WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Nov 3, 2024 – 04:48 AM EST

PDB ID	:	3UX9
Title	:	Structural insights into a human anti-IFN antibody exerting therapeutic potential for systemic lupus erythematosus
Authors	:	Ouyang, S.; Zhao, L.X.; Liang, W.; Shaw, N.; Liu, Z.-J.; Liang, M.-F.
Deposited on	:	2011-12-04
Resolution	:	2.80 Å(reported)

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

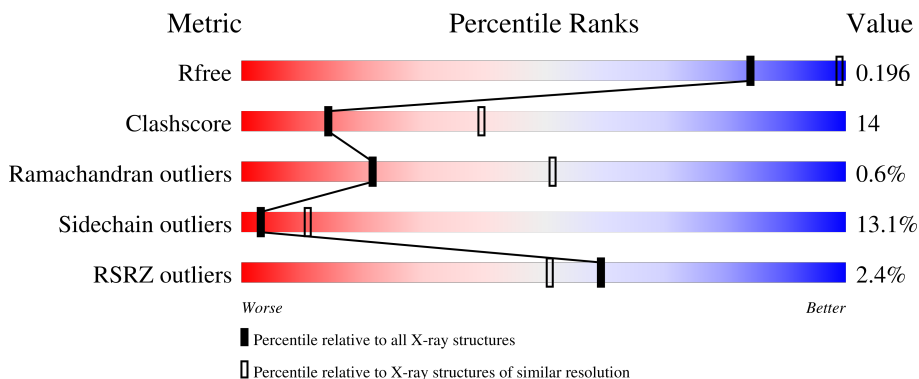|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.20.1
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

Full wwPDB X-ray Structure Validation Report

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 2.80 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		0.196
Clashscore		14
Ramachandran outliers		0.6%
Sidechain outliers		13.1%
RSRZ outliers		2.4%

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$_{free}$	164625	3657 (2.80-2.80)
Clashscore	180529	4123 (2.80-2.80)
Ramachandran outliers	177936	4071 (2.80-2.80)
Sidechain outliers	177891	4073 (2.80-2.80)
RSRZ outliers	164620	3659 (2.80-2.80)

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	169	3% — 53% / 22% / • / 22%
1	C	169	2% — 56% / 17% / • • / 24%
2	B	256	2% — 57% / 31% / • / 11%
2	D	256	2% — 59% / 27% / • • / 10%

WORLDWIDE PDB
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2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 5619 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 Interferon alpha-1/13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	132	Total	C	N	O	S	0	0	0
			1069	679	178	203	9			
1	C	129	Total	C	N	O	S	0	0	0
			1051	669	175	198	9			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	SER	-	expression tag	UNP P01562
A	-1	ASN	-	expression tag	UNP P01562
A	0	ALA	-	expression tag	UNP P01562
C	-2	SER	-	expression tag	UNP P01562
C	-1	ASN	-	expression tag	UNP P01562
C	0	ALA	-	expression tag	UNP P01562

- Molecule 2 is a protein called ScFv antibody.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	229	Total	C	N	O	S	0	0	0
			1725	1076	294	348	7			
2	D	230	Total	C	N	O	S	0	0	0
			1734	1081	295	351	7			

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	2	Total	O	0	0
			2	2		
3	B	10	Total	O	0	0
			10	10		
3	C	11	Total	O	0	0
			11	11		

