Full wwPDB X-ray Structure Validation Report ⓘ

Nov 22, 2023 – 01:13 PM JST

PDB ID	:	7VT9
Title	:	CRYSTAL STRUCTURE AT 3.4 ANGSTROMS RESOLUTION OF Maltodextrin glucosidase, MalZ, FROM Escherichia coli
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Deposited on	:	2021-10-28
Resolution	:	3.30 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 ⓘ 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:

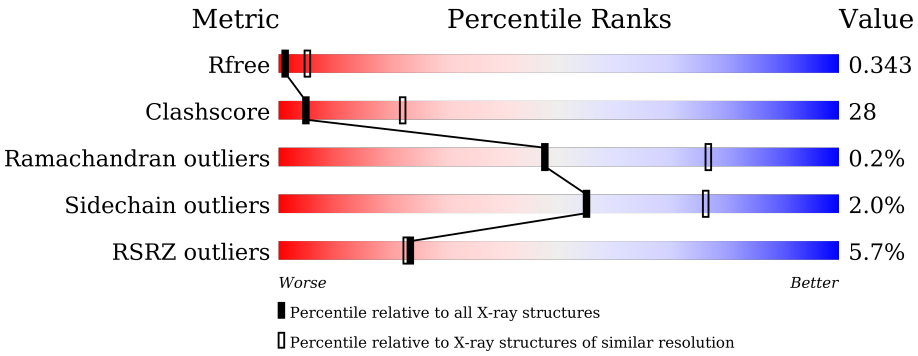
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation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

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.30 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1149 (3.34-3.26)
Clashscore	141614	1205 (3.34-3.26)
Ramachandran outliers	138981	1183 (3.34-3.26)
Sidechain outliers	138945	1182 (3.34-3.26)
RSRZ outliers	127900	1115 (3.34-3.26)

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

Mol	Chain	Length	Quality of chain
1	A	615	5% 51% 46%
1	B	615	7% 46% 49%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 19105 atoms, of which 9344 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 Maltodextrin glucosidase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	604	Total	C	H	N	O	S	0	0	0
			9552	3107	4672	871	880	22			
1	B	604	Total	C	H	N	O	S	0	0	0
			9552	3107	4672	871	880	22			

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	605	ALA	-	expression tag	UNP P21517
A	606	ALA	-	expression tag	UNP P21517
A	607	ALA	-	expression tag	UNP P21517
A	608	LEU	-	expression tag	UNP P21517
A	609	GLU	-	expression tag	UNP P21517
A	610	HIS	-	expression tag	UNP P21517
A	611	HIS	-	expression tag	UNP P21517
A	612	HIS	-	expression tag	UNP P21517
A	613	HIS	-	expression tag	UNP P21517
A	614	HIS	-	expression tag	UNP P21517
A	615	HIS	-	expression tag	UNP P21517
B	605	ALA	-	expression tag	UNP P21517
B	606	ALA	-	expression tag	UNP P21517
B	607	ALA	-	expression tag	UNP P21517
B	608	LEU	-	expression tag	UNP P21517
B	609	GLU	-	expression tag	UNP P21517
B	610	HIS	-	expression tag	UNP P21517
B	611	HIS	-	expression tag	UNP P21517
B	612	HIS	-	expression tag	UNP P21517
B	613	HIS	-	expression tag	UNP P21517
B	614	HIS	-	expression tag	UNP P21517
B	615	HIS	-	expression tag	UNP P21517

- Molecule 2 is water.

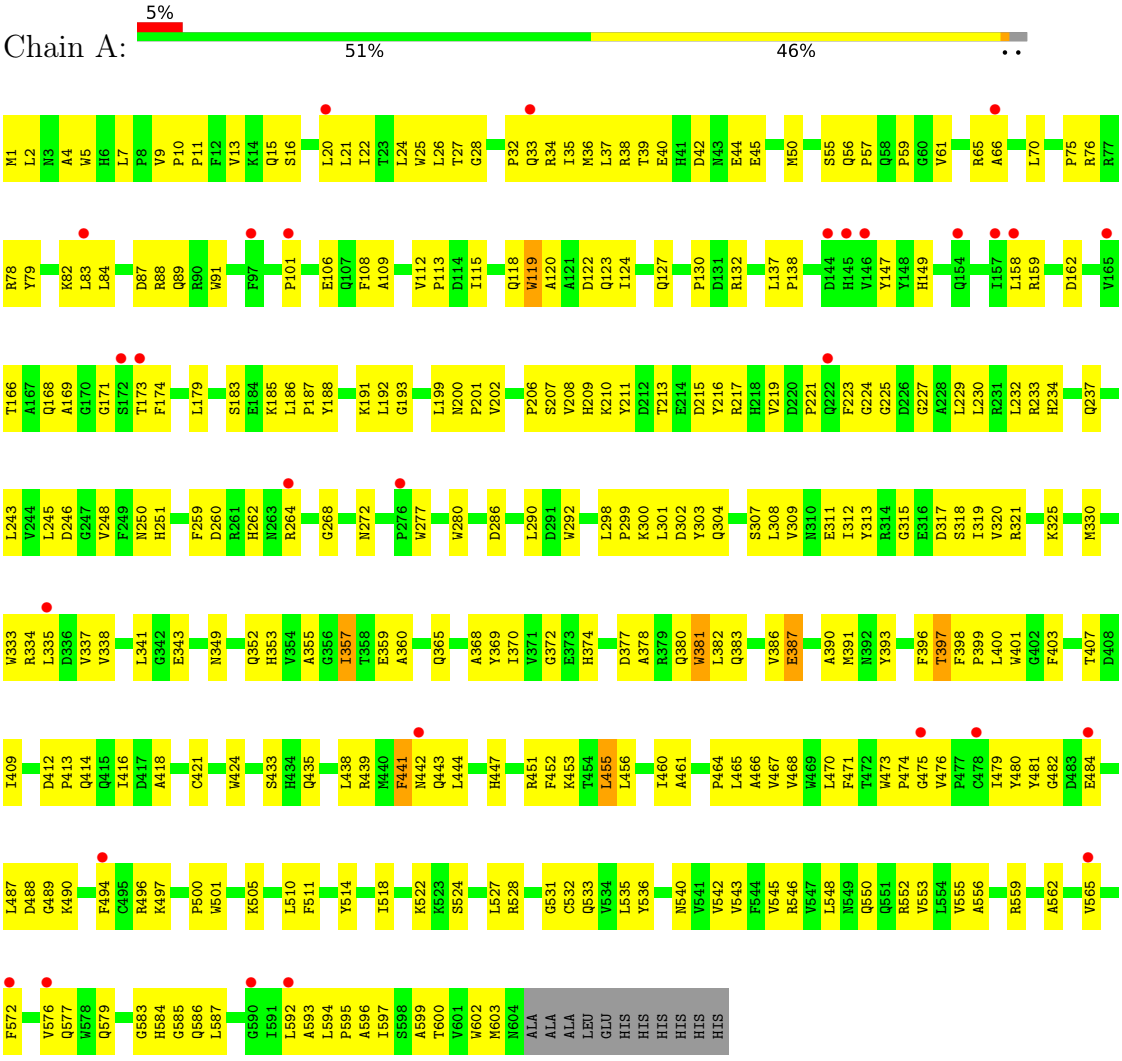
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total O 1 1	0	0

