



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 30, 2025 – 12:11 PM EDT

PDB ID : 9YRX / pdb\_00009yrx  
Title : Crystal structure of Cysteinyl-tRNA synthetase (CysRS) from Plasmodium falciparum in complex with Cysteine  
Authors : Seattle Structural Genomics Center for Infectious Disease (SSGCID)  
Deposited on : 2025-10-17  
Resolution : 2.16 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

---

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

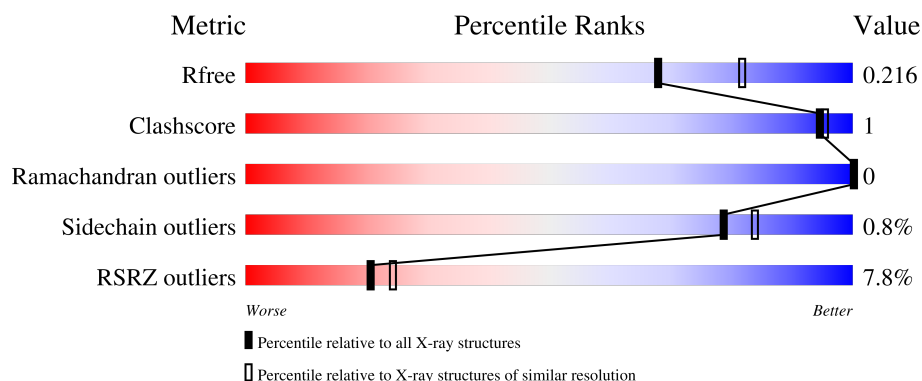
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.16 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	164625	1881 (2.16-2.16)
Clashscore	180529	2047 (2.16-2.16)
Ramachandran outliers	177936	2027 (2.16-2.16)
Sidechain outliers	177891	2026 (2.16-2.16)
RSRZ outliers	164620	1882 (2.16-2.16)

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  $\geq 3$ , 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  $\leq 5\%$ . 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	466	<div> <div>7%</div> <div>88%</div> <div>8%</div> </div>
1	B	466	<div> <div>7%</div> <div>88%</div> <div>8%</div> </div>

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 7313 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 Cysteine-tRNA ligase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	428	Total	C	N	O	S	0	1	0
			3536	2303	580	639	14			
1	B	428	Total	C	N	O	S	0	0	0
			3517	2289	578	636	14			

There are 42 discrepancies between the modelled and reference sequences:

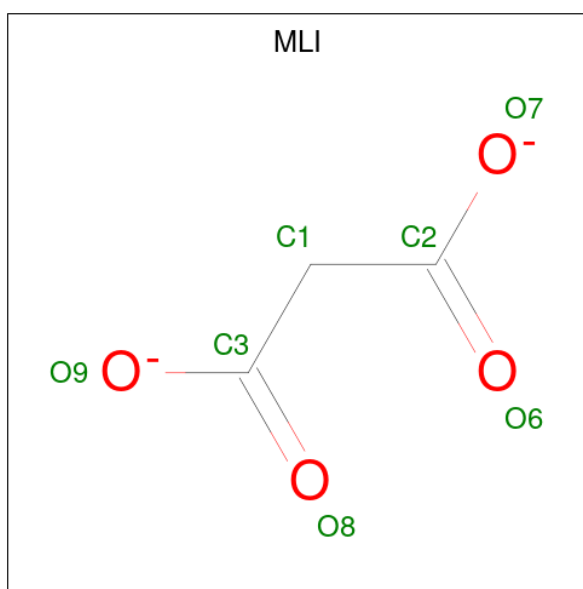
Chain	Residue	Modelled	Actual	Comment	Reference
A	-7	MET	-	initiating methionine	UNP Q8IJP3
A	-6	ALA	-	expression tag	UNP Q8IJP3
A	-5	HIS	-	expression tag	UNP Q8IJP3
A	-4	HIS	-	expression tag	UNP Q8IJP3
A	-3	HIS	-	expression tag	UNP Q8IJP3
A	-2	HIS	-	expression tag	UNP Q8IJP3
A	-1	HIS	-	expression tag	UNP Q8IJP3
A	0	HIS	-	expression tag	UNP Q8IJP3
A	1	MET	-	expression tag	UNP Q8IJP3
A	2	GLY	-	expression tag	UNP Q8IJP3
A	3	THR	-	expression tag	UNP Q8IJP3
A	4	LEU	-	expression tag	UNP Q8IJP3
A	5	GLU	-	expression tag	UNP Q8IJP3
A	6	ALA	-	expression tag	UNP Q8IJP3
A	7	GLN	-	expression tag	UNP Q8IJP3
A	8	THR	-	expression tag	UNP Q8IJP3
A	9	GLN	-	expression tag	UNP Q8IJP3
A	10	GLY	-	expression tag	UNP Q8IJP3
A	11	PRO	-	expression tag	UNP Q8IJP3
A	12	GLY	-	expression tag	UNP Q8IJP3
A	13	SER	-	expression tag	UNP Q8IJP3
B	-7	MET	-	initiating methionine	UNP Q8IJP3
B	-6	ALA	-	expression tag	UNP Q8IJP3
B	-5	HIS	-	expression tag	UNP Q8IJP3
B	-4	HIS	-	expression tag	UNP Q8IJP3

