3	A	600	D15	OAC-CAX-NAT	2.26	128.71	123.92

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	600	D15	CAQ-CAR-CBF-CAX
3	B	600	D15	OAC-CAX-CBF-CBB
3	B	600	D15	NAT-CAX-CBF-CBB
3	B	600	D15	NAT-CAX-CBF-CAR
3	B	600	D15	CAQ-CAR-CBF-CBB
3	B	600	D15	OAC-CAX-CBF-CAR

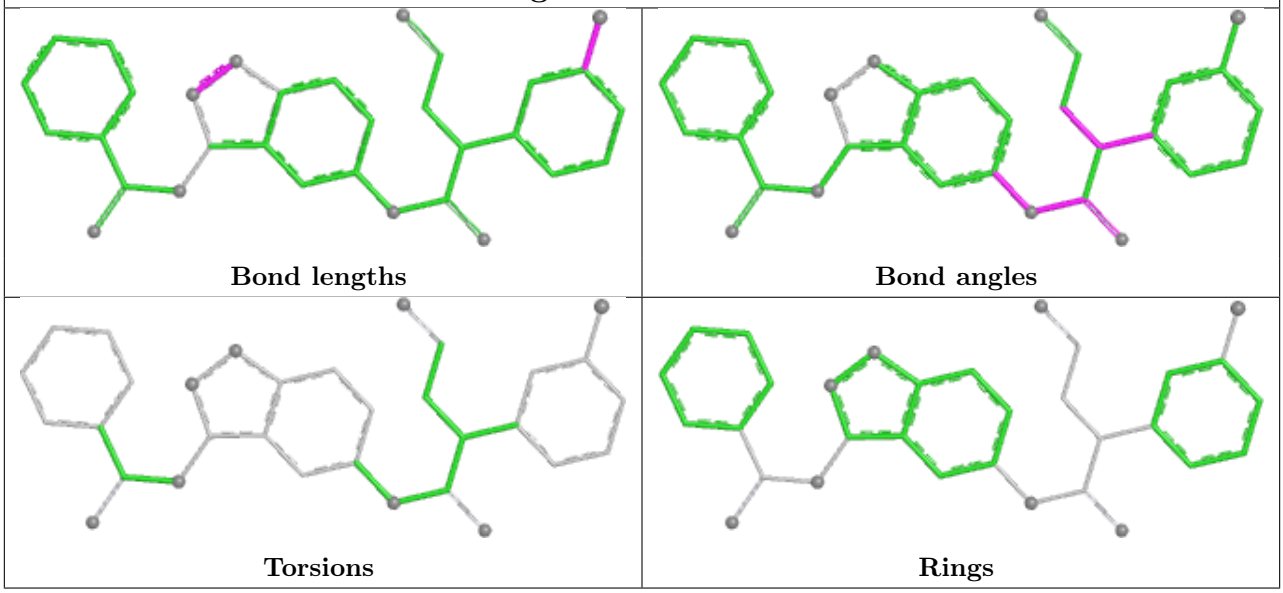
There are no ring outliers.

1 monomer is involved in 1 short contact:

