Full wwPDB X-ray Structure Validation Report (i)

Oct 15, 2023 – 11:43 PM EDT

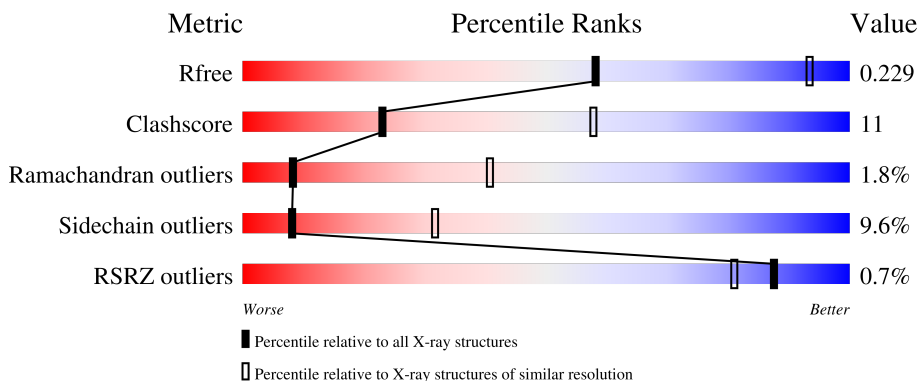|		
PDB ID	:	2YVC
Title	:	Crystal structure of the Radixin FERM domain complexed with the NEP cytoplasmic tail
Authors	:	Terawaki, S.; Kitano, K.; Hakoshima, T.
Deposited on	:	2007-04-11
Resolution	:	3.20 Å(reported)

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 3.20 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.
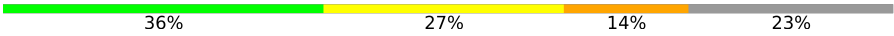
Metric	Percentile Ranks	Value
Rfree		0.229
Clashscore		11
Ramachandran outliers		1.8%
Sidechain outliers		9.6%
RSRZ outliers		0.7%

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	1133 (3.20-3.20)
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RSRZ outliers	127900	1095 (3.20-3.20)

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	312	64% 26% · 5%
1	B	312	.% 63% 29% · 5%
1	C	312	.% 67% 24% · 6%
2	D	22	27% 5% 68%
2	E	22	23% 77%

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Mol	Chain	Length	Quality of chain
2	F	22	36% 27% 14% 23%

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 7607 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 Radixin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	295	Total	C	N	O	S	0	0	0
			2472	1599	422	442	9			
1	B	297	Total	C	N	O	S	0	0	0
			2486	1607	424	445	10			
1	C	292	Total	C	N	O	S	0	0	0
			2449	1583	418	439	9			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	GLY	-	expression tag	UNP P26043
A	0	SER	-	expression tag	UNP P26043
B	-1	GLY	-	expression tag	UNP P26043
B	0	SER	-	expression tag	UNP P26043
C	-1	GLY	-	expression tag	UNP P26043
C	0	SER	-	expression tag	UNP P26043

- Molecule 2 is a protein called Neprilysin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	D	7	Total	C	N	O		0	0	0
			35	21	7	7				
2	E	5	Total	C	N	O		0	0	0
			25	15	5	5				
2	F	17	Total	C	N	O	S	0	0	0
			140	86	27	26	1			

