



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 17, 2023 – 01:33 AM EDT

PDB ID : 4QVT
Title : Crystal structure of predicted N-acyltransferase (ypeA) in complex with acetyl-CoA from Escherichia coli
Authors : Filippova, E.V.; Minasov, G.; Winsor, G.; Dubrovskaya, I.; Shuvalova, L.; Wolfe, A.J.; Anderson, W.F.; Center for Structural Genomics of Infectious Diseases (CSGID)
Deposited on : 2014-07-15
Resolution : 1.95 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.

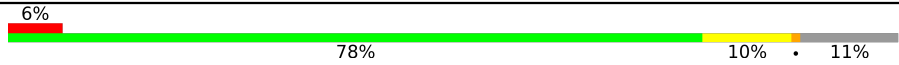


The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references](#) ①) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtrriage (Phenix) : 1.13
EDS : 2.35.1
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35.1

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Mol	Chain	Length	Quality of chain
1	F	158	
1	G	158	
1	H	158	

2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 9904 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 Acetyltransferase YpeA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	139	1132	711	200	213	8	0	1	0
1	B	139	1123	706	199	210	8	0	0	0
1	C	141	1161	729	203	221	8	0	2	0
1	D	146	1195	749	211	227	8	0	2	0
1	E	145	1170	734	206	222	8	0	0	0
1	F	141	1152	724	203	217	8	0	1	0
1	G	141	1144	720	201	215	8	0	0	0
1	H	138	1122	705	200	209	8	0	1	0

There are 136 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	142	ALA	-	EXPRESSION TAG	UNP P76539
A	143	GLY	-	EXPRESSION TAG	UNP P76539
A	144	GLU	-	EXPRESSION TAG	UNP P76539
A	145	ASN	-	EXPRESSION TAG	UNP P76539
A	146	LEU	-	EXPRESSION TAG	UNP P76539
A	147	TYR	-	EXPRESSION TAG	UNP P76539
A	148	PHE	-	EXPRESSION TAG	UNP P76539
A	149	GLN	-	EXPRESSION TAG	UNP P76539
A	150	SER	-	EXPRESSION TAG	UNP P76539
A	151	ALA	-	EXPRESSION TAG	UNP P76539
A	152	GLY	-	EXPRESSION TAG	UNP P76539
A	153	HIS	-	EXPRESSION TAG	UNP P76539
A	154	HIS	-	EXPRESSION TAG	UNP P76539

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Chain	Residue	Modelled	Actual	Comment	Reference
A	155	HIS	-	EXPRESSION TAG	UNP P76539
A	156	HIS	-	EXPRESSION TAG	UNP P76539
A	157	HIS	-	EXPRESSION TAG	UNP P76539
A	158	HIS	-	EXPRESSION TAG	UNP P76539
B	142	ALA	-	EXPRESSION TAG	UNP P76539
B	143	GLY	-	EXPRESSION TAG	UNP P76539
B	144	GLU	-	EXPRESSION TAG	UNP P76539
B	145	ASN	-	EXPRESSION TAG	UNP P76539
B	146	LEU	-	EXPRESSION TAG	UNP P76539
B	147	TYR	-	EXPRESSION TAG	UNP P76539
B	148	PHE	-	EXPRESSION TAG	UNP P76539
B	149	GLN	-	EXPRESSION TAG	UNP P76539
B	150	SER	-	EXPRESSION TAG	UNP P76539
B	151	ALA	-	EXPRESSION TAG	UNP P76539
B	152	GLY	-	EXPRESSION TAG	UNP P76539
B	153	HIS	-	EXPRESSION TAG	UNP P76539
B	154	HIS	-	EXPRESSION TAG	UNP P76539
B	155	HIS	-	EXPRESSION TAG	UNP P76539
B	156	HIS	-	EXPRESSION TAG	UNP P76539
B	157	HIS	-	EXPRESSION TAG	UNP P76539
B	158	HIS	-	EXPRESSION TAG	UNP P76539
C	142	ALA	-	EXPRESSION TAG	UNP P76539
C	143	GLY	-	EXPRESSION TAG	UNP P76539
C	144	GLU	-	EXPRESSION TAG	UNP P76539
C	145	ASN	-	EXPRESSION TAG	UNP P76539
C	146	LEU	-	EXPRESSION TAG	UNP P76539
C	147	TYR	-	EXPRESSION TAG	UNP P76539
C	148	PHE	-	EXPRESSION TAG	UNP P76539
C	149	GLN	-	EXPRESSION TAG	UNP P76539
C	150	SER	-	EXPRESSION TAG	UNP P76539
C	151	ALA	-	EXPRESSION TAG	UNP P76539
C	152	GLY	-	EXPRESSION TAG	UNP P76539
C	153	HIS	-	EXPRESSION TAG	UNP P76539
C	154	HIS	-	EXPRESSION TAG	UNP P76539
C	155	HIS	-	EXPRESSION TAG	UNP P76539
C	156	HIS	-	EXPRESSION TAG	UNP P76539
C	157	HIS	-	EXPRESSION TAG	UNP P76539
C	158	HIS	-	EXPRESSION TAG	UNP P76539
D	142	ALA	-	EXPRESSION TAG	UNP P76539
D	143	GLY	-	EXPRESSION TAG	UNP P76539
D	144	GLU	-	EXPRESSION TAG	UNP P76539
D	145	ASN	-	EXPRESSION TAG	UNP P76539

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Chain	Residue	Modelled	Actual	Comment	Reference
D	146	LEU	-	EXPRESSION TAG	UNP P76539
D	147	TYR	-	EXPRESSION TAG	UNP P76539
D	148	PHE	-	EXPRESSION TAG	UNP P76539
D	149	GLN	-	EXPRESSION TAG	UNP P76539
D	150	SER	-	EXPRESSION TAG	UNP P76539
D	151	ALA	-	EXPRESSION TAG	UNP P76539
D	152	GLY	-	EXPRESSION TAG	UNP P76539
D	153	HIS	-	EXPRESSION TAG	UNP P76539
D	154	HIS	-	EXPRESSION TAG	UNP P76539
D	155	HIS	-	EXPRESSION TAG	UNP P76539
D	156	HIS	-	EXPRESSION TAG	UNP P76539
D	157	HIS	-	EXPRESSION TAG	UNP P76539
D	158	HIS	-	EXPRESSION TAG	UNP P76539
E	142	ALA	-	EXPRESSION TAG	UNP P76539
E	143	GLY	-	EXPRESSION TAG	UNP P76539
E	144	GLU	-	EXPRESSION TAG	UNP P76539
E	145	ASN	-	EXPRESSION TAG	UNP P76539
E	146	LEU	-	EXPRESSION TAG	UNP P76539
E	147	TYR	-	EXPRESSION TAG	UNP P76539
E	148	PHE	-	EXPRESSION TAG	UNP P76539
E	149	GLN	-	EXPRESSION TAG	UNP P76539
E	150	SER	-	EXPRESSION TAG	UNP P76539
E	151	ALA	-	EXPRESSION TAG	UNP P76539
E	152	GLY	-	EXPRESSION TAG	UNP P76539
E	153	HIS	-	EXPRESSION TAG	UNP P76539
E	154	HIS	-	EXPRESSION TAG	UNP P76539
E	155	HIS	-	EXPRESSION TAG	UNP P76539
E	156	HIS	-	EXPRESSION TAG	UNP P76539
E	157	HIS	-	EXPRESSION TAG	UNP P76539
E	158	HIS	-	EXPRESSION TAG	UNP P76539
F	142	ALA	-	EXPRESSION TAG	UNP P76539
F	143	GLY	-	EXPRESSION TAG	UNP P76539
F	144	GLU	-	EXPRESSION TAG	UNP P76539
F	145	ASN	-	EXPRESSION TAG	UNP P76539
F	146	LEU	-	EXPRESSION TAG	UNP P76539
F	147	TYR	-	EXPRESSION TAG	UNP P76539
F	148	PHE	-	EXPRESSION TAG	UNP P76539
F	149	GLN	-	EXPRESSION TAG	UNP P76539
F	150	SER	-	EXPRESSION TAG	UNP P76539
F	151	ALA	-	EXPRESSION TAG	UNP P76539
F	152	GLY	-	EXPRESSION TAG	UNP P76539
F	153	HIS	-	EXPRESSION TAG	UNP P76539

