



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 28, 2026 – 06:20 PM UTC

PDB ID : 4FSE / pdb\_00004fse  
Title : crystal structure of beta-site app-cleaving enzyme 1 (bace-wt) complex with N-(N-(4-amino-3,5- dichlorobenzyl)carbamimidoyl)-3-(4-methoxyphenyl)-5-methyl-4-isothiazolecarboxamide  
Authors : Muckelbauer, J.K.  
Deposited on : 2012-06-27  
Resolution : 2.65 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>.

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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	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
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)	:	2.49

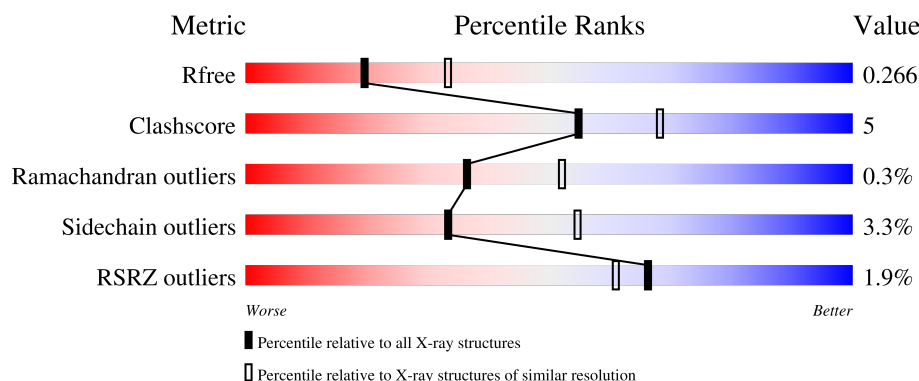
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.65 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))
$R_{free}$	180053	1110 (2.66-2.66)
Clashscore	190562	1141 (2.66-2.66)
Ramachandran outliers	187476	1126 (2.66-2.66)
Sidechain outliers	187428	1126 (2.66-2.66)
RSRZ outliers	180081	1110 (2.66-2.66)

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	455	
1	B	455	
1	D	455	
1	E	455	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	0VA	A	501	-	X	-	-
2	0VA	B	501	-	X	-	-
2	0VA	D	501	-	X	-	-
2	0VA	E	501	-	X	-	-

## 2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 12710 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 Beta-secretase 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	387	Total	C	N	O	S	0	0	0
			3040	1946	505	575	14			
1	B	387	Total	C	N	O	S	0	0	0
			3032	1942	504	572	14			
1	D	387	Total	C	N	O	S	0	0	0
			3034	1942	505	573	14			
1	E	387	Total	C	N	O	S	0	0	0
			3040	1946	505	575	14			

There are 56 discrepancies between the modelled and reference sequences:

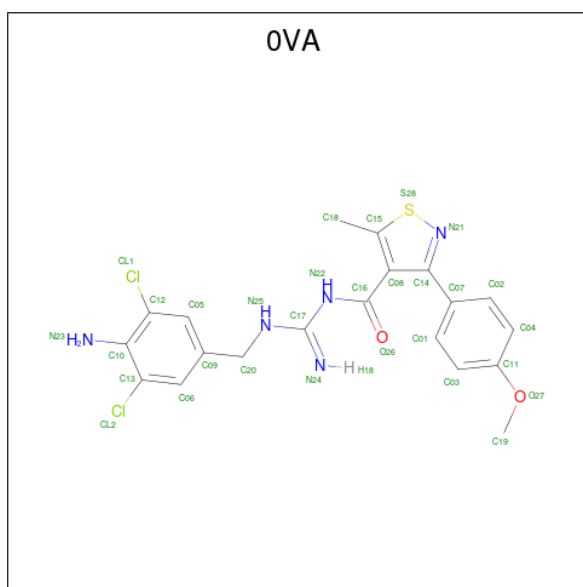
Chain	Residue	Modelled	Actual	Comment	Reference
A	-13	MET	-	expression tag	UNP P56817
A	-12	ALA	-	expression tag	UNP P56817
A	-11	SER	-	expression tag	UNP P56817
A	-10	MET	-	expression tag	UNP P56817
A	-9	THR	-	expression tag	UNP P56817
A	-8	GLY	-	expression tag	UNP P56817
A	-7	GLY	-	expression tag	UNP P56817
A	-6	GLN	-	expression tag	UNP P56817
A	-5	GLN	-	expression tag	UNP P56817
A	-4	MET	-	expression tag	UNP P56817
A	-3	GLY	-	expression tag	UNP P56817
A	-2	ARG	-	expression tag	UNP P56817
A	-1	GLY	-	expression tag	UNP P56817
A	0	SER	-	expression tag	UNP P56817
B	-13	MET	-	expression tag	UNP P56817
B	-12	ALA	-	expression tag	UNP P56817
B	-11	SER	-	expression tag	UNP P56817
B	-10	MET	-	expression tag	UNP P56817
B	-9	THR	-	expression tag	UNP P56817
B	-8	GLY	-	expression tag	UNP P56817
B	-7	GLY	-	expression tag	UNP P56817

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-6	GLN	-	expression tag	UNP P56817
B	-5	GLN	-	expression tag	UNP P56817
B	-4	MET	-	expression tag	UNP P56817
B	-3	GLY	-	expression tag	UNP P56817
B	-2	ARG	-	expression tag	UNP P56817
B	-1	GLY	-	expression tag	UNP P56817
B	0	SER	-	expression tag	UNP P56817
D	-13	MET	-	expression tag	UNP P56817
D	-12	ALA	-	expression tag	UNP P56817
D	-11	SER	-	expression tag	UNP P56817
D	-10	MET	-	expression tag	UNP P56817
D	-9	THR	-	expression tag	UNP P56817
D	-8	GLY	-	expression tag	UNP P56817
D	-7	GLY	-	expression tag	UNP P56817
D	-6	GLN	-	expression tag	UNP P56817
D	-5	GLN	-	expression tag	UNP P56817
D	-4	MET	-	expression tag	UNP P56817
D	-3	GLY	-	expression tag	UNP P56817
D	-2	ARG	-	expression tag	UNP P56817
D	-1	GLY	-	expression tag	UNP P56817
D	0	SER	-	expression tag	UNP P56817
E	-13	MET	-	expression tag	UNP P56817
E	-12	ALA	-	expression tag	UNP P56817
E	-11	SER	-	expression tag	UNP P56817
E	-10	MET	-	expression tag	UNP P56817
E	-9	THR	-	expression tag	UNP P56817
E	-8	GLY	-	expression tag	UNP P56817
E	-7	GLY	-	expression tag	UNP P56817
E	-6	GLN	-	expression tag	UNP P56817
E	-5	GLN	-	expression tag	UNP P56817
E	-4	MET	-	expression tag	UNP P56817
E	-3	GLY	-	expression tag	UNP P56817
E	-2	ARG	-	expression tag	UNP P56817
E	-1	GLY	-	expression tag	UNP P56817
E	0	SER	-	expression tag	UNP P56817

- Molecule 2 is N-[N-(4-amino-3,5-dichlorobenzyl)carbamimidoyl]-3-(4-methoxyphenyl)-5-methyl-1,2-thiazole-4-carboxamide (CCD ID: 0VA) (formula: C<sub>20</sub>H<sub>19</sub>Cl<sub>2</sub>N<sub>5</sub>O<sub>2</sub>S).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total 30	C 20	Cl 2	N 5	O 2	S 1	0	0
2	B	1	Total 30	C 20	Cl 2	N 5	O 2	S 1	0	0
2	D	1	Total 30	C 20	Cl 2	N 5	O 2	S 1	0	0
2	E	1	Total 30	C 20	Cl 2	N 5	O 2	S 1	0	0