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: Radixin
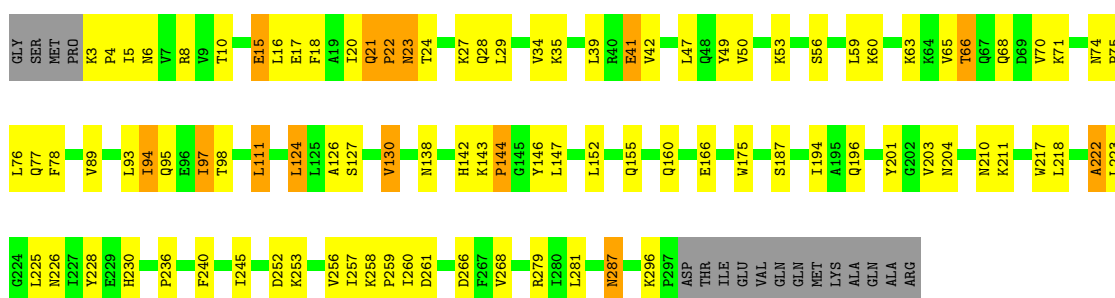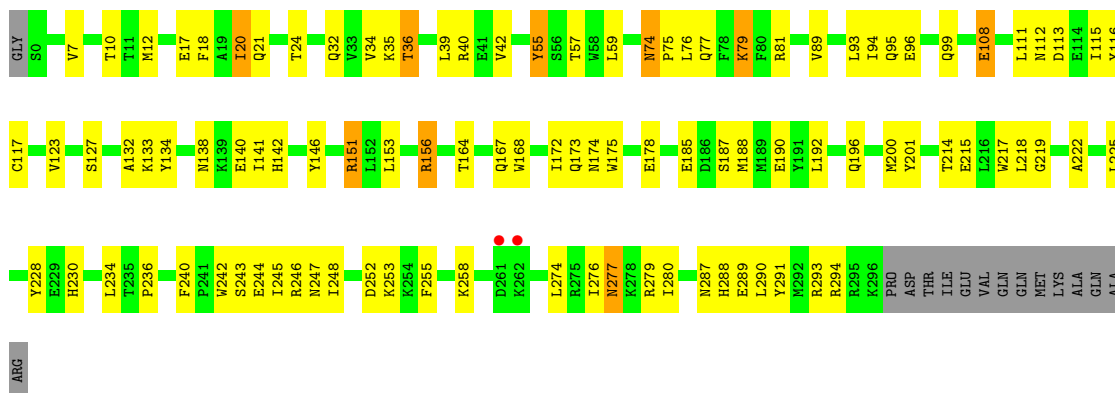
• Molecule 1: Radixin

• Molecule 1: Radixin

P236 S243 E244 I245 R246 N247 I248 S249 F250 N251 D252 K253 K254 F255 V256 K262 D266 F267 V268 P272 R273 L274 R275 I276 N287 R295 K296 PRO ASP THR ILE GLU VAL GLN GLN MET LYS ALA GLN ALA ARG

• Molecule 2: Neprilysin

Chain D:

27% 5% 68%

GLY ARG SER GLU SER GLN M7 I12 N13 ALA PRO LYS PRO LYS LYS LYS GLN ARG

• Molecule 2: Neprilysin

Chain E:

23% 77%

GLY ARG SER GLU SER GLN M7 D11 ILE ASN ALA PRO LYS PRO LYS LYS LYS GLN ARG

• Molecule 2: Neprilysin

Chain F:

36% 27% 14% 23%

GLY ARG SER GLU SER Q6 M7 D8 I9 T10 D11 I12 K16 P17 K18 K19 R22
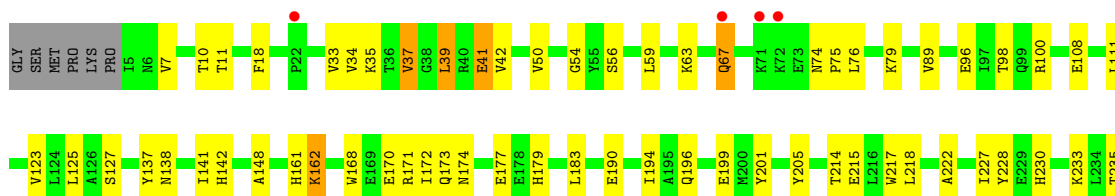
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	108.79Å 116.84Å 141.88Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.71 – 3.20 49.31 – 3.20	Depositor EDS
% Data completeness (in resolution range)	99.6 (29.71-3.20) 99.6 (49.31-3.20)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.06 (at 3.19Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.233 , 0.267 0.223 , 0.229	Depositor DCC
R_{free} test set	1533 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	62.2	Xtriage
Anisotropy	0.595	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 42.9	EDS
L-test for twinning[2]	$< |L| > = 0.47, < L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	7607	wwPDB-VP
Average B, all atoms (Å^2)	64.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.09% 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	0.45	0/2532	0.63	1/3415 (0.0%)
1	B	0.46	0/2546	0.60	0/3433
1	C	0.42	0/2507	0.55	0/3380
2	D	0.58	0/34	0.39	0/46
2	E	0.70	0/24	0.53	0/32
2	F	0.44	0/141	0.66	0/185
All	All	0.45	0/7784	0.60	1/10491 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	59	LEU	CA-CB-CG	5.48	127.91	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	2472	0	2487	57	0
1	B	2486	0	2504	68	0
1	C	2449	0	2460	46	0
2	D	35	0	13	0	0
2	E	25	0	9	0	0
2	F	140	0	151	9	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	7607	0	7624	174	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 11.