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Chain	Residue	Modelled	Actual	Comment	Reference
F	154	HIS	-	EXPRESSION TAG	UNP P76539
F	155	HIS	-	EXPRESSION TAG	UNP P76539
F	156	HIS	-	EXPRESSION TAG	UNP P76539
F	157	HIS	-	EXPRESSION TAG	UNP P76539
F	158	HIS	-	EXPRESSION TAG	UNP P76539
G	142	ALA	-	EXPRESSION TAG	UNP P76539
G	143	GLY	-	EXPRESSION TAG	UNP P76539
G	144	GLU	-	EXPRESSION TAG	UNP P76539
G	145	ASN	-	EXPRESSION TAG	UNP P76539
G	146	LEU	-	EXPRESSION TAG	UNP P76539
G	147	TYR	-	EXPRESSION TAG	UNP P76539
G	148	PHE	-	EXPRESSION TAG	UNP P76539
G	149	GLN	-	EXPRESSION TAG	UNP P76539
G	150	SER	-	EXPRESSION TAG	UNP P76539
G	151	ALA	-	EXPRESSION TAG	UNP P76539
G	152	GLY	-	EXPRESSION TAG	UNP P76539
G	153	HIS	-	EXPRESSION TAG	UNP P76539
G	154	HIS	-	EXPRESSION TAG	UNP P76539
G	155	HIS	-	EXPRESSION TAG	UNP P76539
G	156	HIS	-	EXPRESSION TAG	UNP P76539
G	157	HIS	-	EXPRESSION TAG	UNP P76539
G	158	HIS	-	EXPRESSION TAG	UNP P76539
H	142	ALA	-	EXPRESSION TAG	UNP P76539
H	143	GLY	-	EXPRESSION TAG	UNP P76539
H	144	GLU	-	EXPRESSION TAG	UNP P76539
H	145	ASN	-	EXPRESSION TAG	UNP P76539
H	146	LEU	-	EXPRESSION TAG	UNP P76539
H	147	TYR	-	EXPRESSION TAG	UNP P76539
H	148	PHE	-	EXPRESSION TAG	UNP P76539
H	149	GLN	-	EXPRESSION TAG	UNP P76539
H	150	SER	-	EXPRESSION TAG	UNP P76539
H	151	ALA	-	EXPRESSION TAG	UNP P76539
H	152	GLY	-	EXPRESSION TAG	UNP P76539
H	153	HIS	-	EXPRESSION TAG	UNP P76539
H	154	HIS	-	EXPRESSION TAG	UNP P76539
H	155	HIS	-	EXPRESSION TAG	UNP P76539
H	156	HIS	-	EXPRESSION TAG	UNP P76539
H	157	HIS	-	EXPRESSION TAG	UNP P76539
H	158	HIS	-	EXPRESSION TAG	UNP P76539

- Molecule 2 is ACETYL COENZYME *A (three-letter code: ACO) (formula: C₂₃H₃₈N₇O₁₇P₃S).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0
3	C	1	Total O S 5 4 1	0	0
3	D	1	Total O S 5 4 1	0	0
3	E	1	Total O S 5 4 1	0	0
3	E	1	Total O S 5 4 1	0	0
3	E	1	Total O S 5 4 1	0	0
3	G	1	Total O S 5 4 1	0	0
3	G	1	Total O S 5 4 1	0	0

- Molecule 4 is water.

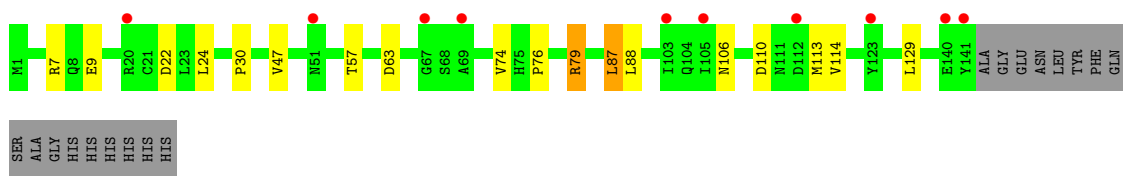
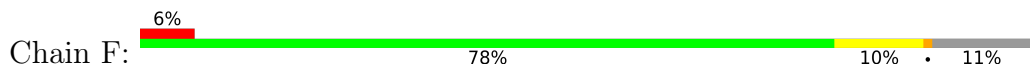
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	45	Total O 46 46	0	1
4	B	26	Total O 26 26	0	0

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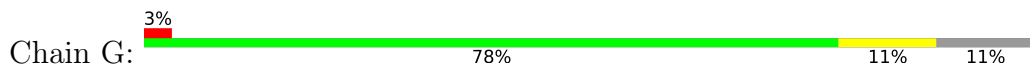
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	C	33	Total O 34 34	0	1
4	D	36	Total O 37 37	0	1
4	E	30	Total O 31 31	0	1
4	F	23	Total O 23 23	0	0
4	G	25	Total O 25 25	0	0
4	H	25	Total O 25 25	0	0

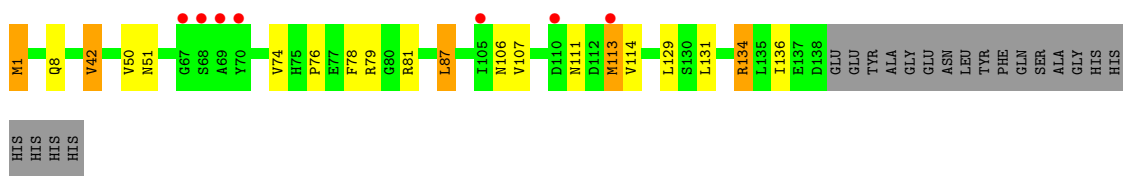
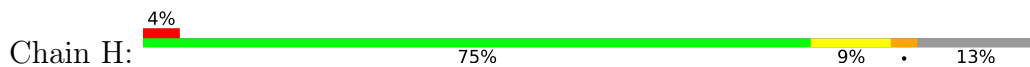
• Molecule 1: Acetyltransferase YpeA



• Molecule 1: Acetyltransferase YpeA



• Molecule 1: Acetyltransferase YpeA



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	67.33Å 139.97Å 75.36Å 90.00° 112.11° 90.00°	Depositor
Resolution (Å)	69.98 – 1.95 34.52 – 1.95	Depositor EDS
% Data completeness (in resolution range)	98.1 (69.98-1.95) 98.1 (34.52-1.95)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.15 (at 1.95Å)	Xtrriage
Refinement program	REFMAC 5.8.0069	Depositor
R, R_{free}	0.188 , 0.232 0.196 , 0.232	Depositor DCC
R_{free} test set	4600 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å ²)	44.4	Xtrriage
Anisotropy	0.379	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 43.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	9904	wwPDB-VP
Average B, all atoms (Å ²)	55.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.38% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, ACO

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	0.69	0/1153	0.84	0/1554
1	B	0.64	0/1144	0.89	2/1542 (0.1%)
1	C	0.67	0/1183	0.90	1/1595 (0.1%)
1	D	0.65	0/1217	0.89	2/1641 (0.1%)
1	E	0.68	0/1192	0.86	1/1607 (0.1%)
1	F	0.64	0/1174	0.88	2/1583 (0.1%)
1	G	0.63	0/1166	0.88	1/1572 (0.1%)
1	H	0.62	0/1143	0.91	2/1541 (0.1%)
All	All	0.65	0/9372	0.88	11/12635 (0.1%)

There are no bond length outliers.

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	87	LEU	CB-CG-CD1	5.94	121.10	111.00
1	G	36	ARG	NE-CZ-NH1	5.80	123.20	120.30
1	B	87	LEU	CB-CG-CD1	5.64	120.59	111.00
1	B	79	ARG	NE-CZ-NH1	5.40	123.00	120.30
1	D	63	ASP	CB-CG-OD1	5.39	123.15	118.30
1	H	42	VAL	CB-CA-C	-5.35	101.23	111.40
1	E	36	ARG	NE-CZ-NH1	5.30	122.95	120.30
1	H	87	LEU	CA-CB-CG	5.25	127.38	115.30
1	C	36	ARG	NE-CZ-NH2	-5.12	117.74	120.30
1	D	36	ARG	NE-CZ-NH2	-5.05	117.78	120.30
1	F	63	ASP	CB-CG-OD1	5.02	122.82	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1132	0	1107	12	0
1	B	1123	0	1102	9	0
1	C	1161	0	1125	15	0
1	D	1195	0	1160	10	0
1	E	1170	0	1137	10	0
1	F	1152	0	1122	16	0
1	G	1144	0	1117	13	0
1	H	1122	0	1101	15	0
2	A	51	0	34	2	0
2	B	51	0	34	1	0
2	C	51	0	34	2	0
2	D	51	0	34	0	0
2	E	51	0	34	0	0
2	F	51	0	34	0	0
2	G	51	0	34	1	0
2	H	51	0	34	2	0
3	A	10	0	0	0	0
3	B	5	0	0	0	0
3	C	5	0	0	0	0
3	D	5	0	0	0	0
3	E	15	0	0	1	0
3	G	10	0	0	0	0
4	A	46	0	0	1	0
4	B	26	0	0	1	0
4	C	34	0	0	2	0
4	D	37	0	0	0	0
4	E	31	0	0	0	0
4	F	23	0	0	2	0
4	G	25	0	0	3	0
4	H	25	0	0	1	0
All	All	9904	0	9243	95	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 5.

