WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Oct 3, 2023 – 07:10 PM EDT

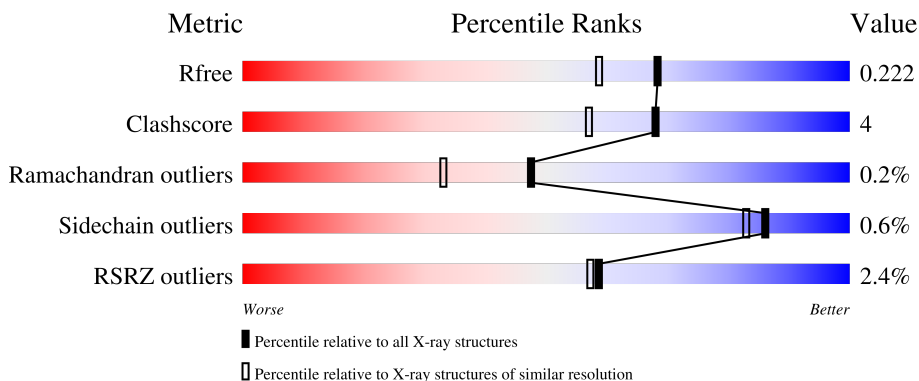|		
PDB ID	:	6MTG
Title	:	A Single Reactive Noncanonical Amino Acid is Able to Dramatically Stabilize Protein Structure
Authors	:	Li, J.C.; Nasertorabi, F.; Xuan, W.; Han, G.W.; Stevens, R.C.; Schultz, P.G.
Deposited on	:	2018-10-19
Resolution	:	1.85 Å(reported)

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 1.85 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	Percentile Ranks	Value
Rfree		0.222
Clashscore		4
Ramachandran outliers		0.2%
Sidechain outliers		0.6%
RSRZ outliers		2.4%

Worse ... *Better*

▮ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2469 (1.86-1.86)
Clashscore	141614	2625 (1.86-1.86)
Ramachandran outliers	138981	2592 (1.86-1.86)
Sidechain outliers	138945	2592 (1.86-1.86)
RSRZ outliers	127900	2436 (1.86-1.86)

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	302	2% / 88% / 7% · ·
1	B	302	3% / 92% · ·

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:

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	PEG	A	402	-	-	X	-

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 5388 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 Homoserine O-succinyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	291	Total 2382	C 1538	N 395	O 445	S 4	0	4	0
1	B	292	Total 2426	C 1560	N 415	O 447	S 4	0	9	0

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	257	ILE	PRO	engineered mutation	UNP P07623
A	297	HIS	-	expression tag	UNP P07623
A	298	HIS	-	expression tag	UNP P07623
A	299	HIS	-	expression tag	UNP P07623
A	300	HIS	-	expression tag	UNP P07623
A	301	HIS	-	expression tag	UNP P07623
A	302	HIS	-	expression tag	UNP P07623
B	257	ILE	PRO	engineered mutation	UNP P07623
B	297	HIS	-	expression tag	UNP P07623
B	298	HIS	-	expression tag	UNP P07623
B	299	HIS	-	expression tag	UNP P07623
B	300	HIS	-	expression tag	UNP P07623
B	301	HIS	-	expression tag	UNP P07623
B	302	HIS	-	expression tag	UNP P07623

- Molecule 2 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).

PEG

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 7	C 4	O 3	0	0
2	A	1	Total 7	C 4	O 3	0	0

- Molecule 3 is FORMIC ACID (three-letter code: FMT) (formula: CH_2O_2).

FMT
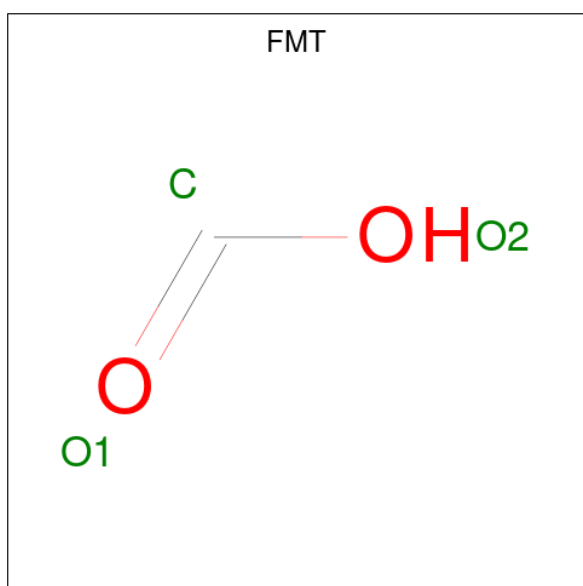
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 3	C 1	O 2	0	0
3	A	1	Total 3	C 1	O 2	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	B	1	Total 3	C 1	O 2	0	0
3	B	1	Total 3	C 1	O 2	0	0
3	B	1	Total 3	C 1	O 2	0	0

