Full wwPDB X-ray Structure Validation Report (i)

Nov 15, 2023 – 01:48 PM JST

PDB ID	:	6JCO
Title	:	Crystal structure of calcium free human gelsolin amyloid mutant D187N
Authors	:	Zorgati, H.; Robinson, R.C.
Deposited on	:	2019-01-29
Resolution	:	2.88 Å(reported)

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

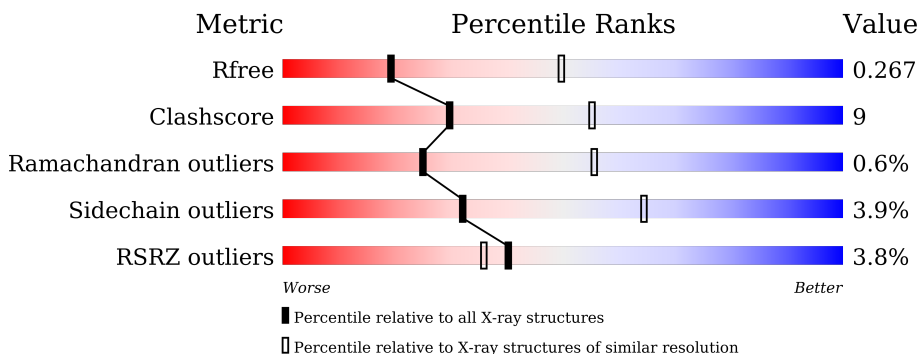|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 2.88 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	Percentile Ranks	Value
Rfree		0.267
Clashscore		9
Ramachandran outliers		0.6%
Sidechain outliers		3.9%
RSRZ outliers		3.8%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2691 (2.90-2.86)
Clashscore	141614	2947 (2.90-2.86)
Ramachandran outliers	138981	2868 (2.90-2.86)
Sidechain outliers	138945	2871 (2.90-2.86)
RSRZ outliers	127900	2629 (2.90-2.86)

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	727	5% — 73% — 22% · ·
1	B	727	3% — 79% — 18% · ·

2 Entry composition ⓘ

There is only 1 type of molecule in this entry. The entry contains 11022 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 Gelsolin.

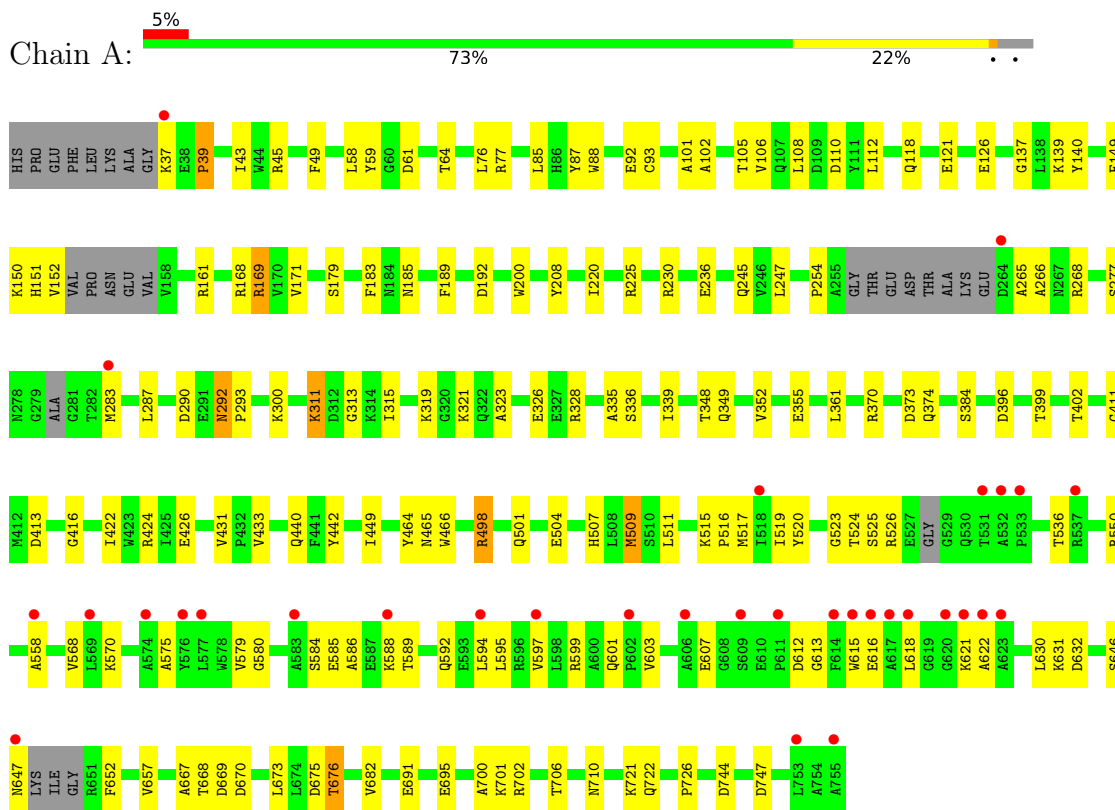| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	701	Total 5456	C 3440	N 957	O 1043	S 16	0	0	0
1	B	715	Total 5566	C 3513	N 975	O 1062	S 16	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

