



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 01:14 AM UTC

PDB ID : 3FIP / pdb_00003fip
Title : Crystal structure of Usher PapC translocation pore
Authors : Huang, Y.; Deisenhofer, J.
Deposited on : 2008-12-12
Resolution : 3.15 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	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

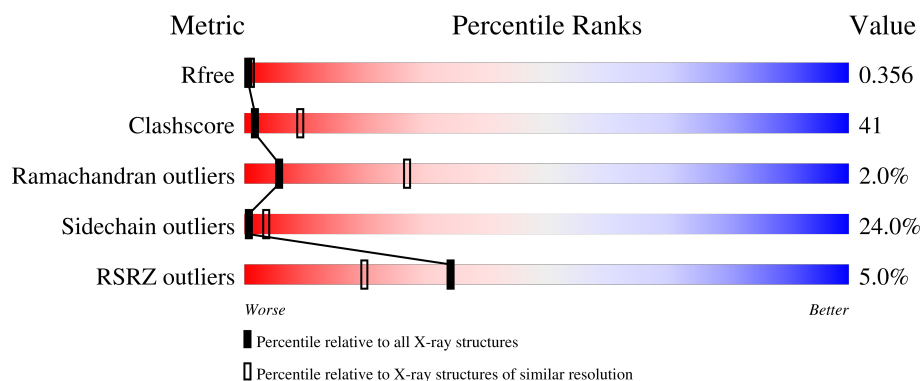
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.15 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}	180053	2361 (3.20-3.12)
Clashscore	190562	2486 (3.20-3.12)
Ramachandran outliers	187476	2405 (3.20-3.12)
Sidechain outliers	187428	2404 (3.20-3.12)
RSRZ outliers	180081	2361 (3.20-3.12)

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 $\leq 5\%$. 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	493	4% 34% 40% 14% • 12%
1	B	493	4% 29% 37% 12% 22%

2 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 6295 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 Outer membrane usher protein papC.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	436	Total	C	N	O	S	14	0	0
			3387	2115	605	661	6			
1	B	384	Total	C	N	O	S	4	0	0
			2908	1817	516	569	6			

There are 26 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	624	SER	-	expression tag	UNP P07110
A	625	PHE	-	expression tag	UNP P07110
A	626	GLY	-	expression tag	UNP P07110
A	627	VAL	-	expression tag	UNP P07110
A	628	SER	-	expression tag	UNP P07110
A	629	ALA	-	expression tag	UNP P07110
A	630	SER	-	expression tag	UNP P07110
A	631	GLY	-	expression tag	UNP P07110
A	632	GLY	-	expression tag	UNP P07110
A	633	ALA	-	expression tag	UNP P07110
A	634	THR	-	expression tag	UNP P07110
A	635	ILE	-	expression tag	UNP P07110
A	636	THR	-	expression tag	UNP P07110
B	624	SER	-	expression tag	UNP P07110
B	625	PHE	-	expression tag	UNP P07110
B	626	GLY	-	expression tag	UNP P07110
B	627	VAL	-	expression tag	UNP P07110
B	628	SER	-	expression tag	UNP P07110
B	629	ALA	-	expression tag	UNP P07110
B	630	SER	-	expression tag	UNP P07110
B	631	GLY	-	expression tag	UNP P07110
B	632	GLY	-	expression tag	UNP P07110
B	633	ALA	-	expression tag	UNP P07110
B	634	THR	-	expression tag	UNP P07110
B	635	ILE	-	expression tag	UNP P07110

Continued on next page...

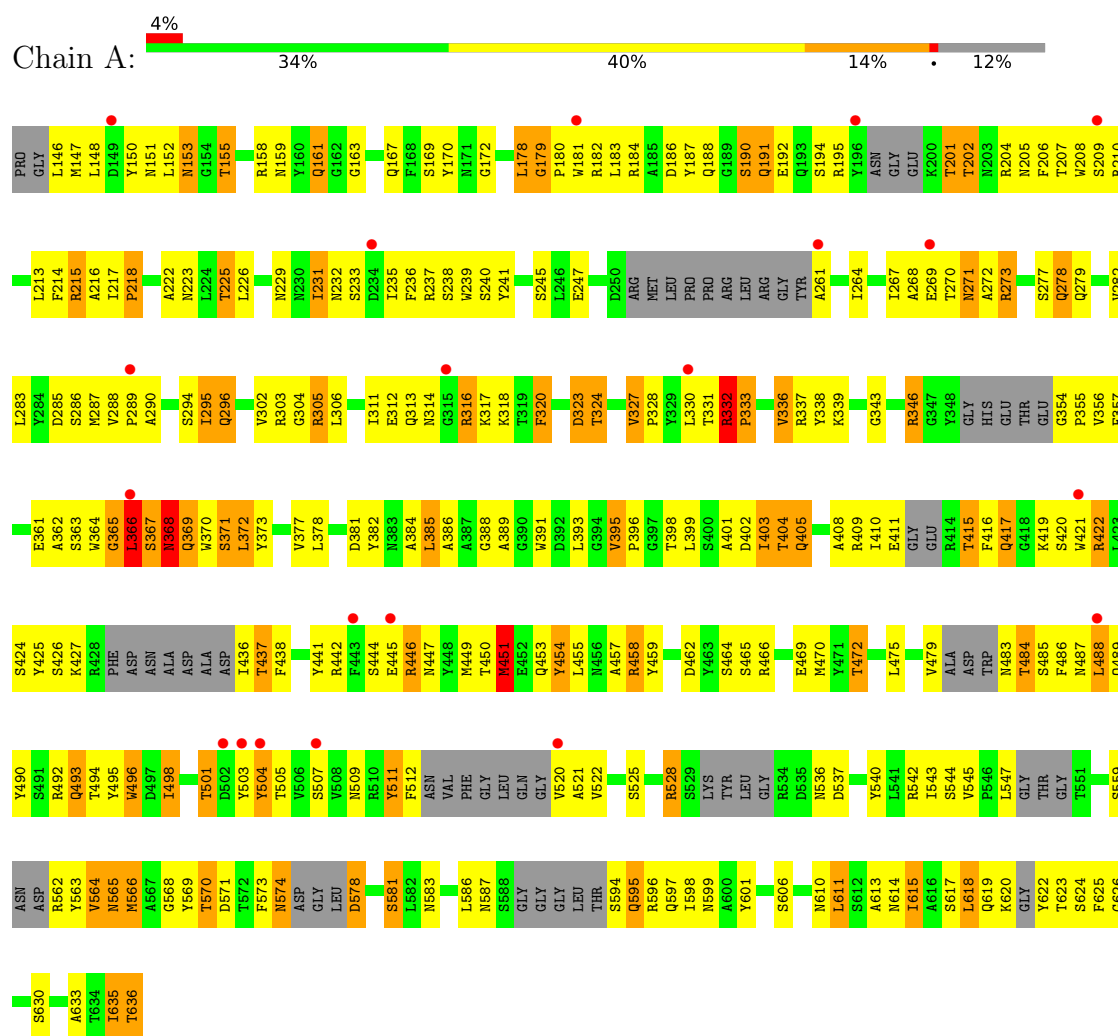
Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	636	THR	-	expression tag	UNP P07110

