WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Oct 8, 2023 – 12:27 AM EDT

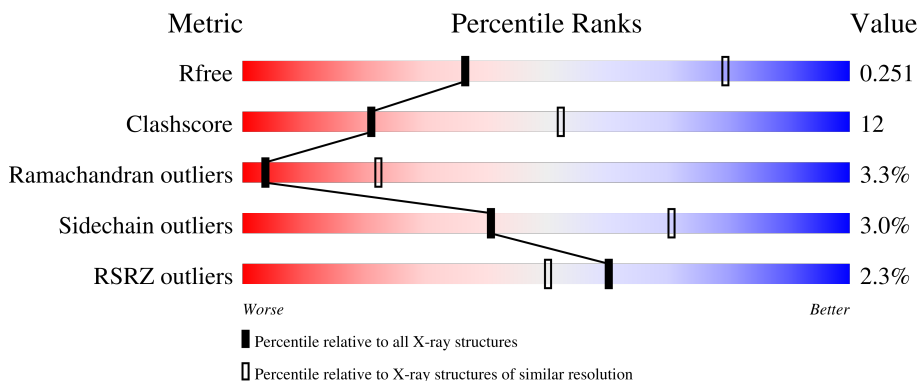|		
PDB ID	:	4QHM
Title	:	I3.1 (unbound) from CH103 Lineage
Authors	:	Fera, D.; Harrison, S.C.
Deposited on	:	2014-05-28
Resolution	:	3.23 Å(reported)

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 3.23 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.
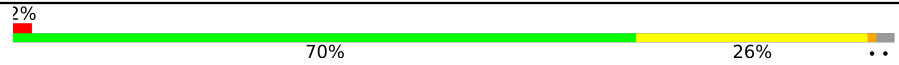
Metric	Percentile Ranks	Value
Rfree		0.251
Clashscore		12
Ramachandran outliers		3.3%
Sidechain outliers		3.0%
RSRZ outliers		2.3%

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	1619 (3.28-3.20)
Clashscore	141614	1755 (3.28-3.20)
Ramachandran outliers	138981	1728 (3.28-3.20)
Sidechain outliers	138945	1727 (3.28-3.20)
RSRZ outliers	127900	1567 (3.28-3.20)

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	232	72% 20% • 6%
1	C	232	77% 15% • 6%
1	E	232	75% 17% • 6%
1	G	232	69% 23% • 6%
2	B	213	60% 34% • •

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Mol	Chain	Length	Quality of chain
2	D	213	2% 70% 26%
2	F	213	4% 65% 29%
2	H	213	2% 65% 31%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 12840 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 I3 heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	217	Total	C	N	O	S	0	0	0
			1632	1033	274	320	5			
1	E	217	Total	C	N	O	S	0	0	0
			1632	1033	274	320	5			
1	C	217	Total	C	N	O	S	0	0	0
			1632	1033	274	320	5			
1	G	217	Total	C	N	O	S	0	0	0
			1632	1033	274	320	5			

- Molecule 2 is a protein called I2 light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	F	209	Total	C	N	O	S	0	0	0
			1578	991	259	322	6			
2	B	209	Total	C	N	O	S	0	0	0
			1578	991	259	322	6			
2	D	209	Total	C	N	O	S	0	0	0
			1578	991	259	322	6			
2	H	209	Total	C	N	O	S	0	0	0
			1578	991	259	322	6			

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: I3 heavy chain

Chain A:
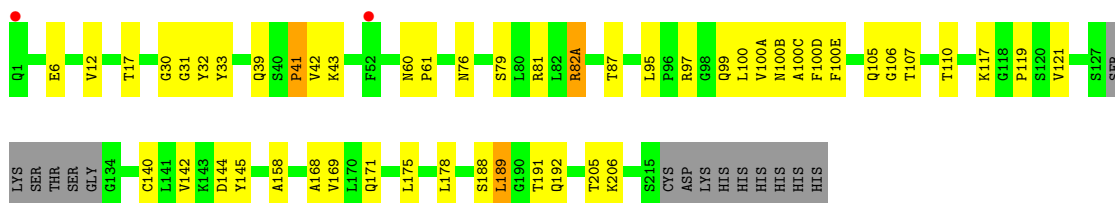
- Molecule 1: I3 heavy chain

Chain E:

- Molecule 1: I3 heavy chain

Chain C:

- Molecule 1: I3 heavy chain

Chain G:
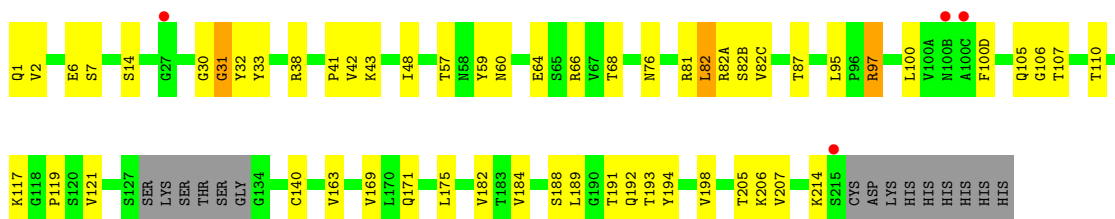
● Molecule 2: I2 light chain
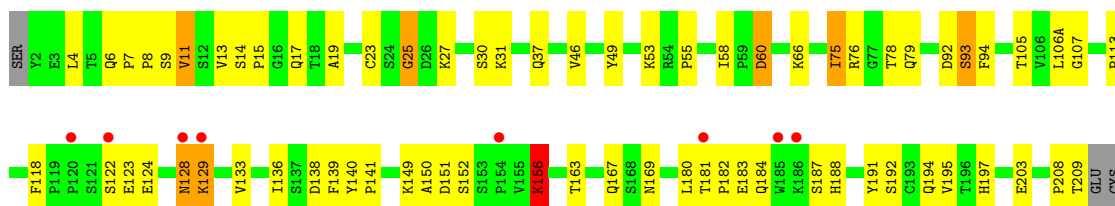
Chain F:

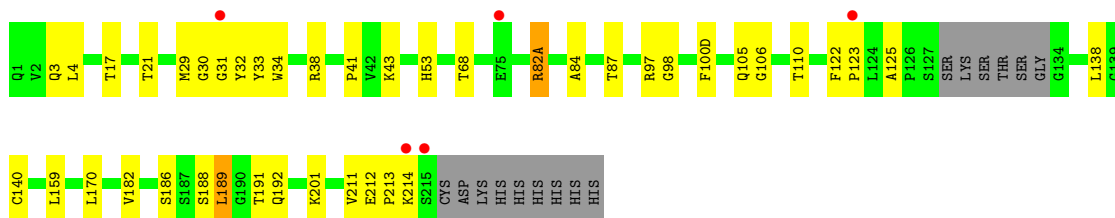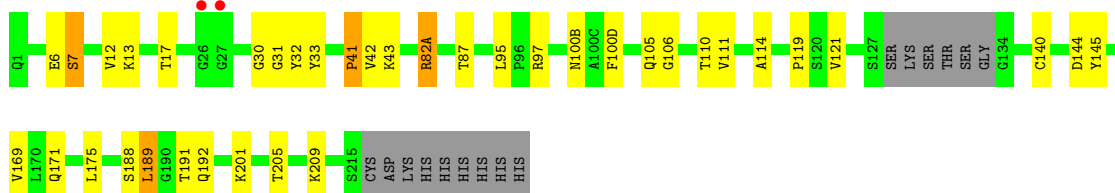● Molecule 2: I2 light chain

Chain B:
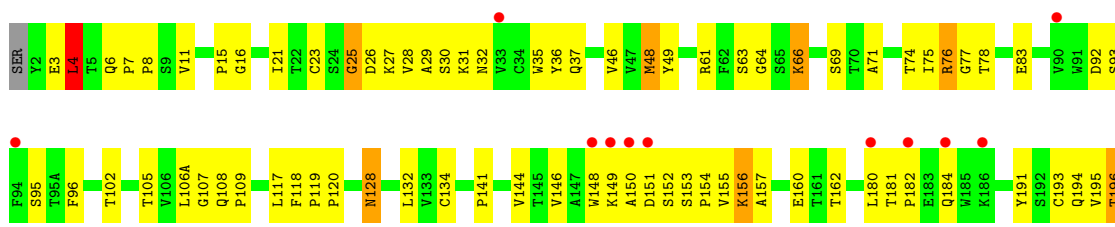
● Molecule 2: I2 light chain
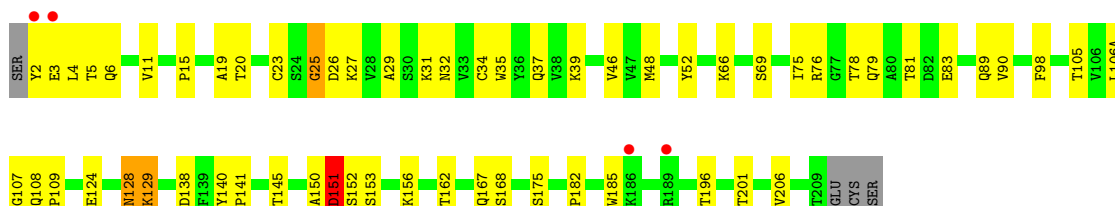
Chain D:

● Molecule 2: I2 light chain

Chain H:
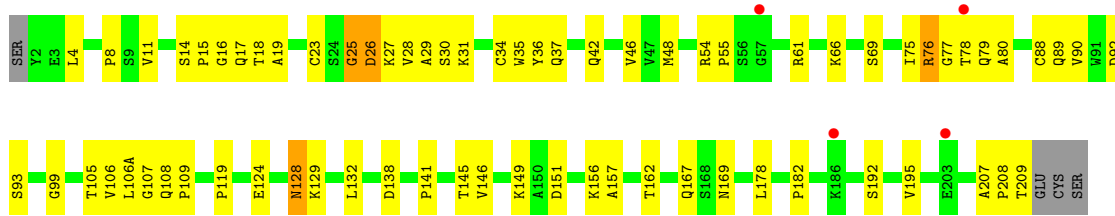
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 31 1 2	Depositor
Cell constants a, b, c, α, β, γ	132.31Å 132.31Å 209.59Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	48.04 – 3.23 48.04 – 3.23	Depositor EDS
% Data completeness (in resolution range)	99.9 (48.04-3.23) 100.0 (48.04-3.23)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.47 (at 3.25Å)	Xtriage
Refinement program	PHENIX 1.8.2_1309	Depositor
R, R_{free}	0.224 , 0.251 0.226 , 0.251	Depositor DCC
R_{free} test set	1710 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	77.7	Xtriage
Anisotropy	0.024	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 62.9	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.029 for -h,-k,l	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	12840	wwPDB-VP
Average B, all atoms (Å^2)	85.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.60% 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 ⓘ

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	0/1673	0.48	0/2287
1	C	0.27	0/1673	0.49	0/2287
1	E	0.27	0/1673	0.49	0/2287
1	G	0.26	0/1673	0.48	0/2287
2	B	0.35	0/1619	0.60	3/2214 (0.1%)
2	D	0.27	0/1619	0.50	0/2214
2	F	0.28	0/1619	0.48	0/2214
2	H	0.27	0/1619	0.49	0/2214
All	All	0.28	0/13168	0.50	3/18004 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	4	LEU	CA-CB-CG	6.46	130.16	115.30
2	B	48	MET	CG-SD-CE	-5.45	91.49	100.20
2	B	66	LYS	CD-CE-NZ	-5.01	100.18	111.70

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	1632	0	1595	28	0
1	C	1632	0	1595	21	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	1632	0	1595	23	0
1	G	1632	0	1595	35	0
2	B	1578	0	1522	80	0
2	D	1578	0	1522	39	1
2	F	1578	0	1522	57	1
2	H	1578	0	1522	48	0
All	All	12840	0	12468	307	1

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 12.

