Full wwPDB X-ray Structure Validation Report ⓘ

Nov 7, 2023 – 02:11 AM JST

PDB ID	:	8HCJ
Title	:	Structure of GH43 family enzyme, Xylan 1, 4 Beta- xylosidase from pseudopedobacter saltans
Authors	:	Vishwakarma, P.; Sachdeva, E.; Goyal, A.; Ethayathulla, A.S.; Das, U.; Kaur, P.
Deposited on	:	2022-11-01
Resolution	:	2.57 Å(reported)

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

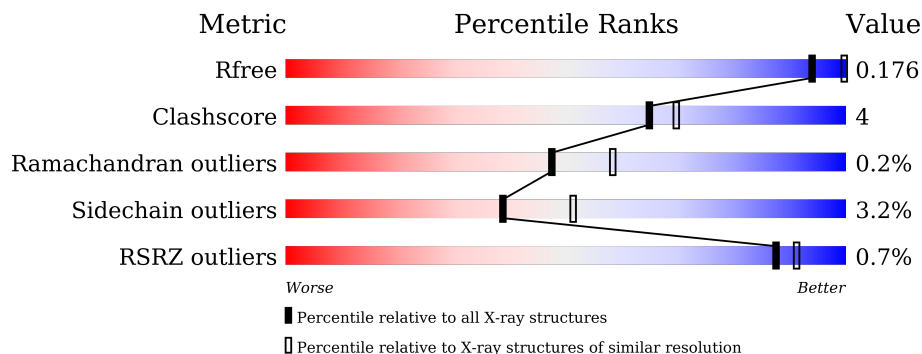|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.57 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		0.176
Clashscore		4
Ramachandran outliers		0.2%
Sidechain outliers		3.2%
RSRZ outliers		0.7%

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	1279 (2.58-2.54)
Clashscore	141614	1327 (2.58-2.54)
Ramachandran outliers	138981	1312 (2.58-2.54)
Sidechain outliers	138945	1312 (2.58-2.54)
RSRZ outliers	127900	1269 (2.58-2.54)

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	453	83% 11% • •
1	B	453	.% 89% 6% • •
1	C	453	.% 84% 10% • 5%
1	D	453	.% 85% 10% • •
1	E	453	87% 8% •
1	F	453	.% 83% 10% • 5%

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Mol	Chain	Length	Quality of chain
1	G	453	83% 11% 5%
1	H	453	85% 9%

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 28771 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 Xylan 1,4-beta-xylosidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	D	433	Total	C	N	O	S	0	0	0
			3433	2210	564	643	16			
1	E	433	Total	C	N	O	S	0	0	0
			3433	2210	564	643	16			
1	H	433	Total	C	N	O	S	0	0	0
			3433	2210	564	643	16			
1	A	433	Total	C	N	O	S	0	0	0
			3430	2208	564	643	15			
1	B	433	Total	C	N	O	S	0	0	0
			3430	2208	564	643	15			
1	G	432	Total	C	N	O	S	0	0	0
			3421	2203	562	641	15			
1	C	432	Total	C	N	O	S	0	0	0
			3425	2205	563	642	15			
1	F	432	Total	C	N	O	S	0	0	0
			3425	2205	563	642	15			

There are 168 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	1	MET	-	initiating methionine	UNP F0S5E9
D	2	GLY	-	expression tag	UNP F0S5E9
D	3	SER	-	expression tag	UNP F0S5E9
D	4	SER	-	expression tag	UNP F0S5E9
D	5	HIS	-	expression tag	UNP F0S5E9
D	6	HIS	-	expression tag	UNP F0S5E9
D	7	HIS	-	expression tag	UNP F0S5E9
D	8	HIS	-	expression tag	UNP F0S5E9
D	9	HIS	-	expression tag	UNP F0S5E9
D	10	HIS	-	expression tag	UNP F0S5E9
D	11	SER	-	expression tag	UNP F0S5E9
D	12	SER	-	expression tag	UNP F0S5E9
D	13	GLY	-	expression tag	UNP F0S5E9

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Chain	Residue	Modelled	Actual	Comment	Reference
D	14	LEU	-	expression tag	UNP F0S5E9
D	15	VAL	-	expression tag	UNP F0S5E9
D	16	PRO	-	expression tag	UNP F0S5E9
D	17	ARG	-	expression tag	UNP F0S5E9
D	18	GLY	-	expression tag	UNP F0S5E9
D	19	SER	-	expression tag	UNP F0S5E9
D	20	HIS	-	expression tag	UNP F0S5E9
D	21	MET	-	expression tag	UNP F0S5E9
E	1	MET	-	initiating methionine	UNP F0S5E9
E	2	GLY	-	expression tag	UNP F0S5E9
E	3	SER	-	expression tag	UNP F0S5E9
E	4	SER	-	expression tag	UNP F0S5E9
E	5	HIS	-	expression tag	UNP F0S5E9
E	6	HIS	-	expression tag	UNP F0S5E9
E	7	HIS	-	expression tag	UNP F0S5E9
E	8	HIS	-	expression tag	UNP F0S5E9
E	9	HIS	-	expression tag	UNP F0S5E9
E	10	HIS	-	expression tag	UNP F0S5E9
E	11	SER	-	expression tag	UNP F0S5E9
E	12	SER	-	expression tag	UNP F0S5E9
E	13	GLY	-	expression tag	UNP F0S5E9
E	14	LEU	-	expression tag	UNP F0S5E9
E	15	VAL	-	expression tag	UNP F0S5E9
E	16	PRO	-	expression tag	UNP F0S5E9
E	17	ARG	-	expression tag	UNP F0S5E9
E	18	GLY	-	expression tag	UNP F0S5E9
E	19	SER	-	expression tag	UNP F0S5E9
E	20	HIS	-	expression tag	UNP F0S5E9
E	21	MET	-	expression tag	UNP F0S5E9
H	1	MET	-	initiating methionine	UNP F0S5E9
H	2	GLY	-	expression tag	UNP F0S5E9
H	3	SER	-	expression tag	UNP F0S5E9
H	4	SER	-	expression tag	UNP F0S5E9
H	5	HIS	-	expression tag	UNP F0S5E9
H	6	HIS	-	expression tag	UNP F0S5E9
H	7	HIS	-	expression tag	UNP F0S5E9
H	8	HIS	-	expression tag	UNP F0S5E9
H	9	HIS	-	expression tag	UNP F0S5E9
H	10	HIS	-	expression tag	UNP F0S5E9
H	11	SER	-	expression tag	UNP F0S5E9
H	12	SER	-	expression tag	UNP F0S5E9
H	13	GLY	-	expression tag	UNP F0S5E9

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Chain	Residue	Modelled	Actual	Comment	Reference
H	14	LEU	-	expression tag	UNP F0S5E9
H	15	VAL	-	expression tag	UNP F0S5E9
H	16	PRO	-	expression tag	UNP F0S5E9
H	17	ARG	-	expression tag	UNP F0S5E9
H	18	GLY	-	expression tag	UNP F0S5E9
H	19	SER	-	expression tag	UNP F0S5E9
H	20	HIS	-	expression tag	UNP F0S5E9
H	21	MET	-	expression tag	UNP F0S5E9
A	1	MET	-	initiating methionine	UNP F0S5E9
A	2	GLY	-	expression tag	UNP F0S5E9
A	3	SER	-	expression tag	UNP F0S5E9
A	4	SER	-	expression tag	UNP F0S5E9
A	5	HIS	-	expression tag	UNP F0S5E9
A	6	HIS	-	expression tag	UNP F0S5E9
A	7	HIS	-	expression tag	UNP F0S5E9
A	8	HIS	-	expression tag	UNP F0S5E9
A	9	HIS	-	expression tag	UNP F0S5E9
A	10	HIS	-	expression tag	UNP F0S5E9
A	11	SER	-	expression tag	UNP F0S5E9
A	12	SER	-	expression tag	UNP F0S5E9
A	13	GLY	-	expression tag	UNP F0S5E9
A	14	LEU	-	expression tag	UNP F0S5E9
A	15	VAL	-	expression tag	UNP F0S5E9
A	16	PRO	-	expression tag	UNP F0S5E9
A	17	ARG	-	expression tag	UNP F0S5E9
A	18	GLY	-	expression tag	UNP F0S5E9
A	19	SER	-	expression tag	UNP F0S5E9
A	20	HIS	-	expression tag	UNP F0S5E9
A	21	MET	-	expression tag	UNP F0S5E9
B	1	MET	-	initiating methionine	UNP F0S5E9
B	2	GLY	-	expression tag	UNP F0S5E9
B	3	SER	-	expression tag	UNP F0S5E9
B	4	SER	-	expression tag	UNP F0S5E9
B	5	HIS	-	expression tag	UNP F0S5E9
B	6	HIS	-	expression tag	UNP F0S5E9
B	7	HIS	-	expression tag	UNP F0S5E9
B	8	HIS	-	expression tag	UNP F0S5E9
B	9	HIS	-	expression tag	UNP F0S5E9
B	10	HIS	-	expression tag	UNP F0S5E9
B	11	SER	-	expression tag	UNP F0S5E9
B	12	SER	-	expression tag	UNP F0S5E9
B	13	GLY	-	expression tag	UNP F0S5E9

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Chain	Residue	Modelled	Actual	Comment	Reference
B	14	LEU	-	expression tag	UNP F0S5E9
B	15	VAL	-	expression tag	UNP F0S5E9
B	16	PRO	-	expression tag	UNP F0S5E9
B	17	ARG	-	expression tag	UNP F0S5E9
B	18	GLY	-	expression tag	UNP F0S5E9
B	19	SER	-	expression tag	UNP F0S5E9
B	20	HIS	-	expression tag	UNP F0S5E9
B	21	MET	-	expression tag	UNP F0S5E9
G	1	MET	-	initiating methionine	UNP F0S5E9
G	2	GLY	-	expression tag	UNP F0S5E9
G	3	SER	-	expression tag	UNP F0S5E9
G	4	SER	-	expression tag	UNP F0S5E9
G	5	HIS	-	expression tag	UNP F0S5E9
G	6	HIS	-	expression tag	UNP F0S5E9
G	7	HIS	-	expression tag	UNP F0S5E9
G	8	HIS	-	expression tag	UNP F0S5E9
G	9	HIS	-	expression tag	UNP F0S5E9
G	10	HIS	-	expression tag	UNP F0S5E9
G	11	SER	-	expression tag	UNP F0S5E9
G	12	SER	-	expression tag	UNP F0S5E9
G	13	GLY	-	expression tag	UNP F0S5E9
G	14	LEU	-	expression tag	UNP F0S5E9
G	15	VAL	-	expression tag	UNP F0S5E9
G	16	PRO	-	expression tag	UNP F0S5E9
G	17	ARG	-	expression tag	UNP F0S5E9
G	18	GLY	-	expression tag	UNP F0S5E9
G	19	SER	-	expression tag	UNP F0S5E9
G	20	HIS	-	expression tag	UNP F0S5E9
G	21	MET	-	expression tag	UNP F0S5E9
C	1	MET	-	initiating methionine	UNP F0S5E9
C	2	GLY	-	expression tag	UNP F0S5E9
C	3	SER	-	expression tag	UNP F0S5E9
C	4	SER	-	expression tag	UNP F0S5E9
C	5	HIS	-	expression tag	UNP F0S5E9
C	6	HIS	-	expression tag	UNP F0S5E9
C	7	HIS	-	expression tag	UNP F0S5E9
C	8	HIS	-	expression tag	UNP F0S5E9
C	9	HIS	-	expression tag	UNP F0S5E9
C	10	HIS	-	expression tag	UNP F0S5E9
C	11	SER	-	expression tag	UNP F0S5E9
C	12	SER	-	expression tag	UNP F0S5E9
C	13	GLY	-	expression tag	UNP F0S5E9