*Continued on next page...*

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	-3	HIS	-	expression tag	UNP Q8IJP3
B	-2	HIS	-	expression tag	UNP Q8IJP3
B	-1	HIS	-	expression tag	UNP Q8IJP3
B	0	HIS	-	expression tag	UNP Q8IJP3
B	1	MET	-	expression tag	UNP Q8IJP3
B	2	GLY	-	expression tag	UNP Q8IJP3
B	3	THR	-	expression tag	UNP Q8IJP3
B	4	LEU	-	expression tag	UNP Q8IJP3
B	5	GLU	-	expression tag	UNP Q8IJP3
B	6	ALA	-	expression tag	UNP Q8IJP3
B	7	GLN	-	expression tag	UNP Q8IJP3
B	8	THR	-	expression tag	UNP Q8IJP3
B	9	GLN	-	expression tag	UNP Q8IJP3
B	10	GLY	-	expression tag	UNP Q8IJP3
B	11	PRO	-	expression tag	UNP Q8IJP3
B	12	GLY	-	expression tag	UNP Q8IJP3
B	13	SER	-	expression tag	UNP Q8IJP3

- Molecule 2 is MALONATE ION (CCD ID: MLI) (formula:  $C_3H_2O_4$ ).



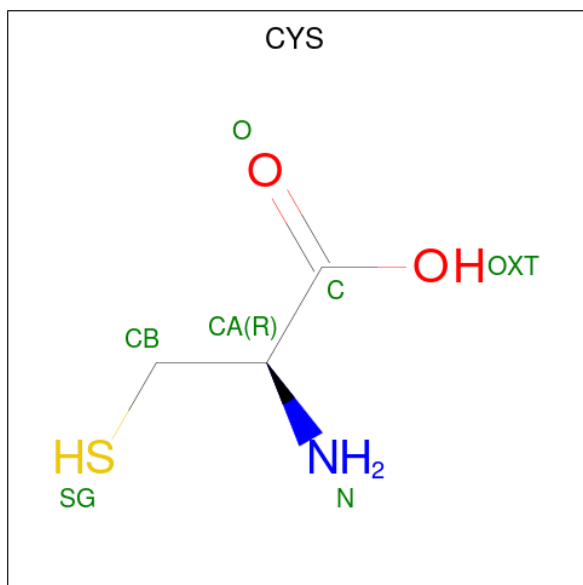
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			7	3	4		
2	A	1	Total	C	O	0	0
			7	3	4		
2	B	1	Total	C	O	0	0
			7	3	4		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	B	1	Total	C	O	0	0
			7	3	4		

- Molecule 3 is CYSTEINE (CCD ID: CYS) (formula:  $C_3H_7NO_2S$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	S	0	0
			7	3	1	2	1		
3	B	1	Total	C	N	O	S	0	0
			7	3	1	2	1		

- Molecule 4 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

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

- Molecule 5 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	2	Total	Na	0	0
			2	2		

Continued on next page...

*Continued from previous page...*

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	2	Total	Na	0	0
			2	2		

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	105	Total	O	0	0
			105	105		
6	B	107	Total	O	0	0
			107	107		



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 61 2 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	119.41Å 119.41Å 366.30Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	49.76 – 2.16 49.76 – 2.16	Depositor EDS
% Data completeness (in resolution range)	100.0 (49.76-2.16) 100.0 (49.76-2.16)	Depositor EDS
$R_{merge}$	0.17	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.95 (at 2.16Å)	Xtriage
Refinement program	PHENIX (2.0_5765: ???)	Depositor
R, $R_{free}$	0.190 , 0.215 0.193 , 0.216	Depositor DCC
$R_{free}$ test set	4223 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	45.2	Xtriage
Anisotropy	0.285	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.41 , 52.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.51$ , $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	7313	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	51.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.92% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

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



## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: NA, ZN, MLI

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	0.20	0/3637	0.38	0/4922
1	B	0.19	0/3614	0.37	0/4893
All	All	0.19	0/7251	0.38	0/9815

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	3536	0	3440	8	0
1	B	3517	0	3412	10	0
2	A	14	0	4	0	0
2	B	14	0	4	0	0
3	A	7	0	3	0	0
3	B	7	0	3	2	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
5	A	2	0	0	0	0
5	B	2	0	0	0	0
6	A	105	0	0	0	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	107	0	0	0	0
All	All	7313	0	6866	17	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 1.

