Full wwPDB X-ray Structure Validation Report ⓘ

May 13, 2020 – 04:48 am BST

PDB ID	:	3S0X
Title	:	The crystal structure of GxGD membrane protease FlaK
Authors	:	Hu, J.; Xue, Y.; Ha, Y.
Deposited on	:	2011-05-13
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 following versions of software and data (see references ⓘ) were used in the production of this report:

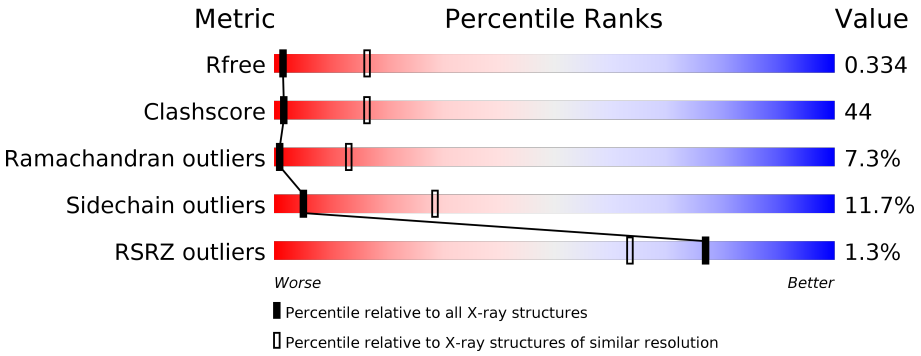
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

1 Overall quality at a glance (i)

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}	130704	1257 (3.70-3.50)
Clashscore	141614	1353 (3.70-3.50)
Ramachandran outliers	138981	1307 (3.70-3.50)
Sidechain outliers	138945	1307 (3.70-3.50)
RSRZ outliers	127900	1161 (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 on 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	237	% 42% 46% 6% 5%
1	B	237	% 35% 35% 7% 22%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 2918 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 Peptidase A24B, FlaK domain protein.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	225	Total	C	N	O	S	Se	0	0	0
			1585	1060	248	266	1	10			
1	B	186	Total	C	N	O	S	Se	0	0	0
			1333	897	201	225	1	9			

There are 14 discrepancies between the modelled and reference sequences:

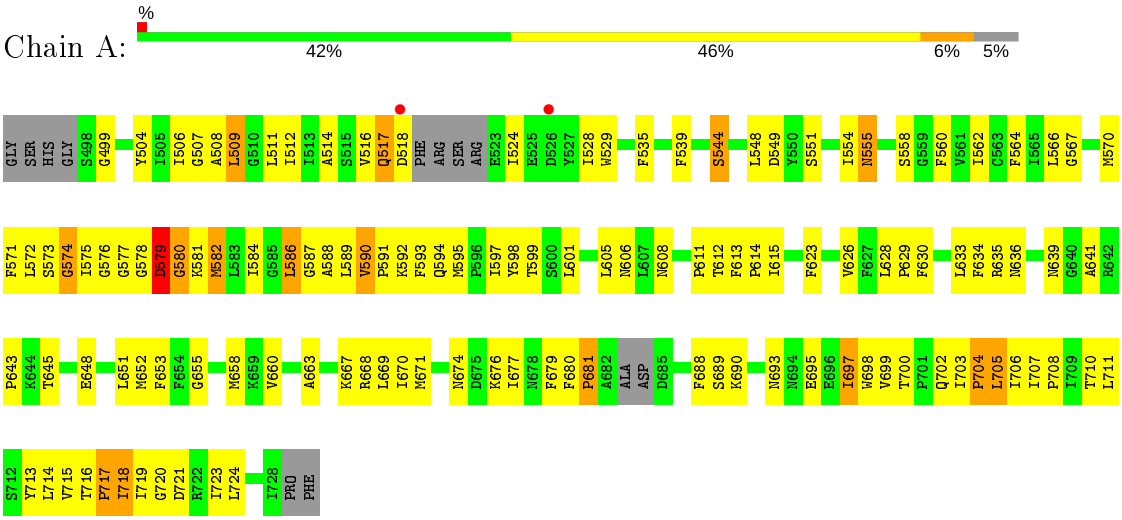
Chain	Residue	Modelled	Actual	Comment	Reference
A	494	GLY	-	EXPRESSION TAG	UNP A9A677
A	495	SER	-	EXPRESSION TAG	UNP A9A677
A	496	HIS	-	EXPRESSION TAG	UNP A9A677
A	497	GLY	-	EXPRESSION TAG	UNP A9A677
A	498	SER	-	EXPRESSION TAG	UNP A9A677
A	499	GLY	-	EXPRESSION TAG	UNP A9A677
A	500	SER	-	EXPRESSION TAG	UNP A9A677
B	494	GLY	-	EXPRESSION TAG	UNP A9A677
B	495	SER	-	EXPRESSION TAG	UNP A9A677
B	496	HIS	-	EXPRESSION TAG	UNP A9A677
B	497	GLY	-	EXPRESSION TAG	UNP A9A677
B	498	SER	-	EXPRESSION TAG	UNP A9A677
B	499	GLY	-	EXPRESSION TAG	UNP A9A677
B	500	SER	-	EXPRESSION TAG	UNP A9A677