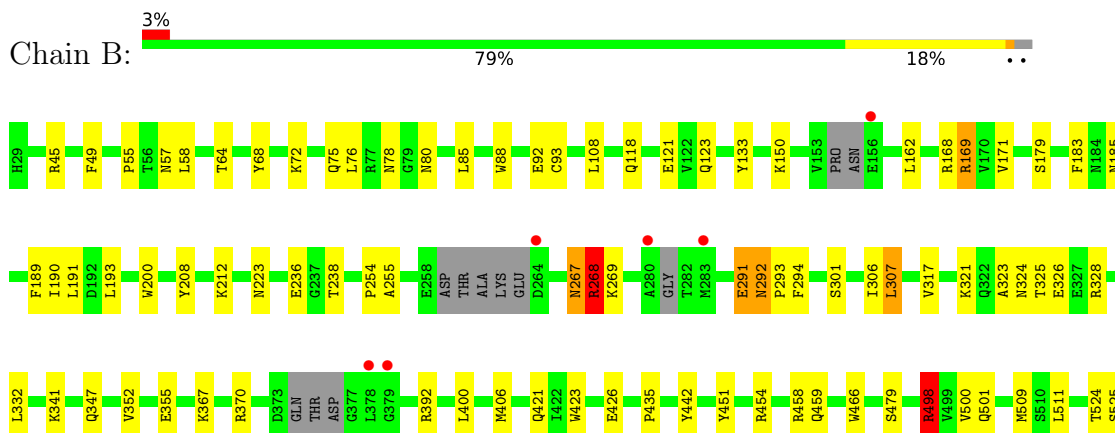| Chain	Residue	Modelled	Actual	Comment	Reference
A	187	ASN	ASP	engineered mutation	UNP P06396
B	187	ASN	ASP	engineered mutation	UNP P06396

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 as grey.

- Molecule 1: Gelsolin

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R526 P533 A534 S535 T536 R537 V541 N544 S545 A546 R550 K557 A558 G559 A560 L561 N562 S563 A566 F567 V568 L569 K570 A574 A575 Y576 L577 W578 V579 K588 A591 Q592 E593 L594 L595 Q601 P602 V603 E607 G608 S609 E610 F614 W615 K621 A622 A623

Y624 R625 T626 S627 K631 D632 D636 L642 S646 N647 LYS I649 E655 D669 D670 L673 L674 D675 T676 W677 W683 K686 R714 K721 Q722 V743 R748 A749 M750 A751 E752 L753 A754 A755

