WORLDWIDE wwPDB PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report ⓘ

Oct 9, 2023 – 11:16 PM EDT

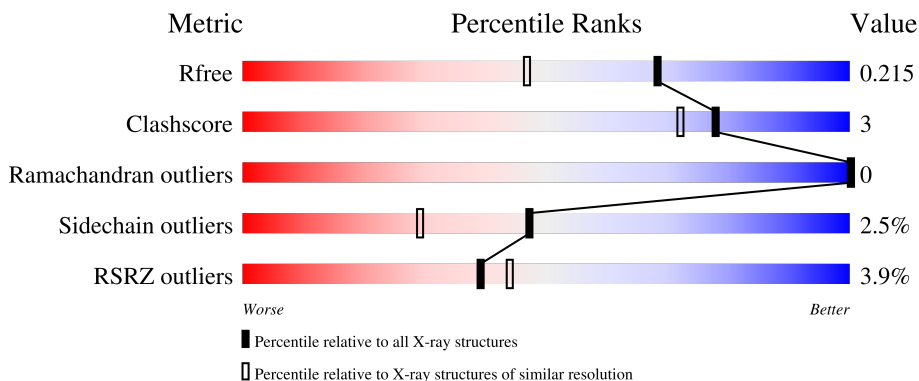|		
PDB ID	:	7RJ9
Title	:	Crystal structure of the Vitronectin hemopexin-like domain binding Calcium
Authors	:	Aleshin, A.E.; Marassi, F.M.
Deposited on	:	2021-07-20
Resolution	:	1.70 Å(reported)

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		0.215
Clashscore		3
Ramachandran outliers		0
Sidechain outliers		2.5%
RSRZ outliers		3.9%

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	204	3% 85% 7% 7%
1	B	204	4% 88% 7% 5%

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 3567 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 Vitronectin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	189	Total	C	N	O	S	0	5	0
			1583	1023	267	289	4			
1	B	194	Total	C	N	O	S	0	5	0
			1629	1047	283	295	4			

There are 242 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	153	MET	-	initiating methionine	UNP P04004
A	180	SER	CYS	engineered mutation	UNP P04004
A	215	SER	CYS	engineered mutation	UNP P04004
A	?	-	HIS	deletion	UNP P04004
A	?	-	GLN	deletion	UNP P04004
A	?	-	PRO	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	GLN	deletion	UNP P04004
A	?	-	GLU	deletion	UNP P04004
A	?	-	GLU	deletion	UNP P04004
A	?	-	CYS	deletion	UNP P04004
A	?	-	GLU	deletion	UNP P04004
A	?	-	GLY	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	LEU	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	ALA	deletion	UNP P04004
A	?	-	VAL	deletion	UNP P04004
A	?	-	PHE	deletion	UNP P04004
A	?	-	GLU	deletion	UNP P04004
A	?	-	HIS	deletion	UNP P04004
A	?	-	PHE	deletion	UNP P04004
A	?	-	ALA	deletion	UNP P04004
A	?	-	MET	deletion	UNP P04004

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Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	MET	deletion	UNP P04004
A	?	-	GLN	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	ASP	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	TRP	deletion	UNP P04004
A	?	-	GLU	deletion	UNP P04004
A	?	-	ASP	deletion	UNP P04004
A	?	-	ILE	deletion	UNP P04004
A	?	-	PHE	deletion	UNP P04004
A	?	-	GLU	deletion	UNP P04004
A	?	-	LEU	deletion	UNP P04004
A	?	-	LEU	deletion	UNP P04004
A	?	-	PHE	deletion	UNP P04004
A	?	-	TRP	deletion	UNP P04004
A	?	-	GLY	deletion	UNP P04004
A	?	-	TYR	deletion	UNP P04004
A	?	-	ILE	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	GLY	deletion	UNP P04004
A	?	-	MET	deletion	UNP P04004
A	?	-	ALA	deletion	UNP P04004
A	?	-	PRO	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	PRO	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	LEU	deletion	UNP P04004
A	?	-	ALA	deletion	UNP P04004
A	?	-	LYS	deletion	UNP P04004
A	?	-	LYS	deletion	UNP P04004
A	?	-	GLN	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	PHE	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	HIS	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	ASN	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	LYS	deletion	UNP P04004
A	?	-	GLY	deletion	UNP P04004
A	?	-	TYR	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004

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Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	SER	deletion	UNP P04004
A	?	-	GLN	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	GLY	deletion	UNP P04004
A	?	-	HIS	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	GLY	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	ASN	deletion	UNP P04004
A	?	-	GLN	deletion	UNP P04004
A	?	-	ASN	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	PRO	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	ALA	deletion	UNP P04004
A	?	-	THR	deletion	UNP P04004
A	?	-	TRP	deletion	UNP P04004
A	?	-	LEU	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	LEU	deletion	UNP P04004
A	?	-	PHE	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	GLU	deletion	UNP P04004
A	?	-	GLU	deletion	UNP P04004
A	?	-	SER	deletion	UNP P04004
A	?	-	ASN	deletion	UNP P04004
A	?	-	LEU	deletion	UNP P04004
A	?	-	GLY	deletion	UNP P04004
A	?	-	ALA	deletion	UNP P04004
A	?	-	ASN	deletion	UNP P04004
A	?	-	ASN	deletion	UNP P04004
A	?	-	TYR	deletion	UNP P04004
A	?	-	ASP	deletion	UNP P04004
A	?	-	ASP	deletion	UNP P04004
A	?	-	TYR	deletion	UNP P04004
A	?	-	ARG	deletion	UNP P04004
A	?	-	MET	deletion	UNP P04004

