Full wwPDB X-ray Structure Validation Report ⓘ

Nov 17, 2024 – 02:56 AM EST

PDB ID	:	4JTA
Title	:	Crystal structure of Kv1.2-2.1 paddle chimera channel in complex with Charybdotoxin
Authors	:	MacKinnon, R.; Banerjee, A.; Lee, A.; Campbell, E.
Deposited on	:	2013-03-23
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:

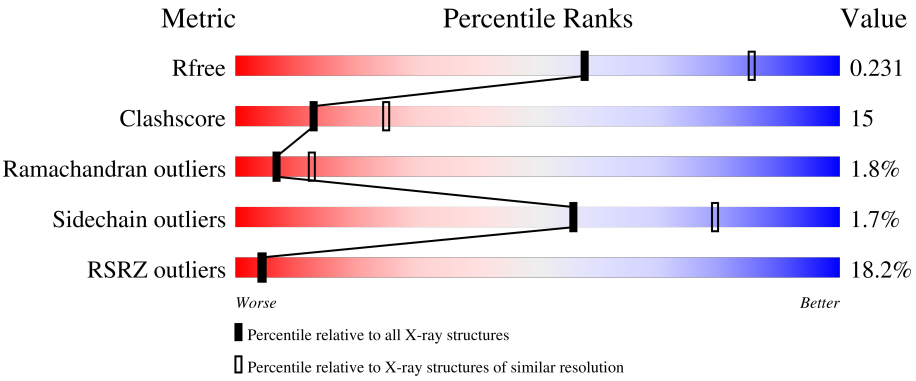
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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}	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	333	3% 81% 16%
1	P	333	3% 81% 15%
2	B	514	12% 51% 24% 25%
2	Q	514	28% 40% 29% 29%
3	Y	37	97% 49% 43% 8%

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
6	PGW	B	508	-	-	-	X
6	PGW	B	515	-	-	-	X
6	PGW	B	518	-	-	-	X

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 12106 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 Voltage-gated potassium channel subunit beta-2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	326	Total	C	N	O	S	0	0	0
			2556	1627	443	470	16			
1	P	326	Total	C	N	O	S	0	0	0
			2556	1627	443	470	16			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	35	MET	-	expression tag	UNP P62483
P	35	MET	-	expression tag	UNP P62483

- Molecule 2 is a protein called Potassium voltage-gated channel subfamily A member 2, Potassium voltage-gated channel subfamily B member 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	386	Total	C	N	O	S	0	0	0
			3088	2022	504	548	14			
2	Q	363	Total	C	N	O	S	0	0	0
			2959	1950	478	518	13			

There are 48 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-18	MET	-	expression tag	UNP P63142
B	-17	ALA	-	expression tag	UNP P63142
B	-16	HIS	-	expression tag	UNP P63142
B	-15	HIS	-	expression tag	UNP P63142
B	-14	HIS	-	expression tag	UNP P63142
B	-13	HIS	-	expression tag	UNP P63142
B	-12	HIS	-	expression tag	UNP P63142
B	-11	HIS	-	expression tag	UNP P63142
B	-10	HIS	-	expression tag	UNP P63142

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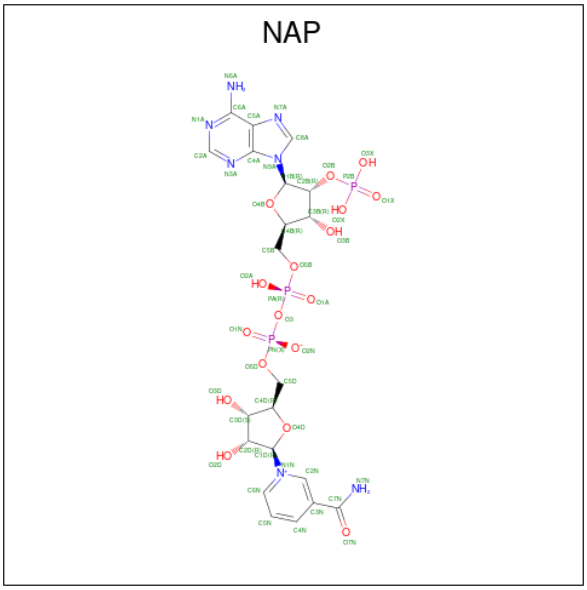
Chain	Residue	Modelled	Actual	Comment	Reference
B	-9	HIS	-	expression tag	UNP P63142
B	-8	HIS	-	expression tag	UNP P63142
B	-7	HIS	-	expression tag	UNP P63142
B	-6	GLY	-	expression tag	UNP P63142
B	-5	LEU	-	expression tag	UNP P63142
B	-4	VAL	-	expression tag	UNP P63142
B	-3	PRO	-	expression tag	UNP P63142
B	-2	ARG	-	expression tag	UNP P63142
B	-1	GLY	-	expression tag	UNP P63142
B	0	SER	-	expression tag	UNP P63142
B	31	SER	CYS	engineered mutation	UNP P63142
B	32	SER	CYS	engineered mutation	UNP P63142
B	207	GLN	ASN	engineered mutation	UNP P63142
B	431	SER	CYS	engineered mutation	UNP P63142
B	478	SER	CYS	engineered mutation	UNP P63142
Q	-18	MET	-	expression tag	UNP P63142
Q	-17	ALA	-	expression tag	UNP P63142
Q	-16	HIS	-	expression tag	UNP P63142
Q	-15	HIS	-	expression tag	UNP P63142
Q	-14	HIS	-	expression tag	UNP P63142
Q	-13	HIS	-	expression tag	UNP P63142
Q	-12	HIS	-	expression tag	UNP P63142
Q	-11	HIS	-	expression tag	UNP P63142
Q	-10	HIS	-	expression tag	UNP P63142
Q	-9	HIS	-	expression tag	UNP P63142
Q	-8	HIS	-	expression tag	UNP P63142
Q	-7	HIS	-	expression tag	UNP P63142
Q	-6	GLY	-	expression tag	UNP P63142
Q	-5	LEU	-	expression tag	UNP P63142
Q	-4	VAL	-	expression tag	UNP P63142
Q	-3	PRO	-	expression tag	UNP P63142
Q	-2	ARG	-	expression tag	UNP P63142
Q	-1	GLY	-	expression tag	UNP P63142
Q	0	SER	-	expression tag	UNP P63142
Q	31	SER	CYS	engineered mutation	UNP P63142
Q	32	SER	CYS	engineered mutation	UNP P63142
Q	207	GLN	ASN	engineered mutation	UNP P63142
Q	431	SER	CYS	engineered mutation	UNP P63142
Q	478	SER	CYS	engineered mutation	UNP P63142

- Molecule 3 is a protein called Potassium channel toxin alpha-KTx 1.1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	Y	37	Total	C	N	O	S	0	0	0
			295	176	57	55	7			

- Molecule 4 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula: $C_{21}H_{28}N_7O_{17}P_3$).

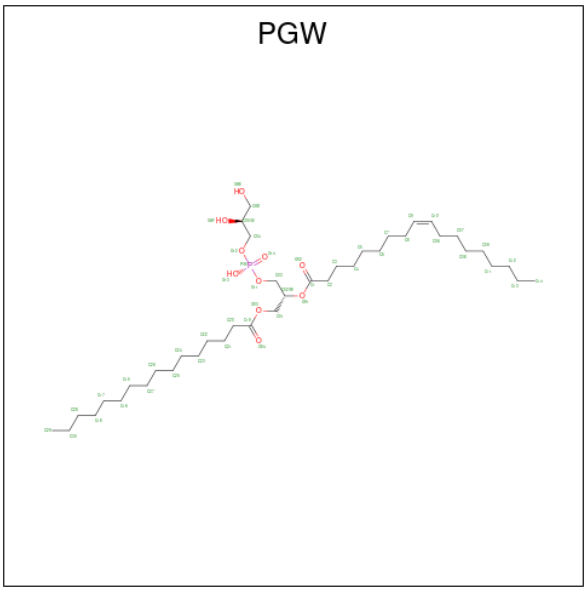


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
4	P	1	Total	C	N	O	P	0	0
			48	21	7	17	3		

- Molecule 5 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	3	Total	K	0	0
			3	3		
5	Q	3	Total	K	0	0
			3	3		

- Molecule 6 is (1R)-2-{[(S)-{[(2S)-2,3-dihydroxypropyl]oxy}(hydroxy)phosphoryl]oxy}-1-[(hexadecanoyloxy)methyl]ethyl (9Z)-octadec-9-enoate (three-letter code: PGW) (formula: $C_{40}H_{77}O_{10}P$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C O 22 17 5	0	0
6	B	1	Total C 9 9	0	0
6	B	1	Total C 9 9	0	0
6	B	1	Total C 9 9	0	0
6	B	1	Total C 9 9	0	0
6	B	1	Total C 9 9	0	0
6	B	1	Total C 9 9	0	0
6	B	1	Total C 7 7	0	0
6	B	1	Total C 9 9	0	0
6	B	1	Total C 12 12	0	0
6	B	1	Total C O P 23 14 8 1	0	0
6	B	1	Total C 12 12	0	0
6	B	1	Total C O P 37 26 10 1	0	0
6	B	1	Total C 10 10	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C 12 12	0	0
6	B	1	Total C 12 12	0	0
6	Q	1	Total C O 22 17 5	0	0

- Molecule 7 is water.

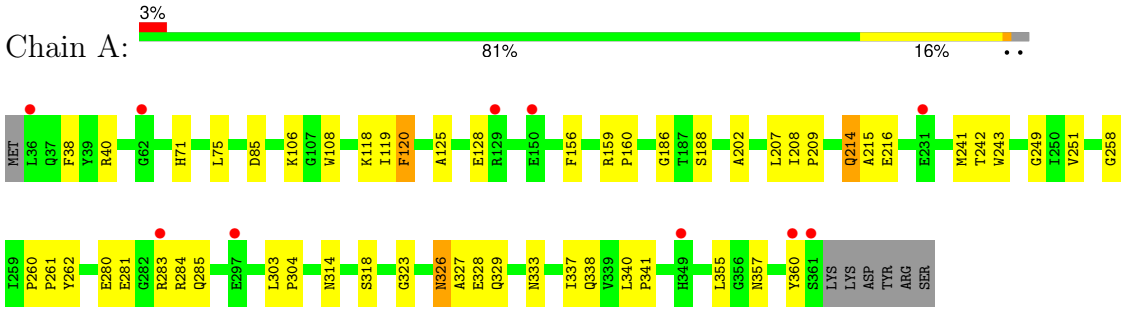
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	140	Total O 140 140	0	0
7	B	53	Total O 53 53	0	0
7	P	102	Total O 102 102	0	0
7	Q	23	Total O 23 23	0	0

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.

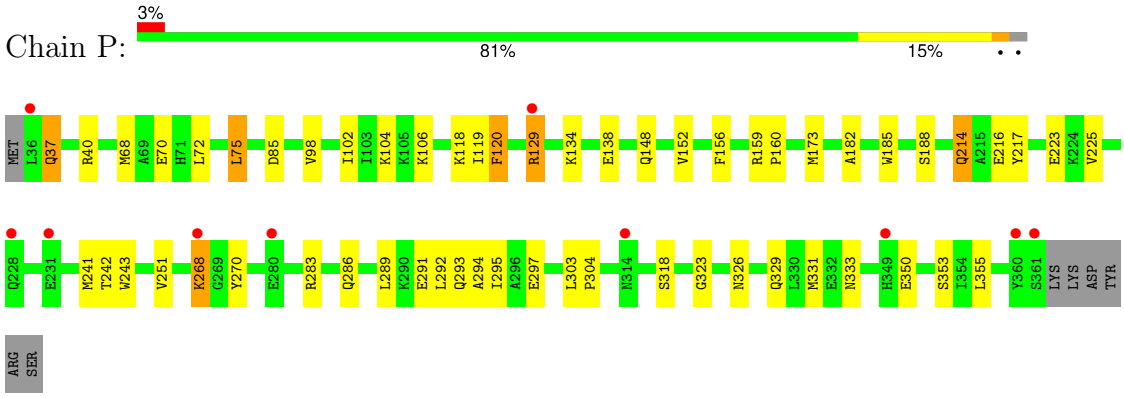
• Molecule 1: Voltage-gated potassium channel subunit beta-2

Chain A:



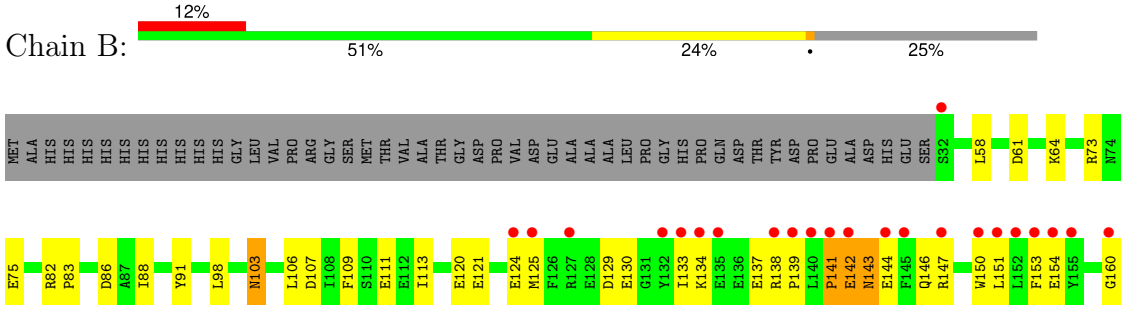
• Molecule 1: Voltage-gated potassium channel subunit beta-2

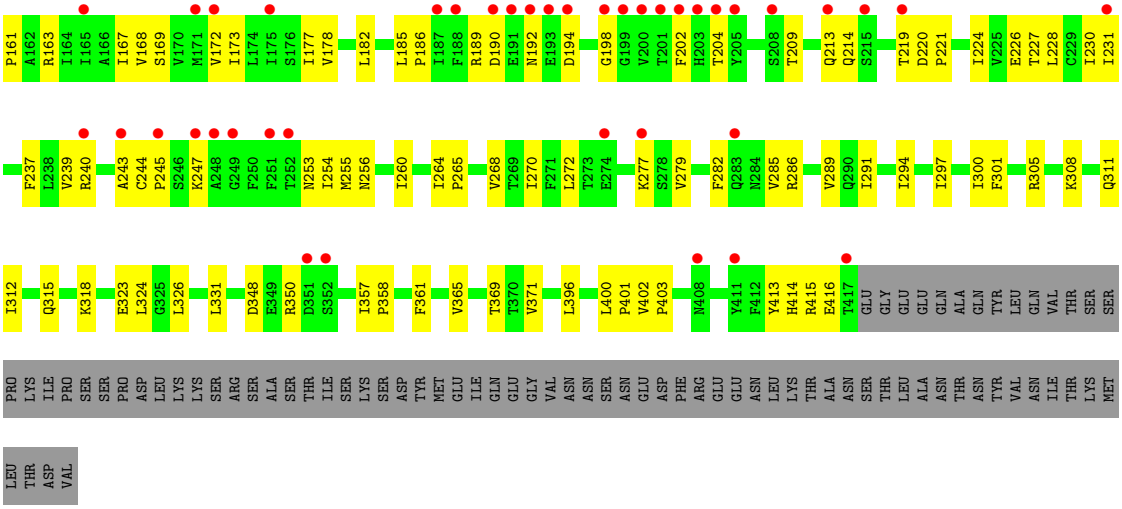
Chain P:



• Molecule 2: Potassium voltage-gated channel subfamily A member 2, Potassium voltage-gated channel subfamily B member 1

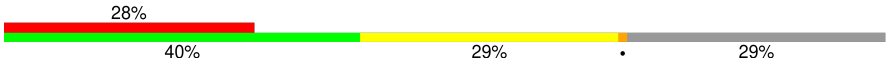
Chain B:

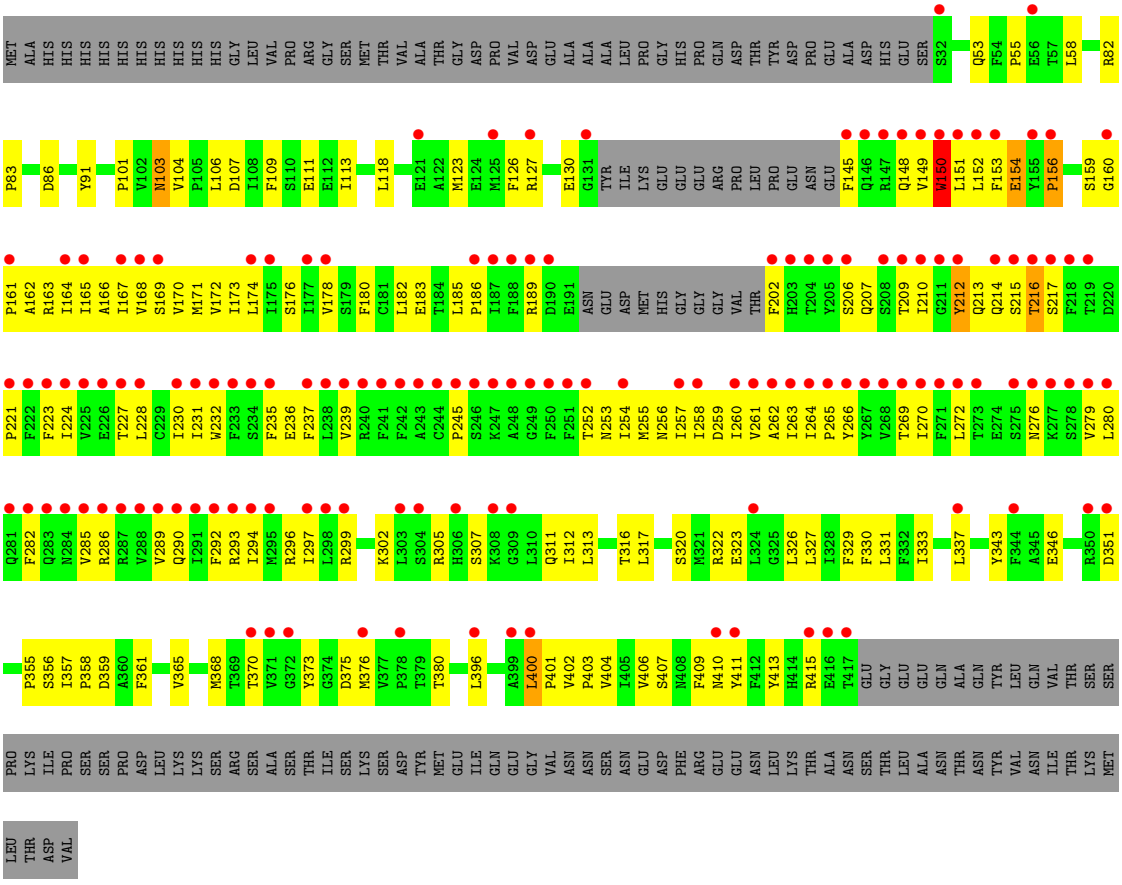




• Molecule 2: Potassium voltage-gated channel subfamily A member 2, Potassium voltage-gated channel subfamily B member 1

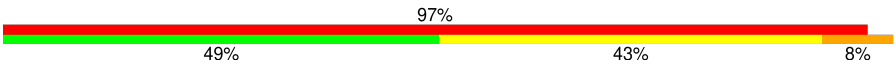
Chain Q:

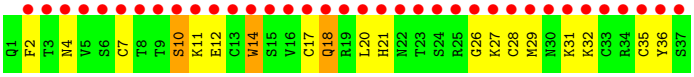




• Molecule 3: Potassium channel toxin alpha-KTx 1.1

Chain Y:




Q1
F2
T3
M4
V5
S6
C7
T8
T9
S10
K11
E12
C13
W14
S15
V16
C17
Q18
R19
L20
H21
N22
T23
S24
R25
G26
K27
C28
M29
N30
K31
K32
C33
R34
C35
Y36
S37

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 4 21 2	Depositor
Cell constants a, b, c, α, β, γ	144.40Å 144.40Å 284.10Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.00 – 2.50 50.00 – 2.50	Depositor EDS
% Data completeness (in resolution range)	92.6 (50.00-2.50) 92.6 (50.00-2.50)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.95 (at 2.39Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.210 , 0.236 0.207 , 0.231	Depositor DCC
R_{free} test set	4873 reflections (4.76%)	wwPDB-VP
Wilson B-factor (Å^2)	46.8	Xtriage
Anisotropy	0.403	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 69.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	12106	wwPDB-VP
Average B, all atoms (Å^2)	72.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.69% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: PCA, PGW, K, NAP

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	0.36	0/2608	0.58	0/3524
1	P	0.36	0/2608	0.56	0/3524
2	B	0.35	0/3169	0.53	0/4292
2	Q	0.32	0/3036	0.50	0/4114
3	Y	0.26	0/292	0.46	0/389
All	All	0.35	0/11713	0.54	0/15843

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	P	0	1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	P	270	TYR	Sidechain

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	2556	0	2582	42	0
1	P	2556	0	2582	46	0
2	B	3088	0	3034	91	0
2	Q	2959	0	2956	142	0
3	Y	295	0	282	19	0
4	A	48	0	25	3	0
4	P	48	0	25	3	0
5	B	3	0	0	0	0
5	Q	3	0	0	0	0
6	B	210	0	291	19	0
6	Q	22	0	25	7	0
7	A	140	0	0	2	0
7	B	53	0	0	1	0
7	P	102	0	0	0	0
7	Q	23	0	0	1	0
All	All	12106	0	11802	349	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 15.

