



Full wwPDB X-ray Structure Validation Report

Feb 28, 2014 – 08:01 PM GMT

PDB ID : 2A5Y
Title : Structure of a CED-4/CED-9 complex
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Deposited on : 2005-07-01
Resolution : 2.60 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

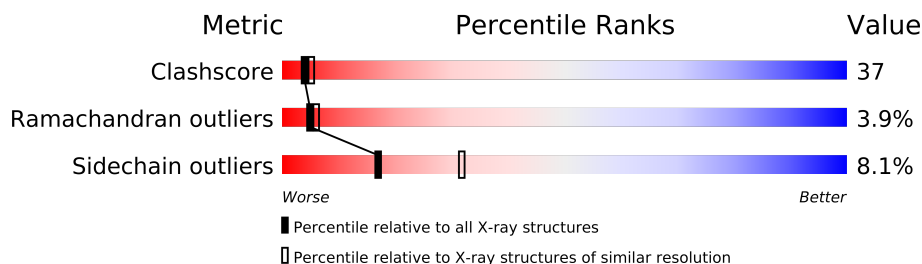
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.15 2013
Xtriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 21963
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : stable22683

1 Overall quality at a glance

The reported resolution of this entry is 2.60 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))
Clashscore	79885	2154 (2.60-2.60)
Ramachandran outliers	78287	2113 (2.60-2.60)
Sidechain outliers	78261	2113 (2.60-2.60)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	204	
2	B	549	
2	C	549	

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 8730 atoms, of which 0 are hydrogen and 0 are deuterium.

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 Apoptosis regulator ced-9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	173	Total	C	N	O	S	0	0	0
			1417	900	246	262	9			

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	107	SER	CYS	ENGINEERED	UNP P41958
A	135	SER	CYS	ENGINEERED	UNP P41958
A	164	SER	CYS	ENGINEERED	UNP P41958

- Molecule 2 is a protein called ced-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	501	Total	C	N	O	S	0	0	0
			4028	2568	674	757	29			
2	C	373	Total	C	N	O	S	0	0	0
			2961	1885	493	558	25			

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	1	Total	Mg	0	0
			1	1		
3	C	1	Total	Mg	0	0
			1	1		

- Molecule 4 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	B	1	Total	C	N	O	P	0	0
			31	10	5	13	3		
4	C	1	Total	C	N	O	P	0	0
			31	10	5	13	3		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	32	Total	O	0	0
			32	32		
5	B	145	Total	O	0	0
			145	145		
5	C	83	Total	O	0	0
			83	83		

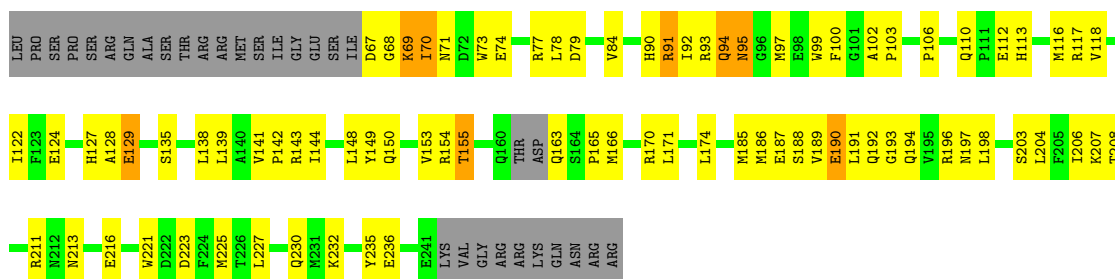
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

Note EDS was not executed.

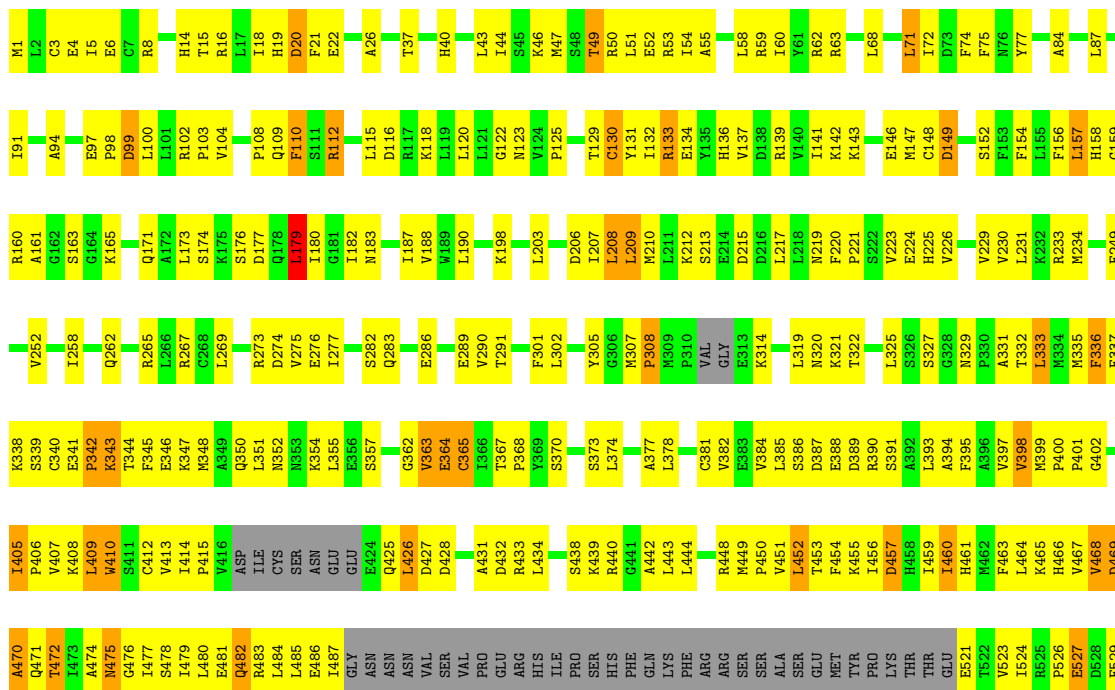
- Molecule 1: Apoptosis regulator ced-9

Chain A:

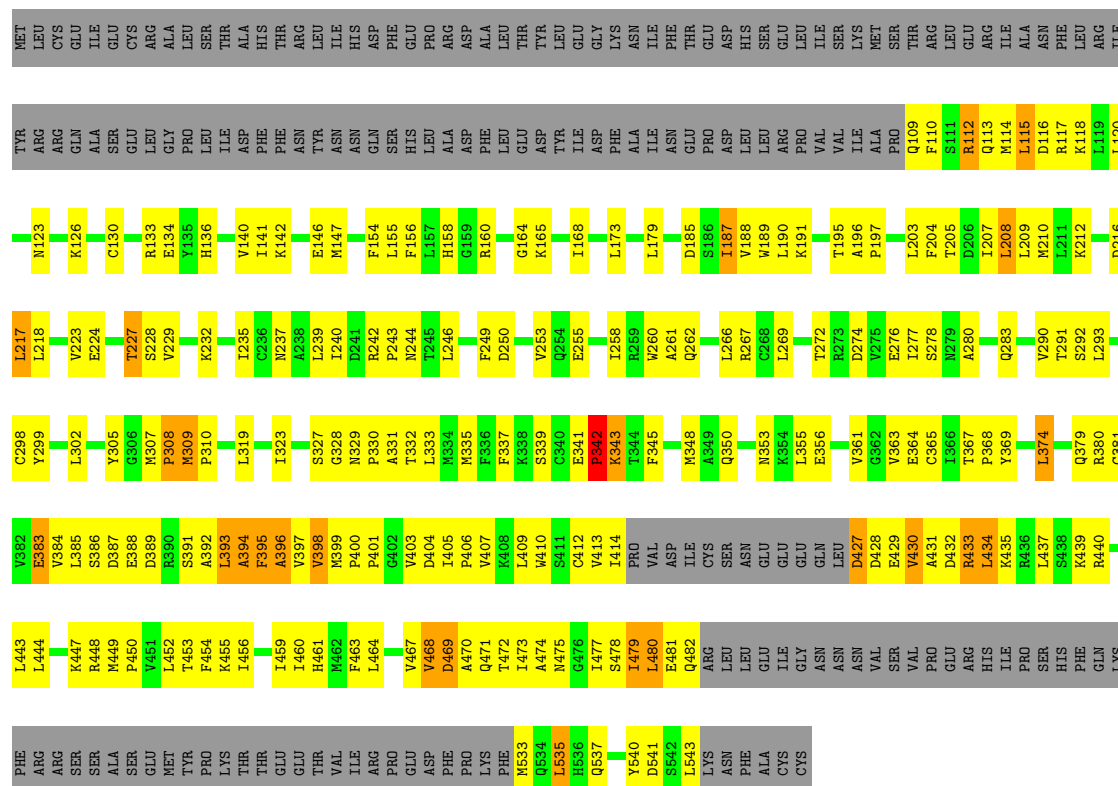


- Molecule 2: ced-4

Chain B:



Chain C:



4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section will therefore be incomplete.

