



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 12:08 PM UTC

PDB ID : 3I4Y / pdb_00003i4y
Title : Crystal structure determination of Catechol 1,2-Dioxygenase from *Rhodococcus opacus* 1CP in complex with 3,5-dichlorocatechol
Authors : Matera, I.; Ferraroni, M.; Kolomytseva, M.; Briganti, F.; Scozzafava, A.
Deposited on : 2009-07-03
Resolution : 1.85 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
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

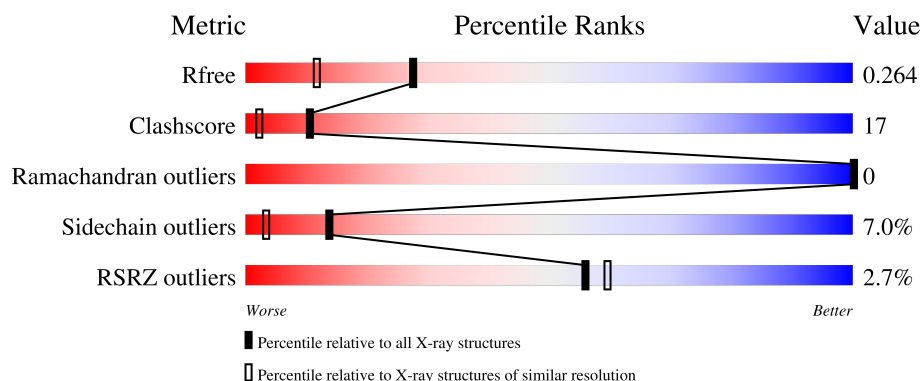
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

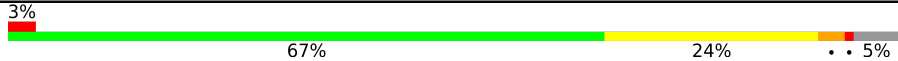
The reported resolution of this entry is 1.85 Å.

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	3428 (1.86-1.86)
Clashscore	190562	3579 (1.86-1.86)
Ramachandran outliers	187476	3553 (1.86-1.86)
Sidechain outliers	187428	3553 (1.86-1.86)
RSRZ outliers	180081	3429 (1.86-1.86)

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 $\leq 5\%$. 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	270	

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
3	35C	A	1[A]	-	-	X	-

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 2302 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.

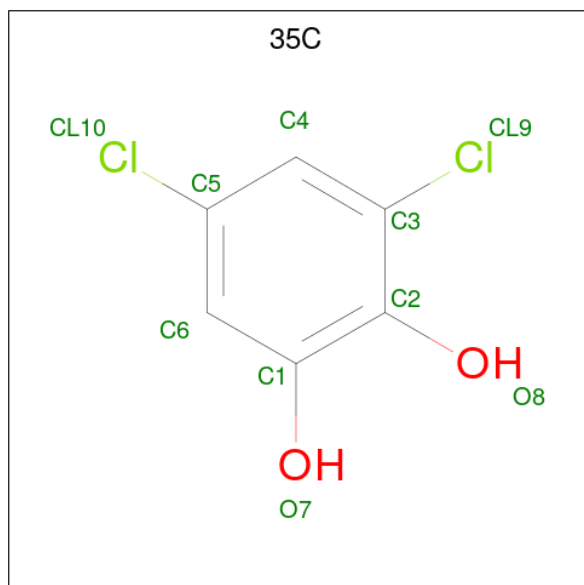
- Molecule 1 is a protein called Catechol 1,2-dioxygenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	256	Total	C	N	O	S	8	2	0
			2011	1284	330	394	3			

- Molecule 2 is FE (III) ION (CCD ID: FE) (formula: Fe).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Fe	0	0
			1	1		

