Full wwPDB X-ray Structure Validation Report ⓘ

Jun 23, 2024 – 09:07 AM EDT

|		
PDB ID	:	5BWU
Title	:	X-RAY CRYSTAL STRUCTURE AT 2.17A RESOLUTION OF HUMAN MI-TOCHONDRIAL BRANCHED CHAIN AMINOTRANSFERASE (BCATM) COMPLEXED WITH A TRIAZOLOPYRIMIDINONE COMPOUND AND AN INTERNAL ALDIMINE LINKED PLP COFACTOR.
Authors	:	Somers, D.O.
Deposited on	:	2015-06-08
Resolution	:	2.17 Å(reported)

The following versions of software and data (see references ①) 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	:	2.37.1
buster-report	:	1.1.7 (2018)
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)	:	2.37.1

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 2.17 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.
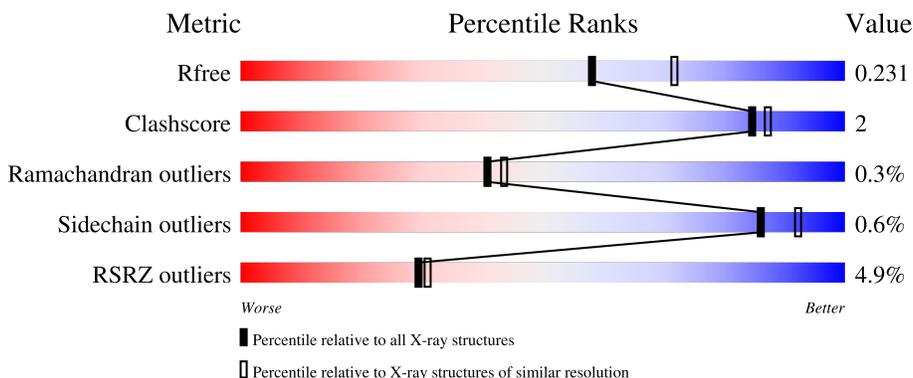
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	6864 (2.20-2.16)
Clashscore	141614	7689 (2.20-2.16)
Ramachandran outliers	138981	7564 (2.20-2.16)
Sidechain outliers	138945	7564 (2.20-2.16)
RSRZ outliers	127900	6738 (2.20-2.16)

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 of the lower bar indicate the fraction of residues that contain outliers for >=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 <=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	369	
1	B	369	
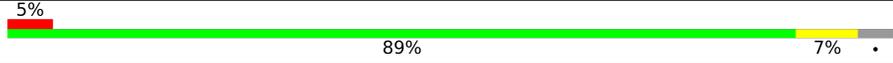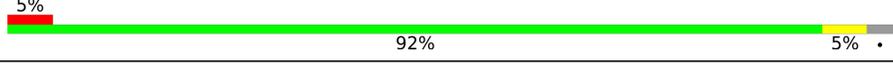
2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 6484 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 Branched-chain-amino-acid aminotransferase, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	354	Total	C	N	O	S	0	1	0
			2841	1831	494	498	18			
1	B	357	Total	C	N	O	S	0	0	0
			2860	1846	496	500	18			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	GLY	-	expression tag	UNP O15382
A	-2	SER	-	expression tag	UNP O15382
A	-1	HIS	-	expression tag	UNP O15382
A	0	MET	-	expression tag	UNP O15382
B	-3	GLY	-	expression tag	UNP O15382
B	-2	SER	-	expression tag	UNP O15382
B	-1	HIS	-	expression tag	UNP O15382
B	0	MET	-	expression tag	UNP O15382

