



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 2, 2026 – 01:00 AM UTC

PDB ID : 3NQB / pdb_00003nqb
Title : Crystal Structure of Adenine Deaminase from Agrobacterium tumefaciens (str. C 58)
Authors : Bagaria, A.; Kumaran, D.; Burley, S.K.; Swaminathan, S.; New York SGX Research Center for Structural Genomics (NYSGXRC)
Deposited on : 2010-06-29
Resolution : 2.21 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
Mogul	:	2022.3.0, CSD as543be (2022)
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

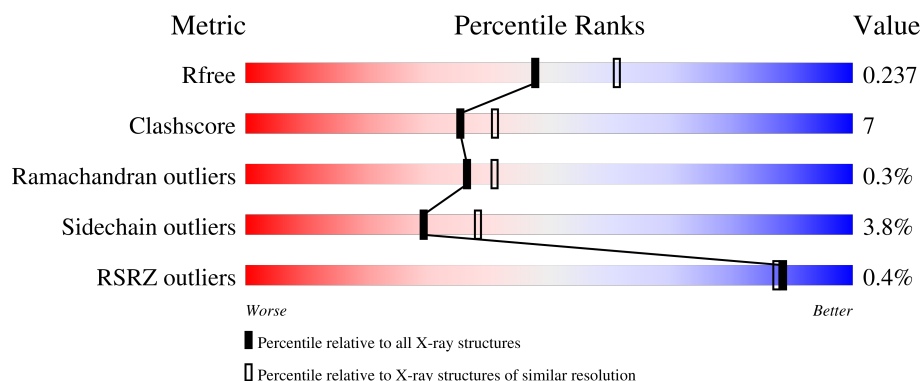
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.21 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	7682 (2.24-2.20)
Clashscore	190562	8402 (2.24-2.20)
Ramachandran outliers	187476	8303 (2.24-2.20)
Sidechain outliers	187428	8304 (2.24-2.20)
RSRZ outliers	180081	7683 (2.24-2.20)

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	608	 82% 13% . .
1	B	608	 81% 13% . .

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 9058 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 Adenine deaminase 2.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	587	Total	C	N	O	S	Se	0	0	0
			4337	2723	775	817	6	16			
1	B	587	Total	C	N	O	S	Se	0	0	0
			4335	2721	775	817	6	16			

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	MSE	-	expression tag	UNP Q7CUX4
A	-1	SER	-	expression tag	UNP Q7CUX4
A	0	LEU	-	expression tag	UNP Q7CUX4
A	598	GLU	-	expression tag	UNP Q7CUX4
A	599	GLY	-	expression tag	UNP Q7CUX4
A	600	HIS	-	expression tag	UNP Q7CUX4
A	601	HIS	-	expression tag	UNP Q7CUX4
A	602	HIS	-	expression tag	UNP Q7CUX4
A	603	HIS	-	expression tag	UNP Q7CUX4
A	604	HIS	-	expression tag	UNP Q7CUX4
A	605	HIS	-	expression tag	UNP Q7CUX4
B	-2	MSE	-	expression tag	UNP Q7CUX4
B	-1	SER	-	expression tag	UNP Q7CUX4
B	0	LEU	-	expression tag	UNP Q7CUX4
B	598	GLU	-	expression tag	UNP Q7CUX4
B	599	GLY	-	expression tag	UNP Q7CUX4
B	600	HIS	-	expression tag	UNP Q7CUX4
B	601	HIS	-	expression tag	UNP Q7CUX4
B	602	HIS	-	expression tag	UNP Q7CUX4
B	603	HIS	-	expression tag	UNP Q7CUX4
B	604	HIS	-	expression tag	UNP Q7CUX4
B	605	HIS	-	expression tag	UNP Q7CUX4

- Molecule 2 is MANGANESE (II) ION (CCD ID: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	3	Total 3	Mn 3	0	0
2	B	3	Total 3	Mn 3	0	0