All (174) 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:5:ILE:HB	1:A:20:ILE:HG22	1.40	1.02
1:B:138:ASN:H	1:B:142:HIS:HD2	1.10	0.92
1:A:256:VAL:HG12	1:A:268:VAL:HG22	1.54	0.90
1:B:138:ASN:H	1:B:142:HIS:CD2	1.91	0.89
1:A:60:LYS:H	1:A:68:GLN:HE22	1.12	0.88
1:C:7:VAL:HG12	1:C:76:LEU:HB2	1.58	0.85
1:B:123:VAL:HG13	1:B:172:ILE:HD13	1.61	0.82
1:C:222:ALA:HA	1:C:287:ASN:HD22	1.46	0.79
1:B:116:TYR:H	1:B:200:MET:HG3	1.47	0.79
1:A:5:ILE:HB	1:A:20:ILE:CG2	2.13	0.76
1:C:74:ASN:HB3	1:C:75:PRO:HD3	1.67	0.75
1:C:138:ASN:H	1:C:142:HIS:HD2	1.34	0.75
1:A:222:ALA:HA	1:A:287:ASN:HD21	1.52	0.74
1:A:56:SER:O	1:A:279:ARG:NH2	2.22	0.73
1:B:112:ASN:OD1	1:B:151:ARG:NH2	2.21	0.72
1:A:222:ALA:HA	1:A:287:ASN:ND2	2.05	0.72
1:B:89:VAL:HG23	1:B:93:LEU:HD12	1.70	0.72
1:B:132:ALA:HB2	1:B:187:SER:HB2	1.72	0.71
1:A:240:PHE:HB3	1:A:245:ILE:HD11	1.72	0.71
1:C:138:ASN:H	1:C:142:HIS:CD2	2.09	0.70
1:B:190:GLU:OE1	1:B:190:GLU:HA	1.93	0.68
1:B:7:VAL:HG22	1:B:18:PHE:HB2	1.74	0.68
1:A:257:ILE:O	1:A:266:ASP:HB2	1.94	0.68
1:C:245:ILE:HB	2:F:12:ILE:HG21	1.75	0.68
1:A:8:ARG:HG3	1:A:17:GLU:HG2	1.74	0.68
1:A:138:ASN:H	1:A:142:HIS:HD2	1.42	0.68
1:B:20:ILE:HG23	1:B:24:THR:OG1	1.96	0.65
1:B:222:ALA:HA	1:B:287:ASN:ND2	2.12	0.65
1:A:60:LYS:H	1:A:68:GLN:NE2	1.92	0.64
1:C:171:ARG:HA	1:C:174:ASN:HD22	1.63	0.64
1:B:146:TYR:HE2	1:B:173:GLN:HE21	1.47	0.63
1:B:168:TRP:O	1:B:172:ILE:HG12	1.99	0.62
1:B:7:VAL:CG2	1:B:18:PHE:HB2	2.30	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:18:PHE:CE2	1:B:32:GLN:HG3	2.36	0.61
1:B:113:ASP:HA	1:B:156:ARG:HH21	1.66	0.61
1:C:33:VAL:O	1:C:37:VAL:HG23	2.02	0.60
1:A:15:GLU:C	1:A:16:LEU:HD12	2.22	0.59
1:B:276:ILE:O	1:B:280:ILE:HG12	2.03	0.59
1:B:215:GLU:O	1:B:230:HIS:HB2	2.02	0.59
1:B:32:GLN:O	1:B:36:THR:HG23	2.03	0.58
1:C:137:TYR:CD2	1:C:177:GLU:HG2	2.38	0.58
1:C:162:LYS:HE3	1:C:162:LYS:HA	1.85	0.58
1:A:34:VAL:HG13	1:A:39:LEU:O	2.04	0.57
1:C:222:ALA:HA	1:C:287:ASN:ND2	2.16	0.57
1:B:117:CYS:O	1:B:156:ARG:NH1	2.38	0.56
1:C:217:TRP:HB2	1:C:228:TYR:HB2	1.88	0.55
1:B:40:ARG:O	1:B:42:VAL:HG13	2.06	0.55
1:B:192:LEU:O	1:B:196:GLN:HG2	2.07	0.54
1:A:217:TRP:CD1	1:A:230:HIS:HA	2.43	0.54
1:A:256:VAL:CG1	1:A:268:VAL:HG22	2.34	0.54
1:B:146:TYR:HE2	1:B:173:GLN:NE2	2.06	0.54
1:B:290:LEU:O	1:B:294:ARG:HG2	2.08	0.53
1:C:251:ASN:HD22	1:C:252:ASP:N	2.05	0.53
1:A:147:LEU:HD22	1:A:152:LEU:HD11	1.90	0.53
1:A:126:ALA:O	1:A:130:VAL:HG13	2.08	0.53
1:A:142:HIS:HB3	1:A:146:TYR:CD1	2.44	0.53
1:A:8:ARG:HG3	1:A:17:GLU:CG	2.38	0.53
