



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 25, 2024 – 07:09 AM EDT

PDB ID : 6EJM
Title : CRYSTAL STRUCTURE OF HUMAN CD81 LARGE EXTRACELLULAR LOOP IN COMPLEX WITH SINGLE CHAIN FV FRAGMENT 5
Authors : Kuglstatter, A.; Harris, S.F.; Villasenor, A.
Deposited on : 2017-09-22
Resolution : 2.15 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 : 2.37.1
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) : 2.37.1

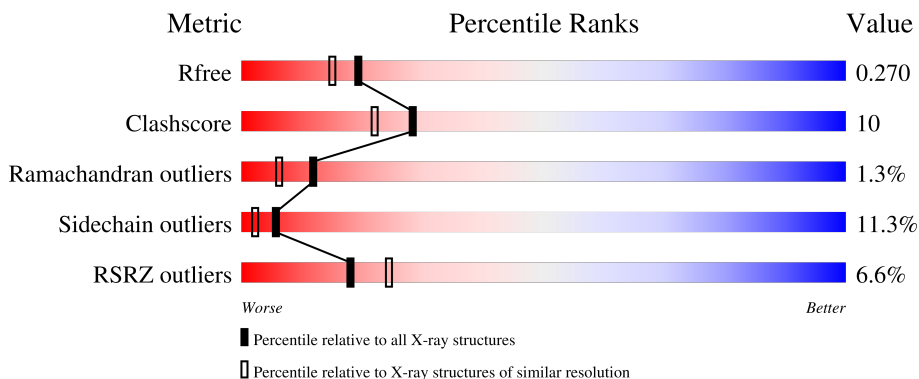
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.15 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	1479 (2.16-2.16)
Clashscore	141614	1585 (2.16-2.16)
Ramachandran outliers	138981	1560 (2.16-2.16)
Sidechain outliers	138945	1559 (2.16-2.16)
RSRZ outliers	127900	1456 (2.16-2.16)

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 $\leq 5\%$. 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	99	 15% 68% 22% 8%
1	B	99	 11% 65% 21% 11%
2	H	249	 4% 69% 19% 8%
2	I	249	 3% 70% 16% 9%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 5072 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 CD81 antigen.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	91	705	440	123	138	4	0	0	0
1	B	88	680	425	116	135	4	0	0	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	110	GLY	-	expression tag	UNP P60033
A	111	SER	-	expression tag	UNP P60033
A	203	HIS	-	expression tag	UNP P60033
A	204	HIS	-	expression tag	UNP P60033
A	205	HIS	-	expression tag	UNP P60033
A	206	HIS	-	expression tag	UNP P60033
A	207	HIS	-	expression tag	UNP P60033
A	208	HIS	-	expression tag	UNP P60033
B	110	GLY	-	expression tag	UNP P60033
B	111	SER	-	expression tag	UNP P60033
B	203	HIS	-	expression tag	UNP P60033
B	204	HIS	-	expression tag	UNP P60033
B	205	HIS	-	expression tag	UNP P60033
B	206	HIS	-	expression tag	UNP P60033
B	207	HIS	-	expression tag	UNP P60033
B	208	HIS	-	expression tag	UNP P60033

- Molecule 2 is a protein called SINGLE CHAIN FV FRAGMENT.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	H	229	1733	1100	289	337	7	0	0	0
2	I	227	1725	1096	287	335	7	0	0	0

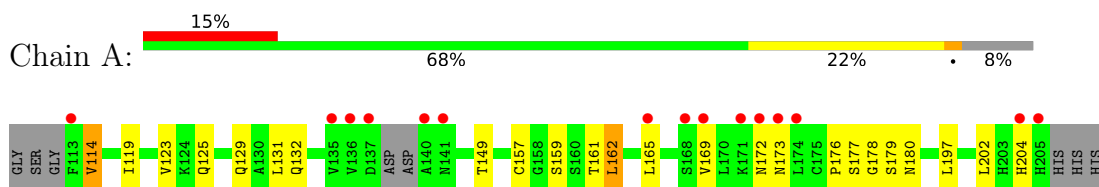
- Molecule 3 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	16	Total O 16 16	0	0
3	B	17	Total O 17 17	0	0
3	H	100	Total O 100 100	0	0
3	I	96	Total O 96 96	0	0

