



Full wwPDB X-ray Structure Validation Report ⓘ

Apr 25, 2026 – 10:36 AM EDT

PDB ID : 4QL0 / pdb_00004ql0
Title : Crystal Structure Analysis of the Membrane Transporter FhaC (double mutant V169T, I176N)
Authors : Maier, T.; Clantin, B.; Gruss, F.; Dewitte, F.; Delattre, A.S.; Jacob-Dubuisson, F.; Hiller, S.; Villeret, V.
Deposited on : 2014-06-10
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 ⓘ 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

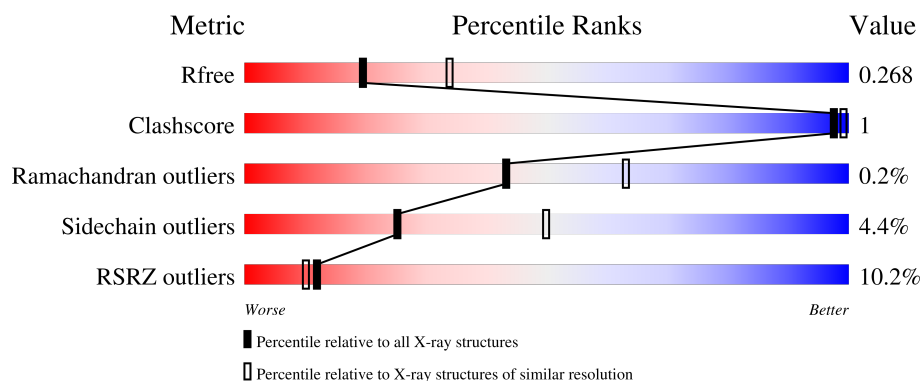
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 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}	180053	5829 (2.50-2.50)
Clashscore	190562	6492 (2.50-2.50)
Ramachandran outliers	187476	6378 (2.50-2.50)
Sidechain outliers	187428	6380 (2.50-2.50)
RSRZ outliers	180081	5833 (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 $\leq 5\%$. 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	554	10% 88% 6% • 6%

2 Entry composition [i](#)

There are 9 unique types of molecules in this entry. The entry contains 8500 atoms, of which 4200 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.

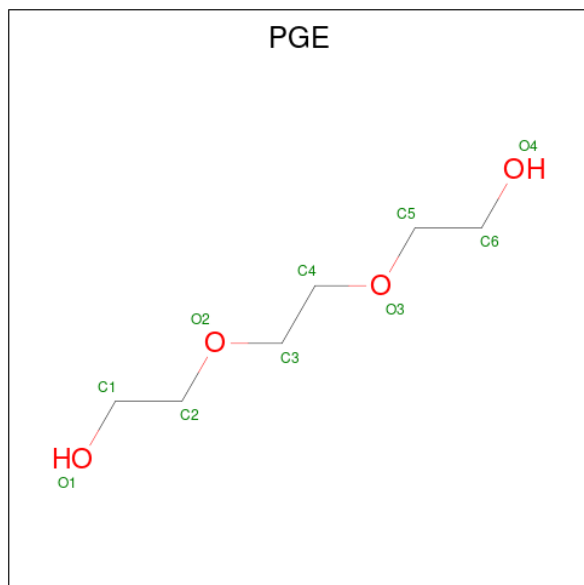
- Molecule 1 is a protein called Filamentous hemagglutinin transporter protein FhaC.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	H	N	O	S			
1	A	520	8121	2583	4026	734	769	9	0	2	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	169	THR	VAL	engineered mutation	UNP P35077
A	176	ASN	ILE	engineered mutation	UNP P35077

- Molecule 2 is TRIETHYLENE GLYCOL (CCD ID: PGE) (formula: $C_6H_{14}O_4$).