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Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	ASP	deletion	UNP P04004
A	?	-	TRP	deletion	UNP P04004
A	?	-	LEU	deletion	UNP P04004
A	?	-	VAL	deletion	UNP P04004
A	?	-	PRO	deletion	UNP P04004
A	?	-	ALA	deletion	UNP P04004
A	?	-	THR	deletion	UNP P04004
A	?	-	CYS	deletion	UNP P04004
A	?	-	GLU	deletion	UNP P04004
A	?	-	PRO	deletion	UNP P04004
A	?	-	ILE	deletion	UNP P04004
A	?	-	GLN	deletion	UNP P04004
B	153	MET	-	initiating methionine	UNP P04004
B	180	SER	CYS	engineered mutation	UNP P04004
B	215	SER	CYS	engineered mutation	UNP P04004
B	?	-	HIS	deletion	UNP P04004
B	?	-	GLN	deletion	UNP P04004
B	?	-	PRO	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	GLN	deletion	UNP P04004
B	?	-	GLU	deletion	UNP P04004
B	?	-	GLU	deletion	UNP P04004
B	?	-	CYS	deletion	UNP P04004
B	?	-	GLU	deletion	UNP P04004
B	?	-	GLY	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	LEU	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	ALA	deletion	UNP P04004
B	?	-	VAL	deletion	UNP P04004
B	?	-	PHE	deletion	UNP P04004
B	?	-	GLU	deletion	UNP P04004
B	?	-	HIS	deletion	UNP P04004
B	?	-	PHE	deletion	UNP P04004
B	?	-	ALA	deletion	UNP P04004
B	?	-	MET	deletion	UNP P04004
B	?	-	MET	deletion	UNP P04004
B	?	-	GLN	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	ASP	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004

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Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	TRP	deletion	UNP P04004
B	?	-	GLU	deletion	UNP P04004
B	?	-	ASP	deletion	UNP P04004
B	?	-	ILE	deletion	UNP P04004
B	?	-	PHE	deletion	UNP P04004
B	?	-	GLU	deletion	UNP P04004
B	?	-	LEU	deletion	UNP P04004
B	?	-	LEU	deletion	UNP P04004
B	?	-	PHE	deletion	UNP P04004
B	?	-	TRP	deletion	UNP P04004
B	?	-	GLY	deletion	UNP P04004
B	?	-	TYR	deletion	UNP P04004
B	?	-	ILE	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	GLY	deletion	UNP P04004
B	?	-	MET	deletion	UNP P04004
B	?	-	ALA	deletion	UNP P04004
B	?	-	PRO	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	PRO	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	LEU	deletion	UNP P04004
B	?	-	ALA	deletion	UNP P04004
B	?	-	LYS	deletion	UNP P04004
B	?	-	LYS	deletion	UNP P04004
B	?	-	GLN	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	PHE	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	HIS	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	ASN	deletion	UNP P04004
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B	?	-	GLY	deletion	UNP P04004
B	?	-	TYR	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
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B	?	-	GLN	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	GLY	deletion	UNP P04004
B	?	-	HIS	deletion	UNP P04004

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Chain	Residue	Modelled	Actual	Comment	Reference
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B	?	-	ARG	deletion	UNP P04004
B	?	-	GLY	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	ASN	deletion	UNP P04004
B	?	-	GLN	deletion	UNP P04004
B	?	-	ASN	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	PRO	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	ALA	deletion	UNP P04004
B	?	-	THR	deletion	UNP P04004
B	?	-	TRP	deletion	UNP P04004
B	?	-	LEU	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	LEU	deletion	UNP P04004
B	?	-	PHE	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	GLU	deletion	UNP P04004
B	?	-	GLU	deletion	UNP P04004
B	?	-	SER	deletion	UNP P04004
B	?	-	ASN	deletion	UNP P04004
B	?	-	LEU	deletion	UNP P04004
B	?	-	GLY	deletion	UNP P04004
B	?	-	ALA	deletion	UNP P04004
B	?	-	ASN	deletion	UNP P04004
B	?	-	ASN	deletion	UNP P04004
B	?	-	TYR	deletion	UNP P04004
B	?	-	ASP	deletion	UNP P04004
B	?	-	ASP	deletion	UNP P04004
B	?	-	TYR	deletion	UNP P04004
B	?	-	ARG	deletion	UNP P04004
B	?	-	MET	deletion	UNP P04004
B	?	-	ASP	deletion	UNP P04004
B	?	-	TRP	deletion	UNP P04004
B	?	-	LEU	deletion	UNP P04004
B	?	-	VAL	deletion	UNP P04004
B	?	-	PRO	deletion	UNP P04004

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Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	ALA	deletion	UNP P04004
B	?	-	THR	deletion	UNP P04004
B	?	-	CYS	deletion	UNP P04004
B	?	-	GLU	deletion	UNP P04004
B	?	-	PRO	deletion	UNP P04004
B	?	-	ILE	deletion	UNP P04004
B	?	-	GLN	deletion	UNP P04004

- 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	A	1	Total 1	Ca 1	0	0
2	B	1	Total 1	Ca 1	0	0

- Molecule 3 is CHLORIDE ION (three-letter code: CL) (formula: Cl) (labeled as "Ligand of Interest" by depositor).

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

- Molecule 4 is SODIUM ION (three-letter code: NA) (formula: Na) (labeled as "Ligand of Interest" by depositor).

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

- Molecule 5 is SULFATE ION (three-letter code: SO4) (formula: O_4S) (labeled as "Ligand of Interest" by depositor).