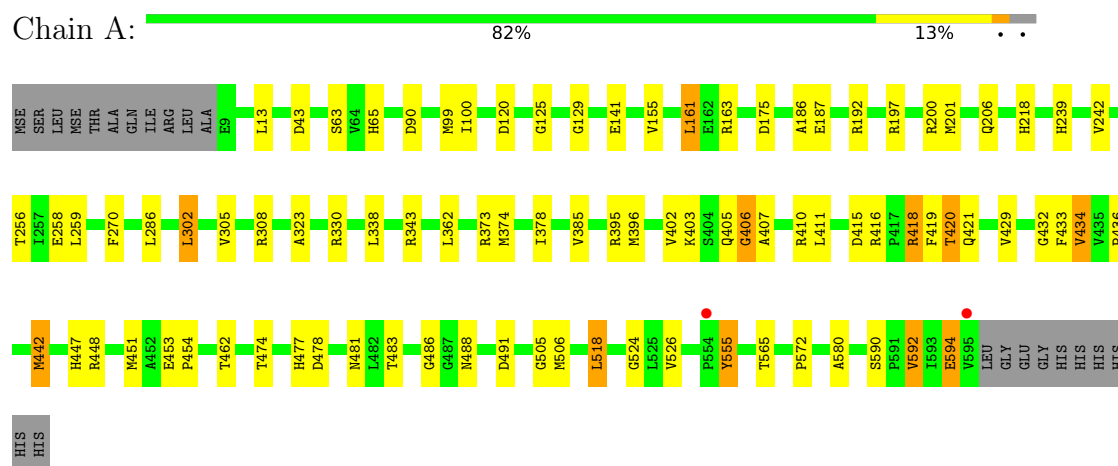
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	162	Total 162	O 162	0	0
3	B	218	Total 218	O 218	0	0

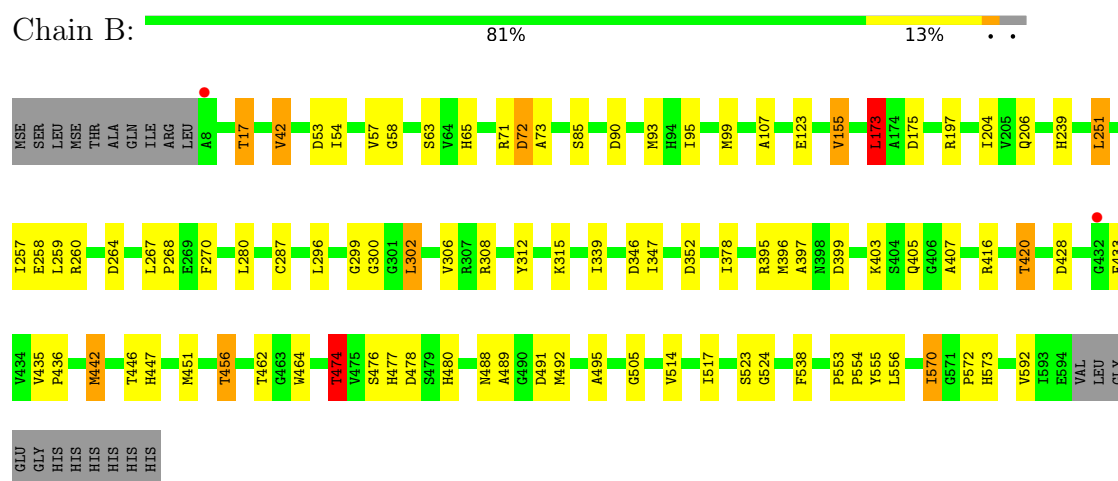
3 Residue-property plots [i](#)

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: Adenine deaminase 2



• Molecule 1: Adenine deaminase 2



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	63.10Å 130.97Å 70.00Å 90.00° 97.98° 90.00°	Depositor
Resolution (Å)	39.74 – 2.21 39.74 – 2.21	Depositor EDS
% Data completeness (in resolution range)	99.3 (39.74-2.21) 99.7 (39.74-2.21)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.93 (at 2.20Å)	Xtriage
Refinement program	REFMAC 5.5.0109	Depositor
R, R_{free}	0.172 , 0.235 (Not available) , 0.237	Depositor DCC
R_{free} test set	2858 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å ²)	25.3	Xtriage
Anisotropy	0.107	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 26.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	9058	wwPDB-VP
Average B, all atoms (Å ²)	26.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.82% 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

5.1 Standard geometry

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

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	1.23	5/4402 (0.1%)	1.17	10/5964 (0.2%)
1	B	1.21	6/4400 (0.1%)	1.18	15/5961 (0.3%)
All	All	1.22	11/8802 (0.1%)	1.18	25/11925 (0.2%)

