Full wwPDB EM Validation Report ⓘ

Nov 5, 2024 – 10:56 AM JST

PDB ID	:	8XZF
EMDB ID	:	EMD-38794
Title	:	Cryo-EM structure of the WN561-bound human APLNR-Gi complex
Authors	:	Wang, W.; Ji, S.; Zhang, Y.
Deposited on	:	2024-01-21
Resolution	:	3.00 Å(reported)

This is a Full wwPDB EM 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/EMValidationReportHelp
with specific help available everywhere you see the ⓘ 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 ⓘ) were used in the production of this report:

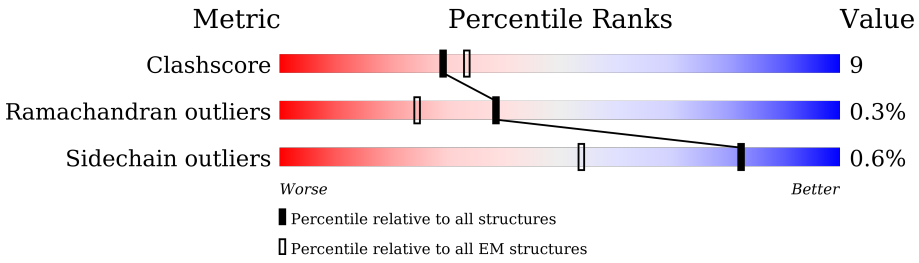
EMDB validation analysis	:	FAILED
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.00 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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%

Mol	Chain	Length	Quality of chain
1	R	380	60% 19% • 20%
2	A	354	47% 14% 39%
3	B	339	73% 27%
4	G	71	75% 7% 18%
5	S	250	77% 16% 8%
6	L	14	43% 57%

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 9062 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Apelin receptor.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	R	303	Total	C	N	O	S	0	0
			2404	1593	382	406	23		

- Molecule 2 is a protein called Guanine nucleotide-binding protein G(i) subunit alpha-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	217	Total	C	N	O	S	0	0
			1736	1106	291	326	13		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	47	ASN	SER	conflict	UNP P63096
A	203	ALA	GLY	conflict	UNP P63096
A	245	ALA	GLU	conflict	UNP P63096
A	326	SER	ALA	conflict	UNP P63096

- Molecule 3 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	B	339	Total	C	N	O	S	0	0
			2595	1602	465	507	21		

- Molecule 4 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	G	58	Total	C	N	O	S	0	0
			444	277	79	85	3		

- Molecule 5 is a protein called scFv16.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	S	231	Total	C	N	O	S	0	0
			1774	1127	294	343	10		

- Molecule 6 is a protein called WN561.

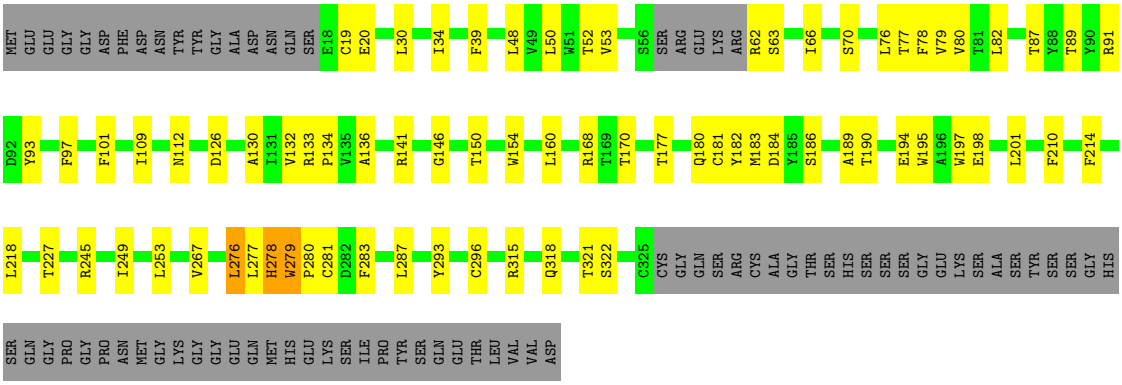
Mol	Chain	Residues	Atoms					AltConf	Trace
6	L	14	Total	C	N	O	S	0	0
			109	69	23	14	3		

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. 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. 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.