SO4

O1

O3 O⁻ — S — O⁻ O4

S

O2
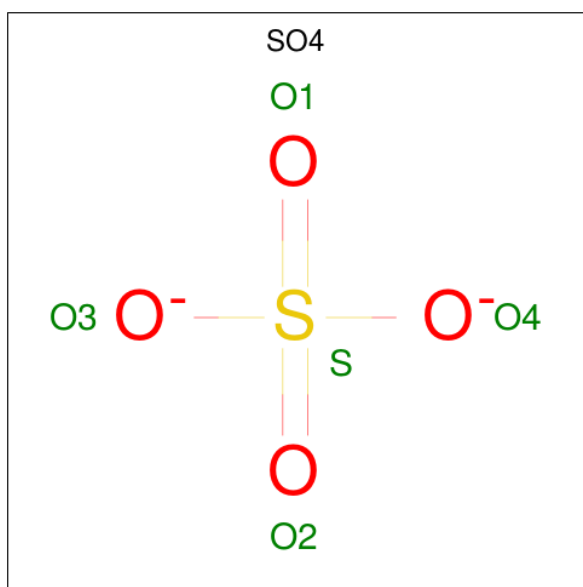
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	B	1	Total 5	O 4	S 1	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	147	Total 147	O 147	0	0
6	B	197	Total 197	O 197	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: Vitronectin

Chain A:
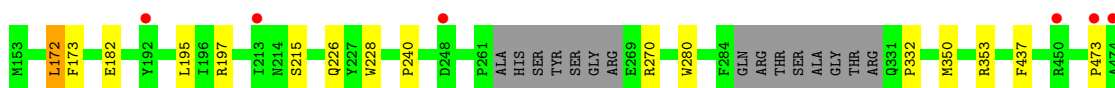
• Molecule 1: Vitronectin

Chain B:
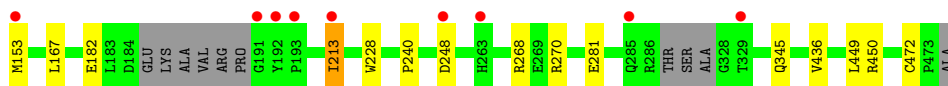
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	40.83Å 125.58Å 40.88Å 90.00° 119.25° 90.00°	Depositor
Resolution (Å)	35.69 – 1.70 35.67 – 1.70	Depositor EDS
% Data completeness (in resolution range)	97.8 (35.69-1.70) 97.5 (35.67-1.70)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.52 (at 1.70Å)	Xtriage
Refinement program	REFMAC 5.8.0257	Depositor
R, R_{free}	0.171 , 0.210 0.181 , 0.215	Depositor DCC
R_{free} test set	2261 reflections (5.87%)	wwPDB-VP
Wilson B-factor (Å^2)	19.3	Xtriage
Anisotropy	0.027	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 28.3	EDS
L-test for twinning[2]	$< |L| > = 0.45, < L^2 > = 0.28$	Xtriage
Estimated twinning fraction	0.034 for -h-l,k,h 0.034 for l,k,-h-l 0.059 for h,-k,-h-l 0.057 for -h-l,-k,l 0.107 for l,-k,h	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	3567	wwPDB-VP
Average B, all atoms (Å^2)	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.08% 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 (i)

5.1 Standard geometry (i)

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

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	0.66	0/1633	0.83	0/2211
1	B	0.70	0/1680	0.86	0/2273
All	All	0.68	0/3313	0.84	0/4484

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1583	0	1489	10	0
1	B	1629	0	1527	11	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
5	B	5	0	0	0	0
6	A	147	0	0	1	0
6	B	197	0	0	3	0
All	All	3567	0	3016	18	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 3.

The worst 5 of 18 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:226[A]:GLN:NE2	6:A:601:HOH:O	2.29	0.65
1:B:268[B]:ARG:NH1	6:B:608:HOH:O	2.34	0.61
1:B:213:ILE:HG22	1:B:213:ILE:O	2.02	0.60
1:B:270:ARG:HD3	1:B:281:GLU:OE2	2.06	0.56
1:A:353:ARG:NH2	1:B:472:CYS:O	2.40	0.55

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	188/204 (92%)	183 (97%)	5 (3%)	0	100	100
1	B	193/204 (95%)	189 (98%)	4 (2%)	0	100	100
All	All	381/408 (93%)	372 (98%)	9 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	163/170 (96%)	160 (98%)	3 (2%)	59	43
1	B	167/170 (98%)	162 (97%)	5 (3%)	41	22
All	All	330/340 (97%)	322 (98%)	8 (2%)	47	31

5 of 8 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	345	GLN
1	B	248	ASP
1	B	182	GLU
1	B	167	LEU
1	B	213	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	216	GLN
1	B	345	GLN
1	B	467	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 ⓘ

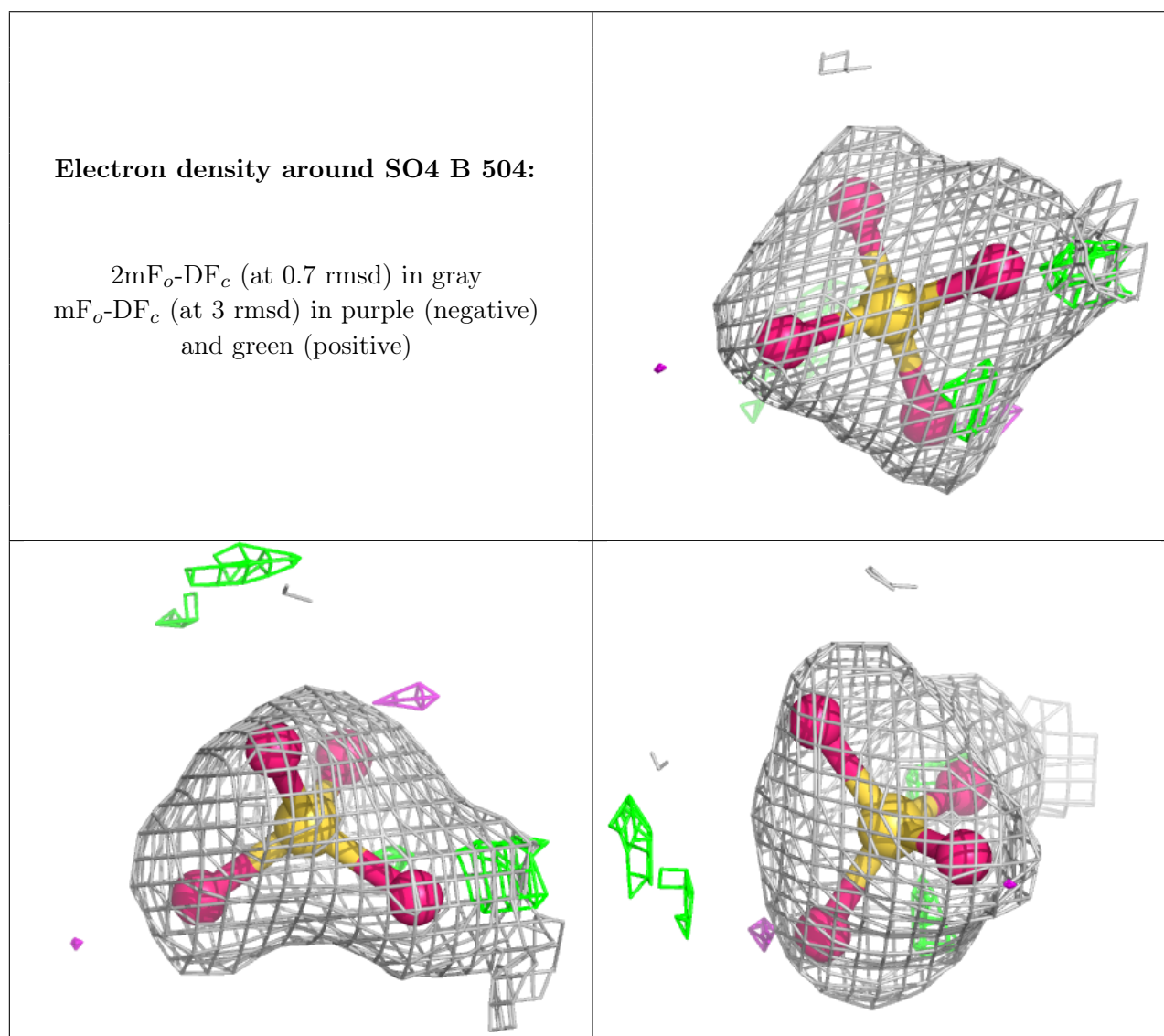There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 7 ligands modelled in this entry, 6 are monoatomic - leaving 1 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.