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	155	VAL	CA-CB	7.28	1.59	1.54
1	B	17	THR	CA-CB	6.92	1.64	1.53
1	B	570	ILE	CA-CB	6.69	1.61	1.54
1	A	242	VAL	CA-CB	6.23	1.62	1.54
1	B	495	ALA	CA-CB	5.95	1.62	1.53
1	A	565	THR	CA-CB	5.64	1.62	1.53
1	B	306	VAL	CA-CB	5.61	1.60	1.54
1	A	592	VAL	CA-CB	5.49	1.60	1.53
1	A	555	TYR	N-CA	5.44	1.53	1.46
1	B	553	PRO	CA-C	5.36	1.54	1.51
1	A	483	THR	CA-CB	5.16	1.61	1.53

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	590	SER	CA-C-N	-8.20	110.97	120.89
1	A	590	SER	C-N-CA	-8.20	110.97	120.89
1	B	71	ARG	N-CA-C	-7.27	102.41	113.89
1	B	73	ALA	N-CA-C	7.02	120.01	108.99
1	A	592	VAL	CB-CA-C	6.95	118.73	111.23
1	B	42	VAL	CB-CA-C	6.79	120.64	111.88
1	A	308	ARG	N-CA-C	6.65	118.61	111.36
1	B	299	GLY	N-CA-C	6.54	128.67	113.18

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	474	THR	N-CA-CB	-6.51	101.08	110.65
1	B	173	LEU	CA-CB-CG	-6.42	93.81	116.30
1	B	280	LEU	CA-C-N	-6.18	113.41	119.78
1	B	280	LEU	C-N-CA	-6.18	113.41	119.78
1	A	141	GLU	N-CA-C	6.01	117.83	111.28
1	B	72	ASP	N-CA-CB	-5.92	100.48	110.49
1	A	305	VAL	N-CA-C	-5.91	104.55	111.00
1	B	407	ALA	N-CA-C	-5.74	106.93	114.04
1	A	302	LEU	CA-CB-CG	-5.36	97.53	116.30
1	B	264	ASP	N-CA-C	5.30	117.47	111.11
1	B	71	ARG	CA-C-N	5.24	131.55	121.54
1	B	71	ARG	C-N-CA	5.24	131.55	121.54
1	A	486	GLY	N-CA-C	5.17	120.70	110.83
1	B	489	ALA	N-CA-C	5.16	116.91	111.28
1	A	594	GLU	N-CA-C	5.15	117.07	108.99
1	B	474	THR	CB-CA-C	5.09	118.11	109.55
1	A	218	HIS	N-CA-C	-5.02	99.08	108.02

There are no chirality outliers.

There are no planarity outliers.

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	4337	0	4344	65	0
1	B	4335	0	4340	64	0
2	A	3	0	0	0	0
2	B	3	0	0	0	0
3	A	162	0	0	3	0
3	B	218	0	0	2	0
All	All	9058	0	8684	128	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 7.