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α , β , γ	128.90Å 128.90Å 209.93Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	40.00 – 2.60	Depositor
% Data completeness (in resolution range)	(Not available) (40.00-2.60)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.249 , 0.277	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	8730	wwPDB-VP
Average B, all atoms (Å ²)	82.0	wwPDB-VP

5 Model quality

5.1 Standard geometry

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

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	0.42	0/1450	0.75	3/1950 (0.2%)
2	B	0.37	0/4101	0.66	0/5540
2	C	0.35	0/3010	0.65	1/4061 (0.0%)
All	All	0.37	0/8561	0.67	4/11551 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	68	GLY	N-CA-C	11.40	141.59	113.10
1	A	69	LYS	N-CA-C	6.55	128.70	111.00
1	A	68	GLY	CA-C-N	-5.44	105.24	117.20
2	C	134	GLU	CB-CA-C	5.31	121.03	110.40

There are no chirality outliers.

There are no planarity outliers.

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1417	0	1365	85	0
2	B	4028	0	4052	335	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	C	2961	0	2998	241	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
4	B	31	0	12	4	0
4	C	31	0	12	3	0
5	A	32	0	0	7	0
5	B	145	0	0	22	0
5	C	83	0	0	16	0
All	All	8730	0	8439	633	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 37.

All (633) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:B:302:LEU:HA	2:B:337:PHE:HZ	1.05	1.11
2:C:332:THR:HA	2:C:335:MET:HE3	1.15	1.07
2:C:433:ARG:HH11	2:C:433:ARG:HB2	1.17	1.05
2:C:307:MET:HG3	2:C:308:PRO:HD2	1.36	1.04
2:B:49:THR:HG22	2:B:52:GLU:H	1.22	1.01
2:B:302:LEU:HA	2:B:337:PHE:CZ	1.96	0.99
2:B:262:GLN:HE21	2:B:283:GLN:HB2	1.24	0.99
2:C:406:PRO:HD2	2:C:409:LEU:HD12	1.46	0.97
2:C:473:ILE:HD11	2:C:543:LEU:HD22	1.47	0.96
2:B:402:GLY:HA2	2:B:455:LYS:HE3	1.48	0.95
2:C:472:THR:HG22	5:C:574:HOH:O	1.68	0.93
2:B:262:GLN:HE22	2:B:282:SER:H	0.97	0.92
2:B:46:LYS:HE2	5:B:686:HOH:O	1.69	0.90
2:B:367:THR:HB	2:B:368:PRO:HD2	1.53	0.90
1:A:143:ARG:HA	1:A:194:GLN:HE22	1.38	0.89
2:B:37:THR:H	2:B:40:HIS:HD2	1.21	0.88
1:A:166:MET:HE1	1:A:171:LEU:HB2	1.54	0.88
2:C:400:PRO:HG2	2:C:403:VAL:HG21	1.55	0.87
1:A:74:GLU:OE2	2:B:49:THR:HG21	1.73	0.87
2:C:332:THR:CA	2:C:335:MET:HE3	2.03	0.86
2:B:18:ILE:HD12	2:B:51:LEU:HD22	1.55	0.86
2:B:459:ILE:HD12	2:B:460:ILE:N	1.89	0.85
1:A:110:GLN:H	1:A:113:HIS:CD2	1.94	0.85
2:B:532:PHE:HE1	2:B:535:LEU:HB2	1.42	0.85
2:C:404:ASP:HB3	2:C:453:THR:HG21	1.59	0.84
2:C:123:ASN:HD21	2:C:210:MET:CE	1.89	0.84
2:B:395:PHE:HD1	2:B:415:PRO:HD3	1.42	0.84

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:B:388:GLU:HB2	2:B:433:ARG:HE	1.41	0.84
2:B:37:THR:H	2:B:40:HIS:CD2	1.96	0.83
2:B:341:GLU:HB2	2:B:342:PRO:HD3	1.58	0.83
2:B:344:THR:HB	5:B:662:HOH:O	1.80	0.82
2:C:482:GLN:HG3	5:C:587:HOH:O	1.78	0.82
2:B:233:ARG:CZ	2:C:210:MET:HE3	2.10	0.81
1:A:208:THR:HG21	2:B:217:LEU:H	1.44	0.81
1:A:90:HIS:CD2	1:A:117:ARG:HD3	2.16	0.80
2:B:59:ARG:O	2:B:63:ARG:HG2	1.82	0.80
2:B:469:ASP:O	2:B:471:GLN:N	2.15	0.80
2:B:262:GLN:NE2	2:B:282:SER:H	1.78	0.80
2:C:399:MET:HE1	2:C:405:ILE:HG21	1.64	0.80
2:B:409:LEU:HD23	2:B:530:PRO:HB3	1.65	0.79
2:C:474:ALA:HA	2:C:477:ILE:HD12	1.64	0.79
2:B:219:ASN:HB2	5:B:599:HOH:O	1.83	0.79
2:B:68:LEU:HD12	2:B:91:ILE:HD11	1.64	0.79
2:B:456:ILE:HD13	5:B:574:HOH:O	1.83	0.78
1:A:150:GLN:O	1:A:154:ARG:HG3	1.83	0.78
2:C:123:ASN:HD21	2:C:210:MET:HE1	1.48	0.78
1:A:186:MET:HE2	1:A:186:MET:HA	1.65	0.78
1:A:204:LEU:HD13	2:B:209:LEU:HD22	1.64	0.78
2:B:347:LYS:HB2	5:B:662:HOH:O	1.82	0.77
1:A:190:GLU:HB3	1:A:191:LEU:HD12	1.66	0.77
2:B:163:SER:HB2	2:B:290:VAL:HG12	1.66	0.77
1:A:166:MET:CE	1:A:171:LEU:HB2	2.13	0.77
1:A:196:ARG:HB2	1:A:196:ARG:HH11	1.49	0.77
2:B:529:PHE:C	2:B:531:LYS:H	1.88	0.77
1:A:153:VAL:HG11	1:A:174:LEU:HD23	1.67	0.76
2:C:464:LEU:HA	2:C:467:VAL:HG12	1.66	0.76
2:C:369:TYR:HB2	4:C:551:ATP:H3'	1.68	0.75
2:B:262:GLN:NE2	2:B:283:GLN:HB2	2.01	0.75
2:B:438:SER:HB3	5:B:687:HOH:O	1.84	0.75
2:C:302:LEU:HD13	2:C:319:LEU:HD11	1.69	0.74
2:C:400:PRO:O	2:C:403:VAL:HG22	1.87	0.74
1:A:124:GLU:O	1:A:128:ALA:HB2	1.88	0.74
1:A:189:VAL:HA	1:A:192:GLN:HG3	1.69	0.74
2:C:133:ARG:HG2	2:C:136:HIS:HD2	1.53	0.74
2:B:233:ARG:NH2	2:C:210:MET:HE3	2.02	0.74
2:B:407:VAL:CG2	2:B:452:LEU:HD21	2.18	0.74
2:B:393:LEU:HD13	2:B:464:LEU:HD21	1.69	0.74
2:B:283:GLN:HA	5:B:620:HOH:O	1.87	0.73
2:B:449:MET:HB2	2:B:450:PRO:HA	1.70	0.73

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:138:LEU:HD22	1:A:144:ILE:HD11	1.68	0.73
2:B:104:VAL:O	2:B:108:PRO:HG2	1.88	0.73
2:B:14:HIS:CE1	2:B:18:ILE:HD11	2.24	0.72
2:C:414:ILE:HG13	2:C:430:VAL:HG13	1.71	0.72
2:C:433:ARG:HB2	2:C:433:ARG:NH1	1.98	0.72
1:A:196:ARG:NH2	2:B:125:PRO:HG3	2.05	0.72
2:C:432:ASP:HA	2:C:435:LYS:HB3	1.70	0.72
2:C:227:THR:HG22	2:C:229:VAL:H	1.55	0.72
2:C:473:ILE:O	2:C:477:ILE:HG13	1.89	0.71
2:C:443:LEU:HD12	2:C:443:LEU:H	1.55	0.71
2:B:410:TRP:HD1	2:B:414:ILE:HD13	1.56	0.71
2:B:460:ILE:O	2:B:460:ILE:HD13	1.90	0.71
2:C:405:ILE:C	2:C:453:THR:HG23	2.11	0.71
2:B:395:PHE:HE2	2:B:472:THR:HG22	1.55	0.70
2:B:443:LEU:O	2:B:444:LEU:HD12	1.89	0.70
2:B:44:ILE:O	2:B:53:ARG:HG2	1.90	0.70
2:B:487:ILE:O	2:B:531:LYS:HD3	1.92	0.70
1:A:112:GLU:HA	1:A:225:MET:HE1	1.73	0.70
2:B:100:LEU:C	2:B:103:PRO:HD2	2.12	0.70
2:C:331:ALA:HA	4:C:551:ATP:O3'	1.91	0.70
2:C:302:LEU:HD22	2:C:307:MET:HG2	1.72	0.69
2:B:18:ILE:HG23	2:B:51:LEU:HD21	1.73	0.69
2:C:393:LEU:HD23	2:C:394:ALA:N	2.07	0.69
2:B:262:GLN:HE22	2:B:282:SER:N	1.80	0.69
2:B:529:PHE:O	2:B:531:LYS:N	2.25	0.69
2:B:58:LEU:O	2:B:62:ARG:HG3	1.93	0.68
2:B:410:TRP:HZ3	2:B:454:PHE:O	1.77	0.68
2:B:262:GLN:HE22	2:B:283:GLN:H	1.41	0.68
2:B:406:PRO:HD3	2:B:524:ILE:CD1	2.23	0.68
2:C:400:PRO:HG2	2:C:403:VAL:CG2	2.23	0.68
2:B:386:SER:HB3	2:B:389:ASP:OD2	1.94	0.68
2:B:16:ARG:HH11	2:B:16:ARG:HG3	1.58	0.68
2:C:333:LEU:O	2:C:337:PHE:CD1	2.47	0.68
2:B:400:PRO:HD3	2:B:540:TYR:CE1	2.29	0.68
2:B:341:GLU:OE1	2:B:347:LYS:HE3	1.92	0.68
2:C:331:ALA:O	2:C:335:MET:HG3	1.94	0.67
2:C:255:GLU:CG	2:C:280:ALA:HB2	2.23	0.67
1:A:97:MET:HE2	1:A:186:MET:HB3	1.76	0.67
2:B:374:LEU:O	2:B:374:LEU:HD13	1.94	0.67
2:B:75:PHE:HB2	2:B:84:ALA:HB2	1.75	0.67
2:B:142:LYS:HG2	5:B:636:HOH:O	1.95	0.67
2:C:461:HIS:HB2	5:C:611:HOH:O	1.95	0.67