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| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	D	17	Total O 17 17		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.
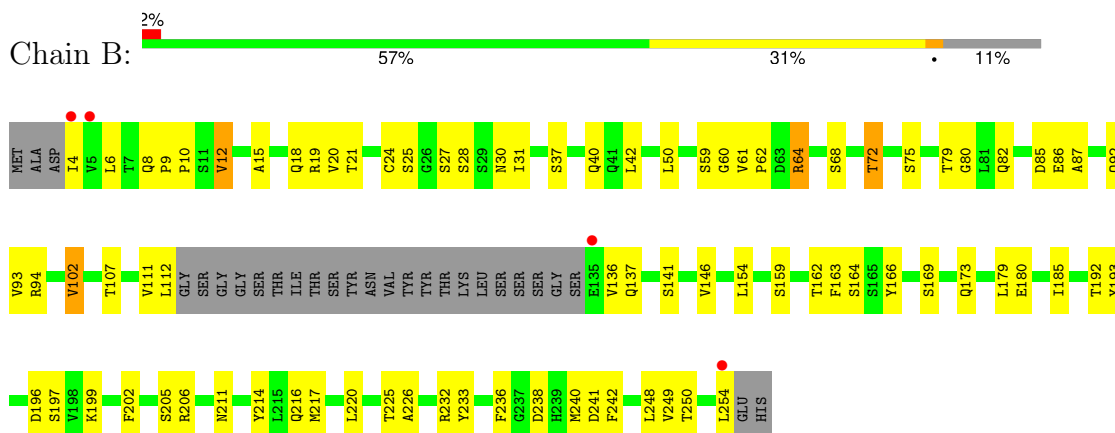
- Molecule 1: Interferon alpha-1/13
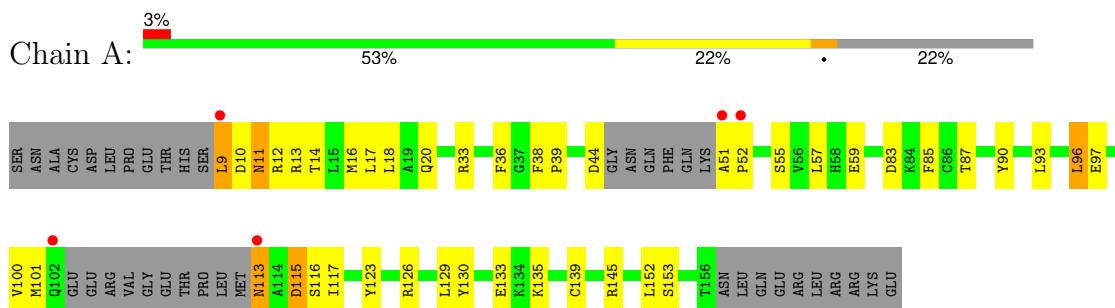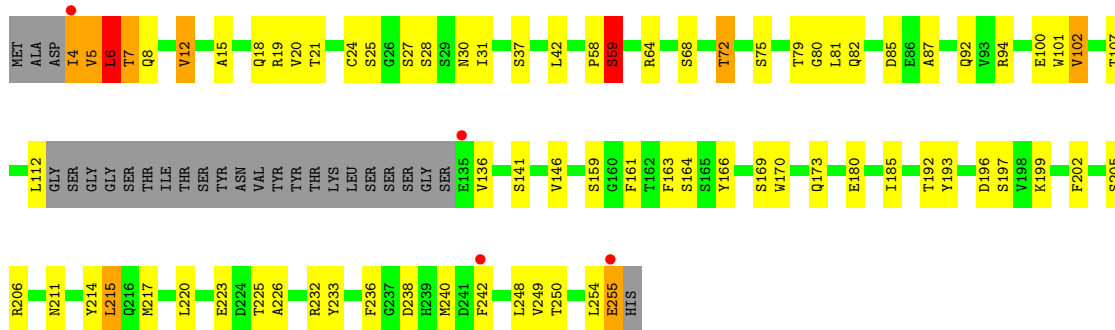

