Full wwPDB X-ray Structure Validation Report (i)

Feb 1, 2016 – 02:59 PM GMT

PDB ID	:	4B6H
Title	:	Structure of hDcp1a in complex with proline rich sequence of PNRC2
Authors	:	Lai, T.; Song, H.
Deposited on	:	2012-08-13
Resolution	:	2.60 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
http://wwpdb.org/validation/2016/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The following versions of software and data (see references (1)) were used in the production of this report:

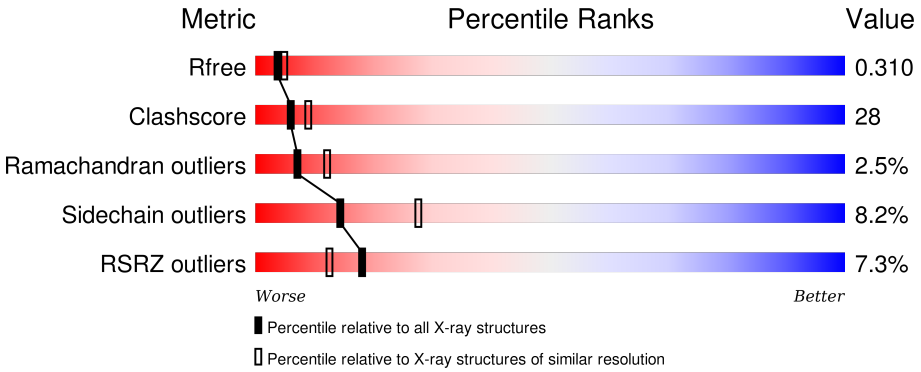
MolProbity	:	4.02b-467
Mogul	:	1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix)	:	1.9-1692
EDS	:	rb-20026688
Percentile statistics	:	20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac	:	5.8.0135
CCP4	:	6.5.0
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	trunk26865

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 2.60 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}	91344	2328 (2.60-2.60)
Clashscore	102246	2679 (2.60-2.60)
Ramachandran outliers	100387	2635 (2.60-2.60)
Sidechain outliers	100360	2635 (2.60-2.60)
RSRZ outliers	91569	2334 (2.60-2.60)

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. 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	134	2% 52% 40%
1	B	134	10% 41% 28% 6% 25%
2	C	135	% 6% 89%
2	D	135	% 5% 90%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 2152 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 MRNA-DECAPPING ENZYME 1A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	129	Total	C	N	O	S	0	0	0
			1052	673	177	196	6			
1	B	101	Total	C	N	O	S	0	0	1
			823	535	134	150	4			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	MET	-	EXPRESSION TAG	UNP Q9NPI6
A	-2	ALA	-	EXPRESSION TAG	UNP Q9NPI6
A	-1	ASP	-	EXPRESSION TAG	UNP Q9NPI6
A	0	LEU	-	EXPRESSION TAG	UNP Q9NPI6
B	-3	MET	-	EXPRESSION TAG	UNP Q9NPI6
B	-2	ALA	-	EXPRESSION TAG	UNP Q9NPI6
B	-1	ASP	-	EXPRESSION TAG	UNP Q9NPI6
B	0	LEU	-	EXPRESSION TAG	UNP Q9NPI6

- Molecule 2 is a protein called PROLINE-RICH NUCLEAR RECEPTOR COACTIVATOR 2.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	15	Total	C	N	O	0	0	1
			109	73	19	17			
2	D	14	Total	C	N	O	0	0	1
			102	68	18	16			

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-13	MET	-	EXPRESSION TAG	UNP Q9NPJ4
C	-12	GLY	-	EXPRESSION TAG	UNP Q9NPJ4
C	-11	SER	-	EXPRESSION TAG	UNP Q9NPJ4

