



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 19, 2016 – 10:21 PM GMT

PDB ID : 5BSE
Title : Crystal structure of Medicago truncatula (delta)1-Pyrroline-5-Carboxylate Reductase (MtP5CR)
Authors : Ruszkowski, M.; Nocek, B.; Forlani, G.; Dauter, Z.
Deposited on : 2015-06-02
Resolution : 1.70 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
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 : 1.7.1 (RC1), CSD as537be (2016)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026982
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) : rb-20026982

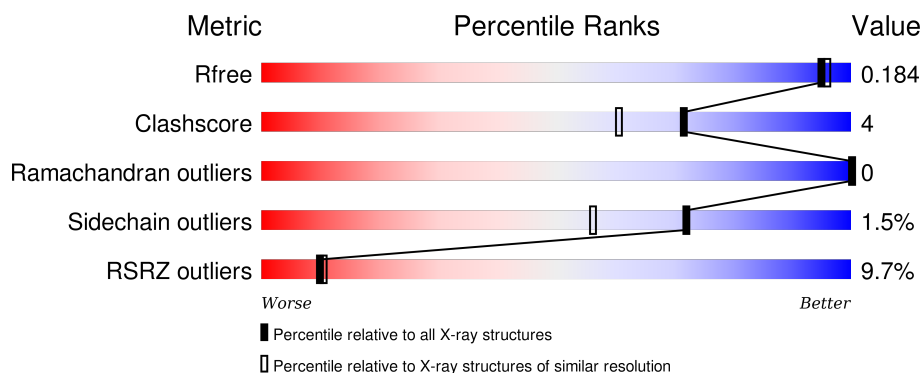
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.70 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	3190 (1.70-1.70)
Clashscore	102246	3585 (1.70-1.70)
Ramachandran outliers	100387	3527 (1.70-1.70)
Sidechain outliers	100360	3527 (1.70-1.70)
RSRZ outliers	91569	3200 (1.70-1.70)

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	277	<div> <div>4%</div> <div>91%</div> <div>6% .</div> </div>
1	B	277	<div> <div>5%</div> <div>92%</div> <div>5% ..</div> </div>
1	C	277	<div> <div>5%</div> <div>92%</div> <div>6% .</div> </div>
1	D	277	<div> <div>20%</div> <div>87%</div> <div>10% .</div> </div>
1	E	277	<div> <div>6%</div> <div>90%</div> <div>8% ..</div> </div>

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Mol	Chain	Length	Quality of chain
1	F	277	
1	G	277	
1	H	277	
1	I	277	
1	J	277	

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
2	MPO	C	301	-	-	-	X
2	MPO	I	301	-	-	-	X
2	MPO	J	301	-	-	-	X

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 21823 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 Pyrroline-5-carboxylate reductase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	272	Total	C	N	O	S	0	7	0
			2038	1285	354	392	7			
1	B	272	Total	C	N	O	S	0	5	0
			2024	1275	351	391	7			
1	C	272	Total	C	N	O	S	0	7	0
			2038	1283	354	394	7			
1	D	270	Total	C	N	O	S	0	6	0
			2014	1269	350	388	7			
1	E	272	Total	C	N	O	S	0	6	0
			2031	1281	352	391	7			
1	F	272	Total	C	N	O	S	0	6	0
			2030	1281	352	390	7			
1	G	268	Total	C	N	O	S	0	3	0
			1981	1246	346	383	6			
1	H	272	Total	C	N	O	S	0	11	0
			2068	1303	359	399	7			
1	I	272	Total	C	N	O	S	0	6	0
			2035	1283	354	391	7			
1	J	272	Total	C	N	O	S	0	4	0
			2018	1272	351	389	6			

There are 30 discrepancies between the modelled and reference sequences:

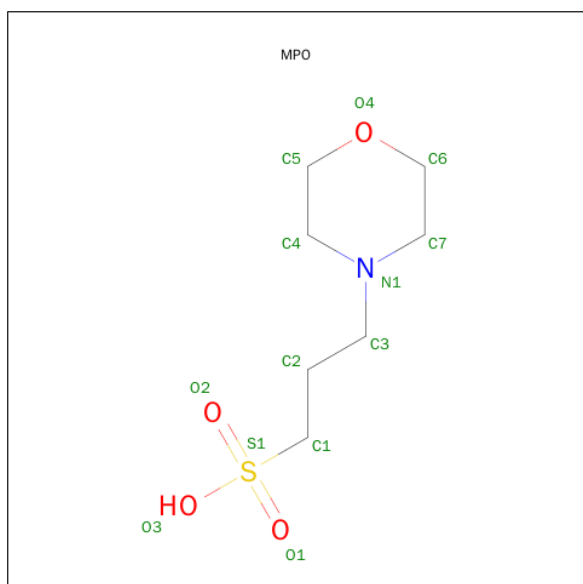
Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	SER	-	expression tag	UNP G7KRM5
A	-1	ASN	-	expression tag	UNP G7KRM5
A	0	ALA	-	expression tag	UNP G7KRM5
B	-2	SER	-	expression tag	UNP G7KRM5
B	-1	ASN	-	expression tag	UNP G7KRM5
B	0	ALA	-	expression tag	UNP G7KRM5
C	-2	SER	-	expression tag	UNP G7KRM5
C	-1	ASN	-	expression tag	UNP G7KRM5
C	0	ALA	-	expression tag	UNP G7KRM5

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-2	SER	-	expression tag	UNP G7KRM5
D	-1	ASN	-	expression tag	UNP G7KRM5
D	0	ALA	-	expression tag	UNP G7KRM5
E	-2	SER	-	expression tag	UNP G7KRM5
E	-1	ASN	-	expression tag	UNP G7KRM5
E	0	ALA	-	expression tag	UNP G7KRM5
F	-2	SER	-	expression tag	UNP G7KRM5
F	-1	ASN	-	expression tag	UNP G7KRM5
F	0	ALA	-	expression tag	UNP G7KRM5
G	-2	SER	-	expression tag	UNP G7KRM5
G	-1	ASN	-	expression tag	UNP G7KRM5
G	0	ALA	-	expression tag	UNP G7KRM5
H	-2	SER	-	expression tag	UNP G7KRM5
H	-1	ASN	-	expression tag	UNP G7KRM5
H	0	ALA	-	expression tag	UNP G7KRM5
I	-2	SER	-	expression tag	UNP G7KRM5
I	-1	ASN	-	expression tag	UNP G7KRM5
I	0	ALA	-	expression tag	UNP G7KRM5
J	-2	SER	-	expression tag	UNP G7KRM5
J	-1	ASN	-	expression tag	UNP G7KRM5
J	0	ALA	-	expression tag	UNP G7KRM5

