



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 12:07 AM UTC

PDB ID : 2UUW / pdb_00002uuw
Title : 2.75 angstrom structure of the D347G D348G mutant structure of Sapporo Virus RdRp Polymerase
Authors : Fullerton, S.; Robel, I.; Schuldt, L.; Gebhardt, J.; Tucker, P.; Rohayem, J.
Deposited on : 2007-03-07
Resolution : 2.76 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

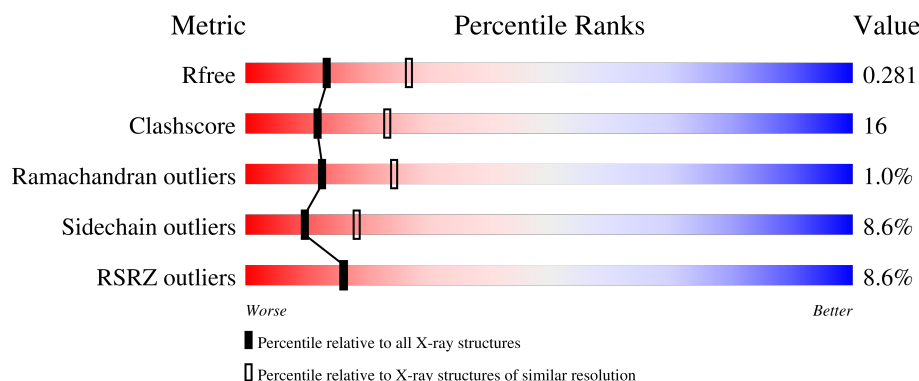
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

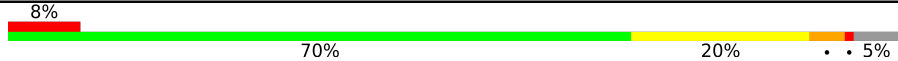
The reported resolution of this entry is 2.76 Å.

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	1009 (2.76-2.76)
Clashscore	190562	1044 (2.76-2.76)
Ramachandran outliers	187476	1024 (2.76-2.76)
Sidechain outliers	187428	1024 (2.76-2.76)
RSRZ outliers	180081	1009 (2.76-2.76)

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	515	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 3902 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 RNA-DIRECTED RNA POLYMERASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	490	Total	C	N	O	S	0	0	0
			3780	2403	652	708	17			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	347	GLY	ASP	engineered mutation	UNP Q69014
A	348	GLY	ASP	engineered mutation	UNP Q69014

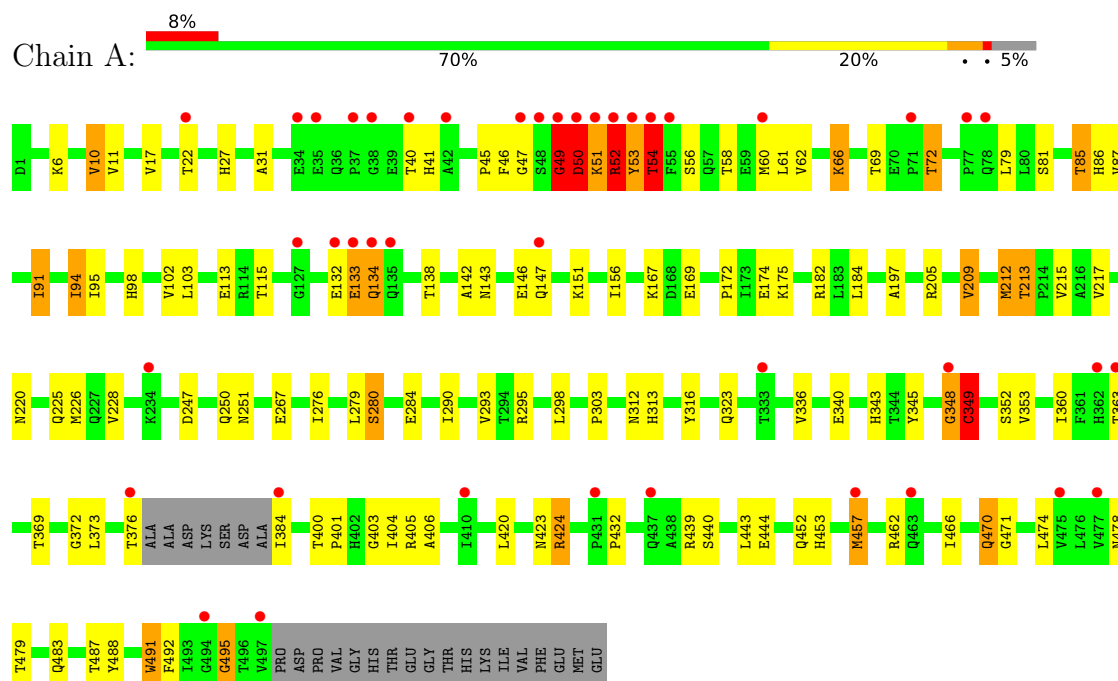
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	122	Total	O	0	0
			122	122		

