Full wwPDB X-ray Structure Validation Report ⓘ

May 13, 2020 – 02:16 am BST

PDB ID	:	5XAH
Title	:	Crystal structure of human Importin4
Authors	:	Song, J.J.; Yoon, J.
Deposited on	:	2017-03-13
Resolution	:	3.00 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:

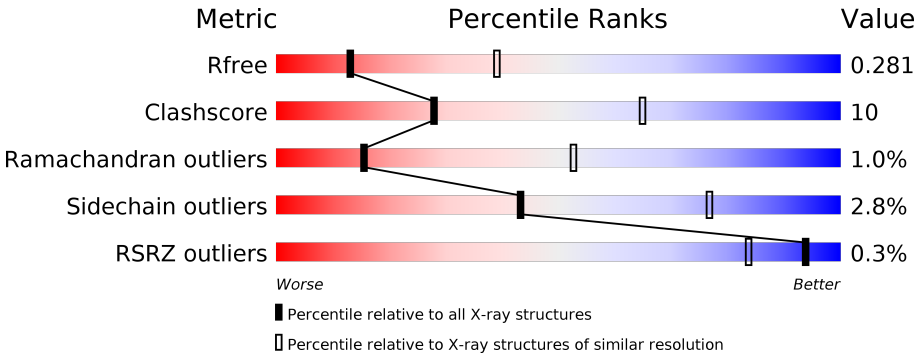
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, 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 3.00 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	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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	416	66% 24% 10%
1	B	416	70% 18% • 11%
1	C	416	69% 20% • 10%
1	D	416	65% 23% • 11%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 11255 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 Importin-4.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	375	Total	C	N	O	S	Se	0	0	0
			2830	1808	491	513	12	6			
1	B	370	Total	C	N	O	S	Se	0	0	0
			2789	1783	481	507	12	6			
1	C	376	Total	C	N	O	S	Se	0	0	0
			2839	1815	489	517	12	6			
1	D	370	Total	C	N	O	S	Se	0	0	0
			2797	1787	485	507	12	6			

There are 8 discrepancies between the modelled and reference sequences:

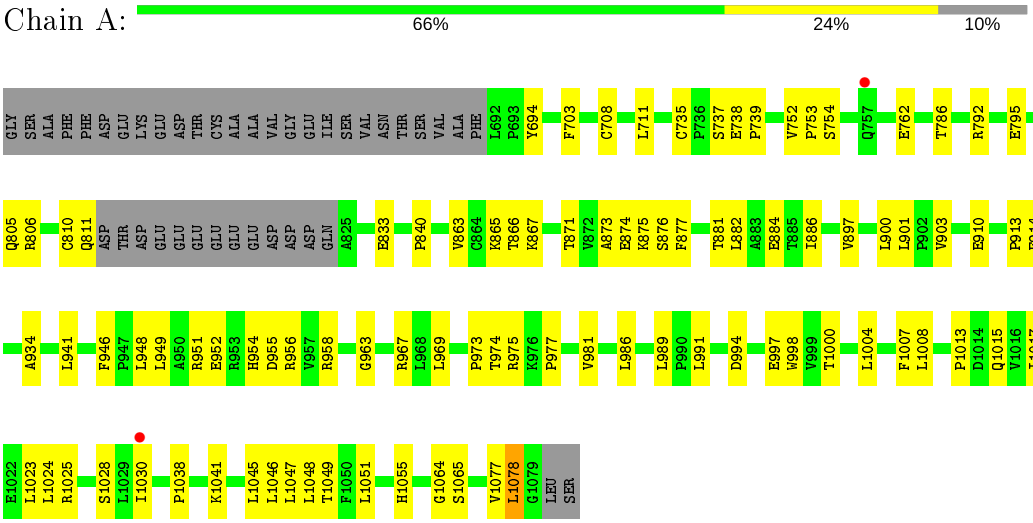
Chain	Residue	Modelled	Actual	Comment	Reference
A	666	GLY	-	expression tag	UNP Q8TEX9
A	667	SER	-	expression tag	UNP Q8TEX9
B	666	GLY	-	expression tag	UNP Q8TEX9
B	667	SER	-	expression tag	UNP Q8TEX9
C	666	GLY	-	expression tag	UNP Q8TEX9
C	667	SER	-	expression tag	UNP Q8TEX9
D	666	GLY	-	expression tag	UNP Q8TEX9
D	667	SER	-	expression tag	UNP Q8TEX9

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.

