Full wwPDB X-ray Structure Validation Report ⓘ

Nov 21, 2023 – 02:07 PM JST

PDB ID	:	7V8G
Title	:	Crystal structure of HOIP RING1 domain bound to IpaH1.4 LRR domain
Authors	:	Liu, J.; Wang, Y.; Pan, L.
Deposited on	:	2021-08-23
Resolution	:	2.75 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:

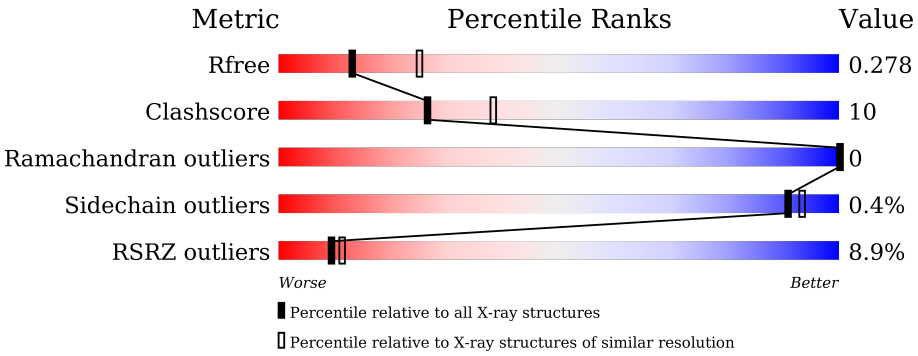
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation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

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.75 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	1235 (2.78-2.74)
Clashscore	141614	1277 (2.78-2.74)
Ramachandran outliers	138981	1257 (2.78-2.74)
Sidechain outliers	138945	1257 (2.78-2.74)
RSRZ outliers	127900	1207 (2.78-2.74)

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	240	88% 9% • •
1	B	240	% 80% 16% • •
2	C	103	% 63% 24% • 10%
2	D	103	52% 59% 24% • 13%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 4800 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 RING-type E3 ubiquitin transferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	235	Total	C	N	O	S	0	0	0
			1783	1151	300	327	5			
1	B	235	Total	C	N	O	S	0	0	0
			1767	1137	301	324	5			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	34	GLY	-	expression tag	UNP Q9AFJ5
A	35	PRO	-	expression tag	UNP Q9AFJ5
A	36	GLY	-	expression tag	UNP Q9AFJ5
A	37	SER	-	expression tag	UNP Q9AFJ5
B	34	GLY	-	expression tag	UNP Q9AFJ5
B	35	PRO	-	expression tag	UNP Q9AFJ5
B	36	GLY	-	expression tag	UNP Q9AFJ5
B	37	SER	-	expression tag	UNP Q9AFJ5

- Molecule 2 is a protein called E3 ubiquitin-protein ligase RNF31.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	D	90	Total	C	N	O	S	0	0	0
			590	374	105	103	8			
2	C	93	Total	C	N	O	S	0	0	0
			656	424	111	111	10			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	691	GLY	-	expression tag	UNP Q96EP0
D	692	PRO	-	expression tag	UNP Q96EP0
D	693	GLY	-	expression tag	UNP Q96EP0
D	694	SER	-	expression tag	UNP Q96EP0

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Chain	Residue	Modelled	Actual	Comment	Reference
D	695	GLU	-	expression tag	UNP Q96EP0
D	696	PHE	-	expression tag	UNP Q96EP0
C	691	GLY	-	expression tag	UNP Q96EP0
C	692	PRO	-	expression tag	UNP Q96EP0
C	693	GLY	-	expression tag	UNP Q96EP0
C	694	SER	-	expression tag	UNP Q96EP0
C	695	GLU	-	expression tag	UNP Q96EP0
C	696	PHE	-	expression tag	UNP Q96EP0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

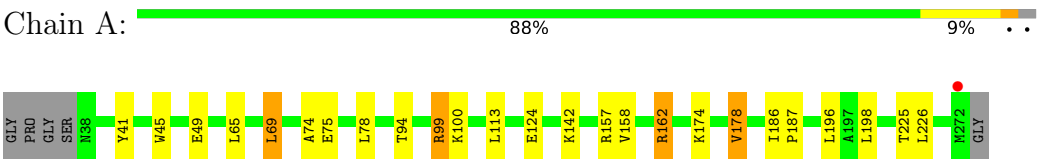
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	D	2	Total Zn 2 2	0	0
3	C	2	Total Zn 2 2	0	0

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.

