



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 27, 2024 – 05:33 PM EDT

PDB ID : 1EKE
Title : CRYSTAL STRUCTURE OF CLASS II RIBONUCLEASE H (RNASE HII)
WITH MES LIGAND
Authors : Lai, L.H.; Yokota, H.; Hung, L.W.; Kim, R.; Kim, S.H.; Berkeley Structural
Genomics Center (BSGC)
Deposited on : 2000-03-07
Resolution : 2.00 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 1.20.1
EDS : 3.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.003 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

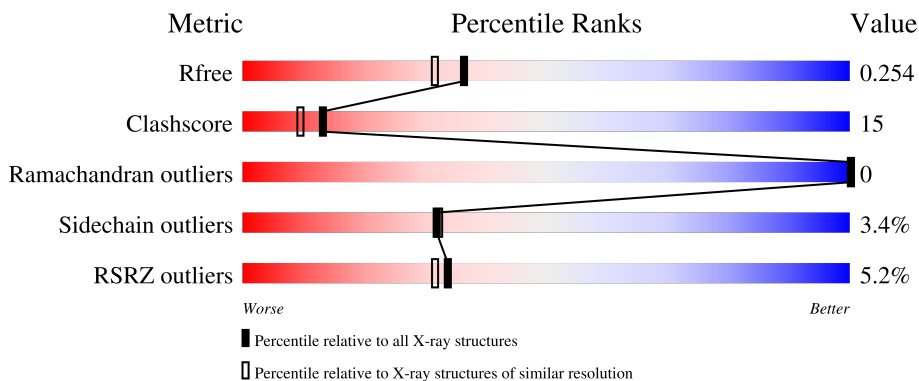
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION


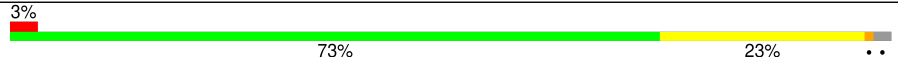
The reported resolution of this entry is 2.00 Å.

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}	164625	9409 (2.00-2.00)
Clashscore	180529	10737 (2.00-2.00)
Ramachandran outliers	177936	10628 (2.00-2.00)
Sidechain outliers	177891	10627 (2.00-2.00)
RSRZ outliers	164620	9409 (2.00-2.00)

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 $\leq 5\%$. 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	230	
1	B	230	

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 3922 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.

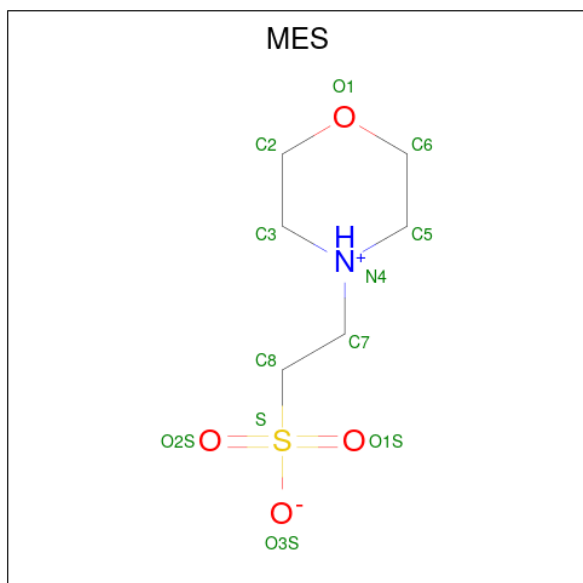
- Molecule 1 is a protein called RIBONUCLEASE HII.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	N	O	S	Se			
1	A	222	Total 1780	C 1139	N 300	O 335	S 3	Se 3	0	0	0
1	B	225	Total 1805	C 1154	N 305	O 340	S 3	Se 3	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MSE	MET	modified residue	UNP Q57599
A	18	MSE	MET	modified residue	UNP Q57599
A	76	MSE	MET	modified residue	UNP Q57599
B	1	MSE	MET	modified residue	UNP Q57599
B	18	MSE	MET	modified residue	UNP Q57599
B	76	MSE	MET	modified residue	UNP Q57599

