



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 03:03 AM UTC

PDB ID : 7D5Q / pdb_00007d5q
Title : Structure of NorC transporter (K398A mutant) in an outward-open conformation in complex with a single-chain Indian camelid antibody
Authors : Kumar, S.; Athreya, A.; Penmatsa, A.
Deposited on : 2020-09-27
Resolution : 3.60 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

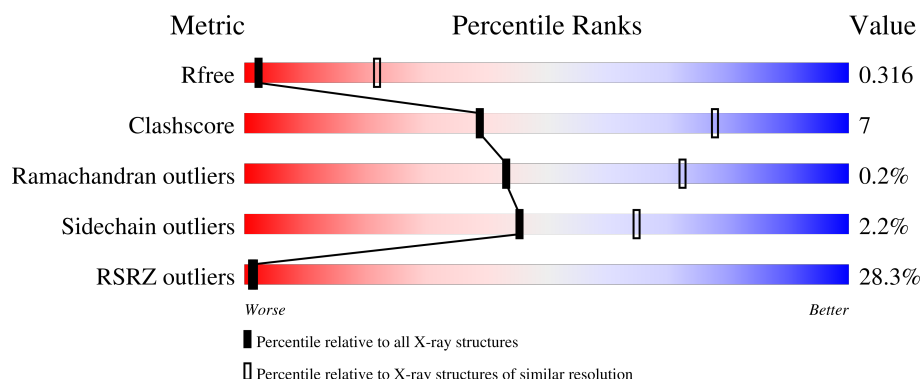
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.60 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	1747 (3.70-3.50)
Clashscore	190562	1827 (3.70-3.50)
Ramachandran outliers	187476	1773 (3.70-3.50)
Sidechain outliers	187428	1772 (3.70-3.50)
RSRZ outliers	180081	1745 (3.70-3.50)

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	479	23% 70% 13% 16%
1	B	479	30% 71% 14% 14%
2	C	131	27% 95% • •
2	D	131	12% 97% •

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 7489 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 Drug transporter, putative.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	403	Total	C	N	O	S	0	0	0
			2775	1825	441	490	19			
1	B	411	Total	C	N	O	S	0	0	0
			2808	1845	447	498	18			

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	398	ALA	LYS	engineered mutation	UNP A0A0H2WZS4
A	463	GLY	-	expression tag	UNP A0A0H2WZS4
A	464	THR	-	expression tag	UNP A0A0H2WZS4
A	465	LEU	-	expression tag	UNP A0A0H2WZS4
A	466	VAL	-	expression tag	UNP A0A0H2WZS4
A	467	PRO	-	expression tag	UNP A0A0H2WZS4
A	468	ARG	-	expression tag	UNP A0A0H2WZS4
A	469	GLY	-	expression tag	UNP A0A0H2WZS4
A	470	SER	-	expression tag	UNP A0A0H2WZS4
A	471	GLY	-	expression tag	UNP A0A0H2WZS4
A	472	HIS	-	expression tag	UNP A0A0H2WZS4
A	473	HIS	-	expression tag	UNP A0A0H2WZS4
A	474	HIS	-	expression tag	UNP A0A0H2WZS4
A	475	HIS	-	expression tag	UNP A0A0H2WZS4
A	476	HIS	-	expression tag	UNP A0A0H2WZS4
A	477	HIS	-	expression tag	UNP A0A0H2WZS4
A	478	HIS	-	expression tag	UNP A0A0H2WZS4
A	479	HIS	-	expression tag	UNP A0A0H2WZS4
B	398	ALA	LYS	engineered mutation	UNP A0A0H2WZS4
B	463	GLY	-	expression tag	UNP A0A0H2WZS4
B	464	THR	-	expression tag	UNP A0A0H2WZS4
B	465	LEU	-	expression tag	UNP A0A0H2WZS4
B	466	VAL	-	expression tag	UNP A0A0H2WZS4
B	467	PRO	-	expression tag	UNP A0A0H2WZS4
B	468	ARG	-	expression tag	UNP A0A0H2WZS4

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Chain	Residue	Modelled	Actual	Comment	Reference
B	469	GLY	-	expression tag	UNP A0A0H2WZS4
B	470	SER	-	expression tag	UNP A0A0H2WZS4
B	471	GLY	-	expression tag	UNP A0A0H2WZS4
B	472	HIS	-	expression tag	UNP A0A0H2WZS4
B	473	HIS	-	expression tag	UNP A0A0H2WZS4
B	474	HIS	-	expression tag	UNP A0A0H2WZS4
B	475	HIS	-	expression tag	UNP A0A0H2WZS4
B	476	HIS	-	expression tag	UNP A0A0H2WZS4
B	477	HIS	-	expression tag	UNP A0A0H2WZS4
B	478	HIS	-	expression tag	UNP A0A0H2WZS4
B	479	HIS	-	expression tag	UNP A0A0H2WZS4