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Chain	Residue	Modelled	Actual	Comment	Reference
C	14	LEU	-	expression tag	UNP F0S5E9
C	15	VAL	-	expression tag	UNP F0S5E9
C	16	PRO	-	expression tag	UNP F0S5E9
C	17	ARG	-	expression tag	UNP F0S5E9
C	18	GLY	-	expression tag	UNP F0S5E9
C	19	SER	-	expression tag	UNP F0S5E9
C	20	HIS	-	expression tag	UNP F0S5E9
C	21	MET	-	expression tag	UNP F0S5E9
F	1	MET	-	initiating methionine	UNP F0S5E9
F	2	GLY	-	expression tag	UNP F0S5E9
F	3	SER	-	expression tag	UNP F0S5E9
F	4	SER	-	expression tag	UNP F0S5E9
F	5	HIS	-	expression tag	UNP F0S5E9
F	6	HIS	-	expression tag	UNP F0S5E9
F	7	HIS	-	expression tag	UNP F0S5E9
F	8	HIS	-	expression tag	UNP F0S5E9
F	9	HIS	-	expression tag	UNP F0S5E9
F	10	HIS	-	expression tag	UNP F0S5E9
F	11	SER	-	expression tag	UNP F0S5E9
F	12	SER	-	expression tag	UNP F0S5E9
F	13	GLY	-	expression tag	UNP F0S5E9
F	14	LEU	-	expression tag	UNP F0S5E9
F	15	VAL	-	expression tag	UNP F0S5E9
F	16	PRO	-	expression tag	UNP F0S5E9
F	17	ARG	-	expression tag	UNP F0S5E9
F	18	GLY	-	expression tag	UNP F0S5E9
F	19	SER	-	expression tag	UNP F0S5E9
F	20	HIS	-	expression tag	UNP F0S5E9
F	21	MET	-	expression tag	UNP F0S5E9

- Molecule 2 is CALCIUM ION (three-letter code: CA) (formula: Ca) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	D	2	Total 2	Ca 2	0	0
2	E	2	Total 2	Ca 2	0	0
2	H	2	Total 2	Ca 2	0	0
2	A	2	Total 2	Ca 2	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	B	2	Total 2	Ca 2	0	0
2	G	2	Total 2	Ca 2	0	0
2	C	2	Total 2	Ca 2	0	0
2	F	2	Total 2	Ca 2	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	D	145	Total 145	O 145	0	0
3	E	208	Total 208	O 208	0	0
3	H	194	Total 194	O 194	0	0
3	A	157	Total 157	O 157	0	0
3	B	173	Total 173	O 173	0	0
3	G	136	Total 136	O 136	0	0
3	C	179	Total 179	O 179	0	0
3	F	133	Total 133	O 133	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.
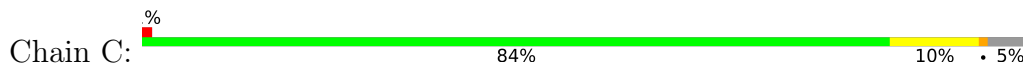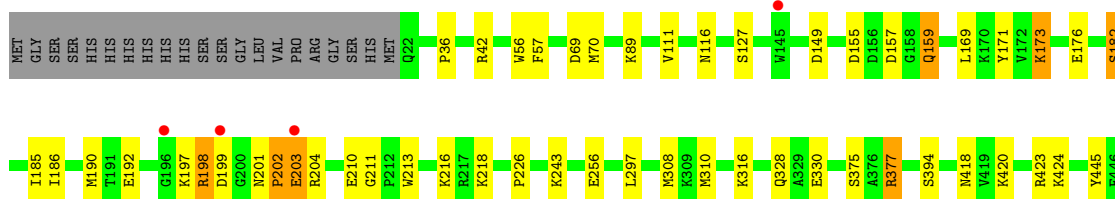
• Molecule 1: Xylan 1,4-beta-xylosidase

• Molecule 1: Xylan 1,4-beta-xylosidase

• Molecule 1: Xylan 1,4-beta-xylosidase

• Molecule 1: Xylan 1,4-beta-xylosidase

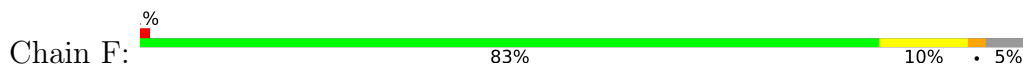P212 W213 L214 Y215 K216 D219 L220 Y221 P226 P229 L230 P231 E232 S241 A242 K243 E256 V294 Q295 E296 K309 K316 Y324 E330 S372 A373 F374 M392 G393 S394 Q395 K404 K420 L421 D422 R423 K424 I425 K438 Y445 K453

• Molecule 1: Xylan 1,4-beta-xylosidase

Chain B:

89%   6% • •

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS M21 Q22 P36 D52 W56 F57 D75 E144 W145 D149 N166 S182 D199 G200 N201 P202 E203 R204 E210 G211 P226 K240 K247 K258 I267

M308 E312 K316 E330 K339 K345 V361 K420 L421 D422 Y445 K453

• Molecule 1: Xylan 1,4-beta-xylosidase

Chain G:

83%   11% • 5%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET Q22 N23 P24 I25 P36 W56 F57 K89 K117 G118 A119 Q142 W145 I148 D149 F153 Q159 N166 Y171 V172 K173 I185 E193 K197 R198

D199 E203 E210 G211 P212 W213 L214 P226 K240 S241 N262 Y277 C293 V294 K301 Q325 Q328 A329 E330 K339 K345 S372 A373 F374 E396 K404 I416 K420 L421 D422 R423 K424 Y445 K453

• Molecule 1: Xylan 1,4-beta-xylosidase

Chain C:

84%   10% • 5%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET Q22 I25 M29 P36 K63 D75 K89 K100 S143 E144 W145 G146 D147 I148 D149 F153 I154 D155 D156 D157 K173 E176 D177 M178 S182 E193

K197 R198 N201 P202 E203 K207 E210 G211 P212 W213 L214 P226 P229 S241 G244 K247 P254 I267 V294 K309 E312 L321 E330 N343 D344 K345 V346 V361 S375 E396 N418 L421 K424 I425 K436

Y445 K450 F451 S452 K453

• Molecule 1: Xylan 1,4-beta-xylosidase

Chain F:

83%   10% • 5%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET Q22 P36 R42 W56 F57 D69 M70 K89 V111 N116 S127 W145 D149 D155 D156 D157 G158 Q159 L169 K170 Y171 V172 K173 E176 S182

I185 I186 M190 T191 E192 G196 K197 R198 D199 G200 N201 P202 E203 R204 E210 G211 P212 W213 K216 R217 K218 P226 K243 E256 L297 M308 K309 M310 K316 Q328 A329 E330 S375 A376 R377 S394 N418 V419 K420 R423 K424 Y445 F446

D447 S452 K453

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	73.34Å 89.66Å 138.44Å 102.73° 93.98° 98.24°	Depositor
Resolution (Å)	134.29 – 2.57 134.29 – 2.57	Depositor EDS
% Data completeness (in resolution range)	95.4 (134.29-2.57) 95.4 (134.29-2.57)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.11 (at 2.58Å)	Xtriage
Refinement program	REFMAC 5.8.0352	Depositor
R, R_{free}	0.163 , 0.209 0.167 , 0.176	Depositor DCC
R_{free} test set	5112 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å²)	30.2	Xtriage
Anisotropy	0.566	Xtriage
Bulk solvent k_{sol}(e/Å³), B_{sol}(Å²)	0.30 , 44.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	28771	wwPDB-VP
Average B, all atoms (Å²)	33.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 15.34% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< \|L\| >$, $< L^2 >$ 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:
CA

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	0.57	2/3533 (0.1%)	0.76	0/4798
1	B	0.55	0/3533	0.77	1/4798 (0.0%)
1	C	0.59	1/3528 (0.0%)	0.76	0/4791
1	D	0.56	0/3536	0.77	2/4801 (0.0%)
1	E	0.58	0/3536	0.76	1/4801 (0.0%)
1	F	0.55	0/3528	0.76	1/4791 (0.0%)
1	G	0.55	0/3524	0.74	0/4786
1	H	0.59	1/3536 (0.0%)	0.74	0/4801
All	All	0.57	4/28254 (0.0%)	0.76	5/38367 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	176	GLU	CD-OE1	6.99	1.33	1.25
1	A	296	GLU	CD-OE1	5.71	1.31	1.25
1	H	203	GLU	CD-OE1	5.33	1.31	1.25
1	C	396	GLU	CD-OE1	5.11	1.31	1.25

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	52	ASP	CB-CG-OD2	-9.62	109.64	118.30
1	D	377	ARG	NE-CZ-NH2	-6.46	117.07	120.30
1	E	377	ARG	NE-CZ-NH2	-5.61	117.49	120.30
1	D	126	ASP	CB-CG-OD2	-5.28	113.55	118.30
1	F	42	ARG	NE-CZ-NH2	-5.08	117.76	120.30

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	3430	0	3290	37	0
1	B	3430	0	3290	18	0
1	C	3425	0	3288	30	0
1	D	3433	0	3297	27	0
1	E	3433	0	3297	18	0
1	F	3425	0	3288	31	0
1	G	3421	0	3282	34	0
1	H	3433	0	3297	30	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
2	C	2	0	0	0	0
2	D	2	0	0	0	0
2	E	2	0	0	0	0
2	F	2	0	0	0	0
2	G	2	0	0	0	0
2	H	2	0	0	0	0
3	A	157	0	0	5	0
3	B	173	0	0	3	0
3	C	179	0	0	7	0
3	D	145	0	0	1	0
3	E	208	0	0	1	0
3	F	133	0	0	0	0
3	G	136	0	0	3	0
3	H	194	0	0	0	0
All	All	28771	0	26329	221	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 4.

