



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 7, 2023 – 06:01 pm BST

PDB ID : 7QYG
Title : Structure of the transaminase TR2
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Deposited on : 2022-01-28
Resolution : 3.60 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 : 2.34
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) : 2.34

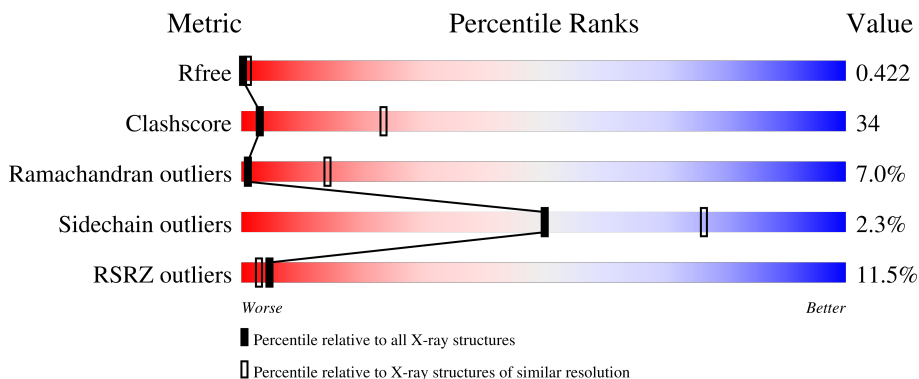
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.60 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1257 (3.70-3.50)
Clashscore	141614	1353 (3.70-3.50)
Ramachandran outliers	138981	1307 (3.70-3.50)
Sidechain outliers	138945	1307 (3.70-3.50)
RSRZ outliers	127900	1161 (3.70-3.50)

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	465	 8% 33% 46% 16%
1	B	465	 6% 38% 40% 6% 16%
1	C	465	 12% 34% 44% 6% 16%
1	D	465	 12% 38% 41% 5% 16%

2 Entry composition i

There is only 1 type of molecule in this entry. The entry contains 24079 atoms, of which 12003 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 Aminotransferase TR2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
1	A	389	6017	1917	3000	525	558	17	0	0	0
1	B	389	6005	1914	2992	524	558	17	0	0	0
1	C	391	6052	1926	3019	530	560	17	0	0	0
1	D	389	6005	1914	2992	524	558	17	0	0	0

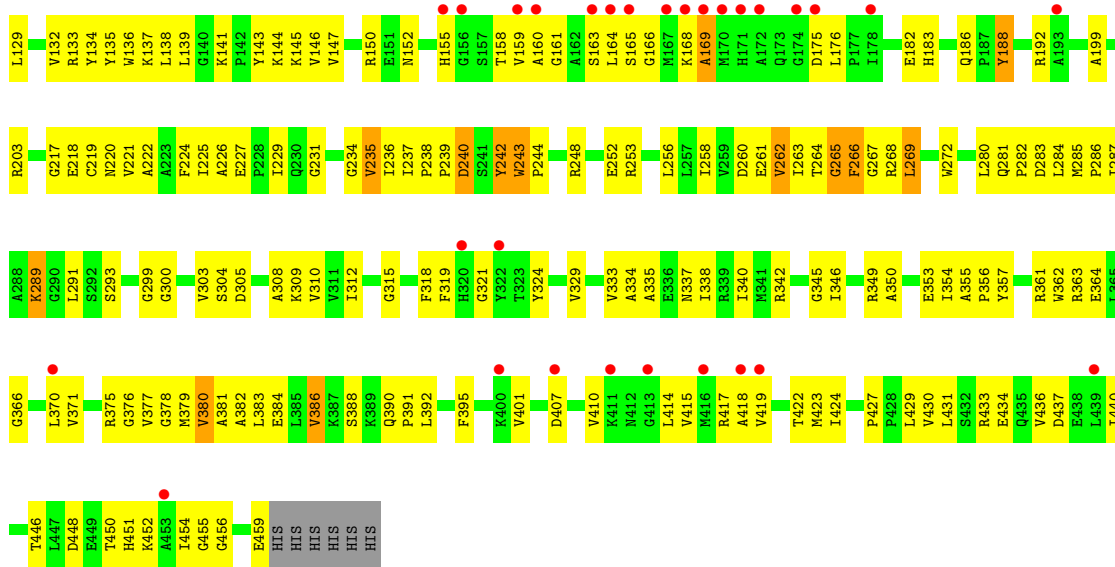
There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	458	LEU	-	expression tag	UNP A0A3G5BC54
A	459	GLU	-	expression tag	UNP A0A3G5BC54
A	460	HIS	-	expression tag	UNP A0A3G5BC54
A	461	HIS	-	expression tag	UNP A0A3G5BC54
A	462	HIS	-	expression tag	UNP A0A3G5BC54
A	463	HIS	-	expression tag	UNP A0A3G5BC54
A	464	HIS	-	expression tag	UNP A0A3G5BC54
A	465	HIS	-	expression tag	UNP A0A3G5BC54
B	458	LEU	-	expression tag	UNP A0A3G5BC54
B	459	GLU	-	expression tag	UNP A0A3G5BC54
B	460	HIS	-	expression tag	UNP A0A3G5BC54
B	461	HIS	-	expression tag	UNP A0A3G5BC54
B	462	HIS	-	expression tag	UNP A0A3G5BC54
B	463	HIS	-	expression tag	UNP A0A3G5BC54
B	464	HIS	-	expression tag	UNP A0A3G5BC54
B	465	HIS	-	expression tag	UNP A0A3G5BC54
C	458	LEU	-	expression tag	UNP A0A3G5BC54
C	459	GLU	-	expression tag	UNP A0A3G5BC54
C	460	HIS	-	expression tag	UNP A0A3G5BC54
C	461	HIS	-	expression tag	UNP A0A3G5BC54
C	462	HIS	-	expression tag	UNP A0A3G5BC54