- Molecule 2 is a protein called ICab.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	131	Total	C	N	O	S	0	0	0
			952	596	160	190	6			
2	D	131	Total	C	N	O	S	0	0	0
			952	596	160	190	6			

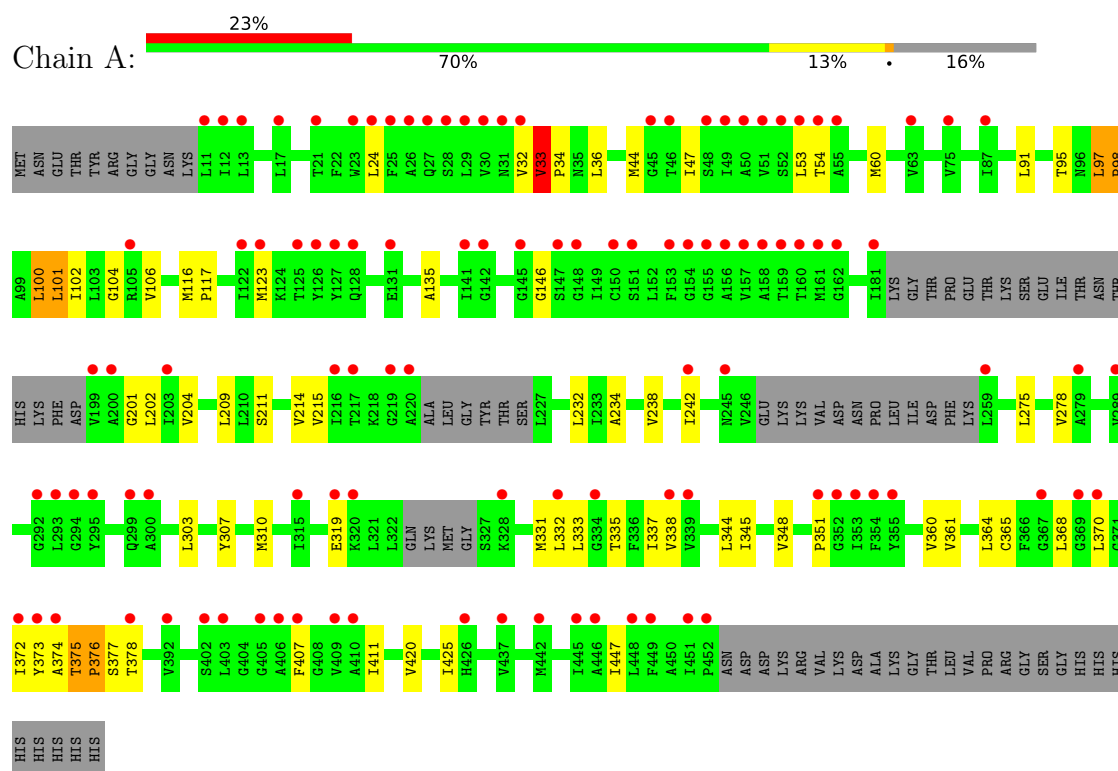
- Molecule 3 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	C	1	Total	Zn	0	0
			1	1		
3	D	1	Total	Zn	0	0
			1	1		

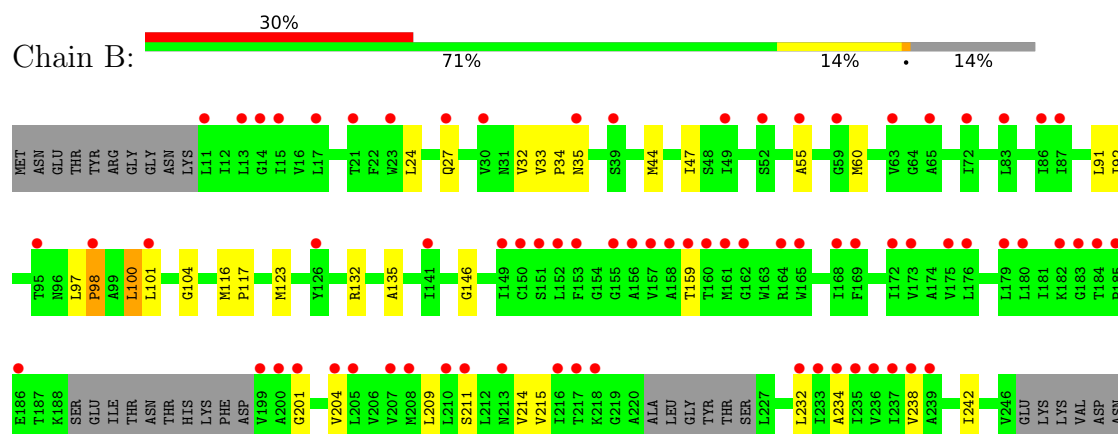
3 Residue-property plots [i](#)