3 Residue-property plots (i)

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

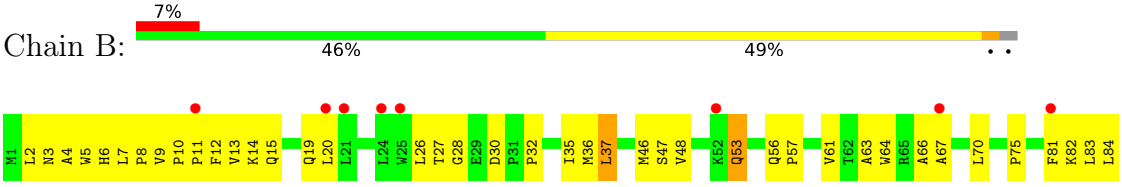
• Molecule 1: Maltodextrin glucosidase

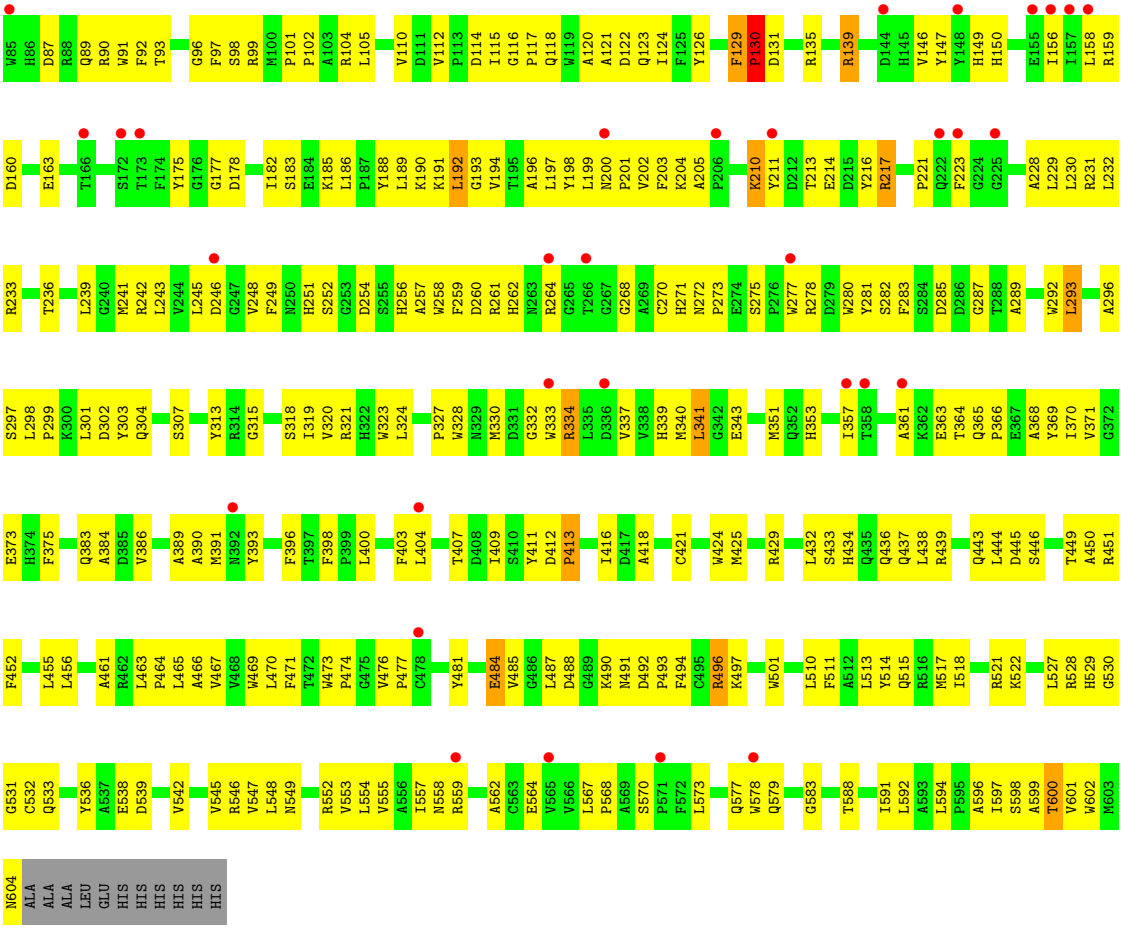
Chain A:



• Molecule 1: Maltodextrin glucosidase

Chain B:




W85 H86 D87 R88 Q89 R90 W91 F92 T93 G96 F97 S98 R99 M100 P101 P102 A103 R104 L105 V110 D111 V112 P113 D114 I115 G116 P117 Q118 W119 A120 A121 D122 Q123 I124 F125 Y126 F129 P130 D131 R135 R139 D144 H145 V146 Y147 Y148 H149 H150 E155 I156 I157 L158 R159
D160 E163 T166 S172 T173 F174 Y175 G176 G177 D178 I182 S183 E184 K185 L186 P187 Y188 L189 K190 K191 L192 G193 V194 T195 A196 A197 L197 Y198 L199 N200 P201 V202 F203 K204 A205 P206 K210 Y211 D212 T213 E214 D215 Y216 R217 P221 Q222 F223 G224 G225 A228 L229 L230 R231 L232
R233 T236 L239 G240 M241 R242 L243 V244 L245 D246 G247 V248 F249 N250 H251 S252 G253 D254 S255 H256 A257 W258 F259 D260 R261 H262 N263 R264 G265 T266 G267 G268 A269 C270 H271 N272 P273 E274 S275 P276 W277 R278 D279 W280 Y281 S282 F283 S284 D285 D286 G287 T288 A289 W292 L293 A296
S297 L298 P299 K300 L301 D302 Y303 Q304 S307 Y313 R314 G315 S318 I319 V320 R321 H322 W323 L324 P327 W328 N329 M330 D331 G332 W333 R334 L335 D336 V337 V338 H339 M340 L341 G342 E343 M351 Q352 H353 I357 T358 A361 K362 E363 T364 Q365 P366 E367 A368 Y369 I370 V371 G372
E373 H374 F375 Q383 A384 D385 V386 A389 A390 M391 N392 Y393 F396 T397 F398 P399 L400 F403 L404 T407 D408 I409 S410 Y411 D412 P413 I416 D417 A418 C421 W424 M425 R429 L432 S433 H434 Q435 Q436 Q437 L438 R439 Q443 L444 D445 S446 T449 A450 R451
F452 L455 L456 A461 R462 L463 P464 L465 A466 V467 V468 W469 L470 F471 T472 W473 P474 G475 V476 P477 C478 Y481 E484 V485 G486 L487 D488 G489 K490 N491 D492 P493 F494 C495 R496 K497 W501 L510 F511 A512 L513 Y514 Q515 R516 M517 I518 R521 K522 L527 R528 H529 G530
G531 C532 Q533 Y536 A537 E538 D539 V542 V545 R546 V547 L548 N549 R552 V553 L554 V555 A556 I557 N558 R559 A562 C563 E564 V565 V566 L567 P568 A569 S570 P571 F572 L573 Q577 W578 Q579 G583 T588 I591 L592 A593 L594 F595 A596 I597 S598 A599 T600 V601 W602 M603
N604 ALA ALA ALA LEU GLU HIS HIS HIS HIS HIS HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	I 41 2 2	Depositor
Cell constants a, b, c, α, β, γ	204.19Å 204.19Å 267.92Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	40.91 – 3.30 40.91 – 3.30	Depositor EDS
% Data completeness (in resolution range)	98.0 (40.91-3.30) 98.0 (40.91-3.30)	Depositor EDS
R_{merge}	0.35	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.11 (at 3.32Å)	Xtriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.303 , 0.343 0.304 , 0.343	Depositor DCC
R_{free} test set	1960 reflections (4.67%)	wwPDB-VP
Wilson B-factor (Å^2)	80.2	Xtriage
Anisotropy	0.261	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 93.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.44$, $< L^2 > = 0.26$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.86	EDS
Total number of atoms	19105	wwPDB-VP
Average B, all atoms (Å^2)	96.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 22.65 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 5.4560e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

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	0.71	1/5029 (0.0%)	0.91	11/6846 (0.2%)
1	B	0.70	0/5029	0.92	5/6846 (0.1%)
All	All	0.70	1/10058 (0.0%)	0.91	16/13692 (0.1%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	387	GLU	CG-CD	5.19	1.59	1.51

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	147	TYR	CA-CB-CG	5.86	124.52	113.40
1	B	37	LEU	CA-CB-CG	5.80	128.65	115.30
1	A	412	ASP	CB-CG-OD1	5.74	123.46	118.30
1	A	119	TRP	CB-CA-C	5.56	121.51	110.40
1	B	75	PRO	N-CA-C	5.50	126.40	112.10
1	A	191	LYS	CD-CE-NZ	5.49	124.33	111.70
1	A	455	LEU	CB-CG-CD1	-5.47	101.71	111.00
1	A	55	SER	N-CA-CB	-5.18	102.73	110.50
1	A	381	TRP	N-CA-C	-5.18	97.02	111.00
1	A	232	LEU	CA-CB-CG	5.17	127.18	115.30
1	B	293	LEU	CA-CB-CG	-5.14	103.49	115.30
1	B	341	LEU	CB-CG-CD2	-5.12	102.29	111.00
1	B	192	LEU	CB-CG-CD2	-5.11	102.32	111.00
1	A	312	ILE	C-N-CA	-5.10	108.95	121.70
1	A	357	ILE	CG1-CB-CG2	-5.08	100.22	111.40
1	A	230	LEU	CB-CG-CD2	-5.06	102.40	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4880	4672	4672	261	0
1	B	4880	4672	4672	276	0
2	A	1	0	0	0	0
All	All	9761	9344	9344	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 28.

