Full wwPDB X-ray Structure Validation Report ⓘ

Apr 27, 2024 – 10:49 pm BST

PDB ID	:	4WIS
Title	:	Crystal structure of the lipid scramblase nhTMEM16 in crystal form 1
Authors	:	Dutzler, R.; Brunner, J.D.; Lim, N.K.; Schenck, S.
Deposited on	:	2014-09-26
Resolution	:	3.30 Å(reported)

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

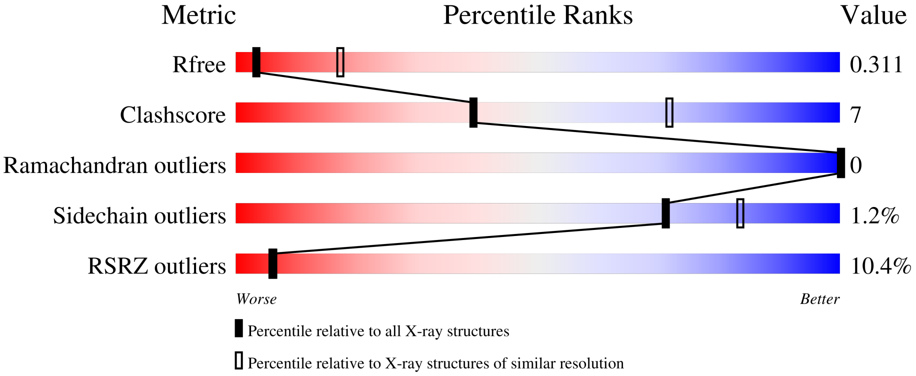
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36.2
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

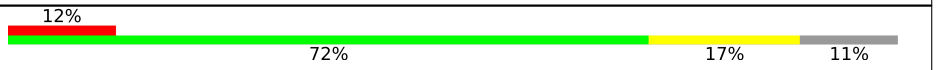
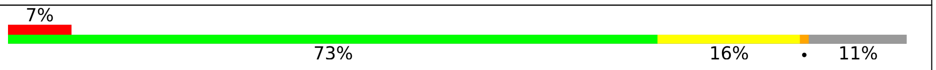
The reported resolution of this entry is 3.30 Å.

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	1149 (3.34-3.26)
Clashscore	141614	1205 (3.34-3.26)
Ramachandran outliers	138981	1183 (3.34-3.26)
Sidechain outliers	138945	1182 (3.34-3.26)
RSRZ outliers	127900	1115 (3.34-3.26)

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 <=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	735	
1	B	735	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 10574 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 lipid scramblase.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
1	A	654	Total C N O S 5285 3445 882 938 20	0	0	0
1	B	654	Total C N O S 5285 3445 882 938 20	0	0	0

- Molecule 2 is CALCIUM ION (three-letter code: CA) (formula: Ca).

