



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 22, 2020 – 10:10 AM BST

PDB ID : 4LSI
Title : Ion selectivity of OmpF porin soaked in 0.3M KBr
Authors : Balasundaresan, D.; Blachowicz, L.; Roux, B.
Deposited on : 2013-07-22
Resolution : 2.09 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.13.1
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)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.13.1

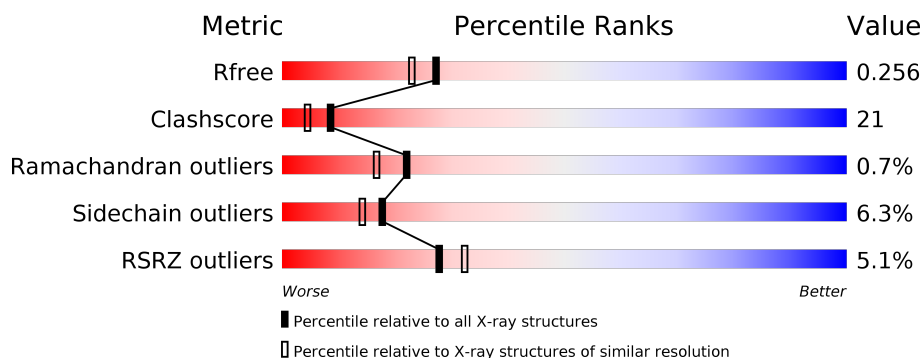
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.09 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	6189 (2.10-2.06)
Clashscore	141614	6738 (2.10-2.06)
Ramachandran outliers	138981	6663 (2.10-2.06)
Sidechain outliers	138945	6664 (2.10-2.06)
RSRZ outliers	127900	6057 (2.10-2.06)

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 on 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	341	<div> <div>5%</div> <div> <div></div> <div>77%</div> <div>18%</div> <div>...</div> </div> </div>
1	B	341	<div> <div>5%</div> <div> <div></div> <div>79%</div> <div>17%</div> <div>..</div> </div> </div>
1	C	341	<div> <div>5%</div> <div> <div></div> <div>77%</div> <div>18%</div> <div>..</div> </div> </div>

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
2	PEG	A	412	-	-	X	-
2	PEG	B	401	-	-	X	-
2	PEG	C	406	-	X	X	-
2	PEG	C	407	-	-	X	-
4	GOL	B	406	-	-	-	X
6	BR	A	411	-	-	X	-
6	BR	B	411	-	-	-	X

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 8472 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.

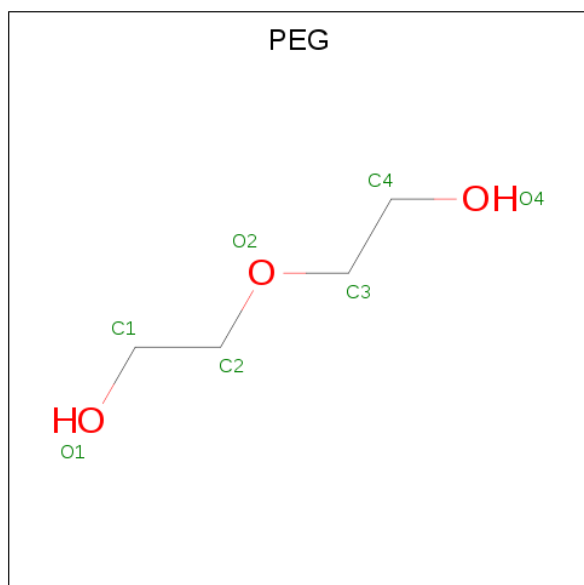
- Molecule 1 is a protein called Outer membrane protein F.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	334	Total	C	N	O	S	0	1	0
			2582	1627	430	522	3			
1	B	334	Total	C	N	O	S	0	1	0
			2582	1627	430	522	3			
1	C	334	Total	C	N	O	S	0	1	0
			2582	1627	430	522	3			

There are 3 discrepancies between the modelled and reference sequences:

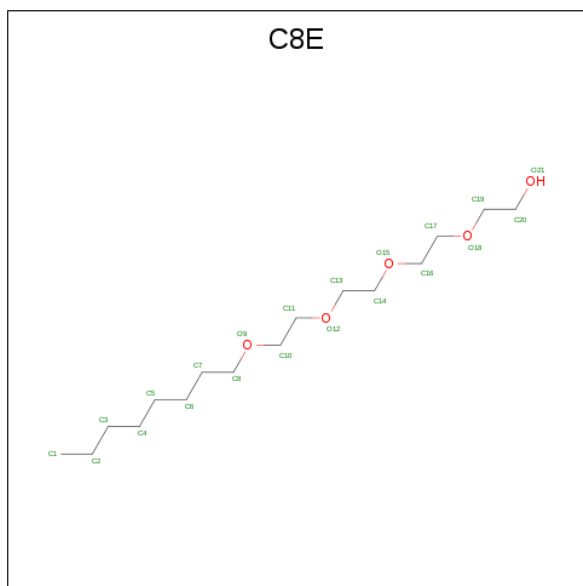
Chain	Residue	Modelled	Actual	Comment	Reference
A	0	GLY	-	EXPRESSION TAG	UNP P02931
B	0	GLY	-	EXPRESSION TAG	UNP P02931
C	0	GLY	-	EXPRESSION TAG	UNP P02931

- Molecule 2 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 7 4 3	0	0
2	A	1	Total C O 7 4 3	0	0
2	A	1	Total C O 7 4 3	0	0
2	B	1	Total C O 7 4 3	0	0
2	B	1	Total C O 7 4 3	0	0
2	B	1	Total C O 7 4 3	0	0
2	C	1	Total C O 7 4 3	0	0
2	C	1	Total C O 7 4 3	0	0
2	C	1	Total C O 7 4 3	0	0

- Molecule 3 is (HYDROXYETHYLOXY)TRI(ETHYLOXY)OCTANE (three-letter code: C8E) (formula: C₁₆H₃₄O₅).



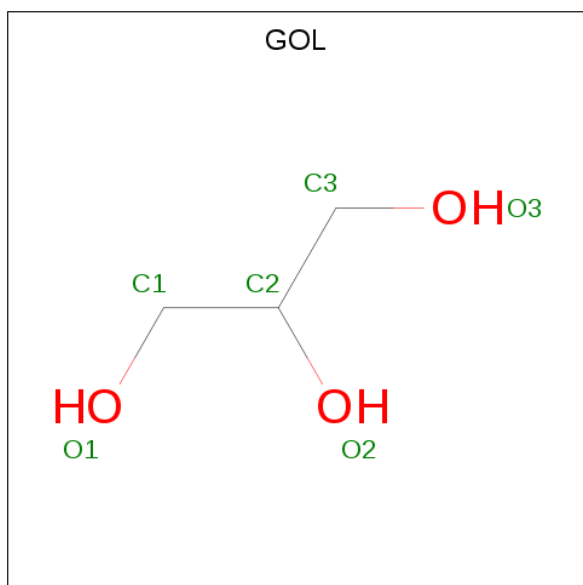
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 9 8 1	0	0
3	B	1	Total C O 17 14 3	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	B	1	Total	C	O	0	0
			11	10	1		
3	C	1	Total	C	O	0	0
			12	10	2		

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			6	3	3		
4	A	1	Total	C	O	0	0
			6	3	3		
4	B	1	Total	C	O	0	0
			6	3	3		
4	C	1	Total	C	O	0	0
			6	3	3		

- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	2	Total	Mg	0	0
			2	2		
5	A	2	Total	Mg	0	0
			2	2		
5	C	4	Total	Mg	0	0
			4	4		

- Molecule 6 is BROMIDE ION (three-letter code: BR) (formula: Br).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	B	3	Total 3	Br 3	0	0
6	A	4	Total 4	Br 4	0	0
6	C	2	Total 2	Br 2	0	0