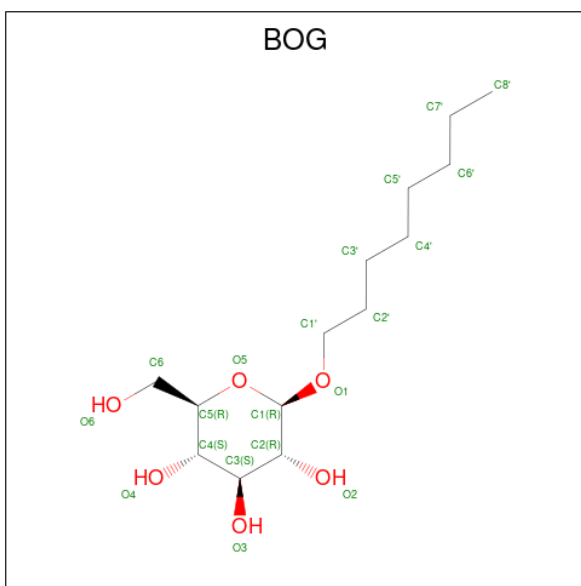
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	H	O		
2	A	1	24	6	14	4	0	0

- Molecule 3 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	H	O	0	0
			17	4	10	3		

- Molecule 4 is octyl beta-D-glucopyranoside (CCD ID: BOG) (formula: $C_{14}H_{28}O_6$).



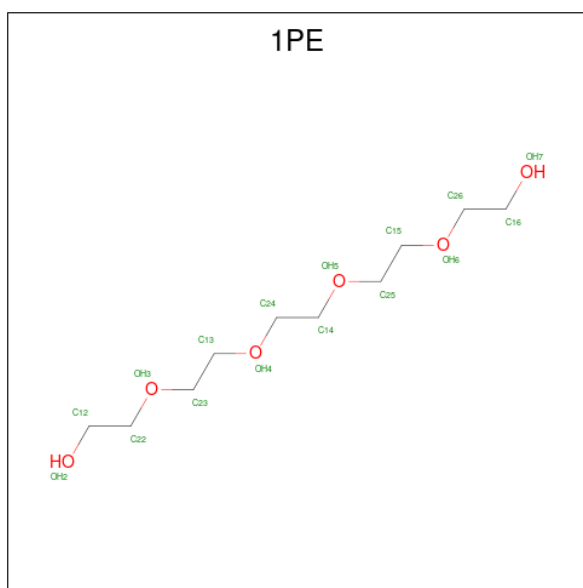
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	H	O	0	0
			48	14	28	6		
4	A	1	Total	C	H	O	0	0
			48	14	28	6		
4	A	1	Total	C	H	O	0	0
			48	14	28	6		

- Molecule 5 is PHOSPHATE ION (CCD ID: PO4) (formula: O_4P).



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

- Molecule 6 is PENTAETHYLENE GLYCOL (CCD ID: 1PE) (formula: $C_{10}H_{22}O_6$).



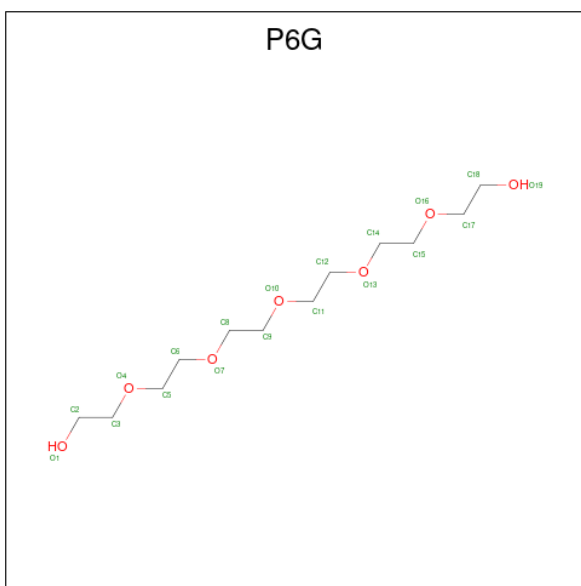
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	A	1	Total	C	H	O	0	0
			38	10	22	6		

- Molecule 7 is TETRAETHYLENE GLYCOL (CCD ID: PG4) (formula: $C_8H_{18}O_5$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
7	A	1	Total	C	H	O	0	0
			31	8	18	5		