- Molecule 3 is IODIDE ION (CCD ID: IOD) (formula: I).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	2	Total	I	0	0
			2	2		
3	B	2	Total	I	0	0
			2	2		
3	D	2	Total	I	0	0
			2	2		
3	E	3	Total	I	0	0
			3	3		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	100	Total	O	0	0
			100	100		

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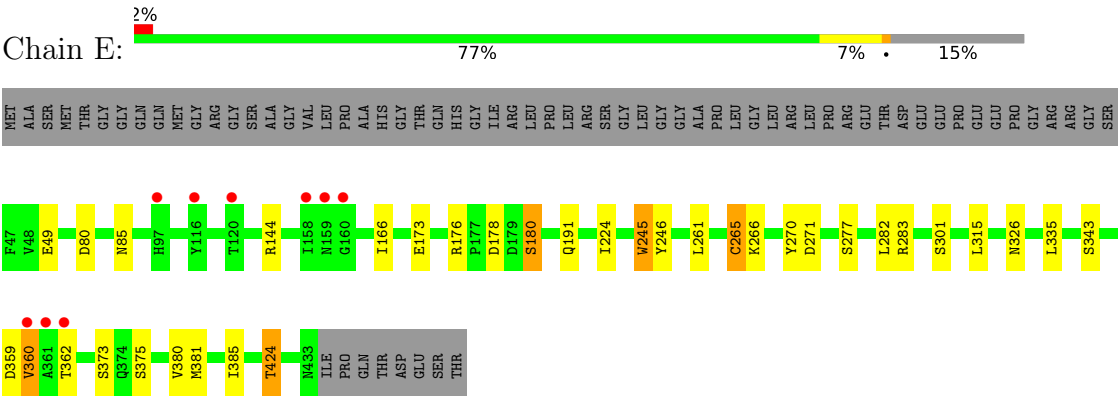
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	B	131	Total 131	O 131	0	0
4	D	106	Total 106	O 106	0	0
4	E	98	Total 98	O 98	0	0





● Molecule 1: Beta-secretase 1



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	86.33Å 131.22Å 88.95Å 90.00° 97.60° 90.00°	Depositor
Resolution (Å)	44.08 – 2.65 44.08 – 2.65	Depositor EDS
% Data completeness (in resolution range)	99.8 (44.08-2.65) 99.8 (44.08-2.65)	Depositor EDS
$R_{merge}$	0.14	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.06 (at 2.65Å)	Xtriage
Refinement program	REFMAC 5.2.0019, CNS	Depositor
R, $R_{free}$	0.217 , 0.267 0.217 , 0.266	Depositor DCC
$R_{free}$ test set	2891 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	24.2	Xtriage
Anisotropy	0.158	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.34 , 28.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	0.005 for l,-k,h	Xtriage
$F_o, F_c$ correlation	0.92	EDS
Total number of atoms	12710	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	20.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 43.09 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.8539e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<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

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 0VA, IOD

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	0.55	0/3118	0.82	0/4240
1	B	0.54	0/3110	0.81	3/4230 (0.1%)
1	D	0.55	0/3112	0.82	0/4232
1	E	0.55	0/3118	0.80	0/4240
All	All	0.55	0/12458	0.81	3/16942 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	270	TYR	CA-C-N	6.35	133.12	121.70
1	B	270	TYR	C-N-CA	6.35	133.12	121.70
1	B	271	ASP	N-CA-CB	-5.87	100.52	110.50