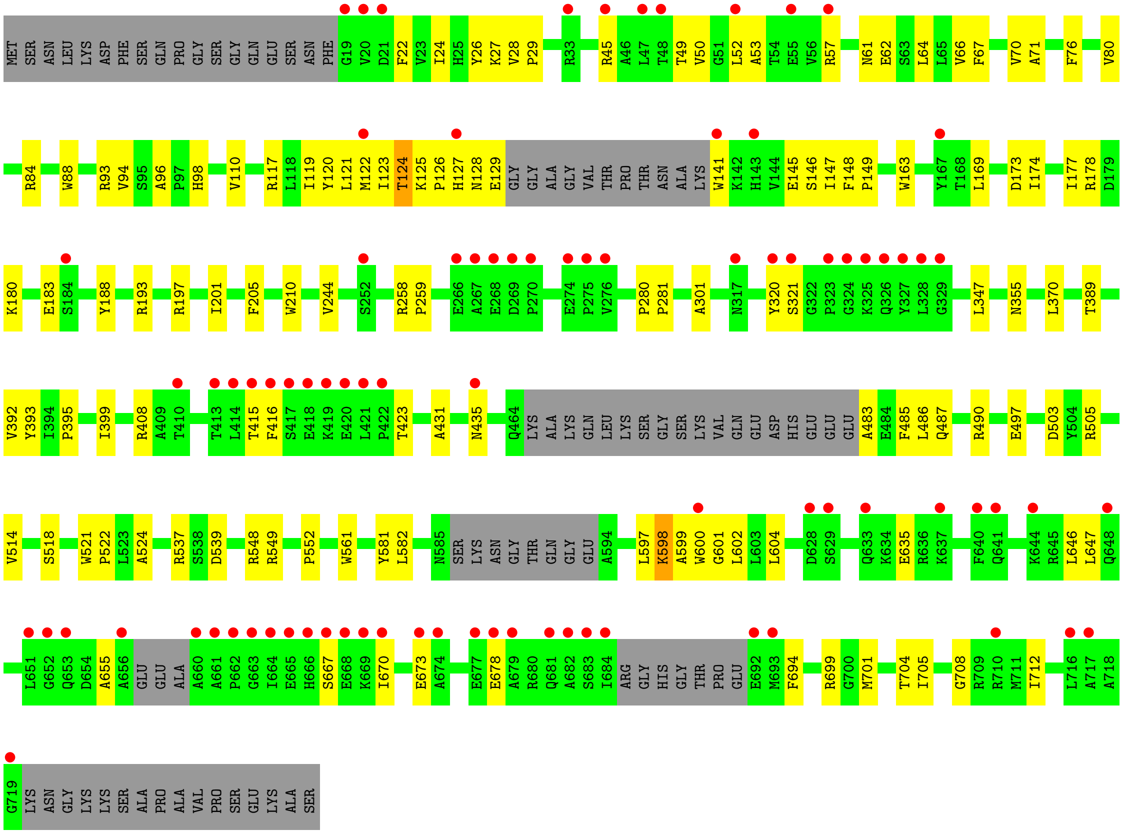
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	2	Total Ca 2 2	0	0
2	B	2	Total Ca 2 2	0	0

3 Residue-property plots ⓘ

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.

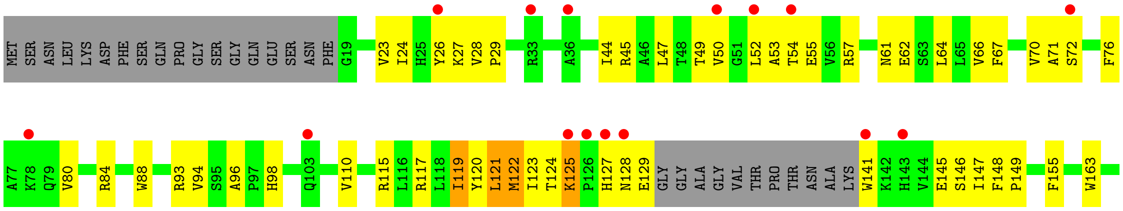
- Molecule 1: lipid scramblase

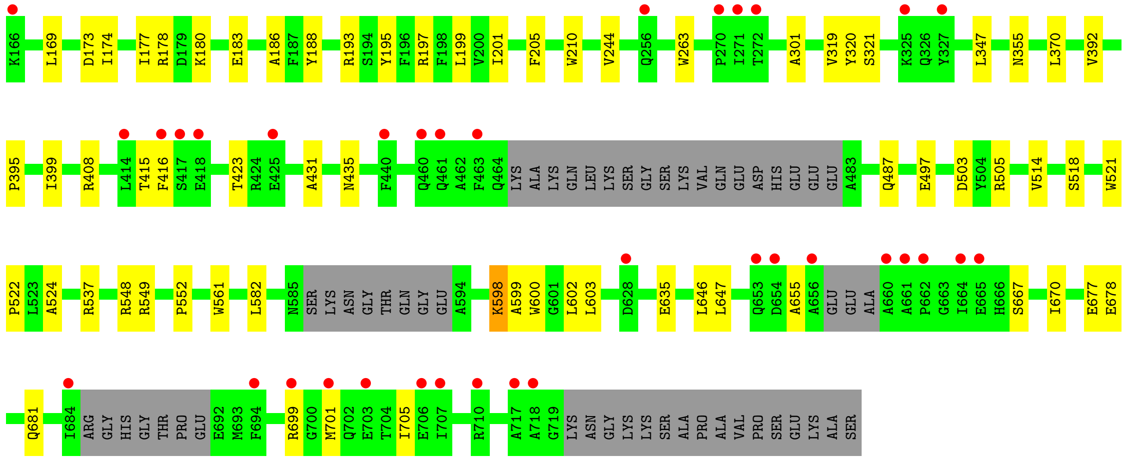
Chain A:



- Molecule 1: lipid scramblase

Chain B:




K166 L169 D173 I174 I177 R178 D179 K180 E183 A186 F187 Y188 R193 S194 Y195 F196 R197 F198 L199 V200 I201 F205 W210 V244 Q256 W263 P270 I271 T272 A301 V319 Y320 S321 K325 Q326 Y327 L347 N355 L370 V392
P395 I399 R408 L414 T415 F416 S417 E418 T423 R424 E425 A431 N435 F440 Q460 Q461 A462 F463 Q464 LYS ALA LYS GLN LEU LYS SER GLY SER LYS VAL GLN GLU ASP HIS GLU GLU GLU A483 Q487 E497 D503 Y504 R505 V514 S518 W521
P522 L523 A524 R537 R548 R549 P552 W561 L582 N585 SER LYS ASN GLY THR GLN GLY GLU A594 K598 A599 W600 G601 L602 L603 D628 E635 L646 L647 Q653 D654 A655 A656 GLU GLU ALA A660 A661 P662 G663 I664 E665 H666 S667 I670 E677 E678
Q681 I684 ARG GLY HIS GLY THR PRO GLU E692 M693 F694 R699 G700 M701 Q702 E703 T704 I705 E706 I707 R710 A717 A718 G719 LYS ASN GLY LYS LYS SER ALA PRO ALA VAL PRO SER GLU LYS ALA SER

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	96.48Å 113.69Å 235.65Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	14.98 – 3.30 48.98 – 3.30	Depositor EDS
% Data completeness (in resolution range)	99.2 (14.98-3.30) 99.2 (48.98-3.30)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.49 (at 3.33Å)	Xtriage
Refinement program	PHENIX (phenix.refine: dev_1760)	Depositor
R, R_{free}	0.237 , 0.285 0.261 , 0.311	Depositor DCC
R_{free} test set	1979 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å^2)	115.7	Xtriage
Anisotropy	0.431	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.28 , 88.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.46$, $< L^2 > = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.83	EDS
Total number of atoms	10574	wwPDB-VP
Average B, all atoms (Å^2)	137.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.63% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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: CA

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	0.23	0/5423	0.40	0/7358
1	B	0.23	0/5423	0.41	0/7358
All	All	0.23	0/10846	0.40	0/14716