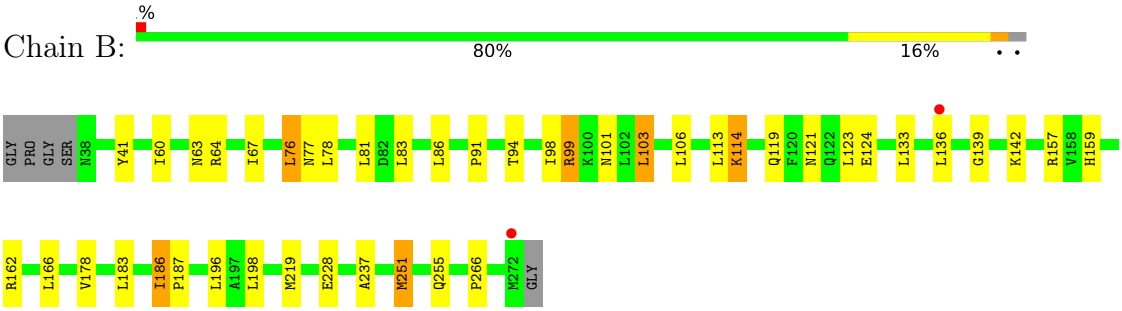
• Molecule 1: RING-type E3 ubiquitin transferase

Chain A:



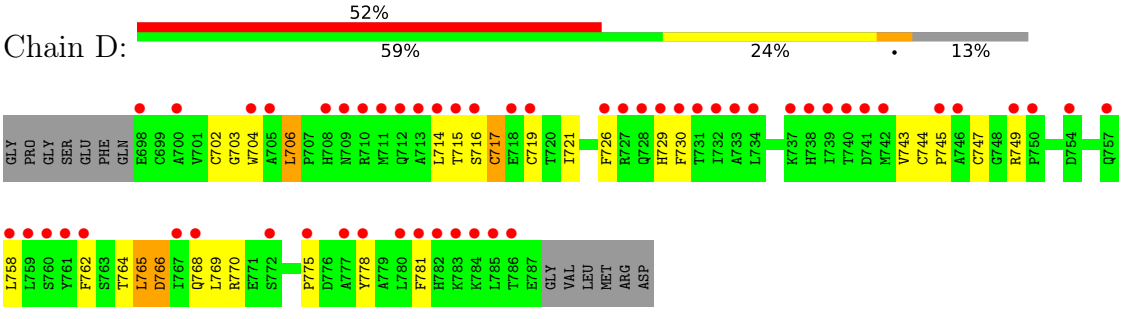
• Molecule 1: RING-type E3 ubiquitin transferase

Chain B:



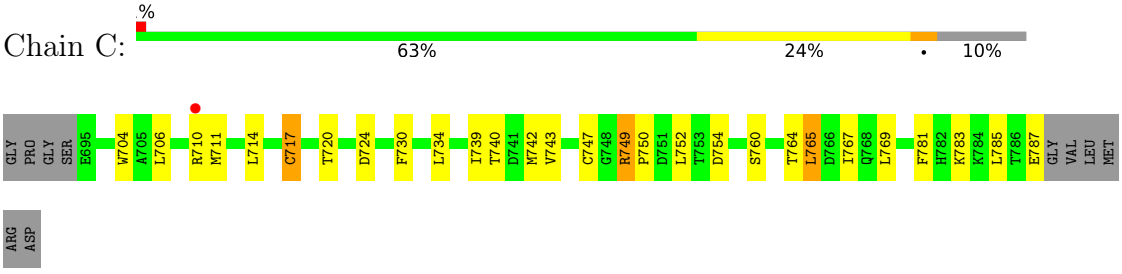
• Molecule 2: E3 ubiquitin-protein ligase RNF31

Chain D:



• Molecule 2: E3 ubiquitin-protein ligase RNF31

Chain C:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	136.90Å 35.14Å 145.87Å 90.00° 93.69° 90.00°	Depositor
Resolution (Å)	60.36 – 2.75 72.78 – 2.75	Depositor EDS
% Data completeness (in resolution range)	99.8 (60.36-2.75) 97.9 (72.78-2.75)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	4.80 (at 2.77Å)	Xtriage
Refinement program	PHENIX 1.18.2_3874	Depositor
R, R_{free}	0.220 , 0.278 0.220 , 0.278	Depositor DCC
R_{free} test set	973 reflections (5.24%)	wwPDB-VP
Wilson B-factor (Å^2)	52.6	Xtriage
Anisotropy	0.713	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 61.2	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	0.93	EDS
Total number of atoms	4800	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 6.33% 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

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	0.71	2/1825 (0.1%)	1.11	8/2503 (0.3%)
1	B	0.64	1/1808 (0.1%)	1.05	14/2481 (0.6%)
2	C	0.63	0/671	1.07	3/917 (0.3%)
2	D	0.54	1/604 (0.2%)	1.19	6/833 (0.7%)
All	All	0.66	4/4908 (0.1%)	1.09	31/6734 (0.5%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	228	GLU	CD-OE1	6.90	1.33	1.25
1	A	124	GLU	CB-CG	5.37	1.62	1.52
1	A	178	VAL	CB-CG2	-5.26	1.41	1.52
2	D	717	CYS	CB-SG	5.07	1.90	1.82