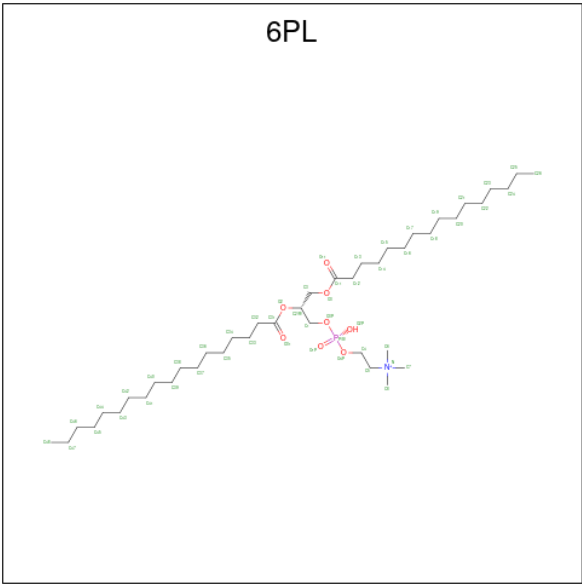
- Molecule 3 is 3,5-dichlorobenzene-1,2-diol (CCD ID: 35C) (formula: C₆H₄Cl₂O₂).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	Cl	O	0	1
			20	12	4	4		

- Molecule 4 is (4S,7R)-4-HYDROXY-N,N,N-TRIMETHYL-9-OXO-7-[(PALMITOYLOXY

)METHYL]-3,5,8-TRIOXA-4-PHOSPHAHEXACOSAN-1-AMINIUM 4-OXIDE (CCD ID: 6PL) (formula: C₄₂H₈₅NO₈P).

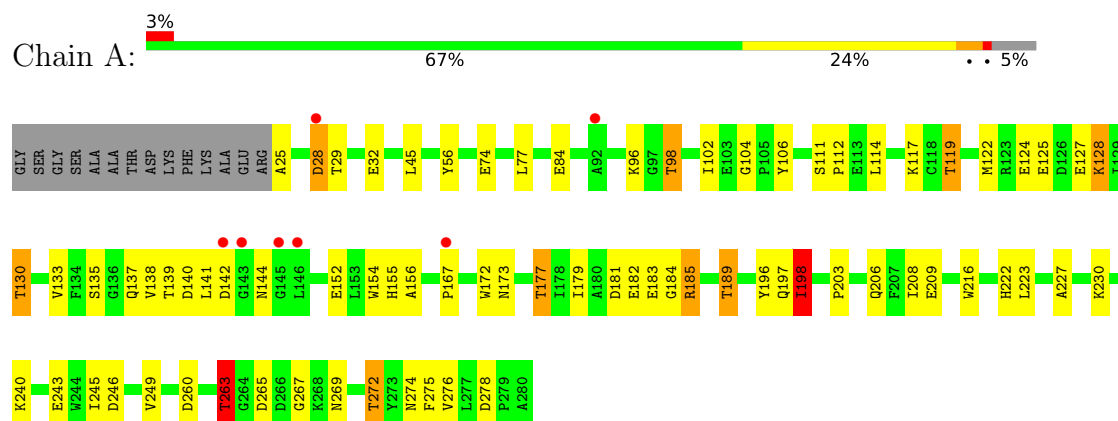


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	P		
4	A	1	41	35	5	1	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	229	Total	O	0	0
			229	229		

- Molecule 1: Catechol 1,2-dioxygenase



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	90.82Å 37.62Å 74.82Å 90.00° 94.81° 90.00°	Depositor
Resolution (Å)	74.54 – 1.85 74.54 – 1.85	Depositor EDS
% Data completeness (in resolution range)	96.8 (74.54-1.85) 96.7 (74.54-1.85)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	0.05	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.97 (at 1.86Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.204 , 0.267 0.203 , 0.264	Depositor DCC
R_{free} test set	1081 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å ²)	31.3	Xtriage
Anisotropy	0.355	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 44.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	2302	wwPDB-VP
Average B, all atoms (Å ²)	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.05% 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: 35C, FE, 6PL

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	1.17	2/2076 (0.1%)	1.17	17/2836 (0.6%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	117	LYS	CD-CE	-23.73	0.81	1.52
1	A	179	ILE	CA-CB	5.34	1.59	1.53