1:B:289:GLU:O	1:B:293:ARG:HB2	2.09	0.53
1:C:7:VAL:HG23	1:C:18:PHE:HB2	1.90	0.52
1:A:124:LEU:HD13	1:A:194:ILE:HD13	1.92	0.52
1:C:196:GLN:HA	1:C:201:TYR:CD2	2.45	0.52
1:C:247:ASN:HD22	2:F:9:ILE:HD11	1.75	0.52
1:B:34:VAL:HG11	1:B:42:VAL:HG11	1.92	0.52
1:B:142:HIS:HB3	1:B:146:TYR:CG	2.45	0.52
1:A:23:ASN:N	1:A:23:ASN:HD22	2.08	0.52
1:A:29:LEU:HD22	1:A:65:VAL:HG21	1.91	0.51
1:A:24:THR:HG23	1:A:28:GLN:HE21	1.75	0.51
1:B:18:PHE:CE2	1:B:32:GLN:CG	2.94	0.50
1:B:164:THR:HG23	1:B:167:GLN:OE1	2.12	0.50
1:A:240:PHE:CB	1:A:245:ILE:HD11	2.41	0.50
1:B:127:SER:CB	1:B:175:TRP:HB3	2.42	0.50
1:C:273:ARG:HG2	1:C:276:ILE:HG12	1.94	0.50
1:B:7:VAL:HG12	1:B:76:LEU:HB2	1.94	0.50
1:C:34:VAL:HG11	1:C:42:VAL:HG11	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:251:ASN:O	1:C:253:LYS:N	2.45	0.49
1:A:252:ASP:CG	1:A:253:LYS:H	2.14	0.49
1:B:117:CYS:H	1:B:156:ARG:NH1	2.09	0.49
1:C:205:TYR:CD2	1:C:233:LYS:HE2	2.47	0.49
2:F:22:ARG:HG2	2:F:22:ARG:HH21	1.77	0.49
1:B:18:PHE:CE2	2:F:17:PRO:HB3	2.48	0.49
1:A:196:GLN:HA	1:A:201:TYR:CG	2.47	0.49
1:B:34:VAL:HG22	1:B:39:LEU:HD23	1.93	0.49
1:A:74:ASN:HB3	1:A:75:PRO:CD	2.42	0.49
1:A:160:GLN:HE22	1:C:262:LYS:H	1.60	0.49
1:C:138:ASN:HB3	1:C:141:ILE:HB	1.95	0.49
1:B:288:HIS:O	1:B:291:TYR:HB3	2.12	0.49
1:C:250:PHE:CD1	1:C:250:PHE:O	2.66	0.49
1:A:23:ASN:HD22	1:A:23:ASN:H	1.59	0.49
1:B:79:LYS:HG2	1:B:81:ARG:NE	2.27	0.48
1:B:185:GLU:HA	1:B:188:MET:CE	2.42	0.48
1:A:211:LYS:HE3	1:A:268:VAL:HG11	1.94	0.48
1:A:15:GLU:O	1:A:16:LEU:HD12	2.14	0.48
1:B:240:PHE:HB3	1:B:245:ILE:HD11	1.96	0.48
1:B:20:ILE:HG23	1:B:24:THR:HG1	1.78	0.48
1:C:217:TRP:CE2	1:C:233:LYS:HE3	2.49	0.48
1:A:226:ASN:HD22	1:A:236:PRO:HB3	1.78	0.48
1:B:95:GLN:O	1:B:99:GLN:HG3	2.14	0.48
1:C:250:PHE:HB3	1:C:255:PHE:CD1	2.49	0.47
1:A:166:GLU:H	1:A:166:GLU:CD	2.18	0.47
1:B:217:TRP:HB2	1:B:228:TYR:HB2	1.96	0.47
1:A:6:ASN:O	1:A:76:LEU:N	2.39	0.47
1:B:115:ILE:HG23	1:B:200:MET:HB2	1.97	0.47
1:B:132:ALA:HB2	1:B:187:SER:CB	2.43	0.47
1:B:215:GLU:HB3	1:B:230:HIS:CD2	2.50	0.47
1:C:173:GLN:O	1:C:177:GLU:HG3	2.15	0.46
1:C:123:VAL:HG13	1:C:172:ILE:HD13	1.97	0.46
2:F:12:ILE:HD13	2:F:12:ILE:HA	1.84	0.46
1:B:153:LEU:HD21	1:B:172:ILE:HD11	1.96	0.46
1:C:168:TRP:O	1:C:172:ILE:HG12	2.16	0.46
1:B:247:ASN:HD22	1:B:258:LYS:HD2	1.81	0.46
1:A:94:ILE:H	1:A:94:ILE:HG13	1.58	0.46
1:A:10:THR:HG22	1:A:15:GLU:HB2	1.97	0.46
1:C:63:LYS:HB3	1:C:67:GLN:OE1	2.16	0.46
1:A:138:ASN:N	1:A:142:HIS:HD2	2.11	0.45
1:A:49:TYR:HB3	1:A:78:PHE:CD2	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:113:ASP:HA	1:B:156:ARG:NH2	2.31	0.45