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	3040	0	2944	29	0
1	B	3032	0	2934	30	0
1	D	3034	0	2933	34	0
1	E	3040	0	2944	20	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	30	0	19	5	0
2	B	30	0	19	5	0
2	D	30	0	19	3	0
2	E	30	0	19	3	0
3	A	2	0	0	0	0
3	B	2	0	0	1	0
3	D	2	0	0	0	0
3	E	3	0	0	0	0
4	A	100	0	0	3	0
4	B	131	0	0	4	0
4	D	106	0	0	5	0
4	E	98	0	0	0	0
All	All	12710	0	11831	115	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (115) 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:D:362:THR:HA	4:D:654:HOH:O	1.52	1.05
1:A:251:ILE:H	1:A:269:ASN:HD21	1.05	1.04
1:D:251:ILE:H	1:D:269:ASN:HD21	1.00	1.00
1:E:178:ASP:OD1	1:E:180:SER:HB2	1.62	0.99
1:B:55:ARG:HD3	4:B:700:HOH:O	1.69	0.90
1:D:358:GLU:HG3	4:D:654:HOH:O	1.70	0.90
2:A:501:OVA:O26	2:A:501:OVA:N25	2.06	0.89
1:B:73:GLN:HE22	1:B:101:GLN:H	1.21	0.89
1:A:85:ASN:HD21	1:A:176:ARG:H	1.23	0.87
1:D:178:ASP:OD1	1:D:180:SER:HB2	1.75	0.86
1:B:85:ASN:HD21	1:B:176:ARG:H	1.26	0.81
1:D:85:ASN:HD21	1:D:176:ARG:H	1.32	0.76
1:E:85:ASN:HD21	1:E:176:ARG:H	1.32	0.76
1:D:144:ARG:H	1:D:191:GLN:HE22	1.33	0.75
1:D:251:ILE:H	1:D:269:ASN:ND2	1.82	0.74
1:D:251:ILE:N	1:D:269:ASN:HD21	1.81	0.73
2:D:501:OVA:O26	2:D:501:OVA:N25	2.18	0.70
1:D:81:THR:H	1:D:277:SER:HB3	1.56	0.70
1:D:286:LYS:HD3	1:D:374:GLN:NE2	2.08	0.68
1:E:80:ASP:OD1	2:E:501:OVA:N24	2.27	0.67
1:D:361:ALA:HB3	4:D:704:HOH:O	1.93	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:251:ILE:H	1:A:269:ASN:ND2	1.88	0.66
1:E:144:ARG:H	1:E:191:GLN:HE22	1.42	0.65
1:D:348:ILE:HG12	4:D:687:HOH:O	1.96	0.65
1:D:178:ASP:OD1	1:D:180:SER:CB	2.46	0.64
1:A:429:ASP:HB2	4:A:675:HOH:O	1.97	0.64
1:A:282:LEU:HB2	1:A:385:ILE:HD11	1.80	0.64
1:D:309:PHE:CD1	1:D:316:VAL:HG23	2.33	0.64
2:E:501:OVA:O26	2:E:501:OVA:N25	2.29	0.62
1:A:178:ASP:OD1	1:A:180:SER:HB2	2.01	0.60
1:D:260:ASP:H	1:E:326:ASN:HD22	1.48	0.59
1:B:97:HIS:CD2	4:B:682:HOH:O	2.56	0.59
1:D:260:ASP:H	1:E:326:ASN:ND2	2.01	0.59
1:D:348:ILE:HD13	1:D:385:ILE:HD12	1.85	0.59
1:E:343:SER:HB3	1:E:424:THR:HG21	1.83	0.59
1:B:338:GLU:HG2	4:B:712:HOH:O	2.03	0.59
1:B:283:ARG:HB3	1:B:375:SER:HB2	1.85	0.58
1:D:283:ARG:HB3	1:D:375:SER:HB2	1.86	0.57
1:A:283:ARG:HB3	1:A:375:SER:HB2	1.87	0.57
1:B:80:ASP:OD1	2:B:501:OVA:N24	2.36	0.57
1:B:80:ASP:OD2	1:B:166:ILE:HD11	2.06	0.55
2:B:501:OVA:O26	2:B:501:OVA:N25	2.35	0.55
1:E:335:LEU:HD21	1:E:381:MET:HE1	1.88	0.55
1:A:412:GLU:HG2	4:A:661:HOH:O	2.07	0.55
1:B:408:HIS:CE1	1:B:416:ALA:H	2.25	0.54
1:B:178:ASP:OD1	1:B:180:SER:HB2	2.07	0.54
1:E:283:ARG:HB3	1:E:375:SER:HB2	1.88	0.54
1:A:197:LEU:HD13	1:A:394:ASP:HA	1.90	0.53
1:B:201:GLN:O	1:B:201:GLN:HG3	2.09	0.52
1:D:201:GLN:O	1:D:201:GLN:HG3	2.10	0.52
1:D:80:ASP:OD1	2:D:501:OVA:N24	2.42	0.52
1:A:201:GLN:O	1:A:201:GLN:HG3	2.10	0.51
1:B:123:LYS:HG3	3:B:503:IOD:I	2.81	0.51
1:A:144:ARG:H	1:A:191:GLN:HE22	1.57	0.51
1:D:50:MET:HG2	1:D:138:GLY:HA2	1.92	0.51
1:D:348:ILE:HD13	1:D:385:ILE:CD1	2.40	0.51
1:D:144:ARG:HD3	4:D:670:HOH:O	2.09	0.51
1:B:361:ALA:HB3	4:B:702:HOH:O	2.10	0.50
1:E:178:ASP:OD1	1:E:180:SER:CB	2.48	0.50
1:A:274:ILE:CD1	2:A:501:OVA:H8	2.41	0.50
1:E:343:SER:CB	1:E:424:THR:HG21	2.41	0.50
1:B:410:HIS:HD2	1:B:411:ASP:O	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:50:MET:HG2	1:B:138:GLY:HA2	1.94	0.49
1:E:246:TYR:CE1	2:E:501:OVA:H7	2.48	0.49
1:B:362:THR:O	1:B:362:THR:HG23	2.12	0.48
1:A:80:ASP:OD1	2:A:501:OVA:N24	2.46	0.48
1:A:197:LEU:CD1	1:A:394:ASP:HA	2.43	0.48
1:D:274:ILE:CD1	2:D:501:OVA:H8	2.43	0.48
1:B:80:ASP:CG	2:B:501:OVA:H18	2.22	0.48
1:E:343:SER:HB3	1:E:424:THR:CG2	2.44	0.47
1:A:50:MET:HG2	1:A:138:GLY:HA2	1.96	0.47
1:D:270:TYR:HA	1:D:271:ASP:HA	1.71	0.46
1:A:80:ASP:HA	1:A:277:SER:HB3	1.97	0.46
1:B:51:VAL:O	1:B:52:ASP:HB2	2.16	0.46
1:B:245:TRP:CG	1:B:246:TYR:H	2.33	0.46
1:A:119:TYR:CD2	2:A:501:OVA:H5	2.51	0.45
1:A:283:ARG:HB2	1:A:380:VAL:HB	1.98	0.45
1:D:117:VAL:HG22	1:D:176:ARG:HG3	1.99	0.45
1:B:119:TYR:CD2	2:B:501:OVA:H5	2.52	0.45
1:E:282:LEU:HB2	1:E:385:ILE:HD11	1.99	0.45
1:B:171:TYR:CZ	1:B:244:GLU:HG2	2.51	0.45
1:E:359:ASP:OD1	1:E:360:VAL:N	2.49	0.45
1:B:178:ASP:OD1	1:B:180:SER:CB	2.65	0.45
1:B:282:LEU:HB2	1:B:385:ILE:HD11	1.99	0.45
1:B:81:THR:H	1:B:277:SER:HB3	1.82	0.44
1:E:270:TYR:HA	1:E:271:ASP:HA	1.85	0.44
1:A:247:TYR:HB3	1:A:400:ILE:HD11	2.00	0.44
1:A:81:THR:H	1:A:277:SER:HB2	1.83	0.43
1:E:80:ASP:OD2	1:E:166:ILE:HD11	2.17	0.43
1:D:315:LEU:HD23	1:D:357:VAL:HG21	1.99	0.43
1:D:245:TRP:CG	1:D:246:TYR:H	2.36	0.43
1:E:283:ARG:HB2	1:E:380:VAL:HB	2.00	0.43
1:E:245:TRP:CG	1:E:246:TYR:H	2.37	0.43
1:B:80:ASP:HA	1:B:277:SER:HB3	2.01	0.42
1:A:81:THR:H	1:A:277:SER:CB	2.33	0.42
1:A:144:ARG:N	1:A:191:GLN:HE22	2.17	0.42
1:D:113:LYS:CG	1:D:128:LEU:HD12	2.50	0.42
1:A:58:SER:HB2	4:A:614:HOH:O	2.20	0.42
1:B:236:LEU:HD13	1:B:403:ALA:HB2	2.01	0.41
1:A:266:LYS:HE3	1:A:429:ASP:O	2.20	0.41
1:A:245:TRP:CG	1:A:246:TYR:H	2.39	0.41
1:A:355:ARG:HA	1:A:356:PRO:HD3	1.97	0.41
1:D:66:MET:HG2	1:D:135:ILE:HG12	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:68:VAL:HG12	1:A:133:VAL:HG22	2.03	0.41
1:B:283:ARG:HB2	1:B:380:VAL:HB	2.02	0.41
1:D:178:ASP:C	1:D:180:SER:H	2.29	0.41
1:B:116:TYR:OH	1:B:118:PRO:HB3	2.20	0.41
1:E:261:LEU:HD12	1:E:261:LEU:HA	1.96	0.41
1:A:121:GLN:HG2	2:A:501:OVA:CL1	2.58	0.41
1:A:286:LYS:HD3	1:A:374:GLN:NE2	2.36	0.41
1:B:80:ASP:CG	2:B:501:OVA:N24	2.78	0.40
1:D:276:ASP:OD2	1:D:279:THR:OG1	2.37	0.40
1:D:95:PHE:CE1	1:D:159:ASN:HB2	2.57	0.40
1:D:227:ILE:HG23	1:D:390:TYR:HE2	1.86	0.40
1:B:173:GLU:O	1:B:173:GLU:HG3	2.20	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	385/455 (85%)	373 (97%)	10 (3%)	2 (0%)	24	39
1	B	385/455 (85%)	374 (97%)	11 (3%)	0	100	100
1	D	385/455 (85%)	372 (97%)	12 (3%)	1 (0%)	36	52
1	E	385/455 (85%)	372 (97%)	12 (3%)	1 (0%)	36	52
All	All	1540/1820 (85%)	1491 (97%)	45 (3%)	4 (0%)	36	52

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	265	CYS
1	E	265	CYS
1	A	286	LYS

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Mol	Chain	Res	Type
1	D	286	LYS

### 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	329/381 (86%)	317 (96%)	12 (4%)	31	51
1	B	327/381 (86%)	317 (97%)	10 (3%)	35	56
1	D	327/381 (86%)	320 (98%)	7 (2%)	47	69
1	E	329/381 (86%)	315 (96%)	14 (4%)	26	44
All	All	1312/1524 (86%)	1269 (97%)	43 (3%)	33	55

All (43) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	49	GLU
1	A	58	SER
1	A	174	ILE
1	A	180	SER
1	A	265	CYS
1	A	277	SER
1	A	311	LEU
1	A	340	THR
1	A	364	GLN
1	A	373	SER
1	A	428	GLU
1	A	433	ASN
1	B	134	SER
1	B	173	GLU
1	B	180	SER
1	B	236	LEU
1	B	245	TRP
1	B	301	SER
1	B	315	LEU
1	B	360	VAL

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Mol	Chain	Res	Type
1	B	362	THR
1	B	424	THR
1	D	180	SER
1	D	245	TRP
1	D	266	LYS
1	D	297	LYS
1	D	307	ASP
1	D	315	LEU
1	D	362	THR
1	E	49	GLU
1	E	173	GLU
1	E	180	SER
1	E	224	ILE
1	E	245	TRP
1	E	265	CYS
1	E	266	LYS
1	E	277	SER
1	E	301	SER
1	E	315	LEU
1	E	360	VAL
1	E	362	THR
1	E	373	SER
1	E	424	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (37) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	85	ASN
1	A	137	HIS
1	A	191	GLN
1	A	201	GLN
1	A	269	ASN
1	A	281	ASN
1	A	374	GLN
1	B	73	GLN
1	B	85	ASN
1	B	97	HIS
1	B	137	HIS
1	B	146	ASN
1	B	259	GLN
1	B	341	ASN
1	B	342	GLN

