



Full wwPDB X-ray Structure Validation Report ⓘ

May 29, 2020 – 09:46 am BST

PDB ID : 6D9W
Title : Crystal structure of *Deinococcus radiodurans* MntH, an Nramp-family transition metal transporter, in the inward-open apo state
Authors : Gaudet, R.; Bane, L.B.; Weihofen, W.A.; Singharoy, A.; Zimanyi, C.M.; Bozzi, A.T.
Deposited on : 2018-04-30
Resolution : 3.94 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

<https://www.wwpdb.org/validation/2017/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
Xtriage (Phenix) : 1.13
EDS : 2.11
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) : 2.11

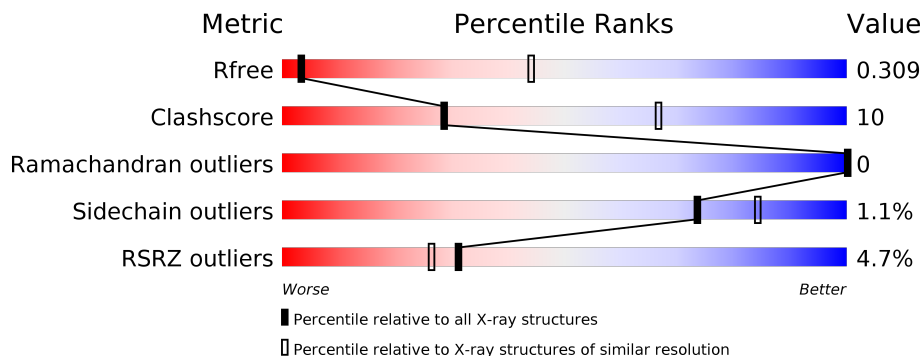
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.94 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	1036 (4.20-3.68)
Clashscore	141614	1009 (4.18-3.70)
Ramachandran outliers	138981	1057 (4.20-3.68)
Sidechain outliers	138945	1049 (4.20-3.68)
RSRZ outliers	127900	1007 (4.24-3.64)

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 respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	420	 6% 71% 15% 14%
2	H	213	 % 69% 29%
3	L	213	 4% 76% 23%

2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 5764 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 Divalent metal cation transporter MntH.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	362	2545	1673	410	446	16	0	0	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	17	MET	-	initiating methionine	UNP Q9RTP8
A	18	HIS	-	expression tag	UNP Q9RTP8
A	19	HIS	-	expression tag	UNP Q9RTP8
A	20	HIS	-	expression tag	UNP Q9RTP8
A	21	HIS	-	expression tag	UNP Q9RTP8
A	22	HIS	-	expression tag	UNP Q9RTP8
A	23	HIS	-	expression tag	UNP Q9RTP8
A	24	HIS	-	expression tag	UNP Q9RTP8
A	25	HIS	-	expression tag	UNP Q9RTP8
A	168	HIS	GLN	engineered mutation	UNP Q9RTP8
A	169	HIS	LYS	engineered mutation	UNP Q9RTP8
A	251	TYR	GLU	engineered mutation	UNP Q9RTP8
A	252	TYR	GLU	engineered mutation	UNP Q9RTP8
A	253	TYR	LYS	engineered mutation	UNP Q9RTP8
A	398	HIS	ARG	engineered mutation	UNP Q9RTP8
A	399	HIS	ARG	engineered mutation	UNP Q9RTP8

- Molecule 2 is a protein called Fab Heavy Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	H	211	1568	992	251	317	8	0	0	0

- Molecule 3 is a protein called Fab Light Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	L	213	1648	1019	282	341	6	0	0	0