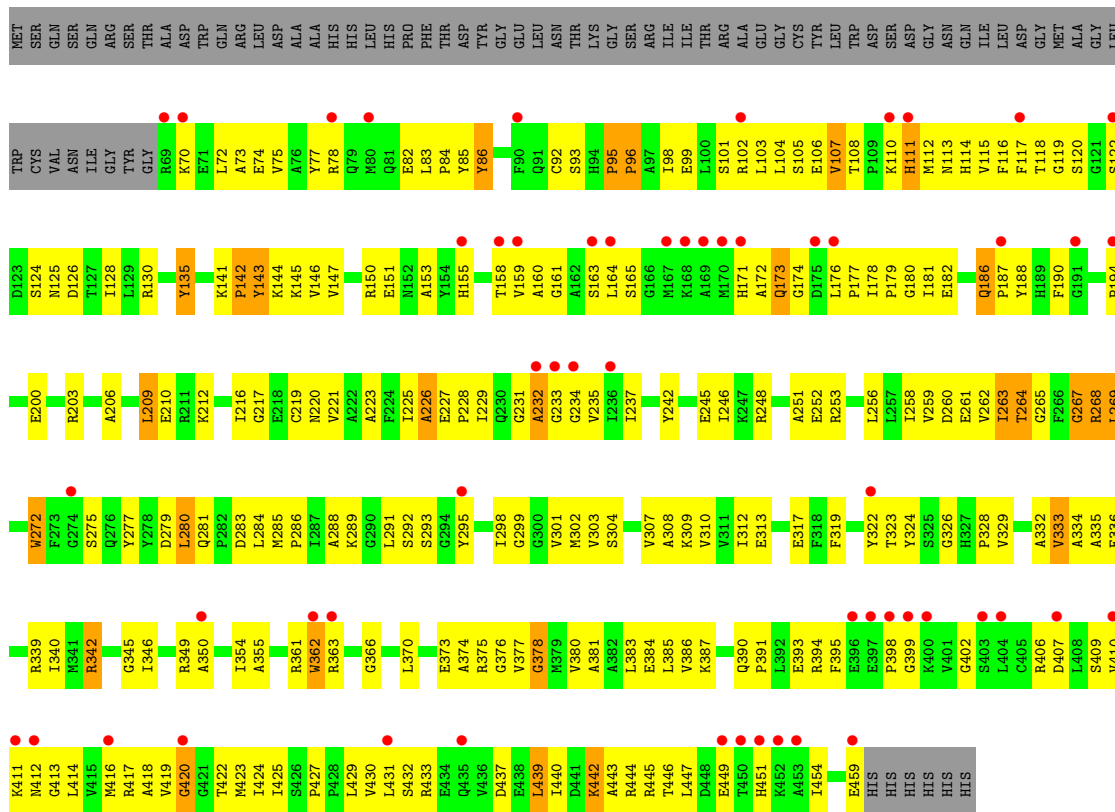
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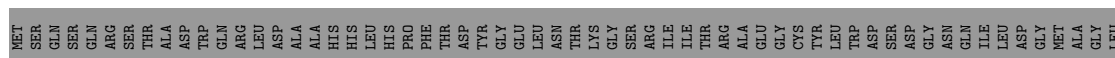
Chain	Residue	Modelled	Actual	Comment	Reference
C	463	HIS	-	expression tag	UNP A0A3G5BC54
C	464	HIS	-	expression tag	UNP A0A3G5BC54
C	465	HIS	-	expression tag	UNP A0A3G5BC54
D	458	LEU	-	expression tag	UNP A0A3G5BC54
D	459	GLU	-	expression tag	UNP A0A3G5BC54
D	460	HIS	-	expression tag	UNP A0A3G5BC54
D	461	HIS	-	expression tag	UNP A0A3G5BC54
D	462	HIS	-	expression tag	UNP A0A3G5BC54
D	463	HIS	-	expression tag	UNP A0A3G5BC54
D	464	HIS	-	expression tag	UNP A0A3G5BC54
D	465	HIS	-	expression tag	UNP A0A3G5BC54

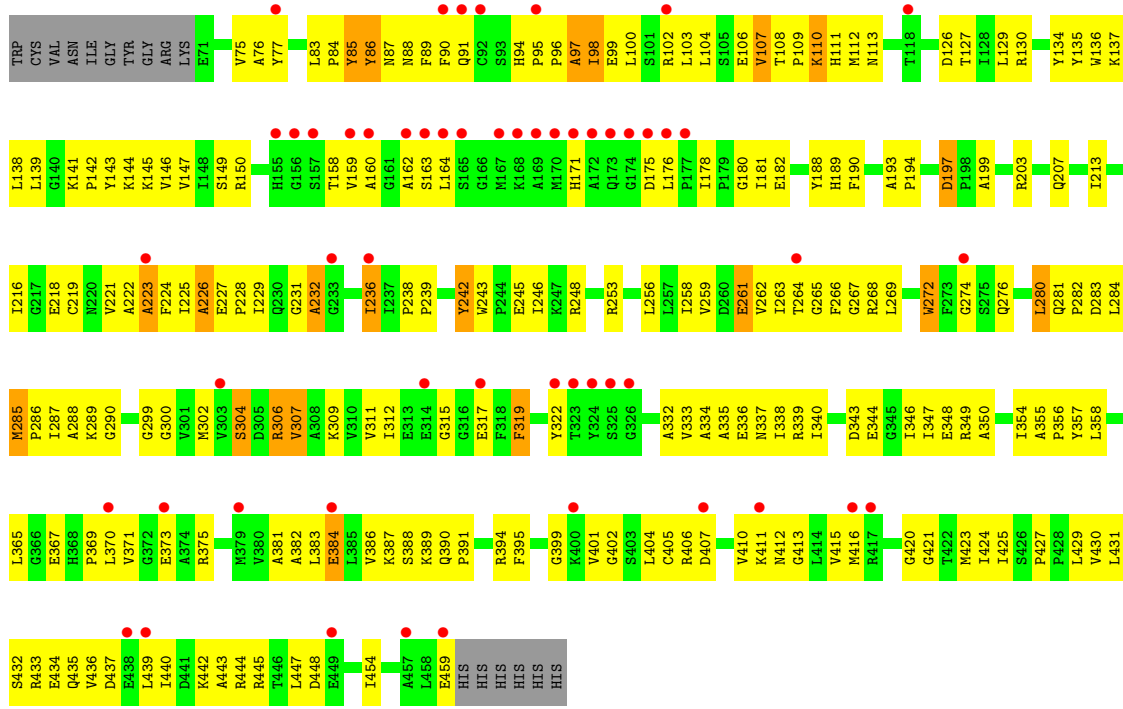


• Molecule 1: Aminotransferase TR2



• Molecule 1: Aminotransferase TR2





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	60.78Å 166.63Å 209.82Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.09 – 3.60 49.09 – 3.60	Depositor EDS
% Data completeness (in resolution range)	94.2 (49.09-3.60) 94.2 (49.09-3.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.15 (at 3.57Å)	Xtrriage
Refinement program	PHENIX 1.17	Depositor
R, R_{free}	0.345 , 0.422 0.345 , 0.422	Depositor DCC
R_{free} test set	1994 reflections (8.28%)	wwPDB-VP
Wilson B-factor (Å ²)	113.7	Xtrriage
Anisotropy	0.935	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 67.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.41$, $\langle L^2 \rangle = 0.24$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.84	EDS
Total number of atoms	24079	wwPDB-VP
Average B, all atoms (Å ²)	143.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.83% 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 [i](#)