- Molecule 2 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (three-letter code: MES) (formula: C₆H₁₃NO₄S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
2	B	1	Total	C	N	O	S	0	0
			12	6	1	4	1		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	126	Total	O	0	0
			126	126		
3	B	187	Total	O	0	0
			187	187		

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	61.48Å 55.42Å 72.14Å 90.00° 111.85° 90.00°	Depositor
Resolution (Å)	20.00 – 2.00 20.00 – 2.00	Depositor EDS
% Data completeness (in resolution range)	97.4 (20.00-2.00) 97.3 (20.00-2.00)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	5.98 (at 2.01Å)	Xtrriage
Refinement program	CNS 0.5	Depositor
R, R_{free}	0.210 , 0.262 0.203 , 0.254	Depositor DCC
R_{free} test set	1467 reflections (4.94%)	wwPDB-VP
Wilson B-factor (Å ²)	25.8	Xtrriage
Anisotropy	0.494	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 50.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	3922	wwPDB-VP
Average B, all atoms (Å ²)	33.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.78% 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: MES

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	0.40	0/1802	0.59	0/2412
1	B	0.42	0/1828	0.60	0/2448
All	All	0.41	0/3630	0.59	0/4860

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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	1780	0	1840	56	0
1	B	1805	0	1869	51	0
2	A	12	0	13	0	0
2	B	12	0	13	2	0
3	A	126	0	0	10	0
3	B	187	0	0	11	0
All	All	3922	0	3735	107	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 15.