All (221) 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:G:372:SER:O	1:G:420:LYS:HD3	1.74	0.87
1:G:22:GLN:HA	1:G:293:CYS:HB3	1.55	0.87
1:H:345:LYS:HG2	1:H:346:VAL:HG13	1.65	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:144:GLU:HG2	1:H:145:TRP:N	2.01	0.74
1:A:178:MET:CE	3:A:693:HOH:O	2.36	0.71
1:A:159:GLN:HB3	1:A:173:LYS:HZ3	1.55	0.71
1:H:22:GLN:HG3	1:H:314:ILE:O	1.91	0.70
1:E:21:MET:HG2	1:E:22:GLN:H	1.57	0.69
1:G:118:GLY:H	1:G:145:TRP:HZ3	1.40	0.68
1:B:201:ASN:HD22	1:B:203:GLU:H	1.42	0.67
1:G:119:ALA:HB2	1:G:142:GLN:HE21	1.60	0.67
1:A:204:ARG:NH1	3:A:602:HOH:O	2.28	0.66
1:A:178:MET:HE1	3:A:693:HOH:O	1.96	0.66
1:E:453:LYS:NZ	1:F:176:GLU:OE1	2.31	0.64
1:A:159:GLN:HB3	1:A:173:LYS:NZ	2.12	0.63
1:A:241:SER:HB2	1:A:243:LYS:HD3	1.78	0.63
1:D:193:GLU:OE2	1:D:193:GLU:N	2.28	0.63
1:C:396:GLU:HB2	3:C:746:HOH:O	1.98	0.63
1:C:343:ASN:HB3	3:C:638:HOH:O	1.99	0.63
1:H:345:LYS:HE2	1:H:412:ASP:O	1.99	0.62
1:A:392:MET:HE3	1:A:425:ILE:HG21	1.81	0.62
1:G:372:SER:C	1:G:420:LYS:HD3	2.18	0.62
1:G:372:SER:HB3	1:G:424:LYS:HE2	1.81	0.62
1:C:345:LYS:HG3	1:C:346:VAL:HG13	1.83	0.60
1:H:101:ASN:HD22	1:G:325:GLN:HE22	1.48	0.60
1:B:345:LYS:HZ3	1:B:345:LYS:HB3	1.66	0.59
1:G:22:GLN:N	1:G:294:VAL:H	2.01	0.59
1:F:155:ASP:HB3	1:F:157:ASP:OD1	2.03	0.59
1:C:424:LYS:HE3	3:C:615:HOH:O	2.01	0.59
1:A:230:LEU:HA	1:A:231:PRO:C	2.24	0.58
1:F:297:LEU:HA	1:F:308:MET:HE1	1.84	0.57
1:C:375:SER:OG	1:C:418:ASN:OD1	2.21	0.57
1:F:201:ASN:O	1:F:203:GLU:N	2.38	0.57
1:G:25:ILE:HG21	1:G:294:VAL:HG12	1.87	0.56
1:C:241:SER:OG	1:C:244:GLY:O	2.23	0.56
1:C:375:SER:HB2	1:C:450:LYS:HE3	1.87	0.56
1:A:393:GLY:HA2	3:A:612:HOH:O	2.05	0.56
1:G:153:PHE:HB3	1:G:214:LEU:HD23	1.87	0.56
1:C:100:LYS:NZ	3:C:605:HOH:O	2.37	0.56
1:D:153:PHE:HB3	1:D:214:LEU:HD23	1.89	0.55
1:D:176:GLU:HG3	3:D:676:HOH:O	2.06	0.55
1:H:21:MET:HG2	1:H:22:GLN:H	1.71	0.55
1:E:153:PHE:HB3	1:E:214:LEU:HD23	1.89	0.55
1:A:216:LYS:HE3	1:A:221:TYR:CZ	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:392:MET:CE	1:A:425:ILE:HG21	2.36	0.55
1:G:372:SER:O	1:G:420:LYS:CD	2.52	0.55
1:G:210:GLU:O	1:G:226:PRO:HD2	2.07	0.54
1:F:210:GLU:O	1:F:226:PRO:HD2	2.06	0.54
1:D:21:MET:HG2	1:D:22:GLN:H	1.73	0.54
1:C:25:ILE:HG21	1:C:294:VAL:HG12	1.89	0.54
1:F:198:ARG:HG2	1:F:199:ASP:H	1.72	0.54
1:H:339:LYS:HD3	1:H:341:PHE:CZ	2.42	0.54
1:A:210:GLU:O	1:A:226:PRO:HD2	2.08	0.54
1:G:145:TRP:HA	1:G:145:TRP:CE3	2.42	0.54
1:H:21:MET:HG2	1:H:23:ASN:H	1.73	0.54
1:H:117:LYS:HG3	1:H:142:GLN:NE2	2.23	0.54
1:C:153:PHE:HB3	1:C:214:LEU:HD23	1.90	0.54
1:H:153:PHE:HB3	1:H:214:LEU:HD23	1.90	0.53
1:C:210:GLU:O	1:C:226:PRO:HD2	2.08	0.53
1:B:201:ASN:HD22	1:B:203:GLU:N	2.07	0.53
1:D:193:GLU:H	1:D:193:GLU:CD	2.10	0.53
1:C:421:LEU:HD13	1:C:425:ILE:HG12	1.91	0.53
1:H:321:LEU:HD13	1:H:361:VAL:HG21	1.91	0.52
1:A:155:ASP:HB3	1:A:157:ASP:OD2	2.08	0.52
1:C:36:PRO:HD2	1:C:213:TRP:CH2	2.45	0.52
1:A:229:PRO:O	1:A:230:LEU:HB2	2.09	0.52
1:A:256:GLU:OE1	1:A:309:LYS:HG2	2.10	0.51
1:A:25:ILE:HG21	1:A:294:VAL:HG12	1.91	0.51
1:H:21:MET:CG	1:H:22:GLN:H	2.24	0.51
1:A:392:MET:HE3	1:A:425:ILE:CG2	2.40	0.51
1:B:21:MET:HA	1:B:312:GLU:HB3	1.92	0.51
1:D:438:LYS:O	1:F:394:SER:OG	2.26	0.51
1:E:408:THR:HG22	3:E:723:HOH:O	2.11	0.51
1:H:345:LYS:HE3	1:H:414:TRP:HD1	1.75	0.51
1:H:210:GLU:O	1:H:226:PRO:HD2	2.11	0.51
1:F:201:ASN:O	1:F:204:ARG:N	2.36	0.50
1:F:198:ARG:CZ	1:F:204:ARG:HD2	2.42	0.50
1:B:240:LYS:O	1:B:240:LYS:NZ	2.25	0.50
1:G:23:ASN:H	1:G:24:PRO:HA	1.76	0.50
1:D:25:ILE:HG21	1:D:294:VAL:HG12	1.93	0.50
1:F:201:ASN:O	1:F:202:PRO:C	2.49	0.49
1:C:198:ARG:HG3	1:C:229:PRO:HD3	1.93	0.49
1:G:145:TRP:HA	1:G:145:TRP:HE3	1.76	0.49
1:A:324:TYR:CE2	1:A:453:LYS:HE3	2.48	0.49
1:B:210:GLU:O	1:B:226:PRO:HD2	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:25:ILE:HG21	1:H:294:VAL:HG12	1.93	0.49
1:F:192:GLU:OE2	1:F:197:LYS:HD3	2.13	0.49
1:E:210:GLU:O	1:E:226:PRO:HD2	2.13	0.49
1:B:22:GLN:HG3	3:B:675:HOH:O	2.13	0.49
1:G:374:PHE:HB2	1:G:421:LEU:HD21	1.94	0.49
1:A:199:ASP:O	1:A:200:GLY:C	2.50	0.48
1:F:185:ILE:H	1:F:185:ILE:HD12	1.79	0.48
1:A:36:PRO:HD2	1:A:213:TRP:CH2	2.48	0.48
1:A:324:TYR:CZ	1:A:453:LYS:HE3	2.48	0.48
1:A:438:LYS:HD3	1:A:438:LYS:N	2.28	0.48
1:H:21:MET:CE	1:H:312:GLU:HB3	2.44	0.48
1:H:193:GLU:OE2	1:H:247:LYS:HG3	2.14	0.48
1:D:198:ARG:HG3	1:D:229:PRO:HD3	1.96	0.48
1:C:100:LYS:NZ	1:C:176:GLU:HG3	2.29	0.48
1:C:207:LYS:HG2	3:C:620:HOH:O	2.13	0.48
1:G:301:LYS:HD3	1:G:301:LYS:HA	1.69	0.47
1:C:155:ASP:HB3	1:C:157:ASP:OD1	2.13	0.47
1:H:321:LEU:HD13	1:H:361:VAL:CG2	2.45	0.47
1:A:423:ARG:NH1	1:A:425:ILE:HD13	2.30	0.47
1:D:210:GLU:O	1:D:226:PRO:HD2	2.14	0.47
1:G:422:ASP:HB2	1:G:423:ARG:HD3	1.96	0.47
1:D:312:GLU:H	1:D:312:GLU:CD	2.17	0.47
1:A:201:ASN:O	1:A:202:PRO:C	2.52	0.47
1:B:75:ASP:HB3	1:B:330:GLU:HB2	1.96	0.47
1:A:153:PHE:HB3	1:A:214:LEU:HD23	1.97	0.47
1:G:22:GLN:HA	1:G:293:CYS:CB	2.37	0.47
1:G:148:ILE:HD11	1:G:166:ASN:HB3	1.96	0.47
1:C:193:GLU:HG2	3:C:751:HOH:O	2.15	0.47
1:F:256:GLU:OE1	1:F:310:MET:HG3	2.14	0.47
1:F:185:ILE:HD12	1:F:185:ILE:N	2.30	0.47
1:E:21:MET:HG3	1:E:312:GLU:HG3	1.97	0.47
1:E:21:MET:HG2	1:E:22:GLN:N	2.28	0.46
1:E:168:LYS:HA	1:E:190:MET:HE2	1.97	0.46
1:D:435:PHE:C	1:D:436:LYS:HG2	2.35	0.46
1:E:385:GLY:HA3	1:E:438:LYS:HD3	1.98	0.46
1:G:159:GLN:NE2	3:G:612:HOH:O	2.48	0.46
1:F:377:ARG:HB3	1:F:447:ASP:HB3	1.97	0.46
1:F:149:ASP:HB3	1:F:211:GLY:HA2	1.97	0.46
1:G:345:LYS:HE2	3:G:690:HOH:O	2.15	0.46
1:G:117:LYS:HB3	1:G:117:LYS:HE2	1.51	0.46
1:G:119:ALA:HB2	1:G:142:GLN:NE2	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:29:MET:HE3	1:C:63:LYS:HE3	1.96	0.45
1:E:423:ARG:HG2	1:E:424:LYS:O	2.16	0.45
1:F:216:LYS:HE3	1:F:218:LYS:O	2.16	0.45
1:H:193:GLU:HA	1:H:193:GLU:OE1	2.16	0.45
1:B:201:ASN:ND2	1:B:203:GLU:H	2.10	0.45
1:B:149:ASP:HB3	1:B:211:GLY:HA2	1.99	0.45
1:E:25:ILE:HG21	1:E:294:VAL:HG12	1.99	0.45
1:G:404:LYS:HB2	1:G:404:LYS:HE3	1.40	0.45
1:D:400:ALA:HB1	1:D:425:ILE:HD11	1.99	0.45
1:A:374:PHE:HB2	1:A:421:LEU:HD11	1.99	0.45
1:F:159:GLN:HG2	1:F:173:LYS:NZ	2.31	0.45
1:D:156:ASP:OD2	1:D:216:LYS:NZ	2.48	0.45
1:G:416:ILE:HG21	3:G:728:HOH:O	2.16	0.45
1:A:420:LYS:HD2	1:A:420:LYS:HA	1.92	0.45
1:B:420:LYS:HD2	1:B:420:LYS:HA	1.74	0.44
1:F:89:LYS:HB3	1:F:111:VAL:HG12	2.00	0.44
1:D:377:ARG:HB3	1:D:447:ASP:HB3	1.98	0.44
1:F:169:LEU:H	1:F:190:MET:HE1	1.82	0.44
1:H:155:ASP:HB3	1:H:157:ASP:OD1	2.17	0.44
1:A:149:ASP:HB3	1:A:211:GLY:HA2	1.98	0.44
1:C:267:ILE:HD11	3:C:663:HOH:O	2.17	0.44
1:C:100:LYS:HZ1	1:C:176:GLU:HG3	1.83	0.44
1:F:159:GLN:HG2	1:F:173:LYS:HE2	1.99	0.44
1:H:75:ASP:HB3	1:H:330:GLU:HB2	1.99	0.44
1:A:198:ARG:NH1	1:A:229:PRO:HA	2.33	0.44
1:G:149:ASP:HB3	1:G:211:GLY:HA2	2.00	0.44
1:F:89:LYS:HE3	1:F:116:ASN:OD1	2.17	0.44
1:F:171:TYR:HD1	1:F:186:ILE:HD12	1.83	0.44
1:D:69:ASP:O	1:D:70:MET:HB2	2.18	0.43
1:A:75:ASP:HB3	1:A:330:GLU:HB2	2.00	0.43
1:A:423:ARG:HH12	1:A:425:ILE:HD13	1.83	0.43
1:D:38:VAL:HG23	1:D:267:ILE:CD1	2.48	0.43
1:B:22:GLN:CG	3:B:675:HOH:O	2.66	0.43
1:F:69:ASP:O	1:F:70:MET:HB2	2.19	0.43
1:A:156:ASP:HB2	3:A:740:HOH:O	2.19	0.43
1:C:149:ASP:HB3	1:C:211:GLY:HA2	2.00	0.43
1:C:143:SER:OG	1:C:147:ASP:OD1	2.36	0.43
1:D:38:VAL:HG23	1:D:267:ILE:HD13	1.99	0.43
1:D:420:LYS:HE3	1:D:420:LYS:HB2	1.65	0.42
1:H:443:ILE:HG22	1:H:444:MET:HG2	2.01	0.42
1:C:321:LEU:HD13	1:C:361:VAL:HG21	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:161:HIS:HE1	1:H:243:LYS:HE2	1.84	0.42
1:B:166:ASN:ND2	1:B:210:GLU:OE1	2.49	0.42
1:G:328:GLN:HB3	1:G:330:GLU:CD	2.39	0.42
1:F:197:LYS:O	1:F:198:ARG:CB	2.67	0.42
1:D:36:PRO:HD2	1:D:213:TRP:CH2	2.54	0.42
1:C:254:PRO:HG2	1:C:309:LYS:HE2	2.00	0.42
1:F:56:TRP:CG	1:F:57:PHE:N	2.88	0.42
1:D:450:LYS:HE3	1:C:177:ASP:OD2	2.19	0.42
1:A:230:LEU:HD11	1:A:232:GLU:HG3	2.01	0.42
1:C:22:GLN:HA	1:C:312:GLU:O	2.20	0.42
1:E:22:GLN:HG2	1:E:314:ILE:O	2.19	0.42
1:F:328:GLN:HB3	1:F:330:GLU:CD	2.40	0.42
1:E:120:ILE:HD11	1:E:164:TRP:CD1	2.55	0.42
1:D:173:LYS:NZ	1:D:243:LYS:HG2	2.35	0.42
1:H:345:LYS:HG2	1:H:346:VAL:N	2.35	0.42
1:B:56:TRP:CG	1:B:57:PHE:N	2.88	0.42
1:D:75:ASP:HB3	1:D:330:GLU:HB2	2.02	0.41
1:D:309:LYS:HE3	1:D:311:THR:HG22	2.02	0.41
1:E:149:ASP:HB3	1:E:211:GLY:HA2	2.02	0.41
1:D:216:LYS:HE3	1:D:221:TYR:CZ	2.55	0.41
1:A:372:SER:HB3	1:A:424:LYS:CE	2.50	0.41
1:H:316:LYS:HA	1:H:316:LYS:HD2	1.93	0.41
1:H:36:PRO:HD2	1:H:213:TRP:CH2	2.55	0.41
1:H:262:ASN:OD1	1:H:277:TYR:HB2	2.20	0.41
1:C:321:LEU:HD13	1:C:361:VAL:CG2	2.50	0.41
1:E:171:TYR:OH	1:E:243:LYS:HG2	2.21	0.41
1:G:262:ASN:OD1	1:G:277:TYR:HB2	2.21	0.41
1:C:176:GLU:O	1:C:178:MET:HG2	2.20	0.41
1:D:148:ILE:HD11	1:D:166:ASN:HB3	2.02	0.41
1:D:149:ASP:HB3	1:D:211:GLY:HA2	2.03	0.41
1:E:69:ASP:O	1:E:70:MET:HB2	2.21	0.41
1:B:308:MET:HB2	3:B:739:HOH:O	2.19	0.41
1:A:316:LYS:HA	1:A:316:LYS:HD3	1.83	0.41
1:B:36:PRO:HB2	1:B:267:ILE:HG21	2.01	0.41
1:F:36:PRO:HD2	1:F:213:TRP:CH2	2.55	0.41
1:D:400:ALA:CB	1:D:425:ILE:HD11	2.50	0.41
1:H:21:MET:CG	1:H:22:GLN:N	2.84	0.41
1:A:175:ASN:OD1	1:A:182:SER:HB3	2.20	0.41
1:B:144:GLU:OE2	1:B:144:GLU:HA	2.21	0.41
1:E:75:ASP:HB3	1:E:330:GLU:HB2	2.03	0.40
1:G:36:PRO:HD2	1:G:213:TRP:CH2	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:56:TRP:CG	1:G:57:PHE:N	2.89	0.40
1:H:144:GLU:OE2	1:H:168:LYS:NZ	2.54	0.40
1:H:144:GLU:CD	1:H:170:LYS:HZ1	2.24	0.40
1:G:172:VAL:CG1	1:G:185:ILE:HD13	2.52	0.40
1:G:422:ASP:OD1	1:G:422:ASP:N	2.53	0.40
1:C:75:ASP:HB3	1:C:330:GLU:HB2	2.03	0.40
1:F:420:LYS:HD2	1:F:420:LYS:HA	1.47	0.40
1:E:372:SER:HB3	1:E:424:LYS:HE3	2.04	0.40
1:A:69:ASP:O	1:A:70:MET:HB2	2.20	0.40
1:F:171:TYR:CD1	1:F:186:ILE:HD12	2.56	0.40
1:B:201:ASN:HB3	1:B:204:ARG:HB2	2.02	0.40
1:G:171:TYR:OH	1:G:173:LYS:HD2	2.21	0.40
1:F:375:SER:HB2	1:F:418:ASN:OD1	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	431/453 (95%)	410 (95%)	19 (4%)	2 (0%)	29	39
1	B	431/453 (95%)	410 (95%)	20 (5%)	1 (0%)	47	58
1	C	430/453 (95%)	412 (96%)	17 (4%)	1 (0%)	47	58
1	D	431/453 (95%)	409 (95%)	22 (5%)	0	100	100
1	E	431/453 (95%)	415 (96%)	16 (4%)	0	100	100
1	F	430/453 (95%)	407 (95%)	20 (5%)	3 (1%)	22	29
1	G	430/453 (95%)	410 (95%)	20 (5%)	0	100	100
1	H	431/453 (95%)	411 (95%)	20 (5%)	0	100	100
All	All	3445/3624 (95%)	3284 (95%)	154 (4%)	7 (0%)	47	58

