Full wwPDB X-ray Structure Validation Report (i)

Jan 30, 2024 – 06:30 PM EST

PDB ID	:	1FX0
Title	:	Crystal structure of the chloroplast F1-ATPase from spinach
Authors	:	Groth, G.; Pohl, E.
Deposited on	:	2000-09-25
Resolution	:	3.20 Å(reported)

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

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

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

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

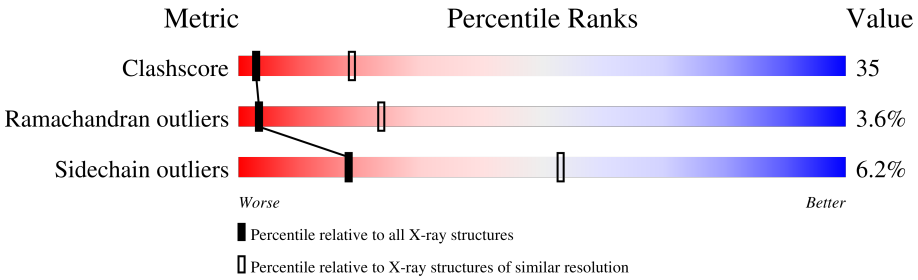
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	NOT EXECUTED
EDS	:	NOT EXECUTED
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.20 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5%

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	507	43% 46% 5% 6%
2	B	498	42% 47% 5% 6%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 7187 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called ATP SYNTHASE ALPHA CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	477	3647	2296	628	710	13	133	0	0

- Molecule 2 is a protein called ATP SYNTHASE BETA CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	467	3540	2234	612	680	14	89	0	0

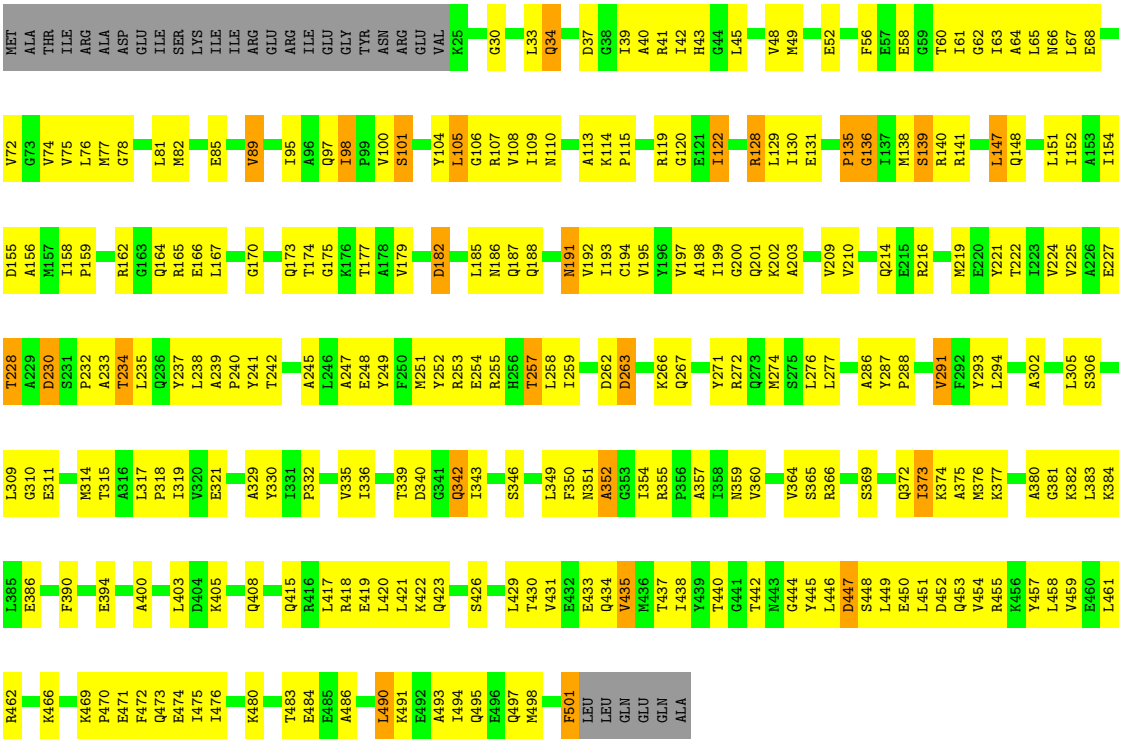
3 Residue-property plots (i)

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.

Note EDS was not executed.

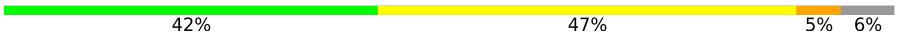
• Molecule 1: ATP SYNTHASE ALPHA CHAIN

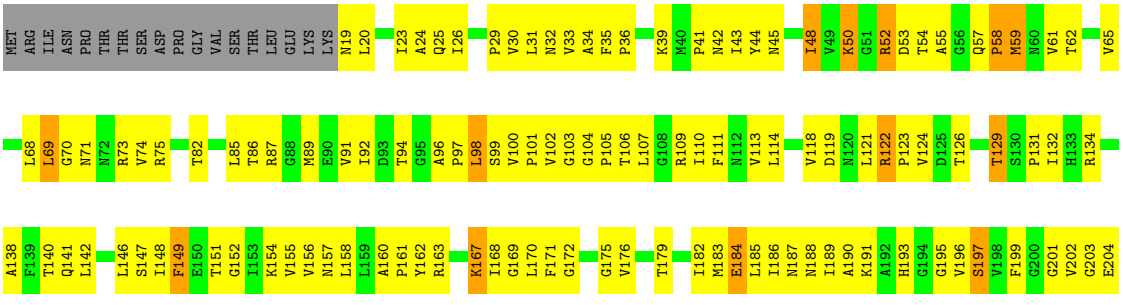
Chain A:

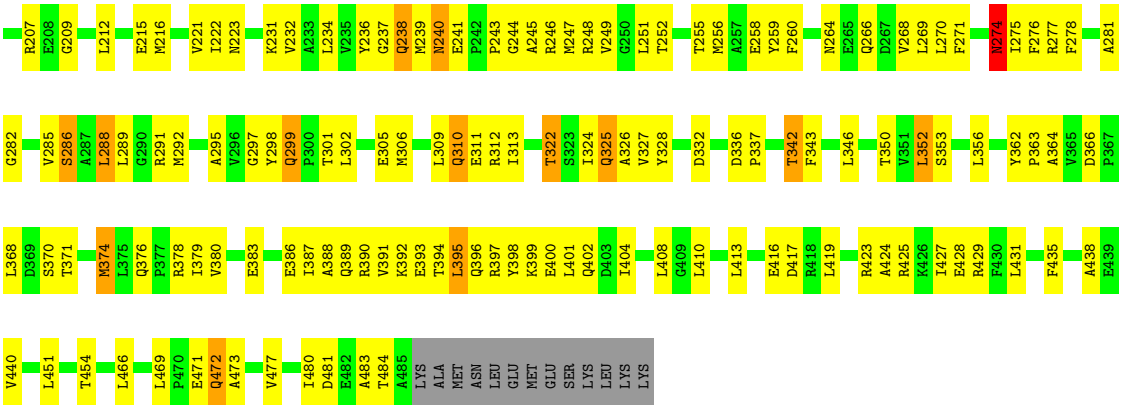


• Molecule 2: ATP SYNTHASE BETA CHAIN

Chain B:






R207 E208 G209 L212 E215 M216 V221 I222 N223 K231 V232 A233 L234 V235 Y236 G237 Q238 M239 N240 E241 P242 P243 G244 A245 R246 M247 R248 V249 G250 L251 T252 T255 M256 A257 E258 Y259 F260 N264 E265 Q266 D267 V268 L269 L270 F271 M274 I275 F276 R277 F278 A281
G282 V285 S286 A287 L288 L289 G290 R291 M292 A295 V296 G297 Y298 Q299 P300 T301 L302 E305 M306 L309 Q310 E311 R312 I313 T322 S323 I324 Q325 A326 V327 Y328 D332 D336 P337 T342 F343 L346 T350 V351 L352 S353 L356 Y362 P363 A364 V365 D366 P367
L368 D369 S370 T371 M374 L375 Q376 P377 R378 I379 V380 E383 E386 I387 A388 Q389 R390 V391 K392 E393 T394 L395 Q396 R397 Y398 K399 E400 L401 Q402 D403 I404 L408 G409 L410 L413 E416 D417 R418 L419 R423 A424 R425 K426 I427 E428 R429 F430 L431 F435 A438 E439
V440 L451 T454 L466 L469 P470 E471 Q472 A473 V477 I480 D481 E482 A483 T484 A485 LYS ALA MET ASN LEU GLU MET GLU SER LYS LEU LYS LYS

4 Data and refinement statistics (i)

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

Property	Value	Source
Space group	H 3 2	Depositor
Cell constants a, b, c, α, β, γ	147.70Å 147.70Å 385.05Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	6.00 – 3.20	Depositor
% Data completeness (in resolution range)	(Not available) (6.00-3.20)	Depositor
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.319 , 0.350	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	7187	wwPDB-VP
Average B, all atoms (Å^2)	114.0	wwPDB-VP

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.32	1/3695 (0.0%)	0.63	1/5002 (0.0%)
2	B	0.31	0/3598	0.67	2/4883 (0.0%)
All	All	0.31	1/7293 (0.0%)	0.65	3/9885 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	501	PHE	CD2-CE2	-6.27	1.26	1.39

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	484	THR	N-CA-C	-5.46	96.26	111.00
2	B	50	LYS	N-CA-C	5.37	125.50	111.00
1	A	501	PHE	N-CA-C	5.24	125.16	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3647	0	3715	262	0
2	B	3540	0	3589	247	0
All	All	7187	0	7304	490	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 35.

