



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 27, 2014 – 01:53 PM GMT

PDB ID : 2B5O
Title : ferredoxin-NADP reductase
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Yeates, T.O.
Deposited on : 2005-09-29
Resolution : 2.50 Å(reported)

This is a full wwPDB validation 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/ValidationPDFNotes.html>

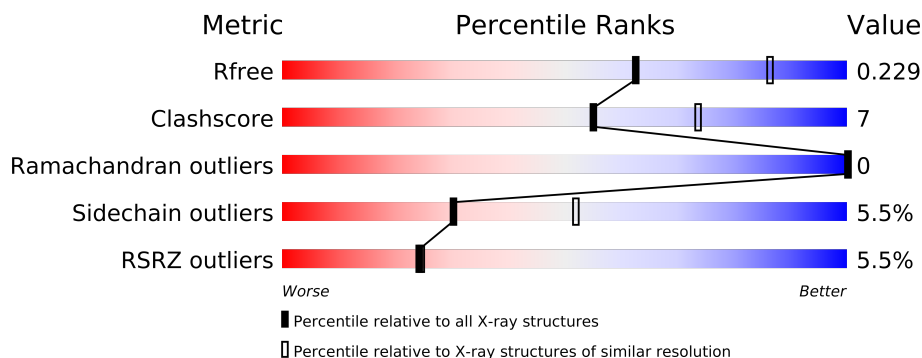
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.15 2013
Xtriage (Phenix) : dev-1323
EDS : stable22639
Percentile statistics : 21963
Refmac : 5.8.0049
CCP4 : 6.3.0 (Settle)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : stable22683

1 Overall quality at a glance

The reported resolution of this entry is 2.50 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}	66092	2784 (2.50-2.50)
Clashscore	79885	3562 (2.50-2.50)
Ramachandran outliers	78287	3480 (2.50-2.50)
Sidechain outliers	78261	3482 (2.50-2.50)
RSRZ outliers	66119	2785 (2.50-2.50)

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. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	402	
1	B	402	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
2	SO4	B	415	-	X

2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 4933 atoms, of which 0 are hydrogen and 0 are deuterium.

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 Ferredoxin–NADP reductase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	292	Total	C	N	O	S	0	0	0
			2340	1482	394	449	15			
1	B	292	Total	C	N	O	S	0	0	0
			2340	1482	394	449	15			

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



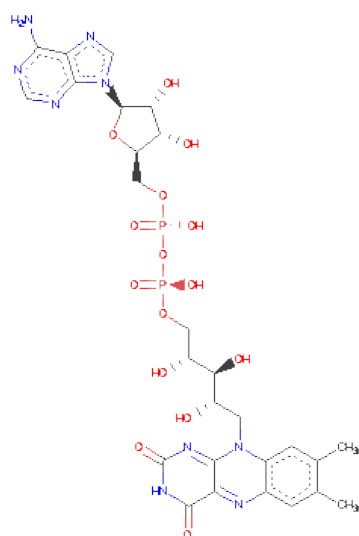
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
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		
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 FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
3	B	1	Total	C	N	O	P	0	0
			53	27	9	15	2		

- Molecule 4 is water.