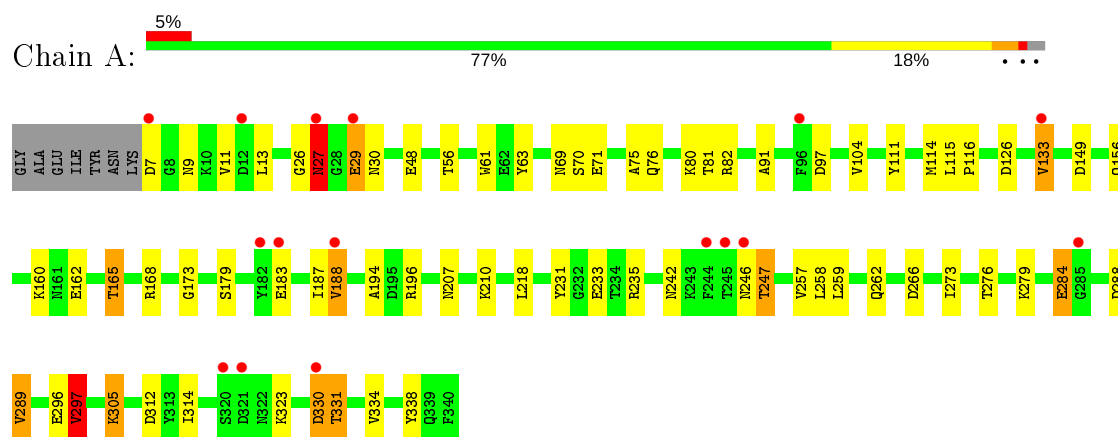
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	184	Total 184	O 184	0	0
7	B	189	Total 189	O 189	0	0
7	C	200	Total 200	O 200	0	0

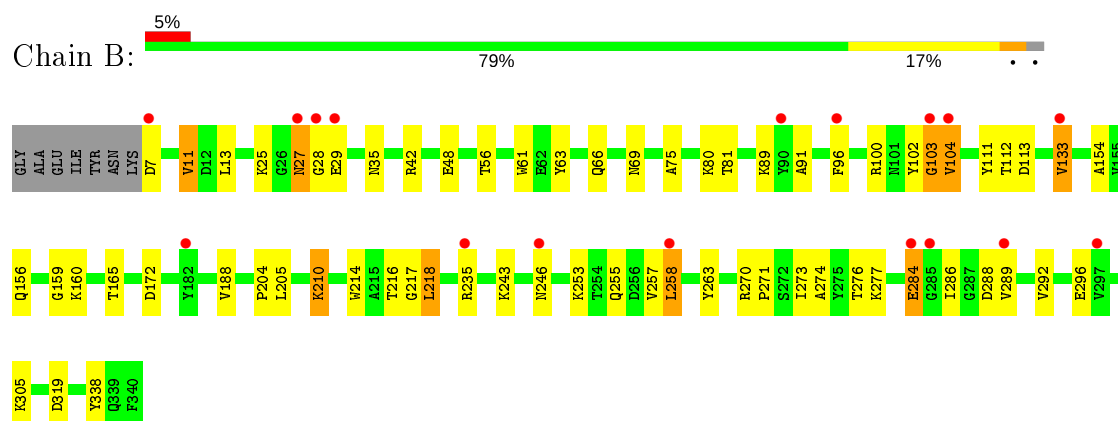
3 Residue-property plots [i](#)

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.

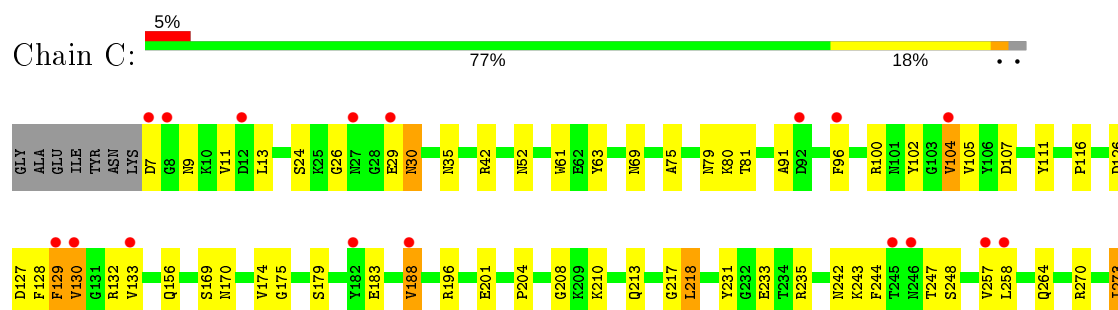
- Molecule 1: Outer membrane protein F

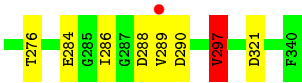


- Molecule 1: Outer membrane protein F



- Molecule 1: Outer membrane protein F





4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	202.09 Å 116.56 Å 53.59 Å 90.00° 97.00° 90.00°	Depositor
Resolution (Å)	32.74 – 2.09 32.72 – 2.09	Depositor EDS
% Data completeness (in resolution range)	98.3 (32.74-2.09) 98.3 (32.72-2.09)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.01 (at 2.08 Å)	Xtriage
Refinement program	REFMAC 5.7.0029	Depositor
R, R_{free}	0.190 , 0.245 0.206 , 0.256	Depositor DCC
R_{free} test set	3611 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å ²)	28.8	Xtriage
Anisotropy	0.609	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 59.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	8472	wwPDB-VP
Average B, all atoms (Å ²)	34.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.60% 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, MG, PEG, C8E, BR

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	0.92	0/2643	0.93	5/3574 (0.1%)
1	B	0.94	0/2643	0.90	2/3574 (0.1%)
1	C	0.92	0/2643	0.95	3/3574 (0.1%)
All	All	0.93	0/7929	0.93	10/10722 (0.1%)

There are no bond length outliers.

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	B	11	VAL	CB-CA-C	-5.81	100.36	111.40
1	C	297	VAL	CB-CA-C	-5.78	100.41	111.40
1	A	297	VAL	CB-CA-C	-5.71	100.56	111.40
1	A	82	ARG	NE-CZ-NH2	-5.29	117.66	120.30
1	C	288	ASP	CB-CG-OD1	5.24	123.02	118.30
1	C	42	ARG	NE-CZ-NH2	-5.21	117.69	120.30
1	B	42	ARG	NE-CZ-NH2	-5.14	117.73	120.30
1	A	196	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	A	266	ASP	CB-CG-OD1	5.09	122.88	118.30
1	A	97	ASP	CB-CG-OD1	5.02	122.82	118.30

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	2582	0	2395	89	0
1	B	2582	0	2396	107	0
1	C	2582	0	2396	123	0
2	A	21	0	30	10	0
2	B	21	0	30	8	0
2	C	21	0	30	26	0
3	A	9	0	17	0	0
3	B	28	0	46	0	0
3	C	12	0	21	3	0
4	A	12	0	16	0	0
4	B	6	0	8	1	0
4	C	6	0	8	1	0
5	A	2	0	0	0	0
5	B	2	0	0	0	0
5	C	4	0	0	0	0
6	A	4	0	0	7	0
6	B	3	0	0	0	0
6	C	2	0	0	0	0
7	A	184	0	0	11	0
7	B	189	0	0	11	1
7	C	200	0	0	10	0
All	All	8472	0	7393	316	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 21.

All (316) 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:B:235:ARG:HH21	1:B:253:LYS:CD	1.22	1.53
1:A:179:SER:HB2	1:A:188:VAL:CG1	1.45	1.46
1:B:235:ARG:NH2	1:B:253:LYS:HD3	1.22	1.43
1:C:258:LEU:CD1	1:C:276:THR:HG23	1.49	1.40
1:A:179:SER:CB	1:A:188:VAL:HG12	1.51	1.40
1:B:258:LEU:CD1	1:B:276:THR:HG23	1.50	1.37
1:A:179:SER:CB	1:A:188:VAL:CG1	2.02	1.34
1:B:27:ASN:O	1:B:35:ASN:CB	1.75	1.33
1:C:127:ASP:O	1:C:130:VAL:HG22	1.28	1.31
1:B:75:ALA:O	2:B:401:PEG:H31	1.17	1.26
1:C:179:SER:CB	1:C:188:VAL:CG1	2.16	1.22
1:B:100:ARG:HG3	1:B:133:VAL:O	1.34	1.22
1:C:179:SER:CB	1:C:188:VAL:HG12	1.69	1.19