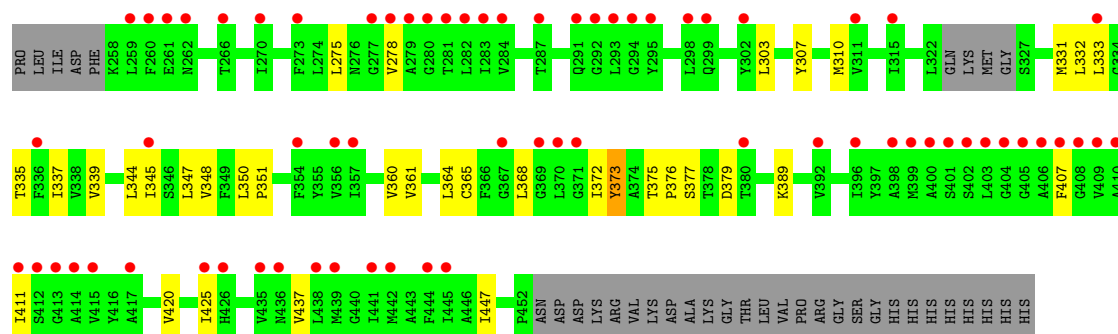
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Drug transporter, putative

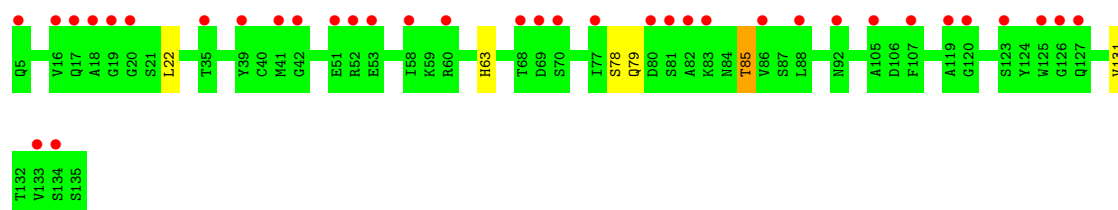


- Molecule 1: Drug transporter, putative

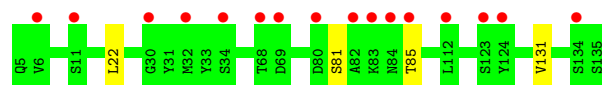




- Molecule 2: ICab



- Molecule 2: ICab



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	70.07Å 139.15Å 115.56Å 90.00° 105.66° 90.00°	Depositor
Resolution (Å)	111.52 – 3.60 111.27 – 3.60	Depositor EDS
% Data completeness (in resolution range)	99.9 (111.52-3.60) 99.9 (111.27-3.60)	Depositor EDS
R_{merge}	0.18	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.68 (at 3.58Å)	Xtriage
Refinement program	REFMAC 5.8.0253	Depositor
R, R_{free}	0.308 , 0.315 0.310 , 0.316	Depositor DCC
R_{free} test set	1231 reflections (4.81%)	wwPDB-VP
Wilson B-factor (Å ²)	166.6	Xtriage
Anisotropy	0.065	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 287.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.44$, $\langle L^2 \rangle = 0.27$	Xtriage
Estimated twinning fraction	0.056 for h,-k,-h-l	Xtriage
F_o, F_c correlation	0.82	EDS
Total number of atoms	7489	wwPDB-VP
Average B, all atoms (Å ²)	175.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.98% 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: ZN

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	1.10	1/2817 (0.0%)	1.82	6/3847 (0.2%)
1	B	1.07	0/2851	1.77	2/3898 (0.1%)
2	C	1.08	0/975	1.42	3/1326 (0.2%)
2	D	1.08	0/975	1.40	0/1326
All	All	1.09	1/7618 (0.0%)	1.70	11/10397 (0.1%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	33	VAL	C-N	12.39	1.50	1.34