All (307) 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:B:196:THR:CG2	2:B:201:THR:HB	1.38	1.50
2:B:196:THR:HG23	2:B:201:THR:CB	1.44	1.46
2:F:79:GLN:NE2	2:D:79:GLN:OE1	1.69	1.25
2:B:149:LYS:HE3	2:B:194:GLN:NE2	1.52	1.25
2:F:75:ILE:CG2	2:F:78:THR:HG22	1.74	1.17
2:B:196:THR:CG2	2:B:201:THR:CB	2.09	1.14
2:F:75:ILE:HG21	2:F:78:THR:HG22	1.14	1.13
2:B:196:THR:HG23	2:B:201:THR:OG1	1.49	1.11
2:F:167:GLN:NE2	2:F:169:ASN:HD21	1.51	1.07
1:G:1:GLN:HG3	1:G:2:VAL:H	1.25	1.00
2:F:75:ILE:HG21	2:F:78:THR:CG2	1.96	0.95
2:B:196:THR:HG21	2:B:201:THR:HB	1.49	0.92
2:B:196:THR:HG22	2:B:201:THR:HB	1.50	0.92
2:D:196:THR:HG22	2:D:201:THR:CB	1.99	0.91
2:F:75:ILE:CG2	2:F:78:THR:CG2	2.48	0.91
2:B:149:LYS:HE3	2:B:194:GLN:HE21	1.11	0.91
2:B:194:GLN:HB2	2:B:203:GLU:OE1	1.72	0.89
2:D:196:THR:HG22	2:D:201:THR:HB	1.54	0.88
2:D:145:THR:OG1	2:D:196:THR:OG1	1.93	0.87
2:F:167:GLN:HE21	2:F:169:ASN:HD21	1.23	0.86
2:B:144:VAL:CG1	2:B:195:VAL:HG13	2.08	0.84
2:H:167:GLN:HG3	2:H:169:ASN:OD1	1.79	0.82
2:F:167:GLN:NE2	2:F:169:ASN:ND2	2.27	0.81
2:F:167:GLN:HE21	2:F:169:ASN:ND2	1.78	0.81
2:B:194:GLN:CB	2:B:203:GLU:OE1	2.29	0.80
2:F:27:LYS:NZ	2:F:92:ASP:OD2	2.14	0.79
2:D:34:CYS:SG	2:D:89:GLN:HB3	2.23	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:31:LYS:HE3	2:D:32:ASN:H	1.49	0.78
1:G:33:TYR:HB2	1:G:95:LEU:HB2	1.66	0.77
2:D:196:THR:HG22	2:D:201:THR:OG1	1.84	0.76
1:C:144:ASP:HB3	1:C:175:LEU:HD13	1.68	0.76
2:B:144:VAL:HG13	2:B:195:VAL:HG13	1.67	0.75
2:B:148:TRP:HB2	2:B:155:VAL:CG2	2.16	0.75
1:G:207:VAL:HG12	2:F:14:SER:CB	2.17	0.74
2:H:138:ASP:OD1	2:H:167:GLN:NE2	2.19	0.74
2:H:26:ASP:OD1	2:H:27:LYS:N	2.20	0.74
1:C:7:SER:OG	1:G:7:SER:OG	2.05	0.73
2:H:78:THR:HG21	2:H:106:VAL:HG22	1.69	0.72
2:D:31:LYS:O	2:D:66:LYS:NZ	2.21	0.72
1:G:207:VAL:HG12	2:F:14:SER:HB3	1.70	0.72
2:B:149:LYS:CE	2:B:194:GLN:NE2	2.45	0.71
2:B:194:GLN:HA	2:B:203:GLU:OE1	1.90	0.71
2:F:79:GLN:NE2	2:D:79:GLN:CD	2.43	0.71
2:F:118:PHE:HB2	2:F:133:VAL:HG22	1.72	0.71
2:H:75:ILE:HD13	2:H:78:THR:OG1	1.91	0.71
2:B:28:VAL:HB	2:B:66:LYS:NZ	2.05	0.70
1:E:68:THR:OG1	1:E:82(A):ARG:NH1	2.25	0.69
2:H:78:THR:HG21	2:H:106:VAL:CG2	2.21	0.69
2:B:149:LYS:HE3	2:B:194:GLN:HE22	1.56	0.69
2:F:31:LYS:O	2:F:66:LYS:NZ	2.26	0.68
2:D:75:ILE:HG21	2:D:78:THR:HG23	1.77	0.67
1:C:169:VAL:HG22	2:D:162:THR:HG23	1.75	0.67
1:G:57:THR:HB	1:G:59:TYR:HE2	1.60	0.66
2:B:194:GLN:O	2:B:194:GLN:HG3	1.95	0.66
1:G:1:GLN:HG3	1:G:2:VAL:N	2.04	0.66
1:A:169:VAL:HG22	2:B:162:THR:HG23	1.79	0.65
1:A:41:PRO:O	1:A:43:LYS:N	2.30	0.64
2:F:9:SER:OG	2:F:11:VAL:N	2.29	0.64
2:B:28:VAL:HB	2:B:66:LYS:HZ3	1.61	0.64
2:D:4:LEU:HD11	2:D:90:VAL:HG12	1.79	0.64
2:B:194:GLN:CA	2:B:203:GLU:OE1	2.45	0.63
1:G:169:VAL:HG22	2:H:162:THR:HG23	1.79	0.63
2:F:138:ASP:OD1	2:F:167:GLN:NE2	2.32	0.63
2:F:75:ILE:HG23	2:F:78:THR:HG22	1.77	0.62
1:G:87:THR:HG23	1:G:110:THR:HA	1.80	0.62
2:H:30:SER:HB2	2:H:31:LYS:HD2	1.82	0.62
1:C:41:PRO:O	1:C:43:LYS:N	2.32	0.62
2:B:150:ALA:O	2:B:152:SER:N	2.33	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:82:LEU:HD12	1:G:82(C):VAL:HG12	1.80	0.61
2:F:181:THR:HG22	2:F:184:GLN:HB2	1.80	0.61
2:B:196:THR:HG23	2:B:201:THR:CA	2.28	0.61
1:G:1:GLN:CG	1:G:2:VAL:H	2.07	0.61
2:F:19:ALA:H	2:F:75:ILE:HG22	1.63	0.61
2:H:75:ILE:CD1	2:H:78:THR:OG1	2.47	0.61
1:A:100(A):VAL:HG13	1:A:100(B):ASN:HD22	1.64	0.61