- Molecule 2 is 3[N-MORPHOLINO]PROPANE SULFONIC ACID (three-letter code: MPO) (formula: C₇H₁₅NO₄S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			13	7	1	4	1		
2	C	1	Total	C	N	O	S	0	0
			13	7	1	4	1		
2	H	1	Total	C	N	O	S	0	0
			13	7	1	4	1		
2	I	1	Total	C	N	O	S	0	0
			13	7	1	4	1		
2	J	1	Total	C	N	O	S	0	0
			13	7	1	4	1		

- Molecule 3 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	G	1	Total	Cl	0	0
			1	1		
3	J	1	Total	Cl	0	0
			1	1		
3	D	1	Total	Cl	0	0
			1	1		
3	E	1	Total	Cl	0	0
			1	1		
3	H	1	Total	Cl	0	0
			1	1		
3	B	1	Total	Cl	0	0
			1	1		
3	I	1	Total	Cl	0	0
			1	1		
3	C	1	Total	Cl	0	0
			1	1		
3	A	1	Total	Cl	0	0
			1	1		
3	F	1	Total	Cl	0	0
			1	1		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	205	Total	O	0	2
			207	207		
4	B	160	Total	O	0	1
			161	161		
4	C	139	Total	O	0	1
			140	140		

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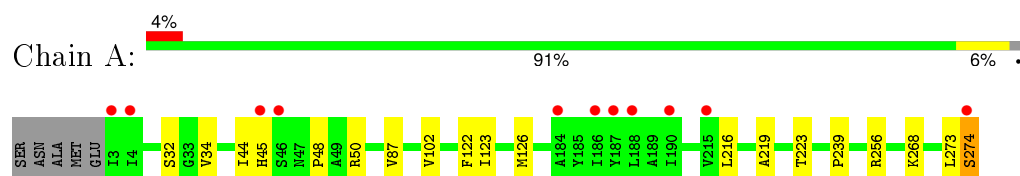
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	D	98	Total 98	O 98	0	0
4	E	182	Total 182	O 182	0	0
4	F	168	Total 168	O 168	0	0
4	G	95	Total 95	O 95	0	0
4	H	147	Total 147	O 147	0	0
4	I	146	Total 147	O 147	0	1
4	J	126	Total 126	O 126	0	0

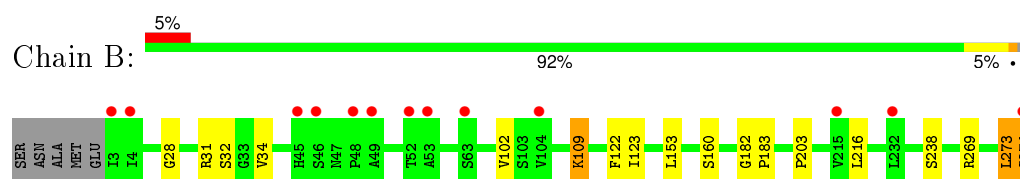
3 Residue-property plots [i](#)

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.

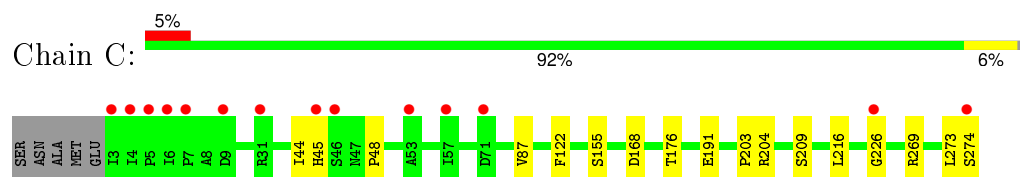
- Molecule 1: Pyrroline-5-carboxylate reductase



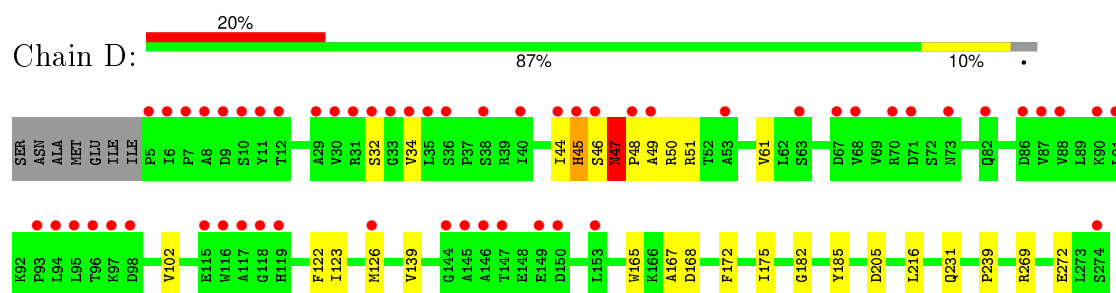
- Molecule 1: Pyrroline-5-carboxylate reductase



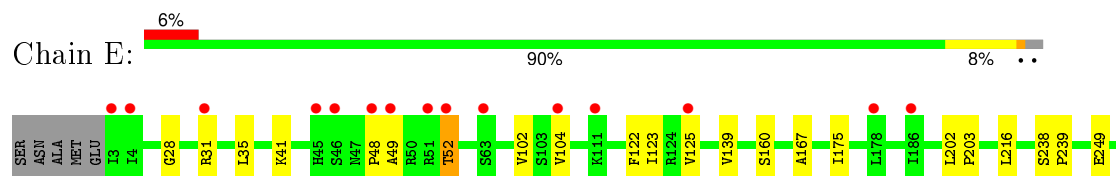
- Molecule 1: Pyrroline-5-carboxylate reductase



- Molecule 1: Pyrroline-5-carboxylate reductase



- Molecule 1: Pyrroline-5-carboxylate reductase



- Molecule 1: Pyrroline-5-carboxylate reductase

[illegible]

- Molecule 1: Pyrroline-5-carboxylate reductase

SER	ASN	ALA	MET	GLU	ILE	ILE	PRO	ILE	P7	A8	D9	S10	Y11	T12	L13	I16	G17	A18	R31	S32	G33	V34	L35	S38	R39	I40	K41	T42	A43	I44	H45	S46	N47	P48	A49	R50	R51	T52	F53	A54	I57	G58	I59	T60	V61	L62	S63	S64	D67	V68	V69	R70	D71	S72
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N73	N74	N75	N76	N77	N78	N79	N80	N81	N82	N83	N84	N85	N86	N87	N88	N89	N90	N91	N92	N93	N94	N95	N96	N97	N98	N99	N100	N101	A106	A107	M10	K11	D12	L13	W16	A17	G18	H19	E20	R21	F22	I23	G13	G14	A145	A146	T147	F148	E149	D150	A151	N152	L153	G154
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- Molecule 1: Pyrroline-5-carboxylate reductase

[illegible]

