Full wwPDB X-ray Structure Validation Report ⓘ

Jan 27, 2022 – 06:27 pm GMT

PDB ID	:	7PT2
Title	:	Actinobacterial 2-hydroxyacyl-CoA lyase (AcHACL) mutant E493Q structure in complex with substrate 2-HIB-CoA and inactive cofactor 3-deaza-ThDP
Authors	:	Zahn, M.; Rohwerder, T.
Deposited on	:	2021-09-25
Resolution	:	1.76 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

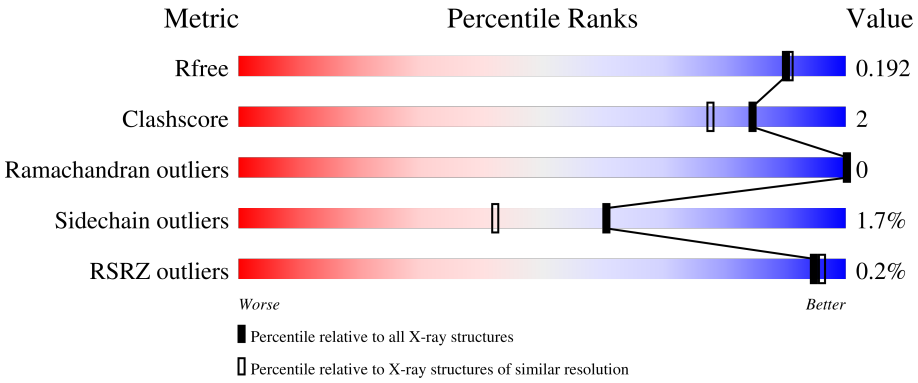
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.26
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0267
CCP4	:	7.1.010 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.26

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 1.76 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2340 (1.76-1.76)
Clashscore	141614	2466 (1.76-1.76)
Ramachandran outliers	138981	2437 (1.76-1.76)
Sidechain outliers	138945	2437 (1.76-1.76)
RSRZ outliers	127900	2298 (1.76-1.76)

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	612	87% 6% • 6%
1	B	612	87% 6% 7%

2 Entry composition

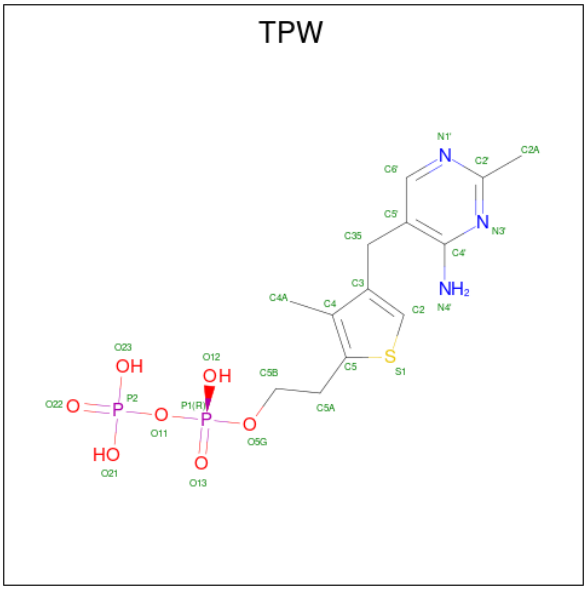
There are 5 unique types of molecules in this entry. The entry contains 18488 atoms, of which 8694 are hydrogens and 0 are deuteriums.

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 2-hydroxyacyl-CoA lyase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	574	Total	C	H	N	O	S	100	3	0
			8630	2685	4303	803	830	9			
1	B	572	Total	C	H	N	O	S	102	1	0
			8577	2669	4277	798	824	9			

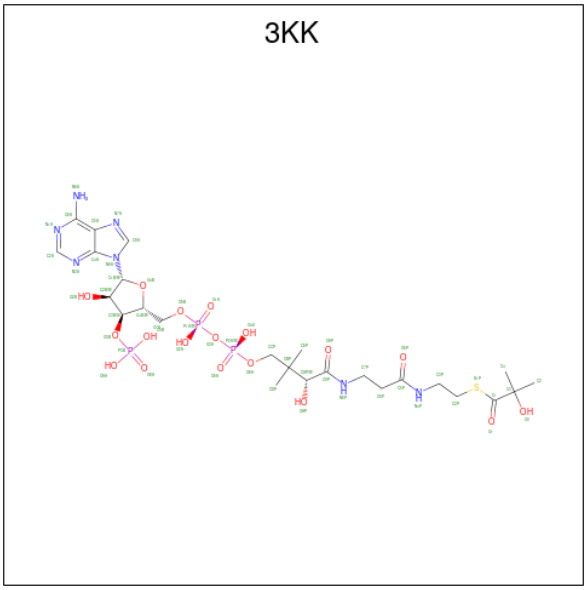
- Molecule 2 is 2-{4-[(4-AMINO-2-METHYLPYRIMIDIN-5-YL)METHYL]-3-METHYL THIOPHEN-2-YL}ETHYL TRIHYDROGEN DIPHOSPHATE (three-letter code: TPW) (formula: $C_{13}H_{19}N_3O_7P_2S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	P	S	3	0
			45	13	19	3	7	2	1		
2	B	1	Total	C	H	N	O	P	S	3	0
			45	13	19	3	7	2	1		

- Molecule 3 is S-{(3R,5R,9R)-1-[(2R,3S,4R,5R)-5-(6-amino-9H-purin-9-yl)-4-hydroxy-3-(phosphonooxy)tetrahydrofuran-2-yl]-3,5,9-trihydroxy-8,8-dimethyl-3,5-dioxido-10,14-dioxo-2,4,

6-trioxa-11,15-diaza-3lambda 5 ,5lambda 5 -diphosphaheptadecan-17-yl} 2-hydroxy-2-meth ylpropanethioate (three-letter code: 3KK) (formula: $C_{25}H_{42}N_7O_{18}P_3S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
3	A	1	Total	C	H	N	O	P	S	3	0
			92	25	38	7	18	3	1		
3	B	1	Total	C	H	N	O	P	S	3	0
			92	25	38	7	18	3	1		

- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	3	Total	Mg	0	0
			3	3		
4	B	1	Total	Mg	0	0
			1	1		

- Molecule 5 is water.

