



wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 1, 2016 – 01:12 PM GMT

PDB ID : 3T6X
Title : Crystal Structure of *Steccherinum ochraceum* Laccase obtained by multi-crystals composite data collection technique (20% dose)
Authors : Ferraroni, M.; Briganti, F.; Matera, I.; Kolomytseva, M.; Golovleva, L.; Scozzafava, A.; Chernykh, A.M.
Deposited on : 2011-07-29
Resolution : 2.15 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

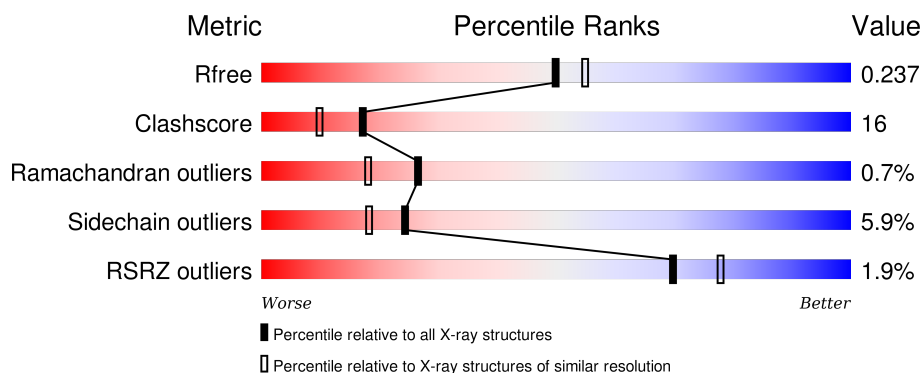
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.15 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}	91344	1045 (2.16-2.16)
Clashscore	102246	1152 (2.16-2.16)
Ramachandran outliers	100387	1131 (2.16-2.16)
Sidechain outliers	100360	1131 (2.16-2.16)
RSRZ outliers	91569	1050 (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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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	495	<div> <div>2%</div> <div>76%</div> <div>21%</div> <div>.</div> </div>
1	B	495	<div> <div>%</div> <div>79%</div> <div>19%</div> <div>.</div> </div>
1	C	495	<div> <div>3%</div> <div>76%</div> <div>21%</div> <div>.</div> </div>

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
3	SO4	A	505	-	-	-	X
3	SO4	B	506	-	-	X	-
3	SO4	C	505	-	-	X	X
4	GOL	A	508	-	-	X	X
4	GOL	B	508	-	-	X	X
4	GOL	B	510	-	-	-	X
4	GOL	C	506	-	-	X	X
5	CBS	A	510	-	-	-	X
5	CBS	A	511	-	-	-	X
5	CBS	B	512	-	-	-	X
5	CBS	B	513	-	-	-	X
5	CBS	C	508	-	-	-	X
6	PER	A	512	-	-	-	X
6	PER	C	510	-	-	-	X

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 12916 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 Laccase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	495	Total	C	N	O	S	0	5	0
			3734	2360	626	729	19			
1	B	495	Total	C	N	O	S	0	5	0
			3728	2357	629	724	18			
1	C	495	Total	C	N	O	S	0	3	0
			3725	2354	629	725	17			

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

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	B	4	Total	Cu	0	0
			4	4		
2	A	4	Total	Cu	0	0
			4	4		
2	C	4	Total	Cu	0	0
			4	4		

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



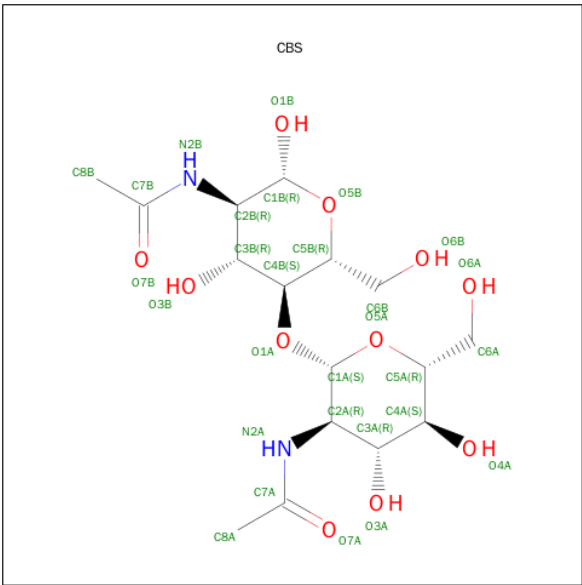
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	S	0	0
			5	4	1		
3	A	1	Total	O	S	0	0
			5	4	1		
3	A	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		
3	C	1	Total	O	S	0	0
			5	4	1		