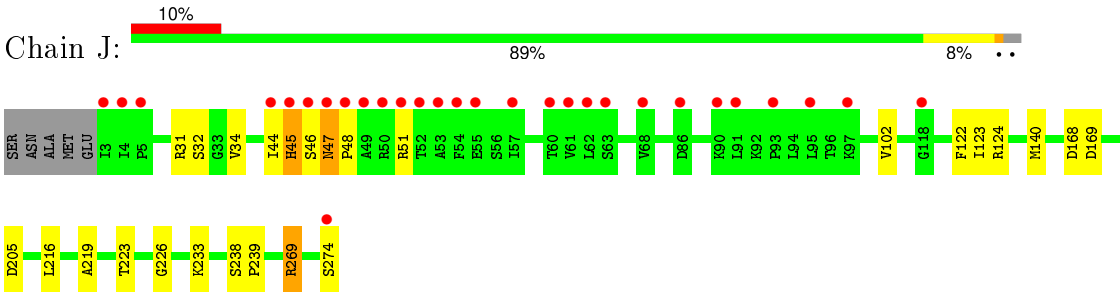
S274

- Molecule 1: Pyrroline-5-carboxylate reductase

SER
ASN
ALA
MET
GLU
I3
P4
P5
I6
P7
A8
D9
S10
S32
G33
V34
H45
S46
N47
P48
A49
T52
S63
D67
R70
K80
F122
M126
S141
A146
T147
E148
Q156
K163
D169
T176
G182
Y185
P203
R204
D205

L216 A219 T223 P239 K268 Q271 S274

- Molecule 1: Pyrroline-5-carboxylate reductase



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	86.80Å 100.60Å 101.20Å 67.90° 85.30° 89.30°	Depositor
Resolution (Å)	38.93 – 1.70 38.93 – 1.70	Depositor EDS
% Data completeness (in resolution range)	97.3 (38.93-1.70) 84.6 (38.93-1.70)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.93 (at 1.70Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.160 , 0.180 0.169 , 0.184	Depositor DCC
R_{free} test set	2709 reflections (0.81%)	DCC
Wilson B-factor (Å ²)	37.4	Xtriage
Anisotropy	0.125	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 48.8	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	0 of 338502 reflections	Xtriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	21823	wwPDB-VP
Average B, all atoms (Å ²)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.93% 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

5.1 Standard geometry

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

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	1.02	0/2070	0.92	2/2800 (0.1%)
1	B	0.98	1/2052 (0.0%)	0.92	2/2773 (0.1%)
1	C	0.97	2/2067 (0.1%)	0.89	2/2796 (0.1%)
1	D	0.87	1/2046 (0.0%)	0.86	3/2768 (0.1%)
1	E	1.05	2/2062 (0.1%)	0.95	1/2787 (0.0%)
1	F	0.99	3/2062 (0.1%)	0.90	3/2791 (0.1%)
1	G	0.87	2/2009 (0.1%)	0.85	0/2715
1	H	0.95	0/2099	0.92	1/2835 (0.0%)
1	I	0.92	0/2064	0.86	3/2792 (0.1%)
1	J	0.93	1/2047 (0.0%)	0.88	5/2770 (0.2%)
All	All	0.96	12/20578 (0.1%)	0.90	22/27827 (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
1	C	0	1
1	H	0	1
All	All	0	3

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	F	272	GLU	CD-OE1	5.87	1.32	1.25
1	C	191	GLU	CD-OE2	5.67	1.31	1.25
1	B	238	SER	CB-OG	-5.53	1.35	1.42
1	C	155	SER	CB-OG	-5.46	1.35	1.42
1	F	173	ASP	N-CA	5.37	1.57	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	272	GLU	CD-OE1	5.35	1.31	1.25
1	J	48	PRO	N-CD	5.34	1.55	1.47
1	E	238	SER	CB-OG	-5.33	1.35	1.42
1	E	48	PRO	N-CD	5.28	1.55	1.47
1	G	48	PRO	N-CD	5.28	1.55	1.47
1	G	238	SER	CB-OG	-5.17	1.35	1.42
1	F	48	PRO	N-CD	5.04	1.54	1.47

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	41	LYS	CD-CE-NZ	6.00	125.50	111.70
1	D	47	ASN	C-N-CD	5.87	140.72	128.40
1	B	269[A]	ARG	NE-CZ-NH2	-5.77	117.42	120.30
1	B	269[B]	ARG	NE-CZ-NH2	-5.77	117.42	120.30
1	D	269[A]	ARG	NE-CZ-NH2	-5.69	117.45	120.30
1	D	269[B]	ARG	NE-CZ-NH2	-5.69	117.45	120.30
1	J	47	ASN	C-N-CD	5.69	140.35	128.40
1	J	274	SER	N-CA-CB	5.69	119.03	110.50
1	F	47	ASN	C-N-CD	5.61	140.19	128.40
1	C	269[A]	ARG	NE-CZ-NH2	-5.56	117.52	120.30
1	C	269[B]	ARG	NE-CZ-NH2	-5.56	117.52	120.30
1	E	249	GLU	OE1-CD-OE2	5.51	129.91	123.30
1	F	269[A]	ARG	NE-CZ-NH2	-5.50	117.55	120.30
1	F	269[B]	ARG	NE-CZ-NH2	-5.50	117.55	120.30
1	I	163	LYS	CD-CE-NZ	5.36	124.02	111.70
1	A	256	ARG	NE-CZ-NH1	-5.30	117.65	120.30
1	J	205	ASP	CB-CG-OD1	5.16	122.94	118.30
1	I	205	ASP	CB-CG-OD1	5.13	122.92	118.30
1	J	269[A]	ARG	NE-CZ-NH2	-5.09	117.75	120.30
1	J	269[B]	ARG	NE-CZ-NH2	-5.09	117.75	120.30
1	I	141	SER	N-CA-CB	5.08	118.12	110.50
1	A	50	ARG	NE-CZ-NH2	-5.03	117.78	120.30

