



# Full wwPDB X-ray Structure Validation Report ⓘ

Jan 30, 2021 – 07:46 PM EST

PDB ID : 3N05  
Title : CRYSTAL STRUCTURE OF NH<sub>3</sub>-DEPENDENT NAD<sup>+</sup> SYNTHETASE FROM STREPTOMYCES AVERMITILIS  
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Deposited on : 2010-05-13  
Resolution : 2.35 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 : 2.16  
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) : 2.16

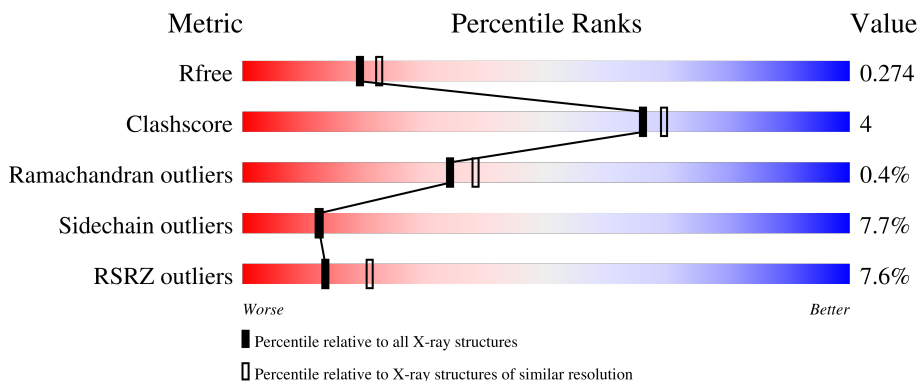
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.35 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	1164 (2.36-2.36)
Clashscore	141614	1232 (2.36-2.36)
Ramachandran outliers	138981	1211 (2.36-2.36)
Sidechain outliers	138945	1212 (2.36-2.36)
RSRZ outliers	127900	1150 (2.36-2.36)

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	590	
1	B	590	

## 2 Entry composition i

There are 3 unique types of molecules in this entry. The entry contains 8755 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 NH(3)-dependent NAD(+) synthetase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	568	Total	C	N	O	S	0	6	0
			4362	2740	775	835	12			
1	B	563	Total	C	N	O	S	0	5	0
			4310	2702	768	828	12			

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	MET	-	expression tag	UNP Q82AV7
A	0	SER	-	expression tag	UNP Q82AV7
A	1	LEU	-	expression tag	UNP Q82AV7
A	582	GLY	-	expression tag	UNP Q82AV7
A	583	HIS	-	expression tag	UNP Q82AV7
A	584	HIS	-	expression tag	UNP Q82AV7
A	585	HIS	-	expression tag	UNP Q82AV7
A	586	HIS	-	expression tag	UNP Q82AV7
A	587	HIS	-	expression tag	UNP Q82AV7
A	588	HIS	-	expression tag	UNP Q82AV7
B	-1	MET	-	expression tag	UNP Q82AV7
B	0	SER	-	expression tag	UNP Q82AV7
B	1	LEU	-	expression tag	UNP Q82AV7
B	582	GLY	-	expression tag	UNP Q82AV7
B	583	HIS	-	expression tag	UNP Q82AV7
B	584	HIS	-	expression tag	UNP Q82AV7
B	585	HIS	-	expression tag	UNP Q82AV7
B	586	HIS	-	expression tag	UNP Q82AV7
B	587	HIS	-	expression tag	UNP Q82AV7
B	588	HIS	-	expression tag	UNP Q82AV7

