wwPDB X-ray Structure Validation Summary Report ⓘ

Sep 3, 2023 – 06:42 AM EDT

PDB ID	:	3SJO
Title	:	structure of EV71 3C in complex with Rupintrivir (AG7088)
Authors	:	Lu, G.; Qi, J.; Chen, Z.; Xu, X.; Gao, F.; Lin, D.; Qian, W.; Liu, H.; Jiang, H.; Yan, J.; Gao, G.F.
Deposited on	:	2011-06-21
Resolution	:	1.70 Å(reported)

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

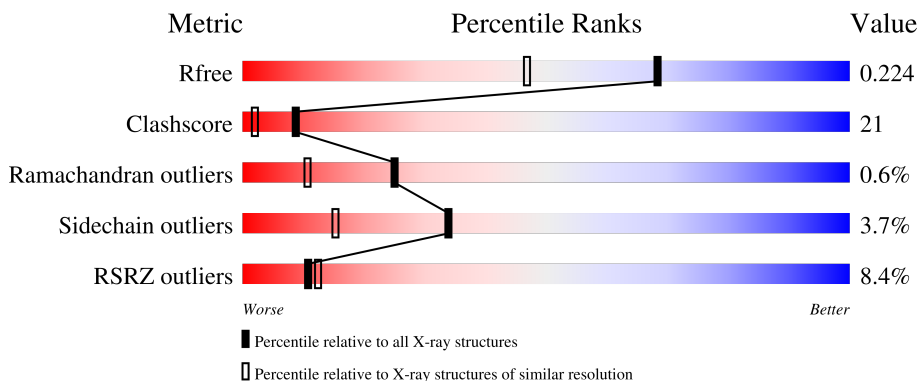|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 1.70 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.
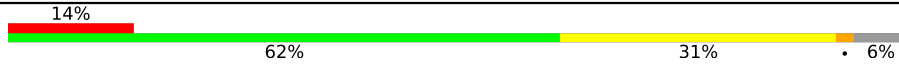
Metric	Percentile Ranks	Value
Rfree		0.224
Clashscore		21
Ramachandran outliers		0.6%
Sidechain outliers		3.7%
RSRZ outliers		8.4%

Worse — *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	4298 (1.70-1.70)
Clashscore	141614	4695 (1.70-1.70)
Ramachandran outliers	138981	4610 (1.70-1.70)
Sidechain outliers	138945	4610 (1.70-1.70)
RSRZ outliers	127900	4222 (1.70-1.70)

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	190	3% / 77% 16% • 6%
1	B	190	17% / 59% 33% •• 6%
1	C	190	2% / 76% 15% • 6%
1	D	190	3% / 81% 11% • 6%
1	E	190	5% / 73% 21% • 6%

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Mol	Chain	Length	Quality of chain
1	F	190	14% 62% 31% 6%
1	G	190	13% 67% 23% 6%
1	H	190	8% 68% 24% 6%

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 12391 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 3C protease.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	179	Total	C	N	O	S	0	0	0
			1391	881	247	256	7			
1	B	179	Total	C	N	O	S	0	0	0
			1391	881	247	256	7			
1	C	179	Total	C	N	O	S	0	0	0
			1391	881	247	256	7			
1	D	179	Total	C	N	O	S	0	0	0
			1391	881	247	256	7			
1	E	179	Total	C	N	O	S	0	0	0
			1391	881	247	256	7			
1	F	179	Total	C	N	O	S	0	0	0
			1391	881	247	256	7			
1	G	179	Total	C	N	O	S	0	0	0
			1391	881	247	256	7			
1	H	179	Total	C	N	O	S	0	0	0
			1391	881	247	256	7			

There are 56 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	MET	-	initiating methionine	UNP E0WWC7
A	184	HIS	-	expression tag	UNP E0WWC7
A	185	HIS	-	expression tag	UNP E0WWC7
A	186	HIS	-	expression tag	UNP E0WWC7
A	187	HIS	-	expression tag	UNP E0WWC7
A	188	HIS	-	expression tag	UNP E0WWC7
A	189	HIS	-	expression tag	UNP E0WWC7
B	0	MET	-	initiating methionine	UNP E0WWC7
B	184	HIS	-	expression tag	UNP E0WWC7
B	185	HIS	-	expression tag	UNP E0WWC7
B	186	HIS	-	expression tag	UNP E0WWC7
B	187	HIS	-	expression tag	UNP E0WWC7
B	188	HIS	-	expression tag	UNP E0WWC7