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	273	LEU	Peptide
1	C	226[B]	GLY	Peptide
1	H	226[B]	GLY	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	2038	0	2106	14	0
1	B	2024	0	2085	12	0
1	C	2038	0	2092	12	0
1	D	2014	0	2076	31	0
1	E	2031	0	2097	20	0
1	F	2030	0	2097	17	0
1	G	1981	0	2035	41	0
1	H	2068	0	2134	14	0
1	I	2035	0	2101	19	0
1	J	2018	0	2079	20	0
2	A	13	0	14	0	0
2	C	13	0	15	1	0
2	H	13	0	15	0	0
2	I	13	0	15	1	0
2	J	13	0	15	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
3	E	1	0	0	0	0
3	F	1	0	0	0	0
3	G	1	0	0	0	0
3	H	1	0	0	0	0
3	I	1	0	0	0	0
3	J	1	0	0	0	0
4	A	207	0	0	4	0
4	B	161	0	0	1	0
4	C	140	0	0	1	0
4	D	98	0	0	3	0
4	E	182	0	0	2	0
4	F	168	0	0	3	0
4	G	95	0	0	5	0
4	H	147	0	0	3	0
4	I	147	0	0	3	0
4	J	126	0	0	6	0
All	All	21823	0	20976	177	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 (177) 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:126[B]:MET:CE	4:A:531:HOH:O	1.64	1.28
1:G:110:MET:HE2	1:G:143:GLY:CA	1.68	1.24
1:A:126[B]:MET:HE1	4:A:531:HOH:O	1.21	1.22
1:G:110:MET:CE	1:G:143:GLY:CA	2.28	1.10
1:G:18:ALA:O	1:G:50:ARG:HD3	1.53	1.09
1:G:12:THR:HG23	1:G:72:SER:HA	1.38	1.06
1:D:168[B]:ASP:OD1	4:D:402:HOH:O	1.74	1.05
1:C:168[B]:ASP:OD1	4:C:402:HOH:O	1.73	1.04
1:J:168[B]:ASP:OD1	4:J:402:HOH:O	1.74	1.02
1:G:168[B]:ASP:OD1	4:G:401:HOH:O	1.74	1.02
1:G:110:MET:HE2	1:G:143:GLY:HA2	1.41	1.01
1:G:110:MET:HE3	1:G:143:GLY:HA3	1.48	0.96
1:D:44:ILE:HD11	1:D:51:ARG:NH2	1.80	0.95
1:G:44:ILE:HD12	1:G:61:VAL:HG13	1.47	0.93
1:D:44:ILE:HD11	1:D:51:ARG:HH21	1.30	0.93
1:H:168[B]:ASP:OD1	4:H:402:HOH:O	1.85	0.92
1:G:110:MET:CE	1:G:143:GLY:HA3	2.00	0.92
1:G:110:MET:HE2	1:G:143:GLY:N	1.86	0.90
1:G:12:THR:HG21	1:G:71:ASP:O	1.71	0.90
1:E:28:GLY:HA3	1:E:160:SER:OG	1.70	0.90
1:G:44:ILE:HD12	1:G:61:VAL:CG1	2.04	0.87
1:G:110:MET:CE	1:G:143:GLY:N	2.40	0.84
1:I:169[B]:ASP:OD1	4:I:402:HOH:O	1.95	0.84
1:I:223:THR:CG2	4:J:406:HOH:O	2.27	0.83
1:I:223:THR:HG21	4:J:406:HOH:O	1.79	0.82
1:G:12:THR:CG2	1:G:72:SER:HA	2.10	0.81
1:G:8:ALA:HA	1:G:153:LEU:HD21	1.67	0.77
1:D:47:ASN:OD1	1:D:50:ARG:HG2	1.85	0.75
1:D:46:SER:O	1:D:48:PRO:HD3	1.88	0.74
1:D:44:ILE:HG13	1:D:61:VAL:CG1	2.19	0.73
1:J:31:ARG:HG2	1:J:31:ARG:HH11	1.53	0.73
1:D:44:ILE:HD12	1:D:44:ILE:O	1.91	0.70
1:D:205:ASP:HB2	4:D:439:HOH:O	1.90	0.70
1:H:57[B]:ILE:HD12	1:H:57[B]:ILE:O	1.92	0.68
1:G:18:ALA:O	1:G:50:ARG:CD	2.36	0.68
1:A:239:PRO:HG3	1:I:203:PRO:HA	1.75	0.68
1:G:7:PRO:O	1:G:11:TYR:HB3	1.94	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:121:ARG:HB2	4:G:408:HOH:O	1.94	0.67
1:E:31:ARG:HB3	1:E:31:ARG:NH1	2.09	0.66
1:D:44:ILE:CG1	1:D:61:VAL:HG11	2.27	0.65
1:G:97:LYS:HB3	4:G:403:HOH:O	1.97	0.65
1:D:44:ILE:HD12	1:D:44:ILE:C	2.17	0.65
1:E:41:LYS:HD3	4:E:483:HOH:O	1.99	0.63
1:E:31:ARG:HB3	1:E:31:ARG:HH11	1.63	0.62
1:B:160[B]:SER:O	1:B:160[B]:SER:OG	2.16	0.62
1:D:44:ILE:HD11	1:D:51:ARG:CZ	2.31	0.61
2:I:301:MPO:H11	1:J:238[A]:SER:OG	2.02	0.60
1:G:149:GLU:O	1:G:153:LEU:HD12	2.03	0.59
1:C:203:PRO:HA	1:E:239:PRO:HG3	1.84	0.59
1:B:28:GLY:HA3	1:B:160[B]:SER:OG	2.03	0.58
1:D:44:ILE:HG13	1:D:61:VAL:HG11	1.83	0.58
1:E:139[B]:VAL:HG21	1:E:175:ILE:HD13	1.86	0.57
1:D:139[B]:VAL:HG21	1:D:175:ILE:HD13	1.86	0.57
1:F:139[B]:VAL:HG21	1:F:175:ILE:HD13	1.86	0.57
1:E:49:ALA:O	1:E:52:THR:HG22	2.04	0.57
1:I:223:THR:HG22	4:J:406:HOH:O	2.00	0.56
1:J:44:ILE:HD13	1:J:51:ARG:HA	1.87	0.56
1:D:139[B]:VAL:HG21	1:D:175:ILE:HG21	1.87	0.56
1:G:203:PRO:HA	1:I:239:PRO:HG3	1.86	0.56
1:G:12:THR:HG23	1:G:73:ASN:H	1.70	0.56
1:C:44:ILE:HG21	1:C:48:PRO:HA	1.88	0.55
1:F:139[B]:VAL:HG21	1:F:175:ILE:HG21	1.88	0.55
1:G:110:MET:HE1	1:G:122:PHE:O	2.06	0.55
1:I:268[B]:LYS:HG3	4:I:495:HOH:O	2.07	0.54
1:G:85:LYS:O	1:G:89:LEU:HG	2.07	0.54
1:D:47:ASN:CG	1:D:50:ARG:HG2	2.28	0.54
1:G:110:MET:CE	1:G:122:PHE:O	2.55	0.54
1:H:53:ALA:O	1:H:57[B]:ILE:HG23	2.07	0.54
1:I:216:LEU:HD12	1:J:216:LEU:HD12	1.90	0.54
1:D:44:ILE:HG12	1:D:61:VAL:HG11	1.90	0.53
1:H:268[B]:LYS:HG3	4:H:485:HOH:O	2.08	0.52
1:H:231[A]:GLN:OE1	4:H:401:HOH:O	0.52	0.52
1:J:31:ARG:HG2	1:J:31:ARG:NH1	2.24	0.52
1:C:45:HIS:CE1	1:C:87:VAL:HG22	2.45	0.52
1:A:45:HIS:CE1	1:A:87:VAL:HG22	2.44	0.52
1:H:35:LEU:HD13	1:H:40:ILE:HD11	1.93	0.51
1:E:28:GLY:CA	1:E:160:SER:OG	2.54	0.50
1:A:268[B]:LYS:HG3	4:A:504:HOH:O	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:126[B]:MET:HE1	1:I:176:THR:HA	1.93	0.50
1:E:139[B]:VAL:HG21	1:E:175:ILE:HG21	1.94	0.50
1:J:45:HIS:N	1:J:45:HIS:ND1	2.60	0.50
1:I:47:ASN:N	4:I:403:HOH:O	2.38	0.50
1:E:216:LEU:HD12	1:F:216:LEU:HD12	1.93	0.50
1:C:204:ARG:HB2	4:E:417:HOH:O	2.12	0.49
1:H:153:LEU:C	1:H:153:LEU:HD23	2.32	0.49
1:D:45:HIS:ND1	1:D:45:HIS:N	2.60	0.49
1:D:44:ILE:CD1	1:D:51:ARG:HH21	2.13	0.49
1:F:126[A]:MET:CE	4:F:556:HOH:O	0.79	0.49
1:A:216:LEU:HD12	1:B:216:LEU:HD12	1.94	0.49
1:J:31:ARG:HH11	1:J:31:ARG:CG	2.25	0.49
1:C:216:LEU:HD12	1:D:216:LEU:HD12	1.94	0.49