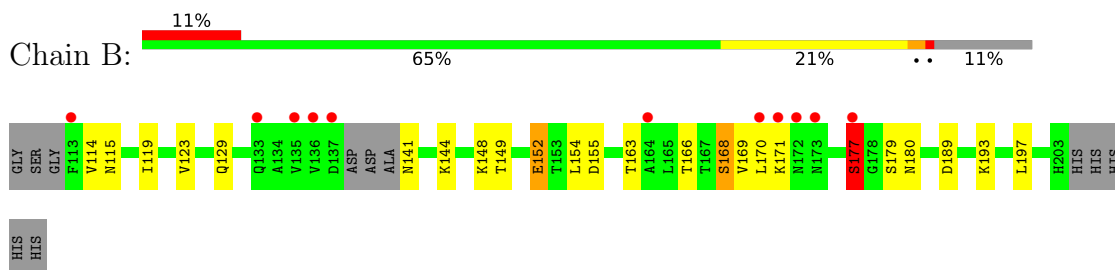
3 Residue-property plots [i](#)

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.

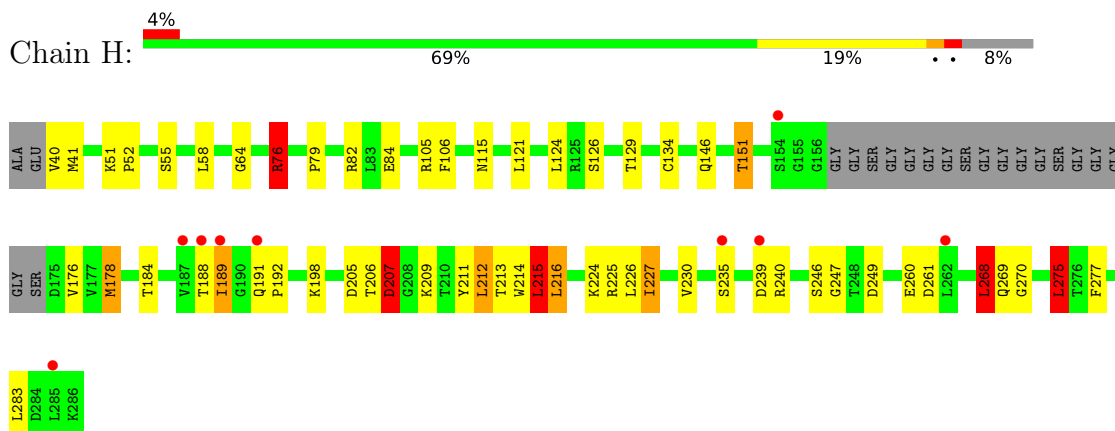
- Molecule 1: CD81 antigen



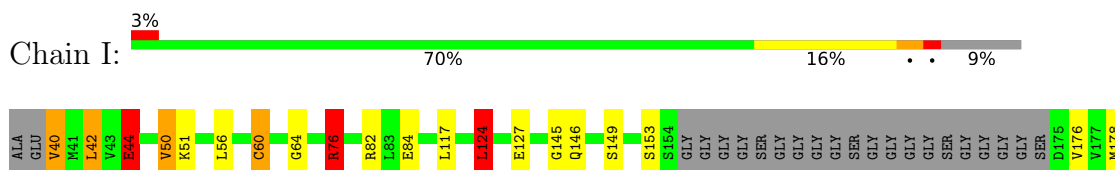
- Molecule 1: CD81 antigen

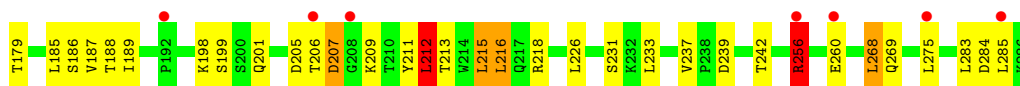


- Molecule 2: SINGLE CHAIN FV FRAGMENT



- Molecule 2: SINGLE CHAIN FV FRAGMENT





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	73.35Å 100.50Å 116.67Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	41.57 – 2.15 41.57 – 2.15	Depositor EDS
% Data completeness (in resolution range)	85.1 (41.57-2.15) 85.1 (41.57-2.15)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.07	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.43 (at 2.16Å)	Xtrriage
Refinement program	REFMAC 5.5.0072	Depositor
R, R_{free}	0.215 , 0.278 0.209 , 0.270	Depositor DCC
R_{free} test set	2064 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å ²)	36.2	Xtrriage
Anisotropy	0.370	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 50.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	5072	wwPDB-VP
Average B, all atoms (Å ²)	38.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.99% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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	0.97	1/715 (0.1%)	0.83	0/964
1	B	0.98	0/688	0.84	2/927 (0.2%)
2	H	0.97	2/1769 (0.1%)	1.03	9/2397 (0.4%)
