Full wwPDB X-ray Structure Validation Report (i)

Jan 21, 2025 – 02:13 PM JST

PDB ID	:	8JZQ
Title	:	Crystal structure of Panax quinquefolius Pq3-O-UGT2
Authors	:	Mei, K.; Ji, Q.; Liu, Y.
Deposited on	:	2023-07-06
Resolution	:	2.89 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:

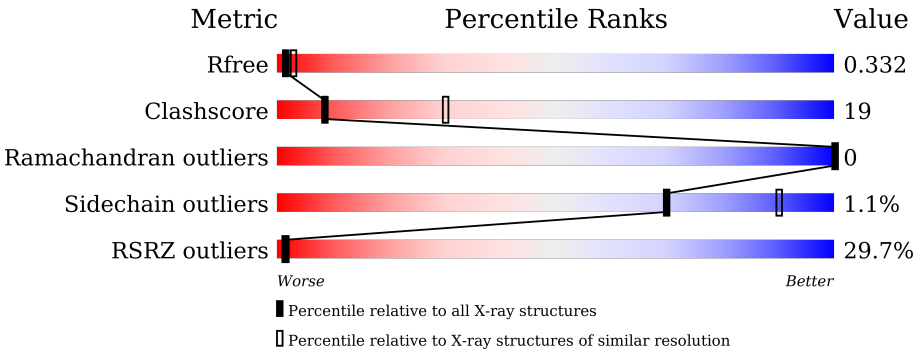
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.21
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 2.89 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}	164625	2335 (2.90-2.90)
Clashscore	180529	2564 (2.90-2.90)
Ramachandran outliers	177936	2514 (2.90-2.90)
Sidechain outliers	177891	2516 (2.90-2.90)
RSRZ outliers	164620	2337 (2.90-2.90)

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	455	15% 64% 18% 17%
1	B	455	26% 64% 19% 17%
1	C	455	28% 64% 19% 17%
1	D	455	31% 64% 19% 17%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 11872 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 Glycosyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	378	Total	C	N	O	S	0	0	0
			2968	1902	500	554	12			
1	B	378	Total	C	N	O	S	0	0	0
			2968	1902	500	554	12			
1	C	378	Total	C	N	O	S	0	0	0
			2968	1902	500	554	12			
1	D	378	Total	C	N	O	S	0	0	0
			2968	1902	500	554	12			

There are 52 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	443	GLU	-	expression tag	UNP A0A0M4ME80
A	444	ASN	-	expression tag	UNP A0A0M4ME80
A	445	LEU	-	expression tag	UNP A0A0M4ME80
A	446	TYR	-	expression tag	UNP A0A0M4ME80
A	447	PHE	-	expression tag	UNP A0A0M4ME80
A	448	GLN	-	expression tag	UNP A0A0M4ME80
A	449	GLY	-	expression tag	UNP A0A0M4ME80
A	450	HIS	-	expression tag	UNP A0A0M4ME80
A	451	HIS	-	expression tag	UNP A0A0M4ME80
A	452	HIS	-	expression tag	UNP A0A0M4ME80
A	453	HIS	-	expression tag	UNP A0A0M4ME80
A	454	HIS	-	expression tag	UNP A0A0M4ME80
A	455	HIS	-	expression tag	UNP A0A0M4ME80
B	443	GLU	-	expression tag	UNP A0A0M4ME80
B	444	ASN	-	expression tag	UNP A0A0M4ME80
B	445	LEU	-	expression tag	UNP A0A0M4ME80
B	446	TYR	-	expression tag	UNP A0A0M4ME80
B	447	PHE	-	expression tag	UNP A0A0M4ME80
B	448	GLN	-	expression tag	UNP A0A0M4ME80
B	449	GLY	-	expression tag	UNP A0A0M4ME80
B	450	HIS	-	expression tag	UNP A0A0M4ME80

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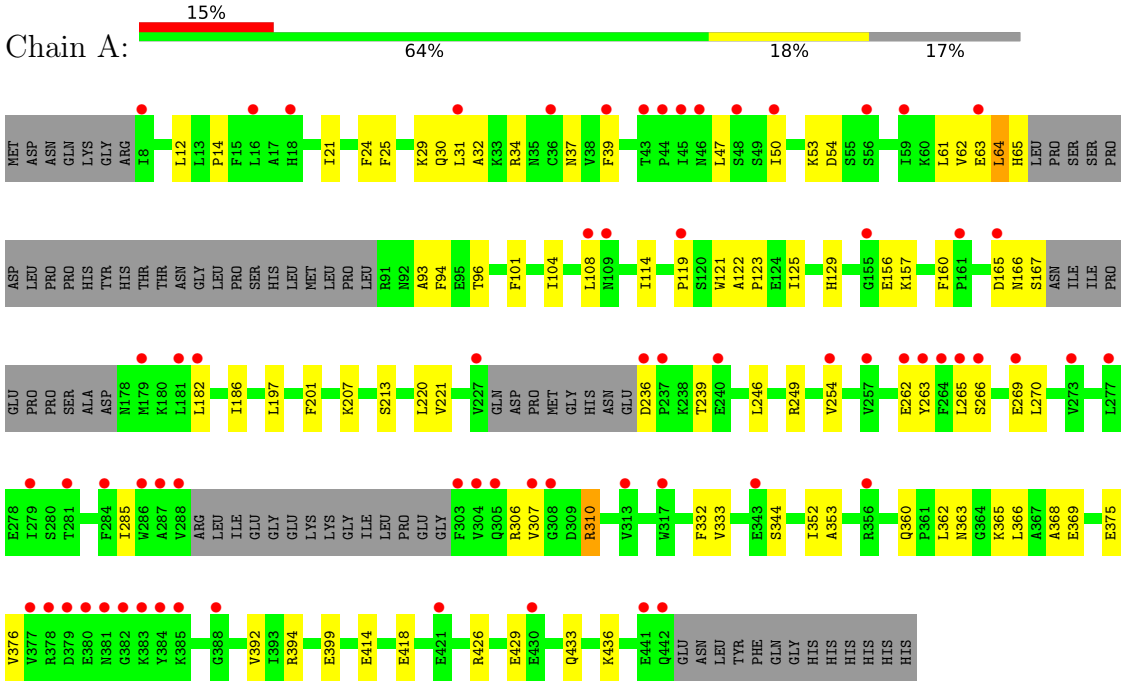
Chain	Residue	Modelled	Actual	Comment	Reference
B	451	HIS	-	expression tag	UNP A0A0M4ME80
B	452	HIS	-	expression tag	UNP A0A0M4ME80
B	453	HIS	-	expression tag	UNP A0A0M4ME80
B	454	HIS	-	expression tag	UNP A0A0M4ME80
B	455	HIS	-	expression tag	UNP A0A0M4ME80
C	443	GLU	-	expression tag	UNP A0A0M4ME80
C	444	ASN	-	expression tag	UNP A0A0M4ME80
C	445	LEU	-	expression tag	UNP A0A0M4ME80
C	446	TYR	-	expression tag	UNP A0A0M4ME80
C	447	PHE	-	expression tag	UNP A0A0M4ME80
C	448	GLN	-	expression tag	UNP A0A0M4ME80
C	449	GLY	-	expression tag	UNP A0A0M4ME80
C	450	HIS	-	expression tag	UNP A0A0M4ME80
C	451	HIS	-	expression tag	UNP A0A0M4ME80
C	452	HIS	-	expression tag	UNP A0A0M4ME80
C	453	HIS	-	expression tag	UNP A0A0M4ME80
C	454	HIS	-	expression tag	UNP A0A0M4ME80
C	455	HIS	-	expression tag	UNP A0A0M4ME80
D	443	GLU	-	expression tag	UNP A0A0M4ME80
D	444	ASN	-	expression tag	UNP A0A0M4ME80
D	445	LEU	-	expression tag	UNP A0A0M4ME80
D	446	TYR	-	expression tag	UNP A0A0M4ME80
D	447	PHE	-	expression tag	UNP A0A0M4ME80
D	448	GLN	-	expression tag	UNP A0A0M4ME80
D	449	GLY	-	expression tag	UNP A0A0M4ME80
D	450	HIS	-	expression tag	UNP A0A0M4ME80
D	451	HIS	-	expression tag	UNP A0A0M4ME80
D	452	HIS	-	expression tag	UNP A0A0M4ME80
D	453	HIS	-	expression tag	UNP A0A0M4ME80
D	454	HIS	-	expression tag	UNP A0A0M4ME80
D	455	HIS	-	expression tag	UNP A0A0M4ME80

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.