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 4 21 2	Depositor
Cell constants a, b, c, α, β, γ	170.13Å 170.13Å 151.48Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	69.19 – 2.88 69.19 – 2.88	Depositor EDS
% Data completeness (in resolution range)	99.9 (69.19-2.88) 99.9 (69.19-2.88)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.51 (at 2.86Å)	Xtriage
Refinement program	PHENIX (1.13_2998)	Depositor
R, R_{free}	0.206 , 0.267 0.206 , 0.267	Depositor DCC
R_{free} test set	2500 reflections (4.92%)	wwPDB-VP
Wilson B-factor (Å^2)	71.8	Xtriage
Anisotropy	0.006	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 50.0	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	11022	wwPDB-VP
Average B, all atoms (Å^2)	65.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.39% 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 (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	0.54	2/5577 (0.0%)	0.65	2/7552 (0.0%)
1	B	0.51	1/5690 (0.0%)	0.66	4/7702 (0.1%)
All	All	0.52	3/11267 (0.0%)	0.66	6/15254 (0.0%)

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	1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	39	PRO	N-CD	-16.14	1.25	1.47
1	B	93	CYS	CB-SG	-7.22	1.70	1.82
1	A	93	CYS	CB-SG	-5.25	1.73	1.81

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	498	ARG	NE-CZ-NH1	6.92	123.76	120.30
1	A	676	THR	C-N-CA	-6.02	106.65	121.70
1	B	753	LEU	CB-CG-CD2	5.90	121.03	111.00
1	B	307	LEU	CA-CB-CG	5.79	128.62	115.30
1	B	291	GLU	C-N-CA	-5.69	107.48	121.70
1	A	39	PRO	N-CD-CG	5.23	111.05	103.20

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	374	GLN	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	5456	0	5293	108	0
1	B	5566	0	5418	97	0
All	All	11022	0	10711	204	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 9.