2	I	0.98	3/1761 (0.2%)	1.04	11/2387 (0.5%)
All	All	0.97	6/4933 (0.1%)	0.98	22/6675 (0.3%)

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
2	H	0	1

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	I	60	CYS	CB-SG	-6.99	1.70	1.82
2	I	44	GLU	CG-CD	-6.58	1.42	1.51
2	H	260	GLU	CG-CD	6.23	1.61	1.51
1	A	157	CYS	CB-SG	5.38	1.91	1.82
2	I	40	VAL	CA-CB	5.34	1.66	1.54
2	H	134	CYS	CB-SG	-5.24	1.73	1.81

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	I	76	ARG	NE-CZ-NH1	8.21	124.41	120.30
2	H	215	LEU	CA-CB-CG	7.54	132.65	115.30
2	H	212	LEU	CA-CB-CG	-6.98	99.24	115.30
2	I	56	LEU	CA-CB-CG	6.82	130.97	115.30
2	H	178	MET	CG-SD-CE	-6.78	89.35	100.20
2	I	226	LEU	CB-CG-CD1	-6.72	99.58	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	I	215	LEU	CA-CB-CG	6.62	130.53	115.30
2	H	76	ARG	NE-CZ-NH1	6.31	123.46	120.30
2	H	268	LEU	CB-CG-CD2	5.91	121.05	111.00
2	I	82	ARG	NE-CZ-NH1	5.90	123.25	120.30
2	I	226	LEU	CA-CB-CG	5.78	128.59	115.30
2	I	212	LEU	CA-CB-CG	-5.76	102.04	115.30
2	H	105	ARG	NE-CZ-NH2	-5.72	117.44	120.30
2	H	216	LEU	CB-CG-CD2	5.48	120.32	111.00
2	H	275	LEU	CB-CG-CD1	5.41	120.20	111.00
2	I	124	LEU	CA-CB-CG	5.31	127.51	115.30
2	I	268	LEU	CB-CG-CD2	5.30	120.01	111.00
2	I	42	LEU	CA-CB-CG	5.30	127.49	115.30
1	B	193	LYS	CD-CE-NZ	-5.23	99.68	111.70
2	H	82	ARG	NE-CZ-NH2	-5.13	117.73	120.30
1	B	189	ASP	CB-CG-OD2	5.08	122.87	118.30
2	I	268	LEU	CA-CB-CG	5.07	126.97	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	H	206	THR	Peptide