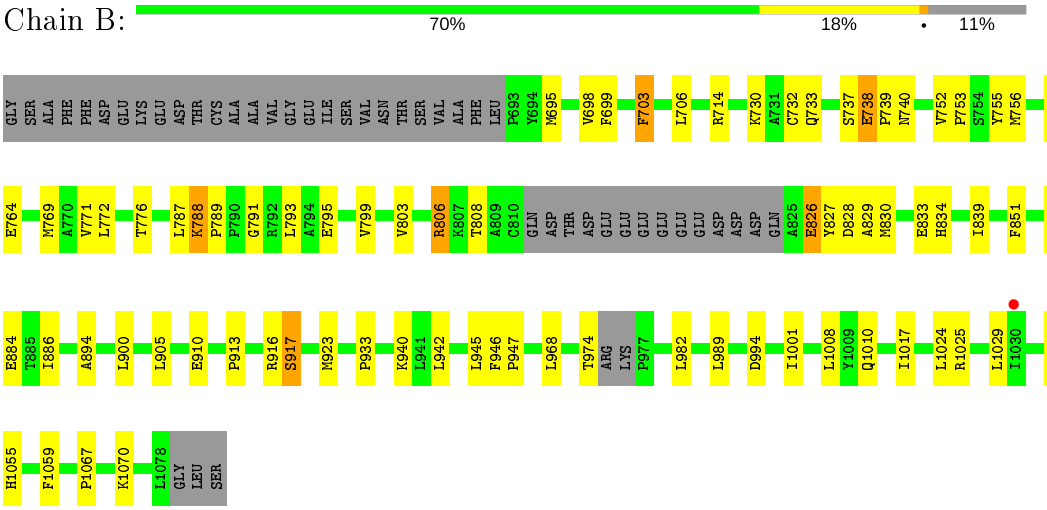
- Molecule 1: Importin-4

Chain A:



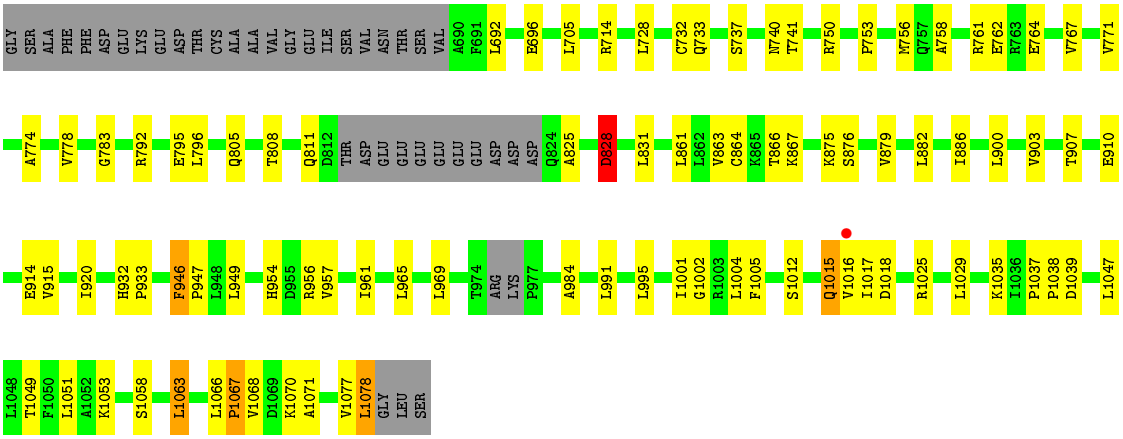
- Molecule 1: Importin-4

Chain B:



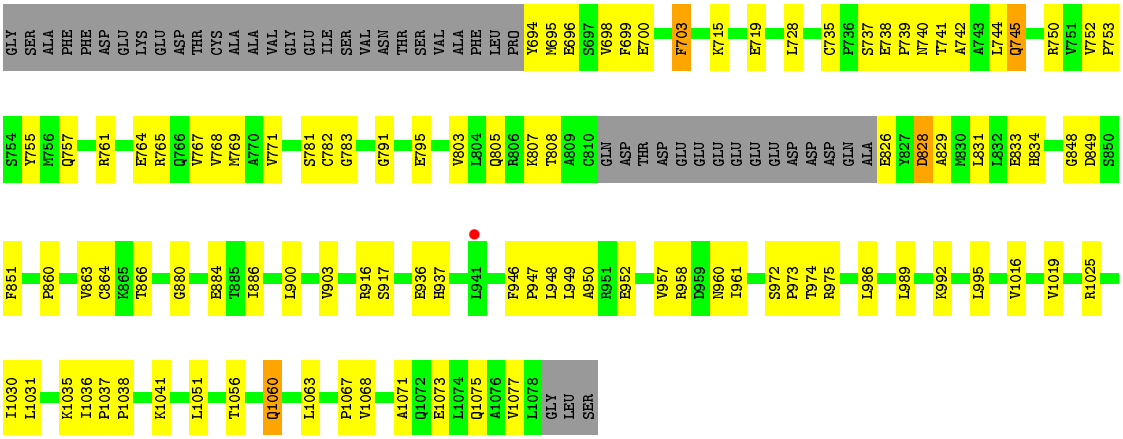
- Molecule 1: Importin-4

Chain C:



- Molecule 1: Importin-4

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	64.92Å 110.77Å 126.82Å 90.00° 106.50° 90.00°	Depositor
Resolution (Å)	46.62 – 3.00 41.64 – 3.00	Depositor EDS
% Data completeness (in resolution range)	98.0 (46.62-3.00) 94.7 (41.64-3.00)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.93 (at 3.01Å)	Xtriage
Refinement program	PHENIX 1.11.1_2575	Depositor
R, R_{free}	0.226 , 0.280 0.226 , 0.281	Depositor DCC
R_{free} test set	3333 reflections (9.88%)	wwPDB-VP
Wilson B-factor (Å^2)	72.5	Xtriage
Anisotropy	0.177	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 14.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	0.067 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	11255	wwPDB-VP
Average B, all atoms (Å^2)	63.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.35% 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	0.26	0/2878	0.46	0/3899
1	B	0.27	0/2836	0.45	0/3841
1	C	0.26	0/2887	0.44	0/3911
1	D	0.26	0/2844	0.44	0/3852
All	All	0.26	0/11445	0.45	0/15503

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	B	0	1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	806	ARG	Peptide

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2830	0	2909	61	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	2789	0	2862	50	0
1	C	2839	0	2906	53	0
1	D	2797	0	2875	62	0
All	All	11255	0	11552	225	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 10.