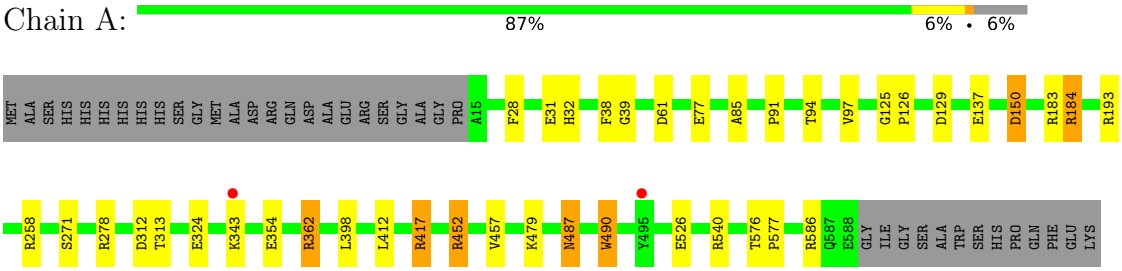
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	497	Total	O	0	0
			497	497		
5	B	506	Total	O	0	0
			506	506		

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.

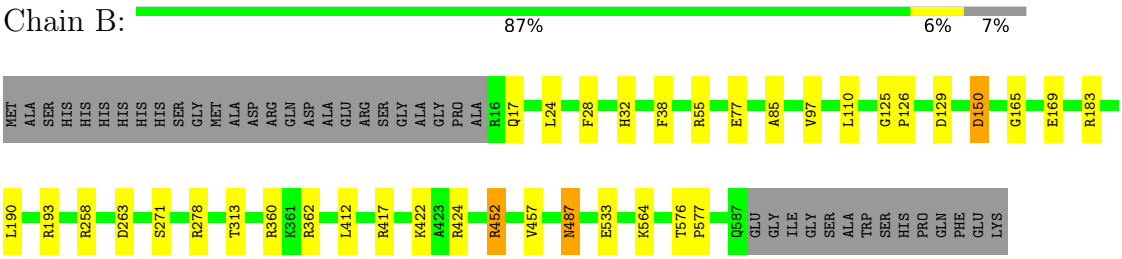
- Molecule 1: 2-hydroxyacyl-CoA lyase

Chain A:



- Molecule 1: 2-hydroxyacyl-CoA lyase

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	103.67Å 145.48Å 174.20Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	87.10 – 1.76 87.10 – 1.76	Depositor EDS
% Data completeness (in resolution range)	64.7 (87.10-1.76) 60.3 (87.10-1.76)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.19 (at 1.76Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.147 , 0.185 0.158 , 0.192	Depositor DCC
R_{free} test set	4266 reflections (5.10%)	wwPDB-VP
Wilson B-factor (Å^2)	22.2	Xtriage
Anisotropy	0.120	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	(Not available) , (Not available)	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	18488	wwPDB-VP
Average B, all atoms (Å^2)	28.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.51% 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: 3KK, TPW, MG

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	0.85	2/4418 (0.0%)	1.02	13/6022 (0.2%)
1	B	0.86	2/4385 (0.0%)	1.00	7/5977 (0.1%)
All	All	0.86	4/8803 (0.0%)	1.01	20/11999 (0.2%)

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	A	0	1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	77	GLU	CD-OE1	8.18	1.34	1.25
1	B	533	GLU	CD-OE1	6.24	1.32	1.25
1	A	526	GLU	CD-OE1	5.68	1.31	1.25
1	B	77	GLU	CD-OE1	5.08	1.31	1.25

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	417	ARG	NE-CZ-NH2	-9.11	115.74	120.30
1	A	417	ARG	NE-CZ-NH2	-9.01	115.79	120.30
1	A	183	ARG	NE-CZ-NH2	-8.69	115.95	120.30
1	B	258	ARG	NE-CZ-NH2	8.14	124.37	120.30
1	A	278	ARG	NE-CZ-NH2	7.56	124.08	120.30
1	B	424	ARG	NE-CZ-NH2	-7.49	116.55	120.30
1	B	150	ASP	CB-CA-C	-7.24	95.92	110.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	150	ASP	CB-CA-C	-6.86	96.68	110.40
1	B	278	ARG	NE-CZ-NH2	6.73	123.67	120.30
1	A	184	ARG	NE-CZ-NH2	-6.47	117.06	120.30
1	A	258	ARG	NE-CZ-NH2	6.41	123.50	120.30
1	A	540	ARG	NE-CZ-NH1	6.20	123.40	120.30
1	A	417	ARG	NE-CZ-NH1	6.12	123.36	120.30
1	A	540	ARG	NE-CZ-NH2	-5.92	117.34	120.30
1	A	312	ASP	CB-CG-OD1	5.79	123.51	118.30
1	B	417	ARG	NE-CZ-NH1	5.68	123.14	120.30
1	B	183	ARG	CG-CD-NE	-5.40	100.46	111.80
1	A	362	ARG	NE-CZ-NH1	5.38	122.99	120.30
1	A	452	ARG	CB-CA-C	-5.09	100.23	110.40
1	A	183	ARG	NE-CZ-NH1	5.08	122.84	120.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	490	TRP	Peptide

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4327	4303	4287	21	0
1	B	4300	4277	4259	20	0
2	A	26	19	16	1	0
2	B	26	19	16	0	0
3	A	54	38	38	0	0
3	B	54	38	38	1	0
4	A	3	0	0	0	0
4	B	1	0	0	0	0
5	A	497	0	0	9	1
5	B	506	0	0	5	1
All	All	9794	8694	8654	40	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including

hydrogen atoms). The all-atom clashscore for this structure is 2.