1:I:216:LEU:HD12	1:J:216:LEU:CD1	2.43	0.48
1:I:67:ASP:OD1	1:I:70:ARG:NH2	2.38	0.48
1:I:216:LEU:CD1	1:J:216:LEU:HD12	2.43	0.48
1:G:44:ILE:HD12	1:G:61:VAL:HG11	1.91	0.47
1:G:110:MET:CE	1:G:143:GLY:HA2	2.20	0.47
1:F:227:LYS:NZ	4:F:407:HOH:O	2.48	0.47
1:F:126[B]:MET:CE	1:F:175:ILE:HG22	2.45	0.47
1:D:239:PRO:HG3	1:F:203:PRO:HA	1.97	0.46
1:H:102:VAL:HA	1:H:123:ILE:O	2.16	0.46
1:D:182:GLY:HA2	1:D:185:TYR:CD2	2.51	0.46
1:G:12:THR:HG23	1:G:72:SER:CA	2.27	0.45
1:B:273:LEU:O	1:B:274[A]:SER:HB3	2.16	0.45
1:E:31:ARG:CB	1:E:31:ARG:NH1	2.78	0.45
1:G:216:LEU:HD12	1:H:216:LEU:HD12	1.98	0.45
1:A:216:LEU:HD12	1:B:216:LEU:CD1	2.47	0.45
1:F:3:ILE:HG13	1:F:3:ILE:O	2.17	0.44
1:J:168[B]:ASP:OD1	1:J:169:ASP:N	2.50	0.44
1:G:97:LYS:CB	4:G:403:HOH:O	2.60	0.44
1:H:32:SER:OG	1:H:34:VAL:HG23	2.17	0.44
1:E:273:LEU:O	1:E:274[A]:SER:HB3	2.18	0.44
1:I:271:GLN:O	1:I:274:SER:HB2	2.17	0.44
1:D:48:PRO:O	1:D:51:ARG:N	2.51	0.44
1:G:44:ILE:HD13	1:G:51:ARG:HA	1.99	0.44
1:E:203:PRO:HA	1:G:239:PRO:HG3	2.00	0.44
1:H:47:ASN:ND2	1:H:50:ARG:HG2	2.33	0.44
1:G:205:ASP:HB2	4:G:456:HOH:O	2.16	0.44
1:E:28:GLY:HA3	1:E:160:SER:HG	1.80	0.44
1:A:45:HIS:CE1	1:A:87:VAL:CG2	3.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:273:LEU:O	1:H:274[A]:SER:HB3	2.18	0.44
1:A:102:VAL:HA	1:A:123:ILE:O	2.17	0.44
1:C:44:ILE:HG21	1:C:48:PRO:CA	2.48	0.44
1:A:219:ALA:O	1:A:223:THR:HG23	2.17	0.43
1:J:102:VAL:HA	1:J:123:ILE:O	2.18	0.43
1:J:32:SER:OG	1:J:34:VAL:HG23	2.18	0.43
1:B:109:LYS:HG3	4:B:403:HOH:O	2.18	0.43
1:F:47:ASN:ND2	1:F:50:ARG:HG2	2.33	0.43
1:E:104:VAL:HA	1:E:125:VAL:O	2.19	0.43
1:B:203:PRO:HA	1:J:239:PRO:HG3	2.00	0.43
1:J:269[B]:ARG:NH1	4:J:401:HOH:O	0.58	0.43
1:A:216:LEU:CD1	1:B:216:LEU:HD12	2.49	0.42
1:C:216:LEU:HD12	1:D:216:LEU:CD1	2.49	0.42
1:D:126[B]:MET:HB2	1:D:172:PHE:CE2	2.53	0.42
1:J:219:ALA:O	1:J:223:THR:HG23	2.19	0.42
1:I:182:GLY:HA2	1:I:185:TYR:CD2	2.54	0.42
1:I:219:ALA:O	1:I:223:THR:HG23	2.18	0.42
1:F:219:ALA:O	1:F:223:THR:HG23	2.19	0.42
1:F:226:GLY:N	4:F:403:HOH:O	2.31	0.42
1:G:12:THR:CG2	1:G:73:ASN:H	2.32	0.42
1:J:226:GLY:N	4:J:403:HOH:O	2.43	0.42
1:C:273:LEU:O	1:C:274:SER:HB3	2.20	0.42
1:G:12:THR:CG2	1:G:71:ASP:O	2.57	0.42
1:E:202:LEU:HD21	1:F:175:ILE:HG13	2.02	0.42
1:I:216:LEU:CD1	1:J:216:LEU:CD1	2.97	0.42
1:F:273:LEU:O	1:F:274:SER:HB3	2.20	0.42
1:B:153:LEU:HD23	1:B:153:LEU:C	2.39	0.42
1:D:231[B]:GLN:HG2	4:D:481:HOH:O	2.20	0.42
1:C:176:THR:HG23	2:C:301:MPO:H62	2.02	0.42
1:G:32:SER:OG	1:G:34:VAL:HG23	2.20	0.42
1:D:47:ASN:ND2	1:D:49:ALA:HB3	2.35	0.41
1:D:32:SER:OG	1:D:34:VAL:HG23	2.20	0.41
1:B:32:SER:OG	1:B:34:VAL:HG23	2.19	0.41
1:C:216:LEU:CD1	1:D:216:LEU:HD12	2.49	0.41
1:E:216:LEU:HD12	1:F:216:LEU:CD1	2.50	0.41
1:B:102:VAL:HA	1:B:123:ILE:O	2.20	0.41
1:F:182:GLY:HA2	1:F:185:TYR:CD2	2.55	0.41
1:D:102:VAL:HA	1:D:123:ILE:O	2.20	0.41
1:G:45:HIS:CD2	1:G:46:SER:HB2	2.55	0.41
1:I:32:SER:OG	1:I:34:VAL:HG23	2.21	0.41
1:A:273:LEU:O	1:A:274:SER:HB3	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:216:LEU:HD12	1:H:216:LEU:CD1	2.50	0.41
1:A:44:ILE:HG21	1:A:48:PRO:HA	2.03	0.41
1:G:12:THR:HG23	1:G:73:ASN:N	2.34	0.41
1:G:44:ILE:CD1	1:G:61:VAL:CG1	2.90	0.41
1:F:102:VAL:HA	1:F:123:ILE:O	2.21	0.41
1:H:219:ALA:O	1:H:223:THR:HG23	2.21	0.41
1:B:182:GLY:N	1:B:183:PRO:CD	2.84	0.41
1:A:32:SER:OG	1:A:34:VAL:HG23	2.20	0.40
1:J:44:ILE:HG21	1:J:47:ASN:O	2.21	0.40
1:J:124:ARG:O	1:J:140:MET:HA	2.21	0.40
1:E:139[A]:VAL:HG11	1:E:167:ALA:HB3	2.03	0.40
1:D:139[A]:VAL:HG11	1:D:167:ALA:HB3	2.04	0.40
1:G:57:ILE:O	1:G:57:ILE:CG1	2.68	0.40
1:E:102:VAL:HA	1:E:123:ILE:O	2.22	0.40
4:A:412:HOH:O	1:I:204:ARG:HB2	2.20	0.40
1:E:216:LEU:CD1	1:F:216:LEU:HD12	2.52	0.40
1:C:209:SER:HB3	1:D:165:TRP:CZ2	2.56	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	277/277 (100%)	276 (100%)	1 (0%)	0	100	100
1	B	274/277 (99%)	271 (99%)	3 (1%)	0	100	100
1	C	277/277 (100%)	276 (100%)	1 (0%)	0	100	100
1	D	274/277 (99%)	270 (98%)	4 (2%)	0	100	100
1	E	275/277 (99%)	272 (99%)	3 (1%)	0	100	100
1	F	276/277 (100%)	275 (100%)	1 (0%)	0	100	100
1	G	269/277 (97%)	265 (98%)	4 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	H	280/277 (101%)	278 (99%)	2 (1%)	0	100	100
1	I	276/277 (100%)	274 (99%)	2 (1%)	0	100	100
1	J	274/277 (99%)	273 (100%)	1 (0%)	0	100	100
All	All	2752/2770 (99%)	2730 (99%)	22 (1%)	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	215/212 (101%)	213 (99%)	2 (1%)	84	76
1	B	213/212 (100%)	208 (98%)	5 (2%)	58	37
1	C	214/212 (101%)	213 (100%)	1 (0%)	92	88
1	D	212/212 (100%)	209 (99%)	3 (1%)	74	59
1	E	214/212 (101%)	209 (98%)	5 (2%)	58	37
1	F	214/212 (101%)	212 (99%)	2 (1%)	84	76
1	G	207/212 (98%)	200 (97%)	7 (3%)	44	21
1	H	218/212 (103%)	215 (99%)	3 (1%)	74	59
1	I	214/212 (101%)	212 (99%)	2 (1%)	84	76
1	J	212/212 (100%)	208 (98%)	4 (2%)	65	46
All	All	2133/2120 (101%)	2099 (98%)	34 (2%)	72	54