All (128) 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:175:ASP:HB3	3:B:820:HOH:O	1.35	1.23
1:A:175:ASP:HB3	3:A:663:HOH:O	1.39	1.21
1:A:420:THR:HG21	1:A:572:PRO:O	1.58	1.01
1:B:420:THR:HG21	1:B:572:PRO:O	1.58	1.00
1:B:476:SER:H	1:B:480:HIS:HD2	1.21	0.88
1:A:474:THR:HG23	1:A:524:GLY:O	1.78	0.84
1:A:474:THR:CG2	1:A:505:GLY:H	1.91	0.82
1:A:447:HIS:HE1	1:A:451:MSE:H	1.30	0.79
1:B:476:SER:H	1:B:480:HIS:CD2	2.03	0.77
1:A:474:THR:HG22	1:A:505:GLY:H	1.51	0.75
1:B:395:ARG:HH21	1:B:456:THR:CG2	2.00	0.75
1:B:296:LEU:O	1:B:300:GLY:HA3	1.94	0.68
1:B:395:ARG:N	1:B:395:ARG:HD2	2.09	0.68
1:B:420:THR:HG22	1:B:572:PRO:HD2	1.76	0.68
1:A:420:THR:CG2	1:A:572:PRO:O	2.42	0.66
1:A:99:MSE:HE2	1:A:506:MSE:HE1	1.76	0.65
1:A:163:ARG:HD2	3:A:684:HOH:O	1.96	0.65
1:B:395:ARG:HH21	1:B:456:THR:HG23	1.60	0.65
1:A:410:ARG:HD3	1:A:594:GLU:HG2	1.80	0.64
1:B:476:SER:N	1:B:480:HIS:HD2	1.93	0.64
1:B:447:HIS:HE1	1:B:451:MSE:H	1.46	0.63
1:B:474:THR:HG23	1:B:524:GLY:O	1.99	0.63
1:A:374:MSE:HE2	1:A:378:ILE:HD11	1.82	0.62
1:A:63:SER:OG	1:A:65:HIS:HD2	1.83	0.62
1:A:420:THR:CG2	1:A:572:PRO:HD2	2.30	0.62
1:B:420:THR:HG23	1:B:572:PRO:HG2	1.81	0.61
1:B:428:ASP:O	1:B:435:VAL:HG12	2.00	0.61
1:A:474:THR:HG21	1:A:505:GLY:H	1.64	0.61
1:A:436:PRO:HB3	1:A:442:MSE:HE1	1.83	0.60
1:A:402:VAL:HB	1:A:434:VAL:HG13	1.83	0.60
1:A:420:THR:HG22	1:A:572:PRO:HD2	1.84	0.59
1:A:474:THR:CG2	1:A:505:GLY:N	2.63	0.59
1:A:99:MSE:CE	1:A:506:MSE:HE1	2.31	0.59
1:B:474:THR:HG21	1:B:505:GLY:H	1.68	0.58
1:B:107:ALA:HB2	1:B:378:ILE:HD12	1.85	0.58
1:B:436:PRO:HB3	1:B:442:MSE:HE1	1.85	0.57
1:B:259:LEU:HD11	1:B:270:PHE:CD2	2.40	0.56
1:B:123:GLU:OE1	1:B:480:HIS:HE1	1.88	0.56
1:B:474:THR:CG2	1:B:524:GLY:O	2.54	0.55
1:A:239:HIS:HB3	1:A:258:GLU:HB2	1.89	0.55
1:B:474:THR:CG2	1:B:505:GLY:H	2.19	0.54
1:A:420:THR:CG2	1:A:572:PRO:CD	2.85	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:420:THR:HG23	1:A:572:PRO:HG2	1.89	0.54
1:B:403:LYS:HG3	1:B:433:PHE:CE1	2.43	0.54
1:B:420:THR:CG2	1:B:572:PRO:O	2.47	0.54
1:A:403:LYS:HD2	1:A:432:GLY:O	2.06	0.54
1:B:90:ASP:HA	1:B:302:LEU:HD13	1.89	0.54
1:A:338:LEU:HB3	1:A:343:ARG:HD2	1.89	0.54
1:A:447:HIS:CE1	1:A:451:MSE:H	2.17	0.53
1:A:474:THR:HG21	1:A:505:GLY:N	2.23	0.53
1:B:420:THR:HG22	1:B:572:PRO:CD	2.37	0.53
1:B:308:ARG:O	1:B:312:TYR:HD2	1.90	0.53
1:B:395:ARG:HH21	1:B:456:THR:HG22	1.72	0.53
1:A:415:ASP:HB3	1:A:421:GLN:HG2	1.91	0.53
1:A:474:THR:HG22	1:A:505:GLY:N	2.22	0.52
1:B:251:LEU:HD13	1:B:257:ILE:HG13	1.90	0.52
1:B:296:LEU:O	1:B:300:GLY:CA	2.57	0.52
1:A:488:ASN:ND2	1:A:491:ASP:H	2.08	0.52
1:A:410:ARG:HD3	1:A:594:GLU:CG	2.40	0.52
1:B:573:HIS:HD2	3:B:800:HOH:O	1.93	0.52
1:B:442:MSE:N	1:B:442:MSE:HE3	2.25	0.52
1:A:90:ASP:HA	1:A:302:LEU:HD13	1.92	0.51
1:B:442:MSE:HE3	1:B:442:MSE:H	1.75	0.51
1:A:448:ARG:H	1:A:481:ASN:HD22	1.58	0.51
1:A:451:MSE:HE3	1:B:514:VAL:O	2.10	0.51
1:B:554:PRO:O	1:B:555:TYR:HB2	2.10	0.51