All (95) 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:F:79:ARG:HG2	1:F:79:ARG:HH11	1.22	0.98
1:E:78:PHE:O	1:E:81:ARG:HD3	1.82	0.79
1:C:75:HIS:CE1	1:C:77:GLU:HG2	2.26	0.70
1:F:79:ARG:HH11	1:F:79:ARG:CG	2.03	0.69
1:G:75:HIS:HD2	1:G:77:GLU:H	1.41	0.68
1:F:79:ARG:HG2	1:F:79:ARG:NH1	2.03	0.67
1:G:128:VAL:HG21	1:H:106:ASN:HB3	1.76	0.66
1:D:15:ILE:HD11	1:D:34:ILE:HD12	1.77	0.65
1:E:16:THR:O	1:E:20:ARG:HG2	1.96	0.64
1:D:15:ILE:HD12	1:D:30:PRO:HB2	1.80	0.64
1:D:8[B]:GLN:H	1:D:8[B]:GLN:CD	2.01	0.63
1:E:115:LEU:HD11	1:F:129:LEU:CD1	2.30	0.62
1:C:113:MET:CE	1:C:114:VAL:HA	2.30	0.61
1:F:79:ARG:NH2	4:F:312:HOH:O	2.32	0.60
1:B:1:MET:HG2	1:B:50:VAL:HG22	1.83	0.60
1:H:134:ARG:NH1	1:H:136:ILE:O	2.26	0.59
1:G:79:ARG:HD3	4:G:311:HOH:O	2.01	0.59
1:G:54:VAL:HG12	4:G:320:HOH:O	2.02	0.59
1:B:104:GLN:NE2	4:B:321:HOH:O	2.36	0.57
1:H:111:ASN:CG	1:H:114:VAL:HG12	2.25	0.57
1:C:84:ALA:HB2	2:C:201:ACO:CCP	2.35	0.57
1:G:78:PHE:O	1:G:81:ARG:HD3	2.05	0.57
1:F:76:PRO:HA	1:F:79:ARG:HD3	1.87	0.56
1:G:16:THR:O	1:G:20:ARG:HG2	2.08	0.54
1:H:74:VAL:O	1:H:79:ARG:NH1	2.41	0.54
1:C:75:HIS:HE1	1:C:77:GLU:HG2	1.72	0.54
1:C:107:VAL:HG21	1:C:115:LEU:HD23	1.89	0.53
1:F:24:LEU:HD22	1:F:30:PRO:HG3	1.89	0.53
1:E:140:GLU:HG3	1:E:141:TYR:CD2	2.43	0.53
1:F:7:ARG:HG3	1:F:9:GLU:HG2	1.91	0.53
1:D:111:ASN:CG	1:D:114:VAL:HG12	2.29	0.53
1:G:115:LEU:HD21	1:H:129:LEU:HD12	1.90	0.53
1:A:3:ILE:HD13	1:A:48:ALA:HA	1.91	0.52
1:C:113:MET:HE2	1:C:114:VAL:N	2.24	0.52
1:C:113:MET:HE2	1:C:114:VAL:CA	2.38	0.52
1:A:75:HIS:HD2	1:A:77:GLU:H	1.55	0.52
1:F:74:VAL:O	1:F:79:ARG:NE	2.34	0.52
1:B:1:MET:HG2	1:B:50:VAL:CG2	2.40	0.51
1:A:129:LEU:HD12	1:B:115:LEU:HD21	1.92	0.51
1:H:76:PRO:HA	1:H:79:ARG:HD3	1.90	0.51
1:C:113:MET:HE2	1:C:114:VAL:HA	1.91	0.51
1:D:47:VAL:HG12	1:D:57:THR:HG22	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:7:ARG:HD3	4:A:303:HOH:O	2.11	0.50
1:C:7:ARG:HD3	4:C:319:HOH:O	2.12	0.50
1:A:75:HIS:CD2	1:A:77:GLU:H	2.30	0.50
1:E:84:ALA:HB1	1:E:117:MET:HE1	1.94	0.49
1:F:22:ASP:OD1	1:F:22:ASP:O	2.30	0.49
1:C:84:ALA:HB2	2:C:201:ACO:H121	1.95	0.48
1:H:78:PHE:O	1:H:81:ARG:HD3	2.13	0.48
1:H:76:PRO:N	1:H:79:ARG:HH11	2.11	0.48
1:C:120:ARG:HG3	4:C:316:HOH:O	2.14	0.47
1:G:75:HIS:CD2	1:G:77:GLU:H	2.29	0.47
1:G:128:VAL:CG2	1:H:106:ASN:HB3	2.44	0.47
1:F:110:ASP:HB3	4:F:310:HOH:O	2.15	0.47
1:B:74:VAL:O	1:B:79:ARG:HD2	2.15	0.46
1:C:47:VAL:HG12	1:C:57:THR:HG22	1.97	0.46
1:C:115:LEU:O	1:C:119:GLU:HG3	2.16	0.46
1:F:47:VAL:HG12	1:F:57:THR:HG22	1.97	0.46
1:E:7:ARG:HB3	3:E:204:SO4:O4	2.16	0.46
1:F:22:ASP:O	1:F:22:ASP:CG	2.54	0.46
2:H:201:ACO:H61	4:H:320:HOH:O	2.16	0.46
1:A:115:LEU:HD21	1:A:125:HIS:CE1	2.51	0.46
1:H:1:MET:HB2	1:H:50:VAL:HG22	1.97	0.45
1:A:3:ILE:HD12	1:A:87:LEU:HD23	1.98	0.45
2:A:201:ACO:O2B	2:A:201:ACO:P3B	2.76	0.44
1:G:123:TYR:HB3	1:H:131:LEU:HB3	2.00	0.43
1:H:50:VAL:O	1:H:51:ASN:C	2.55	0.43
1:E:24:LEU:O	1:E:25:ARG:NH1	2.52	0.43
1:A:3:ILE:HD12	1:A:87:LEU:CD2	2.49	0.43
1:G:24:LEU:O	1:G:25:ARG:NH1	2.51	0.43
1:G:17:LEU:HD23	1:G:57:THR:HG23	2.01	0.43
1:H:113:MET:HE3	2:H:201:ACO:C4A	2.49	0.43
1:D:78:PHE:O	1:D:81:ARG:HD2	2.20	0.42
1:A:115:LEU:HD21	1:A:125:HIS:HE1	1.83	0.42
1:E:128:VAL:HG21	1:F:106:ASN:HB3	2.01	0.42
1:B:89:ASN:HD21	1:B:93:LYS:HE3	1.85	0.42
1:F:113:MET:HG3	1:F:114:VAL:N	2.34	0.42
1:C:113:MET:HE2	1:C:114:VAL:CG2	2.50	0.42
1:C:19:GLU:HG2	1:C:24:LEU:CD1	2.50	0.42
1:A:37:LYS:NZ	1:B:63:ASP:O	2.52	0.42
1:E:75:HIS:CD2	1:E:77:GLU:H	2.38	0.42
1:A:128:VAL:HG21	1:B:106:ASN:HB3	2.01	0.41
2:G:201:ACO:H143	4:G:311:HOH:O	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:201:ACO:P3B	2:A:201:ACO:HO2A	2.44	0.41
1:H:8:GLN:HE21	1:H:8:GLN:HB2	1.72	0.41
1:A:110:ASP:OD1	1:A:110:ASP:N	2.44	0.41
1:B:79:ARG:HG3	2:B:201:ACO:O5A	2.21	0.41
1:H:1:MET:CB	1:H:50:VAL:HG22	2.51	0.41
1:F:76:PRO:HA	1:F:79:ARG:CD	2.50	0.41
1:D:107:VAL:HG12	1:D:108:PRO:O	2.21	0.40
1:D:110:ASP:OD1	1:D:111:ASN:N	2.54	0.40
1:G:37:LYS:HD2	1:G:37:LYS:HA	1.95	0.40
1:E:75:HIS:HD2	1:E:77:GLU:H	1.70	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	138/158 (87%)	135 (98%)	2 (1%)	1 (1%)	22	11
1	B	137/158 (87%)	134 (98%)	2 (2%)	1 (1%)	22	11
1	C	141/158 (89%)	136 (96%)	4 (3%)	1 (1%)	22	11
1	D	146/158 (92%)	142 (97%)	4 (3%)	0	100	100
1	E	143/158 (90%)	140 (98%)	2 (1%)	1 (1%)	22	11
1	F	140/158 (89%)	136 (97%)	4 (3%)	0	100	100
1	G	139/158 (88%)	136 (98%)	2 (1%)	1 (1%)	22	11
1	H	137/158 (87%)	132 (96%)	5 (4%)	0	100	100
All	All	1121/1264 (89%)	1091 (97%)	25 (2%)	5 (0%)	34	24

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	41	ASP
1	C	41	ASP
1	E	41	ASP
1	B	41	ASP
1	G	41	ASP

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	121/135 (90%)	121 (100%)	0	100	100
1	B	120/135 (89%)	116 (97%)	4 (3%)	38	24
1	C	124/135 (92%)	122 (98%)	2 (2%)	62	52
1	D	127/135 (94%)	124 (98%)	3 (2%)	49	36
1	E	124/135 (92%)	122 (98%)	2 (2%)	62	52
1	F	123/135 (91%)	120 (98%)	3 (2%)	49	36
1	G	122/135 (90%)	122 (100%)	0	100	100
1	H	120/135 (89%)	114 (95%)	6 (5%)	24	9
All	All	981/1080 (91%)	961 (98%)	20 (2%)	53	42

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	79	ARG
1	B	87	LEU
1	B	113	MET
1	B	115	LEU
1	C	89	ASN
1	C	113	MET
1	D	9	GLU
1	D	20	ARG
1	D	115	LEU
1	E	54	VAL
1	E	128	VAL

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Mol	Chain	Res	Type
1	F	79	ARG
1	F	87	LEU
1	F	88	LEU
1	H	1	MET
1	H	42	VAL
1	H	87	LEU
1	H	107	VAL
1	H	113	MET
1	H	134	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	65	HIS
1	A	75	HIS
1	B	51	ASN
1	B	89	ASN
1	C	85	ASN
1	E	65	HIS
1	E	75	HIS
1	F	8	GLN
1	G	65	HIS
1	G	75	HIS
1	G	85	ASN
1	H	65	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