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



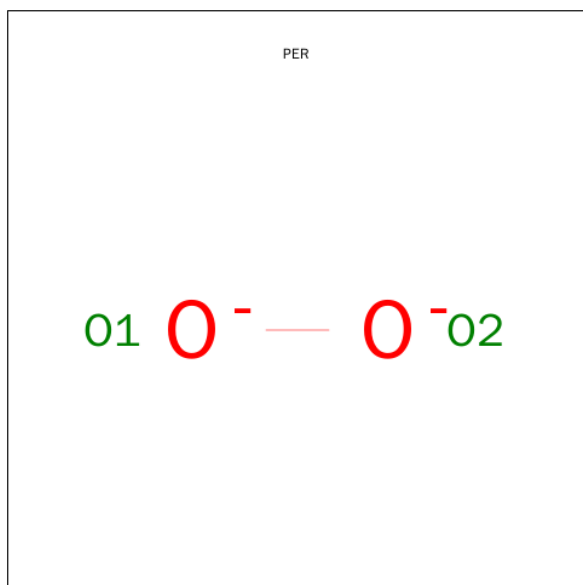
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			6	3	3		
4	A	1	Total	C	O	0	0
			6	3	3		
4	B	1	Total	C	O	0	0
			6	3	3		
4	B	1	Total	C	O	0	0
			6	3	3		
4	B	1	Total	C	O	0	0
			6	3	3		
4	C	1	Total	C	O	0	0
			6	3	3		
4	C	1	Total	C	O	0	0
			6	3	3		

- Molecule 5 is SUGAR (DI(N-ACETYL-D-GLUCOSAMINE)) (three-letter code: CBS) (formula: C₁₆H₂₈N₂O₁₁).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	A	1	Total	C	N	O	0	0
			28	16	2	10		
5	A	1	Total	C	N	O	0	0
			28	16	2	10		
5	B	1	Total	C	N	O	0	0
			28	16	2	10		
5	B	1	Total	C	N	O	0	0
			28	16	2	10		
5	C	1	Total	C	N	O	0	0
			28	16	2	10		
5	C	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 6 is PEROXIDE ION (three-letter code: PER) (formula: O₂).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total O 2 2	0	0
6	B	1	Total O 2 2	0	0
6	C	1	Total O 2 2	0	0

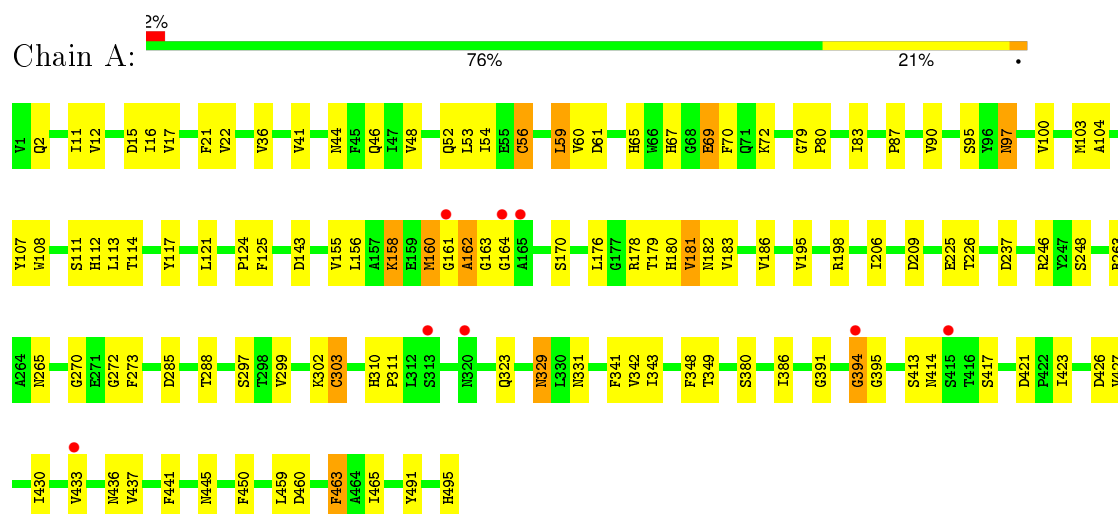
- Molecule 7 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	531	Total O 531 531	0	0
7	B	465	Total O 465 465	0	0
7	C	478	Total O 478 478	0	0