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	122	PHE
1	A	274	SER
1	B	31	ARG
1	B	109	LYS
1	B	122	PHE

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Mol	Chain	Res	Type
1	B	274[A]	SER
1	B	274[B]	SER
1	C	122	PHE
1	D	45	HIS
1	D	47	ASN
1	D	122	PHE
1	E	35	LEU
1	E	52	THR
1	E	122	PHE
1	E	274[A]	SER
1	E	274[B]	SER
1	F	122	PHE
1	F	274	SER
1	G	46	SER
1	G	47	ASN
1	G	50	ARG
1	G	57	ILE
1	G	111	LYS
1	G	122	PHE
1	G	153	LEU
1	H	35	LEU
1	H	52	THR
1	H	122	PHE
1	I	80	LYS
1	I	122	PHE
1	J	45	HIS
1	J	46	SER
1	J	122	PHE
1	J	233	LYS

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	65	ASN
1	C	65	ASN
1	D	47	ASN
1	G	45	HIS
1	G	152	ASN

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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 15 ligands modelled in this entry, 10 are monoatomic - leaving 5 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$
2	MPO	A	301	-	13,13,13	1.59	3 (23%)	16,17,17	2.08	4 (25%)
2	MPO	C	301	-	13,13,13	1.49	4 (30%)	16,17,17	3.62	9 (56%)
2	MPO	H	301	-	13,13,13	1.48	2 (15%)	16,17,17	2.56	7 (43%)
2	MPO	I	301	-	13,13,13	1.33	2 (15%)	16,17,17	2.95	7 (43%)
2	MPO	J	301	-	13,13,13	1.19	1 (7%)	16,17,17	2.55	7 (43%)

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	MPO	A	301	-	-	0/7/15/15	0/1/1/1
2	MPO	C	301	-	-	0/7/15/15	0/1/1/1
2	MPO	H	301	-	-	0/7/15/15	0/1/1/1
2	MPO	I	301	-	-	0/7/15/15	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	MPO	J	301	-	-	0/7/15/15	0/1/1/1

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	301	MPO	C4-N1	-2.07	1.41	1.47
2	I	301	MPO	O1-S1	2.09	1.51	1.45
2	C	301	MPO	C1-S1	2.35	1.81	1.77
2	C	301	MPO	O2-S1	2.44	1.52	1.45
2	I	301	MPO	O2-S1	2.49	1.52	1.45
2	C	301	MPO	O1-S1	2.53	1.52	1.45
2	A	301	MPO	O2-S1	2.71	1.53	1.45
2	A	301	MPO	O1-S1	2.73	1.53	1.45
2	H	301	MPO	O1-S1	2.79	1.53	1.45
2	J	301	MPO	O2-S1	3.22	1.54	1.45
2	A	301	MPO	C1-S1	3.38	1.82	1.77
2	H	301	MPO	O2-S1	3.46	1.55	1.45

All (34) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	I	301	MPO	O2-S1-C1	-7.87	101.31	106.87
2	C	301	MPO	O3-S1-O2	-4.98	100.24	111.26
2	I	301	MPO	O2-S1-O1	-4.30	101.82	113.96
2	H	301	MPO	O3-S1-O1	-4.28	101.78	111.26
2	J	301	MPO	O1-S1-C1	-4.23	103.88	106.87
2	H	301	MPO	O4-C5-C4	-4.07	102.42	111.83
2	H	301	MPO	C6-C7-N1	-3.83	104.26	110.11
2	J	301	MPO	O4-C6-C7	-3.60	103.51	111.83
2	A	301	MPO	O2-S1-O1	-3.32	104.57	113.96
2	H	301	MPO	O4-C6-C7	-2.99	104.93	111.83
2	J	301	MPO	C3-N1-C4	-2.76	105.23	111.25
2	C	301	MPO	O2-S1-O1	-2.57	106.70	113.96
2	J	301	MPO	O2-S1-O1	-2.48	106.96	113.96
2	I	301	MPO	O4-C5-C4	-2.36	106.37	111.83
2	J	301	MPO	C6-C7-N1	-2.09	106.91	110.11
2	I	301	MPO	C5-C4-N1	-2.08	106.94	110.11
2	A	301	MPO	O4-C6-C7	-2.06	107.08	111.83
2	J	301	MPO	C3-N1-C7	2.05	115.71	111.25
2	C	301	MPO	O1-S1-C1	2.31	108.50	106.87
2	A	301	MPO	O3-S1-C1	2.32	109.82	104.99
2	C	301	MPO	O3-S1-O1	2.45	116.69	111.26