1:B:488:ASN:ND2	1:B:491:ASP:H	2.09	0.51
1:B:592:VAL:HG23	1:B:592:VAL:O	2.12	0.49
1:B:420:THR:CG2	1:B:572:PRO:HG2	2.41	0.49
1:A:206:GLN:NE2	3:A:666:HOH:O	2.40	0.49
1:A:395:ARG:N	1:A:395:ARG:HD2	2.28	0.48
1:A:407:ALA:HA	1:A:429:VAL:HB	1.94	0.48
1:B:447:HIS:CE1	1:B:451:MSE:H	2.30	0.48
1:A:187:GLU:HG3	1:A:187:GLU:O	2.12	0.48
1:A:418:ARG:HD2	1:A:555:TYR:CD1	2.48	0.48
1:B:63:SER:OG	1:B:65:HIS:HD2	1.97	0.48
1:B:436:PRO:HB3	1:B:442:MSE:CE	2.43	0.48
1:B:267:LEU:N	1:B:268:PRO:HD2	2.28	0.47
1:A:403:LYS:HG2	1:A:433:PHE:CE1	2.49	0.47
1:B:85:SER:C	1:B:339:ILE:HD11	2.39	0.47
1:A:259:LEU:HD11	1:A:270:PHE:CD2	2.49	0.47
1:A:120:ASP:CG	1:A:186:ALA:HB1	2.40	0.46
1:A:186:ALA:O	1:A:187:GLU:C	2.59	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:399:ASP:HB3	1:B:456:THR:CG2	2.46	0.45
1:B:239:HIS:HB3	1:B:258:GLU:HB2	1.97	0.45
1:A:125:GLY:O	1:A:129:GLY:HA2	2.17	0.45
1:B:302:LEU:O	1:B:302:LEU:HG	2.15	0.45
1:A:477:HIS:HA	1:A:478:ASP:HA	1.75	0.45
1:A:161:LEU:HG	1:A:580:ALA:HB1	1.99	0.44
1:B:53:ASP:C	1:B:54:ILE:HD13	2.43	0.44
1:A:395:ARG:NH2	1:A:454:PRO:O	2.49	0.44
1:B:474:THR:HG21	1:B:505:GLY:N	2.31	0.43
1:B:446:THR:OG1	1:B:456:THR:HB	2.17	0.43
1:A:420:THR:HG23	1:A:572:PRO:CD	2.49	0.43
1:A:362:LEU:HD12	1:A:362:LEU:N	2.33	0.43
1:A:518:LEU:HD12	1:A:518:LEU:C	2.44	0.43
1:B:399:ASP:HB3	1:B:456:THR:HG21	2.00	0.43
1:B:464:TRP:HA	1:B:556:LEU:HD13	2.00	0.43
1:A:259:LEU:HD12	1:A:259:LEU:HA	1.83	0.42
1:A:447:HIS:HA	1:A:481:ASN:ND2	2.33	0.42
1:B:352:ASP:OD1	1:B:352:ASP:C	2.62	0.42
1:B:93:MSE:HE1	1:B:95:ILE:HG12	2.00	0.42
1:A:192:ARG:HD3	1:A:192:ARG:HA	1.78	0.42
1:A:418:ARG:HG3	1:A:419:PHE:N	2.35	0.42
1:B:99:MSE:HE1	1:B:538:PHE:CE1	2.55	0.42
1:B:197:ARG:HH22	1:B:206:GLN:HE21	1.65	0.42
1:A:197:ARG:HH22	1:A:206:GLN:NE2	2.18	0.42
1:A:256:THR:HG21	1:A:330:ARG:HD3	2.01	0.42
1:A:474:THR:HG22	1:A:505:GLY:O	2.20	0.42
1:B:346:ASP:C	1:B:347:ILE:HG13	2.44	0.42
1:B:396:MSE:O	1:B:397:ALA:C	2.62	0.42
1:B:123:GLU:OE1	1:B:480:HIS:CE1	2.70	0.42
1:B:554:PRO:O	1:B:555:TYR:CB	2.64	0.42
1:A:415:ASP:HB2	1:A:421:GLN:O	2.20	0.41
1:B:442:MSE:HB3	1:B:492:MSE:HE1	2.02	0.41
1:B:395:ARG:NH2	1:B:456:THR:HG22	2.35	0.41
1:A:99:MSE:HA	1:A:526:VAL:HG12	2.01	0.41
1:B:57:VAL:O	1:B:58:GLY:C	2.62	0.41
1:A:405:GLN:O	1:A:406:GLY:O	2.39	0.41
1:A:420:THR:HG23	1:A:572:PRO:HD2	2.00	0.41
1:B:477:HIS:HA	1:B:478:ASP:HA	1.77	0.41
1:A:286:LEU:HD12	1:A:323:ALA:HB2	2.03	0.41
1:B:173:LEU:HD13	1:B:204:ILE:HG12	2.02	0.41
1:A:415:ASP:HB3	1:A:421:GLN:CG	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:43:ASP:OD1	1:A:43:ASP:C	2.64	0.40
1:A:405:GLN:OE1	1:A:405:GLN:HA	2.21	0.40
1:B:260:ARG:HB3	1:B:287:CYS:SG	2.62	0.40
1:A:448:ARG:H	1:A:481:ASN:ND2	2.19	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	585/608 (96%)	563 (96%)	20 (3%)	2 (0%)	36	41
1	B	585/608 (96%)	561 (96%)	22 (4%)	2 (0%)	36	41
All	All	1170/1216 (96%)	1124 (96%)	42 (4%)	4 (0%)	36	41

