Full wwPDB X-ray Structure Validation Report (i)

May 18, 2025 – 12:51 PM EDT

PDB ID	:	9ODR / pdb_00009odr
Title	:	Structure of CRBN TBD bound to compound C1
Authors	:	Strickland, C.; Rice, C.
Deposited on	:	2025-04-27
Resolution	:	2.42 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:

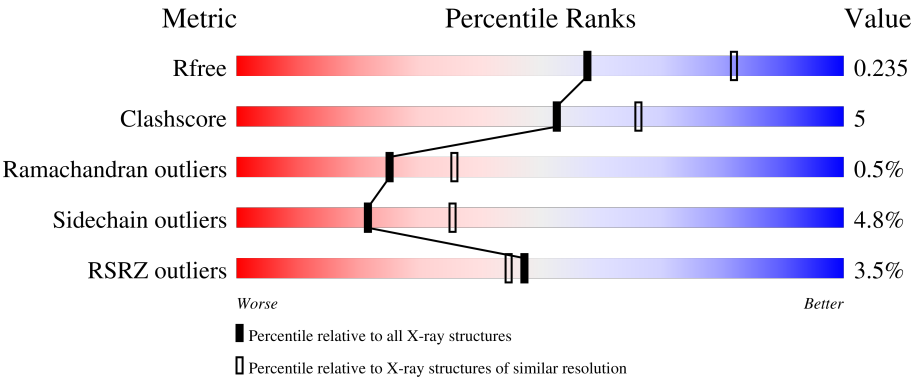
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

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 2.42 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}	164625	5670 (2.44-2.40)
Clashscore	180529	6299 (2.44-2.40)
Ramachandran outliers	177936	6232 (2.44-2.40)
Sidechain outliers	177891	6233 (2.44-2.40)
RSRZ outliers	164620	5670 (2.44-2.40)

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	111	2% 82% 15%
1	B	111	3% 86% 10%
1	C	111	5% 75% 23%
1	D	111	4% 75% 20%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 3537 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 Protein cereblon.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	109	Total	C	N	O	S	0	0	0
			852	546	143	157	6			
1	B	109	Total	C	N	O	S	0	0	0
			852	546	143	157	6			
1	C	108	Total	C	N	O	S	0	0	0
			843	540	142	155	6			
1	D	107	Total	C	N	O	S	0	0	0
			836	536	141	153	6			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	316	GLY	-	expression tag	UNP Q96SW2
A	317	PRO	-	expression tag	UNP Q96SW2
A	318	SER	-	expression tag	UNP Q96SW2
A	322	SER	CYS	conflict	UNP Q96SW2
A	343	SER	CYS	conflict	UNP Q96SW2
A	366	SER	CYS	conflict	UNP Q96SW2
B	316	GLY	-	expression tag	UNP Q96SW2
B	317	PRO	-	expression tag	UNP Q96SW2
B	318	SER	-	expression tag	UNP Q96SW2
B	322	SER	CYS	conflict	UNP Q96SW2
B	343	SER	CYS	conflict	UNP Q96SW2
B	366	SER	CYS	conflict	UNP Q96SW2
C	316	GLY	-	expression tag	UNP Q96SW2
C	317	PRO	-	expression tag	UNP Q96SW2
C	318	SER	-	expression tag	UNP Q96SW2
C	322	SER	CYS	conflict	UNP Q96SW2
C	343	SER	CYS	conflict	UNP Q96SW2
C	366	SER	CYS	conflict	UNP Q96SW2
D	316	GLY	-	expression tag	UNP Q96SW2
D	317	PRO	-	expression tag	UNP Q96SW2
D	318	SER	-	expression tag	UNP Q96SW2

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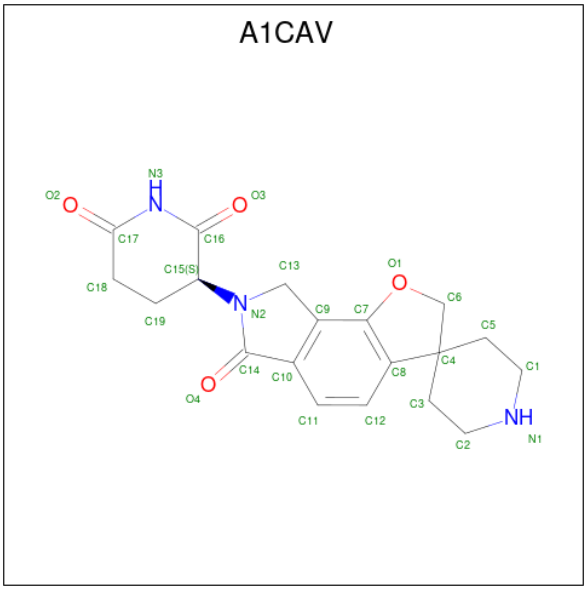
Chain	Residue	Modelled	Actual	Comment	Reference
D	322	SER	CYS	conflict	UNP Q96SW2
D	343	SER	CYS	conflict	UNP Q96SW2
D	366	SER	CYS	conflict	UNP Q96SW2