3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA 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.

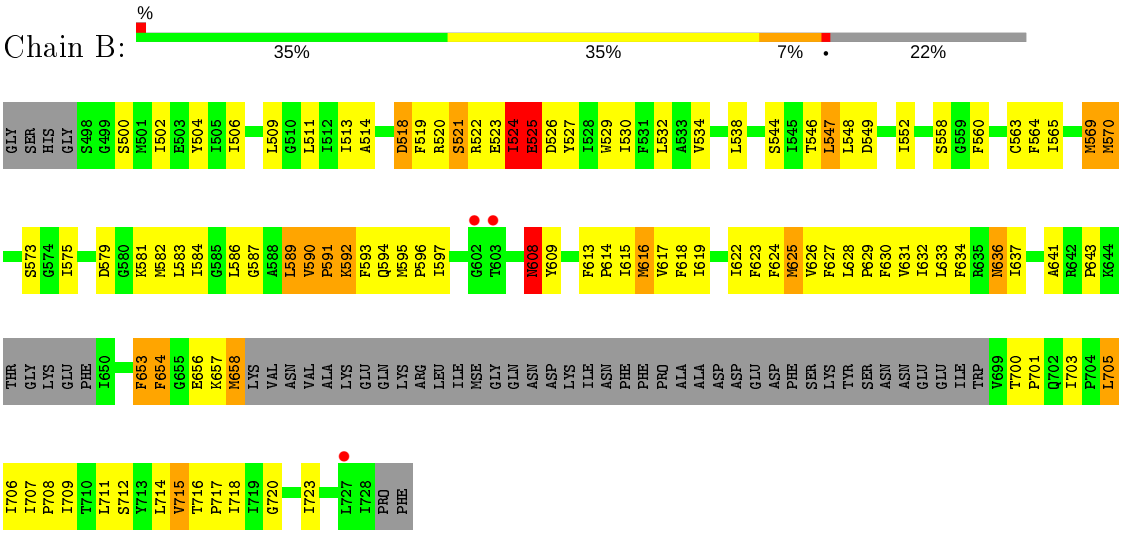
- Molecule 1: Peptidase A24B, FlaK domain protein

Chain A:



- Molecule 1: Peptidase A24B, FlaK domain protein

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	70.89Å 99.72Å 118.44Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	38.56 – 3.60 38.56 – 3.60	Depositor EDS
% Data completeness (in resolution range)	96.9 (38.56-3.60) 95.6 (38.56-3.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.36 (at 3.57Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.270 , 0.327 0.280 , 0.334	Depositor DCC
R_{free} test set	1008 reflections (10.34%)	wwPDB-VP
Wilson B-factor (Å^2)	83.8	Xtriage
Anisotropy	0.319	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.27 , 53.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.84	EDS
Total number of atoms	2918	wwPDB-VP
Average B, all atoms (Å^2)	50.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.10% of the height of the origin peak. No significant pseudotranslation is detected.*

[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

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	0.51	0/1610	0.77	0/2183
1	B	0.63	4/1356 (0.3%)	0.72	0/1834
All	All	0.57	4/2966 (0.1%)	0.75	0/4017

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	634	PHE	CE2-CZ	8.03	1.52	1.37
1	B	634	PHE	CE1-CZ	5.98	1.48	1.37
1	B	634	PHE	CD1-CE1	5.58	1.50	1.39
1	B	634	PHE	CD2-CE2	5.15	1.49	1.39

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	1585	0	1481	149	0
1	B	1333	0	1254	106	0
All	All	2918	0	2735	248	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 44.