2:B:180:LEU:HD22	2:B:184:GLN:HG3	1.83	0.61
2:B:196:THR:CG2	2:B:201:THR:CA	2.76	0.61
2:H:15:PRO:HD3	2:H:106(A):LEU:O	2.01	0.61
2:B:146:VAL:HG22	2:B:195:VAL:HG22	1.83	0.61
1:E:30:GLY:O	1:E:32:TYR:N	2.31	0.60
2:B:148:TRP:CB	2:B:155:VAL:CG2	2.79	0.60
1:A:144:ASP:OD1	1:A:171:GLN:NE2	2.34	0.60
2:F:181:THR:CG2	2:F:184:GLN:HB2	2.32	0.60
1:C:100(B):ASN:OD1	2:D:32:ASN:ND2	2.26	0.60
1:E:138:LEU:HD13	1:E:211:VAL:HG21	1.82	0.59
2:B:23:CYS:HB3	2:B:71:ALA:HB3	1.84	0.59
2:F:30:SER:HB2	2:F:31:LYS:HE2	1.83	0.59
2:B:184:GLN:OE1	2:B:191:TYR:OH	2.20	0.59
2:D:151:ASP:OD1	2:D:151:ASP:N	2.35	0.59
2:D:19:ALA:HB3	2:D:75:ILE:HG13	1.85	0.59
2:B:148:TRP:HB2	2:B:155:VAL:HG22	1.84	0.58
2:B:117:LEU:HD11	2:B:132:LEU:HG	1.86	0.58
2:B:144:VAL:HG11	2:B:195:VAL:HG13	1.86	0.58
2:F:106(A):LEU:HD23	2:F:140:TYR:HE2	1.68	0.58
2:H:34:CYS:SG	2:H:89:GLN:CD	2.81	0.58
2:B:75:ILE:HG21	2:B:78:THR:HG23	1.86	0.58
2:D:150:ALA:O	2:D:152:SER:N	2.38	0.57
2:F:105:THR:HG21	2:F:141:PRO:HB3	1.85	0.57
2:F:106(A):LEU:HD23	2:F:140:TYR:CE2	2.39	0.57
2:B:48:MET:HG3	2:B:49:TYR:N	2.19	0.57
2:F:79:GLN:CD	2:D:79:GLN:HE22	2.08	0.57
2:B:194:GLN:HB2	2:B:203:GLU:CD	2.25	0.57
1:C:189:LEU:C	1:C:191:THR:H	2.08	0.57
1:G:57:THR:HB	1:G:59:TYR:CE2	2.40	0.57
2:F:167:GLN:HE21	2:F:169:ASN:CG	2.06	0.57
1:A:100(B):ASN:OD1	2:B:32:ASN:ND2	2.28	0.56
1:E:100(D):PHE:CD1	2:F:46:VAL:HG21	2.41	0.56
2:B:156:LYS:HG2	2:B:157:ALA:N	2.20	0.56
2:B:105:THR:HG21	2:B:141:PRO:HB3	1.87	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:17:THR:HG23	1:E:82(A):ARG:H	1.71	0.55
2:F:123:GLU:OE1	2:F:123:GLU:N	2.30	0.55
1:A:33:TYR:HB2	1:A:95:LEU:HB2	1.89	0.55
1:C:144:ASP:OD1	1:C:171:GLN:NE2	2.39	0.55
2:B:148:TRP:CB	2:B:155:VAL:HG22	2.37	0.54
1:C:87:THR:HG23	1:C:110:THR:HA	1.89	0.54
1:E:159:LEU:HD21	1:E:182:VAL:HG21	1.88	0.54
2:H:75:ILE:HD12	2:H:76:ARG:N	2.21	0.54
1:G:100(D):PHE:CD1	2:H:46:VAL:HG21	2.43	0.54
2:B:144:VAL:CG1	2:B:195:VAL:CG1	2.84	0.54
2:B:15:PRO:HD3	2:B:106(A):LEU:O	2.08	0.54
2:F:150:ALA:O	2:F:152:SER:N	2.41	0.53
2:D:196:THR:CG2	2:D:201:THR:OG1	2.56	0.53
2:B:30:SER:HB2	2:B:31:LYS:HD2	1.90	0.53
1:G:38:ARG:HD3	1:G:48:ILE:HD11	1.89	0.53
2:D:4:LEU:HD12	2:D:98:PHE:O	2.09	0.53
1:G:117:LYS:HD2	1:G:175:LEU:HD21	1.91	0.52
2:H:149:LYS:HG3	2:H:192:SER:HB2	1.89	0.52
1:A:6:GLU:N	1:A:6:GLU:OE1	2.42	0.52
1:C:13:LYS:HB3	1:C:114:ALA:HA	1.90	0.52
2:F:55:PRO:HG2	2:F:58:ILE:HG13	1.91	0.52
2:B:196:THR:HG22	2:B:200:SER:O	2.10	0.52
1:C:100(D):PHE:CD1	2:D:46:VAL:HG21	2.44	0.52
1:A:107:THR:HG23	1:A:107:THR:O	2.10	0.52
1:C:33:TYR:OH	1:C:97:ARG:NH1	2.42	0.52
2:H:78:THR:HG22	2:H:79:GLN:N	2.24	0.52
2:H:128:ASN:O	2:H:182:PRO:HG3	2.10	0.52
2:B:92:ASP:OD1	2:B:93:SER:N	2.42	0.52
1:A:81:ARG:HH21	1:A:82(A):ARG:CZ	2.23	0.52
2:D:25:GLY:O	2:D:27:LYS:N	2.40	0.52
2:D:39:LYS:NZ	2:D:81:THR:O	2.26	0.52
2:D:185:TRP:HH2	2:D:206:VAL:HG13	1.75	0.52
2:F:13:VAL:HG21	2:F:78:THR:HG21	1.92	0.51
2:H:207:ALA:O	2:H:209:THR:N	2.37	0.51
1:E:3:GLN:OE1	1:E:4:LEU:N	2.41	0.51
1:A:99:GLN:CD	1:A:99:GLN:H	2.14	0.51
2:B:61:ARG:O	2:B:76:ARG:HB2	2.11	0.50
2:D:83:GLU:HG3	2:D:105:THR:HA	1.93	0.50
2:F:92:ASP:OD1	2:F:93:SER:N	2.44	0.50
2:B:119:PRO:HA	2:B:132:LEU:CD1	2.41	0.50
1:C:17:THR:HG23	1:C:82(A):ARG:H	1.76	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:25:GLY:O	2:H:27:LYS:N	2.44	0.50