All (490) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:202:LYS:HZ3	2:B:167:LYS:HD3	1.02	1.10
2:B:19:ASN:HB3	2:B:39:LYS:HD3	1.39	0.98
1:A:202:LYS:NZ	2:B:167:LYS:HZ2	1.67	0.93
1:A:202:LYS:HZ1	2:B:167:LYS:HZ2	0.95	0.93
1:A:373:ILE:HG22	1:A:374:LYS:H	1.35	0.91
1:A:202:LYS:NZ	2:B:167:LYS:HD3	1.83	0.90
1:A:237:TYR:OH	1:A:274:MET:HB2	1.73	0.89
2:B:185:LEU:HD13	2:B:324:ILE:HG21	1.55	0.88
1:A:210:VAL:HG13	1:A:219:MET:HE1	1.54	0.87
1:A:151:LEU:HA	1:A:423:GLN:HE22	1.37	0.87
1:A:39:ILE:HD11	1:A:277:LEU:HB3	1.58	0.86
1:A:352:ALA:HA	2:B:393:GLU:HG2	1.58	0.86
1:A:263:ASP:H	1:A:319:ILE:HB	1.41	0.85
1:A:457:TYR:HA	1:A:501:PHE:CZ	2.12	0.84
2:B:152:GLY:H	2:B:157:ASN:HD21	1.26	0.83
1:A:158:ILE:HG21	1:A:343:ILE:HG12	1.62	0.82
1:A:336:ILE:HG23	1:A:342:GLN:HE22	1.46	0.81
1:A:437:THR:HG21	1:A:462:ARG:HH21	1.43	0.81
1:A:174:THR:HA	1:A:350:PHE:CZ	2.16	0.80
1:A:364:VAL:HG12	1:A:365:SER:H	1.44	0.80
1:A:237:TYR:CE2	1:A:271:TYR:HA	2.17	0.79
2:B:399:LYS:HA	2:B:402:GLN:HE21	1.48	0.79
1:A:42:ILE:HG21	1:A:45:LEU:HD12	1.65	0.78
2:B:101:PRO:HB2	2:B:126:THR:HG21	1.66	0.78
1:A:210:VAL:HG13	1:A:219:MET:CE	2.13	0.78
2:B:246:ARG:HH12	2:B:281:ALA:HB2	1.49	0.78
2:B:238:GLN:HE21	2:B:238:GLN:HA	1.48	0.77
1:A:152:ILE:H	1:A:423:GLN:NE2	1.83	0.77
2:B:36:PRO:HD2	2:B:39:LYS:HB2	1.65	0.76
1:A:351:ASN:HA	2:B:389:GLN:HE21	1.49	0.76
1:A:182:ASP:HA	1:A:185:LEU:HD12	1.68	0.76
2:B:251:LEU:HD21	2:B:309:LEU:HD22	1.66	0.76
1:A:440:THR:HG22	1:A:446:LEU:HG	1.67	0.75
1:A:195:VAL:HB	1:A:259:ILE:HG13	1.69	0.75
1:A:122:ILE:HD13	1:A:122:ILE:H	1.52	0.74
1:A:346:SER:HB3	1:A:359:ASN:HD21	1.53	0.74
1:A:135:PRO:HB2	1:A:140:ARG:HE	1.51	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:39:ILE:CD1	1:A:277:LEU:HB3	2.17	0.74
2:B:110:ILE:HB	2:B:119:ASP:HB3	1.71	0.73
2:B:35:PHE:HB3	2:B:36:PRO:HD2	1.69	0.73
2:B:171:PHE:HZ	2:B:342:THR:HB	1.53	0.72
2:B:435:PHE:HB2	2:B:438:ALA:HB3	1.71	0.71
2:B:243:PRO:HA	2:B:246:ARG:NH2	2.06	0.71
1:A:174:THR:HA	1:A:350:PHE:HZ	1.52	0.71
2:B:310:GLN:HE22	2:B:325:GLN:HE22	1.38	0.70
1:A:262:ASP:HA	1:A:319:ILE:HD12	1.71	0.70
2:B:275:ILE:O	2:B:278:PHE:HB3	1.92	0.69
1:A:174:THR:HG23	1:A:350:PHE:CZ	2.26	0.69
2:B:132:ILE:HA	2:B:255:THR:OG1	1.93	0.69
2:B:121:LEU:O	2:B:122:ARG:HB2	1.92	0.68
2:B:394:THR:HG22	2:B:424:ALA:HB2	1.75	0.68
1:A:39:ILE:HD11	1:A:277:LEU:HD13	1.75	0.68
2:B:425:ARG:HD3	2:B:471:GLU:OE2	1.94	0.68
2:B:43:ILE:HG22	2:B:44:TYR:CD1	2.28	0.68
1:A:78:GLY:HA2	1:A:232:PRO:HG3	1.75	0.67
1:A:461:LEU:HD22	1:A:497:GLN:HB3	1.76	0.67
1:A:167:LEU:H	1:A:339:THR:HG21	1.60	0.67
2:B:247:MET:SD	2:B:282:GLY:HA2	2.34	0.67
1:A:100:VAL:HA	1:A:104:TYR:HE1	1.58	0.67
2:B:302:LEU:O	2:B:302:LEU:HD23	1.94	0.67
1:A:109:ILE:HG12	1:A:113:ALA:HA	1.76	0.67
1:A:166:GLU:O	1:A:317:LEU:HA	1.93	0.67
1:A:75:VAL:HG11	1:A:274:MET:SD	2.35	0.66
1:A:369:SER:HB2	1:A:377:LYS:HE2	1.78	0.66
2:B:246:ARG:NH1	2:B:281:ALA:HB2	2.10	0.65
2:B:343:PHE:HA	2:B:346:LEU:HD12	1.79	0.65
2:B:203:GLY:O	2:B:277:ARG:HG3	1.97	0.65
1:A:174:THR:HG23	1:A:350:PHE:HZ	1.60	0.65
2:B:197:SER:OG	2:B:269:LEU:HB2	1.97	0.65
1:A:40:ALA:HB2	1:A:76:LEU:HD21	1.80	0.64
2:B:429:ARG:HE	2:B:472:GLN:HE22	1.45	0.64
2:B:423:ARG:O	2:B:427:ILE:HG13	1.97	0.64
1:A:445:TYR:HB3	1:A:498:MET:SD	2.37	0.64
2:B:155:VAL:HG22	2:B:431:LEU:HD22	1.77	0.64
1:A:336:ILE:HG23	1:A:342:GLN:NE2	2.12	0.64
1:A:349:LEU:O	1:A:354:ILE:HB	1.98	0.64
2:B:103:GLY:HA2	2:B:259:TYR:CE2	2.32	0.64
1:A:37:ASP:CG	2:B:291:ARG:HE	2.01	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:422:LYS:NZ	1:A:455:ARG:HH21	1.96	0.63
1:A:376:MET:SD	1:A:435:VAL:HG22	2.38	0.63
1:A:187:GLN:HE22	1:A:258:LEU:HD23	1.64	0.63
1:A:167:LEU:HD22	1:A:335:VAL:HG12	1.80	0.63
1:A:249:TYR:O	1:A:253:ARG:HG3	1.98	0.63
2:B:243:PRO:O	2:B:247:MET:HG3	1.99	0.63
1:A:135:PRO:HB2	1:A:140:ARG:NE	2.13	0.62
2:B:151:THR:HG22	2:B:189:ILE:HD11	1.80	0.62
2:B:48:ILE:HG13	2:B:62:THR:HG23	1.80	0.62
2:B:134:ARG:H	2:B:312:ARG:NH1	1.96	0.62
2:B:310:GLN:HE21	2:B:313:ILE:HD12	1.63	0.62
2:B:158:LEU:HD22	2:B:454:THR:HG22	1.81	0.62
2:B:299:GLN:H	2:B:299:GLN:NE2	1.98	0.62
1:A:437:THR:HG21	1:A:462:ARG:NH2	2.15	0.62
2:B:41:PRO:HB2	2:B:65:VAL:HG21	1.81	0.62
1:A:446:LEU:HA	1:A:449:LEU:HD12	1.82	0.61
2:B:285:VAL:O	2:B:289:LEU:HG	2.00	0.61
1:A:449:LEU:HD13	1:A:457:TYR:CE2	2.35	0.61
2:B:391:VAL:HG13	2:B:427:ILE:HG21	1.81	0.61
