WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

May 20, 2025 – 02:28 AM EDT

PDB ID	:	2Z73 / pdb_00002z73
Title	:	Crystal structure of squid rhodopsin
Authors	:	Murakami, M.; Kouyama, T.
Deposited on	:	2007-08-13
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:

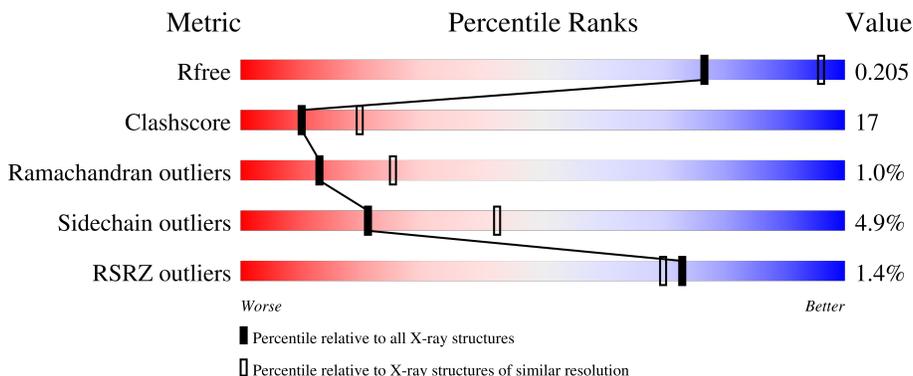|		
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)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

1   Overall quality at a glance ⓘ

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	Percentile Ranks	Value
Rfree		0.205
Clashscore		17
Ramachandran outliers		1.0%
Sidechain outliers		4.9%
RSRZ outliers		1.4%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	5504 (2.50-2.50)
Clashscore	180529	6282 (2.50-2.50)
Ramachandran outliers	177936	6191 (2.50-2.50)
Sidechain outliers	177891	6193 (2.50-2.50)
RSRZ outliers	164620	5504 (2.50-2.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

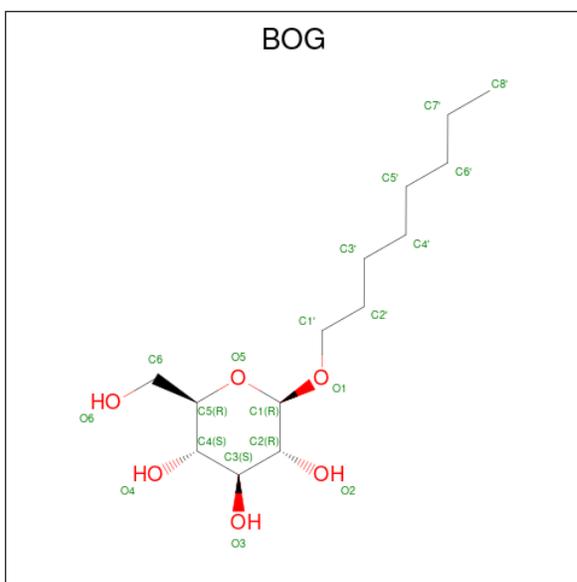| Mol	Chain	Length	Quality of chain
1	A	448	2% 48% 28% • 22%
1	B	448	% 50% 24% • 23%

2   Entry composition ⓘ

There are 8 unique types of molecules in this entry. The entry contains 5835 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 Rhodopsin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	350	Total 2780	C 1838	N 443	O 473	S 26	0	0	0
1	B	347	Total 2762	C 1828	N 440	O 468	S 26	0	0	0

- Molecule 2 is octyl beta-D-glucopyranoside (CCD ID: BOG) (formula: $C_{14}H_{28}O_6$).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 20	C 14	O 6	0	0
2	B	1	Total 20	C 14	O 6	0	0

- Molecule 3 is RETINAL (CCD ID: RET) (formula: $C_{20}H_{28}O$).

RET
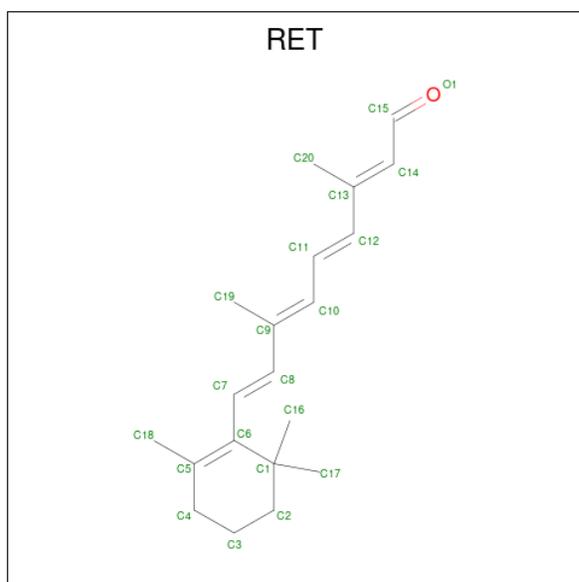
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total 20	C 20	0	0
3	B	1	Total 20	C 20	0	0

- Molecule 4 is PALMITIC ACID (CCD ID: PLM) (formula: $C_{16}H_{32}O_2$).

PLM
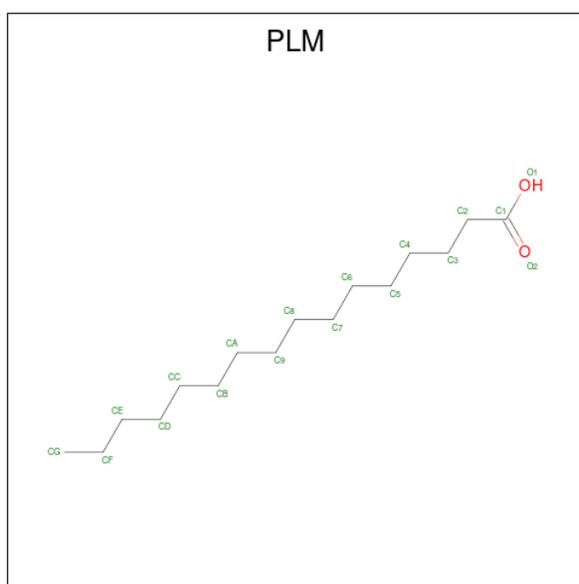
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 17	C 16	O 1	0	0
4	A	1	Total 17	C 16	O 1	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	B	1	Total C O 17 16 1			0	0
4	B	1	Total C O 17 16 1			0	0

- Molecule 5 is DOCOSANE (CCD ID: TWT) (formula: $C_{22}H_{46}$).
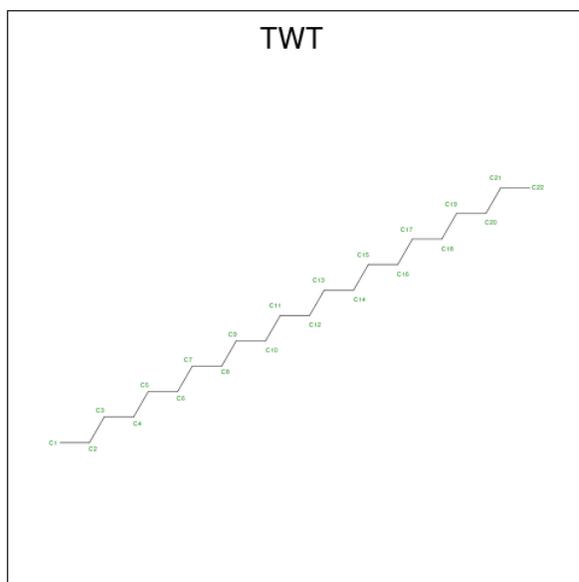
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total C 22 22		0	0
5	B	1	Total C 22 22		0	0