All (31) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	99	ARG	NE-CZ-NH2	17.70	129.15	120.30
1	A	99	ARG	NE-CZ-NH1	-16.30	112.15	120.30
1	B	99	ARG	NE-CZ-NH1	-14.84	112.88	120.30
2	D	765	LEU	CA-CB-CG	-10.60	90.93	115.30
2	D	717	CYS	CA-CB-SG	10.24	132.42	114.00
2	D	717	CYS	CB-CA-C	-10.17	90.07	110.40
1	B	99	ARG	NE-CZ-NH2	8.19	124.39	120.30
1	B	99	ARG	CD-NE-CZ	-8.09	112.28	123.60
1	B	228	GLU	CB-CA-C	6.88	124.15	110.40
2	C	765	LEU	CB-CG-CD2	6.85	122.65	111.00
1	B	99	ARG	CG-CD-NE	6.76	126.00	111.80
1	B	136	LEU	CB-CG-CD2	6.76	122.49	111.00
2	C	785	LEU	CB-CG-CD1	6.71	122.41	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	758	LEU	CA-CB-CG	6.40	130.01	115.30
1	B	124	GLU	CA-CB-CG	6.12	126.87	113.40
1	B	251	MET	CA-CB-CG	-6.11	102.92	113.30
2	C	749	ARG	CG-CD-NE	5.88	124.16	111.80
1	A	69	LEU	CA-CB-CG	-5.83	101.89	115.30
1	B	76	LEU	CB-CG-CD2	5.82	120.90	111.00
1	A	157	ARG	NE-CZ-NH2	-5.78	117.41	120.30
1	B	103	LEU	CA-CB-CG	5.72	128.45	115.30
1	B	219	MET	CB-CG-SD	-5.65	95.45	112.40
1	B	114	LYS	CD-CE-NZ	-5.53	98.98	111.70
2	D	706	LEU	CB-CG-CD1	-5.46	101.72	111.00
1	A	162	ARG	NE-CZ-NH1	-5.18	117.71	120.30
1	B	123	LEU	CB-CG-CD2	-5.17	102.22	111.00
2	D	766	ASP	CB-CA-C	-5.11	100.17	110.40
1	A	41	TYR	CB-CG-CD2	-5.07	117.96	121.00
1	B	186	ILE	CG1-CB-CG2	-5.05	100.30	111.40
1	A	174	LYS	CA-CB-CG	-5.04	102.31	113.40
1	A	69	LEU	CB-CG-CD2	-5.00	102.50	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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	1783	0	1753	18	0
1	B	1767	0	1726	28	0
2	C	656	0	574	29	0
2	D	590	0	461	28	0
3	C	2	0	0	0	0
3	D	2	0	0	0	0
All	All	4800	0	4514	96	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 (96) 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)
2:C:765:LEU:HD22	2:C:769:LEU:HG	1.53	0.89
1:B:159:HIS:CE1	2:D:702:CYS:HA	2.11	0.86
1:B:76:LEU:HD21	1:B:78:LEU:HG	1.65	0.79
2:D:714:LEU:HA	2:D:765:LEU:CD1	2.14	0.77
2:D:762:PHE:O	2:D:766:ASP:N	2.18	0.76
1:B:76:LEU:CD2	1:B:78:LEU:HG	2.17	0.75
1:B:60:ILE:O	1:B:64:ARG:HG3	1.87	0.74
2:D:743:VAL:HG12	2:D:744:CYS:H	1.54	0.72
2:D:714:LEU:O	2:D:717:CYS:HB2	1.93	0.68
1:B:86:LEU:HG	1:B:103:LEU:HD21	1.79	0.64
2:C:765:LEU:HD22	2:C:769:LEU:CG	2.28	0.64
1:B:78:LEU:HB2	1:B:98:ILE:HG22	1.81	0.63
1:A:99:ARG:NH1	2:C:704:TRP:CE3	2.68	0.62
2:C:704:TRP:CZ3	2:C:706:LEU:HD11	2.35	0.61
2:D:726:PHE:O	2:D:730:PHE:HD2	1.83	0.61
2:D:714:LEU:HB2	2:D:717:CYS:SG	2.41	0.60
1:B:159:HIS:HE1	2:D:702:CYS:HA	1.61	0.60
1:A:99:ARG:NH2	2:C:724:ASP:OD2	2.35	0.59
2:C:734:LEU:HD11	2:C:781:PHE:HB2	1.85	0.59
1:A:99:ARG:NH1	2:C:704:TRP:CD2	2.71	0.59
2:D:704:TRP:CZ3	2:D:706:LEU:HD11	2.38	0.59
1:A:158:VAL:HG23	1:A:178:VAL:HG12	1.86	0.57
2:C:752:LEU:C	2:C:754:ASP:H	2.07	0.57
2:D:719:CYS:SG	2:D:747:CYS:HB3	2.43	0.57
2:D:716:SER:O	2:D:749:ARG:NH1	2.27	0.56
1:B:101:ASN:HB2	1:B:103:LEU:HD12	1.88	0.56
2:D:714:LEU:HD11	2:D:721:ILE:HD12	1.88	0.54
2:D:714:LEU:HA	2:D:765:LEU:HD11	1.91	0.54
2:D:717:CYS:HB3	2:D:719:CYS:H	1.73	0.54
2:C:747:CYS:SG	2:C:749:ARG:HB2	2.48	0.53
2:C:711:MET:HE3	2:C:720:THR:HG22	1.91	0.53
2:C:740:THR:HA	2:C:752:LEU:HD23	1.90	0.53