1:A:373:ILE:HG22	1:A:374:LYS:N	2.13	0.61
1:A:457:TYR:HA	1:A:501:PHE:CE2	2.36	0.61
2:B:41:PRO:HG2	2:B:74:VAL:HG11	1.81	0.61
2:B:101:PRO:HA	2:B:129:THR:HA	1.81	0.61
2:B:246:ARG:HB2	2:B:246:ARG:CZ	2.31	0.61
2:B:271:PHE:HE1	2:B:324:ILE:HD12	1.66	0.61
1:A:130:ILE:HG21	1:A:238:LEU:HD22	1.82	0.61
2:B:105:PRO:HG3	2:B:126:THR:HA	1.81	0.60
1:A:450:GLU:HB2	1:A:453:GLN:OE1	2.01	0.60
1:A:354:ILE:HG22	1:A:357:ALA:HA	1.82	0.60
2:B:389:GLN:O	2:B:393:GLU:HG3	2.02	0.60
1:A:216:ARG:NH2	1:A:426:SER:HB2	2.17	0.59
1:A:340:ASP:HA	1:A:366:ARG:HD2	1.85	0.59
2:B:124:VAL:HG12	2:B:126:THR:HG23	1.83	0.59
2:B:274:ASN:H	2:B:326:ALA:HB3	1.67	0.59
1:A:156:ALA:O	1:A:380:ALA:HB1	2.03	0.59
1:A:187:GLN:OE1	1:A:192:VAL:HB	2.03	0.59
1:A:430:THR:HB	1:A:433:GLU:HG3	1.84	0.59
2:B:179:THR:O	2:B:183:MET:HG2	2.02	0.59
2:B:183:MET:SD	2:B:212:LEU:HD13	2.42	0.59
1:A:98:ILE:HD13	1:A:130:ILE:HG13	1.83	0.59
2:B:196:VAL:HG12	2:B:197:SER:N	2.17	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:203:GLY:HA3	2:B:277:ARG:HB3	1.84	0.59
2:B:240:ASN:HD22	2:B:241:GLU:H	1.51	0.59
2:B:105:PRO:HG2	2:B:126:THR:HG22	1.84	0.58
2:B:19:ASN:O	2:B:92:ILE:HA	2.02	0.58
2:B:113:VAL:HG22	2:B:249:VAL:HG12	1.84	0.58
2:B:237:GLY:HA3	2:B:249:VAL:HG11	1.85	0.58
2:B:246:ARG:NH1	2:B:246:ARG:HB2	2.18	0.58
2:B:146:LEU:HD13	2:B:163:ARG:NH2	2.18	0.58
1:A:257:THR:HB	1:A:314:MET:HG3	1.84	0.58
2:B:204:GLU:O	2:B:239:MET:HG3	2.03	0.58
1:A:461:LEU:CD2	1:A:497:GLN:HB3	2.33	0.57
2:B:179:THR:O	2:B:182:ILE:HG22	2.03	0.57
1:A:34:GLN:HG3	1:A:41:ARG:HB2	1.86	0.57
1:A:440:THR:HG23	1:A:494:ILE:HG21	1.85	0.57
2:B:104:GLY:N	2:B:105:PRO:HD2	2.19	0.57
2:B:162:TYR:CZ	2:B:168:ILE:HG21	2.39	0.57
2:B:395:LEU:HD21	2:B:428:GLU:HG2	1.85	0.57
2:B:299:GLN:HE21	2:B:299:GLN:N	2.01	0.57
2:B:310:GLN:HE22	2:B:325:GLN:NE2	2.02	0.57
1:A:202:LYS:HZ3	2:B:167:LYS:CD	1.95	0.57
1:A:100:VAL:HA	1:A:104:TYR:CE1	2.40	0.57
1:A:433:GLU:OE2	1:A:466:LYS:HE2	2.05	0.57
1:A:293:TYR:CD1	1:A:293:TYR:N	2.72	0.57
2:B:30:VAL:HG23	2:B:288:LEU:HD13	1.87	0.57
2:B:131:PRO:HD2	2:B:134:ARG:HH21	1.70	0.57
2:B:201:GLY:O	2:B:249:VAL:HG21	2.05	0.57
2:B:466:LEU:HB3	2:B:469:LEU:HD12	1.86	0.57
1:A:258:LEU:C	1:A:259:ILE:HD12	2.25	0.57
2:B:222:ILE:HG22	2:B:223:ASN:H	1.69	0.56
1:A:302:ALA:HA	1:A:314:MET:HE2	1.87	0.56
1:A:434:GLN:O	1:A:438:ILE:HG12	2.05	0.56
1:A:152:ILE:H	1:A:423:GLN:HE22	1.53	0.56
2:B:419:LEU:O	2:B:423:ARG:HG3	2.05	0.56
1:A:166:GLU:HB3	1:A:317:LEU:HD23	1.87	0.56
2:B:122:ARG:HB3	2:B:123:PRO:HD2	1.86	0.56
2:B:171:PHE:CZ	2:B:342:THR:HB	2.39	0.56
2:B:199:PHE:HB3	2:B:234:LEU:HD23	1.87	0.56
1:A:276:LEU:HA	2:B:292:MET:HE2	1.88	0.56
1:A:216:ARG:NH1	1:A:426:SER:HB2	2.21	0.56
1:A:258:LEU:HD12	1:A:315:THR:O	2.05	0.56
1:A:259:ILE:HD13	1:A:314:MET:CG	2.36	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:310:GLN:HA	2:B:313:ILE:HD12	1.87	0.56
1:A:472:PHE:O	1:A:476:ILE:HG12	2.06	0.56
2:B:102:VAL:HG12	2:B:256:MET:HG3	1.88	0.55
2:B:276:PHE:CD2	2:B:328:TYR:HB3	2.41	0.55
1:A:58:GLU:CD	1:A:82:MET:HB3	2.26	0.55
2:B:207:ARG:HB3	2:B:207:ARG:NH1	2.21	0.55
1:A:259:ILE:HD12	1:A:259:ILE:N	2.22	0.55
1:A:45:LEU:HB3	1:A:48:VAL:HG13	1.88	0.55
1:A:216:ARG:HH22	1:A:426:SER:HB2	1.71	0.55
2:B:113:VAL:HG13	2:B:249:VAL:HG12	1.89	0.55
1:A:287:TYR:HB3	1:A:291:VAL:HG21	1.89	0.54
1:A:187:GLN:HE22	1:A:258:LEU:CD2	2.21	0.54
1:A:247:ALA:HB1	1:A:259:ILE:HD11	1.88	0.54
1:A:276:LEU:HA	2:B:292:MET:CE	2.38	0.54
2:B:163:ARG:HE	2:B:374:MET:HB2	1.72	0.54
2:B:238:GLN:O	2:B:246:ARG:HD3	2.07	0.54
1:A:227:GLU:OE1	1:A:239:ALA:HB2	2.07	0.54
2:B:240:ASN:HD22	2:B:240:ASN:N	2.03	0.54
1:A:61:ILE:HG22	1:A:77:MET:SD	2.46	0.54
1:A:141:ARG:HG3	1:A:306:SER:HB3	1.88	0.54
2:B:163:ARG:HH21	2:B:374:MET:HG3	1.72	0.54
2:B:425:ARG:HH12	2:B:429:ARG:HH22	1.54	0.54
2:B:184:GLU:HG3	2:B:188:ASN:OD1	2.08	0.54
1:A:237:TYR:HE2	1:A:271:TYR:HA	1.68	0.54
1:A:405:LYS:HA	1:A:408:GLN:HB2	1.89	0.54
1:A:194:CYS:SG	1:A:258:LEU:HB3	2.48	0.54
1:A:233:ALA:O	1:A:237:TYR:CE1	2.61	0.54
1:A:259:ILE:HD13	1:A:314:MET:HG3	1.90	0.54
2:B:61:VAL:HG21	2:B:85:LEU:HD21	1.91	0.54
2:B:353:SER:HB3	2:B:356:LEU:HB2	1.89	0.54
1:A:346:SER:OG	1:A:349:LEU:HB2	2.08	0.53
1:A:30:GLY:O	1:A:89:VAL:HG23	2.08	0.53
1:A:110:ASN:HB2	1:A:114:LYS:O	2.08	0.53
1:A:431:VAL:O	1:A:435:VAL:HG23	2.08	0.53
1:A:420:LEU:HD22	1:A:458:LEU:HD11	1.89	0.53
2:B:376:GLN:O	2:B:380:VAL:HG22	2.08	0.53