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



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

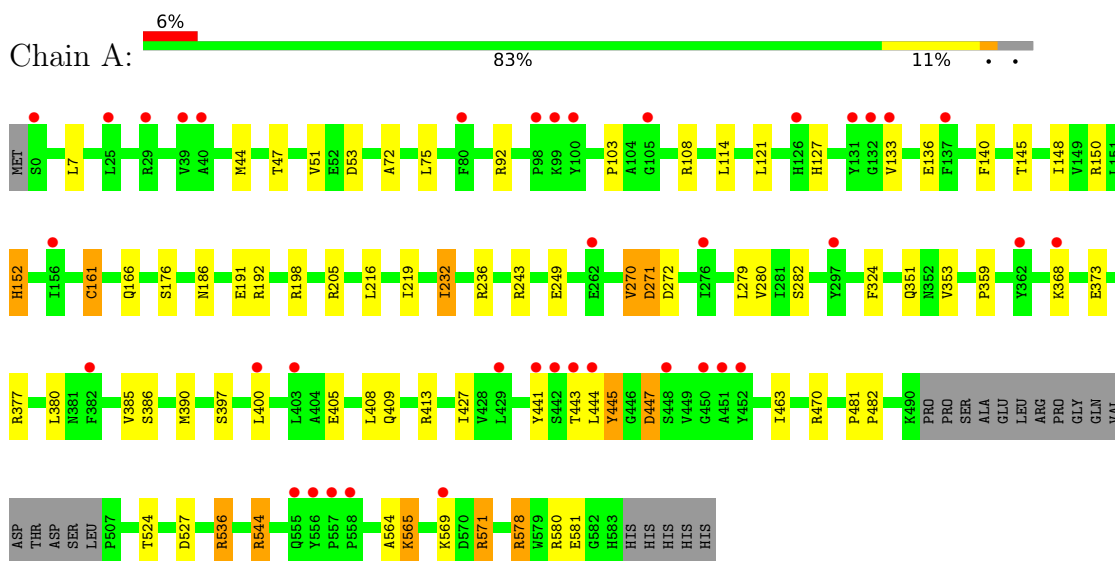
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	29	Total	O	0	0
			29	29		
3	B	24	Total	O	0	0
			24	24		

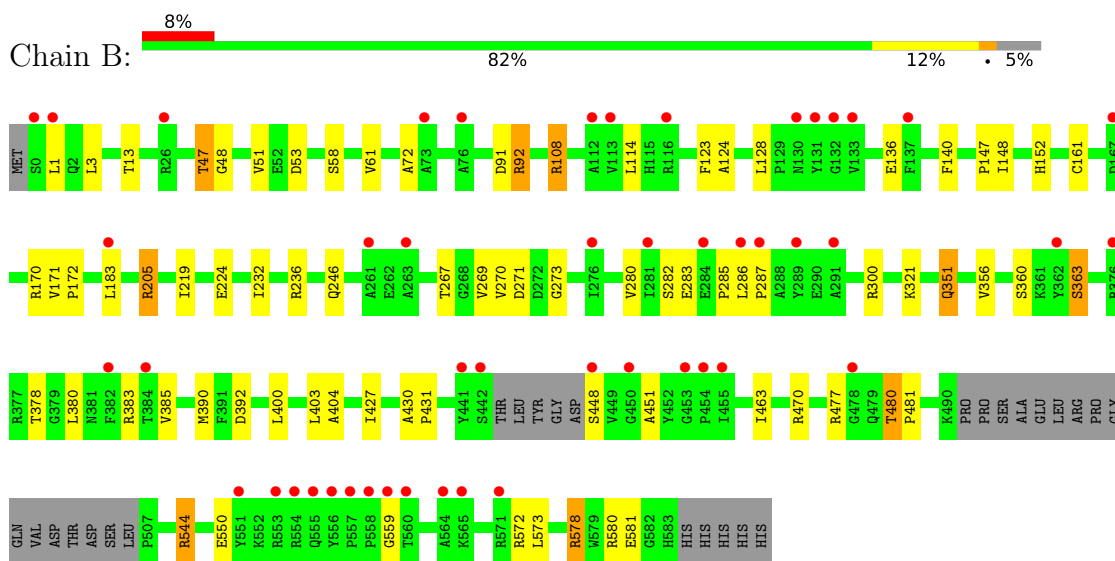
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: NH(3)-dependent NAD(+) synthetase



- Molecule 1: NH(3)-dependent NAD(+) synthetase



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	100.63Å 108.77Å 126.64Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	40.00 – 2.35 39.35 – 2.34	Depositor EDS
% Data completeness (in resolution range)	96.4 (40.00-2.35) 96.1 (39.35-2.34)	Depositor EDS
$R_{merge}$	0.09	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.53 (at 2.34Å)	Xtrriage
Refinement program	REFMAC 5.5.0109	Depositor
R, $R_{free}$	0.232 , 0.268 0.233 , 0.274	Depositor DCC
$R_{free}$ test set	1741 reflections (3.07%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	60.9	Xtrriage
Anisotropy	0.501	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 66.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	8755	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	80.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.72% 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: SO4

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.43	0/4462	0.61	0/6054
1	B	0.39	0/4398	0.58	0/5966
All	All	0.41	0/8860	0.60	0/12020

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

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	4362	0	4342	37	0
1	B	4310	0	4279	35	0
2	A	15	0	0	0	0
2	B	15	0	0	0	0
3	A	29	0	0	0	0
3	B	24	0	0	0	0
All	All	8755	0	8621	70	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 4.