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Chain	Residue	Modelled	Actual	Comment	Reference
B	189	HIS	-	expression tag	UNP E0WWC7
C	0	MET	-	initiating methionine	UNP E0WWC7
C	184	HIS	-	expression tag	UNP E0WWC7
C	185	HIS	-	expression tag	UNP E0WWC7
C	186	HIS	-	expression tag	UNP E0WWC7
C	187	HIS	-	expression tag	UNP E0WWC7
C	188	HIS	-	expression tag	UNP E0WWC7
C	189	HIS	-	expression tag	UNP E0WWC7
D	0	MET	-	initiating methionine	UNP E0WWC7
D	184	HIS	-	expression tag	UNP E0WWC7
D	185	HIS	-	expression tag	UNP E0WWC7
D	186	HIS	-	expression tag	UNP E0WWC7
D	187	HIS	-	expression tag	UNP E0WWC7
D	188	HIS	-	expression tag	UNP E0WWC7
D	189	HIS	-	expression tag	UNP E0WWC7
E	0	MET	-	initiating methionine	UNP E0WWC7
E	184	HIS	-	expression tag	UNP E0WWC7
E	185	HIS	-	expression tag	UNP E0WWC7
E	186	HIS	-	expression tag	UNP E0WWC7
E	187	HIS	-	expression tag	UNP E0WWC7
E	188	HIS	-	expression tag	UNP E0WWC7
E	189	HIS	-	expression tag	UNP E0WWC7
F	0	MET	-	initiating methionine	UNP E0WWC7
F	184	HIS	-	expression tag	UNP E0WWC7
F	185	HIS	-	expression tag	UNP E0WWC7
F	186	HIS	-	expression tag	UNP E0WWC7
F	187	HIS	-	expression tag	UNP E0WWC7
F	188	HIS	-	expression tag	UNP E0WWC7
F	189	HIS	-	expression tag	UNP E0WWC7
G	0	MET	-	initiating methionine	UNP E0WWC7
G	184	HIS	-	expression tag	UNP E0WWC7
G	185	HIS	-	expression tag	UNP E0WWC7
G	186	HIS	-	expression tag	UNP E0WWC7
G	187	HIS	-	expression tag	UNP E0WWC7
G	188	HIS	-	expression tag	UNP E0WWC7
G	189	HIS	-	expression tag	UNP E0WWC7
H	0	MET	-	initiating methionine	UNP E0WWC7
H	184	HIS	-	expression tag	UNP E0WWC7
H	185	HIS	-	expression tag	UNP E0WWC7
H	186	HIS	-	expression tag	UNP E0WWC7
H	187	HIS	-	expression tag	UNP E0WWC7
H	188	HIS	-	expression tag	UNP E0WWC7

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Chain	Residue	Modelled	Actual	Comment	Reference
H	189	HIS	-	expression tag	UNP E0WWC7

- Molecule 2 is 4-{2-(4-FLUORO-BENZYL)-6-METHYL-5-[(5-METHYL-ISOXAZOLE-3-CARBONYL)-AMINO]-4-OXO-HEPTANOYLAMINO}-5-(2-OXO-PYRROLIDIN-3-YL)-PENTANOIC ACID ETHYL ESTER (three-letter code: AG7) (formula: $C_{31}H_{41}FN_4O_7$).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	F	N	O	0	0
			43	31	1	4	7		
2	B	1	Total	C	F	N	O	0	0
			43	31	1	4	7		
2	C	1	Total	C	F	N	O	0	0
			43	31	1	4	7		
2	D	1	Total	C	F	N	O	0	0
			43	31	1	4	7		
2	E	1	Total	C	F	N	O	0	0
			43	31	1	4	7		
2	F	1	Total	C	F	N	O	0	0
			43	31	1	4	7		
2	G	1	Total	C	F	N	O	0	0
			43	31	1	4	7		
2	H	1	Total	C	F	N	O	0	0
			43	31	1	4	7		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	124	Total 124	O 124	0	0
3	B	97	Total 97	O 97	0	0
3	C	144	Total 144	O 144	0	0
3	D	137	Total 137	O 137	0	0
3	E	146	Total 146	O 146	0	0
3	F	106	Total 106	O 106	0	0
3	G	73	Total 73	O 73	0	0
3	H	92	Total 92	O 92	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.
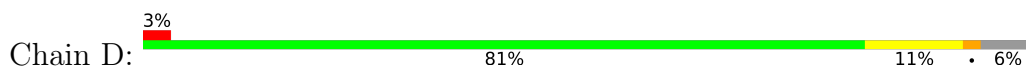
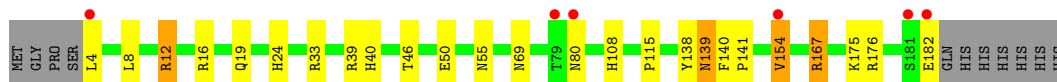• Molecule 1: 3C protease

• Molecule 1: 3C protease

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• Molecule 1: 3C protease

MET GLY PRO SER L4 L8 R12 R16 Q19 H24 R33 R39 H40 T46 E50 N55 N69 T79 N80 H108 P115 Y138 N139 F140 P141 V154 R167 K175 R176 S181 E182 GLN HIS HIS HIS HIS HIS

• Molecule 1: 3C protease

Chain E:

MET GLY PRO SER L4 D5 L8 S9 L10 L11 R12 R16 V30 R39 T46 H51 K52 N55 V56 L57 L62 E65 Q66 N69 L70 E71 L74 N80 E81 K82 D99 I104 M112 F113 V120 Q121 N126 G129 M137 Y138 N139

K143 Q146 S153 V154 G155 K156 V157 R167 Q168 F179 A180 S181 E182 GLN HIS HIS HIS HIS HIS

• Molecule 1: 3C protease

Chain F:

MET GLY PRO SER L4 D5 F6 A7 L8 R13 Q17 T20 D21 Q22 G23 H24 V30 P38 R39 H40 S41 Q42 T46 I47 H51 N55 L62 V63 D64 E65 Q66 E71 L74 N80 E81 K82 K88 I94 S95 T96 A97 S98 D99 A100 T101 L102