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 ⓘ

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	5285	0	5248	85	0
1	B	5285	0	5248	83	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
All	All	10574	0	10496	156	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 (156) 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:647:LEU:HD21	1:B:655:ALA:HB3	1.64	0.79
1:A:647:LEU:HD21	1:A:655:ALA:HB3	1.64	0.78
1:A:45:ARG:NH1	1:A:49:THR:OG1	2.19	0.75
1:B:45:ARG:NH1	1:B:49:THR:OG1	2.21	0.73
1:B:128:ASN:OD1	1:B:129:GLU:N	2.22	0.73
1:A:487:GLN:HA	1:A:490:ARG:HD3	1.70	0.72
1:A:646:LEU:HD11	1:B:646:LEU:HD11	1.70	0.72
1:A:128:ASN:OD1	1:A:129:GLU:N	2.22	0.72
1:A:174:ILE:HD11	1:A:193:ARG:HD3	1.72	0.71
1:A:678:GLU:OE1	1:A:699:ARG:NH1	2.27	0.68
1:B:169:LEU:O	1:B:197:ARG:NH2	2.27	0.68
1:B:174:ILE:HD11	1:B:193:ARG:HD3	1.76	0.68
1:A:120:TYR:O	1:A:124:THR:OG1	2.11	0.68
1:A:149:PRO:HB2	1:A:549:ARG:HD2	1.77	0.67
1:A:169:LEU:O	1:A:197:ARG:NH2	2.27	0.67
1:A:708:GLY:HA3	1:B:57:ARG:HH11	1.58	0.67
1:B:57:ARG:HG2	1:B:64:LEU:HD22	1.76	0.66
1:B:678:GLU:OE1	1:B:699:ARG:NH1	2.29	0.65
1:B:149:PRO:HB2	1:B:549:ARG:HD2	1.79	0.64
1:A:121:LEU:O	1:A:125:LYS:N	2.31	0.64
1:A:604:LEU:HD12	1:B:603:LEU:HD11	1.80	0.63
1:B:210:TRP:HB2	1:B:522:PRO:HG2	1.81	0.62
1:A:210:TRP:HB2	1:A:522:PRO:HG2	1.82	0.62
1:A:57:ARG:HG2	1:A:64:LEU:HD22	1.83	0.61
1:B:28:VAL:HG21	1:B:45:ARG:HH21	1.66	0.59
1:A:28:VAL:HG21	1:A:45:ARG:HH21	1.68	0.59
1:A:123:ILE:O	1:A:128:ASN:HB3	2.03	0.59
1:B:125:LYS:O	1:B:127:HIS:N	2.35	0.59
1:A:22:PHE:HA	1:A:485:PHE:HE1	1.69	0.57
1:B:70:VAL:HG11	1:B:76:PHE:HB2	1.85	0.57
1:A:70:VAL:HG11	1:A:76:PHE:HB2	1.86	0.56
1:A:392:VAL:HG13	1:A:399:ILE:HD11	1.88	0.56
1:A:514:VAL:HA	1:A:518:SER:HB3	1.87	0.56
1:B:497:GLU:HG2	1:B:548:ARG:HD2	1.89	0.55
1:A:183:GLU:N	1:A:183:GLU:OE1	2.40	0.55
1:B:119:ILE:HA	1:B:122:MET:HB2	1.89	0.55
1:B:514:VAL:HA	1:B:518:SER:HB3	1.87	0.55
1:B:392:VAL:HG13	1:B:399:ILE:HD11	1.88	0.54
1:A:188:TYR:CZ	1:A:503:ASP:HB3	2.43	0.54
1:A:667:SER:HA	1:A:670:ILE:HD12	1.90	0.54
1:A:94:VAL:HG11	1:A:244:VAL:HG13	1.89	0.54
1:B:183:GLU:N	1:B:183:GLU:OE1	2.39	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:121:LEU:HB3	1:A:125:LYS:HE2	1.90	0.53
1:B:121:LEU:HG	1:B:125:LYS:HG3	1.90	0.53
1:A:395:PRO:HB3	1:A:582:LEU:HB3	1.91	0.53
1:A:22:PHE:HA	1:A:485:PHE:CE1	2.44	0.52
1:A:497:GLU:HG2	1:A:548:ARG:HD2	1.90	0.52
1:B:188:TYR:CZ	1:B:503:ASP:HB3	2.45	0.52