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

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

- Molecule 5 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	284	Total 284	O 284	0	0
5	B	260	Total 261	O 261	0	1

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: Homoserine O-succinyltransferase

Chain A:

• Molecule 1: Homoserine O-succinyltransferase

Chain B:
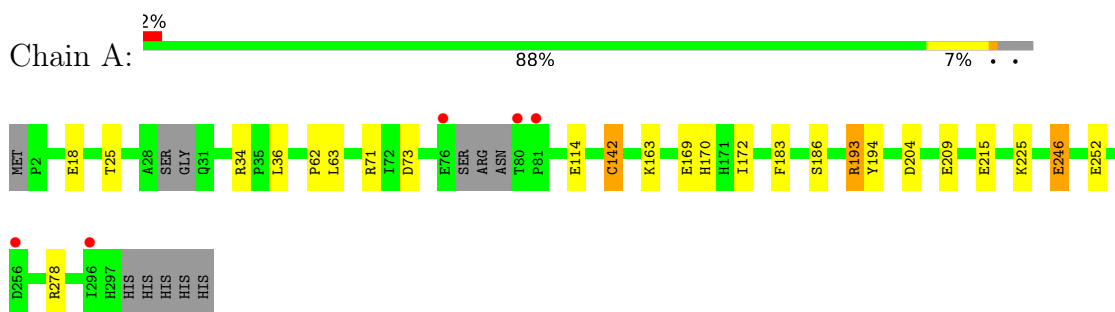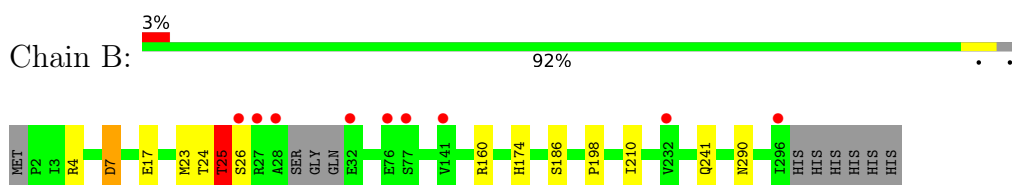
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	51.95Å 100.04Å 125.22Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.89 – 1.85 29.88 – 1.85	Depositor EDS
% Data completeness (in resolution range)	99.1 (29.89-1.85) 99.1 (29.88-1.85)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.16	Depositor
$< I/\sigma(I) >$ [1]	1.89 (at 1.85Å)	Xtriage
Refinement program	REFMAC 5.8.0232	Depositor
R, R_{free}	0.169 , 0.218 0.179 , 0.222	Depositor DCC
R_{free} test set	2829 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å^2)	24.9	Xtriage
Anisotropy	0.504	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 38.1	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	5388	wwPDB-VP
Average B, all atoms (Å^2)	31.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.25% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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: PEG, CSD, GOL, FMT

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	0.99	4/2446 (0.2%)	1.06	8/3338 (0.2%)
1	B	0.93	1/2489 (0.0%)	1.01	2/3394 (0.1%)
All	All	0.96	5/4935 (0.1%)	1.03	10/6732 (0.1%)

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	B	0	1

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	246	GLU	CD-OE2	7.30	1.33	1.25
1	A	246	GLU	CD-OE1	7.29	1.33	1.25
1	A	114	GLU	CD-OE2	-6.54	1.18	1.25
1	B	186	SER	CB-OG	-5.92	1.34	1.42
1	A	172	ILE	C-O	5.42	1.33	1.23

