



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 04:12 PM UTC

PDB ID : 4P0Q / pdb_00004p0q
Title : Crystal structure of Human Mus81-Eme1 in complex with 5'-flap DNA
Authors : Gwon, G.H.; Baek, K.; Cho, Y.
Deposited on : 2014-02-22
Resolution : 2.85 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	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

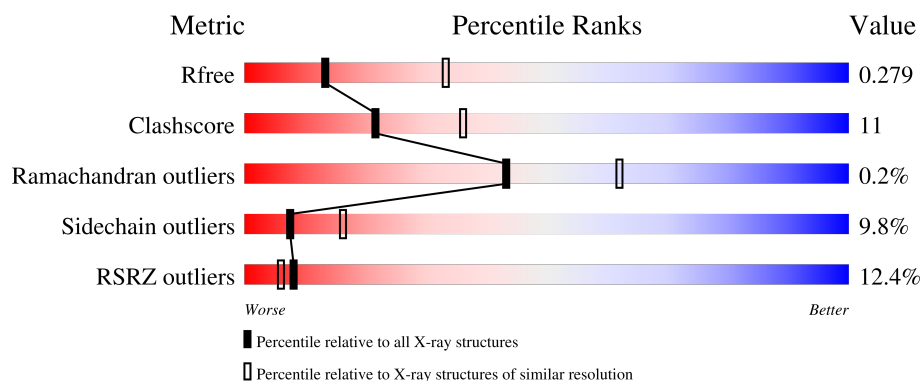
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.85 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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1407 (2.88-2.84)
Clashscore	190562	1446 (2.88-2.84)
Ramachandran outliers	187476	1406 (2.88-2.84)
Sidechain outliers	187428	1407 (2.88-2.84)
RSRZ outliers	180081	1408 (2.88-2.84)

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	306	12% 74% 16% • 7%
2	B	393	9% 47% 22% • 28%
3	E	17	6% 41% 59%
4	F	6	33% 67%
5	G	16	6% 38% 31% 31%

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 5215 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 Crossover junction endonuclease MUS81.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	285	Total	C	N	O	S	0	0	0
			2255	1414	422	411	8			

- Molecule 2 is a protein called Crossover junction endonuclease EME1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	284	Total	C	N	O	S	0	0	0
			2227	1401	397	415	14			

- Molecule 3 is a DNA chain called DNA GAATGTGTGTCTCAATC.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	E	17	Total	C	N	O	P	0	0	0
			349	167	61	104	17			

- Molecule 4 is a DNA chain called DNA GGATTG.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	F	6	Total	C	N	O	P	0	0	0
			127	60	24	37	6			

- Molecule 5 is a DNA chain called DNA TAACCAGACACACATT.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	G	11	Total	C	N	O	P	0	0	0
			224	107	43	63	11			

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	18	Total	O	0	0
			18	18		

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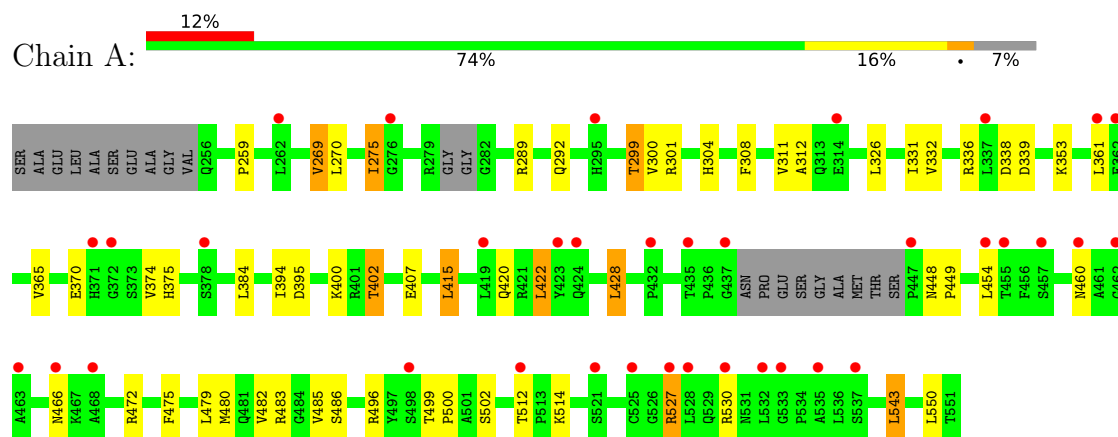
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	B	11	Total 11	O 11	0	0
6	E	1	Total 1	O 1	0	0
6	F	2	Total 2	O 2	0	0
6	G	1	Total 1	O 1	0	0