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	200	GLY
1	F	202	PRO
1	F	198	ARG
1	F	182	SER
1	A	230	LEU
1	B	199	ASP
1	C	201	ASN

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	363/381 (95%)	351 (97%)	12 (3%)	38	50
1	B	363/381 (95%)	352 (97%)	11 (3%)	41	53
1	C	363/381 (95%)	351 (97%)	12 (3%)	38	50
1	D	364/381 (96%)	352 (97%)	12 (3%)	38	50
1	E	364/381 (96%)	355 (98%)	9 (2%)	47	61
1	F	363/381 (95%)	351 (97%)	12 (3%)	38	50
1	G	362/381 (95%)	347 (96%)	15 (4%)	30	41
1	H	364/381 (96%)	354 (97%)	10 (3%)	44	58
All	All	2906/3048 (95%)	2813 (97%)	93 (3%)	39	51

All (93) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	127	SER
1	D	144	GLU
1	D	193	GLU
1	D	240	LYS
1	D	243	LYS
1	D	247	LYS
1	D	309	LYS

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Mol	Chain	Res	Type
1	D	316	LYS
1	D	377	ARG
1	D	423	ARG
1	D	440	SER
1	D	445	TYR
1	E	168	LYS
1	E	173	LYS
1	E	193	GLU
1	E	240	LYS
1	E	315	THR
1	E	339	LYS
1	E	361	VAL
1	E	404	LYS
1	E	445	TYR
1	H	193	GLU
1	H	243	LYS
1	H	312	GLU
1	H	316	LYS
1	H	344	ASP
1	H	345	LYS
1	H	395	GLN
1	H	404	LYS
1	H	423	ARG
1	H	445	TYR
1	A	203	GLU
1	A	219	ASP
1	A	241	SER
1	A	243	LYS
1	A	309	LYS
1	A	395	GLN
1	A	404	LYS
1	A	420	LYS
1	A	421	LEU
1	A	422	ASP
1	A	423	ARG
1	A	445	TYR
1	B	145	TRP
1	B	199	ASP
1	B	201	ASN
1	B	240	LYS
1	B	247	LYS
1	B	258	LYS

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Mol	Chain	Res	Type
1	B	316	LYS
1	B	339	LYS
1	B	361	VAL
1	B	422	ASP
1	B	445	TYR
1	G	89	LYS
1	G	117	LYS
1	G	193	GLU
1	G	197	LYS
1	G	199	ASP
1	G	203	GLU
1	G	240	LYS
1	G	241	SER
1	G	339	LYS
1	G	396	GLU
1	G	404	LYS
1	G	420	LYS
1	G	422	ASP
1	G	423	ARG
1	G	445	TYR
1	C	89	LYS
1	C	173	LYS
1	C	177	ASP
1	C	193	GLU
1	C	197	LYS
1	C	247	LYS
1	C	309	LYS
1	C	345	LYS
1	C	424	LYS
1	C	436	LYS
1	C	445	TYR
1	C	452	SER
1	F	127	SER
1	F	159	GLN
1	F	173	LYS
1	F	182	SER
1	F	203	GLU
1	F	243	LYS
1	F	316	LYS
1	F	377	ARG
1	F	423	ARG
1	F	424	LYS

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Mol	Chain	Res	Type
1	F	445	TYR
1	F	452	SER

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

Mol	Chain	Res	Type
1	E	337	HIS
1	E	354	GLN
1	H	22	GLN
1	H	101	ASN
1	A	40	ASN
1	A	395	GLN
1	B	201	ASN
1	G	159	GLN
1	G	337	HIS
1	C	159	GLN
1	C	325	GLN
1	F	159	GLN

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 ⓘ

Of 16 ligands modelled in this entry, 16 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 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	433/453 (95%)	-0.40	1 (0%)	95	97	17, 31, 59, 126	0
1	B	433/453 (95%)	-0.36	6 (1%)	75	81	17, 30, 61, 115	0
1	C	432/453 (95%)	-0.43	4 (0%)	84	89	15, 27, 56, 116	0
1	D	433/453 (95%)	-0.37	3 (0%)	87	91	17, 29, 57, 107	0
1	E	433/453 (95%)	-0.43	1 (0%)	95	97	15, 25, 54, 112	0
1	F	432/453 (95%)	-0.39	4 (0%)	84	89	18, 32, 65, 130	0
1	G	432/453 (95%)	-0.31	3 (0%)	87	91	17, 34, 66, 104	0
1	H	433/453 (95%)	-0.52	2 (0%)	91	94	16, 25, 46, 109	0
All	All	3461/3624 (95%)	-0.40	24 (0%)	87	91	15, 29, 59, 130	0

All (24) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	203	GLU	4.9
1	E	145	TRP	4.3
1	B	202	PRO	4.3
1	B	145	TRP	3.6
1	H	145	TRP	3.6
1	B	203	GLU	3.2
1	C	202	PRO	3.2
1	C	182	SER	3.2
1	F	203	GLU	3.1
1	C	145	TRP	2.8
1	G	422	ASP	2.8
1	D	199	ASP	2.7
1	B	21	MET	2.4
1	F	199	ASP	2.4
1	D	423	ARG	2.4
1	G	423	ARG	2.4

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Mol	Chain	Res	Type	RSRZ
1	H	182	SER	2.3
1	F	145	TRP	2.3
1	B	182	SER	2.3
1	G	145	TRP	2.2
1	A	21	MET	2.2
1	D	422	ASP	2.1
1	B	201	ASN	2.1
1	F	196	GLY	2.0

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	CA	F	501	1/1	0.96	0.05	43,43,43,43	0
2	CA	B	501	1/1	0.97	0.05	48,48,48,48	0
2	CA	H	502	1/1	0.97	0.06	24,24,24,24	0
2	CA	F	502	1/1	0.97	0.07	22,22,22,22	0
2	CA	A	501	1/1	0.98	0.05	38,38,38,38	0
2	CA	G	501	1/1	0.98	0.05	56,56,56,56	0
2	CA	B	502	1/1	0.99	0.09	22,22,22,22	0
2	CA	E	501	1/1	0.99	0.04	42,42,42,42	0
2	CA	G	502	1/1	0.99	0.08	22,22,22,22	0
2	CA	C	501	1/1	0.99	0.05	37,37,37,37	0
2	CA	C	502	1/1	0.99	0.05	20,20,20,20	0
2	CA	A	502	1/1	0.99	0.06	28,28,28,28	0
2	CA	D	501	1/1	0.99	0.04	33,33,33,33	0
2	CA	H	501	1/1	1.00	0.08	43,43,43,43	0
2	CA	D	502	1/1	1.00	0.06	23,23,23,23	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	CA	E	502	1/1	1.00	0.09	25,25,25,25	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.
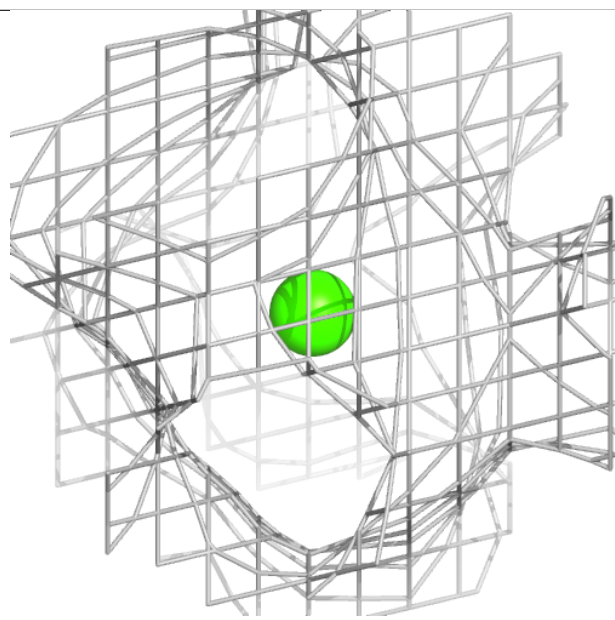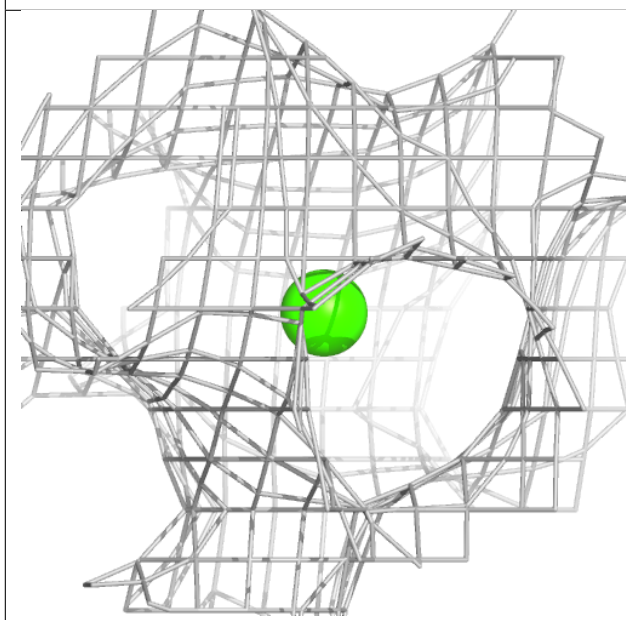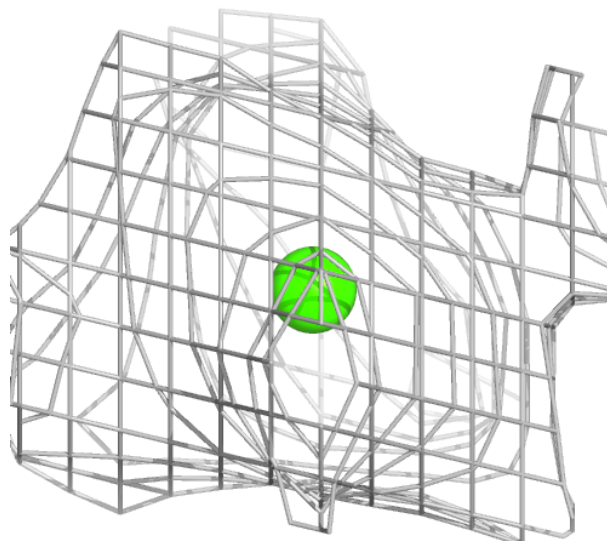