- Molecule 2 is (3S)-3-(6-oxo-6,8-dihydro-2H,7H-spiro[furo[2,3-e]isoindole-3,4'-piperidin]-7-yl)piperidine-2,6-dione (CCD ID: A1CAV) (formula: $C_{19}H_{21}N_3O_4$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C N O 26 19 3 4	0	0
2	B	1	Total C N O 26 19 3 4	0	0
2	C	1	Total C N O 26 19 3 4	0	0
2	D	1	Total C N O 26 19 3 4	0	0

- Molecule 3 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Zn 1 1	0	0
3	B	1	Total Zn 1 1	0	0
3	C	1	Total Zn 1 1	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	D	1	Total Zn 1 1	0	0

- Molecule 4 is water.

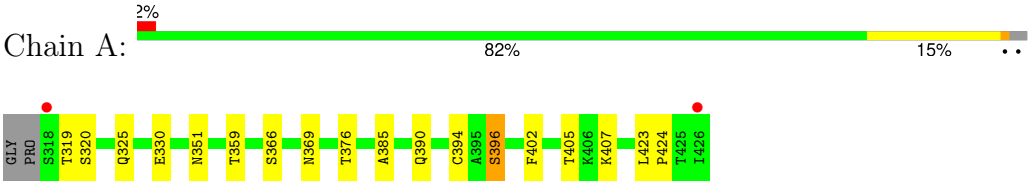
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	14	Total O 14 14	0	0
4	B	16	Total O 16 16	0	0
4	C	10	Total O 10 10	0	0
4	D	6	Total O 6 6	0	0

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.

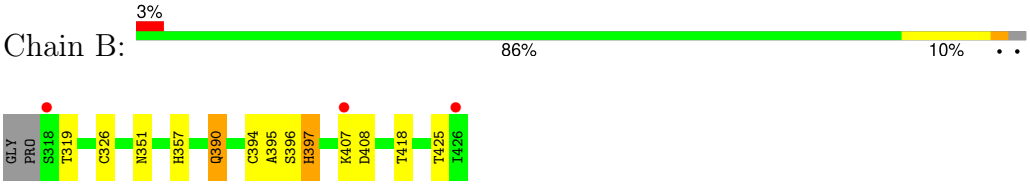
• Molecule 1: Protein cereblon

Chain A:



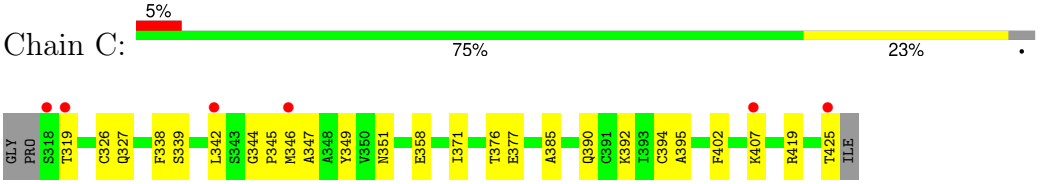
• Molecule 1: Protein cereblon

Chain B:



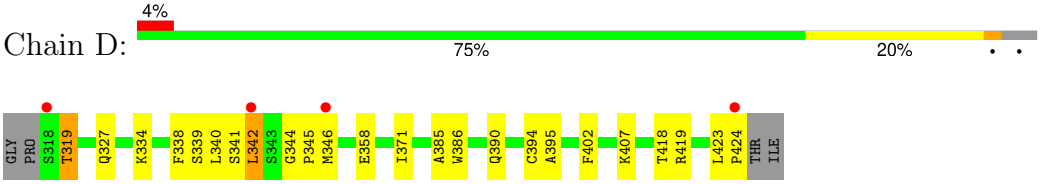
• Molecule 1: Protein cereblon

Chain C:



• Molecule 1: Protein cereblon

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	90.35Å 87.61Å 89.50Å 90.00° 113.98° 90.00°	Depositor
Resolution (Å)	43.84 – 2.42 43.84 – 2.42	Depositor EDS
% Data completeness (in resolution range)	89.9 (43.84-2.42) 90.0 (43.84-2.42)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.80 (at 2.42Å)	Xtriage
Refinement program	REFMAC 5.8.0430	Depositor
R, R_{free}	0.183 , 0.228 0.188 , 0.235	Depositor DCC
R_{free} test set	1187 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	54.9	Xtriage
Anisotropy	0.046	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 30.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	3537	wwPDB-VP
Average B, all atoms (Å^2)	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.03% 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: ZN, A1CAV

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	0.64	0/877	1.18	4/1192 (0.3%)
1	B	0.64	0/877	1.14	2/1192 (0.2%)
1	C	0.62	0/868	1.14	4/1181 (0.3%)
1	D	0.63	0/861	1.14	1/1171 (0.1%)
All	All	0.63	0/3483	1.15	11/4736 (0.2%)

There are no bond length outliers.

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	376	THR	CA-CB-OG1	-8.11	97.43	109.60
1	A	325	GLN	N-CA-CB	5.82	118.51	110.07
1	D	418	THR	CA-CB-OG1	-5.78	100.93	109.60
1	C	326	CYS	CB-CA-C	5.69	118.63	109.07
1	B	397	HIS	CA-CB-CG	5.55	119.35	113.80
1	A	359	THR	CA-CB-OG1	-5.52	101.32	109.60
1	B	326	CYS	CB-CA-C	5.42	118.66	109.55
1	A	405	THR	CA-CB-OG1	-5.36	101.57	109.60
1	C	376	THR	CA-CB-OG1	-5.11	101.94	109.60
1	C	392	LYS	CB-CA-C	-5.04	100.67	110.46
1	C	425	THR	CA-CB-OG1	-5.03	102.05	109.60

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	852	0	834	6	0
1	B	852	0	834	6	0
1	C	843	0	823	8	0
1	D	836	0	816	13	0
2	A	26	0	0	0	0
2	B	26	0	0	0	0
2	C	26	0	0	0	0
2	D	26	0	0	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
4	A	14	0	0	0	0
4	B	16	0	0	1	0
4	C	10	0	0	0	0
4	D	6	0	0	0	0
All	All	3537	0	3307	33	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 5.

All (33) 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:D:338:PHE:O	1:D:345:PRO:HB3	1.82	0.79
1:B:357:HIS:HE1	1:B:418:THR:OG1	1.75	0.68
1:D:346:MET:HB3	1:D:419:ARG:NH1	2.16	0.60
1:D:319:THR:HB	1:D:334:LYS:HD3	1.86	0.58
1:D:339:SER:OG	1:D:344:GLY:HA2	2.04	0.57
1:C:338:PHE:O	1:C:345:PRO:HB3	2.04	0.57
1:D:385:ALA:O	1:D:402:PHE:HA	2.06	0.56
1:C:339:SER:OG	1:C:344:GLY:HA2	2.05	0.56
1:D:423:LEU:HA	1:D:424:PRO:C	2.31	0.55
1:D:341:SER:OG	1:D:344:GLY:O	2.24	0.55
1:B:357:HIS:CE1	1:B:418:THR:OG1	2.58	0.52
1:C:394:CYS:O	1:C:395:ALA:HB3	2.07	0.52
1:B:394:CYS:SG	1:B:396:SER:HB3	2.51	0.50
1:D:358:GLU:HB3	1:D:419:ARG:NH2	2.26	0.50
1:A:351:ASN:OD1	1:A:351:ASN:C	2.54	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:369:ASN:HD22	1:A:390:GLN:HE21	1.61	0.49
1:B:390:GLN:HG3	1:B:395:ALA:HA	1.96	0.48
1:D:371:ILE:HD11	1:D:390:GLN:NE2	2.28	0.48
1:A:394:CYS:SG	1:A:396:SER:HB3	2.53	0.48
1:B:351:ASN:OD1	1:B:351:ASN:C	2.57	0.47
1:B:397:HIS:HB2	4:B:614:HOH:O	2.15	0.47
1:D:346:MET:HB3	1:D:419:ARG:CZ	2.45	0.47
1:A:423:LEU:HA	1:A:424:PRO:C	2.40	0.46
1:D:394:CYS:O	1:D:395:ALA:HB3	2.16	0.45
1:A:385:ALA:O	1:A:402:PHE:HA	2.17	0.45
1:C:351:ASN:OD1	1:C:351:ASN:C	2.58	0.45
1:D:342:LEU:C	1:D:344:GLY:H	2.25	0.45
1:C:385:ALA:O	1:C:402:PHE:HA	2.17	0.44
1:C:346:MET:HB3	1:C:419:ARG:NH1	2.33	0.44
1:A:320:SER:OG	1:A:330:GLU:OE1	2.38	0.41
1:C:371:ILE:HD11	1:C:390:GLN:OE1	2.20	0.41
1:D:386:TRP:HB3	1:D:402:PHE:CE1	2.56	0.40
1:C:347:ALA:HB3	1:C:349:TYR:CE1	2.57	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	107/111 (96%)	104 (97%)	3 (3%)	0	100	100
1	B	107/111 (96%)	105 (98%)	2 (2%)	0	100	100
1	C	106/111 (96%)	104 (98%)	1 (1%)	1 (1%)	14	21
1	D	105/111 (95%)	103 (98%)	1 (1%)	1 (1%)	13	19
All	All	425/444 (96%)	416 (98%)	7 (2%)	2 (0%)	25	36