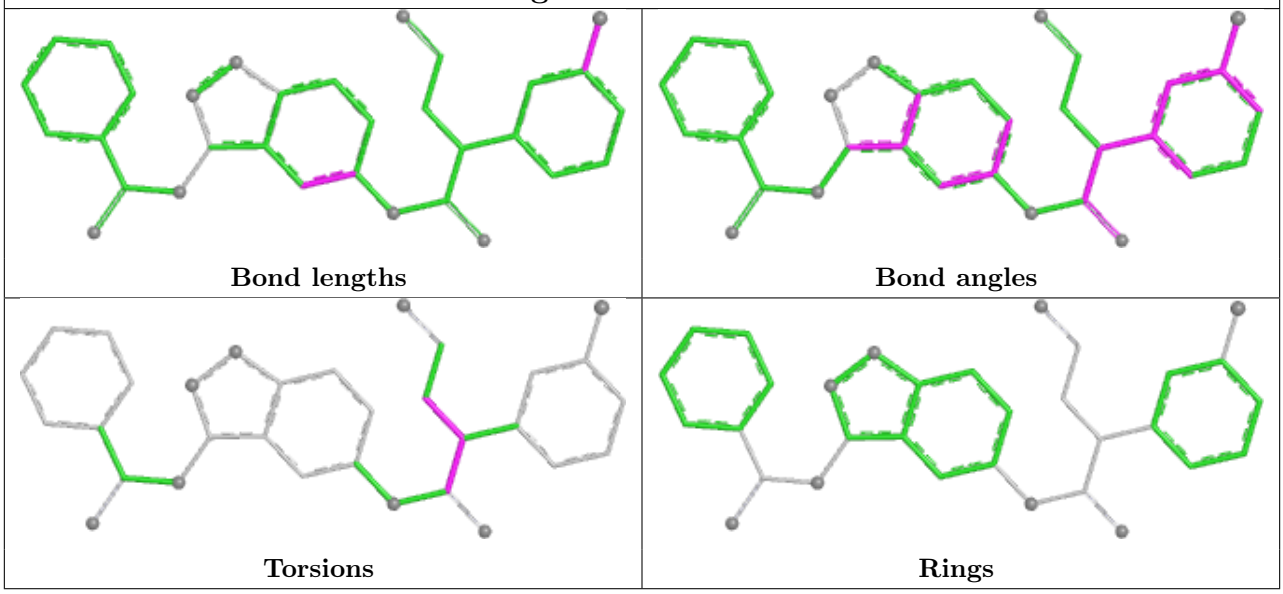
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	600	D15	1	0

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 D15 A 600



Ligand D15 B 600



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 (i)

6.1 Protein, DNA and RNA chains (i)

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	344/382 (90%)	-0.19	2 (0%)	89	90	15, 22, 28, 42	0
1	B	339/382 (88%)	0.36	27 (7%)	12	12	17, 23, 30, 45	0
2	C	8/8 (100%)	1.67	2 (25%)	0	0	65, 71, 74, 75	0
All	All	691/772 (89%)	0.10	31 (4%)	33	36	15, 22, 30, 75	0

All (31) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	413	ARG	5.8
1	B	139	GLY	5.1
1	B	136	TYR	4.3
1	B	414	GLU	4.2
1	B	152	GLY	3.7
1	B	417	PRO	3.6
1	B	440	GLY	3.5
1	B	149	VAL	3.4
1	B	392	ARG	3.1
1	B	439	ALA	3.0
1	B	155	TRP	3.0
1	B	146	ASP	3.0
1	B	407	LYS	3.0
2	C	12	LEU	2.9
1	A	157	ASP	2.8
1	B	144	ASN	2.8
1	B	138	ASP	2.8
1	B	230	PHE	2.7
1	B	232	ASN	2.7
1	A	219	TYR	2.7
2	C	11	ALA	2.7
1	B	442	SER	2.6
1	B	143	ASP	2.6

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Mol	Chain	Res	Type	RSRZ
1	B	393	LYS	2.6
1	B	231	ARG	2.2
1	B	233	HIS	2.2
1	B	383	HIS	2.2
1	B	431	THR	2.1
1	B	446	VAL	2.1
1	B	145	TYR	2.1
1	B	148	ILE	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (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(Å^2)	Q<0.9
1	PTR	A	321	16/17	0.88	0.28	32,41,44,44	0
1	PTR	B	321	16/17	0.94	0.18	27,31,33,34	0