All (107) 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:3:ILE:HD11	1:B:154:VAL:HG21	1.52	0.91
1:B:46:LYS:HD3	1:B:49:ARG:HH12	1.43	0.83
1:A:177:TYR:CB	1:A:180:ILE:HD11	2.12	0.79
1:B:115:SER:HB3	3:B:440:HOH:O	1.80	0.79
1:B:170:ILE:HG22	1:B:174:LYS:HE2	1.64	0.79
1:A:177:TYR:HB3	1:A:180:ILE:HD11	1.66	0.78
1:B:126:LYS:HD3	1:B:142:ILE:HD11	1.67	0.76
1:B:110:TYR:CE2	1:B:143:ILE:HD12	2.23	0.74
1:B:35:LYS:HE2	3:B:696:HOH:O	1.87	0.73
1:B:126:LYS:HD3	1:B:142:ILE:CD1	2.22	0.69
1:A:1:MSE:HE3	1:A:27:LYS:HD2	1.74	0.69
1:A:12:GLY:HA2	3:A:695:HOH:O	1.92	0.68
1:B:38:VAL:HG13	1:B:160:ILE:HD12	1.76	0.67
1:A:1:MSE:HE3	1:A:3:ILE:HD11	1.78	0.64
1:A:188:PRO:O	1:A:192:LYS:HB2	1.97	0.64
1:A:139:ASN:HD21	1:A:141:LYS:NZ	1.95	0.64
1:A:180:ILE:HD12	1:A:193:PHE:CD1	2.33	0.64
1:B:3:ILE:HG13	1:B:154:VAL:HG11	1.80	0.63
1:B:113:ALA:O	1:B:146:HIS:HD2	1.81	0.62
1:A:13:PRO:HG2	1:A:166:ARG:NH2	2.14	0.62
1:A:202:LYS:C	1:A:203:LYS:HD2	2.20	0.62
1:B:38:VAL:HG12	1:B:156:SER:OG	1.99	0.62
1:A:177:TYR:HB2	1:A:180:ILE:HD11	1.82	0.61
1:A:48:LYS:HA	1:B:58:ASN:OD1	2.02	0.60
1:A:81:LEU:O	1:A:85:GLU:HG3	2.01	0.60
1:B:119:LYS:HE3	1:B:123:ASP:OD2	2.01	0.60
1:B:216:LYS:HD3	3:B:407:HOH:O	2.02	0.59
1:B:87:ASN:O	1:B:91:LYS:HG3	2.03	0.58
1:A:18:MSE:HE1	1:A:81:LEU:HD11	1.85	0.57
1:A:164:ALA:O	1:A:168:GLU:HG3	2.05	0.57
1:A:1:MSE:CE	1:A:27:LYS:HD2	2.34	0.57
1:B:27:LYS:HE2	3:B:595:HOH:O	2.06	0.56
1:B:35:LYS:HD3	3:B:681:HOH:O	2.05	0.56
1:A:44:LEU:HD22	1:A:48:LYS:HD3	1.87	0.56
1:B:46:LYS:HD3	1:B:49:ARG:NH1	2.18	0.56
1:A:180:ILE:HG22	1:A:180:ILE:O	2.06	0.55
1:B:199:LYS:HG3	3:B:615:HOH:O	2.05	0.55
1:B:36:LEU:HD11	1:B:55:LEU:HB3	1.89	0.55
1:A:221:LYS:HB2	3:A:598:HOH:O	2.06	0.55
1:B:170:ILE:CG2	1:B:174:LYS:HE2	2.35	0.55
1:A:13:PRO:HG3	1:A:184:TYR:CE1	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:66:ILE:HD12	1:B:66:ILE:N	2.22	0.54
1:A:176:ILE:O	1:A:176:ILE:HG12	2.07	0.54
1:B:3:ILE:HD11	1:B:154:VAL:CG2	2.33	0.54
1:A:191:ILE:O	1:A:195:GLU:HG3	2.07	0.54
1:A:66:ILE:N	1:A:66:ILE:HD12	2.23	0.54
1:B:76:MSE:HA	1:B:79:ILE:O	2.08	0.53
1:B:1:MSE:N	3:B:710:HOH:O	2.38	0.53
1:A:132:ILE:HG23	3:A:454:HOH:O	2.08	0.53
1:A:29:ARG:HD2	1:A:32:GLU:OE1	2.09	0.52
1:A:201:HIS:HA	3:A:704:HOH:O	2.10	0.51
1:A:176:ILE:HG23	1:A:177:TYR:CD2	2.45	0.51
1:A:91:LYS:HB3	3:A:441:HOH:O	2.09	0.51
1:B:1:MSE:HE2	1:B:27:LYS:HD2	1.92	0.51
1:B:49:ARG:HD3	1:B:163:LYS:HB2	1.93	0.50
1:B:1:MSE:HE1	1:B:108:GLU:CD	2.31	0.50
1:A:143:ILE:HD11	1:A:152:TYR:OH	2.11	0.50
1:B:38:VAL:HG21	1:B:56:LEU:HD21	1.93	0.49