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	160	ARG	NE-CZ-NH1	-9.07	115.76	120.30
1	A	204	ASP	CB-CG-OD1	8.15	125.64	118.30
1	B	160	ARG	NE-CZ-NH2	7.11	123.86	120.30
1	A	71	ARG	NE-CZ-NH2	-6.32	117.14	120.30
1	A	193	ARG	NE-CZ-NH2	-5.78	117.41	120.30
1	A	34	ARG	NE-CZ-NH2	5.74	123.17	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	183	PHE	CB-CG-CD2	-5.71	116.80	120.80
1	A	278	ARG	NE-CZ-NH1	-5.38	117.61	120.30
1	A	278	ARG	NE-CZ-NH2	5.10	122.85	120.30
1	A	194	TYR	CB-CG-CD1	-5.05	117.97	121.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	25[A]	THR	Peptide

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	2382	0	2273	14	0
1	B	2426	0	2325	20	0
2	A	14	0	19	5	0
3	A	6	0	2	0	0
3	B	9	0	3	0	0
4	B	6	0	8	3	0
5	A	284	0	0	8	0
5	B	261	0	0	6	0
All	All	5388	0	4630	36	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 (36) 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:B:174:HIS:NE2	4:B:401:GOL:H11	1.64	1.11
1:B:4[B]:ARG:HD3	1:B:25[B]:THR:HG22	1.60	0.84
1:B:4[B]:ARG:CD	1:B:25[B]:THR:HG22	2.14	0.77
1:B:4[B]:ARG:HD3	1:B:25[B]:THR:HA	1.75	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:402:PEG:H42	5:B:604:HOH:O	1.94	0.67
1:B:174:HIS:NE2	4:B:401:GOL:C1	2.53	0.67
2:A:402:PEG:H22	5:A:704:HOH:O	1.95	0.65
1:B:24:THR:O	1:B:26[B]:SER:N	2.25	0.65
1:B:24:THR:O	1:B:26[A]:SER:N	2.23	0.65
1:B:4[B]:ARG:NH2	5:B:505:HOH:O	2.29	0.64
1:B:4[B]:ARG:HD3	1:B:25[B]:THR:CG2	2.31	0.59
1:A:169:GLU:HG2	5:A:770:HOH:O	2.01	0.59
1:A:18:GLU:HB3	2:A:402:PEG:H12	1.85	0.57
1:A:163:LYS:NZ	5:A:501:HOH:O	2.27	0.55
1:A:18:GLU:OE2	2:A:402:PEG:H21	2.07	0.53
1:A:246:GLU:OE2	5:A:501:HOH:O	2.18	0.52
1:B:4[B]:ARG:HD2	1:B:25[B]:THR:HG22	1.91	0.51
1:A:73:ASP:OD1	1:A:73:ASP:C	2.49	0.51
1:B:210:ILE:O	4:B:401:GOL:H12	2.11	0.51
1:A:209:GLU:HB3	5:A:750:HOH:O	2.12	0.49
1:A:36:LEU:HD11	1:A:63:LEU:HD13	1.94	0.49
1:B:26[B]:SER:O	5:B:501:HOH:O	2.20	0.48
1:A:62:PRO:HD3	1:B:290:ASN:ND2	2.28	0.48
1:B:24:THR:C	1:B:26[A]:SER:H	2.18	0.45
2:A:402:PEG:H32	2:A:402:PEG:H11	1.61	0.45
1:B:4[A]:ARG:HA	1:B:23:MET:O	2.18	0.45
1:B:290:ASN:ND2	5:B:504:HOH:O	2.50	0.44
1:A:170:HIS:O	1:A:186[A]:SER:HA	2.17	0.44
1:B:241:GLN:HG2	5:B:582:HOH:O	2.17	0.44
1:A:225:LYS:HE2	5:A:578:HOH:O	2.18	0.43
1:B:17[A]:GLU:HG2	5:B:723:HOH:O	2.18	0.43
1:A:215:GLU:HB2	5:A:725:HOH:O	2.18	0.42
1:B:7[A]:ASP:CG	1:B:24:THR:HB	2.40	0.42
1:A:142:CSD:OD1	1:A:193:ARG:HB3	2.20	0.42
1:B:4[B]:ARG:HA	1:B:23:MET:O	2.21	0.41
1:A:25:THR:HG21	5:A:645:HOH:O	2.21	0.41