All (70) 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:578[A]:ARG:HG2	1:A:578[A]:ARG:HH21	1.10	1.12
1:A:270:VAL:HG12	1:A:271:ASP:N	1.55	1.10
1:A:270:VAL:CG1	1:A:271:ASP:H	1.70	1.05
1:B:578[A]:ARG:HH21	1:B:578[A]:ARG:HG2	1.15	1.05
1:A:270:VAL:HG12	1:A:271:ASP:H	0.79	0.96
1:A:198:ARG:HG3	1:A:232:ILE:HD11	1.55	0.89
1:A:578[A]:ARG:HG2	1:A:578[A]:ARG:NH2	1.79	0.87
1:B:578[A]:ARG:NH2	1:B:578[A]:ARG:HG2	1.87	0.85
1:A:270:VAL:CG1	1:A:271:ASP:N	2.30	0.85
1:B:286:LEU:HD12	1:B:287:PRO:HD2	1.64	0.79
1:A:191:GLU:CD	1:A:564:ALA:HB2	2.04	0.78
1:A:152:HIS:H	1:A:282:SER:HB2	1.59	0.68
1:B:544:ARG:NH2	1:B:581:GLU:O	2.27	0.65
1:B:550:GLU:HG3	1:B:573:LEU:HB2	1.79	0.64
1:A:578[A]:ARG:HH21	1:A:578[A]:ARG:CG	1.95	0.63
1:B:171:VAL:HG21	1:B:205:ARG:HG3	1.82	0.62
1:A:121:LEU:HB2	1:A:279:LEU:HD22	1.84	0.59
1:B:61:VAL:HG11	1:B:92:ARG:HB3	1.88	0.56
1:A:569:LYS:HD2	1:B:572:ARG:HH12	1.71	0.55
1:A:443:THR:HB	1:A:447:ASP:CG	2.26	0.55
1:B:47:THR:HG23	1:B:51:VAL:HG11	1.89	0.55
1:B:1:LEU:HD11	1:B:285:PRO:HB3	1.89	0.54
1:B:152:HIS:H	1:B:282:SER:HB2	1.73	0.54
1:A:359:PRO:HD2	1:A:386:SER:HA	1.91	0.52
1:B:360:SER:H	1:B:363:SER:HB2	1.75	0.51
1:A:7:LEU:HB3	1:A:216:LEU:HD13	1.93	0.50
1:B:13:THR:HG23	1:B:321:LYS:HD2	1.93	0.50
1:A:161:CYS:HA	1:A:186:ASN:OD1	2.12	0.50
1:A:272:ASP:O	1:A:272:ASP:OD1	2.30	0.50
1:A:44:MET:HG3	1:A:47:THR:OG1	2.13	0.49
1:B:400:LEU:HB3	1:B:404:ALA:HB3	1.95	0.49
1:A:443:THR:HB	1:A:447:ASP:OD1	2.13	0.49
1:A:571:ARG:CZ	1:A:571:ARG:HB2	2.43	0.48
1:B:171:VAL:HB	1:B:172:PRO:HD3	1.95	0.48
1:B:1:LEU:CD1	1:B:285:PRO:HB3	2.44	0.48
1:B:123:PHE:CG	1:B:147:PRO:HG3	2.49	0.47
1:B:205:ARG:HA	1:B:205:ARG:HD2	1.67	0.47
1:B:91:ASP:HB3	1:B:108:ARG:HG3	1.96	0.47
1:B:356:VAL:HG22	1:B:383:ARG:HG2	1.97	0.46
1:A:127:HIS:CG	1:A:166:GLN:HB2	2.51	0.46
1:B:246:GLN:HG3	1:B:300:ARG:HH11	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:224:GLU:HG2	1:B:559:GLY:H	1.80	0.46
1:A:443:THR:O	1:A:444:LEU:HB2	2.16	0.46
1:A:481:PRO:HA	1:A:482:PRO:HD3	1.80	0.45
1:A:544:ARG:NH2	1:A:581:GLU:O	2.45	0.45
1:A:150:ARG:HB2	1:A:280:VAL:HA	1.99	0.45
1:A:324:PHE:CD2	1:A:427:ILE:HD11	2.51	0.45
1:A:232:ILE:HG23	1:A:243:ARG:HD3	1.99	0.45
1:B:578[A]:ARG:CG	1:B:578[A]:ARG:NH2	2.64	0.44
1:B:124:ALA:O	1:B:170:ARG:NH2	2.40	0.44
1:A:413:ARG:HD3	1:A:445:TYR:CD1	2.54	0.43
1:B:427:ILE:HG23	1:B:451:ALA:HB3	2.00	0.43
1:B:269:VAL:HG13	1:B:273:GLY:HA2	2.01	0.43
1:B:47:THR:HG22	1:B:48:GLY:O	2.18	0.43
1:B:72:ALA:HB2	1:B:114:LEU:HD22	2.01	0.43
1:B:378:THR:HG21	1:B:380:LEU:HD23	2.00	0.43
1:A:368:LYS:HE3	1:A:368:LYS:HB2	1.91	0.42
1:A:444:LEU:HA	1:A:444:LEU:HD23	1.75	0.42
1:B:351:GLN:HG3	1:B:351:GLN:H	1.57	0.42
1:A:565:LYS:HB3	1:A:565:LYS:HE3	1.72	0.42
1:B:136:GLU:O	1:B:140:PHE:HB2	2.19	0.42
1:A:578[A]:ARG:NH2	1:A:578[A]:ARG:CG	2.60	0.42
1:B:480:THR:HA	1:B:481:PRO:HD2	1.87	0.42
1:A:400:LEU:HD12	1:A:408:LEU:HD22	2.03	0.41
1:A:527:ASP:OD1	1:A:536:ARG:NH2	2.54	0.41
1:B:430:ALA:HA	1:B:431:PRO:HD3	1.96	0.41
1:A:569:LYS:CD	1:B:572:ARG:HH12	2.34	0.41
1:A:72:ALA:HB2	1:A:114:LEU:HD22	2.02	0.41
1:A:136:GLU:O	1:A:140:PHE:HB2	2.21	0.41
1:B:280:VAL:HG11	1:B:283:GLU:HG2	2.03	0.40

