Full wwPDB X-ray Structure Validation Report (i)

Oct 10, 2023 – 05:37 AM EDT

PDB ID	:	7T0H
Title	:	Crystal structure of S25-39 Fab Unliganded 2
Authors	:	Legg, M.S.G.; Blackler, R.J.; Evans, S.V.
Deposited on	:	2021-11-29
Resolution	:	1.30 Å(reported)

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

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MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
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)	:	2.35.1

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 1.30 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	Percentile Ranks	Value
Rfree		0.201
Clashscore		7
Ramachandran outliers		0
Sidechain outliers		4.8%
RSRZ outliers		3.9%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
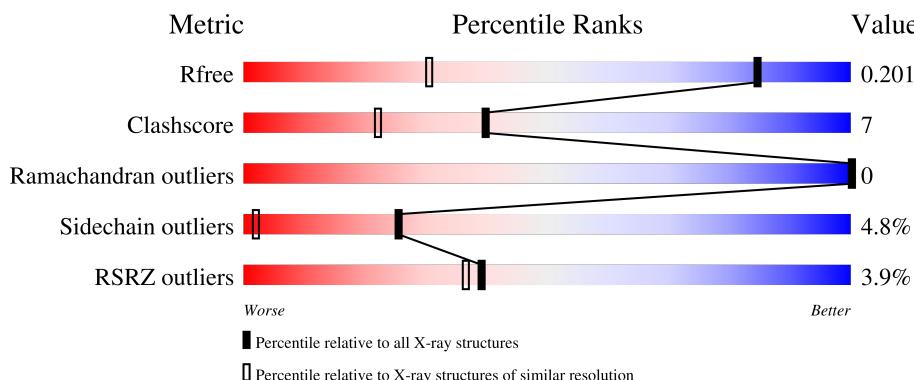
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	1058 (1.30-1.30)
Clashscore	141614	1101 (1.30-1.30)
Ramachandran outliers	138981	1058 (1.30-1.30)
Sidechain outliers	138945	1058 (1.30-1.30)
RSRZ outliers	127900	1029 (1.30-1.30)

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	H	222	6% / 68% / 23% / 5% · ·
2	L	219	% / 74% / 21% / 5%
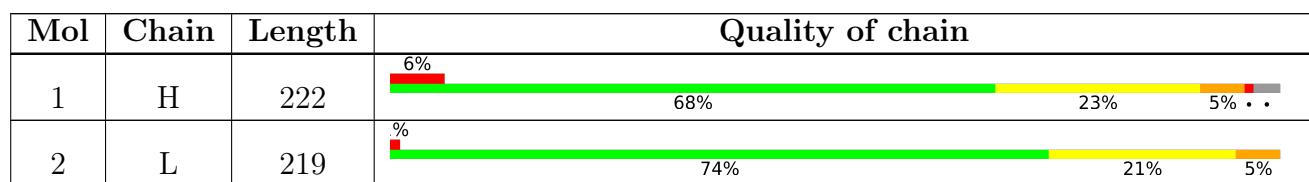
The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	BR	H	301	-	-	X	-
3	BR	H	302	-	-	X	-

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 4089 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 S25-39 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	H	215	Total 1731	C 1093	N 287	O 339	S 12	0	12	0

- Molecule 2 is a protein called S25-39 Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	L	219	Total 1761	C 1090	N 301	O 359	S 11	0	10	0

- Molecule 3 is BROMIDE ION (three-letter code: BR) (formula: Br).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	H	3	Total 3	Br 3	0	0
3	L	2	Total 2	Br 2	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	H	318	Total 319	O 319	0	1
4	L	273	Total 273	O 273	0	0