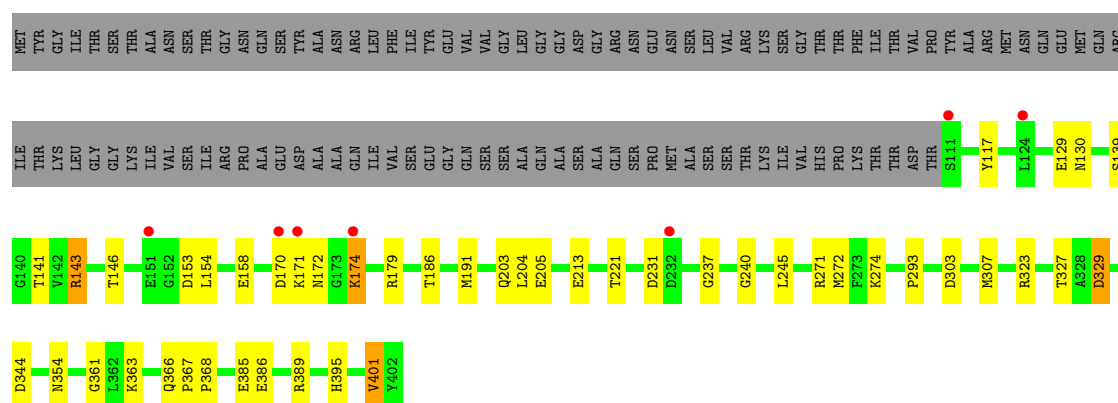
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	56	Total 56	O 56	0	0
4	B	36	Total 36	O 36	0	0

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 ($RSRZ > 2$). 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.

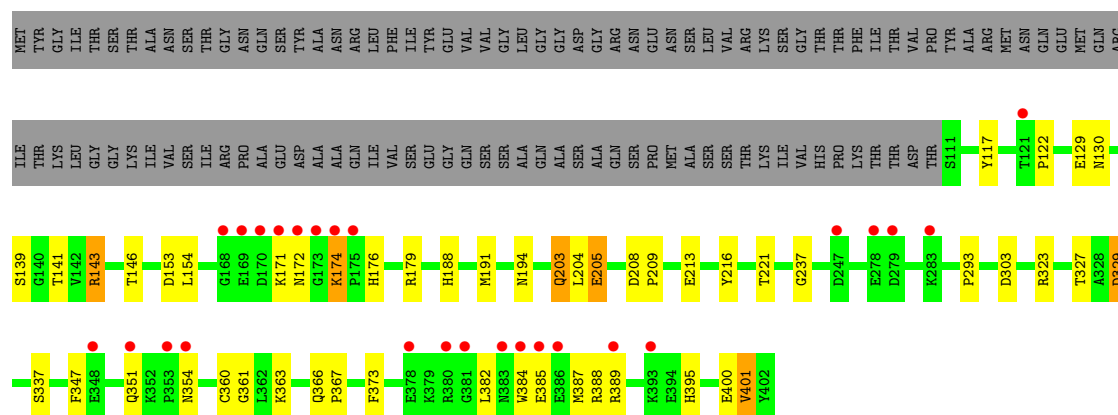
• Molecule 1: Ferredoxin–NADP reductase

Chain A:



• Molecule 1: Ferredoxin–NADP reductase

Chain B:



4 Data and refinement statistics

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α , β , γ	121.98Å 121.98Å 74.73Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	47.14 – 2.50 43.13 – 2.50	Depositor EDS
% Data completeness (in resolution range)	96.5 (47.14-2.50) 96.4 (43.13-2.50)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.65 (at 2.51Å)	Xtriage
Refinement program	REFMAC 5.2.0005	Depositor
R, R_{free}	0.178 , 0.235 0.185 , 0.229	Depositor DCC
R_{free} test set	2149 reflections (10.99%)	DCC
Wilson B-factor (Å ²)	35.9	Xtriage
Anisotropy	0.026	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 43.6	EDS
Estimated twinning fraction	0.035 for -h,-k,l	Xtriage
L-test for twinning	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	0 of 21704 reflections	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	4933	wwPDB-VP
Average B, all atoms (Å ²)	41.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.20% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, FAD

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	0.53	0/2396	0.99	6/3238 (0.2%)
1	B	0.48	0/2396	0.92	4/3238 (0.1%)
All	All	0.50	0/4792	0.96	10/6476 (0.2%)

There are no bond length outliers.