V103 I104 N105 T106 E107 H108 M109 P110 S111 M112 F113 V114 P115 V116 G117 D118 Q121 S128 H133 R134 T135 M136 M137 Y138 N139 F140 K143 A144 G145 Q146 C147 G148 G149 V150 V151 T152 S153 V154 G166 R167 Q168 G169 F170 F179 E182 GLN HIS HIS HIS HIS HIS

• Molecule 1: 3C protease

Chain G:

MET GLY PRO SER L4 D5 F6 A7 L8 S9 L10 L11 R12 Q17 D21 V30 P38 R39 H40 S41 Q42 P43 T46 N55 D58 V63 D64 E65 Q66 G67 V68 N69 L70 E71 D78 T79 N80 E81 K82 F83 R84 F89 I90 I94 S95 T96 D99 A100

I104 E107 S111 M112 F113 V114 P115 V116 G117 D118 V119 V120 L125 N126 L127 S128 H133 R134 Y138 N139 F140 Q146 S153 V154 G155 K156 V157 I160 R167 Q168 G169 K175 F179 A180 S181 E182 GLN HIS HIS HIS HIS HIS

• Molecule 1: 3C protease

Chain H:

MET GLY PRO SER L4 A7 N14 Q17 V18 Q19 T20 D21 H24 L28 G29 V30 L34 R39 H40 S41 Q42 P43 G44 N55 V63 D64 E65 N69 L70 E71 L74 D78 T79 N80 E81 R84 E92 N93 I94 S95 T96 A97 S98 T101

I104 N105 T106 E107 H108 M109 P110 S111 M112 F113 V114 P115 Q121 P131 T132 H133 R134 Y138 N139 Q146 S153 V154 G155 H161 G164 R167 K175 F179 A180 S181 E182 GLN HIS HIS HIS HIS HIS

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	41.26Å 82.17Å 97.95Å 89.96° 89.99° 90.13°	Depositor
Resolution (Å)	34.54 – 1.70 34.54 – 1.70	Depositor EDS
% Data completeness (in resolution range)	93.2 (34.54-1.70) 96.5 (34.54-1.70)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	0.05	Depositor
$< I/\sigma(I) >$ [1]	2.99 (at 1.70Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.5_2)	Depositor
R, R_{free}	0.205 , 0.222 0.208 , 0.224	Depositor DCC
R_{free} test set	6840 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å^2)	20.2	Xtriage
Anisotropy	0.129	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.39 , 41.0	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.021 for h,-k,-l 0.019 for -h,k,-l 0.478 for -h,-k,l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	12391	wwPDB-VP
Average B, all atoms (Å^2)	30.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 34.48 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 6.7811e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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[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: AG7

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	0.49	0/1417	0.58	0/1918
1	B	0.50	3/1417 (0.2%)	0.58	0/1918
1	C	0.48	0/1417	0.58	0/1918
1	D	0.35	0/1417	0.55	0/1918
1	E	0.31	0/1417	0.53	0/1918
1	F	0.34	0/1417	0.54	0/1918
1	G	0.36	0/1417	0.51	0/1918
1	H	0.32	0/1417	0.52	0/1918
All	All	0.40	3/11336 (0.0%)	0.55	0/15344

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	92	GLU	CB-CG	-6.18	1.40	1.52
1	B	100	ALA	N-CA	-5.12	1.36	1.46
1	B	100	ALA	CA-CB	-5.06	1.41	1.52

There are no bond angle outliers.

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	1391	0	1404	33	0
1	B	1391	0	1404	90	0
1	C	1391	0	1404	37	0
1	D	1391	0	1404	32	0
1	E	1391	0	1404	54	0
1	F	1391	0	1404	81	1
1	G	1391	0	1404	70	0
1	H	1391	0	1404	68	0
2	A	43	0	40	0	0
2	B	43	0	40	7	0
2	C	43	0	40	2	0
2	D	43	0	40	0	0
2	E	43	0	40	0	0
2	F	43	0	40	3	0
2	G	43	0	40	2	0
2	H	43	0	40	1	0
3	A	124	0	0	21	0
3	B	97	0	0	79	0
3	C	144	0	0	25	0
3	D	137	0	0	22	1
3	E	146	0	0	37	0
3	F	106	0	0	66	1
3	G	73	0	0	49	0
3	H	92	0	0	48	2
All	All	12391	0	11552	473	3

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 21.