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	33	VAL	CA-C-N	14.23	134.84	119.05
1	A	33	VAL	C-N-CA	14.23	134.84	119.05
1	B	159	THR	CB-CA-C	-7.40	99.27	110.88
1	A	375	THR	CA-CB-OG1	-6.21	100.29	109.60
2	C	78	SER	CA-C-N	-5.95	114.60	122.99
2	C	78	SER	C-N-CA	-5.95	114.60	122.99
1	A	54	THR	CB-CA-C	-5.92	100.96	110.79
1	B	98	PRO	N-CA-C	5.43	123.66	112.47
1	A	374	ALA	CA-C-O	-5.43	115.12	120.82
1	A	98	PRO	N-CA-C	5.19	123.15	112.47
2	C	85	THR	CA-C-O	-5.03	114.49	120.43

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	2775	0	2798	45	0
1	B	2808	0	2803	44	0
2	C	952	0	844	7	0
2	D	952	0	844	4	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
All	All	7489	0	7289	100	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 (100) 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:344:LEU:HD13	1:A:361:VAL:HG23	1.62	0.82
1:B:337:ILE:HD13	1:B:368:LEU:HD11	1.69	0.75
1:A:375:THR:CG2	1:A:376:PRO:HD3	2.17	0.75
1:A:337:ILE:HD13	1:A:368:LEU:HD11	1.69	0.73
1:B:331:MET:HE3	1:B:377:SER:HB3	1.68	0.73
1:A:375:THR:HG22	1:A:376:PRO:HD3	1.70	0.73
1:A:97:LEU:HD12	1:A:98:PRO:HD2	1.72	0.72
1:B:344:LEU:HD23	1:B:361:VAL:HG23	1.76	0.67
1:B:123:MET:HE3	1:B:135:ALA:HB1	1.79	0.64
1:A:123:MET:HE3	1:A:135:ALA:HB1	1.79	0.64
1:A:345:ILE:O	1:A:348:VAL:HG12	1.99	0.63
1:B:32:VAL:HG12	1:B:32:VAL:O	1.99	0.63
2:C:63:HIS:CD2	2:C:79:GLN:HE21	2.16	0.63
1:B:97:LEU:N	1:B:97:LEU:HD23	2.14	0.63
1:A:32:VAL:HG12	1:A:32:VAL:O	2.00	0.62
1:B:345:ILE:O	1:B:348:VAL:HG12	1.99	0.61
1:A:331:MET:HE3	1:A:377:SER:HB2	1.83	0.61
1:A:44:MET:HA	1:A:47:ILE:HG22	1.84	0.59
1:B:44:MET:HA	1:B:47:ILE:HG22	1.83	0.59
1:A:97:LEU:HD12	1:A:98:PRO:CD	2.33	0.59
1:B:24:LEU:HD23	1:B:24:LEU:C	2.29	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:24:LEU:C	1:A:24:LEU:HD23	2.29	0.58
1:B:350:LEU:HD12	1:B:350:LEU:O	2.03	0.58
1:B:214:VAL:HG23	1:B:232:LEU:HD21	1.86	0.57
1:A:214:VAL:HG23	1:A:232:LEU:HD21	1.87	0.56
1:A:332:LEU:HG	1:A:447:ILE:HG21	1.88	0.56
1:B:347:LEU:CD1	1:B:350:LEU:HD11	2.36	0.56
1:B:32:VAL:HG12	1:B:35:ASN:HB2	1.88	0.54
1:B:332:LEU:HG	1:B:447:ILE:HG21	1.88	0.54
1:B:373:TYR:CE1	1:B:377:SER:OG	2.55	0.54
1:A:319:GLU:N	1:A:375:THR:HG21	2.23	0.53
2:C:79:GLN:O	2:C:79:GLN:HG3	2.07	0.52
1:B:33:VAL:N	1:B:34:PRO:CD	2.73	0.52
1:B:234:ALA:O	1:B:238:VAL:HG23	2.10	0.52
1:A:102:ILE:O	1:A:106:VAL:HG23	2.11	0.51
1:A:234:ALA:O	1:A:238:VAL:HG23	2.10	0.51
1:A:310:MET:HE3	1:A:364:LEU:HD12	1.93	0.51
1:B:373:TYR:C	1:B:373:TYR:CD1	2.89	0.51
2:C:63:HIS:NE2	2:C:79:GLN:NE2	2.50	0.50
1:B:116:MET:HB2	1:B:117:PRO:HD3	1.94	0.50
1:A:116:MET:HB2	1:A:117:PRO:HD3	1.94	0.50
1:A:33:VAL:N	1:A:34:PRO:CD	2.74	0.50
1:B:310:MET:HE3	1:B:364:LEU:HD12	1.92	0.50
2:C:22:LEU:HD13	2:C:131:VAL:HG23	1.94	0.49