All (40) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:271:SER:O	1:A:362:ARG:NH1	2.11	0.83
1:A:193:ARG:NH1	5:A:801:HOH:O	2.09	0.83
1:B:263:ASP:OD1	5:B:801:HOH:O	2.08	0.71
1:B:126:PRO:HG2	1:B:129:ASP:HB2	1.73	0.70
1:B:412:LEU:HD11	1:B:457:VAL:HG12	1.74	0.69
1:A:137[B]:GLU:OE1	5:A:802:HOH:O	2.10	0.69
1:A:126:PRO:HG2	1:A:129:ASP:HB2	1.77	0.66
1:A:412:LEU:HD11	1:A:457:VAL:HG12	1.79	0.64
1:A:324:GLU:OE1	5:A:803:HOH:O	2.15	0.62
1:B:452:ARG:HG2	5:B:868:HOH:O	1.99	0.62
1:A:184:ARG:NH2	5:A:805:HOH:O	2.20	0.56
1:A:137[A]:GLU:OE1	5:A:804:HOH:O	2.18	0.54
1:B:28:PHE:CE2	1:B:32:HIS:CE1	3.00	0.50
1:B:38:PHE:O	1:B:85:ALA:HA	2.13	0.49
1:B:125:GLY:N	1:B:126:PRO:CD	2.77	0.47
1:A:28:PHE:CE1	1:A:32:HIS:CE1	3.03	0.47
1:B:360:ARG:HD3	5:B:878:HOH:O	2.12	0.47
1:A:38:PHE:O	1:A:85:ALA:HA	2.15	0.46
1:A:479:LYS:HD2	5:A:846:HOH:O	2.15	0.46
1:B:190:LEU:HB3	5:B:1237:HOH:O	2.16	0.45
1:A:324:GLU:HB2	5:A:803:HOH:O	2.17	0.45
1:A:490:TRP:HB3	2:A:701:TPW:H5A1	1.98	0.45
1:A:39:GLY:O	1:A:61:ASP:HA	2.17	0.44
1:B:576:THR:HB	1:B:577:PRO:HD3	1.99	0.44
1:A:576:THR:HB	1:A:577:PRO:HD3	1.99	0.44
1:A:586:ARG:NH1	5:A:810:HOH:O	2.33	0.43
1:B:55:ARG:HD2	5:B:1076:HOH:O	2.19	0.43
1:B:110:LEU:C	1:B:110:LEU:HD12	2.40	0.42
1:A:125:GLY:N	1:A:126:PRO:CD	2.82	0.42
1:A:487:ASN:HD22	1:A:487:ASN:C	2.22	0.42
1:B:360:ARG:HH11	1:B:360:ARG:HD2	1.71	0.42
1:A:97:VAL:HG11	1:B:97:VAL:HG21	2.02	0.41
1:B:412:LEU:C	1:B:412:LEU:HD13	2.40	0.41
1:B:165:GLY:HA2	1:B:169:GLU:C	2.41	0.41
1:B:564:LYS:NZ	3:B:702:3KK:O5A	2.53	0.41
1:A:31:GLU:HG3	5:A:965:HOH:O	2.21	0.41
1:A:91:PRO:HA	1:A:94:THR:OG1	2.21	0.41
1:B:271:SER:O	1:B:362:ARG:NH1	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:24:LEU:HD12	1:B:24:LEU:HA	1.94	0.40
1:B:487:ASN:C	1:B:487:ASN:HD22	2.24	0.40

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:A:1148:HOH:O	5:B:1169:HOH:O[3_555]	2.19	0.01

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	575/612 (94%)	559 (97%)	16 (3%)	0	100	100
1	B	571/612 (93%)	557 (98%)	14 (2%)	0	100	100
All	All	1146/1224 (94%)	1116 (97%)	30 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	442/467 (95%)	434 (98%)	8 (2%)	59	40

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	B	439/467 (94%)	432 (98%)	7 (2%)	62 45
All	All	881/934 (94%)	866 (98%)	15 (2%)	60 42

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

Mol	Chain	Res	Type
1	A	150	ASP
1	A	313	THR
1	A	343	LYS
1	A	354	GLU
1	A	398	LEU
1	A	417	ARG
1	A	452	ARG
1	A	487	ASN
1	B	17	GLN
1	B	150	ASP
1	B	193	ARG
1	B	313	THR
1	B	422	LYS
1	B	452	ARG
1	B	487	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	371	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 8 ligands modelled in this entry, 4 are monoatomic - leaving 4 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	$\#\|Z\| > 2$
2	TPW	B	701	4	23,27,27	1.18	3 (13%)	30,40,40	0.74	0
3	3KK	A	702	-	47,56,56	0.97	2 (4%)	58,85,85	0.97	3 (5%)
2	TPW	A	701	4	23,27,27	1.10	4 (17%)	30,40,40	0.73	1 (3%)
3	3KK	B	702	-	47,56,56	1.12	6 (12%)	58,85,85	0.83	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
2	TPW	B	701	4	-	2/16/17/17	0/2/2/2
3	3KK	A	702	-	-	5/52/73/73	0/3/3/3
2	TPW	A	701	4	-	2/16/17/17	0/2/2/2
3	3KK	B	702	-	-	4/52/73/73	0/3/3/3

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	702	3KK	O3-C3	3.23	1.47	1.43
3	B	702	3KK	P3B-O9A	-3.18	1.42	1.54
3	B	702	3KK	O3-C3	3.07	1.47	1.43
2	B	701	TPW	P2-O22	2.66	1.59	1.50
2	B	701	TPW	C2-C3	-2.55	1.35	1.37
3	B	702	3KK	OAP-CAP	2.53	1.47	1.42
2	A	701	TPW	C2-S1	2.25	1.74	1.70
2	A	701	TPW	C5A-C5	2.21	1.51	1.50
2	A	701	TPW	P2-O21	-2.16	1.46	1.54
3	A	702	3KK	OAP-CAP	2.15	1.46	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	701	TPW	C2-C3	-2.14	1.35	1.37
2	B	701	TPW	C5A-C5	-2.12	1.50	1.50
3	B	702	3KK	C1-S1P	2.12	1.81	1.78
3	B	702	3KK	C8A-N7A	-2.11	1.30	1.34
3	B	702	3KK	O1-C1	2.09	1.22	1.20

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	702	3KK	C5A-C6A-N6A	2.76	124.55	120.35
3	A	702	3KK	C2-C3-C4	-2.24	108.81	111.10
3	A	702	3KK	O1-C1-C3	2.16	125.36	121.86
2	A	701	TPW	O5G-P1-O13	-2.10	100.84	109.07

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	701	TPW	P1-O11-P2-O21
3	A	702	3KK	C3P-C2P-S1P-C1
3	A	702	3KK	C5B-O5B-P1A-O2A
3	B	702	3KK	C3P-C2P-S1P-C1
3	B	702	3KK	C5B-O5B-P1A-O2A
2	B	701	TPW	P1-O11-P2-O23
3	A	702	3KK	C5B-O5B-P1A-O3A
3	A	702	3KK	C5B-O5B-P1A-O1A
2	A	701	TPW	P1-O11-P2-O22
2	B	701	TPW	P1-O11-P2-O21
3	B	702	3KK	C5B-O5B-P1A-O3A
3	A	702	3KK	CCP-O6A-P2A-O5A
3	B	702	3KK	CCP-O6A-P2A-O5A

There are no ring outliers.

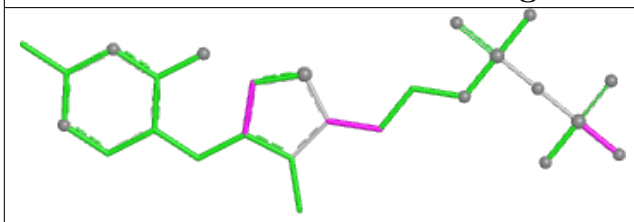
2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	701	TPW	1	0
3	B	702	3KK	1	0

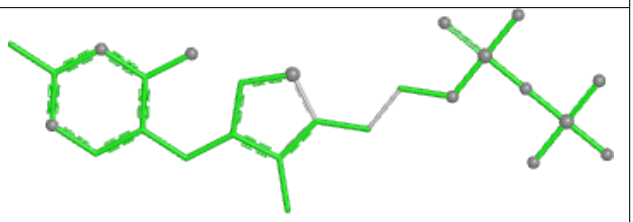
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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.