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: RNA-DIRECTED RNA POLYMERASE



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	58.01Å 91.40Å 95.45Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.73 – 2.76 47.73 – 2.76	Depositor EDS
% Data completeness (in resolution range)	99.0 (47.73-2.76) 98.9 (47.73-2.76)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.26 (at 2.77Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.245 , 0.287 0.240 , 0.281	Depositor DCC
R_{free} test set	666 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å ²)	14.1	Xtriage
Anisotropy	0.126	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 26.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	0.030 for -h,l,k	Xtriage
F_o, F_c correlation	0.85	EDS
Total number of atoms	3902	wwPDB-VP
Average B, all atoms (Å ²)	13.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.33% 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	0.59	3/3877 (0.1%)	0.83	3/5291 (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	A	0	6

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	49	GLY	C-N	19.94	1.61	1.33
1	A	495	GLY	C-O	-6.85	1.15	1.24
1	A	49	GLY	C-O	-5.07	1.17	1.23

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	134	GLN	N-CA-C	-7.87	103.83	113.50
1	A	49	GLY	CA-C-N	-5.15	111.70	121.54
1	A	49	GLY	C-N-CA	-5.15	111.70	121.54

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	133	GLU	Peptide
1	A	348	GLY	Peptide
1	A	49	GLY	Mainchain
1	A	491	TRP	Peptide

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Mol	Chain	Res	Type	Group
1	A	50	ASP	Peptide
1	A	52	ARG	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	3780	0	3735	119	0
2	A	122	0	0	0	0
All	All	3902	0	3735	119	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 16.