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 SO4 B 504

Bond lengths

Bond angles

Torsions

Rings
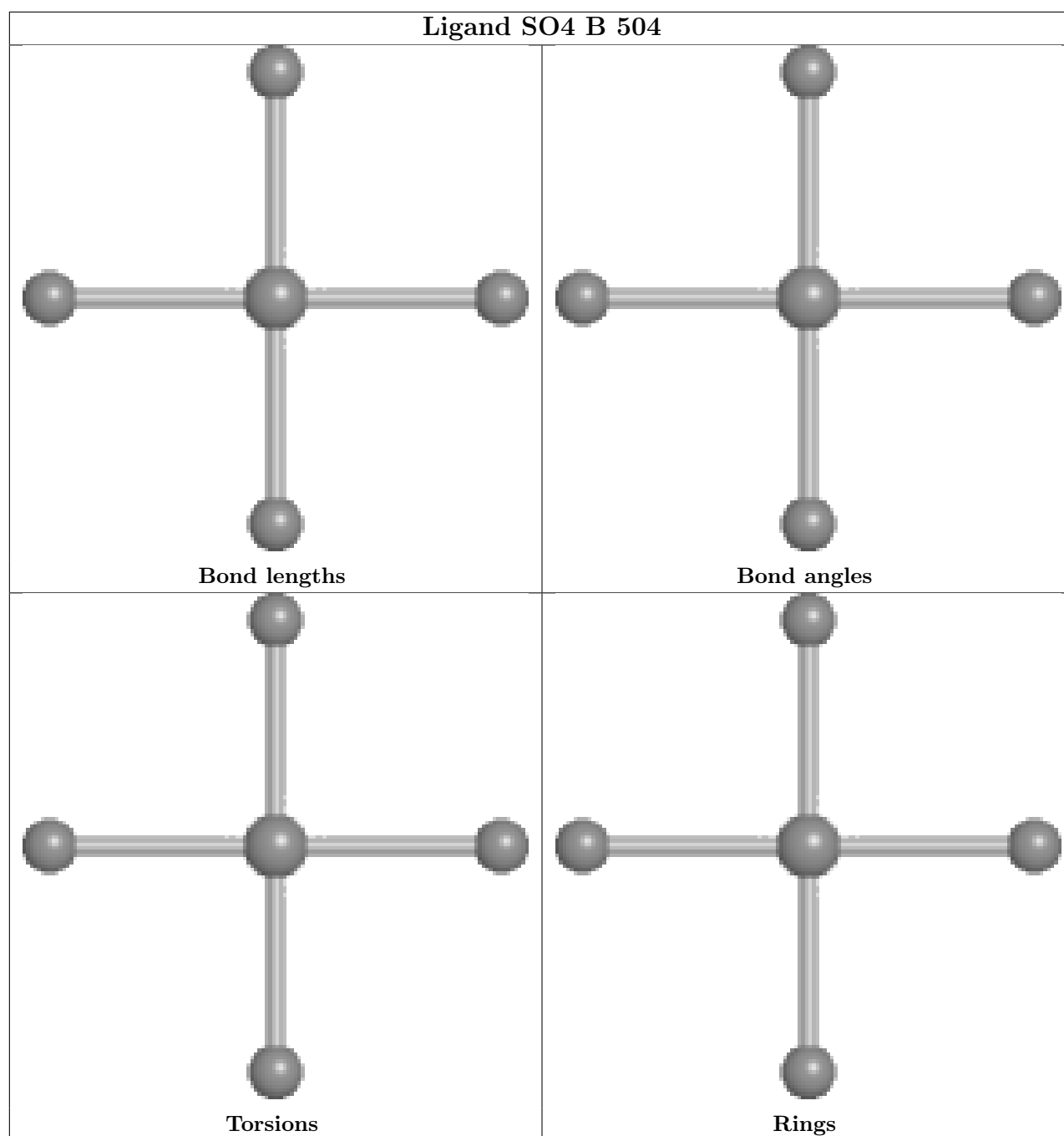
5.7 Other polymers ⓘ

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(Å²)	Q<0.9
1	A	189/204 (92%)	-0.11	6 (3%)	47	52	12, 24, 45, 76	0
1	B	194/204 (95%)	-0.20	9 (4%)	32	36	11, 20, 43, 77	0
All	All	383/408 (93%)	-0.16	15 (3%)	39	44	11, 22, 45, 77	0