All (204) 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:615:TRP:CE3	1:B:621:LYS:HE2	1.84	1.11
1:A:612:ASP:O	1:A:616:GLU:CD	1.97	1.02
1:A:612:ASP:O	1:A:616:GLU:OE1	1.78	1.01
1:A:524:THR:HG22	1:A:526:ARG:H	1.29	0.97
1:A:292:ASN:HB3	1:A:293:PRO:HD3	1.50	0.92
1:A:64:THR:HG22	1:A:92:GLU:HG2	1.55	0.87
1:B:169:ARG:NH2	1:B:670:ASP:OD2	2.08	0.86
1:B:631:LYS:HD2	1:B:632:ASP:H	1.41	0.85
1:A:373:ASP:HB3	1:B:435:PRO:HG2	1.60	0.84
1:B:541:VAL:HG11	1:B:591:ALA:HB2	1.59	0.82
1:B:615:TRP:CE3	1:B:621:LYS:CE	2.62	0.81
1:B:631:LYS:CD	1:B:632:ASP:H	1.97	0.78
1:A:498:ARG:HH11	1:A:498:ARG:HG2	1.51	0.76
1:A:161:ARG:NH2	1:A:192:ASP:OD2	2.20	0.74
1:B:561:LEU:HD21	1:B:578:TRP:CH2	2.22	0.74
1:A:612:ASP:O	1:A:616:GLU:OE2	2.05	0.74
1:B:118:GLN:HB2	1:B:352:VAL:HG22	1.69	0.74
1:A:168:ARG:NH2	1:A:670:ASP:OD2	2.20	0.74
1:A:424:ARG:NH1	1:A:525:SER:OG	2.20	0.73
1:A:524:THR:HG21	1:A:526:ARG:HE	1.54	0.73
1:A:673:LEU:HD23	1:A:682:VAL:HG12	1.70	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:169:ARG:HG2	1:A:657:VAL:HG22	1.70	0.72
1:B:563:SER:HB2	1:B:626:THR:HA	1.71	0.72
1:B:64:THR:HG22	1:B:92:GLU:HB2	1.73	0.69
1:A:515:LYS:NZ	1:A:516:PRO:O	2.26	0.68
1:B:615:TRP:HE3	1:B:621:LYS:CE	2.06	0.67
1:A:101:ALA:O	1:A:105:THR:HG23	1.93	0.67
1:B:615:TRP:HB3	1:B:621:LYS:NZ	2.10	0.67
1:B:524:THR:OG1	1:B:526:ARG:HG2	1.96	0.65
1:B:610:GLU:HB2	1:B:615:TRP:CZ3	2.31	0.65
1:A:268:ARG:O	1:A:268:ARG:HD2	1.96	0.65
1:A:311:LYS:H	1:A:311:LYS:HE2	1.62	0.64
1:A:64:THR:CG2	1:A:92:GLU:HG2	2.26	0.64
1:A:168:ARG:HH21	1:A:667:ALA:HB1	1.62	0.64
1:B:615:TRP:CD2	1:B:621:LYS:HE2	2.33	0.64
1:B:631:LYS:HD2	1:B:632:ASP:N	2.12	0.64
1:A:580:GLY:HA2	1:A:607:GLU:HB2	1.78	0.63
1:A:579:VAL:HG21	1:A:588:LYS:HE2	1.79	0.63
1:A:321:LYS:HG3	1:A:355:GLU:OE1	1.98	0.63
1:B:267:ASN:O	1:B:269:LYS:N	2.29	0.63
1:A:613:GLY:HA2	1:A:616:GLU:OE1	1.99	0.62
1:A:586:ALA:HA	1:A:589:THR:HG22	1.79	0.62
1:B:400:LEU:HB2	1:B:406:MET:HE1	1.81	0.61
1:B:498:ARG:HG2	1:B:498:ARG:HH11	1.65	0.61
1:B:301:SER:HB3	1:B:321:LYS:HG3	1.82	0.61
1:A:558:ALA:HB2	1:A:618:LEU:HD21	1.83	0.61
1:A:43:ILE:HD12	1:A:59:TYR:CG	2.36	0.61
1:A:524:THR:HG21	1:A:526:ARG:NE	2.16	0.60
1:B:578:TRP:CD1	1:B:614:PHE:HE1	2.20	0.59
1:A:208:TYR:HE2	1:A:667:ALA:HA	1.67	0.59
1:B:293:PRO:O	1:B:367:LYS:HE3	2.03	0.58