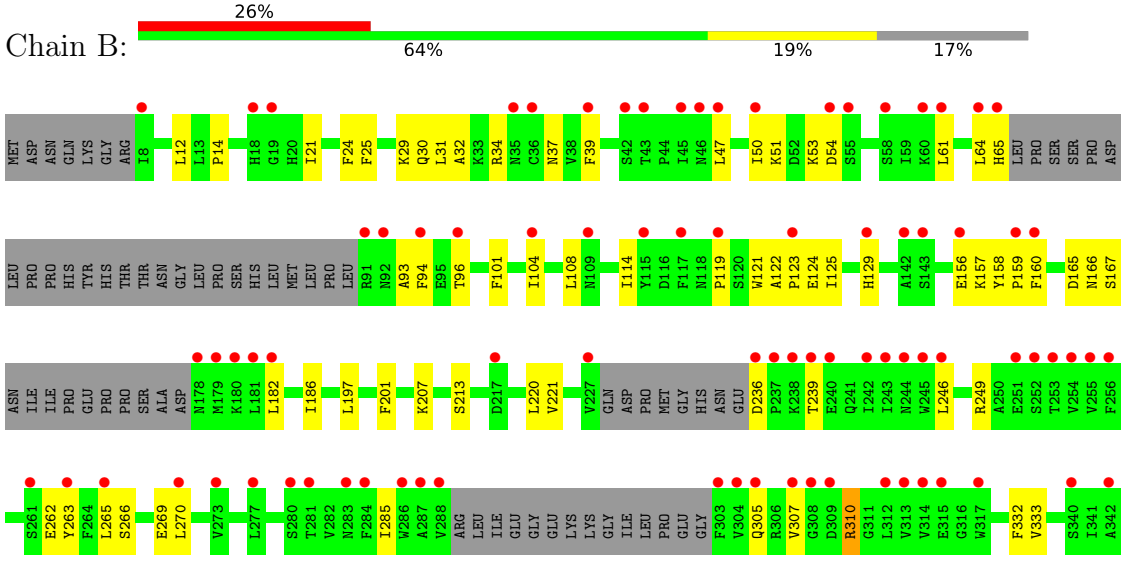
- Molecule 1: Glycosyltransferase

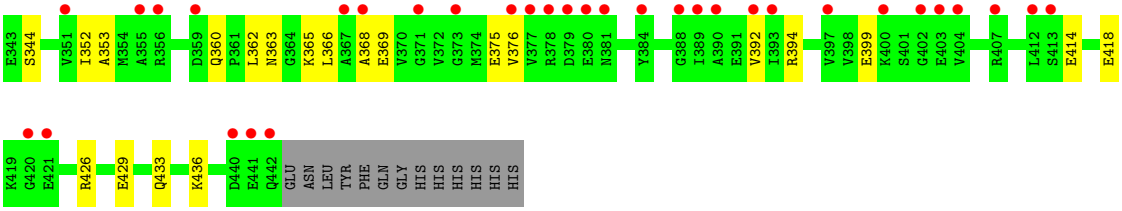
Chain A:



- Molecule 1: Glycosyltransferase

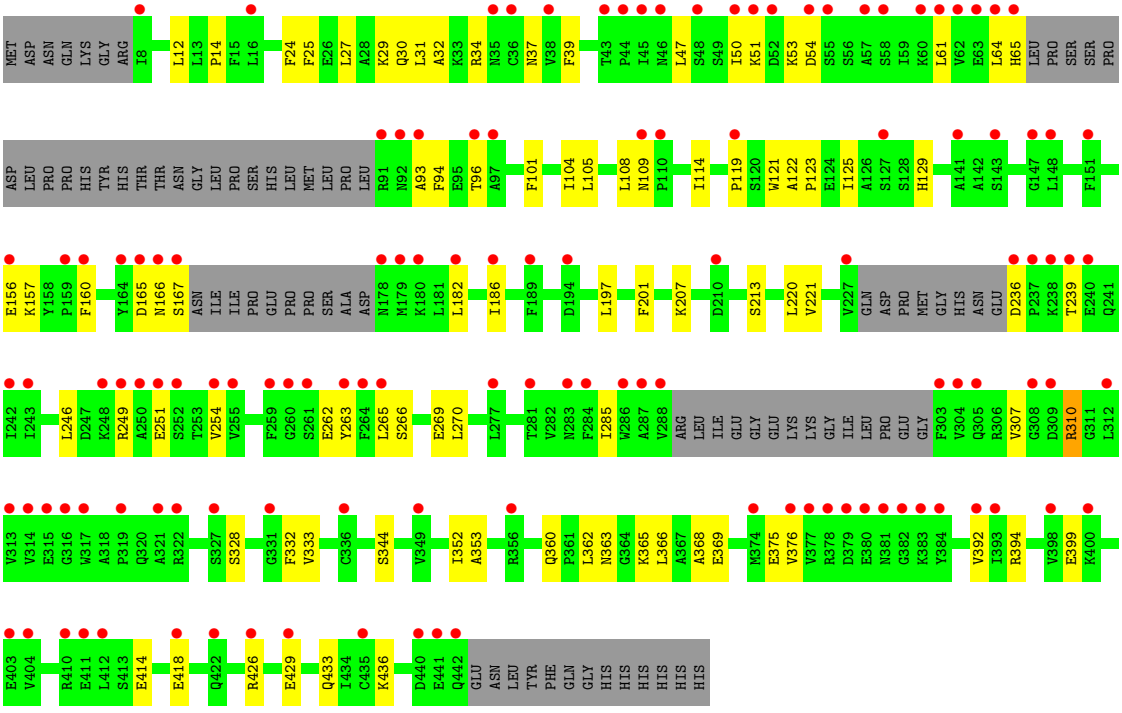
Chain B:





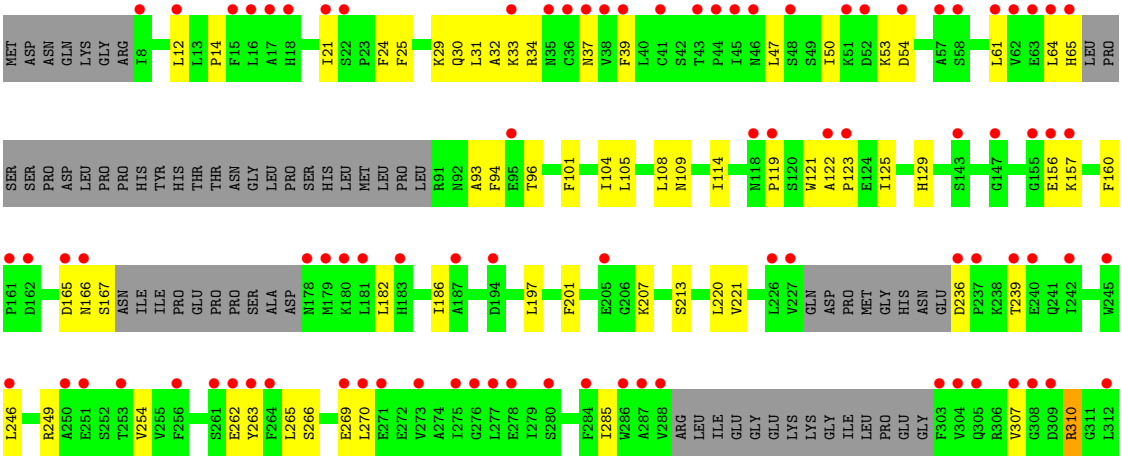
• Molecule 1: Glycosyltransferase

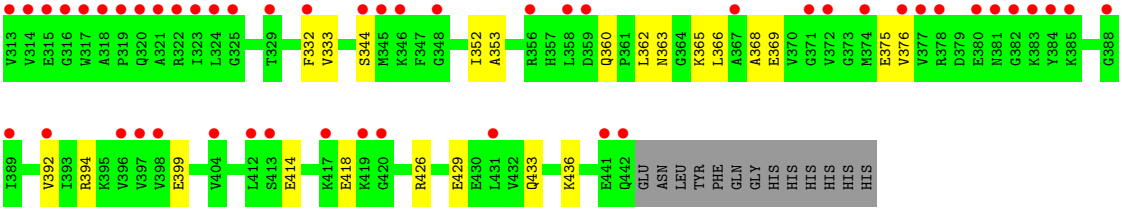
Chain C:



• Molecule 1: Glycosyltransferase

Chain D:




V313 V314 E315 G316 W317 A318 P319 Q320 A321 R322 I323 L324 G325 T329 F332 V333 S344 M345 K346 F347 G348 I352 A353 R356 H357 L358 D359 Q360 P361 L362 N363 G364 K365 L366 A367 A368 E369 V370 G371 V372 G373 M374 E375 V376 V377 R378 D379 E380 N381 G382 K383 Y384 K385 G388
I389 V392 I393 R394 K395 V396 V397 V398 E399 V404 L412 S413 E414 K417 E418 K419 G420 R426 E429 E430 L431 V432 Q433 K436 E441 Q442 GLU ASN LEU TYR PHE GLN GLY HIS HIS HIS HIS HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	46.99Å 80.89Å 126.38Å 93.96° 90.00° 93.75°	Depositor
Resolution (Å)	37.70 – 2.89 37.70 – 2.89	Depositor EDS
% Data completeness (in resolution range)	94.3 (37.70-2.89) 94.5 (37.70-2.89)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.43 (at 2.91Å)	Xtriage
Refinement program	PHENIX (1.19_4092: ???)	Depositor
R, R_{free}	0.307 , 0.333 0.306 , 0.332	Depositor DCC
R_{free} test set	2053 reflections (4.92%)	wwPDB-VP
Wilson B-factor (Å^2)	62.6	Xtriage
Anisotropy	0.329	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 50.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.83	EDS
Total number of atoms	11872	wwPDB-VP
Average B, all atoms (Å^2)	71.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.33% of the height of the origin peak. No significant pseudotranslation is detected.*

[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	0.42	0/3027	0.59	0/4086
1	B	0.42	0/3027	0.58	0/4086
1	C	0.42	0/3027	0.58	0/4086
1	D	0.42	0/3027	0.58	0/4086
All	All	0.42	0/12108	0.58	0/16344

There are no bond length outliers.

There are no bond angle outliers.

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	2968	0	2984	111	7
1	B	2968	0	2984	107	10
1	C	2968	0	2984	113	6
1	D	2968	0	2983	111	8
All	All	11872	0	11935	442	27

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 19.