18 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	ACO	G	201	-	45,53,53	0.82	1 (2%)	56,79,79	1.40	10 (17%)
3	SO4	A	203	-	4,4,4	0.23	0	6,6,6	0.48	0
3	SO4	A	202	-	4,4,4	0.31	0	6,6,6	0.40	0
2	ACO	B	201	-	45,53,53	0.94	3 (6%)	56,79,79	1.57	13 (23%)
3	SO4	E	202	-	4,4,4	0.15	0	6,6,6	1.02	0
3	SO4	E	204	-	4,4,4	0.34	0	6,6,6	0.17	0
3	SO4	B	202	-	4,4,4	0.15	0	6,6,6	0.61	0
3	SO4	G	202	-	4,4,4	0.37	0	6,6,6	0.34	0
3	SO4	G	203	-	4,4,4	0.17	0	6,6,6	0.59	0
2	ACO	F	201	-	45,53,53	0.89	2 (4%)	56,79,79	1.11	4 (7%)
3	SO4	E	203	-	4,4,4	0.08	0	6,6,6	0.31	0
3	SO4	D	202	-	4,4,4	0.24	0	6,6,6	0.56	0
2	ACO	A	201	-	45,53,53	0.95	2 (4%)	56,79,79	1.43	9 (16%)
2	ACO	E	201	-	45,53,53	0.91	2 (4%)	56,79,79	1.56	11 (19%)
2	ACO	C	201	-	45,53,53	0.92	3 (6%)	56,79,79	1.65	11 (19%)
2	ACO	D	201	-	45,53,53	0.87	2 (4%)	56,79,79	1.39	6 (10%)
2	ACO	H	201	-	45,53,53	0.93	3 (6%)	56,79,79	1.41	8 (14%)
3	SO4	C	202	-	4,4,4	0.14	0	6,6,6	0.30	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	ACO	G	201	-	-	15/47/67/67	0/3/3/3
2	ACO	B	201	-	-	4/47/67/67	0/3/3/3
2	ACO	F	201	-	-	1/47/67/67	0/3/3/3
2	ACO	A	201	-	-	7/47/67/67	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	ACO	E	201	-	-	4/47/67/67	0/3/3/3
2	ACO	C	201	-	-	16/47/67/67	0/3/3/3
2	ACO	D	201	-	-	4/47/67/67	0/3/3/3
2	ACO	H	201	-	-	7/47/67/67	0/3/3/3

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	201	ACO	C2A-N3A	3.21	1.37	1.32
2	F	201	ACO	C2A-N3A	2.57	1.36	1.32
2	A	201	ACO	C5A-C4A	2.51	1.47	1.40
2	B	201	ACO	C5A-C4A	2.48	1.47	1.40
2	H	201	ACO	O4B-C1B	2.47	1.44	1.41
2	H	201	ACO	C2A-N3A	2.36	1.35	1.32
2	C	201	ACO	C5A-C4A	2.36	1.47	1.40
2	H	201	ACO	C5A-C4A	2.36	1.47	1.40
2	A	201	ACO	O4B-C1B	2.33	1.44	1.41
2	G	201	ACO	C5A-C4A	2.31	1.47	1.40
2	F	201	ACO	C5A-C4A	2.24	1.46	1.40
2	D	201	ACO	O4B-C1B	2.23	1.44	1.41
2	E	201	ACO	P3B-O3B	2.15	1.63	1.59
2	B	201	ACO	C2B-C1B	-2.12	1.50	1.53
2	D	201	ACO	C5A-C4A	2.10	1.46	1.40
2	B	201	ACO	O4B-C1B	2.10	1.44	1.41
2	C	201	ACO	O4B-C1B	2.04	1.43	1.41
2	C	201	ACO	C2A-N3A	2.01	1.35	1.32

All (72) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	201	ACO	N3A-C2A-N1A	-4.58	121.51	128.68
2	D	201	ACO	C1B-N9A-C4A	-4.48	118.77	126.64
2	B	201	ACO	N3A-C2A-N1A	-4.46	121.70	128.68
2	D	201	ACO	N3A-C2A-N1A	-4.45	121.72	128.68
2	C	201	ACO	N3A-C2A-N1A	-4.27	122.01	128.68
2	E	201	ACO	N3A-C2A-N1A	-4.25	122.03	128.68
2	H	201	ACO	P2A-O3A-P1A	-4.09	118.78	132.83
2	A	201	ACO	N3A-C2A-N1A	-4.05	122.35	128.68
2	E	201	ACO	C7P-C6P-C5P	-4.04	105.63	112.36
2	H	201	ACO	N3A-C2A-N1A	-4.01	122.41	128.68
2	H	201	ACO	C7P-C6P-C5P	-3.97	105.75	112.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	201	ACO	OAP-CAP-CBP	-3.92	101.02	110.25
2	C	201	ACO	P2A-O3A-P1A	-3.88	119.51	132.83
2	B	201	ACO	C1B-N9A-C4A	-3.82	119.92	126.64
2	F	201	ACO	N3A-C2A-N1A	-3.76	122.80	128.68
2	C	201	ACO	C7P-C6P-C5P	-3.72	106.16	112.36
2	C	201	ACO	O5P-C5P-C6P	-3.64	115.36	122.02
2	E	201	ACO	P2A-O3A-P1A	-3.55	120.63	132.83
2	F	201	ACO	P2A-O3A-P1A	-3.35	121.32	132.83
2	A	201	ACO	P2A-O3A-P1A	-3.30	121.49	132.83
2	G	201	ACO	CEP-CBP-CCP	-3.27	102.89	108.23
2	C	201	ACO	CEP-CBP-CCP	-3.26	102.92	108.23
2	E	201	ACO	O5P-C5P-C6P	-3.13	116.30	122.02
2	G	201	ACO	C1B-N9A-C4A	-3.07	121.24	126.64
2	A	201	ACO	C4A-C5A-N7A	-3.06	106.21	109.40
2	A	201	ACO	C7P-C6P-C5P	-2.89	107.55	112.36
2	B	201	ACO	CDP-CBP-CCP	2.84	112.86	108.23
2	G	201	ACO	OAP-CAP-CBP	-2.74	103.80	110.25
2	G	201	ACO	P2A-O3A-P1A	-2.73	123.46	132.83
2	B	201	ACO	C2A-N1A-C6A	2.71	123.40	118.75
2	B	201	ACO	O5A-P2A-O4A	2.65	125.36	112.24
2	D	201	ACO	N6A-C6A-N1A	2.63	124.03	118.57
2	A	201	ACO	C3B-C2B-C1B	2.62	105.70	99.89
2	C	201	ACO	C1B-N9A-C4A	-2.60	122.07	126.64
2	E	201	ACO	CAP-C9P-N8P	-2.59	111.42	116.58
2	H	201	ACO	O9A-P3B-O8A	2.55	117.40	107.64
2	A	201	ACO	C1B-N9A-C4A	-2.52	122.21	126.64
2	F	201	ACO	C4A-C5A-N7A	-2.51	106.78	109.40
2	D	201	ACO	C2A-N1A-C6A	2.51	123.05	118.75
2	B	201	ACO	O2A-P1A-O1A	2.46	124.41	112.24
2	A	201	ACO	O5A-P2A-O4A	2.40	124.12	112.24
2	F	201	ACO	O9A-P3B-O8A	2.39	116.79	107.64
2	E	201	ACO	CDP-CBP-CCP	2.37	112.09	108.23
2	D	201	ACO	P2A-O3A-P1A	-2.34	124.80	132.83
2	E	201	ACO	N6A-C6A-N1A	2.33	123.42	118.57
2	C	201	ACO	C2A-N1A-C6A	2.33	122.74	118.75
2	A	201	ACO	C2A-N1A-C6A	2.33	122.73	118.75
2	E	201	ACO	C5A-C6A-N6A	-2.31	116.84	120.35
2	B	201	ACO	CDP-CBP-CAP	2.29	112.79	108.82
2	E	201	ACO	O9A-P3B-O8A	2.29	116.37	107.64
2	G	201	ACO	O3B-P3B-O7A	-2.27	100.63	109.39
2	B	201	ACO	O9A-P3B-O8A	2.25	116.23	107.64
2	G	201	ACO	O5P-C5P-C6P	-2.24	117.92	122.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	201	ACO	CDP-CBP-CCP	2.23	111.87	108.23
2	H	201	ACO	O2B-C2B-C3B	2.23	117.48	111.17
2	B	201	ACO	C7P-C6P-C5P	-2.22	108.65	112.36
2	H	201	ACO	C4A-C5A-N7A	-2.22	107.09	109.40
2	B	201	ACO	O2B-C2B-C3B	2.21	117.43	111.17
2	G	201	ACO	C2A-N1A-C6A	2.18	122.48	118.75
2	C	201	ACO	C4A-C5A-N7A	-2.15	107.16	109.40
2	B	201	ACO	C2B-C3B-C4B	2.14	107.03	103.22
2	E	201	ACO	C2P-C3P-N4P	2.09	116.80	112.42
2	G	201	ACO	C4A-C5A-N7A	-2.09	107.23	109.40
2	B	201	ACO	O3B-P3B-O7A	-2.08	101.36	109.39
2	C	201	ACO	CDP-CBP-CCP	2.08	111.62	108.23
2	C	201	ACO	O2A-P1A-O1A	2.07	122.47	112.24
2	H	201	ACO	C2A-N1A-C6A	2.06	122.28	118.75
2	E	201	ACO	CEP-CBP-CAP	2.03	112.34	108.82
2	D	201	ACO	O2A-P1A-O1A	2.03	122.27	112.24
2	H	201	ACO	O6A-CCP-CBP	-2.03	107.29	110.55
2	A	201	ACO	O9A-P3B-O8A	2.02	115.37	107.64
2	B	201	ACO	C4A-C5A-N7A	-2.01	107.31	109.40

There are no chirality outliers.