- Molecule 2 is PYRIDOXAL-5'-PHOSPHATE (three-letter code: PLP) (formula: $C_8H_{10}NO_6P$).
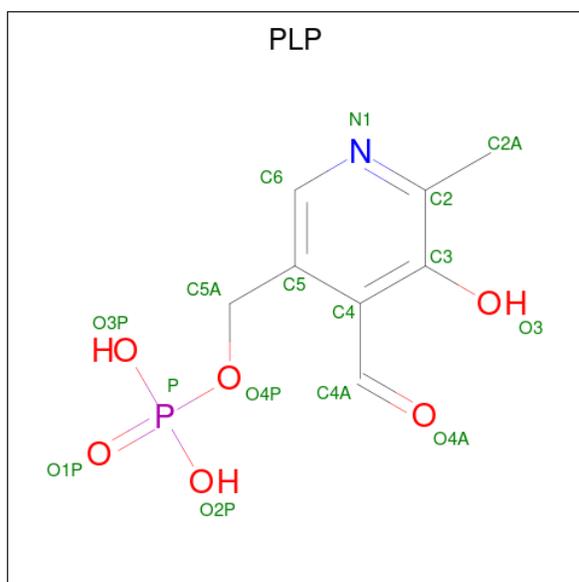
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			15	8	1	5	1		
2	B	1	Total	C	N	O	P	0	0
			15	8	1	5	1		

- Molecule 3 is 2-[(4-bromobenzyl)amino]-5-propyl[1,2,4]triazolo[1,5-a]pyrimidin-7(4H)-one (three-letter code: 4VR) (formula: $C_{15}H_{16}BrN_5O$).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	Br	C	N	O	0	0
			22	1	15	5	1		

Continued on next page...
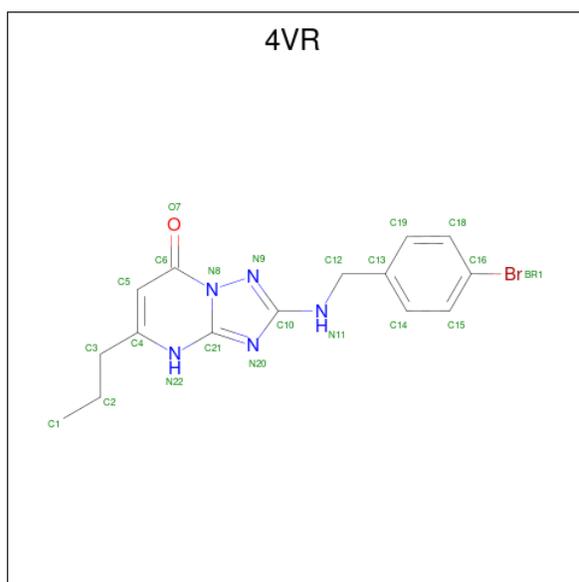
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	Br	C	N	O		
3	B	1	22	1	15	5	1	0	0

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).
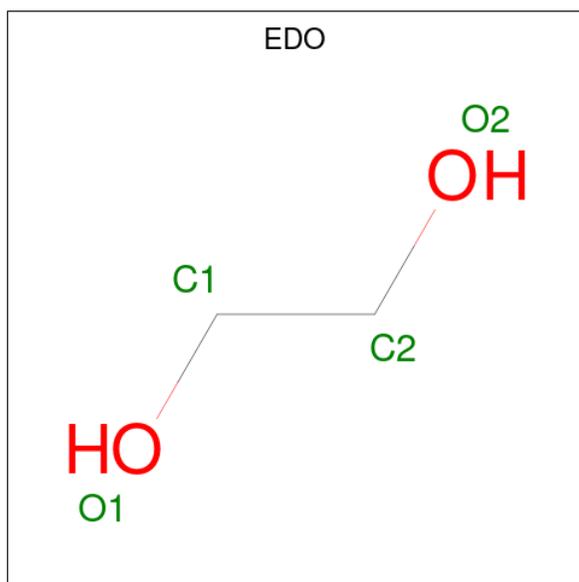
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
4	A	1	4	2	2	0	0
4	A	1	4	2	2	0	0
4	A	1	4	2	2	0	0
4	A	1	4	2	2	0	0
4	A	1	4	2	2	0	0
4	A	1	4	2	2	0	0
4	A	1	4	2	2	0	0
4	A	1	4	2	2	0	0
4	A	1	4	2	2	0	0
4	B	1	4	2	2	0	0

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	B	1	Total 4	C 2	O 2	0	0
4	B	1	Total 4	C 2	O 2	0	0
4	B	1	Total 4	C 2	O 2	0	0
4	B	1	Total 4	C 2	O 2	0	0

- Molecule 5 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	346	Total 346	O 346	0	0
5	B	307	Total 307	O 307	0	0