2:D:22:LEU:HD13	2:D:131:VAL:HG23	1.95	0.48
1:B:420:VAL:HG23	1:B:425:ILE:HA	1.95	0.48
1:A:375:THR:HG23	1:A:376:PRO:HD3	1.93	0.48
1:A:337:ILE:O	1:A:365:CYS:SG	2.71	0.48
1:A:91:LEU:HG	1:A:100:LEU:HD21	1.95	0.47
1:B:337:ILE:O	1:B:365:CYS:SG	2.71	0.47
1:A:333:LEU:HD22	1:A:372:ILE:HG21	1.97	0.47
1:A:420:VAL:HG23	1:A:425:ILE:HA	1.96	0.47
2:C:63:HIS:CD2	2:C:79:GLN:NE2	2.83	0.47
1:A:91:LEU:HD23	1:A:104:GLY:CA	2.45	0.47
2:D:85:THR:O	2:D:85:THR:HG23	2.13	0.47
1:A:24:LEU:HD12	1:A:146:GLY:HA2	1.96	0.46
1:A:373:TYR:C	1:A:373:TYR:CD1	2.93	0.46
1:B:24:LEU:HD12	1:B:146:GLY:HA2	1.97	0.46
1:B:333:LEU:HD22	1:B:372:ILE:HG21	1.98	0.46
1:A:202:LEU:C	1:A:202:LEU:HD13	2.40	0.46
1:B:91:LEU:HD22	1:B:104:GLY:HA3	1.97	0.46
1:A:211:SER:O	1:A:215:VAL:HG23	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:211:SER:O	1:B:215:VAL:HG23	2.16	0.45
1:B:91:LEU:HD22	1:B:104:GLY:CA	2.47	0.45
1:B:100:LEU:C	1:B:100:LEU:HD13	2.42	0.45
1:B:204:VAL:HG21	1:B:242:ILE:CG2	2.46	0.45
1:B:303:LEU:HD21	1:B:360:VAL:HG22	1.97	0.45
1:A:204:VAL:HG21	1:A:242:ILE:CG2	2.47	0.45
1:A:91:LEU:HD23	1:A:104:GLY:HA2	1.98	0.45
1:A:377:SER:O	1:A:377:SER:OG	2.29	0.45
2:D:22:LEU:CD1	2:D:131:VAL:HG23	2.47	0.45
2:C:85:THR:O	2:C:85:THR:HG23	2.16	0.44
1:A:36:LEU:HD11	1:A:101:LEU:HD21	1.99	0.44
1:A:303:LEU:HD21	1:A:360:VAL:HG22	1.99	0.44
2:C:22:LEU:CD1	2:C:131:VAL:HG23	2.47	0.44
1:A:275:LEU:O	1:A:278:VAL:HG22	2.19	0.43
1:A:407:PHE:O	1:A:411:ILE:HD13	2.17	0.43
1:B:407:PHE:O	1:B:411:ILE:HD13	2.18	0.43
1:A:201:GLY:O	1:A:204:VAL:HG12	2.19	0.43
1:B:92:ILE:HD11	1:B:104:GLY:HA3	2.00	0.43
1:A:53:LEU:HD13	1:A:106:VAL:HG22	2.00	0.42
1:A:204:VAL:HG21	1:A:242:ILE:HG21	2.01	0.42
1:B:91:LEU:HD21	1:B:100:LEU:HD22	2.00	0.42
1:B:97:LEU:N	1:B:97:LEU:CD2	2.82	0.42
1:B:201:GLY:O	1:B:204:VAL:HG12	2.19	0.42
1:B:27:GLN:HE22	1:B:55:ALA:HB2	1.84	0.42
1:A:275:LEU:HD23	1:A:335:THR:HG22	2.01	0.42
1:B:275:LEU:HD23	1:B:335:THR:HG22	2.01	0.42
1:A:97:LEU:HG	1:A:100:LEU:HB3	2.02	0.42
1:B:275:LEU:O	1:B:278:VAL:HG22	2.19	0.42
1:B:32:VAL:CG1	1:B:35:ASN:HB2	2.50	0.41
1:B:204:VAL:HG21	1:B:242:ILE:HG21	2.01	0.41
1:A:338:VAL:HG11	1:A:370:LEU:HD12	2.03	0.41
1:A:344:LEU:HD23	1:A:344:LEU:HA	1.96	0.40
1:B:98:PRO:C	1:B:100:LEU:N	2.76	0.40
1:B:339:VAL:HG13	1:B:437:VAL:HG13	2.03	0.40
1:A:60:MET:HA	1:A:209:LEU:HD13	2.03	0.40
1:B:132:ARG:NH1	1:B:379:ASP:OD1	2.54	0.40
1:B:60:MET:HA	1:B:209:LEU:HD13	2.03	0.40
2:D:85:THR:O	2:D:85:THR:CG2	2.69	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	393/479 (82%)	356 (91%)	36 (9%)	1 (0%)	36	65
1	B	401/479 (84%)	365 (91%)	35 (9%)	1 (0%)	43	72
2	C	129/131 (98%)	121 (94%)	8 (6%)	0	100	100
2	D	129/131 (98%)	121 (94%)	8 (6%)	0	100	100
All	All	1052/1220 (86%)	963 (92%)	87 (8%)	2 (0%)	43	72