The worst 5 of 473 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:145:GLY:HA2	3:B:481:HOH:O	1.20	1.34
1:B:103:VAL:HG23	3:B:736:HOH:O	1.10	1.28
1:H:101:THR:HA	3:H:502:HOH:O	1.13	1.26
1:G:11:LEU:HD21	3:G:440:HOH:O	1.14	1.25
1:H:14:ASN:HB3	3:H:831:HOH:O	1.14	1.25

All (3) 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)
1:F:182:GLU:OE1	3:H:273:HOH:O[1_556]	1.95	0.25
3:D:550:HOH:O	3:D:634:HOH:O[1_455]	2.08	0.12
3:F:884:HOH:O	3:H:776:HOH:O[1_556]	2.18	0.02

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	177/190 (93%)	170 (96%)	6 (3%)	1 (1%)	25	11
1	B	177/190 (93%)	163 (92%)	13 (7%)	1 (1%)	25	11
1	C	177/190 (93%)	171 (97%)	5 (3%)	1 (1%)	25	11
1	D	177/190 (93%)	172 (97%)	4 (2%)	1 (1%)	25	11
1	E	177/190 (93%)	171 (97%)	5 (3%)	1 (1%)	25	11
1	F	177/190 (93%)	166 (94%)	10 (6%)	1 (1%)	25	11
1	G	177/190 (93%)	171 (97%)	5 (3%)	1 (1%)	25	11
1	H	177/190 (93%)	170 (96%)	6 (3%)	1 (1%)	25	11
All	All	1416/1520 (93%)	1354 (96%)	54 (4%)	8 (1%)	25	11

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	154	VAL
1	D	154	VAL
1	E	154	VAL
1	F	107	GLU
1	G	154	VAL

5.3.2 Protein sidechains ⓘ

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

resolution.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	154/164 (94%)	150 (97%)	4 (3%)	46	28
1	B	154/164 (94%)	147 (96%)	7 (4%)	27	10
1	C	154/164 (94%)	148 (96%)	6 (4%)	32	13
1	D	154/164 (94%)	147 (96%)	7 (4%)	27	10
1	E	154/164 (94%)	149 (97%)	5 (3%)	39	20
1	F	154/164 (94%)	149 (97%)	5 (3%)	39	20
1	G	154/164 (94%)	147 (96%)	7 (4%)	27	10
1	H	154/164 (94%)	149 (97%)	5 (3%)	39	20
All	All	1232/1312 (94%)	1186 (96%)	46 (4%)	34	15

5 of 46 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	182	GLU
1	G	12	ARG
1	F	39	ARG
1	F	138	TYR
1	G	84	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 47 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	55	ASN
1	F	139	ASN
1	E	69	ASN
1	F	55	ASN
1	G	51	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

8 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	AG7	D	501	1	42,45,45	3.93	12 (28%)	49,61,61	1.80	11 (22%)
2	AG7	F	501	1	42,45,45	3.97	13 (30%)	49,61,61	1.88	10 (20%)
2	AG7	A	501	1	42,45,45	3.92	12 (28%)	49,61,61	1.83	10 (20%)
2	AG7	G	501	1	42,45,45	3.99	13 (30%)	49,61,61	1.77	12 (24%)
2	AG7	B	501	1	42,45,45	3.96	13 (30%)	49,61,61	1.84	11 (22%)
2	AG7	H	501	1	42,45,45	3.95	13 (30%)	49,61,61	1.84	12 (24%)
2	AG7	E	501	1	42,45,45	3.90	11 (26%)	49,61,61	1.92	15 (30%)
2	AG7	C	501	1	42,45,45	3.94	12 (28%)	49,61,61	1.88	13 (26%)

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	AG7	D	501	1	-	2/40/54/54	0/3/3/3
2	AG7	F	501	1	-	4/40/54/54	0/3/3/3
2	AG7	A	501	1	-	2/40/54/54	0/3/3/3
2	AG7	G	501	1	-	2/40/54/54	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	AG7	B	501	1	-	1/40/54/54	0/3/3/3
2	AG7	H	501	1	-	3/40/54/54	0/3/3/3
2	AG7	E	501	1	-	5/40/54/54	0/3/3/3
2	AG7	C	501	1	-	4/40/54/54	0/3/3/3

The worst 5 of 99 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	501	AG7	C16-N17	17.35	1.52	1.33
2	C	501	AG7	C16-N17	17.24	1.52	1.33
2	B	501	AG7	C16-N17	17.21	1.52	1.33
2	F	501	AG7	C16-N17	17.18	1.51	1.33
2	A	501	AG7	C16-N17	17.16	1.51	1.33

The worst 5 of 94 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	F	501	AG7	O18-C16-C15	-5.76	119.46	126.23
2	H	501	AG7	O18-C16-C15	-5.37	119.92	126.23
2	C	501	AG7	O18-C16-C15	-5.32	119.98	126.23
2	B	501	AG7	O18-C16-C15	-5.25	120.06	126.23
2	E	501	AG7	O18-C16-C15	-5.23	120.09	126.23

There are no chirality outliers.

5 of 23 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	AG7	C01-C02-C04-C47
2	F	501	AG7	C01-C02-C04-C47
2	E	501	AG7	N58-C57-C78-C82
2	C	501	AG7	N58-C57-C78-C81
2	F	501	AG7	C01-C57-C78-C82

There are no ring outliers.