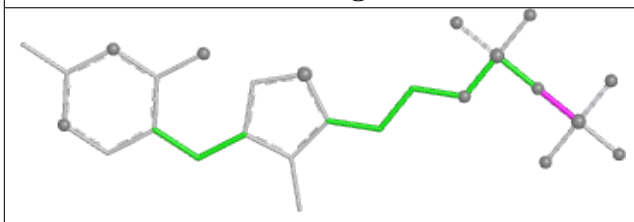
Ligand TPW B 701



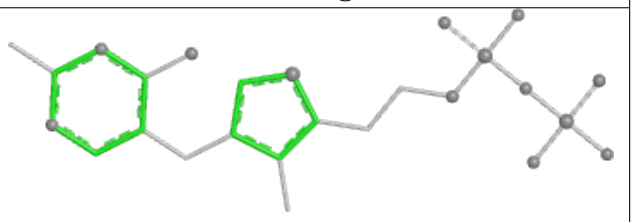
Bond lengths



Bond angles

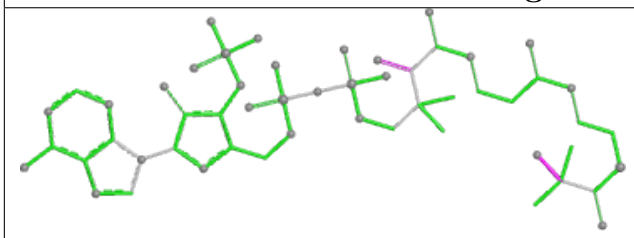


Torsions

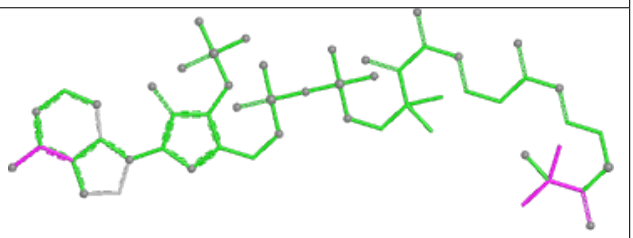


Rings

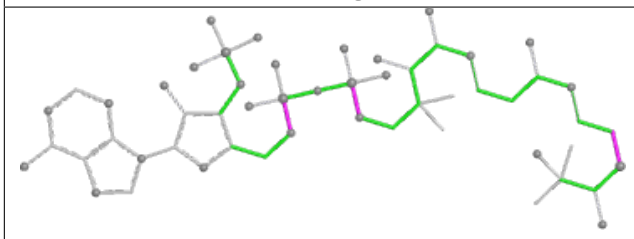
Ligand 3KK A 702



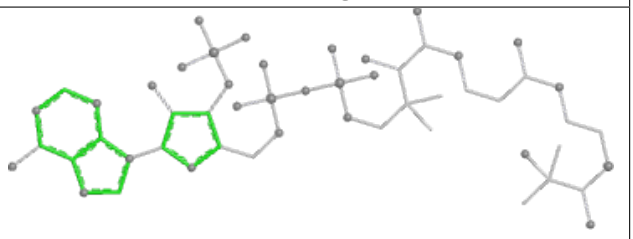
Bond lengths



Bond angles

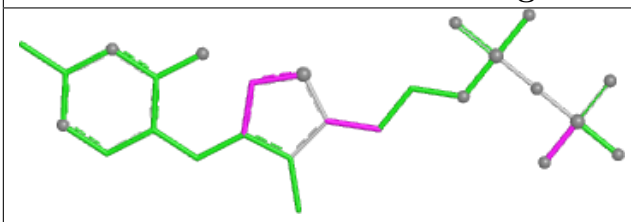


Torsions

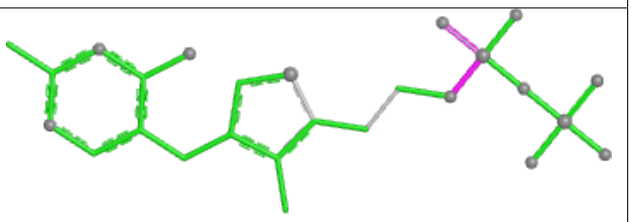


Rings

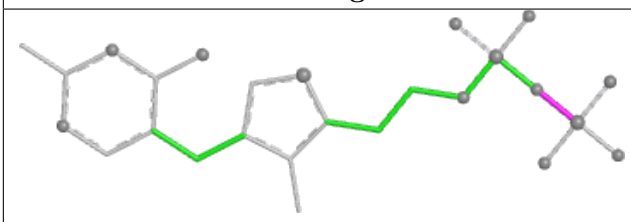
Ligand TPW A 701



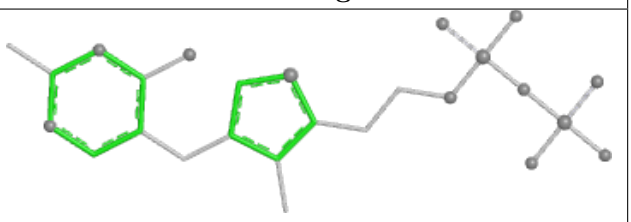
Bond lengths



Bond angles

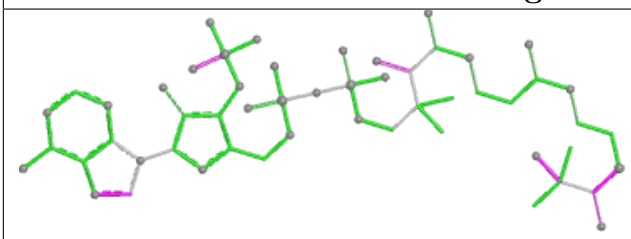


Torsions

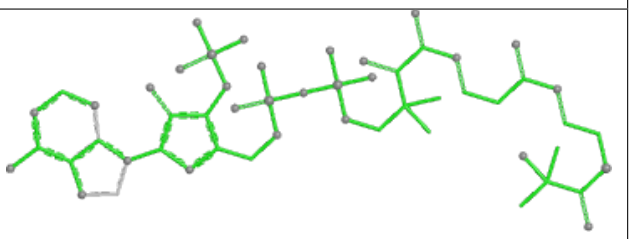


Rings

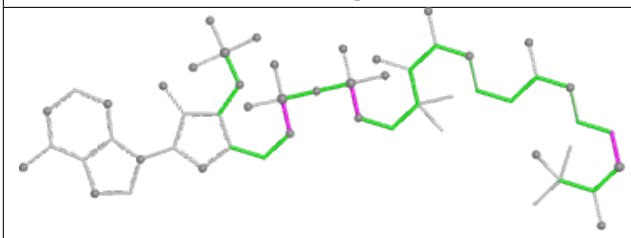
Ligand 3KK B 702



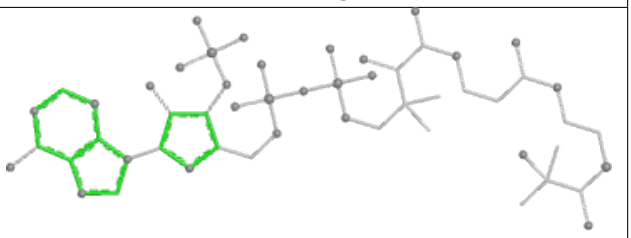
Bond lengths



Bond angles



Torsions



Rings

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	574/612 (93%)	-0.29	2 (0%) 94 95	18, 26, 43, 74	0
1	B	572/612 (93%)	-0.32	0 100 100	19, 26, 42, 62	0
All	All	1146/1224 (93%)	-0.31	2 (0%) 95 96	18, 26, 43, 74	0