All (248) 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:518:ASP:OD1	1:B:521:SER:HB2	1.56	1.03
1:A:669:LEU:O	1:A:699:VAL:HG13	1.65	0.97
1:A:651:LEU:HD11	1:A:677:ILE:HG12	1.48	0.94
1:A:595:MSE:HE1	1:A:612:THR:HG22	1.50	0.91
1:A:668:ARG:HB3	1:A:699:VAL:HG11	1.49	0.91
1:A:697:ILE:HG12	1:A:698:TRP:N	1.84	0.90
1:B:570:MSE:HE1	1:B:618:PHE:CE2	2.07	0.90
1:A:595:MSE:HE1	1:A:612:THR:CG2	2.03	0.88
1:A:590:VAL:HG12	1:A:590:VAL:O	1.72	0.87
1:B:608:ASN:C	1:B:608:ASN:HD22	1.77	0.86
1:B:613:PHE:O	1:B:617:VAL:HG23	1.79	0.83
1:A:670:ILE:HG23	1:A:697:ILE:HD11	1.59	0.82
1:B:519:PHE:CE2	1:B:524:ILE:HD12	2.14	0.82
1:A:643:PRO:HD3	1:A:652:MSE:HE2	1.63	0.81
1:B:519:PHE:HE2	1:B:524:ILE:HD12	1.46	0.81
1:A:633:LEU:HD12	1:A:653:PHE:CZ	2.15	0.81
1:A:702:GLN:O	1:A:704:PRO:HD3	1.81	0.80
1:B:570:MSE:HE1	1:B:618:PHE:HE2	1.47	0.80
1:A:658:MSE:HE3	1:A:663:ALA:HA	1.64	0.79
1:B:520:ARG:HD3	1:B:525:GLU:OE1	1.84	0.78
1:A:560:PHE:HB2	1:A:588:ALA:HB2	1.66	0.76
1:A:645:THR:OG1	1:A:648:GLU:HG3	1.84	0.76
1:B:705:LEU:HD23	1:B:709:ILE:HD11	1.66	0.76
1:B:524:ILE:HG22	1:B:527:TYR:CD1	2.21	0.76
1:A:576:GLY:O	1:A:578:GLY:N	2.19	0.75
1:A:660:VAL:HG23	1:A:695:GLU:O	1.86	0.74
1:B:581:LYS:HA	1:B:584:ILE:HD12	1.69	0.74
1:A:611:PRO:HB2	1:A:614:PRO:HG3	1.67	0.74
1:A:629:PRO:HG2	1:A:630:PHE:CD1	2.24	0.72
1:A:572:LEU:C	1:A:574:GLY:H	1.93	0.72
1:B:511:LEU:HD11	1:B:586:LEU:HD11	1.72	0.72
1:A:623:PHE:O	1:A:626:VAL:HB	1.90	0.72
1:B:513:ILE:HG22	1:B:519:PHE:HE1	1.54	0.71
1:A:591:PRO:HA	1:A:614:PRO:HD3	1.72	0.71
1:B:626:VAL:O	1:B:629:PRO:HD2	1.91	0.71
1:A:589:LEU:HG	1:A:590:VAL:HG23	1.73	0.71
1:A:651:LEU:HD11	1:A:677:ILE:CG1	2.24	0.67
1:B:608:ASN:C	1:B:608:ASN:ND2	2.42	0.67
1:B:504:TYR:HA	1:B:590:VAL:HG21	1.76	0.67
1:A:660:VAL:HA	1:A:663:ALA:HB3	1.78	0.65
1:B:591:PRO:O	1:B:592:LYS:CB	2.45	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:704:PRO:HG2	1:A:707:ILE:HG13	1.80	0.64
1:A:599:THR:HG23	1:A:721:ASP:HB3	1.79	0.64
1:A:509:LEU:HD21	1:B:630:PHE:HB3	1.79	0.64
1:A:611:PRO:HB2	1:A:614:PRO:CG	2.27	0.64
1:A:597:ILE:CD1	1:A:606:ASN:HD22	2.11	0.64
1:B:616:MSE:HE3	1:B:720:GLY:O	1.98	0.64
1:A:668:ARG:CB	1:A:699:VAL:HG11	2.24	0.63
1:A:597:ILE:HD11	1:A:606:ASN:HD22	1.63	0.63