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:179:SER:HB3	1:C:188:VAL:HG12	1.29	1.14
1:C:196:ARG:NH1	1:C:208:GLY:O	1.82	1.12
1:C:179:SER:HB2	1:C:188:VAL:CG1	1.79	1.10
1:A:179:SER:HB2	1:A:188:VAL:HG13	1.12	1.10
1:A:179:SER:HB3	1:A:188:VAL:HG12	1.15	1.10
1:B:258:LEU:HD11	1:B:276:THR:HG23	1.12	1.09
1:C:127:ASP:O	1:C:130:VAL:CG2	2.00	1.09
1:B:257:VAL:C	1:B:258:LEU:HD22	1.72	1.09
1:C:258:LEU:CD1	1:C:276:THR:CG2	2.31	1.09
1:A:258:LEU:HD11	1:A:276:THR:HG23	1.36	1.08
1:A:116:PRO:HD3	6:A:411:BR:BR	2.11	1.05
1:A:258:LEU:CD1	1:A:276:THR:HG23	1.86	1.05
1:C:105:VAL:HB	1:C:129:PHE:O	1.55	1.05
1:C:258:LEU:HD11	1:C:276:THR:CG2	1.85	1.04
2:A:412:PEG:H32	1:C:81:THR:H	1.15	1.04
1:C:179:SER:HB3	1:C:188:VAL:CG1	1.82	1.04
1:B:286:ILE:HG21	1:B:289:VAL:HG21	1.39	1.03
1:C:79:ASN:HD21	2:C:407:PEG:H42	1.24	1.03
1:B:258:LEU:CD1	1:B:276:THR:CG2	2.37	1.02
1:B:27:ASN:O	1:B:35:ASN:HB3	0.85	1.02
1:C:126:ASP:HA	1:C:133:VAL:HG12	1.43	1.01
1:B:81:THR:H	2:C:407:PEG:H32	1.27	1.00
1:C:231:TYR:HD1	1:C:257:VAL:HG22	1.27	0.99
1:B:235:ARG:CZ	1:B:253:LYS:HD3	1.92	0.99
1:B:75:ALA:O	2:B:401:PEG:C3	2.09	0.98
1:A:314:ILE:O	1:A:330:ASP:HB3	1.64	0.97
1:B:235:ARG:NH2	1:B:253:LYS:CD	1.95	0.96
1:A:218:LEU:HB3	7:A:640:HOH:O	1.67	0.95
1:A:262:GLN:NE2	6:A:411:BR:BR	2.55	0.95
1:C:179:SER:HB2	1:C:188:VAL:HG13	1.49	0.94
1:B:104:VAL:CG1	1:B:156:GLN:HB2	1.98	0.93
1:C:258:LEU:HD11	1:C:276:THR:HG23	0.93	0.93
1:A:116:PRO:CD	6:A:411:BR:BR	2.74	0.90
1:C:196:ARG:HH12	1:C:201:GLU:CD	1.75	0.90
1:B:258:LEU:HD11	1:B:276:THR:CG2	2.02	0.88
1:B:258:LEU:HD13	1:B:276:THR:HG23	1.55	0.88
1:B:286:ILE:CG2	1:B:289:VAL:HG21	2.02	0.87
2:A:412:PEG:C3	1:C:81:THR:H	1.87	0.87
1:A:218:LEU:CB	7:A:640:HOH:O	2.23	0.86
1:C:258:LEU:HD12	1:C:276:THR:OG1	1.77	0.84
1:C:69:ASN:O	2:C:407:PEG:O1	1.95	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:257:VAL:C	1:A:258:LEU:HD22	2.00	0.82
1:C:100:ARG:HG3	1:C:133:VAL:O	1.79	0.81
1:A:179:SER:HB3	1:A:188:VAL:CG1	1.86	0.80
1:A:305:LYS:HG2	7:A:634:HOH:O	1.80	0.80
1:B:104:VAL:CG1	1:B:156:GLN:CB	2.59	0.80
1:A:104:VAL:HG21	1:A:156:GLN:HB3	1.64	0.80
1:B:286:ILE:CG2	1:B:289:VAL:CG2	2.60	0.80
2:A:412:PEG:H32	1:C:81:THR:N	1.95	0.79
1:B:27:ASN:HB2	1:B:29:GLU:N	1.97	0.79
1:C:231:TYR:HB2	7:C:517:HOH:O	1.82	0.79
1:C:79:ASN:ND2	2:C:407:PEG:H42	1.97	0.79
1:B:104:VAL:HG11	1:B:156:GLN:HB2	1.64	0.79
1:A:207:ASN:O	7:A:534:HOH:O	2.00	0.78
1:B:235:ARG:HH21	1:B:253:LYS:HD3	0.61	0.78
1:C:231:TYR:CD1	1:C:257:VAL:HG22	2.17	0.78
1:B:13:LEU:HD13	1:C:13:LEU:HD21	1.66	0.77
1:A:258:LEU:CD1	1:A:276:THR:CG2	2.63	0.77
1:A:126:ASP:HA	1:A:133:VAL:HG12	1.66	0.77
1:B:27:ASN:C	1:B:35:ASN:HB3	1.98	0.77
1:B:104:VAL:HG11	1:B:156:GLN:CB	2.14	0.77
1:B:235:ARG:HH21	1:B:253:LYS:CE	1.98	0.77
1:A:11:VAL:HG22	1:B:338:TYR:OH	1.84	0.76
1:A:330:ASP:O	1:A:331:THR:OG1	2.03	0.76
2:A:412:PEG:H22	1:C:81:THR:O	1.85	0.76
1:C:179:SER:CA	1:C:188:VAL:HG12	2.15	0.76
1:A:104:VAL:CG2	1:A:156:GLN:HB3	2.16	0.75
1:A:115:LEU:CD2	6:A:411:BR:BR	2.90	0.75
1:A:104:VAL:HG23	1:A:156:GLN:OE1	1.86	0.75
1:A:114:MET:O	6:A:411:BR:BR	2.58	0.74
1:B:27:ASN:ND2	1:B:29:GLU:HB2	2.03	0.74
1:A:288:ASP:O	1:A:289:VAL:HG13	1.88	0.73
1:C:126:ASP:HB3	2:C:406:PEG:H11	1.70	0.73
1:A:81:THR:O	2:B:401:PEG:H11	1.89	0.73
1:B:27:ASN:HD22	1:B:29:GLU:HB2	1.54	0.73
1:B:235:ARG:NH2	1:B:253:LYS:HD2	2.01	0.72
1:B:104:VAL:HG13	1:B:156:GLN:HB2	1.72	0.71
1:B:216:THR:HG23	7:B:506:HOH:O	1.92	0.70
1:A:273:ILE:HD11	1:A:297:VAL:HG13	1.74	0.70
1:C:127:ASP:HB3	1:C:130:VAL:CG2	2.22	0.70
1:B:81:THR:N	2:C:407:PEG:H32	2.05	0.70
1:B:286:ILE:HG21	1:B:289:VAL:CG2	2.20	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:258:LEU:N	1:B:258:LEU:HD22	2.08	0.69
1:C:104:VAL:HG13	1:C:156:GLN:HB2	1.75	0.69
1:B:104:VAL:HG13	1:B:156:GLN:CB	2.22	0.68
1:B:289:VAL:HG13	7:B:534:HOH:O	1.94	0.67
1:B:288:ASP:O	1:B:289:VAL:HG22	1.95	0.67
1:C:258:LEU:N	1:C:258:LEU:HD22	2.09	0.67
1:A:258:LEU:HD22	1:A:258:LEU:N	2.08	0.67
1:C:126:ASP:CB	2:C:406:PEG:H11	2.25	0.67
1:C:127:ASP:HB3	1:C:130:VAL:HG21	1.76	0.67
1:C:179:SER:HB3	1:C:188:VAL:HG11	1.76	0.67
1:B:111:TYR:CZ	1:B:188:VAL:CG2	2.78	0.67
1:A:111:TYR:CZ	1:A:188:VAL:HG22	2.30	0.67
1:C:258:LEU:CD1	1:C:276:THR:CB	2.72	0.66
1:A:104:VAL:CG2	1:A:156:GLN:CB	2.74	0.66
2:A:412:PEG:H32	1:C:81:THR:HB	1.78	0.65
1:B:89:LYS:NZ	7:B:595:HOH:O	2.27	0.65
1:C:133:VAL:HG13	7:C:630:HOH:O	1.97	0.64
1:B:305:LYS:HG2	7:B:523:HOH:O	1.97	0.64