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	406	GLY
1	B	72	ASP
1	A	416	ARG
1	B	416	ARG

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	445/444 (100%)	427 (96%)	18 (4%)	28	36
1	B	444/444 (100%)	428 (96%)	16 (4%)	31	40
All	All	889/888 (100%)	855 (96%)	34 (4%)	29	38

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

Mol	Chain	Res	Type
1	A	13	LEU
1	A	100	ILE
1	A	155	VAL
1	A	161	LEU
1	A	200	ARG
1	A	201	MSE
1	A	373	ARG
1	A	385	VAL
1	A	396	MSE
1	A	411	LEU
1	A	418	ARG
1	A	420	THR
1	A	434	VAL
1	A	442	MSE
1	A	453	GLU
1	A	462	THR
1	A	518	LEU
1	A	592	VAL
1	B	17	THR
1	B	42	VAL
1	B	155	VAL
1	B	173	LEU
1	B	251	LEU
1	B	302	LEU
1	B	315	LYS
1	B	405	GLN
1	B	420	THR
1	B	442	MSE
1	B	456	THR
1	B	462	THR
1	B	474	THR
1	B	517	ILE
1	B	523	SER
1	B	570	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	65	HIS
1	A	75	GLN
1	A	206	GLN
1	A	265	HIS
1	A	398	ASN
1	A	447	HIS
1	A	481	ASN
1	A	488	ASN
1	B	65	HIS
1	B	206	GLN
1	B	228	ASN
1	B	265	HIS
1	B	405	GLN
1	B	447	HIS
1	B	480	HIS
1	B	481	ASN
1	B	488	ASN
1	B	573	HIS

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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 6 ligands modelled in this entry, 6 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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	571/608 (93%)	-0.40	2 (0%) 88 87	13, 23, 43, 55	0
1	B	571/608 (93%)	-0.33	2 (0%) 88 87	13, 24, 46, 67	0
All	All	1142/1216 (93%)	-0.37	4 (0%) 88 87	13, 23, 45, 67	0

All (4) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	595	VAL	3.0
1	B	432	GLY	2.9
1	A	554	PRO	2.5
1	B	8	ALA	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 oligosaccharides 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	MN	A	606	1/1	0.98	0.04	24,24,24,24	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	MN	B	608	1/1	0.98	0.05	29,29,29,29	0
2	MN	B	606	1/1	0.99	0.02	23,23,23,23	0
2	MN	B	607	1/1	0.99	0.01	27,27,27,27	0
2	MN	A	608	1/1	0.99	0.03	26,26,26,26	0
2	MN	A	607	1/1	1.00	0.01	20,20,20,20	0

6.5 Other polymers [i](#)

There are no such residues in this entry.