Full wwPDB EM Validation Report ⓘ

Mar 9, 2026 – 02:20 AM JST

PDB ID	:	9U9S / pdb_00009u9s
EMDB ID	:	EMD-63969
Title	:	ARF1(Q71L) bound M4-CTD-docked AP-4 core
Authors	:	Wang, Y.H.; Li, W.
Deposited on	:	2025-03-29
Resolution	:	6.80 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:

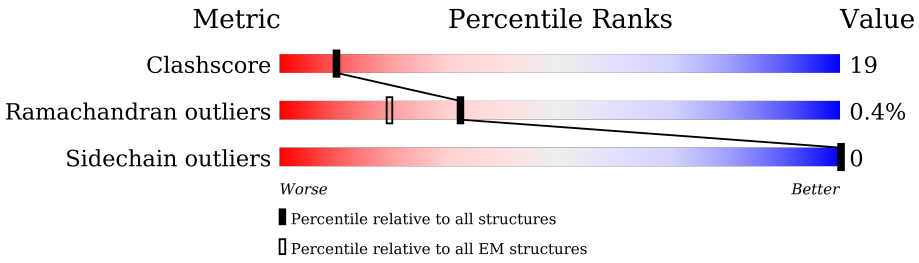
EMDB validation analysis	:	FAILED
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	NOT EXECUTED
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.48.1

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 6.80 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)	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	B	576	52% 38% . 9%
2	E	612	50% 38% 11%
3	H	164	76% 21% .
4	M	453	48% 36% 16%
5	S	144	47% 37% . 15%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 13857 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 AP-4 complex subunit beta-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	B	525	4168	2672	709	753	34	0	0

- Molecule 2 is a protein called AP-4 complex subunit epsilon-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	544	4375	2821	728	799	27	0	0

- Molecule 3 is a protein called ADP-ribosylation factor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	H	158	1271	807	221	237	6	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
H	71	LEU	GLN	conflict	UNP P84077

- Molecule 4 is a protein called AP-4 complex subunit mu-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	M	382	3024	1925	533	555	11	0	0

- Molecule 5 is a protein called AP-4 complex subunit sigma-1.

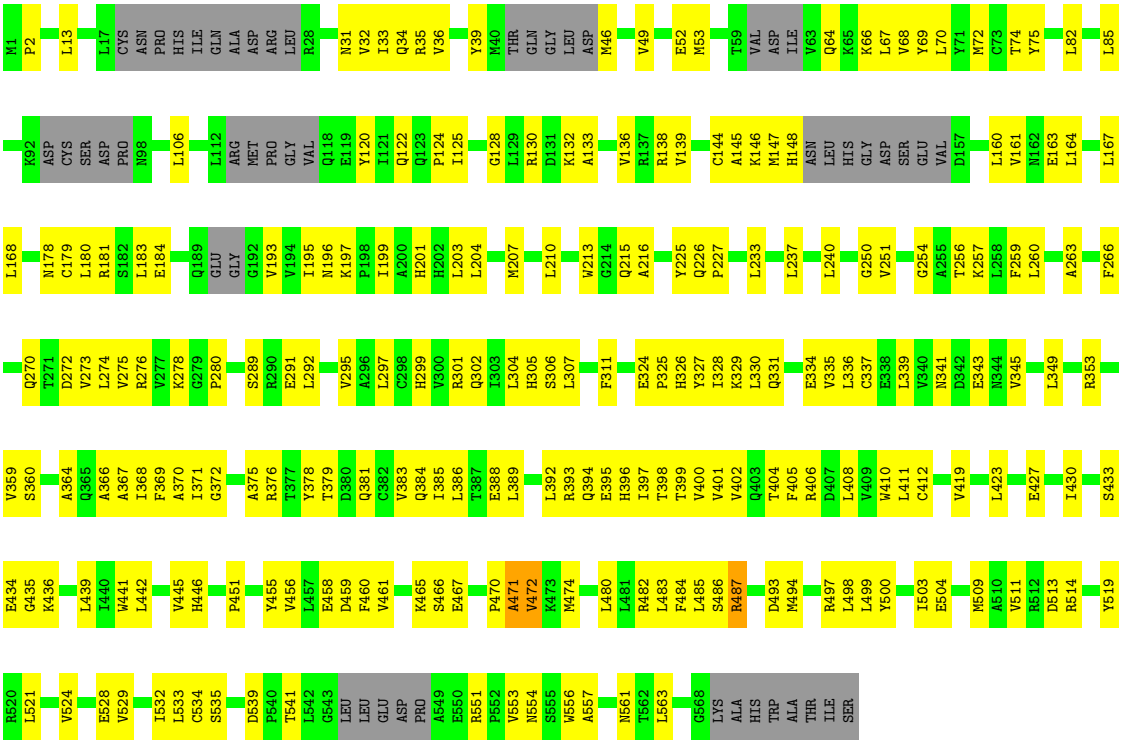
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	S	122	1019	671	158	183	7	0	0

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. 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.

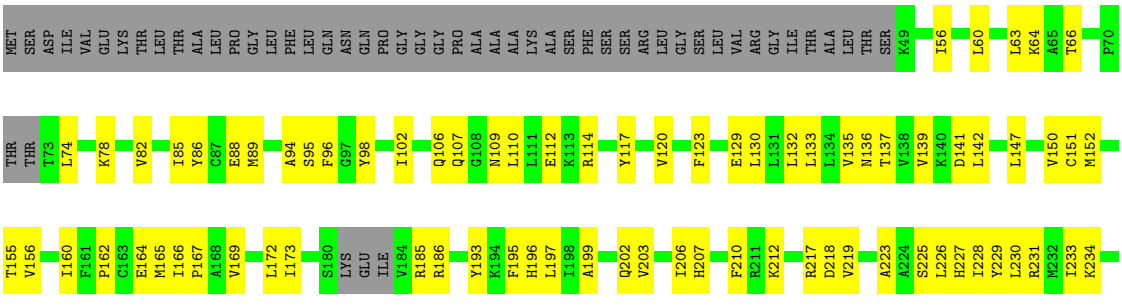
- Molecule 1: AP-4 complex subunit beta-1

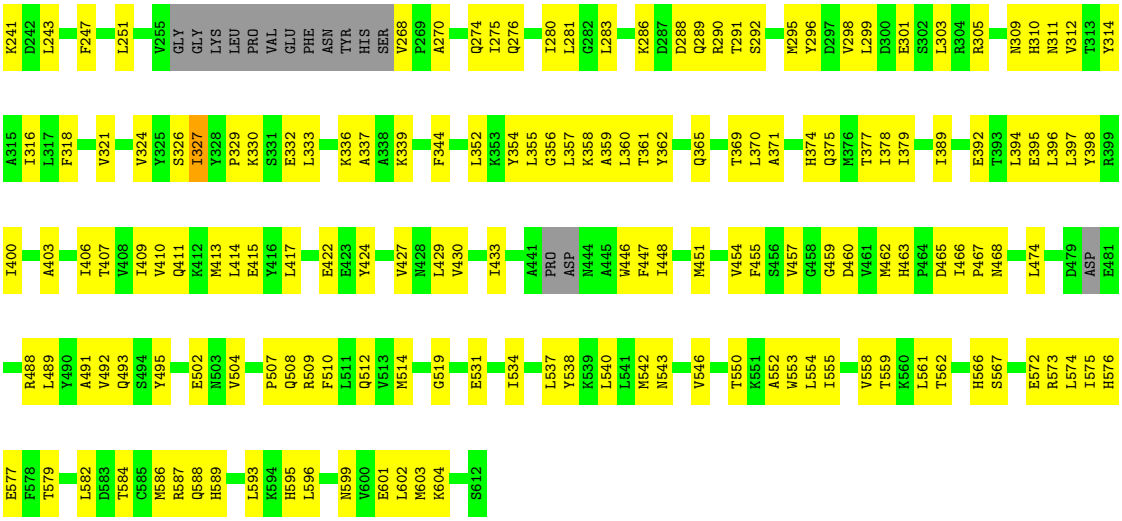
Chain B:



- Molecule 2: AP-4 complex subunit epsilon-1

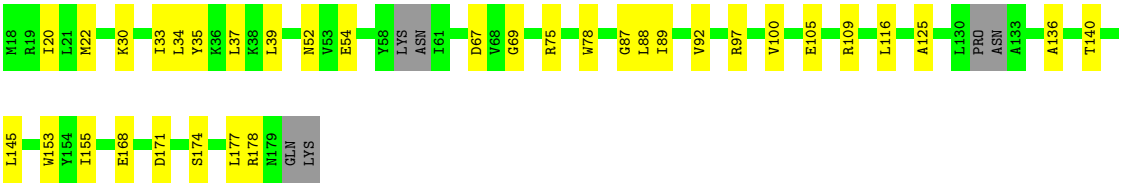
Chain E:





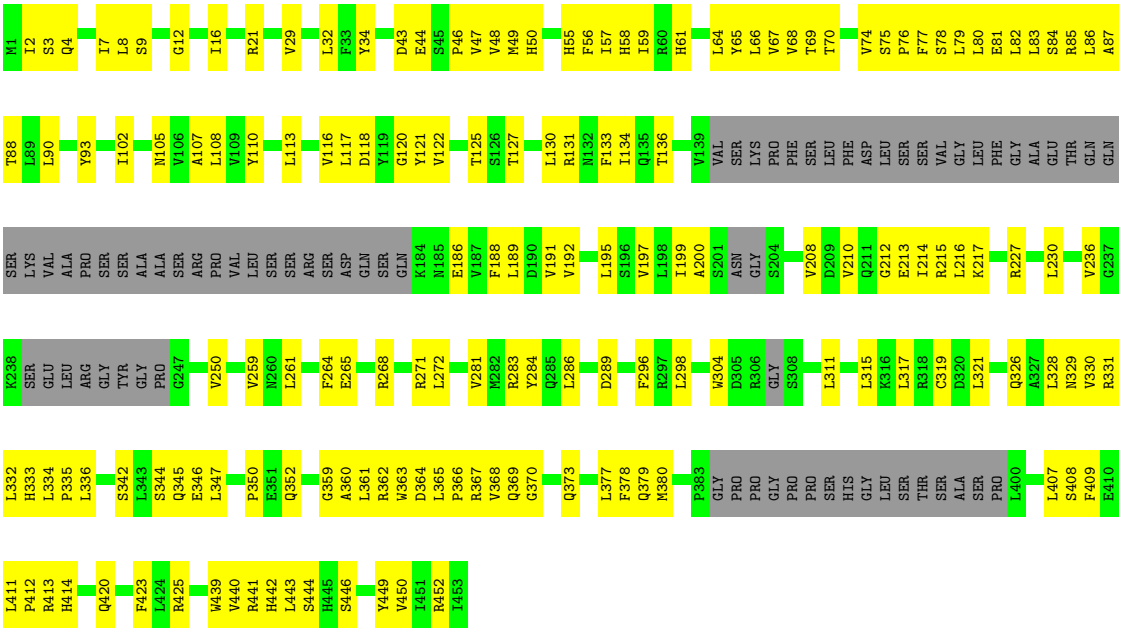
• Molecule 3: ADP-ribosylation factor 1

Chain H:



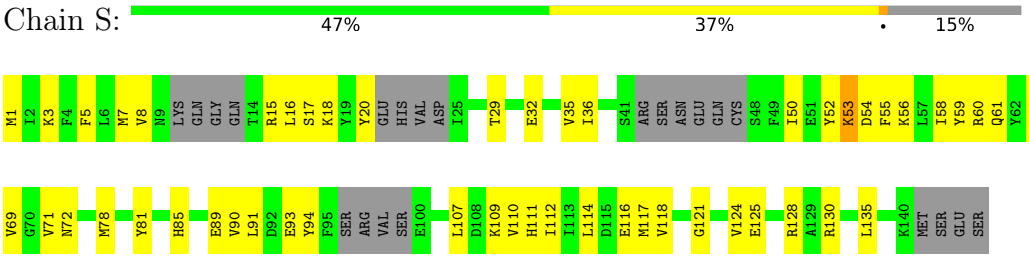
• Molecule 4: AP-4 complex subunit mu-1

Chain M:



• Molecule 5: AP-4 complex subunit sigma-1

Chain S:


47%
37%
15%
M1 I2 K3 F4 F5 L6 M7 V8 N9 LYS GLN GLY GLN T14 R15 L16 S17 K18 Y19 Y20 GLU HIS VAL ASP I25 T29 E32 V35 I36 S41 ARG SER ASN GLU GLN CYS S48 F49 I50 E51 Y52 K53 D54 F55 K56 L57 I58 Y59 R60 Q61 Y62 A63 F66 I67 V68
V69 G70 V71 N72 M78 Y81 H85 E89 V90 L91 D92 E93 Y94 F95 SER ARG VAL SER E100 L107 D108 K109 V110 H111 I112 I113 L114 D115 E116 M117 V118 G121 V124 E125 R128 A129 R130 L135 K140 MET SER GLU SER

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	13372	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS TITAN THEMIS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor

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	B	0.19	0/4240	0.48	3/5732 (0.1%)
2	E	0.16	0/4453	0.45	0/6023
3	H	0.10	0/1291	0.31	0/1745
4	M	0.12	0/3085	0.39	0/4168
5	S	0.14	0/1033	0.40	0/1387
All	All	0.16	0/14102	0.43	3/19055 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	2
2	E	0	1
All	All	0	3

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	472	VAL	N-CA-C	-10.38	101.80	111.45
1	B	433	SER	N-CA-C	6.59	118.33	108.31
1	B	433	SER	CB-CA-C	-5.53	110.18	116.54

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	130	ARG	Sidechain
1	B	138	ARG	Sidechain
2	E	186	ARG	Sidechain

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	B	4168	0	4257	174	0
2	E	4375	0	4490	187	0
3	H	1271	0	1267	24	0
4	M	3024	0	3043	126	0
5	S	1019	0	1043	38	0
All	All	13857	0	14100	527	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 19.