All (58) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	201	ACO	CCP-O6A-P2A-O3A
2	A	201	ACO	S1P-C2P-C3P-N4P
2	B	201	ACO	C5B-O5B-P1A-O2A
2	B	201	ACO	S1P-C2P-C3P-N4P
2	C	201	ACO	O4B-C4B-C5B-O5B
2	C	201	ACO	C5B-O5B-P1A-O3A
2	C	201	ACO	CCP-O6A-P2A-O3A
2	C	201	ACO	OAP-CAP-CBP-CCP
2	C	201	ACO	C9P-CAP-CBP-CCP
2	C	201	ACO	OAP-CAP-CBP-CDP
2	C	201	ACO	C9P-CAP-CBP-CDP
2	C	201	ACO	OAP-CAP-CBP-CEP
2	C	201	ACO	C9P-CAP-CBP-CEP
2	C	201	ACO	S1P-C2P-C3P-N4P
2	D	201	ACO	C3B-O3B-P3B-O8A
2	D	201	ACO	S1P-C2P-C3P-N4P
2	F	201	ACO	S1P-C2P-C3P-N4P
2	G	201	ACO	CCP-O6A-P2A-O3A

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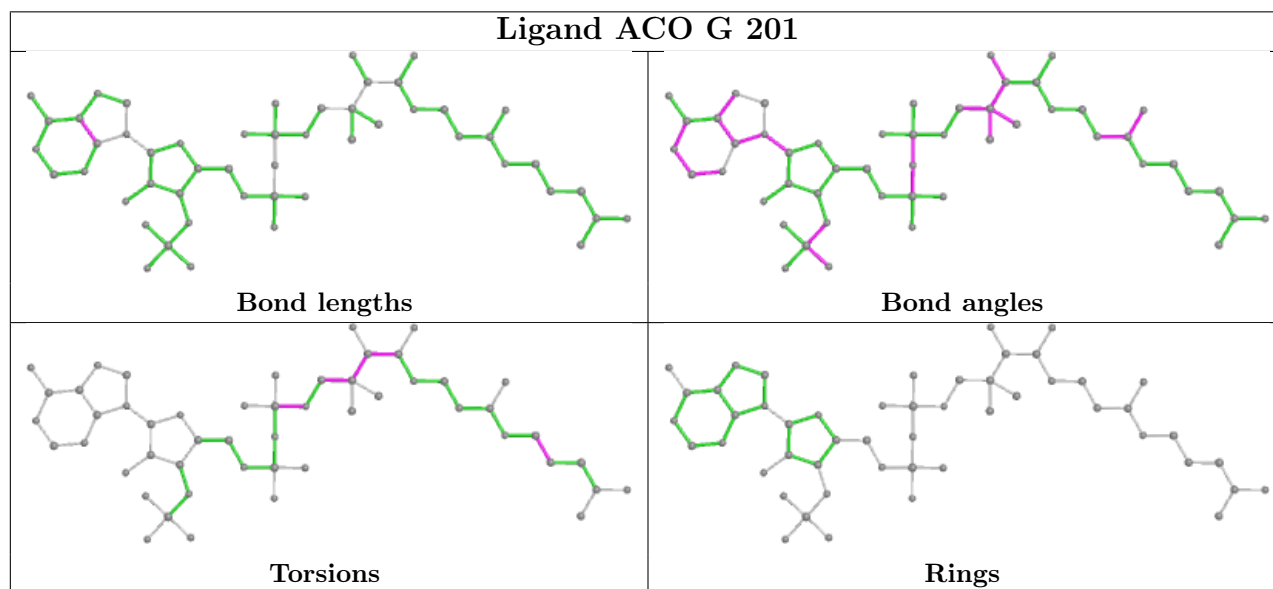
Mol	Chain	Res	Type	Atoms
2	G	201	ACO	CCP-O6A-P2A-O4A
2	G	201	ACO	CCP-O6A-P2A-O5A
2	G	201	ACO	OAP-CAP-CBP-CCP
2	G	201	ACO	C9P-CAP-CBP-CCP
2	G	201	ACO	OAP-CAP-CBP-CDP
2	G	201	ACO	C9P-CAP-CBP-CDP
2	G	201	ACO	OAP-CAP-CBP-CEP
2	G	201	ACO	C9P-CAP-CBP-CEP
2	G	201	ACO	N8P-C9P-CAP-OAP
2	G	201	ACO	S1P-C2P-C3P-N4P
2	H	201	ACO	C3B-O3B-P3B-O9A
2	H	201	ACO	S1P-C2P-C3P-N4P
2	C	201	ACO	C3B-C4B-C5B-O5B
2	D	201	ACO	C3B-C4B-C5B-O5B
2	A	201	ACO	C2B-C3B-O3B-P3B
2	H	201	ACO	C3B-C4B-C5B-O5B
2	D	201	ACO	O4B-C4B-C5B-O5B
2	H	201	ACO	O4B-C4B-C5B-O5B
2	G	201	ACO	O9P-C9P-CAP-OAP
2	G	201	ACO	O9P-C9P-CAP-CBP
2	B	201	ACO	C5B-O5B-P1A-O3A
2	E	201	ACO	CCP-O6A-P2A-O3A
2	H	201	ACO	CCP-O6A-P2A-O3A
2	E	201	ACO	O4B-C4B-C5B-O5B
2	A	201	ACO	CCP-O6A-P2A-O4A
2	A	201	ACO	CCP-O6A-P2A-O5A
2	C	201	ACO	C5B-O5B-P1A-O1A
2	C	201	ACO	C5B-O5B-P1A-O2A
2	C	201	ACO	CCP-O6A-P2A-O4A
2	C	201	ACO	CCP-O6A-P2A-O5A
2	E	201	ACO	S1P-C2P-C3P-N4P
2	G	201	ACO	CAP-CBP-CCP-O6A
2	A	201	ACO	C4B-C3B-O3B-P3B
2	E	201	ACO	C3B-C4B-C5B-O5B
2	G	201	ACO	CEP-CBP-CCP-O6A
2	H	201	ACO	O9P-C9P-CAP-OAP
2	C	201	ACO	C3B-O3B-P3B-O7A
2	A	201	ACO	C5B-O5B-P1A-O3A
2	H	201	ACO	C3B-O3B-P3B-O8A
2	B	201	ACO	C5B-O5B-P1A-O1A

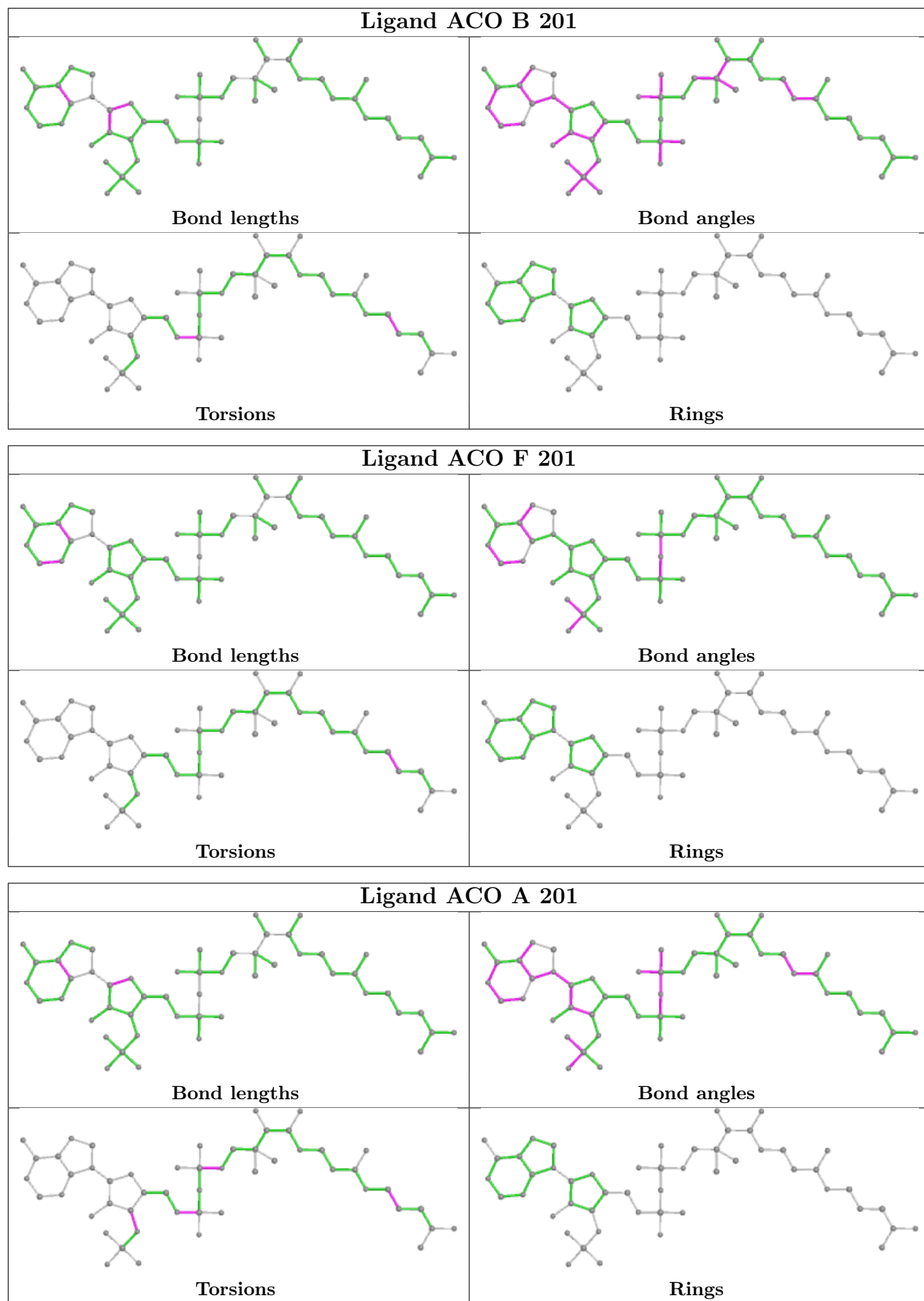
There are no ring outliers.