1:A:88:TRP:CE2	1:A:96:ALA:HB2	2.45	0.52
1:B:26:TYR:CZ	1:B:149:PRO:HG3	2.45	0.52
1:A:26:TYR:OH	1:A:120:TYR:HB2	2.10	0.52
1:B:80:VAL:HG11	1:B:110:VAL:HG22	1.92	0.52
1:B:29:PRO:HD2	1:B:146:SER:O	2.10	0.51
1:B:94:VAL:HG11	1:B:244:VAL:HG13	1.91	0.51
1:B:121:LEU:O	1:B:125:LYS:HB2	2.09	0.51
1:B:431:ALA:O	1:B:435:ASN:ND2	2.31	0.51
1:A:50:VAL:HG21	1:B:701:MET:SD	2.51	0.51
1:A:52:LEU:HD12	1:A:53:ALA:HB2	1.92	0.51
1:A:29:PRO:HD2	1:A:146:SER:O	2.10	0.51
1:A:80:VAL:HG11	1:A:110:VAL:HG22	1.92	0.51
1:B:667:SER:HA	1:B:670:ILE:HD12	1.92	0.50
1:A:673:GLU:HG3	1:B:72:SER:HB2	1.93	0.50
1:B:88:TRP:CE2	1:B:96:ALA:HB2	2.47	0.50
1:B:94:VAL:HG12	1:B:635:GLU:HG2	1.92	0.50
1:B:44:ILE:HA	1:B:47:LEU:HB2	1.94	0.49
1:B:178:ARG:NH1	1:B:183:GLU:OE2	2.45	0.49
1:B:180:LYS:O	1:B:549:ARG:NH1	2.45	0.49
1:A:94:VAL:HG12	1:A:635:GLU:HG2	1.93	0.49
1:A:431:ALA:O	1:A:435:ASN:ND2	2.32	0.49
1:B:395:PRO:HB3	1:B:582:LEU:HB3	1.94	0.49
1:B:28:VAL:HG22	1:B:147:ILE:HG12	1.95	0.49
1:A:599:ALA:HA	1:B:600:TRP:HB3	1.94	0.48
1:A:125:LYS:O	1:A:127:HIS:N	2.44	0.48
1:A:180:LYS:O	1:A:549:ARG:NH1	2.46	0.48
1:A:28:VAL:HG21	1:A:45:ARG:NH2	2.29	0.48
1:A:126:PRO:C	1:A:127:HIS:HD1	2.16	0.48
1:B:28:VAL:HG21	1:B:45:ARG:NH2	2.29	0.47
1:B:123:ILE:O	1:B:128:ASN:HB3	2.14	0.47
1:B:701:MET:O	1:B:705:ILE:HG13	2.14	0.47
1:B:29:PRO:HG2	1:B:145:GLU:HB3	1.95	0.47
1:B:61:ASN:O	1:B:62:GLU:HG2	2.14	0.47
1:A:61:ASN:O	1:A:62:GLU:HG2	2.14	0.47
1:A:29:PRO:HG2	1:A:145:GLU:HB3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:52:LEU:HD12	1:B:53:ALA:HB2	1.96	0.47
1:A:188:TYR:OH	1:A:539:ASP:OD2	2.25	0.47
1:B:117:ARG:HB2	1:B:552:PRO:HB2	1.97	0.47
1:A:708:GLY:HA3	1:B:57:ARG:NH1	2.29	0.47
1:A:26:TYR:CZ	1:A:149:PRO:HG3	2.50	0.46
1:B:163:TRP:O	1:B:537:ARG:NE	2.48	0.46
1:A:701:MET:HG3	1:B:50:VAL:HG21	1.97	0.46
1:A:708:GLY:O	1:A:712:ILE:HG13	2.16	0.46
1:B:320:TYR:O	1:B:321:SER:HB3	2.16	0.46
1:A:26:TYR:CZ	1:A:120:TYR:HB2	2.51	0.46
1:A:27:LYS:HD3	1:A:148:PHE:CZ	2.51	0.46
1:A:117:ARG:HB2	1:A:552:PRO:HB2	1.98	0.46
1:A:163:TRP:O	1:A:537:ARG:NE	2.48	0.46
1:A:320:TYR:O	1:A:321:SER:HB3	2.16	0.46
1:B:119:ILE:O	1:B:123:ILE:HG13	2.16	0.46
1:A:408:ARG:HH21	1:A:423:THR:HG21	1.82	0.45
1:B:115:ARG:O	1:B:119:ILE:HG23	2.16	0.45
1:B:505:ARG:HB3	1:B:561:TRP:CH2	2.51	0.45
1:B:26:TYR:OH	1:B:120:TYR:HB2	2.16	0.45
1:A:505:ARG:HB3	1:A:561:TRP:CH2	2.51	0.45
1:B:598:LYS:HE2	1:B:602:LEU:HD22	1.98	0.45