5.1 Standard geometry [i](#)

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	0.36	0/3086	0.57	0/4176
1	B	0.37	0/3082	0.59	0/4172
1	C	0.41	1/3102 (0.0%)	0.61	1/4197 (0.0%)
1	D	0.45	5/3082 (0.2%)	0.60	2/4172 (0.0%)
All	All	0.40	6/12352 (0.0%)	0.59	3/16717 (0.0%)

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 (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	384	GLU	CD-OE1	-7.81	1.17	1.25
1	D	384	GLU	CG-CD	-6.36	1.42	1.51
1	D	261	GLU	CB-CG	-6.03	1.40	1.52
1	D	261	GLU	CD-OE1	-5.65	1.19	1.25
1	D	261	GLU	CG-CD	5.24	1.59	1.51
1	C	362	TRP	CB-CG	5.12	1.59	1.50

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	285	MET	CG-SD-CE	7.90	112.84	100.20
1	D	384	GLU	OE1-CD-OE2	-5.87	116.25	123.30
1	C	439	LEU	CA-CB-CG	5.21	127.28	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	143	TYR	Peptide

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	3017	3000	3000	209	0
1	B	3013	2992	2992	198	0
1	C	3033	3019	3018	228	0
1	D	3013	2992	2992	210	0
All	All	12076	12003	12002	826	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 34.