The worst 5 of 15 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	474	ALA	5.7
1	B	213	ILE	5.6
1	B	191	GLY	5.0
1	A	473	PRO	4.8
1	B	192	TYR	4.1

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
5	SO4	B	504	5/5	0.95	0.12	24,26,27,34	5
2	CA	B	501	1/1	1.00	0.05	10,10,10,10	0
3	CL	A	502	1/1	1.00	0.07	13,13,13,13	0
3	CL	B	502	1/1	1.00	0.08	12,12,12,12	0
4	NA	A	503	1/1	1.00	0.04	11,11,11,11	0
4	NA	B	503	1/1	1.00	0.03	11,11,11,11	0
2	CA	A	501	1/1	1.00	0.09	14,14,14,14	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 SO4 B 504:

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

Electron density around CA B 501:

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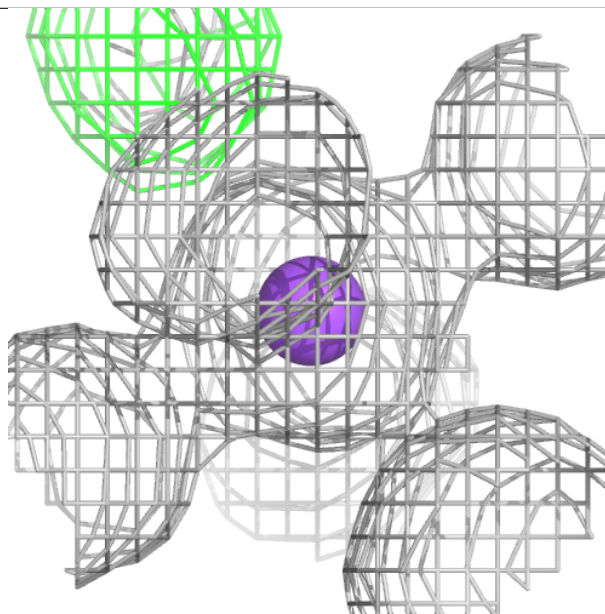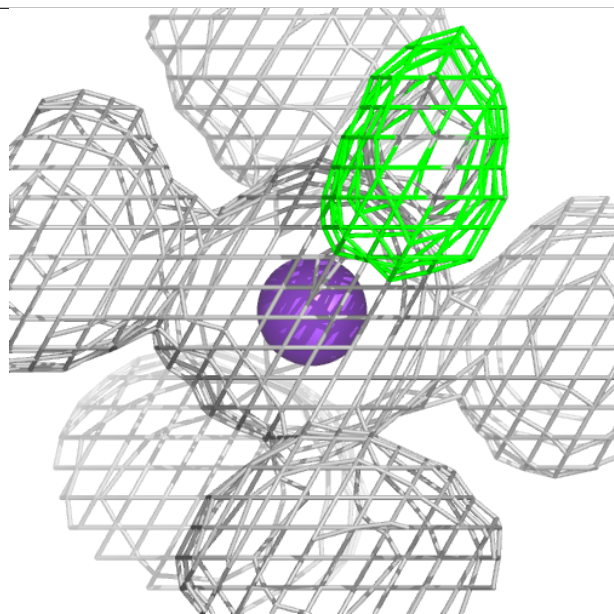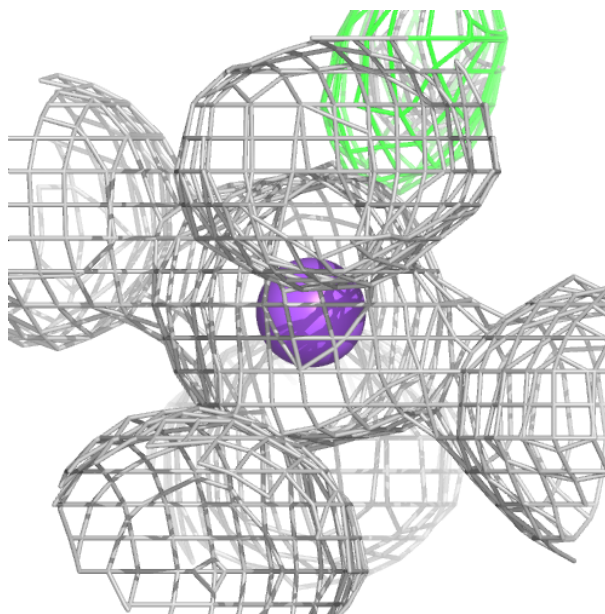and green (positive)
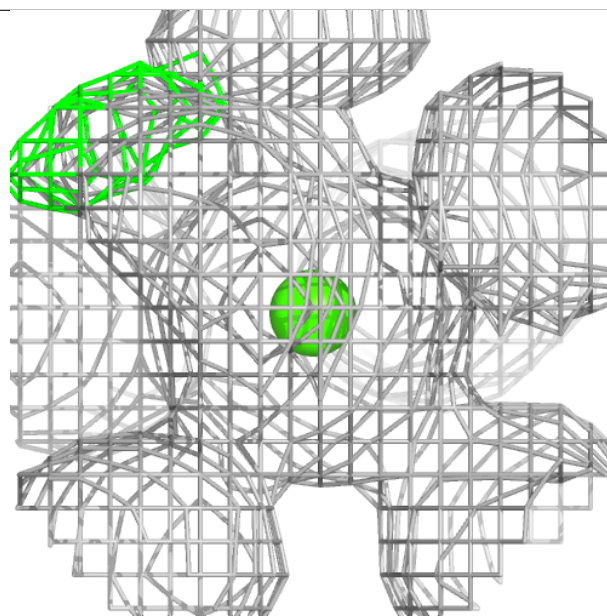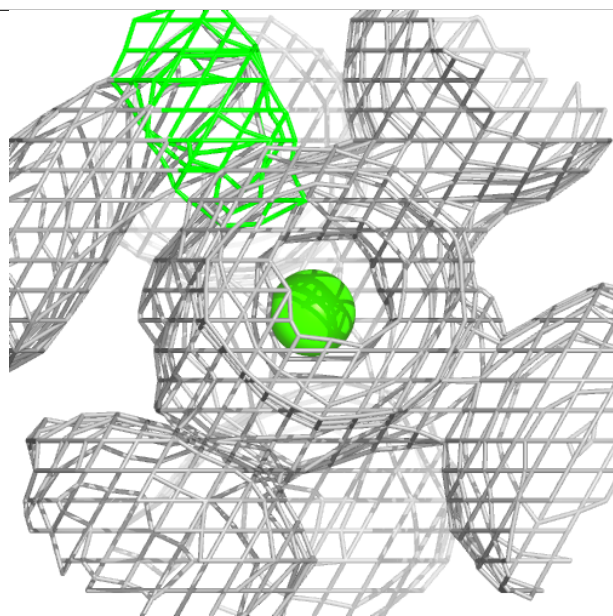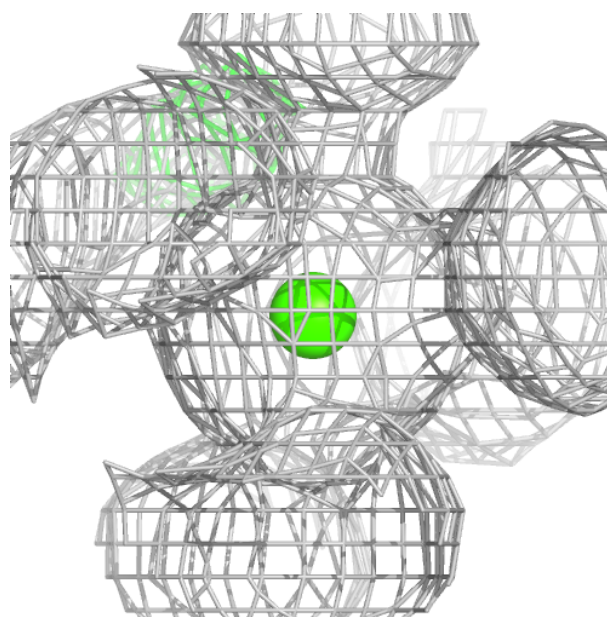
Electron density around CL A 502:

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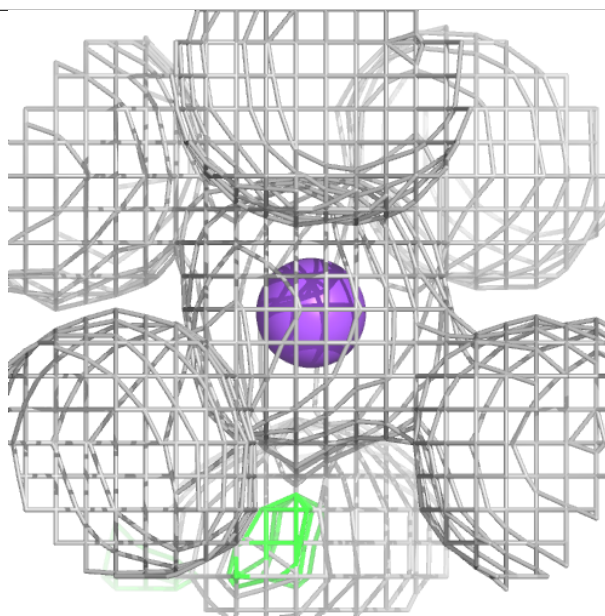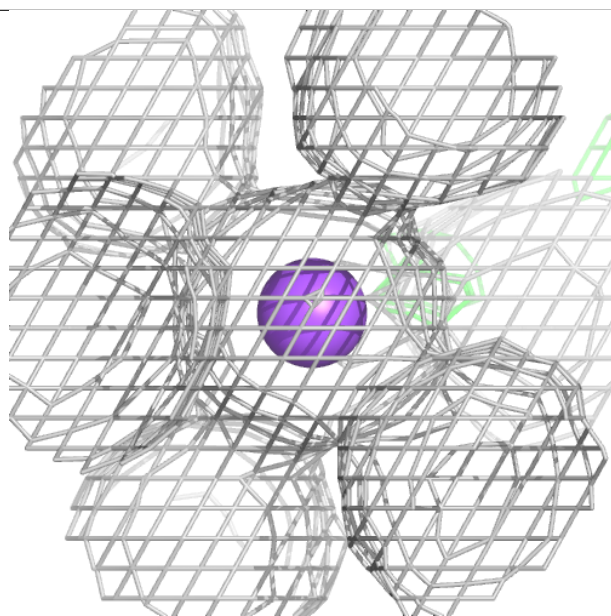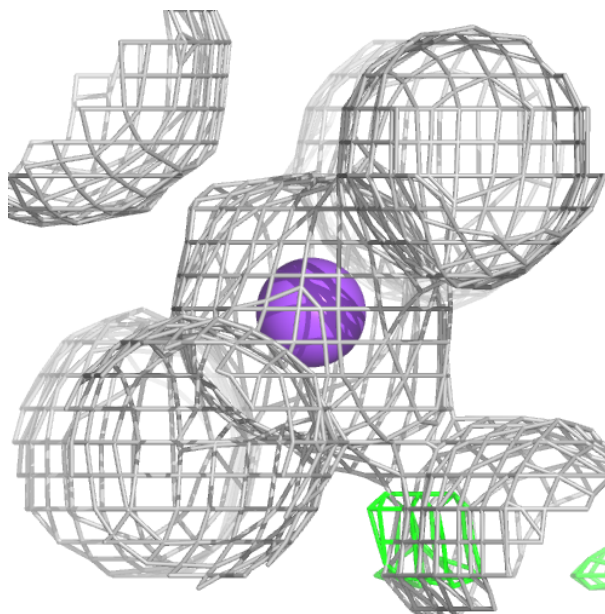mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
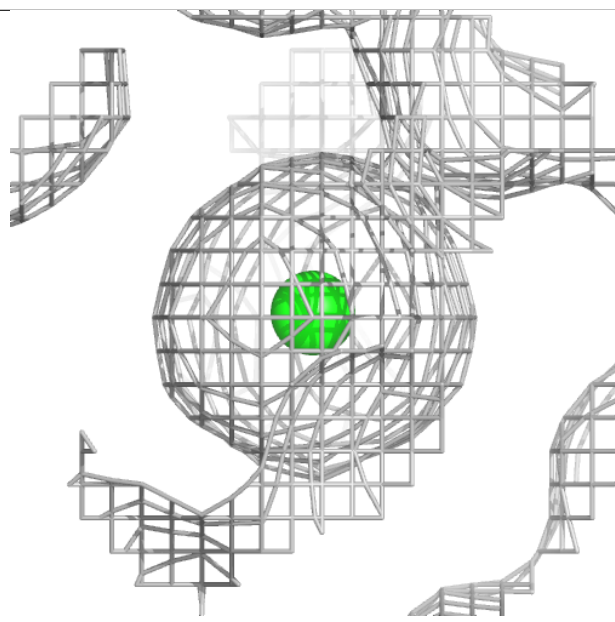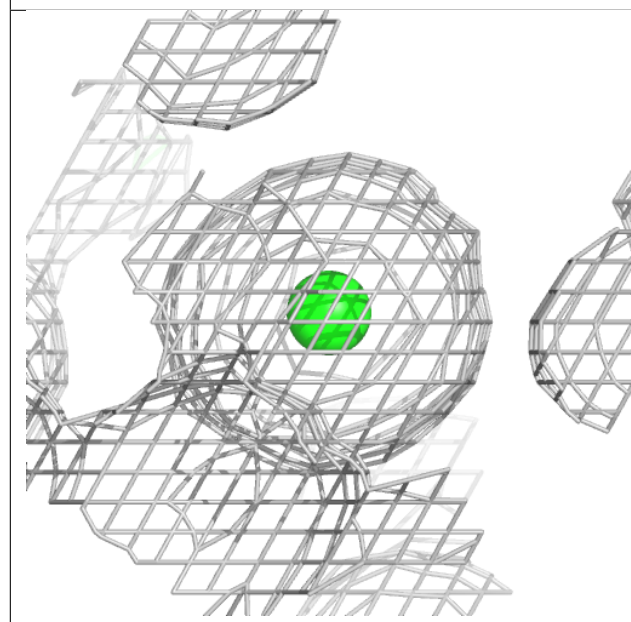