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	182	GLU	CB-CA-C	11.09	131.97	110.46
1	A	198	ILE	CA-CB-CG2	-8.19	96.58	110.50
1	A	198	ILE	CG1-CB-CG2	-7.34	88.67	110.70
1	A	117	LYS	CG-CD-CE	7.32	128.14	111.30
1	A	263	THR	CB-CA-C	5.93	119.53	109.80
1	A	56	TYR	CA-C-N	-5.45	113.00	119.05
1	A	56	TYR	C-N-CA	-5.45	113.00	119.05
1	A	182	GLU	CA-CB-CG	5.35	124.79	114.10
1	A	260	ASP	CA-C-N	-5.31	114.45	119.76
1	A	260	ASP	C-N-CA	-5.31	114.45	119.76
1	A	227	ALA	CA-C-N	-5.29	114.11	119.83
1	A	227	ALA	C-N-CA	-5.29	114.11	119.83
1	A	142	ASP	N-CA-C	-5.29	106.82	113.28
1	A	117	LYS	CD-CE-NZ	5.28	128.78	111.90
1	A	182	GLU	N-CA-CB	-5.24	101.86	110.14
1	A	114	LEU	CA-C-N	5.19	125.17	120.03
1	A	114	LEU	C-N-CA	5.19	125.17	120.03

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	2011	0	1928	67	1
2	A	1	0	0	0	0
3	A	20	0	4	10	0
4	A	41	0	64	1	0
5	A	229	0	0	19	1
All	All	2302	0	1996	68	1

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 17.

All (68) 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:77:LEU:CD1	3:A:1[A]:35C:CL10	2.19	1.27
1:A:77:LEU:HD11	3:A:1[A]:35C:CL10	1.87	1.07
1:A:140:ASP:OD2	1:A:144:ASN:HB2	1.68	0.92
1:A:98:THR:HG22	1:A:276:VAL:H	1.30	0.92
1:A:137:GLN:H	1:A:274:ASN:HD22	1.21	0.88
1:A:77:LEU:HD13	3:A:1[A]:35C:CL10	2.08	0.87
1:A:28:ASP:HB3	5:A:489:HOH:O	1.75	0.87
1:A:263:THR:HB	1:A:269:ASN:ND2	1.94	0.83
1:A:98:THR:CG2	1:A:276:VAL:H	1.93	0.81
1:A:274:ASN:O	5:A:446:HOH:O	1.99	0.80
1:A:25:ALA:N	5:A:445:HOH:O	2.19	0.76
1:A:196:TYR:CD2	3:A:1[B]:35C:H6	2.23	0.74
1:A:28:ASP:CB	5:A:489:HOH:O	2.34	0.71
1:A:102:ILE:HD11	3:A:1[A]:35C:CL9	2.26	0.71
1:A:189:THR:HG22	5:A:364:HOH:O	1.91	0.70
1:A:137:GLN:NE2	5:A:448:HOH:O	2.24	0.70
1:A:263:THR:HB	1:A:269:ASN:HD22	1.57	0.66
1:A:139:THR:HG21	5:A:448:HOH:O	1.96	0.65
1:A:98:THR:HB	5:A:474:HOH:O	1.97	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:77:LEU:HD12	3:A:1[A]:35C:CL10	2.30	0.64
1:A:111:SER:O	1:A:177:THR:CG2	2.46	0.63
1:A:223:LEU:HD22	1:A:275:PHE:CZ	2.33	0.63
1:A:206:GLN:HB2	5:A:355:HOH:O	1.98	0.62
1:A:98:THR:HG21	1:A:275:PHE:HA	1.82	0.61
1:A:111:SER:O	1:A:177:THR:HG23	2.01	0.60
1:A:177:THR:HG21	5:A:462:HOH:O	2.02	0.59
1:A:130:THR:HG22	5:A:337:HOH:O	2.02	0.58
1:A:137:GLN:N	1:A:274:ASN:HD22	1.97	0.56
1:A:111:SER:OG	1:A:177:THR:HG22	2.05	0.56
1:A:183:GLU:HG2	5:A:480:HOH:O	2.06	0.55
1:A:152:GLU:HG2	1:A:177:THR:HB	1.89	0.54
1:A:138:VAL:N	1:A:184:GLY:O	2.30	0.54
1:A:181:ASP:OD2	1:A:185:ARG:NH1	2.42	0.53
1:A:106:TYR:HE1	3:A:1[A]:35C:H6	1.74	0.53
1:A:245:ILE:HG23	1:A:246:ASP:OD1	2.09	0.52
1:A:74:GLU:OE2	1:A:203:PRO:HD2	2.09	0.52
1:A:104:GLY:HA3	3:A:1[B]:35C:CL9	2.47	0.52
1:A:137:GLN:CD	5:A:448:HOH:O	2.50	0.51
1:A:102:ILE:CD1	3:A:1[A]:35C:CL9	2.97	0.50
1:A:230:LYS:HD3	1:A:278:ASP:O	2.12	0.50
1:A:155:HIS:HD2	1:A:156:ALA:O	1.95	0.48
1:A:124:GLU:O	1:A:127:GLU:HB2	2.13	0.48
1:A:240:LYS:HE2	5:A:487:HOH:O	2.13	0.47
1:A:167:PRO:HD2	5:A:497:HOH:O	2.13	0.47
4:A:282:6PL:H392	4:A:282:6PL:H422	1.73	0.47
1:A:128:LYS:HA	1:A:128:LYS:HE3	1.97	0.47
1:A:223:LEU:HD22	1:A:275:PHE:HZ	1.78	0.47
1:A:189:THR:CG2	5:A:364:HOH:O	2.57	0.46
1:A:206:GLN:CB	5:A:355:HOH:O	2.60	0.46
1:A:98:THR:HG22	1:A:276:VAL:N	2.14	0.45
1:A:112:PRO:HD3	1:A:172:TRP:CD2	2.53	0.44
1:A:137:GLN:H	1:A:274:ASN:ND2	2.02	0.44
1:A:96:LYS:HD3	1:A:141:LEU:CD2	2.48	0.44
1:A:104:GLY:CA	3:A:1[B]:35C:CL9	3.04	0.43
1:A:96:LYS:HB2	1:A:141:LEU:HD21	2.00	0.43
1:A:198:ILE:HD11	1:A:249:VAL:HG11	2.00	0.42
1:A:119:THR:HG22	5:A:382:HOH:O	2.18	0.42
1:A:28:ASP:HA	5:A:403:HOH:O	2.19	0.42
1:A:122:MET:HA	1:A:173:ASN:ND2	2.34	0.42
1:A:84:GLU:CD	1:A:102:ILE:HB	2.45	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:133:VAL:HG22	1:A:189:THR:HB	2.02	0.41
1:A:265:ASP:C	1:A:267:GLY:H	2.28	0.41
1:A:28:ASP:O	1:A:29:THR:C	2.64	0.41
1:A:154:TRP:CZ2	1:A:222:HIS:HB3	2.56	0.41
1:A:135:SER:O	1:A:272:THR:HA	2.22	0.40
1:A:198:ILE:HD12	1:A:208:ILE:HD11	2.02	0.40
1:A:152:GLU:O	1:A:223:LEU:HA	2.21	0.40
1:A:197:GLN:HB2	1:A:216:TRP:CH2	2.56	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:32:GLU:OE1	5:A:491:HOH:O[4_556]	2.19	0.01