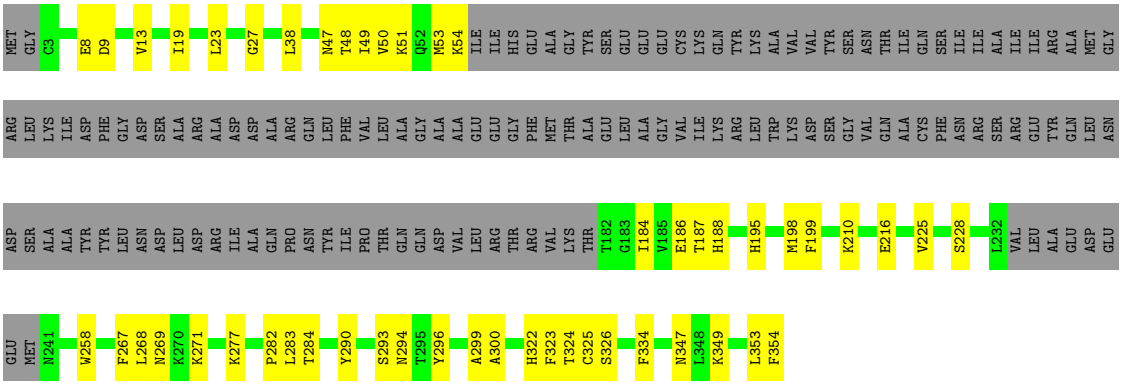
• Molecule 1: Apelin receptor

Chain R:



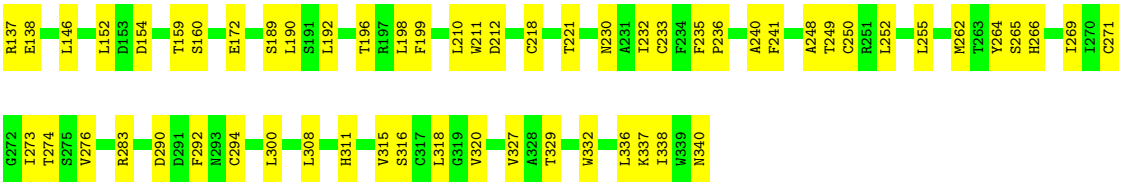
• Molecule 2: Guanine nucleotide-binding protein G(i) subunit alpha-1

Chain A:



• Molecule 3: Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1

Chain B:

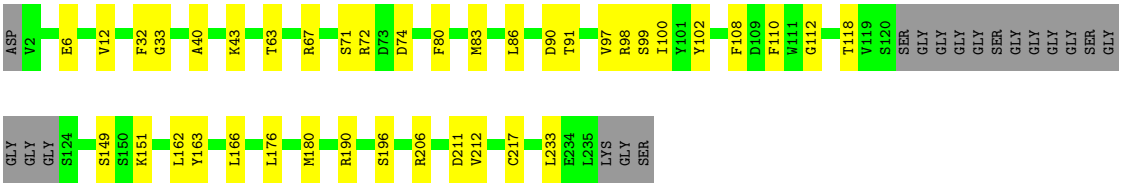


• Molecule 4: Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2

Chain G:

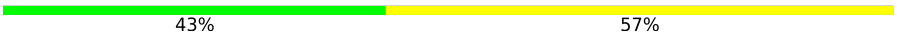
• Molecule 5: scFv16

Chain S:



• Molecule 6: WN561

Chain L:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	86456	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	52	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MED

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	R	0.41	0/2473	0.49	0/3377
2	A	0.36	0/1765	0.43	0/2369
3	B	0.39	0/2642	0.54	0/3582
4	G	0.29	0/450	0.40	0/608
5	S	0.42	0/1818	0.49	0/2465
6	L	0.26	0/104	0.65	0/137
All	All	0.39	0/9252	0.49	0/12538

There are no bond length outliers.

There are no bond angle outliers.