2:F:181:THR:OG1	2:F:182:PRO:HD2	2.11	0.50
2:H:92:ASP:OD1	2:H:93:SER:N	2.44	0.50
2:B:196:THR:HG22	2:B:201:THR:CB	2.20	0.50
2:B:48:MET:HE1	2:B:64:GLY:HA3	1.93	0.50
2:B:196:THR:HG22	2:B:201:THR:CA	2.41	0.50
2:H:18:THR:HA	2:H:75:ILE:HD11	1.93	0.50
2:B:128:ASN:O	2:B:182:PRO:HG3	2.12	0.49
2:H:105:THR:HG21	2:H:141:PRO:HB3	1.92	0.49
2:F:128:ASN:O	2:F:182:PRO:HG3	2.12	0.49
1:C:119:PRO:HB3	1:C:145:TYR:HB3	1.95	0.49
1:E:87:THR:HG23	1:E:110:THR:HA	1.95	0.49
2:F:60:ASP:OD1	2:F:60:ASP:N	2.34	0.49
1:A:100(D):PHE:CD1	2:B:46:VAL:HG21	2.47	0.49
2:D:128:ASN:O	2:D:182:PRO:HG3	2.13	0.49
2:H:28:VAL:O	2:H:69:SER:HA	2.13	0.49
2:F:79:GLN:NE2	2:D:79:GLN:NE2	2.62	0.48
2:B:118:PHE:O	2:B:132:LEU:HD12	2.12	0.48
2:H:28:VAL:HG22	2:H:66:LYS:HE3	1.95	0.48
1:E:138:LEU:HD13	1:E:211:VAL:CG2	2.43	0.48
2:H:78:THR:CG2	2:H:79:GLN:N	2.77	0.48
2:B:28:VAL:O	2:B:69:SER:HA	2.14	0.48
1:G:41:PRO:O	1:G:43:LYS:N	2.46	0.48
1:G:68:THR:HG23	1:G:81:ARG:HB3	1.95	0.48
1:A:121:VAL:HG22	1:A:142:VAL:HG12	1.95	0.48
1:E:125:ALA:HB1	1:E:213:PRO:HA	1.96	0.48
2:H:78:THR:CG2	2:H:106:VAL:CG2	2.90	0.48
1:G:31:GLY:HA2	1:G:97:ARG:HE	1.78	0.48
1:A:87:THR:HG23	1:A:110:THR:HA	1.96	0.47
2:H:167:GLN:CG	2:H:169:ASN:OD1	2.55	0.47
1:C:121:VAL:O	1:C:209:LYS:HE2	2.13	0.47
1:G:119:PRO:HD2	1:G:205:THR:HG21	1.96	0.47
2:F:4:LEU:HD22	2:F:23:CYS:SG	2.53	0.47
1:G:121:VAL:CG2	1:G:207:VAL:HG21	2.44	0.47
1:A:33:TYR:CE2	1:A:97:ARG:HA	2.50	0.47
1:E:201:LYS:NZ	2:B:83:GLU:OE1	2.41	0.47
1:G:105:GLN:N	1:G:106:GLY:HA2	2.30	0.47
2:F:149:LYS:HB2	2:F:192:SER:HB2	1.97	0.47
2:B:144:VAL:HG11	2:B:195:VAL:CG1	2.44	0.47
2:H:146:VAL:HG22	2:H:195:VAL:HG12	1.95	0.47
1:E:84:ALA:HB1	1:E:170:LEU:HD21	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:117:LYS:HZ2	1:A:175:LEU:HD21	1.80	0.47
1:G:121:VAL:HG21	1:G:207:VAL:CG2	2.44	0.47
1:A:100(E):PHE:N	2:B:36:TYR:OH	2.38	0.47
1:E:33:TYR:CE2	1:E:97:ARG:HA	2.50	0.47
1:E:105:GLN:N	1:E:106:GLY:HA2	2.28	0.47
2:D:2:TYR:CZ	2:D:4:LEU:HA	2.49	0.47
2:D:106(A):LEU:HA	2:D:107:GLY:HA3	1.73	0.47
2:H:35:TRP:HB2	2:H:48:MET:HB3	1.95	0.47
1:A:30:GLY:O	1:A:32:TYR:N	2.42	0.47
1:E:214:LYS:H	1:E:214:LYS:HG2	1.55	0.47
2:B:95:SER:O	2:B:96:PHE:N	2.41	0.47
2:H:34:CYS:SG	2:H:89:GLN:HB3	2.55	0.47
2:H:78:THR:CG2	2:H:106:VAL:HG21	2.44	0.47
1:G:184:VAL:HG11	1:G:194:TYR:CE1	2.50	0.47
2:H:124:GLU:HG2	2:H:129:LYS:O	2.15	0.47
2:H:61:ARG:HB2	2:H:76:ARG:O	2.15	0.46
1:E:41:PRO:O	1:E:43:LYS:N	2.44	0.46
2:D:69:SER:O	2:D:69:SER:OG	2.29	0.46
1:G:30:GLY:O	1:G:32:TYR:N	2.44	0.46
1:A:17:THR:HG23	1:A:82(A):ARG:H	1.80	0.46
1:C:30:GLY:O	1:C:32:TYR:N	2.45	0.46
2:F:156:LYS:H	2:F:156:LYS:HG2	1.29	0.46
2:H:89:GLN:HG2	2:H:90:VAL:N	2.30	0.46
2:D:124:GLU:HG2	2:D:129:LYS:O	2.16	0.46
2:D:138:ASP:OD1	2:D:167:GLN:NE2	2.48	0.46
2:B:181:THR:OG1	2:B:184:GLN:HB2	2.16	0.45
1:C:105:GLN:N	1:C:106:GLY:HA2	2.31	0.45
2:B:7:PRO:HA	2:B:8:PRO:HD3	1.88	0.45
2:D:4:LEU:HD13	2:D:23:CYS:SG	2.56	0.45
2:D:108:GLN:HB2	2:D:109:PRO:HD2	1.98	0.45
2:B:108:GLN:HB3	2:B:109:PRO:HD2	1.99	0.45
2:B:144:VAL:HG13	2:B:195:VAL:CG1	2.41	0.45
1:A:206:LYS:O	2:D:15:PRO:HD2	2.17	0.45
2:B:21:ILE:HG12	2:B:102:THR:HG21	1.99	0.45
2:B:120:PRO:HD3	2:B:132:LEU:HD13	1.99	0.45
1:C:12:VAL:O	1:C:111:VAL:HA	2.17	0.45
2:F:113:PRO:HA	2:F:139:PHE:HB3	1.99	0.45
1:A:119:PRO:HD2	1:A:205:THR:HG21	1.99	0.45