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)
1:A:381:TRP:O	1:A:386:VAL:HG22	1.69	0.92
1:A:535:LEU:HB2	1:A:543:VAL:HG12	1.51	0.89
1:A:377:ASP:HB3	1:B:104:ARG:HB2	1.61	0.82
1:B:4:ALA:HB2	1:B:26:LEU:HD23	1.62	0.82
1:B:199:LEU:HD12	1:B:243:LEU:HD11	1.63	0.81
1:A:320:VAL:HG21	1:A:357:ILE:HG23	1.63	0.81
1:B:200:ASN:O	1:B:202:VAL:HG13	1.80	0.80
1:B:186:LEU:HD13	1:B:239:LEU:HD12	1.64	0.79
1:A:32:PRO:HG3	1:A:83:LEU:HD23	1.65	0.78
1:A:382:LEU:HD11	1:A:390:ALA:CB	2.13	0.78
1:A:382:LEU:HD11	1:A:390:ALA:HB2	1.67	0.77
1:A:109:ALA:HB3	1:A:433:SER:HA	1.67	0.77
1:B:126:TYR:HB2	1:B:194:VAL:HG11	1.67	0.76
1:B:32:PRO:HG3	1:B:83:LEU:HD23	1.67	0.76
1:B:216:TYR:HD2	1:B:319:ILE:HG21	1.51	0.75
1:B:130:PRO:HB2	1:B:223:PHE:CE2	2.22	0.75
1:B:4:ALA:HB2	1:B:26:LEU:CD2	2.17	0.74
1:B:418:ALA:HB2	1:B:539:ASP:O	1.88	0.73
1:A:391:MET:HA	1:A:441:PHE:HB3	1.71	0.72
1:B:320:VAL:HG21	1:B:357:ILE:HG23	1.71	0.72
1:B:577:GLN:HG2	1:B:579:GLN:HG2	1.72	0.72
1:A:527:LEU:HD21	1:A:553:VAL:HG11	1.72	0.71
1:B:337:VAL:HG22	1:B:337:VAL:O	1.91	0.71
1:A:333:TRP:HB2	1:A:370:ILE:HD12	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:292:TRP:HE1	1:B:337:VAL:HG21	1.56	0.70
1:A:444:LEU:HD12	1:A:470:LEU:HD22	1.74	0.69
1:B:121:ALA:HA	1:B:476:VAL:HG12	1.74	0.69
1:A:124:ILE:HD12	1:A:471:PHE:CE2	2.28	0.69
1:B:200:ASN:HB3	1:B:201:PRO:CD	2.22	0.69
1:A:447:HIS:HB2	1:A:496:ARG:HE	1.58	0.68
1:B:57:PRO:HB2	1:B:61:VAL:HG11	1.75	0.68
1:A:465:LEU:HD21	1:A:597:ILE:O	1.94	0.68
1:A:396:PHE:O	1:A:400:LEU:HD13	1.94	0.68
1:B:487:LEU:HD11	1:B:497:LYS:HB2	1.76	0.67
1:B:369:TYR:O	1:B:370:ILE:HD13	1.94	0.67
1:B:416:ILE:HD12	1:B:421:CYS:HB2	1.75	0.67
1:A:179:LEU:HD13	1:A:229:LEU:HD13	1.76	0.67
1:B:444:LEU:HG	1:B:470:LEU:HD22	1.77	0.67
1:A:262:HIS:HB2	1:A:264:ARG:HD2	1.76	0.66
1:A:39:THR:HG22	1:A:79:TYR:HB3	1.76	0.66
1:A:380:GLN:HA	1:A:383:GLN:HG2	1.77	0.66
1:B:4:ALA:CB	1:B:26:LEU:HD23	2.26	0.65
1:B:547:VAL:HG13	1:B:552:ARG:HD3	1.77	0.65
1:B:583:GLY:HA3	1:B:600:THR:HA	1.76	0.65
1:B:200:ASN:HB3	1:B:201:PRO:HD2	1.78	0.64
1:B:425:MET:O	1:B:429:ARG:HG3	1.97	0.64
1:B:433:SER:O	1:B:437:GLN:HG3	1.98	0.64
1:A:120:ALA:HA	1:A:123:GLN:HG3	1.79	0.63
1:B:216:TYR:CD2	1:B:319:ILE:HG21	2.32	0.63
1:A:20:LEU:HB2	1:A:70:LEU:HD11	1.78	0.63
1:B:259:PHE:CD2	1:B:261:ARG:HB2	2.33	0.63
1:A:124:ILE:HD12	1:A:471:PHE:HE2	1.63	0.62
1:B:245:LEU:HG	1:B:330:MET:HG3	1.81	0.62
1:B:332:GLY:HA3	1:B:369:TYR:O	1.99	0.62
1:A:192:LEU:HD13	1:A:511:PHE:CZ	2.35	0.62
1:A:44:GLU:HB2	1:B:340:MET:HE2	1.80	0.62
1:A:213:THR:HG21	1:A:216:TYR:CZ	2.35	0.62
1:B:146:VAL:HG23	1:B:158:LEU:HD12	1.80	0.61
1:B:259:PHE:CE2	1:B:261:ARG:HB2	2.35	0.61
1:A:365:GLN:HB3	1:A:368:ALA:HB2	1.83	0.61
1:B:487:LEU:HD12	1:B:488:ASP:H	1.66	0.61
1:A:233:ARG:O	1:A:237:GLN:HG3	2.01	0.60
1:A:398:PHE:CE2	1:A:409:ILE:HD12	2.36	0.60
1:B:8:PRO:HA	1:B:13:VAL:HG21	1.84	0.60
1:B:201:PRO:HB2	1:B:210:LYS:HB2	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:304:GLN:HB2	1:B:343:GLU:HB3	1.85	0.59
1:A:527:LEU:HD23	1:A:546:ARG:HG3	1.84	0.59
1:B:26:LEU:HD12	1:B:64:TRP:NE1	2.17	0.59
1:A:482:GLY:HA3	1:A:487:LEU:HD23	1.84	0.59
1:A:259:PHE:O	1:A:259:PHE:CD2	2.55	0.59
1:B:105:LEU:HD13	1:B:383:GLN:HG2	1.83	0.59
1:B:283:PHE:HA	1:B:289:ALA:HA	1.85	0.58
1:B:418:ALA:CB	1:B:539:ASP:O	2.51	0.58
1:A:374:HIS:ND1	1:A:378:ALA:HB1	2.19	0.58
1:B:117:PRO:HG3	1:B:369:TYR:HD1	1.68	0.58
1:A:199:LEU:HB2	1:A:245:LEU:HD23	1.84	0.58
1:B:131:ASP:HB2	1:B:223:PHE:CE1	2.38	0.58
1:A:500:PRO:HB2	1:A:505:LYS:HB2	1.86	0.58
1:A:115:ILE:HG22	1:A:115:ILE:O	2.04	0.58
1:B:532:CYS:HB2	1:B:546:ARG:HD2	1.86	0.58
1:A:562:ALA:HB2	1:A:596:ALA:N	2.18	0.58
1:A:10:PRO:O	1:A:11:PRO:C	2.41	0.57
1:A:39:THR:HG22	1:A:79:TYR:CB	2.34	0.57
1:B:147:TYR:CZ	1:B:156:ILE:HD13	2.39	0.57
1:A:171:GLY:O	1:A:208:VAL:HG12	2.04	0.57
1:A:280:TRP:CE3	1:A:308:LEU:HD13	2.39	0.57
1:A:396:PHE:O	1:A:399:PRO:HD2	2.05	0.57
1:B:555:VAL:HG22	1:B:601:VAL:HG22	1.86	0.57
1:A:25:TRP:HE1	1:A:57:PRO:HG3	1.69	0.57
1:A:259:PHE:CD2	1:A:299:PRO:HB3	2.39	0.57
1:B:365:GLN:HB3	1:B:368:ALA:HB2	1.85	0.57
1:B:536:TYR:CE1	1:B:538:GLU:HB3	2.40	0.57
1:A:137:LEU:HG	1:A:138:PRO:HD3	1.86	0.57
1:B:82:LYS:HB2	1:B:91:TRP:CZ3	2.40	0.57
1:A:192:LEU:HB2	1:A:511:PHE:HZ	1.70	0.56
1:A:451:ARG:HG3	1:A:488:ASP:O	2.04	0.56
1:A:479:ILE:HG21	1:A:484:GLU:CD	2.26	0.56
1:A:510:LEU:HG	1:A:514:TYR:HE1	1.70	0.56
1:B:471:PHE:CE1	1:B:518:ILE:HG12	2.40	0.56
1:B:280:TRP:HE1	1:B:307:SER:HB2	1.70	0.56
1:A:101:PRO:HD2	1:B:424:TRP:CZ3	2.40	0.56
1:B:122:ASP:OD1	1:B:528:ARG:HD2	2.05	0.56
1:A:120:ALA:O	1:A:476:VAL:CG2	2.53	0.56
1:A:2:LEU:HA	1:A:28:GLY:HA3	1.86	0.56
1:A:7:LEU:HD21	1:A:533:GLN:HB2	1.88	0.56