All (225) 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:769:MSE:HE1	1:B:827:TYR:HB3	1.35	1.08
1:C:879:VAL:HG21	1:C:907:THR:HG21	1.55	0.89
1:D:1056:THR:O	1:D:1060:GLN:NE2	2.13	0.81
1:A:738:GLU:HG2	1:A:739:PRO:HD3	1.69	0.74
1:B:714:ARG:NH1	1:B:762:GLU:OE2	2.21	0.74
1:B:803:VAL:HA	1:B:808:THR:HG22	1.68	0.74
1:A:910:GLU:O	1:A:916:ARG:NH1	2.21	0.73
1:B:752:VAL:HG12	1:B:756:MSE:HE2	1.70	0.73
1:B:764:GLU:N	1:B:764:GLU:OE1	2.22	0.72
1:D:741:THR:O	1:D:745:GLN:NE2	2.24	0.71
1:A:916:ARG:NE	1:A:952:GLU:OE2	2.26	0.69
1:B:806:ARG:HA	1:B:808:THR:HG23	1.74	0.69
1:D:1016:VAL:HG23	1:D:1051:LEU:HD21	1.73	0.68
1:A:1077:VAL:HG13	1:A:1078:LEU:HD23	1.75	0.68
1:B:756:MSE:SE	1:B:795:GLU:HG2	2.44	0.67
1:A:1077:VAL:HG13	1:A:1078:LEU:H	1.60	0.67
1:A:989:LEU:O	1:A:1025:ARG:NH2	2.27	0.65
1:B:737:SER:HB2	1:B:740:ASN:HD22	1.61	0.65
1:C:692:LEU:HG	1:C:740:ASN:HB2	1.78	0.65
1:D:1031:LEU:O	1:D:1041:LYS:NZ	2.28	0.65
1:A:1024:LEU:HB3	1:A:1048:LEU:HD21	1.79	0.64
1:D:995:LEU:HD13	1:D:1035:LYS:HG2	1.80	0.63
1:A:866:THR:HG21	1:A:903:VAL:HG13	1.80	0.63
1:B:806:ARG:NH1	1:B:828:ASP:OD2	2.32	0.63
1:C:753:PRO:HA	1:C:756:MSE:HG3	1.79	0.63
1:A:977:PRO:O	1:A:1015:GLN:NE2	2.26	0.63
1:B:830:MSE:O	1:B:834:HIS:HB2	1.98	0.63
1:D:972:SER:O	1:D:974:THR:N	2.32	0.63
1:A:949:LEU:O	1:A:958:ARG:NH1	2.33	0.62
1:D:949:LEU:HB2	1:D:961:ILE:HG21	1.80	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:808:THR:OG1	1:C:811:GLN:OE1	2.17	0.62
1:D:866:THR:HG21	1:D:903:VAL:HG13	1.81	0.61
1:D:1056:THR:HG22	1:D:1060:GLN:NE2	2.16	0.61
1:A:876:SER:HB3	1:A:915:VAL:HG22	1.82	0.61
1:B:910:GLU:O	1:B:916:ARG:NH1	2.33	0.61
1:C:1063:LEU:HD22	1:C:1071:ALA:HB1	1.83	0.61
1:B:1067:PRO:HG2	1:B:1070:LYS:HB2	1.83	0.60
1:C:866:THR:HG21	1:C:903:VAL:HG13	1.83	0.60
1:D:946:PHE:HB3	1:D:947:PRO:HD3	1.84	0.60
1:A:913:PRO:HB2	1:A:956:ARG:HD2	1.83	0.59
1:C:825:ALA:O	1:C:828:ASP:HB2	2.01	0.59
1:C:903:VAL:O	1:C:907:THR:OG1	2.14	0.59
1:C:920:ILE:HD13	1:C:961:ILE:HG12	1.85	0.59
1:A:1038:PRO:HA	1:A:1041:LYS:HD2	1.85	0.58
1:D:986:LEU:HA	1:D:989:LEU:HD23	1.84	0.58
1:A:876:SER:HB2	1:A:914:GLU:OE2	2.02	0.58
1:D:781:SER:OG	1:D:782:CYS:N	2.36	0.58
1:D:860:PRO:O	1:D:864:CYS:HB2	2.02	0.58
1:C:863:VAL:O	1:C:866:THR:HG22	2.03	0.58
1:A:1078:LEU:H	1:A:1078:LEU:HD23	1.69	0.58
1:C:965:LEU:O	1:C:969:LEU:HB2	2.04	0.57
1:B:788:LYS:H	1:B:789:PRO:HD2	1.69	0.57
1:D:700:GLU:HA	1:D:703:PHE:HB2	1.87	0.57
1:A:948:LEU:HA	1:A:951:ARG:HB2	1.87	0.56
1:B:787:LEU:HD22	1:B:793:LEU:HB2	1.87	0.56
1:B:1024:LEU:HD21	1:B:1059:PHE:CE1	2.40	0.56
1:B:714:ARG:NH1	1:B:764:GLU:OE2	2.39	0.56