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	327	GLN
1	C	327	GLN

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	94/96 (98%)	90 (96%)	4 (4%)	25	40
1	B	94/96 (98%)	89 (95%)	5 (5%)	19	31
1	C	93/96 (97%)	88 (95%)	5 (5%)	18	30
1	D	92/96 (96%)	88 (96%)	4 (4%)	25	40
All	All	373/384 (97%)	355 (95%)	18 (5%)	21	35

All (18) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	319	THR
1	A	366	SER
1	A	396	SER
1	A	407	LYS
1	B	319	THR
1	B	390	GLN
1	B	407	LYS
1	B	408	ASP
1	B	425	THR
1	C	319	THR
1	C	342	LEU
1	C	358	GLU
1	C	377	GLU
1	C	407	LYS
1	D	319	THR
1	D	340	LEU
1	D	342	LEU
1	D	407	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12)

such sidechains are listed below:

Mol	Chain	Res	Type
1	A	357	HIS
1	A	367	ASN
1	A	390	GLN
1	B	357	HIS
1	B	367	ASN
1	B	378	HIS
1	C	378	HIS
1	D	367	ASN
1	D	369	ASN
1	D	378	HIS
1	D	390	GLN
1	D	412	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

Of 8 ligands modelled in this entry, 4 are monoatomic - leaving 4 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	$\#\|Z\| > 2$
2	A1CAV	B	501	-	29,30,30	0.62	1 (3%)	39,46,46	1.35	6 (15%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	A1CAV	C	501	-	29,30,30	0.64	1 (3%)	39,46,46	1.39	7 (17%)
2	A1CAV	D	502	-	29,30,30	0.83	1 (3%)	39,46,46	1.19	4 (10%)
2	A1CAV	A	501	-	29,30,30	0.81	1 (3%)	39,46,46	1.56	8 (20%)

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	A1CAV	B	501	-	-	0/4/51/51	0/5/5/5
2	A1CAV	C	501	-	-	0/4/51/51	0/5/5/5
2	A1CAV	D	502	-	-	0/4/51/51	0/5/5/5
2	A1CAV	A	501	-	-	0/4/51/51	0/5/5/5

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	501	A1CAV	C12-C11	2.70	1.43	1.38
2	D	502	A1CAV	C12-C11	2.28	1.42	1.38
2	C	501	A1CAV	C12-C11	2.05	1.42	1.38
2	B	501	A1CAV	C12-C11	2.01	1.42	1.38

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	501	A1CAV	C2-C3-C4	3.75	113.58	109.17
2	A	501	A1CAV	C6-C4-C8	-3.72	97.26	99.56
2	C	501	A1CAV	C1-C5-C4	3.69	113.52	109.17
2	B	501	A1CAV	C9-C13-N2	3.46	102.83	101.79
2	A	501	A1CAV	C13-N2-C14	3.36	114.57	113.15
2	A	501	A1CAV	C1-C5-C4	3.23	112.97	109.17
2	C	501	A1CAV	C2-C3-C4	3.08	112.80	109.17
2	A	501	A1CAV	C2-C3-C4	3.02	112.72	109.17
2	B	501	A1CAV	C13-C9-C7	2.97	133.33	129.02
2	A	501	A1CAV	C6-O1-C7	-2.87	103.26	106.17
2	C	501	A1CAV	C6-C4-C8	2.87	101.32	99.56
2	B	501	A1CAV	C1-C5-C4	2.83	112.50	109.17
2	A	501	A1CAV	C10-C14-N2	-2.78	104.65	106.42
2	B	501	A1CAV	C13-C9-C10	-2.55	108.21	109.82
2	B	501	A1CAV	C3-C4-C8	-2.48	106.47	111.84