- Molecule 6 is SULFATE ION (CCD ID: SO4) (formula: O_4S).
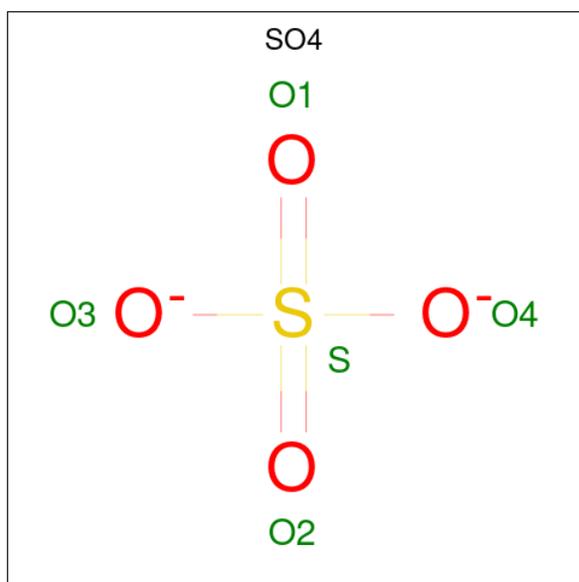
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	B	1	Total 5	O 4	S 1	0	0

- Molecule 7 is 1,2-DIACYL-SN-GLYCERO-3-PHOSPHOCHOLINE (CCD ID: PC1) (formula: $C_{44}H_{88}NO_8P$).
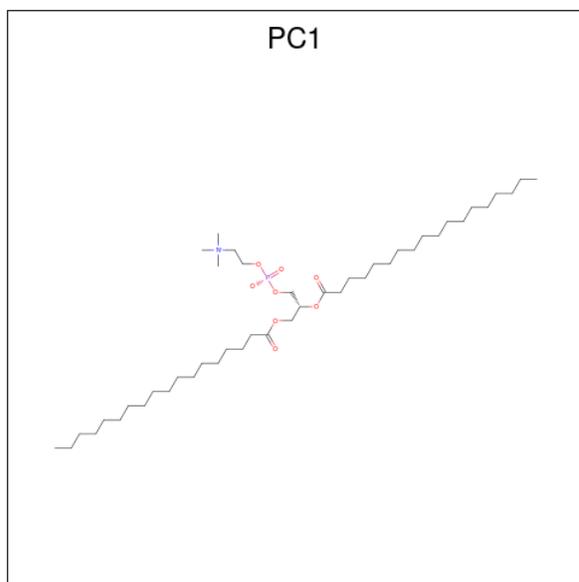
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
7	B	1	Total 39	C 30	O 8	P 1	0	0

- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	28	Total 28	O 28	0	0
8	B	29	Total 29	O 29	0	0

3 Residue-property plots ⓘ

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: Rhodopsin

• Molecule 1: Rhodopsin

PRO PRO GLN GLY TYR ALA PRO PRO PRO GLN GLY TYR PRO PRO GLN GLY TYR PRO PRO GLN GLY TYR PRO PRO GLN GLY TYR PRO PRO GLN GLY TYR PRO PRO GLN GLY TYR PRO PRO PRO GLN GLY ALA PRO PRO GLN GLY ALA PRO PRO ALA ALA PRO PRO GLN GLY VAL ASP ASN GLN ALA TYR GLN ALA

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 62	Depositor
Cell constants a, b, c, α, β, γ	122.55Å 122.55Å 158.74Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	15.00 – 2.50 15.00 – 2.50	Depositor EDS
% Data completeness (in resolution range)	92.2 (15.00-2.50) 92.8 (15.00-2.50)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	0.07	Depositor
$< I/\sigma(I) >$ [1]	1.82 (at 2.51Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.188 , 0.206 0.186 , 0.205	Depositor DCC
R_{free} test set	2162 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	54.1	Xtriage
Anisotropy	0.187	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 74.4	EDS
L-test for twinning[2]	$< \lvert L \rvert > = 0.45$, $< L^2 > = 0.28$	Xtriage
Estimated twinning fraction	0.107 for h,-h-k,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	5835	wwPDB-VP
Average B, all atoms (Å^2)	60.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.26% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< \lvert L \rvert >$, $< L^2 >$ 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: TWT, PC1, SO4, PLM, RET, BOG

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	0.44	0/2865	0.91	7/3889 (0.2%)
1	B	0.46	0/2847	0.92	6/3865 (0.2%)
All	All	0.45	0/5712	0.92	13/7754 (0.2%)

There are no bond length outliers.

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	119	GLY	N-CA-C	-7.75	103.11	112.49
1	B	244	LYS	N-CA-C	-7.33	104.59	113.97
1	B	86	VAL	N-CA-C	6.58	117.36	110.72
1	A	229	ASN	N-CA-C	-6.06	104.67	111.28
1	A	102	ILE	CB-CA-C	-5.88	105.43	112.19
1	B	206	ILE	N-CA-C	5.83	116.01	110.53
1	A	125	THR	N-CA-C	-5.81	105.03	111.36
1	A	44	CYS	N-CA-C	-5.57	105.21	112.23
1	A	309	ILE	CB-CA-C	-5.51	104.93	111.65
1	B	175	GLY	N-CA-C	-5.44	104.55	112.17
1	B	298	GLN	N-CA-C	5.36	116.81	110.97
1	A	66	GLN	N-CA-C	5.23	119.29	113.02
1	A	86	VAL	N-CA-C	5.11	115.83	110.62

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	2780	0	2765	98	0
1	B	2762	0	2751	96	0
2	A	20	0	28	4	0
2	B	20	0	28	2	0
3	A	20	0	27	2	0
3	B	20	0	27	2	0
4	A	34	0	62	1	0
4	B	34	0	62	1	0
5	A	22	0	46	0	0
5	B	22	0	46	0	0
6	B	5	0	0	0	0
7	B	39	0	49	1	0
8	A	28	0	0	4	0
8	B	29	0	0	1	0
All	All	5835	0	5891	198	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 17.