1:A:429:LEU:HD11	1:A:462:ARG:CZ	2.39	0.53
2:B:68:LEU:HD23	2:B:74:VAL:HG12	1.91	0.53
2:B:247:MET:HE2	2:B:285:VAL:HG11	1.89	0.53
1:A:162:ARG:HA	1:A:315:THR:OG1	2.08	0.53
1:A:422:LYS:HZ3	1:A:455:ARG:HH21	1.57	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:437:THR:HG23	1:A:458:LEU:HD22	1.91	0.52
2:B:107:LEU:HD21	2:B:196:VAL:HG13	1.91	0.52
1:A:167:LEU:N	1:A:339:THR:HG21	2.22	0.52
1:A:339:THR:HG22	1:A:340:ASP:N	2.24	0.52
2:B:43:ILE:HG22	2:B:44:TYR:HD1	1.71	0.52
2:B:222:ILE:HG22	2:B:223:ASN:N	2.24	0.52
2:B:121:LEU:O	2:B:122:ARG:CB	2.57	0.52
1:A:200:GLY:HA3	1:A:266:LYS:HD3	1.91	0.52
1:A:234:THR:O	1:A:234:THR:HG22	2.10	0.52
2:B:260:PHE:HB2	2:B:268:VAL:HG21	1.92	0.52
1:A:210:VAL:O	1:A:214:GLN:HG3	2.10	0.52
2:B:149:PHE:HB3	2:B:162:TYR:HB2	1.91	0.52
1:A:37:ASP:O	1:A:39:ILE:HD12	2.10	0.52
1:A:494:ILE:O	1:A:498:MET:HG3	2.10	0.52
2:B:466:LEU:HD13	2:B:480:ILE:HD11	1.91	0.52
1:A:39:ILE:HD12	1:A:39:ILE:N	2.25	0.52
1:A:199:ILE:N	1:A:199:ILE:HD12	2.24	0.52
1:A:419:GLU:OE2	1:A:451:LEU:HB3	2.10	0.52
2:B:240:ASN:N	2:B:240:ASN:ND2	2.58	0.52
1:A:197:VAL:HA	1:A:225:VAL:O	2.10	0.51
1:A:233:ALA:C	1:A:237:TYR:HE1	2.13	0.51
2:B:148:ILE:HA	2:B:374:MET:HE1	1.93	0.51
1:A:241:TYR:HE1	1:A:267:GLN:HE22	1.58	0.51
1:A:239:ALA:HB3	1:A:240:PRO:CD	2.40	0.51
2:B:163:ARG:HE	2:B:374:MET:CB	2.23	0.51
2:B:429:ARG:HD2	2:B:471:GLU:HB3	1.91	0.51
1:A:42:ILE:HG13	1:A:89:VAL:HG21	1.93	0.51
1:A:417:LEU:O	1:A:421:LEU:HG	2.10	0.51
2:B:278:PHE:CZ	2:B:309:LEU:HD12	2.45	0.51
1:A:219:MET:O	1:A:219:MET:HG2	2.11	0.51
2:B:473:ALA:O	2:B:477:VAL:HG11	2.10	0.51
2:B:33:VAL:HG13	2:B:91:VAL:HG21	1.93	0.51
2:B:69:LEU:CD1	2:B:75:ARG:HH21	2.24	0.51
2:B:118:VAL:HG12	2:B:118:VAL:O	2.10	0.51
1:A:188:GLN:HB2	1:A:191:ASN:HD22	1.75	0.51
1:A:95:ILE:HG12	1:A:95:ILE:O	2.10	0.51
1:A:100:VAL:O	1:A:101:SER:HB3	2.11	0.51
1:A:225:VAL:HG11	1:A:242:THR:HB	1.93	0.51
2:B:35:PHE:HB3	2:B:36:PRO:CD	2.40	0.51
2:B:195:GLY:O	2:B:231:LYS:HE2	2.11	0.51
2:B:299:GLN:H	2:B:299:GLN:HE21	1.57	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:166:GLU:O	1:A:318:PRO:HD2	2.11	0.51
1:A:199:ILE:HG12	1:A:240:PRO:HD3	1.94	0.50
2:B:260:PHE:HD1	2:B:264:ASN:ND2	2.08	0.50
1:A:139:SER:HB2	1:A:309:LEU:HD11	1.93	0.50
2:B:50:LYS:HG2	2:B:59:MET:HE1	1.93	0.50
2:B:275:ILE:HG22	2:B:327:VAL:HG22	1.93	0.50
2:B:286:SER:HA	2:B:291:ARG:NH1	2.26	0.50
1:A:471:GLU:O	1:A:475:ILE:HG12	2.11	0.50
1:A:216:ARG:CZ	1:A:426:SER:HB2	2.41	0.50
2:B:271:PHE:CE1	2:B:324:ILE:HD12	2.45	0.50
1:A:165:ARG:O	1:A:339:THR:HG23	2.11	0.50
1:A:400:ALA:HB1	1:A:403:LEU:HG	1.94	0.50
2:B:186:ILE:O	2:B:191:LYS:HG3	2.12	0.50
1:A:198:ALA:HA	1:A:262:ASP:HB2	1.94	0.50
1:A:233:ALA:O	1:A:235:LEU:N	2.44	0.50
2:B:387:ILE:HA	2:B:390:ARG:HD2	1.94	0.50
2:B:386:GLU:O	2:B:390:ARG:HG3	2.11	0.49
1:A:455:ARG:O	1:A:459:VAL:HG23	2.12	0.49
1:A:486:ALA:O	1:A:490:LEU:HB2	2.12	0.49
2:B:100:VAL:HG11	2:B:252:THR:HG23	1.93	0.49
1:A:216:ARG:HH12	1:A:426:SER:HB2	1.76	0.49
1:A:381:GLY:HA2	1:A:384:LYS:HD2	1.93	0.49
1:A:431:VAL:O	1:A:434:GLN:HB2	2.12	0.49
1:A:173:GLN:HG3	2:B:371:THR:OG1	2.12	0.49
2:B:104:GLY:N	2:B:105:PRO:CD	2.76	0.49
2:B:106:THR:HA	2:B:111:PHE:HZ	1.78	0.49
1:A:451:LEU:C	1:A:453:GLN:H	2.15	0.49
2:B:301:THR:O	2:B:305:GLU:HG3	2.12	0.49
2:B:251:LEU:CG	2:B:309:LEU:HD13	2.43	0.49
1:A:276:LEU:HD23	2:B:292:MET:HE3	1.95	0.49
1:A:491:LYS:O	1:A:495:GLN:HB2	2.12	0.49
1:A:420:LEU:CD2	1:A:458:LEU:HD11	2.43	0.48
2:B:398:TYR:O	2:B:402:GLN:HG3	2.13	0.48
1:A:350:PHE:HB3	1:A:355:ARG:CZ	2.44	0.48
2:B:260:PHE:HD1	2:B:264:ASN:HD22	1.61	0.48
1:A:122:ILE:HD13	1:A:122:ILE:N	2.23	0.48
2:B:50:LYS:HG2	2:B:59:MET:CE	2.43	0.48
2:B:147:SER:O	2:B:374:MET:HE1	2.13	0.48
2:B:216:MET:SD	2:B:221:VAL:HG21	2.53	0.48
1:A:383:LEU:HD12	1:A:417:LEU:HD13	1.96	0.48
1:A:380:ALA:O	1:A:384:LYS:HG3	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:98:LEU:HD21	2:B:114:LEU:HD22	1.94	0.48
1:A:49:MET:HG3	1:A:52:GLU:OE1	2.13	0.48
2:B:244:GLY:HA2	2:B:247:MET:CE	2.44	0.48
2:B:397:ARG:O	2:B:401:LEU:HG	2.14	0.48
1:A:230:ASP:OD1	2:B:311:GLU:HG3	2.13	0.48
1:A:158:ILE:HD11	1:A:360:VAL:HG13	1.96	0.48
2:B:425:ARG:HH12	2:B:429:ARG:NH2	2.12	0.48
1:A:65:LEU:HD12	1:A:75:VAL:HG21	1.95	0.48
1:A:128:ARG:HH12	1:A:252:TYR:HE1	1.61	0.48
1:A:234:THR:HA	1:A:237:TYR:CE1	2.49	0.48
2:B:216:MET:HE1	2:B:232:VAL:HG21	1.95	0.48
1:A:350:PHE:HB3	1:A:355:ARG:NH2	2.28	0.48