All (119) 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:46:PHE:CE2	1:A:50:ASP:HA	1.43	1.50
1:A:52:ARG:HD2	1:A:53:TYR:CE1	1.58	1.36
1:A:52:ARG:CD	1:A:53:TYR:HE1	1.47	1.27
1:A:49:GLY:O	1:A:51:LYS:CG	1.86	1.24
1:A:348:GLY:HA2	1:A:349:CYS:CB	1.63	1.22
1:A:348:GLY:CA	1:A:349:CYS:HB3	1.75	1.16
1:A:46:PHE:CE2	1:A:50:ASP:CA	2.34	1.09
1:A:46:PHE:CZ	1:A:50:ASP:HA	1.89	1.08
1:A:52:ARG:O	1:A:52:ARG:HG2	1.58	1.03
1:A:52:ARG:CD	1:A:53:TYR:CE1	2.33	0.98
1:A:49:GLY:O	1:A:51:LYS:CB	2.11	0.97
1:A:54:THR:O	1:A:54:THR:HG22	1.63	0.94
1:A:49:GLY:O	1:A:51:LYS:HG2	1.69	0.93
1:A:46:PHE:CD2	1:A:50:ASP:HA	2.03	0.92
1:A:53:TYR:O	1:A:54:THR:HB	1.68	0.90
1:A:46:PHE:CG	1:A:50:ASP:HB2	2.06	0.90
1:A:52:ARG:CG	1:A:53:TYR:CE1	2.56	0.89
1:A:213:THR:HG22	1:A:215:VAL:H	1.34	0.88
1:A:52:ARG:CB	1:A:53:TYR:HD1	1.89	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:348:GLY:HA2	1:A:349:CYS:HB3	0.89	0.84
1:A:49:GLY:O	1:A:51:LYS:HG3	1.76	0.83
1:A:52:ARG:HD2	1:A:53:TYR:HE1	0.68	0.82
1:A:46:PHE:H	1:A:50:ASP:HB2	1.45	0.81
1:A:52:ARG:CB	1:A:53:TYR:CD1	2.64	0.81
1:A:46:PHE:CD2	1:A:50:ASP:CA	2.63	0.80
1:A:276:ILE:O	1:A:280:SER:HB2	1.81	0.80
1:A:440:SER:OG	1:A:474:LEU:HD22	1.83	0.78
1:A:52:ARG:C	1:A:53:TYR:CD1	2.62	0.78
1:A:45:PRO:HB2	1:A:60:MET:HE1	1.67	0.77
1:A:46:PHE:H	1:A:50:ASP:CB	1.97	0.77
1:A:52:ARG:O	1:A:52:ARG:CG	2.32	0.76
1:A:250:GLN:HE21	1:A:312:ASN:HD22	1.34	0.76
1:A:440:SER:O	1:A:444:GLU:HG2	1.87	0.75
1:A:453:HIS:HB3	1:A:457:MET:HG2	1.68	0.75
1:A:52:ARG:HB3	1:A:53:TYR:CD1	2.22	0.74
1:A:52:ARG:CG	1:A:53:TYR:CD1	2.71	0.74
1:A:54:THR:O	1:A:54:THR:CG2	2.35	0.73
1:A:52:ARG:CA	1:A:53:TYR:HD1	2.03	0.71
1:A:52:ARG:HG2	1:A:53:TYR:CD1	2.25	0.70
1:A:87:VAL:O	1:A:91:ILE:HG23	1.91	0.70
1:A:491:TRP:O	1:A:495:GLY:N	2.24	0.69
1:A:52:ARG:HG2	1:A:53:TYR:CE1	2.26	0.69
1:A:209:VAL:O	1:A:212:MET:HB2	1.92	0.69
1:A:49:GLY:O	1:A:51:LYS:CA	2.41	0.68
1:A:50:ASP:O	1:A:50:ASP:CG	2.38	0.67
1:A:52:ARG:C	1:A:53:TYR:HD1	2.03	0.66
1:A:46:PHE:N	1:A:50:ASP:HB2	2.10	0.65
1:A:360:ILE:O	1:A:363:THR:HG22	1.95	0.65
1:A:10:VAL:HG21	1:A:290:ILE:HD13	1.81	0.63
1:A:453:HIS:HB3	1:A:457:MET:CG	2.29	0.62
1:A:46:PHE:CD2	1:A:50:ASP:HB2	2.35	0.61
1:A:22:THR:O	1:A:424:ARG:NH2	2.34	0.60
1:A:47:GLY:N	1:A:50:ASP:HB3	2.17	0.60
1:A:151:LYS:HB3	1:A:156:ILE:HB	1.84	0.59
1:A:31:ALA:HB2	1:A:471:GLY:HA3	1.85	0.59
1:A:348:GLY:CA	1:A:349:CYS:CB	2.46	0.58
1:A:79:LEU:HD11	1:A:323:GLN:HB2	1.85	0.58
1:A:405:ARG:HG3	1:A:452:GLN:HE21	1.67	0.58
1:A:400:THR:OG1	1:A:403:GLY:O	2.19	0.58
1:A:226:MET:HG3	1:A:406:ALA:HB2	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:46:PHE:CD2	1:A:50:ASP:CB	2.89	0.56