3 Residue-property plots ⓘ

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: S25-39 Fab heavy chain
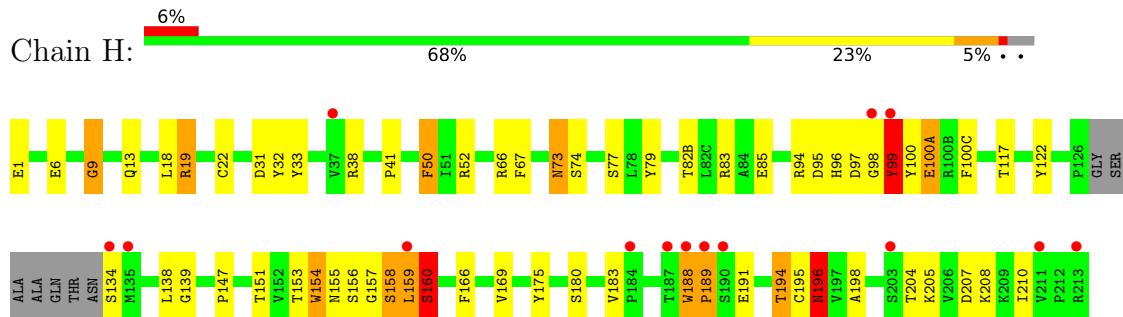
• Molecule 2: S25-39 Fab light chain
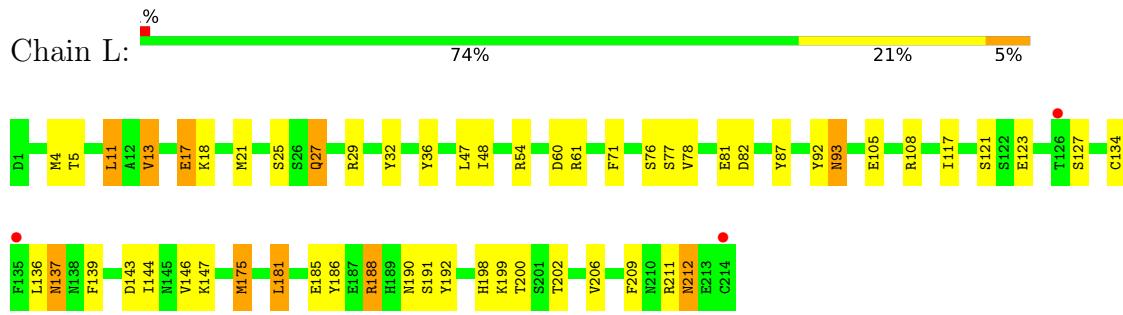
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	55.59Å 63.13Å 61.88Å 90.00° 99.36° 90.00°	Depositor
Resolution (Å)	40.00 – 1.30 27.43 – 1.30	Depositor EDS
% Data completeness (in resolution range)	91.4 (40.00-1.30) 91.5 (27.43-1.30)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.85 (at 1.30Å)	Xtriage
Refinement program	REFMAC 5.8.0155	Depositor
R, R_{free}	0.148 , 0.200 0.150 , 0.201	Depositor DCC
R_{free} test set	4735 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å^2)	13.6	Xtriage
Anisotropy	0.013	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 45.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	4089	wwPDB-VP
Average B, all atoms (Å^2)	19.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.45% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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: BR

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	H	1.72	28/1776 (1.6%)	1.71	36/2423 (1.5%)
2	L	1.71	25/1799 (1.4%)	1.66	33/2435 (1.4%)
All	All	1.72	53/3575 (1.5%)	1.69	69/4858 (1.4%)