1:B:242:TRP:C	1:B:244:GLU:H	2.20	0.45
1:A:127:SER:CB	1:A:175:TRP:HB3	2.47	0.45
1:B:21:GLN:HB2	1:B:24:THR:HG23	1.99	0.45
1:C:256:VAL:HG23	1:C:268:VAL:HG22	1.98	0.45
1:A:34:VAL:HG11	1:A:42:VAL:HG11	2.00	0.44
1:A:75:PRO:HG2	1:A:77:GLN:HE21	1.83	0.44
1:C:41:GLU:HG3	1:C:98:THR:OG1	2.18	0.44
1:B:277:ASN:HD22	1:B:277:ASN:HA	1.63	0.44
1:C:215:GLU:O	1:C:230:HIS:HB2	2.17	0.44
1:C:235:THR:HA	1:C:236:PRO:HD3	1.88	0.44
1:C:247:ASN:HA	2:F:12:ILE:H	1.81	0.44
1:B:255:PHE:HD1	1:B:277:ASN:ND2	2.15	0.44
1:C:34:VAL:HG13	1:C:39:LEU:O	2.18	0.44
1:C:96:GLU:OE1	1:C:100:ARG:NH1	2.51	0.44
1:B:74:ASN:HB3	1:B:75:PRO:CD	2.48	0.43
1:B:219:GLY:O	1:B:225:LEU:HA	2.18	0.43
1:B:246:ARG:HB3	1:B:258:LYS:O	2.18	0.43
1:C:74:ASN:CB	1:C:75:PRO:HD3	2.43	0.43
1:A:41:GLU:HG3	1:A:98:THR:OG1	2.18	0.43
1:A:74:ASN:HB3	1:A:75:PRO:HD3	1.99	0.43
1:A:21:GLN:HA	1:A:22:PRO:HD3	1.91	0.43
1:B:12:MET:HE1	1:B:108:GLU:HG2	2.00	0.43
1:B:174:ASN:O	1:B:178:GLU:HG3	2.18	0.43
1:C:50:VAL:HG23	1:C:54:GLY:HA2	2.00	0.43
1:A:20:ILE:HD11	1:A:24:THR:HG21	2.01	0.43
1:B:138:ASN:N	1:B:142:HIS:CD2	2.74	0.42
2:F:19:LYS:HG3	2:F:19:LYS:O	2.18	0.42
1:A:217:TRP:HB2	1:A:228:TYR:HB2	2.01	0.42
1:B:185:GLU:HA	1:B:188:MET:HE2	2.00	0.42
1:A:155:GLN:OE1	2:F:16:LYS:HG3	2.19	0.42
1:B:55:TYR:N	1:B:55:TYR:CD2	2.87	0.42
1:C:190:GLU:O	1:C:194:ILE:HG12	2.19	0.42
1:B:57:THR:HG23	1:B:279:ARG:HH12	1.84	0.42
1:A:111:LEU:HD12	1:A:111:LEU:HA	1.64	0.42
1:B:140:GLU:HB2	1:B:141:ILE:HD12	2.02	0.42
1:C:125:LEU:HD21	1:C:194:ILE:HB	2.02	0.42
1:C:168:TRP:C	1:C:170:GLU:H	2.23	0.42
1:A:22:PRO:O	1:A:66:THR:HG21	2.18	0.42
1:A:143:LYS:HD3	1:A:144:PRO:HD2	2.01	0.42
1:C:138:ASN:N	1:C:142:HIS:HD2	2.10	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:10:THR:HA	1:A:15:GLU:HA	2.02	0.42
1:B:133:LYS:HD3	1:B:134:TYR:CE1	2.55	0.42
1:B:234:LEU:O	1:B:236:PRO:HD3	2.20	0.42
1:C:67:GLN:HE21	1:C:67:GLN:HB2	1.73	0.41
1:A:89:VAL:HG13	1:A:93:LEU:HD12	2.02	0.41
1:A:95:GLN:HB3	1:A:97:ILE:HG12	2.02	0.41
1:A:258:LYS:HA	1:A:259:PRO:HD3	1.70	0.41
1:C:74:ASN:HB3	1:C:75:PRO:CD	2.44	0.41
2:F:22:ARG:HG2	2:F:22:ARG:NH2	2.36	0.41
1:C:127:SER:OG	1:C:179:HIS:HE1	2.04	0.41
1:B:196:GLN:HA	1:B:201:TYR:CD2	2.56	0.41
1:A:3:LYS:HA	1:A:4:PRO:HD3	1.97	0.40
1:B:252:ASP:HA	1:B:274:LEU:HD13	2.03	0.40
1:B:89:VAL:HG23	1:B:93:LEU:CD1	2.45	0.40
1:C:196:GLN:HA	1:C:201:TYR:CG	2.56	0.40
1:B:55:TYR:N	1:B:55:TYR:HD2	2.18	0.40
1:A:252:ASP:CG	1:A:253:LYS:N	2.75	0.40
1:B:18:PHE:HE2	1:B:32:GLN:CG	2.34	0.40