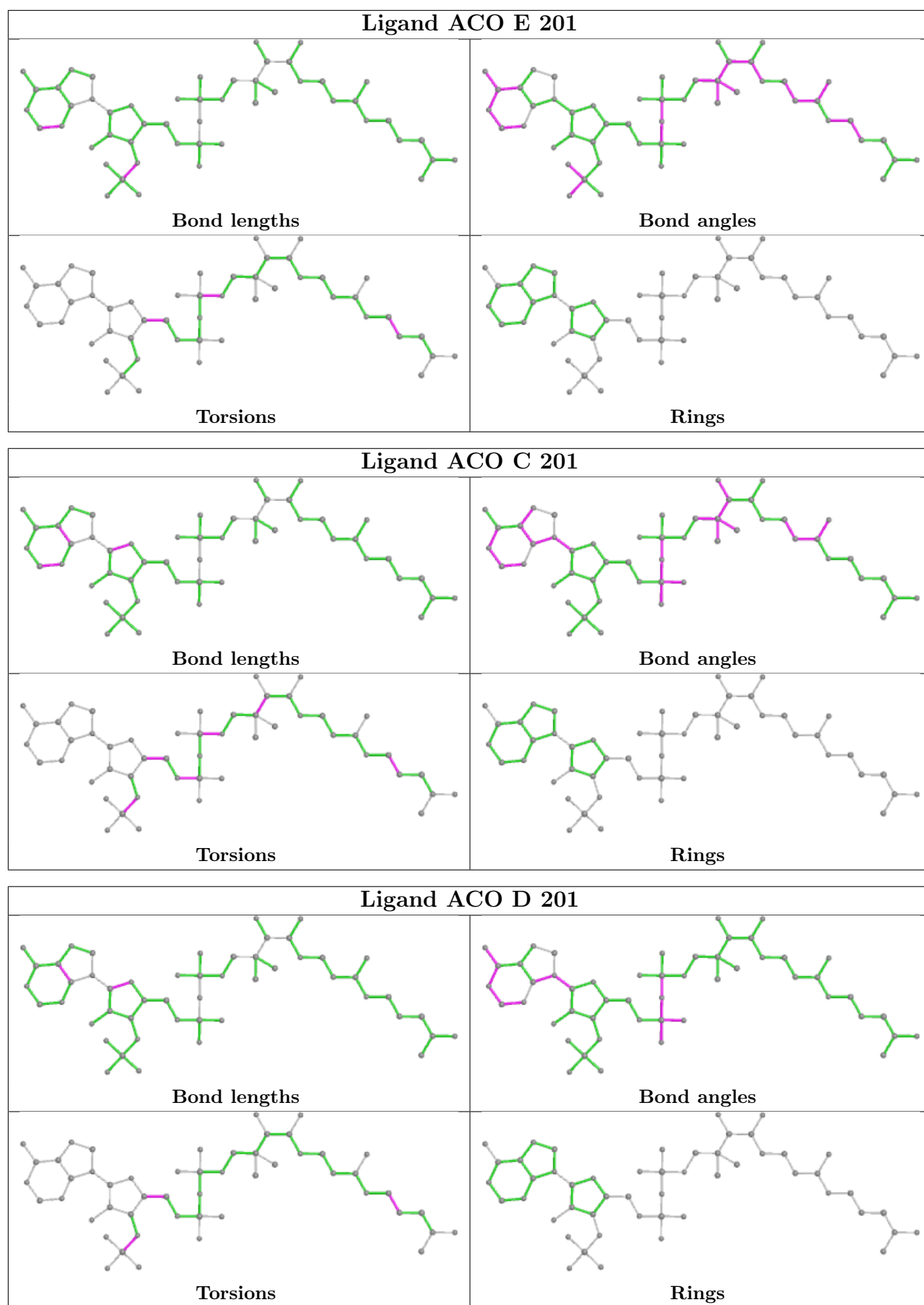
6 monomers are involved in 9 short contacts:

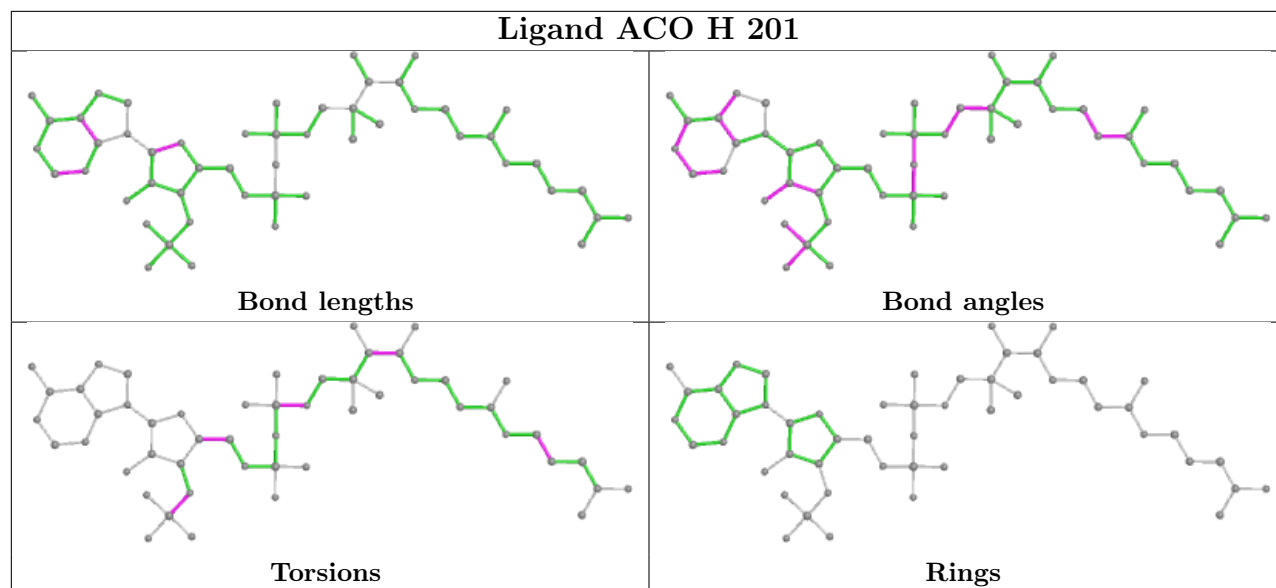
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	G	201	ACO	1	0
2	B	201	ACO	1	0
3	E	204	SO4	1	0
2	A	201	ACO	2	0
2	C	201	ACO	2	0
2	H	201	ACO	2	0

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









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	139/158 (87%)	0.21	7 (5%) 28 36	37, 47, 71, 98	0
1	B	139/158 (87%)	0.07	5 (3%) 42 50	36, 50, 78, 94	0
1	C	141/158 (89%)	0.12	10 (7%) 16 22	36, 48, 72, 92	0
1	D	146/158 (92%)	0.17	8 (5%) 25 31	38, 50, 84, 100	0
1	E	145/158 (91%)	0.04	6 (4%) 37 44	39, 51, 73, 86	0
1	F	141/158 (89%)	0.21	10 (7%) 16 22	40, 56, 84, 113	0
1	G	141/158 (89%)	-0.03	5 (3%) 44 51	39, 53, 76, 103	0
1	H	138/158 (87%)	0.18	7 (5%) 28 35	40, 56, 78, 96	0
All	All	1130/1264 (89%)	0.12	58 (5%) 28 35	36, 52, 79, 113	0

All (58) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	142	ALA	4.7
1	F	141	TYR	4.6
1	C	140	GLU	3.6
1	A	103	ILE	3.6
1	D	113	MET	3.6
1	F	140	GLU	3.5
1	C	141	TYR	3.4
1	D	146	LEU	3.4
1	E	50	VAL	3.4
1	C	67	GLY	3.2
1	G	141	TYR	3.2
1	A	139	GLU	3.1
1	D	143	GLY	3.1
1	H	70	TYR	3.0
1	F	103	ILE	3.0
1	A	62	TYR	2.9