1:D:916:ARG:NH1	1:D:952:GLU:OE2	2.38	0.56
1:A:877:PHE:O	1:A:881:THR:OG1	2.20	0.56
1:D:735:CYS:O	1:D:737:SER:N	2.33	0.56
1:B:695:MSE:O	1:B:698:VAL:N	2.39	0.55
1:C:1005:PHE:O	1:C:1047:LEU:HD11	2.07	0.55
1:C:875:LYS:NZ	1:C:910:GLU:OE2	2.33	0.55
1:C:753:PRO:HG3	1:C:792:ARG:HH12	1.71	0.55
1:D:1030:ILE:HB	1:D:1036:ILE:HG13	1.89	0.55
1:A:735:CYS:O	1:A:737:SER:N	2.38	0.55
1:C:692:LEU:HD13	1:C:728:LEU:HG	1.87	0.55
1:A:871:THR:HG22	1:A:873:ALA:H	1.72	0.54
1:D:737:SER:HB2	1:D:740:ASN:ND2	2.21	0.54
1:D:863:VAL:O	1:D:866:THR:HG22	2.07	0.54
1:D:765:ARG:HA	1:D:768:VAL:HB	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:897:VAL:HG22	1:A:926:LEU:HD11	1.89	0.54
1:A:974:THR:HG22	1:A:975:ARG:HB2	1.90	0.54
1:C:1039:ASP:N	1:C:1039:ASP:OD1	2.38	0.54
1:D:739:PRO:O	1:D:742:ALA:N	2.41	0.54
1:D:826:GLU:HG2	1:D:829:ALA:HB2	1.89	0.54
1:B:829:ALA:O	1:B:833:GLU:HB2	2.08	0.54
1:A:991:LEU:HD12	1:A:998:TRP:CD1	2.43	0.53
1:D:738:GLU:H	1:D:738:GLU:CD	2.12	0.53
1:D:917:SER:OG	1:D:960:ASN:OD1	2.26	0.53
1:C:1077:VAL:HG23	1:C:1078:LEU:HD22	1.91	0.53
1:C:1017:ILE:HD11	1:C:1058:SER:HB3	1.90	0.52
1:B:772:LEU:O	1:B:776:THR:HG22	2.09	0.52
1:B:913:PRO:O	1:B:917:SER:HB2	2.10	0.52
1:A:752:VAL:HG21	1:A:786:THR:HG23	1.91	0.51
1:B:738:GLU:HG3	1:B:739:PRO:HD3	1.91	0.51
1:C:957:VAL:O	1:C:961:ILE:HG13	2.10	0.51
1:A:946:PHE:HE1	1:A:981:VAL:HA	1.74	0.51
1:B:769:MSE:CE	1:B:827:TYR:HB3	2.24	0.51
1:D:828:ASP:HA	1:D:831:LEU:HB2	1.92	0.51
1:A:1017:ILE:HA	1:A:1051:LEU:HD21	1.92	0.51
1:A:795:GLU:O	1:A:799:VAL:HG23	2.11	0.51
1:C:714:ARG:NH2	1:C:764:GLU:HG3	2.26	0.51
1:D:848:GLY:HA2	1:D:851:PHE:HB3	1.93	0.51
1:C:954:HIS:CE1	1:C:956:ARG:HG2	2.46	0.50
1:D:916:ARG:HD2	1:D:957:VAL:HG11	1.93	0.50
1:D:757:GLN:HB3	1:D:761:ARG:HH21	1.76	0.50
1:C:879:VAL:HA	1:C:882:LEU:HD12	1.92	0.50
1:A:840:PRO:HB2	1:A:884:GLU:HG2	1.94	0.50
1:D:700:GLU:HB3	1:D:750:ARG:HH12	1.77	0.50
1:C:758:ALA:O	1:C:762:GLU:HB3	2.12	0.49
1:C:907:THR:HG22	1:C:915:VAL:HG12	1.94	0.49
1:D:1030:ILE:HD12	1:D:1041:LYS:HG2	1.94	0.49
1:C:991:LEU:HD11	1:C:1001:ILE:HD13	1.93	0.49
1:D:948:LEU:O	1:D:952:GLU:N	2.45	0.49
1:A:897:VAL:HG11	1:A:934:ALA:HA	1.93	0.49
1:C:1012:SER:HB2	1:C:1015:GLN:HE22	1.77	0.49
1:A:871:THR:HB	1:A:874:GLU:HB2	1.95	0.49
1:A:1008:LEU:HD12	1:A:1047:LEU:HD11	1.95	0.49
1:D:805:GLN:HG3	1:D:807:LYS:HD3	1.96	0.48
1:D:769:MSE:HE3	1:D:834:HIS:HE1	1.79	0.48
1:B:1025:ARG:O	1:B:1029:LEU:HD22	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:974:THR:O	1:B:974:THR:OG1	2.32	0.48
1:A:1020:ALA:HA	1:A:1023:LEU:HB2	1.96	0.47
1:B:759:VAL:HG11	1:B:799:VAL:HB	1.95	0.47