1:A:629:PRO:HG2	1:A:630:PHE:CE1	2.33	0.63
1:A:511:LEU:HD11	1:A:586:LEU:HD11	1.81	0.62
1:A:511:LEU:HB3	1:A:710:THR:OG1	1.99	0.62
1:A:674:ASN:O	1:A:677:ILE:HD11	1.99	0.62
1:A:586:LEU:HD21	1:A:713:TYR:CE1	2.34	0.62
1:B:582:MSE:CE	1:B:706:ILE:HG12	2.29	0.62
1:A:555:ASN:HD22	1:A:555:ASN:N	1.97	0.62
1:A:697:ILE:HG12	1:A:698:TRP:H	1.61	0.62
1:B:589:LEU:O	1:B:591:PRO:HD2	2.00	0.62
1:B:590:VAL:O	1:B:590:VAL:HG12	2.00	0.61
1:A:718:ILE:HD13	1:B:718:ILE:HD12	1.81	0.61
1:A:641:ALA:O	1:A:652:MSE:HE1	1.99	0.61
1:A:699:VAL:HG12	1:A:700:THR:N	2.15	0.61
1:A:677:ILE:HD12	1:A:677:ILE:N	2.15	0.61
1:A:506:ILE:HD12	1:A:535:PHE:CE2	2.37	0.60
1:A:660:VAL:HA	1:A:663:ALA:CB	2.32	0.60
1:B:608:ASN:ND2	1:B:609:TYR:N	2.50	0.60
1:A:670:ILE:CD1	1:A:690:LYS:HA	2.32	0.60
1:B:502:ILE:O	1:B:506:ILE:HG13	2.00	0.60
1:A:714:LEU:CD1	1:B:711:LEU:HD21	2.32	0.59
1:B:527:TYR:HA	1:B:530:ILE:HD12	1.85	0.59
1:A:674:ASN:O	1:A:677:ILE:CD1	2.51	0.59
1:A:506:ILE:HD12	1:A:535:PHE:HE2	1.67	0.59
1:B:509:LEU:O	1:B:513:ILE:HG13	2.03	0.59
1:B:526:ASP:O	1:B:530:ILE:HD12	2.02	0.59
1:A:711:LEU:O	1:A:715:VAL:HG23	2.02	0.59
1:A:508:ALA:O	1:A:512:ILE:HG13	2.03	0.58
1:A:579:ASP:O	1:A:581:LYS:N	2.37	0.58
1:B:707:ILE:HB	1:B:708:PRO:HD3	1.85	0.58
1:A:651:LEU:HD21	1:A:677:ILE:HG21	1.85	0.58
1:B:544:SER:OG	1:B:552:ILE:HB	2.03	0.58
1:A:702:GLN:O	1:A:704:PRO:CD	2.51	0.58
1:A:573:SER:O	1:A:575:ILE:N	2.29	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:567:GLY:O	1:A:571:PHE:N	2.32	0.57
1:A:693:ASN:O	1:A:695:GLU:N	2.35	0.57
1:A:595:MSE:HE1	1:A:612:THR:HG21	1.85	0.56
1:B:622:ILE:O	1:B:625:MSE:HB2	2.05	0.56
1:A:590:VAL:O	1:A:590:VAL:CG1	2.45	0.56
1:A:668:ARG:HG2	1:A:699:VAL:CG1	2.36	0.56
1:A:601:LEU:HD23	1:A:724:LEU:HD21	1.87	0.56
1:B:711:LEU:O	1:B:715:VAL:HG23	2.04	0.56
1:A:605:LEU:HD22	1:A:615:ILE:HG21	1.88	0.55
1:A:524:ILE:O	1:A:528:ILE:HG13	2.07	0.55
1:A:579:ASP:C	1:A:581:LYS:N	2.59	0.55
1:A:572:LEU:C	1:A:574:GLY:N	2.59	0.55
1:A:613:PHE:N	1:A:614:PRO:HD2	2.21	0.55
1:A:636:ASN:ND2	1:A:655:GLY:O	2.38	0.55
1:A:718:ILE:CD1	1:B:718:ILE:HD12	2.36	0.55
1:A:581:LYS:O	1:A:584:ILE:HB	2.07	0.54
1:A:578:GLY:O	1:A:579:ASP:HB2	2.08	0.54
1:A:544:SER:O	1:A:548:LEU:N	2.41	0.54