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	256/270 (95%)	248 (97%)	8 (3%)	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	215/222 (97%)	200 (93%)	15 (7%)	14 3

All (15) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	28	ASP
1	A	45	LEU
1	A	98	THR
1	A	119	THR
1	A	125	GLU
1	A	128	LYS
1	A	130	THR
1	A	177	THR
1	A	185	ARG
1	A	189	THR
1	A	198	ILE
1	A	209	GLU
1	A	243	GLU
1	A	263	THR
1	A	272	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	46	ASN
1	A	52	HIS
1	A	137	GLN
1	A	144	ASN
1	A	155	HIS
1	A	173	ASN
1	A	206	GLN
1	A	269	ASN
1	A	274	ASN

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 [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 1 is monoatomic - leaving 3 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	6PL	A	282	-	38,40,51	1.10	2 (5%)	40,42,59	1.29	4 (10%)
3	35C	A	1[A]	2	10,10,10	1.03	1 (10%)	13,14,14	0.83	0
3	35C	A	1[B]	2	10,10,10	1.48	2 (20%)	13,14,14	1.32	2 (15%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	6PL	A	282	-	-	25/41/42/55	-
3	35C	A	1[A]	2	-	-	0/1/1/1
3	35C	A	1[B]	2	-	-	0/1/1/1

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	282	6PL	O3-C11	4.88	1.47	1.33
4	A	282	6PL	O2-C31	4.10	1.45	1.34
3	A	1[B]	35C	C1-C2	-2.91	1.36	1.40
3	A	1[B]	35C	C2-C3	-2.57	1.36	1.39
3	A	1[A]	35C	C3-CL9	2.48	1.79	1.73

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	282	6PL	O2-C31-C32	4.63	121.50	111.48
3	A	1[B]	35C	C4-C3-CL9	2.97	123.31	118.45
4	A	282	6PL	O3-C11-C12	2.70	120.06	111.83
3	A	1[B]	35C	C2-C3-CL9	-2.33	115.93	118.81
4	A	282	6PL	O2-C31-O31	-2.19	118.59	123.70
4	A	282	6PL	C2-O2-C31	-2.16	112.62	117.80

There are no chirality outliers.