All (349) 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)
6:B:510:PGW:H2A	6:B:515:PGW:H21A	1.42	0.98
2:Q:400:LEU:HB2	2:Q:401:PRO:HD3	1.52	0.89
1:P:333:ASN:HD21	4:P:1001:NAP:H61A	1.21	0.88
2:Q:312:ILE:HD13	2:Q:413:TYR:HA	1.59	0.83
2:Q:227:THR:HA	2:Q:230:ILE:HG22	1.61	0.82
2:Q:152:LEU:HD22	2:Q:161:PRO:HB2	1.62	0.81
2:Q:103:ASN:H	2:Q:103:ASN:HD22	1.29	0.80
3:Y:4:ASN:HA	3:Y:32:LYS:HD3	1.63	0.80
1:A:118:LYS:HG3	1:A:156:PHE:HB2	1.63	0.80
2:B:400:LEU:HB2	2:B:401:PRO:HD3	1.62	0.79
2:B:350:ARG:HH11	2:B:350:ARG:HB3	1.48	0.78
1:P:40:ARG:HD2	1:P:318:SER:O	1.85	0.76
2:B:311:GLN:HG2	6:B:516:PGW:H3	1.69	0.74
1:P:295:ILE:HD12	1:P:295:ILE:H	1.53	0.71
2:Q:103:ASN:H	2:Q:103:ASN:ND2	1.89	0.71
6:B:510:PGW:H4A	6:B:515:PGW:H23A	1.72	0.71
2:Q:103:ASN:HD22	2:Q:103:ASN:N	1.86	0.69
2:B:350:ARG:HB3	2:B:350:ARG:NH1	2.08	0.69
2:Q:260:ILE:HG22	2:Q:264:ILE:HD11	1.74	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:Q:361:PHE:HB2	6:Q:504:PGW:H2	1.73	0.69
1:P:268:LYS:NZ	1:P:268:LYS:HB3	2.08	0.69
2:Q:264:ILE:HB	2:Q:265:PRO:HD3	1.75	0.68
2:B:361:PHE:HB2	6:B:504:PGW:H2	1.76	0.68
3:Y:26:GLY:HA3	3:Y:35:CYS:HA	1.77	0.67
2:Q:307:SER:O	2:Q:311:GLN:HG3	1.94	0.67
2:Q:262:ALA:HB1	2:Q:302:LYS:HE2	1.76	0.67
2:Q:361:PHE:CB	6:Q:504:PGW:H2	2.25	0.67
1:A:333:ASN:HD21	4:A:1001:NAP:H61A	1.43	0.66
1:A:280:GLU:HA	1:A:283:ARG:NH1	2.10	0.66
2:Q:167:ILE:O	2:Q:171:MET:HG2	1.96	0.66
2:Q:265:PRO:HA	2:Q:292:PHE:HD2	1.59	0.66
2:Q:293:ARG:HA	2:Q:296:ARG:HD3	1.78	0.66
2:B:294:ILE:O	2:B:297:ILE:HG22	1.97	0.65
1:P:104:LYS:NZ	1:P:148:GLN:HE22	1.93	0.65
2:Q:101:PRO:HB2	2:Q:104:VAL:HG23	1.79	0.65
1:A:258:GLY:O	1:A:260:PRO:HD3	1.97	0.64
2:B:103:ASN:H	2:B:103:ASN:HD22	1.44	0.64
2:B:213:GLN:HB3	2:B:220:ASP:HB2	1.78	0.63
1:P:293:GLN:HE21	1:P:297:GLU:HG3	1.64	0.63
2:Q:230:ILE:HG12	2:Q:266:TYR:CD2	2.34	0.63
2:Q:259:ASP:HA	2:Q:302:LYS:NZ	2.15	0.62
2:B:82:ARG:HB2	2:B:83:PRO:HD3	1.80	0.62
6:Q:504:PGW:H01	6:Q:504:PGW:O02	1.99	0.61
2:Q:262:ALA:CB	2:Q:302:LYS:HE2	2.31	0.61
2:B:226:GLU:O	2:B:230:ILE:HD13	2.01	0.61
1:A:326:ASN:ND2	1:A:329:GLN:H	1.98	0.61
2:B:147:ARG:O	2:B:151:LEU:HG	2.00	0.61
2:Q:316:THR:HG21	2:Q:409:PHE:HB2	1.83	0.60
2:Q:411:TYR:CZ	2:Q:415:ARG:HD3	2.36	0.60
1:A:251:VAL:O	1:A:251:VAL:HG12	2.01	0.60
2:Q:174:LEU:O	2:Q:178:VAL:HG23	2.02	0.60
2:Q:230:ILE:HG21	2:Q:266:TYR:CZ	2.36	0.60
1:A:280:GLU:HG2	1:A:284:ARG:HH12	1.65	0.60
1:A:159:ARG:HA	1:A:188:SER:O	2.02	0.60
2:Q:212:TYR:HB2	2:Q:223:PHE:HB2	1.84	0.60
2:B:227:THR:O	2:B:231:ILE:HG12	2.02	0.59
2:Q:227:THR:O	2:Q:231:ILE:HG12	2.01	0.59
2:B:120:GLU:O	2:B:124:GLU:HG3	2.03	0.59
2:Q:260:ILE:O	2:Q:264:ILE:HG13	2.01	0.59
2:B:58:LEU:HD23	2:B:58:LEU:C	2.23	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:Q:86:ASP:HB2	7:Q:616:HOH:O	2.03	0.59
2:B:221:PRO:HB2	6:B:513:PGW:H23	1.85	0.58
2:Q:357:ILE:HB	2:Q:358:PRO:HD3	1.86	0.58
3:Y:14:TRP:HA	3:Y:14:TRP:CE3	2.38	0.58
2:Q:294:ILE:O	2:Q:297:ILE:HG22	2.04	0.58
3:Y:14:TRP:HA	3:Y:14:TRP:HE3	1.68	0.58
2:Q:207:GLN:HE21	2:Q:213:GLN:HB2	1.68	0.58
2:B:121:GLU:O	2:B:125:MET:HG2	2.03	0.58
2:Q:293:ARG:HA	2:Q:296:ARG:CD	2.34	0.58
2:Q:113:ILE:HG23	2:Q:118:LEU:HD12	1.86	0.58
2:Q:163:ARG:O	2:Q:167:ILE:HG12	2.04	0.58
2:Q:148:GLN:NE2	2:Q:151:LEU:HD12	2.18	0.57
2:Q:82:ARG:HB2	2:Q:83:PRO:HD3	1.86	0.57
1:P:118:LYS:HG2	1:P:156:PHE:HB2	1.86	0.57
1:P:295:ILE:HD12	1:P:295:ILE:N	2.20	0.57
2:B:255:MET:CE	2:B:305:ARG:HA	2.35	0.57
2:Q:170:VAL:HB	2:Q:171:MET:HE2	1.86	0.57
1:P:214:GLN:HA	1:P:241:MET:O	2.05	0.57
2:Q:169:SER:O	2:Q:173:ILE:HG13	2.05	0.57
6:B:516:PGW:O02	6:B:516:PGW:H03A	2.05	0.56
2:Q:322:ARG:HG3	2:Q:322:ARG:HH11	1.68	0.56
2:Q:402:VAL:O	2:Q:406:VAL:HG23	2.05	0.56
2:B:365:VAL:HG21	6:B:504:PGW:H6A	1.87	0.56
1:A:303:LEU:HB3	1:A:304:PRO:HD3	1.88	0.56
6:B:504:PGW:H01	6:B:504:PGW:O02	2.05	0.56
2:B:103:ASN:H	2:B:103:ASN:ND2	2.03	0.56
2:B:255:MET:HE3	2:B:305:ARG:HA	1.87	0.56
2:Q:145:PHE:CZ	2:Q:149:VAL:HG21	2.41	0.56
2:Q:148:GLN:HE22	2:Q:151:LEU:HD12	1.71	0.55
2:Q:255:MET:CE	2:Q:305:ARG:HA	2.37	0.55
2:Q:259:ASP:HA	2:Q:302:LYS:HZ3	1.70	0.55
2:Q:235:PHE:O	2:Q:239:VAL:HG23	2.06	0.55
1:A:280:GLU:HG2	1:A:284:ARG:NH1	2.22	0.55
1:A:340:LEU:HB3	1:A:341:PRO:HD3	1.88	0.55
1:P:75:LEU:HG	1:P:331:MET:HE3	1.88	0.55
2:B:141:PRO:C	2:B:143:ASN:H	2.10	0.55
2:Q:400:LEU:O	2:Q:403:PRO:HD2	2.07	0.55
2:B:414:HIS:C	2:B:416:GLU:H	2.10	0.54
2:Q:168:VAL:O	2:Q:172:VAL:HG23	2.08	0.54
1:P:217:TYR:HB2	1:P:225:VAL:HG21	1.89	0.54
2:Q:282:PHE:CZ	2:Q:289:VAL:HG21	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:P:251:VAL:HG12	1:P:251:VAL:O	2.06	0.54
1:A:71:HIS:CD2	1:A:327:ALA:HB2	2.43	0.54
1:P:152:VAL:O	1:P:182:ALA:HA	2.07	0.54
2:Q:227:THR:CA	2:Q:230:ILE:HG22	2.34	0.54
3:Y:29:MET:C	3:Y:31:LYS:H	2.11	0.54
1:P:173:MET:HG3	1:P:185:TRP:CE3	2.44	0.53
2:Q:221:PRO:HA	2:Q:224:ILE:HD12	1.90	0.53
2:Q:232:TRP:O	2:Q:236:GLU:HG3	2.07	0.53
6:B:514:PGW:O11	6:B:514:PGW:O02	2.25	0.53
1:P:159:ARG:HB2	1:P:160:PRO:HD2	1.90	0.53
2:Q:272:LEU:HD13	2:Q:285:VAL:HG21	1.90	0.53
2:B:253:ASN:HB3	2:B:256:ASN:ND2	2.24	0.53
2:B:177:ILE:HD13	2:B:300:ILE:HD12	1.89	0.53
2:Q:355:PRO:HB2	2:Q:359:ASP:OD2	2.09	0.53
2:B:214:GLN:HE22	2:B:270:ILE:HA	1.75	0.52
2:B:318:LYS:HD2	6:B:516:PGW:H21A	1.91	0.52
2:B:357:ILE:HB	2:B:358:PRO:HD3	1.91	0.52
2:Q:227:THR:HA	2:Q:230:ILE:CG2	2.36	0.52
2:Q:280:LEU:H	2:Q:280:LEU:HD12	1.73	0.52
2:B:254:ILE:HD12	6:B:516:PGW:H24A	1.92	0.52
1:P:37:GLN:HE21	1:P:37:GLN:N	2.07	0.52
2:Q:53:GLN:O	2:Q:55:PRO:HD3	2.10	0.52
2:Q:375:ASP:O	2:Q:376:MET:HG3	2.10	0.52
2:Q:178:VAL:O	2:Q:182:LEU:HG	2.10	0.52
3:Y:17:CYS:O	3:Y:21:HIS:HB2	2.09	0.52
2:Q:285:VAL:HG13	2:Q:285:VAL:O	2.10	0.52
2:B:277:LYS:HG3	2:B:277:LYS:O	2.10	0.51
2:Q:150:TRP:CE3	2:Q:150:TRP:HA	2.44	0.51
2:Q:224:ILE:O	2:Q:228:LEU:HG	2.11	0.51
2:Q:152:LEU:O	2:Q:165:ILE:HD12	2.10	0.51
1:P:120:PHE:CD1	1:P:159:ARG:HG3	2.46	0.51
2:Q:152:LEU:HD13	2:Q:165:ILE:CD1	2.41	0.51
2:Q:166:ALA:O	2:Q:170:VAL:HG23	2.10	0.51
2:B:177:ILE:CD1	2:B:300:ILE:HD12	2.41	0.51
2:B:150:TRP:O	2:B:154:GLU:HB3	2.10	0.51
2:Q:53:GLN:C	2:Q:55:PRO:HD3	2.31	0.51
2:Q:402:VAL:HB	2:Q:403:PRO:HD3	1.94	0.50
3:Y:10:SER:C	3:Y:12:GLU:H	2.15	0.50
2:Q:150:TRP:HA	2:Q:150:TRP:HE3	1.76	0.50
3:Y:27:LYS:CG	3:Y:28:CYS:N	2.72	0.50
1:P:326:ASN:OD1	1:P:329:GLN:HG3	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:P:333:ASN:ND2	4:P:1001:NAP:H61A	2.01	0.50
2:Q:161:PRO:O	2:Q:165:ILE:HG13	2.10	0.50
2:Q:206:SER:O	2:Q:210:ILE:HD12	2.11	0.50
2:Q:237:PHE:CE1	2:Q:260:ILE:HG12	2.45	0.50
2:Q:254:ILE:O	2:Q:258:ILE:HG13	2.12	0.50
1:P:134:LYS:O	1:P:138:GLU:HG3	2.12	0.49
1:P:286:GLN:NE2	1:P:289:LEU:HD12	2.27	0.49
2:B:106:LEU:HD13	2:B:130:GLU:HG2	1.93	0.49
2:B:189:ARG:HG3	2:B:189:ARG:HH11	1.77	0.49
2:B:312:ILE:HD13	2:B:413:TYR:HA	1.94	0.49
1:P:303:LEU:HB3	1:P:304:PRO:HD3	1.94	0.49
2:Q:186:PRO:HB3	2:Q:189:ARG:NH2	2.27	0.49
2:Q:411:TYR:CE2	2:Q:415:ARG:HD3	2.48	0.49
1:P:295:ILE:H	1:P:295:ILE:CD1	2.24	0.49
2:B:202:PHE:HB2	2:B:279:VAL:CG2	2.42	0.49
3:Y:27:LYS:HG3	3:Y:28:CYS:N	2.28	0.49
3:Y:29:MET:HG3	3:Y:31:LYS:HB3	1.94	0.49
1:A:281:GLU:O	1:A:285:GLN:HG3	2.11	0.49
2:B:308:LYS:O	2:B:312:ILE:HG13	2.12	0.49
2:Q:106:LEU:CD1	2:Q:130:GLU:HG2	2.42	0.49
2:B:178:VAL:O	2:B:182:LEU:HG	2.13	0.49
2:B:186:PRO:O	2:B:190:ASP:HB2	2.13	0.49
2:Q:176:SER:HB2	2:Q:299:ARG:HH11	1.78	0.49
1:P:333:ASN:HD22	1:P:333:ASN:N	2.10	0.49
2:Q:327:LEU:O	2:Q:331:LEU:HD13	2.12	0.49
2:Q:323:GLU:OE1	2:Q:404:VAL:HG11	2.14	0.48
2:B:260:ILE:O	2:B:264:ILE:HG13	2.13	0.48
2:Q:280:LEU:HD12	2:Q:280:LEU:N	2.28	0.48
2:B:323:GLU:CD	2:B:323:GLU:H	2.16	0.48
2:B:348:ASP:HB2	7:B:646:HOH:O	2.13	0.48
2:B:107:ASP:O	2:B:111:GLU:HG3	2.13	0.48
2:B:214:GLN:NE2	2:B:270:ILE:HG12	2.28	0.48
2:B:415:ARG:HH11	2:B:415:ARG:HG2	1.76	0.48
2:Q:326:LEU:HG	2:Q:330:PHE:CE2	2.49	0.48
2:Q:91:TYR:CE2	2:Q:118:LEU:HD22	2.48	0.48
2:Q:107:ASP:O	2:Q:111:GLU:HG3	2.14	0.48
1:P:268:LYS:HB3	1:P:268:LYS:HZ3	1.77	0.47
2:B:285:VAL:O	2:B:285:VAL:HG22	2.14	0.47
2:Q:253:ASN:HB3	2:Q:256:ASN:ND2	2.29	0.47
2:Q:368:MET:C	2:Q:370:THR:H	2.17	0.47
1:A:355:LEU:HB3	1:A:357:ASN:OD1	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:169:SER:O	2:B:173:ILE:HG13	2.15	0.47
2:Q:396:LEU:O	2:Q:400:LEU:HG	2.14	0.47
2:B:291:ILE:HG23	6:B:507:PGW:H5	1.95	0.47
2:Q:101:PRO:HB2	2:Q:104:VAL:CG2	2.44	0.47
1:A:326:ASN:ND2	1:A:328:GLU:HB2	2.29	0.47
2:B:109:PHE:O	2:B:113:ILE:HG13	2.13	0.47
6:Q:504:PGW:O02	6:Q:504:PGW:C01	2.60	0.47
3:Y:20:LEU:N	3:Y:20:LEU:HD12	2.30	0.47
2:Q:346:GLU:OE2	2:Q:380:THR:HG23	2.15	0.47
2:Q:365:VAL:HG21	6:Q:504:PGW:H6A	1.96	0.47
2:B:305:ARG:HH11	2:B:305:ARG:HG3	1.80	0.46
1:P:68:MET:O	1:P:72:LEU:HG	2.15	0.46
1:P:102:ILE:O	1:P:106:LYS:HG2	2.15	0.46
1:P:104:LYS:HZ3	1:P:148:GLN:HE22	1.61	0.46
2:Q:58:LEU:HD23	2:Q:58:LEU:C	2.36	0.46
2:Q:320:SER:HA	2:Q:323:GLU:HG2	1.96	0.46
3:Y:26:GLY:HA2	3:Y:36:TYR:HD1	1.80	0.46
1:P:119:ILE:O	1:P:120:PHE:HB2	2.15	0.46
2:Q:123:MET:O	2:Q:126:PHE:HB3	2.15	0.46
1:A:214:GLN:HA	1:A:241:MET:O	2.15	0.46
2:B:264:ILE:O	2:B:268:VAL:HG23	2.16	0.46
6:B:504:PGW:O02	6:B:504:PGW:H03A	2.16	0.46
2:Q:152:LEU:HA	2:Q:162:ALA:HB2	1.98	0.46
1:P:75:LEU:HG	1:P:331:MET:CE	2.46	0.46
2:B:168:VAL:O	2:B:172:VAL:HG23	2.16	0.46
1:P:291:GLU:O	1:P:294:ALA:HB3	2.16	0.46
2:Q:407:SER:O	2:Q:410:ASN:HB3	2.16	0.46
2:B:402:VAL:HB	2:B:403:PRO:HD3	1.97	0.46
1:P:350:GLU:O	1:P:353:SER:HB2	2.16	0.46
2:Q:152:LEU:CD2	2:Q:161:PRO:HB2	2.41	0.46
2:Q:185:LEU:O	2:Q:189:ARG:HG2	2.16	0.46
2:Q:361:PHE:HB3	6:Q:504:PGW:H2	1.97	0.46
1:A:106:LYS:HG3	1:A:108:TRP:CH2	2.51	0.45
2:B:264:ILE:HB	2:B:265:PRO:HD3	1.98	0.45
2:Q:127:ARG:HG2	2:Q:127:ARG:HH11	1.81	0.45
1:A:326:ASN:HD22	1:A:328:GLU:N	2.15	0.45
2:Q:257:ILE:HD13	2:Q:260:ILE:HD12	1.98	0.45
2:Q:272:LEU:HD13	2:Q:285:VAL:CG2	2.46	0.45
2:Q:152:LEU:CB	2:Q:162:ALA:HB2	2.47	0.45
2:Q:153:PHE:O	2:Q:154:GLU:HB2	2.16	0.45
1:A:120:PHE:CD1	1:A:159:ARG:HG3	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:Q:227:THR:O	2:Q:230:ILE:HG22	2.17	0.45
3:Y:28:CYS:SG	3:Y:29:MET:N	2.90	0.45
1:A:85:ASP:OD1	1:A:118:LYS:NZ	2.47	0.45
1:A:314:ASN:HB2	7:A:1166:HOH:O	2.16	0.45
2:B:178:VAL:HG22	6:B:509:PGW:H8	1.99	0.45
2:Q:254:ILE:HG23	2:Q:255:MET:N	2.32	0.45
2:B:153:PHE:CD2	2:B:239:VAL:HG11	2.52	0.45
1:A:360:TYR:HD1	1:A:360:TYR:H	1.65	0.44
2:B:318:LYS:HD2	6:B:516:PGW:C22	2.47	0.44
2:Q:156:PRO:HA	2:Q:162:ALA:HB1	1.99	0.44
2:Q:400:LEU:CB	2:Q:401:PRO:HD3	2.35	0.44
2:Q:253:ASN:HB3	2:Q:256:ASN:HD22	1.82	0.44
1:A:326:ASN:HD21	1:A:329:GLN:H	1.63	0.44
2:Q:260:ILE:HG22	2:Q:264:ILE:CD1	2.45	0.44
2:Q:270:ILE:O	2:Q:270:ILE:HG22	2.17	0.44
2:Q:322:ARG:HG3	2:Q:322:ARG:NH1	2.33	0.44
2:Q:337:LEU:O	2:Q:337:LEU:HD23	2.18	0.44
2:B:244:CYS:SG	2:B:247:LYS:HG2	2.58	0.44
2:Q:286:ARG:HH12	2:Q:290:GLN:NE2	2.16	0.44
2:Q:202:PHE:HB2	2:Q:279:VAL:CG2	2.47	0.44
3:Y:2:PHE:HZ	3:Y:31:LYS:HE2	1.83	0.44
2:B:318:LYS:HD2	6:B:516:PGW:C21	2.48	0.44
6:Q:504:PGW:O02	6:Q:504:PGW:H03A	2.17	0.44
2:B:163:ARG:O	2:B:167:ILE:HG12	2.18	0.44
2:B:192:ASN:ND2	2:B:194:ASP:H	2.16	0.44
1:P:120:PHE:O	1:P:129:ARG:HA	2.18	0.44
1:P:251:VAL:O	1:P:251:VAL:CG1	2.65	0.44
2:Q:255:MET:HE1	2:Q:305:ARG:HA	2.00	0.44
3:Y:7:CYS:HA	3:Y:12:GLU:OE1	2.18	0.44
1:P:323:GLY:HA3	4:P:1001:NAP:H51A	2.00	0.43
2:Q:176:SER:HB2	2:Q:299:ARG:NH1	2.33	0.43
2:B:192:ASN:HD22	2:B:204:THR:HG21	1.81	0.43
2:Q:214:GLN:NE2	2:Q:269:THR:HG22	2.33	0.43
2:B:237:PHE:CE1	2:B:260:ILE:HG12	2.53	0.43
1:A:159:ARG:HB2	1:A:160:PRO:HD2	1.99	0.43
1:A:280:GLU:HA	1:A:283:ARG:HH11	1.80	0.43
1:P:104:LYS:HZ2	1:P:148:GLN:HE22	1.64	0.43
2:Q:154:GLU:O	2:Q:156:PRO:HD3	2.19	0.43
2:Q:313:LEU:O	2:Q:317:LEU:HG	2.19	0.43
2:Q:329:PHE:O	2:Q:333:ILE:HG12	2.18	0.43
3:Y:2:PHE:CZ	3:Y:31:LYS:HE2	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:Q:276:ASN:ND2	2:Q:285:VAL:HG11	2.34	0.43
2:B:318:LYS:HB2	6:B:516:PGW:H23A	2.01	0.43
1:P:217:TYR:HB3	1:P:242:THR:HB	2.00	0.43
1:A:156:PHE:HA	1:A:186:GLY:O	2.19	0.42
2:B:240:ARG:HH11	2:B:240:ARG:HG3	1.84	0.42
2:B:350:ARG:HH11	2:B:350:ARG:CB	2.24	0.42
3:Y:18:GLN:NE2	3:Y:18:GLN:C	2.72	0.42
1:A:202:ALA:HA	1:A:207:LEU:HB2	2.00	0.42
1:P:70:GLU:HA	1:P:102:ILE:HD13	2.02	0.42
2:Q:109:PHE:CE2	2:Q:113:ILE:HD11	2.54	0.42
2:B:240:ARG:O	2:B:244:CYS:HB3	2.19	0.42
1:P:85:ASP:OD1	1:P:118:LYS:NZ	2.50	0.42
2:Q:368:MET:C	2:Q:370:THR:N	2.73	0.42
3:Y:11:LYS:HA	3:Y:14:TRP:CD1	2.54	0.42
2:Q:236:GLU:HA	2:Q:239:VAL:CG2	2.49	0.42
2:Q:261:VAL:HG12	2:Q:261:VAL:O	2.20	0.42
2:Q:316:THR:CG2	2:Q:409:PHE:HB2	2.49	0.42
2:B:331:LEU:HD12	2:B:331:LEU:HA	1.83	0.42
1:P:104:LYS:HE2	1:P:104:LYS:HB3	1.86	0.42
1:P:216:GLU:HB2	1:P:243:TRP:CH2	2.54	0.42
1:P:216:GLU:HB2	1:P:243:TRP:CZ2	2.55	0.42
1:P:292:LEU:HD11	1:P:355:LEU:HD21	2.02	0.42
1:A:38:PHE:HE1	1:A:337:ILE:CD1	2.33	0.42
2:B:255:MET:SD	6:B:516:PGW:H2A	2.60	0.42
2:Q:172:VAL:HG12	2:Q:172:VAL:O	2.20	0.42
1:A:261:PRO:O	1:A:262:TYR:HB2	2.19	0.42
1:A:333:ASN:ND2	4:A:1001:NAP:H61A	2.15	0.42
2:B:98:LEU:HD21	2:B:113:ILE:HD13	2.01	0.42
2:B:272:LEU:HD22	2:B:285:VAL:HG21	2.01	0.42
2:Q:160:GLY:H	2:Q:161:PRO:CD	2.32	0.42
1:A:40:ARG:HD2	1:A:318:SER:O	2.20	0.42
2:B:256:ASN:O	2:B:260:ILE:HG13	2.19	0.42
2:B:369:THR:OG1	2:B:371:VAL:HG23	2.20	0.41
2:B:396:LEU:O	2:B:400:LEU:HG	2.20	0.41
1:A:208:ILE:HA	1:A:209:PRO:HD3	1.92	0.41
2:Q:160:GLY:N	2:Q:161:PRO:CD	2.83	0.41
2:Q:230:ILE:HD11	2:Q:263:ILE:HG22	2.01	0.41
1:A:119:ILE:O	1:A:120:PHE:HB2	2.20	0.41
1:A:323:GLY:HA3	4:A:1001:NAP:H51A	2.02	0.41
2:Q:202:PHE:CD1	2:Q:279:VAL:HG22	2.55	0.41
2:Q:215:SER:O	2:Q:216:THR:C	2.57	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:253:ASN:HB3	2:B:256:ASN:HD22	1.85	0.41
2:B:300:ILE:HG23	2:B:301:PHE:N	2.34	0.41
1:P:159:ARG:HA	1:P:188:SER:O	2.21	0.41
1:A:38:PHE:CD1	1:A:337:ILE:HD13	2.56	0.41
2:B:326:LEU:HD12	2:B:326:LEU:HA	1.83	0.41
1:A:75:LEU:HD12	1:A:75:LEU:HA	1.79	0.41
2:B:202:PHE:HB2	2:B:279:VAL:HG22	2.03	0.41
2:B:282:PHE:HA	2:B:285:VAL:HG12	2.03	0.41
2:Q:164:ILE:O	2:Q:168:VAL:HG23	2.20	0.41
2:Q:305:ARG:HH11	2:Q:305:ARG:HG3	1.86	0.41
2:B:73:ARG:HB2	2:B:75:GLU:HG2	2.03	0.41
2:B:160:GLY:N	2:B:161:PRO:CD	2.83	0.41
2:Q:209:THR:HG22	2:Q:209:THR:O	2.21	0.41
2:Q:297:ILE:C	2:Q:299:ARG:N	2.74	0.41
1:A:125:ALA:HB3	1:A:128:GLU:HG3	2.01	0.41
1:A:249:GLY:HA3	7:A:1140:HOH:O	2.21	0.41
2:B:61:ASP:OD2	2:B:64:LYS:HG3	2.20	0.41
2:B:88:ILE:O	2:B:91:TYR:HB3	2.21	0.41
2:B:189:ARG:HG3	2:B:189:ARG:NH1	2.36	0.41
2:B:209:THR:HG21	2:B:286:ARG:HG3	2.03	0.41
2:B:213:GLN:HE22	2:B:219:THR:HB	1.86	0.41
2:B:318:LYS:HD2	6:B:516:PGW:H22	2.01	0.41
2:B:415:ARG:HG2	2:B:415:ARG:NH1	2.36	0.41
2:Q:236:GLU:HA	2:Q:239:VAL:HG23	2.02	0.41
2:Q:252:THR:HG22	2:Q:252:THR:O	2.21	0.41
2:Q:337:LEU:HD23	2:Q:337:LEU:C	2.42	0.41
1:A:251:VAL:O	1:A:251:VAL:CG1	2.68	0.41
1:A:360:TYR:N	1:A:360:TYR:CD1	2.89	0.41
1:P:98:VAL:O	1:P:102:ILE:HG13	2.21	0.41
2:B:224:ILE:O	2:B:228:LEU:HG	2.20	0.40
2:Q:170:VAL:O	2:Q:173:ILE:HB	2.21	0.40
3:Y:26:GLY:HA2	3:Y:36:TYR:CD1	2.56	0.40
2:Q:255:MET:HE3	2:Q:305:ARG:HG3	2.03	0.40
1:A:216:GLU:HB2	1:A:243:TRP:CZ2	2.56	0.40
1:P:292:LEU:HA	1:P:295:ILE:HD13	2.02	0.40
2:Q:343:TYR:CE1	2:Q:356:SER:HA	2.56	0.40
2:B:311:GLN:O	2:B:315:GLN:HG3	2.21	0.40
2:Q:106:LEU:HD11	2:Q:130:GLU:HG2	2.03	0.40
2:Q:180:PHE:HA	2:Q:183:GLU:OE2	2.21	0.40
1:A:215:ALA:O	1:A:242:THR:HA	2.21	0.40
2:B:142:GLU:O	2:B:143:ASN:C	2.59	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:285:VAL:O	2:B:289:VAL:HG23	2.21	0.40
2:Q:171:MET:HE2	2:Q:171:MET:N	2.37	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	324/333 (97%)	313 (97%)	10 (3%)	1 (0%)	37 56
1	P	324/333 (97%)	313 (97%)	10 (3%)	1 (0%)	37 56
2	B	384/514 (75%)	350 (91%)	21 (6%)	13 (3%)	3 4
2	Q	357/514 (70%)	311 (87%)	37 (10%)	9 (2%)	4 7
3	Y	35/37 (95%)	19 (54%)	15 (43%)	1 (3%)	3 6
All	All	1424/1731 (82%)	1306 (92%)	93 (6%)	25 (2%)	7 12