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	143	ARG	NE-CZ-NH1	8.00	124.30	120.30
1	A	143	ARG	NE-CZ-NH2	-7.92	116.34	120.30
1	A	143	ARG	NE-CZ-NH1	7.16	123.88	120.30
1	A	179	ARG	NE-CZ-NH2	-7.04	116.78	120.30
1	B	143	ARG	NE-CZ-NH2	-6.74	116.93	120.30
1	B	205	GLU	CB-CA-C	-6.41	97.58	110.40
1	B	179	ARG	NE-CZ-NH1	5.86	123.23	120.30
1	A	179	ARG	NE-CZ-NH1	5.86	123.23	120.30
1	A	271	ARG	NE-CZ-NH1	5.78	123.19	120.30
1	A	344	ASP	CB-CG-OD1	5.68	123.41	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the

chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2340	0	2275	26	0
1	B	2340	0	2275	35	0
2	A	25	0	0	2	0
2	B	30	0	0	1	0
3	A	53	0	31	4	0
3	B	53	0	31	1	0
4	A	56	0	0	0	0
4	B	36	0	0	2	0
All	All	4933	0	4612	63	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 7.

All (63) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:382:LEU:HD21	1:B:387:MET:SD	1.94	1.08
3:A:403:FAD:H3B	3:A:403:FAD:H8A	1.67	0.77
1:B:323:ARG:HH11	1:B:323:ARG:HG3	1.51	0.74
1:B:382:LEU:HD21	1:B:387:MET:CE	2.19	0.73
1:A:323:ARG:HH11	1:A:323:ARG:HG3	1.56	0.68
1:B:382:LEU:CD2	1:B:387:MET:SD	2.79	0.64
1:B:129:GLU:HG2	1:B:146:THR:HB	1.81	0.61
3:A:403:FAD:H3B	3:A:403:FAD:C8A	2.32	0.59
2:A:410:SO4:O4	3:B:403:FAD:N6A	2.36	0.58
1:B:323:ARG:NH1	1:B:323:ARG:HG3	2.19	0.57
1:A:274:LYS:HB2	1:A:307:MET:HE2	1.88	0.56
1:A:327:THR:HG22	1:A:329:ASP:H	1.70	0.55
1:A:363:LYS:HA	1:A:401:VAL:HG13	1.87	0.55
1:A:203:GLN:NE2	1:A:221:THR:OG1	2.40	0.54
1:B:130:ASN:OD1	1:B:143:ARG:HD3	2.07	0.53
3:A:403:FAD:C3B	3:A:403:FAD:C8A	2.87	0.53
1:A:240:GLY:HA2	2:A:414:SO4:O4	2.09	0.53
1:B:366:GLN:HB3	1:B:367:PRO:HD3	1.92	0.52
1:A:117:TYR:H	1:A:237:GLY:HA3	1.73	0.52
1:A:245:LEU:HD11	1:A:272:MET:CE	2.40	0.51
1:B:384:TRP:HB3	4:B:487:HOH:O	2.10	0.50
1:A:130:ASN:OD1	1:A:143:ARG:HD3	2.11	0.50
3:A:403:FAD:C3B	3:A:403:FAD:H8A	2.39	0.50
1:B:327:THR:HG22	1:B:329:ASP:H	1.77	0.49
1:A:129:GLU:HG2	1:A:146:THR:HB	1.93	0.49