3 Residue-property plots ⓘ

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: Branched-chain-amino-acid aminotransferase, mitochondrial
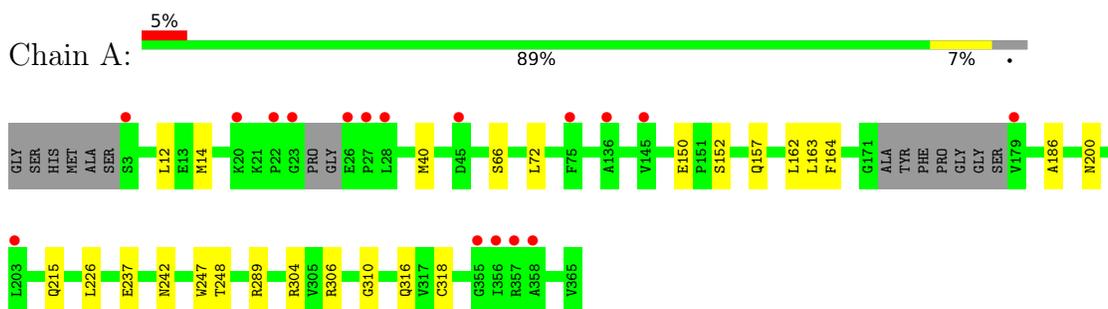
Chain A:

• Molecule 1: Branched-chain-amino-acid aminotransferase, mitochondrial

Chain B:
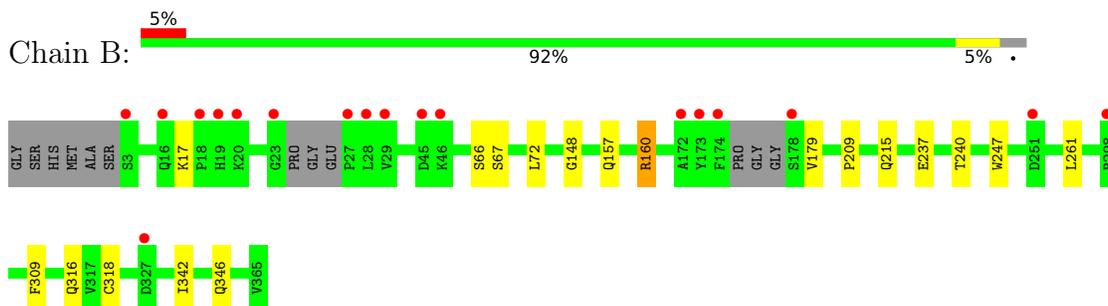
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	69.34Å 106.22Å 107.50Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.17 31.51 – 2.17	Depositor EDS
% Data completeness (in resolution range)	99.1 (20.00-2.17) 99.0 (31.51-2.17)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.23 (at 2.18Å)	Xtriage
Refinement program	REFMAC 5.8.0073	Depositor
R, R_{free}	0.170 , 0.227 0.179 , 0.231	Depositor DCC
R_{free} test set	1705 reflections (4.03%)	wwPDB-VP
Wilson B-factor (Å^2)	30.7	Xtriage
Anisotropy	0.339	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 47.7	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.017 for -h,l,k	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	6484	wwPDB-VP
Average B, all atoms (Å^2)	36.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.22% of the height of the origin peak. No significant pseudotranslation is detected.*

---

[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ 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: PLP, EDO, 4VR

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	0.49	0/2915	0.68	2/3952 (0.1%)
1	B	0.48	0/2933	0.66	0/3976
All	All	0.48	0/5848	0.67	2/7928 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	289	ARG	NE-CZ-NH1	5.76	123.18	120.30
1	A	289	ARG	NE-CZ-NH2	-5.14	117.73	120.30

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	2841	0	2874	16	0
1	B	2860	0	2889	13	0
2	A	15	0	7	1	0
2	B	15	0	6	2	0
3	A	22	0	16	1	0
3	B	22	0	16	1	0
4	A	36	0	54	4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	B	20	0	30	1	0
5	A	346	0	0	1	0
5	B	307	0	0	1	0
All	All	6484	0	5892	27	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 2.