2:B:52:ARG:HG2	2:B:53:ASP:N	2.27	0.48
1:A:45:LEU:HB3	1:A:48:VAL:CG1	2.44	0.47
1:A:148:GLN:HE21	1:A:431:VAL:CG2	2.27	0.47
1:A:382:LYS:O	1:A:386:GLU:HG3	2.14	0.47
2:B:189:ILE:O	2:B:193:HIS:HB2	2.15	0.47
1:A:115:PRO:HD3	1:A:122:ILE:HD12	1.95	0.47
1:A:151:LEU:CA	1:A:423:GLN:HE22	2.20	0.47
1:A:159:PRO:HB3	1:A:372:GLN:HE21	1.79	0.47
1:A:383:LEU:CD1	1:A:417:LEU:HD13	2.43	0.47
2:B:251:LEU:HG	2:B:309:LEU:HD13	1.96	0.47
2:B:255:THR:HA	2:B:258:GLU:HG2	1.96	0.47
2:B:390:ARG:HA	2:B:393:GLU:OE1	2.13	0.47
2:B:96:ALA:HB1	2:B:97:PRO:HD2	1.96	0.47
2:B:182:ILE:O	2:B:186:ILE:HG13	2.13	0.47
1:A:138:MET:C	1:A:140:ARG:H	2.17	0.47
2:B:327:VAL:HG21	2:B:342:THR:HG21	1.97	0.47
1:A:107:ARG:CZ	1:A:119:ARG:HB2	2.44	0.47
1:A:174:THR:HG22	1:A:174:THR:O	2.14	0.47
2:B:25:GLN:HB2	2:B:32:ASN:HB2	1.96	0.47
2:B:102:VAL:HG11	2:B:255:THR:HG22	1.96	0.47
2:B:138:ALA:HB3	2:B:141:GLN:HG3	1.95	0.47
2:B:148:ILE:HA	2:B:374:MET:CE	2.45	0.47
2:B:298:TYR:CD2	2:B:337:PRO:HB2	2.49	0.47
2:B:378:ARG:O	2:B:379:ILE:HD13	2.15	0.47
2:B:383:GLU:O	2:B:387:ILE:HD12	2.14	0.47
1:A:63:ILE:O	1:A:74:VAL:HG13	2.15	0.47
2:B:53:ASP:OD1	2:B:58:PRO:HG3	2.15	0.47
2:B:105:PRO:CG	2:B:126:THR:HA	2.45	0.47
2:B:238:GLN:HE21	2:B:238:GLN:CA	2.17	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:240:ASN:HD22	2:B:241:GLU:N	2.12	0.47
2:B:248:ARG:HG2	2:B:248:ARG:HH11	1.80	0.47
2:B:43:ILE:O	2:B:44:TYR:HB2	2.13	0.46
1:A:271:TYR:CE2	1:A:294:LEU:HD21	2.50	0.46
1:A:369:SER:O	1:A:372:GLN:HG3	2.15	0.46
2:B:99:SER:HB2	2:B:129:THR:HB	1.97	0.46
2:B:388:ALA:O	2:B:392:LYS:HG3	2.15	0.46
2:B:42:ASN:HB2	2:B:45:ASN:OD1	2.15	0.46
2:B:270:LEU:HD23	2:B:313:ILE:HG23	1.98	0.46
1:A:106:GLY:HA2	1:A:219:MET:HG2	1.97	0.46
1:A:390:PHE:O	1:A:394:GLU:HG3	2.15	0.46
1:A:469:LYS:HB3	1:A:472:PHE:CD1	2.51	0.46
2:B:23:ILE:HD12	2:B:31:LEU:HD13	1.97	0.46
2:B:278:PHE:HE2	2:B:306:MET:HA	1.81	0.46
1:A:152:ILE:HG23	1:A:438:ILE:HD11	1.96	0.46
1:A:237:TYR:CZ	1:A:274:MET:HB2	2.49	0.46
1:A:263:ASP:HA	1:A:319:ILE:O	2.16	0.46
1:A:233:ALA:O	1:A:237:TYR:CD1	2.69	0.46
1:A:386:GLU:OE2	1:A:442:THR:HG23	2.16	0.46
2:B:68:LEU:O	2:B:70:GLY:N	2.49	0.46
1:A:108:VAL:HA	1:A:224:VAL:HB	1.97	0.46
2:B:169:GLY:HA3	2:B:346:LEU:HD13	1.98	0.46
2:B:336:ASP:OD2	2:B:337:PRO:HD2	2.16	0.46
2:B:477:VAL:HG21	2:B:483:ALA:HB2	1.99	0.46
1:A:115:PRO:HG3	1:A:120:GLY:O	2.17	0.45
2:B:86:THR:HG22	2:B:87:ARG:N	2.31	0.45
2:B:429:ARG:HE	2:B:472:GLN:NE2	2.13	0.45
1:A:139:SER:HB2	1:A:309:LEU:CD1	2.46	0.45
1:A:210:VAL:HG22	1:A:224:VAL:HG21	1.99	0.45
2:B:82:THR:HB	2:B:85:LEU:HD12	1.98	0.45
2:B:107:LEU:HD21	2:B:196:VAL:CG1	2.47	0.45
2:B:176:VAL:HG23	2:B:352:LEU:HD23	1.99	0.45
2:B:203:GLY:HA3	2:B:277:ARG:CB	2.46	0.45
1:A:105:LEU:HD22	1:A:221:TYR:HA	1.98	0.45
2:B:248:ARG:HG2	2:B:248:ARG:NH1	2.31	0.45
2:B:298:TYR:HB3	2:B:302:LEU:HD12	1.98	0.45
1:A:495:GLN:HA	1:A:498:MET:CE	2.46	0.45
2:B:86:THR:H	2:B:89:MET:CE	2.29	0.45
1:A:67:LEU:HD23	1:A:72:VAL:HG13	1.99	0.45
1:A:152:ILE:HG22	1:A:421:LEU:HD23	1.99	0.45
1:A:310:GLY:O	1:A:311:GLU:HB2	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:207:ARG:C	2:B:209:GLY:H	2.20	0.45
1:A:466:LYS:HA	1:A:473:GLN:OE1	2.17	0.45
2:B:149:PHE:HB2	2:B:162:TYR:O	2.17	0.45
1:A:209:VAL:HG12	1:A:210:VAL:N	2.30	0.45
2:B:298:TYR:HE2	2:B:336:ASP:OD2	2.00	0.45
2:B:19:ASN:O	2:B:92:ILE:HG13	2.17	0.45
1:A:139:SER:O	1:A:305:LEU:HA	2.17	0.44
1:A:154:ILE:HD12	1:A:154:ILE:N	2.32	0.44
1:A:237:TYR:O	1:A:240:PRO:HD2	2.17	0.44
2:B:362:TYR:HA	2:B:363:PRO:C	2.36	0.44
1:A:470:PRO:O	1:A:474:GLU:HG3	2.17	0.44
2:B:199:PHE:HB3	2:B:234:LEU:CD2	2.47	0.44
1:A:152:ILE:CG2	1:A:438:ILE:HD11	2.48	0.44
1:A:351:ASN:HB3	2:B:392:LYS:HB2	1.99	0.44
2:B:106:THR:HA	2:B:111:PHE:CZ	2.53	0.44
1:A:37:ASP:C	1:A:39:ILE:HD12	2.37	0.44
1:A:39:ILE:HD11	1:A:277:LEU:CB	2.36	0.44
1:A:233:ALA:C	1:A:235:LEU:H	2.21	0.44
1:A:203:ALA:HB1	2:B:142:LEU:HD11	2.00	0.44
1:A:248:GLU:HG2	1:A:251:MET:CE	2.48	0.44
1:A:254:GLU:HG2	1:A:310:GLY:HA3	1.99	0.44
2:B:85:LEU:HD22	2:B:89:MET:HE1	2.00	0.44
2:B:204:GLU:O	2:B:238:GLN:NE2	2.51	0.43
1:A:122:ILE:HG12	1:A:122:ILE:O	2.18	0.43
2:B:170:LEU:HD11	2:B:324:ILE:HG22	2.00	0.43
1:A:451:LEU:O	1:A:453:GLN:N	2.49	0.43
1:A:130:ILE:HG23	1:A:241:TYR:HB3	2.00	0.43
1:A:483:THR:HG22	1:A:484:GLU:N	2.33	0.43
2:B:33:VAL:O	2:B:73:ARG:HG3	2.18	0.43
2:B:20:LEU:HA	2:B:91:VAL:O	2.18	0.43