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	705	0	688	18	0
1	B	680	0	669	21	0
2	H	1733	0	1720	28	0
2	I	1725	0	1714	36	0
3	A	16	0	0	1	0
3	B	17	0	0	0	0
3	H	100	0	0	1	0
3	I	96	0	0	3	0
All	All	5072	0	4791	94	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 (94) 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:A:123:VAL:HG22	1:B:119:ILE:HD11	1.42	1.00
2:H:227:ILE:HD11	2:H:230:VAL:O	1.74	0.86
1:A:132:GLN:HG3	1:A:165:LEU:HD11	1.55	0.85
2:H:178:MET:CE	2:H:269:GLN:HG2	2.09	0.83
1:A:162:LEU:HD12	1:A:165:LEU:HD12	1.63	0.81
2:H:151:THR:HG23	3:H:337:HOH:O	1.79	0.81
1:A:123:VAL:CG2	1:B:119:ILE:HD11	2.11	0.81
2:H:205:ASP:HB3	2:H:207:ASP:HB2	1.64	0.78
2:I:218:ARG:NH2	2:I:260:GLU:HA	2.01	0.75
1:A:177:SER:HB2	1:A:180:ASN:HB2	1.69	0.73
2:I:178:MET:HE3	2:I:269:GLN:HG2	1.68	0.73
2:I:178:MET:CE	2:I:269:GLN:HG2	2.18	0.73
2:I:205:ASP:HB3	2:I:207:ASP:HB2	1.71	0.73
2:H:176:VAL:HG12	2:H:178:MET:HE2	1.72	0.72
2:I:201:GLN:HG3	3:I:314:HOH:O	1.89	0.72
2:H:178:MET:HE1	2:H:269:GLN:HG2	1.72	0.71
1:A:162:LEU:CD1	1:A:165:LEU:HD12	2.21	0.71
2:I:40:VAL:HG22	2:I:64:GLY:HA3	1.72	0.71
1:A:202:LEU:HB2	1:B:149:THR:HG23	1.73	0.70
2:I:256:ARG:HH11	2:I:256:ARG:HG2	1.57	0.69
1:B:141:ASN:HB2	1:B:144:LYS:HG3	1.75	0.68
1:B:166:THR:O	1:B:169:VAL:HG22	1.92	0.68
2:H:40:VAL:HG22	2:H:64:GLY:HA3	1.75	0.68
2:H:178:MET:HE3	2:H:269:GLN:HG2	1.74	0.68
2:I:176:VAL:HG12	2:I:178:MET:HE2	1.75	0.67
2:I:176:VAL:CG1	2:I:178:MET:HE2	2.26	0.65
2:I:207:ASP:OD1	2:I:211:TYR:OH	2.07	0.64
1:A:123:VAL:HG22	1:B:119:ILE:CD1	2.24	0.63
2:H:176:VAL:HG12	2:H:178:MET:CE	2.30	0.62
2:H:207:ASP:OD2	2:H:211:TYR:OH	2.13	0.60
2:H:198:LYS:HE3	2:H:249:ASP:OD2	2.01	0.60
2:I:50:VAL:HG11	2:I:124:LEU:HD23	1.85	0.59
2:I:176:VAL:CG1	2:I:178:MET:CE	2.81	0.58
2:H:188:THR:O	2:H:191:GLN:HB3	2.05	0.56
1:A:114:VAL:H	1:B:129:GLN:HE22	1.53	0.56
1:B:169:VAL:HG23	1:B:170:LEU:N	2.20	0.55
2:I:176:VAL:HG12	2:I:178:MET:CE	2.36	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:76:ARG:HD3	2:H:84:GLU:OE1	2.05	0.55
2:I:207:ASP:HB3	2:I:209:LYS:H	1.72	0.55
1:B:168:SER:HA	1:B:171:LYS:HD3	1.89	0.54
2:I:179:THR:HG22	3:I:356:HOH:O	2.07	0.54
2:H:106:PHE:CZ	2:H:121:LEU:HD22	2.42	0.54
2:I:218:ARG:HH21	2:I:260:GLU:HA	1.71	0.54
1:B:177:SER:HB3	1:B:180:ASN:OD1	2.09	0.53
1:A:125:GLN:O	1:A:129:GLN:HG3	2.09	0.52
1:A:173:ASN:HA	3:A:301:HOH:O	2.09	0.52