1:C:111:TYR:CZ	1:C:188:VAL:HG22	2.33	0.64
1:C:196:ARG:HH22	1:C:201:GLU:HA	1.62	0.64
1:A:258:LEU:HD11	1:A:276:THR:CG2	2.20	0.64
1:A:258:LEU:HD12	1:A:276:THR:OG1	1.98	0.64
1:B:257:VAL:O	1:B:258:LEU:HD22	1.97	0.64
1:C:79:ASN:HD21	2:C:407:PEG:C4	2.04	0.64
1:A:133:VAL:HG13	7:A:501:HOH:O	1.98	0.63
1:C:258:LEU:HD12	1:C:276:THR:CG2	2.28	0.63
1:B:28:GLY:HA3	7:B:539:HOH:O	1.99	0.63
1:A:179:SER:CA	1:A:188:VAL:HG12	2.28	0.62
1:A:218:LEU:CG	7:A:640:HOH:O	2.47	0.62
1:B:27:ASN:N	1:B:28:GLY:HA2	2.14	0.62
1:C:258:LEU:HD12	1:C:276:THR:CB	2.28	0.62
1:C:286:ILE:HG21	1:C:289:VAL:CG2	2.30	0.62
1:A:75:ALA:O	2:A:412:PEG:H42	2.00	0.61
1:B:27:ASN:HB2	1:B:28:GLY:C	2.20	0.61
1:B:27:ASN:OD1	1:B:27:ASN:N	2.34	0.61
1:B:104:VAL:HG13	1:B:156:GLN:CD	2.21	0.61
1:C:75:ALA:O	2:C:407:PEG:C3	2.49	0.61
1:B:218:LEU:N	1:B:218:LEU:HD12	2.16	0.60
1:C:242:ASN:OD1	1:C:244:PHE:N	2.31	0.60
1:B:111:TYR:CZ	1:B:188:VAL:HG23	2.36	0.60
1:A:111:TYR:CZ	1:A:188:VAL:CG2	2.85	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:242:ASN:HB3	1:A:247:THR:HG22	1.83	0.60
1:B:284:GLU:OE2	7:B:505:HOH:O	2.17	0.60
1:C:9:ASN:HD21	1:C:11:VAL:CG2	2.15	0.60
1:C:258:LEU:HD13	1:C:276:THR:HA	1.83	0.60
1:C:111:TYR:CZ	1:C:188:VAL:CG2	2.85	0.59
1:C:104:VAL:HG13	1:C:156:GLN:CB	2.33	0.59
1:B:235:ARG:NE	1:B:253:LYS:HD3	2.18	0.58
1:C:61:TRP:CZ2	1:C:63:TYR:HB2	2.38	0.58
1:C:179:SER:CB	1:C:188:VAL:HG11	2.26	0.58
1:A:165:THR:HG22	1:A:168:ARG:H	1.69	0.58
1:A:115:LEU:HD22	6:A:411:BR:BR	2.58	0.58
1:C:204:PRO:HG2	1:C:247:THR:HG23	1.85	0.58
1:A:258:LEU:HD13	1:A:276:THR:HG23	1.80	0.58
1:C:258:LEU:HD13	1:C:276:THR:HG23	1.72	0.58
1:C:129:PHE:N	1:C:129:PHE:CD2	2.72	0.58
1:A:81:THR:O	2:B:401:PEG:C1	2.52	0.57
1:B:205:LEU:HA	1:B:284:GLU:HG3	1.87	0.57
1:B:274:ALA:HB3	1:B:296:GLU:HB3	1.86	0.57
1:C:104:VAL:CG1	1:C:156:GLN:HB2	2.35	0.57
1:B:81:THR:N	2:C:407:PEG:H22	2.20	0.57
1:C:257:VAL:C	1:C:258:LEU:HD22	2.24	0.57
1:C:75:ALA:O	2:C:407:PEG:H31	2.06	0.56
1:B:288:ASP:C	1:B:289:VAL:CG2	2.74	0.55
1:B:66:GLN:O	2:B:401:PEG:H41	2.07	0.55
1:C:127:ASP:CB	1:C:130:VAL:HG21	2.37	0.55
1:B:204:PRO:O	1:B:284:GLU:HG3	2.07	0.55
1:B:27:ASN:HB2	1:B:28:GLY:CA	2.36	0.55
1:B:104:VAL:HG11	1:B:156:GLN:HB3	1.86	0.55
1:C:129:PHE:N	1:C:129:PHE:HD2	2.05	0.55
1:C:169:SER:O	2:C:406:PEG:C4	2.55	0.55
1:C:169:SER:O	2:C:406:PEG:H41	2.06	0.55
1:A:338:TYR:OH	1:C:11:VAL:HG22	2.07	0.55
1:C:286:ILE:HG21	1:C:289:VAL:HG21	1.88	0.55
1:C:100:ARG:CG	1:C:133:VAL:O	2.53	0.55
1:C:102:TYR:OH	1:C:132:ARG:HD3	2.07	0.55
1:A:187:ILE:O	1:A:188:VAL:HG13	2.07	0.54
1:C:289:VAL:HG12	1:C:290:ASP:N	2.22	0.54
1:A:76:GLN:HG2	7:C:615:HOH:O	2.06	0.54
1:C:104:VAL:O	1:C:107:ASP:N	2.28	0.54
1:B:104:VAL:CG1	1:B:156:GLN:HB3	2.37	0.54
1:B:205:LEU:HA	1:B:284:GLU:CG	2.38	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:288:ASP:O	1:B:289:VAL:CG2	2.56	0.54
1:C:102:TYR:CZ	1:C:132:ARG:HD3	2.43	0.54
1:A:114:MET:HE1	7:A:583:HOH:O	2.07	0.53
1:A:9:ASN:HD21	1:A:11:VAL:CG2	2.21	0.53
1:A:26:GLY:HA3	1:A:27:ASN:CB	2.39	0.53
1:A:48:GLU:OE1	1:A:56:THR:HG21	2.09	0.53
1:C:104:VAL:HG23	1:C:105:VAL:H	1.74	0.53
1:A:115:LEU:HD23	6:A:411:BR:BR	2.63	0.53
1:B:210:LYS:NZ	7:B:670:HOH:O	2.39	0.53
1:C:286:ILE:CG2	1:C:289:VAL:HG23	2.38	0.53
1:A:11:VAL:CG2	1:B:338:TYR:OH	2.54	0.53
1:A:231:TYR:HD1	1:A:257:VAL:HG22	1.74	0.53
1:B:160:LYS:N	1:B:172:ASP:OD1	2.42	0.52
1:B:112:THR:HG21	1:B:258:LEU:O	2.10	0.52
1:B:284:GLU:CD	1:B:284:GLU:H	2.13	0.52
1:C:129:PHE:HE1	1:C:175:GLY:N	2.07	0.52
1:C:30:ASN:ND2	7:C:537:HOH:O	2.43	0.52
1:A:289:VAL:HG11	1:A:323:LYS:HB2	1.91	0.51
1:B:258:LEU:N	1:B:258:LEU:CD2	2.73	0.51
1:A:61:TRP:CZ2	1:A:63:TYR:HB2	2.46	0.51
1:C:9:ASN:ND2	1:C:11:VAL:CG2	2.73	0.51
1:C:24:SER:H	1:C:35:ASN:ND2	2.08	0.51
1:B:69:ASN:HB2	2:B:401:PEG:H21	1.92	0.51
1:C:170:ASN:OD1	2:C:406:PEG:H22	2.11	0.51
1:C:196:ARG:NH1	1:C:201:GLU:OE1	2.39	0.50
1:A:104:VAL:HG22	1:A:156:GLN:CB	2.41	0.50
1:C:270:ARG:HG2	1:C:270:ARG:O	2.12	0.50
1:B:270:ARG:HG2	1:B:270:ARG:O	2.12	0.50
1:C:286:ILE:CG2	1:C:289:VAL:CG2	2.89	0.50
1:B:81:THR:H	2:C:407:PEG:H22	1.77	0.50
1:B:286:ILE:HG22	1:B:289:VAL:CG2	2.39	0.50
1:C:132:ARG:HH12	4:C:409:GOL:H11	1.76	0.50
1:C:273:ILE:HD11	1:C:297:VAL:HG13	1.94	0.50
1:A:258:LEU:N	1:A:258:LEU:CD2	2.73	0.50
1:C:126:ASP:CA	1:C:133:VAL:HG12	2.29	0.50
1:C:111:TYR:OH	1:C:188:VAL:HG22	2.12	0.49
1:A:314:ILE:O	1:A:330:ASP:CB	2.51	0.49
1:B:27:ASN:C	1:B:35:ASN:CB	2.70	0.49