1:B:124:ILE:HG23	1:B:477:PRO:HG2	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:186:LEU:O	1:B:190:LYS:HE3	2.06	0.55
1:B:416:ILE:CD1	1:B:421:CYS:HB2	2.36	0.55
1:B:445:ASP:OD2	1:B:452:PHE:HB2	2.05	0.55
1:A:9:VAL:HB	1:A:10:PRO:HD2	1.88	0.55
1:A:414:GLN:HA	1:B:89:GLN:HG2	1.88	0.55
1:B:260:ASP:HB3	1:B:268:GLY:HA3	1.88	0.55
1:A:20:LEU:HD12	1:A:21:LEU:H	1.71	0.55
1:B:292:TRP:CH2	1:B:293:LEU:HD12	2.42	0.55
1:A:211:TYR:HD1	1:A:248:VAL:HG21	1.72	0.55
1:A:119:TRP:O	1:A:120:ALA:HB3	2.07	0.55
1:B:87:ASP:N	1:B:87:ASP:OD1	2.40	0.55
1:B:216:TYR:HD1	1:B:256:HIS:HE2	1.53	0.55
1:A:374:HIS:CB	1:A:378:ALA:HB2	2.36	0.55
1:B:536:TYR:HE1	1:B:538:GLU:HB3	1.69	0.55
1:B:327:PRO:HD2	1:B:328:TRP:CD1	2.42	0.55
1:B:421:CYS:O	1:B:424:TRP:HB3	2.06	0.55
1:A:301:LEU:HB3	1:A:308:LEU:HD21	1.88	0.54
1:A:583:GLY:HA3	1:A:600:THR:HA	1.89	0.54
1:A:382:LEU:HD11	1:A:390:ALA:HB3	1.86	0.54
1:B:282:SER:OG	1:B:302:ASP:HB2	2.07	0.54
1:A:112:VAL:HB	1:A:113:PRO:HD3	1.90	0.54
1:A:251:HIS:HD2	1:A:298:LEU:HD22	1.72	0.54
1:A:424:TRP:CH2	1:B:101:PRO:HG2	2.43	0.54
1:A:464:PRO:O	1:A:468:VAL:HG23	2.08	0.54
1:B:398:PHE:CE1	1:B:409:ILE:HG13	2.43	0.54
1:B:9:VAL:HG21	1:B:531:GLY:H	1.73	0.54
1:B:130:PRO:HB2	1:B:223:PHE:CD2	2.42	0.54
1:B:600:THR:O	1:B:601:VAL:HG23	2.07	0.54
1:A:56:GLN:OE1	1:A:59:PRO:HA	2.08	0.53
1:A:555:VAL:HG12	1:A:556:ALA:N	2.22	0.53
1:B:185:LYS:HG3	1:B:501:TRP:CH2	2.44	0.53
1:A:380:GLN:HA	1:A:383:GLN:HB2	1.91	0.53
1:B:192:LEU:O	1:B:518:ILE:HD12	2.08	0.53
1:A:9:VAL:HG11	1:A:531:GLY:N	2.24	0.53
1:A:213:THR:HG21	1:A:216:TYR:CE2	2.43	0.53
1:B:600:THR:HB	1:B:602:TRP:CH2	2.44	0.53
1:A:396:PHE:O	1:A:400:LEU:CD1	2.57	0.53
1:A:127:GLN:HB3	1:A:480:TYR:HA	1.91	0.53
1:B:115:ILE:HG13	1:B:116:GLY:N	2.24	0.53
1:A:137:LEU:HD12	1:A:138:PRO:CD	2.38	0.53
1:B:409:ILE:HD12	1:B:409:ILE:N	2.24	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:443:GLN:NE2	1:B:446:SER:HB3	2.24	0.53
1:B:451:ARG:NH2	1:B:487:LEU:HD23	2.24	0.53
1:A:119:TRP:CE3	1:A:120:ALA:HB2	2.44	0.52
1:B:129:PHE:CE2	1:B:496:ARG:HG2	2.42	0.52
1:B:186:LEU:HD23	1:B:189:LEU:HD12	1.91	0.52
1:B:434:HIS:HA	1:B:437:GLN:OE1	2.09	0.52
1:B:90:ARG:NH1	1:B:97:PHE:HB3	2.25	0.52
1:B:36:MET:HB3	1:B:47:SER:OG	2.09	0.52
1:A:259:PHE:O	1:A:259:PHE:CG	2.63	0.52
1:B:81:PHE:HB2	1:B:92:PHE:HB3	1.91	0.52
1:A:251:HIS:CD2	1:A:298:LEU:HD22	2.45	0.52
1:B:407:THR:HG21	1:B:455:LEU:HD13	1.91	0.52
1:B:438:LEU:HD13	1:B:529:HIS:HA	1.90	0.52
1:A:15:GLN:OE1	1:A:16:SER:N	2.42	0.52
1:A:183:SER:HA	1:A:186:LEU:HG	1.92	0.52
1:A:130:PRO:HB2	1:A:223:PHE:CE2	2.45	0.52
1:B:147:TYR:CE1	1:B:156:ILE:HD13	2.45	0.52
1:B:245:LEU:O	1:B:333:TRP:HA	2.09	0.52
1:B:251:HIS:CD2	1:B:298:LEU:HB3	2.45	0.52
1:B:412:ASP:N	1:B:413:PRO:CD	2.73	0.52
1:A:380:GLN:HA	1:A:383:GLN:CB	2.40	0.52
1:B:129:PHE:CD2	1:B:496:ARG:HG2	2.45	0.52
1:B:577:GLN:HG2	1:B:579:GLN:CG	2.39	0.52
1:B:260:ASP:OD1	1:B:262:HIS:O	2.28	0.51
1:A:292:TRP:HE1	1:A:337:VAL:HG11	1.74	0.51
1:B:463:LEU:O	1:B:467:VAL:HG23	2.11	0.51
1:A:84:LEU:HD11	1:B:411:TYR:CD2	2.45	0.51
1:B:105:LEU:HD13	1:B:383:GLN:CG	2.39	0.51
1:B:371:VAL:HG13	1:B:390:ALA:HA	1.91	0.51
1:B:93:THR:HG21	1:B:102:PRO:HB3	1.92	0.51
1:B:210:LYS:HD3	1:B:223:PHE:CE2	2.46	0.51
1:B:236:THR:O	1:B:241:MET:N	2.43	0.51
1:B:216:TYR:CB	1:B:319:ILE:HD13	2.41	0.51
1:B:487:LEU:HD12	1:B:488:ASP:N	2.25	0.51
1:A:36:MET:HB2	1:A:82:LYS:HB3	1.93	0.51
1:A:377:ASP:HB3	1:B:104:ARG:CB	2.37	0.51
1:A:550:GLN:C	1:A:552:ARG:NH1	2.64	0.51
1:A:202:VAL:O	1:A:219:VAL:HG13	2.11	0.51
1:A:484:GLU:HG3	1:A:514:TYR:CD2	2.46	0.51
1:A:24:LEU:HD12	1:A:25:TRP:H	1.75	0.51
1:A:211:TYR:HD1	1:A:248:VAL:CG2	2.23	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:4:ALA:HB1	1:A:24:LEU:HD11	1.93	0.51
1:A:465:LEU:HD11	1:A:597:ILE:HG22	1.93	0.51
1:A:562:ALA:H	1:A:596:ALA:HB2	1.76	0.50
1:A:374:HIS:CG	1:A:378:ALA:CB	2.94	0.50
1:B:261:ARG:CZ	1:B:296:ALA:HB1	2.41	0.50
1:B:149:HIS:HB2	1:B:156:ILE:HG23	1.92	0.50
1:A:174:PHE:CZ	1:A:208:VAL:HA	2.46	0.50
1:A:482:GLY:O	1:A:487:LEU:HB2	2.11	0.50
1:A:338:VAL:HG21	1:A:387:GLU:OE2	2.12	0.50
1:B:135:ARG:HD3	1:B:139:ARG:HD2	1.94	0.50
1:B:429:ARG:HB3	1:B:437:GLN:NE2	2.25	0.50
1:A:335:LEU:HD13	1:A:338:VAL:HG21	1.93	0.50
1:A:452:PHE:HE2	1:A:466:ALA:CB	2.25	0.50
1:B:6:HIS:CE1	1:B:12:PHE:HB3	2.47	0.50
1:B:373:GLU:CD	1:B:375:PHE:HE1	2.15	0.50
1:B:588:THR:HG23	1:B:591:ILE:HB	1.93	0.50
1:B:5:TRP:HZ3	1:B:27:THR:HB	1.77	0.50
1:B:465:LEU:HD13	1:B:557:ILE:HG23	1.93	0.50
1:B:35:ILE:HG23	1:B:83:LEU:HD12	1.93	0.50
1:A:587:LEU:HD13	1:A:592:LEU:HD13	1.94	0.49
1:B:48:VAL:HG12	1:B:66:ALA:HB1	1.94	0.49
1:A:320:VAL:HG21	1:A:357:ILE:CG2	2.38	0.49