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	A	293/312 (94%)	265 (90%)	24 (8%)	4 (1%)	11	46
1	B	295/312 (95%)	274 (93%)	18 (6%)	3 (1%)	15	54
1	C	290/312 (93%)	255 (88%)	27 (9%)	8 (3%)	5	29
2	D	5/22 (23%)	4 (80%)	0	1 (20%)	0	0
2	E	3/22 (14%)	1 (33%)	2 (67%)	0	100	100
2	F	15/22 (68%)	12 (80%)	3 (20%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	901/1002 (90%)	811 (90%)	74 (8%)	16 (2%)	8 41

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	252	ASP
1	A	222	ALA
1	B	253	LYS
1	C	148	ALA
1	A	144	PRO
1	A	296	LYS
1	C	243	SER
1	C	183	LEU
1	C	272	PRO
1	C	275	ARG
1	A	22	PRO
1	B	74	ASN
1	C	244	GLU
2	D	12	ILE
1	B	243	SER
1	C	56	SER

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	268/282 (95%)	238 (89%)	30 (11%)	6 25
1	B	270/282 (96%)	251 (93%)	19 (7%)	15 48
1	C	265/282 (94%)	241 (91%)	24 (9%)	9 34
2	F	16/20 (80%)	10 (62%)	6 (38%)	0 0
All	All	819/866 (95%)	740 (90%)	79 (10%)	8 32