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-10	SER	-	EXPRESSION TAG	UNP Q9NPJ4
C	-9	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
C	-8	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
C	-7	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
C	-6	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
C	-5	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
C	-4	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
C	-3	SER	-	EXPRESSION TAG	UNP Q9NPJ4
C	-2	GLN	-	EXPRESSION TAG	UNP Q9NPJ4
C	-1	ASP	-	EXPRESSION TAG	UNP Q9NPJ4
C	0	PRO	-	EXPRESSION TAG	UNP Q9NPJ4
D	-13	MET	-	EXPRESSION TAG	UNP Q9NPJ4
D	-12	GLY	-	EXPRESSION TAG	UNP Q9NPJ4
D	-11	SER	-	EXPRESSION TAG	UNP Q9NPJ4
D	-10	SER	-	EXPRESSION TAG	UNP Q9NPJ4
D	-9	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
D	-8	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
D	-7	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
D	-6	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
D	-5	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
D	-4	HIS	-	EXPRESSION TAG	UNP Q9NPJ4
D	-3	SER	-	EXPRESSION TAG	UNP Q9NPJ4
D	-2	GLN	-	EXPRESSION TAG	UNP Q9NPJ4
D	-1	ASP	-	EXPRESSION TAG	UNP Q9NPJ4
D	0	PRO	-	EXPRESSION TAG	UNP Q9NPJ4

- Molecule 3 is water.

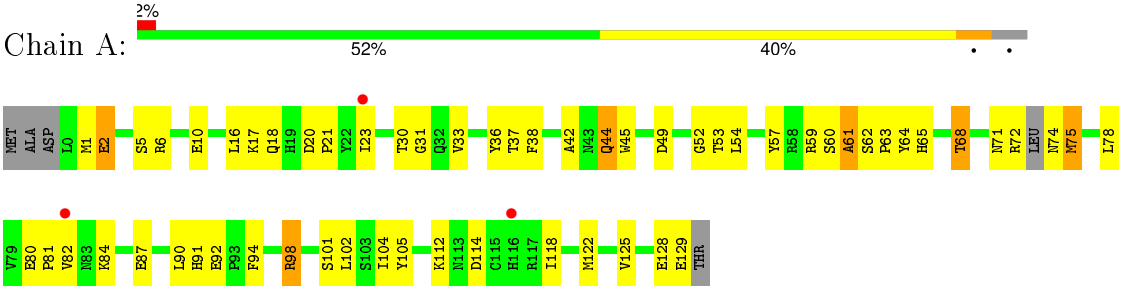
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	34	Total O 34 34	0	0
3	B	25	Total O 25 25	0	0
3	C	4	Total O 4 4	0	0
3	D	3	Total O 3 3	0	0

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 errors 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.

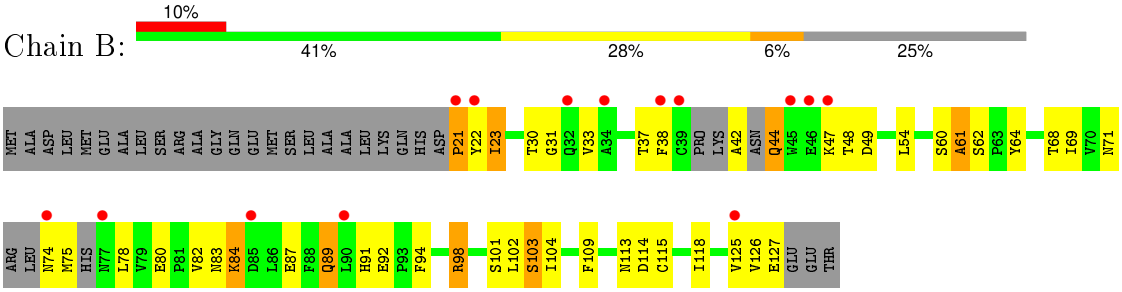
- Molecule 1: MRNA-DECAPPING ENZYME 1A

Chain A:



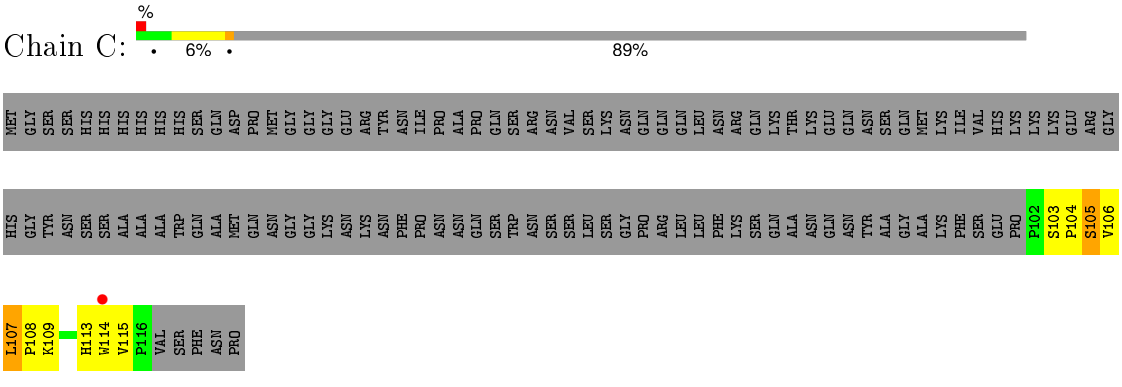
- Molecule 1: MRNA-DECAPPING ENZYME 1A

Chain B:



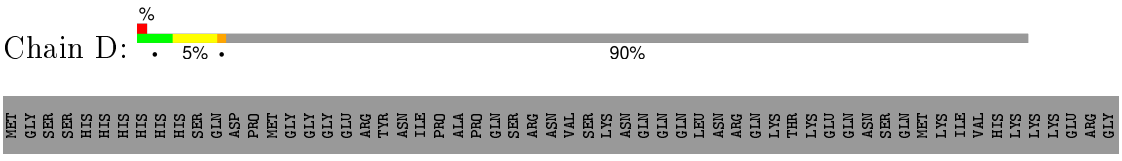
- Molecule 2: PROLINE-RICH NUCLEAR RECEPTOR COACTIVATOR 2

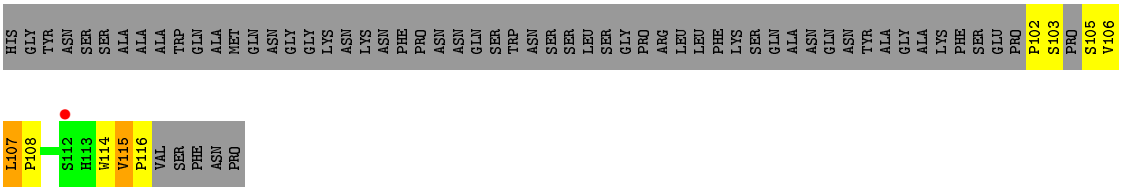
Chain C:



- Molecule 2: PROLINE-RICH NUCLEAR RECEPTOR COACTIVATOR 2

Chain D:




HIS GLY TYR ASN SER SER ALA ALA ALA TRP GLN ALA MET GLN ASN GLY GLY LYS ASN LYS ASN PHE PRO ASN ASN GLN SER TRP ASN SER SER LEU SER GLY PRO ARG LEU LEU PHE LYS SER GLN ALA ASN GLN ASN TYR ALA GLY ALA LYS PHE SER GLU PRO P102 S103 PRO S105 V106

L107 P108 S112 H113 W114 V115 P116 VAL SER PHE ASN PRO

4 Data and refinement statistics (i)

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	76.09Å 97.64Å 109.69Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	72.93 – 2.60 72.93 – 2.60	Depositor EDS
% Data completeness (in resolution range)	97.6 (72.93-2.60) 97.6 (72.93-2.60)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.87 (at 2.62Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE: 1.6.1_357)	Depositor
R, R_{free}	0.234 , 0.285 0.271 , 0.310	Depositor DCC
R_{free} test set	1261 reflections (10.00%)	DCC
Wilson B-factor (Å^2)	69.7	Xtriage
Anisotropy	0.184	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 86.3	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.32$	Xtriage
Outliers	0 of 12620 reflections	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	2152	wwPDB-VP
Average B, all atoms (Å^2)	83.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.38% 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, 0.375 respectively for untwinned datasets, and 0.333, 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	0.43	0/1077	0.61	0/1459
1	B	0.47	0/842	0.68	1/1140 (0.1%)
2	C	0.66	1/116 (0.9%)	0.71	0/162
2	D	0.65	1/107 (0.9%)	0.51	0/147
All	All	0.47	2/2142 (0.1%)	0.64	1/2908 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	115	VAL	C-N	-5.62	1.23	1.34
2	C	115	VAL	C-N	-5.45	1.23	1.34

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	21	PRO	CA-N-CD	-8.92	99.01	111.50

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	1052	0	1023	57	2
1	B	823	0	794	48	1
2	C	109	0	109	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	D	102	0	101	11	0
3	A	34	0	0	10	3
3	B	25	0	0	16	0
3	C	4	0	0	0	0
3	D	3	0	0	2	0
All	All	2152	0	2027	117	3

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 28.