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:323:ARG:NH1	1:A:323:ARG:HG3	2.26	0.49
1:B:129:GLU:HG2	1:B:146:THR:CB	2.43	0.49
1:A:366:GLN:HB3	1:A:367:PRO:HD3	1.94	0.49
1:B:122:PRO:HD3	4:B:456:HOH:O	2.13	0.49
1:B:117:TYR:H	1:B:237:GLY:HA3	1.77	0.49
1:B:384:TRP:CH2	1:B:388:ARG:HD3	2.47	0.48
1:A:367:PRO:HB2	1:A:368:PRO:HD3	1.95	0.48
1:B:171:LYS:HG3	1:B:172:ASN:ND2	2.29	0.48
1:B:203:GLN:NE2	1:B:221:THR:OG1	2.47	0.46
1:B:363:LYS:HA	1:B:401:VAL:HG13	1.97	0.46
1:B:176:HIS:ND1	2:B:405:SO4:O4	2.48	0.46
1:B:385:GLU:O	1:B:389:ARG:HG3	2.15	0.46
1:B:323:ARG:NH1	1:B:323:ARG:CG	2.79	0.46
1:A:170:ASP:HB3	1:A:174:LYS:HD2	1.97	0.46
1:A:171:LYS:HG3	1:A:172:ASN:ND2	2.30	0.46
1:A:213:GLU:HB3	1:B:293:PRO:HG3	1.97	0.46
1:A:385:GLU:O	1:A:389:ARG:HG3	2.16	0.46
1:B:373:PHE:HB3	1:B:384:TRP:CD1	2.52	0.45
1:A:170:ASP:HB3	1:A:174:LYS:CD	2.47	0.45
1:A:327:THR:HG22	1:A:329:ASP:N	2.33	0.44
1:A:361:GLY:O	1:A:401:VAL:HA	2.17	0.44
1:B:205:GLU:CG	1:B:216:TYR:CE1	3.01	0.44
1:B:361:GLY:O	1:B:401:VAL:HA	2.18	0.44
1:A:367:PRO:HB2	1:A:368:PRO:CD	2.48	0.44
1:B:205:GLU:HG2	1:B:216:TYR:CE1	2.52	0.44
1:A:158:GLU:HG3	1:A:186:THR:HA	2.01	0.43
1:B:171:LYS:HG3	1:B:172:ASN:HD22	1.83	0.43
1:A:323:ARG:CG	1:A:323:ARG:NH1	2.82	0.43
1:B:384:TRP:CZ2	1:B:388:ARG:HD3	2.54	0.43
1:A:329:ASP:OD1	1:A:329:ASP:N	2.52	0.42
1:B:347:PHE:O	1:B:351:GLN:HG3	2.19	0.42
1:B:208:ASP:HA	1:B:209:PRO:HD3	1.90	0.41
1:B:360:CYS:HA	1:B:400:GLU:O	2.20	0.41
1:A:293:PRO:HG3	1:B:213:GLU:HB3	2.02	0.41
1:B:188:HIS:HA	1:B:194:ASN:OD1	2.20	0.41
1:B:172:ASN:HB2	1:B:174:LYS:HE2	2.02	0.41
1:B:216:TYR:HB3	1:B:221:THR:OG1	2.21	0.40
1:A:205:GLU:OE1	1:B:205:GLU:HB3	2.22	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	290/402 (72%)	281 (97%)	9 (3%)	0	100	100
1	B	290/402 (72%)	281 (97%)	9 (3%)	0	100	100
All	All	580/804 (72%)	562 (97%)	18 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution. The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	254/344 (74%)	240 (94%)	14 (6%)	30	52
1	B	254/344 (74%)	240 (94%)	14 (6%)	30	52
All	All	508/688 (74%)	480 (94%)	28 (6%)	30	52

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

Mol	Chain	Res	Type
1	A	139	SER
1	A	141	THR
1	A	153	ASP
1	A	154	LEU
1	A	174	LYS
1	A	191	MET
1	A	204	LEU
1	A	231	ASP
1	A	303	ASP
1	A	329	ASP
1	A	354	ASN

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Mol	Chain	Res	Type
1	A	386	GLU
1	A	395	HIS
1	A	401	VAL
1	B	139	SER
1	B	141	THR
1	B	153	ASP
1	B	154	LEU
1	B	174	LYS
1	B	191	MET
1	B	203	GLN
1	B	204	LEU
1	B	303	ASP
1	B	329	ASP
1	B	337	SER
1	B	354	ASN
1	B	395	HIS
1	B	401	VAL