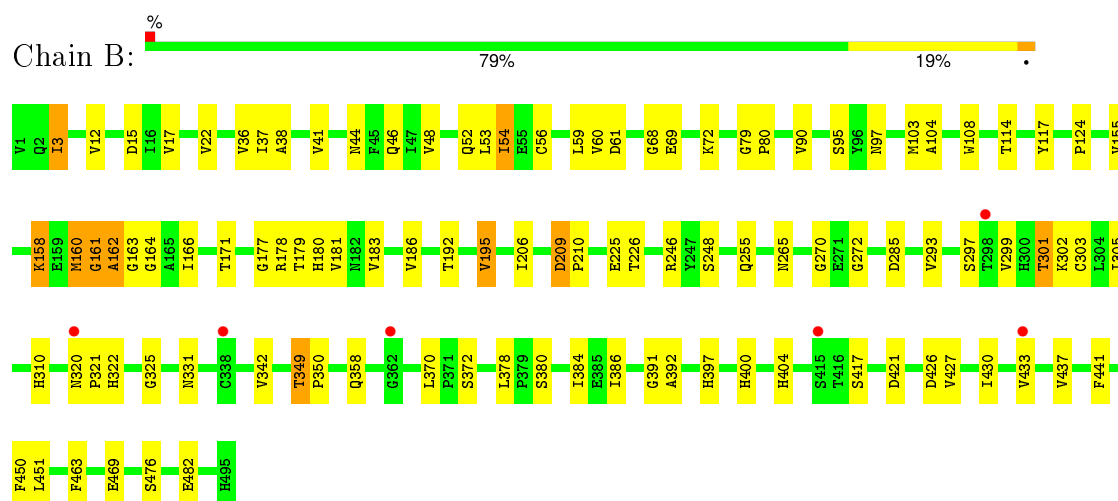
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

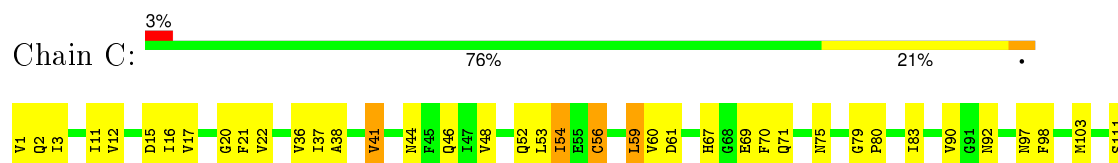
• Molecule 1: Laccase

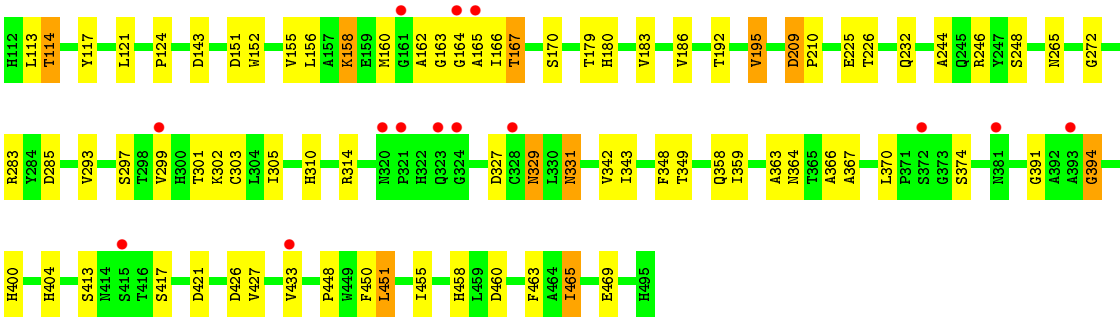


• Molecule 1: Laccase



• Molecule 1: Laccase





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	73.51Å 140.04Å 172.98Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.87 – 2.15 19.87 – 2.15	Depositor EDS
% Data completeness (in resolution range)	94.6 (19.87-2.15) 94.7 (19.87-2.15)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.76 (at 2.15Å)	Xtriage
Refinement program	REFMAC 5.5.0072	Depositor
R, R_{free}	0.176 , 0.236 0.178 , 0.237	Depositor DCC
R_{free} test set	4626 reflections (5.27%)	DCC
Wilson B-factor (Å ²)	20.1	Xtriage
Anisotropy	0.612	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 54.3	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtriage
Outliers	0 of 92469 reflections	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	12916	wwPDB-VP
Average B, all atoms (Å ²)	23.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.59% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.375 respectively for untwinned datasets, and 0.333, 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: GOL, CU, SO4, PER, CBS