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:B:476:GLY:O	2:B:479:ILE:HG22	1.96	0.66
2:B:5:ILE:HA	5:B:603:HOH:O	1.94	0.66
2:B:190:LEU:HD12	2:B:207:ILE:HG13	1.77	0.66
2:B:338:LYS:HB3	2:B:365:CYS:SG	2.36	0.66
2:B:262:GLN:NE2	2:B:283:GLN:H	1.92	0.66
2:C:302:LEU:HG	2:C:337:PHE:CZ	2.31	0.66
2:B:532:PHE:CE1	2:B:535:LEU:HB2	2.30	0.66
2:C:307:MET:CG	2:C:308:PRO:HD2	2.21	0.65
2:B:143:LYS:HE2	5:B:562:HOH:O	1.96	0.65
2:B:343:LYS:N	2:B:343:LYS:HD3	2.11	0.65
2:C:227:THR:HG22	2:C:229:VAL:N	2.11	0.65
1:A:166:MET:HE1	1:A:171:LEU:CB	2.26	0.65
2:B:394:ALA:O	2:B:397:VAL:HG23	1.97	0.65
2:B:407:VAL:HG21	2:B:452:LEU:HD21	1.78	0.65
2:B:230:VAL:HG21	2:C:209:LEU:HD13	1.78	0.65
2:B:452:LEU:O	2:B:452:LEU:HD23	1.97	0.65
2:C:209:LEU:HD23	2:C:212:LYS:CE	2.26	0.65
2:C:479:ILE:O	2:C:479:ILE:HG22	1.98	0.64
2:B:398:VAL:O	2:B:398:VAL:HG23	1.96	0.64
2:B:16:ARG:HH12	2:B:109:GLN:HG2	1.63	0.64
1:A:196:ARG:HB2	1:A:196:ARG:NH1	2.12	0.64
1:A:106:PRO:HG3	2:B:116:ASP:O	1.98	0.64
2:B:395:PHE:CE2	2:B:472:THR:HG22	2.32	0.64
2:C:479:ILE:HD12	2:C:479:ILE:N	2.13	0.64
2:C:473:ILE:CD1	2:C:543:LEU:HD22	2.27	0.64
2:B:37:THR:N	2:B:40:HIS:HD2	1.93	0.63
2:B:321:LYS:O	2:B:325:LEU:HG	1.98	0.63
2:C:361:VAL:HG23	5:C:618:HOH:O	1.97	0.63
2:B:68:LEU:HD12	2:B:91:ILE:CD1	2.28	0.63
2:B:449:MET:HB2	2:B:450:PRO:CA	2.28	0.63
2:C:308:PRO:O	2:C:309:MET:HB2	1.97	0.63
2:C:434:LEU:HD21	2:C:454:PHE:CG	2.34	0.63
2:C:232:LYS:HE2	2:C:260:TRP:CD2	2.33	0.63
1:A:171:LEU:HD12	1:A:206:ILE:HD13	1.81	0.63
2:C:400:PRO:CG	2:C:403:VAL:HG21	2.27	0.63
2:B:382:VAL:HA	2:B:385:LEU:HD12	1.81	0.63
2:C:227:THR:CG2	2:C:229:VAL:H	2.12	0.62
1:A:77:ARG:HG2	5:A:271:HOH:O	1.97	0.62
1:A:189:VAL:HG22	1:A:192:GLN:OE1	1.99	0.62
2:C:399:MET:CE	2:C:405:ILE:HG21	2.29	0.62
2:C:433:ARG:CB	2:C:433:ARG:HH11	2.04	0.62
1:A:204:LEU:CD1	2:B:209:LEU:HD22	2.29	0.62

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:B:395:PHE:HD1	2:B:415:PRO:CD	2.11	0.62
1:A:153:VAL:CG1	1:A:174:LEU:HD23	2.29	0.62
2:C:307:MET:HG3	2:C:308:PRO:CD	2.23	0.62
2:C:302:LEU:CD2	2:C:307:MET:HG2	2.30	0.62
2:C:399:MET:CE	2:C:405:ILE:HD13	2.30	0.62
2:C:448:ARG:HB3	2:C:452:LEU:CD2	2.30	0.62
2:B:347:LYS:O	2:B:350:GLN:HB2	1.99	0.62
2:C:244:ASN:HA	2:C:267:ARG:NH1	2.14	0.62
2:B:165:LYS:NZ	4:B:551:ATP:O1G	2.31	0.62
2:B:381:CYS:O	2:B:384:VAL:HG22	2.00	0.61
2:C:443:LEU:N	2:C:443:LEU:HD12	2.15	0.61
2:B:395:PHE:CD1	2:B:415:PRO:HD3	2.29	0.61
2:B:98:PRO:C	2:B:100:LEU:H	2.03	0.61
5:A:260:HOH:O	2:B:49:THR:HG23	1.99	0.61
2:C:342:PRO:O	2:C:343:LYS:CB	2.47	0.61
2:C:154:PHE:HB3	2:C:156:PHE:CE1	2.34	0.61
2:C:239:LEU:HD11	2:C:266:LEU:HD21	1.83	0.61
2:B:108:PRO:HB2	2:B:109:GLN:NE2	2.14	0.61
2:C:262:GLN:HE22	2:C:283:GLN:H	1.48	0.61
2:B:336:PHE:HE1	2:B:355:LEU:HD11	1.65	0.61
2:B:171:GLN:HG3	5:B:627:HOH:O	2.00	0.61
2:C:384:VAL:HG12	2:C:384:VAL:O	1.99	0.61
2:B:484:LEU:HD23	2:B:485:LEU:H	1.65	0.61
2:C:393:LEU:HB2	2:C:437:LEU:CD1	2.31	0.60
2:C:253:VAL:HB	5:C:566:HOH:O	2.00	0.60
2:C:397:VAL:HG13	2:C:398:VAL:H	1.66	0.60
2:B:157:LEU:O	2:B:165:LYS:HD2	2.01	0.60
2:B:475:ASN:O	2:B:479:ILE:HB	2.02	0.60
2:B:223:VAL:HG12	2:B:223:VAL:O	2.01	0.60
2:B:132:ILE:O	2:B:134:GLU:N	2.34	0.60
2:C:142:LYS:O	2:C:146:GLU:HG2	2.02	0.60
2:C:393:LEU:C	2:C:395:PHE:H	2.05	0.60
2:C:477:ILE:O	2:C:480:LEU:HD22	2.01	0.60
2:B:393:LEU:CD1	2:B:464:LEU:HD21	2.31	0.60
2:B:223:VAL:HG13	2:B:226:VAL:HB	1.83	0.60
2:B:367:THR:HB	2:B:368:PRO:CD	2.27	0.60
2:B:347:LYS:CB	5:B:662:HOH:O	2.47	0.60
2:B:384:VAL:O	2:B:440:ARG:NH1	2.35	0.60
1:A:143:ARG:NH2	2:B:206:ASP:OD2	2.35	0.59
2:B:331:ALA:O	2:B:335:MET:HG3	2.01	0.59
2:B:451:VAL:O	2:B:453:THR:HG23	2.02	0.59
2:C:481:GLU:OE2	2:C:533:MET:HE2	2.01	0.59

