



# Full wwPDB X-ray Structure Validation Report ⓘ

May 15, 2020 – 04:00 pm BST

PDB ID : 1AVL  
Title : CRYSTAL STRUCTURES OF THE COPPER-CONTAINING AMINE  
OXIDASE FROM ARTHROBACTER GLOBIFORMIS IN THE HOLO-  
AND APO-FORMS: IMPLICATIONS FOR THE BIOGENESIS OF TOPA  
QUINONE  
Authors : Wilce, M.C.J.; Guss, J.M.; Freeman, H.C.  
Deposited on : 1997-09-17  
Resolution : 2.80 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.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
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) : 2.11

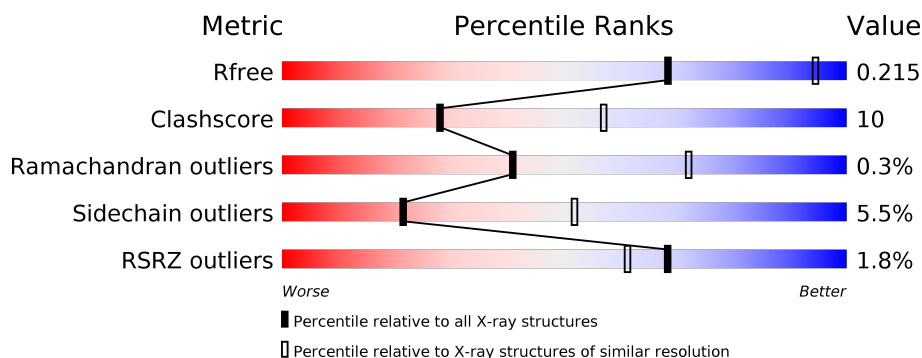
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.80 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))
$R_{free}$	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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 on 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	638	<div> <div>2%</div> <div> <div></div> <div>74%</div> <div>20%</div> <div>• •</div> </div> </div>

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 4995 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 AMINE OXIDASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	620	Total	C	N	O	S	0	1	0
			4873	3077	857	930	9			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	382	TPQ	TYR	MODIFIED RESIDUE	UNP P46881

- Molecule 2 is COPPER (II) ION (three-letter code: CU) (formula: Cu).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Cu	0	0
			1	1		

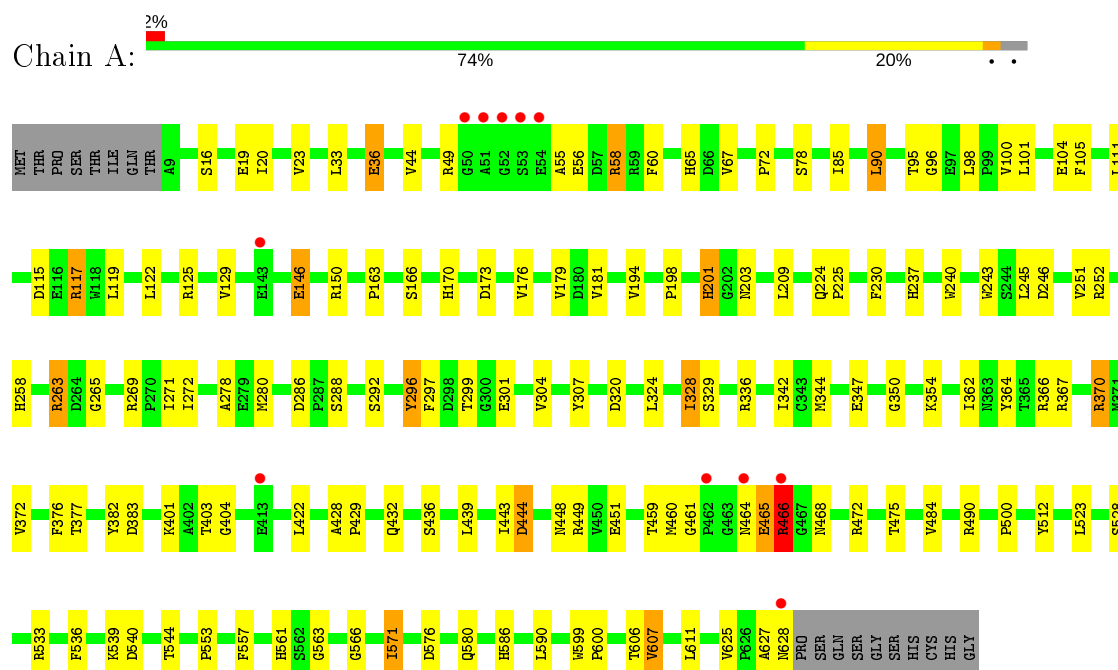
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	121	Total	O	0	0
			121	121		

### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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 ( $\text{RSRZ} > 2$ ). 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: AMINE OXIDASE



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	158.20 Å   64.10 Å   92.90 Å 90.00°   112.70°   90.00°	Depositor
Resolution (Å)	50.00 – 2.80 16.95 – 2.80	Depositor EDS
% Data completeness (in resolution range)	88.7 (50.00-2.80) 87.4 (16.95-2.80)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.08	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.87 (at 2.78 Å)	Xtriage
Refinement program	X-PLOR 3.8	Depositor
R, $R_{free}$	0.150   ,   0.202 0.157   ,   0.215	Depositor DCC
$R_{free}$ test set	636 reflections (3.41%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	36.2	Xtriage
Anisotropy	0.635	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.31 , 50.4	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	4995	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	33.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.01% 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

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: TPQ, CU

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	0.38	2/4986 (0.0%)	0.67	3/6789 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	465	GLU	C-N	-8.58	1.14	1.34
1	A	466	ARG	C-N	6.85	1.45	1.33

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	466	ARG	NE-CZ-NH2	7.21	123.91	120.30
1	A	465	GLU	C-N-CA	6.95	139.07	121.70
1	A	466	ARG	CA-C-N	-6.29	103.63	116.20

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	296	TYR	Sidechain
1	A	466	ARG	Mainchain

## 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	4873	0	4687	95	1
2	A	1	0	0	0	0
3	A	121	0	0	9	0
All	All	4995	0	4687	95	1

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 10.