All (17) 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:320:MET:HE1	1:B:344:TYR:OH	1.96	0.64
1:B:97:THR:HG1	3:B:501:CYS:N	2.01	0.58
1:B:105:LYS:O	1:B:108:VAL:HG22	2.06	0.56
1:A:99:ILE:HD13	1:A:233:TRP:CH2	2.47	0.49
1:A:422:LEU:HG	1:A:426:ILE:HD11	1.95	0.48
1:B:422:LEU:HG	1:B:426:ILE:HD11	1.96	0.48
1:A:105:LYS:O	1:A:108:VAL:HG22	2.15	0.47
1:A:119:ARG:HA	1:A:119:ARG:NE	2.30	0.47
1:A:320:MET:HE1	1:A:344:TYR:OH	2.14	0.46
1:B:59:THR:HG1	3:B:501:CYS:N	2.15	0.45
1:A:438:GLY:HA3	1:B:137:PRO:O	2.17	0.45
1:B:318:LYS:O	1:B:322:THR:HG23	2.17	0.45
1:B:307:MET:HG3	1:B:314:PHE:HA	1.99	0.44
1:B:412:THR:N	1:B:413:PRO:CD	2.80	0.44
1:A:99:ILE:HD11	1:A:144:SER:HA	2.01	0.43
1:A:412:THR:N	1:A:413:PRO:CD	2.84	0.41
1:B:54:TYR:CD2	1:B:252:ALA:HB2	2.55	0.41

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	425/466 (91%)	422 (99%)	3 (1%)	0	100	100
1	B	424/466 (91%)	418 (99%)	6 (1%)	0	100	100
All	All	849/932 (91%)	840 (99%)	9 (1%)	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	385/423 (91%)	381 (99%)	4 (1%)	73	78
1	B	381/423 (90%)	379 (100%)	2 (0%)	86	91
All	All	766/846 (90%)	760 (99%)	6 (1%)	79	84

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	70	ARG
1	A	287	HIS
1	A	294	PHE
1	A	341	PHE
1	B	287	HIS
1	B	294	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	84	ASN
1	A	397	GLN
1	A	400	ASN
1	B	84	ASN
1	B	405	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 oligosaccharides in this entry.

## 5.6 Ligand geometry ⓘ

Of 12 ligands modelled in this entry, 6 are monoatomic - leaving 6 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
3	CYS	B	501	4	5,6,6	1.18	1 (20%)	3,7,7	1.79	1 (33%)
3	CYS	A	502	4	5,6,6	1.09	1 (20%)	3,7,7	1.58	1 (33%)
2	MLI	B	502	-	6,6,6	1.87	1 (16%)	7,7,7	1.02	0
2	MLI	A	501	-	6,6,6	1.54	1 (16%)	7,7,7	1.27	0
2	MLI	B	503	-	6,6,6	1.61	1 (16%)	7,7,7	1.10	0
2	MLI	A	503	-	6,6,6	1.60	1 (16%)	7,7,7	1.22	1 (14%)

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
3	CYS	B	501	4	-	0/6/6/6	-
3	CYS	A	502	4	-	0/6/6/6	-
2	MLI	B	502	-	-	0/4/4/4	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	MLI	A	501	-	-	0/4/4/4	-
2	MLI	B	503	-	-	4/4/4/4	-
2	MLI	A	503	-	-	0/4/4/4	-

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	502	MLI	C1-C3	3.18	1.56	1.51
2	A	503	MLI	C1-C3	2.49	1.54	1.51
2	B	503	MLI	C1-C3	2.46	1.54	1.51
3	B	501	CYS	OXT-C	-2.43	1.22	1.30
2	A	501	MLI	C1-C3	2.36	1.54	1.51
3	A	502	CYS	OXT-C	-2.29	1.23	1.30

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	501	CYS	OXT-C-O	-3.08	117.08	124.08
3	A	502	CYS	OXT-C-O	-2.73	117.88	124.08
2	A	503	MLI	O6-C2-C1	-2.01	116.40	122.11

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	503	MLI	C3-C1-C2-O7
2	B	503	MLI	C3-C1-C2-O6
2	B	503	MLI	C2-C1-C3-O8
2	B	503	MLI	C2-C1-C3-O9