- Molecule 8 is HEXAETHYLENE GLYCOL (CCD ID: P6G) (formula: $C_{12}H_{26}O_7$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
8	A	1	Total	C	H	O	0	0
			45	12	26	7		

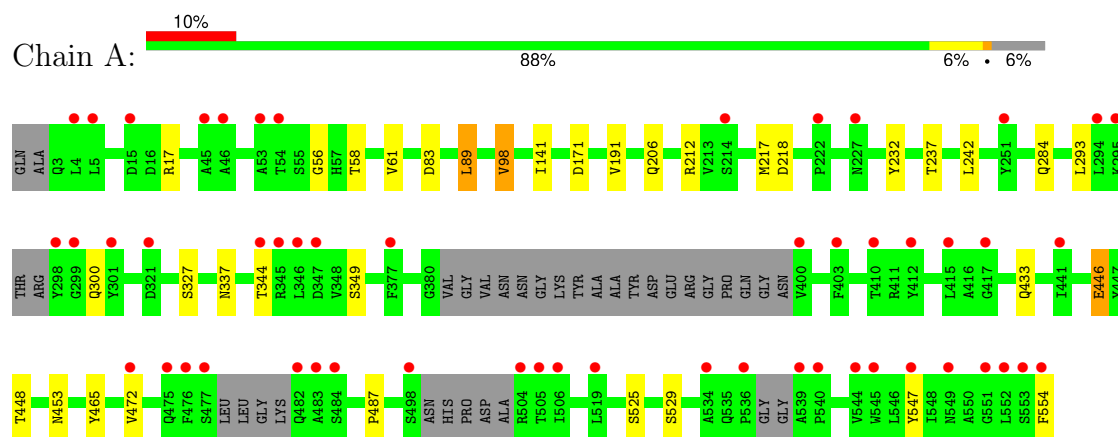
- Molecule 9 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	A	75	Total	O	0	0
			75	75		

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: Filamentous hemagglutinin transporter protein FhaC



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	106.38Å 136.95Å 110.97Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	41.95 – 2.50 41.95 – 2.50	Depositor EDS
% Data completeness (in resolution range)	99.7 (41.95-2.50) 99.7 (41.95-2.50)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.73 (at 2.51Å)	Xtriage
Refinement program	BUSTER 2.10.0	Depositor
R, R_{free}	0.217 , 0.259 0.223 , 0.268	Depositor DCC
R_{free} test set	2739 reflections (9.67%)	wwPDB-VP
Wilson B-factor (Å ²)	60.5	Xtriage
Anisotropy	0.357	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.39 , 62.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	8500	wwPDB-VP
Average B, all atoms (Å ²)	78.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.63% 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: PGE, P6G, BOG, PG4, PO4, 1PE, PEG

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	0.86	2/4189 (0.0%)	1.07	4/5678 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	98	VAL	CA-C	6.22	1.60	1.52
1	A	141	ILE	CG1-CD1	-5.23	1.31	1.51

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	171	ASP	CA-CB-CG	6.61	119.21	112.60
1	A	453	ASN	CA-CB-CG	6.61	119.21	112.60
1	A	337	ASN	CA-CB-CG	5.55	118.15	112.60
1	A	218	ASP	CA-CB-CG	5.32	117.92	112.60

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	4095	4026	4018	7	0
2	A	10	14	14	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	A	7	10	10	0	0
4	A	60	84	84	0	0
5	A	5	0	0	0	0
6	A	16	22	22	0	0
7	A	13	18	18	0	0
8	A	19	26	26	0	0
9	A	75	0	0	0	0
All	All	4300	4200	4192	7	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 1.