1:A:139:ASN:HD21	1:A:141:LYS:HZ2	1.60	0.49
1:A:173:TYR:HA	1:A:176:ILE:HG22	1.93	0.49
1:B:224:GLN:O	1:B:225:THR:HB	2.13	0.49
1:B:94:LYS:HD3	3:B:703:HOH:O	2.14	0.48
1:A:186:SER:O	1:A:188:PRO:HD3	2.13	0.48
1:B:38:VAL:C	1:B:40:ASP:H	2.16	0.48
1:A:87:ASN:ND2	1:A:128:LYS:HE3	2.29	0.48
1:A:185:PRO:HA	1:A:191:ILE:HG13	1.95	0.48
1:B:200:LYS:HE3	1:B:201:HIS:CE1	2.49	0.48
1:A:1:MSE:SE	1:A:108:GLU:HG3	2.64	0.47
1:A:103:ARG:HA	1:A:138:LEU:HD21	1.96	0.47
1:B:225:THR:HG22	1:B:225:THR:O	2.14	0.47
1:A:13:PRO:HG3	1:A:184:TYR:CZ	2.50	0.47
1:B:211:HIS:HE1	3:B:442:HOH:O	1.98	0.47
1:A:11:ARG:HD2	3:A:692:HOH:O	2.15	0.47
1:B:119:LYS:HA	3:B:557:HOH:O	2.15	0.47
1:A:15:LEU:C	1:A:15:LEU:HD12	2.34	0.47
1:A:201:HIS:O	1:A:202:LYS:HB2	2.15	0.47
1:B:46:LYS:HD2	1:B:167:ASP:CG	2.36	0.46
1:B:129:ILE:O	1:B:133:ILE:HG12	2.15	0.46
1:A:166:ARG:CZ	1:A:170:ILE:CD1	2.94	0.46
1:B:38:VAL:CG2	1:B:56:LEU:HD21	2.45	0.45
1:A:76:MSE:HA	1:A:79:ILE:O	2.16	0.45
1:A:173:TYR:O	1:A:176:ILE:HG22	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:213:LYS:HG3	2:B:302:MES:O1S	2.16	0.44
1:B:3:ILE:HD13	1:B:110:TYR:CE1	2.52	0.44
1:B:3:ILE:CG1	1:B:154:VAL:HG11	2.47	0.44
1:B:94:LYS:HG3	1:B:129:ILE:HG22	1.99	0.44
1:A:139:ASN:HD21	1:A:141:LYS:HZ3	1.64	0.43
1:A:91:LYS:HB2	1:A:91:LYS:HE3	1.69	0.43
1:A:141:LYS:HD3	3:A:637:HOH:O	2.17	0.43
1:B:86:ILE:HD13	1:B:124:SER:CB	2.49	0.43
1:A:166:ARG:CZ	1:A:170:ILE:HD11	2.48	0.43
1:B:137:ASN:ND2	3:B:705:HOH:O	2.51	0.43
1:A:159:SER:OG	1:A:163:LYS:HE3	2.20	0.42
1:B:10:GLY:O	1:B:13:PRO:HD2	2.19	0.42
1:A:11:ARG:NE	1:A:85:GLU:OE2	2.53	0.42
1:A:175:LYS:C	3:A:708:HOH:O	2.58	0.42
1:B:170:ILE:O	1:B:174:LYS:HD3	2.20	0.42
1:A:87:ASN:HD22	1:A:128:LYS:HE3	1.84	0.41
1:A:53:LYS:NZ	1:A:168:GLU:OE1	2.48	0.41
1:A:6:ILE:HD12	1:A:111:ILE:CD1	2.50	0.41
1:A:192:LYS:HG2	3:A:655:HOH:O	2.19	0.41
1:B:65:ARG:C	1:B:66:ILE:HD12	2.40	0.41
2:B:302:MES:H31	2:B:302:MES:H81	1.90	0.41
1:B:3:ILE:CD1	1:B:154:VAL:HG21	2.37	0.41
1:B:140:ILE:HG12	1:B:141:LYS:N	2.36	0.41
1:A:8:GLU:CD	3:A:692:HOH:O	2.59	0.40
1:A:143:ILE:HD11	1:A:145:GLU:OE2	2.21	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	218/230 (95%)	210 (96%)	8 (4%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	223/230 (97%)	218 (98%)	5 (2%)	0	100	100
All	All	441/460 (96%)	428 (97%)	13 (3%)	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	192/202 (95%)	185 (96%)	7 (4%)	30	30
1	B	195/202 (96%)	189 (97%)	6 (3%)	35	36
All	All	387/404 (96%)	374 (97%)	13 (3%)	32	32