1:A:401:TRP:HE3	1:A:407:THR:HG23	1.76	0.49
1:A:11:PRO:HD3	1:A:548:LEU:C	2.32	0.49
1:A:527:LEU:HD21	1:A:553:VAL:CG1	2.39	0.49
1:B:37:LEU:HD22	1:B:66:ALA:HB3	1.92	0.49
1:B:56:GLN:HB2	1:B:61:VAL:O	2.12	0.49
1:B:334:ARG:NH2	1:B:391:MET:SD	2.85	0.49
1:A:398:PHE:N	1:A:399:PRO:CD	2.76	0.49
1:B:213:THR:O	1:B:256:HIS:HD2	1.96	0.49
1:B:562:ALA:HB2	1:B:596:ALA:N	2.28	0.49
1:B:594:LEU:HD22	1:B:598:SER:OG	2.12	0.49
1:A:192:LEU:HB2	1:A:511:PHE:CZ	2.47	0.49
1:A:586:GLN:O	1:A:593:ALA:HB3	2.12	0.49
1:B:277:TRP:CD1	1:B:280:TRP:CZ3	3.00	0.49
1:A:321:ARG:O	1:A:325:LYS:HG2	2.12	0.49
1:A:435:GLN:H	1:A:435:GLN:CD	2.16	0.49
1:B:259:PHE:HB2	1:B:281:TYR:OH	2.13	0.49
1:B:521:ARG:HA	1:B:527:LEU:HD12	1.93	0.49
1:A:20:LEU:HD12	1:A:21:LEU:N	2.28	0.49
1:A:40:GLU:OE1	1:A:78:ARG:HD2	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:197:LEU:HB2	1:B:243:LEU:HD12	1.94	0.49
1:B:258:TRP:HA	1:B:277:TRP:CE3	2.47	0.49
1:B:557:ILE:CG2	1:B:558:ASN:N	2.76	0.49
1:A:87:ASP:OD1	1:A:88:ARG:N	2.46	0.48
1:A:321:ARG:CZ	1:A:360:ALA:HB1	2.43	0.48
1:A:349:ASN:O	1:A:352:GLN:HB3	2.13	0.48
1:A:355:ALA:O	1:A:359:GLU:HG3	2.12	0.48
1:A:424:TRP:C	1:A:424:TRP:CD1	2.86	0.48
1:A:562:ALA:N	1:A:596:ALA:HB2	2.28	0.48
1:B:315:GLY:O	1:B:318:SER:HB3	2.13	0.48
1:B:32:PRO:HG3	1:B:83:LEU:CD2	2.39	0.48
1:B:339:HIS:CD2	1:B:340:MET:HG3	2.48	0.48
1:B:384:ALA:HB3	1:B:386:VAL:HG13	1.94	0.48
1:A:380:GLN:C	1:A:382:LEU:N	2.56	0.48
1:B:321:ARG:HB3	1:B:364:THR:OG1	2.13	0.48
1:A:396:PHE:C	1:A:399:PRO:HD2	2.32	0.48
1:B:570:SER:HB3	1:B:573:LEU:HG	1.95	0.48
1:B:577:GLN:O	1:B:604:ASN:HA	2.13	0.48
1:A:200:ASN:HA	1:A:246:ASP:HB2	1.95	0.48
1:A:215:ASP:OD1	1:A:216:TYR:N	2.47	0.48
1:A:461:ALA:O	1:A:464:PRO:HD2	2.13	0.48
1:A:487:LEU:HD12	1:A:488:ASP:H	1.78	0.48
1:B:461:ALA:O	1:B:464:PRO:HD2	2.13	0.48
1:B:492:ASP:N	1:B:493:PRO:CD	2.76	0.48
1:A:221:PRO:HA	1:A:224:GLY:O	2.13	0.48
1:A:382:LEU:CD2	1:A:387:GLU:HB2	2.44	0.48
1:A:577:GLN:HG2	1:A:579:GLN:HE21	1.79	0.48
1:B:160:ASP:OD1	1:B:163:GLU:HG3	2.14	0.48
1:B:361:ALA:HB1	1:B:370:ILE:HD11	1.95	0.48
1:A:186:LEU:N	1:A:187:PRO:CD	2.76	0.48
1:B:186:LEU:HD13	1:B:239:LEU:CD1	2.39	0.48
1:A:277:TRP:HB3	1:A:280:TRP:CG	2.49	0.48
1:B:389:ALA:CB	1:B:439:ARG:O	2.61	0.48
1:A:13:VAL:CG1	1:A:20:LEU:HD11	2.44	0.48
1:A:280:TRP:CZ2	1:A:307:SER:HB2	2.48	0.48
1:A:393:TYR:HB3	1:A:398:PHE:CE2	2.49	0.48
1:A:602:TRP:O	1:A:603:MET:HB2	2.13	0.48
1:B:205:ALA:HB3	1:B:210:LYS:HG3	1.95	0.48
1:A:290:LEU:O	1:A:300:LYS:CB	2.62	0.47
1:B:104:ARG:HG2	1:B:105:LEU:HD23	1.96	0.47
1:B:270:CYS:HB3	1:B:271:HIS:CD2	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:473:TRP:CG	1:B:474:PRO:HD2	2.49	0.47
1:A:22:ILE:HG21	1:A:79:TYR:CE2	2.50	0.47
1:A:70:LEU:HD22	1:A:112:VAL:HG11	1.96	0.47
1:A:540:ASN:HB3	1:A:559:ARG:HG3	1.96	0.47
1:B:130:PRO:O	1:B:177:GLY:HA3	2.14	0.47
1:B:283:PHE:CD2	1:B:289:ALA:HB2	2.49	0.47
1:B:432:LEU:HD23	1:B:432:LEU:HA	1.57	0.47
1:A:210:LYS:HE2	1:A:223:PHE:CE1	2.49	0.47
1:A:600:THR:HG21	1:A:602:TRP:CH2	2.49	0.47
1:B:320:VAL:CG2	1:B:357:ILE:HG23	2.43	0.47
1:B:404:LEU:HD13	1:B:466:ALA:HB2	1.96	0.47
1:B:461:ALA:HB1	1:B:597:ILE:HG21	1.96	0.47
1:A:10:PRO:HA	1:A:13:VAL:O	2.13	0.47
1:A:37:LEU:HG	1:A:39:THR:HG23	1.97	0.47
1:A:217:ARG:NH1	1:A:317:ASP:O	2.43	0.47
1:A:250:ASN:CB	1:A:337:VAL:HG23	2.44	0.47
1:A:416:ILE:HD12	1:A:421:CYS:HB2	1.97	0.47
1:A:453:LYS:HA	1:A:456:LEU:HD12	1.95	0.47
1:A:576:VAL:HG13	1:A:577:GLN:HB2	1.97	0.47
1:B:56:GLN:O	1:B:56:GLN:HG2	2.14	0.47
1:B:146:VAL:HG23	1:B:158:LEU:CD1	2.43	0.47
1:A:137:LEU:CG	1:A:138:PRO:HD3	2.43	0.47
1:A:490:LYS:HG3	1:A:494:PHE:HD2	1.79	0.47
1:B:3:ASN:N	1:B:27:THR:O	2.48	0.47
1:B:292:TRP:CZ3	1:B:293:LEU:HD12	2.49	0.47
1:B:393:TYR:HB3	1:B:398:PHE:CE2	2.49	0.47
1:A:50:MET:HA	1:A:66:ALA:HB2	1.97	0.47
1:A:188:TYR:CD2	1:A:501:TRP:HZ3	2.32	0.47
1:A:418:ALA:HB1	1:A:542:VAL:HG22	1.96	0.47
1:A:545:VAL:HA	1:A:553:VAL:O	2.14	0.47
1:B:203:PHE:CZ	1:B:323:TRP:CE2	3.02	0.47
1:B:281:TYR:CE1	1:B:301:LEU:HD23	2.50	0.47
1:B:324:LEU:HD12	1:B:361:ALA:HA	1.96	0.47
1:B:548:LEU:O	1:B:549:ASN:C	2.53	0.47
1:A:369:TYR:HE1	1:A:439:ARG:HB3	1.79	0.47
1:B:217:ARG:NE	1:B:319:ILE:HG12	2.30	0.47
1:B:484:GLU:HG2	1:B:485:VAL:HG13	1.97	0.47
1:A:374:HIS:CG	1:A:378:ALA:HB2	2.48	0.47
1:A:380:GLN:HA	1:A:383:GLN:CG	2.43	0.47
1:B:203:PHE:CE1	1:B:323:TRP:CZ2	3.03	0.47
1:B:281:TYR:CD1	1:B:299:PRO:HB2	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:433:SER:OG	1:B:436:GLN:HG3	2.14	0.47
1:A:26:LEU:HD11	1:A:35:ILE:HD11	1.97	0.47
1:A:137:LEU:CD1	1:A:138:PRO:HD3	2.45	0.47
1:B:213:THR:HG21	1:B:216:TYR:CD1	2.50	0.47
1:B:450:ALA:CB	1:B:490:LYS:O	2.63	0.47
1:B:216:TYR:OH	1:B:248:VAL:O	2.28	0.46