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	H	0	3
2	L	0	1
All	All	0	4

All (53) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	L	4	MET	CG-SD	-10.44	1.54	1.81
2	L	137	ASN	CG-ND2	-9.68	1.08	1.32
2	L	27	GLN	CD-OE1	9.47	1.44	1.24
1	H	98	GLY	N-CA	8.89	1.59	1.46
2	L	36	TYR	CE1-CZ	7.68	1.48	1.38
1	H	188	TRP	CB-CG	7.29	1.63	1.50
2	L	60	ASP	CB-CG	-7.16	1.36	1.51
2	L	27	GLN	CG-CD	7.05	1.67	1.51
2	L	32	TYR	CE2-CZ	-6.99	1.29	1.38
1	H	33	TYR	CD1-CE1	6.97	1.49	1.39
2	L	71	PHE	CG-CD2	6.66	1.48	1.38
2	L	76	SER	CB-OG	-6.65	1.33	1.42
1	H	208	LYS	C-O	6.57	1.35	1.23
1	H	31	ASP	CG-OD2	6.48	1.40	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	H	180	SER	CB-OG	-6.46	1.33	1.42
2	L	17	GLU	CD-OE1	6.42	1.32	1.25
2	L	192	TYR	CE1-CZ	-6.38	1.30	1.38
1	H	22	CYS	CB-SG	-6.29	1.71	1.82
1	H	74	SER	CA-CB	6.24	1.62	1.52
2	L	61	ARG	CZ-NH2	6.23	1.41	1.33
2	L	191	SER	CA-CB	-6.12	1.43	1.52
2	L	27	GLN	CB-CG	6.09	1.69	1.52
2	L	105	GLU	CD-OE2	6.04	1.32	1.25
1	H	196	ASN	CB-CG	5.96	1.64	1.51
2	L	71	PHE	CG-CD1	-5.94	1.29	1.38
1	H	6	GLU	CD-OE1	5.85	1.32	1.25
1	H	85	GLU	CD-OE1	-5.81	1.19	1.25
1	H	1	GLU	CD-OE1	5.80	1.32	1.25
2	L	127	SER	CB-OG	5.66	1.49	1.42
2	L	121	SER	CA-CB	5.65	1.61	1.52
1	H	139	GLY	N-CA	5.63	1.54	1.46
2	L	21	MET	SD-CE	-5.62	1.46	1.77
2	L	17	GLU	CD-OE2	-5.46	1.19	1.25
1	H	160	SER	CA-CB	5.44	1.61	1.52
2	L	188	ARG	CD-NE	5.43	1.55	1.46
1	H	99	TYR	CE1-CZ	-5.42	1.31	1.38
1	H	97	ASP	CB-CG	-5.41	1.40	1.51
1	H	13	GLN	CD-OE1	5.39	1.35	1.24
2	L	77	SER	CB-OG	-5.35	1.35	1.42
2	L	11	LEU	CA-CB	-5.33	1.41	1.53
1	H	9	GLY	C-N	-5.31	1.23	1.33
1	H	175	TYR	CE2-CZ	-5.26	1.31	1.38
2	L	139	PHE	CE2-CZ	-5.21	1.27	1.37
2	L	5	THR	N-CA	5.17	1.56	1.46
1	H	79	TYR	CE2-CZ	-5.14	1.31	1.38
1	H	96	HIS	C-O	-5.13	1.13	1.23
1	H	196	ASN	CG-ND2	-5.07	1.20	1.32
1	H	153	THR	N-CA	5.07	1.56	1.46
1	H	160	SER	C-O	5.03	1.32	1.23
1	H	160	SER	N-CA	5.03	1.56	1.46
1	H	97	ASP	CG-OD1	5.00	1.36	1.25
1	H	19	ARG	CD-NE	-5.00	1.38	1.46
1	H	77	SER	CA-CB	-5.00	1.45	1.52