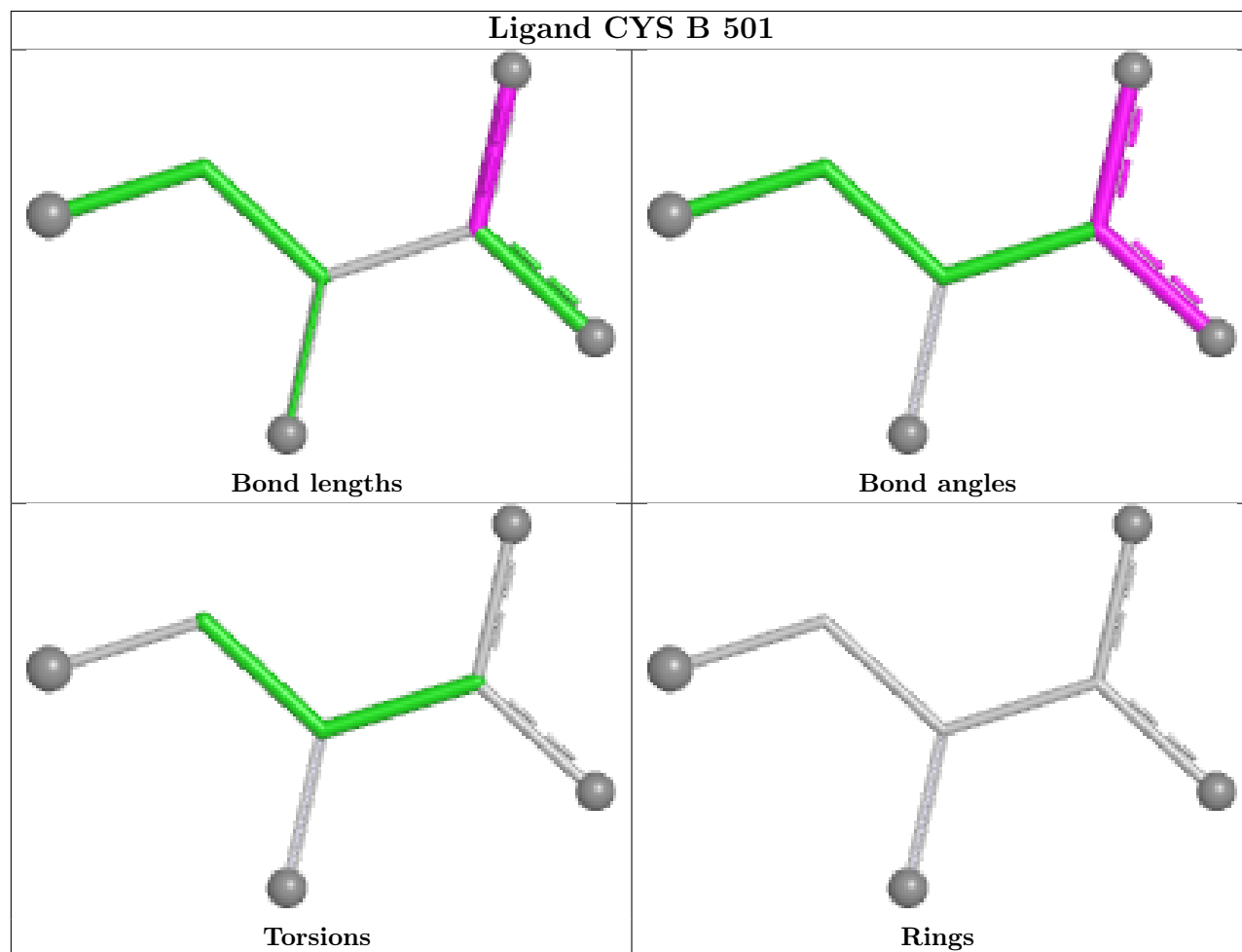
There are no ring outliers.