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Mol	Chain	Res	Type
1	B	408	HIS
1	B	410	HIS
1	D	60	GLN
1	D	76	ASN
1	D	85	ASN
1	D	137	HIS
1	D	191	GLN
1	D	229	HIS
1	D	269	ASN
1	D	341	ASN
1	D	374	GLN
1	D	410	HIS
1	E	76	ASN
1	E	85	ASN
1	E	97	HIS
1	E	191	GLN
1	E	201	GLN
1	E	229	HIS
1	E	259	GLN
1	E	326	ASN
1	E	341	ASN
1	E	433	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 13 ligands modelled in this entry, 9 are monoatomic - leaving 4 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	$\# Z  > 2$
2	0VA	B	501	-	29,32,32	6.83	22 (75%)	38,45,45	4.09	23 (60%)
2	0VA	E	501	-	29,32,32	6.74	23 (79%)	38,45,45	4.13	20 (52%)
2	0VA	D	501	-	29,32,32	6.56	21 (72%)	38,45,45	4.23	24 (63%)
2	0VA	A	501	-	29,32,32	6.61	22 (75%)	38,45,45	4.25	24 (63%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	0VA	B	501	-	-	3/19/19/19	0/3/3/3
2	0VA	E	501	-	-	5/19/19/19	0/3/3/3
2	0VA	D	501	-	-	4/19/19/19	0/3/3/3
2	0VA	A	501	-	-	5/19/19/19	0/3/3/3

All (88) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	501	0VA	C14-N21	11.77	1.49	1.33
2	B	501	0VA	C14-N21	11.45	1.48	1.33
2	D	501	0VA	C14-N21	11.32	1.48	1.33
2	A	501	0VA	C14-N21	11.12	1.48	1.33
2	E	501	0VA	O26-C16	10.96	1.44	1.23
2	B	501	0VA	O26-C16	10.83	1.44	1.23
2	B	501	0VA	C02-C07	10.78	1.55	1.39
2	E	501	0VA	C02-C07	10.38	1.55	1.39
2	A	501	0VA	O26-C16	10.26	1.43	1.23
2	D	501	0VA	O26-C16	10.26	1.43	1.23
2	D	501	0VA	C02-C07	10.22	1.54	1.39
2	A	501	0VA	C02-C07	10.18	1.54	1.39
2	E	501	0VA	C01-C07	10.15	1.54	1.39
2	B	501	0VA	C01-C07	10.01	1.54	1.39
2	A	501	0VA	C01-C07	9.95	1.54	1.39
2	E	501	0VA	C03-C01	9.87	1.54	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	501	0VA	C04-C02	9.77	1.54	1.38
2	A	501	0VA	C03-C01	9.49	1.54	1.38
2	D	501	0VA	C04-C02	9.40	1.54	1.38
2	B	501	0VA	C05-C12	9.38	1.53	1.38
2	D	501	0VA	C03-C01	9.33	1.53	1.38
2	D	501	0VA	C01-C07	9.32	1.53	1.39
2	B	501	0VA	C03-C01	9.24	1.53	1.38
2	E	501	0VA	C04-C02	9.08	1.53	1.38
2	A	501	0VA	C04-C02	8.89	1.53	1.38
2	E	501	0VA	C05-C12	8.57	1.52	1.38
2	A	501	0VA	C03-C11	8.42	1.54	1.38
2	A	501	0VA	C06-C13	8.40	1.52	1.38
2	B	501	0VA	C05-C09	8.40	1.53	1.39
2	A	501	0VA	C05-C12	8.37	1.52	1.38
2	E	501	0VA	C03-C11	8.35	1.54	1.38
2	D	501	0VA	C06-C13	8.33	1.52	1.38
2	E	501	0VA	C06-C13	8.25	1.52	1.38
2	B	501	0VA	C06-C13	8.17	1.51	1.38
2	D	501	0VA	C05-C12	8.08	1.51	1.38
2	B	501	0VA	C04-C11	8.02	1.53	1.38
2	B	501	0VA	C03-C11	7.97	1.53	1.38
2	D	501	0VA	C03-C11	7.93	1.53	1.38
2	E	501	0VA	C05-C09	7.88	1.52	1.39
2	A	501	0VA	C04-C11	7.84	1.53	1.38
2	D	501	0VA	C04-C11	7.76	1.53	1.38
2	E	501	0VA	C04-C11	7.71	1.53	1.38
2	A	501	0VA	C05-C09	7.71	1.52	1.39
2	B	501	0VA	C10-C12	7.64	1.53	1.41
2	D	501	0VA	C05-C09	7.60	1.52	1.39
2	A	501	0VA	C10-C12	7.60	1.53	1.41
2	E	501	0VA	C06-C09	7.58	1.52	1.39
2	D	501	0VA	C10-C13	7.54	1.53	1.41
2	B	501	0VA	C10-C13	7.53	1.53	1.41
2	D	501	0VA	C10-C12	7.30	1.52	1.41
2	A	501	0VA	C06-C09	7.19	1.51	1.39
2	A	501	0VA	C10-C13	7.17	1.52	1.41
2	D	501	0VA	C06-C09	7.16	1.51	1.39
2	E	501	0VA	C10-C12	7.13	1.52	1.41
2	B	501	0VA	C06-C09	7.06	1.51	1.39
2	B	501	0VA	C08-C15	6.99	1.51	1.37
2	D	501	0VA	C08-C15	6.99	1.51	1.37
2	E	501	0VA	C10-C13	6.98	1.52	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	501	0VA	C08-C15	6.83	1.51	1.37
2	A	501	0VA	C08-C15	6.72	1.51	1.37
2	B	501	0VA	C16-N22	6.65	1.50	1.37
2	E	501	0VA	C16-N22	6.40	1.49	1.37
2	A	501	0VA	C16-N22	6.40	1.49	1.37
2	D	501	0VA	C16-N22	6.25	1.49	1.37
2	B	501	0VA	C17-N22	4.68	1.46	1.36
2	E	501	0VA	C17-N22	4.61	1.46	1.36
2	A	501	0VA	C17-N22	4.57	1.46	1.36
2	E	501	0VA	C08-C14	4.55	1.52	1.43
2	B	501	0VA	C08-C14	4.46	1.52	1.43
2	D	501	0VA	C17-N22	4.40	1.46	1.36
2	A	501	0VA	C08-C14	4.39	1.52	1.43
2	D	501	0VA	C08-C14	4.37	1.52	1.43
2	E	501	0VA	C07-C14	3.82	1.53	1.48
2	D	501	0VA	C10-N23	3.79	1.49	1.37
2	A	501	0VA	C10-N23	3.72	1.49	1.37
2	B	501	0VA	C10-N23	3.72	1.49	1.37
2	B	501	0VA	C07-C14	3.68	1.53	1.48
2	E	501	0VA	C10-N23	3.58	1.48	1.37
2	B	501	0VA	O27-C11	3.42	1.44	1.37
2	D	501	0VA	O27-C11	3.30	1.44	1.37
2	A	501	0VA	C07-C14	3.20	1.52	1.48
2	D	501	0VA	C07-C14	3.13	1.52	1.48
2	A	501	0VA	O27-C11	3.11	1.43	1.37
2	E	501	0VA	O27-C11	3.11	1.43	1.37
2	B	501	0VA	C12-CL1	2.65	1.79	1.73
2	E	501	0VA	C08-C16	2.34	1.52	1.48
2	A	501	0VA	C08-C16	2.29	1.52	1.48
2	E	501	0VA	C12-CL1	2.07	1.78	1.73