2:B:202:VAL:HG22	2:B:249:VAL:HG23	2.00	0.43
1:A:63:ILE:HG22	1:A:64:ALA:N	2.33	0.43
1:A:109:ILE:HD11	1:A:113:ALA:HB1	2.00	0.43
1:A:175:GLY:O	1:A:179:VAL:HG23	2.18	0.43
1:A:97:GLN:HG2	1:A:129:LEU:HD23	1.99	0.43
1:A:185:LEU:C	1:A:187:GLN:H	2.22	0.43
1:A:202:LYS:NZ	2:B:167:LYS:NZ	2.52	0.43
1:A:245:ALA:O	1:A:248:GLU:N	2.52	0.43
2:B:103:GLY:HA2	2:B:259:TYR:CD2	2.54	0.43
1:A:33:LEU:HD11	1:A:43:HIS:HB2	2.01	0.43
2:B:245:ALA:O	2:B:249:VAL:HG13	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:107:ARG:NH2	1:A:115:PRO:HB3	2.35	0.42
1:A:230:ASP:OD1	2:B:311:GLU:HB2	2.19	0.42
2:B:268:VAL:HG12	2:B:269:LEU:N	2.34	0.42
2:B:429:ARG:HH11	2:B:429:ARG:HG3	1.84	0.42
2:B:471:GLU:C	2:B:473:ALA:H	2.21	0.42
2:B:302:LEU:HD23	2:B:302:LEU:C	2.38	0.42
1:A:495:GLN:HA	1:A:498:MET:HE3	2.01	0.42
1:A:98:ILE:O	1:A:98:ILE:HG22	2.20	0.42
1:A:100:VAL:HG21	1:A:249:TYR:HB2	2.01	0.42
1:A:104:TYR:O	1:A:105:LEU:C	2.57	0.42
1:A:457:TYR:HA	1:A:501:PHE:HZ	1.75	0.42
2:B:209:GLY:HA2	2:B:236:TYR:OH	2.19	0.42
2:B:264:ASN:HB2	2:B:266:GLN:HG3	2.00	0.42
2:B:396:GLN:O	2:B:400:GLU:HG3	2.19	0.42
1:A:305:LEU:HD22	1:A:309:LEU:CD1	2.50	0.42
2:B:25:GLN:CB	2:B:32:ASN:HD22	2.33	0.42
2:B:85:LEU:HB3	2:B:89:MET:HE1	2.01	0.42
2:B:260:PHE:HA	2:B:264:ASN:HD22	1.84	0.42
1:A:56:PHE:HD2	1:A:60:THR:HB	1.84	0.42
1:A:61:ILE:HG22	1:A:62:GLY:N	2.35	0.42
1:A:158:ILE:O	1:A:158:ILE:HG22	2.19	0.42
1:A:272:ARG:HD2	1:A:286:ALA:HB3	2.01	0.42
2:B:68:LEU:CD2	2:B:74:VAL:HG12	2.49	0.42
1:A:415:GLN:HA	1:A:418:ARG:HD2	2.01	0.42
2:B:172:GLY:HA3	2:B:176:VAL:HG21	2.01	0.42
2:B:185:LEU:HD13	2:B:324:ILE:CG2	2.39	0.42
2:B:404:ILE:HG23	2:B:408:LEU:HD12	2.01	0.42
1:A:109:ILE:CG2	1:A:225:VAL:HG22	2.50	0.42
1:A:493:ALA:HB1	1:A:497:GLN:NE2	2.35	0.42
2:B:33:VAL:HG12	2:B:34:ALA:N	2.35	0.42
1:A:329:ALA:O	1:A:332:PRO:HD2	2.20	0.41
2:B:29:PRO:HG3	2:B:243:PRO:HG3	2.02	0.41
2:B:69:LEU:HD13	2:B:75:ARG:HH21	1.85	0.41
2:B:269:LEU:HD22	2:B:322:THR:HB	2.01	0.41
2:B:103:GLY:C	2:B:105:PRO:HD2	2.40	0.41
2:B:295:ALA:O	2:B:337:PRO:HG2	2.20	0.41
2:B:410:LEU:O	2:B:413:LEU:HB2	2.20	0.41
1:A:164:GLN:O	1:A:315:THR:HG23	2.20	0.41
1:A:440:THR:HG23	1:A:494:ILE:CG2	2.50	0.41
2:B:196:VAL:CG1	2:B:197:SER:N	2.82	0.41
2:B:196:VAL:HG23	2:B:266:GLN:OE1	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:66:ASN:HD22	1:A:68:GLU:CD	2.22	0.41
1:A:109:ILE:CG1	1:A:113:ALA:HA	2.47	0.41
1:A:135:PRO:CB	1:A:140:ARG:HE	2.26	0.41
2:B:26:ILE:HG23	2:B:31:LEU:CD2	2.50	0.41
2:B:350:THR:HA	2:B:370:SER:OG	2.20	0.41
1:A:170:GLY:O	1:A:321:GLU:HA	2.21	0.41
1:A:81:LEU:HA	2:B:43:ILE:HB	2.03	0.41
1:A:305:LEU:HD22	1:A:309:LEU:HD12	2.03	0.41
1:A:381:GLY:O	1:A:384:LYS:HB2	2.21	0.41
1:A:415:GLN:O	1:A:419:GLU:HG3	2.20	0.41
1:A:193:ILE:HD11	1:A:255:ARG:HH11	1.86	0.41
1:A:440:THR:O	1:A:445:TYR:HB2	2.21	0.41
2:B:24:ALA:HB3	2:B:32:ASN:O	2.21	0.41
2:B:109:ARG:NE	2:B:119:ASP:OD2	2.52	0.41
2:B:163:ARG:HA	2:B:374:MET:HE1	2.02	0.41
2:B:251:LEU:HD21	2:B:309:LEU:HD13	2.03	0.41
2:B:310:GLN:HE21	2:B:313:ILE:CD1	2.32	0.41
1:A:271:TYR:CD2	1:A:294:LEU:HD11	2.55	0.41
1:A:419:GLU:HA	1:A:422:LYS:CD	2.51	0.41
2:B:186:ILE:HA	2:B:190:ALA:HB3	2.02	0.41
2:B:435:PHE:HB2	2:B:438:ALA:CB	2.47	0.41
1:A:45:LEU:O	1:A:48:VAL:HG22	2.20	0.40
1:A:444:GLY:HA2	1:A:447:ASP:CG	2.42	0.40
2:B:438:ALA:C	2:B:440:VAL:H	2.25	0.40
1:A:37:ASP:O	1:A:277:LEU:HD13	2.22	0.40
1:A:39:ILE:HD11	1:A:277:LEU:CD1	2.47	0.40
1:A:247:ALA:CB	1:A:259:ILE:HD11	2.50	0.40
1:A:430:THR:HG22	1:A:431:VAL:N	2.36	0.40
2:B:160:ALA:HB2	2:B:370:SER:O	2.21	0.40
2:B:298:TYR:HE2	2:B:337:PRO:HD2	1.85	0.40
1:A:136:GLY:O	1:A:140:ARG:HG3	2.21	0.40
1:A:194:CYS:O	1:A:222:THR:HA	2.21	0.40
2:B:163:ARG:HH21	2:B:374:MET:HA	1.87	0.40
1:A:61:ILE:N	1:A:61:ILE:HD12	2.37	0.40
1:A:104:TYR:O	1:A:106:GLY:N	2.54	0.40
1:A:147:LEU:HG	1:A:162:ARG:HG2	2.03	0.40
2:B:85:LEU:HD22	2:B:89:MET:CE	2.52	0.40
1:A:109:ILE:HG21	1:A:225:VAL:HG22	2.04	0.40
1:A:228:THR:HG22	2:B:311:GLU:OE2	2.22	0.40
1:A:339:THR:CG2	1:A:340:ASP:N	2.84	0.40
1:A:375:ALA:HB2	1:A:480:LYS:O	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:244:GLY:HA2	2:B:247:MET:HE2	2.04	0.40
2:B:366:ASP:OD1	2:B:368:LEU:HB2	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	475/507 (94%)	372 (78%)	86 (18%)	17 (4%)	3 23
2	B	465/498 (93%)	380 (82%)	68 (15%)	17 (4%)	3 22
All	All	940/1005 (94%)	752 (80%)	154 (16%)	34 (4%)	3 23