1:C:128:PHE:HB3	1:C:129:PHE:HD2	1.77	0.49
1:B:81:THR:O	2:C:407:PEG:H11	2.12	0.49
1:C:133:VAL:CG1	7:C:630:HOH:O	2.59	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:104:VAL:CG2	1:A:156:GLN:CD	2.81	0.48
1:B:102:TYR:O	1:B:103:GLY:O	2.31	0.48
1:B:111:TYR:OH	1:B:188:VAL:CG2	2.61	0.48
1:C:289:VAL:CG1	1:C:290:ASP:N	2.77	0.48
1:C:24:SER:H	1:C:35:ASN:HD22	1.61	0.48
1:A:160:LYS:HD2	1:A:162:GLU:HG3	1.94	0.48
1:A:29:GLU:OE2	1:A:30:ASN:HB2	2.14	0.48
1:C:233:GLU:OE1	1:C:235:ARG:NH2	2.45	0.48
1:B:80:LYS:HB2	2:C:407:PEG:H22	1.95	0.48
1:A:258:LEU:CD1	1:A:276:THR:OG1	2.62	0.47
2:A:412:PEG:H32	1:C:81:THR:CB	2.43	0.47
1:A:71:GLU:HB3	1:C:80:LYS:HD3	1.96	0.47
1:B:288:ASP:C	1:B:289:VAL:HG23	2.34	0.47
1:C:129:PHE:HE1	1:C:174:VAL:C	2.17	0.47
1:B:35:ASN:ND2	7:B:606:HOH:O	2.48	0.47
1:C:218:LEU:HD12	1:C:218:LEU:N	2.30	0.47
1:C:126:ASP:HA	2:C:406:PEG:H11	1.97	0.47
1:B:113:ASP:OD2	4:B:406:GOL:H31	2.15	0.47
1:C:258:LEU:N	1:C:258:LEU:CD2	2.76	0.47
1:B:111:TYR:CZ	1:B:188:VAL:HG21	2.50	0.46
1:A:104:VAL:CG2	1:A:156:GLN:OE1	2.60	0.46
1:A:334:VAL:HG12	3:C:401:C8E:H13	1.96	0.46
1:C:217:GLY:C	1:C:218:LEU:HD12	2.36	0.46
1:A:273:ILE:HD13	1:A:273:ILE:HA	1.81	0.46
1:B:214:TRP:CZ3	7:B:506:HOH:O	2.67	0.46
1:B:133:VAL:HG13	7:B:633:HOH:O	2.15	0.46
1:C:127:ASP:OD2	1:C:130:VAL:HG21	2.16	0.46
1:C:196:ARG:HH12	1:C:201:GLU:CG	2.28	0.46
1:A:111:TYR:CE1	1:A:188:VAL:HG21	2.50	0.46
1:B:80:LYS:HA	2:C:407:PEG:H32	1.98	0.46
1:A:258:LEU:O	1:A:259:LEU:HD23	2.16	0.46
1:C:126:ASP:HB3	2:C:406:PEG:C1	2.42	0.46
1:C:170:ASN:OD1	2:C:406:PEG:C2	2.64	0.45
1:A:104:VAL:HG22	1:A:156:GLN:CD	2.37	0.45
1:A:233:GLU:OE1	1:A:235:ARG:NH2	2.43	0.45
1:C:127:ASP:CG	1:C:130:VAL:HG21	2.37	0.45
1:A:75:ALA:O	2:A:412:PEG:C4	2.65	0.45
1:C:127:ASP:HB3	1:C:130:VAL:HG23	1.98	0.45
1:A:289:VAL:CG1	1:A:323:LYS:HB2	2.47	0.45
1:B:66:GLN:O	2:B:401:PEG:C4	2.65	0.45
1:C:286:ILE:HG21	1:C:289:VAL:HG23	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:61:TRP:CZ2	1:B:63:TYR:HB2	2.52	0.45
1:A:284:GLU:H	1:A:284:GLU:CD	2.20	0.44
1:A:69:ASN:O	2:A:412:PEG:H11	2.16	0.44
1:C:179:SER:HA	1:C:188:VAL:HG12	1.94	0.44
1:C:170:ASN:HB3	2:C:406:PEG:H31	1.98	0.44
1:B:159:GLY:HA3	7:B:530:HOH:O	2.17	0.44
1:B:205:LEU:HD22	1:B:284:GLU:HG2	2.00	0.44
1:A:26:GLY:HA3	1:A:27:ASN:HB3	1.99	0.44
1:C:52:ASN:HB2	7:C:551:HOH:O	2.17	0.44
1:A:305:LYS:NZ	7:A:589:HOH:O	2.49	0.44
1:B:277:LYS:HA	1:B:292:VAL:O	2.18	0.44
1:A:179:SER:CB	1:A:188:VAL:HG11	2.29	0.43
1:C:128:PHE:HB3	1:C:129:PHE:CD2	2.52	0.43
1:C:264:GLN:OE1	1:C:270:ARG:HB2	2.18	0.43
1:C:196:ARG:NH1	1:C:201:GLU:HG2	2.32	0.43
1:C:196:ARG:NH2	1:C:201:GLU:HA	2.29	0.43
1:B:258:LEU:HD12	1:B:276:THR:OG1	2.18	0.43
1:B:258:LEU:HD12	1:B:276:THR:CG2	2.39	0.43
1:C:128:PHE:H	2:C:406:PEG:C3	2.32	0.43
1:C:26:GLY:HA3	7:C:618:HOH:O	2.18	0.43
1:A:104:VAL:HG22	1:A:156:GLN:HB2	1.99	0.43
1:C:116:PRO:HG3	7:C:684:HOH:O	2.19	0.43
2:A:401:PEG:C2	7:A:652:HOH:O	2.67	0.43
1:A:173:GLY:HA3	1:A:194:ALA:HB2	2.01	0.43
1:A:218:LEU:HG	7:A:640:HOH:O	2.17	0.43
1:B:217:GLY:C	1:B:218:LEU:HD12	2.39	0.43
1:B:218:LEU:CD1	1:B:218:LEU:N	2.81	0.43
1:B:48:GLU:HG3	1:B:56:THR:CG2	2.48	0.43
3:C:401:C8E:C11	7:C:586:HOH:O	2.66	0.43
3:C:401:C8E:H111	7:C:586:HOH:O	2.19	0.43
1:C:128:PHE:H	2:C:406:PEG:H32	1.84	0.42
1:A:13:LEU:HD13	1:B:13:LEU:HD21	2.01	0.42
1:B:81:THR:H	2:C:407:PEG:C3	2.14	0.42
1:C:130:VAL:HG13	1:C:213:GLN:NE2	2.35	0.42
1:C:9:ASN:ND2	1:C:11:VAL:HG23	2.35	0.42
1:C:273:ILE:HA	1:C:273:ILE:HD13	1.74	0.42
1:B:263:TYR:O	1:B:271:PRO:HD2	2.19	0.42
1:A:279:LYS:HE3	1:A:288:ASP:HB3	2.00	0.42
1:A:296:GLU:OE2	1:A:312:ASP:OD1	2.38	0.42
1:B:258:LEU:HD13	1:B:276:THR:CG2	2.33	0.42
1:C:127:ASP:HA	2:C:406:PEG:H42	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:100:ARG:CG	1:B:133:VAL:O	2.30	0.41
1:A:26:GLY:CA	1:A:27:ASN:CB	2.98	0.41
1:B:258:LEU:HD13	1:B:276:THR:HA	2.02	0.41
1:B:48:GLU:OE1	1:B:56:THR:HG21	2.18	0.41
1:C:258:LEU:HD13	1:C:276:THR:CA	2.49	0.41
1:A:289:VAL:HG12	7:A:590:HOH:O	2.19	0.41
1:C:127:ASP:CB	1:C:130:VAL:CG2	2.94	0.41
1:A:111:TYR:OH	1:A:188:VAL:HG22	2.20	0.41
1:A:9:ASN:ND2	1:A:11:VAL:HG23	2.36	0.41
1:B:154:ALA:HB2	2:B:403:PEG:H21	2.02	0.41
1:A:258:LEU:CD1	1:A:276:THR:CB	2.99	0.41
1:B:205:LEU:CD2	1:B:284:GLU:HG2	2.52	0.41
1:B:27:ASN:CB	1:B:28:GLY:CA	2.98	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)
7:B:516:HOH:O	7:B:673:HOH:O[1_554]	1.85	0.35

