Full wwPDB X-ray Structure Validation Report (i)

Oct 17, 2023 – 06:49 PM EDT

PDB ID	:	2EMT
Title	:	Crystal Structure Analysis of the radixin FERM domain complexed with adhesion molecule PSGL-1
Authors	:	Takai, Y.; Kitano, K.; Terawaki, S.; Maesaki, R.; Hakoshima, T.
Deposited on	:	2007-03-28
Resolution	:	2.80 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) were used in the production of this report:

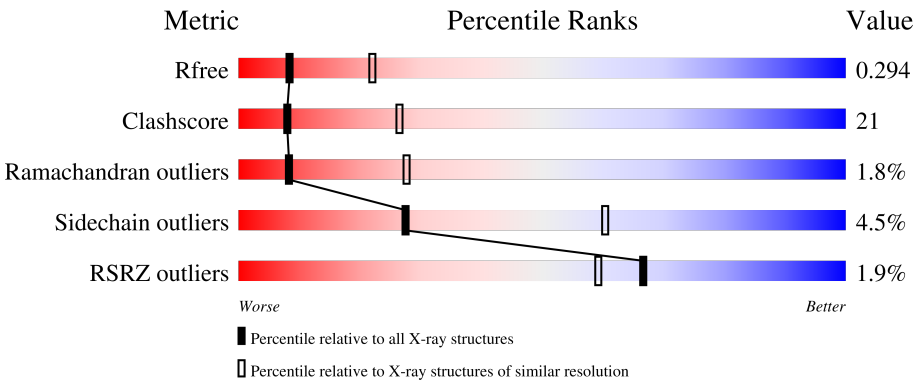
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (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	322	2%, 57%, 38%, • •
1	B	322	%, 54%, 41%, • •
2	C	18	6%, 72%, 11%, 6%, 11%
2	D	18	50%, 39%, 6%, 6%
2	E	18	6%, 22%, 22%, 6%, 50%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 5565 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
			Total	C	N	O	S			
1	A	313	2612	1683	447	471	11	0	0	0
1	B	313	2612	1683	447	471	11	0	0	0

There are 24 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
A	311	VAL	-	expression tag	UNP P26043
A	312	ASP	-	expression tag	UNP P26043
A	313	SER	-	expression tag	UNP P26043
A	314	SER	-	expression tag	UNP P26043
A	315	GLY	-	expression tag	UNP P26043
A	316	ARG	-	expression tag	UNP P26043
A	317	ILE	-	expression tag	UNP P26043
A	318	VAL	-	expression tag	UNP P26043
A	319	THR	-	expression tag	UNP P26043
A	320	ASP	-	expression tag	UNP P26043
B	-1	GLY	-	expression tag	UNP P26043
B	0	SER	-	expression tag	UNP P26043
B	311	VAL	-	expression tag	UNP P26043
B	312	ASP	-	expression tag	UNP P26043
B	313	SER	-	expression tag	UNP P26043
B	314	SER	-	expression tag	UNP P26043
B	315	GLY	-	expression tag	UNP P26043
B	316	ARG	-	expression tag	UNP P26043
B	317	ILE	-	expression tag	UNP P26043
B	318	VAL	-	expression tag	UNP P26043
B	319	THR	-	expression tag	UNP P26043
B	320	ASP	-	expression tag	UNP P26043

- Molecule 2 is a protein called P-selectin glycoprotein ligand 1.