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Mol	Chain	Res	Type	RSRZ
1	A	95	LEU	2.9
1	F	51	ASN	2.8
1	D	110	ASP	2.8
1	C	68	SER	2.7
1	D	112	ASP	2.7
1	B	69	ALA	2.6
1	H	69	ALA	2.6
1	C	110	ASP	2.6
1	F	69	ALA	2.5
1	E	144	GLU	2.5
1	A	113	MET	2.5
1	F	67	GLY	2.5
1	G	69	ALA	2.4
1	D	68	SER	2.4
1	G	51	ASN	2.4
1	A	105	ILE	2.4
1	H	68	SER	2.3
1	F	20	ARG	2.3
1	C	113	MET	2.3
1	B	20	ARG	2.3
1	C	103	ILE	2.3
1	E	143	GLY	2.3
1	F	112	ASP	2.3
1	F	123	TYR	2.3
1	G	140	GLU	2.3
1	A	64	GLY	2.2
1	C	62	TYR	2.2
1	C	66	ARG	2.2
1	E	1	MET	2.2
1	G	2	GLU	2.2
1	D	69	ALA	2.2
1	H	110	ASP	2.2
1	H	113	MET	2.1
1	B	112	ASP	2.1
1	E	70	TYR	2.1
1	C	139	GLU	2.1
1	H	67	GLY	2.1
1	F	105	ILE	2.1
1	E	145	ASN	2.0
1	H	105	ILE	2.0
1	B	70	TYR	2.0
1	B	67	GLY	2.0

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

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

6.3 Carbohydrates [i](#)

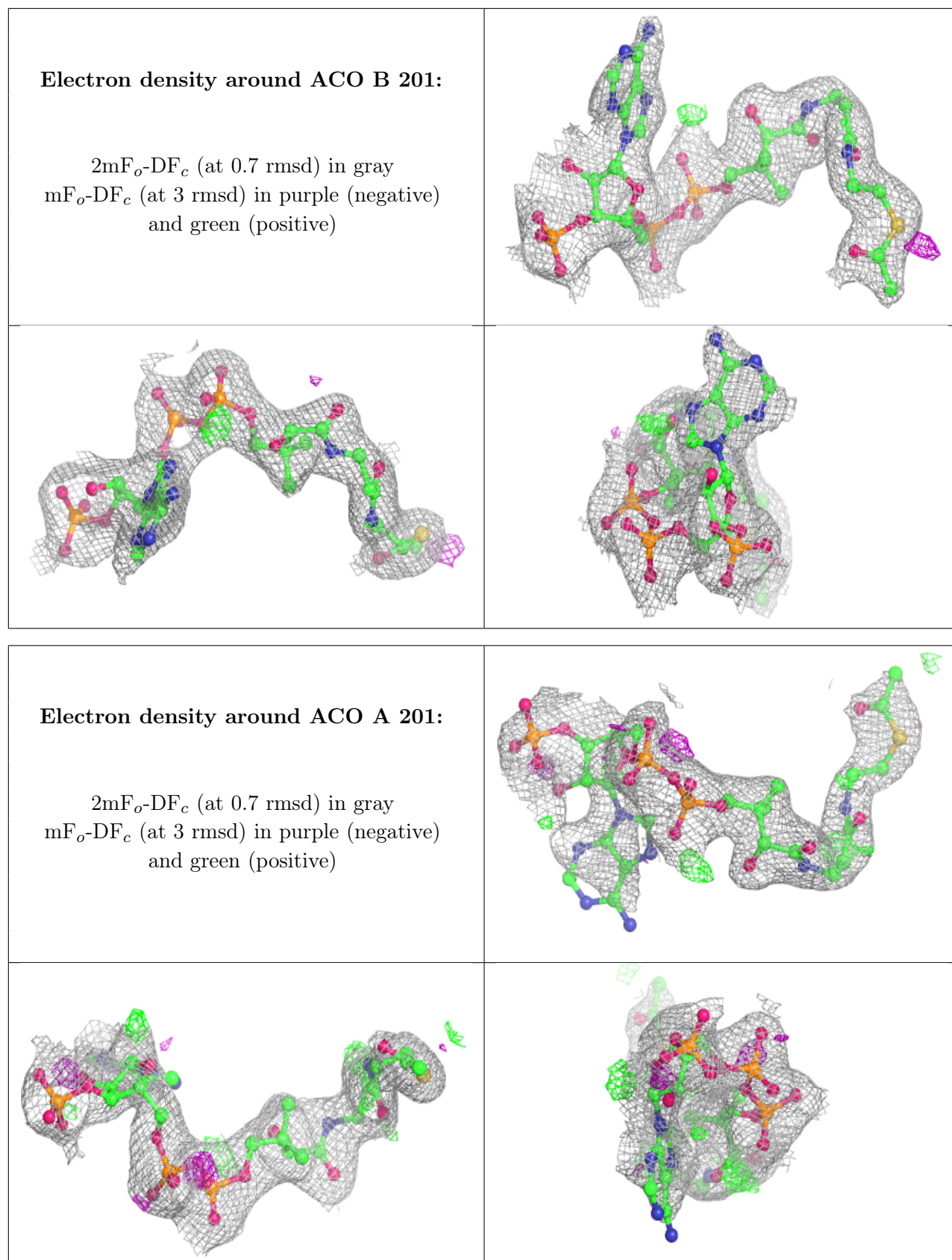
There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

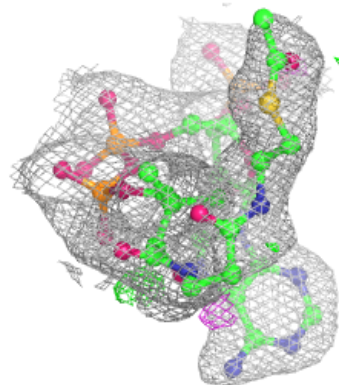
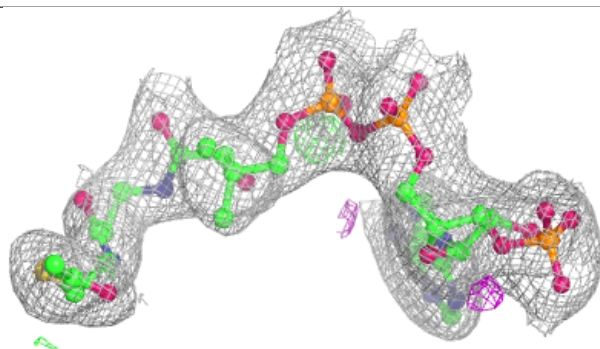
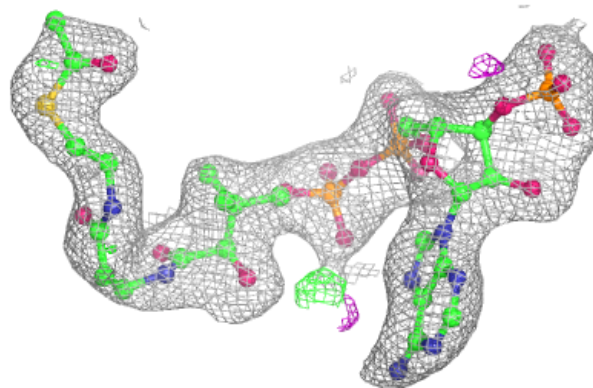
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	ACO	B	201	51/51	0.92	0.14	47,68,105,109	0
2	ACO	A	201	51/51	0.93	0.16	45,71,138,148	0
2	ACO	H	201	51/51	0.93	0.10	49,65,76,90	0
2	ACO	D	201	51/51	0.94	0.12	49,74,131,144	0
2	ACO	F	201	51/51	0.94	0.10	53,68,82,95	0
2	ACO	C	201	51/51	0.94	0.13	43,64,83,105	0
2	ACO	G	201	51/51	0.95	0.10	43,63,76,81	0
3	SO4	E	204	5/5	0.95	0.25	80,97,100,118	0
2	ACO	E	201	51/51	0.96	0.08	46,52,64,73	0
3	SO4	B	202	5/5	0.97	0.13	58,60,71,74	0
3	SO4	E	202	5/5	0.97	0.11	59,60,66,69	0
3	SO4	E	203	5/5	0.97	0.14	57,64,71,90	0
3	SO4	A	202	5/5	0.97	0.16	58,71,81,95	0
3	SO4	G	203	5/5	0.97	0.10	55,57,70,89	0
3	SO4	D	202	5/5	0.98	0.08	57,58,65,69	0
3	SO4	C	202	5/5	0.99	0.09	58,59,71,72	0
3	SO4	G	202	5/5	0.99	0.05	56,62,68,71	0
3	SO4	A	203	5/5	0.99	0.07	54,57,62,78	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.