1:A:161:THR:HG22	1:A:162:LEU:HD23	1.93	0.51
1:B:168:SER:HA	1:B:171:LYS:CD	2.41	0.50
2:I:76:ARG:HD3	2:I:84:GLU:OE1	2.12	0.50
2:I:178:MET:HE1	2:I:269:GLN:HG2	1.93	0.49
1:B:154:LEU:O	1:B:155:ASP:HB3	2.12	0.48
1:A:131:LEU:HD11	1:A:169:VAL:HG21	1.94	0.48
2:I:218:ARG:CZ	2:I:260:GLU:HA	2.43	0.48
1:A:177:SER:O	1:A:179:SER:N	2.43	0.48
2:I:179:THR:HB	2:I:198:LYS:HB3	1.95	0.48
1:A:114:VAL:HG13	1:B:129:GLN:NE2	2.29	0.47
2:H:205:ASP:HB3	2:H:207:ASP:CB	2.38	0.47
2:H:106:PHE:CE2	2:H:121:LEU:HD22	2.49	0.47
1:B:148:LYS:O	1:B:152:GLU:HB2	2.14	0.47
2:I:176:VAL:HG11	2:I:178:MET:CE	2.43	0.47
2:I:185:LEU:HB3	2:I:283:LEU:HD23	1.97	0.47
2:I:60:CYS:HB3	2:I:117:LEU:HB3	1.97	0.46
1:B:177:SER:HB2	1:B:180:ASN:HB2	1.98	0.46
2:I:178:MET:HE2	2:I:199:SER:HB2	1.98	0.46
2:I:218:ARG:HH11	2:I:218:ARG:HB3	1.81	0.46
2:I:256:ARG:HH11	2:I:256:ARG:CG	2.24	0.45
2:H:176:VAL:CG1	2:H:178:MET:HE2	2.46	0.45
2:I:207:ASP:HB3	2:I:209:LYS:HG3	1.98	0.45
2:I:218:ARG:HB3	2:I:218:ARG:NH1	2.32	0.45
2:H:176:VAL:CG1	2:H:178:MET:CE	2.96	0.44
2:H:207:ASP:HB3	2:H:209:LYS:H	1.82	0.44
2:I:44:GLU:OE1	2:I:145:GLY:HA3	2.18	0.44
2:H:212:LEU:HG	2:H:213:THR:N	2.27	0.44
2:I:233:LEU:HD23	2:I:237:VAL:O	2.18	0.44
2:H:79:PRO:HD3	2:H:129:THR:O	2.17	0.44
2:I:186:SER:HA	2:I:284:ASP:O	2.19	0.42
2:H:268:LEU:HG	2:H:277:PHE:CE2	2.54	0.42
2:H:106:PHE:N	2:H:106:PHE:CD1	2.87	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:216:LEU:HD11	2:I:218:ARG:HG2	2.01	0.42
2:H:191:GLN:HG3	2:H:192:PRO:HD2	2.02	0.42
2:H:214:TRP:HB2	2:H:227:ILE:HG23	2.01	0.42
1:B:119:ILE:O	1:B:123:VAL:HG23	2.20	0.42
2:I:189:ILE:H	2:I:189:ILE:HG13	1.59	0.42
2:I:50:VAL:HG22	3:I:360:HOH:O	2.20	0.42
2:H:215:LEU:HD13	2:H:225:ARG:HA	2.02	0.41
1:A:123:VAL:HA	1:B:119:ILE:HD11	2.03	0.41
2:I:256:ARG:CG	2:I:256:ARG:NH1	2.82	0.41
1:A:149:THR:HG22	1:B:197:LEU:HD12	2.02	0.41
2:H:240:ARG:NH2	2:H:261:ASP:OD1	2.54	0.41
2:I:212:LEU:HG	2:I:213:THR:N	2.35	0.41
1:A:197:LEU:HD12	1:B:149:THR:HG22	2.04	0.40
2:H:270:GLY:HA2	2:H:275:LEU:HD12	2.02	0.40
1:B:169:VAL:CG2	1:B:170:LEU:N	2.84	0.40
1:B:154:LEU:O	1:B:155:ASP:CB	2.69	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	87/99 (88%)	82 (94%)	4 (5%)	1 (1%)	14 8
1	B	84/99 (85%)	77 (92%)	5 (6%)	2 (2%)	6 1
2	H	225/249 (90%)	214 (95%)	8 (4%)	3 (1%)	12 6
2	I	223/249 (90%)	218 (98%)	3 (1%)	2 (1%)	17 11
All	All	619/696 (89%)	591 (96%)	20 (3%)	8 (1%)	12 6