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:C:460:ILE:O	2:C:463:PHE:HB3	2.01	0.59
1:A:93:ARG:C	1:A:95:ASN:H	2.04	0.59
2:B:406:PRO:HD3	2:B:524:ILE:HD11	1.84	0.59
2:C:401:PRO:HB3	5:C:611:HOH:O	2.02	0.59
2:C:332:THR:HA	2:C:335:MET:CE	2.10	0.59
2:C:456:ILE:HG12	5:C:611:HOH:O	2.01	0.59
2:B:469:ASP:C	2:B:471:GLN:H	2.05	0.59
2:B:407:VAL:HG23	2:B:452:LEU:HD21	1.83	0.59
1:A:110:GLN:H	1:A:113:HIS:HD2	1.45	0.59
1:A:74:GLU:HB3	2:B:51:LEU:HD12	1.85	0.59
1:A:143:ARG:HA	1:A:194:GLN:NE2	2.12	0.59
2:B:479:ILE:O	2:B:483:ARG:HD3	2.03	0.58
2:B:410:TRP:CD1	2:B:414:ILE:HD13	2.38	0.58
2:B:276:GLU:OE1	2:B:440:ARG:HD2	2.03	0.58
2:C:400:PRO:HG2	2:C:405:ILE:HD11	1.84	0.58
2:B:405:ILE:HD12	2:B:409:LEU:HD12	1.84	0.58
1:A:208:THR:HG21	2:B:217:LEU:N	2.14	0.58
2:B:529:PHE:N	2:B:530:PRO:HD2	2.17	0.58
2:C:435:LYS:HA	2:C:454:PHE:CE2	2.39	0.58
1:A:165:PRO:HD2	1:A:213:ASN:OD1	2.04	0.58
2:C:393:LEU:HB2	2:C:437:LEU:HD13	1.85	0.58
1:A:84:VAL:CG2	5:A:279:HOH:O	2.52	0.58
1:A:84:VAL:HG23	5:A:279:HOH:O	2.03	0.58
2:B:526:PRO:O	2:B:530:PRO:HD2	2.04	0.57
2:B:59:ARG:HD2	5:B:555:HOH:O	2.03	0.57
2:B:122:GLY:O	2:B:123:ASN:HB2	2.04	0.57
2:B:407:VAL:O	2:B:410:TRP:N	2.37	0.57
2:B:484:LEU:HD23	2:B:485:LEU:N	2.19	0.57
2:B:529:PHE:C	2:B:531:LYS:N	2.58	0.57
2:B:341:GLU:HB2	2:B:342:PRO:CD	2.34	0.57
2:C:197:PRO:HD2	5:C:582:HOH:O	2.05	0.57
1:A:185:MET:HE2	1:A:194:GLN:HB2	1.86	0.56
2:B:475:ASN:N	2:B:475:ASN:HD22	2.04	0.56
2:B:347:LYS:O	2:B:351:LEU:HD23	2.05	0.56
2:B:461:HIS:HD2	5:B:574:HOH:O	1.88	0.56
2:B:434:LEU:HD22	2:B:444:LEU:HD23	1.86	0.56
2:C:428:ASP:HA	2:C:431:ALA:HB3	1.87	0.56
2:C:329:ASN:HA	5:C:572:HOH:O	2.05	0.56
2:C:223:VAL:HG12	2:C:224:GLU:O	2.06	0.56
2:B:130:CYS:HB3	2:B:305:TYR:CE1	2.40	0.56
2:B:72:ILE:HD13	2:B:87:LEU:HB2	1.87	0.56
1:A:196:ARG:HH21	2:B:125:PRO:HG3	1.71	0.56

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:B:428:ASP:O	2:B:431:ALA:HB3	2.05	0.56
2:C:123:ASN:ND2	2:C:210:MET:CE	2.67	0.56
2:B:388:GLU:HB2	2:B:433:ARG:NE	2.19	0.56
2:B:289:GLU:HG3	2:B:291:THR:HG23	1.87	0.56
2:C:155:LEU:HD12	2:C:269:LEU:CD1	2.36	0.56
2:C:141:ILE:HG23	2:C:179:LEU:HD13	1.87	0.56
2:B:302:LEU:HD23	2:B:337:PHE:CE1	2.41	0.55
2:C:480:LEU:HD23	2:C:481:GLU:N	2.20	0.55
2:B:399:MET:HG3	2:B:400:PRO:HD2	1.88	0.55
2:B:207:ILE:HD11	2:B:249:PHE:CE2	2.41	0.55
2:B:538:LYS:O	2:B:538:LYS:HD3	2.06	0.55
2:B:158:HIS:H	2:B:158:HIS:CD2	2.24	0.55
2:C:459:ILE:HG23	2:C:460:ILE:N	2.20	0.55
2:B:534:GLN:OE1	2:B:537:GLN:HG3	2.07	0.55
2:B:341:GLU:CB	2:B:342:PRO:HD3	2.34	0.55
1:A:208:THR:HG22	1:A:211:ARG:HH21	1.72	0.55
2:B:16:ARG:NH1	2:B:16:ARG:HG3	2.22	0.55
2:C:209:LEU:HD23	2:C:212:LYS:HE2	1.88	0.55
2:C:298:CYS:O	2:C:302:LEU:HD12	2.07	0.54
2:B:475:ASN:H	2:B:475:ASN:HD22	1.53	0.54
1:A:112:GLU:HA	1:A:225:MET:CE	2.35	0.54
1:A:207:LYS:HE3	5:A:254:HOH:O	2.07	0.54
2:C:367:THR:HB	2:C:368:PRO:CD	2.37	0.54
2:C:205:THR:HG23	2:C:223:VAL:CG2	2.37	0.54
2:B:94:ALA:O	2:B:98:PRO:HG3	2.07	0.54
2:B:98:PRO:O	2:B:100:LEU:N	2.41	0.54
2:C:456:ILE:HG23	5:C:611:HOH:O	2.07	0.54
2:C:209:LEU:HD23	2:C:212:LYS:HE3	1.89	0.54
2:C:274:ASP:OD1	2:C:440:ARG:HG2	2.07	0.54
2:B:19:HIS:HD2	2:B:20:ASP:OD2	1.91	0.54
2:C:291:THR:HG22	2:C:292:SER:H	1.71	0.54
2:B:18:ILE:HG23	2:B:51:LEU:CD2	2.36	0.54
2:B:43:LEU:HG	5:B:693:HOH:O	2.08	0.54
1:A:149:TYR:O	1:A:153:VAL:HG23	2.06	0.54
2:C:427:ASP:HB3	2:C:430:VAL:HB	1.89	0.54
2:C:173:LEU:HD23	2:C:179:LEU:HD23	1.88	0.54
2:B:154:PHE:HB3	2:B:156:PHE:CE1	2.42	0.54
2:C:443:LEU:O	2:C:444:LEU:HD12	2.07	0.54
2:C:237:ASN:O	2:C:240:ILE:HG22	2.07	0.54
2:B:347:LYS:HD3	2:B:347:LYS:O	2.08	0.54
2:B:118:LYS:HD3	5:B:695:HOH:O	2.08	0.54
2:B:325:LEU:O	2:B:459:ILE:HG23	2.08	0.53

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:C:123:ASN:HD21	2:C:210:MET:HE2	1.73	0.53
2:B:55:ALA:O	2:B:59:ARG:HG3	2.08	0.53
2:C:291:THR:HG22	2:C:292:SER:N	2.23	0.53
2:C:292:SER:HB3	2:C:327:SER:O	2.07	0.53
2:C:203:LEU:HD11	2:C:249:PHE:HE2	1.72	0.53
2:C:468:VAL:O	2:C:468:VAL:HG13	2.08	0.53
2:C:364:GLU:O	2:C:365:CYS:HB3	2.07	0.53
2:B:347:LYS:NZ	2:B:351:LEU:HD21	2.24	0.53
2:C:342:PRO:O	2:C:343:LYS:HB3	2.08	0.53
2:C:205:THR:HG23	2:C:223:VAL:HG21	1.90	0.53
2:B:302:LEU:O	2:B:307:MET:HB2	2.09	0.53
2:C:464:LEU:O	2:C:468:VAL:HG12	2.09	0.53
2:B:109:GLN:O	2:B:110:PHE:HB2	2.09	0.53
2:B:482:GLN:HE21	2:B:482:GLN:HA	1.74	0.53
2:B:521:GLU:HG3	2:B:523:VAL:HG12	1.90	0.53
2:B:187:ILE:HG12	2:B:188:VAL:N	2.23	0.53
2:B:141:ILE:HD13	2:B:176:SER:HB2	1.89	0.53
2:C:337:PHE:N	2:C:337:PHE:HD1	2.06	0.53
2:C:337:PHE:N	2:C:337:PHE:CD1	2.76	0.53
2:B:527:GLU:C	2:B:530:PRO:HD2	2.29	0.53
2:B:112:ARG:NH2	2:B:174:SER:O	2.34	0.53
2:B:102:ARG:HG2	2:B:182:ILE:CG2	2.40	0.53
2:C:478:SER:HB2	2:C:479:ILE:HD12	1.89	0.52
2:B:343:LYS:H	2:B:343:LYS:HD3	1.73	0.52
2:C:203:LEU:HD12	2:C:204:PHE:CE1	2.44	0.52
1:A:118:VAL:O	1:A:122:ILE:HG12	2.10	0.52
2:B:459:ILE:HD12	2:B:460:ILE:H	1.69	0.52
2:C:393:LEU:CD1	2:C:443:LEU:HD22	2.40	0.52
2:B:378:LEU:O	2:B:382:VAL:HG23	2.09	0.52
1:A:153:VAL:HG12	1:A:153:VAL:O	2.09	0.52
2:B:37:THR:HG23	2:B:40:HIS:CD2	2.45	0.52
2:B:354:LYS:HA	2:B:357:SER:OG	2.10	0.52
2:C:147:MET:HE1	2:C:155:LEU:HD23	1.91	0.52
2:B:302:LEU:HD23	2:B:337:PHE:CZ	2.44	0.52
2:B:478:SER:HA	2:B:481:GLU:HB2	1.92	0.52
2:C:308:PRO:HB2	2:C:345:PHE:CZ	2.44	0.52
1:A:171:LEU:HD21	1:A:221:TRP:CH2	2.44	0.52
2:B:439:LYS:HE2	2:C:341:GLU:OE1	2.10	0.52
2:B:408:LYS:HE3	2:B:527:GLU:OE2	2.10	0.52
2:B:327:SER:OG	2:B:457:ASP:HB3	2.09	0.52
1:A:99:TRP:CE3	1:A:102:ALA:HB2	2.45	0.52
2:C:133:ARG:HG2	2:C:136:HIS:CD2	2.41	0.52