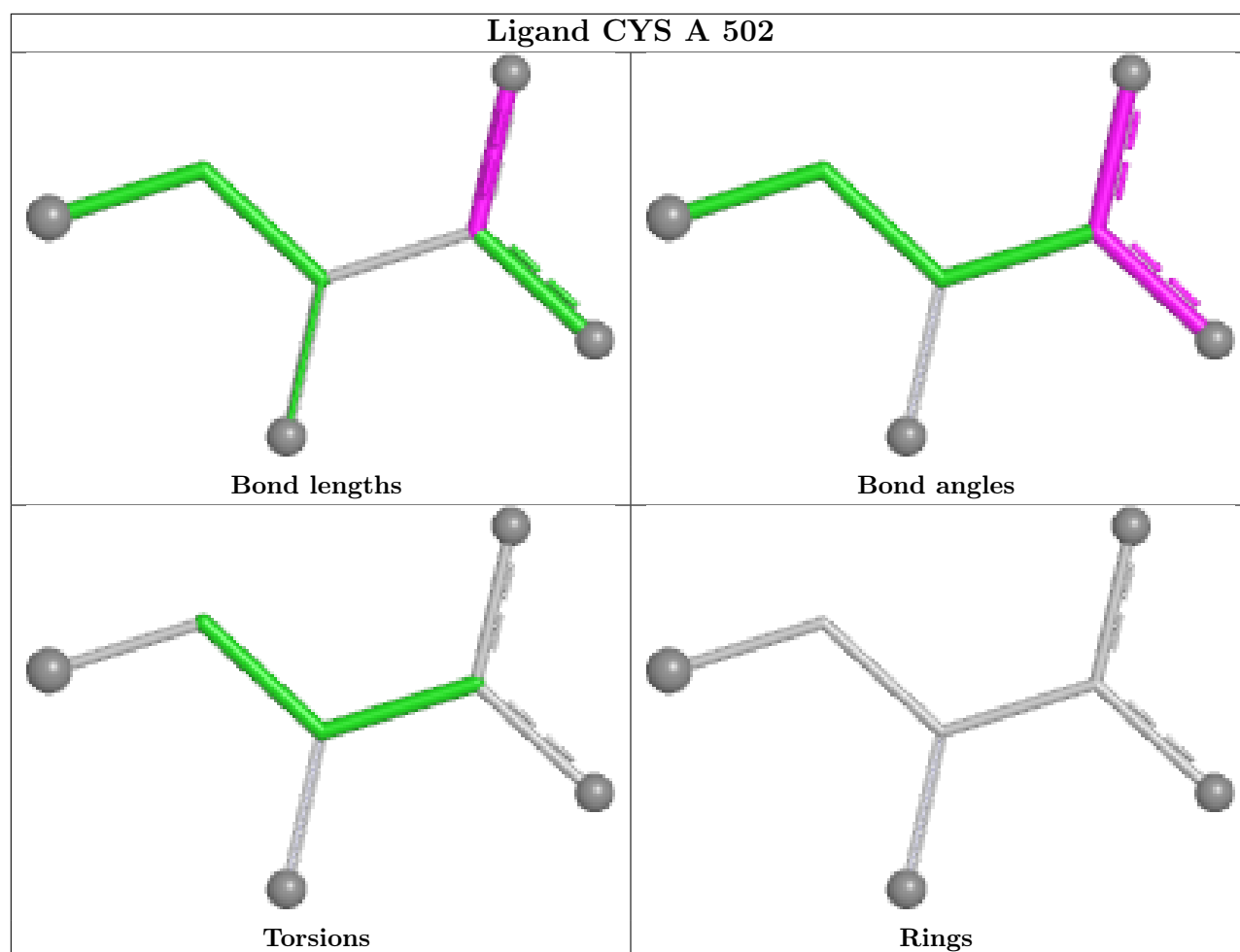
1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	501	CYS	2	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier.

Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	428/466 (91%)	0.37	34 (7%) 20 24	33, 47, 81, 128	1 (0%)
1	B	428/466 (91%)	0.40	33 (7%) 21 25	36, 48, 79, 122	0
All	All	856/932 (91%)	0.38	67 (7%) 20 24	33, 48, 81, 128	1 (0%)

All (67) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	341	PHE	6.1
1	B	217	ALA	5.7
1	A	13	SER	5.4
1	A	114[A]	PHE	5.2
1	B	229	ASN	4.3
1	A	217	ALA	4.2
1	B	228	PRO	4.2
1	A	309	LYS	4.0
1	A	230	GLU	3.9
1	B	13	SER	3.6
1	A	213	LYS	3.4
1	B	378	ASN	3.4
1	A	311	LEU	3.4
1	A	218	TYR	3.4
1	B	363	ASN	3.3
1	B	213	LYS	3.3
1	A	432	LYS	3.3
1	A	16	LYS	3.2
1	A	227	LYS	3.2
1	B	311	LEU	3.2
1	B	111	LYS	3.2
1	A	14	LEU	3.1
1	A	109	GLU	3.1
1	B	218	TYR	3.1