1:D:1071:ALA:O	1:D:1075:GLN:HB2	2.14	0.47
1:C:954:HIS:HE1	1:C:956:ARG:HG2	1.78	0.47
1:C:946:PHE:HB3	1:C:947:PRO:HD3	1.95	0.47
1:D:715:LYS:O	1:D:719:GLU:HG3	2.14	0.47
1:D:728:LEU:HD23	1:D:744:LEU:HA	1.95	0.47
1:D:958:ARG:HE	1:D:992:LYS:NZ	2.12	0.47
1:C:1025:ARG:O	1:C:1029:LEU:HG	2.14	0.46
1:C:737:SER:O	1:C:741:THR:HG23	2.15	0.46
1:A:737:SER:OG	1:A:739:PRO:HD2	2.15	0.46
1:A:1045:LEU:HA	1:A:1048:LEU:HB2	1.96	0.46
1:C:1049:THR:O	1:C:1053:LYS:HG2	2.14	0.46
1:C:995:LEU:HD21	1:C:1035:LYS:HD3	1.98	0.46
1:B:982:LEU:HD11	1:B:1008:LEU:HD11	1.97	0.46
1:A:806:ARG:HA	1:A:811:GLN:OE1	2.15	0.46
1:A:949:LEU:HD12	1:A:949:LEU:HA	1.80	0.46
1:A:969:LEU:HD13	1:A:977:PRO:HB3	1.98	0.45
1:C:1016:VAL:HG23	1:C:1051:LEU:HD21	1.98	0.45
1:D:757:GLN:OE1	1:D:761:ARG:NH2	2.49	0.45
1:D:886:ILE:HD11	1:D:900:LEU:HD13	1.98	0.45
1:C:886:ILE:HD11	1:C:900:LEU:HD13	1.98	0.45
1:D:755:TYR:CD1	1:D:771:VAL:HG13	2.52	0.45
1:C:1068:VAL:HA	1:C:1071:ALA:HB3	1.98	0.45
1:D:957:VAL:O	1:D:961:ILE:HG13	2.16	0.45
1:B:762:GLU:HG3	1:B:764:GLU:OE1	2.16	0.45
1:B:706:LEU:HA	1:B:714:ARG:HG2	1.99	0.45
1:A:1004:LEU:O	1:A:1007:PHE:HB3	2.18	0.44
1:A:711:LEU:H	1:A:711:LEU:HD12	1.82	0.44
1:B:940:LYS:HB2	1:B:940:LYS:HE2	1.77	0.44
1:A:882:LEU:O	1:A:886:ILE:HG13	2.17	0.44
1:B:1043:ALA:O	1:B:1046:LEU:HB3	2.17	0.44
1:A:752:VAL:HB	1:A:753:PRO:HD3	1.99	0.44
1:B:1017:ILE:H	1:B:1017:ILE:HG13	1.60	0.44
1:C:756:MSE:HE3	1:C:796:LEU:HD23	2.00	0.44
1:C:767:VAL:O	1:C:771:VAL:HG23	2.18	0.44
1:C:774:ALA:O	1:C:778:VAL:HG12	2.18	0.44
1:C:1037:PRO:HA	1:C:1038:PRO:HD3	1.90	0.43
1:C:914:GLU:HB2	1:C:956:ARG:NH2	2.33	0.43
1:B:755:TYR:CD1	1:B:771:VAL:HG13	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:947:PRO:O	1:D:950:ALA:N	2.50	0.43
1:D:989:LEU:O	1:D:1025:ARG:NH1	2.45	0.43
1:A:1077:VAL:HG13	1:A:1078:LEU:N	2.31	0.43
1:B:737:SER:O	1:B:740:ASN:N	2.47	0.43
1:B:946:PHE:HB3	1:B:947:PRO:HD3	2.00	0.43
1:C:1067:PRO:HB2	1:C:1070:LYS:HB2	2.00	0.43
1:B:989:LEU:HD21	1:B:1001:ILE:HG21	1.99	0.43
1:B:699:PHE:O	1:B:703:PHE:HB2	2.19	0.43
1:B:730:LYS:HD2	1:B:730:LYS:HA	1.65	0.43
1:B:755:TYR:O	1:B:759:VAL:HG23	2.18	0.43
1:C:949:LEU:HD23	1:C:984:ALA:HB1	2.01	0.43
1:A:986:LEU:HD12	1:A:1019:VAL:HB	1.99	0.43
1:B:886:ILE:HD11	1:B:900:LEU:HD13	2.01	0.43
1:B:1017:ILE:HD13	1:B:1055:HIS:CD2	2.54	0.43
1:D:1056:THR:HG22	1:D:1060:GLN:HE22	1.84	0.43
1:D:1063:LEU:HD23	1:D:1063:LEU:HA	1.83	0.43
1:D:764:GLU:H	1:D:764:GLU:HG2	1.65	0.43
1:A:1030:ILE:HD12	1:A:1030:ILE:HA	1.83	0.43
1:B:738:GLU:N	1:B:739:PRO:HD2	2.34	0.43
1:C:965:LEU:HD23	1:C:965:LEU:HA	1.87	0.43