All (13) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	31	GLU
1	A	117	ASN
1	A	135	GLU
1	A	137	ASN
1	A	139	ASN
1	A	143	ILE
1	A	196	ASP
1	B	3	ILE
1	B	58	ASN
1	B	74	GLN
1	B	106	GLU
1	B	117	ASN
1	B	141	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	47	ASN
1	A	87	ASN
1	A	117	ASN
1	A	139	ASN
1	A	201	HIS
1	B	87	ASN
1	B	117	ASN
1	B	137	ASN
1	B	146	HIS
1	B	201	HIS
1	B	211	HIS

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 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	MES	A	301	-	12,12,12	8.99	8 (66%)	15,16,16	2.17	5 (33%)
2	MES	B	302	-	12,12,12	8.99	8 (66%)	15,16,16	2.12	5 (33%)

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	MES	A	301	-	-	4/6/14/14	0/1/1/1
2	MES	B	302	-	-	3/6/14/14	0/1/1/1

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	302	MES	C8-S	-23.97	1.44	1.77
2	A	301	MES	C8-S	-23.50	1.44	1.77
2	A	301	MES	O1S-S	12.21	1.79	1.45
2	A	301	MES	O2S-S	12.15	1.79	1.45
2	B	302	MES	O2S-S	11.94	1.78	1.45
2	B	302	MES	O1S-S	11.49	1.77	1.45
2	B	302	MES	O3S-S	8.57	1.79	1.47
2	A	301	MES	O3S-S	8.26	1.78	1.47
2	A	301	MES	C7-C8	-4.94	1.39	1.52
2	B	302	MES	C7-C8	-4.64	1.40	1.52
2	A	301	MES	C3-C2	-2.90	1.39	1.50
2	A	301	MES	C5-C6	-2.64	1.40	1.50
2	B	302	MES	C5-C6	-2.60	1.40	1.50
2	B	302	MES	C3-C2	-2.54	1.41	1.50
2	B	302	MES	C7-N4	-2.44	1.41	1.47
2	A	301	MES	C7-N4	-2.43	1.41	1.47

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	301	MES	O1S-S-C8	4.48	113.50	106.73
2	B	302	MES	O3S-S-C8	4.34	114.49	106.00
2	A	301	MES	O3S-S-C8	4.23	114.27	106.00
2	B	302	MES	O1S-S-C8	3.76	112.42	106.73
2	B	302	MES	O3S-S-O2S	-2.63	104.82	111.40
2	B	302	MES	O2S-S-C8	2.50	110.51	106.73
2	A	301	MES	O2S-S-O1S	-2.48	105.75	113.82
2	B	302	MES	O2S-S-O1S	-2.36	106.15	113.82
2	A	301	MES	O1-C2-C3	-2.22	106.99	111.77
2	A	301	MES	C8-C7-N4	2.10	120.31	112.36

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	301	MES	N4-C7-C8-S
2	A	301	MES	C7-C8-S-O1S
2	A	301	MES	C7-C8-S-O3S
2	B	302	MES	N4-C7-C8-S
2	B	302	MES	C7-C8-S-O3S
2	A	301	MES	C7-C8-S-O2S
2	B	302	MES	C7-C8-S-O1S

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	302	MES	2	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	219/230 (95%)	0.30	17 (7%) 20 19	14, 33, 60, 80	0
1	B	222/230 (96%)	-0.17	6 (2%) 56 54	14, 27, 51, 77	0
All	All	441/460 (95%)	0.06	23 (5%) 34 32	14, 30, 58, 80	0

All (23) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	225	THR	6.0
1	A	224	GLN	4.9
1	A	188	PRO	4.3
1	B	38	VAL	4.2
1	A	223	LYS	3.7
1	B	40	ASP	3.4
1	A	186	SER	3.2
1	A	180	ILE	3.2
1	A	187	ASP	3.1
1	A	116	THR	3.1
1	A	201	HIS	3.0
1	A	185	PRO	2.8
1	A	115	SER	2.8
1	A	119	LYS	2.7
1	B	41	SER	2.6
1	B	36	LEU	2.6
1	A	173	TYR	2.5
1	A	176	ILE	2.5
1	B	225	THR	2.3
1	A	189	LYS	2.3
1	B	37	GLY	2.2
1	A	114	CYS	2.2
1	A	177	TYR	2.1

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 monosaccharides 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
2	MES	B	302	12/12	0.95	0.10	24,42,43,46	0
2	MES	A	301	12/12	0.96	0.12	23,49,55,58	0

6.5 Other polymers [i](#)

There are no such residues in this entry.