All (91) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	501	0VA	C01-C07-C14	12.87	141.83	120.74
2	A	501	0VA	C01-C07-C14	12.00	140.40	120.74
2	D	501	0VA	C01-C07-C14	11.00	138.76	120.74
2	B	501	0VA	C08-C14-N21	-10.73	103.73	115.55
2	B	501	0VA	C01-C07-C14	10.54	138.01	120.74
2	E	501	0VA	C08-C14-N21	-10.08	104.45	115.55
2	D	501	0VA	C08-C14-N21	-9.92	104.62	115.55
2	A	501	0VA	C08-C14-N21	-9.52	105.07	115.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	501	0VA	C02-C07-C14	-8.02	107.61	120.74
2	A	501	0VA	C02-C07-C14	-7.76	108.03	120.74
2	D	501	0VA	C07-C14-C08	7.41	144.78	130.08
2	D	501	0VA	C07-C14-N21	-6.46	110.03	118.56
2	E	501	0VA	C02-C07-C01	-6.37	110.47	118.57
2	D	501	0VA	C02-C07-C14	-6.30	110.41	120.74
2	A	501	0VA	O26-C16-C08	-6.28	112.12	121.53
2	B	501	0VA	C02-C07-C01	-6.21	110.66	118.57
2	B	501	0VA	C07-C14-C08	6.21	142.40	130.08
2	B	501	0VA	O26-C16-C08	-6.16	112.30	121.53
2	D	501	0VA	C02-C07-C01	-6.09	110.82	118.57
2	A	501	0VA	C07-C14-C08	5.94	141.87	130.08
2	B	501	0VA	C02-C07-C14	-5.81	111.22	120.74
2	E	501	0VA	C04-C02-C07	5.67	126.86	120.80
2	D	501	0VA	O26-C16-C08	-5.66	113.06	121.53
2	E	501	0VA	O26-C16-N22	-5.62	112.82	122.88
2	A	501	0VA	O26-C16-N22	-5.62	112.82	122.88
2	A	501	0VA	C02-C07-C01	-5.53	111.53	118.57
2	A	501	0VA	C04-C02-C07	5.38	126.55	120.80
2	E	501	0VA	C07-C14-C08	5.31	140.60	130.08
2	B	501	0VA	C06-C13-C10	5.18	126.56	123.03
2	B	501	0VA	C08-C15-S28	-5.13	104.08	110.46
2	E	501	0VA	O26-C16-C08	-4.99	114.05	121.53
2	D	501	0VA	C20-C09-C06	4.98	131.25	120.63
2	D	501	0VA	O26-C16-N22	-4.97	113.98	122.88
2	D	501	0VA	C04-C02-C07	4.89	126.02	120.80
2	D	501	0VA	C08-C15-S28	-4.83	104.45	110.46
2	A	501	0VA	C08-C15-S28	-4.82	104.47	110.46
2	B	501	0VA	C04-C02-C07	4.78	125.91	120.80
2	A	501	0VA	C07-C14-N21	-4.58	112.51	118.56
2	B	501	0VA	O26-C16-N22	-4.58	114.69	122.88
2	A	501	0VA	C06-C13-C10	4.58	126.15	123.03
2	E	501	0VA	C20-C09-C06	4.51	130.25	120.63
2	A	501	0VA	C20-C09-C06	4.47	130.18	120.63
2	E	501	0VA	C08-C15-S28	-4.42	104.96	110.46
2	B	501	0VA	C19-O27-C11	4.40	126.94	117.50
2	D	501	0VA	C06-C13-C10	4.22	125.90	123.03
2	B	501	0VA	C12-C05-C09	4.20	123.18	120.46
2	D	501	0VA	C20-C09-C05	-4.16	111.74	120.63
2	B	501	0VA	C07-C14-N21	-4.14	113.09	118.56
2	A	501	0VA	C17-N22-C16	-4.14	117.19	125.73
2	D	501	0VA	C19-O27-C11	4.10	126.30	117.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	501	0VA	C20-C09-C06	4.02	129.21	120.63
2	B	501	0VA	C03-C01-C07	3.77	124.83	120.80
2	D	501	0VA	C03-C01-C07	3.76	124.82	120.80
2	D	501	0VA	C04-C11-C03	-3.73	114.72	120.16
2	E	501	0VA	C06-C13-C10	3.64	125.51	123.03
2	B	501	0VA	C04-C11-C03	-3.63	114.87	120.16
2	A	501	0VA	C20-C09-C05	-3.59	112.97	120.63
2	E	501	0VA	C03-C01-C07	3.56	124.60	120.80
2	A	501	0VA	C09-C20-N25	3.56	120.58	113.07
2	A	501	0VA	C20-N25-C17	-3.53	118.88	123.08
2	E	501	0VA	C20-C09-C05	-3.43	113.31	120.63
2	E	501	0VA	C04-C11-C03	-3.31	115.33	120.16
2	E	501	0VA	C19-O27-C11	3.27	124.52	117.50
2	A	501	0VA	C12-C05-C09	3.15	122.50	120.46
2	D	501	0VA	C13-C10-C12	-3.14	112.58	115.19
2	E	501	0VA	C07-C14-N21	-3.13	114.42	118.56
2	D	501	0VA	C17-N22-C16	-3.12	119.29	125.73
2	A	501	0VA	C04-C11-C03	-3.10	115.63	120.16
2	A	501	0VA	C10-C12-CL1	3.01	121.44	117.87
2	E	501	0VA	C12-C05-C09	3.01	122.41	120.46
2	B	501	0VA	C20-C09-C05	-2.96	114.32	120.63
2	A	501	0VA	C19-O27-C11	2.92	123.76	117.50
2	A	501	0VA	C13-C10-C12	-2.91	112.77	115.19
2	D	501	0VA	C12-C05-C09	2.85	122.31	120.46
2	A	501	0VA	C03-C01-C07	2.74	123.73	120.80
2	D	501	0VA	C09-C20-N25	2.69	118.73	113.07
2	A	501	0VA	N22-C17-N25	-2.64	111.28	118.08
2	B	501	0VA	C01-C03-C11	2.63	122.74	119.73
2	D	501	0VA	C20-N25-C17	-2.61	119.98	123.08
2	E	501	0VA	C09-C20-N25	2.56	118.47	113.07
2	B	501	0VA	C05-C12-C10	-2.50	121.32	123.03
2	D	501	0VA	C10-C12-CL1	2.48	120.81	117.87
2	D	501	0VA	C01-C03-C11	2.48	122.56	119.73
2	B	501	0VA	C13-C10-C12	-2.42	113.17	115.19
2	D	501	0VA	N22-C17-N25	-2.30	112.15	118.08
2	A	501	0VA	C01-C03-C11	2.30	122.36	119.73
2	B	501	0VA	C06-C13-CL2	-2.21	114.83	118.45
2	B	501	0VA	O27-C11-C04	2.09	129.73	119.82
2	E	501	0VA	C13-C10-C12	-2.06	113.48	115.19
2	E	501	0VA	C01-C03-C11	2.05	122.08	119.73
2	B	501	0VA	C06-C09-C05	-2.01	116.27	119.01

There are no chirality outliers.

All (17) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	E	501	0VA	C03-C11-O27-C19
2	E	501	0VA	C04-C11-O27-C19
2	D	501	0VA	C14-C08-C16-N22
2	E	501	0VA	C14-C08-C16-N22
2	A	501	0VA	C03-C11-O27-C19
2	A	501	0VA	C04-C11-O27-C19
2	D	501	0VA	C04-C11-O27-C19
2	A	501	0VA	C15-C08-C16-N22
2	D	501	0VA	C03-C11-O27-C19
2	A	501	0VA	C14-C08-C16-N22
2	A	501	0VA	C14-C08-C16-O26
2	B	501	0VA	C14-C08-C16-O26
2	E	501	0VA	C14-C08-C16-O26
2	B	501	0VA	C14-C08-C16-N22
2	E	501	0VA	C15-C08-C16-O26
2	D	501	0VA	C14-C08-C16-O26
2	B	501	0VA	C15-C08-C16-O26

There are no ring outliers.