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	351	PRO
1	B	351	PRO

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	266/379 (70%)	258 (97%)	8 (3%)	36	59
1	B	265/379 (70%)	258 (97%)	7 (3%)	40	62
2	C	93/105 (89%)	93 (100%)	0	100	100
2	D	93/105 (89%)	92 (99%)	1 (1%)	65	74
All	All	717/968 (74%)	701 (98%)	16 (2%)	45	65

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	33	VAL
1	A	95	THR
1	A	97	LEU
1	A	100	LEU
1	A	101	LEU
1	A	307	TYR
1	A	376	PRO
1	A	378	THR
1	B	100	LEU
1	B	101	LEU
1	B	307	TYR
1	B	373	TYR
1	B	375	THR
1	B	376	PRO
1	B	389	LYS
2	D	81	SER

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	37	GLN
1	A	272	ASN
1	A	276	ASN
1	A	291	GLN
1	B	272	ASN
1	B	276	ASN
1	B	286	ASN
1	B	291	GLN
2	C	121	GLN
2	C	130	GLN
2	D	91	ASN
2	D	121	GLN
2	D	130	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 [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 2 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 [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	403/479 (84%)	1.58	109 (27%) 1 2	118, 174, 212, 233	0
1	B	411/479 (85%)	2.13	143 (34%) 1 1	137, 197, 228, 253	0
2	C	131/131 (100%)	1.53	36 (27%) 1 2	114, 142, 180, 209	0
2	D	131/131 (100%)	0.56	16 (12%) 8 7	117, 150, 182, 194	0
All	All	1076/1220 (88%)	1.66	304 (28%) 1 1	114, 176, 220, 253	0

All (304) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	C	82	ALA	21.4
1	B	410	ALA	17.9
1	A	27	GLN	16.3
1	B	409	VAL	16.1
1	B	279	ALA	15.2
1	B	411	ILE	14.6
1	B	406	ALA	14.4
1	B	412	SER	14.1
1	B	405	GLY	13.4
1	A	126	TYR	12.9
1	B	408	GLY	12.1
1	B	14	GLY	11.7
1	B	407	PHE	11.5
1	B	280	GLY	11.2
1	B	438	LEU	11.2
1	B	156	ALA	11.1
1	B	27	GLN	10.7
1	B	402	SER	10.2
1	A	406	ALA	10.1
1	B	216	ILE	10.0
1	A	25	PHE	9.7

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Mol	Chain	Res	Type	RSRZ
1	A	30	VAL	9.5
1	B	168	ILE	9.3
1	A	26	ALA	9.2
1	A	219	GLY	9.1
1	B	161	MET	9.0
1	B	292	GLY	9.0
1	B	413	GLY	9.0
1	B	160	THR	8.9
1	A	448	LEU	8.8
1	A	52	SER	8.7
1	B	159	THR	8.7
1	A	293	LEU	8.7
1	A	292	GLY	8.5
1	B	435	VAL	8.5
2	C	19	GLY	8.4
1	A	295	TYR	8.4
1	B	283	ILE	8.3
1	B	172	ILE	8.2
2	C	127	GLN	8.1
2	C	52	ARG	8.0
1	A	12	ILE	7.9
1	B	357	ILE	7.9
1	B	277	GLY	7.9
1	B	403	LEU	7.8
1	B	442	MET	7.8
1	A	445	ILE	7.7
2	C	51	GLU	7.7
1	B	354	PHE	7.7
1	B	169	PHE	7.6
1	A	49	ILE	7.6
1	B	414	ALA	7.6
2	C	18	ALA	7.6
1	A	161	MET	7.3
1	B	184	THR	7.2
1	A	199	VAL	7.2
1	B	336	PHE	7.0
2	C	81	SER	7.0
2	D	82	ALA	6.8
1	B	293	LEU	6.8
1	A	28	SER	6.7
1	A	216	ILE	6.7
1	B	439	MET	6.7