All (527) 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)
4:M:186:GLU:HB2	4:M:439:TRP:HE1	1.48	0.79
4:M:49:MET:HB3	4:M:56:PHE:HB2	1.64	0.79
1:B:301:ARG:HH21	1:B:331:GLN:HB3	1.48	0.78
4:M:200:ALA:HA	4:M:452:ARG:HB3	1.65	0.77
2:E:361:THR:HG22	2:E:396:LEU:HD21	1.67	0.77
4:M:347:LEU:HD13	4:M:352:GLN:HB3	1.64	0.76
2:E:329:PRO:HA	2:E:333:LEU:HD21	1.68	0.75
2:E:96:PHE:HA	2:E:98:TYR:HD2	1.51	0.75
2:E:559:THR:HG22	2:E:593:LEU:HD13	1.68	0.75
4:M:200:ALA:HB3	5:S:53:LYS:HE3	1.68	0.74
3:H:174:SER:HA	3:H:177:LEU:HD23	1.69	0.74
4:M:408:SER:HA	4:M:446:SER:O	1.88	0.74
4:M:412:PRO:HA	4:M:443:LEU:HG	1.70	0.74
4:M:75:SER:OG	4:M:78:SER:OG	2.08	0.72
1:B:263:ALA:HB1	1:B:266:PHE:HB2	1.72	0.71
5:S:109:LYS:HA	5:S:112:ILE:HG12	1.72	0.71
2:E:223:ALA:HA	2:E:226:LEU:HD12	1.72	0.71
3:H:30:LYS:HE3	3:H:69:GLY:HA2	1.73	0.70
2:E:301:GLU:HB3	2:E:305:ARG:HH12	1.58	0.69
4:M:188:PHE:HA	4:M:439:TRP:HB2	1.74	0.69
4:M:230:LEU:HB2	4:M:268:ARG:HB3	1.75	0.69
2:E:60:LEU:HA	2:E:96:PHE:HE2	1.57	0.69

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:311:ASN:HA	2:E:314:TYR:HD2	1.57	0.69
4:M:113:LEU:HA	4:M:116:VAL:HG12	1.75	0.69
1:B:124:PRO:O	1:B:128:GLY:N	2.26	0.69
4:M:192:VAL:HG12	4:M:215:ARG:HH12	1.58	0.69
4:M:346:GLU:HG3	4:M:377:LEU:HB3	1.74	0.69
2:E:223:ALA:O	2:E:227:HIS:ND1	2.26	0.68
2:E:96:PHE:HA	2:E:98:TYR:CD2	2.27	0.68
1:B:366:ALA:O	1:B:369:PHE:HB3	1.93	0.68
1:B:509:MET:HE3	1:B:513:ASP:HB2	1.76	0.67
2:E:89:MET:HB2	5:S:16:LEU:HA	1.76	0.67
2:E:463:HIS:CD2	4:M:373:GLN:HG3	2.30	0.67
4:M:210:VAL:HB	4:M:286:LEU:HB3	1.77	0.67
4:M:80:LEU:O	4:M:82:LEU:N	2.28	0.66
5:S:60:ARG:HG3	5:S:81:TYR:HE1	1.59	0.66
2:E:117:TYR:OH	2:E:141:ASP:OD2	2.10	0.66
4:M:344:SER:HB2	4:M:379:GLN:HB3	1.77	0.66
2:E:199:ALA:HB1	2:E:202:GLN:HB3	1.76	0.66
2:E:447:PHE:HD2	2:E:451:MET:HE1	1.60	0.66
1:B:396:HIS:O	1:B:399:THR:OG1	2.09	0.66
4:M:131:ARG:HH12	4:M:134:ILE:HD11	1.59	0.66
2:E:463:HIS:HD2	4:M:373:GLN:HG3	1.59	0.66
1:B:392:LEU:HG	1:B:394:GLN:HG2	1.78	0.66
2:E:95:SER:O	2:E:96:PHE:CD2	2.49	0.65
2:E:155:THR:HG22	2:E:156:VAL:HG23	1.77	0.65
1:B:106:LEU:HB3	1:B:139:VAL:HG11	1.78	0.65
1:B:563:LEU:HG	4:M:74:VAL:H	1.62	0.65
5:S:17:SER:O	5:S:18:LYS:NZ	2.30	0.65
2:E:185:ARG:NH2	2:E:217:ARG:O	2.30	0.65
1:B:461:VAL:HG22	1:B:498:LEU:HD21	1.80	0.64
1:B:196:ASN:HB2	1:B:199:ILE:HG12	1.78	0.64
5:S:124:VAL:HG23	5:S:125:GLU:H	1.62	0.64
1:B:480:LEU:O	1:B:484:PHE:N	2.26	0.64
2:E:354:TYR:HD1	2:E:389:ILE:HG22	1.63	0.64
3:H:22:MET:HE1	3:H:34:LEU:HB2	1.78	0.64
4:M:326:GLN:NE2	4:M:368:VAL:O	2.29	0.64
2:E:588:GLN:H	2:E:588:GLN:CD	2.06	0.63
2:E:95:SER:O	2:E:96:PHE:CG	2.52	0.63
4:M:227:ARG:HH11	4:M:271:ARG:HB3	1.63	0.63
1:B:213:TRP:HE1	4:M:82:LEU:HD22	1.63	0.63
2:E:375:GLN:HA	2:E:378:ILE:HD13	1.81	0.63
4:M:332:LEU:HB3	4:M:363:TRP:HB2	1.79	0.63

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:531:GLU:HA	2:E:534:ILE:HD13	1.81	0.63
5:S:59:TYR:HB2	5:S:66:PHE:HB3	1.80	0.63
4:M:329:ASN:H	4:M:366:PRO:HA	1.62	0.63
1:B:304:LEU:HD21	1:B:311:PHE:HD2	1.64	0.62
1:B:46:MET:HB3	1:B:49:VAL:HG22	1.80	0.62
2:E:508:GLN:HG3	2:E:512:GLN:HE22	1.64	0.62
2:E:510:PHE:O	2:E:514:MET:HG2	2.00	0.62
1:B:364:ALA:HA	1:B:367:ALA:HB3	1.82	0.61
1:B:386:LEU:O	1:B:389:LEU:HB2	2.00	0.61
4:M:55:HIS:HB2	4:M:70:THR:O	2.00	0.61
1:B:168:LEU:HD12	1:B:203:LEU:HD21	1.82	0.61
2:E:355:LEU:HD22	5:S:78:MET:SD	2.40	0.61
4:M:195:LEU:HB3	4:M:446:SER:HA	1.83	0.61
5:S:8:VAL:HA	5:S:15:ARG:HD3	1.82	0.61
1:B:216:ALA:HB2	1:B:251:VAL:HG12	1.81	0.61
2:E:289:GLN:HA	2:E:330:LYS:HZ1	1.66	0.61
5:S:81:TYR:O	5:S:85:HIS:ND1	2.33	0.61
2:E:344:PHE:HB3	2:E:352:LEU:HD21	1.83	0.60
4:M:117:LEU:HA	4:M:122:VAL:HA	1.81	0.60
1:B:260:LEU:HA	1:B:270:GLN:HE22	1.66	0.60
1:B:260:LEU:HD13	1:B:270:GLN:HE21	1.67	0.60
2:E:193:TYR:CZ	2:E:197:LEU:HD21	2.35	0.60
2:E:572:GLU:HA	2:E:575:ILE:HG12	1.82	0.60
3:H:34:LEU:HD11	3:H:54:GLU:HB2	1.83	0.60
1:B:168:LEU:HD11	1:B:180:LEU:HD21	1.83	0.60
2:E:451:MET:HA	2:E:454:VAL:HG12	1.82	0.60
1:B:480:LEU:HA	1:B:483:LEU:HB3	1.84	0.60
2:E:241:LYS:HE2	2:E:290:ARG:HH11	1.66	0.60
2:E:534:ILE:O	2:E:538:TYR:N	2.31	0.60
1:B:195:ILE:HB	1:B:225:TYR:HD1	1.66	0.59
1:B:482:ARG:HE	1:B:533:LEU:HB3	1.67	0.59
4:M:407:LEU:HB2	4:M:449:TYR:HB3	1.85	0.59
1:B:467:GLU:CD	1:B:470:PRO:HA	2.28	0.59
2:E:193:TYR:HA	2:E:196:HIS:CD2	2.38	0.59
2:E:219:VAL:HG11	5:S:130:ARG:HB2	1.84	0.59
4:M:236:VAL:HG13	4:M:250:VAL:HG23	1.84	0.59
5:S:89:GLU:OE1	5:S:128:ARG:NH2	2.36	0.59
2:E:129:GLU:HG3	2:E:130:LEU:HG	1.84	0.59
2:E:283:LEU:O	2:E:286:LYS:NZ	2.31	0.59
4:M:213:GLU:HG3	4:M:215:ARG:HH11	1.67	0.59
4:M:345:GLN:NE2	4:M:346:GLU:O	2.34	0.59