All (25) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	134	LYS
2	B	137	GLU
2	B	138	ARG
2	B	139	PRO
2	B	143	ASN
2	Q	154	GLU
1	A	120	PHE
2	B	133	ILE
2	B	144	GLU
1	P	120	PHE
2	Q	150	TRP
2	Q	159	SER

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Mol	Chain	Res	Type
2	Q	216	THR
2	Q	217	SER
2	B	245	PRO
2	B	142	GLU
2	B	146	GLN
2	B	243	ALA
2	Q	373	TYR
3	Y	10	SER
2	Q	245	PRO
2	B	141	PRO
2	B	198	GLY
2	Q	156	PRO
2	Q	400	LEU

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	273/280 (98%)	270 (99%)	3 (1%)	70 87
1	P	273/280 (98%)	266 (97%)	7 (3%)	41 68
2	B	332/459 (72%)	327 (98%)	5 (2%)	60 82
2	Q	324/459 (71%)	320 (99%)	4 (1%)	67 86
3	Y	35/35 (100%)	33 (94%)	2 (6%)	17 35
All	All	1237/1513 (82%)	1216 (98%)	21 (2%)	56 79

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	214	GLN
1	A	326	ASN
1	A	338	GLN
2	B	86	ASP
2	B	103	ASN
2	B	129	ASP

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Mol	Chain	Res	Type
2	B	185	LEU
2	B	324	LEU
1	P	37	GLN
1	P	75	LEU
1	P	129	ARG
1	P	214	GLN
1	P	223	GLU
1	P	268	LYS
1	P	283	ARG
2	Q	103	ASN
2	Q	150	TRP
2	Q	212	TYR
2	Q	351	ASP
3	Y	14	TRP
3	Y	18	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	71	HIS
1	A	148	GLN
1	A	286	GLN
1	A	326	ASN
1	A	333	ASN
1	A	338	GLN
2	B	53	GLN
2	B	103	ASN
2	B	192	ASN
2	B	213	GLN
2	B	214	GLN
2	B	414	HIS
1	P	37	GLN
1	P	148	GLN
1	P	163	ASN
1	P	204	GLN
1	P	271	GLN
1	P	286	GLN
1	P	293	GLN
1	P	333	ASN
2	Q	53	GLN
2	Q	103	ASN
2	Q	148	GLN

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Mol	Chain	Res	Type
2	Q	207	GLN
2	Q	213	GLN
2	Q	290	GLN
3	Y	18	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

1 non-standard protein/DNA/RNA residue is 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	PCA	Y	1	3	7,8,9	0.62	0	9,10,12	0.98	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	PCA	Y	1	3	-	0/0/11/13	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 25 ligands modelled in this entry, 6 are monoatomic - leaving 19 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	$\#\|Z\| > 2$
6	PGW	B	505	-	8,8,50	0.36	0	7,7,56	0.54	0
6	PGW	B	512	-	8,8,50	0.36	0	7,7,56	0.52	0
6	PGW	B	507	-	8,8,50	0.36	0	7,7,56	0.54	0
4	NAP	A	1001	-	46,52,52	1.43	7 (15%)	61,80,80	1.03	2 (3%)
6	PGW	B	513	-	11,11,50	0.35	0	10,10,56	0.59	0
6	PGW	B	511	-	6,6,50	0.36	0	5,5,56	0.48	0
6	PGW	B	515	-	11,11,50	0.35	0	10,10,56	0.59	0
6	PGW	B	509	-	8,8,50	0.36	0	7,7,56	0.54	0
6	PGW	B	514	-	22,22,50	0.80	0	25,27,56	1.28	4 (16%)
6	PGW	B	510	-	8,8,50	0.36	0	7,7,56	0.55	0
4	NAP	P	1001	-	46,52,52	1.54	8 (17%)	61,80,80	1.05	1 (1%)
6	PGW	B	504	-	21,21,50	0.61	0	23,23,56	1.22	3 (13%)
6	PGW	B	517	-	9,9,50	0.36	0	8,8,56	0.56	0
6	PGW	B	518	-	11,11,50	0.35	0	10,10,56	0.57	0
6	PGW	B	506	-	8,8,50	0.36	0	7,7,56	0.53	0
6	PGW	B	519	-	11,11,50	0.35	0	10,10,56	0.57	0
6	PGW	B	516	-	36,36,50	0.65	0	39,42,56	0.90	2 (5%)
6	PGW	Q	504	-	21,21,50	0.61	0	23,23,56	1.21	4 (17%)
6	PGW	B	508	-	8,8,50	0.36	0	7,7,56	0.53	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
6	PGW	B	505	-	-	0/6/6/55	-
6	PGW	B	512	-	-	0/6/6/55	-
6	PGW	B	507	-	-	0/6/6/55	-
4	NAP	A	1001	-	-	4/31/67/67	0/5/5/5
6	PGW	B	513	-	-	0/9/9/55	-
6	PGW	B	511	-	-	0/4/4/55	-
6	PGW	B	515	-	-	0/9/9/55	-
6	PGW	B	509	-	-	0/6/6/55	-
6	PGW	B	514	-	-	7/24/24/55	-
6	PGW	B	510	-	-	0/6/6/55	-
4	NAP	P	1001	-	-	3/31/67/67	0/5/5/5
6	PGW	B	504	-	-	1/23/23/55	-
6	PGW	B	517	-	-	0/7/7/55	-
6	PGW	B	518	-	-	0/9/9/55	-
6	PGW	B	506	-	-	0/6/6/55	-
6	PGW	B	519	-	-	0/9/9/55	-
6	PGW	B	516	-	-	7/41/41/55	-
6	PGW	Q	504	-	-	1/23/23/55	-
6	PGW	B	508	-	-	0/6/6/55	-

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	P	1001	NAP	C6N-N1N	4.24	1.45	1.35
4	A	1001	NAP	C6N-N1N	4.02	1.44	1.35
4	P	1001	NAP	C4N-C3N	3.73	1.45	1.39
4	A	1001	NAP	C4N-C3N	3.68	1.45	1.39
4	P	1001	NAP	PA-O3	3.68	1.63	1.59
4	A	1001	NAP	O4B-C1B	3.59	1.45	1.40
4	P	1001	NAP	C2A-N3A	3.43	1.37	1.32
4	P	1001	NAP	O4B-C1B	3.42	1.45	1.40
4	P	1001	NAP	C4A-N3A	3.25	1.40	1.35
4	A	1001	NAP	C2A-N3A	2.98	1.36	1.32
4	A	1001	NAP	C4A-N3A	2.67	1.39	1.35
4	A	1001	NAP	C2N-N1N	2.47	1.37	1.35
4	P	1001	NAP	O4B-C4B	2.17	1.49	1.45
4	A	1001	NAP	O4B-C4B	2.06	1.49	1.45
4	P	1001	NAP	C2N-N1N	2.01	1.37	1.35

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	Q	504	PGW	O01-C1-C2	3.31	118.64	111.48
6	B	504	PGW	O01-C1-C2	3.29	118.59	111.48
6	B	514	PGW	O01-C1-C2	2.98	117.92	111.48
4	P	1001	NAP	C6N-N1N-C2N	-2.93	119.38	121.88
6	B	514	PGW	C03-C02-C01	-2.92	104.99	111.78
4	A	1001	NAP	C6N-N1N-C2N	-2.82	119.48	121.88
6	B	504	PGW	O03-C19-C20	2.39	119.11	111.83
6	B	516	PGW	O01-C1-C2	2.38	116.63	111.48
6	B	514	PGW	O11-P-O14	2.34	112.76	106.44
6	Q	504	PGW	O03-C19-C20	2.34	118.95	111.83
6	B	514	PGW	O03-C19-C20	2.31	118.89	111.83
6	Q	504	PGW	C02-O01-C1	-2.05	112.89	117.80
6	B	504	PGW	C01-O03-C19	-2.02	109.72	117.12
4	A	1001	NAP	C5A-C6A-N6A	2.01	123.38	120.31
6	B	516	PGW	O01-C02-C01	-2.01	101.13	108.34
6	Q	504	PGW	C01-O03-C19	-2.00	109.79	117.12

There are no chirality outliers.