All (27) 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:200:ASN:HD22	4:A:411:EDO:H22	1.24	1.00
1:A:215[A]:GLN:NE2	1:B:157:GLN:OE1	2.04	0.89
1:A:157:GLN:OE1	1:B:215:GLN:NE2	2.23	0.72
1:B:261:LEU:HB3	4:B:407:EDO:H11	1.76	0.67
1:B:318:CYS:SG	3:B:402:4VR:H15	2.40	0.61
1:A:40:MET:SD	1:A:162:LEU:HD11	2.44	0.57
1:A:186:ALA:HB2	1:A:226:LEU:HD23	1.89	0.54
1:A:200:ASN:HD22	4:A:411:EDO:C2	2.08	0.53
4:A:409:EDO:H11	1:B:209:PRO:HB2	1.91	0.52
1:B:240:THR:HA	2:B:401:PLP:H2A2	1.92	0.51
1:A:163:LEU:HD23	1:A:164:PHE:N	2.26	0.51
1:A:237:GLU:OE1	2:A:401:PLP:N1	2.44	0.50
1:B:66:SER:HB2	1:B:72:LEU:HD12	1.94	0.50
1:A:242:ASN:O	1:A:310:GLY:HA2	2.13	0.49
1:A:200:ASN:ND2	4:A:411:EDO:H22	2.08	0.49
1:B:237:GLU:OE1	2:B:401:PLP:N1	2.45	0.49
1:B:309:PHE:HB3	1:B:342:ILE:HD11	1.94	0.49
1:A:306:ARG:NH1	5:A:507:HOH:O	2.38	0.48
1:A:12:LEU:HD11	1:A:14:MET:SD	2.56	0.46
1:B:160:ARG:HD2	5:B:730:HOH:O	2.16	0.45
1:A:150:GLU:HG3	1:A:152:SER:HB3	2.00	0.44
1:A:66:SER:HB2	1:A:72:LEU:HD12	2.00	0.43
1:B:67:SER:HB3	1:B:148:GLY:O	2.20	0.42
1:A:248:THR:O	1:A:304:ARG:NH1	2.43	0.42
1:B:179:VAL:HG12	1:B:346:GLN:HE22	1.85	0.42
1:B:179:VAL:CG1	1:B:346:GLN:HE22	2.34	0.41
1:A:318:CYS:SG	3:A:402:4VR:H15	2.60	0.41

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	349/369 (95%)	336 (96%)	12 (3%)	1 (0%)	41	43
1	B	351/369 (95%)	337 (96%)	13 (4%)	1 (0%)	41	43
All	All	700/738 (95%)	673 (96%)	25 (4%)	2 (0%)	41	43

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	316	GLN
1	B	316	GLN

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	311/319 (98%)	310 (100%)	1 (0%)	92	96
1	B	312/319 (98%)	309 (99%)	3 (1%)	76	85
All	All	623/638 (98%)	619 (99%)	4 (1%)	86	92

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	247	TRP
1	B	17	LYS
1	B	160	ARG
1	B	247	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	87	GLN
1	B	157	GLN
1	B	346	GLN

5.3.3 RNA ⓘ

There are no RNA molecules 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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