1:A:694:PHE:HB3	1:B:23:VAL:HG11	1.98	0.45
1:A:701:MET:O	1:A:705:ILE:HG13	2.17	0.45
1:B:201:ILE:HG22	1:B:205:PHE:HE2	1.81	0.45
1:A:119:ILE:HA	1:A:122:MET:HG3	1.97	0.45
1:A:600:TRP:HB3	1:B:599:ALA:HA	1.99	0.45
1:A:201:ILE:HG22	1:A:205:PHE:HE2	1.81	0.44
1:B:321:SER:O	1:B:321:SER:OG	2.34	0.44
1:A:71:ALA:CB	1:B:670:ILE:HG23	2.48	0.44
1:B:408:ARG:HH21	1:B:423:THR:HG21	1.82	0.44
1:B:667:SER:HA	1:B:670:ILE:HB	2.00	0.44
1:B:301:ALA:HB3	1:B:347:LEU:HD11	2.00	0.44
1:A:321:SER:O	1:A:321:SER:OG	2.35	0.43
1:B:521:TRP:HD1	1:B:524:ALA:HB2	1.83	0.43
1:B:120:TYR:O	1:B:124:THR:OG1	2.29	0.43
1:A:57:ARG:HG3	1:A:66:VAL:HG22	2.00	0.43
1:A:598:LYS:HE2	1:A:602:LEU:HD22	2.00	0.43
1:B:27:LYS:HD3	1:B:148:PHE:CZ	2.53	0.43
1:A:24:ILE:HG21	1:A:67:PHE:HD2	1.84	0.43
1:B:57:ARG:HG3	1:B:66:VAL:HG22	2.01	0.43
1:B:24:ILE:HG21	1:B:67:PHE:HD2	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:84:ARG:HD2	1:B:93:ARG:NH1	2.34	0.43
1:A:301:ALA:HB3	1:A:347:LEU:HD11	2.01	0.43
1:A:483:ALA:N	1:A:486:LEU:HD23	2.33	0.42
1:A:28:VAL:HG22	1:A:147:ILE:HG12	2.00	0.42
1:A:84:ARG:HD2	1:A:93:ARG:NH1	2.34	0.42
1:B:183:GLU:HA	1:B:186:ALA:HB3	2.01	0.42
1:A:415:THR:O	1:A:416:PHE:HB3	2.20	0.42
1:B:319:VAL:HG12	1:B:423:THR:HG23	2.02	0.42
1:A:280:PRO:HA	1:A:281:PRO:HD2	1.89	0.42
1:A:80:VAL:O	1:A:84:ARG:HG2	2.20	0.42
1:A:173:ASP:O	1:A:177:ILE:HG12	2.21	0.41
1:A:521:TRP:HD1	1:A:524:ALA:HB2	1.84	0.41
1:B:26:TYR:CZ	1:B:120:TYR:HB2	2.56	0.41
1:B:80:VAL:O	1:B:84:ARG:HG2	2.20	0.41
1:B:173:ASP:O	1:B:177:ILE:HG12	2.21	0.41
1:B:415:THR:O	1:B:416:PHE:HB3	2.20	0.41
1:A:178:ARG:NH1	1:A:183:GLU:OE2	2.54	0.41
1:B:193:ARG:HE	1:B:197:ARG:NH2	2.18	0.41
1:A:389:THR:HA	1:A:393:TYR:HB3	2.02	0.41
1:B:93:ARG:HE	1:B:93:ARG:HB3	1.75	0.41
1:B:155:PHE:CZ	1:B:180:LYS:HG3	2.56	0.41
1:A:148:PHE:HA	1:A:149:PRO:HD3	1.89	0.41
1:B:54:THR:OG1	1:B:71:ALA:HB2	2.21	0.41
1:A:581:TYR:OH	1:A:601:GLY:HA3	2.20	0.40
1:B:195:TYR:O	1:B:199:LEU:HB2	2.21	0.40
1:B:677:GLU:O	1:B:681:GLN:HG2	2.22	0.40
1:A:193:ARG:HE	1:A:197:ARG:NH2	2.19	0.40
1:A:704:THR:HG21	1:B:55:GLU:HG3	2.04	0.40
1:B:355:ASN:ND2	1:B:370:LEU:HB2	2.36	0.40
1:A:258:ARG:HA	1:A:259:PRO:HD3	1.97	0.40
1:A:355:ASN:ND2	1:A:370:LEU:HB2	2.35	0.40
1:A:597:LEU:HD13	1:A:600:TRP:HE1	1.86	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	642/735 (87%)	609 (95%)	33 (5%)	0	100	100
1	B	642/735 (87%)	610 (95%)	32 (5%)	0	100	100
All	All	1284/1470 (87%)	1219 (95%)	65 (5%)	0	100	100