1:A:570:MSE:SE	1:A:576:GLY:HA2	2.58	0.54
1:A:704:PRO:O	1:A:706:ILE:N	2.41	0.54
1:B:625:MSE:CE	1:B:705:LEU:HG	2.38	0.54
1:B:513:ILE:HG22	1:B:519:PHE:CE1	2.40	0.54
1:A:528:ILE:HG21	1:A:582:MSE:HE1	1.90	0.54
1:A:716:THR:HB	1:A:717:PRO:HD3	1.89	0.54
1:A:504:TYR:OH	1:A:714:LEU:HA	2.08	0.53
1:B:589:LEU:HD22	1:B:590:VAL:HG23	1.89	0.53
1:B:624:PHE:HE1	1:B:712:SER:HB2	1.72	0.53
1:B:613:PHE:HB3	1:B:614:PRO:CD	2.39	0.53
1:A:597:ILE:HG23	1:A:721:ASP:OD2	2.08	0.53
1:A:699:VAL:CG1	1:A:700:THR:N	2.72	0.52
1:B:658:MSE:HG2	1:B:658:MSE:O	2.09	0.52
1:A:581:LYS:HA	1:A:584:ILE:HD12	1.91	0.52
1:A:634:PHE:O	1:A:635:ARG:C	2.45	0.52
1:A:719:ILE:HG22	1:A:720:GLY:N	2.23	0.52
1:A:570:MSE:SE	1:A:576:GLY:CA	3.08	0.52
1:B:623:PHE:O	1:B:626:VAL:HG23	2.10	0.52
1:B:534:VAL:HG12	1:B:538:LEU:HD12	1.90	0.52
1:A:679:PHE:O	1:A:680:PHE:CD2	2.63	0.52
1:B:558:SER:OG	1:B:609:TYR:HA	2.09	0.52
1:A:626:VAL:CG1	1:A:626:VAL:O	2.58	0.52
1:B:520:ARG:HD3	1:B:525:GLU:CD	2.30	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:514:ALA:HA	1:B:519:PHE:HD1	1.76	0.51
1:B:633:LEU:O	1:B:637:ILE:HG13	2.10	0.51
1:A:676:LYS:C	1:A:677:ILE:HD12	2.31	0.51
1:A:707:ILE:HB	1:A:708:PRO:CD	2.41	0.51
1:B:547:LEU:O	1:B:548:LEU:CB	2.59	0.51
1:A:560:PHE:CB	1:A:588:ALA:HB2	2.39	0.51
1:A:613:PHE:HE1	1:A:717:PRO:HD3	1.76	0.51
1:A:704:PRO:C	1:A:706:ILE:H	2.13	0.51
1:B:627:PHE:O	1:B:631:VAL:HG23	2.11	0.51
1:B:546:THR:HG22	1:B:547:LEU:N	2.26	0.51
1:A:635:ARG:HG2	1:A:639:ASN:ND2	2.27	0.50
1:B:613:PHE:CZ	1:B:717:PRO:HG3	2.46	0.50
1:B:583:LEU:HD23	1:B:583:LEU:O	2.12	0.50
1:B:597:ILE:HD12	1:B:597:ILE:N	2.26	0.50
1:A:677:ILE:CD1	1:A:677:ILE:N	2.75	0.50
1:A:572:LEU:O	1:A:574:GLY:N	2.31	0.50
1:A:651:LEU:HD23	1:A:679:PHE:CE2	2.47	0.50
1:B:628:LEU:N	1:B:629:PRO:HD2	2.27	0.50
1:B:591:PRO:HA	1:B:614:PRO:HD2	1.92	0.50
1:B:565:ILE:O	1:B:569:MSE:HB2	2.12	0.49
1:A:578:GLY:O	1:A:579:ASP:CB	2.60	0.49
1:A:668:ARG:CG	1:A:699:VAL:HG11	2.43	0.49
1:B:532:LEU:HD22	1:B:589:LEU:HD12	1.94	0.49
1:A:591:PRO:HA	1:A:614:PRO:CD	2.41	0.49
1:A:554:ILE:O	1:A:558:SER:HB3	2.12	0.49
1:A:670:ILE:HD11	1:A:690:LYS:HA	1.95	0.48
1:A:516:VAL:O	1:A:517:GLN:C	2.51	0.48
1:A:704:PRO:C	1:A:706:ILE:N	2.66	0.48
1:B:521:SER:O	1:B:523:GLU:HG3	2.13	0.48