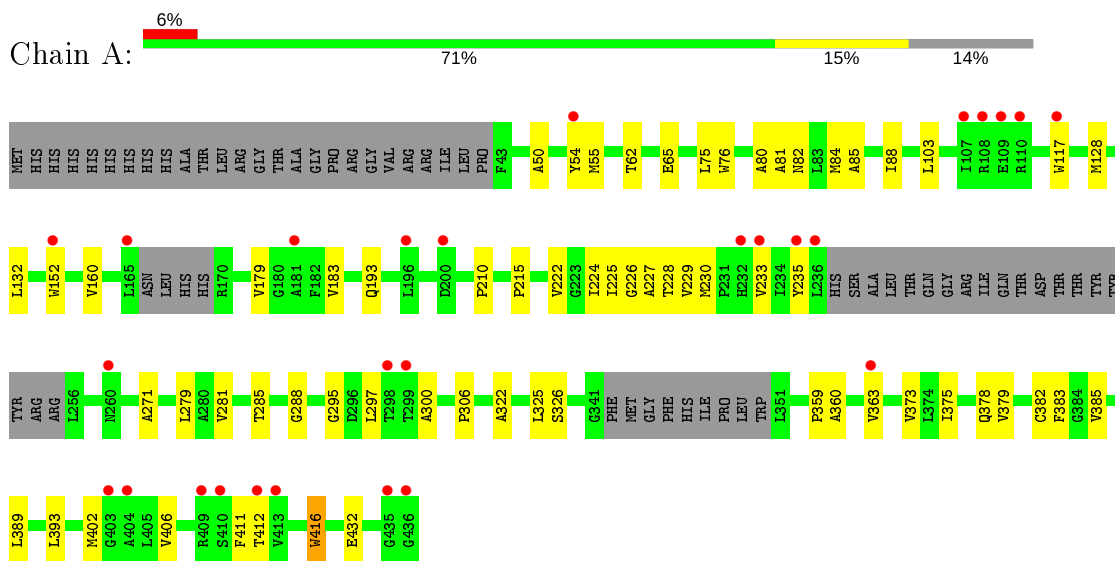
- Molecule 4 is OSMIUM ION (three-letter code: OS) (formula: Os).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	H	1	Total	Os	0	0
			1	1		
4	A	2	Total	Os	0	0
			2	2		

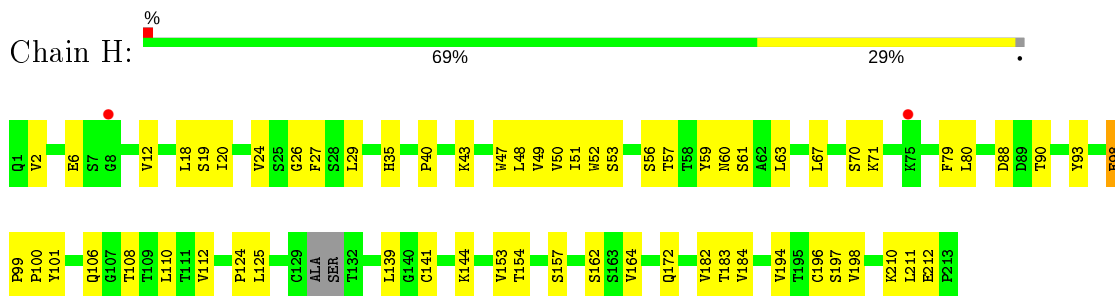
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of 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.

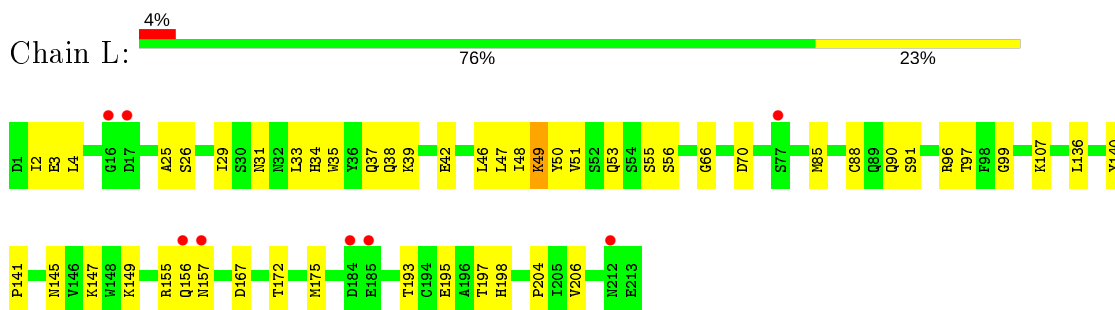
- Molecule 1: Divalent metal cation transporter MntH



- Molecule 2: Fab Heavy Chain



- Molecule 3: Fab Light Chain



4 Data and refinement statistics

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α , β , γ	113.13Å 132.08Å 221.00Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.47 – 3.94 46.47 – 3.94	Depositor EDS
% Data completeness (in resolution range)	76.0 (46.47-3.94) 75.2 (46.47-3.94)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	5.43 (at 4.00Å)	Xtrriage
Refinement program	PHENIX (1.13_2998: ???)	Depositor
R, R_{free}	0.271 , 0.309 0.271 , 0.309	Depositor DCC
R_{free} test set	1179 reflections (10.00%)	wwPDB-VP
Wilson B-factor (Å ²)	-4.7	Xtrriage
Anisotropy	5.658	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.16 , 19.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.74	EDS
Total number of atoms	5764	wwPDB-VP
Average B, all atoms (Å ²)	90.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.75% 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, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.25	0/2595	0.41	0/3560
2	H	0.27	0/1610	0.51	1/2207 (0.0%)
3	L	0.24	0/1685	0.46	0/2286
All	All	0.25	0/5890	0.45	1/8053 (0.0%)