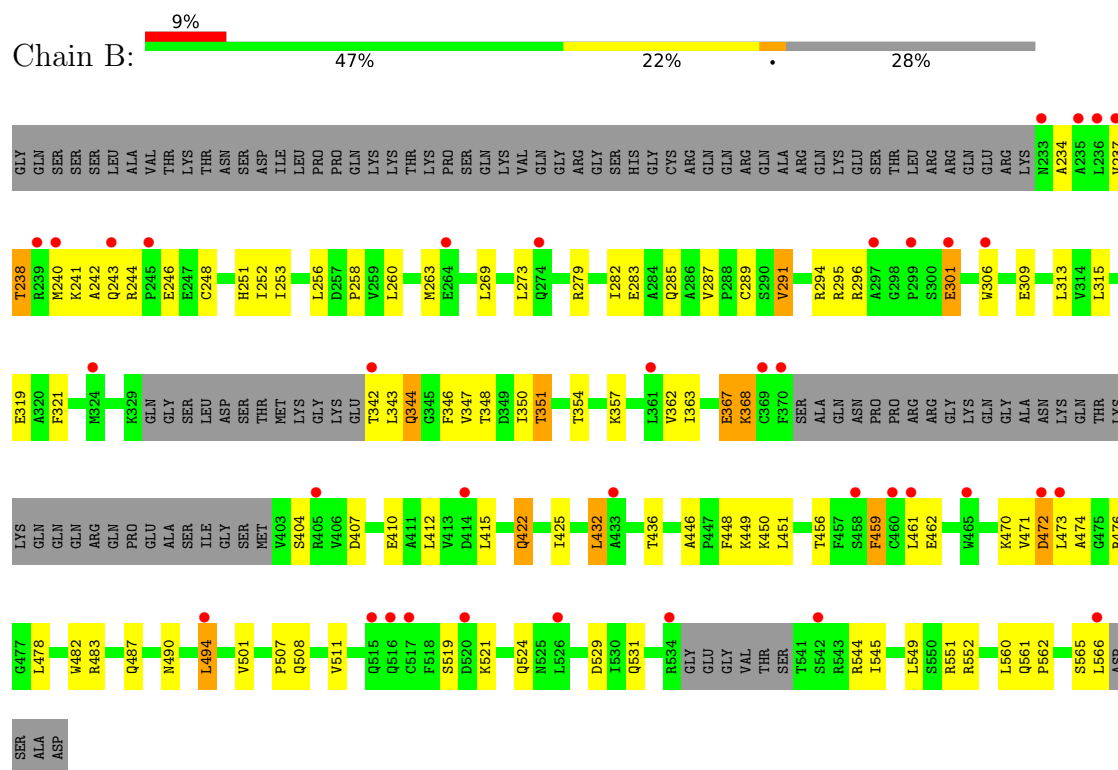
3 Residue-property plots [i](#)

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: Crossover junction endonuclease MUS81



- Molecule 2: Crossover junction endonuclease EME1



● Molecule 3: DNA GAATGTGTGTCTCAATC

Chain E: 

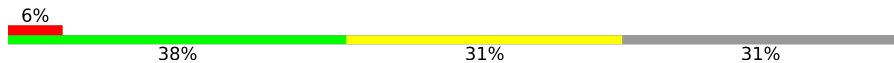


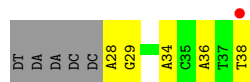
● Molecule 4: DNA GGATTG

Chain F: 