1:B:561:LEU:HD23	1:B:562:ASN:N	2.19	0.57
1:A:87:TYR:HB3	1:A:105:THR:HG21	1.84	0.57
1:A:292:ASN:HB3	1:A:293:PRO:CD	2.26	0.57
1:B:576:TYR:CE2	1:B:614:PHE:HB2	2.41	0.56
1:B:191:LEU:HG	1:B:193:LEU:HD21	1.87	0.56
1:A:76:LEU:O	1:A:77:ARG:HB2	2.05	0.56
1:A:85:LEU:HD21	1:A:108:LEU:HD23	1.86	0.56
1:B:537:ARG:O	1:B:569:LEU:HD12	2.05	0.56
1:A:323:ALA:O	1:A:328:ARG:NH2	2.40	0.55
1:B:593:GLU:O	1:B:593:GLU:HG3	2.05	0.55
1:A:315:ILE:HD11	1:A:335:ALA:HB1	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:137:GLY:HA3	1:A:171:VAL:HG13	1.89	0.55
1:B:615:TRP:HB2	1:B:621:LYS:HG2	1.88	0.54
1:A:673:LEU:CD2	1:A:682:VAL:HG12	2.35	0.54
1:A:682:VAL:HG11	1:A:700:ALA:HB2	1.89	0.54
1:B:676:THR:HG22	1:B:677:TRP:H	1.73	0.54
1:A:265:ALA:HB3	1:A:652:PHE:O	2.07	0.54
1:B:168:ARG:HH12	1:B:208:TYR:HB3	1.72	0.54
1:B:168:ARG:NH2	1:B:669:ASP:OD1	2.40	0.54
1:B:185:ASN:OD1	1:B:255:ALA:HA	2.08	0.54
1:B:500:VAL:HG13	1:B:714:ARG:HB3	1.90	0.53
1:B:347:GLN:OE1	1:B:347:GLN:N	2.35	0.53
1:B:676:THR:HG22	1:B:677:TRP:N	2.23	0.53
1:A:58:LEU:HD13	1:A:151:HIS:HB3	1.90	0.53
1:B:162:LEU:HD12	1:B:190:ILE:O	2.09	0.53
1:A:498:ARG:HG2	1:A:498:ARG:NH1	2.21	0.52
1:B:615:TRP:HE3	1:B:621:LYS:HZ3	1.57	0.52
1:B:183:PHE:HA	1:B:189:PHE:CZ	2.43	0.52
1:B:578:TRP:HD1	1:B:614:PHE:HE1	1.58	0.52
1:A:168:ARG:NH2	1:A:669:ASP:OD1	2.23	0.52
1:A:208:TYR:CE2	1:A:667:ALA:HA	2.45	0.52
1:A:396:ASP:OD2	1:A:399:THR:OG1	2.24	0.52
1:B:426:GLU:HA	1:B:526:ARG:HH21	1.73	0.52
1:A:524:THR:HG22	1:A:526:ARG:N	2.11	0.51
1:A:185:ASN:OD1	1:A:236:GLU:OE2	2.27	0.51
1:A:293:PRO:HG3	1:A:710:ASN:ND2	2.25	0.51
1:A:266:ALA:HB2	1:A:702:ARG:HH21	1.76	0.51
1:A:45:ARG:NH2	1:A:149:PHE:O	2.39	0.51
1:A:594:LEU:HA	1:A:597:VAL:HG12	1.92	0.51
1:A:575:ALA:O	1:A:603:VAL:HG22	2.11	0.51
1:A:691:GLU:O	1:A:695:GLU:HG2	2.11	0.50
1:B:400:LEU:HD13	1:B:406:MET:HE2	1.94	0.50
1:A:61:ASP:OD1	1:A:139:LYS:HE2	2.12	0.50
1:A:589:THR:O	1:A:592:GLN:HG3	2.12	0.49
1:B:615:TRP:HB3	1:B:621:LYS:HZ2	1.75	0.49
1:B:579:VAL:HG11	1:B:588:LYS:HE3	1.94	0.49
1:A:169:ARG:CG	1:A:657:VAL:HG22	2.42	0.49
1:A:498:ARG:HH11	1:A:498:ARG:CG	2.22	0.49
1:B:325:THR:HG22	1:B:328:ARG:HH12	1.78	0.49
1:B:615:TRP:HE3	1:B:621:LYS:NZ	2.10	0.49
1:A:592:GLN:HA	1:A:595:LEU:HD12	1.93	0.49
1:B:291:GLU:O	1:B:294:PHE:CE1	2.66	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:449:ILE:HB	1:A:464:TYR:HB2	1.95	0.48