2:F:184:GLN:HE21	2:F:188:HIS:HE1	1.64	0.45
2:D:15:PRO:HD3	2:D:106(A):LEU:O	2.17	0.44
2:B:36:TYR:CE1	2:B:46:VAL:HG22	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:106(A):LEU:HA	2:B:107:GLY:HA3	1.68	0.44
1:G:121:VAL:HG21	1:G:207:VAL:HG21	2.00	0.44
1:A:105:GLN:N	1:A:106:GLY:HA2	2.32	0.44
1:E:122:PHE:HA	1:E:123:PRO:HD3	1.81	0.44
1:E:189:LEU:C	1:E:191:THR:H	2.21	0.44
2:B:48:MET:HE2	2:B:48:MET:HB2	1.74	0.44
2:B:148:TRP:CZ3	2:B:193:CYS:HB2	2.53	0.44
2:F:183:GLU:O	2:F:187:SER:OG	2.22	0.44
2:H:19:ALA:H	2:H:75:ILE:HD11	1.82	0.44
1:E:212:GLU:CD	1:E:213:PRO:HD2	2.38	0.43
1:G:214:LYS:HE2	1:G:214:LYS:HB2	1.67	0.43
2:H:14:SER:O	2:H:17:GLN:HB2	2.17	0.43
1:A:169:VAL:HG11	2:B:160:GLU:HB3	1.99	0.43
1:E:29:MET:HB3	1:E:34:TRP:HE1	1.82	0.43
2:H:88:CYS:O	2:H:99:GLY:N	2.51	0.43
1:G:206:LYS:O	2:F:15:PRO:HD2	2.19	0.43
2:F:194:GLN:HG2	2:F:203:GLU:HB3	2.00	0.43
2:B:134:CYS:HB2	2:B:148:TRP:CH2	2.53	0.43
2:H:16:GLY:O	2:H:77:GLY:HA2	2.18	0.43
1:C:201:LYS:HG2	2:H:80:ALA:HB1	2.00	0.43
2:D:35:TRP:HB2	2:D:48:MET:HB3	1.99	0.43
2:B:25:GLY:O	2:B:27:LYS:N	2.51	0.43
2:D:150:ALA:O	2:D:153:SER:N	2.46	0.43
2:B:25:GLY:H	2:B:28:VAL:HG21	1.83	0.43
2:D:3:GLU:HA	2:D:98:PHE:O	2.19	0.43
2:B:63:SER:OG	2:B:74:THR:HB	2.19	0.43
2:H:119:PRO:HA	2:H:132:LEU:HD13	2.01	0.43
1:G:198:VAL:HB	1:G:207:VAL:CG2	2.49	0.43
2:B:28:VAL:HB	2:B:66:LYS:HZ1	1.82	0.43
1:G:33:TYR:CE2	1:G:97:ARG:HA	2.54	0.42
2:F:25:GLY:O	2:F:27:LYS:N	2.44	0.42
1:A:189:LEU:C	1:A:191:THR:H	2.21	0.42
1:E:41:PRO:HG2	2:F:163:THR:HG21	2.01	0.42
2:F:136:ILE:HG12	2:F:195:VAL:HG11	2.01	0.42
2:B:3:GLU:O	2:B:4:LEU:HD22	2.19	0.42
1:A:60:ASN:HA	1:A:61:PRO:HD2	1.85	0.42
2:F:113:PRO:HD3	2:F:197:HIS:CD2	2.54	0.42
1:G:6:GLU:HG2	1:G:107:THR:HG23	2.02	0.42
2:B:23:CYS:HB2	2:B:35:TRP:CH2	2.54	0.42
1:A:119:PRO:HB3	1:A:145:TYR:HB3	2.02	0.42
2:B:63:SER:N	2:B:74:THR:O	2.38	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:15:PRO:HD3	2:F:106(A):LEU:O	2.19	0.42
2:F:180:LEU:HD21	2:F:191:TYR:CZ	2.55	0.42
2:B:201:THR:HG23	2:B:201:THR:O	2.19	0.42
1:A:168:ALA:HA	1:A:178:LEU:HB3	2.02	0.42
2:H:4:LEU:HD22	2:H:23:CYS:SG	2.59	0.42
2:H:36:TYR:CE1	2:H:46:VAL:HG22	2.54	0.42
2:F:124:GLU:HG2	2:F:129:LYS:O	2.19	0.42
2:B:35:TRP:HB2	2:B:48:MET:HB3	2.02	0.41
1:C:33:TYR:HB2	1:C:95:LEU:HB2	2.01	0.41
1:C:119:PRO:HD2	1:C:205:THR:HG21	2.02	0.41
1:G:163:VAL:HG22	1:G:182:VAL:HB	2.02	0.41
2:F:49:TYR:O	2:F:53:LYS:HB2	2.21	0.41
2:H:54:ARG:HA	2:H:55:PRO:HD3	1.94	0.41
1:G:60:ASN:O	1:G:64:GLU:N	2.53	0.41
2:F:7:PRO:HA	2:F:8:PRO:HD3	1.85	0.41
2:F:106(A):LEU:HA	2:F:107:GLY:HA3	1.75	0.41
2:D:140:TYR:CG	2:D:141:PRO:HA	2.56	0.41
2:H:19:ALA:HB3	2:H:75:ILE:HG12	2.02	0.41
2:H:106(A):LEU:HA	2:H:107:GLY:HA3	1.71	0.41
1:E:97:ARG:HG2	1:E:98:GLY:N	2.35	0.41
1:G:171:GLN:HG2	1:G:175:LEU:O	2.21	0.41
2:F:17:GLN:O	2:F:78:THR:HG23	2.20	0.41
2:F:122:SER:OG	2:F:123:GLU:OE1	2.29	0.41
2:H:156:LYS:HG3	2:H:157:ALA:H	1.86	0.41
1:A:100:LEU:HD12	1:A:100(C):ALA:HB3	2.03	0.41
2:B:16:GLY:O	2:B:77:GLY:HA2	2.21	0.40
1:E:38:ARG:NH2	1:E:43:LYS:HE2	2.37	0.40
1:C:32:TYR:HA	1:C:95:LEU:O	2.21	0.40
2:B:153:SER:HA	2:B:154:PRO:HD3	1.82	0.40
2:H:108:GLN:HB3	2:H:109:PRO:HD2	2.03	0.40
2:H:132:LEU:HB2	2:H:178:LEU:HB3	2.03	0.40
1:A:158:ALA:HA	1:G:193:THR:OG1	2.22	0.40
1:G:66:ARG:NH1	1:G:82(B):SER:O	2.54	0.40
2:H:8:PRO:HG2	2:H:145:THR:HG21	2.04	0.40