All (442) 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:265:LEU:HD11	1:B:269:GLU:CB	1.07	1.54
1:C:265:LEU:HD11	1:C:269:GLU:CB	1.07	1.54
1:B:265:LEU:CD1	1:B:269:GLU:CB	1.87	1.52
1:D:265:LEU:CD1	1:D:269:GLU:CB	1.87	1.52
1:D:265:LEU:HD11	1:D:269:GLU:CB	1.07	1.51
1:A:265:LEU:HD11	1:A:269:GLU:CB	1.07	1.50
1:A:265:LEU:CD1	1:A:269:GLU:HB2	1.40	1.50
1:C:265:LEU:CD1	1:C:269:GLU:CB	1.87	1.50
1:C:265:LEU:CG	1:C:269:GLU:HB2	1.41	1.50
1:B:265:LEU:CD1	1:B:269:GLU:HB2	1.40	1.49
1:A:265:LEU:CD1	1:A:269:GLU:CB	1.87	1.49
1:D:265:LEU:CD1	1:D:269:GLU:HB2	1.40	1.49
1:B:265:LEU:CG	1:B:269:GLU:HB2	1.41	1.47
1:A:265:LEU:CG	1:A:269:GLU:HB2	1.41	1.47
1:D:265:LEU:CG	1:D:269:GLU:HB2	1.41	1.47
1:C:265:LEU:CD1	1:C:269:GLU:HB2	1.40	1.46
1:A:37:ASN:HB2	1:A:39:PHE:CZ	1.56	1.40
1:D:37:ASN:HB2	1:D:39:PHE:CZ	1.56	1.40
1:C:37:ASN:HB2	1:C:39:PHE:CZ	1.56	1.38
1:B:37:ASN:HB2	1:B:39:PHE:CZ	1.56	1.38
1:A:265:LEU:HD21	1:A:269:GLU:C	1.44	1.37
1:B:265:LEU:HD21	1:B:269:GLU:C	1.44	1.37
1:D:265:LEU:HD21	1:D:269:GLU:C	1.44	1.35
1:C:265:LEU:HD21	1:C:269:GLU:C	1.44	1.34
1:B:32:ALA:HA	1:B:39:PHE:CE2	1.63	1.34
1:D:32:ALA:HA	1:D:39:PHE:CE2	1.63	1.31
1:C:32:ALA:HA	1:C:39:PHE:CE2	1.63	1.31
1:A:32:ALA:HA	1:A:39:PHE:CE2	1.63	1.30
1:D:265:LEU:HD11	1:D:269:GLU:CG	1.65	1.27
1:A:265:LEU:HD11	1:A:269:GLU:CG	1.65	1.25
1:C:265:LEU:HD11	1:C:269:GLU:CG	1.65	1.25
1:B:265:LEU:HD11	1:B:269:GLU:CG	1.65	1.25
1:A:262:GLU:OE1	1:A:360:GLN:NE2	1.81	1.14
1:B:262:GLU:OE1	1:B:360:GLN:NE2	1.81	1.13
1:D:262:GLU:OE1	1:D:360:GLN:NE2	1.81	1.12
1:C:262:GLU:OE1	1:C:360:GLN:NE2	1.81	1.11
1:A:157:LYS:HZ2	1:A:166:ASN:N	1.48	1.11
1:B:265:LEU:HG	1:B:266:SER:H	1.15	1.10
1:C:265:LEU:HG	1:C:266:SER:H	1.15	1.08
1:A:265:LEU:HG	1:A:266:SER:H	1.15	1.08
1:B:265:LEU:HD11	1:B:269:GLU:HB3	1.07	1.06
1:D:265:LEU:HG	1:D:266:SER:H	1.15	1.06

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:265:LEU:HG	1:D:269:GLU:HB2	1.36	1.06
1:A:265:LEU:CD2	1:A:269:GLU:C	2.25	1.06
1:D:265:LEU:CD2	1:D:269:GLU:C	2.25	1.05
1:B:265:LEU:HG	1:B:269:GLU:HB2	1.36	1.05
1:C:265:LEU:HD11	1:C:269:GLU:HB3	1.07	1.05
1:C:265:LEU:CD2	1:C:269:GLU:C	2.25	1.05
1:D:265:LEU:HD11	1:D:269:GLU:HB3	1.07	1.04
1:B:265:LEU:CD2	1:B:269:GLU:C	2.25	1.04
1:A:265:LEU:HD11	1:A:269:GLU:HB3	1.07	1.02
1:B:37:ASN:O	1:B:39:PHE:CE2	2.13	1.02
1:C:37:ASN:O	1:C:39:PHE:CE2	2.13	1.02
1:A:265:LEU:HG	1:A:269:GLU:HB2	1.36	1.02
1:D:37:ASN:O	1:D:39:PHE:CE2	2.13	1.02
1:C:265:LEU:HG	1:C:269:GLU:HB2	1.36	1.01
1:A:32:ALA:CA	1:A:39:PHE:CE2	2.43	1.01
1:A:37:ASN:O	1:A:39:PHE:CE2	2.13	1.01
1:C:37:ASN:O	1:C:39:PHE:CD2	2.14	1.01
1:C:32:ALA:CA	1:C:39:PHE:CE2	2.43	1.01
1:B:37:ASN:O	1:B:39:PHE:CD2	2.14	1.01
1:D:32:ALA:CA	1:D:39:PHE:CE2	2.43	1.01
1:D:37:ASN:O	1:D:39:PHE:CD2	2.14	1.00
1:B:32:ALA:CA	1:B:39:PHE:CE2	2.43	1.00
1:A:37:ASN:O	1:A:39:PHE:CD2	2.14	1.00
1:B:157:LYS:HZ2	1:B:166:ASN:N	1.58	0.99
1:C:265:LEU:CG	1:C:269:GLU:CB	2.30	0.98
1:A:157:LYS:HZ3	1:A:167:SER:H	1.12	0.98
1:B:265:LEU:HD21	1:B:269:GLU:CA	1.95	0.97
1:C:265:LEU:HD21	1:C:269:GLU:CA	1.95	0.97
1:B:265:LEU:CG	1:B:269:GLU:CB	2.30	0.96
1:C:157:LYS:HZ2	1:C:166:ASN:N	1.62	0.96
1:A:265:LEU:HD21	1:A:269:GLU:CA	1.95	0.96
1:D:265:LEU:HD21	1:D:269:GLU:CA	1.95	0.95
1:D:157:LYS:HZ2	1:D:166:ASN:N	1.65	0.95
1:A:265:LEU:HD21	1:A:269:GLU:CB	1.97	0.95
1:A:157:LYS:HZ2	1:A:166:ASN:H	1.04	0.94
1:C:31:LEU:O	1:C:39:PHE:HZ	1.51	0.94
1:D:37:ASN:CB	1:D:39:PHE:CZ	2.50	0.94
1:A:37:ASN:CB	1:A:39:PHE:CZ	2.50	0.94
1:C:265:LEU:HD21	1:C:269:GLU:CB	1.97	0.94
1:B:265:LEU:HD21	1:B:269:GLU:CB	1.97	0.93
1:B:31:LEU:O	1:B:39:PHE:CZ	2.22	0.93