All (826) 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:128:ILE:HD13	1:B:258:ILE:CD1	1.66	1.25
1:B:128:ILE:HD13	1:B:258:ILE:HD11	1.15	1.09
1:D:347:ILE:HD11	1:D:348:GLU:OE2	1.51	1.09
1:D:347:ILE:CD1	1:D:348:GLU:OE2	2.03	1.06
1:B:128:ILE:CD1	1:B:258:ILE:CD1	2.35	1.05
1:A:122:SER:OG	1:B:123:ASP:OD2	1.74	1.04
1:C:385:LEU:O	1:C:394:ARG:NH1	1.89	1.04
1:C:284:LEU:HD11	1:C:307:VAL:HG11	1.46	0.97
1:B:128:ILE:CD1	1:B:258:ILE:HD12	2.02	0.87
1:C:267:GLY:O	1:C:269:LEU:N	2.08	0.87
1:B:357:TYR:OH	1:B:437:ASP:OD1	1.93	0.87
1:A:164:LEU:HD12	1:A:225:ILE:HD13	1.55	0.86
1:D:228:PRO:HG2	1:D:264:THR:HG21	1.58	0.85
1:C:413:GLY:O	1:C:442:LYS:NZ	2.09	0.85
1:D:375:ARG:NH1	1:D:384:GLU:OE2	2.09	0.83
1:C:108:THR:HG21	1:C:112:MET:O	1.79	0.83
1:C:225:ILE:HG22	1:C:258:ILE:HD11	1.60	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:225:ILE:CG2	1:D:258:ILE:HD11	2.11	0.81
1:A:214:ASP:O	1:C:143:TYR:OH	1.98	0.80
1:D:347:ILE:CD1	1:D:348:GLU:CD	2.50	0.80
1:D:97:ALA:O	1:D:100:LEU:N	2.14	0.79
1:D:434:GLU:OE1	1:D:434:GLU:N	2.14	0.79
1:A:268:ARG:NH1	1:A:426:SER:OG	2.15	0.79
1:B:110:LYS:NZ	1:B:281:GLN:OE1	2.15	0.79
1:A:135:TYR:HD2	1:A:256:LEU:HD11	1.46	0.78
1:C:106:GLU:OE1	1:C:113:ASN:ND2	2.16	0.78
1:D:373:GLU:HB3	1:D:384:GLU:OE1	1.83	0.78
1:A:91:GLN:NE2	1:A:92:CYS:O	2.17	0.78
1:C:275:SER:O	1:C:279:ASP:N	2.17	0.78
1:B:158:THR:O	1:B:161:GLY:N	2.17	0.78
1:B:235:VAL:O	1:B:237:ILE:N	2.16	0.78
1:D:142:PRO:O	1:D:145:LYS:NZ	2.16	0.77
1:D:347:ILE:HD12	1:D:348:GLU:OE2	1.84	0.77
1:B:388:SER:OG	1:B:391:PRO:O	2.03	0.77
1:B:118:THR:N	1:B:299:GLY:O	2.17	0.76
1:D:164:LEU:HD12	1:D:225:ILE:HD13	1.66	0.76
1:A:261:GLU:O	1:A:265:GLY:N	2.18	0.76
1:D:97:ALA:HB3	1:D:100:LEU:HA	1.65	0.76
1:C:120:SER:O	1:C:124:SER:OG	2.03	0.76
1:D:347:ILE:HD12	1:D:348:GLU:CD	2.06	0.76
1:D:413:GLY:O	1:D:442:LYS:NZ	2.19	0.76
1:A:82:GLU:N	1:A:82:GLU:OE1	2.19	0.75
1:C:259:VAL:HG21	1:C:280:LEU:HD11	1.69	0.75
1:D:98:ILE:HD12	1:D:99:GLU:H	1.52	0.74
1:B:87:ASN:ND2	1:B:87:ASN:O	2.20	0.74
1:C:264:THR:HG23	1:C:265:GLY:H	1.53	0.73
1:A:454:ILE:HD11	1:A:459:GLU:OE1	1.88	0.73
1:A:144:LYS:NZ	1:A:254:ASP:O	2.22	0.73
1:A:135:TYR:CD2	1:A:256:LEU:HD11	2.24	0.73
1:A:126:ASP:OD1	1:B:159:VAL:HG13	1.89	0.73
1:D:87:ASN:ND2	1:D:89:PHE:O	2.21	0.73
1:D:225:ILE:HG22	1:D:258:ILE:HD11	1.71	0.73
1:D:150:ARG:NH2	1:D:227:GLU:O	2.22	0.72
1:D:162:ALA:O	1:D:171:HIS:NE2	2.22	0.72
1:B:431:LEU:CD2	1:B:436:VAL:HG23	2.19	0.72
1:A:72:LEU:O	1:A:74:GLU:N	2.22	0.72
1:C:349:ARG:NH1	1:C:431:LEU:O	2.22	0.72
1:D:102:ARG:NH2	1:D:322:TYR:O	2.23	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:229:ILE:HD13	1:A:237:ILE:HG22	1.72	0.72
1:C:143:TYR:O	1:C:145:LYS:N	2.23	0.72
1:C:135:TYR:CD2	1:C:256:LEU:HD11	2.25	0.71
1:A:413:GLY:O	1:A:442:LYS:NZ	2.20	0.71
1:B:446:THR:O	1:B:450:THR:N	2.22	0.71
1:A:216:ILE:O	1:A:220:ASN:ND2	2.21	0.71
1:B:128:ILE:O	1:B:132:VAL:HG23	1.90	0.70
1:B:355:ALA:HB3	1:B:356:PRO:HD3	1.73	0.70
1:C:263:ILE:O	1:C:265:GLY:N	2.24	0.70
1:A:159:VAL:HG22	1:B:126:ASP:OD1	1.90	0.70
1:C:158:THR:O	1:C:161:GLY:N	2.25	0.70
1:D:432:SER:N	1:D:435:GLN:OE1	2.25	0.70
1:B:248:ARG:NH1	1:B:252:GLU:OE2	2.25	0.69
1:C:252:GLU:OE2	1:C:253:ARG:NH1	2.24	0.69
1:B:349:ARG:NH1	1:B:431:LEU:O	2.24	0.69
1:A:409:SER:O	1:A:413:GLY:N	2.25	0.68
1:C:235:VAL:CG1	1:C:237:ILE:HG23	2.24	0.68
1:C:283:ASP:C	1:C:284:LEU:HD12	2.14	0.68
1:A:135:TYR:CZ	1:A:139:LEU:HD11	2.29	0.68
1:C:135:TYR:HE1	1:C:310:VAL:HG21	1.59	0.68
1:C:160:ALA:HB2	1:D:159:VAL:HG21	1.76	0.68
1:C:370:LEU:O	1:C:386:VAL:N	2.23	0.67
1:D:213:ILE:HG23	1:D:221:VAL:HG21	1.74	0.67
1:A:257:LEU:N	1:A:283:ASP:OD1	2.24	0.67
1:D:399:GLY:N	1:D:420:GLY:O	2.28	0.67
1:C:228:PRO:C	1:C:229:ILE:HD12	2.15	0.67
1:A:235:VAL:O	1:A:375:ARG:NE	2.26	0.67