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Mol	Chain	Res	Type	RSRZ
1	A	157	VAL	6.6
1	B	404	GLY	6.6
1	A	45	GLY	6.4
1	B	157	VAL	6.4
1	A	125	THR	6.2
1	B	153	PHE	6.2
2	D	69	ASP	6.2
2	D	32	MET	6.1
1	A	160	THR	6.1
1	B	165	TRP	6.1
1	A	405	GLY	6.0
1	B	87	ILE	6.0
2	C	53	GLU	5.8
1	A	158	ALA	5.7
1	B	175	VAL	5.7
1	A	123	MET	5.7
1	B	299	GLN	5.7
2	D	83	LYS	5.7
2	C	107	PHE	5.7
1	B	23	TRP	5.6
1	B	30	VAL	5.5
1	A	127	TYR	5.4
1	A	200	ALA	5.4
1	B	425	ILE	5.3
1	B	176	LEU	5.3
1	A	29	LEU	5.3
2	C	123	SER	5.2
1	A	449	PHE	5.2
1	A	153	PHE	5.2
1	A	452	PRO	5.1
1	A	154	GLY	5.1
1	A	320	LYS	5.1
1	A	242	ILE	5.0
1	B	185	PRO	5.0
1	A	353	ILE	5.0
2	C	126	GLY	5.0
1	B	13	LEU	5.0
1	B	183	GLY	5.0
1	B	207	VAL	4.9
1	A	352	GLY	4.8
1	B	21	THR	4.8
1	A	407	PHE	4.7

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Mol	Chain	Res	Type	RSRZ
1	B	17	LEU	4.7
2	D	112	LEU	4.7
2	C	17	GLN	4.7
1	A	48	SER	4.6
1	A	32	VAL	4.6
1	B	149	ILE	4.6
1	A	11	LEU	4.6
1	B	441	ILE	4.6
1	B	436	ASN	4.6
1	B	399	MET	4.5
1	A	122	ILE	4.5
1	A	409	VAL	4.5
2	C	5	GLN	4.4
1	B	55	ALA	4.4
1	A	402	SER	4.4
2	C	20	GLY	4.4
1	B	302	TYR	4.4
2	C	125	TRP	4.4
1	A	150	CYS	4.3
1	A	294	GLY	4.3
1	A	451	ILE	4.3
1	B	294	GLY	4.3
2	C	69	ASP	4.3
1	B	182	LYS	4.2
2	C	35	THR	4.2
1	B	235	ILE	4.2
2	D	124	TYR	4.2
1	A	442	MET	4.1
1	B	278	VAL	4.1
1	B	213	ASN	4.1
1	B	400	ALA	4.1
2	C	70	SER	4.1
2	C	80	ASP	4.0
1	A	426	HIS	4.0
1	A	446	ALA	4.0
1	B	239	ALA	4.0
1	A	23	TRP	4.0
1	A	155	GLY	4.0
1	B	273	PHE	4.0
1	A	21	THR	4.0
1	A	217	THR	3.9
1	A	31	ASN	3.8