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
2	H	0	1
3	L	0	1
All	All	0	2

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	125	LEU	C-N-CA	5.74	136.05	121.70

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	H	98	GLU	Peptide
3	L	49	LYS	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	2545	0	2539	37	0
2	H	1568	0	1532	42	0
3	L	1648	0	1565	34	0
4	A	2	0	0	0	0
4	H	1	0	0	0	0
All	All	5764	0	5636	110	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 10.

All (110) 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:393:LEU:HD21	1:A:412:THR:HG23	1.58	0.82
2:H:49:VAL:HG12	2:H:59:TYR:HA	1.70	0.74
2:H:99:PRO:HB2	2:H:100:PRO:HD3	1.76	0.65
1:A:50:ALA:HB1	1:A:271:ALA:HB2	1.77	0.65
1:A:215:PRO:HB3	1:A:432:GLU:HG2	1.80	0.63
2:H:40:PRO:HB2	2:H:43:LYS:HB2	1.81	0.62
2:H:20:ILE:HD11	2:H:110:LEU:HD22	1.81	0.62
3:L:3:GLU:HA	3:L:97:THR:HG21	1.81	0.61
3:L:37:GLN:HB2	3:L:47:LEU:HD11	1.82	0.61
1:A:288:GLY:O	2:H:101:TYR:OH	2.13	0.60
1:A:76:TRP:CE2	1:A:210:PRO:HB3	2.37	0.60
2:H:20:ILE:HG21	2:H:108:THR:HG21	1.84	0.60
2:H:153:VAL:HG22	2:H:198:VAL:HG22	1.84	0.59
2:H:53:SER:HA	2:H:71:LYS:HE3	1.84	0.59
2:H:124:PRO:HB2	2:H:211:LEU:HD13	1.86	0.58
1:A:103:LEU:HD23	1:A:235:TYR:HE1	1.69	0.57
1:A:85:ALA:HB2	1:A:229:VAL:HG22	1.86	0.57
3:L:51:VAL:HG11	3:L:66:GLY:HA3	1.87	0.56
3:L:149:LYS:HB2	3:L:193:THR:HB	1.87	0.56
1:A:80:ALA:O	1:A:84:MET:HG2	2.06	0.55
3:L:91:SER:HA	3:L:96:ARG:HD2	1.88	0.55
3:L:33:LEU:O	3:L:34:HIS:ND1	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:24:VAL:HG21	2:H:29:LEU:HB2	1.89	0.55
1:A:226:GLY:HA3	1:A:382:CYS:HB2	1.90	0.54
3:L:4:LEU:HD23	3:L:25:ALA:HA	1.90	0.54
2:H:48:LEU:HG	2:H:49:VAL:HG22	1.87	0.54
3:L:38:GLN:HB3	3:L:85:MET:HB2	1.89	0.54
2:H:93:TYR:HE2	2:H:110:LEU:HD23	1.73	0.54
1:A:75:LEU:HD23	1:A:279:LEU:HD23	1.90	0.54
2:H:6:GLU:H	2:H:106:GLN:HE22	1.54	0.54
2:H:154:THR:OG1	2:H:197:SER:OG	2.25	0.54
2:H:51:ILE:HD13	2:H:57:THR:HG22	1.91	0.53
1:A:55:MET:HG3	1:A:183:VAL:HG21	1.89	0.53
3:L:88:CYS:O	3:L:99:GLY:N	2.39	0.53
2:H:12:VAL:HG21	2:H:18:LEU:HD23	1.90	0.53
1:A:81:ALA:HB1	1:A:228:THR:OG1	2.09	0.52
3:L:35:TRP:HB2	3:L:48:ILE:HB	1.91	0.52
1:A:62:THR:HG22	1:A:375:ILE:HG13	1.91	0.52
2:H:157:SER:HB3	2:H:194:VAL:HG13	1.92	0.51
2:H:47:TRP:CG	3:L:96:ARG:HB2	2.45	0.51
2:H:164:VAL:HG22	2:H:182:VAL:HG23	1.93	0.51
1:A:179:VAL:HG11	1:A:326:SER:HB2	1.93	0.50
1:A:416:TRP:HA	1:A:416:TRP:CE3	2.46	0.50
2:H:184:VAL:HG11	2:H:194:VAL:HG21	1.92	0.50
2:H:98:GLU:O	2:H:101:TYR:N	2.45	0.50
3:L:2:ILE:HG23	3:L:26:SER:HB2	1.92	0.50
1:A:160:VAL:HG11	1:A:325:LEU:HD13	1.94	0.50
3:L:2:ILE:HG21	3:L:29:ILE:HD11	1.94	0.49
3:L:4:LEU:HD11	3:L:90:GLN:HB3	1.94	0.49
1:A:382:CYS:O	1:A:385:VAL:HG12	2.13	0.49
1:A:179:VAL:HG13	1:A:322:ALA:HB1	1.95	0.49