All (95) 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:122:LEU:HD12	1:A:129:VAL:HG22	1.56	0.87
1:A:432:GLN:HE22	1:A:523:LEU:H	1.23	0.86
1:A:443:ILE:H	1:A:448:ASN:HD21	1.25	0.84
1:A:461:GLY:H	1:A:465:GLU:HB2	1.50	0.76
1:A:461:GLY:H	1:A:465:GLU:CB	1.98	0.76
1:A:466:ARG:NH1	3:A:669:HOH:O	2.20	0.74
1:A:449:ARG:HD2	1:A:500:PRO:HG3	1.72	0.70
1:A:201:HIS:CD2	1:A:203:ASN:H	2.11	0.67
1:A:599:TRP:CD2	1:A:600:PRO:HA	2.30	0.67
1:A:201:HIS:HD2	1:A:203:ASN:H	1.44	0.66
1:A:251:VAL:HG11	1:A:328:ILE:HG13	1.77	0.65
1:A:170:HIS:HD2	1:A:198:PRO:O	1.80	0.65
1:A:129:VAL:HG23	3:A:758:HOH:O	1.96	0.65
1:A:304:VAL:HG13	1:A:377:THR:HG21	1.80	0.63
1:A:533:ARG:HA	1:A:563:GLY:HA3	1.81	0.62
1:A:362:ILE:HD12	3:A:732:HOH:O	1.99	0.62
1:A:119:LEU:CD2	1:A:129:VAL:HG21	2.30	0.62
1:A:286:ASP:HB2	1:A:429:PRO:HB3	1.83	0.61
1:A:19:GLU:O	1:A:23:VAL:HG23	2.01	0.60
1:A:269:ARG:HD2	1:A:444:ASP:OD1	2.02	0.59
1:A:460:MET:HA	1:A:465:GLU:HB3	1.83	0.59
1:A:347:GLU:OE2	1:A:370:ARG:HD3	2.03	0.59
1:A:528:SER:HB2	3:A:740:HOH:O	2.03	0.58
1:A:115:ASP:OD2	1:A:117:ARG:HG2	2.04	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:271:ILE:HG22	1:A:272:ILE:HG13	1.86	0.56
1:A:366:ARG:HD2	1:A:625:VAL:HG23	1.89	0.55
1:A:119:LEU:HD23	1:A:129:VAL:HG21	1.89	0.55
1:A:328:ILE:HG12	1:A:329:SER:N	2.21	0.55
1:A:101:LEU:HB2	1:A:104:GLU:HG3	1.89	0.54
1:A:436:SER:HB2	1:A:536:PHE:CE2	2.42	0.54
1:A:484:VAL:HG12	1:A:539:LYS:HG3	1.90	0.53
1:A:125:ARG:NH1	1:A:194:VAL:HA	2.23	0.53
1:A:324:LEU:HB2	1:A:342:ILE:HB	1.91	0.53
1:A:328:ILE:HG23	1:A:336:ARG:HB3	1.91	0.52
1:A:451:GLU:HG3	3:A:759:HOH:O	2.08	0.52
1:A:544:THR:HG22	1:A:571:ILE:HD12	1.91	0.52
1:A:278:ALA:HB1	1:A:553:PRO:HD3	1.90	0.52
1:A:382:TPQ:H6	1:A:403:THR:O	2.09	0.52
1:A:576:ASP:O	1:A:580:GLN:HG3	2.11	0.51
1:A:146:GLU:O	1:A:150:ARG:HD3	2.11	0.51
1:A:443:ILE:H	1:A:448:ASN:ND2	2.02	0.51
1:A:280:MET:HG3	1:A:280:MET:O	2.11	0.50
1:A:252:ARG:O	1:A:299:THR:HG23	2.11	0.49
1:A:354:LYS:HA	1:A:364:TYR:O	2.12	0.49
1:A:104:GLU:HB3	1:A:181:VAL:HG11	1.93	0.49
1:A:383:ASP:HB2	1:A:403:THR:HG23	1.94	0.49
1:A:230:PHE:HB3	1:A:240:TRP:HB2	1.95	0.48
1:A:251:VAL:CG1	1:A:328:ILE:HG13	2.44	0.48
1:A:461:GLY:O	1:A:465:GLU:HB2	2.13	0.48
1:A:166:SER:HB2	3:A:747:HOH:O	2.12	0.48
1:A:16:SER:OG	1:A:19:GLU:HG3	2.14	0.48
1:A:16:SER:O	1:A:20:ILE:HG12	2.14	0.47
1:A:461:GLY:H	1:A:465:GLU:HB3	1.75	0.47
1:A:65:HIS:HB2	1:A:98:LEU:HD12	1.96	0.47
1:A:125:ARG:HH12	1:A:194:VAL:HA	1.78	0.47
1:A:201:HIS:C	1:A:201:HIS:CD2	2.89	0.46
1:A:56:GLU:HG3	1:A:56:GLU:O	2.16	0.46
1:A:240:TRP:O	1:A:243:TRP:HB2	2.15	0.46
1:A:36:GLU:HB2	3:A:667:HOH:O	2.15	0.45
1:A:459:THR:O	1:A:465:GLU:HG3	2.17	0.45
1:A:540:ASP:O	1:A:586:HIS:HD2	2.00	0.45
1:A:366:ARG:NH2	1:A:627:ALA:HB2	2.32	0.45
1:A:422:LEU:HD11	1:A:428:ALA:HB2	1.99	0.45
1:A:78:SER:HB2	1:A:85:ILE:HD11	1.98	0.44
1:A:19:GLU:OE2	1:A:58:ARG:HG2	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:263:ARG:HH11	1:A:263:ARG:HG3	1.83	0.43
1:A:350:GLY:HA2	1:A:367:ARG:NH1	2.33	0.43
1:A:475:THR:HG23	3:A:703:HOH:O	2.17	0.43
1:A:246:ASP:HB2	1:A:258:HIS:HB2	2.01	0.43
1:A:224:GLN:HE21	1:A:320:ASP:HB3	1.84	0.43
1:A:237:HIS:HD2	1:A:246:ASP:OD1	2.02	0.43
1:A:484:VAL:CG1	1:A:539:LYS:HG3	2.48	0.43
1:A:590:LEU:HG	1:A:607:VAL:HG22	2.01	0.43
1:A:96:GLY:HA3	1:A:561:HIS:HB2	2.01	0.43
1:A:403:THR:OG1	1:A:404:GLY:N	2.52	0.42
1:A:490:ARG:HD2	3:A:663:HOH:O	2.18	0.42
1:A:344:MET:HA	1:A:372:VAL:O	2.19	0.42
1:A:553:PRO:O	1:A:566:GLY:HA3	2.19	0.42
1:A:464:ASN:O	1:A:465:GLU:HG2	2.20	0.42
1:A:224:GLN:HA	1:A:225:PRO:HD2	1.89	0.42
1:A:44:VAL:HG12	1:A:60:PHE:CZ	2.54	0.42
1:A:111:LEU:HD12	1:A:179:VAL:CG1	2.50	0.41
1:A:146:GLU:HG3	1:A:146:GLU:H	1.53	0.41
1:A:263:ARG:HG3	1:A:263:ARG:NH1	2.35	0.41
1:A:105:PHE:HE2	1:A:307:TYR:HH	1.66	0.41
1:A:100:VAL:HG11	1:A:105:PHE:CE1	2.55	0.41
1:A:297:PHE:HB2	1:A:301:GLU:HG3	2.02	0.41
1:A:72:PRO:HG2	1:A:90:LEU:HB2	2.01	0.41
1:A:443:ILE:N	1:A:448:ASN:HD21	2.05	0.41
1:A:95:THR:O	1:A:557:PHE:HB2	2.20	0.41
1:A:432:GLN:NE2	1:A:523:LEU:H	2.04	0.41
1:A:544:THR:HG22	1:A:571:ILE:CD1	2.51	0.41
1:A:201:HIS:NE2	1:A:209:LEU:HB2	2.36	0.41
1:A:401:LYS:HG2	1:A:606:THR:HG22	2.04	0.40
1:A:230:PHE:HB3	1:A:240:TRP:CD1	2.56	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:292:SER:OG	1:A:466:ARG:NH1[2_556]	1.82	0.38