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:31:LEU:O	1:B:39:PHE:HZ	1.51	0.93
1:B:32:ALA:HA	1:B:39:PHE:HE2	1.04	0.93
1:D:31:LEU:O	1:D:39:PHE:CZ	2.22	0.93
1:A:265:LEU:CG	1:A:269:GLU:CB	2.30	0.93
1:D:265:LEU:HD21	1:D:269:GLU:CB	1.97	0.93
1:C:37:ASN:CB	1:C:39:PHE:CZ	2.50	0.93
1:A:31:LEU:O	1:A:39:PHE:HZ	1.51	0.92
1:A:31:LEU:O	1:A:39:PHE:CZ	2.21	0.92
1:B:157:LYS:NZ	1:B:166:ASN:N	2.17	0.92
1:D:31:LEU:O	1:D:39:PHE:HZ	1.51	0.92
1:C:31:LEU:O	1:C:39:PHE:CZ	2.21	0.92
1:C:157:LYS:NZ	1:C:166:ASN:N	2.17	0.91
1:D:157:LYS:NZ	1:D:166:ASN:N	2.17	0.91
1:A:157:LYS:NZ	1:A:166:ASN:N	2.17	0.91
1:D:265:LEU:CG	1:D:269:GLU:CB	2.30	0.90
1:A:32:ALA:HA	1:A:39:PHE:HE2	1.04	0.90
1:B:157:LYS:HZ2	1:B:166:ASN:H	1.16	0.90
1:B:265:LEU:CD2	1:B:269:GLU:CB	2.50	0.89
1:B:37:ASN:CB	1:B:39:PHE:CZ	2.50	0.89
1:C:265:LEU:CD2	1:C:269:GLU:HB2	2.03	0.89
1:B:265:LEU:CD2	1:B:269:GLU:HB2	2.03	0.89
1:D:37:ASN:HB2	1:D:39:PHE:HZ	1.37	0.88
1:D:265:LEU:CD2	1:D:269:GLU:CB	2.51	0.88
1:A:265:LEU:CD2	1:A:269:GLU:CB	2.51	0.88
1:D:265:LEU:CD2	1:D:269:GLU:HB2	2.03	0.88
1:C:265:LEU:CD2	1:C:269:GLU:CB	2.51	0.88
1:A:265:LEU:CD2	1:A:269:GLU:HB2	2.03	0.88
1:C:157:LYS:HZ3	1:C:167:SER:H	1.23	0.87
1:B:157:LYS:HZ3	1:B:167:SER:H	1.19	0.87
1:C:157:LYS:HZ2	1:C:166:ASN:H	1.21	0.86
1:D:32:ALA:HA	1:D:39:PHE:HE2	1.04	0.85
1:A:31:LEU:C	1:A:39:PHE:CZ	2.50	0.85
1:C:31:LEU:C	1:C:39:PHE:CZ	2.50	0.85
1:D:31:LEU:C	1:D:39:PHE:CZ	2.50	0.84
1:A:61:LEU:HD21	1:A:104:ILE:CG2	2.07	0.84
1:C:61:LEU:HD21	1:C:104:ILE:CG2	2.07	0.84
1:B:31:LEU:C	1:B:39:PHE:CZ	2.50	0.84
1:D:61:LEU:HD21	1:D:104:ILE:CG2	2.07	0.84
1:C:37:ASN:HB2	1:C:39:PHE:HZ	1.37	0.84
1:C:61:LEU:HD21	1:C:104:ILE:HG21	1.60	0.84
1:B:265:LEU:CD1	1:B:269:GLU:HB3	1.82	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:61:LEU:HD21	1:B:104:ILE:HG21	1.60	0.83
1:B:61:LEU:HD21	1:B:104:ILE:CG2	2.07	0.83
1:D:61:LEU:HD21	1:D:104:ILE:HG21	1.60	0.83
1:C:265:LEU:HG	1:C:266:SER:N	1.94	0.82
1:D:157:LYS:HZ2	1:D:166:ASN:H	1.24	0.82
1:D:157:LYS:HZ3	1:D:167:SER:H	1.25	0.82
1:A:61:LEU:HD21	1:A:104:ILE:HG21	1.60	0.82
1:C:32:ALA:HA	1:C:39:PHE:HE2	1.04	0.81
1:B:265:LEU:HG	1:B:266:SER:N	1.94	0.81
1:B:265:LEU:CD2	1:B:270:LEU:N	2.44	0.81
1:D:265:LEU:CD2	1:D:270:LEU:N	2.44	0.81
1:C:265:LEU:CD2	1:C:270:LEU:N	2.44	0.81
1:A:265:LEU:CD2	1:A:270:LEU:N	2.44	0.80
1:D:265:LEU:HG	1:D:266:SER:N	1.94	0.80
1:B:37:ASN:HB2	1:B:39:PHE:HZ	1.38	0.79
1:A:37:ASN:HB2	1:A:39:PHE:HZ	1.37	0.79
1:C:265:LEU:CD1	1:C:269:GLU:HB3	1.82	0.79
1:B:265:LEU:CD1	1:B:269:GLU:CG	2.45	0.77
1:B:61:LEU:HD22	1:B:108:LEU:HD11	1.68	0.76
1:C:61:LEU:HD22	1:C:108:LEU:HD11	1.68	0.76
1:C:265:LEU:CD1	1:C:269:GLU:CG	2.45	0.75
1:A:265:LEU:CD1	1:A:269:GLU:CG	2.45	0.75
1:A:265:LEU:HG	1:A:266:SER:N	1.94	0.75
1:A:265:LEU:HD23	1:A:270:LEU:N	2.02	0.75
1:A:61:LEU:HD22	1:A:108:LEU:HD11	1.68	0.74
1:B:265:LEU:HD11	1:B:269:GLU:CD	2.08	0.74
1:D:61:LEU:HD22	1:D:108:LEU:HD11	1.68	0.74
1:D:265:LEU:HD23	1:D:270:LEU:N	2.02	0.74
1:D:265:LEU:HD11	1:D:269:GLU:CD	2.08	0.74
1:C:157:LYS:NZ	1:C:165:ASP:OD1	2.19	0.74
1:D:265:LEU:CD1	1:D:269:GLU:CG	2.45	0.73
1:A:265:LEU:HD11	1:A:269:GLU:CD	2.08	0.73
1:D:265:LEU:CD1	1:D:269:GLU:HB3	1.82	0.73
1:C:265:LEU:HD23	1:C:270:LEU:N	2.02	0.73
1:C:265:LEU:HD11	1:C:269:GLU:CD	2.08	0.73
1:B:265:LEU:HD23	1:B:270:LEU:N	2.02	0.72
1:A:265:LEU:HD21	1:A:269:GLU:O	1.90	0.72
1:A:157:LYS:NZ	1:A:165:ASP:OD1	2.19	0.72
1:B:157:LYS:NZ	1:B:165:ASP:OD1	2.19	0.72
1:D:157:LYS:NZ	1:D:165:ASP:OD1	2.19	0.72
1:D:265:LEU:HD21	1:D:269:GLU:O	1.90	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:265:LEU:CD1	1:A:269:GLU:HB3	1.82	0.71
1:C:265:LEU:HD21	1:C:269:GLU:O	1.90	0.71
1:B:376:VAL:HG12	1:B:392:VAL:HG21	1.73	0.70
1:C:376:VAL:HG12	1:C:392:VAL:HG21	1.73	0.70
1:D:376:VAL:HG12	1:D:392:VAL:HG21	1.73	0.70
1:B:265:LEU:HD21	1:B:269:GLU:O	1.90	0.70
1:A:262:GLU:CD	1:A:360:GLN:NE2	2.45	0.69
1:C:262:GLU:CD	1:C:360:GLN:NE2	2.45	0.69
1:A:157:LYS:HZ3	1:A:167:SER:N	1.89	0.69
1:A:37:ASN:HB2	1:A:39:PHE:CE2	2.23	0.69
1:A:376:VAL:HG12	1:A:392:VAL:HG21	1.73	0.69
1:C:265:LEU:CG	1:C:266:SER:H	2.00	0.68
1:B:262:GLU:CD	1:B:360:GLN:NE2	2.45	0.68
1:D:262:GLU:CD	1:D:360:GLN:NE2	2.45	0.68
1:B:121:TRP:HB2	1:B:125:ILE:HD13	1.75	0.68
1:A:246:LEU:HD13	1:A:285:ILE:HD11	1.76	0.68
1:A:121:TRP:HB2	1:A:125:ILE:HD13	1.75	0.68
1:B:37:ASN:HB2	1:B:39:PHE:CE2	2.23	0.68
1:B:246:LEU:HD13	1:B:285:ILE:HD11	1.76	0.68
1:C:37:ASN:HB2	1:C:39:PHE:CE2	2.23	0.68
1:C:121:TRP:HB2	1:C:125:ILE:HD13	1.75	0.68
1:D:37:ASN:HB2	1:D:39:PHE:CE2	2.23	0.67
1:D:157:LYS:HD2	1:D:166:ASN:HB3	1.77	0.67
1:D:246:LEU:HD13	1:D:285:ILE:HD11	1.76	0.67
1:A:157:LYS:HD2	1:A:166:ASN:HB3	1.77	0.67
1:C:157:LYS:HD2	1:C:166:ASN:HB3	1.76	0.67
1:D:121:TRP:HB2	1:D:125:ILE:HD13	1.75	0.67
1:C:246:LEU:HD13	1:C:285:ILE:HD11	1.76	0.67
1:B:157:LYS:HD2	1:B:166:ASN:HB3	1.76	0.65
1:C:157:LYS:NZ	1:C:166:ASN:H	1.87	0.65
1:B:157:LYS:HZ3	1:B:167:SER:N	1.92	0.65
1:A:160:PHE:CE1	1:A:207:LYS:HD2	2.33	0.64
1:B:160:PHE:CE1	1:B:207:LYS:HD2	2.33	0.64
1:D:160:PHE:CE1	1:D:207:LYS:HD2	2.33	0.64
1:C:157:LYS:HZ3	1:C:167:SER:N	1.94	0.63
1:C:160:PHE:CE1	1:C:207:LYS:HD2	2.33	0.63
1:D:307:VAL:HG12	1:D:307:VAL:O	1.99	0.63
1:A:307:VAL:HG12	1:A:307:VAL:O	1.99	0.63
1:A:265:LEU:CD1	1:A:269:GLU:CD	2.67	0.62
1:C:265:LEU:CD1	1:C:269:GLU:CD	2.67	0.62
1:B:307:VAL:HG12	1:B:307:VAL:O	1.99	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:307:VAL:HG12	1:C:307:VAL:O	1.99	0.62
1:D:265:LEU:CD1	1:D:269:GLU:CD	2.67	0.62
1:C:61:LEU:HD21	1:C:104:ILE:HG23	1.81	0.62
1:D:157:LYS:HZ3	1:D:167:SER:N	1.96	0.62
1:A:265:LEU:CG	1:A:266:SER:H	2.00	0.61
1:D:61:LEU:HD21	1:D:104:ILE:HG23	1.81	0.61
1:C:249:ARG:HH21	1:C:310:ARG:HB3	1.66	0.61
1:A:61:LEU:HD21	1:A:104:ILE:HG23	1.81	0.61
1:B:249:ARG:HH21	1:B:310:ARG:HB3	1.66	0.61
1:D:249:ARG:HH21	1:D:310:ARG:HB3	1.66	0.60
1:B:265:LEU:CD1	1:B:269:GLU:CD	2.67	0.60
1:D:157:LYS:NZ	1:D:167:SER:H	1.98	0.60
1:B:249:ARG:NH2	1:B:310:ARG:HB3	2.17	0.60
1:B:363:ASN:O	1:B:366:LEU:HB3	2.02	0.60
1:D:363:ASN:O	1:D:366:LEU:HB3	2.02	0.60
1:A:363:ASN:O	1:A:366:LEU:HB3	2.02	0.59
1:D:157:LYS:NZ	1:D:166:ASN:H	1.87	0.59
1:D:157:LYS:HZ3	1:D:166:ASN:N	1.99	0.59
1:A:249:ARG:HH21	1:A:310:ARG:HB3	1.66	0.59
1:A:182:LEU:O	1:A:186:ILE:HD12	2.03	0.59
1:A:249:ARG:NH2	1:A:310:ARG:HB3	2.17	0.59
1:D:182:LEU:O	1:D:186:ILE:HD12	2.03	0.59
1:D:249:ARG:NH2	1:D:310:ARG:HB3	2.17	0.59
1:C:249:ARG:NH2	1:C:310:ARG:HB3	2.17	0.58
1:C:363:ASN:O	1:C:366:LEU:HB3	2.02	0.58
1:B:182:LEU:O	1:B:186:ILE:HD12	2.03	0.58
1:C:182:LEU:O	1:C:186:ILE:HD12	2.03	0.58
1:B:61:LEU:HD21	1:B:104:ILE:HG23	1.82	0.57
1:B:157:LYS:NZ	1:B:167:SER:H	1.98	0.57
1:A:157:LYS:NZ	1:A:166:ASN:H	1.87	0.57
1:C:61:LEU:HD22	1:C:108:LEU:CD1	2.35	0.56
1:C:157:LYS:NZ	1:C:167:SER:H	1.98	0.56
1:C:157:LYS:HZ3	1:C:166:ASN:N	2.03	0.56
1:B:157:LYS:NZ	1:B:166:ASN:H	1.87	0.56
1:D:61:LEU:HD22	1:D:108:LEU:CD1	2.35	0.56
1:B:333:VAL:HA	1:B:352:ILE:HB	1.88	0.55
1:C:333:VAL:HA	1:C:352:ILE:HB	1.88	0.55
1:B:61:LEU:HD22	1:B:108:LEU:CD1	2.35	0.55
1:A:333:VAL:HA	1:A:352:ILE:HB	1.88	0.55
1:D:333:VAL:HA	1:D:352:ILE:HB	1.88	0.55
1:B:32:ALA:HB2	1:B:39:PHE:CD2	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:353:ALA:HB3	1:B:375:GLU:HA	1.90	0.54
1:A:32:ALA:HB2	1:A:39:PHE:CD2	2.42	0.54
1:D:353:ALA:HB3	1:D:375:GLU:HA	1.90	0.54
1:D:32:ALA:HB2	1:D:39:PHE:CD2	2.42	0.54
1:A:353:ALA:HB3	1:A:375:GLU:HA	1.90	0.53
1:C:32:ALA:HB2	1:C:39:PHE:CD2	2.42	0.53
1:C:353:ALA:HB3	1:C:375:GLU:HA	1.90	0.53
1:B:246:LEU:HD13	1:B:285:ILE:CD1	2.39	0.53
1:A:63:GLU:HG2	1:A:65:HIS:CE1	2.43	0.53
1:C:246:LEU:HD13	1:C:285:ILE:CD1	2.39	0.53
1:B:101:PHE:CD2	1:B:121:TRP:HZ3	2.27	0.53
1:A:61:LEU:HD22	1:A:108:LEU:CD1	2.35	0.52
1:A:365:LYS:O	1:A:369:GLU:N	2.43	0.52
1:A:101:PHE:CD2	1:A:121:TRP:HZ3	2.27	0.52