1:B:510:LEU:HA	1:B:510:LEU:HD12	1.60	0.46
1:A:38:ARG:HD3	1:A:91:TRP:CH2	2.51	0.46
1:A:277:TRP:HA	1:A:280:TRP:CD1	2.50	0.46
1:A:391:MET:HB3	1:A:393:TYR:CE1	2.51	0.46
1:B:2:LEU:HD11	1:B:32:PRO:HD2	1.98	0.46
1:A:225:GLY:C	1:A:227:GLY:N	2.68	0.46
1:A:372:GLY:HA3	1:A:387:GLU:OE1	2.15	0.46
1:B:196:ALA:CB	1:B:242:ARG:HB2	2.46	0.46
1:B:201:PRO:HB2	1:B:210:LYS:CB	2.44	0.46
1:B:216:TYR:HB3	1:B:319:ILE:HD13	1.97	0.46
1:B:530:GLY:O	1:B:546:ARG:NH2	2.49	0.46
1:A:159:ARG:HH12	1:A:166:THR:HG23	1.81	0.46
1:A:21:LEU:HD13	1:A:65:ARG:HD3	1.98	0.46
1:B:150:HIS:CE1	1:B:264:ARG:NE	2.83	0.46
1:A:341:LEU:HD23	1:A:341:LEU:C	2.36	0.46
1:A:5:TRP:O	1:A:24:LEU:HD12	2.16	0.46
1:A:524:SER:O	1:A:528:ARG:NH1	2.49	0.46
1:B:229:LEU:HD23	1:B:328:TRP:CZ3	2.51	0.46
1:A:7:LEU:HD11	1:A:572:PHE:CZ	2.51	0.46
1:A:132:ARG:NH1	1:A:496:ARG:O	2.49	0.46
1:B:53:GLN:N	1:B:63:ALA:O	2.48	0.46
1:B:513:LEU:O	1:B:517:MET:HG2	2.15	0.46
1:A:40:GLU:O	1:A:42:ASP:N	2.49	0.45
1:A:119:TRP:CZ3	1:A:120:ALA:HB2	2.51	0.45
1:A:380:GLN:CA	1:A:383:GLN:HG2	2.45	0.45
1:A:488:ASP:N	1:A:488:ASP:OD1	2.49	0.45
1:B:37:LEU:CD2	1:B:66:ALA:HB3	2.46	0.45
1:A:455:LEU:HA	1:A:455:LEU:HD23	1.48	0.45
1:A:192:LEU:HD21	1:A:484:GLU:OE2	2.17	0.45
1:B:491:ASN:HB2	1:B:493:PRO:HD2	1.98	0.45
1:A:137:LEU:HD12	1:A:138:PRO:HD3	1.97	0.45
1:B:15:GLN:HA	1:B:20:LEU:HD12	1.98	0.45
1:B:193:GLY:O	1:B:522:LYS:HE3	2.17	0.45
1:B:228:ALA:HB2	1:B:231:ARG:NH2	2.32	0.45
1:B:337:VAL:O	1:B:337:VAL:CG2	2.62	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:418:ALA:HB1	1:B:542:VAL:HG23	1.98	0.45
1:A:76:ARG:HG3	1:A:78:ARG:HG3	1.98	0.45
1:A:311:GLU:HG3	1:A:319:ILE:HD12	1.99	0.45
1:B:254:ASP:CG	1:B:297:SER:HA	2.37	0.45
1:B:254:ASP:N	1:B:297:SER:O	2.46	0.45
1:B:272:ASN:ND2	1:B:275:SER:HB2	2.32	0.45
1:A:453:LYS:HG3	1:A:460:ILE:HD13	1.99	0.45
1:A:535:LEU:HB2	1:A:543:VAL:CG1	2.36	0.45
1:B:545:VAL:HG22	1:B:547:VAL:HG22	1.98	0.45
1:A:168:GLN:HG2	1:A:169:ALA:N	2.31	0.45
1:A:193:GLY:HA3	1:A:518:ILE:HG21	1.98	0.45
1:A:207:SER:HG	1:A:209:HIS:CE1	2.35	0.45
1:B:188:TYR:CD2	1:B:189:LEU:HD23	2.52	0.45
1:B:313:TYR:CD1	1:B:357:ILE:CD1	2.99	0.45
1:B:521:ARG:NH1	1:B:527:LEU:O	2.50	0.45
1:A:44:GLU:O	1:A:44:GLU:HG3	2.17	0.44
1:A:199:LEU:CB	1:A:245:LEU:HD23	2.48	0.44
1:A:112:VAL:CB	1:A:113:PRO:HD3	2.47	0.44
1:B:2:LEU:HD11	1:B:32:PRO:CD	2.47	0.44
1:B:285:ASP:C	1:B:287:GLY:H	2.21	0.44
1:B:303:TYR:CZ	1:B:341:LEU:HD11	2.53	0.44
1:A:44:GLU:O	1:A:45:GLU:C	2.54	0.44
1:B:10:PRO:HB3	1:B:14:LYS:HG2	1.98	0.44
1:B:249:PHE:CE2	1:B:320:VAL:HG22	2.52	0.44
1:B:527:LEU:HD21	1:B:553:VAL:HG11	1.98	0.44
1:B:545:VAL:HG22	1:B:547:VAL:CG2	2.47	0.44
1:A:403:PHE:HB2	1:A:416:ILE:HD11	2.00	0.44
1:B:19:GLN:CD	1:B:67:ALA:HB1	2.37	0.44
1:B:126:TYR:CZ	1:B:481:TYR:HA	2.53	0.44
1:B:217:ARG:CZ	1:B:319:ILE:HG12	2.48	0.44
1:A:545:VAL:O	1:A:545:VAL:HG13	2.18	0.44
1:A:555:VAL:HG12	1:A:556:ALA:H	1.82	0.44
1:A:82:LYS:HE2	1:A:89:GLN:NE2	2.33	0.44
1:B:190:LYS:HE2	1:B:239:LEU:HD13	1.99	0.44
1:B:303:TYR:HB3	1:B:353:HIS:NE2	2.32	0.44
1:A:9:VAL:O	1:A:13:VAL:HG23	2.17	0.44
1:B:492:ASP:N	1:B:493:PRO:HD2	2.33	0.44
1:A:185:LYS:HE3	1:A:501:TRP:CE3	2.52	0.44
1:B:303:TYR:HB3	1:B:353:HIS:CD2	2.53	0.44
1:A:380:GLN:O	1:A:381:TRP:C	2.55	0.44
1:B:465:LEU:HA	1:B:599:ALA:HB2	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:5:TRP:HE1	1:A:27:THR:HG21	1.83	0.43
1:A:260:ASP:HB3	1:A:268:GLY:HA3	2.00	0.43
1:A:480:TYR:CE1	1:A:481:TYR:CE2	3.06	0.43
1:B:396:PHE:O	1:B:400:LEU:HD13	2.18	0.43
1:A:397:THR:HG22	1:A:401:TRP:NE1	2.33	0.43
1:B:117:PRO:HG2	1:B:439:ARG:CD	2.47	0.43
1:B:567:LEU:HA	1:B:568:PRO:HD2	1.89	0.43
1:A:84:LEU:CD1	1:B:411:TYR:CD2	3.01	0.43
1:B:118:GLN:C	1:B:120:ALA:H	2.22	0.43
1:B:204:LYS:HD2	1:B:221:PRO:HD3	1.99	0.43
1:A:584:HIS:HB2	1:A:595:PRO:HG2	2.00	0.43
1:B:196:ALA:HB2	1:B:242:ARG:HB2	2.00	0.43
1:B:246:ASP:OD1	1:B:334:ARG:O	2.36	0.43
1:A:33:GLN:HG3	1:A:34:ARG:HG2	2.01	0.43
1:A:302:ASP:OD1	1:A:304:GLN:HB2	2.18	0.43
1:A:315:GLY:O	1:A:318:SER:N	2.51	0.43
1:A:413:PRO:HB3	1:B:87:ASP:O	2.18	0.43
1:A:484:GLU:HA	1:A:514:TYR:CE1	2.53	0.43
1:B:456:LEU:HD23	1:B:456:LEU:HA	1.83	0.43
1:B:469:TRP:HD1	1:B:473:TRP:HB2	1.82	0.43
1:B:530:GLY:H	1:B:546:ARG:HH21	1.67	0.43
1:A:149:HIS:CD2	1:A:206:PRO:HB2	2.53	0.43
1:A:441:PHE:HD2	1:A:443:GLN:HE21	1.67	0.43
1:A:464:PRO:O	1:A:467:VAL:N	2.51	0.43
1:B:2:LEU:HA	1:B:28:GLY:HA3	1.99	0.43
1:B:117:PRO:HG3	1:B:369:TYR:HA	2.01	0.43
1:B:465:LEU:HD13	1:B:557:ILE:CG2	2.48	0.43
1:B:492:ASP:O	1:B:496:ARG:CD	2.67	0.43
1:A:309:VAL:HG13	1:A:313:TYR:CE2	2.53	0.43
1:B:465:LEU:HD23	1:B:599:ALA:HB2	1.99	0.43
1:B:7:LEU:HD11	1:B:533:GLN:HB2	1.99	0.43
1:B:117:PRO:HG2	1:B:439:ARG:HD2	2.01	0.43