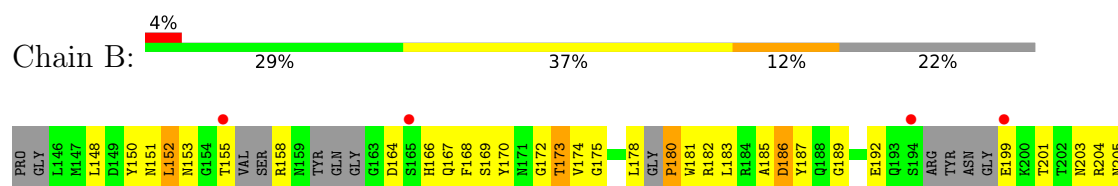
3 Residue-property plots

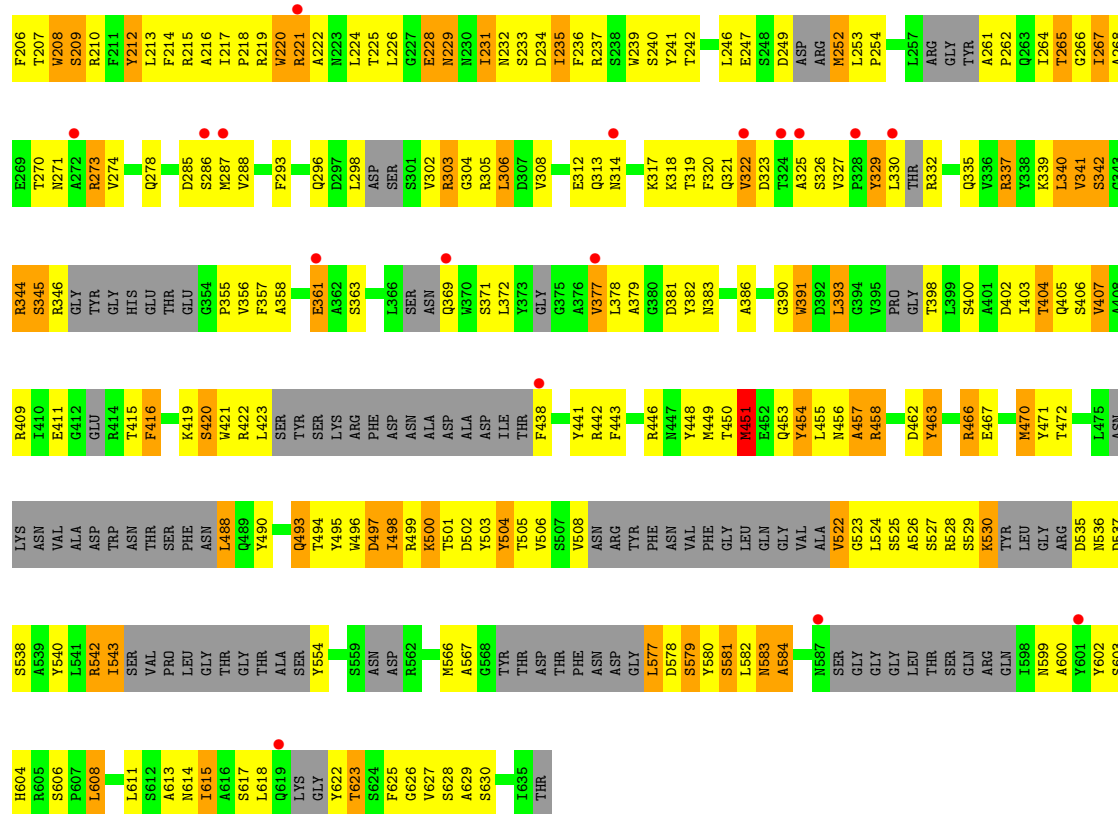
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Outer membrane usher protein papC



• Molecule 1: Outer membrane usher protein papC





4 Data and refinement statistics

Property	Value	Source
Space group	I 4 2 2	Depositor
Cell constants a, b, c, α , β , γ	120.04Å 120.04Å 354.15Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.68 – 3.15 49.68 – 3.15	Depositor EDS
% Data completeness (in resolution range)	96.2 (49.68-3.15) 97.9 (49.68-3.15)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.08	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.82 (at 3.12Å)	Xtriage
Refinement program	PHENIX (phenix.refine)	Depositor
R, R_{free}	0.285 , 0.359 0.291 , 0.356	Depositor DCC
R_{free} test set	1151 reflections (5.14%)	wwPDB-VP
Wilson B-factor (Å ²)	115.3	Xtriage
Anisotropy	0.315	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 109.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.89	EDS
Total number of atoms	6295	wwPDB-VP
Average B, all atoms (Å ²)	121.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.82% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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	0.67	1/3450 (0.0%)	1.22	38/4668 (0.8%)
1	B	0.55	0/2946	1.19	19/3971 (0.5%)
All	All	0.62	1/6396 (0.0%)	1.20	57/8639 (0.7%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	485	SER	CB-OG	10.22	1.62	1.42

All (57) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	317	LYS	N-CA-C	-23.08	72.88	108.42
1	B	318	LYS	N-CA-C	-16.97	82.35	108.99
1	B	317	LYS	CB-CA-C	16.47	138.10	110.43
1	A	317	LYS	N-CA-C	-15.52	85.19	110.17
1	B	208	TRP	N-CA-C	-13.28	92.62	110.55
1	A	366	LEU	N-CA-C	-13.05	96.67	112.59
1	B	579	SER	CB-CA-C	-12.48	89.16	109.75
1	A	366	LEU	CB-CA-C	-11.63	92.29	111.02
1	A	318	LYS	N-CA-C	-11.61	92.98	109.69
1	A	317	LYS	CB-CA-C	11.54	129.01	109.50
1	B	261	ALA	CA-C-N	11.10	133.71	119.84
1	B	261	ALA	C-N-CA	11.10	133.71	119.84
1	B	580	TYR	N-CA-CB	-10.42	92.47	111.13

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	190	SER	CB-CA-C	-10.32	88.42	109.38
1	A	296	GLN	N-CA-C	10.20	125.47	112.92
1	A	354	GLY	CA-C-N	9.95	130.73	119.99
1	A	354	GLY	C-N-CA	9.95	130.73	119.99
1	A	484	THR	CB-CA-C	9.74	128.87	110.56
1	A	191	GLN	N-CA-CB	-9.69	94.54	110.81
1	A	368	ASN	N-CA-C	-9.51	100.86	111.14
1	A	316	ARG	CB-CA-C	9.34	125.06	109.84
1	A	316	ARG	N-CA-C	-9.33	94.92	109.76
1	B	209	SER	N-CA-C	-8.92	91.80	110.80
1	B	579	SER	N-CA-C	8.86	123.69	109.24
1	A	296	GLN	CB-CA-C	-8.26	96.60	110.56
1	A	485	SER	N-CA-CB	7.77	125.04	111.13
1	B	327	VAL	CA-C-N	7.71	129.48	119.84
1	B	327	VAL	C-N-CA	7.71	129.48	119.84
1	B	208	TRP	CB-CA-C	7.51	124.71	109.76
1	B	287	MET	CB-CA-C	7.39	121.90	109.48
1	A	545	VAL	CB-CA-C	-7.10	102.64	110.52
1	B	180	PRO	N-CA-CB	6.89	110.58	103.00
1	B	318	LYS	N-CA-CB	6.66	123.91	111.52
1	A	327	VAL	CA-C-N	6.49	127.95	119.84
1	A	327	VAL	C-N-CA	6.49	127.95	119.84
1	A	172	GLY	N-CA-C	6.34	119.38	110.38
1	A	405	GLN	N-CA-C	6.03	118.96	108.76
1	B	273	ARG	N-CA-C	-5.93	100.33	109.52
1	A	365	GLY	N-CA-C	-5.90	99.19	113.18
1	A	525	SER	N-CA-C	5.86	118.77	108.75
1	A	544	SER	N-CA-C	5.81	117.84	108.32
1	A	190	SER	N-CA-C	5.76	118.86	109.06
1	A	320	PHE	N-CA-C	5.67	116.05	108.23
1	A	564	VAL	N-CA-C	5.63	115.98	108.27
1	A	332	ARG	CA-C-N	5.43	126.63	119.84
1	A	332	ARG	C-N-CA	5.43	126.63	119.84
1	A	179	GLY	CA-C-N	5.43	125.52	119.87
1	A	179	GLY	C-N-CA	5.43	125.52	119.87
1	A	295	ILE	N-CA-C	5.39	120.55	109.34
1	B	466	ARG	N-CA-C	5.35	117.18	108.63
1	A	261	ALA	CA-C-N	5.28	125.73	120.14
1	A	261	ALA	C-N-CA	5.28	125.73	120.14
1	A	485	SER	N-CA-C	-5.28	100.09	109.06
1	A	606	SER	CA-C-N	5.18	124.79	119.56
1	A	606	SER	C-N-CA	5.18	124.79	119.56

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	279	GLN	CB-CA-C	-5.14	110.66	116.63
1	B	584	ALA	N-CA-C	5.12	116.31	108.42

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	367	SER	Peptide

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	3387	0	3176	249	0
1	B	2908	0	2695	248	0
All	All	6295	0	5871	496	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 41.