5 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	501	AG7	3	0
2	G	501	AG7	2	0
2	B	501	AG7	7	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	H	501	AG7	1	0
2	C	501	AG7	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 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 AG7 D 501

Ligand AG7 F 501

Bond lengths

Bond angles

Torsions

Rings

Ligand AG7 A 501

Bond lengths

Bond angles

Torsions

Rings

Ligand AG7 G 501

Bond lengths

Bond angles

Torsions

Rings

Ligand AG7 B 501

Bond lengths

Bond angles

Torsions

Rings

Ligand AG7 H 501

Bond lengths

Bond angles

Torsions

Rings

Ligand AG7 E 501

Bond lengths

Bond angles

Torsions

Rings

Ligand AG7 C 501

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	179/190 (94%)	-0.11	5 (2%)	53	57	11, 19, 33, 252	0
1	B	179/190 (94%)	0.85	32 (17%)	1	1	14, 27, 105, 176	0
1	C	179/190 (94%)	0.07	3 (1%)	70	74	10, 21, 41, 204	0
1	D	179/190 (94%)	-0.07	6 (3%)	45	50	10, 19, 35, 132	0
1	E	179/190 (94%)	0.13	9 (5%)	28	32	11, 20, 48, 205	0
1	F	179/190 (94%)	0.98	26 (14%)	2	2	14, 25, 128, 215	0
1	G	179/190 (94%)	0.75	25 (13%)	2	3	14, 27, 108, 176	0
1	H	179/190 (94%)	0.58	15 (8%)	11	12	15, 26, 85, 290	0
All	All	1432/1520 (94%)	0.40	121 (8%)	11	12	10, 23, 87, 290	0

The worst 5 of 121 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	145	GLY	15.0
1	E	4	LEU	14.8
1	H	182	GLU	10.8
1	H	4	LEU	10.6
1	F	4	LEU	10.3