1:B:57:ASN:O	1:B:223:ASN:HB3	2.13	0.48
1:B:578:TRP:CD1	1:B:614:PHE:CE1	3.01	0.48
1:B:200:TRP:CZ2	1:B:236:GLU:HG2	2.49	0.48
1:B:743:VAL:HG13	1:B:748:ARG:NH2	2.29	0.48
1:B:292:ASN:H	1:B:293:PRO:HD2	1.78	0.48
1:A:200:TRP:CZ2	1:A:236:GLU:HG3	2.48	0.48
1:B:509:MET:SD	1:B:550:ARG:HD3	2.54	0.48
1:B:561:LEU:O	1:B:624:TYR:HB2	2.14	0.48
1:A:183:PHE:HA	1:A:189:PHE:CZ	2.49	0.48
1:B:442:TYR:CE1	1:B:525:SER:HB3	2.49	0.48
1:A:558:ALA:CB	1:A:622:ALA:H	2.27	0.47
1:B:85:LEU:HD11	1:B:108:LEU:HB3	1.97	0.47
1:B:561:LEU:HD21	1:B:578:TRP:CZ3	2.49	0.47
1:A:339:ILE:HD13	1:A:348:THR:HB	1.95	0.47
1:B:642:LEU:HD12	1:B:673:LEU:O	2.15	0.47
1:A:399:THR:O	1:A:402:THR:OG1	2.30	0.47
1:B:267:ASN:OD1	1:B:268:ARG:N	2.27	0.47
1:B:578:TRP:HD1	1:B:614:PHE:CE1	2.33	0.47
1:A:440:GLN:OE1	1:A:520:TYR:OH	2.20	0.47
1:A:558:ALA:HA	1:A:618:LEU:HD11	1.97	0.46
1:B:324:ASN:ND2	1:B:326:GLU:HB2	2.31	0.46
1:A:603:VAL:O	1:A:603:VAL:HG23	2.16	0.46
1:B:608:GLY:N	1:B:610:GLU:OE2	2.48	0.46
1:B:498:ARG:HH11	1:B:498:ARG:CG	2.27	0.46
1:A:313:GLY:O	1:A:349:GLN:HG3	2.15	0.46
1:A:422:ILE:O	1:A:433:VAL:HG23	2.16	0.46
1:A:287:LEU:HD21	1:A:290:ASP:HB3	1.97	0.46
1:A:668:THR:HG22	1:A:722:GLN:OE1	2.16	0.46
1:B:238:THR:HG22	1:B:238:THR:O	2.16	0.46
1:B:321:LYS:HG2	1:B:355:GLU:OE2	2.15	0.46
1:A:517:MET:HE3	1:A:519:ILE:HD11	1.98	0.45
1:A:88:TRP:HA	1:A:121:GLU:O	2.17	0.45
1:A:161:ARG:HH22	1:A:225:ARG:NH2	2.13	0.45
1:B:118:GLN:NE2	1:B:332:LEU:HD11	2.31	0.45
1:A:319:LYS:HE2	1:A:352:VAL:HG22	1.98	0.45
1:A:426:GLU:CD	1:A:431:VAL:HG21	2.37	0.45
1:B:683:TRP:CZ2	1:B:722:GLN:HB2	2.52	0.45
1:A:501:GLN:HE21	1:A:519:ILE:HG22	1.82	0.45
1:B:370:ARG:HH11	1:B:370:ARG:HB3	1.81	0.45
1:B:370:ARG:NH2	1:B:627:SER:HB3	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:85:LEU:O	1:A:118:GLN:HA	2.16	0.44
1:B:451:TYR:CE1	1:B:511:LEU:HD22	2.53	0.44
1:B:561:LEU:HA	1:B:567:PHE:CZ	2.52	0.44
1:A:87:TYR:HB3	1:A:105:THR:CG2	2.46	0.44
1:A:575:ALA:HB3	1:A:601:GLN:O	2.16	0.44
1:B:171:VAL:HG21	1:B:212:LYS:HB3	1.99	0.44
1:A:168:ARG:HH21	1:A:667:ALA:CB	2.30	0.44
1:B:76:LEU:HB2	1:B:80:ASN:O	2.17	0.44
1:A:126:GLU:OE2	1:A:140:TYR:OH	2.25	0.43
1:A:411:GLY:O	1:A:507:HIS:HB2	2.18	0.43
1:B:45:ARG:HG3	1:B:68:TYR:CZ	2.53	0.43