All (117) 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:71:ASN:HB3	1:B:74:ASN:O	1.35	1.25
1:A:75:MET:O	1:A:75:MET:HE2	1.54	1.07
1:A:75:MET:O	1:A:75:MET:CE	2.03	1.07
1:A:72:ARG:NH2	3:A:2017:HOH:O	1.87	1.05
1:A:57:TYR:HE2	1:A:68:THR:HG22	1.20	1.02
2:D:106:VAL:HG13	2:D:106:VAL:O	1.68	0.92
1:B:44:GLN:HE21	1:B:44:GLN:N	1.69	0.88
2:D:115:VAL:O	3:D:2002:HOH:O	1.91	0.88
1:B:49:ASP:HA	3:B:2010:HOH:O	1.74	0.87
2:D:116:PRO:N	3:D:2003:HOH:O	2.07	0.87
1:B:82:VAL:HG11	1:B:125:VAL:HG23	1.55	0.86
1:A:44:GLN:H	1:A:44:GLN:HE21	1.20	0.86
1:B:23:ILE:N	3:B:2004:HOH:O	2.08	0.85
1:A:44:GLN:N	1:A:44:GLN:HE21	1.74	0.85
1:A:91:HIS:ND1	3:A:2029:HOH:O	2.08	0.85
1:A:42:ALA:CB	1:A:44:GLN:HE22	1.89	0.84
1:A:42:ALA:HB3	1:A:44:GLN:HE22	1.43	0.84
1:A:57:TYR:CE2	1:A:68:THR:HG22	2.11	0.82
1:A:91:HIS:CG	3:A:2029:HOH:O	2.30	0.82
2:C:106:VAL:HG13	2:C:106:VAL:O	1.81	0.79
1:A:75:MET:O	1:A:75:MET:HE3	1.81	0.78
1:B:82:VAL:O	1:B:82:VAL:HG12	1.84	0.78
1:B:44:GLN:CA	3:B:2009:HOH:O	2.31	0.77
1:B:44:GLN:N	3:B:2009:HOH:O	2.19	0.76
2:C:104:PRO:O	2:C:106:VAL:N	2.18	0.76
1:A:92:GLU:OE1	3:A:2030:HOH:O	2.04	0.75
1:B:71:ASN:CB	1:B:74:ASN:O	2.28	0.72
1:B:71:ASN:ND2	3:B:2013:HOH:O	1.99	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:80:GLU:OE1	3:B:2014:HOH:O	2.10	0.69
1:A:128:GLU:OE1	1:A:128:GLU:HA	1.93	0.69
1:B:62:SER:HB2	1:B:64:TYR:CE1	2.26	0.69
1:B:49:ASP:CA	3:B:2010:HOH:O	2.35	0.69
1:B:89:GLN:OE1	3:B:2017:HOH:O	2.10	0.68
1:B:94:PHE:CE1	2:D:107:LEU:HD22	2.29	0.68
1:A:82:VAL:HG11	1:A:125:VAL:HG23	1.76	0.67
2:D:106:VAL:CG1	2:D:106:VAL:O	2.41	0.67
1:A:62:SER:HB2	1:A:64:TYR:CE1	2.30	0.66
1:B:71:ASN:HB2	3:B:2013:HOH:O	1.95	0.66
1:B:94:PHE:CZ	2:D:107:LEU:HD22	2.30	0.65
2:D:107:LEU:HD23	2:D:107:LEU:N	2.13	0.64
1:B:22:TYR:HA	1:B:23:ILE:HB	1.80	0.63
1:A:49:ASP:HA	3:A:2015:HOH:O	2.00	0.62
1:B:44:GLN:NE2	1:B:44:GLN:N	2.44	0.61
1:B:87:GLU:CD	1:B:98:ARG:HH21	2.03	0.60
1:B:114:ASP:O	1:B:118:ILE:HG12	2.01	0.60
1:A:92:GLU:HB3	1:A:112:LYS:NZ	2.16	0.60
1:A:82:VAL:O	1:A:129:GLU:HG3	2.03	0.59
1:A:65:HIS:HD2	3:A:2035:HOH:O	1.85	0.59
1:B:44:GLN:HA	3:B:2009:HOH:O	1.98	0.58
1:A:128:GLU:HG3	3:A:2033:HOH:O	2.03	0.58
1:B:21:PRO:O	1:B:21:PRO:HD2	2.04	0.58
1:B:60:SER:O	1:B:61:ALA:HB2	2.03	0.57
1:A:36:TYR:CG	2:C:107:LEU:HD11	2.39	0.57
1:A:44:GLN:N	1:A:44:GLN:NE2	2.48	0.56
1:A:60:SER:O	1:A:61:ALA:HB2	2.04	0.56
1:B:87:GLU:HG3	2:D:114:TRP:CZ2	2.41	0.56
1:A:90:LEU:HD11	1:A:92:GLU:HG3	1.86	0.56
1:B:71:ASN:CB	3:B:2013:HOH:O	2.52	0.55