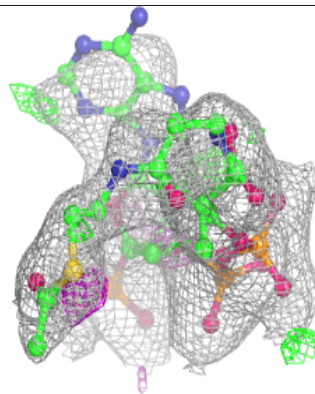
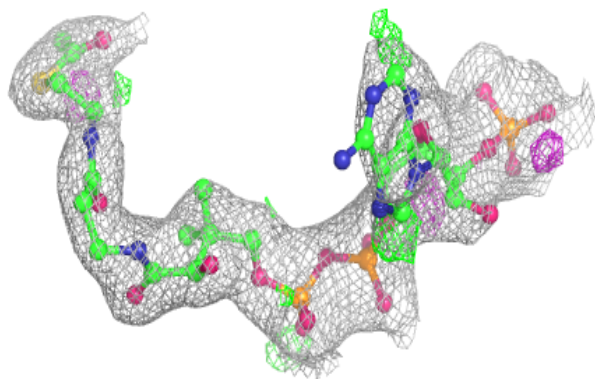
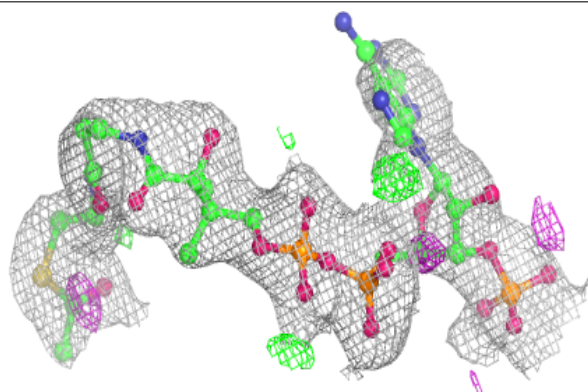


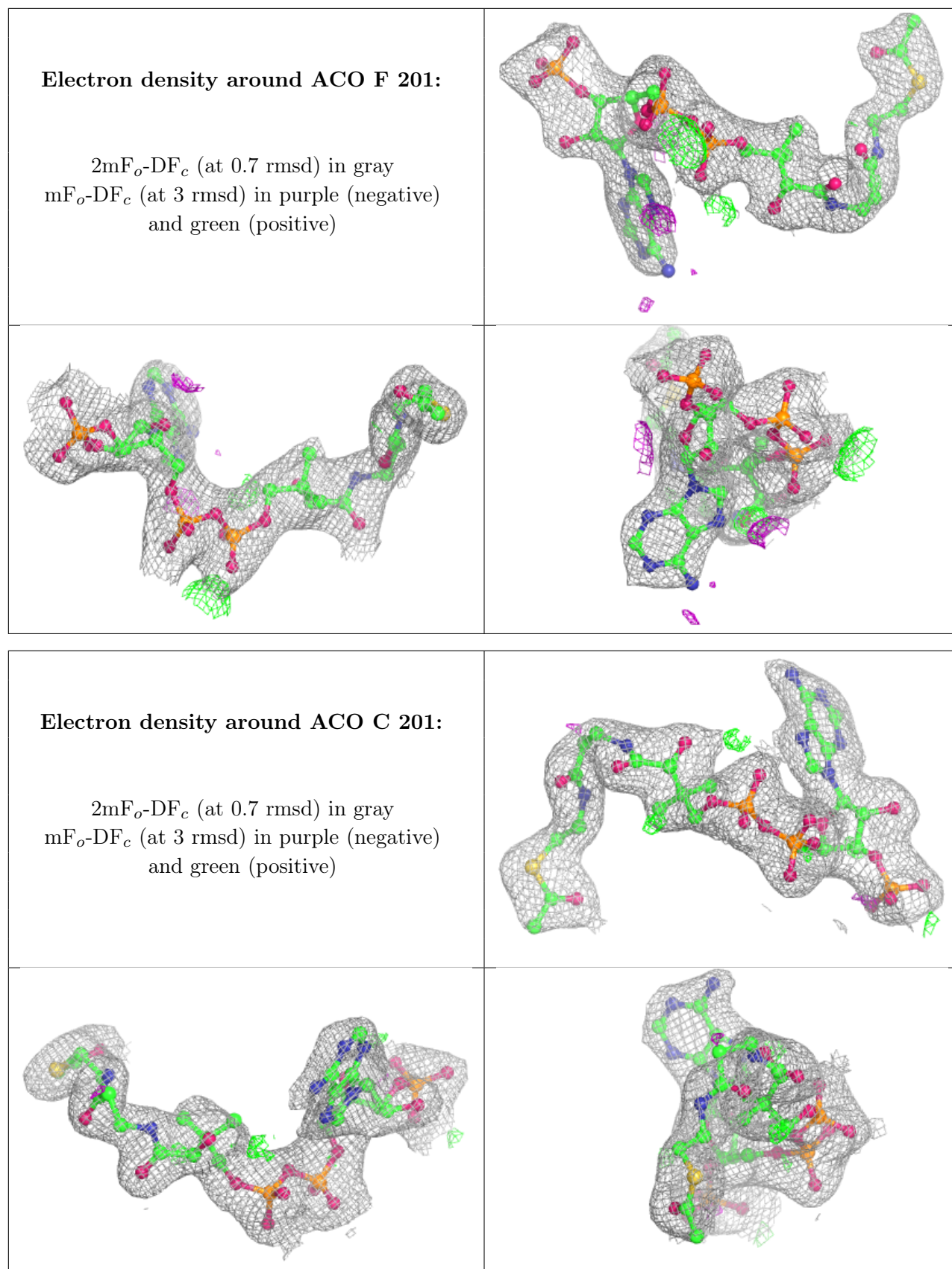
Electron density around ACO H 201:

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

**Electron density around ACO D 201:**

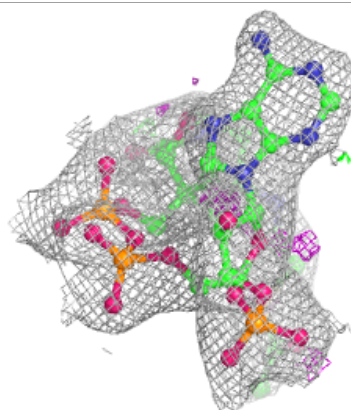
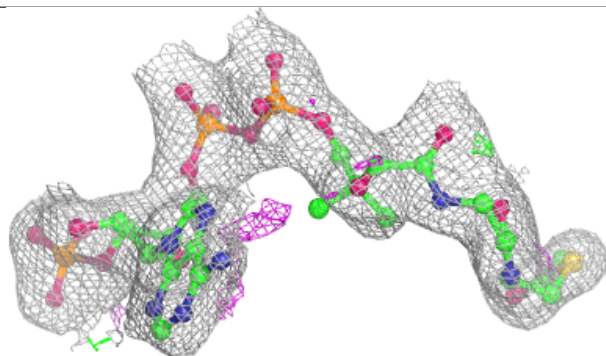
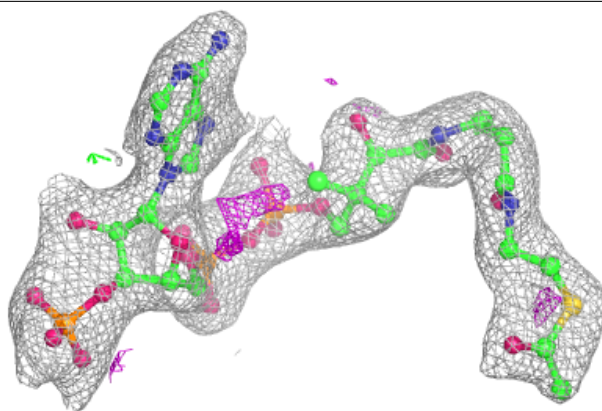
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



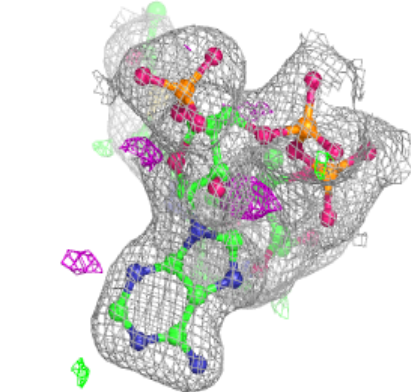
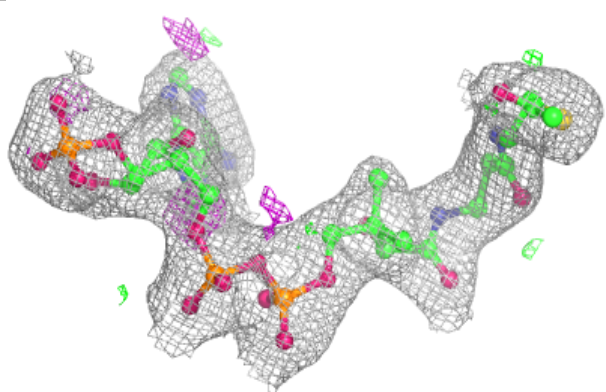
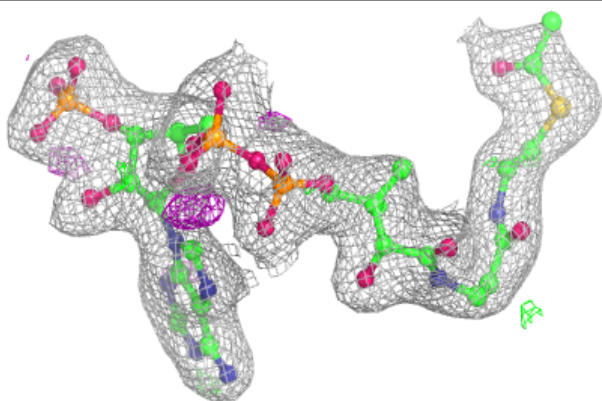


Electron density around ACO G 201:

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

**Electron density around ACO E 201:**

$2mF_o-DF_c$ (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.