All (1) 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)
2:F:94:PHE:CE1	2:D:2:TYR:CD1[2_545]	2.00	0.20

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	A	213/232 (92%)	194 (91%)	12 (6%)	7 (3%)	4	22
1	C	213/232 (92%)	194 (91%)	12 (6%)	7 (3%)	4	22
1	E	213/232 (92%)	193 (91%)	15 (7%)	5 (2%)	6	31
1	G	213/232 (92%)	195 (92%)	12 (6%)	6 (3%)	5	27
2	B	207/213 (97%)	182 (88%)	18 (9%)	7 (3%)	3	22
2	D	207/213 (97%)	178 (86%)	22 (11%)	7 (3%)	3	22
2	F	207/213 (97%)	181 (87%)	18 (9%)	8 (4%)	3	19
2	H	207/213 (97%)	181 (87%)	18 (9%)	8 (4%)	3	19
All	All	1680/1780 (94%)	1498 (89%)	127 (8%)	55 (3%)	4	22

All (55) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	42	VAL
1	C	42	VAL
2	F	151	ASP
2	B	151	ASP
2	D	151	ASP
2	H	26	ASP
2	H	76	ARG
1	E	31	GLY
1	E	188	SER
1	C	188	SER
1	C	189	LEU
1	G	189	LEU
2	F	25	GLY
2	F	76	ARG
2	F	129	LYS
2	B	25	GLY
2	B	76	ARG