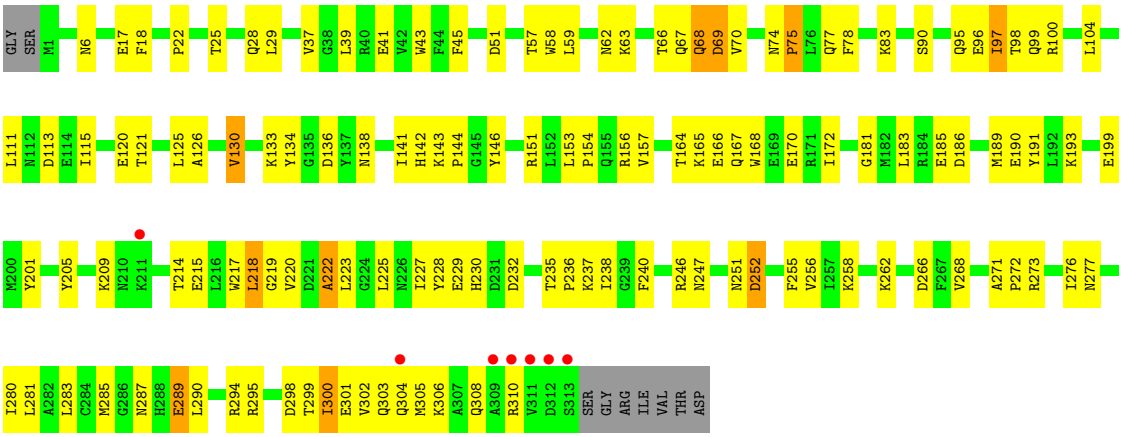
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	C	16	131	82	26	22	1	0	0	0
			Total	C	N	O	S			
2	D	17	147	92	30	24	1	0	0	0
			Total	C	N	O	S			
2	E	9	63	41	11	10	1	0	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

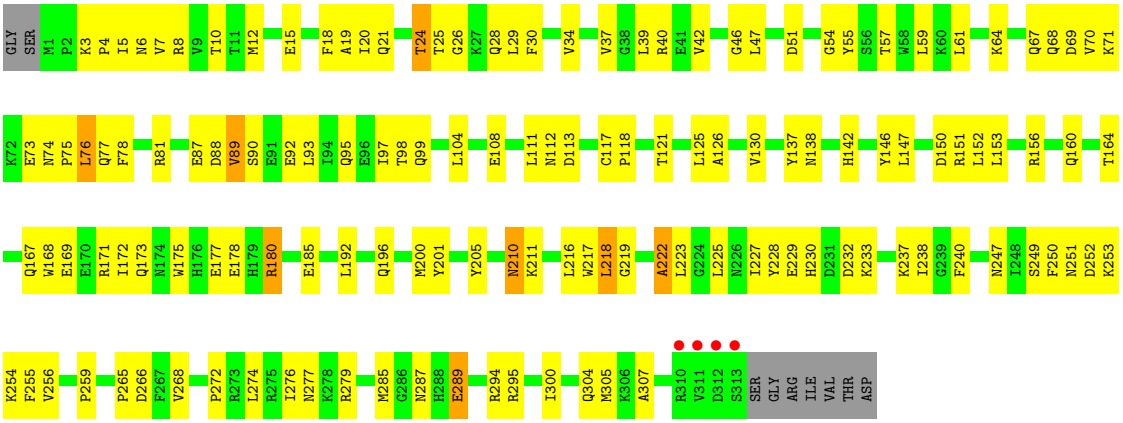
• Molecule 1: Radixin

Chain A:



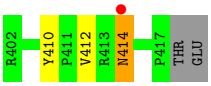
• Molecule 1: Radixin

Chain B:



• Molecule 2: P-selectin glycoprotein ligand 1

Chain C:

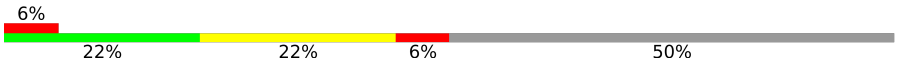


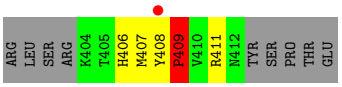
• Molecule 2: P-selectin glycoprotein ligand 1

Chain D:

• Molecule 2: P-selectin glycoprotein ligand 1

Chain E:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	80.74Å 85.73Å 117.75Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.53 – 2.80 48.53 – 2.80	Depositor EDS
% Data completeness (in resolution range)	93.3 (48.53-2.80) 93.4 (48.53-2.80)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	4.71 (at 2.81Å)	Xtriage
Refinement program	CNS 1.2	Depositor
R, R_{free}	0.235 , 0.294 0.235 , 0.294	Depositor DCC
R_{free} test set	1907 reflections (9.85%)	wwPDB-VP
Wilson B-factor (Å^2)	38.5	Xtriage
Anisotropy	0.653	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 48.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.52$, $< L^2 > = 0.35$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	5565	wwPDB-VP
Average B, all atoms (Å^2)	45.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 49.52 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 7.3767e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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 (i)