- Molecule 1: Interferon alpha-1/13
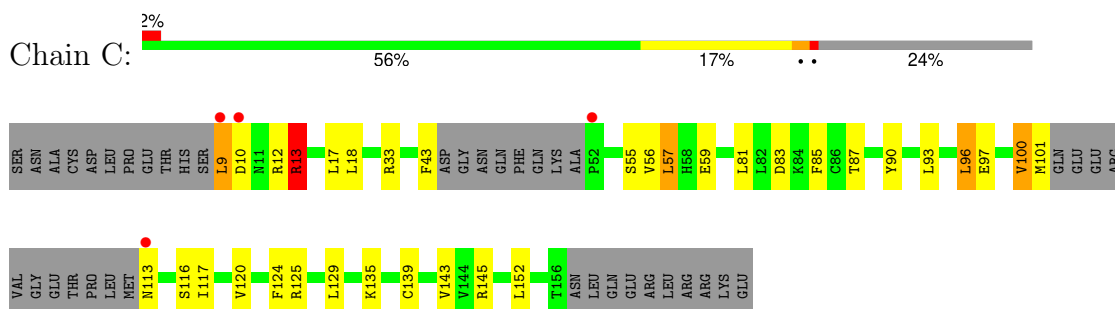
- Molecule 2: ScFv antibody

- Molecule 2: ScFv antibody

Chain D:

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	236.22Å　91.94Å　43.63Å 90.00°　99.75°　90.00°	Depositor
Resolution (Å)	41.54　–　2.80 41.54　–　2.80	Depositor EDS
% Data completeness (in resolution range)	95.0 (41.54-2.80) 99.9 (41.54-2.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.72 (at 2.81Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.6_289)	Depositor
R, R_{free}	0.183　,　0.243 0.186　,　0.196	Depositor DCC
R_{free} test set	1168 reflections (5.12%)	wwPDB-VP
Wilson B-factor (Å^2)	40.0	Xtriage
Anisotropy	0.971	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 73.1	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.030 for -h-2*l,-k,l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	5619	wwPDB-VP
Average B, all atoms (Å^2)	62.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.67% 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	0.66	0/1087	0.65	0/1466
1	C	0.51	0/1069	0.67	2/1440 (0.1%)
2	B	0.55	0/1762	0.66	0/2392
2	D	0.57	0/1771	0.69	2/2404 (0.1%)
All	All	0.57	0/5689	0.67	4/7702 (0.1%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	13	ARG	NE-CZ-NH2	-7.87	116.36	120.30
1	C	13	ARG	NE-CZ-NH1	7.77	124.18	120.30
2	D	12	VAL	CB-CA-C	-5.12	101.68	111.40
2	D	6	LEU	CA-CB-CG	5.06	126.94	115.30

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	1069	0	1053	39	1
1	C	1051	0	1043	20	2
2	B	1725	0	1641	42	1
2	D	1734	0	1647	61	0
3	A	2	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	10	0	0	1	0
3	C	11	0	0	3	0
3	D	17	0	0	2	0
All	All	5619	0	5384	152	2

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 14.