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	288/302 (95%)	281 (98%)	7 (2%)	0	100	100
1	B	295/302 (98%)	288 (98%)	5 (2%)	2 (1%)	22	9
All	All	583/604 (96%)	569 (98%)	12 (2%)	2 (0%)	47	26

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	25[A]	THR
1	B	25[B]	THR

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	254/269 (94%)	252 (99%)	2 (1%)	81	76
1	B	256/269 (95%)	253 (99%)	3 (1%)	71	62
All	All	510/538 (95%)	505 (99%)	5 (1%)	86	69

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	252[A]	GLU
1	A	252[B]	GLU
1	B	7[A]	ASP
1	B	7[B]	ASP
1	B	198	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues 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	$\#|Z| > 2$
1	CSD	A	142	1	3,7,8	1.06	0	1,8,10	2.66	1 (100%)
1	CSD	B	142	1	3,7,8	1.29	0	1,8,10	0.97	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
1	CSD	A	142	1	-	1/2/6/8	-
1	CSD	B	142	1	-	2/2/6/8	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	142	CSD	OD1-SG-CB	2.66	110.61	105.54

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	B	142	CSD	N-CA-CB-SG
1	B	142	CSD	CA-CB-SG-OD1
1	A	142	CSD	N-CA-CB-SG

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	142	CSD	1	0

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

8 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	PEG	A	402	-	6,6,6	0.72	0	5,5,5	0.73	0
3	FMT	A	404	-	2,2,2	0.30	0	1,1,1	0.22	0
3	FMT	B	402	-	2,2,2	0.65	0	1,1,1	0.03	0
3	FMT	B	403	-	2,2,2	0.88	0	1,1,1	0.15	0
2	PEG	A	401	-	6,6,6	0.21	0	5,5,5	0.30	0
3	FMT	A	403	-	2,2,2	0.23	0	1,1,1	0.04	0
3	FMT	B	404	-	2,2,2	0.24	0	1,1,1	0.14	0
4	GOL	B	401	-	5,5,5	0.11	0	5,5,5	0.55	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	PEG	A	402	-	-	3/4/4/4	-
4	GOL	B	401	-	-	0/4/4/4	-
2	PEG	A	401	-	-	3/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	402	PEG	C1-C2-O2-C3
2	A	401	PEG	O1-C1-C2-O2
2	A	402	PEG	O2-C3-C4-O4
2	A	402	PEG	O1-C1-C2-O2
2	A	401	PEG	C4-C3-O2-C2
2	A	401	PEG	O2-C3-C4-O4

There are no ring outliers.

2 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	402	PEG	5	0
4	B	401	GOL	3	0

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(Å²)	Q<0.9
1	A	290/302 (96%)	-0.25	5 (1%)	70	70	19, 26, 49, 74	0
1	B	291/302 (96%)	-0.20	9 (3%)	49	47	18, 28, 51, 77	0
All	All	581/604 (96%)	-0.22	14 (2%)	59	57	18, 27, 49, 77	0

All (14) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	80	THR	5.2
1	A	81	PRO	5.2
1	B	28[A]	ALA	4.4
1	B	27[A]	ARG	3.4
1	B	296	ILE	3.0
1	A	256	ASP	2.8
1	B	32	GLU	2.7
1	A	76	GLU	2.5
1	B	141	VAL	2.5
1	A	296	ILE	2.4
1	B	77	SER	2.4
1	B	232	VAL	2.2
1	B	26[A]	SER	2.1
1	B	76	GLU	2.1

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

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.

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
1	CSD	A	142	8/9	0.96	0.12	24,27,42,51	0
1	CSD	B	142	8/9	0.96	0.12	23,31,43,47	0

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	GOL	B	401	6/6	0.75	0.21	38,46,53,59	6
3	FMT	B	404	3/3	0.86	0.12	57,57,58,62	0
3	FMT	A	404	3/3	0.89	0.20	48,48,48,49	0
2	PEG	A	401	7/7	0.89	0.20	47,52,56,57	0
2	PEG	A	402	7/7	0.89	0.25	23,32,34,40	7
3	FMT	B	403	3/3	0.91	0.15	31,31,43,55	0
3	FMT	B	402	3/3	0.96	0.14	30,30,38,45	0
3	FMT	A	403	3/3	0.97	0.10	24,24,29,30	0

6.5 Other polymers ⓘ

There are no such residues in this entry.