1:B:63:ASN:O	1:B:67:ILE:HG22	2.09	0.53
1:B:94:THR:C	1:B:113:LEU:HD23	2.29	0.53
1:B:101:ASN:HB2	1:B:121:ASN:OD1	2.08	0.53
2:D:770:ARG:HD2	2:D:778:TYR:OH	2.09	0.52
2:C:743:VAL:HG12	2:C:750:PRO:HD2	1.91	0.52
2:C:740:THR:HA	2:C:752:LEU:CD2	2.40	0.51
1:B:157:ARG:HD2	2:D:703:GLY:HA3	1.92	0.51
2:C:714:LEU:HB2	2:C:717:CYS:SG	2.51	0.51
1:B:251:MET:O	1:B:255:GLN:HG2	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:760:SER:O	2:C:764:THR:HG23	2.11	0.50
1:B:166:LEU:HD11	1:B:178:VAL:HG21	1.93	0.50
1:A:100:LYS:NZ	2:C:724:ASP:OD2	2.36	0.49
2:C:734:LEU:CD1	2:C:781:PHE:HB2	2.42	0.49
2:C:783:LYS:O	2:C:787:GLU:HG3	2.13	0.49
1:A:74:ALA:HB3	1:A:75:GLU:OE1	2.12	0.49
1:B:101:ASN:CB	1:B:103:LEU:HD12	2.43	0.48
1:A:49:GLU:O	1:A:49:GLU:HG2	2.13	0.48
1:B:237:ALA:HB3	1:B:266:PRO:HB3	1.96	0.48
2:D:704:TRP:CH2	2:D:706:LEU:HD21	2.49	0.47
1:B:142:LYS:HE2	1:B:162:ARG:NH2	2.28	0.47
2:D:765:LEU:HD22	2:D:768:GLN:HG3	1.94	0.47
2:C:704:TRP:CH2	2:C:706:LEU:HD21	2.50	0.47
2:C:730:PHE:HD1	2:C:742:MET:HE3	1.79	0.47
2:D:743:VAL:HG12	2:D:744:CYS:N	2.27	0.47
1:B:119:GLN:HA	1:B:139:GLY:O	2.14	0.47
1:A:158:VAL:CG2	1:A:178:VAL:HG12	2.45	0.47
2:D:775:PRO:HA	2:D:778:TYR:HB3	1.98	0.46
1:B:196:LEU:HD11	1:B:198:LEU:HD23	1.97	0.46
1:B:81:LEU:HB2	1:B:83:LEU:HG	1.97	0.46
2:C:704:TRP:HZ3	2:C:706:LEU:HD11	1.80	0.46
1:A:196:LEU:HD11	1:A:198:LEU:HD21	1.97	0.45
1:A:142:LYS:HG2	1:A:162:ARG:NH2	2.32	0.45
2:C:711:MET:HB3	2:C:720:THR:HG22	1.99	0.44
2:D:714:LEU:CD1	2:D:721:ILE:HD12	2.48	0.44
1:B:76:LEU:HD23	1:B:77:ASN:N	2.32	0.44
1:B:178:VAL:HG11	1:B:183:LEU:HD11	1.99	0.44
2:D:704:TRP:CZ2	2:D:706:LEU:HD21	2.52	0.44
1:A:225:THR:C	1:A:226:LEU:HD12	2.38	0.44
1:A:94:THR:C	1:A:113:LEU:HD23	2.39	0.44
2:D:765:LEU:HA	2:D:765:LEU:HD23	1.27	0.44
2:C:750:PRO:HG2	2:C:752:LEU:CD1	2.47	0.44
1:B:101:ASN:HD22	1:B:103:LEU:HD11	1.83	0.43
2:C:767:ILE:HD12	2:C:767:ILE:HA	1.81	0.43
1:A:45:TRP:CZ3	1:A:65:LEU:HB3	2.54	0.43
2:D:729:HIS:CD2	2:D:745:PRO:HD3	2.54	0.42
2:C:750:PRO:HG2	2:C:752:LEU:HD12	2.02	0.42
1:A:99:ARG:HH21	1:A:100:LYS:CE	2.33	0.42
1:B:139:GLY:HA3	1:B:159:HIS:CE1	2.54	0.42
2:D:715:THR:H	2:D:765:LEU:HD11	1.84	0.42
2:C:710:ARG:O	2:C:710:ARG:HG3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:762:PHE:CE2	2:D:781:PHE:CZ	3.07	0.42
2:C:752:LEU:C	2:C:754:ASP:N	2.73	0.42
1:A:78:LEU:HD23	1:A:78:LEU:HA	1.76	0.42
1:A:69:LEU:HD12	1:A:69:LEU:HA	1.77	0.41
1:A:186:ILE:HA	1:A:187:PRO:HD3	1.95	0.41
1:B:186:ILE:HA	1:B:187:PRO:HD3	1.91	0.41
1:A:186:ILE:HG13	1:A:187:PRO:HD2	2.02	0.41
1:B:114:LYS:O	1:B:133:LEU:HD12	2.21	0.41
2:C:739:ILE:HA	2:C:742:MET:HG3	2.03	0.41
1:B:41:TYR:CZ	1:B:91:PRO:HD3	2.56	0.41
2:D:764:THR:O	2:D:765:LEU:HD23	2.21	0.41
2:C:743:VAL:CG1	2:C:752:LEU:HD13	2.51	0.41
2:D:766:ASP:O	2:D:769:LEU:HB2	2.21	0.40
1:B:103:LEU:HD22	1:B:106:LEU:CD2	2.51	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	233/240 (97%)	221 (95%)	12 (5%)	0	100	100
1	B	233/240 (97%)	221 (95%)	12 (5%)	0	100	100
2	C	91/103 (88%)	88 (97%)	3 (3%)	0	100	100
2	D	88/103 (85%)	85 (97%)	3 (3%)	0	100	100
All	All	645/686 (94%)	615 (95%)	30 (5%)	0	100	100