All (496) 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:B:267:ILE:HG22	1:B:268:ALA:H	1.10	1.08
1:A:332:ARG:HG2	1:A:332:ARG:HH11	1.14	1.07
1:B:614:ASN:HB3	1:B:626:GLY:HA3	1.32	1.04
1:A:570:THR:HB	1:A:581:SER:HB3	1.35	1.03
1:A:161:GLN:H	1:A:161:GLN:HE21	1.08	1.00
1:B:466:ARG:HB3	1:B:496:TRP:HD1	1.26	1.00
1:A:153:ASN:HD22	1:A:153:ASN:N	1.56	0.99
1:B:554:TYR:HA	1:B:567:ALA:HA	1.47	0.97
1:A:147:MET:HG2	1:A:148:LEU:H	1.27	0.97
1:B:391:TRP:HE1	1:B:393:LEU:HG	1.28	0.95
1:A:449:MET:HG3	1:A:466:ARG:HH22	1.35	0.92
1:A:403:ILE:HD12	1:A:421:TRP:CD1	2.07	0.89

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:240:SER:HB2	1:B:346:ARG:NH1	1.88	0.88
1:B:267:ILE:HG22	1:B:268:ALA:N	1.88	0.88
1:B:151:ASN:HD22	1:B:152:LEU:N	1.71	0.88
1:B:490:TYR:CD1	1:B:504:TYR:HB2	2.10	0.87
1:A:240:SER:HB3	1:A:346:ARG:HH12	1.39	0.87
1:B:305:ARG:HD3	1:B:321:GLN:CD	2.00	0.86
1:A:332:ARG:HH11	1:A:332:ARG:CG	1.87	0.86
1:A:368:ASN:HD22	1:A:369:GLN:NE2	1.72	0.86
1:A:346:ARG:HH11	1:A:346:ARG:HB3	1.42	0.84
1:A:446:ARG:HA	1:A:496:TRP:NE1	1.92	0.84
1:B:382:TYR:CE2	1:B:451:MET:HG2	2.14	0.83
1:B:342:SER:HA	1:B:358:ALA:HA	1.61	0.82
1:B:490:TYR:HD1	1:B:504:TYR:HB2	1.44	0.81
1:B:267:ILE:CG2	1:B:268:ALA:H	1.91	0.81
1:B:457:ALA:HB1	1:B:463:TYR:CD2	2.16	0.81
1:A:271:ASN:ND2	1:A:599:ASN:HD21	1.79	0.81
1:A:304:GLY:O	1:A:324:THR:HG23	1.81	0.80
1:A:240:SER:HB3	1:A:346:ARG:NH1	1.96	0.80
1:A:194:SER:O	1:A:195:ARG:HG2	1.81	0.80
1:A:368:ASN:HD22	1:A:369:GLN:HE21	1.29	0.80
1:B:239:TRP:HZ2	1:B:357:PHE:CE1	2.00	0.80
1:B:325:ALA:HA	1:B:438:PHE:CE2	2.17	0.80
1:A:159:ASN:HD21	1:A:161:GLN:HG2	1.46	0.80
1:B:175:GLY:HA2	1:B:183:LEU:HD23	1.63	0.79
1:B:151:ASN:HD22	1:B:152:LEU:H	1.28	0.79
1:B:581:SER:O	1:B:582:LEU:HD23	1.83	0.79
1:A:152:LEU:C	1:A:153:ASN:HD22	1.90	0.79
1:A:270:THR:OG1	1:A:313:GLN:HG3	1.82	0.78
1:B:488:LEU:HA	1:B:506:VAL:HG22	1.65	0.77
1:B:466:ARG:HB3	1:B:496:TRP:CD1	2.16	0.77
1:A:333:PRO:HG3	1:A:367:SER:O	1.85	0.76
1:A:161:GLN:H	1:A:161:GLN:NE2	1.84	0.76
1:A:332:ARG:HG2	1:A:332:ARG:NH1	1.90	0.76
1:B:303:ARG:NH1	1:B:326:SER:HB2	2.01	0.76
1:A:470:MET:HE2	1:A:472:THR:HB	1.68	0.76
1:A:493:GLN:H	1:A:501:THR:HG22	1.50	0.76
1:A:161:GLN:HE21	1:A:161:GLN:N	1.83	0.75
1:A:437:THR:HB	1:A:475:LEU:HD21	1.68	0.75
1:B:314:ASN:HB3	1:B:622:TYR:CE2	2.22	0.75
1:A:446:ARG:HA	1:A:496:TRP:HE1	1.51	0.74
1:A:386:ALA:HB2	1:A:404:THR:HB	1.70	0.73

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:188:GLN:HE21	1:A:209:SER:HB3	1.53	0.73
1:B:330:LEU:HD21	1:B:390:GLY:HA3	1.69	0.73
1:B:342:SER:HB2	1:B:358:ALA:HB2	1.71	0.73
1:B:240:SER:HB2	1:B:346:ARG:HH12	1.51	0.73
1:B:342:SER:HB2	1:B:358:ALA:CB	2.19	0.73
1:B:231:ILE:HD12	1:B:241:TYR:CD2	2.24	0.72
1:B:382:TYR:CD2	1:B:451:MET:HG2	2.24	0.71
1:A:155:THR:HG23	1:A:167:GLN:HB3	1.73	0.71
1:A:416:PHE:HD2	1:A:447:ASN:OD1	1.74	0.70
1:B:457:ALA:HA	1:B:462:ASP:N	2.06	0.70
1:A:159:ASN:HB3	1:A:163:GLY:H	1.56	0.70
1:B:231:ILE:HD11	1:B:341:VAL:HG11	1.72	0.70
1:B:151:ASN:O	1:B:152:LEU:HD23	1.91	0.70
1:A:147:MET:HG3	1:A:633:ALA:O	1.91	0.70
1:B:186:ASP:HB3	1:B:209:SER:HB2	1.73	0.69
1:B:239:TRP:HZ2	1:B:357:PHE:HE1	1.39	0.69
1:A:403:ILE:HD12	1:A:421:TRP:HD1	1.58	0.69
1:B:329:TYR:CD1	1:B:363:SER:HB2	2.28	0.69
1:A:270:THR:C	1:A:290:ALA:HB2	2.17	0.69
1:B:210:ARG:HD2	1:B:229:ASN:ND2	2.08	0.68
1:B:220:TRP:HA	1:B:220:TRP:CE3	2.28	0.68
1:B:421:TRP:O	1:B:442:ARG:HG3	1.93	0.67
1:A:170:TYR:O	1:A:170:TYR:CD2	2.47	0.67
1:A:495:TYR:HB2	1:A:498:ILE:O	1.94	0.67
1:B:215:ARG:O	1:B:215:ARG:HG3	1.94	0.67
1:A:269:GLU:HB3	1:A:312:GLU:CD	2.20	0.67
1:A:573:PHE:O	1:A:574:ASN:ND2	2.27	0.67
1:A:470:MET:CE	1:A:472:THR:HB	2.25	0.67
1:A:368:ASN:ND2	1:A:369:GLN:NE2	2.43	0.66
1:A:239:TRP:HZ2	1:A:357:PHE:CE1	2.14	0.66
1:B:174:VAL:HG12	1:B:174:VAL:O	1.95	0.66
1:B:457:ALA:HB1	1:B:463:TYR:CG	2.30	0.66
1:B:522:VAL:HG12	1:B:523:GLY:H	1.61	0.66
1:B:402:ASP:OD1	1:B:422:ARG:HD3	1.96	0.66
1:A:398:THR:HB	1:A:426:SER:HB3	1.78	0.65
1:A:147:MET:CG	1:A:148:LEU:H	2.08	0.65
1:A:153:ASN:N	1:A:153:ASN:ND2	2.30	0.65
1:B:170:TYR:O	1:B:170:TYR:CD1	2.50	0.65
1:A:566:MET:HE2	1:A:597:GLN:NE2	2.12	0.65
1:B:382:TYR:O	1:B:383:ASN:CG	2.40	0.65
1:A:295:ILE:O	1:A:295:ILE:HG22	1.95	0.64