5.1 Standard geometry (i)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\|>5$	RMSZ	$\#\|Z\|>5$
1	A	0.43	0/2673	0.67	1/3605 (0.0%)
1	B	0.42	0/2673	0.65	0/3605
2	C	0.44	0/135	0.61	0/182
2	D	0.41	0/151	0.63	0/203
2	E	0.60	0/65	0.95	0/88
All	All	0.43	0/5697	0.66	1/7683 (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	68	GLN	N-CA-C	-6.60	93.18	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2612	0	2630	106	0
1	B	2612	0	2630	126	0
2	C	131	0	122	6	0
2	D	147	0	149	11	0
2	E	63	0	47	7	0
All	All	5565	0	5578	238	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 21.

All (238) 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:B:210:ASN:ND2	1:B:211:LYS:H	1.61	0.97
1:B:87:GLU:HG3	1:B:294:ARG:HH11	1.34	0.91
1:B:180:ARG:HB2	1:B:180:ARG:HH11	1.34	0.91
1:B:87:GLU:HG3	1:B:294:ARG:NH1	1.86	0.89
1:B:89:VAL:H	1:B:196:GLN:HE22	1.18	0.87
1:B:180:ARG:HH11	1:B:180:ARG:CB	1.88	0.87
1:A:25:THR:H	1:A:28:GLN:NE2	1.76	0.82
1:A:217:TRP:HB2	1:A:228:TYR:HB2	1.62	0.81
1:A:25:THR:H	1:A:28:GLN:HE21	1.28	0.80
1:A:229:GLU:OE2	1:A:237:LYS:HD3	1.84	0.78
1:B:40:ARG:HD2	1:B:305:MET:HE3	1.68	0.76
1:B:256:VAL:HG22	1:B:268:VAL:HG22	1.68	0.76
1:A:18:PHE:HB3	2:E:406:HIS:HA	1.66	0.75
1:A:66:THR:HG22	1:A:67:GLN:HG2	1.68	0.74
1:A:154:PRO:O	1:A:157:VAL:HG22	1.89	0.73
1:A:138:ASN:H	1:A:142:HIS:HD2	1.37	0.73
1:A:215:GLU:HG3	1:A:230:HIS:CD2	2.24	0.72
1:B:222:ALA:HA	1:B:287:ASN:HD22	1.53	0.72
1:A:74:ASN:HD22	1:A:75:PRO:HA	1.55	0.72
1:A:237:LYS:HG3	1:A:238:ILE:HG13	1.71	0.71
1:B:252:ASP:OD2	2:D:405:ARG:HG3	1.89	0.71
1:B:180:ARG:HH11	1:B:180:ARG:CG	2.04	0.71
1:A:227:ILE:HG22	1:A:237:LYS:HE2	1.72	0.70
1:B:138:ASN:H	1:B:142:HIS:HD2	1.36	0.70
1:B:180:ARG:HB2	1:B:180:ARG:NH1	2.05	0.70
1:B:25:THR:HG23	1:B:28:GLN:HE21	1.55	0.70
1:B:37:VAL:HG12	1:B:97:ILE:HD13	1.74	0.69
1:B:210:ASN:ND2	1:B:211:LYS:N	2.39	0.69
1:B:26:GLY:HA3	1:B:61:LEU:HA	1.75	0.68
1:A:256:VAL:HG22	1:A:268:VAL:HG22	1.73	0.68
1:A:222:ALA:HA	1:A:287:ASN:HD22	1.58	0.67
1:A:138:ASN:H	1:A:142:HIS:CD2	2.13	0.67
1:A:58:TRP:CD1	1:A:83:LYS:HE3	2.29	0.67
1:A:258:LYS:HG2	1:A:266:ASP:OD2	1.96	0.66
1:A:290:LEU:O	1:A:294:ARG:HG2	1.96	0.66
1:B:250:PHE:HD2	1:B:251:ASN:O	1.77	0.66