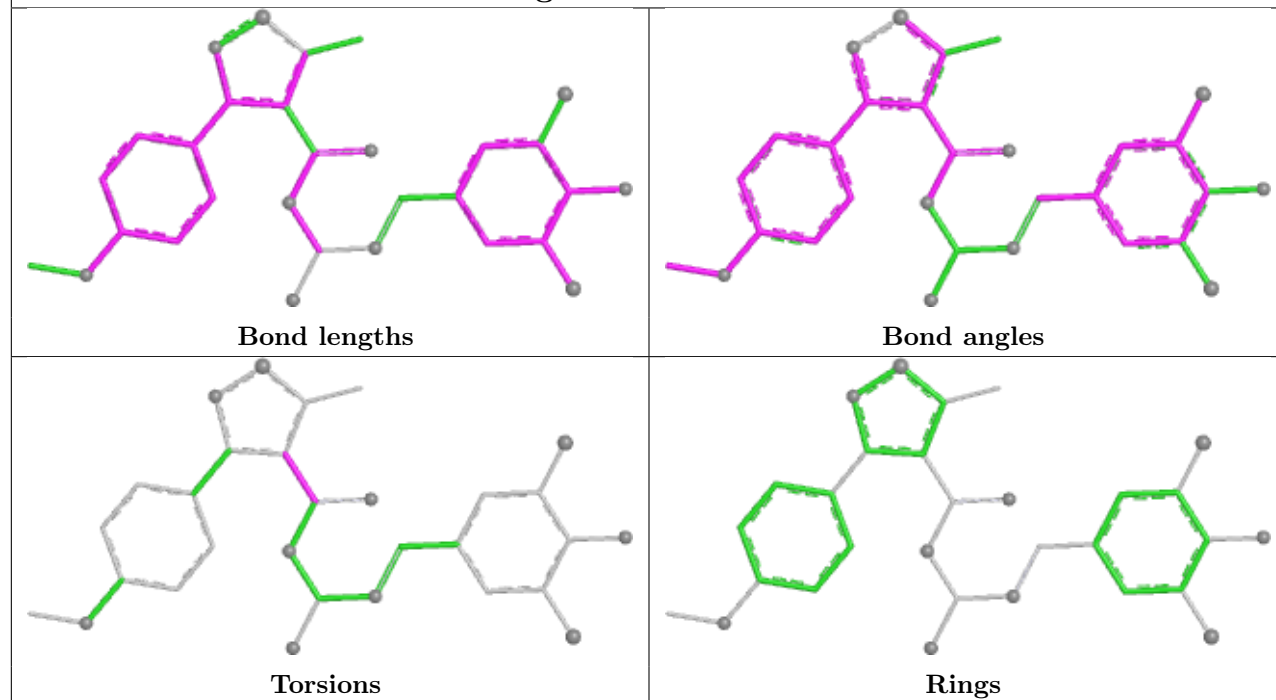
4 monomers are involved in 16 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	501	0VA	5	0
2	E	501	0VA	3	0
2	D	501	0VA	3	0
2	A	501	0VA	5	0

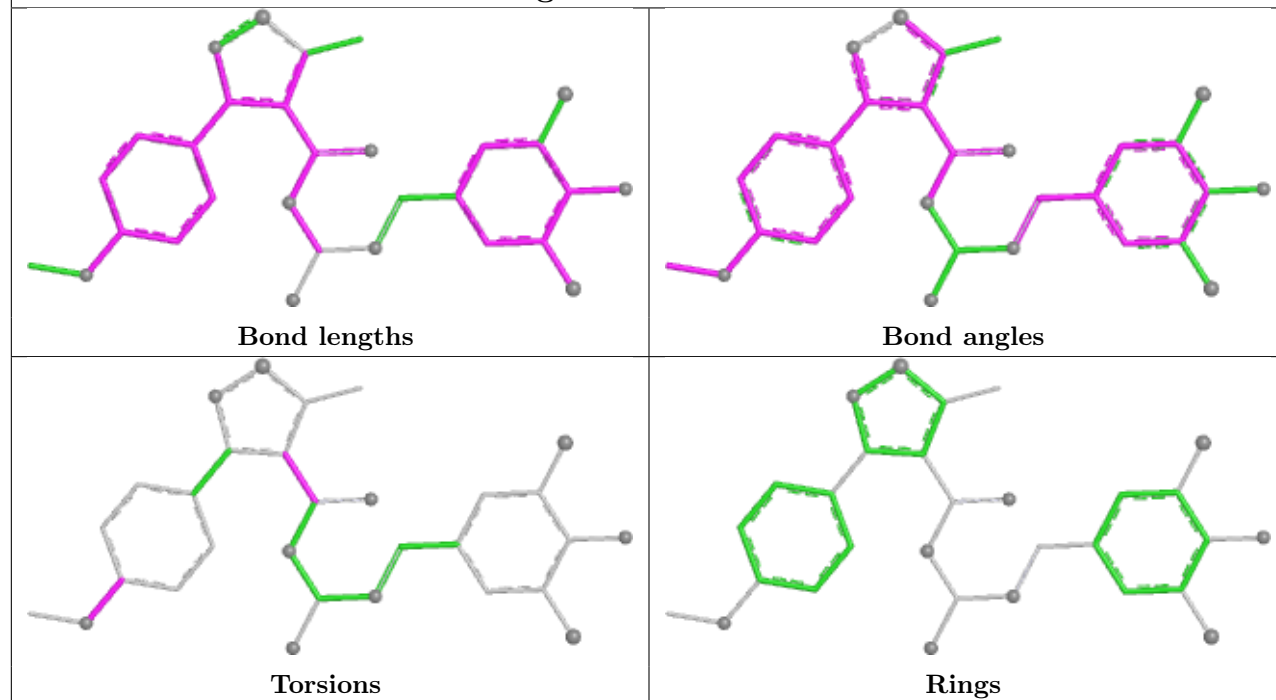
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