All (7) 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:448:THR:HG22	1:A:465:TYR:CE2	2.47	0.49
1:A:446:GLU:HG2	1:A:547:TYR:CD2	2.53	0.44
1:A:58:THR:HA	1:A:89:LEU:O	2.19	0.42
1:A:212:ARG:HB2	1:A:237:THR:OG1	2.20	0.41
1:A:472:VAL:O	1:A:487:PRO:HD2	2.21	0.41
1:A:217:MET:HE3	1:A:232:TYR:CZ	2.57	0.41
1:A:217:MET:HE3	1:A:232: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	510/554 (92%)	492 (96%)	17 (3%)	1 (0%)	43 63

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	56	GLY

5.3.2 Protein sidechains ⓘ

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	431/452 (95%)	412 (96%)	19 (4%)	25 50

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	17	ARG
1	A	61	VAL
1	A	83	ASP
1	A	89	LEU
1	A	98	VAL
1	A	191	VAL
1	A	206	GLN
1	A	242	LEU
1	A	284	GLN
1	A	293	LEU
1	A	300	GLN
1	A	327	SER
1	A	344	THR
1	A	349	SER
1	A	433	GLN
1	A	446	GLU
1	A	525	SER
1	A	529	SER
1	A	554	PHE

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	86	ASN
1	A	239	ASN

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Mol	Chain	Res	Type
1	A	284	GLN
1	A	302	GLN
1	A	337	ASN
1	A	339	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

9 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	$\# Z > 2$
4	BOG	A	606	-	20,20,20	0.43	0	25,25,25	0.57	0
4	BOG	A	603	-	20,20,20	0.22	0	25,25,25	1.07	2 (8%)
3	PEG	A	602	-	6,6,6	0.19	0	5,5,5	0.22	0
2	PGE	A	601	-	9,9,9	0.28	0	8,8,8	0.36	0
6	1PE	A	607	-	15,15,15	0.74	0	14,14,14	0.42	0
5	PO4	A	605	-	4,4,4	0.57	0	6,6,6	0.66	0
8	P6G	A	609	-	18,18,18	0.62	0	17,17,17	0.35	0
7	PG4	A	608	-	12,12,12	0.32	0	11,11,11	0.26	0
4	BOG	A	604	-	20,20,20	0.26	0	25,25,25	0.36	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	BOG	A	606	-	-	5/11/31/31	0/1/1/1
4	BOG	A	603	-	-	4/11/31/31	0/1/1/1
3	PEG	A	602	-	-	0/4/4/4	-
2	PGE	A	601	-	-	2/7/7/7	-
6	1PE	A	607	-	-	10/13/13/13	-
8	P6G	A	609	-	-	5/16/16/16	-
7	PG4	A	608	-	-	4/10/10/10	-
4	BOG	A	604	-	-	5/11/31/31	0/1/1/1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	603	BOG	C1-O5-C5	4.03	121.59	113.72
4	A	603	BOG	O5-C5-C4	2.01	113.32	109.70

There are no chirality outliers.

All (35) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	604	BOG	C2'-C1'-O1-C1
4	A	606	BOG	O5-C1-O1-C1'
4	A	604	BOG	O5-C1-O1-C1'
4	A	604	BOG	C2-C1-O1-C1'
6	A	607	1PE	OH4-C13-C23-OH3
6	A	607	1PE	OH7-C16-C26-OH6
4	A	603	BOG	C2-C1-O1-C1'
4	A	606	BOG	C2-C1-O1-C1'
8	A	609	P6G	O1-C2-C3-O4
4	A	606	BOG	C2'-C1'-O1-C1
7	A	608	PG4	O2-C3-C4-O3
4	A	604	BOG	C1'-C2'-C3'-C4'
4	A	606	BOG	O1-C1'-C2'-C3'
4	A	603	BOG	C2'-C3'-C4'-C5'
6	A	607	1PE	C15-C25-OH5-C14
6	A	607	1PE	C23-C13-OH4-C24