1:D:101:PHE:CD2	1:D:121:TRP:HZ3	2.27	0.52
1:D:246:LEU:HD13	1:D:285:ILE:CD1	2.39	0.52
1:C:119:PRO:O	1:C:121:TRP:N	2.43	0.52
1:C:197:LEU:HD23	1:C:221:VAL:HB	1.92	0.52
1:B:197:LEU:HD23	1:B:221:VAL:HB	1.92	0.52
1:B:365:LYS:O	1:B:369:GLU:N	2.43	0.52
1:C:101:PHE:CD2	1:C:121:TRP:HZ3	2.27	0.52
1:C:166:ASN:O	1:C:167:SER:C	2.48	0.51
1:D:166:ASN:O	1:D:167:SER:C	2.48	0.51
1:D:157:LYS:HZ2	1:D:165:ASP:HA	1.76	0.51
1:A:197:LEU:HD23	1:A:221:VAL:HB	1.92	0.51
1:D:197:LEU:HD23	1:D:221:VAL:HB	1.92	0.51
1:D:119:PRO:O	1:D:121:TRP:N	2.43	0.51
1:D:157:LYS:HZ2	1:D:165:ASP:C	2.14	0.51
1:A:246:LEU:HD13	1:A:285:ILE:CD1	2.39	0.51
1:B:265:LEU:HD23	1:B:270:LEU:CA	2.41	0.51
1:A:53:LYS:HG3	1:A:54:ASP:H	1.76	0.51
1:A:166:ASN:O	1:A:167:SER:C	2.48	0.51
1:B:53:LYS:HG3	1:B:54:ASP:H	1.76	0.51
1:A:119:PRO:O	1:A:121:TRP:N	2.43	0.50
1:B:166:ASN:O	1:B:167:SER:C	2.48	0.50
1:C:265:LEU:HD23	1:C:270:LEU:CA	2.41	0.50
1:D:122:ALA:N	1:D:123:PRO:HD2	2.27	0.50
1:B:122:ALA:N	1:B:123:PRO:HD2	2.27	0.50
1:C:122:ALA:N	1:C:123:PRO:HD2	2.27	0.50
1:D:53:LYS:HG3	1:D:54:ASP:H	1.76	0.50
1:A:122:ALA:N	1:A:123:PRO:HD2	2.27	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:365:LYS:O	1:C:369:GLU:N	2.43	0.50
1:A:265:LEU:HD23	1:A:270:LEU:CA	2.41	0.50
1:A:426:ARG:HA	1:A:429:GLU:HG2	1.93	0.50
1:C:31:LEU:HB2	1:C:39:PHE:CE1	2.47	0.50
1:B:31:LEU:HB2	1:B:39:PHE:CE1	2.46	0.50
1:D:426:ARG:HA	1:D:429:GLU:HG2	1.93	0.50
1:D:31:LEU:HB2	1:D:39:PHE:CE1	2.47	0.50
1:B:426:ARG:HA	1:B:429:GLU:HG2	1.93	0.49
1:D:365:LYS:O	1:D:369:GLU:N	2.43	0.49
1:C:53:LYS:HG3	1:C:54:ASP:H	1.76	0.49
1:D:265:LEU:HD23	1:D:270:LEU:CA	2.41	0.49
1:A:31:LEU:HB2	1:A:39:PHE:CE1	2.47	0.49
1:B:414:GLU:O	1:B:418:GLU:N	2.46	0.49
1:C:414:GLU:O	1:C:418:GLU:N	2.46	0.49
1:C:426:ARG:HA	1:C:429:GLU:HG2	1.93	0.49
1:C:157:LYS:HZ2	1:C:165:ASP:C	2.14	0.48
1:C:157:LYS:HZ2	1:C:165:ASP:HA	1.78	0.48
1:A:414:GLU:O	1:A:418:GLU:N	2.46	0.48
1:B:32:ALA:N	1:B:39:PHE:CE2	2.82	0.48
1:C:12:LEU:HD11	1:C:114:ILE:HD12	1.96	0.48
1:A:125:ILE:O	1:A:129:HIS:HD2	1.97	0.47
1:D:12:LEU:HD11	1:D:114:ILE:HD12	1.96	0.47
1:D:414:GLU:O	1:D:418:GLU:N	2.46	0.47
1:B:119:PRO:O	1:B:121:TRP:N	2.43	0.47
1:A:12:LEU:HD11	1:A:114:ILE:HD12	1.96	0.47
1:B:157:LYS:HZ3	1:B:166:ASN:N	2.07	0.47
1:D:125:ILE:O	1:D:129:HIS:HD2	1.97	0.47
1:A:93:ALA:O	1:A:96:THR:N	2.43	0.47
1:B:12:LEU:HD11	1:B:114:ILE:HD12	1.96	0.47
1:B:125:ILE:O	1:B:129:HIS:HD2	1.97	0.47
1:D:265:LEU:CG	1:D:266:SER:H	2.00	0.47
1:B:157:LYS:HZ2	1:B:165:ASP:C	2.14	0.47
1:C:32:ALA:N	1:C:39:PHE:CE2	2.83	0.47
1:B:93:ALA:O	1:B:96:THR:N	2.43	0.47
1:C:125:ILE:O	1:C:129:HIS:HD2	1.97	0.47
1:D:32:ALA:N	1:D:39:PHE:CE2	2.82	0.47
1:A:32:ALA:N	1:A:39:PHE:CE2	2.82	0.46
1:B:433:GLN:HA	1:B:436:LYS:HG2	1.98	0.46
1:C:433:GLN:HA	1:C:436:LYS:HG2	1.98	0.46
1:C:14:PRO:HB3	1:C:24:PHE:CG	2.51	0.46
1:A:14:PRO:HB3	1:A:24:PHE:CG	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:265:LEU:CG	1:A:266:SER:N	2.68	0.46
1:C:93:ALA:O	1:C:96:THR:N	2.43	0.46
1:C:157:LYS:CD	1:C:166:ASN:HB3	2.46	0.45
1:D:157:LYS:CD	1:D:166:ASN:HB3	2.46	0.45
1:B:14:PRO:HB3	1:B:24:PHE:CG	2.51	0.45
1:B:61:LEU:HD21	1:B:104:ILE:HD13	1.98	0.45
1:C:61:LEU:HD21	1:C:104:ILE:HD13	1.98	0.45
1:D:14:PRO:HB3	1:D:24:PHE:CG	2.51	0.45
1:D:47:LEU:O	1:D:50:ILE:HG22	2.17	0.45
1:A:30:GLN:O	1:A:34:ARG:HG2	2.17	0.45
1:A:433:GLN:HA	1:A:436:LYS:HG2	1.98	0.45
1:A:47:LEU:O	1:A:50:ILE:HG22	2.17	0.45
1:D:61:LEU:HD21	1:D:104:ILE:HD13	1.98	0.45
1:D:213:SER:HA	1:D:220:LEU:HD23	1.99	0.45
1:D:307:VAL:O	1:D:307:VAL:CG1	2.65	0.45
1:A:213:SER:HA	1:A:220:LEU:HD23	1.99	0.45
1:B:47:LEU:O	1:B:50:ILE:HG22	2.17	0.45
1:D:30:GLN:O	1:D:34:ARG:HG2	2.17	0.45
1:D:265:LEU:CG	1:D:266:SER:N	2.68	0.45
1:D:433:GLN:HA	1:D:436:LYS:HG2	1.98	0.44
1:B:30:GLN:O	1:B:34:ARG:HG2	2.17	0.44
1:B:213:SER:HA	1:B:220:LEU:HD23	1.99	0.44
1:C:47:LEU:O	1:C:50:ILE:HG22	2.17	0.44
1:C:265:LEU:CD2	1:C:269:GLU:HB3	2.44	0.44
1:A:332:PHE:HD2	1:A:344:SER:HB2	1.83	0.44
1:B:32:ALA:CB	1:B:39:PHE:CD2	3.01	0.44
1:C:236:ASP:O	1:C:239:THR:HG22	2.18	0.44
1:C:307:VAL:O	1:C:307:VAL:CG1	2.65	0.44
1:D:32:ALA:CB	1:D:39:PHE:CD2	3.01	0.44
1:A:61:LEU:HD21	1:A:104:ILE:HD13	1.98	0.44
1:B:157:LYS:HZ2	1:B:165:ASP:HA	1.83	0.44
1:C:30:GLN:O	1:C:34:ARG:HG2	2.17	0.44
1:C:213:SER:HA	1:C:220:LEU:HD23	1.99	0.44
1:D:157:LYS:HZ2	1:D:165:ASP:CA	2.30	0.44
1:A:265:LEU:CD2	1:A:269:GLU:HB3	2.44	0.44
1:D:236:ASP:O	1:D:239:THR:HG22	2.18	0.44
1:D:332:PHE:HD2	1:D:344:SER:HB2	1.83	0.44
1:A:157:LYS:CD	1:A:166:ASN:HB3	2.46	0.44
1:A:236:ASP:O	1:A:239:THR:HG22	2.18	0.43
1:C:32:ALA:CB	1:C:39:PHE:CD2	3.01	0.43
1:B:157:LYS:NZ	1:B:165:ASP:C	2.71	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:157:LYS:NZ	1:C:165:ASP:C	2.71	0.43
1:B:51:LYS:HD3	1:B:51:LYS:HA	1.78	0.43
1:B:157:LYS:CD	1:B:166:ASN:HB3	2.46	0.43
1:A:263:TYR:O	1:A:263:TYR:CD1	2.72	0.43
1:B:236:ASP:O	1:B:239:THR:HG22	2.18	0.43
1:D:263:TYR:O	1:D:263:TYR:CD1	2.72	0.43
1:A:32:ALA:CB	1:A:39:PHE:CD2	3.01	0.43
1:A:25:PHE:CE2	1:A:29:LYS:HD2	2.53	0.43
1:D:25:PHE:CE2	1:D:29:LYS:HD2	2.53	0.43
1:A:262:GLU:OE2	1:A:360:GLN:NE2	2.52	0.43
1:C:332:PHE:HD2	1:C:344:SER:HB2	1.83	0.43
1:A:157:LYS:NZ	1:A:165:ASP:C	2.71	0.43
1:A:306:ARG:HD2	1:A:306:ARG:HA	1.81	0.43
1:B:263:TYR:CD1	1:B:263:TYR:O	2.72	0.43
1:B:332:PHE:HD2	1:B:344:SER:HB2	1.83	0.43
1:B:262:GLU:OE2	1:B:360:GLN:NE2	2.52	0.43
1:C:25:PHE:CE2	1:C:29:LYS:HD2	2.53	0.43
1:D:262:GLU:OE2	1:D:360:GLN:NE2	2.52	0.43
1:B:307:VAL:O	1:B:307:VAL:CG1	2.65	0.42
1:C:157:LYS:HZ2	1:C:165:ASP:CA	2.32	0.42
1:C:263:TYR:O	1:C:263:TYR:CD1	2.72	0.42
1:D:157:LYS:NZ	1:D:165:ASP:C	2.71	0.42
1:D:265:LEU:HD21	1:D:269:GLU:HB3	1.94	0.42
1:B:25:PHE:CE2	1:B:29:LYS:HD2	2.53	0.42
1:C:262:GLU:OE2	1:C:360:GLN:NE2	2.52	0.42
1:D:122:ALA:HB3	1:D:123:PRO:HD3	2.02	0.42
1:A:50:ILE:HD12	1:A:50:ILE:HA	1.87	0.42
1:A:122:ALA:HB3	1:A:123:PRO:HD3	2.02	0.42
1:A:394:ARG:O	1:A:399:GLU:HB2	2.20	0.42
1:A:31:LEU:O	1:A:39:PHE:CE2	2.71	0.42
1:B:122:ALA:HB3	1:B:123:PRO:HD3	2.02	0.41
1:D:394:ARG:O	1:D:399:GLU:HB2	2.20	0.41
1:B:394:ARG:O	1:B:399:GLU:HB2	2.20	0.41
1:B:365:LYS:HA	1:B:368:ALA:HB3	2.02	0.41
1:C:31:LEU:O	1:C:39:PHE:CE2	2.71	0.41
1:C:265:LEU:HD23	1:C:270:LEU:HA	2.03	0.41
1:C:394:ARG:O	1:C:399:GLU:HB2	2.20	0.41
1:D:93:ALA:O	1:D:96:THR:N	2.43	0.41
1:A:307:VAL:O	1:A:307:VAL:CG1	2.65	0.41
1:A:365:LYS:HA	1:A:368:ALA:HB3	2.02	0.41
1:C:362:LEU:HD22	1:C:362:LEU:H	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:32:ALA:CB	1:D:39:PHE:CE2	3.04	0.41
1:C:122:ALA:HB3	1:C:123:PRO:HD3	2.02	0.41
1:D:265:LEU:HD23	1:D:270:LEU:HA	2.03	0.41
1:D:365:LYS:HA	1:D:368:ALA:HB3	2.02	0.41
1:B:265:LEU:HD23	1:B:270:LEU:HA	2.03	0.41
1:B:362:LEU:H	1:B:362:LEU:HD22	1.86	0.41
1:C:51:LYS:HA	1:C:51:LYS:HD3	1.78	0.41
1:A:32:ALA:CB	1:A:39:PHE:CE2	3.04	0.40
1:B:31:LEU:O	1:B:39:PHE:CE2	2.71	0.40
1:B:21:ILE:HD11	1:B:47:LEU:HD23	2.03	0.40
1:B:124:GLU:H	1:B:124:GLU:HG3	1.71	0.40
1:C:105:LEU:O	1:C:109:ASN:N	2.51	0.40
1:C:263:TYR:C	1:C:265:LEU:H	2.25	0.40
1:C:365:LYS:HA	1:C:368:ALA:HB3	2.02	0.40
1:D:246:LEU:HD12	1:D:254:VAL:HG21	2.03	0.40
1:D:362:LEU:HD22	1:D:362:LEU:H	1.86	0.40
1:A:21:ILE:HD11	1:A:47:LEU:HD23	2.03	0.40
1:A:246:LEU:HD12	1:A:254:VAL:HG21	2.02	0.40
1:C:122:ALA:HB3	1:C:123:PRO:CD	2.52	0.40
1:C:251:GLU:HA	1:C:328:SER:HA	2.03	0.40
1:A:122:ALA:HB3	1:A:123:PRO:CD	2.52	0.40
1:A:157:LYS:HZ2	1:A:165:ASP:C	2.15	0.40
1:A:265:LEU:HD21	1:A:269:GLU:HB3	1.94	0.40
1:B:158:TYR:HA	1:B:159:PRO:HD3	1.92	0.40
1:C:27:LEU:O	1:C:31:LEU:HG	2.22	0.40
1:C:246:LEU:HD12	1:C:254:VAL:HG21	2.02	0.40
1:D:122:ALA:HB3	1:D:123:PRO:CD	2.52	0.40
1:A:265:LEU:HD23	1:A:270:LEU:HA	2.03	0.40
1:A:362:LEU:HD22	1:A:362:LEU:H	1.86	0.40
1:D:21:ILE:HD11	1:D:47:LEU:HD23	2.03	0.40
1:D:105:LEU:O	1:D:109:ASN:N	2.51	0.40