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	301	MPO	O3-S1-C1	2.46	110.09	104.99
2	C	301	MPO	O3-S1-C1	2.56	110.32	104.99
2	H	301	MPO	C7-N1-C4	2.69	114.89	108.87
2	C	301	MPO	C7-N1-C4	3.34	116.35	108.87
2	I	301	MPO	C7-N1-C4	3.49	116.69	108.87
2	I	301	MPO	O3-S1-C1	3.59	112.45	104.99
2	C	301	MPO	C5-C4-N1	3.67	115.72	110.11
2	I	301	MPO	O3-S1-O2	3.81	119.70	111.26
2	C	301	MPO	C6-O4-C5	3.89	123.17	109.89
2	H	301	MPO	O1-S1-C1	4.88	110.32	106.87
2	A	301	MPO	O1-S1-C1	5.81	110.97	106.87
2	J	301	MPO	O2-S1-C1	6.42	111.40	106.87
2	C	301	MPO	O2-S1-C1	10.60	114.36	106.87

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	301	MPO	1	0
2	I	301	MPO	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

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	272/277 (98%)	-0.01	11 (4%) 42 46	29, 39, 61, 88	0
1	B	272/277 (98%)	0.34	13 (4%) 34 38	28, 45, 78, 112	0
1	C	272/277 (98%)	0.35	14 (5%) 32 34	28, 46, 79, 120	0
1	D	270/277 (97%)	1.00	56 (20%) 1 1	28, 63, 122, 137	0
1	E	272/277 (98%)	0.32	16 (5%) 26 27	29, 42, 71, 102	0
1	F	272/277 (98%)	0.04	10 (3%) 45 50	28, 42, 69, 106	0
1	G	268/277 (96%)	1.53	81 (30%) 1 0	30, 65, 140, 167	0
1	H	272/277 (98%)	0.21	14 (5%) 32 34	29, 44, 76, 109	0
1	I	272/277 (98%)	0.29	19 (6%) 19 21	30, 46, 83, 119	0
1	J	272/277 (98%)	0.48	29 (10%) 8 8	29, 53, 97, 129	0
All	All	2714/2770 (97%)	0.45	263 (9%) 10 10	28, 45, 104, 167	0

All (263) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	8	ALA	17.6
1	C	4	ILE	12.8
1	H	3	ILE	10.1
1	D	35	LEU	9.9
1	G	94	LEU	9.8
1	J	3	ILE	9.8
1	G	116	TRP	9.7
1	G	49	ALA	9.3
1	G	87	VAL	9.3
1	C	3	ILE	9.2
1	I	4	ILE	9.1
1	E	4	ILE	8.8
1	I	3	ILE	8.5

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Mol	Chain	Res	Type	RSRZ
1	G	113	LEU	8.0
1	G	48	PRO	8.0
1	B	3	ILE	7.4
1	G	91	LEU	7.4
1	H	4	ILE	7.3
1	G	46	SER	7.1
1	E	3	ILE	7.1
1	I	6	ILE	7.0
1	D	8	ALA	6.9
1	D	7	PRO	6.9
1	J	45	HIS	6.7
1	J	57	ILE	6.4
1	G	146	ALA	6.3
1	G	34	VAL	6.1
1	D	31	ARG	6.1
1	J	63	SER	6.1
1	D	6	ILE	6.0
1	G	88	VAL	5.9
1	B	4	ILE	5.8
1	J	44	ILE	5.7
1	G	11	TYR	5.7
1	G	111	LYS	5.7
1	G	117	ALA	5.6
1	G	150	ASP	5.5
1	G	153	LEU	5.4
1	J	46	SER	5.3
1	D	9	ASP	5.3
1	J	53	ALA	5.3
1	G	16	ILE	5.2
1	D	94	LEU	5.2
1	G	149	GLU	5.2
1	J	4	ILE	5.2
1	G	64	SER	5.1
1	G	93	PRO	5.1
1	H	44	ILE	5.0
1	G	99	LYS	4.9
1	G	45	HIS	4.9
1	G	121	ARG	4.9
1	H	45	HIS	4.9
1	D	34	VAL	4.9
1	I	10	SER	4.8
1	A	3	ILE	4.8

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Mol	Chain	Res	Type	RSRZ
1	G	145	ALA	4.7
1	F	46	SER	4.7
1	G	61	VAL	4.7
1	D	49	ALA	4.7
1	G	100	LEU	4.6
1	G	52	THR	4.6
1	E	49	ALA	4.5
1	I	45	HIS	4.5
1	J	47	ASN	4.5
1	E	48	PRO	4.5
1	G	95	LEU	4.5
1	I	48	PRO	4.5
1	D	38	SER	4.5
1	G	63	SER	4.5
1	G	54	PHE	4.5
1	B	45	HIS	4.4
1	D	33	GLY	4.4
1	J	52	THR	4.4
1	G	122	PHE	4.4
1	H	52	THR	4.3
1	D	46	SER	4.3
1	G	112	ASP	4.2
1	G	83	LEU	4.2
1	I	5	PRO	4.2
1	H	46	SER	4.2
1	D	97	LYS	4.1
1	G	86	ASP	4.1
1	D	32	SER	4.1
1	J	91	LEU	3.9
1	D	10	SER	3.9
1	G	101	LEU	3.9
1	G	148	GLU	3.9
1	J	93	PRO	3.9
1	G	44	ILE	3.9
1	J	51	ARG	3.9
1	I	9	ASP	3.9
1	A	190	ILE	3.8
1	H	48	PRO	3.8
1	D	30	VAL	3.8
1	B	48	PRO	3.8
1	I	7	PRO	3.8
1	G	90	LYS	3.8