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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	618/638 (97%)	579 (94%)	37 (6%)	2 (0%)	41 72

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	265	GLY
1	A	55	ALA

### 5.3.2 Protein sidechains [i](#)

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	514/529 (97%)	486 (95%)	28 (5%)	22 53

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	33	LEU
1	A	36	GLU
1	A	49	ARG
1	A	58	ARG
1	A	67	VAL
1	A	90	LEU
1	A	117	ARG
1	A	146	GLU
1	A	163	PRO

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Mol	Chain	Res	Type
1	A	173	ASP
1	A	176	VAL
1	A	201	HIS
1	A	245	LEU
1	A	263	ARG
1	A	288	SER
1	A	296	TYR
1	A	328	ILE
1	A	370	ARG
1	A	376	PHE
1	A	439	LEU
1	A	444	ASP
1	A	468	ASN
1	A	472	ARG
1	A	512	TYR
1	A	571	ILE
1	A	607	VAL
1	A	611	LEU
1	A	628	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	81	ASN
1	A	170	HIS
1	A	201	HIS
1	A	224	GLN
1	A	237	HIS
1	A	294	GLN
1	A	432	GLN
1	A	448	ASN
1	A	468	ASN
1	A	561	HIS
1	A	586	HIS

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z  > 2$	Counts	RMSZ	# $ Z  > 2$
1	TPQ	A	382	1,2	13,14,15	1.99	4 (30%)	15,19,21	1.12	1 (6%)

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
1	TPQ	A	382	1,2	-	3/5/22/24	0/1/1/1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	382	TPQ	C1-C2	-4.69	1.42	1.49
1	A	382	TPQ	C3-C4	2.73	1.39	1.35
1	A	382	TPQ	C4-C5	-2.22	1.40	1.47
1	A	382	TPQ	C6-C1	2.01	1.39	1.34

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	382	TPQ	O2-C2-C3	-2.54	115.96	121.78

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	382	TPQ	C-CA-CB-C1
1	A	382	TPQ	N-CA-CB-C1
1	A	382	TPQ	C2-C1-CB-CA

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	382	TPQ	1	0

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 1 ligands modelled in this entry, 1 is 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 [i](#)

There are no such residues in this entry.

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

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	465:GLU	C	466:ARG	N	1.14

## 6 Fit of model and data [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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	619/638 (97%)	-0.72	11 (1%) 68 61	5, 30, 63, 100	0

All (11) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	53	SER	4.9
1	A	54	GLU	4.6
1	A	462	PRO	4.4
1	A	52	GLY	4.0
1	A	51	ALA	3.4
1	A	413	GLU	2.6
1	A	50	GLY	2.6
1	A	466	ARG	2.5
1	A	464	ASN	2.4
1	A	628	ASN	2.4
1	A	143	GLU	2.1

### 6.2 Non-standard residues in protein, DNA, RNA chains [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
1	TPQ	A	382	14/15	0.84	0.23	25,41,47,60	0

### 6.3 Carbohydrates [i](#)

There are no carbohydrates 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( $\text{\AA}^2$ )	Q<0.9
2	CU	A	639	1/1	0.99	0.03	37,37,37,37	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.