All (27) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:64:LEU:CD1	1:D:156:GLU:OE1[1_455]	1.09	1.11
1:B:64:LEU:CD1	1:B:156:GLU:OE1[1_455]	1.10	1.10
1:A:64:LEU:CD2	1:A:156:GLU:OE1[1_655]	1.17	1.03
1:A:64:LEU:CB	1:A:156:GLU:OE2[1_655]	1.36	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:414:GLU:OE2	1:D:33:LYS:NZ[1_565]	1.39	0.81
1:C:64:LEU:CD1	1:C:156:GLU:OE1[1_655]	1.39	0.81
1:B:64:LEU:CA	1:B:156:GLU:OE2[1_455]	1.46	0.74
1:D:64:LEU:CA	1:D:156:GLU:OE2[1_455]	1.47	0.73
1:A:64:LEU:CA	1:A:156:GLU:OE2[1_655]	1.57	0.63
1:A:306:ARG:NH2	1:B:305:GLN:CB[1_654]	1.69	0.51
1:C:64:LEU:CA	1:C:156:GLU:OE2[1_655]	1.69	0.51
1:B:414:GLU:OE2	1:D:33:LYS:CE[1_565]	1.70	0.50
1:C:64:LEU:C	1:C:156:GLU:OE2[1_655]	1.72	0.48
1:B:64:LEU:CB	1:B:156:GLU:OE2[1_455]	1.75	0.45
1:D:64:LEU:CB	1:D:156:GLU:OE2[1_455]	1.77	0.43
1:C:65:HIS:N	1:C:156:GLU:OE2[1_655]	1.78	0.42
1:B:64:LEU:C	1:B:156:GLU:OE2[1_455]	1.85	0.35
1:C:64:LEU:CB	1:C:156:GLU:OE2[1_655]	1.86	0.34
1:D:64:LEU:C	1:D:156:GLU:OE2[1_455]	1.88	0.32
1:B:65:HIS:N	1:B:156:GLU:OE2[1_455]	1.97	0.23
1:D:65:HIS:N	1:D:156:GLU:OE2[1_455]	1.99	0.21
1:A:64:LEU:CG	1:A:156:GLU:OE1[1_655]	2.02	0.18
1:A:64:LEU:CB	1:A:156:GLU:CD[1_655]	2.03	0.17
1:A:64:LEU:C	1:A:156:GLU:OE2[1_655]	2.08	0.12
1:C:64:LEU:CG	1:C:156:GLU:OE1[1_655]	2.13	0.07
1:B:64:LEU:CG	1:B:156:GLU:OE1[1_455]	2.17	0.03
1:B:414:GLU:CD	1:D:33:LYS:NZ[1_565]	2.17	0.03