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, 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	AG7	F	501	43/43	0.85	0.14	21,29,37,37	0
2	AG7	B	501	43/43	0.87	0.16	23,30,39,41	0
2	AG7	G	501	43/43	0.89	0.12	19,27,35,38	0
2	AG7	H	501	43/43	0.90	0.13	20,27,34,37	0
2	AG7	E	501	43/43	0.91	0.12	17,24,32,39	0
2	AG7	A	501	43/43	0.92	0.10	14,21,29,36	0
2	AG7	C	501	43/43	0.93	0.10	16,24,29,33	0
2	AG7	D	501	43/43	0.93	0.10	12,17,24,30	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.
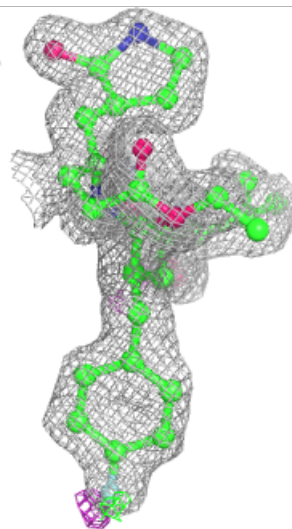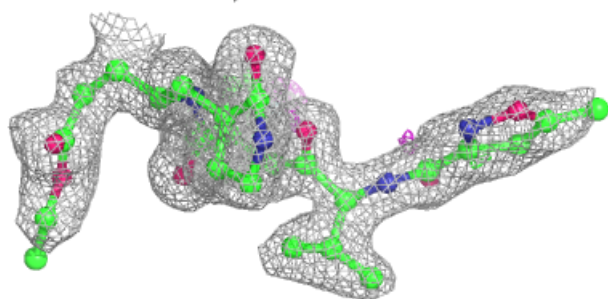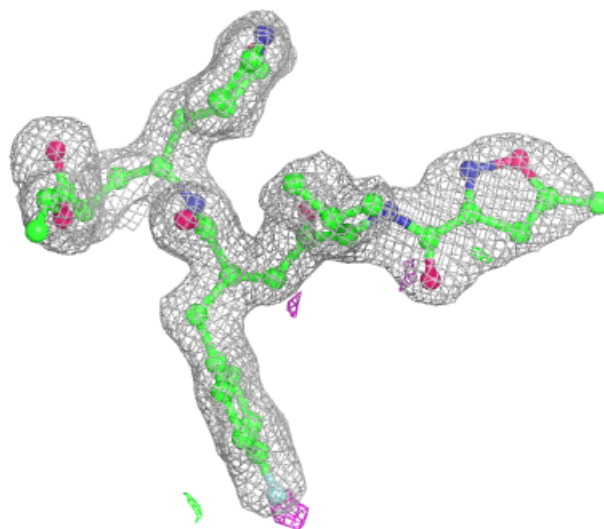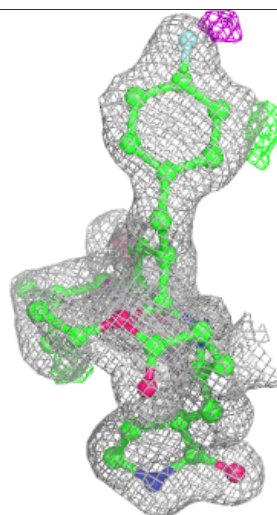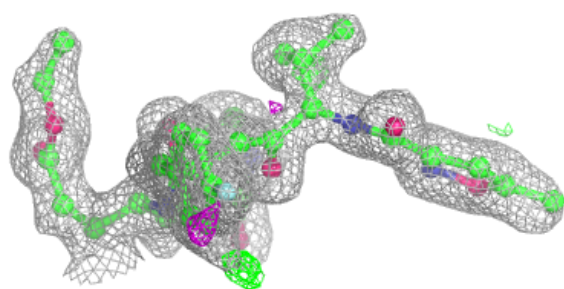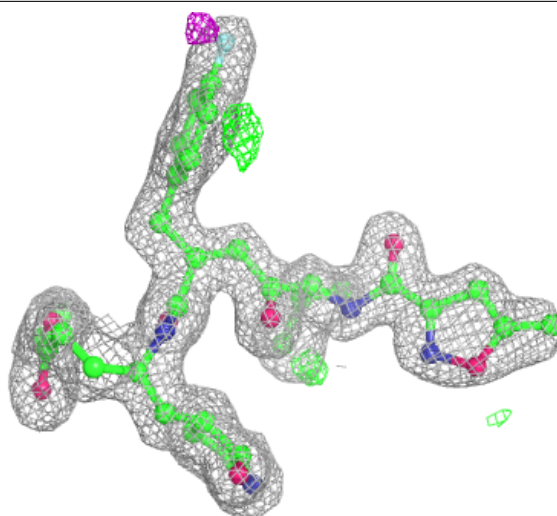