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:233:SER:HB2	1:B:361:GLU:OE2	1.97	0.64
1:A:147:MET:HG2	1:A:148:LEU:N	2.07	0.63
1:B:164:ASP:OD2	1:B:166:HIS:HE1	1.82	0.63
1:B:240:SER:CB	1:B:346:ARG:HH12	2.11	0.63
1:A:330:LEU:HD11	1:A:398:THR:HG21	1.81	0.62
1:A:399:LEU:HD12	1:A:424:SER:O	1.99	0.62
1:B:530:LYS:HG2	1:B:535:ASP:OD1	1.99	0.62
1:A:562:ARG:NH1	1:A:587:ASN:HD21	1.97	0.62
1:B:235:ILE:HA	1:B:422:ARG:HH12	1.64	0.62
1:A:356:VAL:HG12	1:A:357:PHE:N	2.15	0.62
1:A:475:LEU:HB2	1:A:488:LEU:HD12	1.80	0.62
1:A:159:ASN:ND2	1:A:161:GLN:HG2	2.12	0.62
1:A:346:ARG:HH11	1:A:346:ARG:CB	2.11	0.62
1:B:416:PHE:N	1:B:416:PHE:CD1	2.68	0.62
1:A:269:GLU:CD	1:A:314:ASN:HD21	2.07	0.61
1:A:336:VAL:HG21	1:A:364:TRP:CD1	2.36	0.61
1:A:183:LEU:HA	1:A:213:LEU:HD23	1.82	0.61
1:A:408:ALA:HB1	1:A:454:TYR:CD1	2.36	0.61
1:B:454:TYR:C	1:B:454:TYR:CD2	2.78	0.61
1:B:409:ARG:CB	1:B:415:THR:HG22	2.30	0.61
1:A:225:THR:HG23	1:A:245:SER:OG	2.00	0.61
1:A:330:LEU:HD11	1:A:398:THR:CG2	2.31	0.61
1:B:450:THR:O	1:B:453:GLN:N	2.34	0.61
1:A:240:SER:O	1:A:241:TYR:HB3	2.01	0.60
1:B:525:SER:OG	1:B:540:TYR:HB3	2.01	0.60
1:B:372:LEU:HD12	1:B:372:LEU:O	2.02	0.60
1:A:419:LYS:HG2	1:A:445:GLU:OE1	2.01	0.60
1:B:150:TYR:CD1	1:B:150:TYR:C	2.80	0.60
1:B:583:ASN:N	1:B:583:ASN:ND2	2.49	0.59
1:B:178:LEU:HB2	1:B:181:TRP:HB2	1.84	0.59
1:B:614:ASN:O	1:B:615:ILE:HG13	2.02	0.59
1:B:234:ASP:OD2	1:B:339:LYS:NZ	2.29	0.59
1:A:469:GLU:HB2	1:A:494:THR:OG1	2.03	0.59
1:B:409:ARG:HB3	1:B:415:THR:HG22	1.84	0.59
1:A:181:TRP:CZ3	1:A:215:ARG:HB3	2.37	0.58
1:A:398:THR:HG22	1:A:399:LEU:N	2.18	0.58
1:A:568:GLY:HA3	1:A:583:ASN:OD1	2.03	0.58
1:A:458:ARG:HG2	1:A:458:ARG:O	2.01	0.58
1:B:456:ASN:C	1:B:458:ARG:H	2.10	0.58
1:A:273:ARG:HH21	1:A:311:ILE:HD13	1.68	0.58
1:A:146:LEU:HB3	1:A:635:ILE:O	2.02	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:153:ASN:ND2	1:B:285:ASP:O	2.36	0.58
1:B:493:GLN:CA	1:B:493:GLN:HE21	2.16	0.58
1:B:164:ASP:OD2	1:B:166:HIS:CE1	2.57	0.58
1:B:614:ASN:HB3	1:B:626:GLY:CA	2.21	0.58
1:B:488:LEU:HD23	1:B:506:VAL:CG2	2.34	0.58
1:B:305:ARG:HD3	1:B:321:GLN:OE1	2.03	0.58
1:B:153:ASN:HD21	1:B:286:SER:HA	1.69	0.57
1:B:466:ARG:HG2	1:B:497:ASP:OD1	2.04	0.57
1:B:622:TYR:CD1	1:B:622:TYR:C	2.82	0.57
1:A:241:TYR:H	1:A:346:ARG:NH1	2.03	0.57
1:B:308:VAL:HG11	1:B:320:PHE:CZ	2.39	0.57
1:B:406:SER:O	1:B:407:VAL:HG23	2.04	0.57
1:A:454:TYR:C	1:A:454:TYR:CD2	2.83	0.57
1:A:367:SER:HA	1:A:370:TRP:O	2.04	0.57
1:B:614:ASN:O	1:B:625:PHE:HD1	1.88	0.56
1:B:155:THR:HG23	1:B:167:GLN:HB3	1.86	0.56
1:B:220:TRP:HA	1:B:220:TRP:HE3	1.69	0.56
1:A:355:PRO:HG3	1:A:459:TYR:OH	2.04	0.56
1:A:493:GLN:N	1:A:501:THR:HG22	2.20	0.56
1:B:241:TYR:H	1:B:346:ARG:NH1	2.03	0.56
1:B:271:ASN:HD21	1:B:599:ASN:HD21	1.53	0.56
1:A:239:TRP:HD1	1:A:240:SER:O	1.89	0.56
1:B:422:ARG:O	1:B:423:LEU:HD23	2.06	0.56
1:A:267:ILE:HG22	1:A:268:ALA:N	2.21	0.56
1:A:386:ALA:CB	1:A:404:THR:HB	2.35	0.56
1:A:222:ALA:HB1	1:A:247:GLU:O	2.06	0.56
1:A:475:LEU:O	1:A:487:ASN:HA	2.06	0.56
1:B:155:THR:HG23	1:B:167:GLN:CB	2.35	0.55
1:B:379:ALA:HB3	1:B:382:TYR:HB3	1.88	0.55
1:B:498:ILE:HG13	1:B:499:ARG:N	2.19	0.55
1:B:233:SER:O	1:B:303:ARG:HG2	2.05	0.55
1:B:239:TRP:CZ2	1:B:357:PHE:CE1	2.89	0.55
1:B:212:TYR:N	1:B:212:TYR:CD2	2.75	0.55
1:A:236:PHE:CE2	1:A:377:VAL:HG23	2.41	0.55
1:B:170:TYR:O	1:B:170:TYR:CG	2.57	0.55
1:B:602:TYR:HB3	1:B:613:ALA:HB3	1.87	0.55
1:A:408:ALA:HB1	1:A:454:TYR:HD1	1.71	0.55
1:A:565:ASN:N	1:A:565:ASN:HD22	2.05	0.55
1:A:343:GLY:O	1:A:357:PHE:CD2	2.59	0.55
1:A:409:ARG:HB3	1:A:415:THR:CG2	2.37	0.55
1:A:569:TYR:HE2	1:A:571:ASP:OD1	1.90	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:188:GLN:NE2	1:A:209:SER:HB3	2.22	0.54
1:A:484:THR:HA	1:A:509:ASN:O	2.08	0.54
1:A:277:SER:HA	1:A:283:LEU:HG	1.90	0.54
1:B:215:ARG:HD3	1:B:217:ILE:HD11	1.88	0.54
1:A:540:TYR:HE2	1:A:542:ARG:HB2	1.72	0.54
1:B:446:ARG:HA	1:B:496:TRP:NE1	2.22	0.54
1:B:525:SER:CB	1:B:540:TYR:HB3	2.37	0.54
1:A:178:LEU:O	1:A:181:TRP:HB2	2.08	0.54
1:A:235:ILE:HD12	1:A:361:GLU:HB2	1.90	0.54
1:B:577:LEU:O	1:B:578:ASP:OD1	2.25	0.54
1:A:563:TYR:HD2	1:A:565:ASN:HD21	1.49	0.54
1:B:503:TYR:HD1	1:B:529:SER:HA	1.72	0.54
1:A:327:VAL:HG13	1:A:328:PRO:HD2	1.90	0.54
1:B:325:ALA:HA	1:B:438:PHE:CD2	2.43	0.53
1:B:599:ASN:ND2	1:B:600:ALA:H	2.05	0.53
1:B:543:ILE:O	1:B:554:TYR:N	2.42	0.53
1:B:604:HIS:CE1	1:B:606:SER:HB2	2.43	0.53
1:A:205:ASN:HB3	1:B:199:GLU:HA	1.90	0.53
1:A:382:TYR:OH	1:A:449:MET:O	2.25	0.53
1:A:338:TYR:CD1	1:A:338:TYR:C	2.87	0.53
1:B:270:THR:HB	1:B:313:GLN:OE1	2.08	0.53
1:B:466:ARG:HB2	1:B:497:ASP:OD1	2.09	0.53
1:A:150:TYR:CD1	1:A:150:TYR:C	2.87	0.53
1:A:159:ASN:HD22	1:A:163:GLY:N	2.07	0.53
1:A:271:ASN:N	1:A:290:ALA:HB2	2.24	0.53
1:B:178:LEU:O	1:B:180:PRO:N	2.42	0.53
1:A:385:LEU:O	1:A:404:THR:HA	2.09	0.52
1:A:427:LYS:HB3	1:A:437:THR:HG23	1.91	0.52
1:B:213:LEU:HB2	1:B:226:LEU:HD21	1.91	0.52
1:B:265:THR:HB	1:B:293:PHE:O	2.09	0.52
1:B:173:THR:HA	1:B:185:ALA:O	2.09	0.52
1:A:336:VAL:CG2	1:A:364:TRP:HA	2.39	0.52
1:A:446:ARG:CA	1:A:496:TRP:HE1	2.21	0.52
1:B:210:ARG:HD2	1:B:229:ASN:HD22	1.74	0.52
1:B:239:TRP:CZ2	1:B:357:PHE:HE1	2.24	0.52
1:A:356:VAL:HG12	1:A:357:PHE:H	1.72	0.52
1:B:271:ASN:ND2	1:B:614:ASN:OD1	2.36	0.52
1:B:470:MET:HE3	1:B:472:THR:HG22	1.92	0.52
1:A:570:THR:CB	1:A:581:SER:HB3	2.25	0.52
1:B:278:GLN:NE2	1:B:306:LEU:CD2	2.73	0.52
1:A:336:VAL:HG23	1:A:364:TRP:HA	1.92	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:583:ASN:N	1:B:583:ASN:HD22	2.07	0.52
1:A:416:PHE:HB3	1:A:447:ASN:HB3	1.91	0.52
1:B:567:ALA:O	1:B:583:ASN:HA	2.09	0.52
1:B:182:ARG:NH2	1:B:216:ALA:H	2.08	0.52
1:B:467:GLU:HG2	1:B:493:GLN:OE1	2.10	0.52
1:B:264:ILE:HD12	1:B:298:LEU:HD11	1.92	0.51
1:B:369:GLN:O	1:B:391:TRP:HA	2.10	0.51
1:A:425:TYR:O	1:A:438:PHE:HA	2.10	0.51
1:B:506:VAL:O	1:B:526:ALA:HB3	2.09	0.51
1:A:150:TYR:CE1	1:A:630:SER:HA	2.45	0.51
1:B:206:PHE:CD1	1:B:206:PHE:C	2.88	0.51