1:A:49:GLY:O	1:A:51:LYS:N	2.39	0.56
1:A:49:GLY:C	1:A:51:LYS:HG2	2.32	0.53
1:A:488:TYR:O	1:A:491:TRP:HB2	2.09	0.52
1:A:169:GLU:OE2	1:A:182:ARG:HD3	2.10	0.52
1:A:91:ILE:HA	1:A:94:ILE:CD1	2.39	0.52
1:A:348:GLY:HA2	1:A:349:CYS:HB2	1.78	0.52
1:A:360:ILE:O	1:A:363:THR:CG2	2.58	0.52
1:A:462:ARG:HG3	1:A:479:THR:O	2.11	0.51
1:A:103:LEU:HB2	1:A:197:ALA:HA	1.93	0.51
1:A:343:HIS:O	1:A:349:CYS:HA	2.10	0.51
1:A:72:THR:HG22	1:A:251:ASN:HD22	1.74	0.51
1:A:453:HIS:HB2	1:A:457:MET:HE2	1.93	0.51
1:A:46:PHE:H	1:A:50:ASP:CG	2.18	0.51
1:A:439:ARG:NH1	1:A:443:LEU:HD21	2.26	0.51
1:A:66:LYS:O	1:A:69:THR:HG22	2.12	0.50
1:A:217:VAL:HA	1:A:345:TYR:CE1	2.46	0.50
1:A:91:ILE:HD12	1:A:95:ILE:HG12	1.94	0.49
1:A:172:PRO:HG2	1:A:175:LYS:HE2	1.94	0.49
1:A:49:GLY:O	1:A:50:ASP:C	2.56	0.49
1:A:52:ARG:O	1:A:53:TYR:CD1	2.66	0.48
1:A:86:HIS:HD2	1:A:336:VAL:H	1.61	0.48
1:A:340:GLU:HG2	1:A:353:VAL:HG12	1.95	0.48
1:A:313:HIS:CE1	1:A:349:CYS:HB2	2.48	0.48
1:A:142:ALA:O	1:A:146:GLU:HG2	2.14	0.48
1:A:212:MET:HE1	1:A:228:VAL:HG11	1.97	0.47
1:A:27:HIS:HE1	1:A:423:ASN:O	1.98	0.47
1:A:492:PHE:CD2	1:A:492:PHE:C	2.92	0.47
1:A:52:ARG:HB3	1:A:53:TYR:HD1	1.58	0.47
1:A:113:GLU:OE1	1:A:115:THR:HB	2.14	0.47
1:A:46:PHE:CA	1:A:50:ASP:HB2	2.44	0.47
1:A:49:GLY:O	1:A:51:LYS:HB2	2.08	0.46
1:A:81:SER:O	1:A:85:THR:CG2	2.64	0.46
1:A:279:LEU:HD21	1:A:303:PRO:HG2	1.98	0.46
1:A:284:GLU:HG2	1:A:293:VAL:HG22	1.98	0.46
1:A:46:PHE:CD1	1:A:50:ASP:HB2	2.50	0.45
1:A:143:ASN:O	1:A:147:GLN:HG2	2.16	0.45
1:A:247:ASP:O	1:A:298:LEU:N	2.50	0.45
1:A:50:ASP:O	1:A:50:ASP:OD1	2.34	0.45
1:A:167:LYS:HG3	1:A:184:LEU:HB2	1.99	0.45
1:A:316:TYR:CG	1:A:373:LEU:HD11	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:483:GLN:HE21	1:A:483:GLN:HA	1.81	0.44
1:A:72:THR:OG1	1:A:372:GLY:HA3	2.18	0.44
1:A:466:ILE:O	1:A:470:GLN:HG2	2.17	0.44
1:A:220:ASN:H	1:A:225:GLN:NE2	2.16	0.43
1:A:81:SER:O	1:A:85:THR:HG22	2.18	0.43
1:A:420:LEU:HD21	1:A:432:PRO:HG3	2.01	0.43
1:A:52:ARG:CB	1:A:53:TYR:CE1	2.98	0.43
1:A:250:GLN:NE2	1:A:312:ASN:HD22	2.09	0.43
1:A:400:THR:HB	1:A:401:PRO:HD2	2.00	0.43
1:A:478:ASN:HD22	1:A:483:GLN:HG3	1.84	0.43
1:A:40:THR:HG23	1:A:41:HIS:ND1	2.34	0.42
1:A:52:ARG:HB3	1:A:53:TYR:CE1	2.53	0.42
1:A:49:GLY:C	1:A:51:LYS:CG	2.78	0.42
1:A:98:HIS:O	1:A:205:ARG:NH2	2.50	0.41
1:A:50:ASP:OD1	1:A:53:TYR:HB3	2.19	0.41
1:A:226:MET:HE3	1:A:226:MET:HB3	1.95	0.41
1:A:478:ASN:OD1	1:A:487:THR:HG21	2.21	0.41
1:A:6:LYS:HB2	1:A:62:VAL:HG21	2.04	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	486/515 (94%)	464 (96%)	17 (4%)	5 (1%)	12 24