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	333/341 (98%)	313 (94%)	16 (5%)	4 (1%)	13	7
1	B	333/341 (98%)	315 (95%)	16 (5%)	2 (1%)	25	20
1	C	333/341 (98%)	313 (94%)	19 (6%)	1 (0%)	41	39
All	All	999/1023 (98%)	941 (94%)	51 (5%)	7 (1%)	22	17

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	91	ALA
1	C	91	ALA
1	A	330	ASP
1	B	91	ALA
1	B	103	GLY
1	A	331	THR
1	A	27	ASN

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	259/263 (98%)	242 (93%)	17 (7%)	16	13
1	B	259/263 (98%)	243 (94%)	16 (6%)	18	14
1	C	259/263 (98%)	243 (94%)	16 (6%)	18	14
All	All	777/789 (98%)	728 (94%)	49 (6%)	18	14

All (49) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	7	ASP
1	A	27	ASN
1	A	29	GLU
1	A	70	SER
1	A	80	LYS
1	A	133	VAL
1	A	149	ASP
1	A	165	THR
1	A	183	GLU
1	A	188	VAL
1	A	210	LYS
1	A	246	ASN
1	A	247	THR
1	A	284	GLU
1	A	289	VAL
1	A	297	VAL

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Mol	Chain	Res	Type
1	A	305	LYS
1	B	7	ASP
1	B	11	VAL
1	B	25	LYS
1	B	27	ASN
1	B	104	VAL
1	B	133	VAL
1	B	165	THR
1	B	210	LYS
1	B	218	LEU
1	B	243	LYS
1	B	246	ASN
1	B	255	GLN
1	B	258	LEU
1	B	273	ILE
1	B	284	GLU
1	B	319	ASP
1	C	7	ASP
1	C	29	GLU
1	C	30	ASN
1	C	104	VAL
1	C	129	PHE
1	C	130	VAL
1	C	183	GLU
1	C	188	VAL
1	C	210	LYS
1	C	218	LEU
1	C	243	LYS
1	C	248	SER
1	C	273	ILE
1	C	284	GLU
1	C	297	VAL
1	C	321	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	9	ASN
1	A	27	ASN
1	A	35	ASN
1	A	60	GLN
1	A	223	ASN

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Mol	Chain	Res	Type
1	B	35	ASN
1	B	60	GLN
1	C	9	ASN
1	C	35	ASN
1	C	60	GLN
1	C	79	ASN
1	C	223	ASN
1	C	246	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 34 ligands modelled in this entry, 17 are monoatomic - leaving 17 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	C8E	C	401	-	11,11,20	0.61	0	10,10,19	0.50	0
2	PEG	B	403	-	6,6,6	0.75	0	5,5,5	0.68	0
2	PEG	C	408	-	6,6,6	0.83	0	5,5,5	0.53	0
3	C8E	B	404	-	16,16,20	0.73	0	15,15,19	0.53	0
4	GOL	A	404	-	5,5,5	0.74	0	5,5,5	1.48	0
2	PEG	A	412	-	6,6,6	1.06	0	5,5,5	1.98	2 (40%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	PEG	A	401	-	6,6,6	1.08	0	5,5,5	1.11	0
2	PEG	A	402	-	6,6,6	0.58	0	5,5,5	0.70	0
2	PEG	C	407	-	6,6,6	0.49	0	5,5,5	0.85	0
2	PEG	C	406	-	6,6,6	1.46	1 (16%)	5,5,5	2.01	3 (60%)
4	GOL	C	409	-	5,5,5	0.70	0	5,5,5	0.54	0
3	C8E	A	403	-	8,8,20	0.31	0	7,7,19	0.31	0
4	GOL	A	405	-	5,5,5	0.49	0	5,5,5	0.93	0
2	PEG	B	401	-	6,6,6	0.66	0	5,5,5	0.70	0
4	GOL	B	406	-	5,5,5	0.69	0	5,5,5	0.54	0
3	C8E	B	405	-	10,10,20	0.51	0	9,9,19	0.52	0
2	PEG	B	402	-	6,6,6	0.70	0	5,5,5	0.58	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
3	C8E	C	401	-	-	7/9/9/18	-
2	PEG	B	403	-	-	2/4/4/4	-
2	PEG	C	408	-	-	3/4/4/4	-
3	C8E	B	404	-	-	7/14/14/18	-
4	GOL	A	404	-	-	2/4/4/4	-
2	PEG	A	412	-	-	3/4/4/4	-
2	PEG	A	401	-	-	2/4/4/4	-
2	PEG	A	402	-	-	2/4/4/4	-
2	PEG	C	407	-	-	1/4/4/4	-
2	PEG	C	406	-	-	3/4/4/4	-
4	GOL	C	409	-	-	4/4/4/4	-
3	C8E	A	403	-	-	3/6/6/18	-
4	GOL	A	405	-	-	2/4/4/4	-
2	PEG	B	401	-	-	1/4/4/4	-
4	GOL	B	406	-	-	2/4/4/4	-
3	C8E	B	405	-	-	5/8/8/18	-
2	PEG	B	402	-	-	1/4/4/4	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	406	PEG	O2-C3	2.04	1.50	1.42

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	412	PEG	C3-O2-C2	2.93	125.98	113.29
2	C	406	PEG	C3-O2-C2	2.51	124.17	113.29
2	A	412	PEG	O1-C1-C2	2.35	125.45	111.81
2	C	406	PEG	O4-C4-C3	2.22	124.70	111.81
2	C	406	PEG	O2-C3-C4	2.10	119.30	110.07

There are no chirality outliers.

All (50) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	C	409	GOL	C1-C2-C3-O3
4	A	405	GOL	O1-C1-C2-O2
4	A	405	GOL	O1-C1-C2-C3
3	B	404	C8E	O9-C10-C11-O12
2	B	403	PEG	O2-C3-C4-O4
2	A	412	PEG	O2-C3-C4-O4
3	B	404	C8E	O12-C13-C14-O15
2	B	403	PEG	O1-C1-C2-O2
2	A	402	PEG	O1-C1-C2-O2
2	A	402	PEG	O2-C3-C4-O4
3	C	401	C8E	C3-C4-C5-C6
3	A	403	C8E	C4-C5-C6-C7
4	B	406	GOL	O1-C1-C2-C3
4	A	404	GOL	O1-C1-C2-C3
4	C	409	GOL	O1-C1-C2-C3
2	A	412	PEG	O1-C1-C2-O2
3	C	401	C8E	C5-C6-C7-C8
4	C	409	GOL	O2-C2-C3-O3
3	B	404	C8E	C6-C7-C8-O9
3	A	403	C8E	C5-C6-C7-C8
3	B	404	C8E	C5-C6-C7-C8
3	C	401	C8E	C6-C7-C8-O9
2	C	408	PEG	O1-C1-C2-O2
2	C	406	PEG	O1-C1-C2-O2
3	B	404	C8E	C4-C5-C6-C7
4	B	406	GOL	O1-C1-C2-O2
4	A	404	GOL	O1-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
4	C	409	GOL	O1-C1-C2-O2
3	C	401	C8E	C1-C2-C3-C4
3	B	404	C8E	C17-C16-O15-C14
3	B	405	C8E	C4-C5-C6-C7
3	A	403	C8E	C2-C3-C4-C5
3	B	405	C8E	C11-C10-O9-C8
2	C	406	PEG	O2-C3-C4-O4
2	B	402	PEG	C1-C2-O2-C3
2	C	406	PEG	C1-C2-O2-C3
2	A	412	PEG	C4-C3-O2-C2
2	C	408	PEG	C1-C2-O2-C3
3	B	405	C8E	C1-C2-C3-C4
2	A	401	PEG	O2-C3-C4-O4
3	C	401	C8E	O9-C10-C11-O12
2	A	401	PEG	C4-C3-O2-C2
3	B	405	C8E	C6-C7-C8-O9
2	B	401	PEG	C1-C2-O2-C3
2	C	407	PEG	C1-C2-O2-C3
2	C	408	PEG	O2-C3-C4-O4
3	B	404	C8E	C3-C4-C5-C6
3	B	405	C8E	C7-C8-O9-C10
3	C	401	C8E	C2-C3-C4-C5
3	C	401	C8E	C7-C8-O9-C10