1:B:280:LEU:HD12	1:B:282:PRO:HD3	1.76	0.67
1:C:284:LEU:CD1	1:C:307:VAL:HG21	2.25	0.66
1:A:317:GLU:N	1:A:317:GLU:OE1	2.29	0.66
1:D:245:GLU:OE2	1:D:248:ARG:NH2	2.29	0.66
1:A:128:ILE:HD13	1:A:258:ILE:HD12	1.77	0.66
1:B:353:GLU:OE2	1:B:433:ARG:NH2	2.28	0.66
1:D:225:ILE:HG22	1:D:258:ILE:CD1	2.25	0.66
1:B:235:VAL:CG1	1:B:424:ILE:HD13	2.26	0.66
1:B:268:ARG:NH2	1:B:427:PRO:O	2.28	0.66
1:B:407:ASP:HA	1:B:410:VAL:HG22	1.79	0.65
1:D:225:ILE:HG21	1:D:258:ILE:HD11	1.78	0.65
1:B:182:GLU:OE1	1:B:182:GLU:N	2.29	0.65
1:A:383:LEU:HD12	1:A:383:LEU:O	1.97	0.65
1:D:259:VAL:HG21	1:D:280:LEU:HD11	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:97:ALA:O	1:D:99:GLU:N	2.29	0.64
1:D:355:ALA:HB3	1:D:356:PRO:HD3	1.78	0.64
1:B:150:ARG:NH2	1:B:227:GLU:O	2.30	0.64
1:B:370:LEU:O	1:B:386:VAL:N	2.30	0.64
1:C:283:ASP:O	1:C:284:LEU:HD12	1.97	0.64
1:A:298:ILE:HD13	1:A:330:ALA:CB	2.27	0.64
1:A:331:ALA:O	1:A:335:ALA:HB3	1.97	0.64
1:A:339:ARG:NH1	1:A:343:ASP:OD1	2.31	0.64
1:C:206:ALA:O	1:C:209:LEU:HB3	1.97	0.64
1:C:163:SER:O	1:C:181:ILE:HG21	1.98	0.64
1:D:164:LEU:HD12	1:D:225:ILE:CD1	2.28	0.64
1:B:128:ILE:HD11	1:B:284:LEU:HB3	1.80	0.63
1:D:75:VAL:HG12	1:D:268:ARG:HH21	1.63	0.63
1:A:126:ASP:OD2	1:B:158:THR:HA	1.99	0.63
1:A:331:ALA:O	1:A:335:ALA:N	2.32	0.63
1:B:135:TYR:CD2	1:B:256:LEU:HD11	2.33	0.62
1:D:444:ARG:O	1:D:448:ASP:N	2.28	0.62
1:B:305:ASP:HA	1:B:308:ALA:HB3	1.79	0.62
1:D:129:LEU:HD11	1:D:164:LEU:HD21	1.80	0.62
1:C:442:LYS:HD3	1:C:445:ARG:HH22	1.62	0.62
1:C:291:LEU:HD23	1:C:298:ILE:CG2	2.30	0.62
1:D:203:ARG:O	1:D:207:GLN:N	2.27	0.62
1:A:225:ILE:HG22	1:A:258:ILE:HD11	1.81	0.62
1:A:135:TYR:CE1	1:A:139:LEU:HD11	2.35	0.62
1:B:243:TRP:CE3	1:B:280:LEU:HD22	2.35	0.62
1:C:309:LYS:NZ	1:C:313:GLU:OE1	2.31	0.62
1:B:237:ILE:HD11	1:B:375:ARG:HB2	1.82	0.61
1:C:268:ARG:NH1	1:C:427:PRO:O	2.33	0.61
1:D:89:PHE:HB3	1:D:98:ILE:HG21	1.81	0.61
1:B:431:LEU:HD21	1:B:436:VAL:HG23	1.82	0.61
1:A:92:CYS:HG	1:A:93:SER:HG	1.49	0.61
1:C:234:GLY:N	1:C:419:VAL:HG21	2.15	0.61
1:C:263:ILE:HG22	1:C:264:THR:H	1.66	0.61
1:A:159:VAL:HG13	1:B:126:ASP:CG	2.21	0.61
1:D:261:GLU:O	1:D:265:GLY:N	2.34	0.61
1:A:152:ASN:N	1:A:166:GLY:O	2.34	0.61
1:B:243:TRP:CZ3	1:B:280:LEU:HD22	2.35	0.61
1:D:317:GLU:OE1	1:D:317:GLU:N	2.33	0.61
1:D:225:ILE:HG22	1:D:258:ILE:CG1	2.31	0.60
1:D:261:GLU:OE1	1:D:264:THR:HG23	2.01	0.60
1:C:75:VAL:HG12	1:C:75:VAL:O	2.02	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:163:SER:OG	1:C:176:LEU:HD23	2.02	0.60
1:D:107:VAL:HG13	1:D:108:THR:H	1.66	0.60
1:D:375:ARG:NH2	1:D:384:GLU:OE2	2.34	0.60
1:B:107:VAL:HG13	1:B:107:VAL:O	2.01	0.60
1:B:229:ILE:HG12	1:B:238:PRO:HD2	1.83	0.60
1:B:363:ARG:NH2	1:B:376:GLY:O	2.26	0.60
1:C:262:VAL:HG13	1:C:263:ILE:H	1.66	0.60
1:A:102:ARG:NH1	1:A:322:TYR:O	2.34	0.60
1:A:159:VAL:HG13	1:B:126:ASP:OD2	2.01	0.60
1:D:222:ALA:O	1:D:223:ALA:HB2	2.02	0.59
1:D:381:ALA:O	1:D:424:ILE:HD12	2.02	0.59
1:B:376:GLY:O	1:B:377:VAL:HG23	2.02	0.59
1:A:288:ALA:O	1:A:290:GLY:N	2.36	0.59
1:B:242:TYR:O	1:B:243:TRP:HB2	2.02	0.59
1:C:336:GLU:O	1:C:340:ILE:N	2.35	0.59
1:B:350:ALA:O	1:B:355:ALA:HB2	2.02	0.59
1:C:261:GLU:HG3	1:C:285:MET:HE2	1.84	0.59
1:A:280:LEU:HD12	1:A:282:PRO:HD3	1.85	0.59
1:B:414:LEU:HD12	1:B:415:VAL:H	1.68	0.59
1:C:216:ILE:O	1:C:220:ASN:ND2	2.36	0.59
1:D:107:VAL:HG22	1:D:108:THR:N	2.18	0.59
1:A:363:ARG:NH2	1:A:376:GLY:O	2.32	0.58
1:B:146:VAL:HB	1:B:221:VAL:HA	1.83	0.58
1:D:386:VAL:HA	1:D:394:ARG:HD2	1.85	0.58
1:C:120:SER:O	1:C:124:SER:N	2.36	0.58
1:A:291:LEU:O	1:A:337:ASN:ND2	2.34	0.58
1:C:200:GLU:O	1:C:203:ARG:N	2.36	0.58
1:C:329:VAL:O	1:C:333:VAL:HG23	2.02	0.58
1:A:219:CYS:SG	1:C:219:CYS:HB3	2.43	0.58
1:B:234:GLY:N	1:B:419:VAL:HG21	2.19	0.58
1:C:259:VAL:HG21	1:C:280:LEU:CD1	2.31	0.58