2:H:12:VAL:HG23	2:H:112:VAL:HG22	1.95	0.49
2:H:90:THR:HG22	2:H:112:VAL:H	1.78	0.49
1:A:193:GLN:NE2	1:A:306:PRO:HD2	2.27	0.48
2:H:2:VAL:HA	2:H:26:GLY:HA3	1.95	0.48
3:L:145:ASN:HB3	3:L:197:THR:OG1	2.13	0.48
3:L:195:GLU:HG2	3:L:206:VAL:HG22	1.96	0.47
2:H:24:VAL:HG11	2:H:29:LEU:HD13	1.96	0.47
3:L:39:LYS:HB2	3:L:42:GLU:HG3	1.97	0.47
2:H:70:SER:HB2	2:H:79:PHE:HB2	1.96	0.47
3:L:197:THR:HG22	3:L:204:PRO:HB3	1.96	0.47
3:L:31:ASN:O	3:L:50:TYR:HB3	2.15	0.47
1:A:363:VAL:HG11	1:A:373:VAL:HG11	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:12:VAL:O	2:H:112:VAL:HA	2.14	0.46
2:H:60:ASN:OD1	2:H:61:SER:N	2.49	0.46
1:A:65:GLU:OE2	1:A:295:GLY:HA3	2.16	0.46
2:H:35:HIS:NE2	2:H:101:TYR:OH	2.49	0.46
3:L:51:VAL:HG11	3:L:66:GLY:CA	2.46	0.46
1:A:132:LEU:HD13	1:A:360:ALA:HA	1.98	0.45
2:H:139:LEU:HD23	2:H:211:LEU:HG	1.98	0.45
1:A:76:TRP:CD2	1:A:210:PRO:HB3	2.52	0.45
2:H:99:PRO:CB	2:H:100:PRO:HD3	2.47	0.45
2:H:144:LYS:NZ	2:H:172:GLN:OE1	2.48	0.45
1:A:88:ILE:HD13	1:A:389:LEU:HD21	1.98	0.44
1:A:402:MET:HB2	1:A:406:VAL:HG22	1.98	0.44
1:A:297:LEU:HA	1:A:300:ALA:HB3	1.98	0.44
1:A:62:THR:HB	1:A:224:ILE:HG12	1.99	0.44
3:L:49:LYS:HG2	3:L:53:GLN:O	2.16	0.44
1:A:227:ALA:HB2	1:A:378:GLN:HB3	1.99	0.44
3:L:55:SER:OG	3:L:56:SER:N	2.50	0.44
3:L:147:LYS:NZ	3:L:156:GLN:HG2	2.33	0.43
3:L:157:ASN:N	3:L:157:ASN:OD1	2.51	0.43
1:A:230:MET:HG3	1:A:233:VAL:H	1.83	0.43
1:A:222:VAL:HG13	1:A:382:CYS:SG	2.59	0.43
3:L:107:LYS:HA	3:L:140:TYR:OH	2.19	0.43
2:H:162:SER:HA	2:H:183:THR:O	2.19	0.43
3:L:141:PRO:HD2	3:L:198:HIS:HE1	1.84	0.43
1:A:128:MET:SD	1:A:359:PRO:HG2	2.59	0.43
3:L:155:ARG:NH2	3:L:157:ASN:O	2.50	0.42
2:H:52:TRP:HB3	2:H:56:SER:HB2	2.00	0.42
3:L:70:ASP:N	3:L:70:ASP:OD1	2.53	0.42
1:A:65:GLU:CD	1:A:295:GLY:HA3	2.40	0.42
2:H:24:VAL:HB	2:H:27:PHE:CE1	2.55	0.42
1:A:222:VAL:HA	1:A:225:ILE:HG22	2.02	0.42
2:H:100:PRO:O	3:L:46:LEU:HD22	2.20	0.42
2:H:63:LEU:HB3	2:H:67:LEU:HD13	2.02	0.42
3:L:46:LEU:HD23	3:L:55:SER:OG	2.20	0.42
1:A:193:GLN:OE1	1:A:281:VAL:HG11	2.20	0.41
1:A:281:VAL:O	1:A:285:THR:OG1	2.30	0.41
3:L:167:ASP:HB2	3:L:172:THR:O	2.21	0.41
2:H:157:SER:HB2	2:H:194:VAL:HG22	2.03	0.41
3:L:141:PRO:HD2	3:L:198:HIS:CE1	2.56	0.41
3:L:136:LEU:HD12	3:L:175:MET:SD	2.61	0.41
1:A:54:TYR:OH	1:A:82:ASN:ND2	2.43	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:19:SER:HA	2:H:80:LEU:O	2.21	0.41
3:L:147:LYS:HD2	3:L:147:LYS:HA	1.88	0.40
1:A:379:VAL:O	1:A:383:PHE:HD1	2.04	0.40
2:H:210:LYS:HG2	2:H:212:GLU:HG3	2.02	0.40
2:H:99:PRO:HB2	2:H:100:PRO:CD	2.50	0.40
2:H:35:HIS:CE1	2:H:50:VAL:HB	2.57	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	354/420 (84%)	345 (98%)	9 (2%)	0	100	100
2	H	207/213 (97%)	195 (94%)	12 (6%)	0	100	100
3	L	211/213 (99%)	201 (95%)	10 (5%)	0	100	100
All	All	772/846 (91%)	741 (96%)	31 (4%)	0	100	100