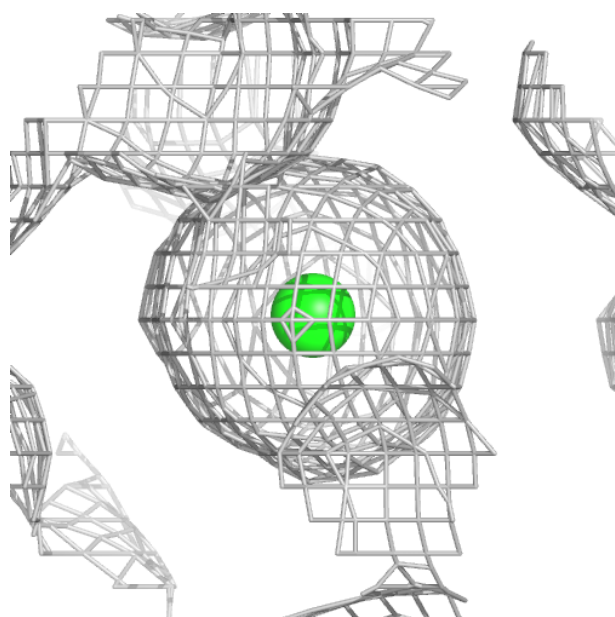
Electron density around CL B 502:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
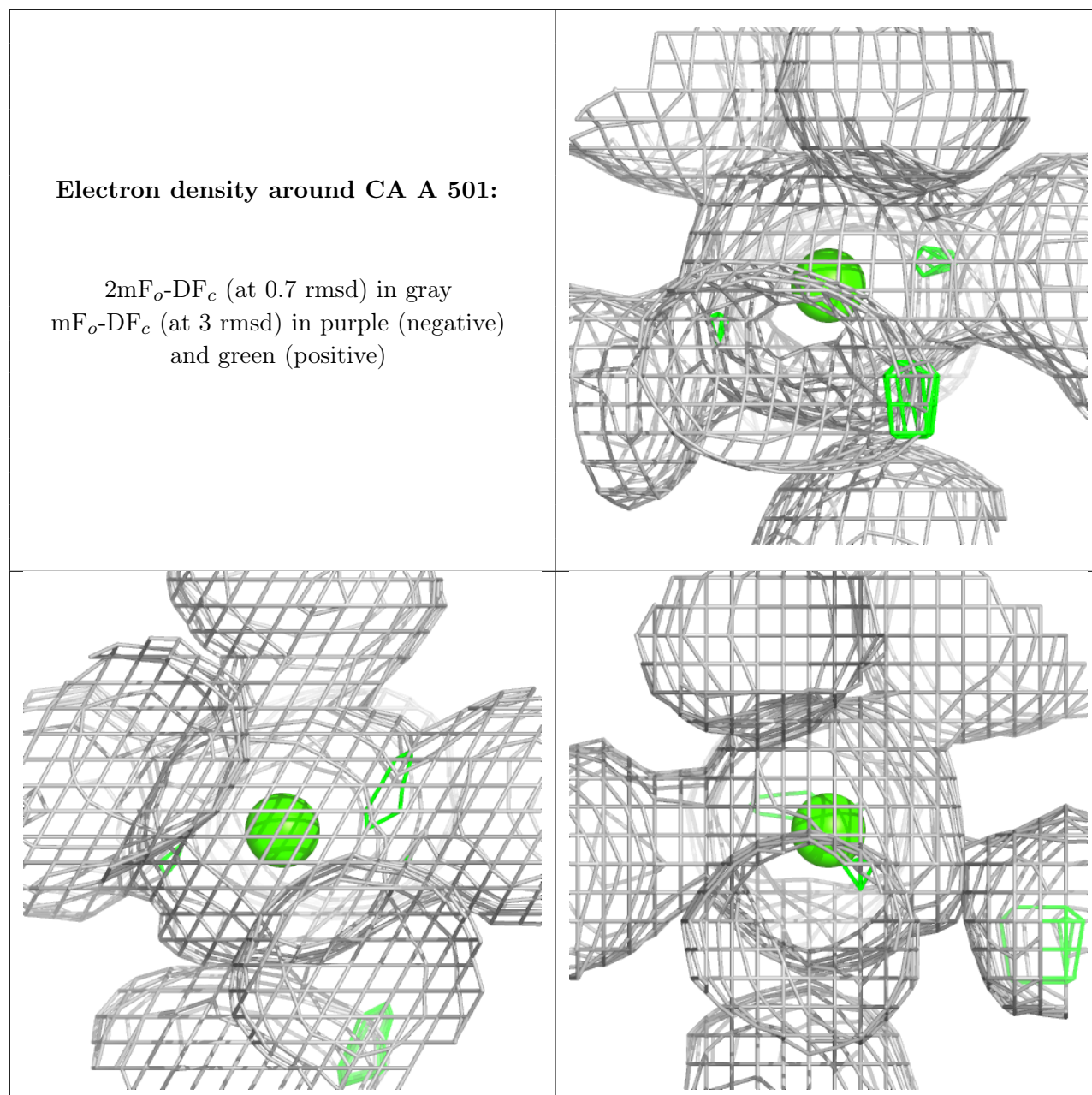and green (positive)
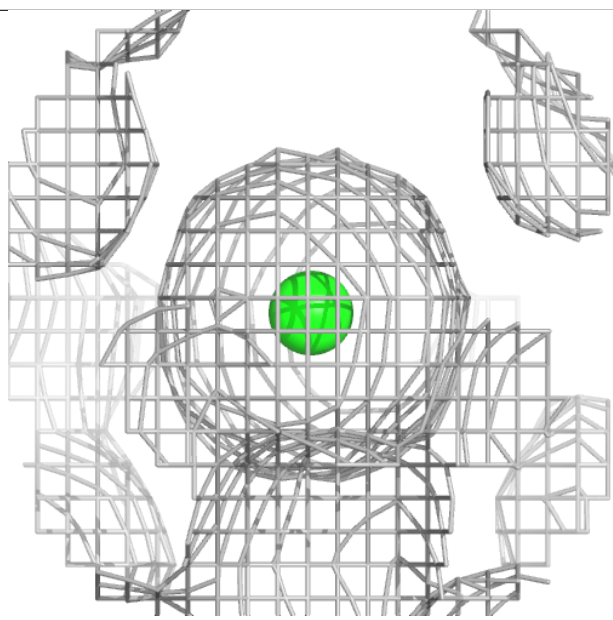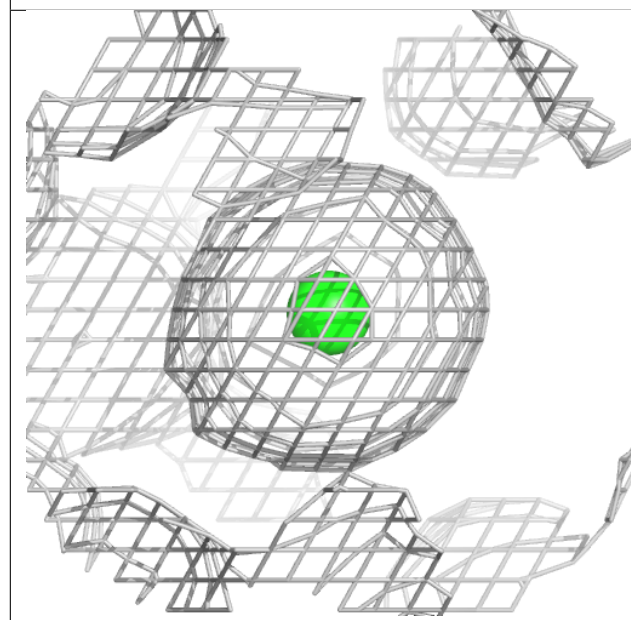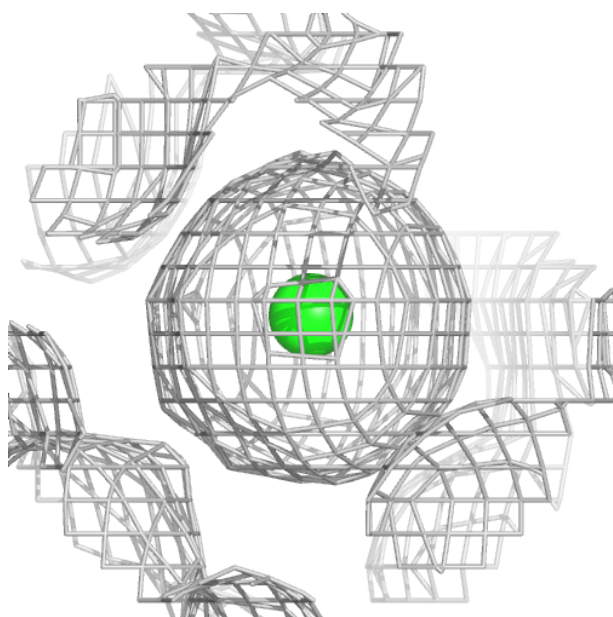
Electron density around NA A 503:

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

Electron density around NA B 503:

$2mF_o\text{-}DF_c$ (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:

$2mF_o$-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.