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

Mol	Chain	Res	Type
1	A	172	ASN
1	A	203	GLN
1	A	276	GLN
1	B	172	ASN
1	B	203	GLN

5.3.3 RNA ⓘ

There are no RNA chains in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry ⓘ

13 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$
3	FAD	A	403	-	58,58,58	0.97	2 (3%)	85,89,89	1.81	14 (16%)
2	SO4	A	407	-	4,4,4	0.12	0	6,6,6	0.55	0
2	SO4	A	408	-	4,4,4	0.41	0	6,6,6	0.59	0
2	SO4	A	409	-	4,4,4	0.13	0	6,6,6	0.57	0
2	SO4	A	410	-	4,4,4	0.16	0	6,6,6	0.44	0
2	SO4	A	414	-	4,4,4	0.27	0	6,6,6	0.27	0
3	FAD	B	403	-	58,58,58	1.05	2 (3%)	85,89,89	2.08	13 (15%)
2	SO4	B	405	-	4,4,4	0.32	0	6,6,6	0.79	0
2	SO4	B	406	-	4,4,4	0.26	0	6,6,6	0.42	0
2	SO4	B	411	-	4,4,4	0.14	0	6,6,6	0.32	0
2	SO4	B	412	-	4,4,4	0.15	0	6,6,6	0.15	0
2	SO4	B	413	-	4,4,4	0.13	0	6,6,6	0.40	0
2	SO4	B	415	-	4,4,4	0.14	0	6,6,6	0.50	0

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	FAD	A	403	-	-	0/34/50/50	0/1/6/6
2	SO4	A	407	-	-	0/0/0/0	0/0/0/0
2	SO4	A	408	-	-	0/0/0/0	0/0/0/0
2	SO4	A	409	-	-	0/0/0/0	0/0/0/0
2	SO4	A	410	-	-	0/0/0/0	0/0/0/0
2	SO4	A	414	-	-	0/0/0/0	0/0/0/0
3	FAD	B	403	-	-	0/34/50/50	0/1/6/6
2	SO4	B	405	-	-	0/0/0/0	0/0/0/0
2	SO4	B	406	-	-	0/0/0/0	0/0/0/0
2	SO4	B	411	-	-	0/0/0/0	0/0/0/0
2	SO4	B	412	-	-	0/0/0/0	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	SO4	B	413	-	-	0/0/0/0	0/0/0/0
2	SO4	B	415	-	-	0/0/0/0	0/0/0/0

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	403	FAD	C2A-N3A	3.36	1.38	1.32
3	B	403	FAD	C2A-N3A	2.73	1.37	1.32
3	B	403	FAD	C2A-N1A	2.51	1.38	1.33
3	A	403	FAD	C2A-N1A	2.48	1.38	1.33

All (27) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	403	FAD	N3A-C2A-N1A	-10.35	120.06	128.71
3	A	403	FAD	N3A-C2A-N1A	-8.45	121.64	128.71
3	B	403	FAD	C1B-N9A-C4A	-6.66	115.12	126.64
3	B	403	FAD	C8A-N9A-C1B	5.38	136.99	126.38
3	A	403	FAD	C1'-N10-C9A	5.38	124.11	118.87
3	B	403	FAD	C2-N1-C10	4.46	119.48	114.98
3	A	403	FAD	O4B-C1B-N9A	4.24	112.39	108.44
3	B	403	FAD	C2B-C1B-N9A	-4.11	102.72	113.27
3	B	403	FAD	C2'-C1'-N10	-3.89	107.29	112.45
3	A	403	FAD	C2B-C1B-N9A	-3.77	103.60	113.27
3	B	403	FAD	C1'-N10-C9A	3.73	122.50	118.87
3	B	403	FAD	C4X-N5-C5X	3.42	120.54	116.69
3	A	403	FAD	P-O3P-PA	-3.33	121.90	131.68
3	A	403	FAD	C9A-N10-C10	-3.26	118.57	121.77
3	A	403	FAD	C2-N1-C10	3.24	118.25	114.98
3	B	403	FAD	P-O3P-PA	-3.04	122.76	131.68
3	A	403	FAD	C8A-N9A-C4A	-2.93	104.66	106.90
3	A	403	FAD	C5X-C9A-N10	2.77	119.53	116.80
3	B	403	FAD	C5X-C9A-N10	2.58	119.34	116.80
3	A	403	FAD	C6A-C5A-C4A	2.56	121.95	117.25
3	A	403	FAD	O4B-C1B-C2B	-2.53	102.89	106.77
3	A	403	FAD	C2'-C1'-N10	-2.34	109.35	112.45
3	A	403	FAD	O2A-PA-O3P	2.33	116.19	105.14
3	B	403	FAD	C4X-C10-N10	-2.21	119.41	120.51
3	B	403	FAD	O3'-C3'-C2'	-2.14	103.32	108.74
3	B	403	FAD	O2A-PA-O3P	2.10	115.10	105.14
3	A	403	FAD	C4-C4X-C10	2.01	120.20	116.95