1:B:8:ARG:NE	1:B:15:GLU:OE1	2.29	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:210:ASN:HD22	1:B:211:LYS:H	1.41	0.66
1:B:74:ASN:HD22	1:B:75:PRO:HA	1.61	0.65
1:A:68:GLN:O	1:A:70:VAL:N	2.25	0.65
1:B:6:ASN:HD22	1:B:74:ASN:HD21	1.44	0.65
1:B:216:LEU:HD23	1:B:229:GLU:HA	1.78	0.65
1:A:295:ARG:HG3	1:A:295:ARG:HH11	1.62	0.64
1:A:251:ASN:O	1:A:252:ASP:C	2.36	0.64
1:B:25:THR:H	1:B:28:GLN:NE2	1.96	0.64
1:A:17:GLU:HB2	2:E:408:TYR:HB3	1.79	0.63
1:B:229:GLU:HG3	1:B:237:LYS:HD3	1.80	0.63
1:A:168:TRP:O	1:A:172:ILE:HG12	1.98	0.63
1:B:295:ARG:HG3	1:B:295:ARG:HH11	1.62	0.63
1:A:138:ASN:HB3	1:A:141:ILE:HD12	1.82	0.61
1:A:166:GLU:HG2	1:A:167:GLN:N	2.15	0.61
1:A:232:ASP:OD1	1:A:235:THR:HG22	2.01	0.61
1:A:142:HIS:HB3	1:A:146:TYR:CD1	2.36	0.61
1:A:223:LEU:N	1:A:223:LEU:HD22	2.16	0.61
1:B:59:LEU:HD13	1:B:78:PHE:HE2	1.66	0.61
1:B:5:ILE:HB	1:B:20:ILE:HG13	1.83	0.60
1:B:6:ASN:HB2	1:B:74:ASN:HD21	1.66	0.60
1:A:18:PHE:CB	2:E:406:HIS:HA	2.31	0.60
1:A:300:ILE:HD12	1:B:74:ASN:O	2.01	0.59
1:A:115:ILE:HD12	1:A:201:TYR:HA	1.84	0.59
2:D:414:ASN:C	2:D:414:ASN:HD22	2.06	0.59
1:B:25:THR:H	1:B:28:GLN:HE21	1.49	0.59
1:A:6:ASN:HB2	1:A:74:ASN:HD21	1.67	0.59
1:A:209:LYS:HE2	1:A:215:GLU:OE1	2.03	0.59
1:B:167:GLN:O	1:B:171:ARG:HG3	2.03	0.59
1:A:164:THR:HG23	1:A:167:GLN:NE2	2.17	0.58
1:B:138:ASN:H	1:B:142:HIS:CD2	2.20	0.58
1:B:153:LEU:HD21	1:B:172:ILE:HD11	1.85	0.57
1:A:138:ASN:CB	1:A:141:ILE:HD12	2.35	0.57
1:B:147:LEU:HB3	1:B:152:LEU:HD11	1.87	0.57
1:B:217:TRP:HB2	1:B:228:TYR:HB2	1.87	0.57
1:A:285:MET:O	1:A:289:GLU:HB2	2.05	0.56
1:B:223:LEU:N	1:B:223:LEU:HD22	2.21	0.56
1:B:81:ARG:HG2	1:B:81:ARG:HH11	1.70	0.56
1:B:217:TRP:CE2	1:B:233:LYS:HE2	2.41	0.56
2:D:406:LYS:HG2	2:D:407:THR:N	2.21	0.56
1:B:30:PHE:HE1	1:B:46:GLY:HA2	1.71	0.56
1:B:210:ASN:HD22	1:B:211:LYS:N	2.01	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:113:ASP:CG	1:B:156:ARG:HG2	2.26	0.55
1:A:37:VAL:HG12	1:A:37:VAL:O	2.05	0.55
1:A:166:GLU:HG2	1:A:167:GLN:H	1.71	0.55
1:B:227:ILE:HB	1:B:238:ILE:HG22	1.89	0.55
1:A:165:LYS:NZ	1:A:165:LYS:HB3	2.21	0.55
1:A:186:ASP:O	1:A:190:GLU:HB2	2.07	0.55
1:B:250:PHE:HB3	1:B:255:PHE:CD1	2.41	0.55
1:A:51:ASP:HB2	1:A:69:ASP:OD2	2.07	0.54
1:A:133:LYS:HD3	1:A:134:TYR:CE1	2.43	0.54
1:B:8:ARG:HD3	1:B:77:GLN:HE21	1.71	0.54