● Molecule 5: DNA TAACCAGACACACATT

Chain G: 



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	86.41Å 228.38Å 52.64Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	42.45 – 2.85 42.45 – 2.85	Depositor EDS
% Data completeness (in resolution range)	98.1 (42.45-2.85) 98.4 (42.45-2.85)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.93 (at 2.86Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.8_1069)	Depositor
R, R_{free}	0.243 , 0.276 0.246 , 0.279	Depositor DCC
R_{free} test set	1269 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	95.6	Xtriage
Anisotropy	0.447	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 71.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	5215	wwPDB-VP
Average B, all atoms (Å ²)	77.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.57% 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](#)

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	0.30	0/2295	0.75	0/3103
2	B	0.31	0/2258	0.75	2/3054 (0.1%)
3	E	0.29	0/390	0.66	0/600
4	F	0.22	0/142	0.60	0/218
5	G	0.15	0/251	0.56	0/384
All	All	0.29	0/5336	0.73	2/7359 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	561	GLN	CA-C-N	5.14	124.63	119.19
2	B	561	GLN	C-N-CA	5.14	124.63	119.19

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	2255	0	2293	32	0
2	B	2227	0	2265	53	0
3	E	349	0	194	18	0
4	F	127	0	69	8	0
5	G	224	0	124	5	0
6	A	18	0	0	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	11	0	0	6	0
6	E	1	0	0	2	0
6	F	2	0	0	0	0
6	G	1	0	0	0	0
All	All	5215	0	4945	109	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 11.