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:B:425:GLN:OE1	2:C:350:GLN:HG3	2.10	0.52
2:C:396:ALA:O	2:C:399:MET:HB2	2.10	0.52
2:C:479:ILE:HD12	2:C:479:ILE:H	1.74	0.52
1:A:141:VAL:HG13	1:A:142:PRO:HD2	1.92	0.51
2:B:471:GLN:O	2:B:475:ASN:ND2	2.43	0.51
1:A:67:ASP:O	2:B:53:ARG:NH2	2.30	0.51
2:C:398:VAL:HG22	2:C:473:ILE:HG13	1.93	0.51
2:C:228:SER:HB3	2:C:260:TRP:CH2	2.46	0.51
2:B:526:PRO:HD2	2:B:529:PHE:CD1	2.46	0.51
2:B:98:PRO:C	2:B:100:LEU:N	2.64	0.51
1:A:70:ILE:HD11	2:B:18:ILE:HG22	1.93	0.51
2:C:397:VAL:HG13	2:C:398:VAL:HG23	1.92	0.51
2:C:405:ILE:N	2:C:453:THR:HG23	2.26	0.51
2:C:112:ARG:NH1	2:C:115:LEU:HD12	2.26	0.51
2:C:406:PRO:HG2	2:C:409:LEU:HG	1.93	0.51
2:C:477:ILE:O	2:C:480:LEU:HB3	2.11	0.51
2:B:190:LEU:CD1	2:B:207:ILE:HG13	2.40	0.51
1:A:192:GLN:O	1:A:194:GLN:N	2.44	0.50
2:C:429:GLU:HG3	2:C:429:GLU:O	2.11	0.50
2:C:389:ASP:HA	2:C:392:ALA:HB3	1.93	0.50
2:B:344:THR:HG22	2:B:346:GLU:H	1.76	0.50
2:C:468:VAL:O	2:C:469:ASP:C	2.49	0.50
2:B:158:HIS:CE1	2:B:289:GLU:HB3	2.46	0.50
2:C:406:PRO:HD2	2:C:409:LEU:CD1	2.31	0.50
2:C:123:ASN:ND2	2:C:210:MET:HE1	2.22	0.50
2:B:47:MET:HB3	2:B:52:GLU:HB3	1.93	0.50
1:A:97:MET:CE	1:A:186:MET:HB3	2.40	0.50
2:B:137:VAL:O	2:B:141:ILE:HG13	2.11	0.50
2:C:133:ARG:CG	2:C:136:HIS:HD2	2.23	0.50
2:B:173:LEU:HD13	2:B:187:ILE:CD1	2.42	0.50
2:B:426:LEU:HB3	5:B:668:HOH:O	2.12	0.50
2:B:262:GLN:NE2	2:B:283:GLN:N	2.56	0.50
2:C:109:GLN:O	2:C:113:GLN:HG3	2.12	0.50
2:C:395:PHE:O	2:C:397:VAL:N	2.46	0.49
2:B:139:ARG:NH2	2:B:143:LYS:HE3	2.27	0.49
2:C:319:LEU:O	2:C:323:ILE:HG13	2.11	0.49
2:C:242:ARG:N	2:C:243:PRO:HD3	2.28	0.49
1:A:208:THR:CG2	2:B:217:LEU:H	2.20	0.49
2:B:363:VAL:O	2:B:363:VAL:HG13	2.12	0.49
2:C:397:VAL:O	2:C:399:MET:N	2.45	0.49
2:C:480:LEU:C	2:C:480:LEU:HD23	2.33	0.49
2:B:457:ASP:O	2:B:460:ILE:HG22	2.12	0.49

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:C:464:LEU:HA	2:C:467:VAL:CG1	2.37	0.49
2:B:1:MET:HE1	2:C:117:ARG:HE	1.78	0.49
2:C:405:ILE:N	2:C:453:THR:CG2	2.75	0.49
2:B:405:ILE:HG23	2:B:410:TRP:CZ3	2.47	0.49
2:B:97:GLU:N	2:B:98:PRO:HD3	2.27	0.49
2:B:152:SER:OG	2:B:283:GLN:NE2	2.46	0.49
5:B:553:HOH:O	2:C:117:ARG:HD2	2.12	0.49
2:C:393:LEU:O	2:C:395:PHE:N	2.43	0.49
2:B:347:LYS:HZ2	2:B:351:LEU:HD21	1.78	0.49
2:C:160:ARG:HH11	2:C:459:ILE:HG21	1.78	0.49
2:C:397:VAL:HG13	2:C:398:VAL:N	2.25	0.49
2:C:477:ILE:HG22	2:C:478:SER:N	2.26	0.49
2:B:68:LEU:O	2:B:72:ILE:HG12	2.13	0.49
2:B:461:HIS:CD2	5:B:574:HOH:O	2.64	0.49
2:C:136:HIS:O	2:C:140:VAL:HG23	2.12	0.49
2:B:477:ILE:CD1	2:B:543:LEU:HG	2.43	0.48
2:B:4:GLU:CD	2:B:267:ARG:HH22	2.16	0.48
1:A:191:LEU:N	1:A:191:LEU:HD12	2.27	0.48
2:C:158:HIS:HA	2:C:272:THR:O	2.12	0.48
2:C:203:LEU:HD11	2:C:249:PHE:CE2	2.48	0.48
2:C:255:GLU:CD	2:C:280:ALA:HB2	2.34	0.48
2:C:459:ILE:CG2	2:C:460:ILE:N	2.77	0.48
2:B:537:GLN:HG2	2:B:541:ASP:OD1	2.13	0.48
2:C:299:TYR:CZ	2:C:319:LEU:HD23	2.48	0.48
1:A:100:PHE:CD2	2:B:368:PRO:HA	2.48	0.48
2:B:198:LYS:HD2	5:B:694:HOH:O	2.12	0.48
2:B:541:ASP:O	2:B:543:LEU:N	2.45	0.48
1:A:203:SER:O	1:A:207:LYS:HB2	2.14	0.48
2:C:475:ASN:N	2:C:475:ASN:HD22	2.12	0.48
2:B:322:THR:CA	2:B:352:ASN:HD21	2.27	0.48
2:B:413:VAL:HG23	2:B:414:ILE:HD12	1.96	0.48
2:B:410:TRP:CZ3	2:B:454:PHE:O	2.61	0.48
2:C:427:ASP:O	2:C:431:ALA:HB2	2.13	0.48
2:C:274:ASP:O	2:C:277:ILE:HG12	2.14	0.48
1:A:185:MET:CE	1:A:194:GLN:HB2	2.42	0.48
2:B:480:LEU:C	2:B:482:GLN:H	2.16	0.48
2:C:410:TRP:O	2:C:413:VAL:HG22	2.14	0.48
2:B:468:VAL:O	2:B:469:ASP:C	2.51	0.47
2:B:527:GLU:O	2:B:530:PRO:HG2	2.14	0.47
2:C:407:VAL:HG11	2:C:431:ALA:HB2	1.95	0.47
2:B:100:LEU:O	2:B:103:PRO:HD2	2.14	0.47
2:C:191:LYS:HA	2:C:250:ASP:HB3	1.96	0.47