All (25) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	282	6PL	C12-C11-O3-C3
4	A	282	6PL	O11-C11-O3-C3
4	A	282	6PL	C32-C31-O2-C2
4	A	282	6PL	O31-C31-O2-C2
4	A	282	6PL	C39-C40-C41-C42
4	A	282	6PL	C15-C16-C17-C18
4	A	282	6PL	C16-C17-C18-C19
4	A	282	6PL	C33-C34-C35-C36
4	A	282	6PL	C17-C18-C19-C20
4	A	282	6PL	C40-C41-C42-C43
4	A	282	6PL	C11-C12-C13-C14
4	A	282	6PL	C14-C15-C16-C17
4	A	282	6PL	C20-C21-C22-C23
4	A	282	6PL	C12-C13-C14-C15
4	A	282	6PL	C1-C2-C3-O3
4	A	282	6PL	C34-C35-C36-C37
4	A	282	6PL	C18-C19-C20-C21
4	A	282	6PL	C45-C46-C47-C48
4	A	282	6PL	C35-C36-C37-C38
4	A	282	6PL	C31-C32-C33-C34
4	A	282	6PL	C21-C22-C23-C24
4	A	282	6PL	O2-C2-C3-O3
4	A	282	6PL	C32-C33-C34-C35
4	A	282	6PL	O2-C31-C32-C33
4	A	282	6PL	O3P-C1-C2-C3

There are no ring outliers.

3 monomers are involved in 11 short contacts:

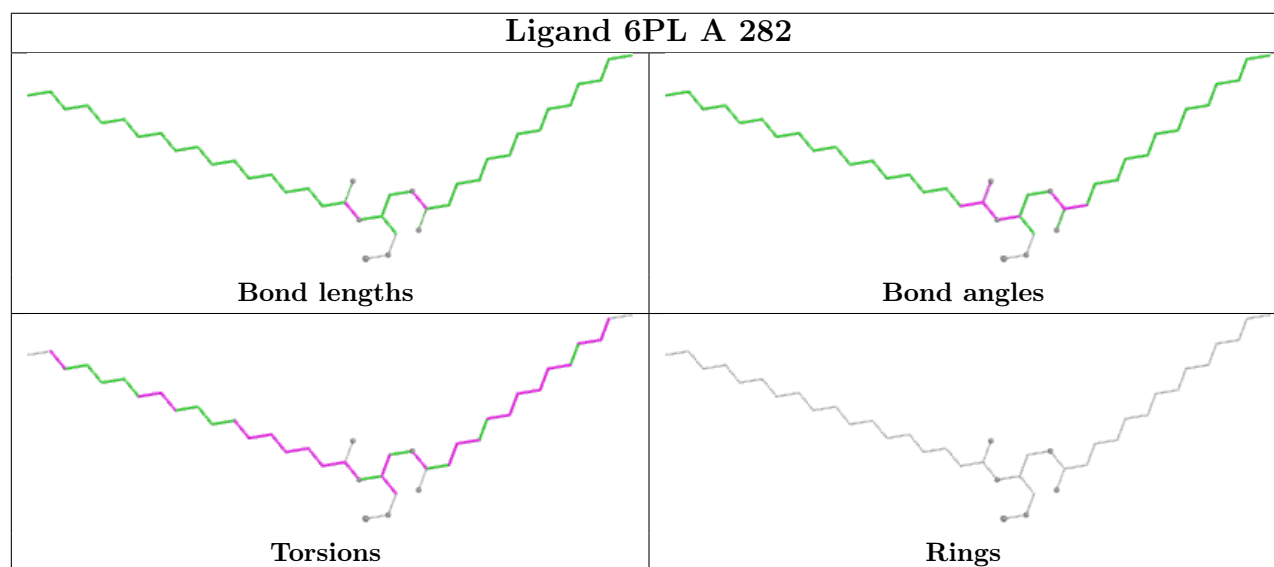
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	282	6PL	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1[A]	35C	7	0
3	A	1[B]	35C	3	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [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	256/270 (94%)	0.38	7 (2%) 56 59	12, 34, 48, 54	5 (1%)

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	145	GLY	3.1
1	A	92	ALA	2.5
1	A	28	ASP	2.5
1	A	143	GLY	2.2
1	A	142	ASP	2.2
1	A	146	LEU	2.1
1	A	167	PRO	2.1

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 oligosaccharides 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.