Electron density around AG7 F 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
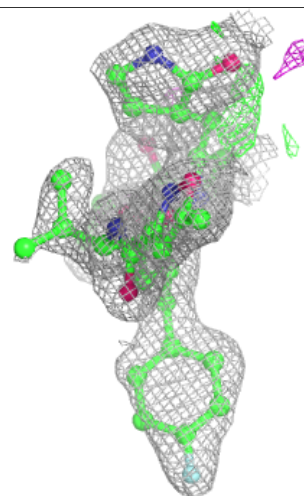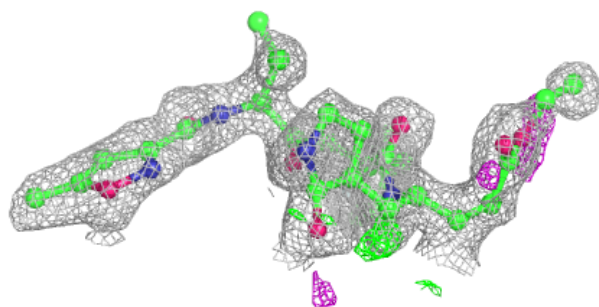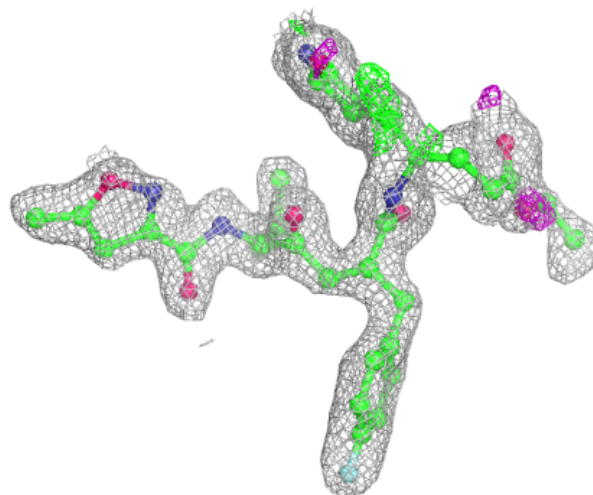
Electron density around AG7 B 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
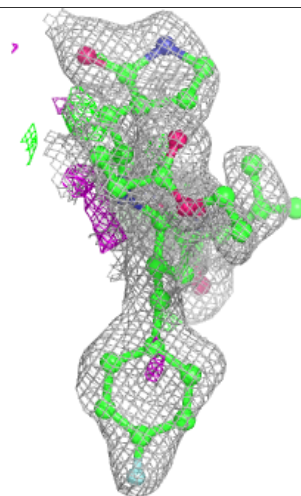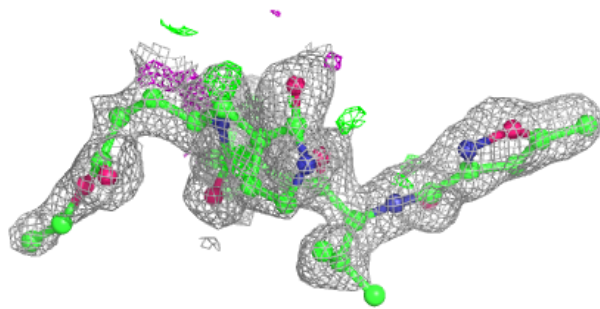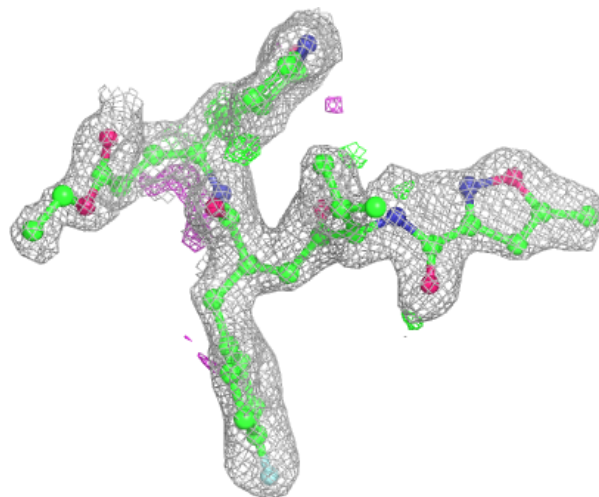
Electron density around AG7 G 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
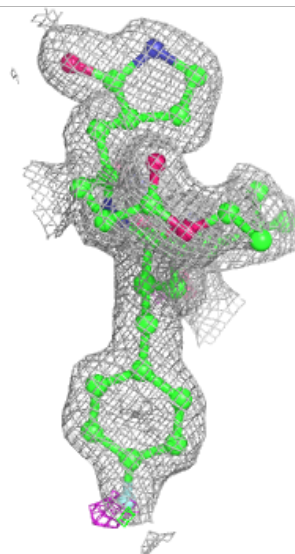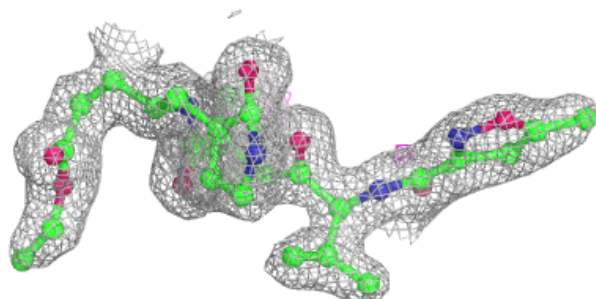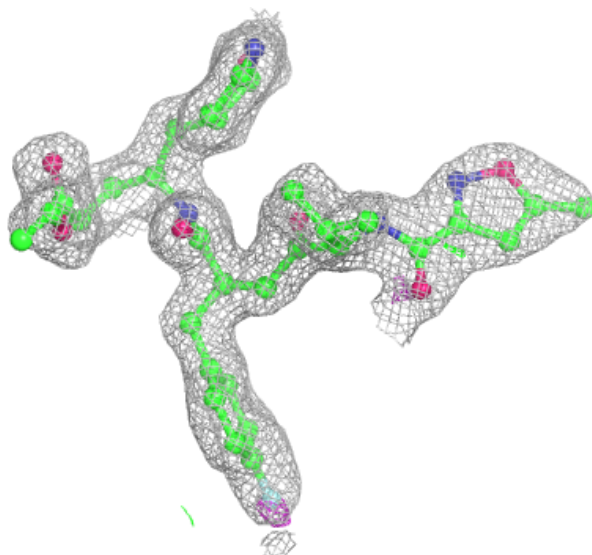and green (positive)