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	R	2404	0	2393	52	0
2	A	1736	0	1720	36	0
3	B	2595	0	2495	57	0
4	G	444	0	454	5	0
5	S	1774	0	1710	23	0
6	L	109	0	111	9	0
All	All	9062	0	8883	163	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 9.

All (163) 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:A:184:ILE:HD11	2:A:199:PHE:HB3	1.74	0.69
2:A:8:GLU:OE2	5:S:163:TYR:OH	2.09	0.68
2:A:210:LYS:NZ	3:B:230:ASN:OD1	2.26	0.68
2:A:38:LEU:HD22	2:A:198:MET:HE1	1.78	0.65
1:R:126:ASP:OD1	1:R:141:ARG:NH2	2.29	0.64
3:B:274:THR:OG1	3:B:315:VAL:O	2.09	0.64
3:B:271:CYS:HB2	3:B:290:ASP:HB2	1.80	0.63
1:R:66:ILE:HG12	1:R:150:THR:HG21	1.80	0.63
3:B:248:ALA:HB1	3:B:269:ILE:HG22	1.81	0.62
5:S:98:ARG:HG2	5:S:110:PHE:HB3	1.80	0.62
3:B:152:LEU:HD22	3:B:196:THR:HB	1.81	0.62
3:B:311:HIS:NE2	3:B:329:THR:OG1	2.30	0.62
3:B:146:LEU:HD11	3:B:159:THR:HB	1.82	0.62
2:A:271:LYS:HE3	2:A:325:CYS:HB2	1.83	0.61
1:R:132:VAL:HA	1:R:227:THR:HG21	1.81	0.60
5:S:71:SER:HB2	5:S:80:PHE:HB2	1.82	0.60
3:B:294:CYS:HB3	3:B:308:LEU:HB2	1.84	0.60
1:R:201:LEU:HB3	6:L:13:PRO:HB2	1.84	0.60
5:S:40:ALA:HB3	5:S:43:LYS:HB2	1.83	0.60
1:R:78:PHE:HE1	1:R:109:ILE:HG23	1.68	0.58
1:R:168:ARG:NH2	1:R:181:CYS:O	2.36	0.58
2:A:228:SER:O	2:A:277:LYS:NZ	2.37	0.58
3:B:68:ARG:O	3:B:84:SER:OG	2.14	0.58
1:R:30:LEU:HD11	1:R:293:TYR:HE2	1.68	0.57
3:B:4:LEU:HB2	4:G:9:ILE:HG12	1.86	0.56
6:L:7:HIS:O	6:L:8:LYS:HG2	2.04	0.56
1:R:249:ILE:O	1:R:253:LEU:HG	2.05	0.56
3:B:34:THR:O	3:B:37:ILE:HG12	2.06	0.56
1:R:267:VAL:HG23	1:R:287:LEU:HD22	1.87	0.55
5:S:91:THR:HG23	5:S:118:THR:HA	1.89	0.55
5:S:32:PHE:O	5:S:72:ARG:NH2	2.38	0.55
3:B:340:ASN:ND2	4:G:59:ASN:OD1	2.40	0.55
3:B:72:SER:HB3	3:B:82:TRP:HE1	1.71	0.54
2:A:27:GLY:HA3	3:B:55:LEU:HD13	1.89	0.54
5:S:67:ARG:NH2	5:S:90:ASP:OD2	2.41	0.54
5:S:97:VAL:HG11	5:S:108:PHE:CD2	2.42	0.54
5:S:190:ARG:NH2	5:S:211:ASP:OD1	2.40	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:R:315:ARG:NH2	2:A:349:LYS:O	2.40	0.53
3:B:22:ARG:NH2	3:B:221:THR:O	2.41	0.53
1:R:279:TRP:CD2	1:R:283:PHE:HD2	2.26	0.53
3:B:96:ARG:NH1	3:B:138:GLU:OE2	2.40	0.52
1:R:48:LEU:O	1:R:52:THR:HG23	2.10	0.52
5:S:63:THR:O	5:S:67:ARG:NH1	2.43	0.52
5:S:33:GLY:N	5:S:99:SER:O	2.42	0.51
6:L:3:PRO:HG2	6:L:6:CYS:SG	2.51	0.51
3:B:250:CYS:SG	3:B:273:ILE:HD13	2.50	0.51
3:B:108:SER:OG	3:B:154:ASP:OD1	2.27	0.50
1:R:210:PHE:O	1:R:214:PHE:HB3	2.12	0.50
2:A:290:TYR:OH	2:A:293:SER:O	2.23	0.50
5:S:83:MET:HB3	5:S:86:LEU:HD21	1.93	0.50
2:A:187:THR:HG23	2:A:198:MET:HB2	1.93	0.49