1:D:407:ASP:HA	1:D:410:VAL:HG22	1.85	0.58
1:B:163:SER:OG	1:B:176:LEU:HD22	2.03	0.58
1:A:417:ARG:O	1:A:424:ILE:HG22	2.04	0.58
1:D:375:ARG:HH12	1:D:384:GLU:CD	2.07	0.58
1:C:363:ARG:HA	1:C:374:ALA:HB1	1.86	0.58
1:A:223:ALA:HB2	1:A:256:LEU:HB2	1.85	0.58
1:A:260:ASP:HA	1:A:286:PRO:HD2	1.85	0.58
1:A:394:ARG:HA	1:A:394:ARG:HH11	1.68	0.58
1:B:150:ARG:CZ	1:B:226:ALA:HB1	2.33	0.58
1:C:206:ALA:HB3	1:C:245:GLU:OE1	2.04	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:238:PRO:HB2	1:A:242:TYR:HB3	1.86	0.58
1:C:370:LEU:O	1:C:386:VAL:HG22	2.04	0.58
1:D:108:THR:O	1:D:276:GLN:NE2	2.37	0.58
1:A:312:ILE:O	1:A:314:GLU:N	2.37	0.57
1:D:269:LEU:HD12	1:D:274:GLY:HA2	1.85	0.57
1:C:416:MET:CE	1:C:425:ILE:HD12	2.33	0.57
1:D:106:GLU:OE2	1:D:110:LYS:N	2.37	0.57
1:D:143:TYR:HD1	1:D:219:CYS:O	1.87	0.57
1:C:95:PRO:CB	1:C:96:PRO:CD	2.82	0.57
1:A:87:ASN:O	1:A:88:ASN:ND2	2.37	0.57
1:A:126:ASP:HB2	1:A:158:THR:HG21	1.84	0.57
1:A:225:ILE:HG22	1:A:258:ILE:CD1	2.34	0.57
1:D:225:ILE:HG22	1:D:258:ILE:HG12	1.86	0.57
1:C:107:VAL:HG21	1:C:272:TRP:CE2	2.39	0.57
1:D:399:GLY:HA2	1:D:420:GLY:HA2	1.87	0.57
1:D:424:ILE:HD12	1:D:425:ILE:H	1.68	0.57
1:B:94:HIS:CE1	1:B:324:TYR:HH	2.22	0.57
1:B:118:THR:HG21	1:B:124:SER:HA	1.86	0.57
1:B:118:THR:O	1:B:299:GLY:N	2.38	0.57
1:C:102:ARG:C	1:C:103:LEU:HD23	2.25	0.57
1:C:118:THR:N	1:C:299:GLY:O	2.32	0.57
1:C:319:PHE:O	1:C:323:THR:OG1	2.21	0.57
1:C:417:ARG:HB2	1:C:424:ILE:HG23	1.87	0.57
1:A:217:GLY:O	1:A:220:ASN:N	2.24	0.56
1:B:82:GLU:OE1	1:B:82:GLU:N	2.37	0.56
1:C:108:THR:OG1	1:C:302:MET:SD	2.51	0.56
1:D:76:ALA:HA	1:D:429:LEU:H	1.69	0.56
1:A:225:ILE:CG2	1:A:258:ILE:HD11	2.34	0.56
1:D:150:ARG:CZ	1:D:226:ALA:HB1	2.34	0.56
1:D:258:ILE:HG22	1:D:284:LEU:HB2	1.88	0.56
1:D:339:ARG:NH1	1:D:343:ASP:OD1	2.38	0.56
1:A:235:VAL:O	1:A:375:ARG:NH2	2.39	0.56
1:D:150:ARG:NE	1:D:226:ALA:HB1	2.20	0.56
1:D:433:ARG:O	1:D:436:VAL:HB	2.06	0.56
1:A:204:GLN:O	1:A:207:GLN:N	2.39	0.56
1:D:258:ILE:HG22	1:D:284:LEU:HD13	1.86	0.56
1:C:233:GLY:C	1:C:419:VAL:HG21	2.25	0.56
1:A:371:VAL:HG22	1:A:383:LEU:HD13	1.87	0.56
1:D:98:ILE:HD12	1:D:99:GLU:N	2.20	0.56
1:A:185:GLU:OE1	1:A:192:ARG:NE	2.39	0.56
1:C:412:ASN:OD1	1:C:445:ARG:NH2	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:180:GLY:O	1:C:181:ILE:HD13	2.06	0.55
1:C:407:ASP:HA	1:C:410:VAL:HG22	1.87	0.55
1:D:443:ALA:O	1:D:447:LEU:N	2.38	0.55
1:B:381:ALA:O	1:B:424:ILE:HD12	2.05	0.55
1:C:231:GLY:O	1:C:232:ALA:CB	2.53	0.55
1:C:443:ALA:O	1:C:447:LEU:N	2.39	0.55
1:C:422:THR:O	1:C:422:THR:OG1	2.24	0.55
1:D:108:THR:N	1:D:109:PRO:HD3	2.20	0.55
1:C:164:LEU:HD12	1:C:225:ILE:HD13	1.88	0.55
1:C:182:GLU:N	1:C:182:GLU:OE1	2.40	0.55
1:D:258:ILE:HA	1:D:284:LEU:O	2.07	0.55
1:A:331:ALA:O	1:A:335:ALA:CB	2.55	0.55
1:C:122:SER:O	1:C:158:THR:OG1	2.24	0.55
1:C:390:GLN:HB2	1:C:391:PRO:HD3	1.89	0.55
1:C:235:VAL:HG23	1:C:424:ILE:HD13	1.88	0.55
1:D:375:ARG:CZ	1:D:384:GLU:OE2	2.55	0.55
1:B:224:PHE:CZ	1:B:226:ALA:HB2	2.42	0.54
1:D:137:LYS:HG3	1:D:142:PRO:HB3	1.88	0.54
1:C:125:ASN:ND2	1:C:155:HIS:O	2.39	0.54
1:A:349:ARG:NH1	1:A:431:LEU:O	2.41	0.54
1:A:83:LEU:HB3	1:A:84:PRO:HD2	1.89	0.54
1:B:88:ASN:CG	1:B:89:PHE:H	2.10	0.54
1:B:100:LEU:O	1:B:101:SER:OG	2.25	0.54
1:C:291:LEU:HD23	1:C:298:ILE:HG21	1.89	0.54
1:C:112:MET:O	1:C:113:ASN:ND2	2.41	0.54
1:D:106:GLU:HG3	1:D:113:ASN:HA	1.90	0.54
1:D:332:ALA:HA	1:D:335:ALA:HB3	1.89	0.54
1:A:215:GLU:HA	1:C:143:TYR:OH	2.08	0.54
1:B:217:GLY:O	1:B:220:ASN:N	2.39	0.54
1:B:98:ILE:O	1:B:100:LEU:N	2.42	0.53
1:D:231:GLY:O	1:D:232:ALA:CB	2.56	0.53
1:A:264:THR:HG23	1:A:269:LEU:HD13	1.90	0.53
1:C:150:ARG:NH2	1:C:226:ALA:HB1	2.22	0.53
1:B:100:LEU:O	1:B:101:SER:CB	2.56	0.53
1:B:128:ILE:CG1	1:B:258:ILE:HD12	2.39	0.53
1:A:327:HIS:ND1	1:A:328:PRO:HD2	2.22	0.53