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	501	A1CAV	C9-C13-N2	2.42	102.52	101.79
2	C	501	A1CAV	C16-C15-N2	-2.39	108.11	110.32
2	A	501	A1CAV	C13-N2-C15	-2.38	121.42	123.68
2	D	502	A1CAV	C6-O1-C7	2.35	108.55	106.17
2	D	502	A1CAV	C13-C9-C7	2.31	132.37	129.02
2	D	502	A1CAV	C18-C17-N3	-2.28	114.26	116.69
2	A	501	A1CAV	O1-C6-C4	-2.24	105.55	107.25
2	C	501	A1CAV	C5-C4-C8	-2.23	107.02	111.84
2	C	501	A1CAV	C13-C9-C7	2.09	132.05	129.02
2	D	502	A1CAV	C2-C3-C4	2.08	111.61	109.17

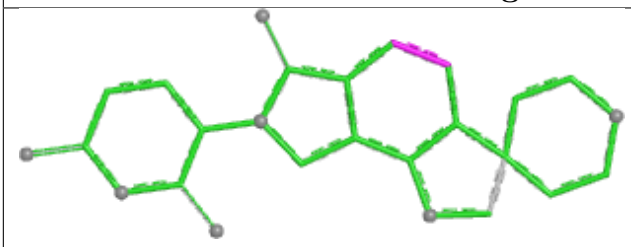
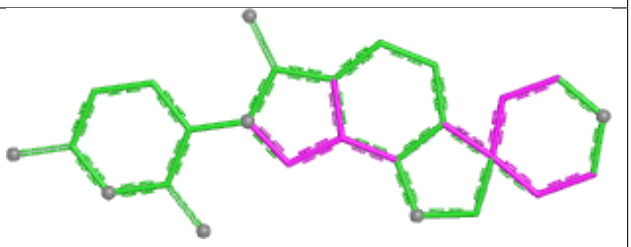
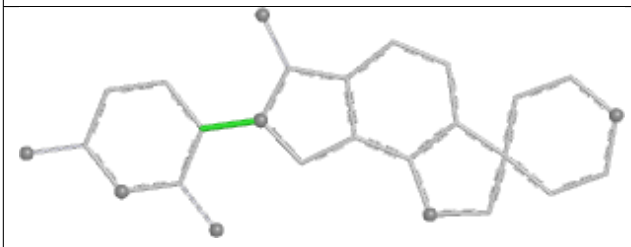
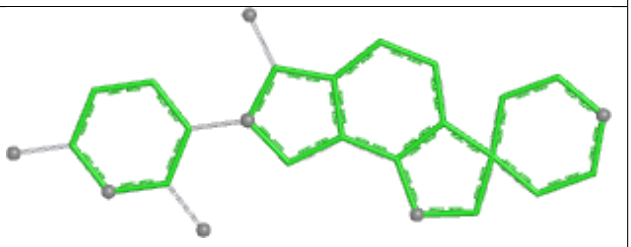
There are no chirality outliers.