There are no Ramachandran outliers to report.

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	189/217 (87%)	189 (100%)	0	100 100
1	B	185/217 (85%)	184 (100%)	1 (0%)	88 92
2	C	56/91 (62%)	55 (98%)	1 (2%)	59 75
2	D	44/91 (48%)	44 (100%)	0	100 100
All	All	474/616 (77%)	472 (100%)	2 (0%)	91 93

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	99	ARG
2	C	717	CYS

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

Mol	Chain	Res	Type
1	B	101	ASN
1	B	164	HIS
1	B	255	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

There are no monosaccharides in this entry.

5.6 Ligand geometry

Of 4 ligands modelled in this entry, 4 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

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	235/240 (97%)	-0.12	1 (0%) 92 95	24, 41, 67, 79	0
1	B	235/240 (97%)	0.07	2 (0%) 84 89	30, 59, 90, 108	0
2	C	93/103 (90%)	0.26	1 (1%) 80 86	44, 74, 94, 114	0
2	D	90/103 (87%)	2.98	54 (60%) 0 0	88, 132, 152, 157	0
All	All	653/686 (95%)	0.43	58 (8%) 9 11	24, 59, 140, 157	0

All (58) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	713	ALA	14.2
2	D	784	LYS	8.2
2	D	761	TYR	7.9
2	D	711	MET	7.7
2	D	783	LYS	6.9
2	D	777	ALA	6.9
2	D	746	ALA	6.3
2	D	705	ALA	6.2
2	D	715	THR	6.2
2	D	734	LEU	6.1
2	D	729	HIS	5.5
2	D	727	ARG	5.3
1	B	272	MET	5.3
2	D	714	LEU	5.1
2	D	708	HIS	5.1
2	D	780	LEU	4.9
2	D	785	LEU	4.7
2	D	709	ASN	4.7
2	D	758	LEU	4.6
2	D	704	TRP	4.5
2	D	712	GLN	4.1

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Mol	Chain	Res	Type	RSRZ
2	D	772	SER	4.0
2	D	786	THR	3.9
2	D	731	THR	3.7
2	D	728	GLN	3.7
2	D	718	GLU	3.7
2	D	710	ARG	3.7
2	D	726	PHE	3.6
2	D	716	SER	3.6
2	D	700	ALA	3.6
2	D	754	ASP	3.5
2	D	782	HIS	3.5
2	D	737	LYS	3.5
2	D	741	ASP	3.4
2	D	775	PRO	3.2
2	D	750	PRO	3.1
2	D	767	ILE	3.1
2	D	739	ILE	3.1
2	D	698	GLU	3.0
2	D	742	MET	2.9
2	D	740	THR	2.9
2	D	781	PHE	2.8
2	D	757	GLN	2.7
2	C	710	ARG	2.7
1	B	136	LEU	2.6
2	D	760	SER	2.4
2	D	759	LEU	2.4
1	A	272	MET	2.4
2	D	762	PHE	2.3
2	D	745	PRO	2.3
2	D	719	CYS	2.3
2	D	778	TYR	2.2
2	D	733	ALA	2.1
2	D	768	GLN	2.1
2	D	749	ARG	2.1
2	D	738	HIS	2.0
2	D	732	ILE	2.0
2	D	730	PHE	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 monosaccharides 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, 95^{th} 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	D	802	1/1	0.76	0.11	151,151,151,151	0
3	ZN	D	801	1/1	0.92	0.07	108,108,108,108	0
3	ZN	C	801	1/1	0.98	0.10	45,45,45,45	0
3	ZN	C	802	1/1	0.99	0.05	76,76,76,76	0

6.5 Other polymers (i)

There are no such residues in this entry.