All (23) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1001	NAP	PN-O3-PA-O5B
4	A	1001	NAP	O4D-C1D-N1N-C6N
4	P	1001	NAP	PN-O3-PA-O5B
4	P	1001	NAP	O4D-C1D-N1N-C6N
6	B	514	PGW	C02-C03-O11-P
6	B	516	PGW	C7-C8-C9-C10
6	B	514	PGW	C20-C19-O03-C01
6	B	514	PGW	O04-C19-O03-C01
6	B	504	PGW	C01-C02-O01-C1
6	Q	504	PGW	C01-C02-O01-C1
6	B	516	PGW	C01-C02-O01-C1
4	A	1001	NAP	O4D-C1D-N1N-C2N
4	P	1001	NAP	O4D-C1D-N1N-C2N
6	B	516	PGW	C03-C02-O01-C1
6	B	516	PGW	O03-C19-C20-C21
6	B	514	PGW	O01-C1-C2-C3
6	B	516	PGW	O01-C1-C2-C3
6	B	514	PGW	C01-C02-O01-C1
6	B	514	PGW	O03-C19-C20-C21
4	A	1001	NAP	C2B-O2B-P2B-O1X
6	B	516	PGW	O04-C19-C20-C21
6	B	514	PGW	O02-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
6	B	516	PGW	O02-C1-C2-C3

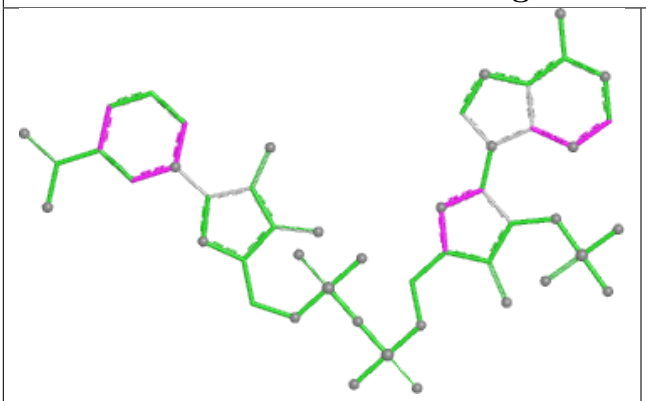
There are no ring outliers.

11 monomers are involved in 32 short contacts:

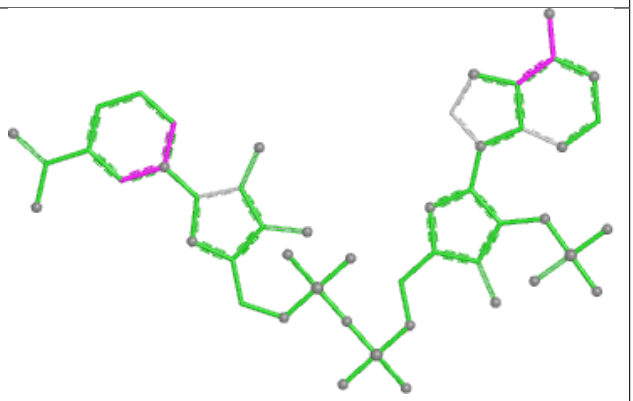
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	507	PGW	1	0
4	A	1001	NAP	3	0
6	B	513	PGW	1	0
6	B	515	PGW	2	0
6	B	509	PGW	1	0
6	B	514	PGW	1	0
6	B	510	PGW	2	0
4	P	1001	NAP	3	0
6	B	504	PGW	4	0
6	B	516	PGW	9	0
6	Q	504	PGW	7	0

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.