All (198) 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:150:ARG:HD2	1:B:150:ARG:H	1.28	0.96
1:B:354:ILE:H	1:B:354:ILE:HD13	1.30	0.94
1:A:21:PRO:HA	1:A:24:ARG:HD3	1.52	0.92
1:A:284:ALA:HB2	1:A:292:VAL:HG21	1.54	0.89
1:B:79:SER:HB2	1:B:121:MET:HE2	1.58	0.86
1:B:148:SER:HB2	1:B:150:ARG:HH21	1.43	0.83
1:A:37:LEU:HD22	1:A:302:MET:HE2	1.63	0.80
1:B:113:PHE:O	1:B:117:ILE:HG23	1.83	0.77
1:B:67:THR:HG21	2:B:1005:BOG:H5	1.67	0.76
1:B:102:ILE:H	1:B:102:ILE:HD13	1.53	0.73
1:A:298:GLN:O	1:A:301:VAL:HG12	1.87	0.72
1:A:137:ILE:HD11	1:A:256:GLU:HB2	1.72	0.71
1:A:117:ILE:HD11	1:A:164:VAL:HG22	1.73	0.70
1:A:218:PHE:O	1:A:222:ASN:HB2	1.90	0.70
1:A:233:GLU:HG2	1:A:237:MET:HE3	1.73	0.70
1:B:141:MET:HA	1:B:141:MET:HE2	1.73	0.70
1:A:21:PRO:CA	1:A:24:ARG:HD3	2.24	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:298:GLN:O	1:B:301:VAL:HG12	1.93	0.66
1:A:306:ALA:O	1:A:309:ILE:HG12	1.96	0.65
1:B:136:VAL:HG23	1:B:137:ILE:HG12	1.77	0.65
1:A:257:MET:HE2	1:A:261:LYS:HZ2	1.62	0.64
1:A:320:PRO:HG2	8:A:521:HOH:O	1.98	0.64
1:A:67:THR:HB	8:A:520:HOH:O	1.97	0.64
1:B:41:ILE:HG13	1:B:88:GLY:HA2	1.79	0.63
1:A:133:ARG:NH2	1:A:136:VAL:HG11	2.13	0.62
1:B:354:ILE:H	1:B:354:ILE:CD1	2.08	0.62
1:A:340:ASP:OD2	1:A:342:LYS:HB2	2.00	0.62
1:B:319:HIS:HB3	1:B:322:PHE:HB3	1.80	0.62
1:A:65:LEU:HD21	1:A:321:LYS:HB3	1.83	0.61
1:B:306:ALA:O	1:B:309:ILE:HG12	2.00	0.60
1:A:259:LEU:HD13	1:A:262:ILE:HD12	1.84	0.59
1:B:138:GLY:HA2	1:B:223:ILE:HA	1.84	0.59
1:B:225:MET:HE3	1:B:225:MET:HA	1.84	0.59
1:B:87:ASN:HA	1:B:111:TYR:CE1	2.38	0.59
1:B:234:MET:HE3	1:B:234:MET:HA	1.84	0.58
1:B:237:MET:O	1:B:242:ASN:HB2	2.04	0.58
1:A:355:PRO:HG2	1:A:358:GLU:HA	1.84	0.58
1:B:197:THR:O	1:B:201:ILE:HG13	2.02	0.58
1:B:123:ILE:HG12	1:B:270:PHE:CZ	2.40	0.57
1:B:52:ASN:HA	1:B:55:VAL:CG1	2.35	0.57
1:B:311:ASN:HB2	1:B:312:PRO:HD3	1.85	0.57
1:A:155:MET:O	1:A:159:VAL:HG23	2.05	0.56
1:A:19:VAL:O	1:A:24:ARG:HD2	2.06	0.56
1:A:73:ILE:HD11	2:A:1005:BOG:H7'2	1.87	0.56
1:B:242:ASN:HD22	1:B:245:GLU:HG3	1.70	0.56
1:A:257:MET:HE2	1:A:261:LYS:NZ	2.20	0.55
1:A:12:TRP:CD2	1:A:24:ARG:HG2	2.42	0.55
1:B:73:ILE:HD11	2:B:1005:BOG:H7'2	1.89	0.55
1:B:257:MET:HG3	1:B:261:LYS:NZ	2.22	0.54
1:B:117:ILE:HG22	1:B:167:ALA:HB3	1.87	0.54
1:A:240:ARG:NE	1:A:240:ARG:HA	2.23	0.54
1:A:67:THR:HG21	2:A:1005:BOG:H5	1.89	0.54
1:B:117:ILE:HD11	1:B:118:PHE:CZ	2.43	0.54
1:B:238:ALA:HA	1:B:246:LEU:HD13	1.90	0.53
1:B:137:ILE:HD11	1:B:256:GLU:HB3	1.91	0.53
1:B:117:ILE:HD11	1:B:118:PHE:CE1	2.44	0.53
1:B:72:PHE:HE2	1:B:147:MET:HE3	1.73	0.53
1:B:299:LEU:HB2	1:B:300:PRO:HD3	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:311:ASN:HB2	1:A:312:PRO:HD3	1.92	0.52
1:A:348:LYS:O	1:A:352:THR:HG23	2.10	0.52
1:B:198:ARG:HG2	7:B:1004:PC1:H341	1.91	0.52
1:B:322:PHE:CE2	1:B:326:ILE:HD11	2.45	0.52
1:B:56:ILE:HD11	1:B:78:PHE:HA	1.90	0.52
1:A:72:PHE:CE2	1:A:147:MET:HE3	2.44	0.52
1:B:235:ALA:C	1:B:237:MET:H	2.18	0.52
1:A:243:ALA:HB3	1:A:245:GLU:HG2	1.91	0.51
1:A:41:ILE:HG13	1:A:88:GLY:HA2	1.91	0.51
1:B:284:ALA:HB2	1:B:292:VAL:HG21	1.93	0.51
1:B:347:ASP:O	1:B:351:GLU:HG2	2.11	0.51
1:A:182:VAL:HG22	1:A:298:GLN:OE1	2.11	0.51
1:A:345:GLU:HA	1:A:348:LYS:HD2	1.92	0.51
1:A:134:TYR:O	1:A:139:ARG:HG3	2.11	0.51
1:B:197:THR:HG22	1:B:201:ILE:HD11	1.93	0.51
1:A:332:TRP:O	1:A:335:THR:HG23	2.11	0.51
1:A:17:ILE:HG12	1:A:105:PHE:CD2	2.45	0.50
1:A:139:ARG:HB3	1:A:140:PRO:HD2	1.92	0.50
1:A:160:TRP:O	1:A:164:VAL:HG23	2.11	0.50
1:A:11:TRP:CD2	1:A:28:GLN:HB2	2.46	0.50
1:A:79:SER:HB2	1:A:121:MET:HE2	1.92	0.50
1:B:301:VAL:O	1:B:305:LYS:HG3	2.11	0.50
1:A:114:ILE:HA	1:A:117:ILE:HG22	1.93	0.50
1:A:133:ARG:NE	1:A:133:ARG:HA	2.26	0.50
1:B:117:ILE:HG22	1:B:167:ALA:CB	2.42	0.50
1:B:124:MET:O	1:B:128:MET:HG2	2.12	0.50
1:B:136:VAL:HG11	8:B:528:HOH:O	2.11	0.49
1:B:223:ILE:O	1:B:224:VAL:C	2.53	0.49
1:B:166:TRP:CZ2	1:B:207:LEU:HG	2.47	0.49
1:A:325:ALA:HA	1:A:328:GLN:HE21	1.77	0.49
1:A:342:LYS:HA	1:A:345:GLU:HG3	1.94	0.49
1:B:60:THR:HG22	1:B:74:ILE:HD13	1.95	0.49
1:A:52:ASN:O	1:A:55:VAL:HG13	2.13	0.48
1:B:260:ALA:O	1:B:264:ILE:HG13	2.14	0.48
1:A:258:ARG:O	1:A:262:ILE:HG13	2.14	0.48
1:A:309:ILE:O	1:A:313:MET:HE2	2.14	0.48
1:B:63:LYS:HA	1:B:66:GLN:NE2	2.29	0.48
1:B:317:VAL:HG22	4:B:1002:PLM:O2	2.14	0.47
1:B:72:PHE:CE2	1:B:147:MET:HE3	2.49	0.47
1:B:150:ARG:H	1:B:150:ARG:CD	2.08	0.47
1:B:52:ASN:HA	1:B:55:VAL:HG12	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:224:VAL:O	1:A:227:VAL:HG23	2.15	0.47