There are no symmetry-related clashes.

## 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	570/590 (97%)	555 (97%)	12 (2%)	3 (0%)	29	32
1	B	562/590 (95%)	541 (96%)	19 (3%)	2 (0%)	34	38
All	All	1132/1180 (96%)	1096 (97%)	31 (3%)	5 (0%)	34	38

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	161	CYS
1	B	270	VAL
1	A	161	CYS
1	A	103	PRO
1	A	270	VAL

### 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	448/462 (97%)	408 (91%)	40 (9%)	9	8
1	B	442/462 (96%)	412 (93%)	30 (7%)	16	16
All	All	890/924 (96%)	820 (92%)	70 (8%)	13	12

All (70) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	51	VAL
1	A	53	ASP
1	A	75	LEU
1	A	92	ARG
1	A	108	ARG
1	A	133	VAL
1	A	145	THR
1	A	148	ILE
1	A	152	HIS
1	A	176	SER
1	A	192	ARG

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	205	ARG
1	A	219	ILE
1	A	232	ILE
1	A	236	ARG
1	A	249	GLU
1	A	271	ASP
1	A	351	GLN
1	A	353	VAL
1	A	373	GLU
1	A	377	ARG
1	A	380	LEU
1	A	385	VAL
1	A	390	MET
1	A	397	SER
1	A	405	GLU
1	A	409	GLN
1	A	441	TYR
1	A	445	TYR
1	A	447	ASP
1	A	463	ILE
1	A	470	ARG
1	A	524	THR
1	A	536	ARG
1	A	544	ARG
1	A	565	LYS
1	A	571	ARG
1	A	578[A]	ARG
1	A	578[B]	ARG
1	A	580	ARG
1	B	3	LEU
1	B	47	THR
1	B	53	ASP
1	B	58	SER
1	B	92	ARG
1	B	108	ARG
1	B	128	LEU
1	B	148	ILE
1	B	183	LEU
1	B	205	ARG
1	B	219	ILE
1	B	232	ILE
1	B	236	ARG

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Mol	Chain	Res	Type
1	B	267	THR
1	B	271	ASP
1	B	351	GLN
1	B	363	SER
1	B	385	VAL
1	B	390	MET
1	B	392	ASP
1	B	403	LEU
1	B	448	SER
1	B	463	ILE
1	B	470	ARG
1	B	477	ARG
1	B	480	THR
1	B	544	ARG
1	B	578[A]	ARG
1	B	578[B]	ARG
1	B	580	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	37	HIS
1	A	207	GLN
1	A	407	ASN
1	A	555	GLN
1	B	422	ASN
1	B	423	GLN