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Mol	Chain	Res	Type
2	D	29	ALA
2	H	29	ALA
1	A	82(A)	ARG
1	A	188	SER
1	A	189	LEU
1	A	192	GLN
1	E	82(A)	ARG
1	E	189	LEU
1	E	192	GLN
1	C	82(A)	ARG
1	G	42	VAL
1	G	82(A)	ARG
1	G	188	SER
1	G	192	GLN
2	F	11	VAL
2	F	128	ASN
2	F	156	LYS
2	B	29	ALA
2	B	128	ASN
2	D	25	GLY
2	D	76	ARG
2	D	128	ASN
2	H	25	GLY
1	A	41	PRO
1	C	192	GLN
2	H	151	ASP
2	B	11	VAL
2	D	11	VAL
2	H	11	VAL
2	H	128	ASN
2	H	208	PRO
1	A	31	GLY
1	G	31	GLY
2	B	26	ASP
2	D	129	LYS
1	C	31	GLY
1	C	41	PRO
2	F	208	PRO

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	186/200 (93%)	181 (97%)	5 (3%)	44	73
1	C	186/200 (93%)	183 (98%)	3 (2%)	62	82
1	E	186/200 (93%)	182 (98%)	4 (2%)	52	76
1	G	186/200 (93%)	179 (96%)	7 (4%)	33	65
2	B	180/184 (98%)	174 (97%)	6 (3%)	38	68
2	D	180/184 (98%)	170 (94%)	10 (6%)	21	55
2	F	180/184 (98%)	173 (96%)	7 (4%)	32	65
2	H	180/184 (98%)	178 (99%)	2 (1%)	73	87
All	All	1464/1536 (95%)	1420 (97%)	44 (3%)	41	70

All (44) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	12	VAL
1	A	39	GLN
1	A	76	ASN
1	A	79	SER
1	A	140	CYS
1	E	21	THR
1	E	53	HIS
1	E	140	CYS
1	E	186	SER
1	C	6	GLU
1	C	7	SER
1	C	140	CYS
1	G	14	SER
1	G	76	ASN
1	G	82	LEU
1	G	97	ARG
1	G	100	LEU
1	G	140	CYS
1	G	191	THR

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Mol	Chain	Res	Type
2	F	6	GLN
2	F	37	GLN
2	F	60	ASP
2	F	75	ILE
2	F	93	SER
2	F	156	LYS
2	F	209	THR
2	B	4	LEU
2	B	6	GLN
2	B	37	GLN
2	B	156	LYS
2	B	196	THR
2	B	202	VAL
2	D	5	THR
2	D	6	GLN
2	D	20	THR
2	D	26	ASP
2	D	37	GLN
2	D	52	TYR
2	D	151	ASP
2	D	156	LYS
2	D	168	SER
2	D	175	SER
2	H	37	GLN
2	H	42	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	199	ASN
2	F	79	GLN
2	F	167	GLN
2	F	184	GLN
2	B	108	GLN
2	B	188	HIS
2	B	194	GLN
2	D	79	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 ⓘ

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, 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	217/232 (93%)	0.13	2 (0%)	84	78	41, 75, 122, 150	0
1	C	217/232 (93%)	0.03	2 (0%)	84	78	47, 70, 115, 167	0
1	E	217/232 (93%)	0.10	5 (2%)	60	50	46, 79, 130, 177	0
1	G	217/232 (93%)	0.11	4 (1%)	68	58	37, 75, 129, 162	0
2	B	209/213 (98%)	0.45	11 (5%)	26	17	64, 105, 157, 197	0
2	D	209/213 (98%)	0.01	4 (1%)	66	57	44, 69, 115, 155	0
2	F	209/213 (98%)	0.18	8 (3%)	40	29	38, 75, 138, 182	0
2	H	209/213 (98%)	0.24	4 (1%)	66	57	45, 87, 137, 176	0
All	All	1704/1780 (95%)	0.16	40 (2%)	60	50	37, 80, 136, 197	0

All (40) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	F	128	ASN	4.5
1	A	1	GLN	4.4
2	F	185	TRP	3.7
2	B	94	PHE	3.6
1	G	215	SER	3.5
2	D	2	TYR	3.4
2	F	129	LYS	3.2
2	B	151	ASP	3.2
2	F	181	THR	3.1
1	E	75	GLU	3.0
2	F	154	PRO	3.0
1	C	26	GLY	2.9
2	B	148	TRP	2.9
2	B	150	ALA	2.9
1	E	123	PRO	2.9
2	B	186	LYS	2.8

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Mol	Chain	Res	Type	RSRZ
2	B	33	VAL	2.7
1	E	214	LYS	2.7
2	B	90	VAL	2.5
2	F	186	LYS	2.5
1	G	100(C)	ALA	2.5
2	B	182	PRO	2.5
2	B	180	LEU	2.5
1	G	27	GLY	2.3
2	B	184	GLN	2.3
2	D	186	LYS	2.3
1	A	52	PHE	2.3
1	E	31	GLY	2.2
2	H	57	GLY	2.2
1	C	27	GLY	2.1
2	D	3	GLU	2.1
1	E	215	SER	2.1
2	B	149	LYS	2.1
1	G	100(B)	ASN	2.1
2	D	189	ARG	2.1
2	F	122	SER	2.1
2	H	203	GLU	2.0
2	H	186	LYS	2.0
2	H	78	THR	2.0
2	F	120	PRO	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 monosaccharides 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.