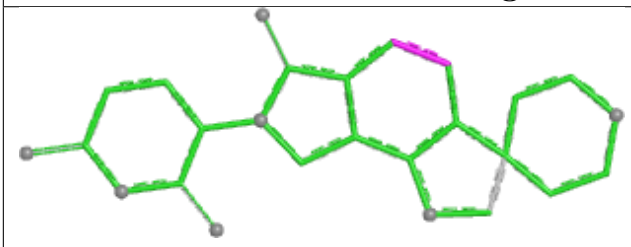
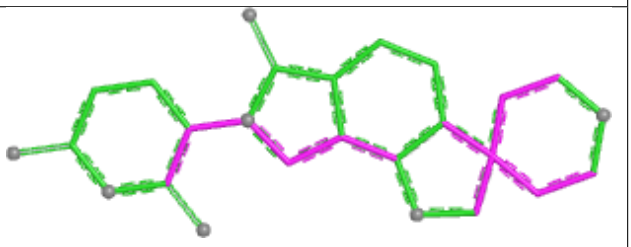
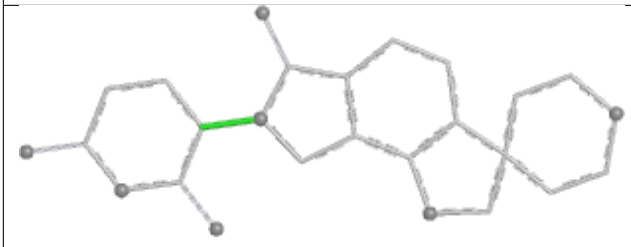
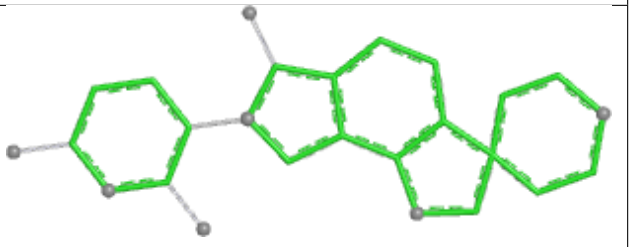
There are no torsion outliers.

There are no ring outliers.

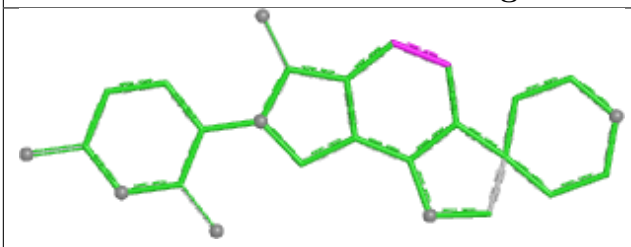
No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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.

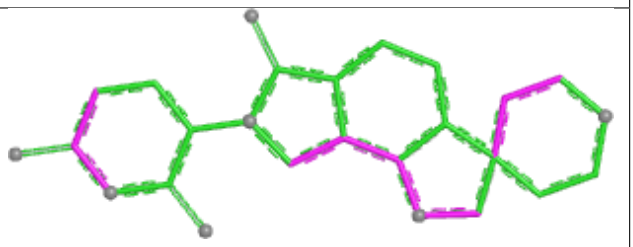
Ligand A1CAV B 501	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand A1CAV C 501	
 Bond lengths	 Bond angles
 Torsions	 Rings