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	52	ARG
1	A	53	TYR
1	A	54	THR

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Mol	Chain	Res	Type
1	A	349	CYS
1	A	50	ASP

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	405/425 (95%)	370 (91%)	35 (9%)	10	18

All (35) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	10	VAL
1	A	11	VAL
1	A	17	VAL
1	A	50	ASP
1	A	51	LYS
1	A	54	THR
1	A	56	SER
1	A	58	THR
1	A	61	LEU
1	A	66	LYS
1	A	72	THR
1	A	85	THR
1	A	91	ILE
1	A	94	ILE
1	A	102	VAL
1	A	132	GLU
1	A	133	GLU
1	A	134	GLN
1	A	138	THR
1	A	174	GLU
1	A	209	VAL
1	A	212	MET
1	A	213	THR
1	A	267	GLU

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Mol	Chain	Res	Type
1	A	280	SER
1	A	295	ARG
1	A	349	CYS
1	A	352	SER
1	A	369	THR
1	A	376	THR
1	A	384	ILE
1	A	404	ILE
1	A	424	ARG
1	A	457	MET
1	A	470	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	27	HIS
1	A	86	HIS
1	A	225	GLN
1	A	227	GLN
1	A	251	ASN
1	A	312	ASN
1	A	362	HIS
1	A	452	GLN
1	A	453	HIS
1	A	470	GLN
1	A	478	ASN
1	A	480	ASN
1	A	483	GLN

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 [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](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	49:GLY	C	50:ASP	N	1.61

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	490/515 (95%)	0.58	42 (8%) 16 16	2, 11, 28, 36	0

All (42) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	50	ASP	8.3
1	A	53	TYR	6.9
1	A	51	LYS	5.3
1	A	52	ARG	4.6
1	A	457	MET	4.2
1	A	133	GLU	4.2
1	A	135	GLN	3.3
1	A	38	GLY	3.3
1	A	134	GLN	3.2
1	A	78	GLN	3.2
1	A	37	PRO	3.2
1	A	54	THR	3.1
1	A	348	GLY	2.9
1	A	60	MET	2.8
1	A	376	THR	2.8
1	A	47	GLY	2.8
1	A	333	THR	2.8
1	A	35	GLU	2.6
1	A	132	GLU	2.6
1	A	55	PHE	2.6
1	A	40	THR	2.5
1	A	34	GLU	2.5
1	A	48	SER	2.5
1	A	363	THR	2.4
1	A	234	LYS	2.3
1	A	71	PRO	2.3
1	A	477	VAL	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	410	ILE	2.3
1	A	362	HIS	2.3
1	A	384	ILE	2.2
1	A	431	PRO	2.2
1	A	147	GLN	2.2
1	A	77	PRO	2.1
1	A	127	GLY	2.1
1	A	475	VAL	2.1
1	A	497	VAL	2.1
1	A	494	GLY	2.1
1	A	49	GLY	2.1
1	A	42	ALA	2.0
1	A	22	THR	2.0
1	A	463	GLN	2.0
1	A	437	GLN	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.