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	0.67	3/3857 (0.1%)	0.72	1/5296 (0.0%)
1	B	0.63	0/3851	0.69	1/5288 (0.0%)
1	C	0.63	2/3844 (0.1%)	0.71	1/5279 (0.0%)
All	All	0.64	5/11552 (0.0%)	0.71	3/15863 (0.0%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	56[A]	CYS	CB-SG	-5.46	1.73	1.81
1	C	56[B]	CYS	CB-SG	-5.46	1.73	1.81
1	A	56[A]	CYS	CB-SG	-5.24	1.73	1.81
1	A	56[B]	CYS	CB-SG	-5.24	1.73	1.81
1	A	303	CYS	CB-SG	-5.12	1.73	1.81

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	394	GLY	N-CA-C	-5.67	98.94	113.10
1	A	237	ASP	CB-CG-OD2	5.22	123.00	118.30
1	B	3	ILE	N-CA-C	-5.10	97.22	111.00

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	3734	0	3513	126	0
1	B	3728	0	3501	111	0
1	C	3725	0	3502	122	0
2	A	4	0	0	0	0
2	B	4	0	0	0	0
2	C	4	0	0	0	0
3	A	15	0	0	0	0
3	B	15	0	0	5	0
3	C	5	0	0	2	0
4	A	12	0	16	6	0
4	B	24	0	32	9	0
4	C	12	0	16	7	0
5	A	56	0	52	11	0
5	B	56	0	52	1	0
5	C	42	0	38	2	0
6	A	2	0	0	0	0
6	B	2	0	0	0	0
6	C	2	0	0	1	0
7	A	531	0	0	35	1
7	B	465	0	0	32	1
7	C	478	0	0	32	0
All	All	12916	0	10722	360	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 16.

The worst 5 of 360 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:414:ASN:HD21	5:A:510:CBS:C1B	0.90	1.51
1:A:414:ASN:ND2	5:A:510:CBS:C1B	1.72	1.42
1:A:436:ASN:ND2	5:A:511:CBS:C1B	1.84	1.41
1:A:436:ASN:HD21	5:A:511:CBS:C1B	1.31	1.38
1:A:161:GLY:HA2	1:A:162:ALA:CB	1.77	1.14

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)
7:A:719:HOH:O	7:B:1004:HOH:O[1_655]	2.17	0.03

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	498/495 (101%)	474 (95%)	20 (4%)	4 (1%)	24	15
1	B	497/495 (100%)	473 (95%)	20 (4%)	4 (1%)	24	15
1	C	496/495 (100%)	473 (95%)	20 (4%)	3 (1%)	30	21
All	All	1491/1485 (100%)	1420 (95%)	60 (4%)	11 (1%)	26	18

5 of 11 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	162	ALA
1	B	162	ALA
1	A	394	GLY
1	C	209	ASP
1	A	209	ASP

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	409/406 (101%)	387 (95%)	22 (5%)	27	22
1	B	406/406 (100%)	383 (94%)	23 (6%)	25	19

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	406/406 (100%)	377 (93%)	29 (7%)	18	12
All	All	1221/1218 (100%)	1147 (94%)	74 (6%)	24	17

5 of 74 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	285	ASP
1	B	450	PHE
1	C	417	SER
1	B	297	SER
1	B	349	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 41 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	97	ASN
1	B	255	GLN
1	C	329	ASN
1	B	116	GLN
1	B	180	HIS