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:B:160:ARG:HB2	2:B:442:ALA:HB3	1.96	0.47
2:B:444:LEU:HB3	5:B:687:HOH:O	2.14	0.47
2:C:187:ILE:HG12	2:C:188:VAL:N	2.28	0.47
2:B:307:MET:HA	2:B:308:PRO:HD3	1.81	0.47
2:B:434:LEU:HD22	2:B:444:LEU:CD2	2.43	0.47
2:B:102:ARG:HG2	2:B:182:ILE:HG23	1.95	0.47
2:C:255:GLU:HG3	2:C:280:ALA:HB2	1.97	0.47
2:C:384:VAL:HG12	2:C:440:ARG:HH12	1.80	0.47
2:B:26:ALA:HB2	2:B:74:PHE:CZ	2.49	0.47
2:C:447:LYS:N	2:C:453:THR:O	2.47	0.47
2:C:481:GLU:N	5:C:587:HOH:O	2.47	0.47
2:B:173:LEU:HD13	2:B:187:ILE:HD12	1.96	0.47
2:C:469:ASP:O	2:C:471:GLN:N	2.48	0.47
2:B:451:VAL:CG2	2:B:451:VAL:O	2.63	0.47
2:C:386:SER:O	2:C:389:ASP:N	2.47	0.47
1:A:208:THR:HG21	2:B:217:LEU:HB2	1.96	0.47
2:B:485:LEU:HD12	2:B:486:GLU:N	2.29	0.47
1:A:138:LEU:HD22	1:A:144:ILE:CD1	2.42	0.47
2:C:374:LEU:HA	2:C:374:LEU:HD23	1.78	0.47
2:B:468:VAL:O	2:B:470:ALA:N	2.48	0.47
2:B:409:LEU:CD2	2:B:530:PRO:HB3	2.42	0.47
4:B:551:ATP:H5'2	4:B:551:ATP:H2'	1.55	0.47
2:B:98:PRO:O	2:B:99:ASP:OD1	2.32	0.47
2:B:536:HIS:O	2:B:540:TYR:HD1	1.97	0.46
2:B:157:LEU:HD22	2:B:290:VAL:HG23	1.96	0.46
2:B:273:ARG:HD3	2:B:381:CYS:SG	2.54	0.46
1:A:92:ILE:HD13	1:A:99:TRP:HB2	1.97	0.46
2:C:435:LYS:HA	2:C:454:PHE:HE2	1.79	0.46
2:B:374:LEU:HD13	2:B:378:LEU:HG	1.96	0.46
2:C:239:LEU:HD11	2:C:266:LEU:CD2	2.45	0.46
2:B:355:LEU:HD21	2:B:363:VAL:CG1	2.45	0.46
1:A:93:ARG:C	1:A:95:ASN:N	2.69	0.46
2:B:477:ILE:HD12	2:B:543:LEU:HG	1.97	0.46
2:C:203:LEU:C	2:C:203:LEU:HD13	2.36	0.46
2:C:328:GLY:O	2:C:330:PRO:HD3	2.15	0.46
2:C:165:LYS:HG2	2:C:290:VAL:HG21	1.97	0.46
2:B:537:GLN:C	2:B:539:PHE:N	2.68	0.46
2:C:112:ARG:O	2:C:112:ARG:HD3	2.16	0.46
1:A:197:ASN:HD22	1:A:197:ASN:H	1.63	0.46
2:C:155:LEU:C	2:C:155:LEU:HD13	2.36	0.46
1:A:122:ILE:HD12	1:A:235:TYR:CD2	2.51	0.46
2:B:410:TRP:CZ3	2:B:454:PHE:HB2	2.51	0.46

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:C:112:ARG:NH1	2:C:116:ASP:OD1	2.49	0.46
2:B:467:VAL:HG12	2:B:467:VAL:O	2.15	0.46
2:C:480:LEU:HD11	2:C:540:TYR:CE1	2.50	0.46
2:C:160:ARG:HB3	5:C:576:HOH:O	2.16	0.46
2:C:475:ASN:O	2:C:479:ILE:HD13	2.16	0.46
2:B:212:LYS:HE2	5:C:554:HOH:O	2.15	0.46
2:C:395:PHE:C	2:C:397:VAL:H	2.18	0.46
2:B:351:LEU:O	2:B:352:ASN:C	2.53	0.46
2:B:342:PRO:CD	2:B:347:LYS:HG3	2.45	0.45
2:B:344:THR:C	2:B:346:GLU:N	2.69	0.45
2:B:523:VAL:HG22	2:B:524:ILE:H	1.82	0.45
1:A:223:ASP:O	1:A:227:LEU:HD13	2.17	0.45
2:B:469:ASP:C	2:B:471:GLN:N	2.61	0.45
2:B:220:PHE:CD1	2:B:221:PRO:HD2	2.51	0.45
1:A:71:ASN:HB3	1:A:73:TRP:CZ3	2.50	0.45
1:A:163:GLN:N	5:A:267:HOH:O	2.48	0.45
2:B:456:ILE:HG23	2:B:456:ILE:O	2.15	0.45
1:A:92:ILE:HG23	1:A:97:MET:HB2	1.99	0.45
2:B:335:MET:CE	2:B:373:SER:HA	2.46	0.45
2:B:469:ASP:O	2:B:472:THR:N	2.48	0.45
2:B:344:THR:C	2:B:346:GLU:H	2.19	0.45
2:B:115:LEU:CD1	2:B:177:ASP:HA	2.47	0.45
1:A:232:LYS:O	1:A:236:GLU:HG3	2.16	0.45
2:B:224:GLU:HG2	2:B:225:HIS:CD2	2.51	0.45
2:B:322:THR:N	2:B:352:ASN:HD21	2.15	0.45
2:B:529:PHE:H	2:B:530:PRO:HD2	1.81	0.45
2:B:336:PHE:CE1	2:B:355:LEU:HD11	2.50	0.45
1:A:122:ILE:HD12	1:A:235:TYR:CG	2.52	0.45
2:B:426:LEU:HD23	2:B:426:LEU:N	2.31	0.45
2:C:302:LEU:HG	2:C:337:PHE:HZ	1.82	0.45
2:B:182:ILE:N	2:B:182:ILE:HD12	2.32	0.45
2:B:131:TYR:HD1	2:B:301:PHE:HD1	1.65	0.45
2:C:278:SER:C	2:C:280:ALA:H	2.20	0.45
2:C:474:ALA:O	2:C:477:ILE:HB	2.17	0.45
2:B:163:SER:HB2	2:B:290:VAL:CG1	2.43	0.45
2:B:161:ALA:O	2:B:374:LEU:HD21	2.16	0.45
2:C:141:ILE:HG23	2:C:179:LEU:CD1	2.47	0.45
2:B:21:PHE:CD2	2:B:22:GLU:N	2.85	0.45
2:C:479:ILE:CD1	2:C:479:ILE:N	2.80	0.45
2:C:448:ARG:HB3	2:C:452:LEU:HG	1.98	0.45
2:C:154:PHE:HZ	2:C:261:ALA:HB3	1.82	0.45
2:B:179:LEU:HA	2:B:183:ASN:HB2	1.99	0.45

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:C:133:ARG:NE	2:C:136:HIS:CD2	2.85	0.44
2:B:102:ARG:N	2:B:103:PRO:CD	2.80	0.44
2:C:244:ASN:HA	2:C:267:ARG:HH11	1.81	0.44
2:B:4:GLU:OE2	2:B:267:ARG:NH2	2.50	0.44
2:B:152:SER:HG	2:C:126:LYS:HZ2	1.65	0.44
2:C:403:VAL:HG23	2:C:403:VAL:O	2.16	0.44
2:B:331:ALA:HA	4:B:551:ATP:O3'	2.17	0.44
2:B:333:LEU:O	2:B:336:PHE:HB2	2.17	0.44
2:C:274:ASP:OD1	2:C:440:ARG:HA	2.17	0.44
2:C:196:ALA:HB1	2:C:197:PRO:CD	2.47	0.44
2:B:474:ALA:HA	2:B:477:ILE:HG22	1.99	0.44
2:B:463:PHE:O	2:B:467:VAL:HG23	2.16	0.44
2:B:159:GLY:N	2:B:165:LYS:HD3	2.32	0.44
2:C:467:VAL:HG13	2:C:468:VAL:N	2.32	0.44
2:C:379:GLN:O	2:C:383:GLU:HG3	2.17	0.44
2:B:393:LEU:HD22	2:B:393:LEU:O	2.17	0.44
2:B:97:GLU:O	2:B:100:LEU:HB2	2.18	0.44
2:B:274:ASP:O	2:B:277:ILE:HG12	2.18	0.44
2:C:386:SER:O	2:C:388:GLU:N	2.50	0.44
2:B:165:LYS:NZ	4:B:551:ATP:O2B	2.46	0.44
2:B:393:LEU:HD22	2:B:464:LEU:HD11	1.99	0.44
2:B:223:VAL:CG1	2:B:226:VAL:HB	2.47	0.44
2:C:399:MET:HE3	2:C:405:ILE:HD13	2.00	0.44
2:B:405:ILE:HD11	2:B:409:LEU:HB3	1.99	0.44
2:C:187:ILE:HG12	2:C:188:VAL:H	1.83	0.44
2:C:480:LEU:N	5:C:587:HOH:O	2.50	0.44
2:B:410:TRP:C	2:B:412:CYS:N	2.71	0.44
1:A:153:VAL:C	1:A:155:THR:H	2.20	0.44
2:B:374:LEU:O	2:B:377:ALA:HB3	2.17	0.44
2:C:164:GLY:O	2:C:168:ILE:HG13	2.18	0.44
2:B:362:GLY:C	2:B:364:GLU:H	2.21	0.44
2:B:50:ARG:O	2:B:54:ILE:HG13	2.17	0.43
2:B:123:ASN:HD22	2:B:210:MET:CE	2.31	0.43
2:C:355:LEU:HD21	2:C:363:VAL:HG13	2.00	0.43
2:B:152:SER:HB3	2:B:265:ARG:O	2.17	0.43
2:B:407:VAL:HG23	2:B:452:LEU:CD2	2.46	0.43
2:B:523:VAL:HG22	2:B:524:ILE:N	2.32	0.43
2:B:131:TYR:CD1	2:B:301:PHE:HD1	2.36	0.43
2:B:3:CYS:SG	2:B:6:GLU:HG3	2.58	0.43
2:B:400:PRO:HD3	2:B:540:TYR:CZ	2.53	0.43
2:B:410:TRP:C	2:B:412:CYS:H	2.21	0.43
2:C:367:THR:HB	2:C:368:PRO:HD2	2.00	0.43