1:B:273:ARG:HA	1:B:286:SER:O	2.11	0.51
1:B:622:TYR:HD1	1:B:623:THR:O	1.92	0.51
1:B:228:GLU:HG2	1:B:346:ARG:NE	2.26	0.51
1:B:599:ASN:HD22	1:B:600:ALA:H	1.59	0.51
1:A:416:PHE:N	1:A:416:PHE:CD1	2.79	0.51
1:A:496:TRP:HA	1:A:496:TRP:CE3	2.45	0.51
1:A:573:PHE:HE1	1:A:578:ASP:OD2	1.94	0.51
1:B:303:ARG:NH1	1:B:422:ARG:NH2	2.59	0.51
1:B:457:ALA:HA	1:B:462:ASP:H	1.72	0.50
1:A:398:THR:HG22	1:A:399:LEU:H	1.75	0.50
1:A:496:TRP:HA	1:A:496:TRP:HE3	1.77	0.50
1:B:579:SER:HB3	1:B:603:SER:OG	2.11	0.50
1:B:611:LEU:HA	1:B:628:SER:O	2.12	0.50
1:A:269:GLU:OE2	1:A:314:ASN:ND2	2.43	0.50
1:A:182:ARG:HH22	1:A:216:ALA:HB3	1.77	0.50
1:A:194:SER:C	1:A:195:ARG:HG2	2.37	0.50
1:A:232:ASN:HB2	1:A:303:ARG:HG2	1.93	0.50
1:A:441:TYR:OH	1:A:469:GLU:HG2	2.11	0.50
1:B:152:LEU:HB2	1:B:629:ALA:HB3	1.94	0.50
1:B:456:ASN:O	1:B:458:ARG:N	2.44	0.50
1:A:381:ASP:HB3	1:A:409:ARG:O	2.11	0.50
1:A:399:LEU:HA	1:A:424:SER:O	2.12	0.50
1:A:437:THR:HB	1:A:475:LEU:CD2	2.40	0.49
1:B:271:ASN:HB2	1:B:614:ASN:HD21	1.77	0.49
1:B:494:THR:HG22	1:B:500:LYS:HB2	1.94	0.49
1:A:483:ASN:O	1:A:484:THR:HB	2.11	0.49
1:B:213:LEU:HB2	1:B:226:LEU:CD2	2.43	0.49
1:B:239:TRP:CD1	1:B:240:SER:O	2.66	0.49
1:B:406:SER:O	1:B:407:VAL:CG2	2.60	0.49
1:B:536:ASN:OD1	1:B:537:ASP:N	2.45	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:159:ASN:HD22	1:A:163:GLY:H	1.59	0.49
1:A:170:TYR:CD2	1:A:170:TYR:C	2.89	0.49
1:A:331:THR:HG22	1:A:332:ARG:N	2.28	0.49
1:A:410:ILE:HG23	1:A:458:ARG:HG3	1.93	0.49
1:B:206:PHE:CD1	1:B:207:THR:N	2.80	0.49
1:B:265:THR:O	1:B:505:THR:HG21	2.11	0.49
1:B:266:GLY:O	1:B:267:ILE:HG12	2.12	0.49
1:B:449:MET:HE3	1:B:454:TYR:HB2	1.93	0.49
1:B:525:SER:HB2	1:B:540:TYR:HB3	1.94	0.49
1:A:488:LEU:C	1:A:488:LEU:HD13	2.36	0.49
1:B:422:ARG:HA	1:B:441:TYR:O	2.12	0.49
1:B:236:PHE:CE1	1:B:377:VAL:HG22	2.48	0.49
1:B:420:SER:HA	1:B:443:PHE:O	2.13	0.49
1:B:231:ILE:HG21	1:B:239:TRP:CZ3	2.49	0.48
1:B:305:ARG:HA	1:B:323:ASP:HA	1.95	0.48
1:B:406:SER:HG	1:B:448:TYR:HD1	1.58	0.48
1:A:150:TYR:CD1	1:A:150:TYR:O	2.66	0.48
1:A:302:VAL:HG12	1:A:324:THR:HG21	1.96	0.48
1:B:386:ALA:HB2	1:B:404:THR:HB	1.95	0.48
1:A:520:VAL:HG12	1:A:521:ALA:N	2.28	0.48
1:B:463:TYR:HB3	1:B:466:ARG:HH21	1.78	0.48
1:A:366:LEU:C	1:A:370:TRP:O	2.57	0.48
1:A:445:GLU:O	1:A:446:ARG:C	2.56	0.48
1:A:622:TYR:CD1	1:A:622:TYR:C	2.92	0.48
1:A:562:ARG:O	1:A:562:ARG:HG2	2.13	0.48
1:A:563:TYR:CD2	1:A:565:ASN:ND2	2.78	0.48
1:B:217:ILE:O	1:B:220:TRP:O	2.32	0.48
1:B:181:TRP:CE2	1:B:215:ARG:HD2	2.49	0.48
1:B:472:THR:HA	1:B:490:TYR:O	2.14	0.48
1:A:450:THR:O	1:A:453:GLN:N	2.47	0.48
1:A:511:TYR:O	1:A:512:PHE:C	2.57	0.47
1:A:613:ALA:HA	1:A:626:GLY:O	2.14	0.47
1:B:271:ASN:ND2	1:B:599:ASN:HD21	2.12	0.47
1:A:566:MET:HE1	1:A:597:GLN:HG2	1.95	0.47
1:A:493:GLN:HE21	1:A:493:GLN:HA	1.80	0.47
1:A:159:ASN:HB3	1:A:163:GLY:N	2.27	0.47
1:A:271:ASN:HD21	1:A:599:ASN:HD21	1.57	0.47
1:A:356:VAL:CG1	1:A:357:PHE:H	2.28	0.47
1:B:253:LEU:HG	1:B:254:PRO:HD2	1.97	0.47
1:B:312:GLU:OE1	1:B:312:GLU:HA	2.13	0.47
1:A:372:LEU:HA	1:A:389:ALA:HA	1.97	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:493:GLN:HE21	1:B:493:GLN:C	2.22	0.47
1:A:446:ARG:HA	1:A:496:TRP:CD1	2.50	0.47
1:A:566:MET:HE2	1:A:597:GLN:HE21	1.79	0.47
1:A:595:GLN:HB2	1:A:618:LEU:HD22	1.96	0.47
1:B:454:TYR:O	1:B:458:ARG:HB2	2.14	0.47
1:B:495:TYR:CD1	1:B:498:ILE:HG12	2.50	0.47
1:A:278:GLN:NE2	1:A:305:ARG:O	2.40	0.47
1:A:611:LEU:C	1:A:611:LEU:HD23	2.40	0.47
1:B:599:ASN:ND2	1:B:600:ALA:N	2.63	0.47
1:A:356:VAL:CG1	1:A:357:PHE:N	2.78	0.47
1:B:278:GLN:OE1	1:B:304:GLY:HA3	2.15	0.47
1:A:490:TYR:HD1	1:A:504:TYR:HB2	1.79	0.47
1:B:523:GLY:HA3	1:B:542:ARG:HB3	1.96	0.47
1:B:271:ASN:HB2	1:B:614:ASN:ND2	2.30	0.46
1:B:488:LEU:HD13	1:B:488:LEU:O	2.14	0.46
1:A:183:LEU:HG	1:A:213:LEU:HD21	1.97	0.46
1:B:155:THR:CG2	1:B:167:GLN:HB3	2.45	0.46
1:B:339:LYS:O	1:B:340:LEU:HD23	2.16	0.46
1:A:188:GLN:HG2	1:A:207:THR:CG2	2.46	0.46
1:B:377:VAL:O	1:B:378:LEU:HD23	2.15	0.46
1:B:451:MET:O	1:B:455:LEU:HG	2.15	0.46
1:B:503:TYR:CD1	1:B:528:ARG:O	2.68	0.46
1:A:264:ILE:HD11	1:A:306:LEU:HD13	1.98	0.46
1:A:289:PRO:O	1:A:290:ALA:C	2.57	0.46
1:B:172:GLY:O	1:B:186:ASP:HA	2.16	0.46
1:A:408:ALA:HB3	1:A:449:MET:CE	2.46	0.46
1:B:167:GLN:OE1	1:B:168:PHE:N	2.49	0.46
1:B:502:ASP:OD2	1:B:528:ARG:HD3	2.15	0.46
1:B:450:THR:O	1:B:451:MET:C	2.59	0.46
1:B:602:TYR:OH	1:B:604:HIS:HB2	2.16	0.46
1:B:604:HIS:O	1:B:604:HIS:CG	2.69	0.46
1:A:285:ASP:CG	1:A:285:ASP:O	2.54	0.46
1:A:305:ARG:HA	1:A:323:ASP:HA	1.97	0.46
1:B:203:ASN:OD1	1:B:203:ASN:C	2.59	0.46
1:B:391:TRP:CD1	1:B:391:TRP:C	2.94	0.46
1:A:320:PHE:HB2	1:A:503:TYR:CD1	2.50	0.46
1:B:231:ILE:O	1:B:231:ILE:HG22	2.16	0.46
1:B:234:ASP:C	1:B:235:ILE:HG13	2.38	0.46
1:A:179:GLY:HA3	1:A:180:PRO:HD3	1.77	0.45
1:A:187:TYR:O	1:A:187:TYR:CG	2.68	0.45
1:A:235:ILE:HD12	1:A:361:GLU:CB	2.46	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:192:GLU:OE2	1:B:192:GLU:N	2.48	0.45
1:B:405:GLN:HA	1:B:419:LYS:HA	1.97	0.45
1:B:451:MET:HE1	1:B:455:LEU:HD11	1.98	0.45
1:A:536:ASN:CG	1:A:537:ASP:N	2.75	0.45
1:B:181:TRP:CZ2	1:B:215:ARG:HD2	2.52	0.45
1:B:232:ASN:OD1	1:B:232:ASN:C	2.59	0.45
1:B:381:ASP:OD1	1:B:409:ARG:O	2.33	0.45
1:A:231:ILE:HG22	1:A:241:TYR:CE2	2.52	0.45
1:A:332:ARG:CG	1:A:332:ARG:NH1	2.58	0.45
1:B:303:ARG:CZ	1:B:326:SER:HB2	2.47	0.45
1:B:252:MET:SD	1:B:253:LEU:HB2	2.56	0.45
1:A:239:TRP:CD1	1:A:240:SER:O	2.70	0.45
1:A:267:ILE:CG2	1:A:268:ALA:N	2.80	0.45
1:A:169:SER:O	1:A:170:TYR:HB3	2.17	0.45
1:A:488:LEU:HD13	1:A:488:LEU:O	2.17	0.45
1:A:201:THR:O	1:A:202:THR:HG22	2.17	0.45
1:A:231:ILE:HG22	1:A:241:TYR:CD2	2.52	0.45
1:A:522:VAL:HG22	1:A:543:ILE:HG13	1.98	0.45
1:B:231:ILE:CD1	1:B:341:VAL:HG11	2.43	0.45
1:B:288:VAL:HG11	1:B:293:PHE:CB	2.46	0.45
1:A:403:ILE:CD1	1:A:421:TRP:CD1	2.93	0.45
1:A:403:ILE:CD1	1:A:421:TRP:HD1	2.28	0.45
1:B:253:LEU:O	1:B:254:PRO:C	2.60	0.45
1:B:329:TYR:CE1	1:B:363:SER:HB2	2.52	0.45