1:A:293:THR:HB	1:A:294:PRO:HD2	1.96	0.47
1:B:35:TYR:O	1:B:39:ILE:HG12	2.15	0.47
1:B:117:ILE:HG13	1:B:118:PHE:N	2.30	0.47
3:B:1000:RET:H10	3:B:1000:RET:H202	1.96	0.47
1:A:324:GLU:HG3	1:A:339:PHE:CZ	2.50	0.47
1:A:114:ILE:O	1:A:117:ILE:HG22	2.14	0.46
1:A:121:MET:HG3	1:A:159:VAL:HG12	1.96	0.46
1:A:206:ILE:HA	1:A:210:PHE:CD2	2.50	0.46
1:A:34:TYR:CD1	1:A:99:LYS:HG2	2.50	0.46
1:A:123:ILE:HG12	1:A:270:PHE:CZ	2.50	0.46
1:A:176:ALA:O	1:A:188:PHE:HA	2.15	0.46
1:B:269:GLN:NE2	1:B:310:HIS:HD2	2.12	0.46
1:A:344:THR:O	1:A:348:LYS:HG3	2.15	0.46
1:B:145:LYS:HD3	1:B:151:ARG:NH2	2.30	0.46
1:B:269:GLN:HE21	1:B:310:HIS:HD2	1.62	0.46
1:A:141:MET:HE1	1:A:234:MET:HE3	1.98	0.46
1:A:283:LEU:HD23	1:A:291:TRP:HE3	1.80	0.46
1:B:247:ARG:O	1:B:251:ALA:HB2	2.16	0.46
1:A:276:PRO:HB2	8:A:510:HOH:O	2.15	0.46
1:A:146:LYS:HE2	2:A:1005:BOG:H61	1.96	0.45
1:B:133:ARG:NH2	1:B:136:VAL:HG21	2.31	0.45
1:B:244:LYS:HD3	1:B:247:ARG:HB2	1.99	0.45
1:A:177:TYR:HA	1:A:187:SER:O	2.17	0.45
1:B:242:ASN:ND2	1:B:245:GLU:HG3	2.31	0.45
1:B:257:MET:HG3	1:B:261:LYS:HZ2	1.81	0.45
1:B:132:ASP:OD1	1:B:133:ARG:NH1	2.49	0.45
1:A:137:ILE:HD11	1:A:256:GLU:CB	2.44	0.45
1:A:354:ILE:O	1:A:354:ILE:HG13	2.16	0.45
1:A:219:CYS:O	1:A:223:ILE:HG13	2.17	0.45
1:A:52:ASN:HA	1:A:55:VAL:CG1	2.47	0.45
1:A:233:GLU:O	1:A:237:MET:HG2	2.17	0.45
1:B:150:ARG:HD2	1:B:150:ARG:N	2.11	0.44
1:B:170:PRO:HB3	1:B:176:ALA:HA	1.98	0.44
1:B:293:THR:H	1:B:296:ALA:HB3	1.81	0.44
1:A:65:LEU:CD2	1:A:321:LYS:HB3	2.45	0.44
1:B:127:ALA:O	1:B:131:ILE:HG13	2.17	0.44
1:A:72:PHE:HE2	1:A:147:MET:HE3	1.82	0.44
1:A:190:TYR:HA	1:A:201:ILE:HD11	1.99	0.44
1:A:279:VAL:O	1:A:283:LEU:HD13	2.17	0.44
3:B:1000:RET:H10	3:B:1000:RET:C20	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:177:TYR:HA	1:B:187:SER:O	2.17	0.44
1:B:326:ILE:O	1:B:330:PHE:N	2.50	0.44
1:A:12:TRP:CE3	1:A:24:ARG:HG2	2.53	0.44
1:A:284:ALA:CB	1:A:292:VAL:HG21	2.36	0.44
3:A:1000:RET:H10	3:A:1000:RET:C20	2.48	0.44
1:A:161:LEU:HD13	1:A:161:LEU:HA	1.81	0.43
1:A:269:GLN:NE2	1:A:307:SER:OG	2.38	0.43
1:A:92:MET:HG3	1:A:184:CYS:O	2.18	0.43
1:A:224:VAL:C	1:A:226:SER:H	2.26	0.43
1:A:313:MET:SD	4:A:1002:PLM:H72	2.59	0.43
1:B:121:MET:HE1	1:B:160:TRP:CZ2	2.53	0.43
1:B:317:VAL:HG12	1:B:317:VAL:O	2.18	0.43
1:A:170:PRO:HB3	1:A:176:ALA:CA	2.49	0.43
1:B:100:LYS:HB2	1:B:100:LYS:HE2	1.69	0.43
1:B:297:ALA:C	1:B:300:PRO:HD2	2.43	0.43
1:A:198:ARG:O	1:A:202:LEU:HG	2.19	0.43
1:B:176:ALA:O	1:B:188:PHE:HA	2.19	0.43
1:B:182:VAL:HG22	1:B:298:GLN:OE1	2.19	0.43
1:A:50:GLY:O	1:A:54:ILE:HG13	2.18	0.42
1:B:279:VAL:O	1:B:283:LEU:HD13	2.19	0.42
1:B:332:TRP:O	1:B:335:THR:HG23	2.18	0.42
1:A:206:ILE:HA	1:A:210:PHE:HD2	1.83	0.42
1:A:243:ALA:C	1:A:245:GLU:N	2.76	0.42
1:A:259:LEU:HD12	2:A:1005:BOG:H6'1	2.01	0.42
1:A:170:PRO:HB2	1:A:177:TYR:CD2	2.55	0.42
1:A:263:SER:O	1:A:266:ILE:HG12	2.20	0.42
1:B:51:GLY:O	1:B:55:VAL:HG12	2.19	0.42
1:B:266:ILE:HG13	1:B:267:VAL:N	2.34	0.42
1:A:77:ALA:HA	8:A:508:HOH:O	2.19	0.42
1:A:117:ILE:HG23	1:A:118:PHE:CD1	2.55	0.42
1:B:156:ILE:HG13	1:B:157:ILE:N	2.34	0.42
3:A:1000:RET:H10	3:A:1000:RET:H202	2.01	0.42
1:B:257:MET:O	1:B:261:LYS:HG3	2.19	0.42
1:B:297:ALA:O	1:B:300:PRO:HD2	2.20	0.42
1:B:229:ASN:O	1:B:233:GLU:HG3	2.19	0.42
1:B:235:ALA:C	1:B:237:MET:N	2.78	0.42
1:B:354:ILE:O	1:B:354:ILE:HG12	2.20	0.42
1:B:137:ILE:HD11	1:B:256:GLU:CB	2.49	0.41
1:A:37:LEU:CD2	1:A:302:MET:HE2	2.42	0.41
1:A:288:PRO:HB2	1:A:291:TRP:CD2	2.55	0.41
1:A:293:THR:N	1:A:296:ALA:HB3	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:92:MET:HE1	1:B:302:MET:SD	2.61	0.41
1:A:229:ASN:N	1:A:229:ASN:HD22	2.18	0.41
1:A:319:HIS:HA	1:A:320:PRO:HD2	1.91	0.41
1:B:296:ALA:O	1:B:300:PRO:HG2	2.20	0.41
1:A:105:PHE:O	1:A:109:LYS:HG3	2.21	0.41
1:A:205:PHE:O	1:A:209:PHE:HB3	2.20	0.41
1:A:328:GLN:HE21	1:A:328:GLN:HB2	1.78	0.41
1:B:41:ILE:HB	1:B:302:MET:HE1	2.02	0.41
1:B:105:PHE:O	1:B:109:LYS:HG3	2.20	0.41
1:B:220:TYR:O	1:B:224:VAL:HG23	2.20	0.41
1:A:341:ASP:OD2	1:A:341:ASP:N	2.54	0.41
1:B:263:SER:O	1:B:266:ILE:HG12	2.21	0.41
1:B:319:HIS:HA	1:B:320:PRO:HD2	1.97	0.40
1:B:216:ILE:HG23	1:B:220:TYR:CE2	2.55	0.40
1:A:178:THR:OG1	1:A:179:LEU:N	2.54	0.40
1:B:117:ILE:C	1:B:117:ILE:HD12	2.46	0.40
1:A:89:PHE:HA	1:A:90:PRO:HA	1.89	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	348/448 (78%)	316 (91%)	30 (9%)	2 (1%)	22	39
1	B	345/448 (77%)	318 (92%)	22 (6%)	5 (1%)	9	17
All	All	693/896 (77%)	634 (92%)	52 (8%)	7 (1%)	13	25