18 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	PLP	A	401	1	15,15,16	3.48	3 (20%)	20,22,23	2.27	7 (35%)
4	EDO	A	408	-	3,3,3	0.50	0	2,2,2	0.30	0
3	4VR	B	402	-	21,24,24	1.14	2 (9%)	22,33,33	1.81	8 (36%)
4	EDO	A	409	-	3,3,3	0.49	0	2,2,2	0.26	0
4	EDO	A	411	-	3,3,3	0.45	0	2,2,2	1.19	0
4	EDO	A	405	-	3,3,3	0.43	0	2,2,2	0.44	0
4	EDO	B	405	-	3,3,3	0.52	0	2,2,2	0.22	0
4	EDO	A	404	-	3,3,3	0.32	0	2,2,2	0.63	0
4	EDO	B	403	-	3,3,3	0.44	0	2,2,2	0.32	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
4	EDO	B	406	-	3,3,3	0.27	0	2,2,2	0.73	0
4	EDO	A	403	-	3,3,3	0.40	0	2,2,2	0.53	0
4	EDO	A	406	-	3,3,3	0.35	0	2,2,2	0.76	0
4	EDO	B	407	-	3,3,3	0.46	0	2,2,2	1.18	0
3	4VR	A	402	-	21,24,24	1.07	2 (9%)	22,33,33	1.70	3 (13%)
4	EDO	A	407	-	3,3,3	0.28	0	2,2,2	0.71	0
2	PLP	B	401	1	15,15,16	3.09	3 (20%)	20,22,23	1.84	5 (25%)
4	EDO	A	410	-	3,3,3	0.47	0	2,2,2	0.33	0
4	EDO	B	404	-	3,3,3	0.32	0	2,2,2	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
2	PLP	A	401	1	-	5/6/6/8	0/1/1/1
4	EDO	A	408	-	-	0/1/1/1	-
3	4VR	B	402	-	-	0/6/8/8	0/2/3/3
4	EDO	A	409	-	-	1/1/1/1	-
4	EDO	A	411	-	-	1/1/1/1	-
4	EDO	A	405	-	-	1/1/1/1	-
4	EDO	B	405	-	-	1/1/1/1	-
4	EDO	A	404	-	-	1/1/1/1	-
4	EDO	B	403	-	-	1/1/1/1	-
4	EDO	B	406	-	-	1/1/1/1	-
4	EDO	A	403	-	-	1/1/1/1	-
4	EDO	A	406	-	-	0/1/1/1	-
4	EDO	B	407	-	-	1/1/1/1	-
3	4VR	A	402	-	-	0/6/8/8	0/2/3/3
4	EDO	A	407	-	-	0/1/1/1	-
2	PLP	B	401	1	-	2/6/6/8	0/1/1/1
4	EDO	A	410	-	-	1/1/1/1	-
4	EDO	B	404	-	-	1/1/1/1	-

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	401	PLP	C5-C4	9.84	1.51	1.40
2	B	401	PLP	C5-C4	8.10	1.49	1.40
2	A	401	PLP	C3-C2	7.69	1.48	1.40

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	401	PLP	C3-C2	7.09	1.48	1.40
2	A	401	PLP	C3-C4	4.27	1.49	1.40
2	B	401	PLP	C3-C4	4.20	1.48	1.40
3	B	402	4VR	C5-C6	3.04	1.48	1.42
3	B	402	4VR	C10-N20	2.71	1.38	1.34
3	A	402	4VR	C10-N20	2.63	1.38	1.34
3	A	402	4VR	C5-C6	2.21	1.46	1.42

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	401	PLP	C4A-C4-C5	6.24	127.37	120.94
2	B	401	PLP	C4A-C4-C5	4.82	125.90	120.94
3	A	402	4VR	N22-C21-N20	4.05	129.06	122.63
3	B	402	4VR	N22-C21-N20	4.04	129.03	122.63
2	A	401	PLP	O2P-P-O4P	-3.80	96.63	106.73
3	A	402	4VR	C21-N22-C4	-3.60	119.58	125.96
3	B	402	4VR	C2-C3-C4	-3.45	107.27	114.52
3	B	402	4VR	C21-N22-C4	-3.29	120.12	125.96
2	B	401	PLP	O3P-P-O4P	-3.22	98.16	106.73
2	A	401	PLP	C5A-C5-C6	-2.90	114.60	119.37
3	A	402	4VR	C13-C12-N11	-2.84	106.38	113.77
2	A	401	PLP	C3-C4-C5	-2.77	115.75	118.74
3	B	402	4VR	C13-C12-N11	-2.63	106.92	113.77
2	A	401	PLP	O3P-P-O2P	2.51	117.23	107.64
3	B	402	4VR	O7-C6-C5	2.44	127.75	124.22
3	B	402	4VR	C12-N11-C10	-2.41	119.90	123.28
3	B	402	4VR	C19-C13-C14	2.40	121.94	118.17
2	A	401	PLP	C6-N1-C2	2.31	123.45	119.17
2	B	401	PLP	C6-N1-C2	2.29	123.42	119.17
2	B	401	PLP	C3-C4-C5	-2.26	116.30	118.74
2	A	401	PLP	C4A-C4-C3	-2.15	116.86	120.50
2	B	401	PLP	O4P-C5A-C5	2.10	113.36	109.35
3	B	402	4VR	C18-C19-C13	-2.06	118.19	121.03