All (69) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	H	19	ARG	NE-CZ-NH1	20.33	130.46	120.30
2	L	175[A]	MET	CG-SD-CE	-15.52	75.37	100.20
2	L	175[B]	MET	CG-SD-CE	-15.52	75.37	100.20
2	L	188	ARG	NE-CZ-NH1	14.81	127.71	120.30
1	H	83	ARG	NE-CZ-NH2	-14.12	113.24	120.30
1	H	19	ARG	NE-CZ-NH2	-11.84	114.38	120.30
1	H	52	ARG	NE-CZ-NH2	-11.36	114.62	120.30
2	L	21	MET	CG-SD-CE	10.82	117.51	100.20
1	H	52	ARG	NE-CZ-NH1	10.53	125.57	120.30
1	H	66	ARG	NE-CZ-NH2	-10.29	115.16	120.30
2	L	143	ASP	CB-CG-OD2	-9.48	109.76	118.30
1	H	207	ASP	CB-CG-OD1	9.30	126.67	118.30
2	L	27	GLN	CA-CB-CG	9.26	133.76	113.40
1	H	94	ARG	NE-CZ-NH2	-8.29	116.15	120.30
2	L	54	ARG	NE-CZ-NH1	8.00	124.30	120.30
1	H	154	TRP	O-C-N	7.91	135.36	122.70
2	L	108	ARG	NE-CZ-NH2	7.46	124.03	120.30
2	L	29	ARG	NE-CZ-NH1	7.44	124.02	120.30
1	H	19	ARG	CD-NE-CZ	7.42	133.98	123.60
2	L	61	ARG	NE-CZ-NH1	7.38	123.99	120.30
1	H	122	TYR	CB-CG-CD2	7.29	125.37	121.00
1	H	166	PHE	CB-CG-CD2	7.27	125.89	120.80
2	L	209	PHE	CB-CG-CD1	7.26	125.88	120.80
1	H	33	TYR	CB-CG-CD2	-7.10	116.74	121.00
2	L	198	HIS	CB-CA-C	7.07	124.54	110.40
1	H	100(C)	PHE	CB-CG-CD1	6.85	125.59	120.80
1	H	183	VAL	CA-CB-CG2	6.51	120.67	110.90
1	H	18	LEU	CB-CG-CD1	6.50	122.05	111.00
2	L	87	TYR	CB-CG-CD2	6.39	124.83	121.00
1	H	153	THR	CA-CB-CG2	6.38	121.33	112.40
1	H	154	TRP	CA-C-N	-6.32	103.29	117.20
1	H	97	ASP	CB-CG-OD1	6.30	123.97	118.30
1	H	73	ASN	O-C-N	-6.25	112.70	122.70
1	H	67	PHE	CB-CG-CD1	6.21	125.15	120.80
1	H	38	ARG	NE-CZ-NH2	-6.16	117.22	120.30
2	L	186	TYR	CB-CG-CD2	6.05	124.63	121.00
2	L	206	VAL	CA-CB-CG1	6.03	119.95	110.90
2	L	198	HIS	CG-ND1-CE1	6.00	116.60	108.20
2	L	60	ASP	CB-CG-OD2	-5.94	112.95	118.30
2	L	200[A]	THR	CA-C-N	5.94	130.28	117.20
2	L	200[B]	THR	CA-C-N	5.94	130.28	117.20
1	H	159	LEU	CB-CG-CD1	5.92	121.07	111.00
1	H	154	TRP	C-N-CA	5.89	136.42	121.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	L	17	GLU	CG-CD-OE1	5.89	130.08	118.30
2	L	181	LEU	CB-CG-CD1	5.88	120.99	111.00
1	H	79	TYR	CB-CG-CD1	5.86	124.51	121.00
2	L	202	THR	CA-CB-CG2	-5.79	104.29	112.40
2	L	82	ASP	CB-CG-OD1	5.77	123.49	118.30
1	H	32	TYR	CG-CD1-CE1	5.71	125.87	121.30
1	H	50	PHE	CB-CG-CD1	5.70	124.79	120.80
1	H	189	PRO	O-C-N	5.67	131.76	122.70
2	L	48	ILE	CA-CB-CG1	5.48	121.42	111.00
1	H	97	ASP	CB-CG-OD2	-5.48	113.37	118.30
2	L	108	ARG	NH1-CZ-NH2	-5.44	113.42	119.40
2	L	200[A]	THR	O-C-N	-5.32	114.19	122.70
2	L	200[B]	THR	O-C-N	-5.32	114.19	122.70
1	H	158[A]	SER	CB-CA-C	5.31	120.19	110.10
1	H	158[B]	SER	CB-CA-C	5.31	120.19	110.10
1	H	67	PHE	CB-CG-CD2	-5.29	117.10	120.80
2	L	211	ARG	NE-CZ-NH1	-5.26	117.67	120.30
2	L	92	TYR	CZ-CE2-CD2	-5.23	115.09	119.80
1	H	153	THR	O-C-N	5.22	131.05	122.70
1	H	95	ASP	CB-CA-C	5.13	120.66	110.40
2	L	13	VAL	CG1-CB-CG2	5.11	119.07	110.90
2	L	175[A]	MET	CA-CB-CG	5.11	121.98	113.30
2	L	175[B]	MET	CA-CB-CG	5.11	121.98	113.30
2	L	47	LEU	CB-CG-CD1	-5.09	102.35	111.00
1	H	32	TYR	CB-CG-CD1	5.01	124.01	121.00
1	H	100(A)	GLU	OE1-CD-OE2	-5.00	117.29	123.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	H	194	THR	Mainchain
1	H	73	ASN	Mainchain
1	H	9	GLY	Mainchain
2	L	25[A]	SER	Mainchain