All (152) 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:11:ASN:OD1	1:A:152:LEU:HD22	1.09	1.22
1:C:10:ASP:O	3:C:176:HOH:O	1.55	1.20
1:A:9:LEU:HD22	1:A:9:LEU:O	1.50	1.08
1:A:11:ASN:OD1	1:A:152:LEU:CD2	2.04	1.06
2:D:4:ILE:HG22	2:D:5:VAL:O	1.65	0.96
2:D:4:ILE:CG2	2:D:5:VAL:N	2.29	0.94
2:D:6:LEU:HD11	2:D:24:CYS:SG	2.15	0.86
2:D:205:SER:HB2	2:D:214:TYR:HB2	1.61	0.82
2:D:4:ILE:HG23	2:D:5:VAL:H	1.43	0.82
2:B:169:SER:HB3	2:B:233:TYR:CE2	2.18	0.79
1:A:36:PHE:O	1:A:126:ARG:NH1	2.15	0.79
2:D:4:ILE:HG22	2:D:5:VAL:N	1.98	0.79
1:C:10:ASP:OD2	1:C:12:ARG:NE	2.18	0.77
1:A:9:LEU:O	1:A:9:LEU:CD2	2.30	0.76
2:B:205:SER:HB2	2:B:214:TYR:HB2	1.66	0.75
1:A:9:LEU:HD22	1:A:9:LEU:C	2.05	0.75
1:C:83:ASP:O	1:C:87:THR:HG23	1.86	0.74
2:D:169:SER:HB3	2:D:233:TYR:CE2	2.27	0.70
2:D:12:VAL:HG23	2:D:107:THR:CG2	2.22	0.70
2:D:42:LEU:HD13	2:D:87:ALA:HB2	1.75	0.69
1:A:113:ASN:OD1	1:A:113:ASN:C	2.30	0.69
1:A:20:GLN:OE1	2:D:248:LEU:CD1	2.40	0.69
2:B:42:LEU:HD13	2:B:87:ALA:HB2	1.74	0.69
2:D:4:ILE:CG2	2:D:5:VAL:O	2.39	0.69
1:A:10:ASP:OD1	1:A:10:ASP:C	2.30	0.68
2:D:166:TYR:O	2:D:206:ARG:NH2	2.27	0.67
2:D:58:PRO:O	2:D:59:SER:C	2.33	0.67
1:C:10:ASP:CG	1:C:12:ARG:HE	1.99	0.67
2:D:92:GLN:HE22	2:D:101:TRP:HD1	1.42	0.66
2:D:15:ALA:HA	2:D:112:LEU:HB3	1.78	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:83:ASP:O	1:A:87:THR:HG23	1.96	0.65
2:D:6:LEU:HD23	2:D:102:VAL:HG22	1.77	0.65
2:D:196:ASP:OD1	3:D:272:HOH:O	2.13	0.65
1:A:113:ASN:N	1:A:115:ASP:OD2	2.30	0.65
2:D:225:THR:HG23	2:D:250:THR:HA	1.79	0.65
1:A:9:LEU:CD2	1:A:9:LEU:C	2.66	0.65
1:A:59:GLU:HG2	1:A:117:ILE:HG23	1.79	0.65
1:A:11:ASN:HD22	1:A:11:ASN:N	1.94	0.64
1:A:20:GLN:OE1	2:D:248:LEU:HD13	1.96	0.64
1:C:43:PHE:C	3:C:177:HOH:O	2.34	0.64
2:D:100:GLU:OE2	3:D:272:HOH:O	2.15	0.64
2:B:248:LEU:HD12	2:B:249:VAL:N	2.13	0.64
2:D:5:VAL:CG1	2:D:7:THR:HG22	2.28	0.63
1:A:16:MET:HE3	2:D:248:LEU:HG	1.79	0.63
1:C:59:GLU:HG2	1:C:117:ILE:HG23	1.80	0.63
2:B:15:ALA:HA	2:B:112:LEU:HB3	1.81	0.62
2:B:60:GLY:N	3:B:259:HOH:O	2.19	0.61
1:A:93:LEU:O	1:A:97:GLU:HG3	2.00	0.61
1:A:96:LEU:O	1:A:100:VAL:HG23	2.01	0.60
2:B:166:TYR:O	2:B:206:ARG:NH2	2.35	0.60
2:D:5:VAL:CG1	2:D:6:LEU:N	2.65	0.60