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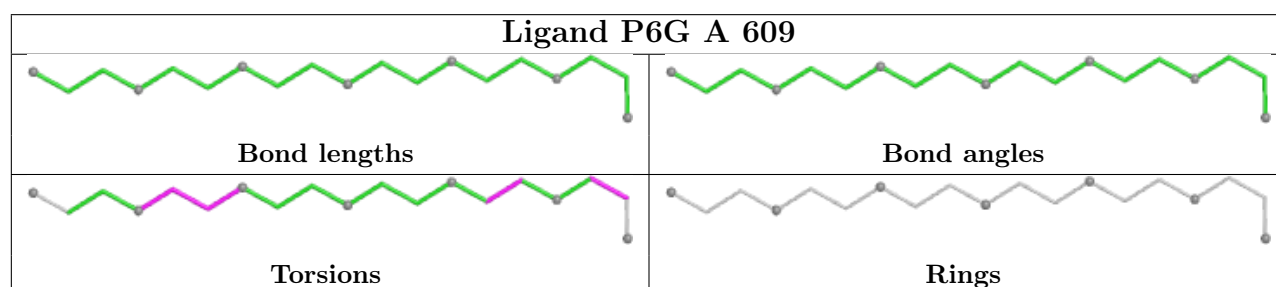
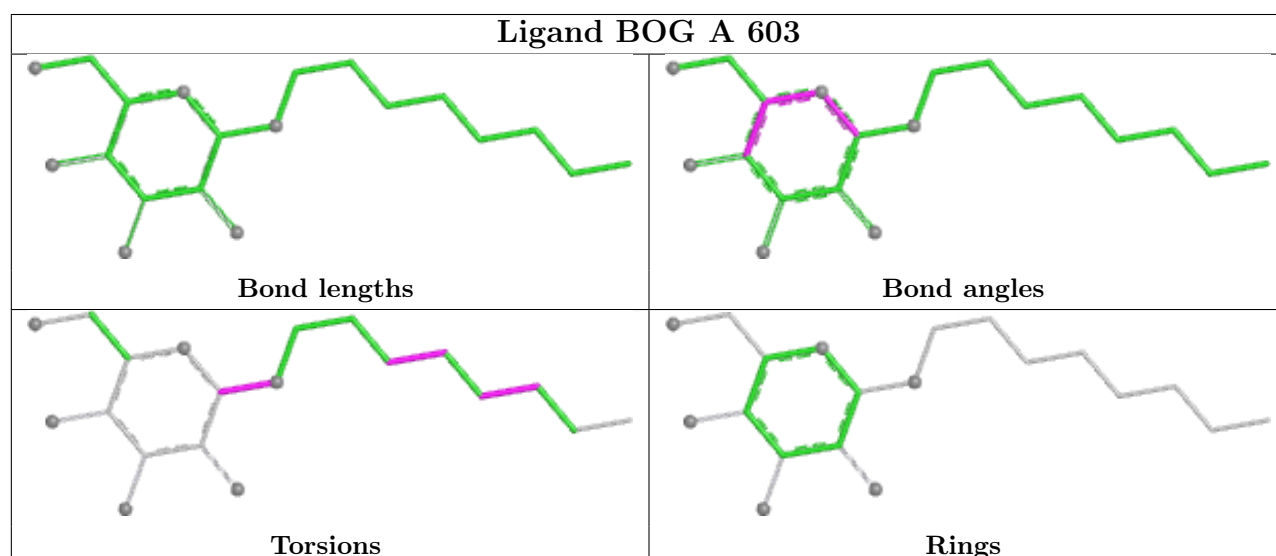
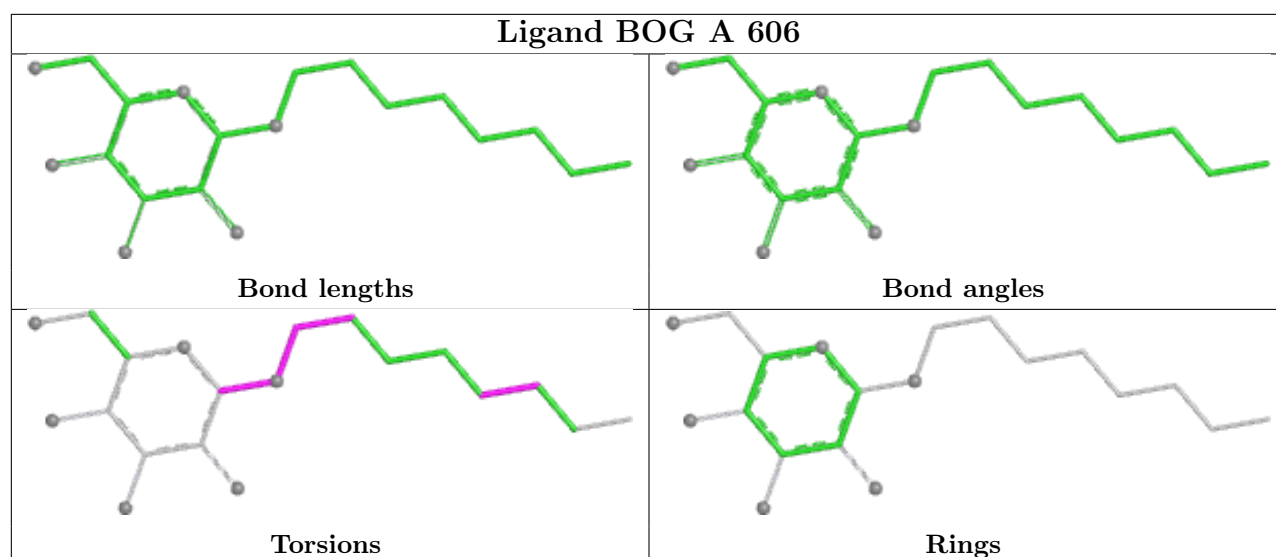
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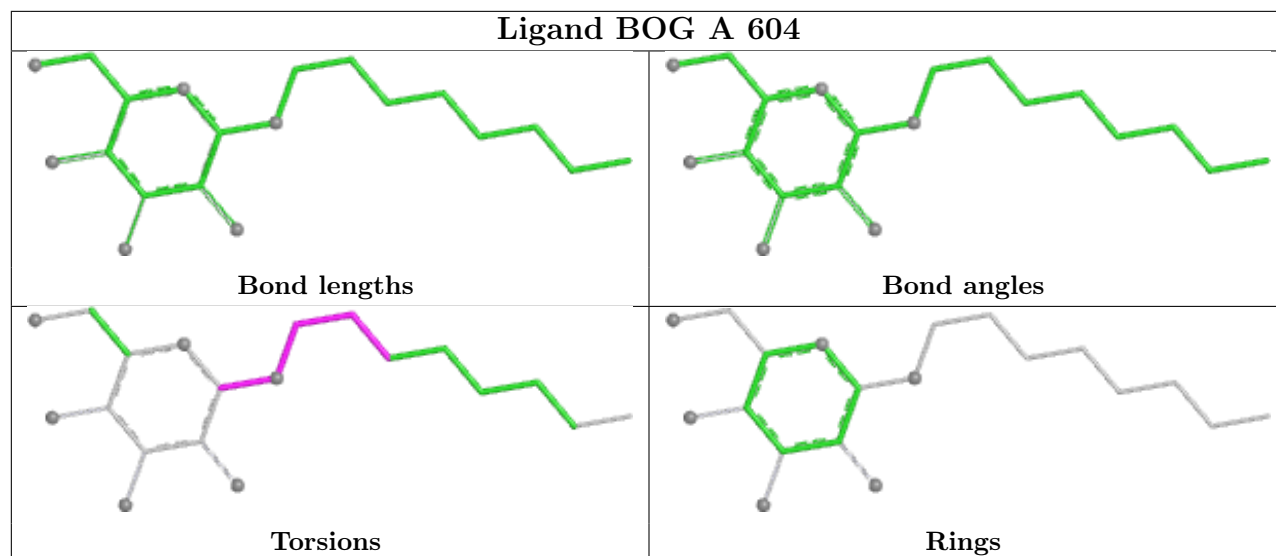
Mol	Chain	Res	Type	Atoms
6	A	607	1PE	C16-C26-OH6-C15
2	A	601	PGE	C6-C5-O3-C4
7	A	608	PG4	C3-C4-O3-C5
8	A	609	P6G	C15-C14-O13-C12
6	A	607	1PE	C14-C24-OH4-C13
4	A	606	BOG	C4'-C5'-C6'-C7'
6	A	607	1PE	OH2-C12-C22-OH3
8	A	609	P6G	C14-C15-O16-C17
6	A	607	1PE	C13-C23-OH3-C22
6	A	607	1PE	C24-C14-OH5-C25
2	A	601	PGE	C3-C4-O3-C5
4	A	604	BOG	O1-C1'-C2'-C3'
7	A	608	PG4	C5-C6-O4-C7
6	A	607	1PE	C12-C22-OH3-C23
4	A	603	BOG	O5-C1-O1-C1'
8	A	609	P6G	O13-C14-C15-O16
7	A	608	PG4	C8-C7-O4-C6
8	A	609	P6G	O4-C5-C6-O7
4	A	603	BOG	C4'-C5'-C6'-C7'