1:A:370:LEU:O	1:A:385:LEU:HA	2.08	0.53
1:D:96:PRO:O	1:D:98:ILE:N	2.35	0.53
1:A:262:VAL:HG13	1:A:263:ILE:N	2.23	0.53
1:B:382:ALA:HA	1:B:423:MET:O	2.08	0.53
1:D:287:ILE:HG13	1:D:300:GLY:HA3	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:103:LEU:C	1:A:104:LEU:HD12	2.29	0.53
1:A:329:VAL:O	1:A:333:VAL:HG23	2.09	0.53
1:D:228:PRO:CG	1:D:264:THR:HG21	2.36	0.53
1:A:107:VAL:HG13	1:A:107:VAL:O	2.09	0.53
1:A:190:PHE:CE1	1:A:373:GLU:HB2	2.43	0.53
1:B:265:GLY:O	1:B:267:GLY:N	2.42	0.53
1:C:235:VAL:HB	1:C:375:ARG:HE	1.74	0.53
1:C:135:TYR:CE1	1:C:310:VAL:HG21	2.44	0.53
1:C:260:ASP:CG	1:C:262:VAL:HG12	2.29	0.53
1:A:235:VAL:HG13	1:A:375:ARG:HE	1.74	0.52
1:B:219:CYS:HB2	1:D:219:CYS:SG	2.49	0.52
1:D:107:VAL:HG21	1:D:272:TRP:CE2	2.43	0.52
1:B:269:LEU:HA	1:B:378:GLY:HA3	1.90	0.52
1:C:355:ALA:HB1	1:C:378:GLY:O	2.09	0.52
1:A:158:THR:O	1:A:161:GLY:N	2.42	0.52
1:B:145:LYS:HE2	1:B:145:LYS:HA	1.90	0.52
1:D:135:TYR:CD2	1:D:256:LEU:HD11	2.45	0.52
1:A:415:VAL:O	1:A:415:VAL:HG13	2.08	0.52
1:B:361:ARG:CZ	1:B:440:ILE:HD13	2.39	0.52
1:C:223:ALA:HB2	1:C:256:LEU:HB2	1.92	0.52
1:D:203:ARG:HH12	1:D:248:ARG:HE	1.57	0.52
1:D:369:PRO:HA	1:D:389:LYS:HB2	1.92	0.52
1:A:70:LYS:HD2	1:A:415:VAL:HG12	1.91	0.52
1:B:168:LYS:O	1:B:169:ALA:HB3	2.10	0.52
1:D:349:ARG:NH1	1:D:430:VAL:O	2.43	0.52
1:A:182:GLU:N	1:A:182:GLU:OE1	2.42	0.52
1:A:211:ARG:O	1:A:215:GLU:N	2.41	0.52
1:B:186:GLN:HG3	1:B:188:TYR:HB2	1.91	0.52
1:D:350:ALA:O	1:D:355:ALA:HB2	2.10	0.52
1:D:367:GLU:O	1:D:369:PRO:HD3	2.10	0.52
1:B:357:TYR:CD2	1:B:436:VAL:HG11	2.45	0.51
1:B:371:VAL:HA	1:B:384:GLU:O	2.09	0.51
1:D:402:GLY:O	1:D:405:CYS:N	2.40	0.51
1:A:122:SER:OG	1:A:123:ASP:N	2.43	0.51
1:B:128:ILE:CD1	1:B:258:ILE:CG1	2.88	0.51
1:C:141:LYS:O	1:C:143:TYR:N	2.38	0.51
1:C:350:ALA:HA	1:C:354:ILE:HG22	1.92	0.51
1:A:98:ILE:HG23	1:A:99:GLU:N	2.25	0.51
1:B:417:ARG:HB3	1:B:424:ILE:CG2	2.40	0.51
1:C:146:VAL:HG22	1:C:147:VAL:N	2.26	0.51
1:C:284:LEU:HD11	1:C:307:VAL:HG21	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:441:ASP:O	1:A:445:ARG:N	2.27	0.51
1:D:103:LEU:C	1:D:104:LEU:HD23	2.31	0.51
1:A:116:PHE:CE2	1:A:321:GLY:HA3	2.46	0.51
1:C:122:SER:C	1:C:158:THR:HG1	2.13	0.51
1:D:261:GLU:HG3	1:D:285:MET:CE	2.41	0.51
1:D:347:ILE:HG13	1:D:348:GLU:N	2.26	0.51
1:A:77:TYR:OH	1:A:340:ILE:O	2.28	0.51
1:A:443:ALA:O	1:A:447:LEU:N	2.44	0.51
1:B:86:TYR:O	1:B:88:ASN:N	2.44	0.51
1:C:229:ILE:HG21	1:C:235:VAL:HG13	1.93	0.51
1:C:269:LEU:HA	1:C:378:GLY:HA3	1.92	0.51
1:C:440:ILE:HG23	1:C:444:ARG:NH2	2.26	0.51
1:D:388:SER:OG	1:D:391:PRO:O	2.29	0.51
1:C:227:GLU:OE1	1:C:263:ILE:HD12	2.12	0.51
1:A:158:THR:O	1:A:162:ALA:N	2.40	0.50
1:B:110:LYS:HE2	1:B:111:HIS:ND1	2.26	0.50
1:B:266:PHE:CZ	1:B:291:LEU:HD12	2.46	0.50
1:D:285:MET:HG2	1:D:302:MET:HB3	1.93	0.50
1:D:262:VAL:HG23	1:D:288:ALA:HB3	1.94	0.50
1:A:311:VAL:O	1:A:315:GLY:HA2	2.12	0.50
1:B:370:LEU:O	1:B:386:VAL:HG22	2.12	0.50
1:C:292:SER:O	1:C:295:TYR:HB2	2.12	0.50
1:D:288:ALA:O	1:D:290:GLY:N	2.44	0.50
1:D:349:ARG:O	1:D:354:ILE:HG22	2.12	0.50
1:D:425:ILE:HG12	1:D:427:PRO:HG3	1.93	0.50
1:D:338:ILE:HD12	1:D:339:ARG:N	2.26	0.50
1:B:143:TYR:HE2	1:B:219:CYS:HB2	1.76	0.50
1:B:268:ARG:HB2	1:B:269:LEU:HD12	1.93	0.50
1:C:177:PRO:HB3	1:C:181:ILE:HB	1.94	0.50
1:D:283:ASP:C	1:D:284:LEU:HD12	2.32	0.50
1:A:133:ARG:NE	1:A:145:LYS:O	2.44	0.50
1:A:149:SER:O	1:A:184:ILE:HG12	2.11	0.50
1:B:334:ALA:O	1:B:337:ASN:N	2.45	0.50
1:B:350:ALA:HA	1:B:354:ILE:HG22	1.94	0.50
1:B:390:GLN:HB3	1:B:391:PRO:CD	2.42	0.50
1:B:434:GLU:OE1	1:B:434:GLU:N	2.43	0.50
1:A:112:MET:HE2	1:A:302:MET:HG2	1.94	0.50
1:A:355:ALA:HB3	1:A:356:PRO:HD3	1.93	0.50
1:C:416:MET:HE3	1:C:425:ILE:HD12	1.93	0.50
1:D:76:ALA:O	1:D:430:VAL:HG13	2.11	0.50