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	368/455 (81%)	339 (92%)	29 (8%)	0	100	100
1	B	368/455 (81%)	337 (92%)	31 (8%)	0	100	100
1	C	368/455 (81%)	337 (92%)	31 (8%)	0	100	100
1	D	368/455 (81%)	337 (92%)	31 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	1472/1820 (81%)	1350 (92%)	122 (8%)	0	100 100

There are no Ramachandran outliers to report.

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	327/396 (83%)	322 (98%)	5 (2%)	60 85
1	B	327/396 (83%)	324 (99%)	3 (1%)	75 92
1	C	327/396 (83%)	324 (99%)	3 (1%)	75 92
1	D	327/396 (83%)	324 (99%)	3 (1%)	75 92
All	All	1308/1584 (83%)	1294 (99%)	14 (1%)	70 90

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	62	VAL
1	A	64	LEU
1	A	94	PHE
1	A	201	PHE
1	A	310	ARG
1	B	94	PHE
1	B	201	PHE
1	B	310	ARG
1	C	94	PHE
1	C	201	PHE
1	C	310	ARG
1	D	94	PHE
1	D	201	PHE
1	D	310	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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, 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	378/455 (83%)	1.12	67 (17%)	4	4	30, 57, 104, 143	0
1	B	378/455 (83%)	1.57	117 (30%)	1	1	33, 63, 116, 156	0
1	C	378/455 (83%)	1.66	126 (33%)	1	1	30, 65, 112, 169	0
1	D	378/455 (83%)	1.81	139 (36%)	1	1	37, 73, 129, 157	0
All	All	1512/1820 (83%)	1.54	449 (29%)	1	1	30, 64, 118, 169	0

All (449) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	251	GLU	7.4
1	D	313	VAL	7.3
1	C	237	PRO	7.2
1	D	45	ILE	6.9
1	C	263	TYR	6.6
1	B	442	GLN	6.4
1	D	39	PHE	6.3
1	B	43	THR	6.2
1	C	63	GLU	6.1
1	C	43	THR	6.0
1	B	368	ALA	5.8
1	D	384	TYR	5.8
1	D	318	ALA	5.7
1	B	45	ILE	5.5
1	A	442	GLN	5.4
1	C	422	GLN	5.2
1	D	63	GLU	5.1
1	C	35	ASN	5.0
1	A	43	THR	5.0
1	C	382	GLY	5.0
1	D	43	THR	5.0

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Mol	Chain	Res	Type	RSRZ
1	C	45	ILE	5.0
1	A	45	ILE	4.9
1	B	54	ASP	4.9
1	B	263	TYR	4.9
1	D	240	GLU	4.9
1	C	381	ASN	4.9
1	D	288	VAL	4.8
1	D	147	GLY	4.7
1	A	161	PRO	4.6
1	D	227	VAL	4.6
1	D	194	ASP	4.6
1	A	288	VAL	4.6
1	C	442	GLN	4.5
1	D	18	HIS	4.5
1	C	309	ASP	4.5
1	D	309	ASP	4.5
1	D	376	VAL	4.4
1	B	403	GLU	4.4
1	D	304	VAL	4.4
1	A	264	PHE	4.4
1	B	39	PHE	4.3
1	D	442	GLN	4.3
1	B	19	GLY	4.3
1	D	312	LEU	4.3
1	C	236	ASP	4.2
1	C	440	ASP	4.2
1	C	356	ARG	4.1
1	C	127	SER	4.1
1	D	303	PHE	4.1
1	B	413	SER	4.0
1	C	179	MET	4.0
1	B	18	HIS	4.0
1	C	46	ASN	4.0
1	B	313	VAL	3.9
1	A	273	VAL	3.9
1	C	331	GLY	3.9
1	C	379	ASP	3.9
1	C	392	VAL	3.9
1	A	381	ASN	3.9
1	B	440	ASP	3.9
1	B	281	THR	3.8
1	D	236	ASP	3.8

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Mol	Chain	Res	Type	RSRZ
1	B	273	VAL	3.8
1	D	54	ASP	3.8
1	C	50	ILE	3.8
1	C	156	GLU	3.8
1	B	217	ASP	3.7
1	C	312	LEU	3.7
1	A	262	GLU	3.7
1	D	316	GLY	3.7
1	C	182	LEU	3.7
1	B	256	PHE	3.7
1	D	286	TRP	3.7
1	A	39	PHE	3.7
1	C	238	LYS	3.6
1	B	91	ARG	3.6
1	B	308	GLY	3.6
1	D	242	ILE	3.6
1	D	441	GLU	3.6
1	B	61	LEU	3.6
1	B	64	LEU	3.6
1	C	48	SER	3.6
1	D	264	PHE	3.6
1	B	371	GLY	3.5
1	D	317	TRP	3.5
1	B	303	PHE	3.5
1	B	317	TRP	3.5
1	B	238	LYS	3.5
1	D	44	PRO	3.5
1	A	181	LEU	3.5
1	D	277	LEU	3.5
1	D	308	GLY	3.5
1	B	237	PRO	3.5
1	B	384	TYR	3.5
1	D	239	THR	3.4
1	B	94	PHE	3.4
1	A	63	GLU	3.4
1	C	380	GLU	3.4
1	B	60	LYS	3.4
1	C	264	PHE	3.4
1	D	412	LEU	3.4
1	D	263	TYR	3.4
1	D	388	GLY	3.4
1	C	180	LYS	3.4

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Mol	Chain	Res	Type	RSRZ
1	B	312	LEU	3.4
1	B	243	ILE	3.4
1	B	284	PHE	3.4
1	C	377	VAL	3.4
1	B	280	SER	3.4
1	A	382	GLY	3.4
1	D	324	LEU	3.3
1	B	309	ASP	3.3
1	C	210	ASP	3.3
1	D	250	ALA	3.3
1	D	62	VAL	3.3
1	B	239	THR	3.3
1	C	317	TRP	3.3
1	D	8	ILE	3.3
1	C	315	GLU	3.3
1	D	371	GLY	3.3
1	C	242	ILE	3.3
1	D	155	GLY	3.3
1	D	46	ASN	3.3
1	D	397	VAL	3.3
1	C	143	SER	3.2
1	C	248	LYS	3.2
1	B	359	ASP	3.2
1	B	377	VAL	3.2
1	D	314	VAL	3.2
1	A	304	VAL	3.2
1	D	358	LEU	3.2
1	C	8	ILE	3.2
1	C	261	SER	3.2
1	C	305	GLN	3.2
1	B	265	LEU	3.2
1	B	179	MET	3.2
1	D	396	VAL	3.2
1	C	239	THR	3.2
1	D	237	PRO	3.2
1	D	307	VAL	3.1
1	C	383	LYS	3.1
1	B	156	GLU	3.1
1	D	345	MET	3.1
1	A	383	LYS	3.1
1	D	271	GLU	3.1
1	C	57	ALA	3.1

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Mol	Chain	Res	Type	RSRZ
1	C	167	SER	3.1
1	C	418	GLU	3.1
1	B	304	VAL	3.1
1	D	253	THR	3.1
1	D	156	GLU	3.1
1	B	242	ILE	3.1
1	D	417	LYS	3.0
1	A	263	TYR	3.0
1	D	332	PHE	3.0
1	B	35	ASN	3.0
1	A	379	ASP	3.0
1	C	38	VAL	3.0
1	A	237	PRO	3.0
1	B	8	ILE	3.0
1	D	323	ILE	3.0
1	D	381	ASN	3.0
1	B	367	ALA	3.0
1	D	251	GLU	3.0
1	D	321	ALA	3.0
1	D	319	PRO	3.0
1	C	55	SER	3.0
1	D	48	SER	3.0
1	D	280	SER	3.0
1	A	165	ASP	2.9
1	B	393	ILE	2.9
1	D	187	ALA	2.9
1	C	283	ASN	2.9
1	D	118	ASN	2.9
1	C	62	VAL	2.9
1	C	65	HIS	2.9
1	B	373	GLY	2.9
1	C	286	TRP	2.9
1	B	55	SER	2.9
1	D	58	SER	2.9
1	A	8	ILE	2.9
1	D	64	LEU	2.9
1	C	93	ALA	2.9
1	B	227	VAL	2.9
1	C	64	LEU	2.9
1	C	194	ASP	2.9
1	C	243	ILE	2.9
1	A	36	CYS	2.9