2:C:106:VAL:O	2:C:106:VAL:CG1	2.54	0.55
1:A:101:SER:O	1:A:102:LEU:HB2	2.06	0.55
1:B:101:SER:OG	1:B:103:SER:OG	2.19	0.54
1:A:94:PHE:CE1	2:C:107:LEU:HD22	2.42	0.54
1:B:30:THR:HB	3:B:2006:HOH:O	2.08	0.53
1:B:127:GLU:N	3:B:2023:HOH:O	2.42	0.53
1:A:45:TRP:NE1	2:C:108:PRO:O	2.39	0.52
1:B:91:HIS:HB3	2:D:108:PRO:HG3	1.91	0.52
1:A:37:THR:HG22	1:A:105:TYR:CE1	2.45	0.51
1:A:2:GLU:HA	1:A:5:SER:HB3	1.92	0.51
1:B:38:PHE:HB3	1:B:104:ILE:HB	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:107:LEU:HB3	2:C:108:PRO:HD2	1.92	0.50
3:A:2027:HOH:O	2:C:109:LYS:O	2.20	0.50
1:A:87:GLU:CD	1:A:98:ARG:HH21	2.15	0.50
1:A:33:VAL:HG21	1:A:54:LEU:HB2	1.94	0.49
1:A:37:THR:HG22	1:A:105:TYR:CD1	2.47	0.49
1:B:101:SER:O	1:B:102:LEU:HB2	2.13	0.49
1:A:16:LEU:CD2	1:A:68:THR:HG21	2.44	0.48
1:A:44:GLN:H	1:A:44:GLN:NE2	2.01	0.48
1:B:69:ILE:HB	1:B:78:LEU:HB3	1.96	0.48
1:B:126:VAL:HG12	1:B:127:GLU:N	2.27	0.48
1:B:37:THR:HG23	1:B:48:THR:CG2	2.43	0.48
1:A:118:ILE:O	1:A:122:MET:HG2	2.14	0.47
1:B:47:LYS:NZ	3:B:2010:HOH:O	2.48	0.47
1:B:33:VAL:HG21	1:B:54:LEU:HB2	1.97	0.47
1:A:71:ASN:ND2	1:A:74:ASN:OD1	2.49	0.47
1:A:16:LEU:HD22	1:A:68:THR:HG21	1.98	0.45
3:A:2024:HOH:O	2:C:113:HIS:HE1	1.98	0.45
1:A:17:LYS:HD3	1:A:23:ILE:O	2.17	0.45
1:B:42:ALA:HB3	1:B:44:GLN:HE22	1.82	0.45
1:A:38:PHE:O	3:A:2012:HOH:O	2.21	0.44
1:A:52:GLY:HA2	1:A:72:ARG:HG2	2.00	0.44
1:A:42:ALA:HB1	1:A:44:GLN:HE22	1.80	0.44
1:A:112:LYS:HB2	1:A:112:LYS:HE3	1.45	0.43
1:A:38:PHE:HB3	1:A:104:ILE:HB	1.99	0.43
2:D:102:PRO:O	2:D:103:SER:C	2.57	0.43
1:A:87:GLU:HG3	2:C:114:TRP:CZ2	2.53	0.43
1:A:92:GLU:HB3	1:A:112:LYS:HZ1	1.83	0.43
1:A:114:ASP:O	1:A:118:ILE:HG12	2.19	0.43
2:D:107:LEU:HB3	2:D:108:PRO:HD2	2.00	0.42
1:B:71:ASN:CG	1:B:74:ASN:N	2.72	0.42
1:B:82:VAL:HG11	1:B:125:VAL:CG2	2.38	0.42
1:A:20:ASP:HA	1:A:21:PRO:HD3	1.72	0.42
1:B:60:SER:O	1:B:61:ALA:CB	2.68	0.42
1:A:59:ARG:HD3	1:A:63:PRO:O	2.20	0.42
1:B:37:THR:HG23	1:B:48:THR:HG22	2.01	0.41
1:A:20:ASP:O	1:A:23:ILE:HG13	2.20	0.41
1:B:83:ASN:HB2	1:B:84:LYS:HE2	2.01	0.41
1:A:68:THR:HA	1:A:78:LEU:O	2.21	0.41
1:A:80:GLU:HA	1:A:81:PRO:HD3	1.92	0.41
1:B:71:ASN:OD1	1:B:74:ASN:N	2.53	0.41
1:B:109:PHE:HB2	1:B:115:CYS:HB2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:30:THR:O	1:A:53:THR:HG23	2.20	0.41
1:A:65:HIS:HB2	1:A:82:VAL:HB	2.03	0.41
1:B:48:THR:C	3:B:2010:HOH:O	2.59	0.41
1:A:20:ASP:C	1:A:20:ASP:OD1	2.58	0.41
1:A:21:PRO:HG3	1:B:83:ASN:ND2	2.36	0.40
1:B:113:ASN:ND2	3:B:2021:HOH:O	2.41	0.40
1:A:6:ARG:O	1:A:10:GLU:HG3	2.21	0.40