1:B:633:LEU:HD12	1:B:653:PHE:HD1	1.78	0.48
1:A:651:LEU:HD23	1:A:679:PHE:HE2	1.79	0.48
1:B:570:MSE:HE1	1:B:618:PHE:CD2	2.48	0.48
1:B:532:LEU:HD22	1:B:589:LEU:CD1	2.44	0.48
1:A:535:PHE:CZ	1:A:539:PHE:HD1	2.32	0.47
1:A:579:ASP:C	1:A:581:LYS:H	2.18	0.47
1:B:628:LEU:O	1:B:632:ILE:HG13	2.13	0.47
1:A:518:ASP:O	1:A:518:ASP:OD1	2.32	0.47
1:B:615:ILE:O	1:B:619:ILE:HG13	2.13	0.47
1:B:522:ARG:O	1:B:523:GLU:HB2	2.15	0.47
1:B:633:LEU:C	1:B:633:LEU:HD23	2.35	0.47
1:A:670:ILE:HD11	1:A:690:LYS:CB	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:519:PHE:CD2	1:B:524:ILE:HD12	2.47	0.47
1:B:582:MSE:HE1	1:B:706:ILE:HG12	1.95	0.47
1:A:580:GLY:O	1:A:584:ILE:HG13	2.15	0.47
1:A:633:LEU:HD12	1:A:653:PHE:CE1	2.50	0.47
1:A:651:LEU:HD13	1:A:698:TRP:CD2	2.50	0.47
1:A:707:ILE:O	1:A:710:THR:N	2.47	0.47
1:A:597:ILE:HD11	1:A:606:ASN:HB2	1.97	0.46
1:B:529:TRP:HA	1:B:529:TRP:CE3	2.50	0.46
1:A:528:ILE:HG21	1:A:582:MSE:CE	2.44	0.46
1:B:623:PHE:CD2	1:B:723:ILE:CG2	2.98	0.46
1:A:704:PRO:HD2	1:A:707:ILE:CD1	2.44	0.46
1:B:519:PHE:O	1:B:520:ARG:C	2.54	0.46
1:B:529:TRP:HE3	1:B:529:TRP:HA	1.80	0.46
1:B:591:PRO:HG2	1:B:591:PRO:O	2.15	0.46
1:B:615:ILE:HG22	1:B:619:ILE:CD1	2.46	0.46
1:A:549:ASP:C	1:A:551:SER:H	2.18	0.46
1:B:560:PHE:CE1	1:B:584:ILE:CG2	2.99	0.46
1:B:712:SER:C	1:B:714:LEU:H	2.18	0.45
1:A:671:MSE:CE	1:A:679:PHE:HA	2.46	0.45
1:B:613:PHE:HZ	1:B:717:PRO:HG3	1.80	0.45
1:A:697:ILE:CG1	1:A:698:TRP:N	2.69	0.45
1:A:549:ASP:C	1:A:551:SER:N	2.69	0.45
1:B:513:ILE:CG2	1:B:519:PHE:HE1	2.28	0.45
1:B:656:GLU:O	1:B:657:LYS:HG3	2.16	0.45
1:A:528:ILE:CG2	1:A:582:MSE:CE	2.95	0.45
1:A:704:PRO:HD2	1:A:707:ILE:HD12	1.99	0.45
1:B:526:ASP:O	1:B:530:ILE:CD1	2.65	0.45
1:A:528:ILE:CG2	1:A:582:MSE:HE1	2.47	0.45
1:A:560:PHE:HB2	1:A:588:ALA:CB	2.42	0.45
1:B:615:ILE:HG22	1:B:619:ILE:HD11	1.98	0.45
1:A:514:ALA:HB2	1:A:528:ILE:HD12	1.99	0.44
1:A:579:ASP:O	1:A:580:GLY:C	2.56	0.44
1:B:558:SER:OG	1:B:609:TYR:CA	2.66	0.44
1:A:570:MSE:SE	1:A:576:GLY:HA3	2.67	0.44
1:B:504:TYR:HB2	1:B:593:PHE:CE1	2.53	0.44
1:B:590:VAL:O	1:B:613:PHE:HB3	2.18	0.44
1:B:587:GLY:HA2	1:B:614:PRO:HG3	2.00	0.44
1:A:648:GLU:O	1:A:651:LEU:HB2	2.17	0.44
1:A:705:LEU:O	1:A:708:PRO:HG2	2.17	0.44