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	A	194	VAL	3.0
1	B	109	GLU	3.0
1	B	216	ASN	2.9
1	B	345	SER	2.8
1	A	15	PRO	2.8
1	A	228	PRO	2.8
1	A	116	GLU	2.8
1	B	14	LEU	2.8
1	B	379	SER	2.8
1	B	168	GLU	2.7
1	B	194	VAL	2.6
1	B	347	ASN	2.6
1	A	21	SER	2.6
1	A	108	VAL	2.6
1	A	310	SER	2.5
1	A	434	LYS	2.5
1	A	214	LYS	2.5
1	B	432	LYS	2.5
1	A	99	ILE	2.4
1	B	319	ASN	2.4
1	B	373	LYS	2.4
1	B	230	GLU	2.4
1	B	15	PRO	2.4
1	A	229	ASN	2.4
1	A	168	GLU	2.3
1	B	159	GLU	2.3
1	A	374	ASN	2.3
1	B	380	CYS	2.3
1	B	309	LYS	2.3
1	A	341	PHE	2.2
1	A	231	PRO	2.2
1	B	370	MET	2.2
1	B	303	GLU	2.1
1	A	105	LYS	2.1
1	B	29	ASN	2.1
1	B	241	ARG	2.1
1	A	226	SER	2.1
1	A	241	ARG	2.1
1	B	163	ALA	2.0
1	A	161	LYS	2.0
1	A	165	VAL	2.0
1	A	287	HIS	2.0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	B	16	LYS	2.0

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

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

## 6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 6.4 Ligands [i](#)

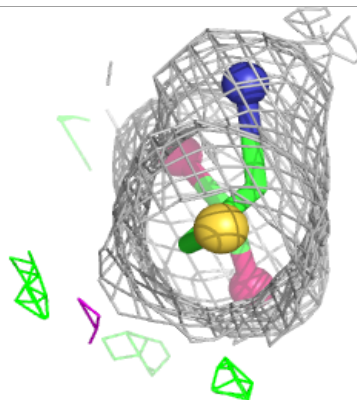
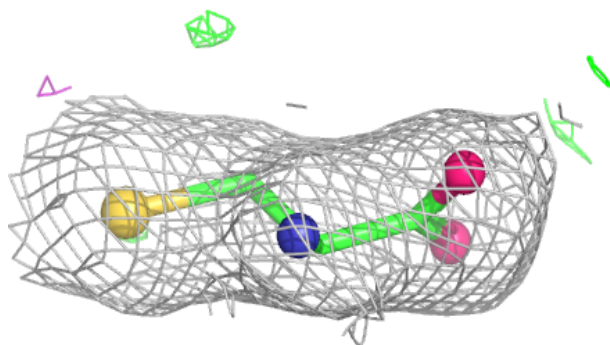
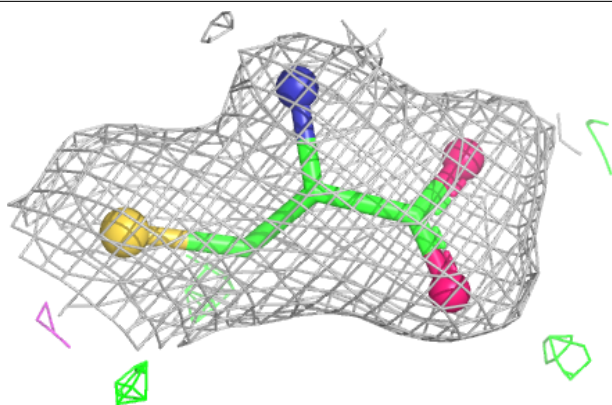
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	MLI	B	503	7/7	0.85	0.15	72,77,84,84	0
5	NA	B	506	1/1	0.86	0.10	70,70,70,70	0
5	NA	A	506	1/1	0.89	0.11	62,62,62,62	0
5	NA	B	505	1/1	0.90	0.10	57,57,57,57	0
5	NA	A	505	1/1	0.90	0.08	56,56,56,56	0
2	MLI	A	501	7/7	0.93	0.11	59,62,68,75	0
2	MLI	B	502	7/7	0.94	0.08	48,54,57,59	0
2	MLI	A	503	7/7	0.95	0.08	51,54,63,64	0
3	CYS	A	502	7/7	0.97	0.07	42,44,48,51	0
3	CYS	B	501	7/7	0.97	0.08	40,42,44,49	0
4	ZN	B	504	1/1	0.98	0.03	41,41,41,41	0
4	ZN	A	504	1/1	0.99	0.04	44,44,44,44	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.