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Mol	Chain	Res	Type	RSRZ
1	B	295	TYR	3.7
2	C	41	MET	3.7
1	A	156	ALA	3.7
1	A	370	LEU	3.7
2	C	68	THR	3.7
1	B	270	ILE	3.7
2	D	84	ASN	3.7
1	B	11	LEU	3.7
1	B	95	THR	3.6
2	C	120	GLY	3.6
1	B	49	ILE	3.6
1	A	50	ALA	3.6
1	B	39	SER	3.6
1	B	261	GLU	3.6
1	B	236	VAL	3.6
1	A	128	GLN	3.5
1	A	162	GLY	3.5
1	B	415	VAL	3.5
2	D	11	SER	3.5
1	A	147	SER	3.4
1	A	410	ALA	3.4
1	A	142	GLY	3.4
1	B	126	TYR	3.4
1	A	328	LYS	3.3
1	A	13	LEU	3.3
2	C	42	GLY	3.3
1	B	155	GLY	3.3
1	B	369	GLY	3.3
2	C	83	LYS	3.3
1	A	338	VAL	3.3
1	A	369	GLY	3.3
2	D	68	THR	3.3
1	A	259	LEU	3.2
1	B	426	HIS	3.2
1	A	159	THR	3.2
1	A	374	ALA	3.2
1	B	199	VAL	3.2
2	D	30	GLY	3.2
1	A	220	ALA	3.2
1	A	334	GLY	3.2
1	A	378	THR	3.2
1	B	141	ILE	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	151	SER	3.2
1	A	403	LEU	3.2
1	A	55	ALA	3.1
1	B	186	GLU	3.1
1	B	259	LEU	3.1
1	B	356	VAL	3.0
2	C	119	ALA	3.0
1	B	179	LEU	3.0
1	B	173	VAL	3.0
2	C	133	VAL	3.0
2	C	92	ASN	3.0
1	A	299	GLN	3.0
1	B	52	SER	3.0
1	B	298	LEU	3.0
1	A	181	ILE	2.9
1	B	398	ALA	2.9
1	A	53	LEU	2.9
1	A	63	VAL	2.9
2	D	6	VAL	2.9
1	B	101	LEU	2.8
1	B	237	ILE	2.8
1	B	238	VAL	2.8
1	B	83	LEU	2.8
1	B	232	LEU	2.8
1	B	204	VAL	2.8
1	B	162	GLY	2.8
1	B	401	SER	2.7
1	B	333	LEU	2.7
1	A	354	PHE	2.7
1	B	158	ALA	2.7
1	A	203	ILE	2.7
1	B	233	ILE	2.7
1	A	131	GLU	2.7
1	B	370	LEU	2.7
1	B	208	MET	2.7
1	B	260	PHE	2.7
1	B	86	ILE	2.6
1	B	266	THR	2.6
1	B	262	ASN	2.6
1	B	72	ILE	2.6
1	B	217	THR	2.6
1	B	211	SER	2.6

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Mol	Chain	Res	Type	RSRZ
1	B	35	ASN	2.6
1	B	151	SER	2.6
1	A	51	VAL	2.6
1	A	351	PRO	2.6
1	A	145	GLY	2.6
1	A	372	ILE	2.5
1	B	291	GLN	2.5
1	B	210	LEU	2.5
1	B	282	LEU	2.5
2	C	60	ARG	2.5
1	B	444	PHE	2.5
1	A	87	ILE	2.5
1	A	24	LEU	2.5
1	A	245	ASN	2.5
1	B	445	ILE	2.5
1	A	75	VAL	2.5
1	B	234	ALA	2.4
1	B	392	VAL	2.4
2	C	39	TYR	2.4
2	D	134	SER	2.4
1	B	63	VAL	2.4
1	B	287	THR	2.4
1	B	152	LEU	2.4
1	B	396	ILE	2.3
1	B	180	LEU	2.3
2	D	123	SER	2.3
2	D	85	THR	2.3
1	A	437	VAL	2.3
1	B	281	THR	2.3
1	B	164	ARG	2.3
1	A	141	ILE	2.3
1	A	319	GLU	2.3
1	B	200	ALA	2.3
1	B	417	ALA	2.3
2	C	77	ILE	2.2
1	A	300	ALA	2.2
1	A	46	THR	2.2
1	B	15	ILE	2.2
1	B	98	PRO	2.2
1	B	367	GLY	2.2
1	A	105	ARG	2.2
1	B	205	LEU	2.2

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Mol	Chain	Res	Type	RSRZ
2	D	34	SER	2.2
2	C	86	VAL	2.2
1	B	201	GLY	2.2
1	A	17	LEU	2.2
1	A	315	ILE	2.2
1	A	367	GLY	2.2
2	C	58	ILE	2.2
1	B	284	VAL	2.1
1	B	311	VAL	2.1
2	D	80	ASP	2.1
2	C	88	LEU	2.1
1	B	65	ALA	2.1
2	C	105	ALA	2.1
2	C	134	SER	2.1
1	A	289	VAL	2.1
2	C	16	VAL	2.1
1	B	150	CYS	2.1
1	B	380	THR	2.1
1	B	315	ILE	2.1
1	B	345	ILE	2.1
1	A	392	VAL	2.1
1	A	148	GLY	2.1
1	B	59	GLY	2.1
1	B	371	GLY	2.1
1	A	332	LEU	2.1
1	A	54	THR	2.0
1	A	279	ALA	2.0
1	A	339	VAL	2.0
1	A	355	TYR	2.0
1	A	373	TYR	2.0
1	B	218	LYS	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](#)

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
3	ZN	C	201	1/1	0.99	0.07	122,122,122,122	0
3	ZN	D	201	1/1	0.99	0.03	126,126,126,126	0

6.5 Other polymers [i](#)

There are no such residues in this entry.