1:A:164:THR:OG1	1:A:166:GLU:HG2	2.07	0.54
1:A:218:LEU:HD21	1:A:225:LEU:HD22	1.89	0.54
1:A:227:ILE:CG2	1:A:237:LYS:HE2	2.38	0.54
1:B:185:GLU:CD	1:B:185:GLU:H	2.11	0.53
1:B:5:ILE:O	1:B:19:ALA:HA	2.08	0.53
1:B:89:VAL:H	1:B:196:GLN:NE2	1.97	0.53
1:A:100:ARG:O	1:A:104:LEU:HG	2.09	0.53
1:B:37:VAL:HG12	1:B:97:ILE:CD1	2.37	0.53
1:B:34:VAL:HG13	1:B:39:LEU:O	2.08	0.53
1:B:147:LEU:HB2	1:B:169:GLU:HG3	1.91	0.53
1:B:175:TRP:O	1:B:178:GLU:HB2	2.09	0.53
1:A:120:GLU:CD	1:A:120:GLU:H	2.12	0.53
1:A:271:ALA:HB3	1:A:277:ASN:ND2	2.24	0.53
1:B:39:LEU:HD12	1:B:42:VAL:HG12	1.90	0.53
1:B:68:GLN:O	1:B:70:VAL:N	2.42	0.53
1:B:89:VAL:HB	1:B:196:GLN:NE2	2.23	0.53
1:A:218:LEU:HD22	1:A:219:GLY:N	2.24	0.52
1:B:5:ILE:HB	1:B:20:ILE:CG1	2.39	0.52
1:A:306:LYS:O	1:A:310:ARG:HG3	2.09	0.52
1:B:73:GLU:O	1:B:76:LEU:HD12	2.09	0.52
1:B:93:LEU:HD22	1:B:98:THR:HG22	1.90	0.52
1:B:295:ARG:HG3	1:B:295:ARG:NH1	2.23	0.52
1:B:108:GLU:HG3	1:B:112:ASN:ND2	2.25	0.52
1:B:285:MET:O	1:B:289:GLU:HB2	2.10	0.52
1:B:142:HIS:HB3	1:B:146:TYR:CG	2.45	0.52
1:B:200:MET:HG2	1:B:205:TYR:OH	2.09	0.52
1:A:285:MET:HG2	2:C:410:TYR:CD2	2.45	0.51
1:A:142:HIS:HB3	1:A:146:TYR:CG	2.44	0.51
1:B:250:PHE:CD2	1:B:251:ASN:O	2.62	0.51
1:A:222:ALA:HA	1:A:287:ASN:ND2	2.24	0.51
1:A:96:GLU:OE2	1:A:185:GLU:HG2	2.09	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:125:LEU:HB3	1:A:191:TYR:CE1	2.46	0.51
1:A:75:PRO:HG2	1:A:77:GLN:NE2	2.26	0.50
1:B:274:LEU:HD22	2:D:405:ARG:NH1	2.27	0.50
1:B:24:THR:HA	1:B:28:GLN:NE2	2.27	0.50
1:B:300:ILE:O	1:B:304:GLN:HG3	2.12	0.50
1:B:6:ASN:HB2	1:B:74:ASN:ND2	2.26	0.50
1:B:95:GLN:O	1:B:99:GLN:HG3	2.11	0.50
1:B:151:ARG:NH1	1:B:151:ARG:HG2	2.26	0.50
1:B:12:MET:HE2	1:B:104:LEU:C	2.32	0.50
1:B:34:VAL:HG11	1:B:42:VAL:HG11	1.94	0.50
1:B:126:ALA:O	1:B:130:VAL:HG13	2.12	0.49
1:B:68:GLN:O	1:B:70:VAL:HG23	2.12	0.49
1:B:305:MET:C	1:B:307:ALA:H	2.16	0.49
1:B:8:ARG:HD3	1:B:77:GLN:NE2	2.27	0.49
1:B:164:THR:HG23	1:B:167:GLN:OE1	2.13	0.49
1:A:18:PHE:HA	2:E:407:MET:CG	2.42	0.49
1:A:45:PHE:N	1:A:45:PHE:CD1	2.81	0.49
1:B:180:ARG:CG	1:B:180:ARG:NH1	2.70	0.48
1:A:295:ARG:HG3	1:A:295:ARG:NH1	2.27	0.48
1:B:25:THR:HG23	1:B:28:GLN:NE2	2.27	0.48
1:A:205:TYR:HB3	1:A:217:TRP:CE3	2.48	0.48
1:A:59:LEU:HD13	1:A:78:PHE:HE2	1.78	0.48