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	243	ALA

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Mol	Chain	Res	Type
1	B	226	SER
1	B	138	GLY
1	B	352	THR
1	B	223	ILE
1	A	292	VAL
1	B	224	VAL

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	296/369 (80%)	285 (96%)	11 (4%)	29	55
1	B	295/369 (80%)	277 (94%)	18 (6%)	15	32
All	All	591/738 (80%)	562 (95%)	29 (5%)	21	42

All (29) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	55	VAL
1	A	58	LEU
1	A	66	GLN
1	A	76	LEU
1	A	85	LEU
1	A	90	PRO
1	A	123	ILE
1	A	145	LYS
1	A	234	MET
1	A	337	CYS
1	A	338	GLN
1	B	10	THR
1	B	55	VAL
1	B	66	GLN
1	B	76	LEU
1	B	85	LEU
1	B	102	ILE

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Mol	Chain	Res	Type
1	B	117	ILE
1	B	121	MET
1	B	123	ILE
1	B	133	ARG
1	B	150	ARG
1	B	225	MET
1	B	242	ASN
1	B	245	GLU
1	B	247	ARG
1	B	335	THR
1	B	337	CYS
1	B	354	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	70	ASN
1	A	229	ASN
1	A	230	HIS
1	A	242	ASN
1	A	254	ASN
1	A	269	GLN
1	A	285	GLN
1	A	328	GLN
1	B	70	ASN
1	B	87	ASN
1	B	135	ASN
1	B	229	ASN
1	B	242	ASN
1	B	269	GLN
1	B	328	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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 ⓘ

12 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	#$|Z| > 2$
3	RET	A	1000	1	20,20,21	1.95	6 (30%)	27,27,28	1.72	7 (25%)
3	RET	B	1000	1	20,20,21	1.92	6 (30%)	27,27,28	1.71	7 (25%)
4	PLM	A	1001	-	15,16,17	0.26	0	14,15,17	0.64	0
4	PLM	A	1002	1	15,16,17	0.25	0	14,15,17	0.66	0
5	TWT	A	1003	-	21,21,21	0.30	0	20,20,20	1.66	4 (20%)
6	SO4	B	1006	-	4,4,4	0.36	0	6,6,6	0.14	0
2	BOG	B	1005	-	20,20,20	1.87	8 (40%)	25,25,25	2.84	11 (44%)
4	PLM	B	1001	-	15,16,17	0.29	0	14,15,17	0.65	0
4	PLM	B	1002	1	15,16,17	0.25	0	14,15,17	0.64	0
7	PC1	B	1004	-	38,38,53	1.67	3 (7%)	41,43,61	0.98	1 (2%)
2	BOG	A	1005	-	20,20,20	1.86	8 (40%)	25,25,25	2.81	11 (44%)
5	TWT	B	1003	-	21,21,21	0.27	0	20,20,20	1.74	6 (30%)

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	RET	A	1000	1	-	1/13/30/31	0/1/1/1
3	RET	B	1000	1	-	1/13/30/31	0/1/1/1
4	PLM	A	1001	-	-	5/14/14/15	-
4	PLM	A	1002	1	-	7/14/14/15	-
5	TWT	A	1003	-	-	9/19/19/19	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	BOG	B	1005	-	-	6/11/31/31	0/1/1/1
4	PLM	B	1001	-	-	8/14/14/15	-
4	PLM	B	1002	1	-	6/14/14/15	-
7	PC1	B	1004	-	-	13/42/42/57	-
2	BOG	A	1005	-	-	5/11/31/31	0/1/1/1
5	TWT	B	1003	-	-	10/19/19/19	-

All (31) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	B	1004	PC1	O21-C21	7.38	1.55	1.34
3	A	1000	RET	C14-C13	5.02	1.37	1.33
3	B	1000	RET	C14-C13	5.00	1.37	1.33
7	B	1004	PC1	O31-C31	4.40	1.46	1.33
3	A	1000	RET	C1-C6	3.87	1.58	1.53
2	A	1005	BOG	O5-C1	3.79	1.51	1.41
2	B	1005	BOG	O5-C1	3.78	1.51	1.41
3	B	1000	RET	C1-C6	3.65	1.58	1.53
3	A	1000	RET	C12-C13	2.77	1.51	1.46
2	B	1005	BOG	C4-C5	-2.73	1.47	1.53
3	B	1000	RET	C12-C13	2.66	1.51	1.46
2	A	1005	BOG	C4-C5	-2.62	1.47	1.53
3	A	1000	RET	C8-C7	2.60	1.40	1.33
2	A	1005	BOG	O6-C6	2.54	1.53	1.42
2	B	1005	BOG	O6-C6	2.53	1.53	1.42
3	B	1000	RET	C5-C6	2.51	1.38	1.34
2	A	1005	BOG	C4-C3	2.48	1.58	1.52
2	B	1005	BOG	C4-C3	2.47	1.58	1.52
2	B	1005	BOG	O1-C1	-2.34	1.36	1.40
2	B	1005	BOG	O2-C2	2.24	1.48	1.43
3	A	1000	RET	C7-C6	2.23	1.52	1.45
2	A	1005	BOG	C3-C2	-2.22	1.46	1.52
2	A	1005	BOG	C6-C5	2.19	1.59	1.51
2	A	1005	BOG	O2-C2	2.19	1.48	1.43
3	B	1000	RET	C17-C1	2.15	1.57	1.53
2	B	1005	BOG	C3-C2	-2.15	1.46	1.52
2	B	1005	BOG	C6-C5	2.13	1.59	1.51
3	B	1000	RET	C8-C7	2.10	1.39	1.33
2	A	1005	BOG	O1-C1	-2.09	1.36	1.40
7	B	1004	PC1	P-O14	2.03	1.57	1.50
3	A	1000	RET	C20-C13	2.02	1.54	1.50

All (47) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	1005	BOG	C1'-O1-C1	-8.28	99.54	113.68
2	A	1005	BOG	C1'-O1-C1	-7.99	100.03	113.68
2	A	1005	BOG	O1-C1-C2	-5.01	100.66	108.27
2	B	1005	BOG	O1-C1-C2	-4.92	100.81	108.27
2	A	1005	BOG	O5-C5-C4	-4.42	101.74	109.70
2	B	1005	BOG	C1-C2-C3	-4.35	100.85	110.01
2	B	1005	BOG	O5-C5-C4	-4.30	101.95	109.70
2	A	1005	BOG	C1-C2-C3	-4.29	100.98	110.01
3	A	1000	RET	C7-C8-C9	3.96	132.10	126.23
3	B	1000	RET	C8-C9-C10	-3.96	112.78	119.01
3	A	1000	RET	C8-C9-C10	-3.83	112.99	119.01
2	A	1005	BOG	O3-C3-C2	-3.75	101.53	110.38
2	B	1005	BOG	O3-C3-C2	-3.69	101.69	110.38
5	B	1003	TWT	C14-C13-C12	-3.48	96.80	114.37
3	B	1000	RET	C7-C8-C9	3.45	131.34	126.23
5	A	1003	TWT	C14-C13-C12	-3.35	97.45	114.37
5	B	1003	TWT	C16-C15-C14	-3.28	97.80	114.37
3	B	1000	RET	C11-C10-C9	3.24	131.82	127.28
7	B	1004	PC1	O21-C21-C22	3.12	118.24	111.48
3	A	1000	RET	C11-C12-C13	3.10	134.87	126.36
5	A	1003	TWT	C16-C15-C14	-3.09	98.76	114.37
5	B	1003	TWT	C12-C11-C10	-2.99	99.26	114.37
5	A	1003	TWT	C12-C11-C10	-2.95	99.47	114.37
3	B	1000	RET	C11-C12-C13	2.95	134.44	126.36
5	B	1003	TWT	C18-C17-C16	-2.88	99.80	114.37
3	A	1000	RET	C11-C10-C9	2.88	131.31	127.28
2	B	1005	BOG	O4-C4-C5	-2.87	102.26	109.32
2	A	1005	BOG	O4-C4-C5	-2.77	102.51	109.32
2	B	1005	BOG	C4'-C3'-C2'	-2.72	100.59	114.37
2	A	1005	BOG	C4'-C3'-C2'	-2.72	100.62	114.37
3	B	1000	RET	C18-C5-C6	2.70	127.43	124.48
2	A	1005	BOG	C3'-C2'-C1'	-2.67	101.86	113.47
2	B	1005	BOG	C3'-C2'-C1'	-2.66	101.91	113.47
2	A	1005	BOG	C6'-C5'-C4'	-2.63	101.09	114.37
5	A	1003	TWT	C18-C17-C16	-2.61	101.15	114.37
3	A	1000	RET	C18-C5-C6	2.58	127.30	124.48
2	B	1005	BOG	C6'-C5'-C4'	-2.54	101.55	114.37
2	A	1005	BOG	O1-C1'-C2'	-2.50	100.88	109.37
2	B	1005	BOG	O1-C1'-C2'	-2.43	101.12	109.37
3	A	1000	RET	C2-C1-C6	2.27	113.73	110.44
3	B	1000	RET	C19-C9-C10	2.24	126.45	122.82
2	B	1005	BOG	C5'-C4'-C3'	-2.17	103.41	114.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	B	1003	TWT	C20-C19-C18	-2.16	103.46	114.37
3	A	1000	RET	C19-C9-C10	2.11	126.24	122.82
2	A	1005	BOG	C5'-C4'-C3'	-2.09	103.79	114.37
5	B	1003	TWT	C10-C9-C8	-2.05	104.02	114.37
3	B	1000	RET	C2-C1-C6	2.05	113.41	110.44

There are no chirality outliers.