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 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 ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2		OWAB(Å ²)	Q<0.9
1	A	520/554 (93%)	0.76	53 (10%)	12 10	41, 76, 119, 172	1 (0%)

All (53) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	4[A]	LEU	10.6
1	A	477	SER	5.1
1	A	504	ARG	4.6
1	A	476	PHE	4.4
1	A	400	VAL	4.1
1	A	554	PHE	4.0
1	A	227	ASN	3.9
1	A	53	ALA	3.8
1	A	536	PRO	3.6
1	A	45	ALA	3.6
1	A	506	ILE	3.6
1	A	415	LEU	3.2
1	A	15	ASP	3.2
1	A	46	ALA	3.2
1	A	539	ALA	3.1
1	A	301	TYR	3.0
1	A	214	SER	3.0
1	A	417	GLY	3.0
1	A	482	GLN	2.9
1	A	534	ALA	2.9
1	A	472	VAL	2.8
1	A	54	THR	2.8
1	A	222	PRO	2.8
1	A	344	THR	2.8
1	A	498	SER	2.7
1	A	251	TYR	2.7
1	A	347	ASP	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	553	SER	2.6
1	A	5[A]	LEU	2.6
1	A	403	PHE	2.5
1	A	544	VAL	2.4
1	A	346	LEU	2.4
1	A	345	ARG	2.4
1	A	519	LEU	2.4
1	A	441	ILE	2.3
1	A	547	TYR	2.3
1	A	410	THR	2.3
1	A	298	TYR	2.3
1	A	412	TYR	2.3
1	A	294	LEU	2.3
1	A	377	PHE	2.3
1	A	549	ASN	2.2
1	A	295	LYS	2.2
1	A	299	GLY	2.2
1	A	321	ASP	2.1
1	A	552	LEU	2.1
1	A	484	SER	2.1
1	A	475	GLN	2.1
1	A	483	ALA	2.1
1	A	505	THR	2.1
1	A	545	TRP	2.0
1	A	540	PRO	2.0
1	A	551	GLY	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

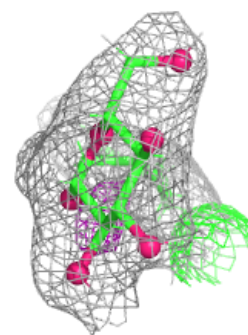
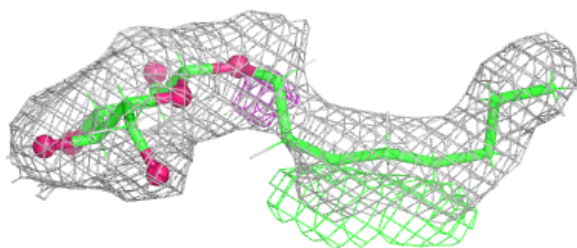
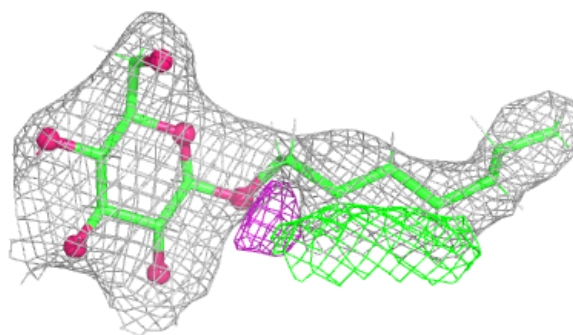
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
4	BOG	A	606	20/20	0.82	0.13	67,76,80,80	0
3	PEG	A	602	7/7	0.85	0.18	82,86,97,97	0
7	PG4	A	608	13/13	0.87	0.15	70,81,85,86	0
4	BOG	A	604	20/20	0.89	0.14	68,74,83,84	0
4	BOG	A	603	20/20	0.90	0.12	79,84,94,94	0
6	1PE	A	607	16/16	0.91	0.15	73,84,94,95	0
2	PGE	A	601	10/10	0.94	0.11	61,67,73,74	0
8	P6G	A	609	19/19	0.94	0.12	46,65,91,96	0
5	PO4	A	605	5/5	0.96	0.09	63,64,68,69	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.