1:R:133:ARG:HG2	1:R:136:ALA:HB3	1.94	0.49
1:R:39:PHE:HA	1:R:79:VAL:HG12	1.93	0.49
3:B:38:ASP:CB	3:B:39:PRO:HD2	2.43	0.49
1:R:279:TRP:HB3	1:R:280:PRO:HD2	1.94	0.48
3:B:211:TRP:CZ3	3:B:218:CYS:HB2	2.48	0.48
5:S:32:PHE:CD2	5:S:100:ILE:HB	2.48	0.48
1:R:34:ILE:HG21	1:R:296:CYS:HB3	1.95	0.48
3:B:250:CYS:HB2	3:B:264:TYR:HB2	1.94	0.48
3:B:300:LEU:HD21	4:G:41:CYS:SG	2.54	0.48
1:R:130:ALA:O	2:A:347:ASN:ND2	2.40	0.48
2:A:49:ILE:HG13	2:A:50:VAL:N	2.29	0.48
3:B:235:PHE:HB2	3:B:240:ALA:HB3	1.96	0.48
5:S:162:LEU:HD11	5:S:217:CYS:SG	2.54	0.48
3:B:233:CYS:HB2	3:B:276:VAL:HG23	1.96	0.47
1:R:182:TYR:HB3	6:L:7:HIS:HB3	1.96	0.47
3:B:192:LEU:HD23	3:B:199:PHE:HB3	1.97	0.47
3:B:249:THR:HG22	3:B:265:SER:HB3	1.96	0.47
2:A:325:CYS:SG	2:A:326:SER:N	2.87	0.47
1:R:279:TRP:C	1:R:281:CYS:H	2.18	0.47
2:A:300:ALA:HB1	2:A:323:PHE:CE2	2.49	0.47
3:B:49:ARG:HB2	3:B:338:ILE:HD12	1.97	0.46
3:B:79:LEU:HG	3:B:95:LEU:HD21	1.96	0.46
3:B:266:HIS:HB3	3:B:269:ILE:HD12	1.97	0.46
1:R:19:CYS:HB2	1:R:281:CYS:HB3	1.64	0.46
1:R:50:LEU:HA	1:R:53:VAL:HG12	1.97	0.46
1:R:177:THR:HG22	1:R:177:THR:O	2.14	0.46
3:B:79:LEU:HB2	3:B:93:ILE:HB	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:241:PHE:CE1	3:B:255:LEU:HD11	2.50	0.46
1:R:30:LEU:O	1:R:34:ILE:HG13	2.16	0.46
3:B:90:VAL:HG13	5:S:102:TYR:HB2	1.97	0.46
1:R:93:TYR:CZ	6:L:8:LYS:HB2	2.51	0.46
3:B:137:ARG:NH2	3:B:172:GLU:O	2.43	0.46
3:B:114:CYS:HG	3:B:124:TYR:HE1	1.64	0.46
2:A:187:THR:CG2	2:A:198:MET:HB2	2.46	0.45
1:R:89:THR:HG23	1:R:93:TYR:HE2	1.81	0.45
3:B:241:PHE:O	3:B:252:LEU:HD12	2.16	0.45
1:R:279:TRP:CE3	1:R:283:PHE:CD2	3.04	0.45
3:B:160:SER:HB2	3:B:190:LEU:HG	1.97	0.45
1:R:189:ALA:HB2	1:R:197:TRP:CD1	2.51	0.45
5:S:72:ARG:HD3	5:S:74:ASP:OD1	2.16	0.45
1:R:76:LEU:O	1:R:80:VAL:HB	2.16	0.45
1:R:146:GLY:O	1:R:150:THR:HG23	2.16	0.45
5:S:166:LEU:HB2	5:S:176:LEU:HD11	1.98	0.45
5:S:12:VAL:HG11	5:S:86:LEU:HD12	1.99	0.45
1:R:77:THR:HG22	1:R:112:ASN:HD21	1.81	0.44
1:R:79:VAL:HG13	1:R:82:LEU:HD12	1.98	0.44
2:A:267:PHE:HD2	2:A:322:HIS:HB3	1.82	0.44
1:R:130:ALA:O	1:R:134:PRO:HB3	2.18	0.44
1:R:279:TRP:CD2	1:R:283:PHE:CD2	3.05	0.44
3:B:118:ASP:OD1	3:B:118:ASP:N	2.50	0.44
1:R:195:TRP:HA	1:R:198:GLU:OE1	2.17	0.44
2:A:269:ASN:OD1	2:A:324:THR:OG1	2.35	0.43
2:A:267:PHE:CD2	2:A:322:HIS:HB3	2.53	0.43
5:S:212:VAL:HG13	5:S:233:LEU:O	2.18	0.43
2:A:184:ILE:HD13	3:B:99:TRP:CD1	2.53	0.43
2:A:54:LYS:HD3	2:A:188:HIS:O	2.18	0.43
2:A:282:PRO:HB2	2:A:284:THR:HG22	1.99	0.43