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 carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 36 ligands modelled in this entry, 12 are monoatomic - leaving 24 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	SO4	A	505	-	4,4,4	0.29	0	6,6,6	0.37	0
3	SO4	A	506	-	4,4,4	0.09	0	6,6,6	0.21	0
3	SO4	A	507	-	4,4,4	0.37	0	6,6,6	0.29	0
4	GOL	A	508	-	5,5,5	0.28	0	5,5,5	0.61	0
4	GOL	A	509	-	5,5,5	0.26	0	5,5,5	0.52	0
5	CBS	A	510	-	29,29,30	1.17	2 (6%)	36,41,43	2.07	10 (27%)
5	CBS	A	511	-	29,29,30	1.07	3 (10%)	36,41,43	1.61	8 (22%)
6	PER	A	512	2	0,1,1	0.00	-	0,0,0	0.00	-
3	SO4	B	505	-	4,4,4	0.59	0	6,6,6	0.25	0
3	SO4	B	506	-	4,4,4	0.71	0	6,6,6	0.33	0
3	SO4	B	507	-	4,4,4	0.41	0	6,6,6	0.13	0
4	GOL	B	508	-	5,5,5	0.57	0	5,5,5	1.01	0
4	GOL	B	509	-	5,5,5	0.17	0	5,5,5	0.74	0
4	GOL	B	510	-	5,5,5	0.23	0	5,5,5	0.40	0
4	GOL	B	511	-	5,5,5	0.21	0	5,5,5	0.60	0
5	CBS	B	512	1	29,29,30	0.65	0	36,41,43	2.18	9 (25%)
5	CBS	B	513	-	29,29,30	0.99	1 (3%)	36,41,43	2.09	13 (36%)
6	PER	B	514	2	0,1,1	0.00	-	0,0,0	0.00	-
3	SO4	C	505	-	4,4,4	0.21	0	6,6,6	0.43	0
4	GOL	C	506	-	5,5,5	0.24	0	5,5,5	0.62	0
4	GOL	C	507	-	5,5,5	0.10	0	5,5,5	0.38	0
5	CBS	C	508	1	29,29,30	2.58	5 (17%)	36,41,43	2.50	12 (33%)
5	CBS	C	509	1	14,14,30	0.86	0	15,19,43	1.78	5 (33%)
6	PER	C	510	2	0,1,1	0.00	-	0,0,0	0.00	-

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	SO4	A	505	-	-	0/0/0/0	0/0/0/0
3	SO4	A	506	-	-	0/0/0/0	0/0/0/0
3	SO4	A	507	-	-	0/0/0/0	0/0/0/0
4	GOL	A	508	-	-	0/4/4/4	0/0/0/0
4	GOL	A	509	-	-	0/4/4/4	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	CBS	A	510	-	-	0/16/53/56	0/2/2/2
5	CBS	A	511	-	-	0/16/53/56	0/2/2/2
6	PER	A	512	2	-	0/0/0/0	0/0/0/0
3	SO4	B	505	-	-	0/0/0/0	0/0/0/0
3	SO4	B	506	-	-	0/0/0/0	0/0/0/0
3	SO4	B	507	-	-	0/0/0/0	0/0/0/0
4	GOL	B	508	-	-	0/4/4/4	0/0/0/0
4	GOL	B	509	-	-	0/4/4/4	0/0/0/0
4	GOL	B	510	-	-	0/4/4/4	0/0/0/0
4	GOL	B	511	-	-	0/4/4/4	0/0/0/0
5	CBS	B	512	1	-	0/16/53/56	0/2/2/2
5	CBS	B	513	-	-	0/16/53/56	0/2/2/2
6	PER	B	514	2	-	0/0/0/0	0/0/0/0
3	SO4	C	505	-	-	0/0/0/0	0/0/0/0
4	GOL	C	506	-	-	0/4/4/4	0/0/0/0
4	GOL	C	507	-	-	0/4/4/4	0/0/0/0
5	CBS	C	508	1	-	1/16/53/56	0/2/2/2
5	CBS	C	509	1	-	0/6/23/56	0/1/1/2
6	PER	C	510	2	-	0/0/0/0	0/0/0/0

The worst 5 of 11 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	510	CBS	O5B-C1B	-3.22	1.38	1.43
5	B	513	CBS	C2A-N2A	-2.50	1.41	1.45
5	A	511	CBS	O7B-C7B	-2.47	1.17	1.23
5	A	511	CBS	C2B-N2B	-2.28	1.42	1.46
5	A	511	CBS	O5B-C1B	-2.20	1.40	1.43

The worst 5 of 57 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	508	CBS	C3A-C2A-N2A	-9.17	91.67	110.66
5	B	512	CBS	C6A-C5A-C4A	-6.49	97.01	113.02
5	A	511	CBS	C3A-C2A-N2A	-3.87	102.65	110.66
5	C	508	CBS	C3A-C4A-C5A	-3.73	103.69	110.20
5	B	513	CBS	C8A-C7A-N2A	-3.61	109.19	116.11

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	C	508	CBS	O7B-C7B-N2B-C2B

There are no ring outliers.