1:A:587:GLY:O	1:A:591:PRO:HD3	2.18	0.44
1:B:596:PRO:HG2	1:B:720:GLY:HA3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:651:LEU:HB3	1:A:698:TRP:CZ3	2.53	0.43
1:B:579:ASP:OD1	1:B:705:LEU:CB	2.67	0.43
1:A:714:LEU:HD12	1:B:711:LEU:HD21	2.00	0.43
1:B:700:THR:HA	1:B:701:PRO:HD3	1.90	0.43
1:A:586:LEU:CD2	1:A:713:TYR:HE1	2.32	0.43
1:A:714:LEU:HD13	1:B:711:LEU:HD21	2.00	0.43
1:A:516:VAL:O	1:A:517:GLN:O	2.36	0.43
1:B:595:MSE:O	1:B:597:ILE:HD12	2.18	0.43
1:A:507:GLY:O	1:A:511:LEU:HG	2.18	0.43
1:B:636:ASN:HD22	1:B:636:ASN:HA	1.62	0.43
1:B:712:SER:C	1:B:714:LEU:N	2.72	0.43
1:A:593:PHE:O	1:A:594:GLN:C	2.57	0.43
1:A:651:LEU:CD2	1:A:679:PHE:CE2	3.01	0.42
1:A:626:VAL:O	1:A:626:VAL:HG12	2.18	0.42
1:A:586:LEU:CD2	1:A:713:TYR:CE1	3.01	0.42
1:B:518:ASP:O	1:B:518:ASP:OD1	2.37	0.42
1:B:560:PHE:HE1	1:B:584:ILE:HG22	1.84	0.42
1:B:579:ASP:OD1	1:B:705:LEU:HB2	2.19	0.42
1:A:671:MSE:HA	1:A:681:PRO:HG3	2.02	0.42
1:A:598:TYR:H	1:A:721:ASP:HB2	1.84	0.42
1:B:716:THR:N	1:B:717:PRO:CD	2.82	0.42
1:B:589:LEU:C	1:B:591:PRO:CD	2.88	0.42
1:B:589:LEU:C	1:B:591:PRO:HD2	2.40	0.42
1:A:562:ILE:O	1:A:566:LEU:HG	2.20	0.42
1:A:597:ILE:HD12	1:A:606:ASN:HD22	1.85	0.41
1:B:529:TRP:CE3	1:B:529:TRP:CA	3.02	0.41
1:B:563:CYS:SG	1:B:583:LEU:CD2	3.08	0.41
1:A:504:TYR:CE2	1:A:713:TYR:CE2	3.09	0.41
1:B:583:LEU:HD23	1:B:583:LEU:C	2.41	0.41
1:B:633:LEU:HD23	1:B:637:ILE:HD12	2.02	0.41
1:B:654:PHE:HA	1:B:654:PHE:HD1	1.77	0.41
1:A:555:ASN:ND2	1:A:555:ASN:N	2.67	0.41
1:A:630:PHE:CD1	1:A:630:PHE:N	2.88	0.41
1:A:668:ARG:HG2	1:A:699:VAL:HG11	2.00	0.41
1:A:606:ASN:HA	1:A:612:THR:OG1	2.21	0.41
1:B:608:ASN:CG	1:B:609:TYR:N	2.74	0.41
1:A:718:ILE:HG12	1:B:718:ILE:HD13	2.03	0.41
1:A:633:LEU:CD1	1:A:653:PHE:CZ	2.95	0.41
1:B:560:PHE:CE1	1:B:584:ILE:HG22	2.56	0.41
1:A:704:PRO:O	1:A:704:PRO:HG2	2.21	0.41
1:A:628:LEU:HD23	1:A:628:LEU:HA	1.72	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:506:ILE:CD1	1:A:535:PHE:CE2	3.04	0.40
1:B:582:MSE:HE1	1:B:706:ILE:HA	2.02	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	219/237 (92%)	173 (79%)	32 (15%)	14 (6%)	1 17
1	B	180/237 (76%)	145 (81%)	20 (11%)	15 (8%)	1 10
All	All	399/474 (84%)	318 (80%)	52 (13%)	29 (7%)	1 13