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:359:VAL:HG23	4:M:440:VAL:HG11	1.85	0.58
2:E:227:HIS:O	2:E:231:ARG:HD3	2.02	0.58
2:E:465:ASP:OD1	2:E:465:ASP:O	2.22	0.58
5:S:1:MET:SD	5:S:3:LYS:NZ	2.77	0.58
2:E:309:ASN:OD1	2:E:310:HIS:N	2.36	0.58
4:M:130:LEU:HA	4:M:133:PHE:HD2	1.68	0.58
1:B:306:SER:OG	1:B:551:ARG:O	2.22	0.58
2:E:139:VAL:HA	2:E:142:LEU:HD12	1.86	0.58
2:E:356:GLY:O	2:E:360:LEU:HG	2.03	0.58
4:M:7:ILE:HD12	4:M:66:LEU:HD22	1.85	0.58
1:B:120:TYR:O	1:B:148:HIS:NE2	2.36	0.58
2:E:251:LEU:HD23	2:E:298:VAL:HG21	1.84	0.58
1:B:376:ARG:HG2	1:B:411:LEU:HD13	1.86	0.58
2:E:332:GLU:O	2:E:336:LYS:N	2.35	0.58
4:M:85:ARG:O	4:M:88:THR:OG1	2.15	0.58
4:M:286:LEU:HD21	4:M:289:ASP:HB3	1.84	0.58
1:B:455:TYR:O	1:B:459:ASP:N	2.37	0.58
2:E:474:LEU:HD12	2:E:488:ARG:HG2	1.86	0.58
2:E:231:ARG:HA	2:E:234:LYS:HD2	1.86	0.57
4:M:59:ILE:O	4:M:61:HIS:ND1	2.30	0.57
3:H:22:MET:HE3	3:H:67:ASP:HB2	1.84	0.57
4:M:304:TRP:HB3	4:M:311:LEU:HD13	1.86	0.57
1:B:66:LYS:HG3	1:B:67:LEU:H	1.69	0.57
1:B:381:GLN:O	1:B:384:GLN:NE2	2.36	0.57
2:E:63:LEU:HB2	2:E:96:PHE:CZ	2.39	0.57
3:H:35:TYR:O	3:H:39:LEU:N	2.36	0.57
1:B:494:MET:HG2	1:B:497:ARG:NH2	2.19	0.57
2:E:292:SER:OG	2:E:330:LYS:NZ	2.35	0.57
1:B:133:ALA:HB3	1:B:136:VAL:HG12	1.87	0.57
1:B:325:PRO:HD2	1:B:328:ILE:HD11	1.87	0.57
2:E:375:GLN:O	2:E:379:ILE:HD12	2.05	0.57
2:E:519:GLY:HA2	2:E:561:LEU:HD21	1.86	0.57
4:M:367:ARG:NH2	4:M:369:GLN:HB3	2.19	0.57
1:B:368:ILE:O	1:B:372:GLY:N	2.34	0.57
2:E:217:ARG:NH1	2:E:218:ASP:O	2.38	0.57
2:E:169:VAL:HG22	2:E:173:ILE:HG23	1.87	0.56
1:B:461:VAL:HG11	1:B:497:ARG:HE	1.71	0.56
2:E:74:LEU:HD11	2:E:107:GLN:HG3	1.86	0.56
2:E:310:HIS:HB3	2:E:312:VAL:HG22	1.88	0.56
4:M:49:MET:HG3	4:M:50:HIS:H	1.70	0.56
1:B:49:VAL:HA	1:B:52:GLU:HG3	1.86	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:395:GLU:HG2	1:B:396:HIS:H	1.71	0.56
4:M:197:VAL:HG22	4:M:208:VAL:HG23	1.88	0.56
1:B:360:SER:OG	4:M:420:GLN:NE2	2.38	0.56
2:E:574:LEU:HA	2:E:577:GLU:HG2	1.86	0.56
2:E:268:VAL:HG21	2:E:312:VAL:HG21	1.88	0.56
1:B:46:MET:HE2	1:B:82:LEU:HD23	1.87	0.55
5:S:91:LEU:HD12	5:S:94:TYR:HE1	1.70	0.55
2:E:193:TYR:OH	2:E:231:ARG:NH2	2.39	0.55
1:B:195:ILE:HD12	1:B:226:GLN:H	1.71	0.55
4:M:298:LEU:HD11	4:M:315:LEU:HB2	1.87	0.55
2:E:303:LEU:HD22	2:E:336:LYS:HE2	1.88	0.55
4:M:352:GLN:HG2	4:M:365:LEU:HD11	1.88	0.55
2:E:102:ILE:HD13	2:E:133:LEU:HB2	1.87	0.55
2:E:397:LEU:HD11	2:E:409:ILE:HD12	1.89	0.55
1:B:33:ILE:HG21	1:B:64:GLN:HE22	1.72	0.55
2:E:361:THR:HA	2:E:396:LEU:HD11	1.89	0.55
3:H:136:ALA:HB1	3:H:155:ILE:HG12	1.89	0.55
2:E:207:HIS:HA	2:E:210:PHE:HB3	1.89	0.54
4:M:334:LEU:HB2	4:M:361:LEU:HB2	1.88	0.54
1:B:301:ARG:NH1	1:B:335:VAL:HG11	2.22	0.54
1:B:32:VAL:O	1:B:35:ARG:HG3	2.07	0.54
2:E:491:ALA:HB1	2:E:495:TYR:HE2	1.73	0.54
4:M:79:LEU:O	4:M:83:LEU:HD23	2.07	0.54
3:H:20:ILE:HD13	3:H:87:GLY:HA3	1.88	0.54
4:M:259:VAL:HG22	4:M:272:LEU:HD22	1.90	0.54
4:M:74:VAL:HA	4:M:79:LEU:HD12	1.90	0.54
1:B:299:HIS:HE1	1:B:561:ASN:HA	1.72	0.54
4:M:49:MET:HG3	4:M:50:HIS:N	2.22	0.54
3:H:140:THR:HG23	3:H:145:LEU:HD12	1.89	0.54
1:B:275:VAL:O	1:B:278:LYS:HG2	2.08	0.54
1:B:500:TYR:HA	1:B:503:ILE:HG22	1.90	0.54
1:B:399:THR:HG22	1:B:430:ILE:HG13	1.90	0.53
1:B:493:ASP:OD2	1:B:497:ARG:NH1	2.38	0.53
2:E:358:LYS:HA	2:E:361:THR:HG23	1.89	0.53
4:M:4:GLN:HB3	4:M:69:THR:HB	1.89	0.53
3:H:105:GLU:OE2	3:H:109:ARG:NE	2.41	0.53
2:E:459:GLY:HA2	2:E:462:MET:HE2	1.91	0.53
2:E:429:LEU:O	2:E:433:ILE:HD12	2.09	0.53
1:B:336:LEU:HD23	1:B:339:LEU:HD21	1.90	0.53
2:E:63:LEU:HB2	2:E:96:PHE:HZ	1.72	0.53
3:H:174:SER:O	3:H:178:ARG:NH1	2.42	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:584:THR:HA	2:E:587:ARG:HE	1.73	0.53
1:B:178:ASN:OD1	1:B:179:CYS:N	2.41	0.53
1:B:539:ASP:OD2	1:B:541:THR:OG1	2.23	0.53
2:E:554:LEU:O	2:E:558:VAL:HG23	2.09	0.53
2:E:555:ILE:O	2:E:559:THR:HG23	2.09	0.53
4:M:328:LEU:HD23	4:M:412:PRO:HG3	1.90	0.53
4:M:342:SER:HB3	4:M:380:MET:HA	1.90	0.53