1:A:147:MET:CG	1:A:633:ALA:O	2.62	0.45
1:A:635:ILE:O	1:A:636:THR:HB	2.16	0.45
1:B:450:THR:H	1:B:453:GLN:HB2	1.82	0.45
1:A:610:ASN:N	1:A:630:SER:O	2.49	0.44
1:B:456:ASN:C	1:B:458:ARG:N	2.72	0.44
1:B:170:TYR:CZ	1:B:189:GLY:HA3	2.53	0.44
1:B:614:ASN:O	1:B:625:PHE:CD1	2.69	0.44
1:B:305:ARG:C	1:B:306:LEU:HD23	2.42	0.44
1:B:382:TYR:C	1:B:383:ASN:CG	2.84	0.44
1:A:235:ILE:CD1	1:A:361:GLU:HB2	2.47	0.44
1:A:273:ARG:NH2	1:A:311:ILE:HD13	2.31	0.44
1:A:287:MET:CE	1:A:601:TYR:CE1	3.01	0.44
1:B:406:SER:C	1:B:407:VAL:HG23	2.43	0.44
1:A:401:ALA:HA	1:A:422:ARG:O	2.17	0.44
1:A:450:THR:O	1:A:451:MET:C	2.61	0.44
1:B:449:MET:HA	1:B:453:GLN:OE1	2.18	0.44
1:B:501:THR:OG1	1:B:530:LYS:HG3	2.17	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:231:ILE:HG21	1:B:239:TRP:CE3	2.52	0.44
1:B:608:LEU:HD22	1:B:608:LEU:HA	1.77	0.44
1:A:384:ALA:HA	1:A:405:GLN:O	2.17	0.44
1:B:455:LEU:HD23	1:B:455:LEU:HA	1.84	0.44
1:A:206:PHE:CG	1:A:207:THR:N	2.85	0.43
1:A:417:GLN:HE21	1:A:417:GLN:C	2.26	0.43
1:B:337:ARG:H	1:B:337:ARG:HG3	1.63	0.43
1:A:336:VAL:HG22	1:A:363:SER:O	2.18	0.43
1:A:615:ILE:HG12	1:A:625:PHE:HD1	1.82	0.43
1:B:222:ALA:HB1	1:B:247:GLU:O	2.17	0.43
1:B:490:TYR:HD1	1:B:504:TYR:CB	2.24	0.43
1:B:525:SER:HG	1:B:540:TYR:HB3	1.82	0.43
1:A:369:GLN:O	1:A:391:TRP:HA	2.19	0.43
1:B:321:GLN:O	1:B:322:VAL:HG22	2.18	0.43
1:B:332:ARG:O	1:B:335:GLN:N	2.47	0.43
1:A:217:ILE:O	1:A:218:PRO:C	2.60	0.43
1:A:332:ARG:O	1:A:333:PRO:C	2.61	0.43
1:A:457:ALA:HA	1:A:462:ASP:O	2.18	0.43
1:A:563:TYR:CE2	1:A:565:ASN:ND2	2.83	0.43
1:B:583:ASN:O	1:B:584:ALA:HB2	2.19	0.43
1:A:270:THR:O	1:A:272:ALA:N	2.47	0.43
1:A:306:LEU:HD11	1:A:324:THR:HG22	1.99	0.43
1:A:365:GLY:HA2	1:A:371:SER:HB3	2.00	0.43
1:B:249:ASP:O	1:B:252:MET:SD	2.76	0.43
1:B:382:TYR:C	1:B:383:ASN:ND2	2.76	0.43
1:B:528:ARG:HB2	1:B:537:ASP:OD1	2.18	0.43
1:A:178:LEU:HA	1:A:178:LEU:HD12	1.65	0.43
1:A:232:ASN:HB2	1:A:303:ARG:CG	2.48	0.43
1:A:238:SER:OG	1:A:239:TRP:N	2.51	0.43
1:A:395:VAL:N	1:A:396:PRO:CD	2.80	0.43
1:A:422:ARG:HA	1:A:441:TYR:O	2.19	0.43
1:B:457:ALA:HB2	1:B:463:TYR:HA	2.01	0.43
1:A:270:THR:N	1:A:312:GLU:OE1	2.51	0.43
1:B:470:MET:HG2	1:B:471:TYR:N	2.31	0.43
1:A:267:ILE:HD13	1:A:540:TYR:CB	2.49	0.43
1:A:540:TYR:CE2	1:A:542:ARG:HB2	2.52	0.43
1:B:345:SER:OG	1:B:355:PRO:HD2	2.19	0.43
1:B:270:THR:OG1	1:B:312:GLU:OE1	2.30	0.43
1:A:194:SER:HB2	1:A:201:THR:HG23	2.01	0.43
1:A:233:SER:HG	1:A:361:GLU:CD	2.23	0.43
1:A:269:GLU:N	1:A:312:GLU:OE2	2.52	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:273:ARG:NH2	1:A:311:ILE:CD1	2.82	0.43
1:B:212:TYR:N	1:B:212:TYR:HD2	2.17	0.43
1:B:344:ARG:HH21	1:B:356:VAL:CG2	2.32	0.43
1:A:466:ARG:HA	1:A:466:ARG:HD2	1.58	0.42
1:A:237:ARG:HH12	1:A:442:ARG:NH1	2.17	0.42
1:A:313:GLN:NE2	1:A:624:SER:OG	2.53	0.42
1:B:239:TRP:HD1	1:B:240:SER:O	2.03	0.42
1:A:388:GLY:HA3	1:A:402:ASP:HB3	2.00	0.42
1:B:278:GLN:NE2	1:B:306:LEU:HD21	2.34	0.42
1:B:409:ARG:HB3	1:B:415:THR:CG2	2.47	0.42
1:B:505:THR:HA	1:B:527:SER:HA	2.00	0.42
1:A:464:SER:O	1:A:465:SER:C	2.62	0.42
1:B:278:GLN:HB2	1:B:306:LEU:HD22	2.02	0.42
1:B:288:VAL:HG11	1:B:293:PHE:HB3	2.02	0.42
1:A:153:ASN:OD1	1:A:286:SER:HA	2.19	0.42
1:A:186:ASP:HB2	1:A:210:ARG:H	1.84	0.42
1:A:367:SER:HA	1:A:370:TRP:C	2.44	0.42
1:A:449:MET:CG	1:A:466:ARG:HH22	2.20	0.42
1:A:564:VAL:C	1:A:565:ASN:HD22	2.27	0.42
1:B:303:ARG:NH1	1:B:422:ARG:HH22	2.17	0.42
1:A:146:LEU:HD23	1:A:635:ILE:HB	2.01	0.42
1:A:184:ARG:HH21	1:A:214:PHE:HE2	1.68	0.42
1:A:520:VAL:CG1	1:A:521:ALA:N	2.83	0.42
1:A:565:ASN:N	1:A:565:ASN:ND2	2.65	0.42
1:B:525:SER:HB2	1:B:540:TYR:CB	2.50	0.42
1:A:314:ASN:OD1	1:A:314:ASN:C	2.63	0.42
1:B:204:ARG:O	1:B:205:ASN:HB3	2.20	0.42
1:B:235:ILE:HA	1:B:422:ARG:NH1	2.32	0.42
1:B:323:ASP:OD1	1:B:323:ASP:N	2.51	0.42
1:A:488:LEU:HD22	1:A:489:GLN:N	2.35	0.42
1:B:240:SER:O	1:B:241:TYR:HB3	2.19	0.42
1:B:522:VAL:HG12	1:B:523:GLY:N	2.32	0.42
1:A:419:LYS:HB3	1:A:419:LYS:HE3	1.80	0.41
1:A:470:MET:HA	1:A:492:ARG:O	2.19	0.41
1:B:490:TYR:HD1	1:B:504:TYR:CD1	2.38	0.41
1:A:449:MET:HG3	1:A:466:ARG:NH2	2.18	0.41
1:B:151:ASN:HD22	1:B:151:ASN:C	2.22	0.41
1:B:622:TYR:HD1	1:B:623:THR:N	2.18	0.41
1:A:528:ARG:HB3	1:A:537:ASP:OD1	2.20	0.41
1:B:462:ASP:OD1	1:B:462:ASP:C	2.63	0.41
1:A:305:ARG:HG3	1:A:306:LEU:N	2.36	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:436:ILE:C	1:A:436:ILE:HD12	2.46	0.41
1:B:181:TRP:CE3	1:B:215:ARG:HB3	2.56	0.41
1:B:187:TYR:O	1:B:187:TYR:CG	2.73	0.41
1:B:228:GLU:HG2	1:B:346:ARG:CD	2.50	0.41
1:B:233:SER:OG	1:B:234:ASP:N	2.52	0.41
1:A:367:SER:CA	1:A:370:TRP:O	2.69	0.41
1:A:451:MET:O	1:A:455:LEU:HG	2.21	0.41
1:B:228:GLU:HG2	1:B:346:ARG:HD2	2.03	0.41
1:B:274:VAL:O	1:B:285:ASP:HA	2.21	0.41
1:A:269:GLU:HB3	1:A:312:GLU:OE2	2.21	0.41
1:A:312:GLU:HB2	1:A:316:ARG:O	2.20	0.41
1:A:509:ASN:HA	1:A:522:VAL:O	2.20	0.41
1:A:619:GLN:HG2	1:A:620:LYS:N	2.36	0.41
1:B:187:TYR:HB3	1:B:208:TRP:CE3	2.56	0.41
1:A:207:THR:OG1	1:A:208:TRP:N	2.53	0.41
1:A:420:SER:HB3	1:A:444:SER:HA	2.03	0.41
1:B:466:ARG:HB2	1:B:496:TRP:HB2	2.02	0.41
1:A:151:ASN:O	1:A:170:TYR:HA	2.21	0.40
1:A:190:SER:O	1:A:190:SER:OG	2.32	0.40
1:A:357:PHE:HB2	1:A:378:LEU:O	2.22	0.40
1:B:406:SER:OG	1:B:448:TYR:HD1	2.03	0.40
1:B:622:TYR:CD1	1:B:623:THR:N	2.89	0.40
1:B:629:ALA:O	1:B:630:SER:HB3	2.21	0.40
1:A:233:SER:OG	1:A:361:GLU:OE2	2.29	0.40
1:A:267:ILE:HD13	1:A:540:TYR:HB2	2.04	0.40
1:A:501:THR:O	1:A:501:THR:CG2	2.69	0.40
1:A:596:ARG:O	1:A:618:LEU:HD23	2.21	0.40
1:A:635:ILE:O	1:A:636:THR:CB	2.69	0.40
1:B:372:LEU:HD12	1:B:372:LEU:C	2.46	0.40
1:B:526:ALA:O	1:B:527:SER:HB3	2.22	0.40
1:A:362:ALA:O	1:A:373:TYR:HB2	2.22	0.40
1:B:241:TYR:H	1:B:346:ARG:HH11	1.70	0.40
1:B:155:THR:HG23	1:B:167:GLN:HB2	2.02	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	408/493 (83%)	349 (86%)	53 (13%)	6 (2%)	8	33
1	B	338/493 (69%)	262 (78%)	67 (20%)	9 (3%)	4	21
All	All	746/986 (76%)	611 (82%)	120 (16%)	15 (2%)	6	27