There are no Ramachandran outliers to report.

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	560/623 (90%)	556 (99%)	4 (1%)	84	90
1	B	560/623 (90%)	551 (98%)	9 (2%)	62	79
All	All	1120/1246 (90%)	1107 (99%)	13 (1%)	71	83

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

Mol	Chain	Res	Type
1	A	98	HIS
1	A	124	THR
1	A	141	TRP
1	A	598	LYS
1	B	98	HIS
1	B	119	ILE
1	B	121	LEU
1	B	122	MET
1	B	125	LYS
1	B	141	TRP
1	B	263	TRP
1	B	487	GLN
1	B	598	LYS

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	291	GLN
1	A	366	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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 4 ligands modelled in this entry, 4 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	654/735 (88%)	0.49	86 (13%)	3	3	76, 129, 223, 279	0
1	B	654/735 (88%)	0.28	50 (7%)	13	13	76, 125, 199, 238	0
All	All	1308/1470 (88%)	0.38	136 (10%)	6	6	76, 127, 210, 279	0

All (136) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	681	GLN	12.5
1	A	684	ILE	11.9
1	A	419	LYS	9.8
1	A	682	ALA	7.8
1	A	661	ALA	7.5
1	A	268	GLU	7.3
1	A	267	ALA	7.1
1	A	662	PRO	7.0
1	A	663	GLY	6.9
1	B	141	TRP	6.7
1	A	141	TRP	6.6
1	A	326	GLN	6.6
1	A	660	ALA	6.1
1	B	701	MET	5.9
1	A	666	HIS	5.9
1	A	653	GLN	5.6
1	A	664	ILE	5.5
1	A	418	GLU	5.4
1	A	683	SER	5.4
1	A	19	GLY	5.3
1	A	325	LYS	5.3
1	A	327	TYR	5.2
1	A	673	GLU	5.2
1	A	669	LYS	5.1