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	177	SER
2	H	207	ASP
2	I	207	ASP
1	B	114	VAL
2	H	247	GLY
2	I	256	ARG
1	A	178	GLY
2	H	189	ILE

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	81/87 (93%)	74 (91%)	7 (9%)	10	6
1	B	79/87 (91%)	73 (92%)	6 (8%)	13	8
2	H	191/196 (97%)	166 (87%)	25 (13%)	4	1
2	I	191/196 (97%)	168 (88%)	23 (12%)	5	2
All	All	542/566 (96%)	481 (89%)	61 (11%)	6	2

All (61) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	114	VAL
1	A	119	ILE
1	A	159	SER
1	A	162	LEU
1	A	172	ASN
1	A	176	PRO
1	A	204	HIS
1	B	115	ASN
1	B	152	GLU
1	B	163	THR
1	B	168	SER
1	B	177	SER
1	B	179	SER
2	H	41	MET

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Mol	Chain	Res	Type
2	H	51	LYS
2	H	52	PRO
2	H	55	SER
2	H	58	LEU
2	H	76	ARG
2	H	115	ASN
2	H	124	LEU
2	H	126	SER
2	H	146	GLN
2	H	151	THR
2	H	184	THR
2	H	189	ILE
2	H	207	ASP
2	H	215	LEU
2	H	216	LEU
2	H	224	LYS
2	H	226	LEU
2	H	227	ILE
2	H	235	SER
2	H	239	ASP
2	H	246	SER
2	H	268	LEU
2	H	275	LEU
2	H	283	LEU
2	I	42	LEU
2	I	44	GLU
2	I	50	VAL
2	I	51	LYS
2	I	76	ARG
2	I	124	LEU
2	I	127	GLU
2	I	146	GLN
2	I	149	SER
2	I	153	SER
2	I	187	VAL
2	I	188	THR
2	I	206	THR
2	I	212	LEU
2	I	215	LEU
2	I	216	LEU
2	I	231	SER
2	I	239	ASP

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Mol	Chain	Res	Type
2	I	242	THR
2	I	256	ARG
2	I	268	LEU
2	I	275	LEU
2	I	285	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	129	GLN
1	A	173	ASN
1	B	129	GLN
1	B	173	ASN
2	H	115	ASN
2	I	221	GLN

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

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(Å ²)	Q<0.9
1	A	91/99 (91%)	0.74	15 (16%) 1 2	24, 39, 79, 84	0
1	B	88/99 (88%)	0.51	11 (12%) 3 5	21, 37, 70, 74	0
2	H	229/249 (91%)	0.22	9 (3%) 39 48	18, 33, 56, 60	0
2	I	227/249 (91%)	0.18	7 (3%) 49 58	20, 36, 60, 69	0
All	All	635/696 (91%)	0.32	42 (6%) 18 24	18, 35, 64, 84	0

All (42) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	169	VAL	6.8
1	B	136	VAL	6.8
1	A	172	ASN	5.1
1	A	141	ASN	4.9
2	I	285	LEU	4.9
2	H	154	SER	4.8
2	I	206	THR	4.2
1	A	137	ASP	4.2
1	A	136	VAL	4.2
1	A	140	ALA	3.8
1	A	113	PHE	3.6
1	B	171	LYS	3.5
2	H	188	THR	3.5
2	H	189	ILE	3.5
1	B	135	VAL	3.2
1	A	171	LYS	3.2
1	A	165	LEU	3.1
2	H	285	LEU	3.1
1	A	168	SER	3.1
1	A	205	HIS	3.0
2	I	208	GLY	3.0

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Mol	Chain	Res	Type	RSRZ
1	B	137	ASP	2.9
1	B	170	LEU	2.9
2	H	235	SER	2.8
1	B	173	ASN	2.8
1	B	172	ASN	2.8
2	H	262	LEU	2.8
2	H	187	VAL	2.7
1	B	164	ALA	2.7
1	A	173	ASN	2.7
2	I	256	ARG	2.6
2	I	192	PRO	2.3
2	I	275	LEU	2.3
1	B	113	PHE	2.3
1	B	177	SER	2.3
2	I	260	GLU	2.2
2	H	191	GLN	2.1
1	B	133	GLN	2.1
1	A	174	LEU	2.1
2	H	239	ASP	2.1
1	A	135	VAL	2.1
1	A	204	HIS	2.1

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](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.