16 monomers are involved in 44 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	508	GOL	5	0
4	A	509	GOL	1	0
5	A	510	CBS	4	0
5	A	511	CBS	7	0
3	B	506	SO4	5	0
4	B	508	GOL	5	0
4	B	509	GOL	1	0
4	B	510	GOL	1	0
4	B	511	GOL	2	0
5	B	513	CBS	1	0
3	C	505	SO4	2	0
4	C	506	GOL	6	0
4	C	507	GOL	1	0
5	C	508	CBS	1	0
5	C	509	CBS	1	0
6	C	510	PER	1	0

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 [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, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	495/495 (100%)	-0.48	8 (1%) 74 81	10, 18, 32, 44	0
1	B	495/495 (100%)	-0.36	6 (1%) 81 85	11, 21, 38, 53	0
1	C	495/495 (100%)	-0.32	14 (2%) 56 66	11, 22, 38, 53	0
All	All	1485/1485 (100%)	-0.38	28 (1%) 70 78	10, 20, 36, 53	0

The worst 5 of 28 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	415	SER	3.8
1	B	320	ASN	3.7
1	C	328	CYS	3.3
1	C	164	GLY	3.2
1	C	433	VAL	3.1

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 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(Å ²)	Q<0.9
4	GOL	B	508	6/6	0.90	0.33	18.00	38,40,42,43	0
3	SO4	C	505	5/5	0.80	0.33	10.04	34,35,35,36	5
5	CBS	A	510	28/29	0.86	0.18	8.38	38,45,53,55	0
4	GOL	C	506	6/6	0.79	0.25	7.86	41,44,47,49	0
5	CBS	B	512	28/29	0.64	0.28	5.85	76,79,80,80	0
4	GOL	B	510	6/6	0.90	0.16	3.49	39,40,41,43	0
6	PER	A	512	2/2	0.99	0.11	3.18	30,30,30,33	0
4	GOL	A	508	6/6	0.83	0.18	3.05	40,41,42,42	0
5	CBS	A	511	28/29	0.71	0.24	2.88	41,55,63,63	0
5	CBS	B	513	28/29	0.64	0.28	2.54	52,65,73,73	0
5	CBS	C	508	28/29	0.77	0.22	2.49	57,62,65,66	0
3	SO4	A	505	5/5	0.96	0.11	2.44	41,42,43,43	0
6	PER	C	510	2/2	1.00	0.08	2.31	18,18,18,20	0
4	GOL	C	507	6/6	0.91	0.14	2.00	27,29,32,36	0
3	SO4	A	506	5/5	0.98	0.15	1.77	53,53,53,54	0
6	PER	B	514	2/2	0.99	0.08	1.11	36,36,36,37	0
5	CBS	C	509	14/29	0.83	0.18	0.61	58,60,61,63	0
4	GOL	A	509	6/6	0.97	0.08	0.17	21,26,26,28	0
4	GOL	B	511	6/6	0.97	0.08	0.14	22,25,26,27	0
2	CU	C	503	1/1	1.00	0.07	-0.26	15,15,15,15	0
2	CU	C	504	1/1	0.99	0.07	-0.58	19,19,19,19	0
2	CU	C	502	1/1	1.00	0.07	-0.62	20,20,20,20	0
4	GOL	B	509	6/6	0.94	0.08	-0.70	27,31,32,32	0
3	SO4	B	506	5/5	0.99	0.06	-1.18	24,25,28,28	0
2	CU	A	503	1/1	1.00	0.06	-1.42	14,14,14,14	0
2	CU	A	502	1/1	0.99	0.06	-1.65	18,18,18,18	0
2	CU	B	501	1/1	1.00	0.06	-1.79	17,17,17,17	0
2	CU	B	502	1/1	1.00	0.05	-1.84	21,21,21,21	0
2	CU	C	501	1/1	1.00	0.04	-2.05	22,22,22,22	0
2	CU	A	504	1/1	1.00	0.04	-2.42	16,16,16,16	0
2	CU	B	503	1/1	1.00	0.05	-2.70	18,18,18,18	0
2	CU	A	501	1/1	1.00	0.04	-2.93	18,18,18,18	0
3	SO4	B	505	5/5	0.99	0.04	-2.97	16,21,23,23	0
2	CU	B	504	1/1	0.99	0.05	-3.09	20,20,20,20	0
3	SO4	A	507	5/5	0.95	0.10	-	18,20,20,21	5
3	SO4	B	507	5/5	0.93	0.13	-	25,25,26,26	5

6.5 Other polymers ⓘ

There are no such residues in this entry.