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Mol	Chain	Res	Type	RSRZ
1	G	147	THR	3.8
1	G	71	ASP	3.8
1	D	118	GLY	3.7
1	G	80	LYS	3.7
1	G	119	HIS	3.7
1	G	81	PRO	3.7
1	C	6	ILE	3.7
1	B	63	SER	3.7
1	C	45	HIS	3.7
1	D	11	TYR	3.7
1	D	5	PRO	3.6
1	H	145	ALA	3.6
1	D	36	SER	3.6
1	G	62	LEU	3.6
1	J	61	VAL	3.6
1	G	7	PRO	3.6
1	B	49	ALA	3.6
1	D	53	ALA	3.6
1	G	35	LEU	3.6
1	D	40	ILE	3.6
1	G	85	LYS	3.5
1	D	147	THR	3.5
1	G	47	ASN	3.5
1	B	274[A]	SER	3.5
1	D	48	PRO	3.5
1	D	91	LEU	3.5
1	D	119	HIS	3.5
1	G	151	ALA	3.5
1	E	52	THR	3.5
1	F	4	ILE	3.4
1	I	52	THR	3.4
1	G	144	GLY	3.3
1	G	39	ARG	3.3
1	D	45	HIS	3.3
1	D	68	VAL	3.3
1	G	13	LEU	3.2
1	D	146	ALA	3.2
1	C	9	ASP	3.2
1	B	52	THR	3.2
1	F	52	THR	3.2
1	H	63	SER	3.2
1	C	71	ASP	3.1

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Mol	Chain	Res	Type	RSRZ
1	H	97	LYS	3.1
1	H	146	ALA	3.1
1	J	49	ALA	3.1
1	C	57	ILE	3.1
1	D	71	ASP	3.1
1	C	5	PRO	3.1
1	I	8	ALA	3.1
1	C	31	ARG	3.0
1	G	31	ARG	3.0
1	H	49	ALA	3.0
1	G	68	VAL	3.0
1	E	46	SER	3.0
1	D	126[A]	MET	3.0
1	B	232	LEU	3.0
1	J	60	THR	2.9
1	J	48	PRO	2.9
1	B	46	SER	2.9
1	G	143	GLY	2.9
1	C	53	ALA	2.9
1	D	29	ALA	2.9
1	D	115	GLU	2.9
1	G	120	GLU	2.9
1	A	46	SER	2.9
1	I	46	SER	2.9
1	D	150	ASP	2.8
1	G	156	GLN	2.8
1	D	12	THR	2.8
1	G	60	THR	2.8
1	G	70	ARG	2.8
1	D	98	ASP	2.8
1	A	186	ILE	2.8
1	D	88	VAL	2.8
1	E	63	SER	2.8
1	D	44	ILE	2.7
1	D	117	ALA	2.7
1	E	31	ARG	2.7
1	F	31	ARG	2.7
1	D	87	VAL	2.7
1	G	106	ALA	2.7
1	D	274	SER	2.7
1	G	38	SER	2.7
1	D	93	PRO	2.7

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Mol	Chain	Res	Type	RSRZ
1	I	49	ALA	2.7
1	D	63	SER	2.7
1	E	178	LEU	2.7
1	G	42	THR	2.7
1	G	67	ASP	2.7
1	D	96	THR	2.7
1	J	54	PHE	2.7
1	C	274	SER	2.7
1	E	274[A]	SER	2.7
1	J	90	LYS	2.6
1	A	274	SER	2.6
1	G	107	GLY	2.5
1	D	90	LYS	2.5
1	G	59	ILE	2.5
1	J	274	SER	2.5
1	G	50	ARG	2.5
1	I	63	SER	2.5
1	F	115	GLU	2.5
1	H	31	ARG	2.5
1	D	86	ASP	2.5
1	D	149	GLU	2.5
1	G	123	ILE	2.5
1	I	147	THR	2.4
1	I	156	GLN	2.4
1	I	47	ASN	2.4
1	C	7	PRO	2.4
1	G	75	VAL	2.4
1	F	208	LEU	2.4
1	E	45	HIS	2.4
1	G	18	ALA	2.4
1	D	116	TRP	2.4
1	A	45	HIS	2.4
1	D	95	LEU	2.4
1	D	153	LEU	2.4
1	J	50	ARG	2.4
1	G	9	ASP	2.4
1	I	148	GLU	2.4
1	E	125	VAL	2.4
1	J	97	LYS	2.4
1	F	210	LEU	2.4
1	D	67	ASP	2.4
1	B	215	VAL	2.3

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Mol	Chain	Res	Type	RSRZ
1	J	95	LEU	2.3
1	A	215	VAL	2.3
1	C	46	SER	2.3
1	J	55	GLU	2.3
1	A	4	ILE	2.3
1	F	190	ILE	2.3
1	D	145	ALA	2.3
1	E	104	VAL	2.3
1	G	69	VAL	2.3
1	G	89	LEU	2.3
1	J	62	LEU	2.3
1	G	12	THR	2.2
1	A	188	LEU	2.2
1	J	118	GLY	2.2
1	F	274	SER	2.2
1	D	73	ASN	2.2
1	D	70	ARG	2.2
1	J	68	VAL	2.2
1	G	40	ILE	2.1
1	B	53	ALA	2.1
1	E	51	ARG	2.1
1	F	193	LEU	2.1
1	I	146	ALA	2.1
1	E	186	ILE	2.1
1	G	190	ILE	2.1
1	J	5	PRO	2.1
1	A	187	TYR	2.1
1	J	86	ASP	2.1
1	A	184	ALA	2.1
1	B	104	VAL	2.1
1	D	144	GLY	2.1
1	G	82	GLN	2.0
1	C	226[A]	GLY	2.0
1	G	43	ALA	2.0
1	G	193	LEU	2.0
1	D	82	GLN	2.0
1	H	147	THR	2.0
1	E	111	LYS	2.0
1	G	79	VAL	2.0
1	G	77	PHE	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 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
2	MPO	I	301	13/13	0.84	0.21	2.60	46,52,68,70	13
2	MPO	C	301	13/13	0.89	0.18	2.34	51,61,72,74	13
2	MPO	J	301	13/13	0.91	0.16	2.12	47,52,70,72	13
2	MPO	H	301	13/13	0.88	0.14	0.87	43,51,66,69	13
2	MPO	A	301	13/13	0.93	0.12	0.66	42,48,65,75	13
3	CL	J	302	1/1	0.98	0.09	-0.30	43,43,43,43	1
3	CL	I	302	1/1	0.97	0.09	-0.97	41,41,41,41	1
3	CL	F	301	1/1	0.99	0.08	-1.22	43,43,43,43	1
3	CL	D	301	1/1	0.98	0.05	-1.63	42,42,42,42	1
3	CL	H	302	1/1	0.96	0.05	-1.72	47,47,47,47	1
3	CL	C	302	1/1	0.98	0.07	-1.85	45,45,45,45	1
3	CL	E	301	1/1	0.99	0.06	-1.92	39,39,39,39	1
3	CL	G	301	1/1	0.99	0.04	-2.40	40,40,40,40	1
3	CL	B	301	1/1	0.99	0.05	-2.45	38,38,38,38	1
3	CL	A	302	1/1	0.99	0.04	-5.46	42,42,42,42	1

6.5 Other polymers [i](#)

There are no such residues in this entry.