There are no Ramachandran outliers to report.

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	241/326 (74%)	237 (98%)	4 (2%)	60	78

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	H	185/187 (99%)	182 (98%)	3 (2%)	62	78
3	L	192/193 (100%)	192 (100%)	0	100	100
All	All	618/706 (88%)	611 (99%)	7 (1%)	73	84

All (7) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	117	TRP
1	A	152	TRP
1	A	411	PHE
1	A	416	TRP
2	H	88	ASP
2	H	141	CYS
2	H	196	CYS

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

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

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	362/420 (86%)	0.42	27 (7%) 14 12	55, 121, 168, 221	0
2	H	211/213 (99%)	-0.12	2 (0%) 84 77	13, 59, 88, 126	0
3	L	213/213 (100%)	0.20	8 (3%) 40 32	40, 72, 114, 140	0
All	All	786/846 (92%)	0.21	37 (4%) 31 26	13, 84, 156, 221	0

All (37) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	108	ARG	6.9
1	A	109	GLU	5.3
3	L	16	GLY	4.8
1	A	236	LEU	4.6
1	A	404	ALA	4.5
1	A	436	GLY	4.3
1	A	107	ILE	4.3
1	A	232	HIS	3.7
1	A	110	ARG	3.6
3	L	184	ASP	3.5
1	A	165	LEU	3.5
3	L	212	ASN	3.4
1	A	435	GLY	3.1
3	L	185	GLU	3.0
1	A	299	THR	3.0
2	H	75	LYS	2.9
1	A	200	ASP	2.7
1	A	410	SER	2.7
1	A	196	LEU	2.7
1	A	117	TRP	2.6
3	L	157	ASN	2.5
1	A	298	THR	2.4
1	A	181	ALA	2.4

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Mol	Chain	Res	Type	RSRZ
1	A	152	TRP	2.4
3	L	17	ASP	2.4
1	A	412	THR	2.4
1	A	403	GLY	2.3
1	A	409	ARG	2.3
3	L	156	GLN	2.2
1	A	54	TYR	2.2
1	A	260	ASN	2.2
1	A	235	TYR	2.2
1	A	413	VAL	2.2
3	L	77	SER	2.2
1	A	363	VAL	2.1
1	A	233	VAL	2.0
2	H	8	GLY	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. 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	OS	A	502	1/1	0.80	0.11	184,184,184,184	0
4	OS	H	301	1/1	0.80	0.12	215,215,215,215	0
4	OS	A	501	1/1	0.86	0.12	190,190,190,190	0

6.5 Other polymers [i](#)

There are no such residues in this entry.