1:A:158:LEU:HD12	1:A:158:LEU:HA	1.87	0.43
1:A:200:ASN:HB3	1:A:201:PRO:HD2	2.00	0.43
1:A:262:HIS:C	1:A:264:ARG:N	2.72	0.43
1:A:335:LEU:HD11	1:A:370:ILE:HG22	2.01	0.43
1:B:92:PHE:HE1	1:B:96:GLY:HA2	1.83	0.43
1:A:75:PRO:CB	1:A:113:PRO:HD2	2.49	0.43
1:A:118:GLN:C	1:A:119:TRP:O	2.51	0.43
1:A:120:ALA:O	1:A:476:VAL:HG21	2.18	0.43
1:A:251:HIS:HA	1:A:301:LEU:HG	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:159:ARG:O	1:B:175:TYR:HA	2.19	0.43
1:B:233:ARG:HA	1:B:233:ARG:HD2	1.69	0.43
1:B:281:TYR:CE1	1:B:299:PRO:HB2	2.54	0.43
1:B:403:PHE:CZ	1:B:559:ARG:HG2	2.53	0.43
1:A:44:GLU:HB2	1:B:340:MET:CE	2.49	0.42
1:A:536:TYR:CE2	1:A:565:VAL:HG13	2.54	0.42
1:A:290:LEU:O	1:A:300:LYS:N	2.42	0.42
1:A:343:GLU:OE1	1:A:349:ASN:OD1	2.36	0.42
1:A:173:THR:O	1:A:208:VAL:HG21	2.18	0.42
1:A:451:ARG:HG3	1:A:488:ASP:C	2.40	0.42
1:B:114:ASP:OD1	1:B:115:ILE:N	2.53	0.42
1:A:313:TYR:CD2	1:A:357:ILE:HG13	2.55	0.42
1:A:424:TRP:HD1	1:A:424:TRP:O	2.02	0.42
1:A:522:LYS:O	1:A:528:ARG:NH1	2.52	0.42
1:A:536:TYR:CE2	1:A:565:VAL:CG1	3.03	0.42
1:A:13:VAL:HG13	1:A:20:LEU:HD11	2.02	0.42
1:B:11:PRO:O	1:B:14:LYS:HG3	2.19	0.42
1:A:192:LEU:HD13	1:A:511:PHE:CE1	2.54	0.42
1:A:1:MET:HG2	1:A:2:LEU:N	2.34	0.42
1:A:79:TYR:CZ	1:A:108:PHE:HB2	2.55	0.42
1:A:586:GLN:HG3	1:A:593:ALA:HB3	2.01	0.42
1:A:398:PHE:CZ	1:A:409:ILE:HG13	2.55	0.42
1:B:473:TRP:CD1	1:B:474:PRO:HD2	2.54	0.42
1:B:562:ALA:HB2	1:B:596:ALA:H	1.85	0.42
1:A:303:TYR:CB	1:A:353:HIS:CD2	3.03	0.42
1:B:98:SER:OG	1:B:99:ARG:N	2.53	0.42
1:B:178:ASP:O	1:B:182:ILE:HG13	2.20	0.42
1:B:193:GLY:HA3	1:B:518:ILE:HG21	2.02	0.42
1:B:351:MET:SD	1:B:386:VAL:HG21	2.59	0.42
1:B:491:ASN:CB	1:B:493:PRO:HD2	2.50	0.42
1:B:554:LEU:HD23	1:B:602:TRP:CE3	2.55	0.42
1:A:290:LEU:O	1:A:300:LYS:HB3	2.19	0.41
1:A:369:TYR:O	1:A:370:ILE:HD13	2.20	0.41
1:A:480:TYR:CE1	1:A:481:TYR:CD2	3.08	0.41
1:B:270:CYS:HG	1:B:271:HIS:CE1	2.38	0.41
1:A:33:GLN:HG2	1:A:84:LEU:O	2.20	0.41
1:A:586:GLN:CG	1:A:593:ALA:HB3	2.50	0.41
1:B:147:TYR:CD1	1:B:156:ILE:HG12	2.55	0.41
1:A:122:ASP:HA	1:A:528:ARG:HD2	2.02	0.41
1:A:186:LEU:HD23	1:A:186:LEU:HA	1.78	0.41
1:A:489:GLY:HA2	1:A:497:LYS:NZ	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:514:TYR:C	1:A:518:ILE:HD12	2.41	0.41
1:B:493:PRO:HG2	1:B:494:PHE:CZ	2.55	0.41
1:B:20:LEU:N	1:B:70:LEU:HD11	2.35	0.41
1:B:313:TYR:CD1	1:B:357:ILE:HD11	2.55	0.41
1:B:552:ARG:HB3	1:B:578:TRP:CH2	2.55	0.41
1:A:396:PHE:CG	1:A:442:ASN:HB3	2.56	0.41
1:B:117:PRO:HG3	1:B:369:TYR:CD1	2.51	0.41
1:A:233:ARG:HD3	1:A:330:MET:SD	2.61	0.41
1:B:89:GLN:O	1:B:89:GLN:HG3	2.21	0.41
1:B:110:VAL:HG12	1:B:112:VAL:HG23	2.02	0.41
1:B:213:THR:O	1:B:256:HIS:CD2	2.72	0.41
1:B:214:GLU:HG2	1:B:214:GLU:O	2.20	0.41
1:A:174:PHE:CE2	1:A:208:VAL:HA	2.56	0.41
1:A:202:VAL:O	1:A:219:VAL:HA	2.21	0.41
1:A:234:HIS:HA	1:A:237:GLN:CD	2.41	0.41
1:A:438:LEU:C	1:A:475:GLY:HA2	2.41	0.41
1:B:256:HIS:ND1	1:B:257:ALA:N	2.69	0.41
1:A:27:THR:HB	1:A:61:VAL:HG22	2.03	0.41
1:A:548:LEU:HD12	1:A:548:LEU:HA	1.98	0.41
1:B:600:THR:CG2	1:B:602:TRP:CZ2	3.04	0.41
1:A:532:CYS:HB2	1:A:546:ARG:HD2	2.02	0.41
1:B:8:PRO:HA	1:B:13:VAL:CG2	2.47	0.41
1:B:123:GLN:O	1:B:124:ILE:HD13	2.21	0.41
1:B:191:LYS:HG2	1:B:511:PHE:HZ	1.85	0.41
1:B:384:ALA:CB	1:B:386:VAL:HG13	2.51	0.41
1:A:25:TRP:NE1	1:A:57:PRO:HG3	2.34	0.41
1:A:243:LEU:HD12	1:A:243:LEU:HA	1.75	0.41
1:A:268:GLY:O	1:A:272:ASN:HB3	2.20	0.41
1:A:473:TRP:CD2	1:A:474:PRO:HD2	2.55	0.41
1:A:562:ALA:HB1	1:A:594:LEU:O	2.21	0.41
1:B:84:LEU:HD23	1:B:84:LEU:HA	1.59	0.41
1:B:313:TYR:CE1	1:B:357:ILE:HD11	2.56	0.41
1:A:369:TYR:OH	1:A:439:ARG:O	2.29	0.40
1:A:585:GLY:CA	1:A:593:ALA:O	2.69	0.40
1:B:37:LEU:HB3	1:B:48:VAL:HB	2.03	0.40
1:B:26:LEU:HD12	1:B:64:TRP:HE1	1.87	0.40
1:B:213:THR:HB	1:B:216:TYR:CE1	2.56	0.40
1:A:357:ILE:O	1:A:360:ALA:N	2.54	0.40
1:A:468:VAL:HG21	1:A:599:ALA:HB3	2.04	0.40
1:B:2:LEU:HD13	1:B:30:ASP:O	2.20	0.40
1:B:46:MET:HE2	1:B:46:MET:HB3	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:258:TRP:CD1	1:B:280:TRP:HZ3	2.40	0.40
1:B:273:PRO:HA	1:B:278:ARG:HD3	2.03	0.40
1:B:321:ARG:HH22	1:B:363:GLU:CD	2.25	0.40
1:B:328:TRP:CD1	1:B:328:TRP:N	2.88	0.40
1:B:425:MET:HE2	1:B:473:TRP:CE2	2.55	0.40
1:A:200:ASN:HB3	1:A:201:PRO:CD	2.52	0.40
1:B:211:TYR:O	1:B:248:VAL:HG11	2.20	0.40
1:B:230:LEU:HD21	1:B:328:TRP:CD2	2.57	0.40
1:B:514:TYR:O	1:B:515:GLN:C	2.60	0.40
1:B:182:ILE:HG21	1:B:232:LEU:HD21	2.04	0.40
1:B:564:GLU:HA	1:B:592:LEU:O	2.21	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	602/615 (98%)	520 (86%)	81 (14%)	1 (0%)	47 77
1	B	602/615 (98%)	531 (88%)	69 (12%)	2 (0%)	41 71
All	All	1204/1230 (98%)	1051 (87%)	150 (12%)	3 (0%)	47 77