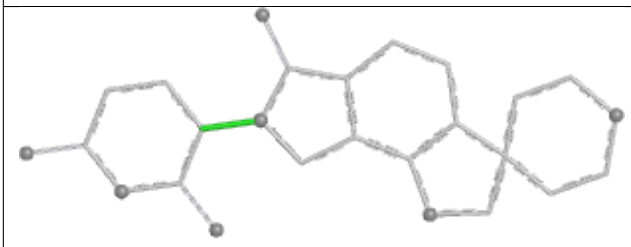
Ligand A1CAV D 502



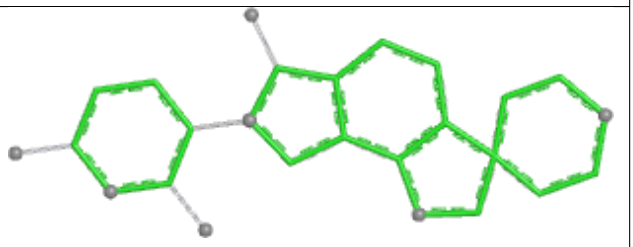
Bond lengths



Bond angles

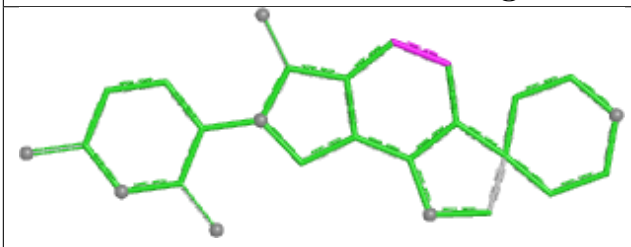


Torsions

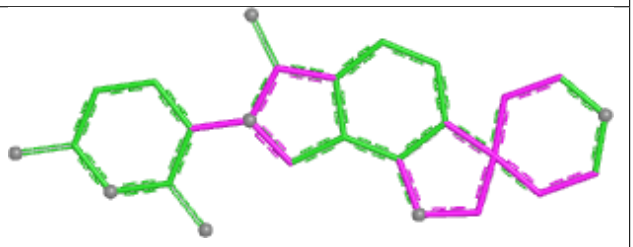


Rings

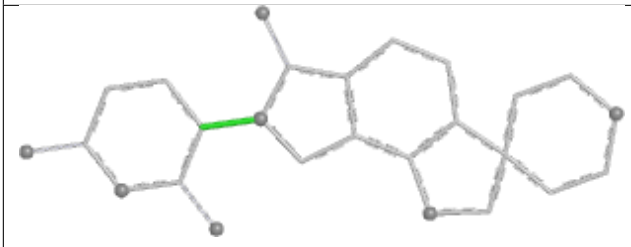
Ligand A1CAV A 501



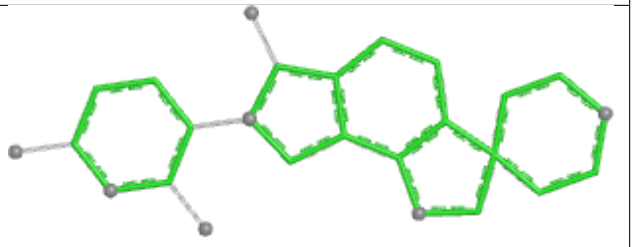
Bond lengths



Bond angles



Torsions



Rings

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^{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	109/111 (98%)	-0.39	2 (1%)	67	64	36, 47, 79, 94	0
1	B	109/111 (98%)	-0.32	3 (2%)	55	52	35, 47, 81, 94	0
1	C	108/111 (97%)	0.15	6 (5%)	31	29	39, 59, 95, 110	0
1	D	107/111 (96%)	0.11	4 (3%)	45	43	39, 59, 91, 113	0
All	All	433/444 (97%)	-0.11	15 (3%)	47	45	35, 52, 91, 113	0

All (15) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	425	THR	4.2
1	C	342	LEU	4.1
1	D	318	SER	4.0
1	D	342	LEU	4.0
1	A	318	SER	3.6
1	C	319	THR	2.7
1	D	346	MET	2.6
1	D	424	PRO	2.5
1	C	346	MET	2.5
1	C	407	LYS	2.2
1	C	318	SER	2.2
1	B	407	LYS	2.2
1	A	426	ILE	2.2
1	B	426	ILE	2.1
1	B	318	SER	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 (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

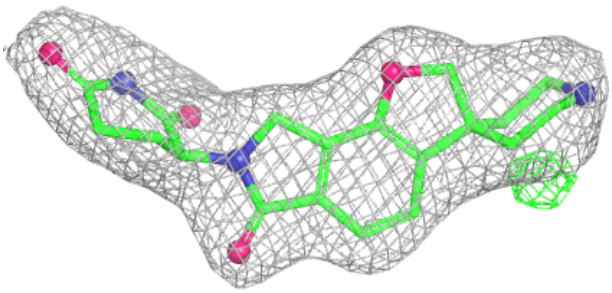
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

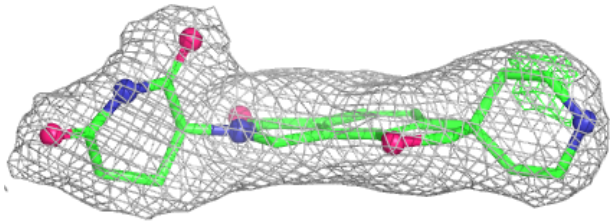
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	A1CAV	D	502	26/26	0.93	0.10	42,50,72,74	0
2	A1CAV	A	501	26/26	0.95	0.09	39,51,85,92	0
2	A1CAV	C	501	26/26	0.96	0.08	35,48,73,81	0
2	A1CAV	B	501	26/26	0.96	0.09	38,49,84,89	0
3	ZN	A	502	1/1	1.00	0.01	45,45,45,45	0
3	ZN	B	502	1/1	1.00	0.01	48,48,48,48	0
3	ZN	C	502	1/1	1.00	0.01	50,50,50,50	0
3	ZN	D	501	1/1	1.00	0.01	54,54,54,54	0

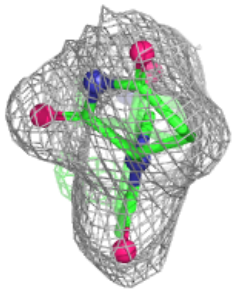
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around A1CAV D 502:

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

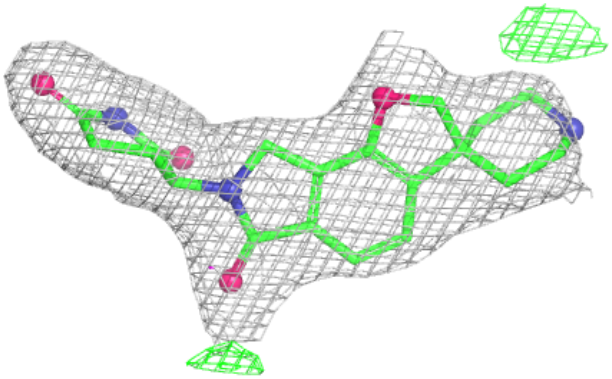


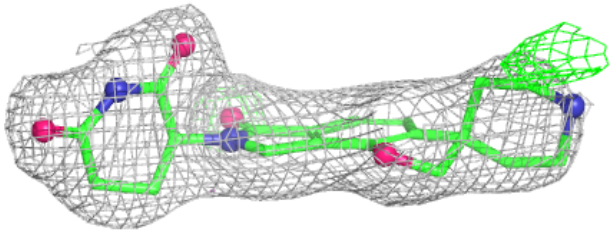


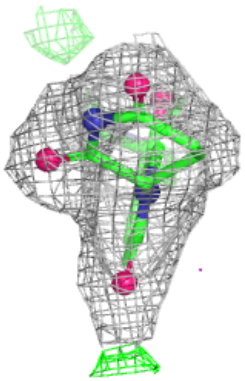


Electron density around A1CAV A 501:

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

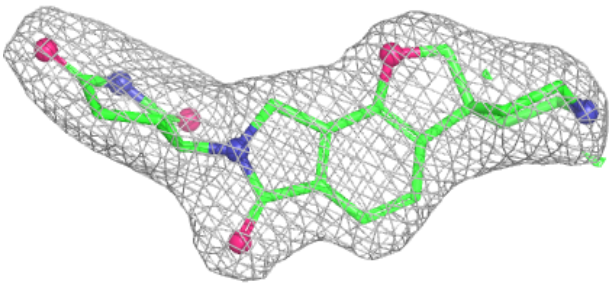


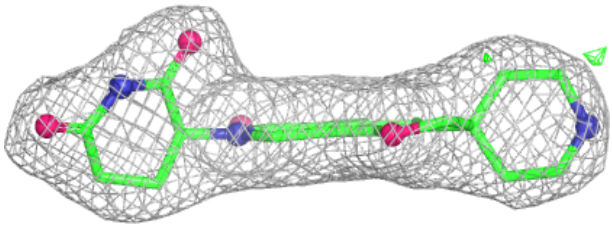


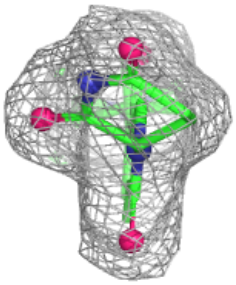


Electron density around A1CAV C 501:

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

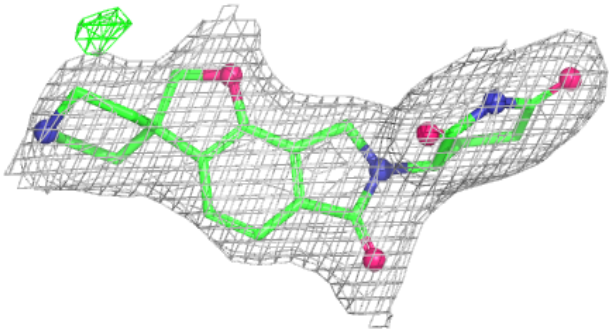


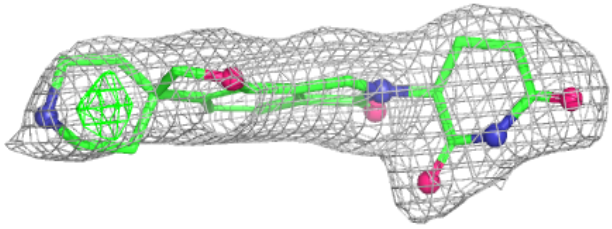


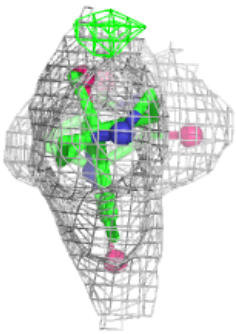


Electron density around A1CAV B 501:

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







6.5 Other polymers (i)

There are no such residues in this entry.