All (15) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	329	TYR
1	B	457	ALA
1	A	333	PRO
1	A	451	MET
1	B	221	ARG
1	B	262	PRO
1	B	267	ILE
1	B	411	GLU
1	A	458	ARG
1	A	218	PRO
1	A	271	ASN
1	A	446	ARG
1	B	451	MET
1	B	407	VAL
1	B	218	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	351/405 (87%)	271 (77%)	80 (23%)	1	4
1	B	292/405 (72%)	218 (75%)	74 (25%)	0	3
All	All	643/810 (79%)	489 (76%)	154 (24%)	1	3

All (154) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	153	ASN
1	A	155	THR
1	A	158	ARG
1	A	161	GLN
1	A	178	LEU
1	A	191	GLN
1	A	192	GLU
1	A	201	THR
1	A	202	THR
1	A	204	ARG
1	A	215	ARG
1	A	223	ASN
1	A	225	THR
1	A	226	LEU
1	A	229	ASN
1	A	231	ILE
1	A	273	ARG
1	A	278	GLN
1	A	282	VAL
1	A	288	VAL
1	A	294	SER
1	A	296	GLN
1	A	305	ARG
1	A	323	ASP
1	A	324	THR
1	A	332	ARG
1	A	336	VAL
1	A	337	ARG
1	A	339	LYS
1	A	346	ARG
1	A	366	LEU
1	A	368	ASN
1	A	369	GLN
1	A	371	SER
1	A	372	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	385	LEU
1	A	393	LEU
1	A	395	VAL
1	A	403	ILE
1	A	404	THR
1	A	411	GLU
1	A	415	THR
1	A	417	GLN
1	A	422	ARG
1	A	437	THR
1	A	451	MET
1	A	454	TYR
1	A	472	THR
1	A	479	VAL
1	A	486	PHE
1	A	488	LEU
1	A	493	GLN
1	A	496	TRP
1	A	498	ILE
1	A	501	THR
1	A	504	TYR
1	A	505	THR
1	A	507	SER
1	A	511	TYR
1	A	528	ARG
1	A	547	LEU
1	A	559	SER
1	A	565	ASN
1	A	566	MET
1	A	570	THR
1	A	574	ASN
1	A	578	ASP
1	A	581	SER
1	A	586	LEU
1	A	594	SER
1	A	595	GLN
1	A	598	ILE
1	A	611	LEU
1	A	614	ASN
1	A	615	ILE
1	A	617	SER
1	A	618	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	623	THR
1	A	635	ILE
1	A	636	THR
1	B	148	LEU
1	B	152	LEU
1	B	158	ARG
1	B	169	SER
1	B	173	THR
1	B	186	ASP
1	B	201	THR
1	B	212	TYR
1	B	214	PHE
1	B	219	ARG
1	B	220	TRP
1	B	221	ARG
1	B	224	LEU
1	B	225	THR
1	B	228	GLU
1	B	229	ASN
1	B	231	ILE
1	B	235	ILE
1	B	237	ARG
1	B	242	THR
1	B	246	LEU
1	B	252	MET
1	B	265	THR
1	B	296	GLN
1	B	302	VAL
1	B	303	ARG
1	B	306	LEU
1	B	319	THR
1	B	322	VAL
1	B	337	ARG
1	B	340	LEU
1	B	341	VAL
1	B	342	SER
1	B	344	ARG
1	B	345	SER
1	B	361	GLU
1	B	371	SER
1	B	377	VAL
1	B	391	TRP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	393	LEU
1	B	398	THR
1	B	400	SER
1	B	403	ILE
1	B	404	THR
1	B	416	PHE
1	B	420	SER
1	B	451	MET
1	B	454	TYR
1	B	458	ARG
1	B	463	TYR
1	B	470	MET
1	B	488	LEU
1	B	493	GLN
1	B	497	ASP
1	B	498	ILE
1	B	500	LYS
1	B	504	TYR
1	B	508	VAL
1	B	522	VAL
1	B	524	LEU
1	B	530	LYS
1	B	538	SER
1	B	542	ARG
1	B	543	ILE
1	B	566	MET
1	B	577	LEU
1	B	581	SER
1	B	583	ASN
1	B	608	LEU
1	B	615	ILE
1	B	617	SER
1	B	618	LEU
1	B	623	THR
1	B	627	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (26) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	151	ASN
1	A	153	ASN
1	A	159	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	161	GLN
1	A	205	ASN
1	A	313	GLN
1	A	369	GLN
1	A	417	GLN
1	A	453	GLN
1	A	478	ASN
1	A	536	ASN
1	A	565	ASN
1	A	587	ASN
1	A	595	GLN
1	A	597	GLN
1	A	599	ASN
1	B	151	ASN
1	B	153	ASN
1	B	166	HIS
1	B	229	ASN
1	B	278	GLN
1	B	383	ASN
1	B	447	ASN
1	B	493	GLN
1	B	583	ASN
1	B	599	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