All (34) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	105	LEU
1	A	234	THR
1	A	447	ASP
1	A	85	GLU
1	A	186	ASN
1	A	448	SER
1	A	454	VAL
2	B	54	THR
2	B	69	LEU
2	B	154	LYS
2	B	286	SER
1	A	139	SER
1	A	288	PRO
1	A	452	ASP
2	B	297	GLY
2	B	310	GLN

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Mol	Chain	Res	Type
2	B	472	GLN
1	A	101	SER
1	A	136	GLY
1	A	155	ASP
1	A	263	ASP
1	A	352	ALA
2	B	52	ARG
2	B	55	ALA
2	B	364	ALA
2	B	451	LEU
1	A	330	TYR
2	B	274	ASN
2	B	122	ARG
2	B	156	VAL
1	A	373	ILE
2	B	58	PRO
2	B	175	GLY
2	B	161	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	388/414 (94%)	369 (95%)	19 (5%)	25 61
2	B	381/410 (93%)	352 (92%)	29 (8%)	13 45
All	All	769/824 (93%)	721 (94%)	48 (6%)	18 53

All (48) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	34	GLN
1	A	89	VAL
1	A	98	ILE
1	A	122	ILE
1	A	128	ARG

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Mol	Chain	Res	Type
1	A	131	GLU
1	A	135	PRO
1	A	147	LEU
1	A	177	THR
1	A	182	ASP
1	A	191	ASN
1	A	201	GLN
1	A	228	THR
1	A	230	ASP
1	A	257	THR
1	A	291	VAL
1	A	342	GLN
1	A	435	VAL
1	A	490	LEU
2	B	48	ILE
2	B	57	GLN
2	B	59	MET
2	B	71	ASN
2	B	94	THR
2	B	98	LEU
2	B	129	THR
2	B	140	THR
2	B	149	PHE
2	B	167	LYS
2	B	184	GLU
2	B	187	ASN
2	B	197	SER
2	B	215	GLU
2	B	238	GLN
2	B	240	ASN
2	B	274	ASN
2	B	288	LEU
2	B	299	GLN
2	B	322	THR
2	B	325	GLN
2	B	332	ASP
2	B	342	THR
2	B	352	LEU
2	B	374	MET
2	B	395	LEU
2	B	416	GLU
2	B	417	ASP

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Mol	Chain	Res	Type
2	B	481	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	187	GLN
1	A	267	GLN
1	A	273	GLN
1	A	295	HIS
1	A	359	ASN
1	A	423	GLN
1	A	443	ASN
1	A	473	GLN
2	B	19	ASN
2	B	67	GLN
2	B	187	ASN
2	B	238	GLN
2	B	240	ASN
2	B	264	ASN
2	B	299	GLN
2	B	310	GLN
2	B	325	GLN
2	B	345	HIS
2	B	389	GLN
2	B	396	GLN
2	B	402	GLN
2	B	472	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.