2:A:282:PRO:HA	2:A:294:ASN:HD21	1.84	0.43
3:B:124:TYR:CE2	3:B:135:VAL:HG22	2.54	0.43
1:R:190:THR:O	1:R:194:GLU:HG3	2.19	0.43
2:A:216:GLU:HB2	2:A:258:TRP:HB3	2.01	0.43
3:B:189:SER:OG	3:B:232:ILE:HG12	2.19	0.42
1:R:97:PHE:HB3	1:R:101:PHE:HD2	1.83	0.42
1:R:278:HIS:ND1	1:R:278:HIS:C	2.73	0.42
3:B:40:VAL:HG12	4:G:51:LEU:HD11	2.00	0.42
3:B:210:LEU:HD22	3:B:255:LEU:HG	2.01	0.42
3:B:318:LEU:HD13	3:B:329:THR:HG22	2.01	0.42
3:B:51:LEU:HB2	3:B:336:LEU:HB2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:51:LEU:HD11	3:B:338:ILE:HD11	2.01	0.42
3:B:283:ARG:HD3	3:B:300:LEU:HD23	2.01	0.42
3:B:320:VAL:HG22	3:B:327:VAL:HG22	2.01	0.42
1:R:170:THR:HA	1:R:180:GLN:O	2.20	0.42
2:A:186:GLU:HG2	2:A:199:PHE:HD2	1.84	0.42
1:R:160:LEU:HD23	6:L:14:PHE:HE1	1.85	0.42
1:R:218:LEU:HD23	1:R:218:LEU:HA	1.91	0.42
2:A:353:LEU:HD23	2:A:353:LEU:HA	1.76	0.42
3:B:34:THR:HB	3:B:37:ILE:HD13	2.00	0.42
3:B:47:THR:HG23	3:B:337:LYS:HB3	2.02	0.42
1:R:62:ARG:HG3	1:R:63:SER:O	2.20	0.42
1:R:183:MET:SD	6:L:13:PRO:HD2	2.60	0.42
2:A:19:ILE:O	2:A:23:LEU:HG	2.20	0.42
2:A:48:THR:O	2:A:51:LYS:HB3	2.20	0.42
3:B:30:LEU:HD23	3:B:262:MET:HB2	2.02	0.41
3:B:198:LEU:HD23	3:B:212:ASP:HA	2.02	0.41
2:A:49:ILE:O	2:A:53:MET:HG2	2.19	0.41
3:B:29:THR:HG22	3:B:31:SER:H	1.86	0.41
3:B:54:HIS:CD2	3:B:72:SER:HG	2.37	0.41
5:S:6:GLU:OE2	5:S:112:GLY:HA3	2.20	0.41
5:S:196:SER:O	5:S:196:SER:OG	2.38	0.41
1:R:70:SER:OG	1:R:154:TRP:NE1	2.52	0.41
5:S:149:SER:OG	5:S:151:LYS:O	2.35	0.41
2:A:225:VAL:HB	2:A:268:LEU:HD23	2.03	0.41
2:A:322:HIS:HB2	2:A:334:PHE:CE2	2.55	0.41
3:B:292:PHE:N	3:B:292:PHE:CD1	2.89	0.41
1:R:20:GLU:HG3	1:R:20:GLU:O	2.20	0.41
1:R:184:ASP:C	1:R:186:SER:H	2.24	0.41
1:R:318:GLN:O	1:R:322:SER:OG	2.26	0.41
5:S:180:MET:O	5:S:180:MET:HG2	2.20	0.41
2:A:47:ASN:HA	2:A:50:VAL:HG12	2.03	0.41
1:R:318:GLN:HA	1:R:321:THR:HG22	2.03	0.41
2:A:188:HIS:HB3	2:A:195:HIS:HE1	1.86	0.41
1:R:93:TYR:OH	6:L:8:LYS:HE2	2.21	0.40
2:A:9:ASP:O	2:A:13:VAL:HG23	2.20	0.40
2:A:283:LEU:HD22	2:A:299:ALA:HB1	2.03	0.40
3:B:58:ILE:O	3:B:316:SER:OG	2.27	0.40
1:R:245:ARG:HH12	2:A:354:PHE:HB3	1.86	0.40
6:L:2:ARG:N	6:L:3:PRO:HD2	2.36	0.40
1:R:87:THR:O	1:R:91:ARG:HG3	2.22	0.40
1:R:280:PRO:O	1:R:281:CYS:HB2	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:57:LYS:HB3	3:B:332:TRP:CD1	2.57	0.40
2:A:271:LYS:HD2	2:A:296:TYR:OH	2.22	0.40
3:B:236:PRO:HB2	4:G:40:TYR:CE2	2.56	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 PDB entries followed by that with respect to all EM entries.