1:C:17:LEU:HD13	1:C:85:PHE:HA	1.84	0.59
2:D:248:LEU:HD12	2:D:249:VAL:N	2.18	0.59
1:A:113:ASN:C	1:A:115:ASP:H	2.05	0.59
1:C:143:VAL:O	3:C:175:HOH:O	2.17	0.59
1:A:51:ALA:HB3	1:A:52:PRO:HD3	1.86	0.58
2:D:136:VAL:HG13	2:D:161:PHE:CD1	2.39	0.58
2:B:225:THR:HG23	2:B:250:THR:HA	1.85	0.58
2:D:19:ARG:HD2	2:D:79:THR:HG22	1.86	0.58
1:A:20:GLN:OE1	2:D:248:LEU:HD11	2.04	0.57
2:D:196:ASP:HA	2:D:199:LYS:HD2	1.86	0.57
2:B:185:ILE:HD13	2:B:206:ARG:HB2	1.87	0.57
2:B:196:ASP:HA	2:B:199:LYS:HD2	1.87	0.57
2:D:12:VAL:HG23	2:D:107:THR:HG23	1.89	0.55
2:D:72:THR:O	2:D:72:THR:HG23	2.06	0.55
2:D:185:ILE:HD13	2:D:206:ARG:HB2	1.89	0.55
2:B:19:ARG:HD2	2:B:79:THR:HG22	1.89	0.55
1:A:87:THR:O	1:A:90:TYR:HB3	2.08	0.54
2:D:94:ARG:NH1	2:D:238:ASP:OD1	2.40	0.54
1:C:9:LEU:HD23	1:C:57:LEU:HG	1.89	0.54
2:B:163:PHE:CD2	2:B:211:ASN:HA	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:5:VAL:HG13	2:D:6:LEU:N	2.23	0.54
2:B:27:SER:OG	2:B:28:SER:N	2.40	0.53
2:D:6:LEU:HD13	2:D:31:ILE:HD11	1.90	0.53
1:A:113:ASN:C	1:A:115:ASP:N	2.61	0.53
2:B:162:THR:HB	2:D:223:GLU:HG2	1.89	0.52
2:B:217:MET:HB3	2:B:220:LEU:HD21	1.92	0.52
1:C:18:LEU:O	1:C:145:ARG:HD2	2.10	0.52
2:D:15:ALA:O	2:D:18:GLN:HB2	2.11	0.51
2:D:163:PHE:CD2	2:D:211:ASN:HA	2.46	0.50
1:A:18:LEU:O	1:A:145:ARG:HD2	2.11	0.50
1:A:113:ASN:OD1	1:A:113:ASN:O	2.29	0.50
2:D:92:GLN:NE2	2:D:101:TRP:HD1	2.09	0.50
2:D:217:MET:HB3	2:D:220:LEU:HD21	1.93	0.50
2:D:6:LEU:CD1	2:D:24:CYS:SG	2.94	0.50
2:D:94:ARG:HG3	2:D:94:ARG:HH11	1.75	0.49
2:D:58:PRO:O	2:D:59:SER:O	2.30	0.49
2:D:173:GLN:O	2:D:226:ALA:HB1	2.12	0.49
2:B:94:ARG:NH1	2:B:238:ASP:OD1	2.44	0.49
1:A:18:LEU:HG	1:A:85:PHE:CE1	2.48	0.49
1:A:17:LEU:HD13	1:A:85:PHE:HA	1.94	0.49
2:B:225:THR:O	2:B:226:ALA:HB2	2.11	0.49
2:D:225:THR:O	2:D:226:ALA:HB2	2.13	0.49
1:A:10:ASP:OD1	1:A:10:ASP:O	2.30	0.48
2:B:72:THR:HG23	2:B:72:THR:O	2.12	0.48
2:B:12:VAL:CG1	2:B:107:THR:CG2	2.92	0.48
2:D:4:ILE:HG23	2:D:5:VAL:N	2.03	0.48
2:B:154:LEU:O	2:B:214:TYR:HA	2.14	0.48
2:B:248:LEU:HD12	2:B:249:VAL:H	1.79	0.48
1:C:96:LEU:O	1:C:100:VAL:HG12	2.13	0.48
2:D:27:SER:OG	2:D:28:SER:N	2.46	0.48
1:C:33:ARG:HD2	2:D:236:PHE:CD2	2.50	0.47