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:C:473:ILE:HG23	2:C:474:ALA:N	2.33	0.43
2:B:102:ARG:NH1	2:B:149:ASP:OD1	2.49	0.43
2:C:118:LYS:HE2	5:C:629:HOH:O	2.17	0.43
2:B:342:PRO:HG2	2:B:347:LYS:HG3	1.99	0.43
2:C:154:PHE:CE2	2:C:258:ILE:HG23	2.52	0.43
2:B:18:ILE:C	2:B:50:ARG:HH22	2.19	0.43
2:B:425:GLN:HE21	2:C:353:ASN:HD22	1.67	0.43
2:C:368:PRO:HD2	4:C:551:ATP:O2'	2.19	0.43
1:A:171:LEU:CD1	1:A:206:ILE:HD13	2.47	0.43
2:B:374:LEU:CD1	2:B:378:LEU:HG	2.49	0.43
2:B:75:PHE:CB	2:B:84:ALA:HB2	2.44	0.43
2:C:276:GLU:OE2	2:C:439:LYS:HE3	2.18	0.43
2:C:302:LEU:CD1	2:C:319:LEU:HD11	2.45	0.42
2:C:345:PHE:HA	2:C:348:MET:HB2	2.00	0.42
2:C:405:ILE:O	2:C:453:THR:HG23	2.19	0.42
2:B:535:LEU:HD23	2:B:535:LEU:O	2.18	0.42
2:C:403:VAL:HG23	2:C:405:ILE:HG13	2.01	0.42
2:C:432:ASP:HA	2:C:435:LYS:CB	2.45	0.42
2:B:329:ASN:OD1	2:B:332:THR:N	2.45	0.42
1:A:143:ARG:NH1	5:A:282:HOH:O	2.51	0.42
1:A:192:GLN:C	1:A:194:GLN:H	2.23	0.42
2:C:123:ASN:ND2	2:C:210:MET:HE2	2.33	0.42
2:B:451:VAL:HG23	2:B:451:VAL:O	2.20	0.42
1:A:170:ARG:HH11	1:A:170:ARG:HG3	1.83	0.42
2:B:319:LEU:HD23	2:B:320:ASN:N	2.34	0.42
2:B:405:ILE:CD1	2:B:409:LEU:HB3	2.49	0.42
1:A:186:MET:C	1:A:188:SER:H	2.22	0.42
2:B:188:VAL:HG13	2:B:210:MET:HG2	2.01	0.42
1:A:78:LEU:O	1:A:79:ASP:C	2.57	0.42
2:B:457:ASP:N	2:B:457:ASP:OD2	2.52	0.42
2:B:401:PRO:HA	2:B:456:ILE:O	2.20	0.42
2:C:203:LEU:HD12	2:C:204:PHE:CD1	2.55	0.42
2:C:110:PHE:O	2:C:114:MET:HG2	2.20	0.42
2:B:143:LYS:NZ	2:B:286:GLU:HG3	2.34	0.42
2:B:336:PHE:CD1	2:B:363:VAL:HG21	2.55	0.42
2:B:387:ASP:OD1	2:B:390:ARG:NH2	2.53	0.42
2:B:354:LYS:HA	2:B:354:LYS:HD3	1.87	0.42
2:B:207:ILE:HD11	2:B:249:PHE:HE2	1.83	0.42
1:A:135:SER:O	1:A:139:LEU:HG	2.20	0.42
2:B:427:ASP:HB2	5:B:616:HOH:O	2.18	0.42
1:A:100:PHE:CG	2:B:368:PRO:HB3	2.55	0.42
2:B:233:ARG:NH2	2:C:210:MET:CE	2.80	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:C:414:ILE:HG21	2:C:430:VAL:HG22	2.02	0.42
2:C:189:TRP:C	2:C:189:TRP:CD1	2.93	0.42
2:B:234:MET:HG2	2:C:217:LEU:CD1	2.50	0.42
1:A:189:VAL:HG11	2:B:370:SER:O	2.20	0.41
2:C:309:MET:HA	2:C:310:PRO:HD3	1.79	0.41
2:C:385:LEU:HD23	2:C:440:ARG:NH2	2.35	0.41
2:C:412:CYS:O	2:C:412:CYS:SG	2.78	0.41
2:B:351:LEU:O	2:B:354:LYS:N	2.53	0.41
2:B:485:LEU:HD12	2:B:485:LEU:C	2.40	0.41
2:B:115:LEU:HD11	2:B:177:ASP:HA	2.02	0.41
1:A:211:ARG:NH2	2:B:215:ASP:O	2.53	0.41
1:A:102:ALA:HA	1:A:103:PRO:HD3	1.98	0.41
2:C:133:ARG:NH1	2:C:293:LEU:HD23	2.36	0.41
2:B:481:GLU:HA	2:B:484:LEU:HD22	2.02	0.41
2:B:208:LEU:CD1	2:B:220:PHE:CZ	3.04	0.41
1:A:91:ARG:HH21	1:A:124:GLU:CD	2.22	0.41
2:B:44:ILE:HD11	2:B:60:ILE:HD12	2.02	0.41
2:C:472:THR:O	5:C:574:HOH:O	2.22	0.41
2:B:335:MET:HE2	2:B:373:SER:HA	2.03	0.41
2:B:173:LEU:HD22	2:B:180:ILE:HD11	2.03	0.41
2:B:345:PHE:CD2	2:B:348:MET:HE3	2.55	0.41
2:C:386:SER:C	2:C:388:GLU:N	2.71	0.41
2:C:389:ASP:C	2:C:391:SER:H	2.23	0.41
2:B:22:GLU:O	2:B:22:GLU:HG3	2.20	0.41
2:B:133:ARG:NE	2:B:136:HIS:CD2	2.89	0.41
2:C:479:ILE:H	2:C:479:ILE:CD1	2.33	0.41
2:B:400:PRO:HA	2:B:401:PRO:HD2	1.92	0.41
1:A:204:LEU:HD21	2:B:213:SER:HB2	2.02	0.41
2:B:143:LYS:HB3	2:B:147:MET:CE	2.51	0.41
2:C:455:LYS:HE2	2:C:455:LYS:HB3	1.84	0.41
2:B:18:ILE:HD12	2:B:51:LEU:CD2	2.39	0.41
2:C:395:PHE:C	2:C:397:VAL:N	2.74	0.41
2:C:535:LEU:HD22	2:C:535:LEU:N	2.35	0.41
2:C:272:THR:HG21	2:C:277:ILE:HD11	2.01	0.41
2:B:340:CYS:SG	2:B:348:MET:HA	2.61	0.41
1:A:127:HIS:C	1:A:129:GLU:H	2.24	0.41
2:C:391:SER:HA	2:C:394:ALA:HB3	2.03	0.41
2:C:535:LEU:CD2	2:C:535:LEU:N	2.84	0.41
1:A:141:VAL:HG12	1:A:143:ARG:H	1.86	0.41
2:B:71:LEU:HD22	2:B:75:PHE:CE1	2.56	0.41
2:C:448:ARG:CB	2:C:452:LEU:HG	2.51	0.41
2:B:534:GLN:CA	2:B:534:GLN:NE2	2.84	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:B:252:VAL:HG11	2:B:258:ILE:CD1	2.52	0.41
2:B:49:THR:HG23	2:B:50:ARG:N	2.36	0.40
1:A:141:VAL:CG1	1:A:142:PRO:HD2	2.51	0.40
2:B:521:GLU:CG	2:B:523:VAL:HG12	2.51	0.40
2:B:26:ALA:HA	2:B:74:PHE:CE1	2.56	0.40
2:B:133:ARG:NE	2:B:136:HIS:HD2	2.19	0.40
2:C:533:MET:N	2:C:535:LEU:HD23	2.36	0.40
2:B:405:ILE:HG13	2:B:409:LEU:HB3	2.03	0.40
2:C:208:LEU:HB2	2:C:235:ILE:CD1	2.50	0.40
2:C:130:CYS:HB3	2:C:305:TYR:OH	2.21	0.40
2:C:333:LEU:HA	2:C:333:LEU:HD23	1.96	0.40
2:B:539:PHE:N	2:B:539:PHE:CD1	2.89	0.40
2:C:242:ARG:HB3	2:C:242:ARG:HE	1.78	0.40
2:B:26:ALA:HB2	2:B:74:PHE:CE2	2.56	0.40
2:B:208:LEU:CD2	2:B:212:LYS:HD2	2.51	0.40
2:C:262:GLN:NE2	2:C:283:GLN:H	2.16	0.40
2:C:187:ILE:HG12	2:C:246:LEU:O	2.21	0.40
2:C:190:LEU:HD12	2:C:207:ILE:CD1	2.52	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	169/204 (83%)	144 (85%)	18 (11%)	7 (4%)	4	5
2	B	493/549 (90%)	430 (87%)	46 (9%)	17 (3%)	6	8
2	C	367/549 (67%)	315 (86%)	36 (10%)	16 (4%)	4	5
All	All	1029/1302 (79%)	889 (86%)	100 (10%)	40 (4%)	5	6