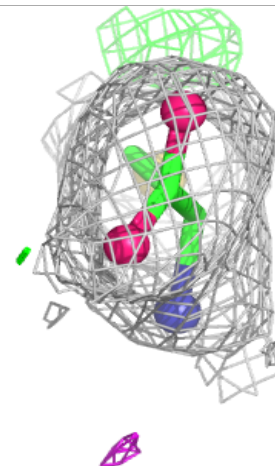
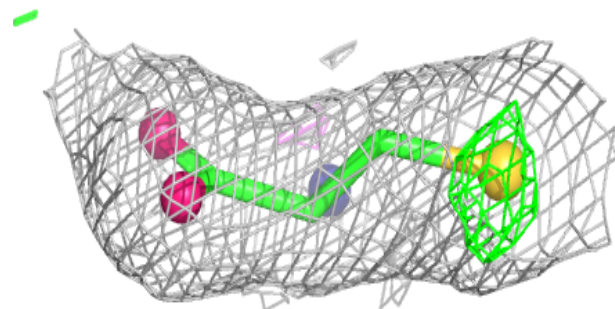
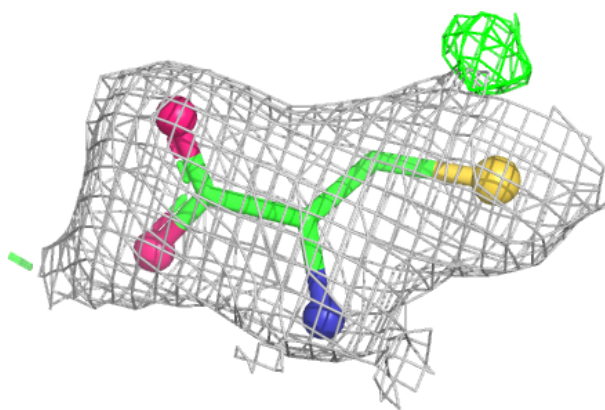
**Electron density around CYS A 502:**

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



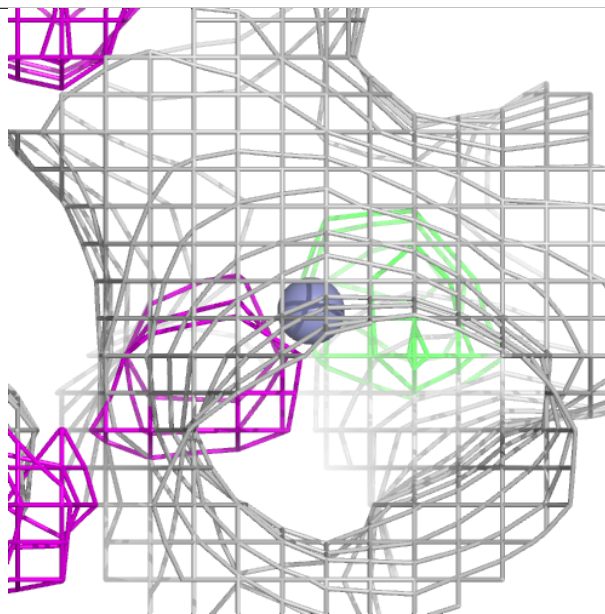
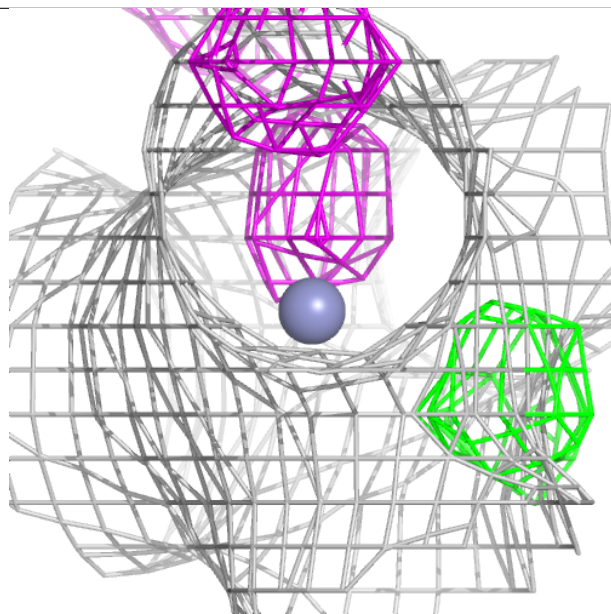
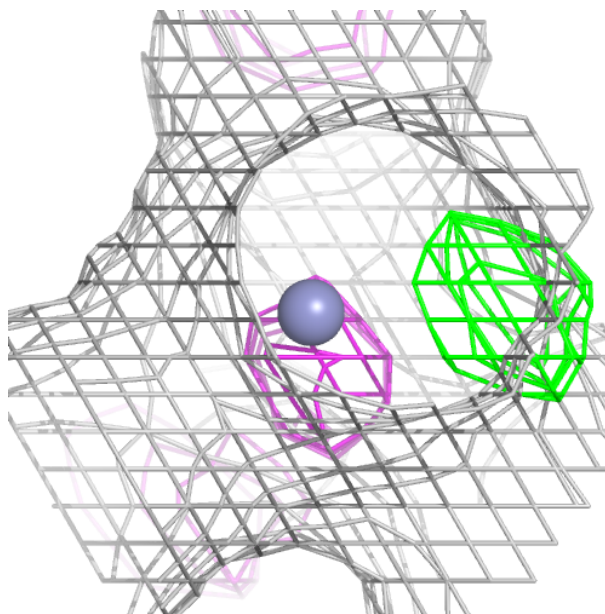
**Electron density around CYS B 501:**