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

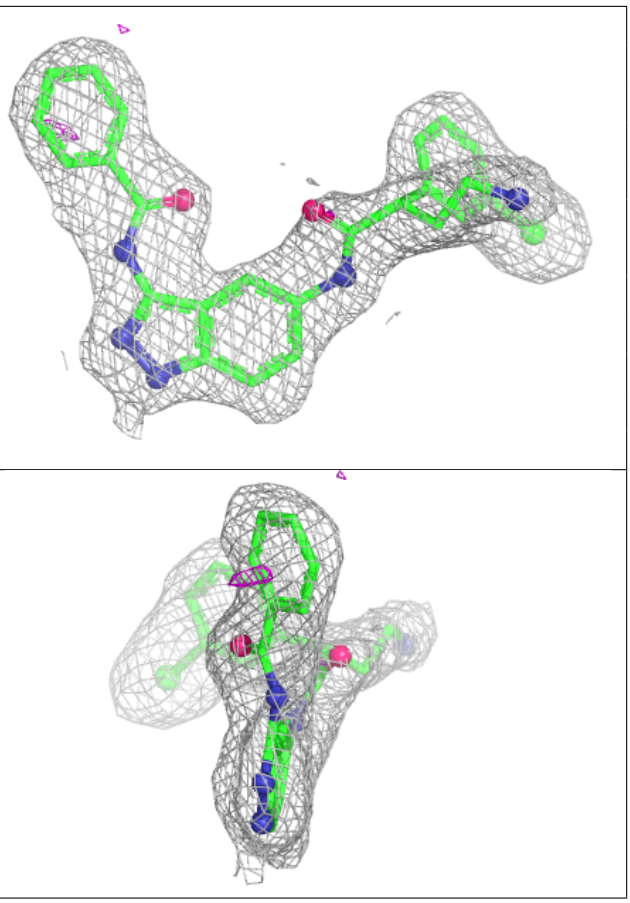
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

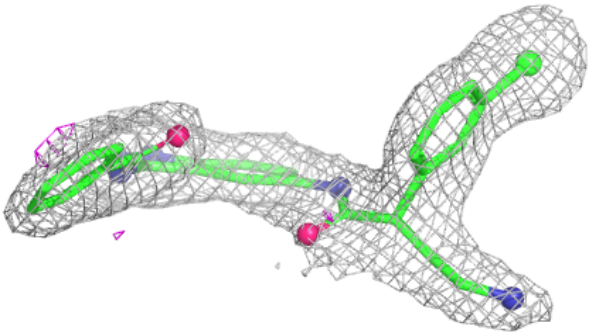
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	D15	B	600	32/32	0.93	0.15	36,41,45,50	0
4	CL	B	700	1/1	0.95	0.09	47,47,47,47	0
3	D15	A	600	32/32	0.96	0.14	17,26,31,38	0

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

Electron density around D15 B 600:

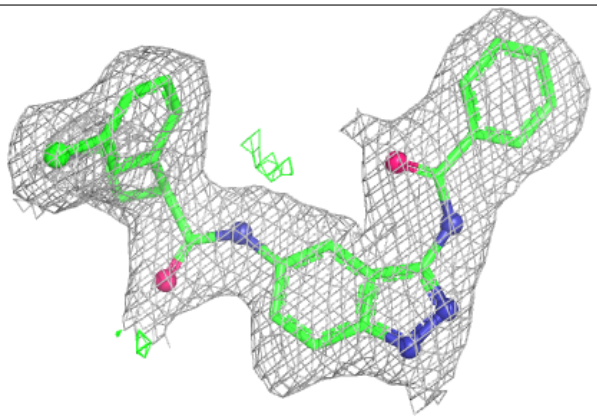
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

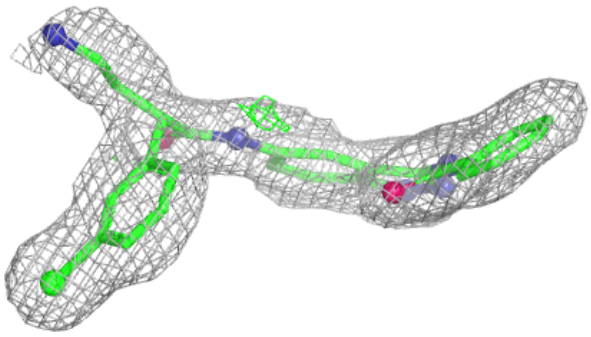




Electron density around D15 A 600:

$2mF_o$-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.