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	H	1731	0	1661	32	0
2	L	1761	0	1701	16	0
3	H	3	0	0	5	0
3	L	2	0	0	0	0
4	H	319	0	0	17	0
4	L	273	0	0	9	0
All	All	4089	0	3362	50	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 7.

All (50) 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:H:169[A]:VAL:HG21	4:L:465:HOH:O	1.31	1.28
1:H:100(A):GLU:N	4:H:401:HOH:O	1.71	1.18
2:L:137:ASN:OD1	4:L:401:HOH:O	1.75	1.02
1:H:194:THR:HG23	4:H:402:HOH:O	1.67	0.93
2:L:81:GLU:OE2	4:L:402:HOH:O	1.92	0.87
2:L:27:GLN:HG3	4:L:524:HOH:O	1.75	0.87
1:H:155[A]:ASN:C	4:H:403[A]:HOH:O	2.17	0.81
2:L:185:GLU:OE2	2:L:188:ARG:NH2	2.16	0.79
1:H:169[A]:VAL:HG22	4:H:588:HOH:O	1.83	0.78
2:L:190:ASN:HD21	2:L:212:ASN:HB3	1.47	0.78
1:H:204:THR:HG22	4:H:516:HOH:O	1.83	0.76
1:H:100(A):GLU:C	4:H:401:HOH:O	2.24	0.76
1:H:156[A]:SER:N	4:H:403[A]:HOH:O	2.18	0.75
1:H:156[A]:SER:N	1:H:196:ASN:OD1	2.18	0.75
2:L:17:GLU:OE1	4:L:403:HOH:O	2.06	0.72
1:H:169[A]:VAL:CG2	4:L:465:HOH:O	2.08	0.71
2:L:13:VAL:HG13	2:L:17:GLU:HB3	1.70	0.71
3:H:302:BR:BR	4:H:621:HOH:O	2.64	0.70
2:L:27:GLN:CG	4:L:524:HOH:O	2.37	0.70
1:H:155[A]:ASN:CB	1:H:158[A]:SER:HB2	2.21	0.69
1:H:117:THR:HG22	4:H:407:HOH:O	1.94	0.67
1:H:99:TYR:CE1	4:H:629:HOH:O	2.50	0.65
1:H:194:THR:CG2	4:H:402:HOH:O	2.27	0.64
1:H:157[B]:GLY:O	1:H:160:SER:OG	2.16	0.63
1:H:151:THR:OG1	1:H:198:ALA:HB3	1.99	0.62
1:H:155[A]:ASN:HB2	1:H:158[A]:SER:HB2	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:169[A]:VAL:CG2	4:H:588:HOH:O	2.43	0.60
1:H:155[A]:ASN:HB3	1:H:158[A]:SER:HB2	1.82	0.60
1:H:156[A]:SER:H	1:H:196:ASN:CG	2.08	0.57
1:H:158[B]:SER:HA	4:H:410:HOH:O	2.08	0.54
2:L:13:VAL:HG11	2:L:78:VAL:HG21	1.89	0.54
1:H:19:ARG:NH2	4:H:409:HOH:O	2.41	0.53
2:L:18:LYS:HE2	4:L:622:HOH:O	2.07	0.53
3:H:302:BR:BR	4:H:484:HOH:O	2.73	0.53
1:H:100:TYR:HB2	3:H:303:BR:BR	2.64	0.52
1:H:159:LEU:O	3:H:301:BR:BR	2.83	0.52
1:H:157[B]:GLY:HA2	3:H:301:BR:BR	2.64	0.51
1:H:100(A):GLU:O	4:H:401:HOH:O	2.19	0.51
1:H:204:THR:CG2	4:H:516:HOH:O	2.51	0.48
1:H:188:TRP:CG	1:H:189:PRO:HA	2.51	0.46
2:L:117:ILE:HG13	2:L:134[B]:CYS:SG	2.56	0.46
2:L:190:ASN:HD21	2:L:212:ASN:CB	2.23	0.46
2:L:136:LEU:HD21	2:L:146:VAL:HG22	1.98	0.44
2:L:93:ASN:HD22	2:L:93:ASN:C	2.20	0.44
1:H:138:LEU:HD23	1:H:210:ILE:HG21	2.00	0.44
1:H:154:TRP:CZ3	1:H:195[A]:CYS:HB3	2.53	0.44
1:H:156[A]:SER:H	1:H:196:ASN:ND2	2.17	0.42
2:L:136:LEU:HD23	2:L:144:ILE:HD13	2.02	0.41
2:L:18:LYS:CE	4:L:622:HOH:O	2.68	0.41
1:H:188:TRP:HA	1:H:189:PRO:HA	1.76	0.41