Electron density around CA F 501:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative) and green (positive)
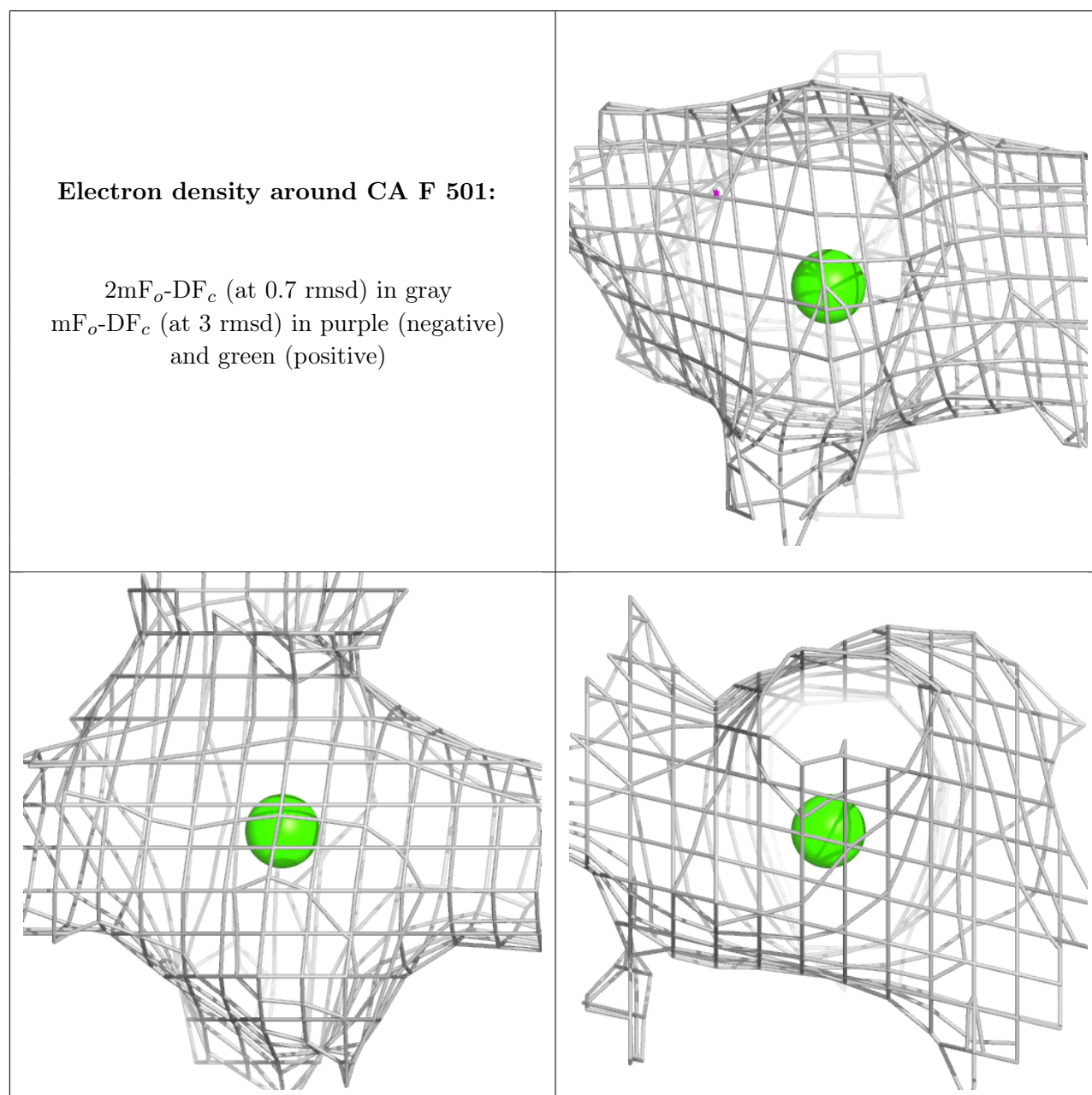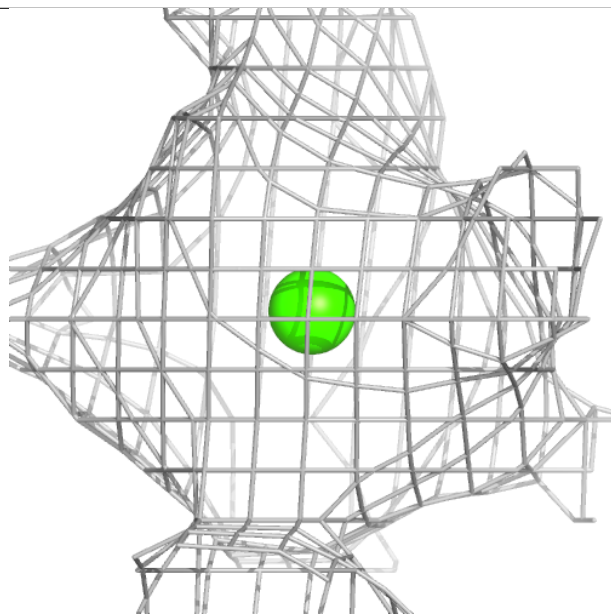
Electron density around CA B 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
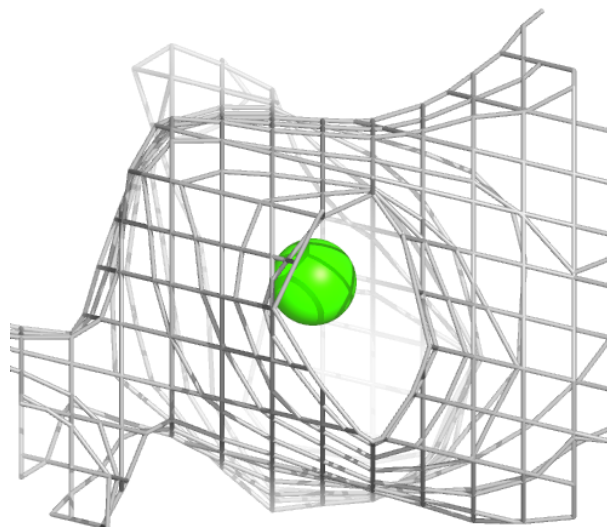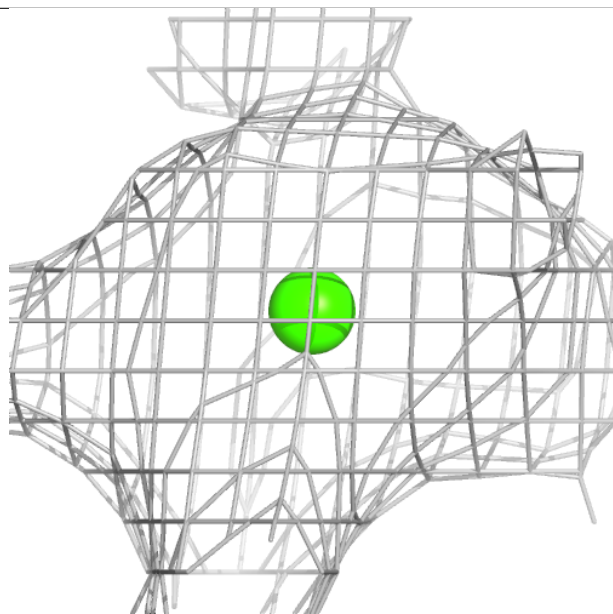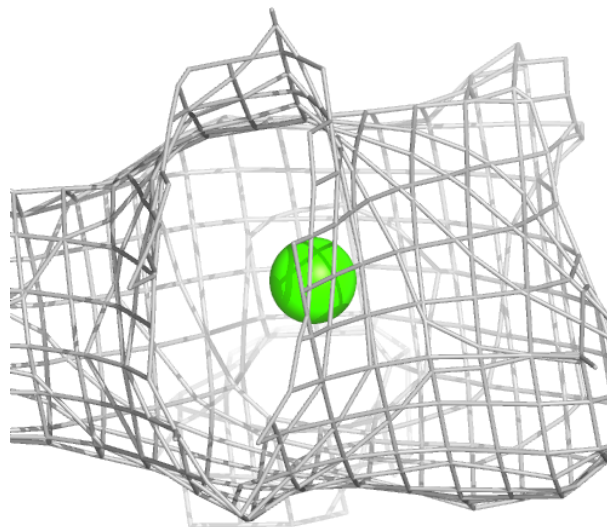
Electron density around CA H 502:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
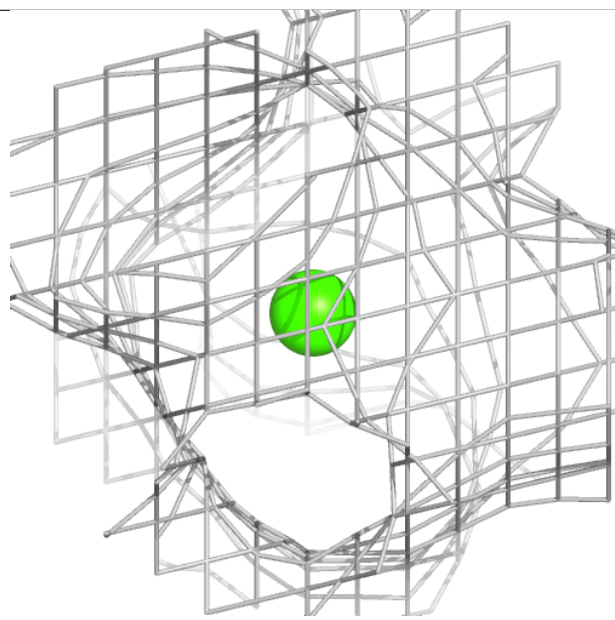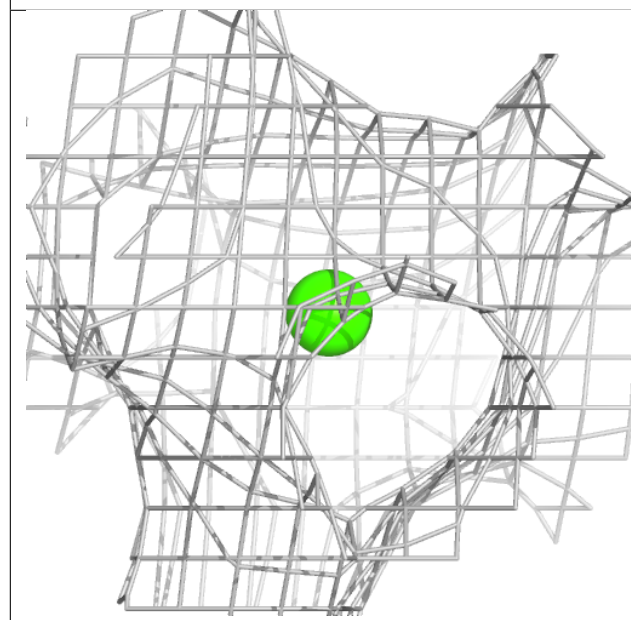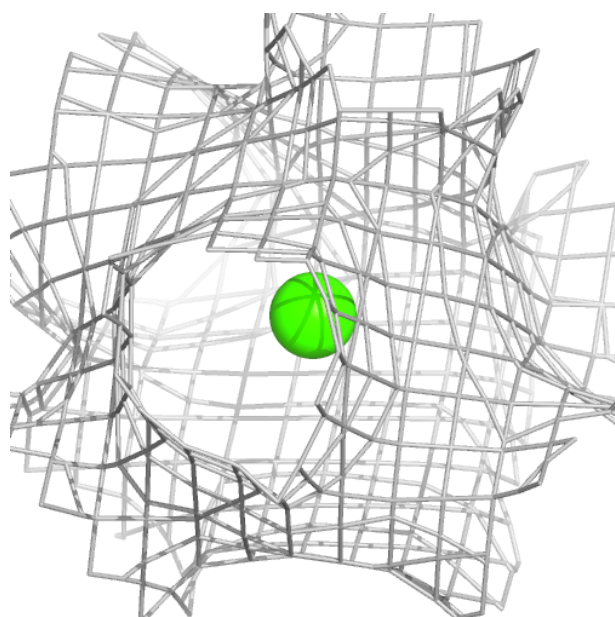
Electron density around CA F 502:

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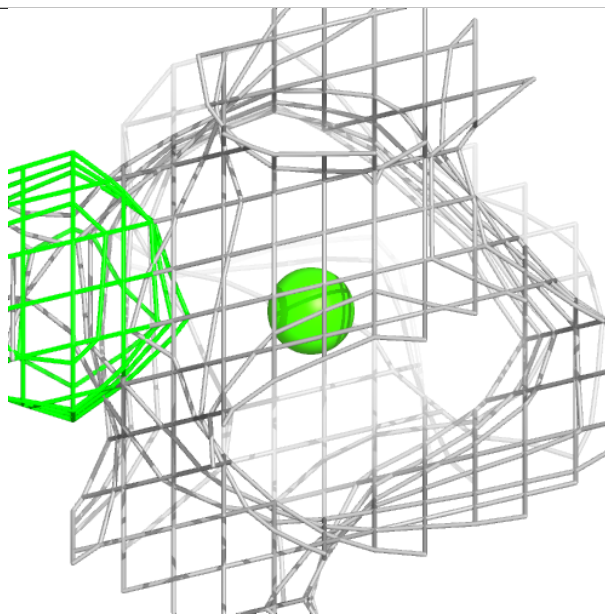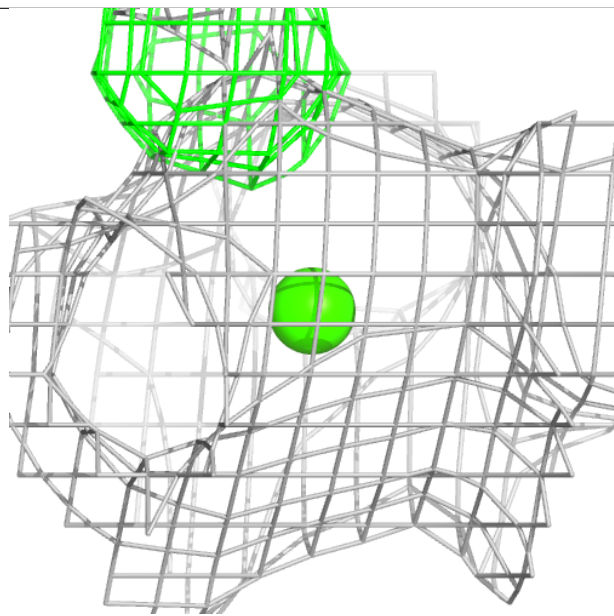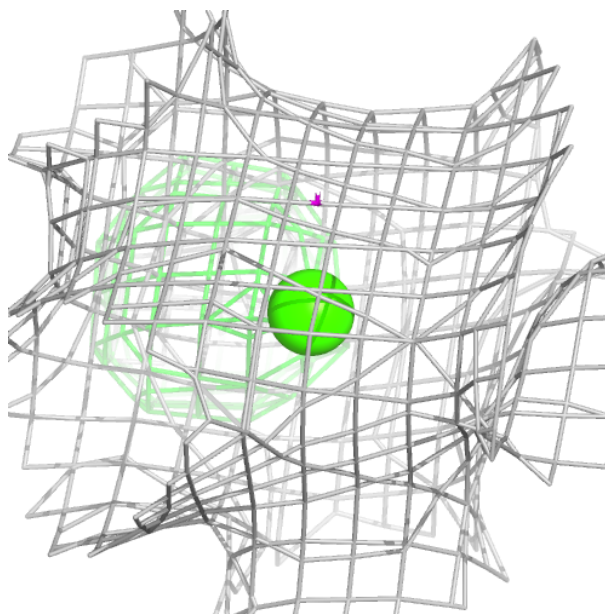
Electron density around CA A 501:

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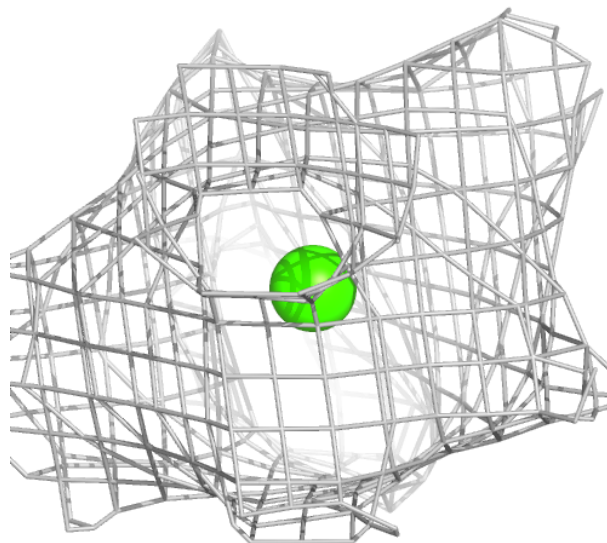$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
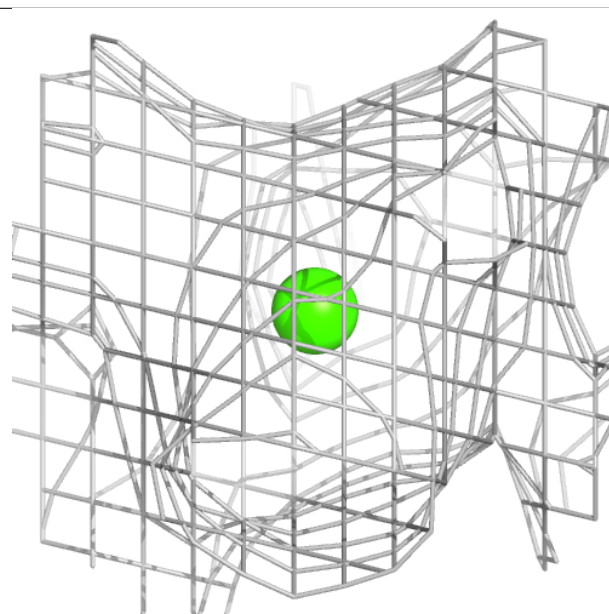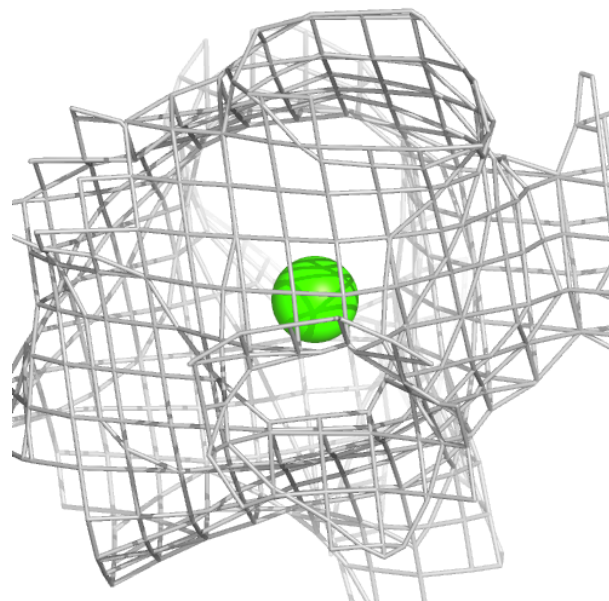and green (positive)
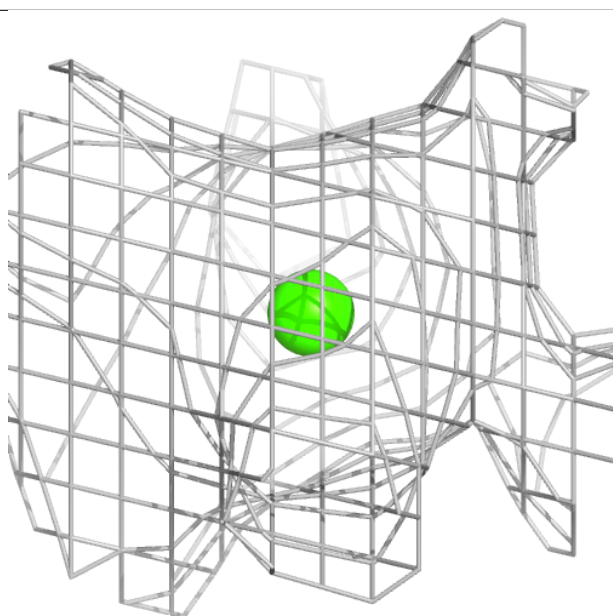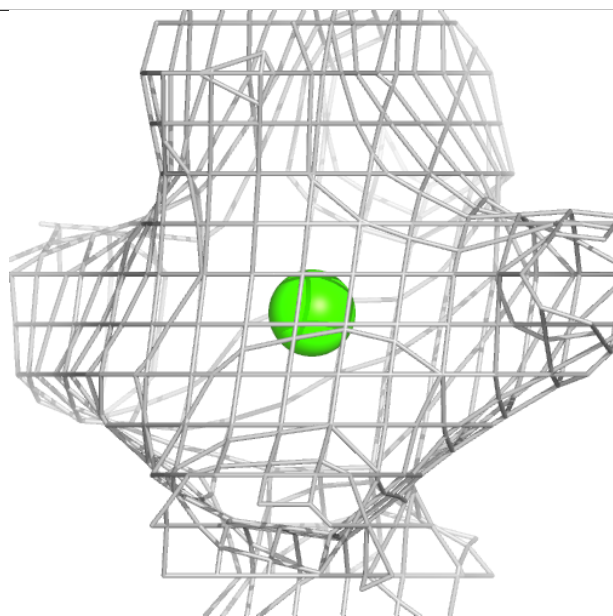
Electron density around CA G 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
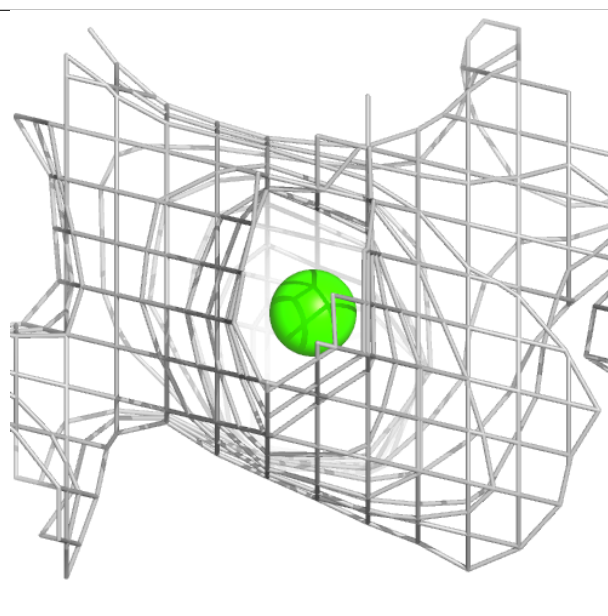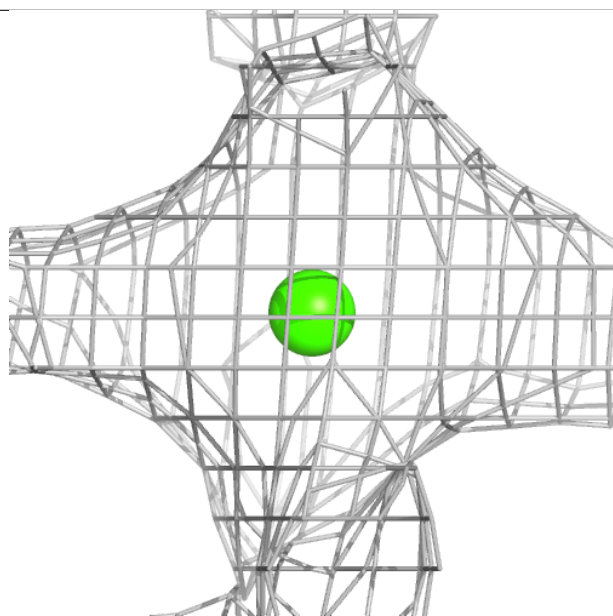
Electron density around CA B 502:

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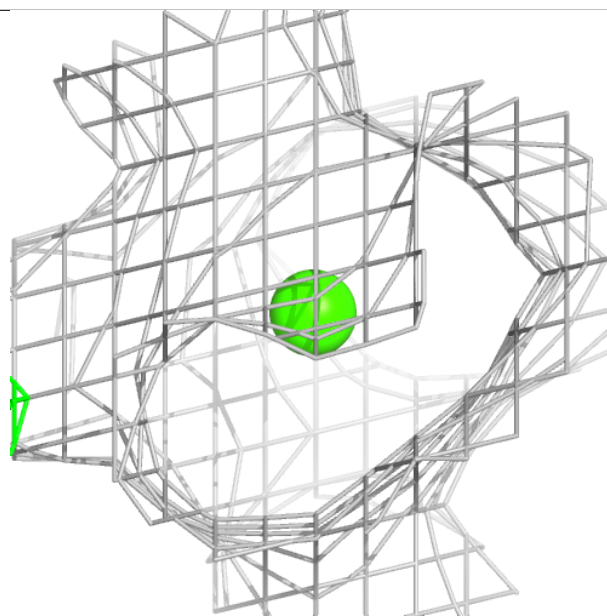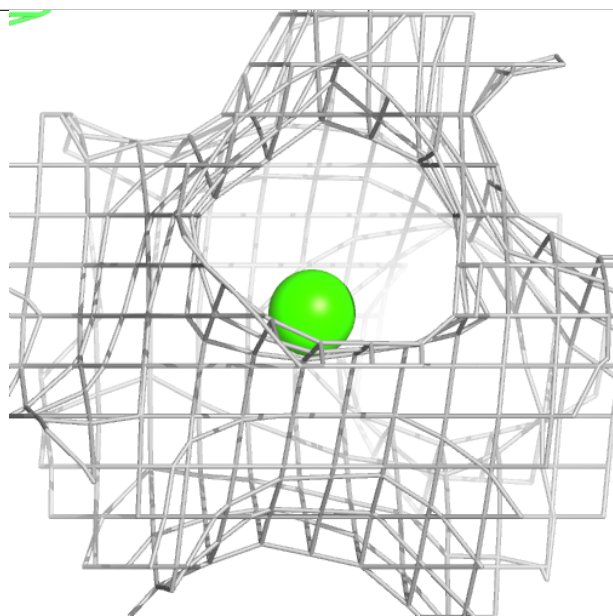
Electron density around CA E 501:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
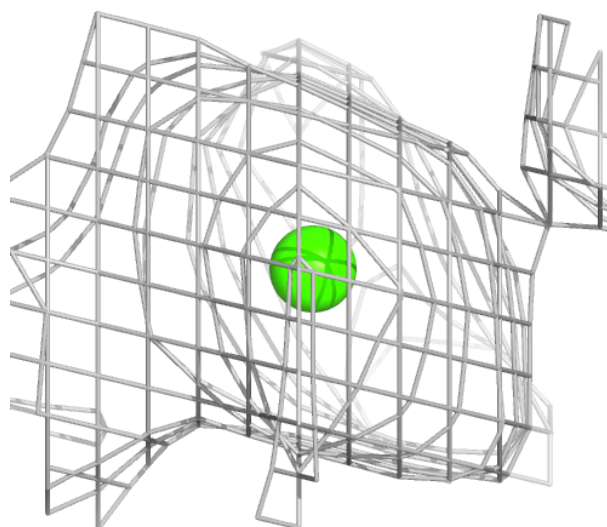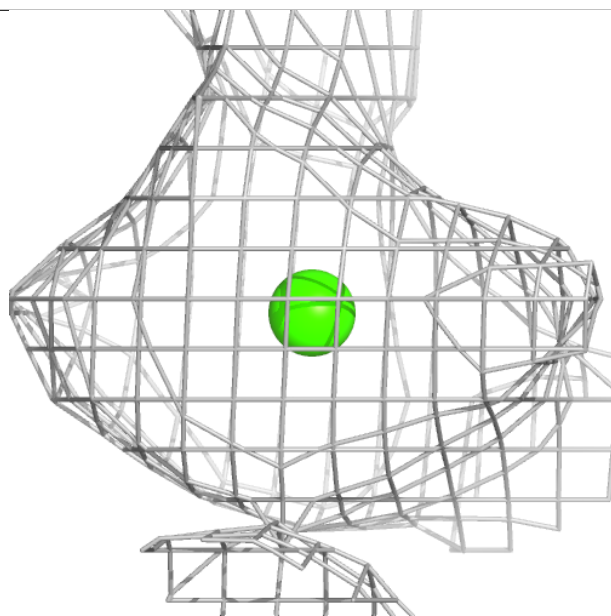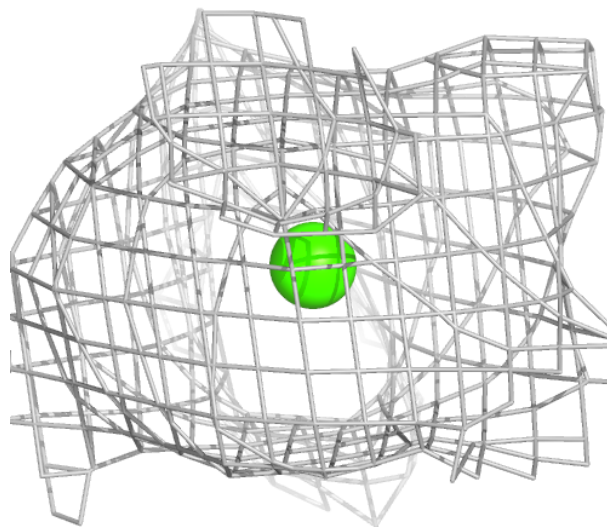
Electron density around CA G 502:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
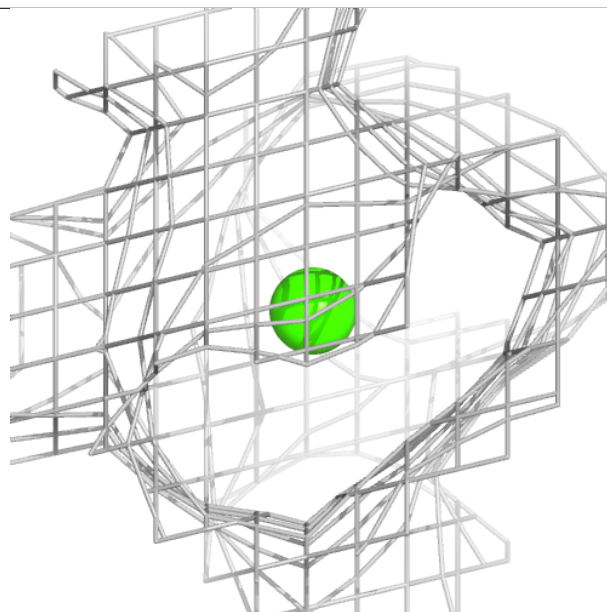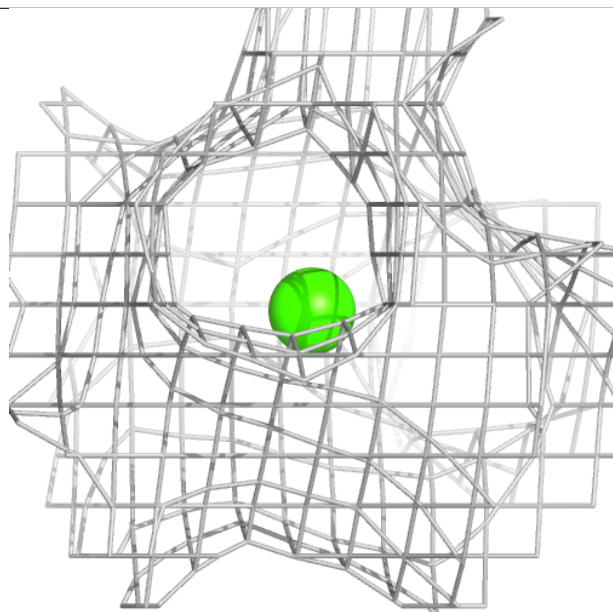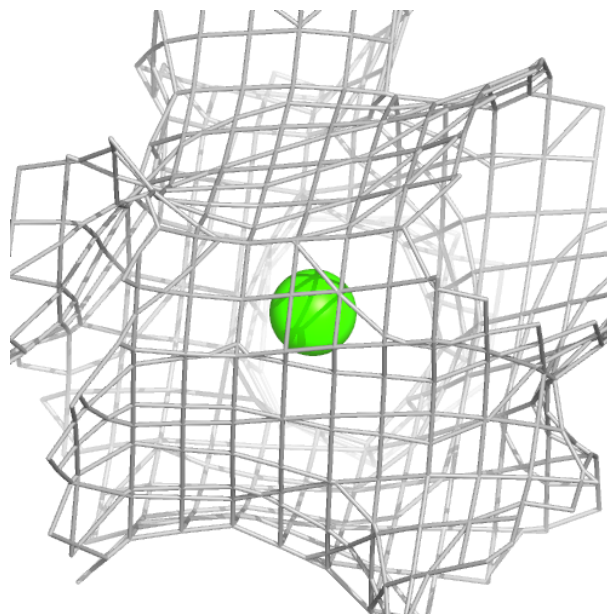
Electron density around CA C 501:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
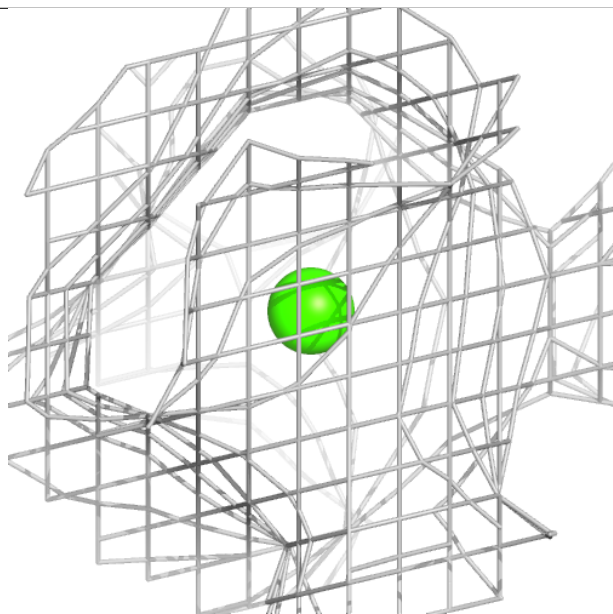$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
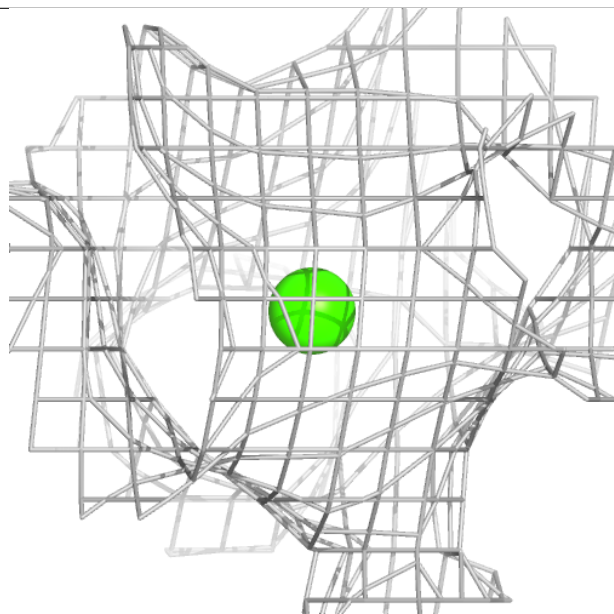and green (positive)
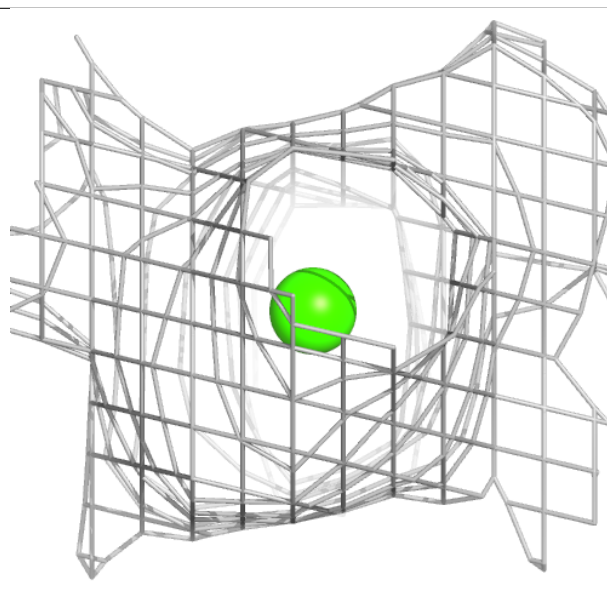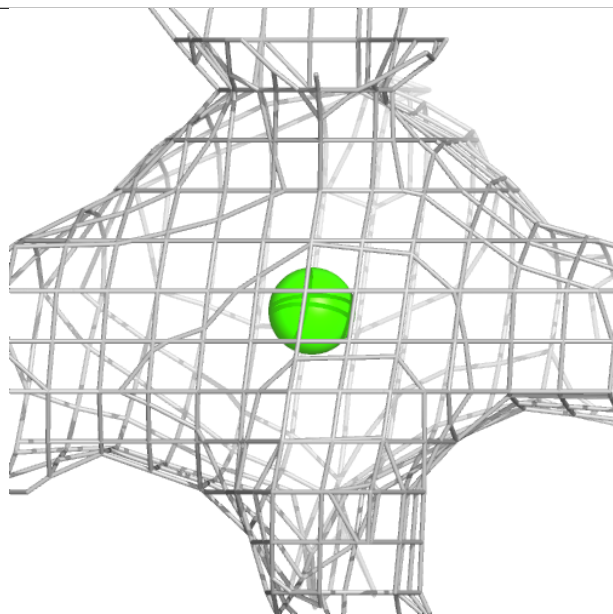
Electron density around CA C 502:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
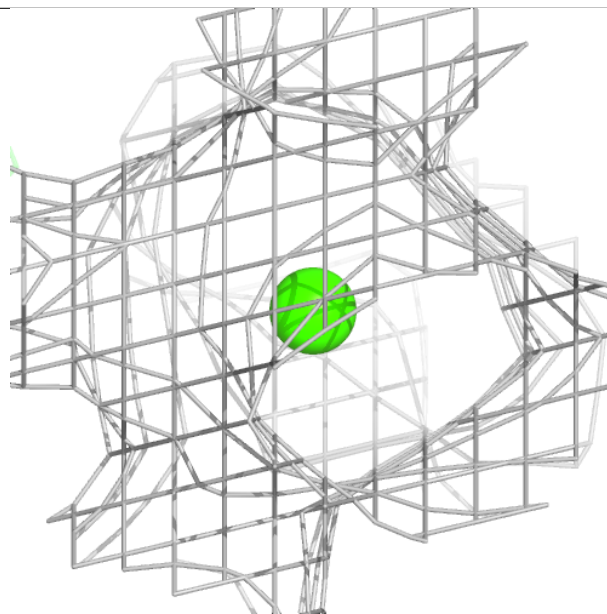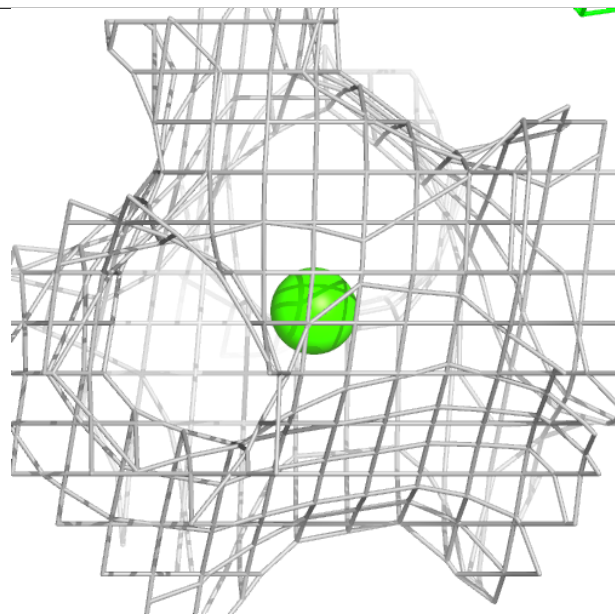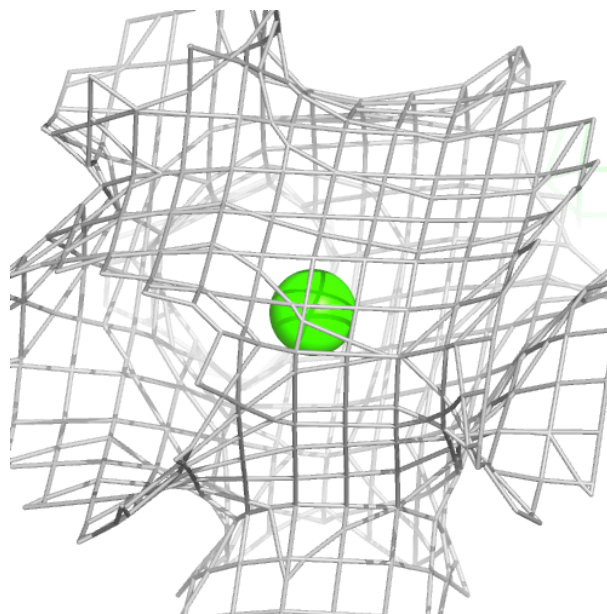
Electron density around CA A 502:

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

Electron density around CA D 501:

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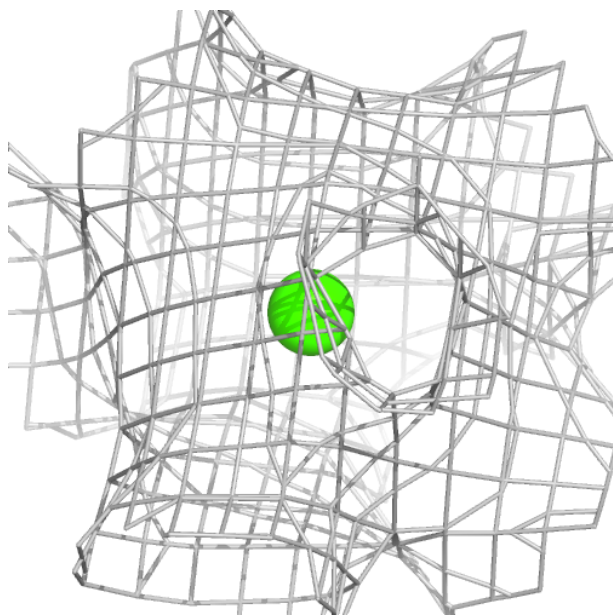$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
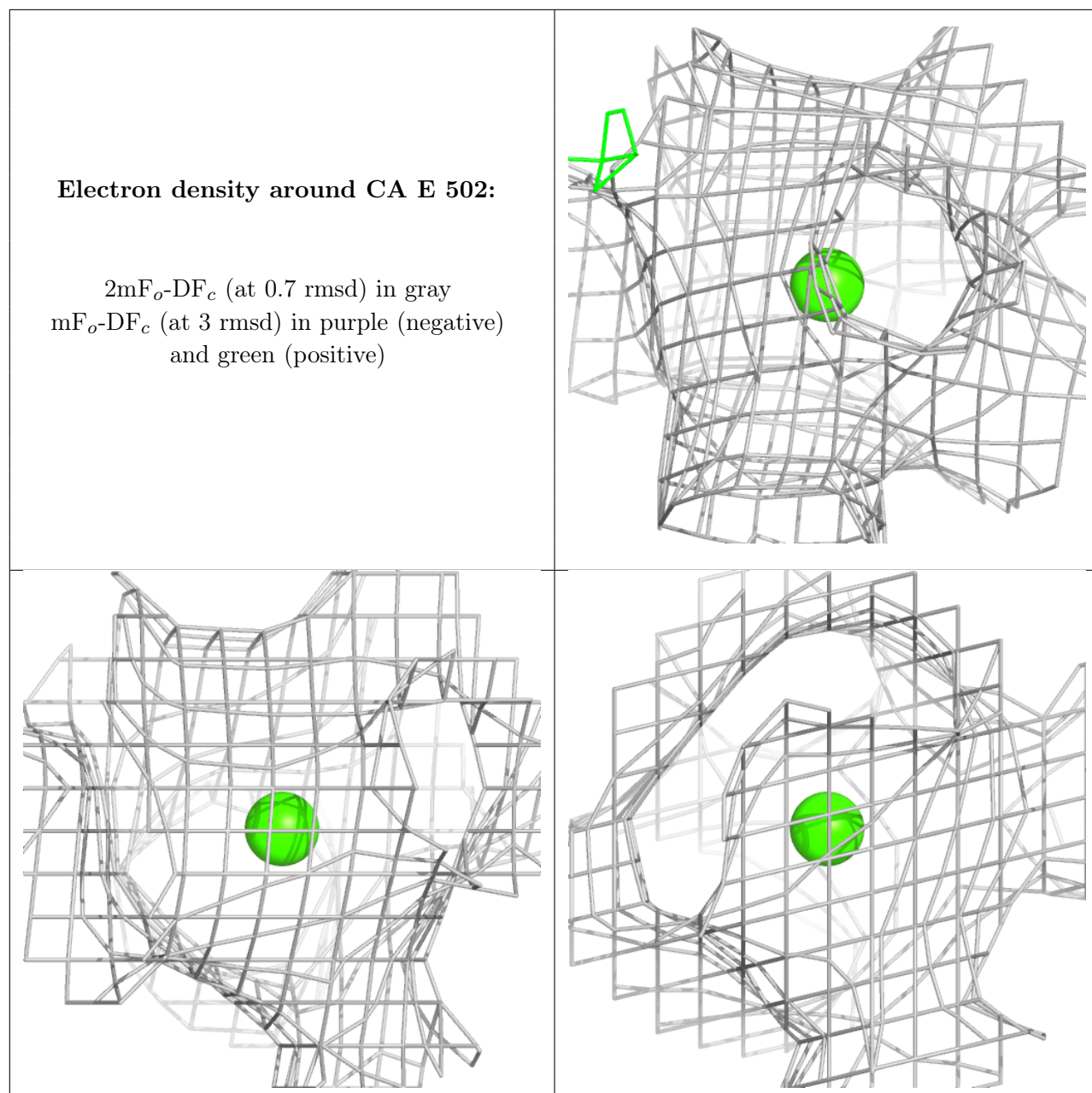and green (positive)

Electron density around CA 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 CA D 502:

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 CA E 502:

$2mF_o$-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.