1:B:260:LEU:HA	1:B:270:GLN:NE2	2.24	0.52
1:B:500:TYR:O	1:B:504:GLU:HG2	2.09	0.52
3:H:75:ARG:HG2	3:H:78:TRP:CZ2	2.43	0.52
1:B:207:MET:HA	1:B:210:LEU:HB2	1.92	0.52
1:B:301:ARG:NH2	1:B:331:GLN:HB3	2.21	0.52
5:S:7:MET:HE3	5:S:7:MET:HA	1.90	0.52
1:B:204:LEU:HA	1:B:207:MET:HG3	1.92	0.52
1:B:326:HIS:CD2	4:M:43:ASP:HA	2.44	0.52
2:E:247:PHE:HB3	2:E:281:LEU:HD21	1.90	0.52
2:E:558:VAL:O	2:E:562:THR:HG23	2.10	0.52
2:E:165:MET:HE3	2:E:169:VAL:HB	1.90	0.52
2:E:534:ILE:HG13	2:E:561:LEU:HD13	1.92	0.52
3:H:168:GLU:HA	3:H:171:ASP:OD2	2.10	0.52
4:M:336:LEU:HG	4:M:359:GLY:HA2	1.91	0.52
1:B:161:VAL:HA	1:B:164:LEU:HD12	1.92	0.52
2:E:318:PHE:HE1	2:E:359:ALA:HB2	1.74	0.52
4:M:352:GLN:HE21	4:M:365:LEU:HD21	1.75	0.52
1:B:250:GLY:HA3	4:M:77:PHE:HB3	1.92	0.51
1:B:471:ALA:HA	1:B:474:MET:HG2	1.90	0.51
2:E:596:LEU:O	2:E:603:MET:HE2	2.11	0.51
4:M:250:VAL:HG12	4:M:286:LEU:HD12	1.91	0.51
4:M:330:VAL:HG12	4:M:409:PHE:HB2	1.92	0.51
2:E:575:ILE:O	2:E:579:THR:OG1	2.28	0.51
3:H:88:LEU:HD11	3:H:116:LEU:HD21	1.92	0.51
5:S:116:GLU:OE2	5:S:117:MET:HG2	2.10	0.51
2:E:371:ALA:HA	2:E:374:HIS:HB2	1.92	0.51
1:B:410:TRP:CD1	1:B:539:ASP:HB2	2.45	0.51
4:M:29:VAL:HA	4:M:32:LEU:HB2	1.92	0.51
1:B:266:PHE:O	1:B:270:GLN:HG2	2.10	0.51
2:E:193:TYR:HA	2:E:196:HIS:NE2	2.26	0.51
2:E:392:GLU:O	2:E:395:GLU:HG3	2.10	0.51
4:M:9:SER:O	4:M:34:TYR:OH	2.25	0.51
5:S:50:ILE:HG22	5:S:56:LYS:HA	1.92	0.51
1:B:458:GLU:HA	1:B:461:VAL:HG23	1.93	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:117:TYR:HA	2:E:120:VAL:HG12	1.92	0.51
1:B:406:ARG:HB3	1:B:442:LEU:HD21	1.92	0.51
1:B:297:LEU:HB3	1:B:301:ARG:NH1	2.26	0.50
1:B:470:PRO:C	1:B:472:VAL:H	2.18	0.50
4:M:44:GLU:O	4:M:46:PRO:HD3	2.10	0.50
2:E:60:LEU:HA	2:E:96:PHE:CE2	2.42	0.50
2:E:296:TYR:CE1	2:E:333:LEU:HD23	2.47	0.50
2:E:460:ASP:HA	2:E:509:ARG:HG2	1.94	0.50
1:B:260:LEU:HD13	1:B:270:GLN:NE2	2.25	0.50
2:E:288:ASP:OD1	2:E:290:ARG:NH1	2.45	0.50
1:B:466:SER:HB2	4:M:367:ARG:NH2	2.27	0.50
2:E:291:THR:O	2:E:295:MET:HB2	2.11	0.50
1:B:184:GLU:HG3	1:B:193:VAL:HG13	1.93	0.50
2:E:550:THR:HA	2:E:553:TRP:HD1	1.77	0.50
1:B:66:LYS:HA	1:B:69:TYR:CE2	2.47	0.50
2:E:465:ASP:HA	2:E:468:ASN:HB2	1.93	0.50
4:M:93:TYR:HH	4:M:127:THR:HG1	1.47	0.50
5:S:71:VAL:HG22	5:S:72:ASN:H	1.77	0.50
1:B:521:LEU:O	1:B:524:VAL:HG22	2.12	0.49
2:E:362:TYR:HA	2:E:365:GLN:HG2	1.93	0.49
4:M:84:SER:O	4:M:87:ALA:HB3	2.12	0.49
2:E:410:VAL:HG11	2:E:446:TRP:HZ3	1.77	0.49
1:B:442:LEU:HA	1:B:445:VAL:HG22	1.94	0.49
2:E:357:LEU:HA	2:E:360:LEU:HD12	1.94	0.49
1:B:379:THR:O	1:B:381:GLN:N	2.43	0.49
2:E:82:VAL:HA	2:E:85:ILE:HD12	1.94	0.49
2:E:507:PRO:O	2:E:510:PHE:HB3	2.12	0.49
4:M:118:ASP:N	4:M:121:TYR:O	2.37	0.49
4:M:188:PHE:HB2	4:M:217:LYS:HB2	1.95	0.49
1:B:327:TYR:O	1:B:330:LEU:HG	2.12	0.49
1:B:394:GLN:O	1:B:397:ILE:HG12	2.13	0.49
1:B:401:VAL:O	1:B:404:THR:OG1	2.20	0.49
2:E:136:ASN:ND2	3:H:52:ASN:HA	2.28	0.49
4:M:105:ASN:O	4:M:107:ALA:N	2.42	0.49
4:M:352:GLN:HG2	4:M:365:LEU:HD21	1.93	0.49
4:M:321:LEU:HD23	4:M:370:GLY:HA2	1.94	0.49
2:E:164:GLU:O	2:E:167:PRO:HD2	2.12	0.49
4:M:199:ILE:HD12	4:M:199:ILE:H	1.77	0.49
1:B:46:MET:SD	1:B:46:MET:N	2.85	0.49
2:E:166:ILE:HB	2:E:167:PRO:HD3	1.94	0.49
4:M:47:VAL:HA	4:M:58:HIS:NE2	2.28	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:341:ASN:HD21	1:B:345:VAL:HA	1.78	0.48
5:S:52:TYR:H	5:S:56:LYS:HB3	1.78	0.48
1:B:13:LEU:HB2	1:B:52:GLU:HG2	1.96	0.48
2:E:275:ILE:HG13	2:E:276:GLN:OE1	2.13	0.48
2:E:466:ILE:HB	2:E:467:PRO:HD3	1.94	0.48
2:E:397:LEU:HA	2:E:400:ILE:HG22	1.95	0.48
4:M:57:ILE:O	4:M:67:VAL:HA	2.13	0.48
1:B:64:GLN:HE21	1:B:68:VAL:HG23	1.79	0.48
2:E:64:LYS:HG2	2:E:96:PHE:CG	2.47	0.48
4:M:191:VAL:HG23	4:M:214:ILE:HG13	1.96	0.48
1:B:532:ILE:HG23	1:B:533:LEU:HD23	1.95	0.48
3:H:22:MET:HA	3:H:89:ILE:O	2.13	0.48
4:M:345:GLN:HE22	4:M:377:LEU:H	1.61	0.48
5:S:3:LYS:HA	5:S:20:TYR:HB2	1.94	0.48
1:B:178:ASN:HA	1:B:181:ARG:NE	2.28	0.48