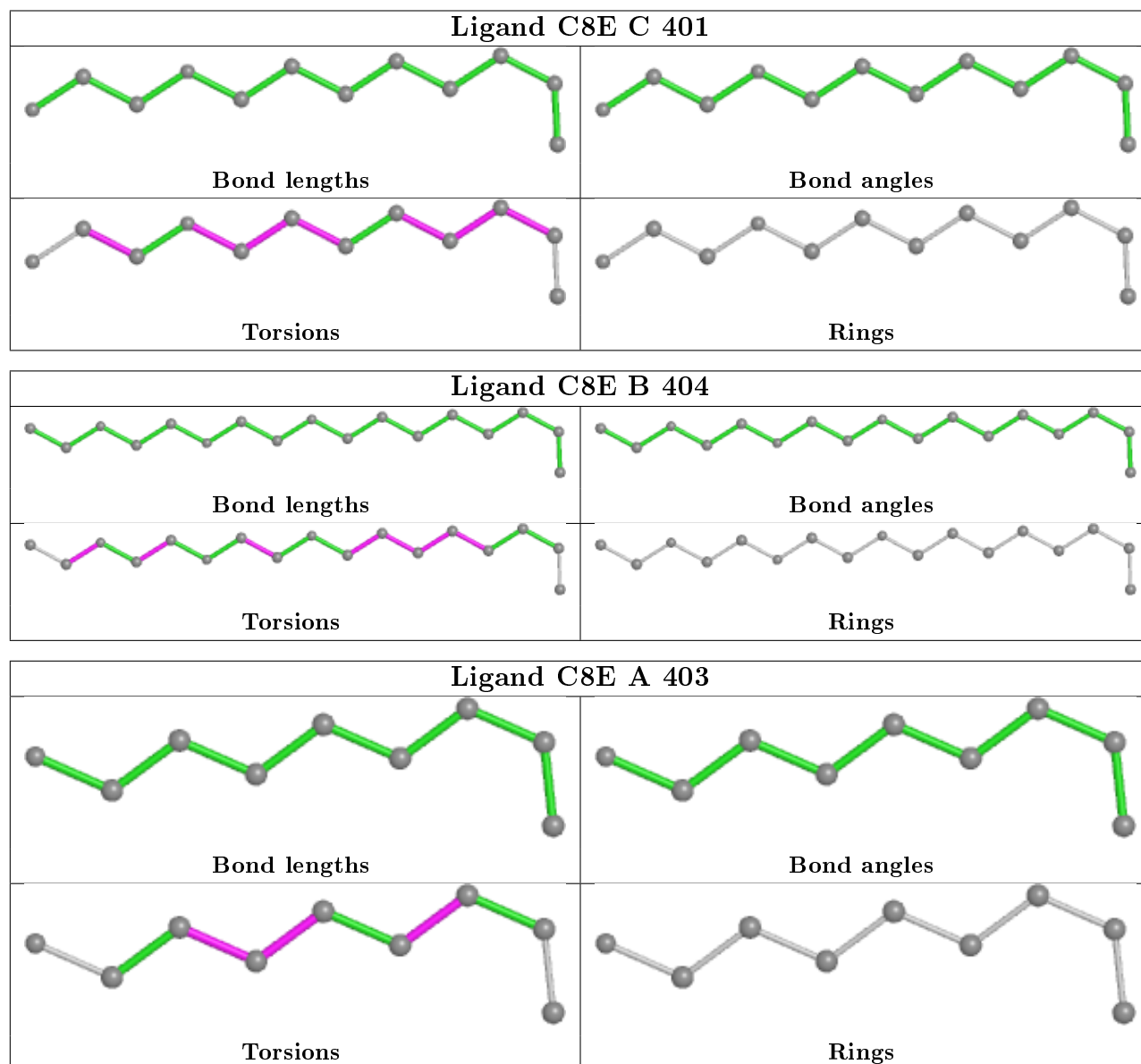
There are no ring outliers.

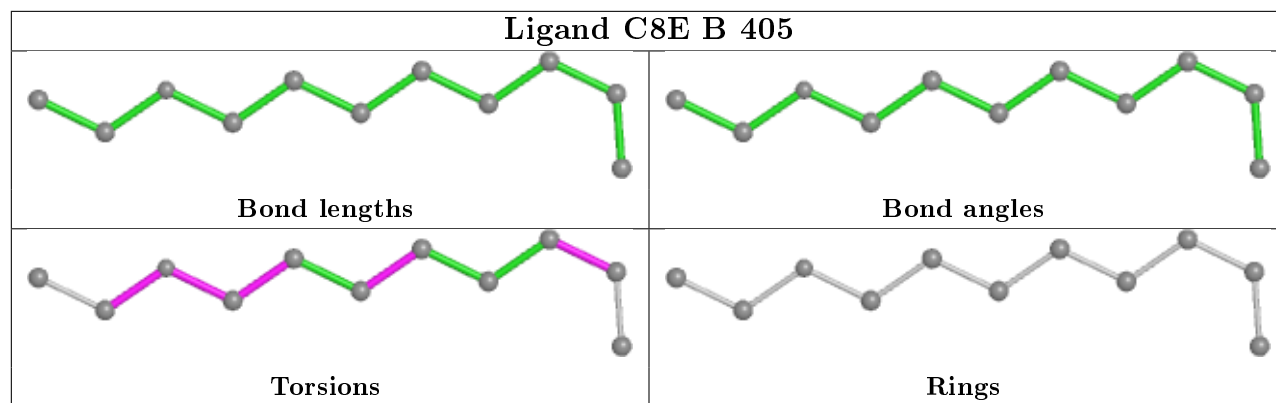
9 monomers are involved in 49 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	401	C8E	3	0
2	B	403	PEG	1	0
2	A	412	PEG	9	0
2	A	401	PEG	1	0
2	C	407	PEG	14	0
2	C	406	PEG	12	0
4	C	409	GOL	1	0
2	B	401	PEG	7	0
4	B	406	GOL	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 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	334/341 (97%)	0.09	16 (4%) 30 35	22, 31, 57, 88	0
1	B	334/341 (97%)	0.06	17 (5%) 28 32	20, 30, 51, 86	0
1	C	334/341 (97%)	0.09	18 (5%) 25 30	20, 30, 54, 79	0
All	All	1002/1023 (97%)	0.08	51 (5%) 28 32	20, 31, 54, 88	0

All (51) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	27	ASN	5.2
1	C	133	VAL	5.0
1	C	27	ASN	5.0
1	C	7	ASP	4.9
1	A	182	TYR	4.8
1	C	246	ASN	4.8
1	B	7	ASP	4.8
1	A	7	ASP	4.7
1	B	133	VAL	4.3
1	B	297	VAL	4.1
1	B	103	GLY	3.8
1	A	27	ASN	3.7
1	C	129	PHE	3.6
1	A	188	VAL	3.6
1	B	182	TYR	3.6
1	C	104	VAL	3.4
1	B	28	GLY	3.4
1	B	258	LEU	3.3
1	C	289	VAL	3.3
1	C	258	LEU	3.3
1	B	246	ASN	3.1
1	B	104	VAL	3.0
1	A	321	ASP	3.0

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Mol	Chain	Res	Type	RSRZ
1	C	182	TYR	3.0
1	C	245	THR	3.0
1	C	130	VAL	2.9
1	A	330	ASP	2.7
1	A	246	ASN	2.7
1	B	289	VAL	2.6
1	C	257	VAL	2.6
1	B	285	GLY	2.4
1	A	12	ASP	2.4
1	C	12	ASP	2.4
1	B	235	ARG	2.4
1	B	96[A]	PHE	2.3
1	C	188	VAL	2.3
1	A	183	GLU	2.3
1	A	285	GLY	2.3
1	C	8	GLY	2.3
1	A	29	GLU	2.3
1	A	133	VAL	2.3
1	C	92	ASP	2.2
1	A	244	PHE	2.2
1	B	29	GLU	2.2
1	A	320	SER	2.2
1	A	96[A]	PHE	2.2
1	B	90	TYR	2.2
1	C	29	GLU	2.1
1	C	96[A]	PHE	2.1
1	A	245	THR	2.1
1	B	284	GLU	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 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,