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	R	299/380 (79%)	281 (94%)	17 (6%)	1 (0%)	37 70
2	A	211/354 (60%)	200 (95%)	11 (5%)	0	100 100
3	B	337/339 (99%)	324 (96%)	12 (4%)	1 (0%)	37 70
4	G	56/71 (79%)	55 (98%)	1 (2%)	0	100 100
5	S	227/250 (91%)	220 (97%)	7 (3%)	0	100 100
6	L	11/14 (79%)	9 (82%)	1 (9%)	1 (9%)	0 2
All	All	1141/1408 (81%)	1089 (95%)	49 (4%)	3 (0%)	38 70

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	R	276	LEU
6	L	10	PRO
3	B	38	ASP

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 PDB entries followed by that with respect to all EM entries.

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	R	258/327 (79%)	254 (98%)	4 (2%)	58 82
2	A	189/305 (62%)	189 (100%)	0	100 100
3	B	279/282 (99%)	278 (100%)	1 (0%)	89 95
4	G	47/58 (81%)	47 (100%)	0	100 100
5	S	195/202 (96%)	194 (100%)	1 (0%)	86 94
6	L	11/11 (100%)	11 (100%)	0	100 100
All	All	979/1185 (83%)	973 (99%)	6 (1%)	82 93

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	R	276	LEU
1	R	277	LEU
1	R	278	HIS
1	R	279	TRP
3	B	105	TYR
5	S	206	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	R	46	ASN
1	R	112	ASN
1	R	137	ASN
2	A	188	HIS
2	A	195	HIS
2	A	213	HIS
2	A	294	ASN
3	B	220	GLN
3	B	340	ASN
4	G	59	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
6	MED	L	11	6	6,7,8	0.50	0	2,7,9	0.07	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	MED	L	11	6	-	0/5/6/8	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no oligosaccharides 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.