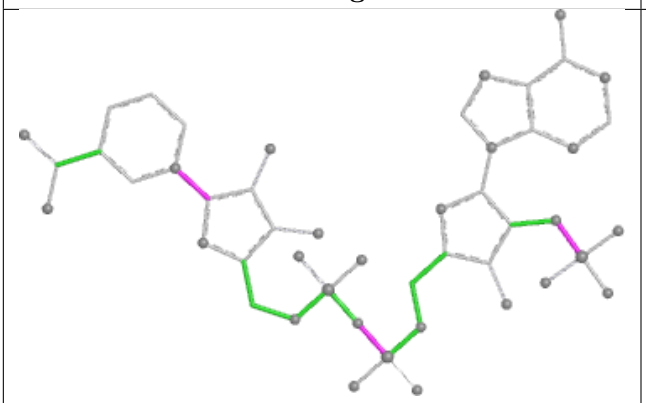
Ligand NAP A 1001



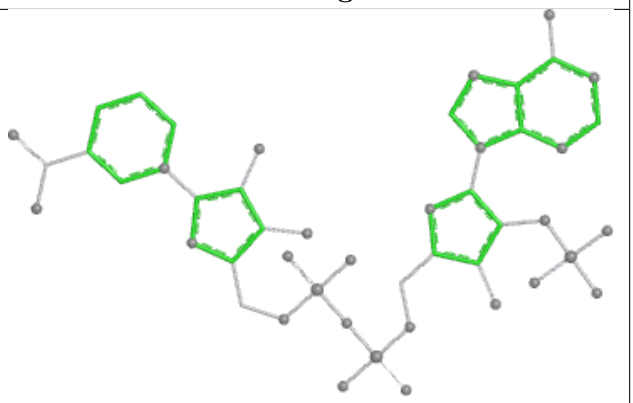
Bond lengths



Bond angles



Torsions



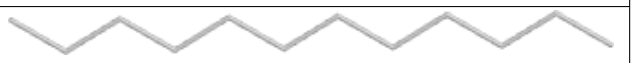
Rings

Ligand PGW B 515

Bond lengths

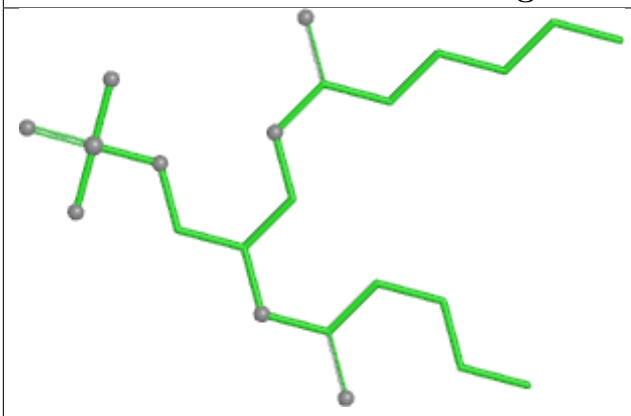
Bond angles

Torsions

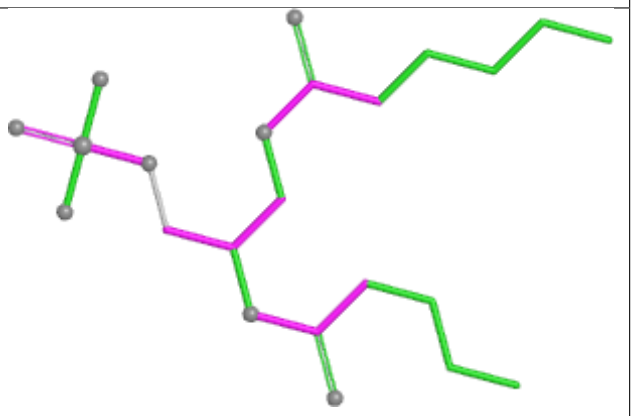


Rings

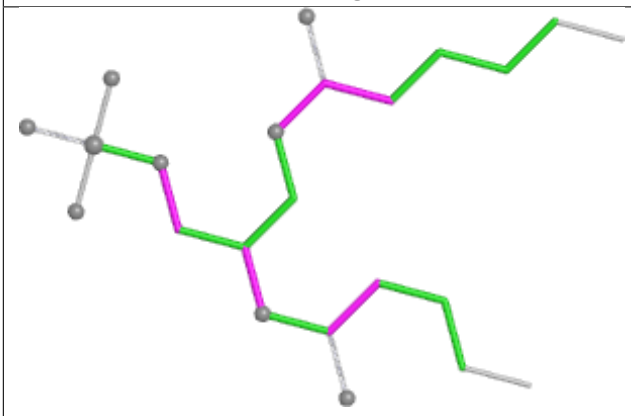
Ligand PGW B 514



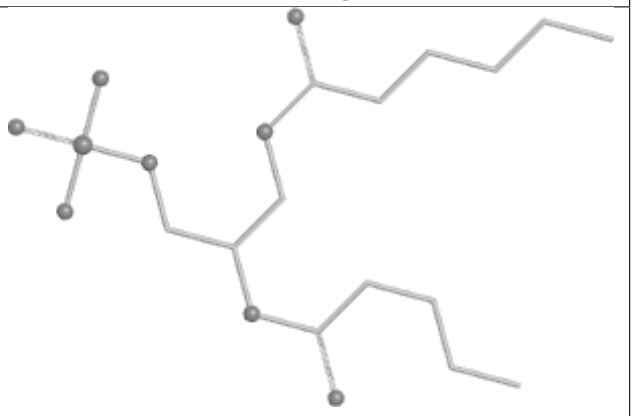
Bond lengths



Bond angles

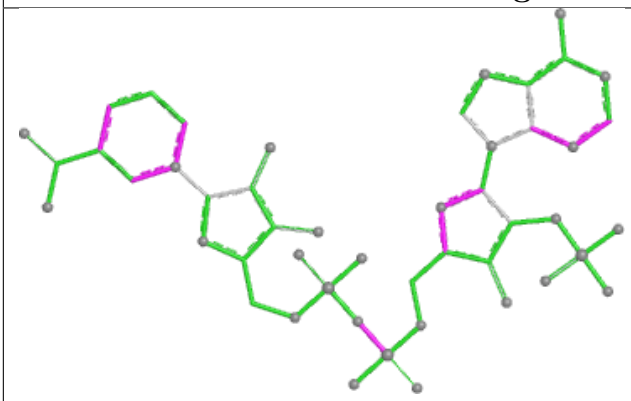


Torsions

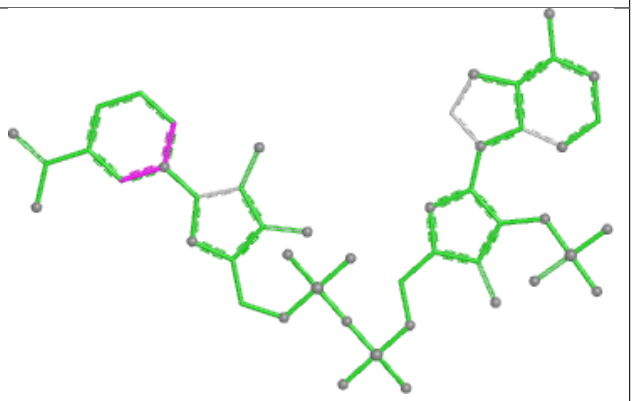


Rings

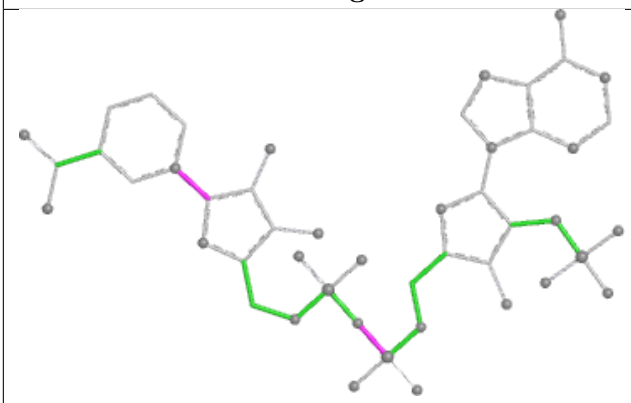
Ligand NAP P 1001



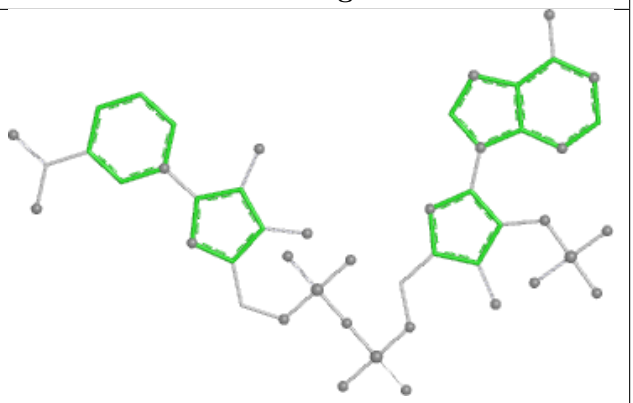
Bond lengths



Bond angles

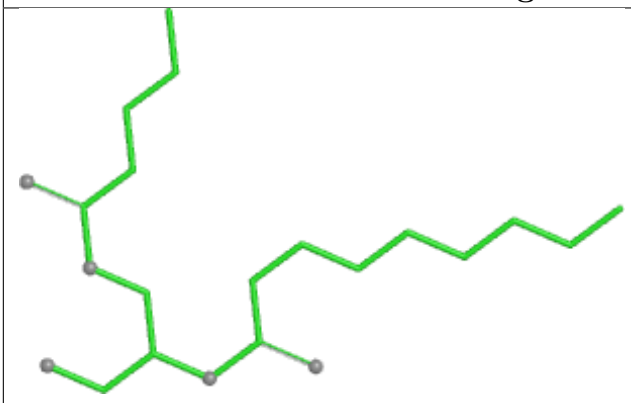


Torsions

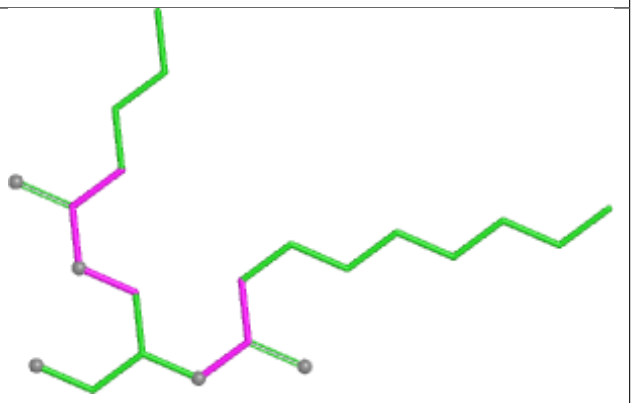


Rings

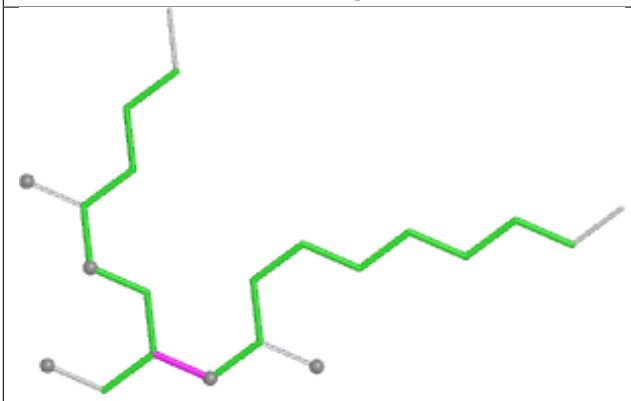
Ligand PGW B 504



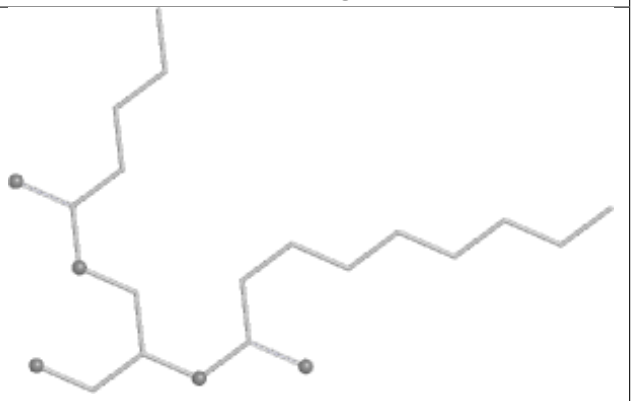
Bond lengths



Bond angles



Torsions



Rings

Ligand PGW B 518

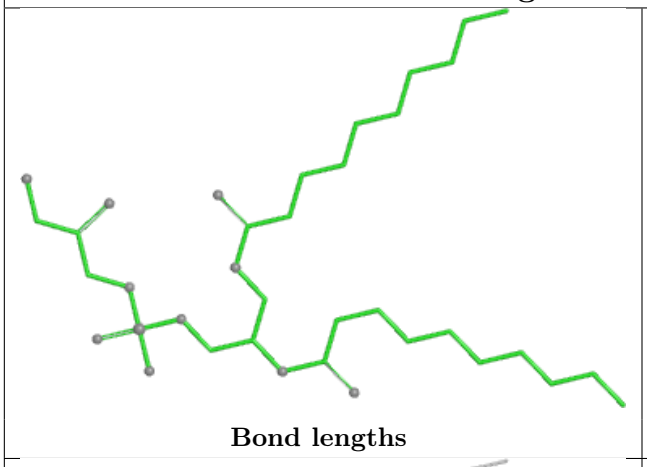
Bond lengths

Bond angles

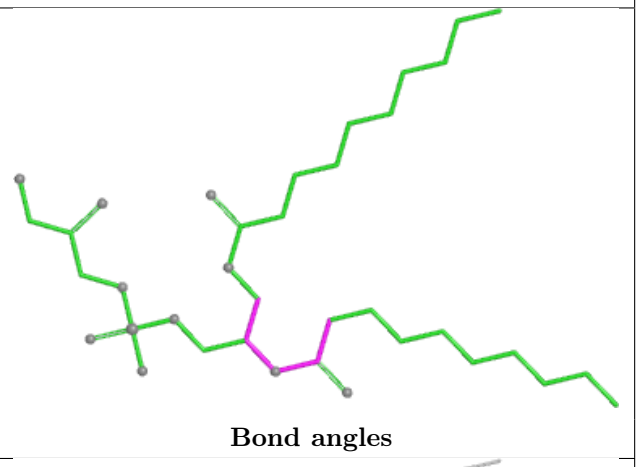
Torsions

Rings

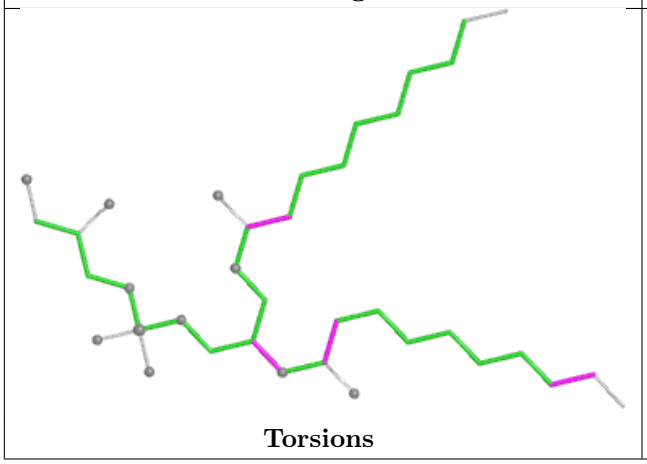
Ligand PGW B 516



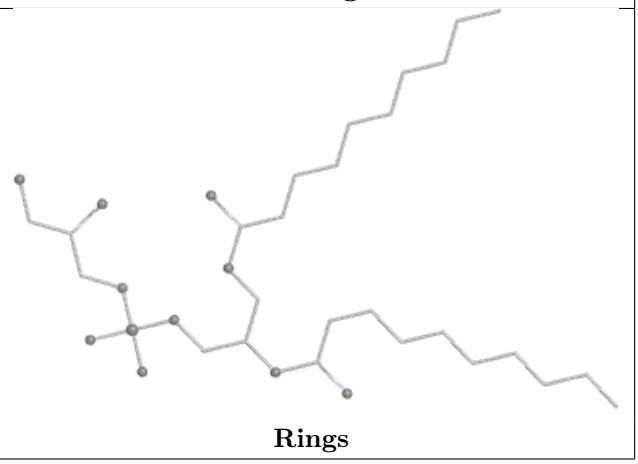
Bond lengths



Bond angles

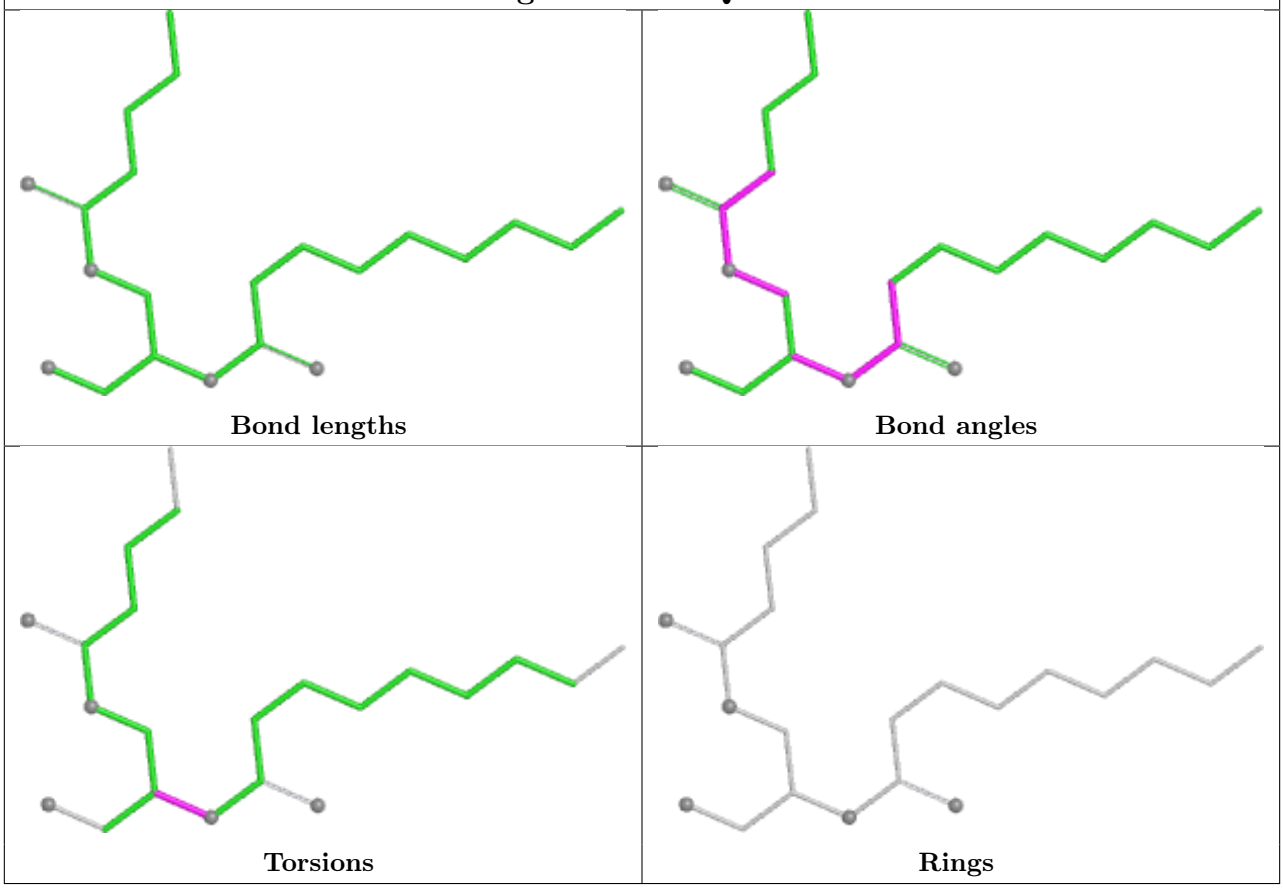


Torsions

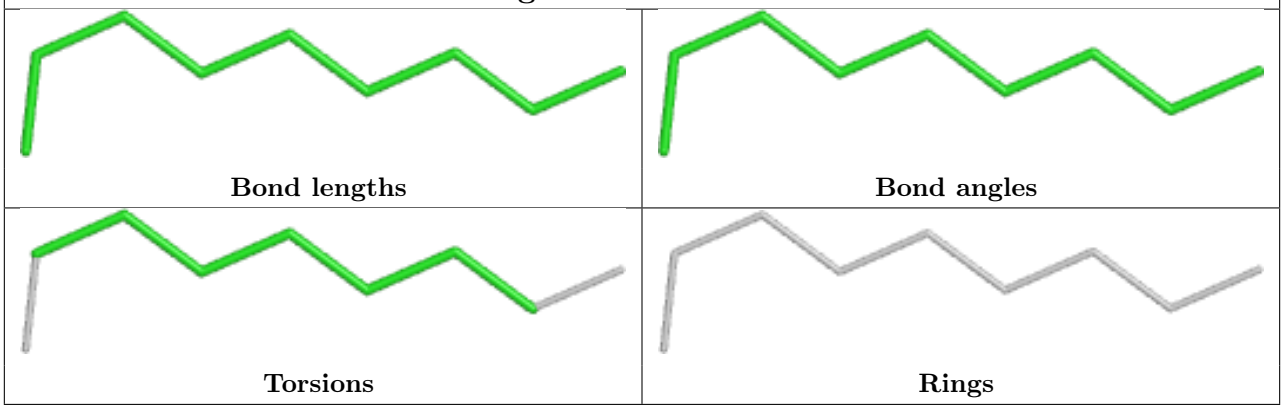


Rings

Ligand PGW Q 504



Ligand PGW B 508



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	326/333 (97%)	-0.21	10 (3%) 51 48	25, 41, 64, 92	0
1	P	326/333 (97%)	-0.07	10 (3%) 51 48	26, 44, 77, 101	0
2	B	386/514 (75%)	0.88	63 (16%) 5 5	32, 67, 119, 128	0
2	Q	363/514 (70%)	1.94	143 (39%) 1 1	39, 102, 196, 208	0
3	Y	36/37 (97%)	8.36	36 (100%) 0 0	21, 23, 24, 24	36 (100%)
All	All	1437/1731 (83%)	0.87	262 (18%) 4 4	21, 58, 182, 208	36 (2%)

All (262) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	Y	15	SER	27.2
3	Y	19	ARG	24.3
3	Y	18	GLN	22.7
3	Y	20	LEU	18.4
3	Y	22	ASN	15.9
3	Y	23	THR	14.2
3	Y	4	ASN	13.2
3	Y	11	LYS	12.1
3	Y	9	THR	10.6
3	Y	24	SER	9.9
2	Q	280	LEU	9.1
3	Y	37	SER	9.0
3	Y	8	THR	8.8
3	Y	21	HIS	7.9
3	Y	6	SER	7.0
3	Y	3	THR	6.9
3	Y	14	TRP	6.7
2	Q	238	LEU	6.7
2	Q	153	PHE	6.4
2	Q	294	ILE	6.2