1:B:541:VAL:HG13	1:B:566:ALA:HB3	2.00	0.43
1:B:749:ALA:C	1:B:751:ALA:H	2.22	0.43
1:B:536:THR:HA	1:B:570:LYS:O	2.18	0.43
1:B:544:ASN:O	1:B:546:ALA:N	2.51	0.43
1:A:702:ARG:O	1:A:706:THR:HG23	2.18	0.43
1:B:169:ARG:HD2	1:B:655:GLU:OE1	2.19	0.43
1:A:102:ALA:O	1:A:106:VAL:HG12	2.18	0.43
1:B:76:LEU:O	1:B:78:ASN:N	2.45	0.43
1:B:88:TRP:HA	1:B:121:GLU:O	2.19	0.43
1:A:118:GLN:HB2	1:A:352:VAL:CG1	2.49	0.42
1:A:585:GLU:O	1:A:589:THR:HG22	2.19	0.42
1:B:72:LYS:HG2	1:B:133:TYR:CE1	2.54	0.42
1:B:55:PRO:HG2	1:B:58:LEU:HD12	2.00	0.42
1:B:610:GLU:HB2	1:B:615:TRP:HZ3	1.80	0.42
1:A:151:HIS:O	1:A:152:VAL:HG13	2.19	0.42
1:B:88:TRP:CZ2	1:B:123:GLN:HB2	2.54	0.42
1:A:139:LYS:HZ2	1:A:220:ILE:HG12	1.83	0.42
1:A:615:TRP:HB3	1:A:621:LYS:HG2	2.01	0.42
1:A:185:ASN:HB2	1:A:254:PRO:O	2.20	0.42
1:A:466:TRP:CZ2	1:A:501:GLN:HB2	2.55	0.42
1:B:185:ASN:ND2	1:B:254:PRO:O	2.52	0.42
1:A:616:GLU:C	1:A:618:LEU:H	2.23	0.42
1:A:247:LEU:HA	1:A:247:LEU:HD23	1.76	0.42
1:B:498:ARG:HG2	1:B:498:ARG:NH1	2.30	0.42
1:A:413:ASP:OD1	1:A:726:PRO:HB2	2.20	0.41
1:A:675:ASP:OD1	1:A:676:THR:O	2.37	0.41
1:A:536:THR:HA	1:A:570:LYS:O	2.18	0.41
1:B:607:GLU:OE2	1:B:624:TYR:OH	2.28	0.41
1:A:504:GLU:HG2	1:A:517:MET:CE	2.50	0.41
1:A:630:LEU:O	1:A:632:ASP:N	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:85:LEU:HD23	1:B:85:LEU:HA	1.92	0.41
1:B:306:ILE:HG12	1:B:317:VAL:HG22	2.02	0.41
1:B:332:LEU:HD12	1:B:332:LEU:N	2.35	0.41
1:A:43:ILE:HD12	1:A:59:TYR:CD1	2.56	0.41
1:A:108:LEU:O	1:A:112:LEU:HG	2.20	0.41
1:B:421:GLN:HG2	1:B:423:TRP:CZ2	2.56	0.41
1:B:466:TRP:CZ2	1:B:501:GLN:HB2	2.56	0.41
1:B:392:ARG:NH2	1:B:636:ASP:OD2	2.54	0.41
1:A:442:TYR:HB3	1:A:523:GLY:O	2.21	0.40
1:A:361:LEU:H	1:A:361:LEU:HD12	1.87	0.40
1:A:416:GLY:O	1:A:511:LEU:HA	2.22	0.40
1:A:568:VAL:HG21	1:A:594:LEU:HD23	2.03	0.40
1:A:744:ASP:HB3	1:A:747:ASP:HB2	2.03	0.40
1:B:323:ALA:O	1:B:328:ARG:NH2	2.55	0.40
1:B:568:VAL:CG1	1:B:595:LEU:HD11	2.51	0.40
1:A:161:ARG:HH22	1:A:225:ARG:HH22	1.67	0.40
1:A:599:ARG:HA	1:A:599:ARG:NH1	2.37	0.40
1:B:76:LEU:C	1:B:78:ASN:H	2.25	0.40
1:A:509:MET:HA	1:A:517:MET:HG3	2.03	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	689/727 (95%)	649 (94%)	37 (5%)	3 (0%)	34	64
1	B	703/727 (97%)	652 (93%)	45 (6%)	6 (1%)	17	45
All	All	1392/1454 (96%)	1301 (94%)	82 (6%)	9 (1%)	25	55