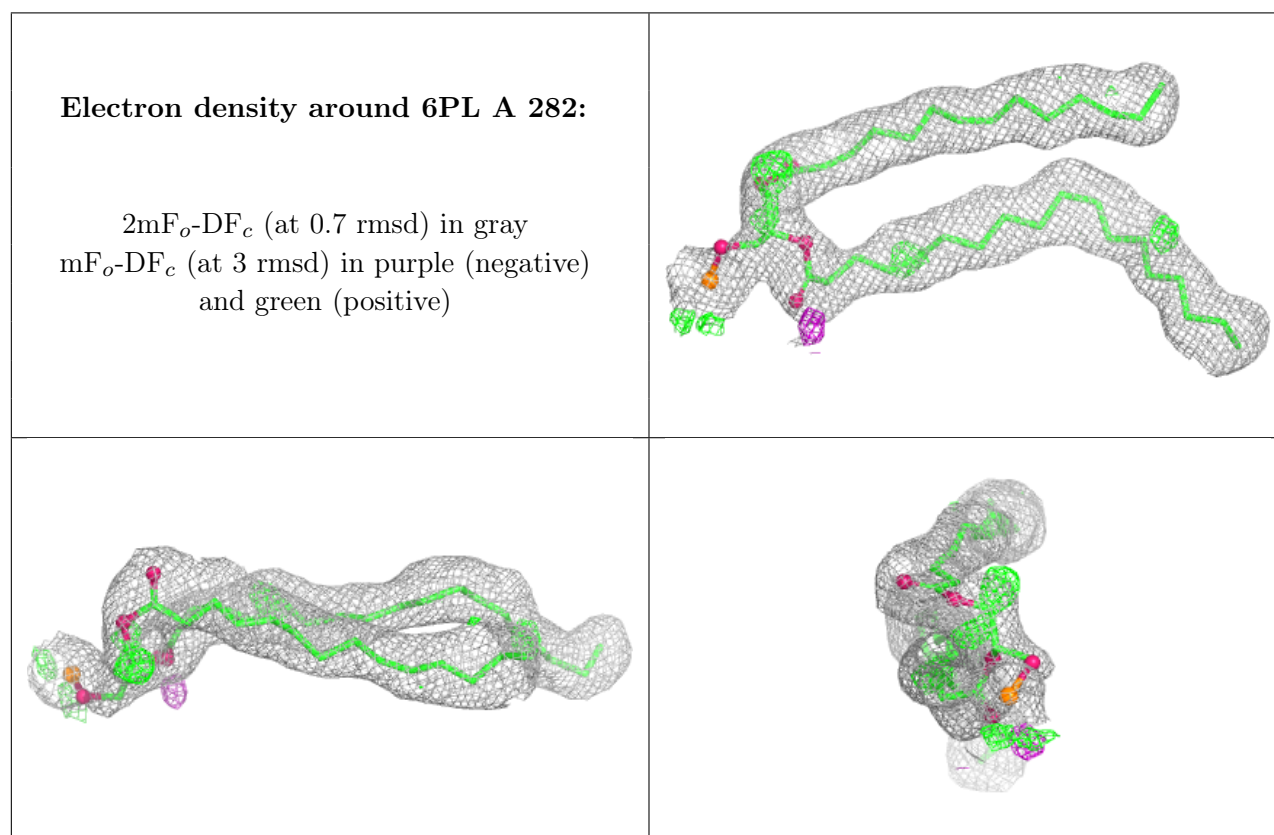
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	6PL	A	282	41/52	0.89	0.11	30,40,57,68	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	35C	A	1[B]	10/10	0.92	0.09	23,25,26,27	10
3	35C	A	1[A]	10/10	0.92	0.09	35,36,36,37	10
2	FE	A	281	1/1	1.00	0.01	22,22,22,22	0

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



6.5 Other polymers [i](#)

There are no such residues in this entry.