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, 95th 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	436/493 (88%)	0.24	20 (4%) 37 21	82, 114, 136, 158	11 (2%)
1	B	384/493 (77%)	0.33	21 (5%) 30 17	97, 126, 155, 171	4 (1%)
All	All	820/986 (83%)	0.28	41 (5%) 34 20	82, 120, 150, 171	15 (1%)

All (41) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	209	SER	4.8
1	A	443	PHE	4.4
1	A	503	TYR	3.9
1	B	194	SER	3.8
1	B	287	MET	3.6
1	A	234	ASP	3.5
1	A	502	ASP	3.3
1	B	324	THR	3.2
1	B	587	ASN	2.9
1	B	199	GLU	2.9
1	B	314	ASN	2.8
1	A	445	GLU	2.7
1	B	325	ALA	2.7
1	B	328	PRO	2.7
1	A	181	TRP	2.6
1	A	315	GLY	2.6
1	A	366	LEU	2.5
1	B	272	ALA	2.5
1	A	488	LEU	2.5
1	A	504	TYR	2.5
1	B	377	VAL	2.5
1	A	261	ALA	2.4
1	B	369	GLN	2.4
1	B	619	GLN	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	322	VAL	2.3
1	B	165	SER	2.3
1	B	601	TYR	2.3
1	A	421	TRP	2.3
1	B	155	THR	2.2
1	B	438	PHE	2.2
1	A	330	LEU	2.2
1	B	221	ARG	2.2
1	A	520	VAL	2.2
1	B	361	GLU	2.2
1	A	269	GLU	2.1
1	A	289	PRO	2.1
1	B	330	LEU	2.1
1	A	196	TYR	2.1
1	A	507	SER	2.0
1	B	286	SER	2.0
1	A	149	ASP	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 oligosaccharides 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.