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

5.7 Other polymers ⓘ

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, 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	292/402 (72%)	-0.12	7 (2%) 56 58	24, 37, 65, 77	0
1	B	292/402 (72%)	0.20	26 (8%) 10 9	23, 38, 66, 81	0
All	All	584/804 (72%)	0.04	33 (5%) 24 23	23, 38, 66, 81	0

All (33) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	173	GLY	5.7
1	B	386	GLU	5.1
1	B	172	ASN	4.6
1	B	384	TRP	4.4
1	A	232	ASP	4.1
1	B	351	GLN	3.9
1	B	393	LYS	3.8
1	B	278	GLU	3.7
1	B	169	GLU	3.6
1	A	111	SER	3.4
1	A	151	GLU	3.1
1	B	381	GLY	3.0
1	B	380	ARG	3.0
1	B	174	LYS	3.0
1	B	383	ASN	2.8
1	B	170	ASP	2.7
1	B	175	PRO	2.7
1	B	283	LYS	2.7
1	A	171	LYS	2.6
1	A	170	ASP	2.5
1	B	279	ASP	2.5
1	A	124	LEU	2.5
1	B	378	GLU	2.4
1	B	168	GLY	2.4

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Mol	Chain	Res	Type	RSRZ
1	B	353	PRO	2.4
1	B	389	ARG	2.4
1	B	121	THR	2.3
1	B	171	LYS	2.3
1	B	385	GLU	2.3
1	B	354	ASN	2.2
1	A	174	LYS	2.2
1	B	348	GLU	2.1
1	B	247	ASP	2.1

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 carbohydrates 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. 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	RSR	LLDF	B-factors(Å ²)	Q < 0.9
2	SO4	B	415	5/5	0.16	3.56	83,88,98,105	0
2	SO4	B	412	5/5	0.17	0.75	92,93,104,105	0
2	SO4	B	411	5/5	0.20	0.08	101,101,113,116	0
2	SO4	A	410	5/5	0.17	-0.23	65,67,94,98	0
3	FAD	B	403	53/53	0.12	-0.34	18,32,43,49	0
3	FAD	A	403	53/53	0.11	-0.49	21,30,53,58	0
2	SO4	B	413	5/5	0.21	-0.81	77,86,92,96	0
2	SO4	A	409	5/5	0.10	-0.95	59,63,75,78	0
2	SO4	A	408	5/5	0.10	-1.06	42,45,48,51	0
2	SO4	B	406	5/5	0.07	-1.25	45,56,72,72	0
2	SO4	B	405	5/5	0.13	-1.44	61,65,77,79	0
2	SO4	A	407	5/5	0.12	-1.63	66,75,76,83	0
2	SO4	A	414	5/5	0.09	-1.80	68,69,73,83	0

6.5 Other polymers ⓘ

There are no such residues in this entry.