1:B:372:GLY:O	1:B:375:ALA:HB3	2.13	0.48
1:B:532:ILE:HD12	2:E:595:HIS:ND1	2.28	0.48
4:M:83:LEU:O	4:M:86:LEU:HB3	2.13	0.48
1:B:66:LYS:HG3	1:B:67:LEU:N	2.27	0.48
4:M:330:VAL:HG12	4:M:409:PHE:CB	2.44	0.48
5:S:5:PHE:HD1	5:S:69:VAL:HG12	1.78	0.48
2:E:397:LEU:HD21	2:E:409:ILE:HG23	1.96	0.48
2:E:542:MET:HE2	2:E:542:MET:N	2.29	0.48
1:B:120:TYR:HB3	1:B:148:HIS:HE2	1.79	0.48
2:E:166:ILE:HG23	2:E:195:PHE:CZ	2.48	0.48
2:E:318:PHE:CE1	2:E:359:ALA:HB2	2.49	0.48
1:B:436:LYS:HZ1	1:B:439:LEU:HD22	1.79	0.47
1:B:441:TRP:O	1:B:445:VAL:HG13	2.15	0.47
1:B:485:LEU:HD11	1:B:534:CYS:HB2	1.95	0.47
2:E:142:LEU:HB3	2:E:172:LEU:HG	1.95	0.47
2:E:488:ARG:O	2:E:492:VAL:HG23	2.14	0.47
3:H:105:GLU:O	3:H:109:ARG:HG3	2.14	0.47
4:M:330:VAL:HG22	4:M:365:LEU:O	2.14	0.47
1:B:197:LYS:HE2	1:B:201:HIS:NE2	2.30	0.47
1:B:337:CYS:HB2	1:B:370:ALA:HB1	1.95	0.47
4:M:265:GLU:O	4:M:268:ARG:NH1	2.46	0.47
5:S:110:VAL:HG12	5:S:114:LEU:HD23	1.96	0.47
1:B:397:ILE:HG13	1:B:398:THR:N	2.30	0.47
4:M:7:ILE:HB	4:M:16:ILE:HD13	1.97	0.47
4:M:197:VAL:O	4:M:450:VAL:N	2.35	0.47
1:B:529:VAL:HA	1:B:532:ILE:HG22	1.96	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:407:THR:O	2:E:411:GLN:HG2	2.15	0.47
4:M:130:LEU:HD12	4:M:131:ARG:HH11	1.80	0.47
5:S:1:MET:HE1	5:S:3:LYS:HG3	1.95	0.47
1:B:465:LYS:HD3	4:M:350:PRO:HD2	1.97	0.47
1:B:456:VAL:O	1:B:459:ASP:HB2	2.14	0.47
5:S:1:MET:HA	5:S:121:GLY:H	1.80	0.47
1:B:180:LEU:O	1:B:183:LEU:N	2.48	0.47
1:B:289:SER:O	1:B:292:LEU:N	2.47	0.47
5:S:61:GLN:NE2	5:S:63:ALA:O	2.45	0.46
2:E:251:LEU:HD23	2:E:298:VAL:HG11	1.97	0.46
3:H:33:ILE:O	3:H:37:LEU:HG	2.15	0.46
4:M:83:LEU:HD12	4:M:84:SER:N	2.29	0.46
4:M:411:LEU:HD21	4:M:414:HIS:ND1	2.30	0.46
1:B:179:CYS:SG	1:B:180:LEU:N	2.89	0.46
1:B:297:LEU:HB3	1:B:301:ARG:NH2	2.30	0.46
2:E:88:GLU:HG3	2:E:123:PHE:CE1	2.51	0.46
2:E:276:GLN:O	2:E:280:ILE:HG12	2.15	0.46
2:E:448:ILE:HA	2:E:451:MET:HE2	1.97	0.46
1:B:256:THR:HA	1:B:259:PHE:HD2	1.79	0.46
1:B:334:GLU:OE1	1:B:334:GLU:N	2.46	0.46
1:B:474:MET:HE1	1:B:514:ARG:HG3	1.97	0.46
2:E:489:LEU:O	2:E:493:GLN:OE1	2.34	0.46
4:M:213:GLU:OE1	4:M:283:ARG:HB2	2.16	0.46
4:M:364:ASP:OD1	4:M:364:ASP:N	2.49	0.46
1:B:297:LEU:O	1:B:301:ARG:NH1	2.48	0.46
2:E:491:ALA:HB1	2:E:495:TYR:CE2	2.51	0.46
4:M:423:PHE:CE2	4:M:425:ARG:HB2	2.50	0.46
1:B:554:ASN:HA	1:B:557:ALA:HB3	1.97	0.46
1:B:33:ILE:HA	1:B:36:VAL:HG22	1.96	0.46
1:B:66:LYS:O	1:B:70:LEU:HG	2.16	0.46
2:E:147:LEU:H	2:E:147:LEU:HD23	1.81	0.46
4:M:108:LEU:HD11	4:M:136:THR:HA	1.97	0.46
1:B:31:ASN:HA	1:B:34:GLN:HG3	1.98	0.45
1:B:368:ILE:HA	1:B:371:ILE:HD12	1.97	0.45
1:B:394:GLN:H	1:B:397:ILE:HD11	1.81	0.45
1:B:405:PHE:O	1:B:408:LEU:HG	2.17	0.45
4:M:7:ILE:HB	4:M:16:ILE:HB	1.97	0.45
1:B:227:PRO:HB2	1:B:233:LEU:HD12	1.99	0.45
2:E:395:GLU:O	2:E:398:TYR:HB3	2.15	0.45
2:E:495:TYR:HD1	2:E:514:MET:SD	2.40	0.45
2:E:534:ILE:HD12	2:E:534:ILE:H	1.81	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:M:85:ARG:HE	4:M:125:THR:HG22	1.80	0.45
1:B:304:LEU:HD23	1:B:307:LEU:HD11	1.98	0.45
2:E:596:LEU:HB3	2:E:603:MET:CG	2.47	0.45
1:B:276:ARG:O	1:B:280:PRO:HD2	2.16	0.45
4:M:3:SER:HB3	4:M:70:THR:HA	1.99	0.45
4:M:317:LEU:O	4:M:373:GLN:HA	2.17	0.45
1:B:389:LEU:O	1:B:392:LEU:HB3	2.17	0.45
5:S:32:GLU:HA	5:S:35:VAL:HG22	1.98	0.45
1:B:254:GLY:O	1:B:257:LYS:HG2	2.17	0.45
2:E:410:VAL:O	2:E:414:LEU:HD23	2.17	0.45
2:E:230:LEU:HA	2:E:233:ILE:HG22	1.99	0.45
2:E:337:ALA:HB1	2:E:369:THR:HB	1.98	0.45
3:H:116:LEU:HD23	3:H:116:LEU:O	2.17	0.45
2:E:427:VAL:HA	2:E:430:VAL:HG12	1.99	0.45
3:H:22:MET:HB3	3:H:89:ILE:HB	1.99	0.45
4:M:188:PHE:HD2	4:M:441:ARG:HH12	1.65	0.45
2:E:543:ASN:HB2	2:E:546:VAL:HG23	1.98	0.45
4:M:21:ARG:HH21	4:M:120:GLY:HA3	1.80	0.45
5:S:29:THR:O	5:S:32:GLU:HG3	2.18	0.44
1:B:324:GLU:HB2	1:B:329:LYS:HE2	1.98	0.44
2:E:86:TYR:HD1	5:S:107:LEU:HD21	1.81	0.44
3:H:22:MET:CE	3:H:34:LEU:HB2	2.47	0.44
3:H:97:ARG:O	3:H:100:VAL:HG22	2.17	0.44
2:E:241:LYS:HE2	2:E:290:ARG:NH1	2.31	0.44