2:D:192:THR:C	2:D:193:TYR:CD1	2.88	0.47
2:D:248:LEU:HD12	2:D:249:VAL:H	1.79	0.47
1:A:16:MET:HE3	2:D:248:LEU:CG	2.45	0.47
1:A:96:LEU:HD12	1:A:96:LEU:HA	1.66	0.47
2:B:86:GLU:HG3	2:B:111:VAL:H	1.81	0.46
1:C:87:THR:O	1:C:90:TYR:HB3	2.15	0.46
2:B:6:LEU:HD12	2:B:102:VAL:HG22	1.98	0.46
2:B:12:VAL:CG1	2:B:107:THR:HG21	2.46	0.46
1:C:100:VAL:HG22	1:C:100:VAL:O	2.16	0.46
2:B:6:LEU:CD2	2:B:24:CYS:SG	3.04	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:241:ASP:OD2	2:B:242:PHE:CD1	2.69	0.45
2:D:80:GLY:O	2:D:82:GLN:HG3	2.17	0.45
2:B:93:VAL:HG22	2:B:94:ARG:N	2.32	0.45
2:B:80:GLY:O	2:B:82:GLN:HG3	2.17	0.44
2:B:15:ALA:O	2:B:18:GLN:HB2	2.17	0.44
2:B:6:LEU:HD21	2:B:31:ILE:HD11	2.00	0.44
1:C:9:LEU:CD2	1:C:57:LEU:HG	2.47	0.44
1:C:13:ARG:HA	1:C:13:ARG:HD3	1.73	0.43
2:B:86:GLU:HG3	2:B:111:VAL:HG23	1.99	0.43
2:D:64:ARG:NH1	2:D:85:ASP:OD2	2.50	0.43
2:D:4:ILE:HG22	2:D:5:VAL:C	2.34	0.43
2:B:40:GLN:HB2	2:B:50:LEU:HD22	2.00	0.43
1:A:153:SER:HB2	2:D:255:GLU:H	1.83	0.43
1:A:153:SER:HB2	2:D:255:GLU:HG2	2.01	0.43
2:B:64:ARG:NH1	2:B:85:ASP:OD2	2.51	0.43
1:A:39:PRO:HG3	3:A:167:HOH:O	2.19	0.43
2:B:94:ARG:HH11	2:B:94:ARG:HG3	1.84	0.42
1:A:130:TYR:O	1:A:133:GLU:HB2	2.18	0.42
2:D:5:VAL:HG13	2:D:6:LEU:H	1.85	0.42
2:D:64:ARG:HH12	2:D:85:ASP:CG	2.22	0.42
2:D:202:PHE:CD1	2:D:202:PHE:N	2.86	0.42
2:D:170:TRP:CD1	2:D:215:LEU:HG	2.55	0.42
1:A:10:ASP:OD2	1:A:12:ARG:NH2	2.52	0.41
2:B:61:VAL:HG12	2:B:62:PRO:O	2.20	0.41
2:B:192:THR:C	2:B:193:TYR:CD1	2.93	0.41
1:C:96:LEU:HD12	1:C:96:LEU:HA	1.72	0.41
1:A:33:ARG:HD2	2:B:236:PHE:CD2	2.55	0.41
1:A:38:PHE:HA	1:A:123:TYR:CD1	2.56	0.41
2:B:202:PHE:HA	2:B:216:GLN:O	2.19	0.41
2:B:64:ARG:HH12	2:B:85:ASP:CG	2.24	0.41
2:B:6:LEU:HD11	2:B:93:VAL:HG12	2.03	0.41
1:C:120:VAL:O	1:C:124:PHE:HD2	2.04	0.41
2:D:81:LEU:HD12	2:D:81:LEU:HA	1.82	0.41
2:D:112:LEU:HD12	2:D:112:LEU:HA	1.79	0.41
1:C:18:LEU:HG	1:C:85:PHE:CE1	2.56	0.41
1:C:93:LEU:HD23	1:C:93:LEU:HA	1.88	0.40
2:B:9:PRO:HA	2:B:10:PRO:HD3	1.91	0.40
1:A:11:ASN:N	1:A:11:ASN:ND2	2.63	0.40
1:A:93:LEU:HD23	1:A:93:LEU:HA	1.84	0.40
2:B:173:GLN:O	2:B:226:ALA:HB1	2.22	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the sym-