1:A:120:GLU:HG2	1:A:121:THR:H	1.79	0.48
1:B:276:ILE:O	1:B:279:ARG:HB3	2.13	0.48
1:B:47:LEU:HD12	1:B:59:LEU:HD23	1.95	0.48
1:B:156:ARG:O	1:B:160:GLN:HG3	2.14	0.48
1:B:216:LEU:CD2	1:B:229:GLU:HA	2.42	0.48
1:A:18:PHE:HA	2:E:407:MET:HG2	1.96	0.47
1:A:41:GLU:OE2	1:A:98:THR:HG21	2.14	0.47
1:A:97:ILE:CG2	1:A:98:THR:N	2.77	0.47
1:B:151:ARG:HG2	1:B:151:ARG:HH11	1.78	0.47
1:A:25:THR:OG1	1:A:28:GLN:HG3	2.15	0.47
1:A:229:GLU:OE2	1:A:237:LYS:CD	2.60	0.47
1:B:47:LEU:HD12	1:B:59:LEU:CD2	2.45	0.47
2:C:414:ASN:C	2:C:414:ASN:HD22	2.17	0.47
1:B:252:ASP:CG	2:D:405:ARG:HG3	2.36	0.47
1:A:304:GLN:O	1:A:308:GLN:HG3	2.15	0.46
1:B:247:ASN:HA	2:D:412:VAL:H	1.80	0.46
1:A:273:ARG:H	1:A:276:ILE:CG2	2.28	0.46
1:B:259:PRO:HD3	1:B:266:ASP:HA	1.96	0.46
1:A:90:SER:HA	1:A:189:MET:HE1	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:185:GLU:H	1:A:185:GLU:CD	2.19	0.46
1:B:10:THR:HG22	1:B:15:GLU:HG3	1.96	0.46
1:B:88:ASP:O	1:B:92:GLU:HG3	2.16	0.46
1:B:180:ARG:HH11	1:B:180:ARG:HG3	1.80	0.46
1:A:220:VAL:HG11	1:A:283:LEU:HB3	1.98	0.46
1:B:250:PHE:HA	1:B:254:LYS:O	2.15	0.46
1:A:215:GLU:HG3	1:A:230:HIS:HD2	1.78	0.45
1:A:75:PRO:HG2	1:A:77:GLN:HE22	1.81	0.45
1:A:281:LEU:HD11	2:C:410:TYR:HB3	1.98	0.45
1:A:276:ILE:O	1:A:280:ILE:HG13	2.17	0.45
1:A:193:LYS:HB2	1:A:193:LYS:HE3	1.79	0.45
1:B:305:MET:C	1:B:307:ALA:N	2.69	0.45
1:B:196:GLN:HA	1:B:201:TYR:CG	2.51	0.45
1:B:227:ILE:HB	1:B:238:ILE:CG2	2.45	0.44
1:A:136:ASP:CG	1:A:181:GLY:H	2.21	0.44
1:B:89:VAL:HG11	1:B:192:LEU:HB3	2.00	0.44
1:B:249:SER:HB2	2:D:408:HIS:O	2.17	0.44
1:A:228:TYR:CE2	1:A:236:PRO:HG3	2.53	0.44
1:A:255:PHE:HD1	1:A:277:ASN:OD1	2.01	0.44
1:A:302:VAL:HA	1:A:305:MET:CE	2.47	0.44
1:B:37:VAL:CG1	1:B:97:ILE:CD1	2.96	0.44
1:B:168:TRP:O	1:B:172:ILE:HG13	2.17	0.44
1:A:143:LYS:HB3	1:A:144:PRO:HD2	1.99	0.44
1:B:93:LEU:HD22	1:B:98:THR:CG2	2.48	0.44
1:B:121:THR:O	1:B:125:LEU:HG	2.18	0.44
1:B:259:PRO:HG2	1:B:265:PRO:O	2.18	0.44
1:B:70:VAL:O	1:B:71:LYS:C	2.56	0.43
1:B:285:MET:HG2	2:D:410:TYR:CD2	2.54	0.43
2:C:412:VAL:HG12	2:C:412:VAL:O	2.17	0.43
1:B:89:VAL:HG12	1:B:90:SER:N	2.33	0.43
1:A:62:ASN:OD1	1:A:63:LYS:HG3	2.17	0.43
1:B:64:LYS:HB2	1:B:67:GLN:HB2	2.00	0.43
1:B:229:GLU:CG	1:B:237:LYS:HD3	2.46	0.43