2:E:370:LEU:O	2:E:374:HIS:ND1	2.41	0.44
4:M:420:GLN:HG2	4:M:442:HIS:CD2	2.52	0.44
2:E:196:HIS:NE2	2:E:228:ILE:HG22	2.32	0.44
2:E:599:ASN:HB3	2:E:602:LEU:HB2	1.99	0.44
2:E:88:GLU:OE2	2:E:94:ALA:N	2.51	0.44
1:B:291:GLU:H	1:B:291:GLU:CD	2.25	0.44
1:B:292:LEU:HA	1:B:295:VAL:HG12	1.99	0.44
2:E:339:LYS:H	2:E:370:LEU:HD23	1.83	0.44
2:E:586:MET:HA	2:E:589:HIS:HD1	1.82	0.44
4:M:12:GLY:HA2	4:M:34:TYR:HE1	1.83	0.44
1:B:467:GLU:O	1:B:467:GLU:HG3	2.18	0.44
1:B:383:VAL:O	1:B:386:LEU:HD23	2.18	0.44
5:S:71:VAL:HG22	5:S:72:ASN:N	2.32	0.44
1:B:353:ARG:HE	1:B:388:GLU:CD	2.26	0.43
2:E:63:LEU:HA	2:E:66:THR:HB	2.00	0.43
2:E:78:LYS:HB2	2:E:112:GLU:HG2	1.99	0.43
2:E:502:GLU:O	2:E:504:VAL:HG13	2.18	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:573:ARG:HA	2:E:576:HIS:CE1	2.53	0.43
4:M:48:VAL:HG12	4:M:57:ILE:HD13	2.00	0.43
4:M:76:PRO:HA	4:M:80:LEU:HG	2.00	0.43
1:B:397:ILE:HA	1:B:400:VAL:HG22	2.00	0.43
1:B:436:LYS:NZ	1:B:439:LEU:HD22	2.33	0.43
2:E:550:THR:O	2:E:554:LEU:HD23	2.18	0.43
4:M:2:ILE:HD12	4:M:2:ILE:H	1.83	0.43
4:M:329:ASN:N	4:M:366:PRO:HA	2.33	0.43
4:M:378:PHE:CD1	4:M:380:MET:HE3	2.53	0.43
1:B:144:CYS:SG	1:B:145:ALA:N	2.92	0.43
2:E:295:MET:HG3	2:E:299:LEU:CD1	2.48	0.43
2:E:411:GLN:O	2:E:415:GLU:HG2	2.18	0.43
2:E:537:LEU:HD13	2:E:540:LEU:HD12	1.99	0.43
1:B:302:GLN:HA	1:B:305:HIS:CE1	2.54	0.43
2:E:374:HIS:O	2:E:377:THR:HG22	2.18	0.43
2:E:397:LEU:HD23	2:E:413:MET:HE3	2.00	0.43
2:E:417:LEU:HD21	2:E:457:VAL:HG21	2.01	0.43
2:E:491:ALA:O	2:E:495:TYR:CD2	2.71	0.43
4:M:189:LEU:HB2	4:M:216:LEU:HD13	2.01	0.43
1:B:146:LYS:O	1:B:147:MET:HE2	2.18	0.43
1:B:395:GLU:CG	1:B:396:HIS:H	2.30	0.43
2:E:352:LEU:O	2:E:355:LEU:HG	2.19	0.43
5:S:58:ILE:O	5:S:68:VAL:HA	2.18	0.43
1:B:436:LYS:NZ	1:B:460:PHE:HE2	2.17	0.43
2:E:56:ILE:O	2:E:60:LEU:HD23	2.18	0.43
2:E:130:LEU:HD22	2:E:133:LEU:HD11	1.99	0.43
2:E:193:TYR:O	2:E:197:LEU:HG	2.19	0.43
4:M:16:ILE:HG23	4:M:110:TYR:HE1	1.83	0.43
1:B:207:MET:HB2	1:B:215:GLN:HG2	2.00	0.43
2:E:601:GLU:HA	2:E:604:LYS:HG2	2.00	0.43
4:M:411:LEU:HB3	4:M:444:SER:HB2	1.99	0.43
1:B:345:VAL:HG11	1:B:378:TYR:HE2	1.84	0.43
1:B:446:HIS:O	1:B:446:HIS:ND1	2.51	0.43
2:E:270:ALA:HB1	2:E:274:GLN:HE22	1.83	0.43
4:M:80:LEU:O	4:M:82:LEU:HG	2.18	0.43
1:B:297:LEU:HB3	1:B:301:ARG:HH12	1.82	0.43
1:B:368:ILE:HD12	1:B:368:ILE:H	1.82	0.43
2:E:150:VAL:HG22	2:E:151:CYS:H	1.84	0.43
2:E:326:SER:O	2:E:327:ILE:HG22	2.18	0.43
4:M:8:LEU:HD21	4:M:34:TYR:CD1	2.53	0.43
4:M:212:GLY:O	4:M:283:ARG:HA	2.19	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:M:379:GLN:NE2	4:M:380:MET:O	2.51	0.43
3:H:92:VAL:HG23	3:H:125:ALA:HA	1.99	0.42
1:B:125:ILE:HD12	1:B:125:ILE:H	1.85	0.42
1:B:471:ALA:HA	1:B:474:MET:CG	2.49	0.42
2:E:106:GLN:HG3	2:E:137:THR:HG23	1.99	0.42
2:E:552:ALA:HA	2:E:555:ILE:HG22	2.01	0.42
4:M:331:ARG:HH21	4:M:362:ARG:HG2	1.84	0.42
5:S:59:TYR:HA	5:S:67:ILE:O	2.19	0.42
1:B:299:HIS:CE1	1:B:561:ASN:HA	2.53	0.42
1:B:399:THR:O	1:B:402:VAL:HB	2.19	0.42
1:B:451:PRO:HB3	1:B:487:ARG:CZ	2.50	0.42
2:E:132:LEU:HD12	2:E:135:VAL:HG21	2.01	0.42
2:E:229:TYR:CD1	2:E:243:LEU:HD12	2.54	0.42
4:M:335:PRO:HA	4:M:360:ALA:HA	2.00	0.42
1:B:470:PRO:O	1:B:472:VAL:N	2.52	0.42
2:E:109:ASN:OD1	2:E:110:LEU:N	2.52	0.42
4:M:333:HIS:ND1	4:M:335:PRO:HD3	2.34	0.42
1:B:553:VAL:HA	1:B:556:TRP:NE1	2.33	0.42
2:E:166:ILE:HG23	2:E:195:PHE:HZ	1.84	0.42
2:E:223:ALA:C	2:E:227:HIS:HD1	2.26	0.42
1:B:295:VAL:HG21	4:M:76:PRO:HG3	2.02	0.42
1:B:509:MET:C	1:B:511:VAL:H	2.26	0.42
4:M:47:VAL:HA	4:M:58:HIS:CE1	2.55	0.42
4:M:64:LEU:HD11	4:M:102:ILE:HD11	2.00	0.42
1:B:486:SER:OG	1:B:487:ARG:N	2.53	0.42
2:E:275:ILE:HG22	2:E:316:ILE:HA	2.02	0.42
2:E:301:GLU:HB3	2:E:305:ARG:NH1	2.30	0.42
2:E:538:TYR:CE2	2:E:574:LEU:HB3	2.55	0.42
2:E:584:THR:HA	2:E:587:ARG:HD2	2.02	0.42
4:M:59:ILE:HG21	4:M:83:LEU:HD11	2.00	0.42
2:E:394:LEU:HD12	2:E:395:GLU:N	2.35	0.42
4:M:87:ALA:HA	4:M:90:LEU:HG	2.01	0.42