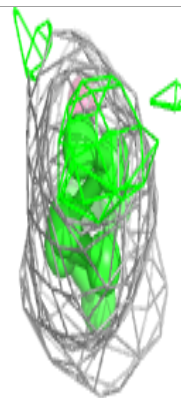
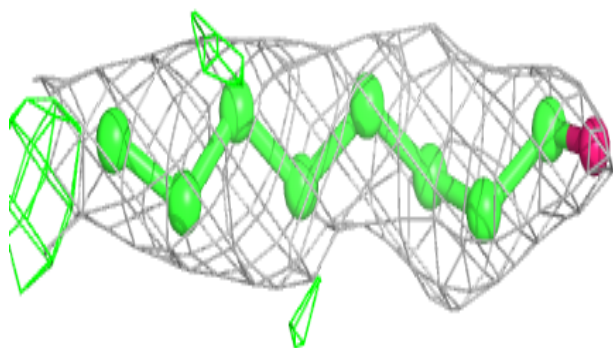
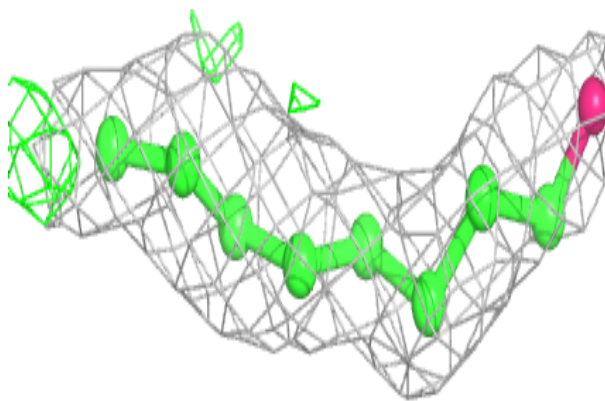
median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
6	BR	B	411	1/1	0.59	1.36	72,72,72,72	1
4	GOL	B	406	6/6	0.62	0.41	43,48,51,54	0
4	GOL	A	405	6/6	0.71	0.17	56,63,67,68	0
3	C8E	A	403	9/21	0.72	0.20	48,52,60,60	0
2	PEG	C	406	7/7	0.75	0.24	28,31,39,45	0
2	PEG	A	401	7/7	0.77	0.29	44,49,54,55	0
3	C8E	B	404	17/21	0.77	0.17	48,66,75,77	0
2	PEG	C	408	7/7	0.77	0.34	51,58,61,61	0
2	PEG	A	402	7/7	0.78	0.18	56,58,60,61	0
4	GOL	A	404	6/6	0.79	0.38	44,52,54,60	0
3	C8E	C	401	12/21	0.79	0.18	41,52,56,57	0
4	GOL	C	409	6/6	0.80	0.47	43,50,52,54	0
3	C8E	B	405	11/21	0.80	0.18	42,50,60,60	0
2	PEG	B	403	7/7	0.83	0.19	36,44,50,50	0
2	PEG	B	402	7/7	0.84	0.22	41,49,56,57	0
2	PEG	A	412	7/7	0.85	0.26	25,26,36,38	0
5	MG	B	408	1/1	0.89	0.08	47,47,47,47	0
2	PEG	C	407	7/7	0.90	0.33	26,32,36,40	0
5	MG	C	402	1/1	0.91	0.18	35,35,35,35	1
6	BR	A	411	1/1	0.91	1.13	81,81,81,81	1
6	BR	B	409	1/1	0.92	0.12	42,42,42,42	1
5	MG	A	406	1/1	0.92	0.09	43,43,43,43	0
6	BR	A	410	1/1	0.92	0.29	23,23,23,23	1
6	BR	C	410	1/1	0.92	0.06	40,40,40,40	1
2	PEG	B	401	7/7	0.93	0.25	27,32,37,39	0
5	MG	C	403	1/1	0.94	0.19	31,31,31,31	1
5	MG	C	405	1/1	0.95	0.10	31,31,31,31	0
6	BR	B	410	1/1	0.96	0.06	37,37,37,37	1
5	MG	B	407	1/1	0.96	0.11	33,33,33,33	0
5	MG	A	407	1/1	0.97	0.03	39,39,39,39	0
6	BR	A	408	1/1	0.98	0.10	40,40,40,40	1
6	BR	C	411	1/1	0.98	0.04	34,34,34,34	1
5	MG	C	404	1/1	0.98	0.06	31,31,31,31	0
6	BR	A	409	1/1	0.98	0.04	33,33,33,33	1

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.

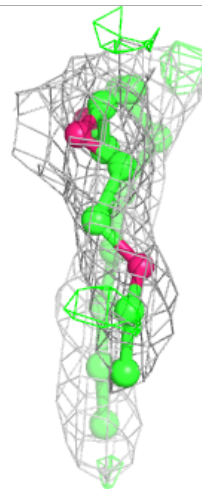
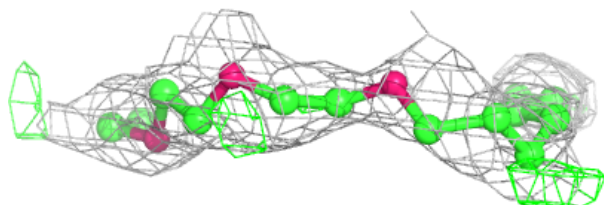
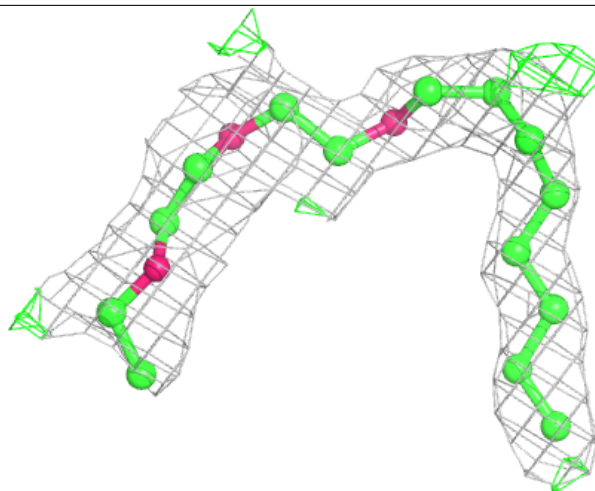
Electron density around C8E A 403:

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



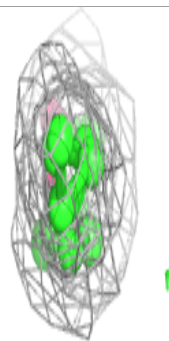
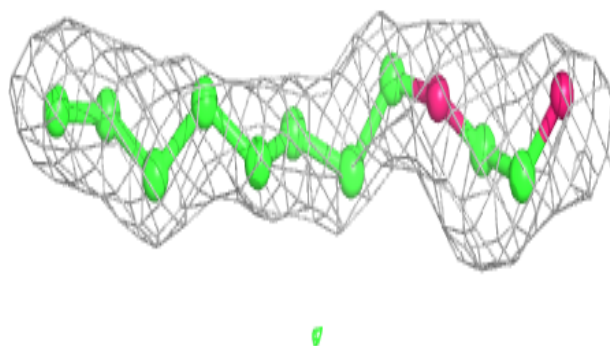
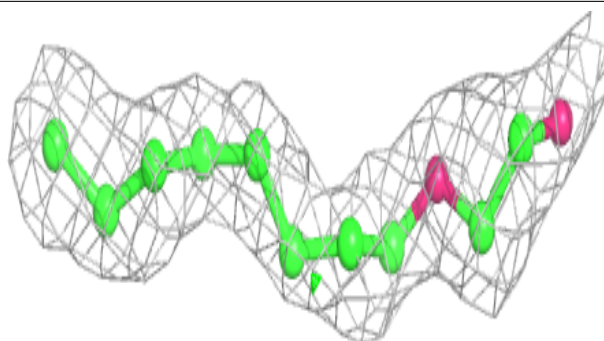
Electron density around C8E B 404:

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

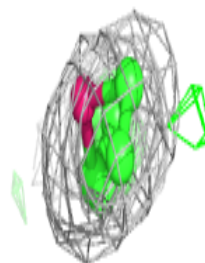
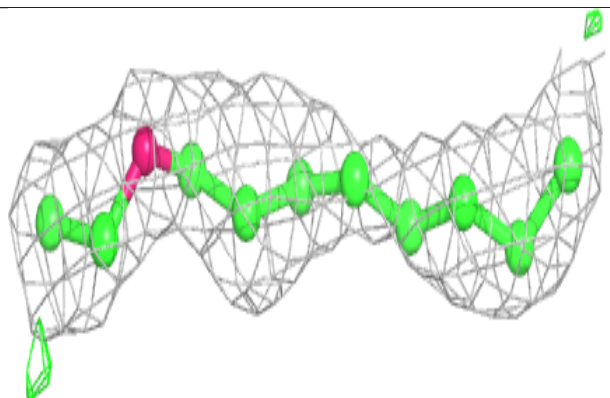
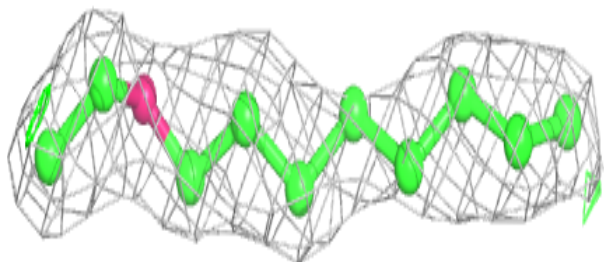


Electron density around C8E C 401:

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

**Electron density around C8E B 405:**

$2mF_o-DF_c$ (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.