All (109) 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)
3:E:12:DT:H71	6:E:101:HOH:O	1.56	1.04
4:F:24:DT:H2''	4:F:25:DT:H5''	1.54	0.90
4:F:25:DT:H2''	4:F:26:DG:O5'	1.75	0.87
4:F:23:DA:H4'	4:F:24:DT:OP1	1.80	0.80
2:B:256:LEU:O	6:B:610:HOH:O	2.02	0.77
3:E:11:DC:C5	3:E:12:DT:H73	2.20	0.76
3:E:11:DC:C6	3:E:12:DT:H73	2.24	0.72
3:E:12:DT:C4	3:E:13:DC:C4	2.80	0.70
2:B:291:VAL:HG13	2:B:313:LEU:HB3	1.74	0.69
2:B:251:HIS:HB3	2:B:296:ARG:HG2	1.76	0.68
2:B:483:ARG:HA	2:B:501:VAL:HG21	1.76	0.66
1:A:289:ARG:NH2	1:A:292:GLN:OE1	2.29	0.66
3:E:6:DT:H3	5:G:34:DA:H61	1.45	0.65
2:B:524:GLN:HG3	2:B:551:ARG:HB2	1.79	0.65
4:F:25:DT:H4'	4:F:26:DG:OP1	1.97	0.64
1:A:486:SER:OG	5:G:34:DA:OP1	2.16	0.63
1:A:394:ILE:HD13	2:B:449:LYS:HD2	1.81	0.63
2:B:347:VAL:HG21	2:B:415:LEU:HD11	1.81	0.63
3:E:11:DC:C6	3:E:12:DT:C7	2.81	0.63
2:B:459:PHE:HA	2:B:462:GLU:HB2	1.82	0.62
2:B:263:MET:HE1	2:B:315:LEU:HD22	1.83	0.60
4:F:23:DA:H2'	4:F:24:DT:H72	1.84	0.59
1:A:499:THR:HG21	2:B:560:LEU:HA	1.83	0.58
3:E:14:DA:H8	3:E:14:DA:H5''	1.69	0.58
3:E:12:DT:C7	6:E:101:HOH:O	2.29	0.57
2:B:241:LYS:HA	2:B:244:ARG:HD3	1.85	0.57
2:B:436:THR:N	6:B:609:HOH:O	2.27	0.57
1:A:304:HIS:ND1	1:A:460:ASN:O	2.37	0.56
1:A:308:PHE:HB2	1:A:332:VAL:HB	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:545:ILE:HG23	2:B:549:LEU:HD23	1.87	0.56
2:B:243:GLN:HB3	2:B:448:PHE:HB2	1.87	0.56
1:A:299:THR:HG21	1:A:301:ARG:HE	1.72	0.55
2:B:309:GLU:O	2:B:357:LYS:NZ	2.41	0.54
1:A:527:ARG:HD3	1:A:530:ARG:HB2	1.90	0.53
2:B:248:CYS:SG	6:B:608:HOH:O	2.59	0.52
2:B:404:SER:OG	2:B:407:ASP:OD2	2.28	0.52
1:A:336:ARG:NH2	1:A:370:GLU:OE2	2.41	0.52
2:B:283:GLU:N	6:B:610:HOH:O	2.43	0.51
3:E:12:DT:C5	3:E:13:DC:C4	2.99	0.51
2:B:483:ARG:NH1	2:B:487:GLN:OE1	2.44	0.51
3:E:8:DT:O4	3:E:9:DG:O6	2.30	0.50
2:B:238:THR:O	2:B:242:ALA:N	2.44	0.50
1:A:402:THR:HG23	1:A:407:GLU:HB2	1.94	0.50
2:B:240:MET:HE1	2:B:451:LEU:HD23	1.93	0.50
2:B:344:GLN:O	2:B:348:THR:OG1	2.25	0.50
3:E:8:DT:C4	3:E:9:DG:C6	3.00	0.49
3:E:8:DT:O4	3:E:9:DG:C6	2.65	0.49
1:A:311:VAL:O	6:A:618:HOH:O	2.20	0.49
2:B:260:LEU:HB2	2:B:289:CYS:HA	1.94	0.49
1:A:499:THR:HG23	1:A:502:SER:H	1.77	0.49
2:B:253:ILE:HG22	2:B:279:ARG:HB2	1.94	0.49
1:A:472:ARG:HB2	2:B:562:PRO:HB2	1.95	0.49
2:B:347:VAL:O	2:B:351:THR:OG1	2.31	0.48
2:B:354:THR:HB	2:B:357:LYS:HD2	1.96	0.48
3:E:12:DT:C4	3:E:13:DC:N4	2.81	0.48
1:A:270:LEU:N	6:A:618:HOH:O	2.23	0.48
4:F:24:DT:H2''	4:F:25:DT:C5'	2.34	0.47