1:D:863:VAL:HG22	1:D:903:VAL:HG21	2.01	0.42
1:D:880:GLY:O	1:D:884:GLU:HG3	2.19	0.42
1:A:969:LEU:HD22	1:A:977:PRO:HB3	2.00	0.42
1:B:839:ILE:HG23	1:B:851:PHE:HZ	1.83	0.42
1:D:791:GLY:O	1:D:795:GLU:HG3	2.18	0.42
1:C:1015:GLN:O	1:C:1018:ASP:N	2.44	0.42
1:C:756:MSE:HE1	1:C:795:GLU:HB3	2.01	0.42
1:B:880:GLY:O	1:B:884:GLU:HG3	2.19	0.42
1:D:986:LEU:HD12	1:D:1019:VAL:HB	2.00	0.42
1:A:910:GLU:HG2	1:A:915:VAL:HG11	2.02	0.42
1:C:828:ASP:O	1:C:831:LEU:HB2	2.19	0.42
1:B:752:VAL:O	1:B:756:MSE:HG3	2.20	0.42
1:B:753:PRO:HA	1:B:756:MSE:HE3	2.01	0.42
1:A:886:ILE:HD11	1:A:900:LEU:HD13	2.02	0.42
1:B:905:LEU:HA	1:B:923:MSE:HE2	2.01	0.42
1:D:767:VAL:O	1:D:771:VAL:HG23	2.20	0.42
1:C:696:GLU:OE1	1:C:750:ARG:NH1	2.51	0.42
1:C:932:HIS:HB3	1:C:933:PRO:HD3	2.02	0.42
1:C:705:LEU:HD11	1:D:698:VAL:HG11	2.02	0.42
1:D:803:VAL:HG22	1:D:808:THR:HG21	2.02	0.41
1:D:973:PRO:HG2	1:D:975:ARG:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:833:GLU:HG3	1:A:877:PHE:CE2	2.55	0.41
1:D:829:ALA:O	1:D:833:GLU:HG3	2.19	0.41
1:A:1020:ALA:N	1:A:1021:PRO:HD2	2.35	0.41
1:A:863:VAL:O	1:A:866:THR:HB	2.21	0.41
1:A:901:LEU:HD11	1:A:941:LEU:HD21	2.02	0.41
1:C:1066:LEU:HB3	1:C:1067:PRO:HD2	2.01	0.41
1:C:805:GLN:HG3	1:C:861:LEU:HD21	2.02	0.41
1:B:942:LEU:CD2	1:B:968:LEU:HD13	2.50	0.41
1:A:865:LYS:O	1:A:875:LYS:HA	2.20	0.41
1:A:1046:LEU:HA	1:A:1049:THR:HG22	2.01	0.41
1:D:699:PHE:O	1:D:703:PHE:HD2	2.03	0.41
1:A:801:LYS:HE2	1:A:805:GLN:NE2	2.36	0.41
1:B:738:GLU:HG3	1:B:739:PRO:CD	2.50	0.41
1:C:1002:GLY:O	1:C:1005:PHE:HB2	2.19	0.41
1:A:1017:ILE:HD13	1:A:1055:HIS:CD2	2.55	0.41
1:A:963:GLY:O	1:A:967:ARG:HG2	2.20	0.41
1:D:752:VAL:HB	1:D:753:PRO:HD3	2.02	0.41
1:D:694:TYR:C	1:D:696:GLU:H	2.23	0.41
1:A:762:GLU:O	1:A:810:CYS:HB3	2.20	0.41
1:A:997:GLU:O	1:A:1000:THR:HB	2.21	0.41
1:A:955:ASP:HA	1:A:958:ARG:HG3	2.02	0.40
1:D:764:GLU:HB2	1:D:767:VAL:HG12	2.04	0.40
1:A:786:THR:O	1:A:792:ARG:HG2	2.20	0.40
1:C:1001:ILE:O	1:C:1004:LEU:HB3	2.22	0.40
1:D:1037:PRO:HA	1:D:1038:PRO:HD3	1.96	0.40
1:D:936:GLU:HG2	1:D:937:HIS:CD2	2.57	0.40
1:A:871:THR:HB	1:A:874:GLU:H	1.85	0.40
1:B:923:MSE:SE	1:B:945:LEU:HD21	2.72	0.40
1:A:954:HIS:N	1:A:954:HIS:CD2	2.89	0.40
1:B:894:ALA:HB1	1:B:933:PRO:HG2	2.02	0.40
1:D:1073:GLU:O	1:D:1077:VAL:HG23	2.22	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	371/416 (89%)	345 (93%)	22 (6%)	4 (1%)	14	50
1	B	364/416 (88%)	343 (94%)	18 (5%)	3 (1%)	19	57
1	C	370/416 (89%)	352 (95%)	15 (4%)	3 (1%)	19	57
1	D	366/416 (88%)	330 (90%)	32 (9%)	4 (1%)	14	50
All	All	1471/1664 (88%)	1370 (93%)	87 (6%)	14 (1%)	15	53