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Mol	Chain	Res	Type	RSRZ
1	C	240	GLU	2.9
1	C	403	GLU	2.9
1	D	262	GLU	2.9
1	B	109	ASN	2.9
1	C	160	PHE	2.8
1	B	402	GLY	2.8
1	D	246	LEU	2.8
1	A	119	PRO	2.8
1	D	320	GLN	2.8
1	B	36	CYS	2.8
1	A	16	LEU	2.8
1	B	270	LEU	2.8
1	D	275	ILE	2.8
1	B	58	SER	2.8
1	C	327	SER	2.8
1	A	254	VAL	2.8
1	D	404	VAL	2.8
1	C	404	VAL	2.8
1	B	240	GLU	2.8
1	B	251	GLU	2.8
1	A	286	TRP	2.8
1	B	252	SER	2.8
1	D	273	VAL	2.8
1	D	392	VAL	2.8
1	C	384	TYR	2.8
1	B	182	LEU	2.8
1	C	265	LEU	2.8
1	A	388	GLY	2.8
1	D	276	GLY	2.8
1	B	381	ASN	2.7
1	C	178	ASN	2.7
1	D	35	ASN	2.7
1	D	245	TRP	2.7
1	D	305	GLN	2.7
1	B	307	VAL	2.7
1	D	383	LYS	2.7
1	D	181	LEU	2.7
1	C	319	PRO	2.7
1	B	92	ASN	2.7
1	B	378	ARG	2.7
1	C	376	VAL	2.7
1	D	287	ALA	2.7

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Mol	Chain	Res	Type	RSRZ
1	D	270	LEU	2.7
1	A	279	ILE	2.7
1	B	389	ILE	2.7
1	C	36	CYS	2.7
1	D	420	GLY	2.7
1	C	97	ALA	2.7
1	C	288	VAL	2.7
1	A	182	LEU	2.7
1	C	303	PHE	2.7
1	B	379	ASP	2.7
1	B	441	GLU	2.7
1	D	95	GLU	2.7
1	D	382	GLY	2.7
1	C	398	VAL	2.7
1	D	377	VAL	2.7
1	C	148	LEU	2.7
1	D	431	LEU	2.7
1	A	240	GLU	2.7
1	D	123	PRO	2.7
1	D	356	ARG	2.6
1	C	287	ALA	2.6
1	B	283	ASN	2.6
1	B	277	LEU	2.6
1	D	21	ILE	2.6
1	D	329	THR	2.6
1	A	227	VAL	2.6
1	A	307	VAL	2.6
1	A	305	GLN	2.6
1	B	178	ASN	2.6
1	A	380	GLU	2.6
1	D	65	HIS	2.6
1	C	54	ASP	2.6
1	B	351	VAL	2.6
1	C	141	ALA	2.6
1	D	261	SER	2.6
1	B	315	GLU	2.6
1	C	60	LYS	2.6
1	C	110	PRO	2.6
1	C	164	TYR	2.6
1	A	377	VAL	2.6
1	A	265	LEU	2.6
1	D	165	ASP	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	303	PHE	2.5
1	B	400	LYS	2.5
1	C	166	ASN	2.5
1	D	419	LYS	2.5
1	C	441	GLU	2.5
1	B	392	VAL	2.5
1	B	404	VAL	2.5
1	D	344	SER	2.5
1	D	367	ALA	2.5
1	D	179	MET	2.5
1	D	378	ARG	2.5
1	B	65	HIS	2.5
1	D	348	GLY	2.5
1	D	380	GLU	2.5
1	A	313	VAL	2.5
1	D	12	LEU	2.5
1	B	340	SER	2.5
1	B	412	LEU	2.5
1	C	393	ILE	2.5
1	C	189	PHE	2.5
1	A	48	SER	2.5
1	C	260	GLY	2.5
1	A	269	GLU	2.5
1	D	36	CYS	2.5
1	D	315	GLU	2.5
1	B	376	VAL	2.5
1	B	253	THR	2.5
1	B	355	ALA	2.5
1	C	151	PHE	2.5
1	C	249	ARG	2.4
1	B	288	VAL	2.4
1	B	390	ALA	2.4
1	C	252	SER	2.4
1	D	61	LEU	2.4
1	A	441	GLU	2.4
1	A	109	ASN	2.4
1	C	400	LYS	2.4
1	D	57	ALA	2.4
1	B	123	PRO	2.4
1	C	159	PRO	2.4
1	D	162	ASP	2.4
1	C	254	VAL	2.4

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Mol	Chain	Res	Type	RSRZ
1	C	349	VAL	2.4
1	C	411	GLU	2.4
1	D	41	CYS	2.4
1	D	37	ASN	2.4
1	A	384	TYR	2.4
1	B	305	GLN	2.4
1	B	47	LEU	2.4
1	C	277	LEU	2.4
1	A	236	ASP	2.4
1	B	255	VAL	2.4
1	B	421	GLU	2.4
1	C	51	LYS	2.4
1	D	33	LYS	2.4
1	B	142	ALA	2.4
1	B	287	ALA	2.4
1	C	281	THR	2.4
1	C	322	ARG	2.4
1	A	108	LEU	2.3
1	B	236	ASP	2.3
1	C	92	ASN	2.3
1	C	109	ASN	2.3
1	C	16	LEU	2.3
1	D	398	VAL	2.3
1	C	186	ILE	2.3
1	C	410	ARG	2.3
1	C	412	LEU	2.3
1	D	180	LYS	2.3
1	B	397	VAL	2.3
1	C	147	GLY	2.3
1	C	314	VAL	2.3
1	A	284	PHE	2.3
1	D	15	PHE	2.3
1	D	52	ASP	2.3
1	C	378	ARG	2.3
1	A	31	LEU	2.3
1	D	374	MET	2.3
1	D	119	PRO	2.3
1	D	161	PRO	2.3
1	A	46	ASN	2.3
1	D	166	ASN	2.3
1	D	385	LYS	2.3
1	A	257	VAL	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	129	HIS	2.3
1	C	304	VAL	2.3
1	C	316	GLY	2.3
1	A	421	GLU	2.3
1	B	380	GLU	2.3
1	C	321	ALA	2.3
1	D	269	GLU	2.3
1	B	407	ARG	2.3
1	C	165	ASP	2.3
1	D	16	LEU	2.3
1	B	115	TYR	2.2
1	B	104	ILE	2.2
1	B	314	VAL	2.2
1	B	117	PHE	2.2
1	D	284	PHE	2.2
1	A	378	ARG	2.2
1	D	17	ALA	2.2
1	D	22	SER	2.2
1	A	44	PRO	2.2
1	A	281	THR	2.2
1	B	342	ALA	2.2
1	D	122	ALA	2.2
1	A	317	TRP	2.2
1	B	286	TRP	2.2
1	D	157	LYS	2.2
1	B	261	SER	2.2
1	B	46	ASN	2.2
1	C	259	PHE	2.2
1	D	346	LYS	2.2
1	C	44	PRO	2.2
1	B	143	SER	2.2
1	C	313	VAL	2.2
1	D	183	HIS	2.2
1	C	250	ALA	2.2
1	A	430	GLU	2.2
1	C	52	ASP	2.2
1	D	38	VAL	2.2
1	A	155	GLY	2.1
1	A	308	GLY	2.1
1	B	96	THR	2.1
1	A	356	ARG	2.1
1	C	284	PHE	2.1

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Mol	Chain	Res	Type	RSRZ
1	C	374	MET	2.1
1	A	287	ALA	2.1
1	A	385	LYS	2.1
1	B	180	LYS	2.1
1	C	435	CYS	2.1
1	A	50	ILE	2.1
1	B	254	VAL	2.1
1	D	359	ASP	2.1
1	A	266	SER	2.1
1	B	42	SER	2.1
1	D	143	SER	2.1
1	D	413	SER	2.1
1	A	18	HIS	2.1
1	C	96	THR	2.1
1	D	322	ARG	2.1
1	B	181	LEU	2.1
1	B	246	LEU	2.1
1	B	245	TRP	2.1
1	C	119	PRO	2.1
1	C	255	VAL	2.1
1	C	426	ARG	2.1
1	D	226	LEU	2.1
1	D	178	ASN	2.1
1	D	205	GLU	2.1
1	B	119	PRO	2.1
1	B	159	PRO	2.1
1	A	59	ILE	2.1
1	C	61	LEU	2.1
1	C	429	GLU	2.1
1	B	244	ASN	2.1
1	C	227	VAL	2.1
1	C	336	CYS	2.1
1	D	372	VAL	2.1
1	C	308	GLY	2.1
1	A	56	SER	2.0
1	A	343	GLU	2.0
1	D	389	ILE	2.0
1	A	179	MET	2.0
1	C	91	ARG	2.0
1	A	277	LEU	2.0
1	C	58	SER	2.0
1	B	50	ILE	2.0

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Mol	Chain	Res	Type	RSRZ
1	D	278	GLU	2.0
1	B	356	ARG	2.0
1	D	51	LYS	2.0
1	B	160	PHE	2.0
1	B	388	GLY	2.0
1	B	420	GLY	2.0
1	D	256	PHE	2.0
1	D	325	GLY	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.