1:A:269:VAL:HG13	1:A:420:GLN:HG2	1.95	0.47
2:B:552:ARG:HD2	2:B:566:LEU:HB3	1.97	0.46
3:E:14:DA:H2'	3:E:15:DA:C8	2.49	0.46
2:B:529:ASP:OD1	2:B:544:ARG:NH2	2.47	0.46
1:A:480:MET:HG2	1:A:485:VAL:HG12	1.98	0.46
2:B:237:VAL:O	2:B:241:LYS:HG2	2.15	0.46
5:G:38:DT:H6	5:G:38:DT:H3'	1.81	0.45
3:E:8:DT:H5''	3:E:8:DT:H6	1.82	0.45
2:B:252:ILE:HD11	2:B:295:ARG:CZ	2.47	0.45
1:A:331:ILE:HB	1:A:361:LEU:HD23	1.99	0.45
2:B:362:VAL:HG11	2:B:432:LEU:HD23	1.98	0.45
4:F:24:DT:H2'	4:F:25:DT:H71	1.98	0.45
1:A:422:LEU:HD22	1:A:449:PRO:HB3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:253:ILE:HG12	2:B:294:ARG:HB2	1.99	0.45
1:A:326:LEU:HD12	1:A:428:LEU:HB3	1.99	0.44
1:A:332:VAL:HG22	1:A:365:VAL:HB	2.00	0.44
2:B:472:ASP:OD2	2:B:476:ARG:HB2	2.17	0.44
1:A:312:ALA:N	1:A:326:LEU:O	2.37	0.44
2:B:363:ILE:HB	2:B:425:ILE:HG12	2.00	0.43
2:B:446:ALA:O	2:B:450:LYS:HG2	2.19	0.43
3:E:8:DT:C4	3:E:9:DG:C5	3.06	0.43
2:B:354:THR:HB	2:B:357:LYS:HB2	1.99	0.43
2:B:472:ASP:CG	2:B:474:ALA:H	2.26	0.43
1:A:543:LEU:HD23	2:B:478:LEU:HB3	2.01	0.43
1:A:448:ASN:HA	1:A:449:PRO:HA	1.79	0.42
1:A:496:ARG:O	1:A:496:ARG:NH2	2.52	0.42
2:B:258:PRO:HD3	6:B:610:HOH:O	2.18	0.42
1:A:415:LEU:HD23	1:A:415:LEU:HA	1.88	0.42
1:A:275:ILE:H	1:A:275:ILE:HG13	1.59	0.42
2:B:367:GLU:HG2	2:B:368:LYS:H	1.83	0.42
2:B:301:GLU:HG2	2:B:306:TRP:HZ2	1.84	0.42
5:G:28:DA:H2'	5:G:29:DG:O4'	2.20	0.42
1:A:270:LEU:O	6:A:618:HOH:O	2.22	0.42
1:A:338:ASP:OD2	1:A:339:ASP:N	2.53	0.42
3:E:4:DT:H3	5:G:36:DA:H61	1.68	0.42
1:A:353:LYS:NZ	1:A:395:ASP:OD2	2.42	0.41
1:A:512:THR:HG22	1:A:514:LYS:H	1.85	0.41
2:B:508:GLN:HA	2:B:511:VAL:HG12	2.02	0.41
2:B:422:GLN:HE21	2:B:422:GLN:HB2	1.52	0.41
2:B:473:LEU:H	2:B:473:LEU:HD12	1.85	0.41
1:A:475:PHE:CD1	1:A:500:PRO:HG3	2.55	0.41
2:B:321:PHE:HE1	2:B:343:LEU:HD11	1.86	0.41
2:B:490:ASN:O	2:B:552:ARG:NH2	2.53	0.41
1:A:311:VAL:N	6:A:618:HOH:O	2.47	0.41
2:B:519:SER:HB2	2:B:521:LYS:HD2	2.03	0.41
2:B:234:ALA:O	2:B:237:VAL:HG12	2.20	0.41
2:B:346:PHE:CZ	2:B:350:ILE:HD11	2.56	0.41
2:B:482:TRP:CE3	2:B:507:PRO:HG3	2.56	0.41
2:B:483:ARG:NH1	2:B:494:LEU:HD12	2.37	0.40
2:B:432:LEU:O	6:B:609:HOH:O	2.22	0.40
3:E:5:DG:H2''	3:E:6:DT:C6	2.55	0.40
4:F:25:DT:H5''	4:F:25:DT:H6	1.86	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	279/306 (91%)	267 (96%)	11 (4%)	1 (0%)	30	48
2	B	276/393 (70%)	267 (97%)	9 (3%)	0	100	100
All	All	555/699 (79%)	534 (96%)	20 (4%)	1 (0%)	43	62