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Mol	Chain	Res	Type	RSRZ
1	A	275	PRO	5.1
1	B	418	GLU	5.1
1	A	414	LEU	4.8
1	A	652	GLY	4.8
1	A	420	GLU	4.7
1	A	270	PRO	4.7
1	A	693	MET	4.7
1	B	710	ARG	4.6
1	A	276	VAL	4.6
1	B	660	ALA	4.6
1	A	677	GLU	4.6
1	A	640	PHE	4.5
1	B	416	PHE	4.5
1	B	717	ALA	4.5
1	A	656	ALA	4.4
1	A	417	SER	4.3
1	A	678	GLU	4.3
1	A	637	LYS	4.3
1	B	463	PHE	4.1
1	A	21	ASP	4.1
1	A	692	GLU	4.1
1	A	413	THR	4.0
1	B	718	ALA	3.9
1	A	719	GLY	3.9
1	B	664	ILE	3.8
1	B	127	HIS	3.8
1	B	628	ASP	3.8
1	A	641	GLN	3.8
1	A	416	PHE	3.8
1	B	271	ILE	3.7
1	B	665	GLU	3.6
1	B	703	GLU	3.5
1	B	126	PRO	3.4
1	A	55	GLU	3.4
1	A	48	THR	3.4
1	A	47	LEU	3.3
1	A	33	ARG	3.3
1	B	272	THR	3.3
1	A	710	ARG	3.3
1	B	52	LEU	3.3
1	B	461	GLN	3.2
1	A	633	GLN	3.1

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Mol	Chain	Res	Type	RSRZ
1	A	122	MET	3.1
1	B	661	ALA	3.1
1	A	320	TYR	3.1
1	B	662	PRO	3.0
1	A	670	ILE	3.0
1	B	270	PRO	3.0
1	A	266	GLU	2.9
1	A	415	THR	2.9
1	A	679	ALA	2.9
1	A	323	PRO	2.9
1	B	684	ILE	2.8
1	A	52	LEU	2.8
1	A	45	ARG	2.8
1	A	269	ASP	2.8
1	B	440	PHE	2.8
1	A	410	THR	2.8
1	A	421	LEU	2.7
1	B	78	LYS	2.7
1	B	128	ASN	2.7
1	B	72	SER	2.7
1	A	435	ASN	2.7
1	A	668	GLU	2.7
1	A	629	SER	2.6
1	A	422	PRO	2.6
1	A	651	LEU	2.6
1	B	325	LYS	2.6
1	B	417	SER	2.6
1	B	425	GLU	2.6
1	B	707	ILE	2.5
1	A	167	TYR	2.5
1	A	665	GLU	2.5
1	B	460	GLN	2.5
1	A	329	GLY	2.5
1	B	654	ASP	2.5
1	B	166	LYS	2.5
1	A	274	GLU	2.5
1	A	716	LEU	2.4
1	A	317	ASN	2.4
1	B	414	LEU	2.4
1	A	644	LYS	2.4
1	B	706	GLU	2.4
1	A	648	GLN	2.4

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Mol	Chain	Res	Type	RSRZ
1	B	656	ALA	2.4
1	B	54	THR	2.4
1	B	327	TYR	2.3
1	A	600	TRP	2.3
1	B	50	VAL	2.3
1	B	694	PHE	2.3
1	A	143	HIS	2.3
1	A	57	ARG	2.3
1	B	33	ARG	2.3
1	A	127	HIS	2.2
1	A	628	ASP	2.2
1	B	103	GLN	2.2
1	A	674	ALA	2.2
1	B	26	TYR	2.2
1	B	653	GLN	2.2
1	A	324	GLY	2.2
1	B	36	ALA	2.1
1	A	667	SER	2.1
1	A	717	ALA	2.1
1	A	20	VAL	2.1
1	B	143	HIS	2.1
1	B	256	GLN	2.1
1	A	252	SER	2.1
1	B	699	ARG	2.1
1	A	321	SER	2.1
1	B	125	LYS	2.0
1	A	328	LEU	2.0
1	A	184	SER	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 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, 95^{th} 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	CA	B	802	1/1	0.95	0.13	101,101,101,101	0
2	CA	A	802	1/1	0.97	0.19	113,113,113,113	0
2	CA	A	801	1/1	0.97	0.20	96,96,96,96	0
2	CA	B	801	1/1	0.98	0.25	104,104,104,104	0

6.5 Other polymers ⓘ

There are no such residues in this entry.