All (40) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	470	ALA

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Mol	Chain	Res	Type
2	C	342	PRO
2	C	343	LYS
2	C	450	PRO
2	C	470	ALA
1	A	69	LYS
1	A	70	ILE
1	A	129	GLU
1	A	190	GLU
1	A	193	GLY
2	B	99	ASP
2	B	133	ARG
2	B	314	LYS
2	B	363	VAL
2	B	465	LYS
2	B	469	ASP
2	C	394	ALA
2	C	396	ALA
2	C	469	ASP
2	B	130	CYS
2	B	148	CYS
2	B	179	LEU
2	C	383	GLU
1	A	94	GLN
1	A	187	GLU
2	B	110	PHE
2	B	308	PRO
2	B	466	HIS
2	B	527	GLU
2	C	309	MET
2	C	398	VAL
2	C	479	ILE
2	B	530	PRO
2	C	308	PRO
2	C	387	ASP
2	C	430	VAL
2	C	468	VAL
2	C	449	MET
2	B	398	VAL
2	B	342	PRO

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	151/179 (84%)	142 (94%)	9 (6%)	27	51
2	B	457/501 (91%)	415 (91%)	42 (9%)	13	24
2	C	338/501 (68%)	312 (92%)	26 (8%)	18	35
All	All	946/1181 (80%)	869 (92%)	77 (8%)	17	32

All (77) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	91	ARG
1	A	94	GLN
1	A	95	ASN
1	A	116	MET
1	A	148	LEU
1	A	155	THR
1	A	198	LEU
1	A	216	GLU
1	A	230	GLN
2	B	8	ARG
2	B	15	THR
2	B	20	ASP
2	B	49	THR
2	B	71	LEU
2	B	77	TYR
2	B	112	ARG
2	B	120	LEU
2	B	129	THR
2	B	146	GLU
2	B	149	ASP
2	B	157	LEU
2	B	179	LEU
2	B	203	LEU
2	B	208	LEU
2	B	209	LEU
2	B	229	VAL
2	B	231	LEU

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Mol	Chain	Res	Type
2	B	269	LEU
2	B	275	VAL
2	B	333	LEU
2	B	336	PHE
2	B	339	SER
2	B	343	LYS
2	B	364	GLU
2	B	365	CYS
2	B	391	SER
2	B	405	ILE
2	B	409	LEU
2	B	410	TRP
2	B	426	LEU
2	B	432	ASP
2	B	448	ARG
2	B	452	LEU
2	B	457	ASP
2	B	460	ILE
2	B	468	VAL
2	B	472	THR
2	B	475	ASN
2	B	482	GLN
2	B	534	GLN
2	B	541	ASP
2	C	112	ARG
2	C	115	LEU
2	C	120	LEU
2	C	185	ASP
2	C	187	ILE
2	C	195	THR
2	C	208	LEU
2	C	216	ASP
2	C	217	LEU
2	C	218	LEU
2	C	227	THR
2	C	339	SER
2	C	342	PRO
2	C	356	GLU
2	C	374	LEU
2	C	380	ARG
2	C	381	CYS
2	C	393	LEU

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Mol	Chain	Res	Type
2	C	395	PHE
2	C	427	ASP
2	C	433	ARG
2	C	434	LEU
2	C	480	LEU
2	C	535	LEU
2	C	537	GLN
2	C	541	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (35) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	113	HIS
1	A	137	GLN
1	A	194	GLN
1	A	197	ASN
1	A	217	HIS
1	A	230	GLN
2	B	19	HIS
2	B	34	ASN
2	B	40	HIS
2	B	109	GLN
2	B	123	ASN
2	B	127	GLN
2	B	136	HIS
2	B	219	ASN
2	B	225	HIS
2	B	237	ASN
2	B	244	ASN
2	B	262	GLN
2	B	283	GLN
2	B	352	ASN
2	B	475	ASN
2	B	482	GLN
2	B	534	GLN
2	C	123	ASN
2	C	127	GLN
2	C	136	HIS
2	C	183	ASN
2	C	219	ASN
2	C	254	GLN
2	C	350	GLN

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Mol	Chain	Res	Type
2	C	353	ASN
2	C	475	ASN
2	C	482	GLN
2	C	534	GLN
2	C	537	GLN

5.3.3 RNA ⓘ

There are no RNA chains 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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 for Mogul analysis.

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	$\# Z > 2$
4	ATP	B	551	3	33,33,33	2.34	11 (33%)	52,52,52	1.93	15 (28%)
4	ATP	C	551	3	33,33,33	1.79	8 (24%)	52,52,52	1.70	11 (21%)

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
4	ATP	B	551	3	-	0/22/38/38	0/1/3/3
4	ATP	C	551	3	-	0/22/38/38	0/1/3/3

All (19) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	551	ATP	O4'-C1'	8.81	1.54	1.41
4	C	551	ATP	C8-N9	5.54	1.44	1.36
4	B	551	ATP	C8-N9	4.59	1.43	1.36
4	C	551	ATP	O4'-C1'	4.09	1.47	1.41
4	B	551	ATP	C4-N3	3.95	1.41	1.35
4	B	551	ATP	C2-N3	3.46	1.39	1.32
4	C	551	ATP	C2-N3	3.31	1.38	1.32
4	C	551	ATP	PB-O3B	2.89	1.65	1.59
4	B	551	ATP	O3'-C3'	2.89	1.50	1.43
4	C	551	ATP	O3'-C3'	2.74	1.49	1.43
4	C	551	ATP	C8-N7	2.71	1.39	1.34
4	B	551	ATP	PB-O3A	2.69	1.64	1.59
4	B	551	ATP	PG-O3B	2.66	1.64	1.60
4	C	551	ATP	O4'-C4'	2.56	1.51	1.45
4	B	551	ATP	PB-O3B	2.40	1.64	1.59
4	C	551	ATP	C2-N1	2.27	1.38	1.33
4	B	551	ATP	C2'-C1'	2.15	1.56	1.53
4	B	551	ATP	C2-N1	2.11	1.38	1.33
4	B	551	ATP	C4-N9	2.08	1.40	1.37

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	551	ATP	PA-O3A-PB	-6.55	112.46	131.68
4	B	551	ATP	PB-O3B-PG	-5.14	116.60	131.68
4	C	551	ATP	O4'-C1'-C2'	-4.75	99.50	106.77
4	C	551	ATP	C8-N9-C4	-4.06	103.80	106.90
4	C	551	ATP	PB-O3B-PG	-3.99	120.00	131.68
4	C	551	ATP	C4-C5-N7	3.90	112.87	109.52
4	B	551	ATP	C4-C5-N7	3.28	112.33	109.52
4	B	551	ATP	C4'-O4'-C1'	-3.01	106.47	109.75
4	B	551	ATP	C2'-C3'-C4'	-3.00	96.68	102.65
4	C	551	ATP	PA-O3A-PB	-2.98	122.94	131.68
4	C	551	ATP	O3A-PA-O1A	-2.98	89.91	111.28
4	B	551	ATP	O4'-C1'-C2'	-2.95	102.25	106.77
4	B	551	ATP	O4'-C4'-C3'	-2.65	99.81	105.17
4	B	551	ATP	O5'-C5'-C4'	2.61	118.53	108.94

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	551	ATP	O3A-PA-O5'	2.60	115.01	103.41
4	C	551	ATP	O3G-PG-O2G	2.56	117.60	107.61
4	B	551	ATP	O3G-PG-O2G	2.54	117.48	107.61
4	B	551	ATP	O2A-PA-O1A	2.35	125.31	112.21
4	C	551	ATP	O2A-PA-O1A	2.33	125.25	112.21
4	C	551	ATP	O2'-C2'-C1'	-2.33	104.17	111.23
4	B	551	ATP	O3A-PB-O3B	2.22	106.18	101.66
4	B	551	ATP	O2B-PB-O3A	2.19	115.54	105.14
4	C	551	ATP	C5'-C4'-C3'	-2.16	106.55	115.21
4	B	551	ATP	N3-C2-N1	-2.09	126.96	128.71
4	C	551	ATP	C8-N9-C1'	2.03	130.37	126.38
4	B	551	ATP	O3A-PA-O1A	-2.00	96.92	111.28

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

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 ⓘ

EDS was not executed - this section will therefore be empty.

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

EDS was not executed - this section will therefore be empty.

6.3 Carbohydrates ⓘ

EDS was not executed - this section will therefore be empty.

6.4 Ligands ⓘ

EDS was not executed - this section will therefore be empty.

6.5 Other polymers ⓘ

EDS was not executed - this section will therefore be empty.