All (71) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1002	PLM	O2-C1-C2-C3
4	B	1001	PLM	O2-C1-C2-C3
7	B	1004	PC1	C1-O11-P-O12
7	B	1004	PC1	C1-O11-P-O14
7	B	1004	PC1	C1-O11-P-O13
7	B	1004	PC1	C32-C31-O31-C3
7	B	1004	PC1	O32-C31-O31-C3
2	A	1005	BOG	O1-C1'-C2'-C3'
4	A	1002	PLM	C2-C3-C4-C5
5	B	1003	TWT	C6-C7-C8-C9
4	A	1002	PLM	C4-C5-C6-C7
4	A	1002	PLM	CC-CD-CE-CF
5	B	1003	TWT	C3-C4-C5-C6
4	B	1002	PLM	C4-C5-C6-C7
5	B	1003	TWT	C7-C8-C9-C10
5	A	1003	TWT	C4-C5-C6-C7
4	A	1001	PLM	CC-CD-CE-CF
4	B	1001	PLM	C7-C8-C9-CA
5	A	1003	TWT	C11-C10-C9-C8
7	B	1004	PC1	C22-C23-C24-C25
4	B	1002	PLM	C2-C3-C4-C5
4	A	1002	PLM	CB-CC-CD-CE
5	B	1003	TWT	C9-C10-C11-C12
7	B	1004	PC1	C23-C24-C25-C26
5	A	1003	TWT	C6-C7-C8-C9
7	B	1004	PC1	C32-C33-C34-C35
2	B	1005	BOG	O1-C1'-C2'-C3'
7	B	1004	PC1	C26-C27-C28-C29
4	A	1002	PLM	C7-C8-C9-CA
4	B	1002	PLM	C7-C8-C9-CA
5	A	1003	TWT	C7-C8-C9-C10
4	A	1001	PLM	C7-C8-C9-CA

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
4	A	1001	PLM	CB-CC-CD-CE
4	B	1001	PLM	C4-C5-C6-C7
5	B	1003	TWT	C4-C5-C6-C7
7	B	1004	PC1	C21-C22-C23-C24
5	A	1003	TWT	C3-C4-C5-C6
4	B	1001	PLM	C6-C7-C8-C9
5	B	1003	TWT	C5-C6-C7-C8
5	A	1003	TWT	C5-C6-C7-C8
7	B	1004	PC1	C2B-C2C-C2D-C2E
4	B	1001	PLM	C8-C9-CA-CB
7	B	1004	PC1	C2C-C2D-C2E-C2F
4	B	1002	PLM	C9-CA-CB-CC
4	B	1001	PLM	C2-C3-C4-C5
5	A	1003	TWT	C15-C16-C17-C18
4	B	1002	PLM	CB-CC-CD-CE
2	A	1005	BOG	C1'-C2'-C3'-C4'
2	B	1005	BOG	C1'-C2'-C3'-C4'
5	B	1003	TWT	C12-C13-C14-C15
2	B	1005	BOG	C3'-C4'-C5'-C6'
4	B	1002	PLM	CC-CD-CE-CF
5	B	1003	TWT	C14-C15-C16-C17
4	A	1001	PLM	C1-C2-C3-C4
4	B	1001	PLM	C1-C2-C3-C4
3	A	1000	RET	C10-C11-C12-C13
3	B	1000	RET	C10-C11-C12-C13
5	A	1003	TWT	C14-C15-C16-C17
4	A	1002	PLM	C6-C7-C8-C9
2	A	1005	BOG	C3'-C4'-C5'-C6'
2	B	1005	BOG	C5'-C6'-C7'-C8'
5	B	1003	TWT	C11-C12-C13-C14
2	B	1005	BOG	C2-C1-O1-C1'
4	B	1001	PLM	CC-CD-CE-CF
2	A	1005	BOG	O5-C1-O1-C1'
2	B	1005	BOG	O5-C1-O1-C1'
4	A	1001	PLM	C8-C9-CA-CB
2	A	1005	BOG	C2-C1-O1-C1'
5	A	1003	TWT	C11-C12-C13-C14
7	B	1004	PC1	O31-C31-C32-C33
5	B	1003	TWT	C13-C14-C15-C16

There are no ring outliers.

7 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1000	RET	2	0
3	B	1000	RET	2	0
4	A	1002	PLM	1	0
2	B	1005	BOG	2	0
4	B	1002	PLM	1	0
7	B	1004	PC1	1	0
2	A	1005	BOG	4	0

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

Ligand RET A 1000

Bond lengths

Bond angles

Torsions

Rings

Ligand RET B 1000

Bond lengths

Bond angles

Torsions

Rings

Ligand PLM A 1001

Bond lengths

Bond angles

Torsions

Rings

Ligand PLM A 1002

Bond lengths

Bond angles

Torsions

Rings

Ligand TWT A 1003

Bond lengths

Bond angles

Torsions

Rings

Ligand BOG B 1005

Bond lengths

Bond angles

Torsions

Rings

Ligand PLM B 1001

Bond lengths

Bond angles

Torsions

Rings

Ligand PLM B 1002

Bond lengths

Bond angles

Torsions

Rings

Ligand PC1 B 1004

Bond lengths

Bond angles

Torsions

Rings

Ligand BOG A 1005

Bond lengths

Bond angles

Torsions

Rings

Ligand TWT B 1003	
 Bond lengths	 Bond angles
 Torsions	 Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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	350/448 (78%)	-0.41	7 (2%)	64	62	35, 55, 118, 140	0
1	B	347/448 (77%)	-0.60	3 (0%)	81	78	32, 49, 98, 121	0
All	All	697/896 (77%)	-0.50	10 (1%)	73	70	32, 52, 108, 140	0

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	241	LEU	4.9
1	A	357	GLY	4.8
1	A	236	ALA	3.7
1	A	239	LYS	3.1
1	B	237	MET	2.4
1	B	241	LEU	2.4
1	A	220	TYR	2.4
1	A	229	ASN	2.3
1	B	239	LYS	2.2
1	A	245	GLU	2.2