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Mol	Chain	Res	Type	RSRZ
2	Q	288	VAL	6.2
2	Q	209	THR	6.0
2	Q	210	ILE	6.0
2	Q	214	GLN	6.0
3	Y	36	TYR	5.9
3	Y	28	CYS	5.9
3	Y	30	ASN	5.8
2	Q	131	GLY	5.8
2	Q	272	LEU	5.8
3	Y	25	ARG	5.7
2	Q	254	ILE	5.7
2	B	193	GLU	5.5
2	Q	149	VAL	5.5
2	Q	291	ILE	5.3
2	Q	282	PHE	5.3
2	Q	145	PHE	5.3
2	Q	167	ILE	5.3
2	B	200	VAL	5.3
2	Q	237	PHE	5.2
1	P	36	LEU	5.2
2	Q	279	VAL	5.2
2	Q	248	ALA	5.2
2	Q	240	ARG	5.1
2	Q	164	ILE	5.1
2	Q	243	ALA	5.1
3	Y	12	GLU	5.1
2	Q	231	ILE	5.1
2	Q	205	TYR	5.1
2	Q	268	VAL	5.0
2	B	199	GLY	5.0
2	Q	228	LEU	5.0
2	Q	266	TYR	4.9
3	Y	17	CYS	4.9
3	Y	33	CYS	4.9
2	B	417	THR	4.9
2	B	141	PRO	4.9
2	Q	257	ILE	4.8
2	Q	222	PHE	4.8
2	Q	277	LYS	4.8
1	A	36	LEU	4.7
2	Q	147	ARG	4.6
2	Q	270	ILE	4.6

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Mol	Chain	Res	Type	RSRZ
2	Q	232	TRP	4.6
2	Q	219	THR	4.6
2	Q	239	VAL	4.6
2	Q	250	PHE	4.5
2	Q	242	PHE	4.5
2	Q	190	ASP	4.5
2	B	203	HIS	4.5
3	Y	13	CYS	4.4
2	Q	235	PHE	4.3
3	Y	16	VAL	4.3
2	Q	415	ARG	4.3
3	Y	5	VAL	4.3
2	Q	252	THR	4.3
2	Q	271	PHE	4.3
2	Q	204	THR	4.2
2	Q	417	THR	4.2
2	Q	247	LYS	4.2
2	Q	264	ILE	4.1
3	Y	10	SER	4.1
2	Q	202	PHE	4.1
2	Q	218	PHE	4.0
3	Y	27	LYS	4.0
2	Q	278	SER	4.0
2	Q	206	SER	3.9
1	P	361	SER	3.9
2	Q	281	GLN	3.9
3	Y	7	CYS	3.9
2	Q	289	VAL	3.9
2	Q	284	ASN	3.9
2	Q	152	LEU	3.9
2	Q	187	ILE	3.8
1	A	360	TYR	3.8
3	Y	34	ARG	3.8
2	B	145	PHE	3.8
2	Q	267	TYR	3.8
2	Q	221	PRO	3.8
2	Q	233	PHE	3.8
2	Q	261	VAL	3.7
2	Q	262	ALA	3.7
2	B	140	LEU	3.7
2	B	213	GLN	3.7
1	P	360	TYR	3.7

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Mol	Chain	Res	Type	RSRZ
2	Q	212	TYR	3.7
2	B	133	ILE	3.7
2	Q	287	ARG	3.7
2	Q	273	THR	3.6
2	Q	223	PHE	3.6
2	Q	216	THR	3.6
3	Y	29	MET	3.6
2	Q	245	PRO	3.6
2	B	138	ARG	3.6
2	B	142	GLU	3.6
3	Y	2	PHE	3.5
2	B	251	PHE	3.5
2	B	215	SER	3.5
2	Q	244	CYS	3.5
2	Q	165	ILE	3.5
2	Q	260	ILE	3.5
2	Q	251	PHE	3.5
2	Q	148	GLN	3.4
2	B	155	TYR	3.4
2	Q	150	TRP	3.4
2	Q	285	VAL	3.4
2	B	205	TYR	3.4
2	Q	295	MET	3.4
3	Y	32	LYS	3.4
2	Q	241	PHE	3.4
2	Q	263	ILE	3.4
2	Q	151	LEU	3.3
2	Q	411	TYR	3.3
2	Q	286	ARG	3.3
2	B	152	LEU	3.2
2	B	139	PRO	3.2
2	Q	225	VAL	3.2
2	B	201	THR	3.2
2	Q	269	THR	3.2
2	B	32	SER	3.2
2	B	151	LEU	3.2
2	Q	125	MET	3.2
2	Q	283	GLN	3.2
2	Q	370	THR	3.1
1	P	280	GLU	3.1
3	Y	26	GLY	3.1
1	P	314	ASN	3.1

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Mol	Chain	Res	Type	RSRZ
2	Q	292	PHE	3.0
1	P	268	LYS	3.0
1	A	361	SER	3.0
2	B	154	GLU	3.0
2	Q	371	VAL	3.0
2	Q	324	LEU	3.0
2	Q	211	GLY	3.0
2	Q	174	LEU	3.0
2	B	160	GLY	3.0
2	B	249	GLY	3.0
2	B	277	LYS	3.0
3	Y	31	LYS	3.0
2	Q	215	SER	2.9
2	B	274	GLU	2.9
2	Q	297	ILE	2.9
2	Q	230	ILE	2.9
2	Q	234	SER	2.9
2	B	147	ARG	2.9
1	P	349	HIS	2.9
2	Q	56	GLU	2.9
2	Q	246	SER	2.9
2	Q	350	ARG	2.9
2	Q	203	HIS	2.9
2	Q	399	ALA	2.8
2	Q	258	ILE	2.8
2	Q	249	GLY	2.8
2	Q	208	SER	2.8
2	B	124	GLU	2.7
2	B	175	ILE	2.7
2	Q	372	GLY	2.7
2	Q	168	VAL	2.7
2	B	194	ASP	2.7
2	B	247	LYS	2.7
2	Q	224	ILE	2.7
2	Q	155	TYR	2.6
1	A	150	GLU	2.6
2	B	132	TYR	2.6
3	Y	35	CYS	2.6
2	B	187	ILE	2.6
2	B	351	ASP	2.6
2	Q	265	PRO	2.6
2	Q	298	LEU	2.6

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Mol	Chain	Res	Type	RSRZ
2	Q	275	SER	2.6
2	Q	175	ILE	2.6
2	Q	226	GLU	2.6
2	B	125	MET	2.6
2	Q	309	GLY	2.5
2	B	171	MET	2.5
2	Q	293	ARG	2.5
2	Q	344	PHE	2.5
2	B	153	PHE	2.5
2	Q	306	HIS	2.5
2	B	144	GLU	2.5
2	Q	160	GLY	2.5
2	Q	186	PRO	2.5
2	Q	378	PRO	2.5
2	B	231	ILE	2.5
2	Q	127	ARG	2.5
2	Q	308	LYS	2.4
2	B	219	THR	2.4
2	B	411	TYR	2.4
2	Q	189	ARG	2.4
2	B	190	ASP	2.4
2	Q	400	LEU	2.4
2	Q	376	MET	2.4
2	Q	146	GLN	2.4
2	Q	290	GLN	2.4
2	Q	351	ASP	2.4
2	Q	156	PRO	2.4
2	Q	303	LEU	2.3
2	B	188	PHE	2.3
1	P	231	GLU	2.3
2	B	240	ARG	2.3
2	Q	217	SER	2.3
2	B	150	TRP	2.3
2	Q	337	LEU	2.3
2	Q	410	ASN	2.3
2	Q	304	SER	2.3
2	Q	276	ASN	2.3
1	A	231	GLU	2.3
2	B	243	ALA	2.3
2	Q	188	PHE	2.3
2	B	283	GLN	2.3
2	B	165	ILE	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	349	HIS	2.2
2	Q	396	LEU	2.2
2	B	252	THR	2.2
2	Q	161	PRO	2.2
1	A	297	GLU	2.2
2	B	191	GLU	2.2
2	Q	121	GLU	2.2
2	B	208	SER	2.2
2	Q	32	SER	2.2
2	Q	299	ARG	2.2
1	A	62	GLY	2.2
1	A	283	ARG	2.2
2	B	204	THR	2.2
2	B	198	GLY	2.1
2	Q	416	GLU	2.1
2	Q	169	SER	2.1
2	B	172	VAL	2.1
2	Q	178	VAL	2.1
2	B	202	PHE	2.1
2	B	245	PRO	2.1
1	P	228	GLN	2.1
2	B	134	LYS	2.1
2	B	135	GLU	2.1
1	A	129	ARG	2.0
1	P	129	ARG	2.0
2	B	127	ARG	2.0
2	B	248	ALA	2.0
2	Q	227	THR	2.0
2	B	192	ASN	2.0
2	B	352	SER	2.0
2	Q	177	ILE	2.0
2	B	408	ASN	2.0

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

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	PCA	Y	1	8/9	0.77	0.20	88,88,89,89	8

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

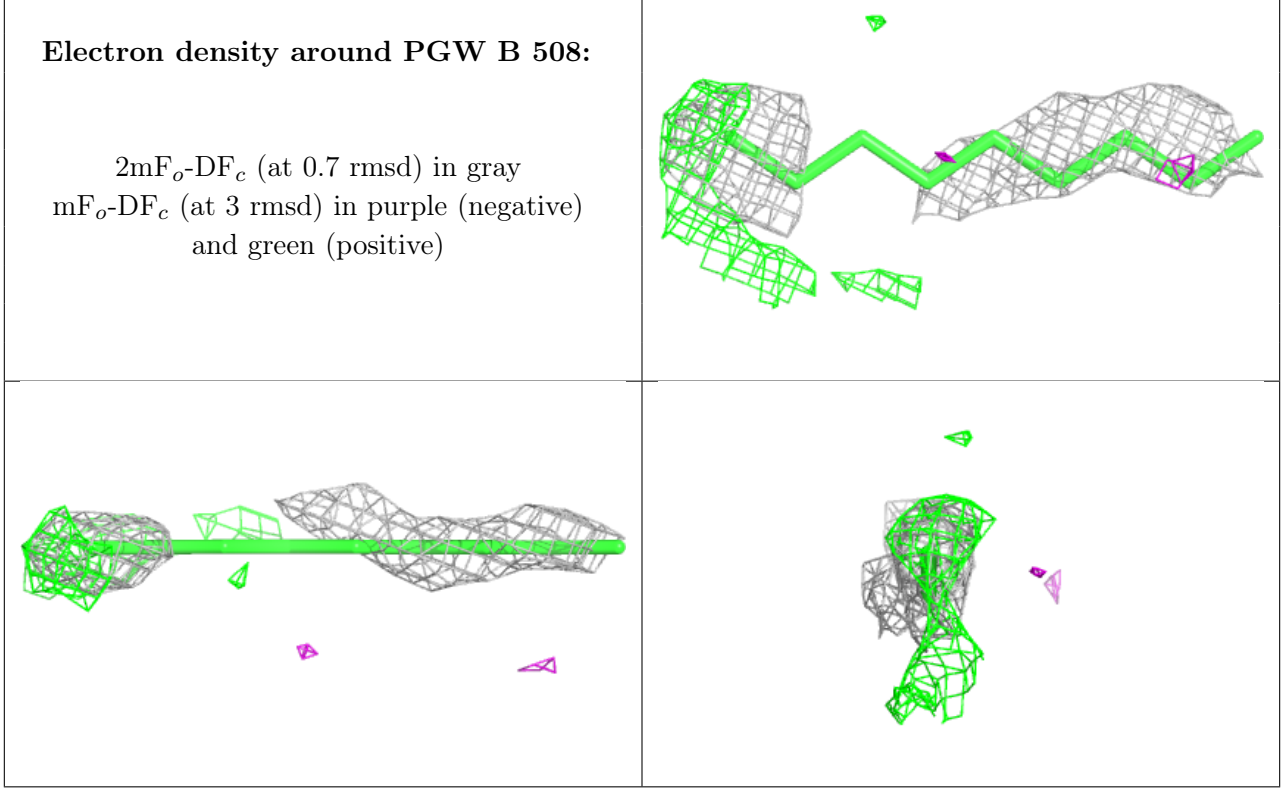
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	PGW	B	508	9/51	0.69	0.43	104,106,107,107	0
6	PGW	B	504	22/51	0.70	0.39	76,86,90,91	0
6	PGW	B	516	37/51	0.72	0.31	108,129,144,145	0
6	PGW	Q	504	22/51	0.72	0.35	100,113,118,119	0
6	PGW	B	506	9/51	0.73	0.37	95,96,96,97	0
6	PGW	B	514	23/51	0.73	0.34	136,139,148,149	0
6	PGW	B	515	12/51	0.76	0.42	84,90,94,94	0
6	PGW	B	512	9/51	0.77	0.32	91,91,92,93	0
6	PGW	B	519	12/51	0.77	0.38	102,104,105,105	0
6	PGW	B	513	12/51	0.77	0.37	74,80,83,84	0
6	PGW	B	517	10/51	0.79	0.32	77,78,80,81	0
6	PGW	B	518	12/51	0.80	0.40	113,116,117,117	0
6	PGW	B	507	9/51	0.81	0.36	100,101,102,103	0
6	PGW	B	511	7/51	0.85	0.31	86,87,87,87	0
6	PGW	B	505	9/51	0.85	0.34	98,99,102,102	0
6	PGW	B	510	9/51	0.86	0.30	90,93,97,98	0
6	PGW	B	509	9/51	0.87	0.30	80,81,81,82	0
5	K	Q	503	1/1	0.90	0.14	38,38,38,38	1
5	K	Q	501	1/1	0.90	0.09	50,50,50,50	1
5	K	Q	502	1/1	0.94	0.13	62,62,62,62	1
5	K	B	503	1/1	0.96	0.12	27,27,27,27	1
5	K	B	501	1/1	0.97	0.18	23,23,23,23	1
4	NAP	P	1001	48/48	0.98	0.07	35,41,50,51	0
4	NAP	A	1001	48/48	0.98	0.06	34,39,45,47	0
5	K	B	502	1/1	0.98	0.09	27,27,27,27	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.