metry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:97:GLU:OE2	1:C:125:ARG:NH2[4_556]	1.63	0.57
2:B:254:LEU:C	1:C:13:ARG:NH2[4_546]	1.98	0.22

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	126/169 (75%)	121 (96%)	5 (4%)	0	100	100
1	C	123/169 (73%)	119 (97%)	4 (3%)	0	100	100
2	B	225/256 (88%)	210 (93%)	13 (6%)	2 (1%)	14	42
2	D	226/256 (88%)	212 (94%)	12 (5%)	2 (1%)	14	42
All	All	700/850 (82%)	662 (95%)	34 (5%)	4 (1%)	22	51

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	59	SER
2	D	59	SER
2	D	197	SER
2	B	197	SER

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	120/155 (77%)	105 (88%)	15 (12%)		3	12
1	C	119/155 (77%)	103 (87%)	16 (13%)		3	10
2	B	188/210 (90%)	164 (87%)	24 (13%)		3	12
2	D	189/210 (90%)	163 (86%)	26 (14%)		3	10
All	All	616/730 (84%)	535 (87%)	81 (13%)		3	11

All (81) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	LEU
1	A	11	ASN
1	A	13	ARG
1	A	14	THR
1	A	44	ASP
1	A	55	SER
1	A	57	LEU
1	A	96	LEU
1	A	101	MET
1	A	113	ASN
1	A	115	ASP
1	A	116	SER
1	A	129	LEU
1	A	135	LYS
1	A	139	CYS
2	B	4	ILE
2	B	8	GLN
2	B	12	VAL
2	B	20	VAL
2	B	21	THR
2	B	25	SER
2	B	30	ASN
2	B	37	SER
2	B	64	ARG
2	B	68	SER
2	B	72	THR
2	B	75	SER
2	B	92	GLN
2	B	102	VAL
2	B	136	VAL
2	B	137	GLN
2	B	141	SER
2	B	146	VAL

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Mol	Chain	Res	Type
2	B	159	SER
2	B	164	SER
2	B	179	LEU
2	B	180	GLU
2	B	232	ARG
2	B	240	MET
1	C	9	LEU
1	C	13	ARG
1	C	55	SER
1	C	56	VAL
1	C	57	LEU
1	C	81	LEU
1	C	96	LEU
1	C	97	GLU
1	C	100	VAL
1	C	101	MET
1	C	113	ASN
1	C	116	SER
1	C	129	LEU
1	C	135	LYS
1	C	139	CYS
1	C	152	LEU
2	D	4	ILE
2	D	5	VAL
2	D	6	LEU
2	D	7	THR
2	D	8	GLN
2	D	20	VAL
2	D	21	THR
2	D	25	SER
2	D	30	ASN
2	D	37	SER
2	D	59	SER
2	D	68	SER
2	D	72	THR
2	D	75	SER
2	D	102	VAL
2	D	141	SER
2	D	146	VAL
2	D	159	SER
2	D	164	SER
2	D	180	GLU

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Mol	Chain	Res	Type
2	D	215	LEU
2	D	232	ARG
2	D	240	MET
2	D	242	PHE
2	D	254	LEU
2	D	255	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 oligosaccharides 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	132/169 (78%)	-0.28	5 (3%) 44	36	39, 57, 113, 138	0
1	C	129/169 (76%)	-0.15	4 (3%) 51	43	35, 54, 108, 123	0
2	B	229/256 (89%)	-0.30	4 (1%) 69	61	38, 60, 87, 119	0
2	D	230/256 (89%)	-0.02	4 (1%) 69	61	36, 59, 87, 119	0
All	All	720/850 (84%)	-0.18	17 (2%) 59	51	35, 59, 98, 138	0

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	4	ILE	4.6
1	A	9	LEU	4.5
1	A	102	GLN	4.2
1	C	113	ASN	4.0
2	D	4	ILE	3.8
1	A	51	ALA	3.2
1	C	9	LEU	3.0
2	B	254	LEU	3.0
1	A	113	ASN	2.9
2	D	242	PHE	2.9
1	C	52	PRO	2.7
2	B	135	GLU	2.6
2	D	255	GLU	2.5
2	D	135	GLU	2.2
1	C	10	ASP	2.2
2	B	5	VAL	2.1
1	A	52	PRO	2.1

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.