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	130	PRO
1	A	397	THR
1	B	413	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	508/516 (98%)	503 (99%)	5 (1%)	76 86
1	B	508/516 (98%)	493 (97%)	15 (3%)	41 68
All	All	1016/1032 (98%)	996 (98%)	20 (2%)	55 76

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	106	GLU
1	A	162	ASP
1	A	286	ASP
1	A	334	ARG
1	A	441	PHE
1	B	53	GLN
1	B	129	PHE
1	B	130	PRO
1	B	139	ARG
1	B	183	SER
1	B	198	TYR
1	B	210	LYS
1	B	217	ARG
1	B	252	SER
1	B	334	ARG
1	B	366	PRO
1	B	449	THR
1	B	484	GLU
1	B	496	ARG
1	B	600	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	443	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

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	604/615 (98%)	0.49	29 (4%)	30	28	61, 119, 160, 226	0
1	B	604/615 (98%)	0.51	40 (6%)	18	18	58, 117, 163, 213	0
All	All	1208/1230 (98%)	0.50	69 (5%)	23	23	58, 118, 162, 226	0

All (69) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	144	ASP	4.5
1	A	264	ARG	3.9
1	B	166	THR	3.8
1	B	156	ILE	3.7
1	B	565	VAL	3.7
1	B	25	TRP	3.4
1	A	565	VAL	3.4
1	B	157	ILE	3.2
1	A	475	GLY	3.1
1	A	144	ASP	3.0
1	A	145	HIS	3.0
1	A	572	PHE	3.0
1	A	146	VAL	3.0
1	A	154	GLN	3.0
1	B	225	GLY	2.8
1	A	576	VAL	2.8
1	B	148	TYR	2.8
1	B	21	LEU	2.8
1	B	264	ARG	2.7
1	A	335	LEU	2.7
1	B	20	LEU	2.7
1	B	336	ASP	2.7
1	B	172	SER	2.6
1	A	478	CYS	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	222	GLN	2.6
1	B	266	THR	2.6
1	B	578	TRP	2.6
1	A	442	ASN	2.6
1	B	11	PRO	2.5
1	B	173	THR	2.5
1	B	81	PHE	2.5
1	B	67	ALA	2.4
1	B	559	ARG	2.4
1	B	404	LEU	2.4
1	B	277	TRP	2.3
1	B	358	THR	2.3
1	B	52	LYS	2.3
1	B	571	PRO	2.2
1	A	494	PHE	2.2
1	B	357	ILE	2.2
1	B	158	LEU	2.2
1	A	101	PRO	2.2
1	B	206	PRO	2.2
1	A	158	LEU	2.2
1	A	484	GLU	2.2
1	A	172	SER	2.2
1	A	590	GLY	2.2
1	A	83	LEU	2.2
1	B	223	PHE	2.2
1	A	157	ILE	2.2
1	A	20	LEU	2.2
1	B	361	ALA	2.2
1	B	246	ASP	2.1
1	B	200	ASN	2.1
1	B	478	CYS	2.1
1	A	165	VAL	2.1
1	B	85	TRP	2.1
1	B	155	GLU	2.1
1	A	33	GLN	2.1
1	B	392	ASN	2.1
1	B	211	TYR	2.1
1	B	333	TRP	2.1
1	B	24	LEU	2.1
1	A	66	ALA	2.0
1	A	173	THR	2.0
1	A	592	LEU	2.0

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Mol	Chain	Res	Type	RSRZ
1	A	97	PHE	2.0
1	A	276	PRO	2.0
1	B	222	GLN	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.