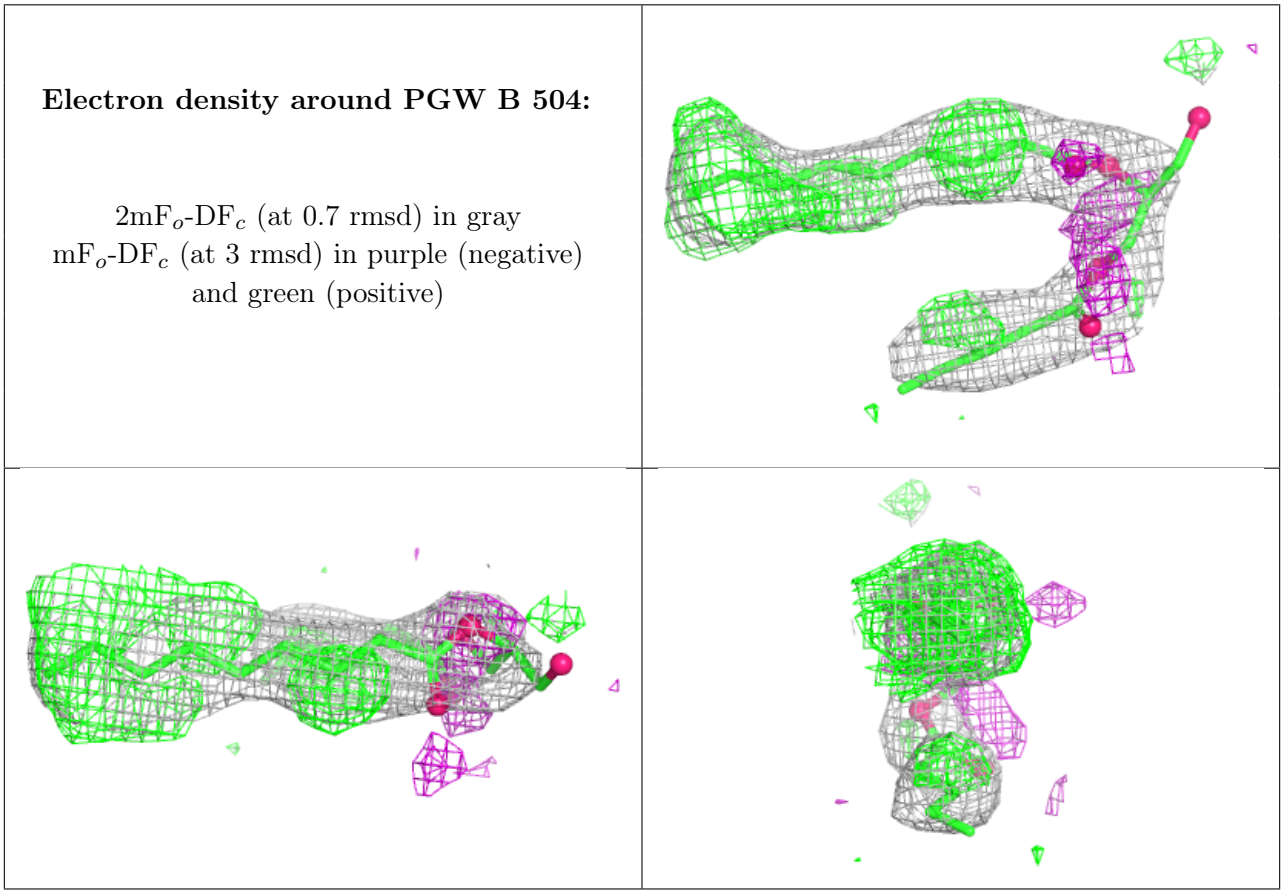
Electron density around PGW B 508:

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



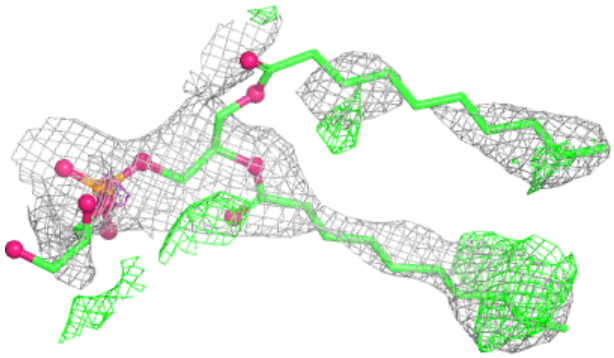
Electron density around PGW B 504:

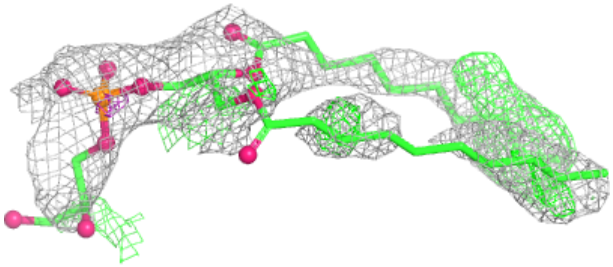
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

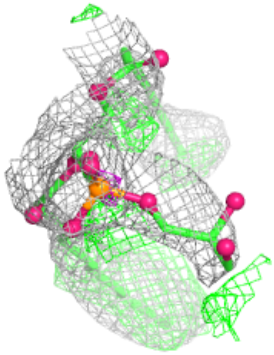


Electron density around PGW B 516:

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

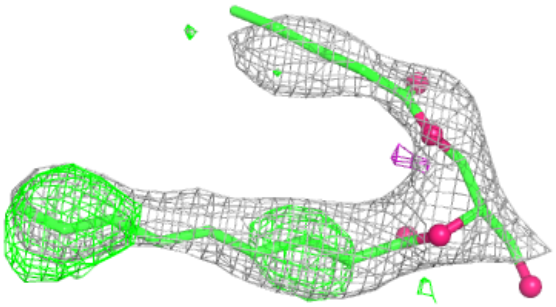


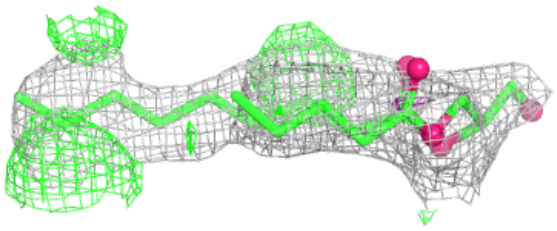


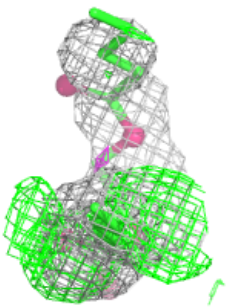


Electron density around PGW Q 504:

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

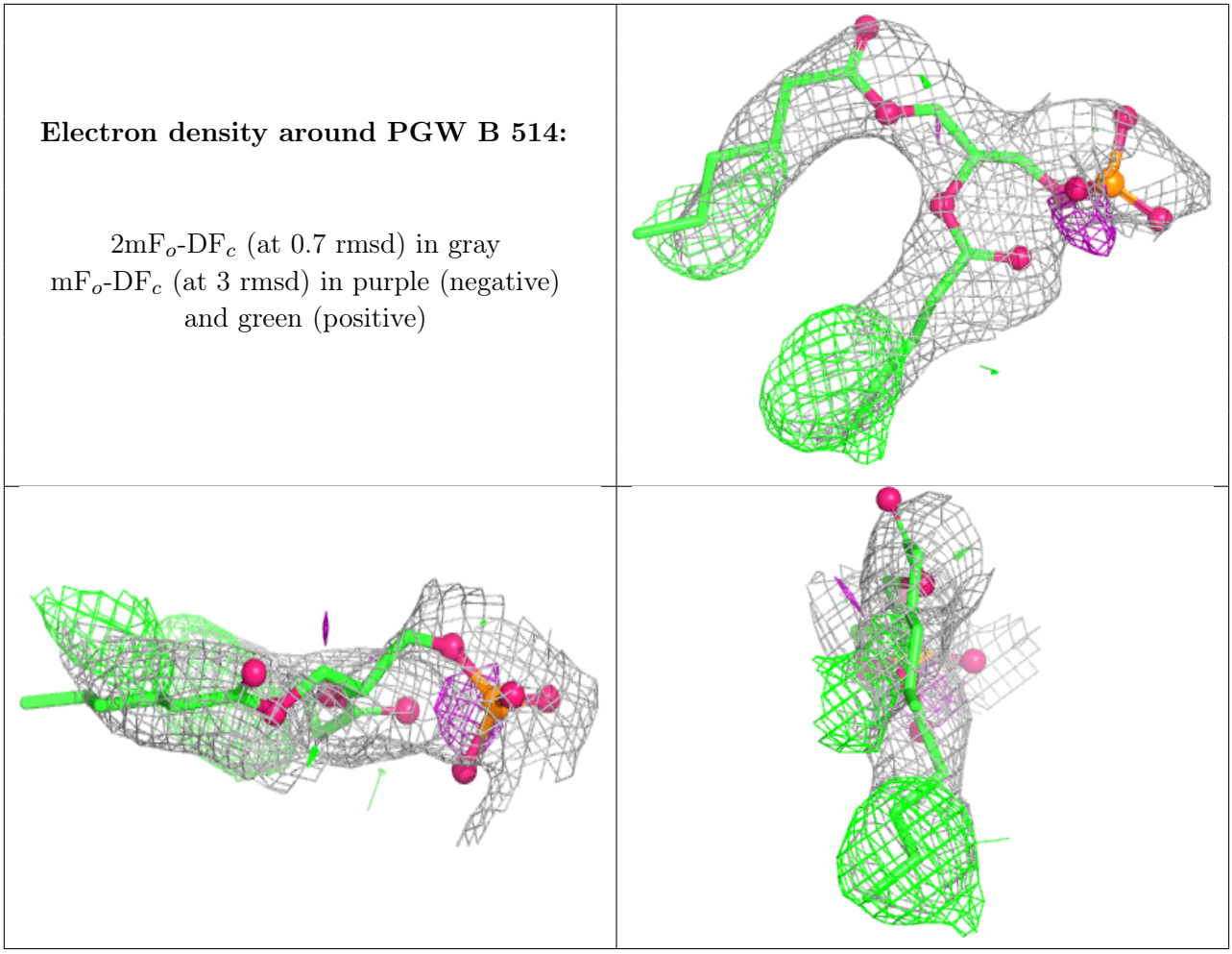






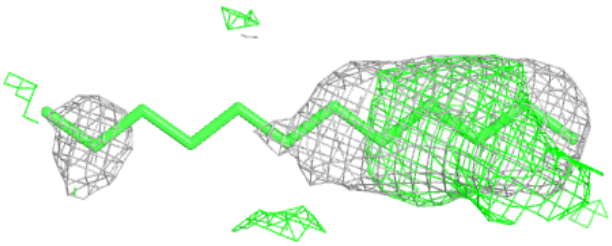
Electron density around PGW B 514:

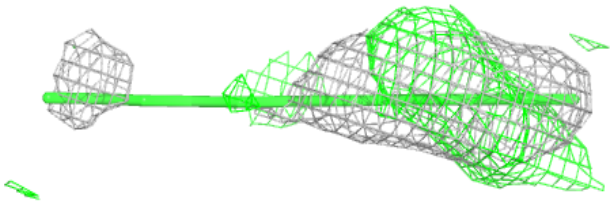
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

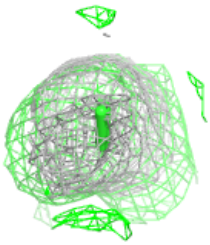


Electron density around PGW B 515:

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

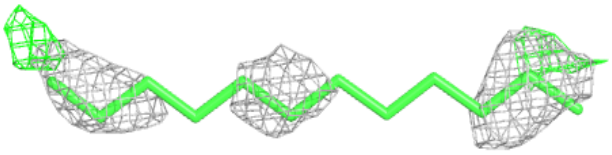


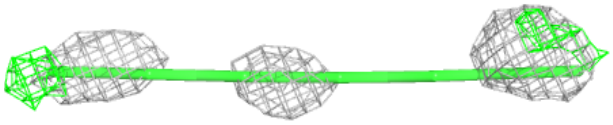


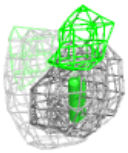


Electron density around PGW B 518:

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

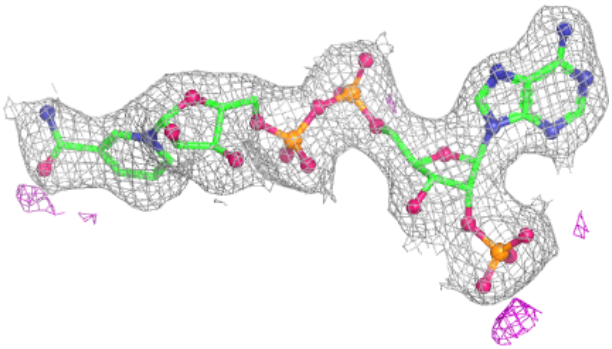


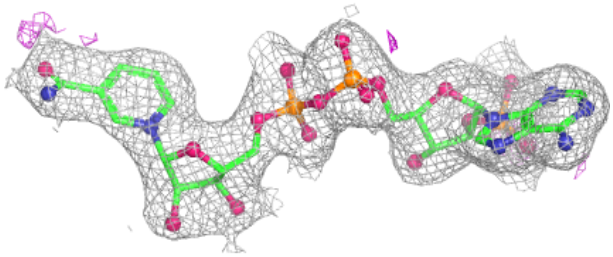


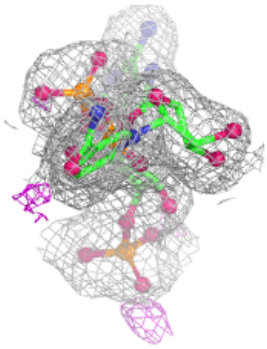


Electron density around NAP P 1001:

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

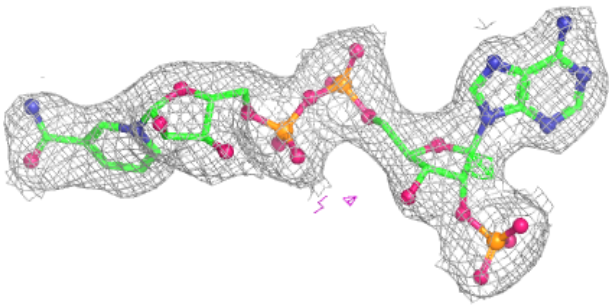


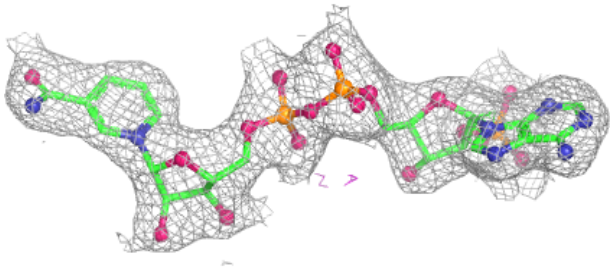


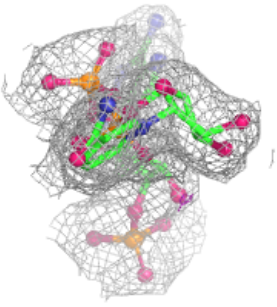


Electron density around NAP A 1001:

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







6.5 Other polymers (i)

There are no such residues in this entry.