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	H	225/222 (101%)	216 (96%)	9 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	L	227/219 (104%)	222 (98%)	5 (2%)	0	100	100
All	All	452/441 (102%)	438 (97%)	14 (3%)	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	H	195/187 (104%)	185 (95%)	10 (5%)	24	2
2	L	203/194 (105%)	193 (95%)	10 (5%)	25	2
All	All	398/381 (104%)	378 (95%)	20 (5%)	25	2

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	41	PRO
1	H	50	PHE
1	H	82(B)	THR
1	H	99	TYR
1	H	134	SER
1	H	147	PRO
1	H	160	SER
1	H	191	GLU
1	H	196	ASN
1	H	205	LYS
2	L	11	LEU
2	L	93	ASN
2	L	123	GLU
2	L	147	LYS
2	L	175[A]	MET
2	L	175[B]	MET
2	L	181	LEU
2	L	199[A]	LYS

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Mol	Chain	Res	Type
2	L	199[B]	LYS
2	L	212	ASN

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

Mol	Chain	Res	Type
2	L	93	ASN
2	L	190	ASN
2	L	212	ASN

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 5 ligands modelled in this entry, 5 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 (i)

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(Å²)	Q<0.9
1	H	215/222 (96%)	0.09	14 (6%)	18	16	9, 15, 37, 58	0
2	L	219/219 (100%)	-0.15	3 (1%)	75	77	9, 16, 31, 45	0
All	All	434/441 (98%)	-0.03	17 (3%)	39	36	9, 16, 34, 58	0

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	190	SER	4.8
1	H	134	SER	4.0
1	H	187	THR	3.9
1	H	98	GLY	3.7
1	H	99	TYR	3.7
1	H	188	TRP	3.6
2	L	214	CYS	3.6
1	H	135	MET	2.9
1	H	189	PRO	2.7
1	H	213	ARG	2.5
2	L	126	THR	2.4
1	H	211	VAL	2.4
1	H	203	SER	2.3
1	H	184	PRO	2.2
1	H	37	VAL	2.1
2	L	135	PHE	2.0
1	H	159	LEU	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 (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, 95th 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	BR	H	301	1/1	0.99	0.09	21,21,21,21	1
3	BR	H	303	1/1	0.99	0.15	19,19,19,19	1
3	BR	L	301	1/1	0.99	0.08	21,21,21,21	1
3	BR	L	302	1/1	0.99	0.09	25,25,25,25	1
3	BR	H	302	1/1	1.00	0.10	22,22,22,22	1

6.5   Other polymers (i)

There are no such residues in this entry.