### 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 monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

6 ligands are 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
2	SO4	A	589	-	4,4,4	0.15	0	6,6,6	0.11	0
2	SO4	B	590	-	4,4,4	0.14	0	6,6,6	0.09	0
2	SO4	A	591	-	4,4,4	0.14	0	6,6,6	0.12	0
2	SO4	A	590	-	4,4,4	0.14	0	6,6,6	0.06	0
2	SO4	B	591	-	4,4,4	0.15	0	6,6,6	0.04	0
2	SO4	B	589	-	4,4,4	0.12	0	6,6,6	0.12	0

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](#)

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, 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	568/590 (96%)	0.52	38 (6%) 17 26	34, 76, 110, 130	0
1	B	563/590 (95%)	0.64	48 (8%) 10 16	49, 83, 111, 130	0
All	All	1131/1180 (95%)	0.58	86 (7%) 13 21	34, 79, 110, 130	0

All (86) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	362	TYR	6.4
1	B	448	SER	6.1
1	A	100	TYR	6.0
1	A	132	GLY	5.9
1	A	444	LEU	5.9
1	A	442	SER	5.8
1	A	441	TYR	5.6
1	B	441	TYR	5.4
1	A	133	VAL	5.2
1	B	286	LEU	5.0
1	B	442	SER	4.7
1	A	98	PRO	4.4
1	B	376	ARG	4.4
1	B	131	TYR	4.1
1	A	137	PHE	4.0
1	A	131	TYR	3.9
1	B	557	PRO	3.9
1	B	0	SER	3.9
1	B	555	GLN	3.7
1	B	565	LYS	3.6
1	B	76	ALA	3.5
1	A	403	LEU	3.4
1	B	556	TYR	3.4
1	B	263	ALA	3.3

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Mol	Chain	Res	Type	RSRZ
1	B	559	GLY	3.1
1	A	99	LYS	3.0
1	B	289	TYR	3.0
1	A	448	SER	2.9
1	A	105	GLY	2.9
1	B	137	PHE	2.8
1	A	555	GLN	2.8
1	B	362	TYR	2.8
1	A	80	PHE	2.7
1	A	382	PHE	2.6
1	B	384	THR	2.6
1	B	261	ALA	2.6
1	B	132	GLY	2.6
1	A	452	TYR	2.6
1	B	554	ARG	2.6
1	A	557	PRO	2.6
1	A	569	LYS	2.6
1	B	287	PRO	2.5
1	A	443	THR	2.5
1	B	382	PHE	2.5
1	A	156	ILE	2.5
1	B	281	ILE	2.5
1	B	1	LEU	2.5
1	A	29[A]	ARG	2.4
1	B	558	PRO	2.4
1	B	560	THR	2.4
1	B	551	TYR	2.3
1	B	454	PRO	2.3
1	B	113	VAL	2.3
1	A	451	ALA	2.3
1	A	556	TYR	2.3
1	B	116	ARG	2.3
1	A	126	HIS	2.3
1	B	450	GLY	2.3
1	A	40	ALA	2.2
1	B	167	ASP	2.2
1	B	284	GLU	2.2
1	B	455	ILE	2.2
1	B	183	LEU	2.2
1	A	368	LYS	2.2
1	B	130	ASN	2.2
1	A	25	LEU	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	276	ILE	2.2
1	B	26	ARG	2.2
1	A	297[A]	TYR	2.2
1	B	291	ALA	2.2
1	B	571	ARG	2.2
1	A	276	ILE	2.2
1	B	478	GLY	2.2
1	A	39	VAL	2.1
1	A	0	SER	2.1
1	A	262	GLU	2.1
1	B	564	ALA	2.1
1	A	429	LEU	2.1
1	A	400	LEU	2.1
1	B	73	ALA	2.1
1	A	450	GLY	2.1
1	A	558	PRO	2.1
1	B	453	GLY	2.0
1	B	133	VAL	2.0
1	B	553	ARG	2.0
1	B	112	ALA	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 monosaccharides 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	SO4	A	590	5/5	0.79	0.21	141,144,147,147	0
2	SO4	B	590	5/5	0.88	0.26	154,155,157,158	0
2	SO4	B	589	5/5	0.89	0.25	129,130,134,135	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	SO4	A	591	5/5	0.91	0.20	109,116,122,127	0
2	SO4	A	589	5/5	0.92	0.18	124,125,128,130	0
2	SO4	B	591	5/5	0.97	0.47	127,128,133,134	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.