1:A:272:PRO:HD2	1:A:276:ILE:HD13	2.01	0.43
1:A:17:GLU:N	2:E:408:TYR:O	2.49	0.43
1:A:39:LEU:HD12	1:A:97:ILE:CG2	2.49	0.43
1:A:273:ARG:O	1:A:276:ILE:CG2	2.66	0.43
1:B:55:TYR:CD2	1:B:57:THR:HG23	2.54	0.43
1:B:232:ASP:OD2	1:B:232:ASP:C	2.57	0.43
1:A:68:GLN:C	1:A:70:VAL:H	2.15	0.43
1:A:299:THR:C	1:A:301:GLU:H	2.22	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:95:GLN:O	1:A:99:GLN:HG3	2.19	0.42
1:B:3:LYS:HA	1:B:4:PRO:HD3	1.89	0.42
1:B:81:ARG:HG2	1:B:81:ARG:NH1	2.34	0.42
1:B:25:THR:HA	1:B:64:LYS:HA	2.00	0.42
1:A:183:LEU:HB2	1:A:186:ASP:OD2	2.19	0.42
1:A:126:ALA:O	1:A:130:VAL:HG13	2.19	0.42
1:A:232:ASP:OD1	1:A:235:THR:CG2	2.66	0.42
2:D:405:ARG:HA	2:D:405:ARG:HD3	1.75	0.42
1:B:7:VAL:HG22	1:B:18:PHE:O	2.19	0.42
1:B:137:TYR:CD2	1:B:177:GLU:HG2	2.54	0.42
1:B:180:ARG:NH1	1:B:180:ARG:HG3	2.34	0.42
1:B:211:LYS:CE	1:B:268:VAL:HB	2.50	0.42
1:A:57:THR:HG22	1:A:58:TRP:N	2.35	0.42
1:B:146:TYR:CE1	1:B:147:LEU:HG	2.54	0.42
1:B:274:LEU:CD2	2:D:405:ARG:NH1	2.83	0.42
1:A:246:ARG:NH2	1:A:262:LYS:HG2	2.35	0.41
1:A:273:ARG:O	1:A:276:ILE:HG22	2.20	0.41
1:A:59:LEU:HD22	1:A:78:PHE:CE2	2.56	0.41
2:E:406:HIS:CE1	2:E:409:PRO:HG3	2.55	0.41
1:A:209:LYS:HA	1:A:214:THR:O	2.20	0.41
1:B:142:HIS:HB3	1:B:146:TYR:CD1	2.56	0.41
1:B:247:ASN:HA	2:D:412:VAL:HG23	2.02	0.41
2:C:414:ASN:C	2:C:414:ASN:ND2	2.73	0.41
1:A:228:TYR:CZ	1:A:236:PRO:HG3	2.55	0.41
1:B:225:LEU:HB2	1:B:240:PHE:HB2	2.02	0.41
1:A:283:LEU:HD23	1:A:283:LEU:HA	1.91	0.41
1:B:253:LYS:HA	1:B:277:ASN:ND2	2.36	0.41
1:A:153:LEU:HA	1:A:154:PRO:HD3	1.87	0.41
1:A:69:ASP:CG	1:A:69:ASP:O	2.58	0.41
1:B:117:CYS:HA	1:B:118:PRO:HD3	1.98	0.41
1:A:113:ASP:OD1	1:A:156:ARG:HB2	2.21	0.40
1:B:218:LEU:HD22	1:B:219:GLY:N	2.36	0.40
1:A:247:ASN:HA	2:C:412:VAL:H	1.85	0.40
1:A:43:TRP:HH2	1:A:305:MET:HE1	1.86	0.40
1:B:51:ASP:O	1:B:54:GLY:N	2.49	0.40
1:B:152:LEU:C	1:B:153:LEU:HD22	2.42	0.40
1:A:225:LEU:HB2	1:A:240:PHE:HB2	2.02	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	311/322 (97%)	286 (92%)	20 (6%)	5 (2%)	9 31
1	B	311/322 (97%)	284 (91%)	23 (7%)	4 (1%)	12 36
2	C	14/18 (78%)	13 (93%)	1 (7%)	0	100 100
2	D	15/18 (83%)	12 (80%)	2 (13%)	1 (7%)	1 3
2	E	7/18 (39%)	3 (43%)	2 (29%)	2 (29%)	0 0
All	All	658/698 (94%)	598 (91%)	48 (7%)	12 (2%)	8 28