All (29) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	517	GLN
1	A	574	GLY
1	A	577	GLY
1	A	689	SER
1	B	592	LYS
1	B	608	ASN
1	B	641	ALA
1	A	499	GLY
1	A	608	ASN
1	A	688	PHE
1	B	500	SER
1	A	592	LYS
1	A	667	LYS
1	A	705	LEU
1	B	518	ASP
1	B	524	ILE

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Mol	Chain	Res	Type
1	B	573	SER
1	B	653	PHE
1	A	579	ASP
1	B	590	VAL
1	B	703	ILE
1	A	590	VAL
1	B	525	GLU
1	B	594	GLN
1	B	575	ILE
1	A	580	GLY
1	A	703	ILE
1	B	643	PRO
1	B	591	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	142/196 (72%)	128 (90%)	14 (10%)	8 35
1	B	124/196 (63%)	107 (86%)	17 (14%)	3 22
All	All	266/392 (68%)	235 (88%)	31 (12%)	5 29

All (31) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	509	LEU
1	A	529	TRP
1	A	544	SER
1	A	555	ASN
1	A	564	PHE
1	A	579	ASP
1	A	582	MSE
1	A	586	LEU
1	A	681	PRO
1	A	697	ILE

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Mol	Chain	Res	Type
1	A	704	PRO
1	A	717	PRO
1	A	718	ILE
1	A	723	ILE
1	B	521	SER
1	B	524	ILE
1	B	525	GLU
1	B	547	LEU
1	B	549	ASP
1	B	564	PHE
1	B	569	MSE
1	B	570	MSE
1	B	589	LEU
1	B	608	ASN
1	B	616	MSE
1	B	625	MSE
1	B	636	ASN
1	B	654	PHE
1	B	658	MSE
1	B	705	LEU
1	B	715	VAL

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	555	ASN
1	A	606	ASN
1	B	608	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains (i)

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

5.5 Carbohydrates (i)

There are no carbohydrates 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, 95^{th} 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	215/237 (90%)	-0.41	2 (0%)	84	73	13, 42, 104, 149	0
1	B	177/237 (74%)	-0.49	3 (1%)	70	55	12, 49, 85, 106	0
All	All	392/474 (82%)	-0.45	5 (1%)	77	63	12, 46, 92, 149	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	518	ASP	3.4
1	B	603	THR	3.1
1	B	602	GLY	2.7
1	B	727	LEU	2.2
1	A	526	ASP	2.1

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 carbohydrates 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.