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:92:GLU:OE2	3:A:2032:HOH:O[7_445]	2.00	0.20
1:A:1:MET:CG	3:A:2017:HOH:O[3_555]	2.00	0.20
1:A:1:MET:CB	3:A:2017:HOH:O[3_555]	2.04	0.16

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	125/134 (93%)	115 (92%)	8 (6%)	2 (2%)	12 24
1	B	92/134 (69%)	84 (91%)	5 (5%)	3 (3%)	5 7
2	C	13/135 (10%)	9 (69%)	3 (23%)	1 (8%)	1 1
2	D	10/135 (7%)	9 (90%)	1 (10%)	0	100 100
All	All	240/538 (45%)	217 (90%)	17 (7%)	6 (2%)	7 12

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	C	105	SER

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Mol	Chain	Res	Type
1	B	31	GLY
1	A	61	ALA
1	B	61	ALA
1	B	23	ILE
1	A	31	GLY

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	114/118 (97%)	107 (94%)	7 (6%)	23 46
1	B	90/118 (76%)	83 (92%)	7 (8%)	16 30
2	C	14/117 (12%)	11 (79%)	3 (21%)	1 2
2	D	13/117 (11%)	11 (85%)	2 (15%)	3 5
All	All	231/470 (49%)	212 (92%)	19 (8%)	14 27

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	GLU
1	A	18	GLN
1	A	44	GLN
1	A	68	THR
1	A	75	MET
1	A	84	LYS
1	A	98	ARG
1	B	44	GLN
1	B	68	THR
1	B	75	MET
1	B	84	LYS
1	B	89	GLN
1	B	98	ARG
1	B	103	SER
2	C	103	SER
2	C	105	SER

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Mol	Chain	Res	Type
2	C	107	LEU
2	D	105	SER
2	D	107	LEU

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	44	GLN
1	A	65	HIS
2	D	113	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	129/134 (96%)	0.81	3 (2%) 64 57	49, 73, 107, 138	0
1	B	101/134 (75%)	1.10	14 (13%) 4 2	56, 87, 127, 168	0
2	C	15/135 (11%)	0.78	1 (6%) 21 15	65, 80, 114, 124	0
2	D	14/135 (10%)	1.14	1 (7%) 19 13	82, 115, 132, 146	0
All	All	259/538 (48%)	0.94	19 (7%) 18 12	49, 81, 124, 168	0

All (19) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	22	TYR	5.0
1	B	21	PRO	4.1
1	B	38	PHE	3.5
1	B	39	CYS	3.3
1	A	23	ILE	3.1
1	A	82	VAL	3.1
1	B	47	LYS	2.7
1	B	34	ALA	2.6
1	B	90	LEU	2.6
1	B	85	ASP	2.4
1	B	74	ASN	2.4
1	B	45	TRP	2.4
2	D	112	SER	2.3
1	A	116	HIS	2.3
1	B	46	GLU	2.3
1	B	77	ASN	2.2
1	B	125	VAL	2.2
2	C	114	TRP	2.1
1	B	32	GLN	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 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.