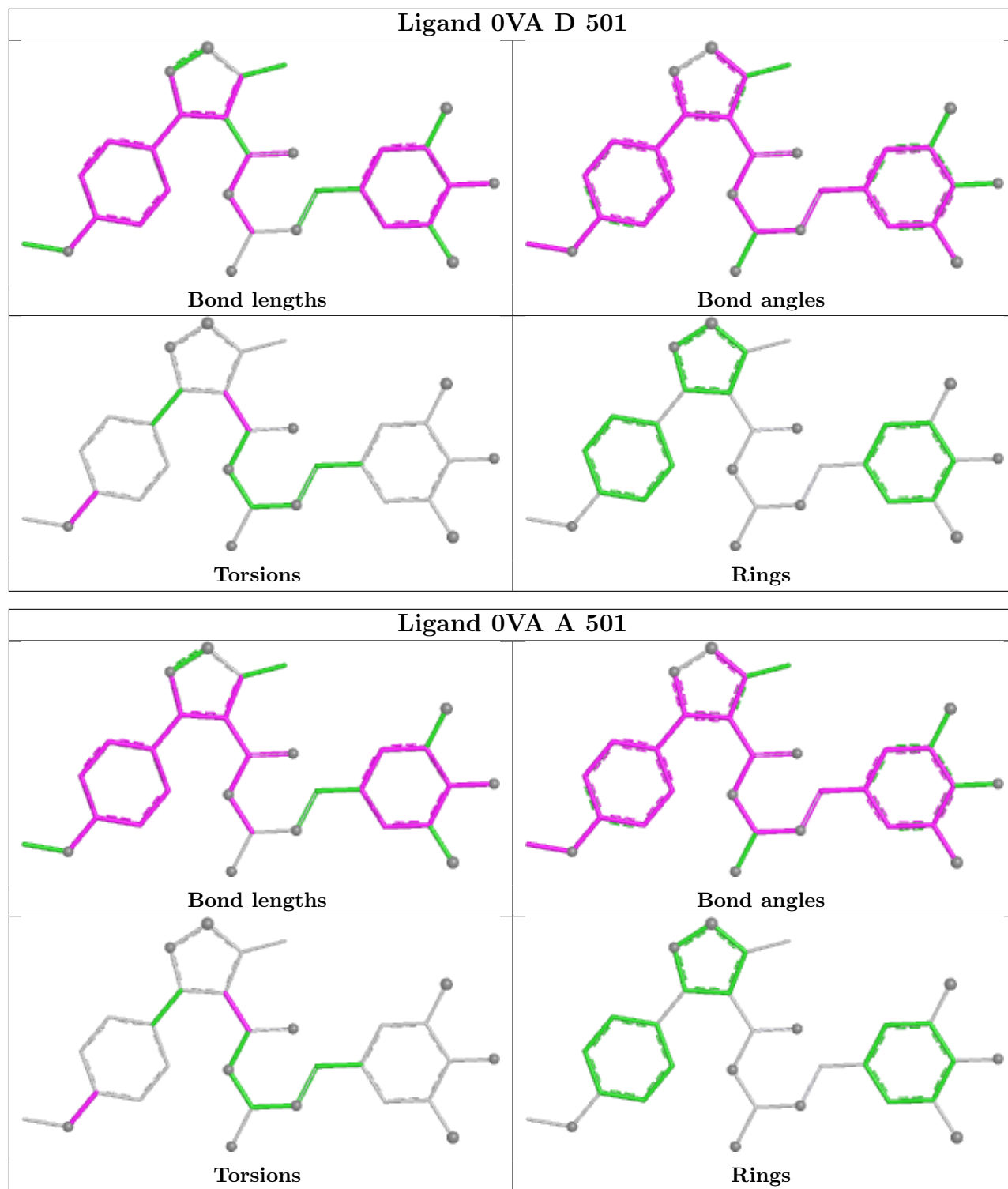


## Ligand OVA B 501



## Ligand OVA E 501





## 5.7 Other polymers [i](#)

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, 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	387/455 (85%)	-0.03	7 (1%) 67 63	10, 20, 33, 39	0
1	B	387/455 (85%)	-0.09	5 (1%) 75 71	10, 20, 33, 39	0
1	D	387/455 (85%)	0.01	8 (2%) 63 57	10, 20, 33, 39	0
1	E	387/455 (85%)	0.00	9 (2%) 61 54	11, 20, 33, 40	0
All	All	1548/1820 (85%)	-0.03	29 (1%) 66 61	10, 20, 33, 40	0

All (29) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	362	THR	5.7
1	D	360	VAL	5.7
1	A	360	VAL	4.9
1	D	193	HIS	4.9
1	D	362	THR	4.6
1	E	362	THR	4.0
1	D	361	ALA	3.9
1	E	360	VAL	3.8
1	B	361	ALA	3.8
1	A	362	THR	3.7
1	E	361	ALA	3.7
1	B	360	VAL	3.7
1	D	363	SER	3.3
1	E	116	TYR	3.2
1	B	120	THR	3.2
1	E	159	ASN	2.7
1	A	306	PRO	2.7
1	D	306	PRO	2.7
1	A	361	ALA	2.5
1	E	97	HIS	2.5
1	A	311	LEU	2.5

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	E	158	ILE	2.5
1	E	120	THR	2.4
1	B	119	TYR	2.2
1	A	359	ASP	2.2
1	D	432	TYR	2.1
1	E	160	GLY	2.1
1	A	97	HIS	2.0
1	D	97	HIS	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 oligosaccharides 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, 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.

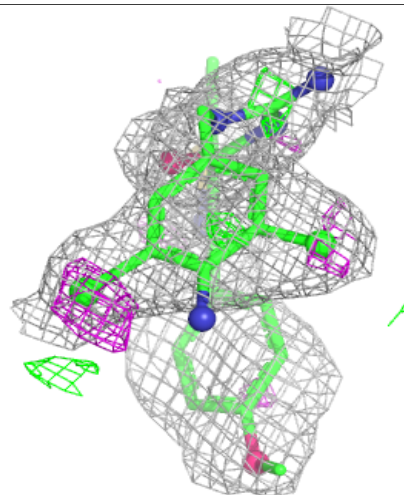
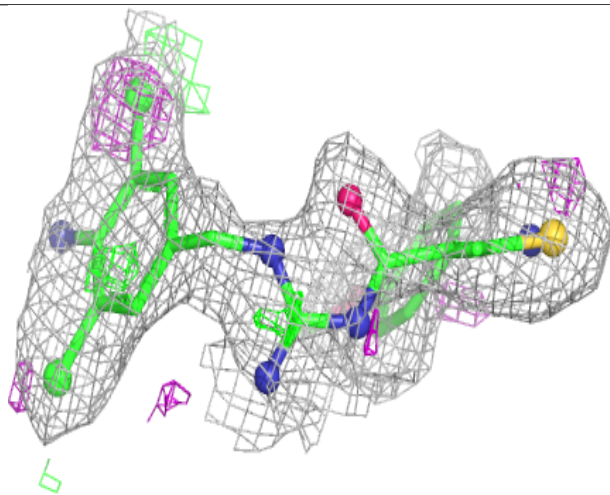
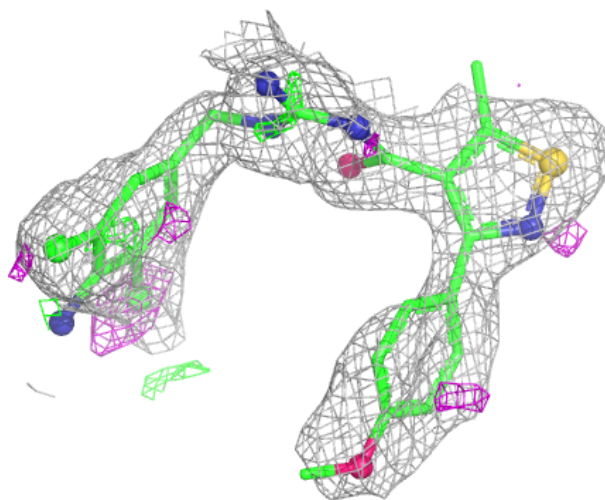
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
3	IOD	E	504	1/1	0.64	0.37	500,500,500,500	0
2	0VA	E	501	30/30	0.87	0.16	30,32,36,38	0
2	0VA	A	501	30/30	0.89	0.15	31,33,35,36	0
2	0VA	B	501	30/30	0.89	0.15	28,30,33,33	0
2	0VA	D	501	30/30	0.91	0.14	29,30,33,34	0
3	IOD	D	503	1/1	0.96	0.09	71,71,71,71	0
3	IOD	E	503	1/1	0.97	0.07	70,70,70,70	0
3	IOD	B	503	1/1	0.98	0.06	69,69,69,69	0
3	IOD	D	502	1/1	0.98	0.07	57,57,57,57	0
3	IOD	A	502	1/1	0.98	0.10	77,77,77,77	0
3	IOD	E	502	1/1	0.98	0.12	86,86,86,86	0
3	IOD	A	503	1/1	0.98	0.06	65,65,65,65	0
3	IOD	B	502	1/1	0.98	0.11	74,74,74,74	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.