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	259	PRO

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	246/259 (95%)	226 (92%)	20 (8%)	11	23
2	B	242/334 (72%)	214 (88%)	28 (12%)	5	10
All	All	488/593 (82%)	440 (90%)	48 (10%)	7	16

All (48) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	269	VAL
1	A	275	ILE
1	A	299	THR
1	A	300	VAL
1	A	374	VAL

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Mol	Chain	Res	Type
1	A	375	HIS
1	A	384	LEU
1	A	400	LYS
1	A	402	THR
1	A	415	LEU
1	A	422	LEU
1	A	428	LEU
1	A	454	LEU
1	A	466	ASN
1	A	479	LEU
1	A	482	VAL
1	A	483	ARG
1	A	527	ARG
1	A	543	LEU
1	A	550	LEU
2	B	238	THR
2	B	246	GLU
2	B	269	LEU
2	B	273	LEU
2	B	282	ILE
2	B	285	GLN
2	B	287	VAL
2	B	291	VAL
2	B	301	GLU
2	B	319	GLU
2	B	342	THR
2	B	344	GLN
2	B	351	THR
2	B	367	GLU
2	B	368	LYS
2	B	410	GLU
2	B	412	LEU
2	B	422	GLN
2	B	432	LEU
2	B	456	THR
2	B	459	PHE
2	B	461	LEU
2	B	470	LYS
2	B	471	VAL
2	B	472	ASP
2	B	494	LEU
2	B	531	GLN

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Mol	Chain	Res	Type
2	B	565	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	390	ASN
2	B	516	GLN

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](#)

There are no ligands in this entry.

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	285/306 (93%)	0.80	36 (12%) 8 6	31, 61, 114, 138	0
2	B	284/393 (72%)	0.76	37 (13%) 7 5	33, 65, 127, 148	0
3	E	17/17 (100%)	1.03	1 (5%) 28 21	64, 123, 170, 171	0
4	F	6/6 (100%)	0.78	0 100 100	147, 156, 175, 177	0
5	G	11/16 (68%)	1.03	1 (9%) 15 11	109, 120, 144, 151	0
All	All	603/738 (81%)	0.79	75 (12%) 8 6	31, 64, 131, 177	0

All (75) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	460	CYS	7.2
1	A	528	LEU	6.7
2	B	236	LEU	6.6
1	A	435	THR	5.4
1	A	372	GLY	5.4
1	A	378	SER	5.2
1	A	457	SER	4.9
2	B	233	ASN	4.3
1	A	262	LEU	4.1
2	B	461	LEU	4.1
2	B	239	ARG	4.0
1	A	527	ARG	3.8
1	A	525	CYS	3.7
2	B	465	TRP	3.7
2	B	240	MET	3.4
1	A	463	ALA	3.4
2	B	520	ASP	3.4
1	A	437	GLY	3.3
2	B	237	VAL	3.2
1	A	454	LEU	3.2

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Mol	Chain	Res	Type	RSRZ
2	B	342	THR	3.2
2	B	473	LEU	3.1
1	A	432	PRO	3.1
1	A	512	THR	3.1
1	A	468	ALA	3.0
2	B	306	TRP	3.0
2	B	369	CYS	3.0
2	B	414	ASP	3.0
2	B	516	GLN	3.0
1	A	532	LEU	3.0
1	A	466	ASN	2.9
1	A	460	ASN	2.9
2	B	235	ALA	2.9
1	A	455	THR	2.9
2	B	515	GLN	2.8
1	A	314	GLU	2.8
1	A	530	ARG	2.7
1	A	498	SER	2.7
2	B	526	LEU	2.7
1	A	371	HIS	2.6
2	B	245	PRO	2.6
2	B	370	PHE	2.5
2	B	517	CYS	2.5
2	B	243	GLN	2.5
2	B	494	LEU	2.5
2	B	433	ALA	2.4
5	G	38	DT	2.4
1	A	533	GLY	2.4
2	B	299	PRO	2.4
2	B	542	SER	2.4
2	B	534	ARG	2.3
2	B	458	SER	2.3
1	A	337	LEU	2.3
1	A	419	LEU	2.3
1	A	424	GLN	2.3
1	A	362	GLU	2.2
1	A	295	HIS	2.2
1	A	462	GLY	2.2
2	B	324	MET	2.2
1	A	361	LEU	2.2
2	B	297	ALA	2.2
2	B	361	LEU	2.2

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Mol	Chain	Res	Type	RSRZ
2	B	566	LEU	2.2
2	B	405	ARG	2.2
1	A	276	GLY	2.2
2	B	274	GLN	2.2
1	A	447	PRO	2.2
1	A	423	TYR	2.2
1	A	537	SER	2.2
2	B	264	GLU	2.1
2	B	301	GLU	2.1
1	A	535	ALA	2.1
1	A	521	SER	2.0
3	E	17	DC	2.0
2	B	472	ASP	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.