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	268	ARG
1	A	292	ASN
1	A	631	LYS
1	B	750	MET
1	B	751	ALA
1	A	39	PRO
1	B	267	ASN
1	B	292	ASN
1	B	535	SER

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	568/591 (96%)	543 (96%)	25 (4%)	28	59
1	B	580/591 (98%)	560 (97%)	20 (3%)	37	69
All	All	1148/1182 (97%)	1103 (96%)	45 (4%)	32	64

All (45) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	37	LYS
1	A	49	PHE
1	A	110	ASP
1	A	150	LYS
1	A	169	ARG
1	A	179	SER
1	A	230	ARG
1	A	245	GLN
1	A	277	SER
1	A	283	MET
1	A	300	LYS
1	A	311	LYS
1	A	326	GLU
1	A	336	SER
1	A	370	ARG

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Mol	Chain	Res	Type
1	A	384	SER
1	A	465	ASN
1	A	498	ARG
1	A	509	MET
1	A	550	ARG
1	A	584	SER
1	A	646	SER
1	A	647	ASN
1	A	701	LYS
1	A	721	LYS
1	B	49	PHE
1	B	75	GLN
1	B	150	LYS
1	B	169	ARG
1	B	179	SER
1	B	268	ARG
1	B	307	LEU
1	B	341	LYS
1	B	454	ARG
1	B	458	ARG
1	B	459	GLN
1	B	479	SER
1	B	498	ARG
1	B	593	GLU
1	B	625	ARG
1	B	631	LYS
1	B	646	SER
1	B	674	LEU
1	B	686	LYS
1	B	721	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	164	GLN
1	A	187	ASN
1	A	215	GLN
1	A	292	ASN
1	A	364	GLN
1	A	647	ASN
1	A	710	ASN
1	B	118	GLN

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Mol	Chain	Res	Type
1	B	389	ASN

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 ⓘ

There are no ligands in this entry.

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 ⓘ

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(Å²)	Q<0.9
1	A	701/727 (96%)	0.22	33 (4%)	31	27	37, 63, 113, 136	0
1	B	715/727 (98%)	0.16	21 (2%)	51	48	37, 59, 106, 128	0
All	All	1416/1454 (97%)	0.19	54 (3%)	40	36	37, 61, 109, 136	0

All (54) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	617	ALA	6.1
1	B	280	ALA	4.6
1	A	264	ASP	4.4
1	A	609	SER	4.4
1	A	576	TYR	4.3
1	A	532	ALA	4.1
1	A	569	LEU	4.0
1	B	622	ALA	3.9
1	B	603	VAL	3.8
1	B	614	PHE	3.8
1	A	614	PHE	3.6
1	B	623	ALA	3.4
1	B	560	ALA	3.4
1	B	574	ALA	3.4
1	A	623	ALA	3.4
1	A	620	GLY	3.3
1	A	597	VAL	3.2
1	A	283	MET	3.1
1	B	378	LEU	3.1
1	A	618	LEU	3.0
1	A	602	PRO	2.9
1	A	622	ALA	2.8
1	B	576	TYR	2.8
1	A	753	LEU	2.8

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Mol	Chain	Res	Type	RSRZ
1	B	624	TYR	2.6
1	A	606	ALA	2.6
1	A	558	ALA	2.6
1	A	583	ALA	2.6
1	A	577	LEU	2.6
1	A	537	ARG	2.5
1	A	755	ALA	2.5
1	B	558	ALA	2.5
1	A	533	PRO	2.5
1	B	156	GLU	2.4
1	A	37	LYS	2.4
1	B	283	MET	2.4
1	A	621	LYS	2.4
1	B	557	LYS	2.3
1	B	559	GLY	2.3
1	B	575	ALA	2.3
1	B	533	PRO	2.3
1	A	611	PRO	2.3
1	B	601	GLN	2.3
1	A	574	ALA	2.3
1	A	518	ILE	2.3
1	B	379	GLY	2.2
1	B	264	ASP	2.2
1	A	531	THR	2.2
1	B	609	SER	2.1
1	A	647	ASN	2.1
1	A	594	LEU	2.0
1	A	615	TRP	2.0
1	A	616	GLU	2.0
1	A	588	LYS	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.