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	PLP	C4-C5-C5A-O4P
2	A	401	PLP	C6-C5-C5A-O4P
2	A	401	PLP	C5A-O4P-P-O1P

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
2	A	401	PLP	C5A-O4P-P-O2P
2	A	401	PLP	C5A-O4P-P-O3P
2	B	401	PLP	C4-C5-C5A-O4P
2	B	401	PLP	C6-C5-C5A-O4P
4	A	404	EDO	O1-C1-C2-O2
4	A	411	EDO	O1-C1-C2-O2
4	B	407	EDO	O1-C1-C2-O2
4	B	403	EDO	O1-C1-C2-O2
4	B	405	EDO	O1-C1-C2-O2
4	A	409	EDO	O1-C1-C2-O2
4	B	404	EDO	O1-C1-C2-O2
4	B	406	EDO	O1-C1-C2-O2
4	A	410	EDO	O1-C1-C2-O2
4	A	403	EDO	O1-C1-C2-O2
4	A	405	EDO	O1-C1-C2-O2

There are no ring outliers.

7 monomers are involved in 10 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	401	PLP	1	0
3	B	402	4VR	1	0
4	A	409	EDO	1	0
4	A	411	EDO	3	0
4	B	407	EDO	1	0
3	A	402	4VR	1	0
2	B	401	PLP	2	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 then 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 4VR B 402	
Bond lengths
Bond angles
Torsions |
Rings |

Ligand 4VR A 402	
Bond lengths
Bond angles
Torsions |
Rings |
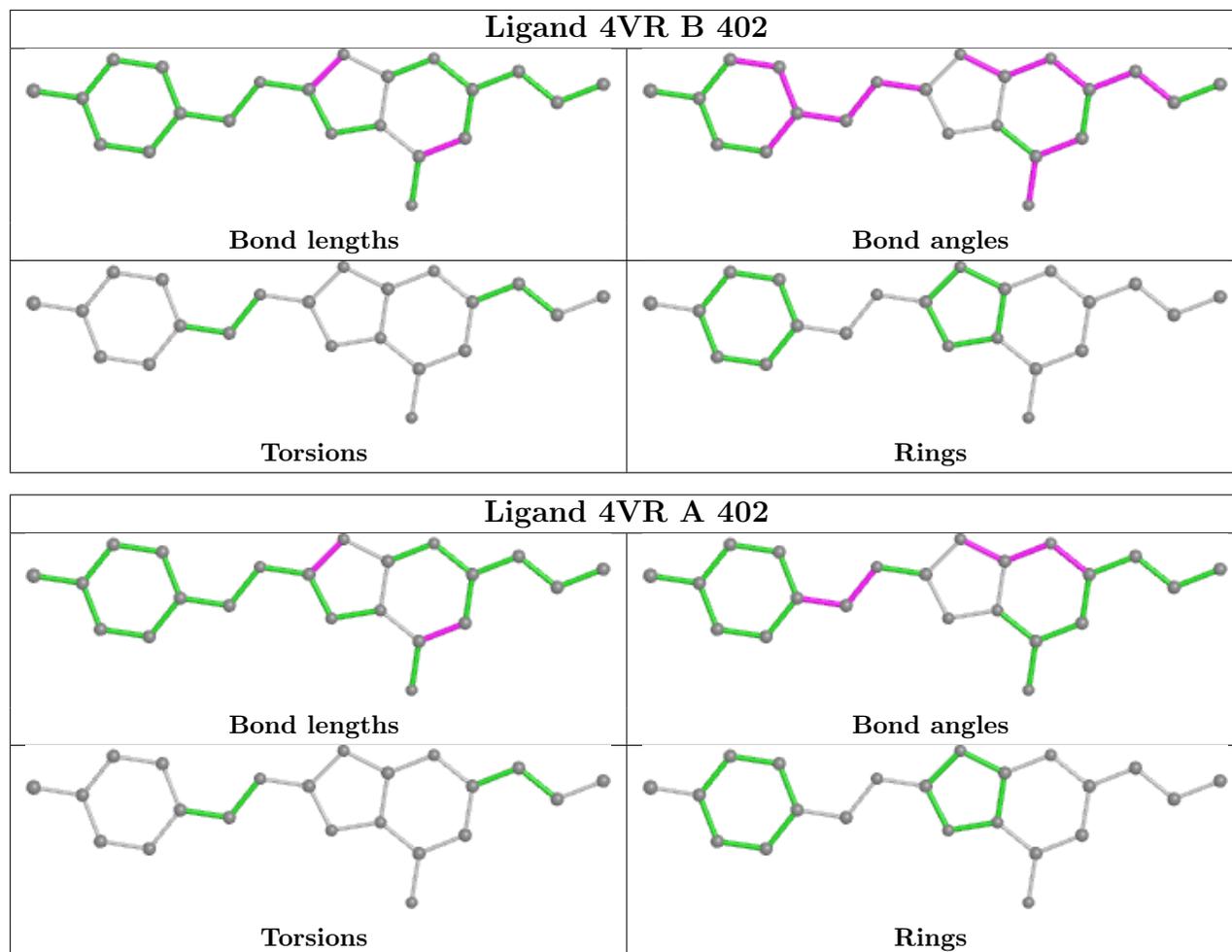
5.7 Other polymers ⓘ