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



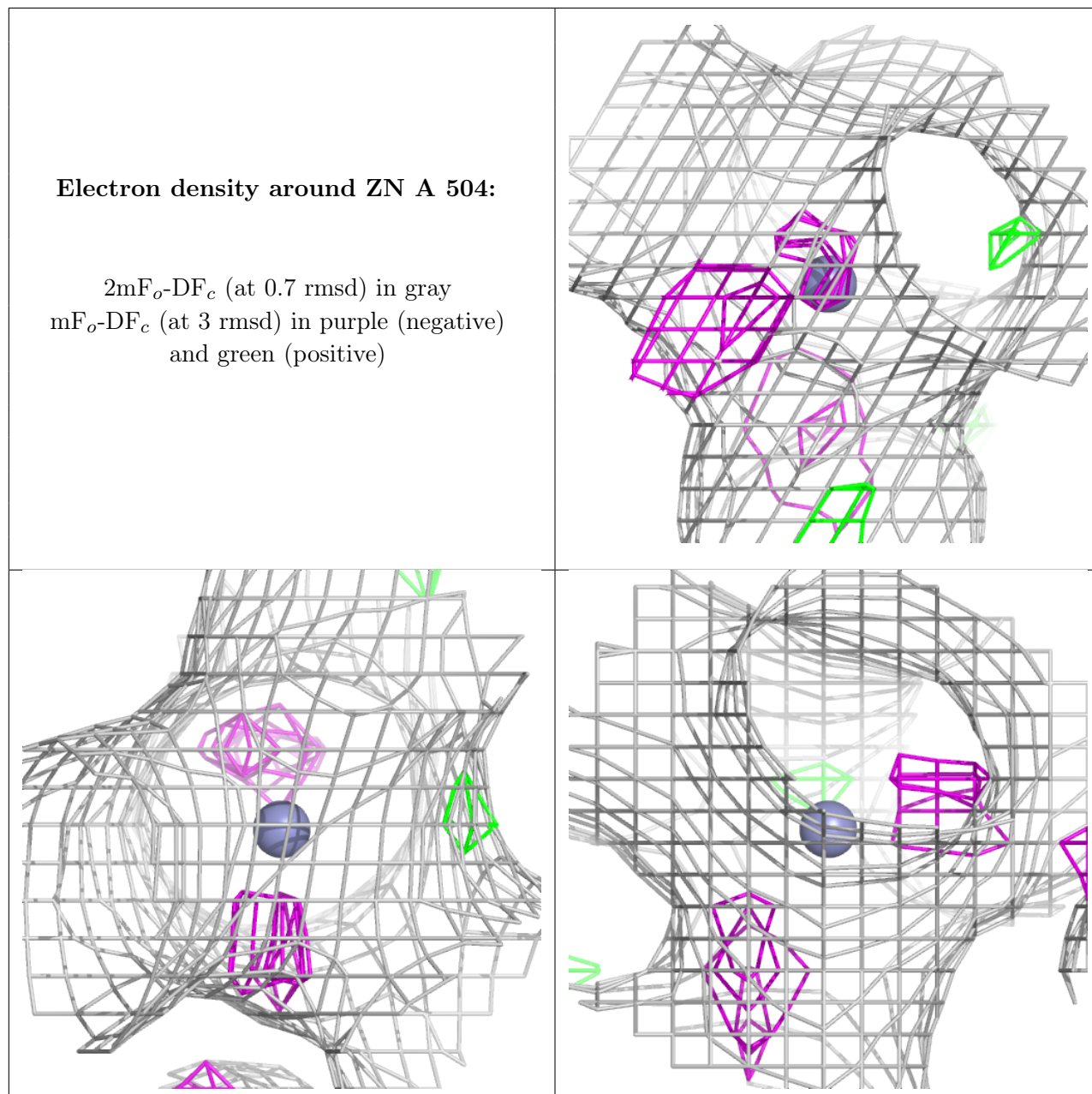
**Electron density around ZN B 504:**

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



**Electron density around ZN A 504:**

$2mF_o-DF_c$  (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.