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	69	ASP
1	B	69	ASP
2	D	404	SER
1	A	222	ALA
1	A	252	ASP
1	A	300	ILE
1	B	24	THR
2	E	409	PRO
2	E	411	ARG
1	B	222	ALA
1	A	22	PRO
1	B	272	PRO

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	284/291 (98%)	272 (96%)	12 (4%)	30	63
1	B	284/291 (98%)	272 (96%)	12 (4%)	30	63
2	C	14/18 (78%)	13 (93%)	1 (7%)	14	39
2	D	17/18 (94%)	16 (94%)	1 (6%)	19	49
2	E	5/18 (28%)	4 (80%)	1 (20%)	1	4
All	All	604/636 (95%)	577 (96%)	27 (4%)	27	60

All (27) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	29	LEU
1	A	75	PRO
1	A	97	ILE
1	A	111	LEU
1	A	130	VAL
1	A	151	ARG
1	A	170	GLU
1	A	199	GLU
1	A	218	LEU
1	A	289	GLU
1	A	298	ASP
1	A	303	GLN
1	B	21	GLN
1	B	29	LEU
1	B	76	LEU
1	B	89	VAL
1	B	111	LEU
1	B	150	ASP
1	B	173	GLN
1	B	180	ARG
1	B	210	ASN
1	B	218	LEU
1	B	230	HIS
1	B	289	GLU
2	C	414	ASN
2	D	414	ASN
2	E	409	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	28	GLN
1	A	74	ASN
1	A	142	HIS
1	A	230	HIS
1	A	287	ASN
1	B	28	GLN
1	B	32	GLN
1	B	74	ASN
1	B	77	GLN
1	B	142	HIS
1	B	196	GLN
1	B	210	ASN
1	B	287	ASN
2	C	414	ASN
2	D	408	HIS
2	D	414	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains (i)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data (i)

6.1 Protein, DNA and RNA chains (i)

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	313/322 (97%)	-0.21	7 (2%)	62	52	8, 39, 87, 142	0
1	B	313/322 (97%)	-0.22	4 (1%)	77	72	9, 37, 90, 134	0
2	C	16/18 (88%)	0.40	1 (6%)	20	12	27, 68, 106, 120	0
2	D	17/18 (94%)	-0.05	0	100	100	21, 58, 93, 94	0
2	E	9/18 (50%)	0.86	1 (11%)	5	3	36, 59, 80, 80	0
All	All	668/698 (95%)	-0.18	13 (1%)	66	59	8, 39, 91, 142	0

All (13) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	313	SER	6.1
1	A	313	SER	5.5
1	A	310	ARG	4.4
1	B	312	ASP	3.6
1	B	311	VAL	3.6
1	A	309	ALA	3.5
1	A	312	ASP	3.5
1	B	310	ARG	2.9
2	E	408	TYR	2.4
1	A	304	GLN	2.3
2	C	414	ASN	2.2
1	A	211	LYS	2.2
1	A	311	VAL	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (i)

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.