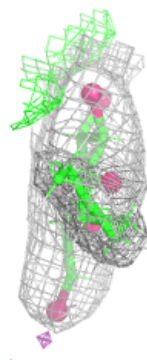
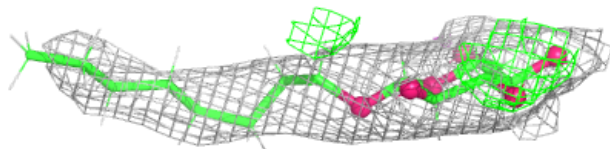
Electron density around BOG A 606:

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

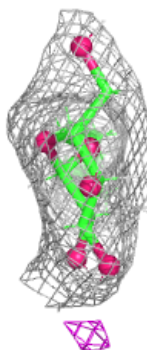
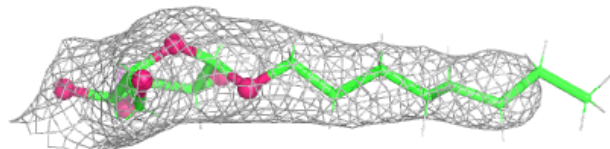
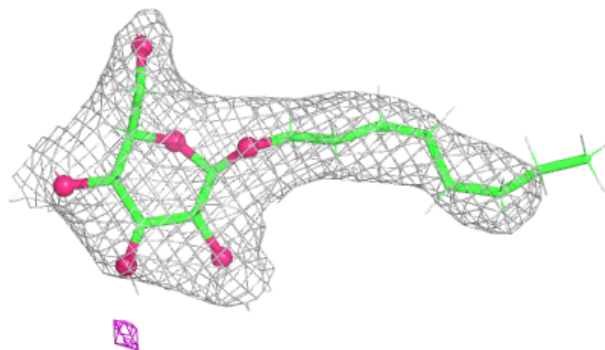


Electron density around BOG A 604:

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

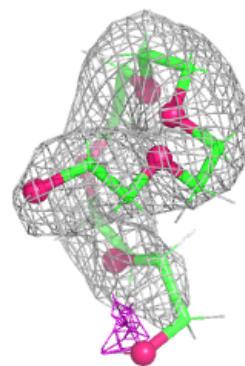
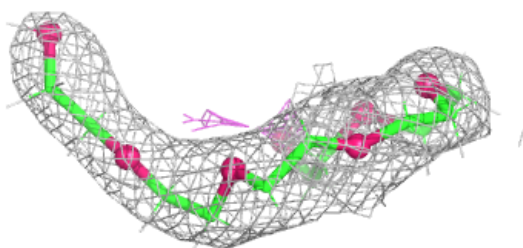
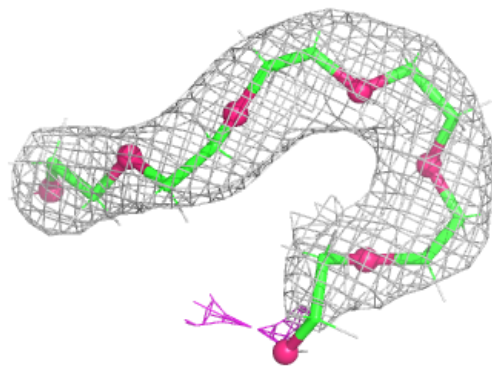
**Electron density around BOG A 603:**

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



Electron density around P6G A 609:

$2mF_o - DF_c$ (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.