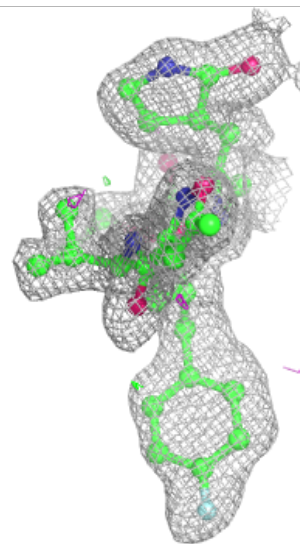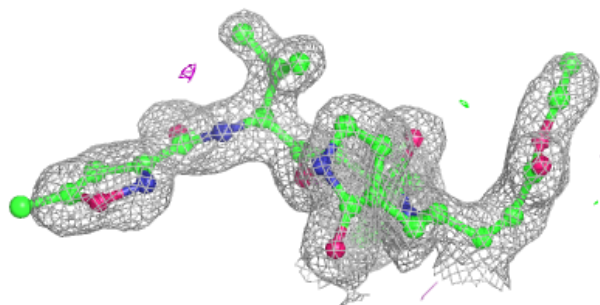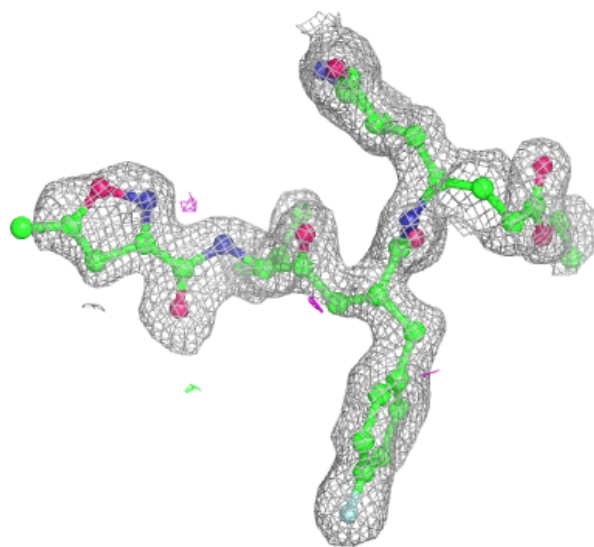
Electron density around AG7 H 501:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
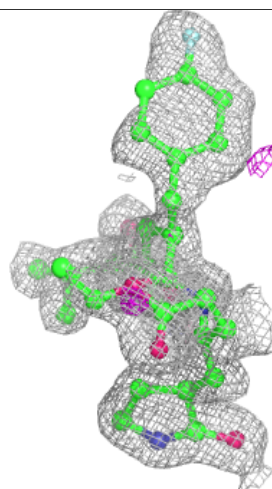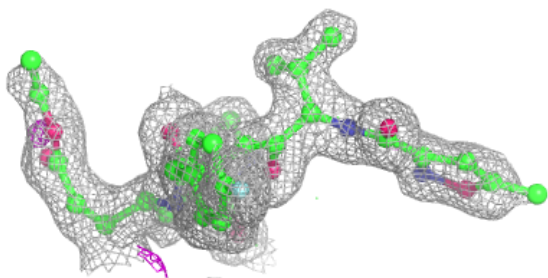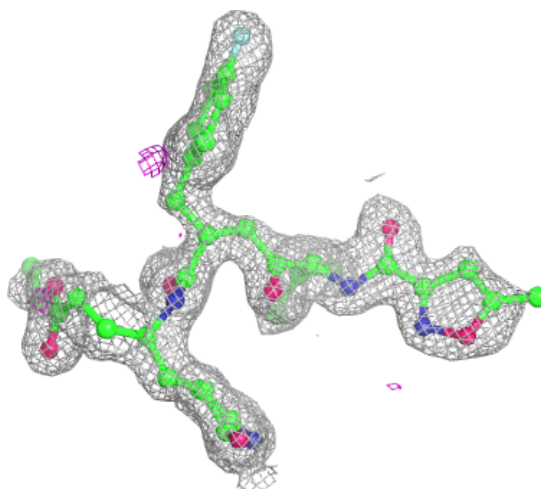
Electron density around AG7 E 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
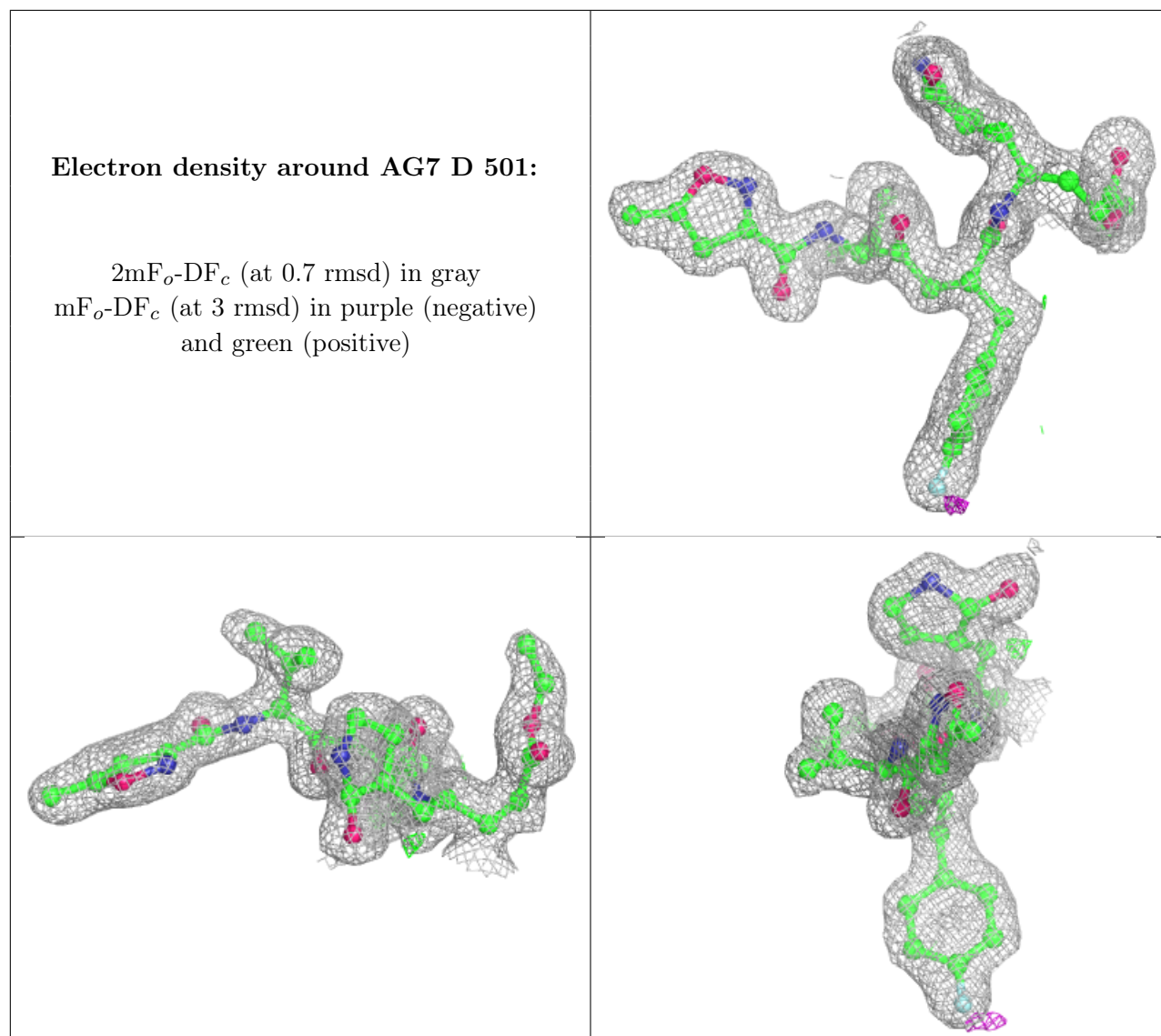
Electron density around AG7 A 501:

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

Electron density around AG7 C 501:

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 AG7 D 501:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.