All (79) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	15	GLU
1	A	18	PHE
1	A	21	GLN
1	A	23	ASN
1	A	27	LYS
1	A	35	LYS
1	A	41	GLU
1	A	47	LEU
1	A	50	VAL
1	A	53	LYS
1	A	63	LYS
1	A	66	THR
1	A	70	VAL
1	A	71	LYS
1	A	94	ILE
1	A	97	ILE
1	A	111	LEU
1	A	124	LEU
1	A	130	VAL
1	A	187	SER
1	A	203	VAL
1	A	204	ASN
1	A	210	ASN
1	A	218	LEU
1	A	223	LEU
1	A	225	LEU
1	A	260	ILE
1	A	261	ASP
1	A	281	LEU
1	A	287	ASN
1	B	10	THR
1	B	17	GLU
1	B	20	ILE
1	B	35	LYS
1	B	36	THR
1	B	55	TYR
1	B	59	LEU
1	B	77	GLN
1	B	79	LYS
1	B	94	ILE
1	B	96	GLU
1	B	108	GLU
1	B	111	LEU

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Mol	Chain	Res	Type
1	B	151	ARG
1	B	156	ARG
1	B	214	THR
1	B	218	LEU
1	B	248	ILE
1	B	277	ASN
1	C	10	THR
1	C	11	THR
1	C	35	LYS
1	C	37	VAL
1	C	39	LEU
1	C	41	GLU
1	C	59	LEU
1	C	67	GLN
1	C	79	LYS
1	C	89	VAL
1	C	108	GLU
1	C	111	LEU
1	C	161	HIS
1	C	162	LYS
1	C	199	GLU
1	C	214	THR
1	C	218	LEU
1	C	227	ILE
1	C	246	ARG
1	C	248	ILE
1	C	251	ASN
1	C	262	LYS
1	C	266	ASP
1	C	295	ARG
2	F	7	MET
2	F	10	THR
2	F	12	ILE
2	F	18	LYS
2	F	19	LYS
2	F	22	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (33) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	21	GLN
1	A	23	ASN

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Mol	Chain	Res	Type
1	A	28	GLN
1	A	67	GLN
1	A	68	GLN
1	A	142	HIS
1	A	149	ASN
1	A	160	GLN
1	A	174	ASN
1	A	179	HIS
1	A	210	ASN
1	A	226	ASN
1	A	247	ASN
1	A	277	ASN
1	A	287	ASN
1	B	6	ASN
1	B	67	GLN
1	B	74	ASN
1	B	131	GLN
1	B	142	HIS
1	B	173	GLN
1	B	247	ASN
1	B	277	ASN
1	B	287	ASN
1	C	6	ASN
1	C	142	HIS
1	C	173	GLN
1	C	174	ASN
1	C	179	HIS
1	C	251	ASN
1	C	277	ASN
1	C	287	ASN
2	F	21	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(Å²)	Q<0.9
1	A	295/312 (94%)	-0.25	0	100	100	29, 54, 83, 110	0
1	B	297/312 (95%)	-0.12	2 (0%)	87	81	27, 55, 98, 121	0
1	C	292/312 (93%)	-0.09	4 (1%)	75	63	44, 72, 118, 133	0
2	D	7/22 (31%)	0.09	0	100	100	73, 73, 74, 77	0
2	E	5/22 (22%)	0.63	0	100	100	87, 87, 88, 88	0
2	F	17/22 (77%)	-0.43	0	100	100	45, 54, 68, 71	0
All	All	913/1002 (91%)	-0.15	6 (0%)	87	81	27, 60, 107, 133	0

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	72	LYS	3.1
1	C	22	PRO	2.9
1	B	261	ASP	2.6
1	C	67	GLN	2.5
1	C	71	LYS	2.2
1	B	262	LYS	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.