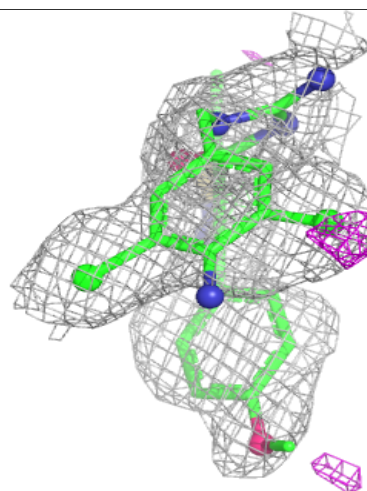
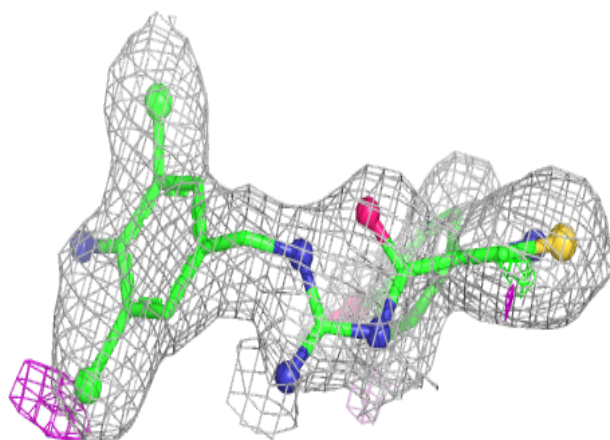
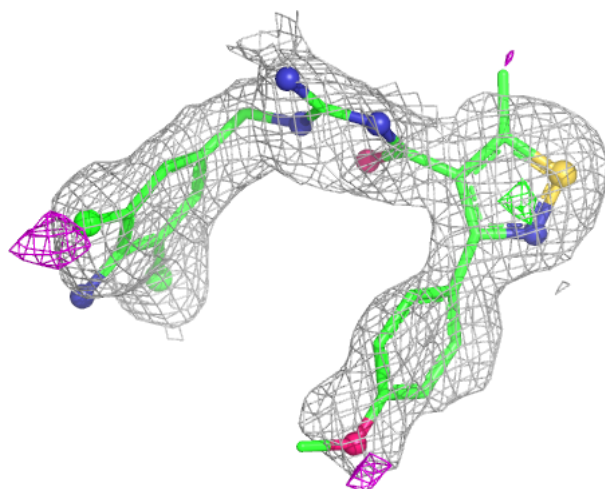
**Electron density around 0VA E 501:**

2mF<sub>o</sub>-DF<sub>c</sub> (at 0.7 rmsd) in gray  
mF<sub>o</sub>-DF<sub>c</sub> (at 3 rmsd) in purple (negative)  
and green (positive)



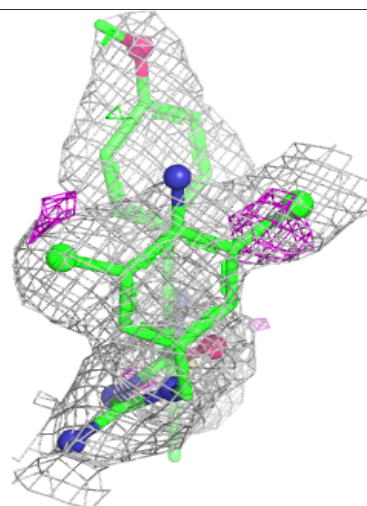
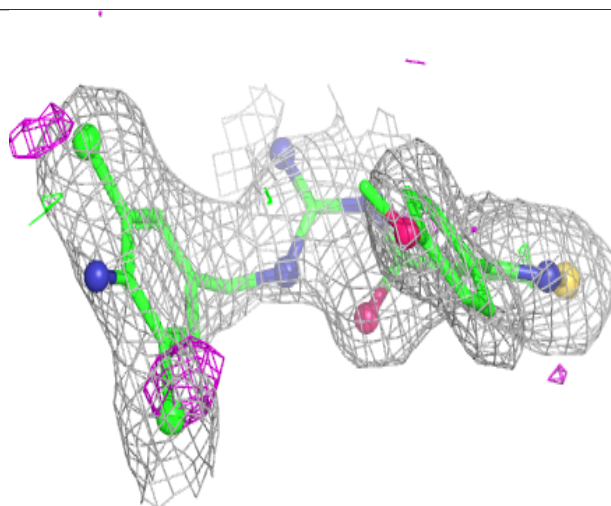
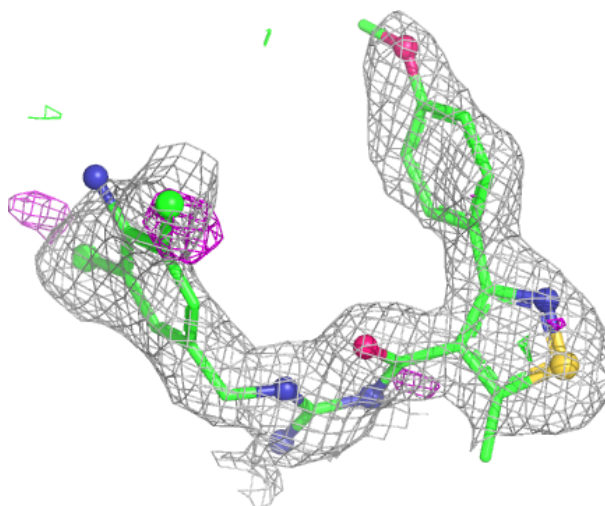
**Electron density around 0VA A 501:**

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



**Electron density around 0VA B 501:**

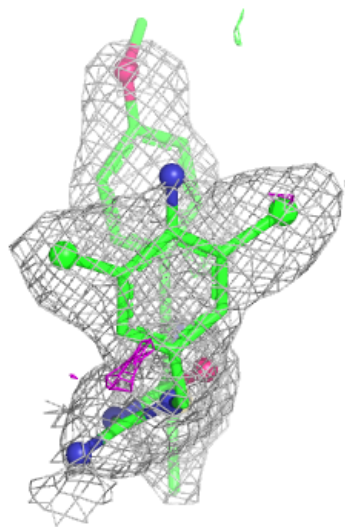
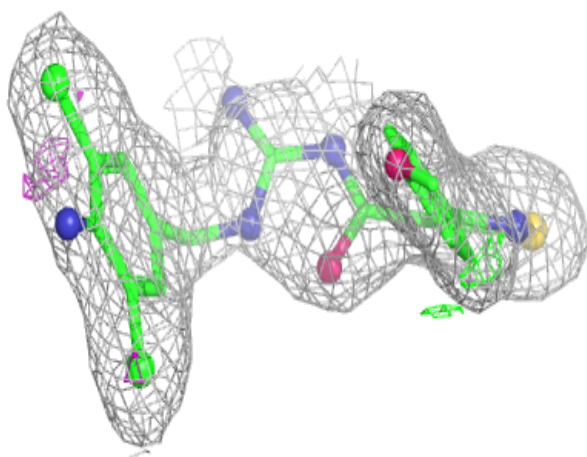
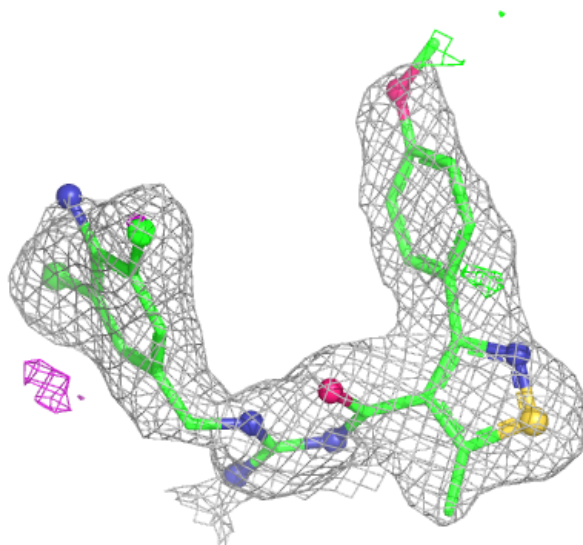
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





**Electron density around 0VA D 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 [i](#)

There are no such residues in this entry.