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	1067	PRO
1	A	994	ASP
1	A	1013	PRO
1	C	828	ASP
1	A	973	PRO
1	B	826	GLU
1	B	788	LYS
1	D	695	MSE
1	D	783	GLY
1	C	783	GLY
1	D	1067	PRO
1	B	791	GLY
1	A	1064	GLY
1	D	1068	VAL

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	299/328 (91%)	291 (97%)	8 (3%)	44	77
1	B	295/328 (90%)	286 (97%)	9 (3%)	40	75
1	C	300/328 (92%)	289 (96%)	11 (4%)	34	70

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	D	296/328 (90%)	291 (98%)	5 (2%)	60 85
All	All	1190/1312 (91%)	1157 (97%)	33 (3%)	43 77

All (33) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	694	TYR
1	A	703	PHE
1	A	708	CYS
1	A	754	SER
1	A	867	LYS
1	A	1028	SER
1	A	1065	SER
1	A	1078	LEU
1	B	703	PHE
1	B	732	CYS
1	B	733	GLN
1	B	738	GLU
1	B	826	GLU
1	B	877	PHE
1	B	917	SER
1	B	994	ASP
1	B	1010	GLN
1	C	732	CYS
1	C	733	GLN
1	C	761	ARG
1	C	828	ASP
1	C	864	CYS
1	C	867	LYS
1	C	876	SER
1	C	946	PHE
1	C	1015	GLN
1	C	1063	LEU
1	C	1078	LEU
1	D	703	PHE
1	D	745	GLN
1	D	828	ASP
1	D	849	ASP
1	D	1060	GLN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	1075	GLN
1	C	954	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 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	369/416 (88%)	-0.31	2 (0%)	91	75	42, 65, 91, 101	0
1	B	364/416 (87%)	-0.29	1 (0%)	94	84	37, 58, 85, 106	0
1	C	370/416 (88%)	-0.28	1 (0%)	94	84	44, 60, 94, 121	0
1	D	364/416 (87%)	-0.34	1 (0%)	94	84	46, 59, 84, 90	0
All	All	1467/1664 (88%)	-0.30	5 (0%)	94	84	37, 61, 88, 121	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	1016	VAL	3.2
1	D	941	LEU	2.9
1	A	1030	ILE	2.7
1	A	757	GLN	2.3
1	B	1030	ILE	2.3

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 (i)

There are no such residues in this entry.