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	354/369 (95%)	0.07	17 (4%)	30	32	17, 30, 56, 105	0
1	B	357/369 (96%)	0.14	18 (5%)	28	30	19, 35, 64, 103	0
All	All	711/738 (96%)	0.11	35 (4%)	29	31	17, 33, 61, 105	0

All (35) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	178	SER	7.0
1	B	173	TYR	6.4
1	B	16	GLN	5.3
1	B	172	ALA	5.1
1	A	26	GLU	4.9
1	A	27	PRO	4.4
1	A	356	ILE	4.2
1	B	27	PRO	4.2
1	B	23	GLY	4.2
1	A	358	ALA	4.2
1	B	3	SER	4.1
1	A	23	GLY	3.8
1	B	28	LEU	3.6
1	A	179	VAL	3.3
1	A	3	SER	3.2
1	A	355	GLY	3.0
1	B	29	VAL	3.0
1	B	18	PRO	2.9
1	B	327	ASP	2.9
1	A	145	VAL	2.8
1	A	22	PRO	2.7
1	B	20	LYS	2.5
1	B	46	LYS	2.5
1	A	203	LEU	2.5

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	298	ARG	2.5
1	A	20	LYS	2.5
1	A	45	ASP	2.4
1	A	136	ALA	2.4
1	B	45	ASP	2.4
1	B	19	HIS	2.4
1	A	28	LEU	2.3
1	A	357	ARG	2.3
1	B	174	PHE	2.2
1	B	251	ASP	2.2
1	A	75	PHE	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 monosaccharides 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, 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	B-factors(Å^2)	Q<0.9
4	EDO	A	405	4/4	0.84	0.16	54,55,57,60	0
4	EDO	A	404	4/4	0.86	0.16	43,44,44,50	0
4	EDO	B	407	4/4	0.86	0.27	23,24,36,36	0
4	EDO	A	408	4/4	0.87	0.15	59,61,61,62	0
4	EDO	A	403	4/4	0.88	0.19	53,56,57,60	0
4	EDO	A	411	4/4	0.89	0.21	23,28,29,38	0
4	EDO	A	407	4/4	0.90	0.16	41,42,44,53	0
4	EDO	B	405	4/4	0.91	0.10	47,47,48,49	0
4	EDO	A	410	4/4	0.92	0.11	56,57,58,59	0
4	EDO	A	409	4/4	0.93	0.13	32,35,38,41	0
4	EDO	B	404	4/4	0.94	0.16	42,45,49,50	0
3	4VR	B	402	22/22	0.94	0.13	29,38,42,43	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å²)	Q<0.9
4	EDO	B	403	4/4	0.94	0.11	46,54,59,59	0
4	EDO	B	406	4/4	0.95	0.16	35,37,40,44	0
3	4VR	A	402	22/22	0.96	0.11	25,28,36,38	0
4	EDO	A	406	4/4	0.97	0.10	28,32,34,38	0
2	PLP	A	401	15/16	0.98	0.15	19,22,24,25	0
2	PLP	B	401	15/16	0.98	0.12	20,26,30,30	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 4VR B 402:

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

Electron density around 4VR A 402:

$2mF_o$-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 ⓘ

There are no such residues in this entry.