1:B:120:TYR:HA	1:B:122:GLN:HE22	1.83	0.42
1:B:160:LEU:O	1:B:164:LEU:HG	2.20	0.41
1:B:482:ARG:NH2	1:B:535:SER:H	2.17	0.41
4:M:192:VAL:HA	4:M:443:LEU:O	2.20	0.41
2:E:398:TYR:CD1	2:E:433:ILE:HG13	2.55	0.41
2:E:451:MET:HB3	2:E:455:PHE:CE1	2.55	0.41
2:E:566:HIS:CG	2:E:567:SER:N	2.88	0.41
1:B:207:MET:HA	1:B:210:LEU:CB	2.49	0.41
1:B:272:ASP:OD1	1:B:273:VAL:N	2.53	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:132:LEU:HA	2:E:135:VAL:HG23	2.01	0.41
2:E:403:ALA:HA	2:E:406:ILE:HD11	2.03	0.41
5:S:32:GLU:O	5:S:36:ILE:HG12	2.19	0.41
5:S:54:ASP:OD1	5:S:55:PHE:N	2.54	0.41
5:S:90:VAL:HA	5:S:93:GLU:HB3	2.01	0.41
1:B:405:PHE:HA	1:B:408:LEU:HG	2.01	0.41
1:B:486:SER:O	1:B:487:ARG:C	2.63	0.41
2:E:193:TYR:CE2	2:E:197:LEU:HD11	2.55	0.41
2:E:339:LYS:HE3	2:E:370:LEU:HB2	2.03	0.41
2:E:584:THR:HA	2:E:587:ARG:NE	2.34	0.41
1:B:341:ASN:OD1	1:B:343:GLU:N	2.51	0.41
1:B:345:VAL:O	1:B:349:LEU:HD23	2.21	0.41
1:B:393:ARG:NH1	1:B:393:ARG:O	2.54	0.41
2:E:203:VAL:HA	2:E:206:ILE:HG22	2.03	0.41
5:S:111:HIS:HA	5:S:114:LEU:HG	2.01	0.41
1:B:419:VAL:O	1:B:423:LEU:HD23	2.21	0.41
2:E:354:TYR:CD1	2:E:389:ILE:HG22	2.49	0.41
3:H:153:TRP:HZ3	3:H:155:ILE:HG22	1.85	0.41
4:M:261:LEU:HB3	4:M:264:PHE:CD2	2.56	0.41
1:B:74:THR:HB	1:B:75:TYR:CD1	2.56	0.41
1:B:237:LEU:HD13	1:B:240:LEU:HD21	2.02	0.41
1:B:406:ARG:NH2	2:E:582:LEU:O	2.44	0.41
2:E:114:ARG:HG2	2:E:152:MET:SD	2.60	0.41
2:E:290:ARG:H	2:E:290:ARG:HG2	1.73	0.41
4:M:57:ILE:HG22	4:M:68:VAL:O	2.21	0.41
4:M:296:PHE:HA	4:M:319:CYS:HA	2.02	0.41
5:S:116:GLU:CD	5:S:135:LEU:HD11	2.46	0.41
1:B:85:LEU:H	1:B:85:LEU:HD23	1.85	0.41
1:B:327:TYR:CD1	1:B:328:ILE:HG23	2.56	0.41
1:B:499:LEU:HD21	1:B:519:TYR:CD1	2.55	0.41
2:E:160:ILE:HG12	2:E:162:PRO:HD3	2.03	0.41
2:E:212:LYS:HA	2:E:212:LYS:HD3	1.89	0.41
2:E:225:SER:HA	2:E:228:ILE:HG12	2.03	0.41
4:M:212:GLY:HA3	4:M:284:TYR:CE1	2.56	0.41
1:B:2:PRO:HB2	1:B:39:TYR:CE1	2.56	0.41
1:B:383:VAL:C	1:B:385:ILE:H	2.29	0.41
1:B:396:HIS:HB3	4:M:413:ARG:NH2	2.36	0.41
2:E:400:ILE:HG13	2:E:400:ILE:O	2.21	0.41
5:S:20:TYR:OH	5:S:118:VAL:O	2.33	0.41
1:B:270:GLN:O	1:B:274:LEU:HD13	2.21	0.40
1:B:434:GLU:OE1	1:B:435:GLY:N	2.54	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:321:VAL:O	2:E:324:VAL:HB	2.21	0.40
4:M:65:TYR:O	4:M:67:VAL:HG23	2.21	0.40
4:M:311:LEU:O	4:M:379:GLN:NE2	2.54	0.40
1:B:163:GLU:O	1:B:167:LEU:HD23	2.21	0.40
1:B:297:LEU:O	1:B:301:ARG:HG2	2.21	0.40
1:B:53:MET:HE3	1:B:72:MET:HE1	2.03	0.40
1:B:528:GLU:OE2	2:E:602:LEU:HD11	2.21	0.40
2:E:89:MET:HE2	5:S:107:LEU:HD13	2.03	0.40
1:B:297:LEU:HB3	1:B:301:ARG:CZ	2.50	0.40
1:B:408:LEU:HB2	1:B:412:CYS:SG	2.62	0.40
2:E:422:GLU:C	2:E:424:TYR:H	2.29	0.40
2:E:507:PRO:HG2	2:E:510:PHE:HB2	2.04	0.40
4:M:216:LEU:HD23	4:M:281:VAL:HG21	2.04	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	B	507/576 (88%)	447 (88%)	56 (11%)	4 (1%)	16	55
2	E	532/612 (87%)	475 (89%)	56 (10%)	1 (0%)	44	78
3	H	152/164 (93%)	144 (95%)	8 (5%)	0	100	100
4	M	370/453 (82%)	326 (88%)	43 (12%)	1 (0%)	37	73
5	S	112/144 (78%)	105 (94%)	6 (5%)	1 (1%)	14	52
All	All	1673/1949 (86%)	1497 (90%)	169 (10%)	7 (0%)	32	68

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	E	327	ILE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	M	81	GLU
5	S	53	LYS
1	B	132	LYS
1	B	471	ALA
1	B	427	GLU
1	B	487	ARG

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	B	465/510 (91%)	465 (100%)	0	100	100
2	E	491/547 (90%)	491 (100%)	0	100	100
3	H	136/142 (96%)	136 (100%)	0	100	100
4	M	340/397 (86%)	340 (100%)	0	100	100
5	S	115/136 (85%)	115 (100%)	0	100	100
All	All	1547/1732 (89%)	1547 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	31	ASN
1	B	122	GLN
1	B	270	GLN
2	E	128	HIS
2	E	136	ASN
2	E	512	GLN
2	E	564	GLN
3	H	52	ASN
4	M	50	HIS
4	M	55	HIS
4	M	105	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	M	345	GLN
4	M	379	GLN
4	M	420	GLN
5	S	127	ASN

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.