All (2) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	495	TYR	2.3
1	A	343	LYS	2.3

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

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
4	MG	A	705	1/1	0.97	0.14	39,39,39,39	0
3	3KK	B	702	54/54	0.98	0.08	0,25,30,33	3
3	3KK	A	702	54/54	0.98	0.09	0,30,37,39	3

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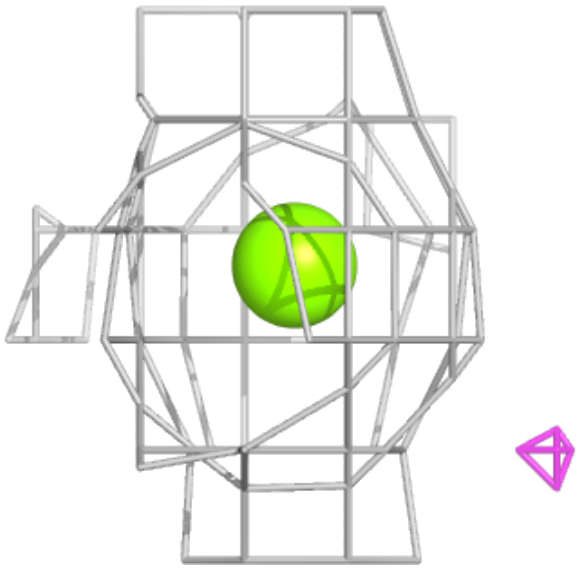
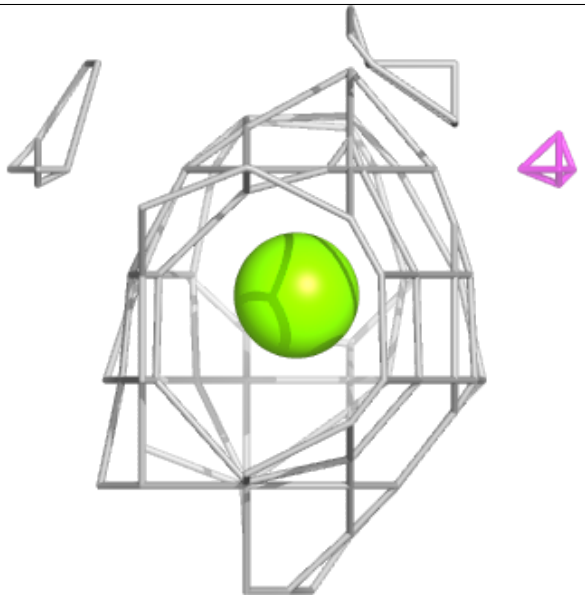
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	TPW	B	701	26/26	0.99	0.09	0,19,22,22	3
4	MG	A	703	1/1	0.99	0.06	27,27,27,27	0
4	MG	A	704	1/1	0.99	0.07	25,25,25,25	0
2	TPW	A	701	26/26	0.99	0.08	0,21,24,25	3
4	MG	B	703	1/1	0.99	0.08	23,23,23,23	0

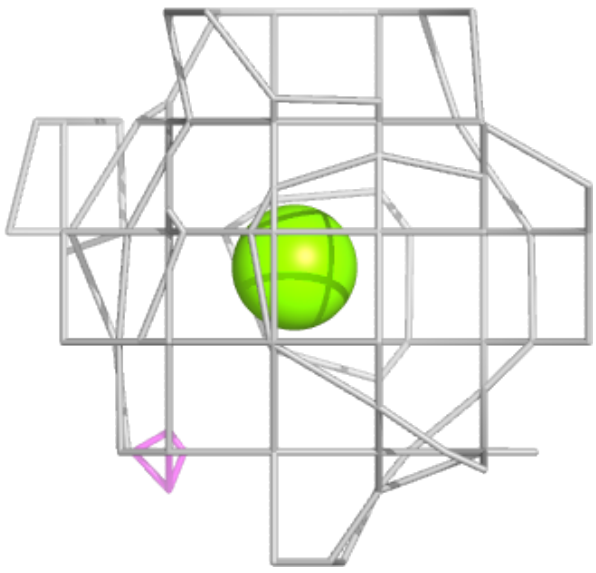
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around MG A 705:

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

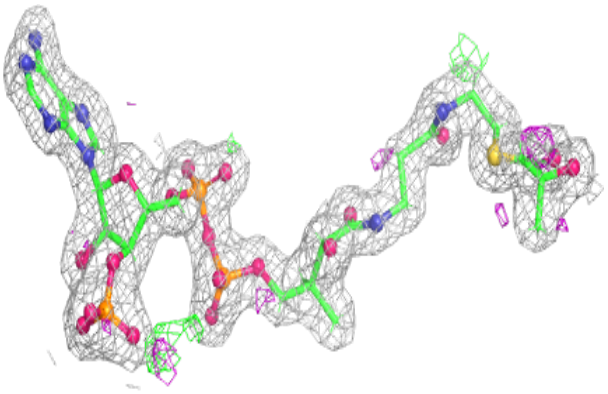


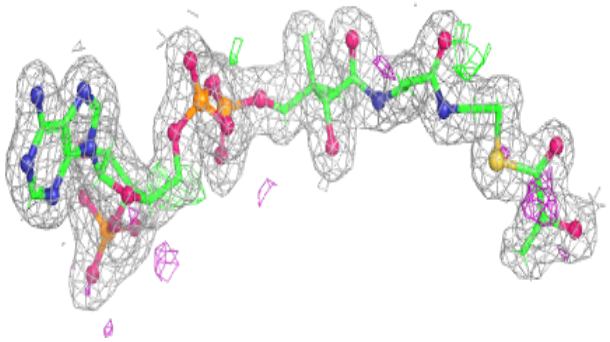


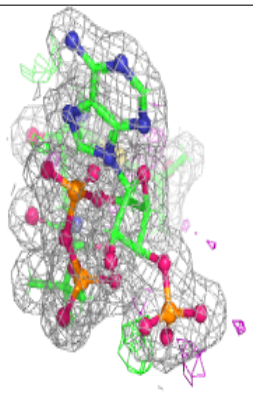


Electron density around 3KK B 702:

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

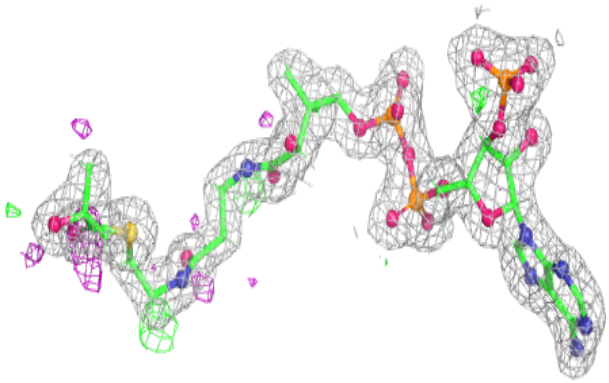


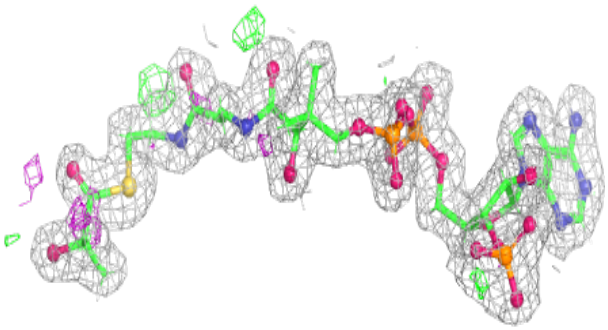




Electron density around 3KK A 702:

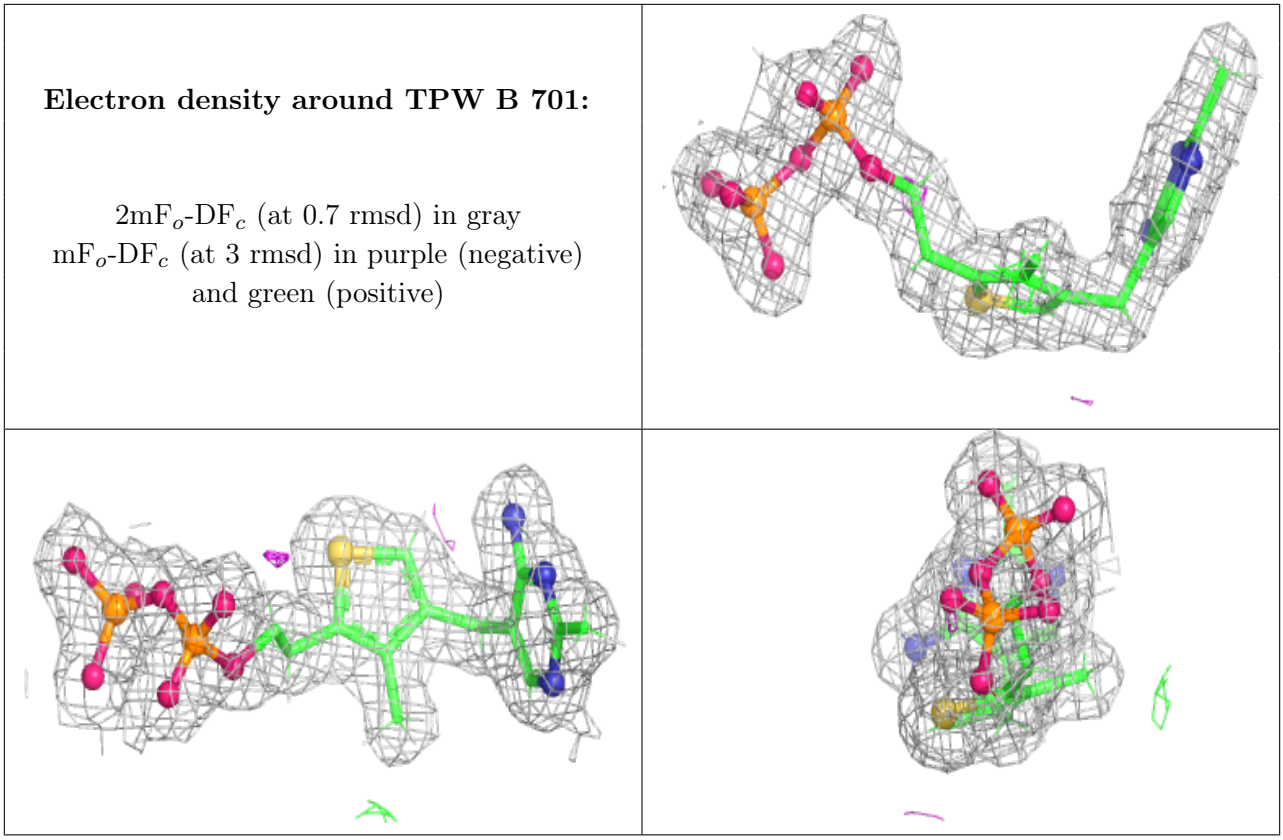
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)





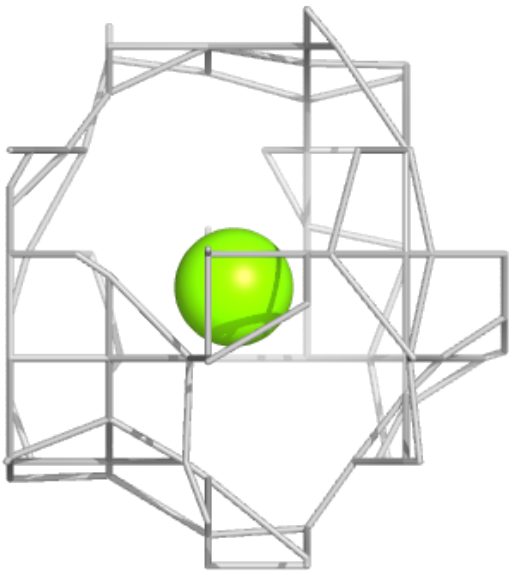
Electron density around TPW B 701:

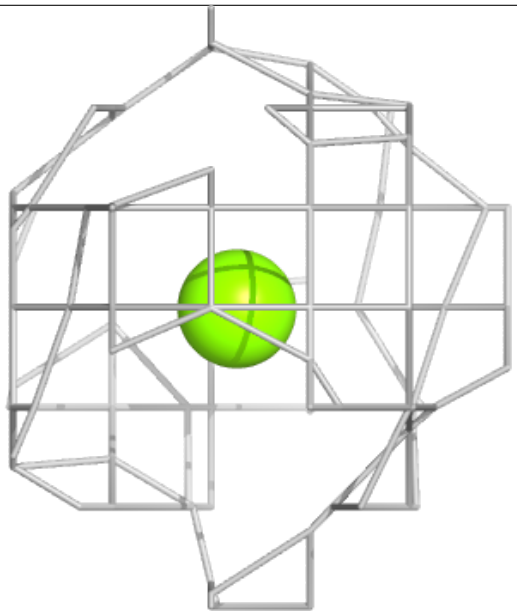
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

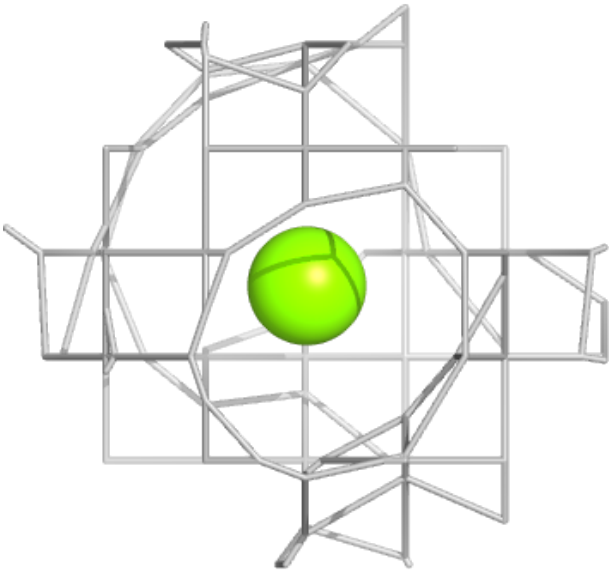


Electron density around MG A 703:

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

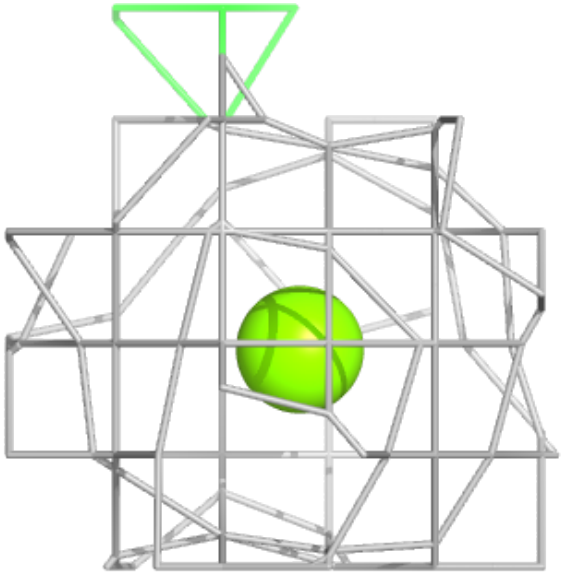


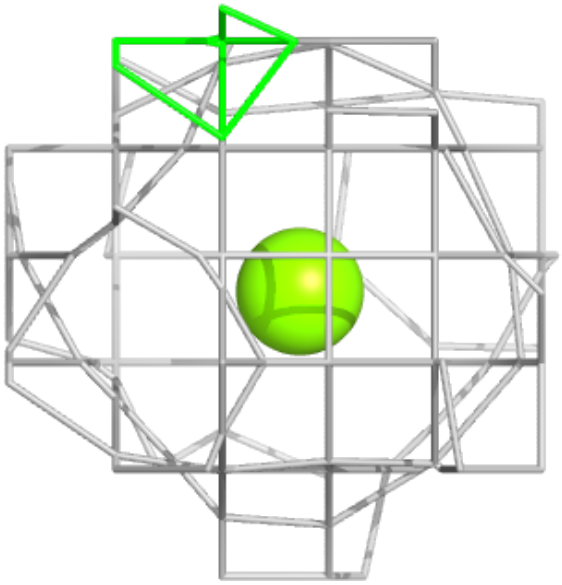


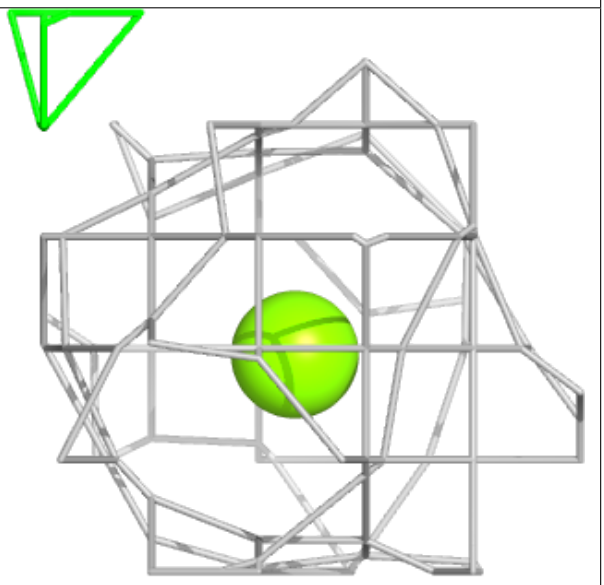


Electron density around MG A 704:

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

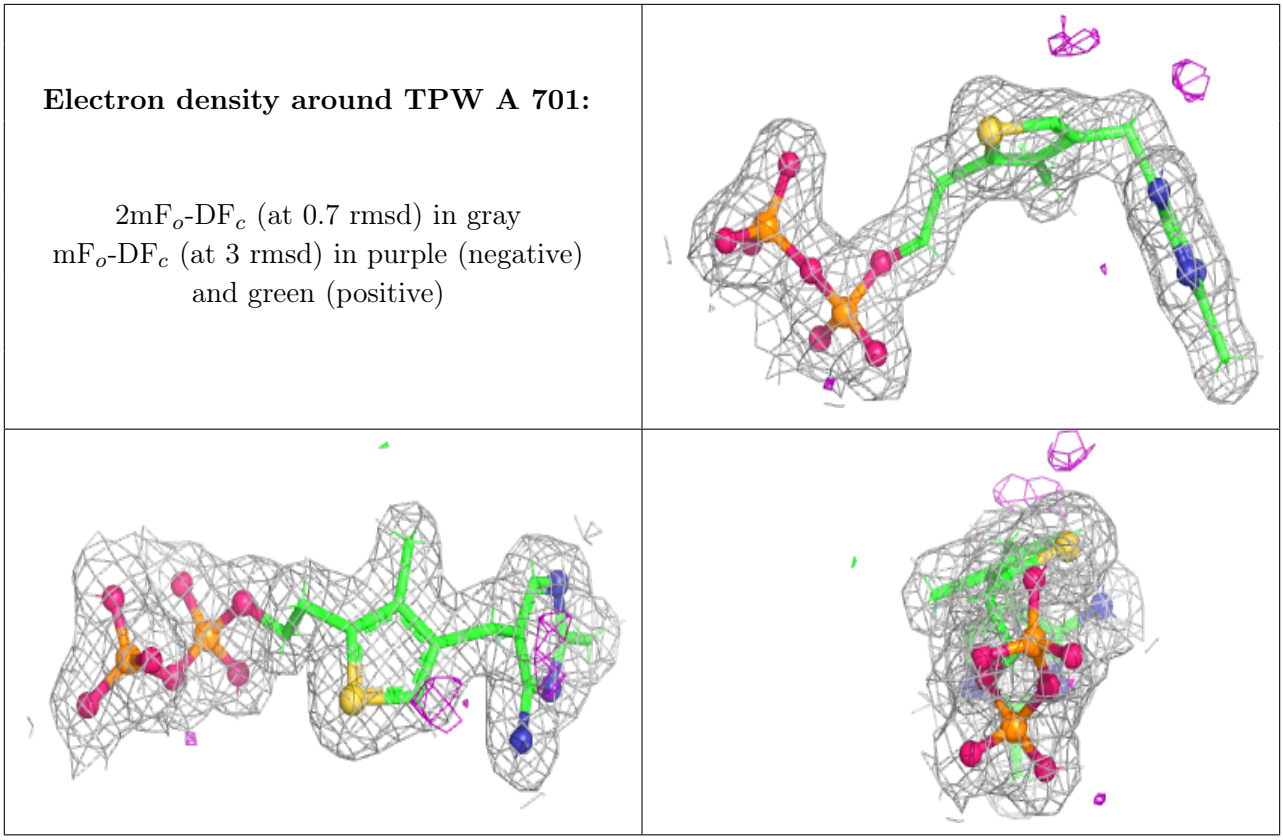






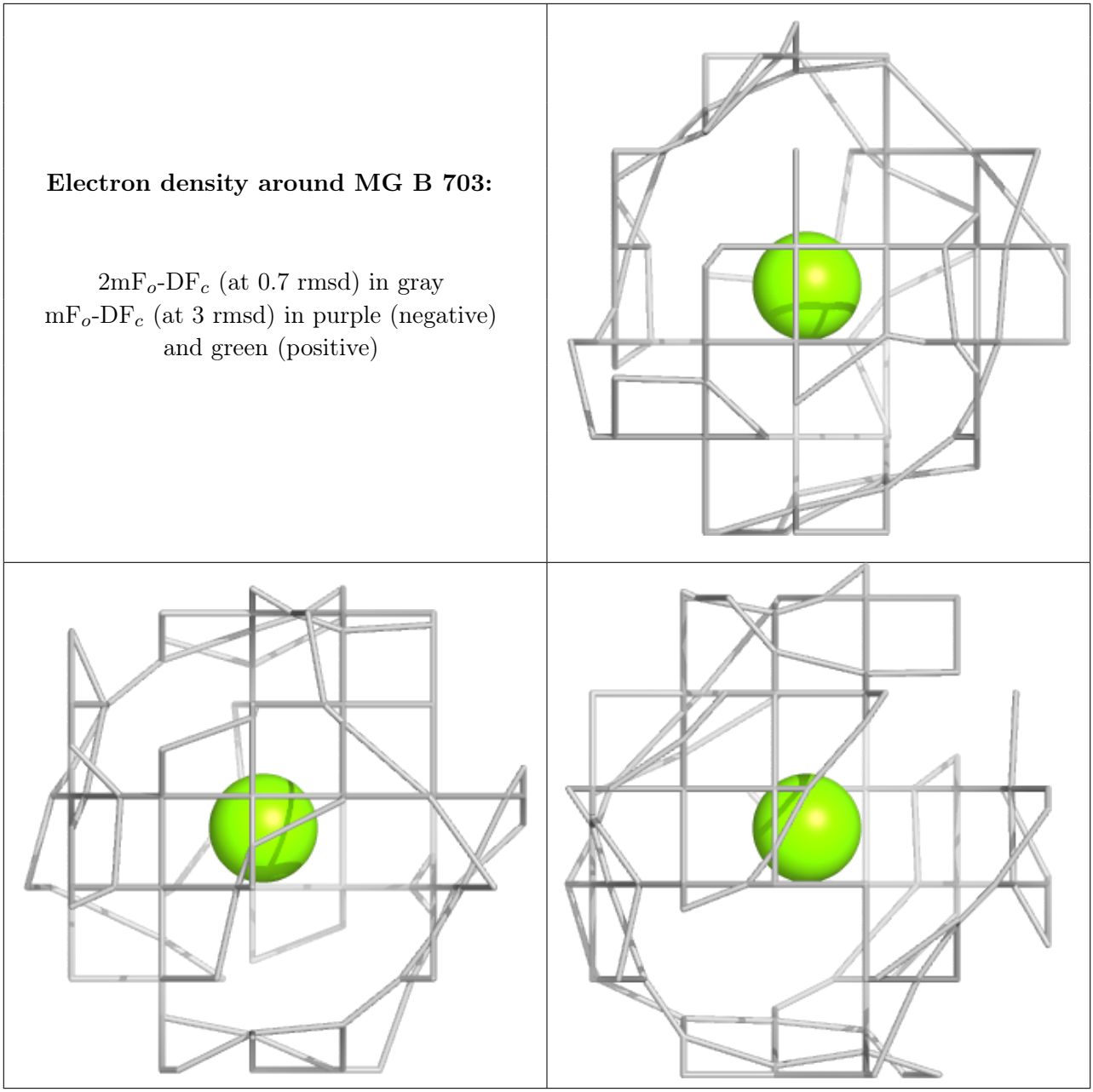
Electron density around TPW A 701:

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



Electron density around MG B 703:

$2mF_o$-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.