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 ⓘ

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
4	PLM	B	1002	17/18	0.77	0.16	104,108,111,111	0
4	PLM	A	1002	17/18	0.79	0.14	96,102,110,110	0
5	TWT	A	1003	22/22	0.85	0.12	57,93,102,102	0
4	PLM	A	1001	17/18	0.88	0.10	62,67,70,70	0
2	BOG	A	1005	20/20	0.88	0.10	54,100,107,107	0
4	PLM	B	1001	17/18	0.89	0.10	53,70,74,74	0
5	TWT	B	1003	22/22	0.89	0.12	63,80,87,88	0
7	PC1	B	1004	39/54	0.89	0.12	42,67,120,120	0
6	SO4	B	1006	5/5	0.90	0.10	96,96,96,97	0
2	BOG	B	1005	20/20	0.90	0.10	68,113,119,121	0
3	RET	A	1000	20/21	0.94	0.08	39,52,58,59	0
3	RET	B	1000	20/21	0.95	0.07	33,38,40,44	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.
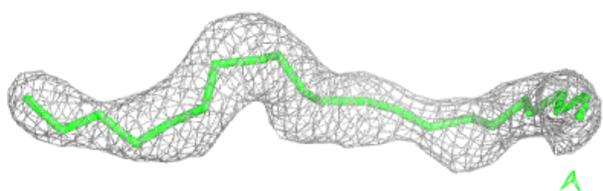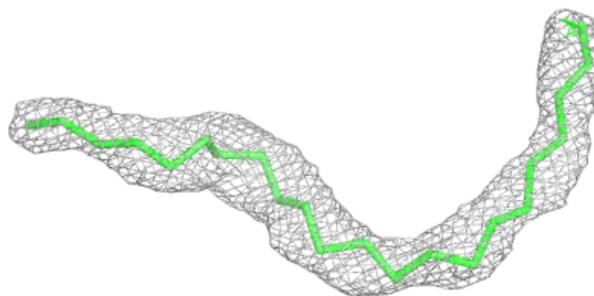
Electron density around PLM B 1002:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
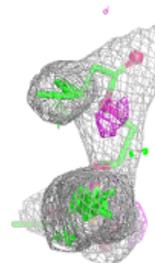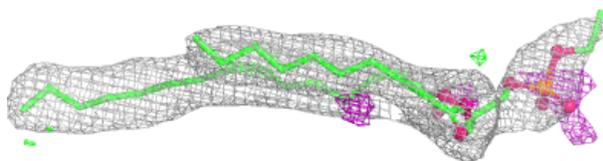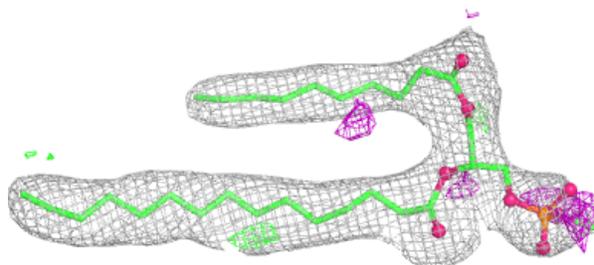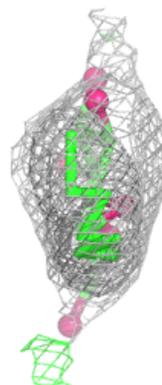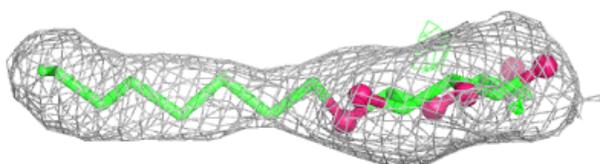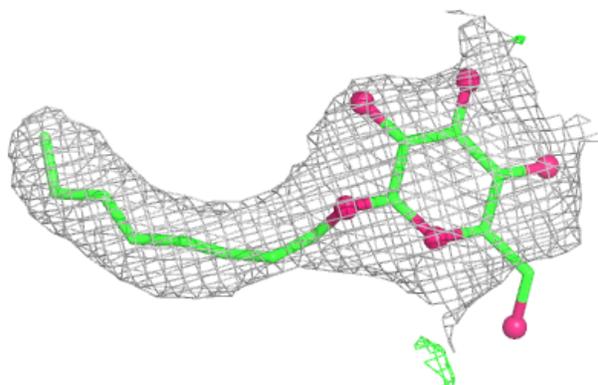mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
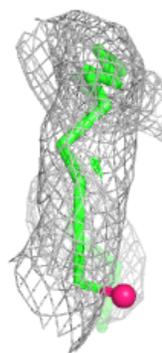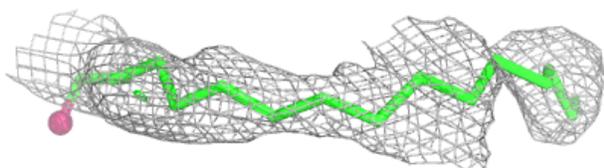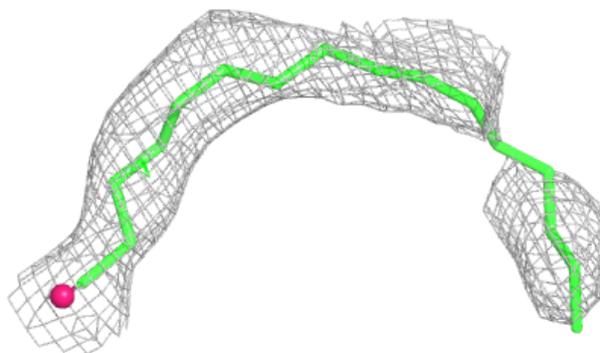
Electron density around PLM A 1002:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
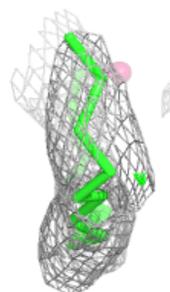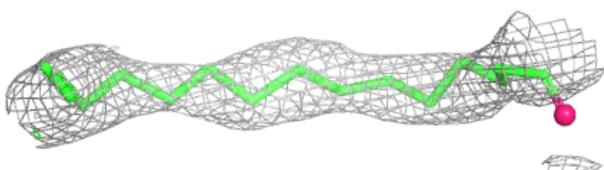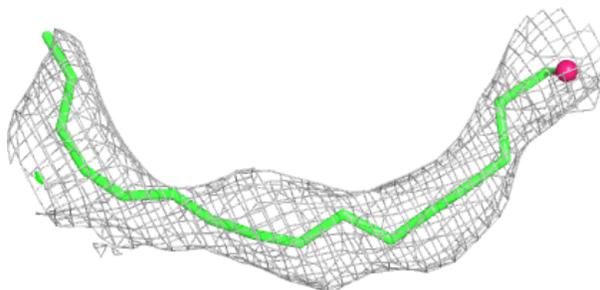
Electron density around TWT A 1003:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
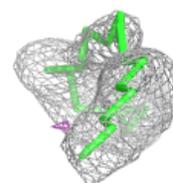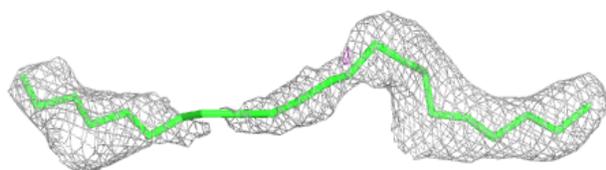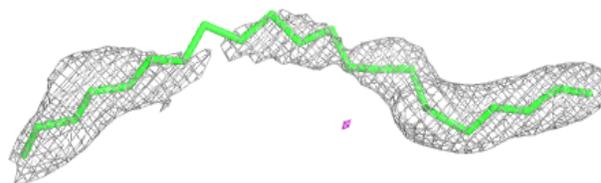
Electron density around PLM A 1001:

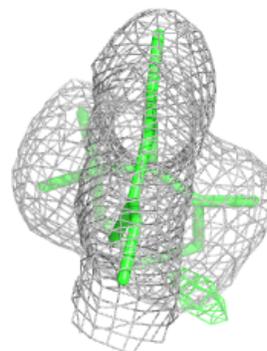$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
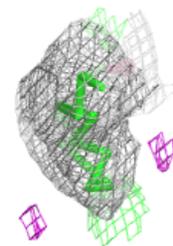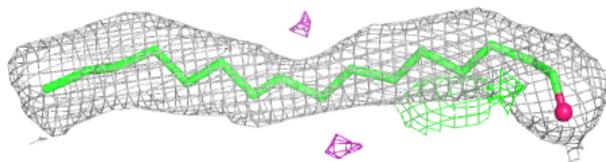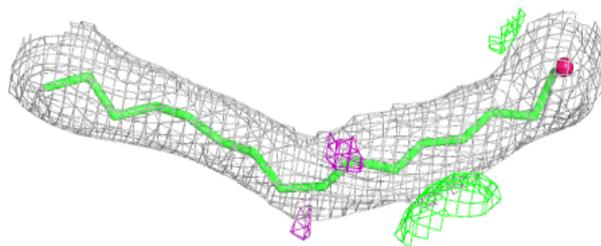
Electron density around BOG A 1005:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
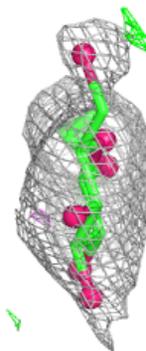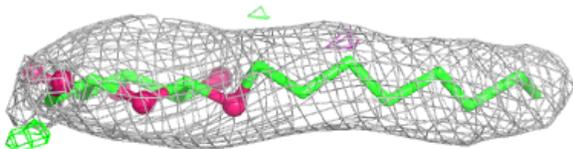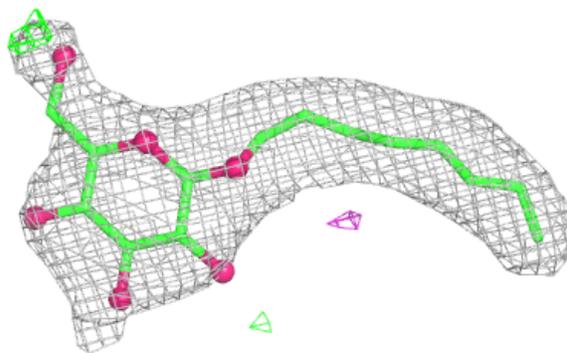
Electron density around PLM B 1001:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
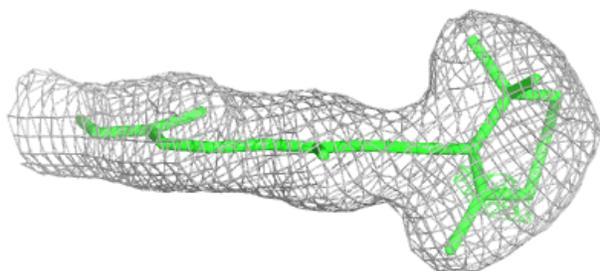mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
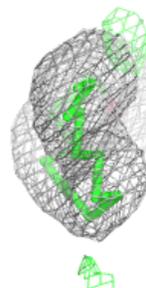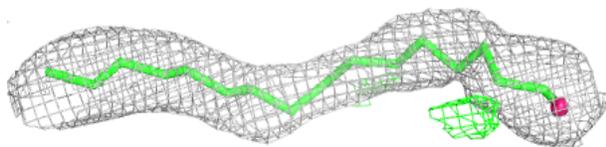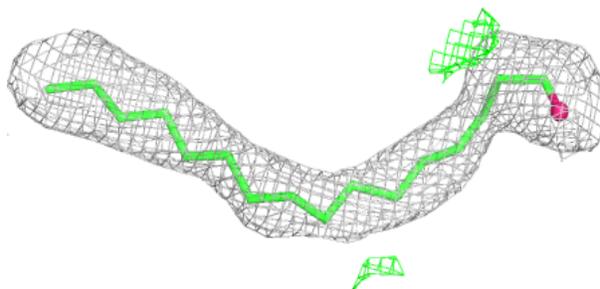
Electron density around TWT B 1003:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
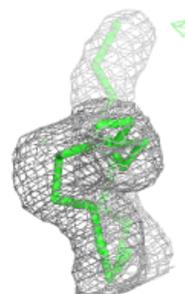
Electron density around PC1 B 1004:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
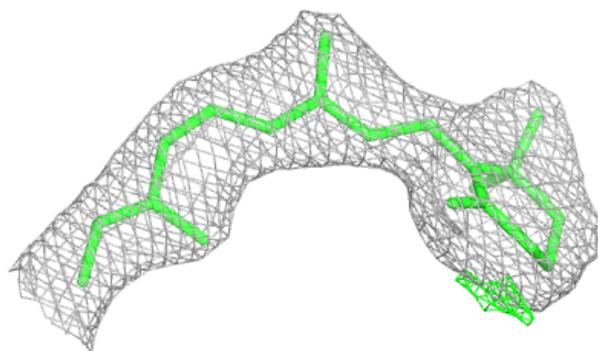mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
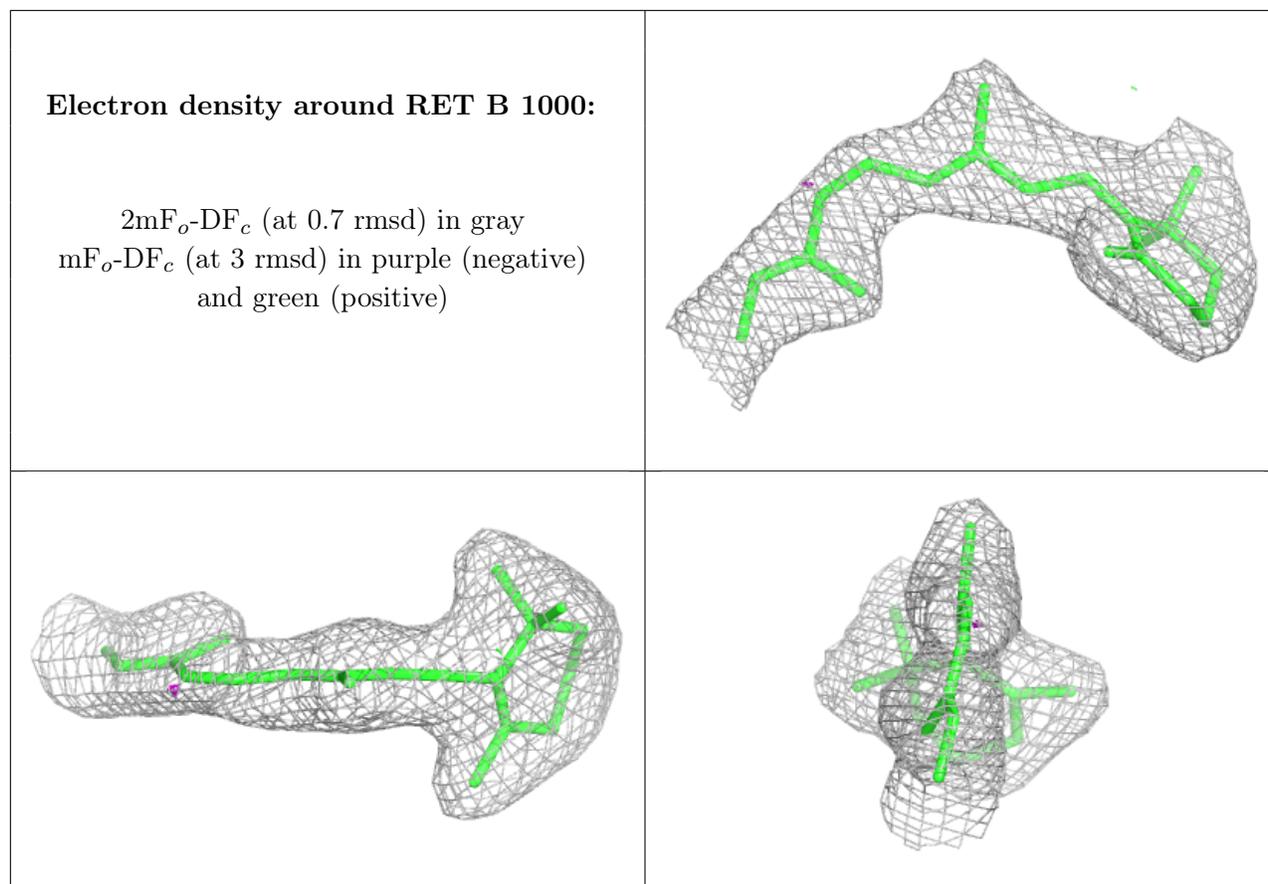and green (positive)

Electron density around BOG B 1005:

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 RET A 1000:

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 RET B 1000:

$2mF_o$-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 ⓘ

There are no such residues in this entry.