1:D:243:TRP:CZ3	1:D:280:LEU:HD13	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:225:ILE:HG22	1:A:258:ILE:HG12	1.94	0.49
1:A:414:LEU:HD21	1:A:439:LEU:HB2	1.94	0.49
1:B:422:THR:HG23	1:B:422:THR:O	2.12	0.49
1:C:284:LEU:HD11	1:C:307:VAL:CG1	2.30	0.49
1:D:437:ASP:HA	1:D:440:ILE:HD12	1.92	0.49
1:B:168:LYS:O	1:B:169:ALA:CB	2.61	0.49
1:D:225:ILE:O	1:D:226:ALA:HB2	2.12	0.49
1:A:261:GLU:O	1:A:265:GLY:CA	2.60	0.49
1:B:199:ALA:O	1:B:203:ARG:HG2	2.12	0.49
1:B:382:ALA:HB2	1:B:424:ILE:HA	1.94	0.49
1:C:210:GLU:OE2	1:C:253:ARG:NH1	2.46	0.49
1:C:258:ILE:HG22	1:C:284:LEU:HB2	1.94	0.49
1:B:235:VAL:HG13	1:B:424:ILE:HD13	1.92	0.49
1:B:258:ILE:HA	1:B:284:LEU:O	2.12	0.49
1:B:267:GLY:O	1:B:429:LEU:HD11	2.13	0.49
1:C:77:TYR:CD2	1:C:430:VAL:HG11	2.47	0.49
1:D:283:ASP:HA	1:D:304:SER:OG	2.12	0.49
1:D:357:TYR:CD2	1:D:433:ARG:HD3	2.47	0.49
1:A:109:PRO:HB2	1:A:112:MET:HB2	1.95	0.49
1:D:287:ILE:O	1:D:300:GLY:N	2.34	0.49
1:C:107:VAL:HG21	1:C:272:TRP:CZ2	2.48	0.49
1:C:386:VAL:HG12	1:C:393:GLU:O	2.12	0.49
1:A:406:ARG:HG3	1:A:416:MET:O	2.13	0.49
1:B:109:PRO:HB2	1:B:112:MET:HB2	1.94	0.49
1:B:361:ARG:HH12	1:B:440:ILE:HG21	1.78	0.49
1:C:151:GLU:O	1:C:186:GLN:HG2	2.13	0.49
1:C:229:ILE:HD12	1:C:229:ILE:N	2.28	0.48
1:C:439:LEU:O	1:C:439:LEU:HD12	2.13	0.48
1:A:225:ILE:O	1:A:226:ALA:HB2	2.13	0.48
1:A:285:MET:O	1:A:302:MET:N	2.45	0.48
1:B:94:HIS:CE1	1:B:324:TYR:OH	2.66	0.48
1:A:199:ALA:HA	1:A:241:SER:OG	2.13	0.48
1:B:283:ASP:HA	1:B:304:SER:OG	2.12	0.48
1:C:103:LEU:HD23	1:C:103:LEU:N	2.28	0.48
1:C:110:LYS:O	1:C:111:HIS:HB3	2.13	0.48
1:C:336:GLU:HG3	1:C:340:ILE:HD13	1.94	0.48
1:C:370:LEU:HD23	1:C:386:VAL:O	2.12	0.48
1:C:414:LEU:CD2	1:C:439:LEU:HB2	2.43	0.48
1:D:126:ASP:HA	1:D:160:ALA:HB3	1.94	0.48
1:D:334:ALA:HA	1:D:337:ASN:HB2	1.95	0.48
1:C:142:PRO:HA	1:C:145:LYS:CE	2.43	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:259:VAL:O	1:C:286:PRO:HD2	2.12	0.48
1:B:104:LEU:N	1:B:104:LEU:HD12	2.29	0.48
1:B:128:ILE:HG12	1:B:258:ILE:HD12	1.95	0.48
1:C:267:GLY:C	1:C:269:LEU:H	2.16	0.48
1:D:259:VAL:HG21	1:D:280:LEU:CD1	2.43	0.48
1:B:76:ALA:O	1:B:77:TYR:HB2	2.14	0.48
1:C:104:LEU:N	1:C:104:LEU:HD12	2.29	0.48
1:C:225:ILE:O	1:C:226:ALA:HB2	2.13	0.48
1:D:163:SER:O	1:D:181:ILE:HG21	2.14	0.48
1:B:242:TYR:C	1:B:244:PRO:HD2	2.33	0.48
1:B:287:ILE:HG13	1:B:300:GLY:HA3	1.96	0.48
1:B:308:ALA:O	1:B:310:VAL:N	2.47	0.48
1:C:143:TYR:C	1:C:145:LYS:HG2	2.34	0.48
1:C:425:ILE:CD1	1:C:439:LEU:HD13	2.43	0.48
1:C:446:THR:O	1:C:446:THR:HG22	2.14	0.48
1:A:118:THR:N	1:A:299:GLY:O	2.40	0.48
1:A:237:ILE:HD13	1:A:375:ARG:HB2	1.95	0.48
1:B:83:LEU:HB3	1:B:84:PRO:HD2	1.94	0.48
1:B:102:ARG:HB2	1:B:117:PHE:CE2	2.49	0.48
1:B:107:VAL:O	1:B:108:THR:OG1	2.25	0.48
1:C:444:ARG:HG3	1:C:444:ARG:HH11	1.79	0.48
1:A:75:VAL:O	1:A:429:LEU:HG	2.14	0.47
1:B:108:THR:N	1:B:109:PRO:CD	2.77	0.47
1:A:225:ILE:HG22	1:A:258:ILE:CG1	2.44	0.47
1:A:410:VAL:HG23	1:A:411:LYS:N	2.29	0.47
1:D:99:GLU:C	1:D:100:LEU:HD12	2.34	0.47
1:D:307:VAL:O	1:D:311:VAL:HG23	2.14	0.47
1:D:333:VAL:O	1:D:336:GLU:N	2.47	0.47
1:A:350:ALA:HA	1:A:354:ILE:HG22	1.96	0.47
1:A:371:VAL:HG13	1:A:383:LEU:HD13	1.95	0.47
1:C:141:LYS:C	1:C:143:TYR:H	2.16	0.47
1:D:111:HIS:NE2	1:D:281:GLN:HB3	2.29	0.47
1:D:365:LEU:N	1:D:365:LEU:HD23	2.29	0.47
1:A:414:LEU:HD12	1:A:415:VAL:H	1.79	0.47
1:B:175:ASP:O	1:B:176:LEU:HD23	2.14	0.47
1:D:231:GLY:O	1:D:232:ALA:HB2	2.14	0.47
1:B:78:ARG:HG3	1:B:79:GLN:OE1	2.13	0.47
1:B:417:ARG:O	1:B:424:ILE:HG22	2.14	0.47
1:C:77:TYR:HD2	1:C:430:VAL:HG11	1.79	0.47
1:C:128:ILE:HD13	1:C:258:ILE:HD12	1.95	0.47
1:C:394:ARG:NH1	1:C:395:PHE:H	2.12	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:394:ARG:NH2	1:C:398:PRO:HA	2.28	0.47
1:D:340:ILE:HG23	1:D:344:GLU:OE2	2.14	0.47
1:D:355:ALA:O	1:D:358:LEU:N	2.47	0.47
1:A:405:CYS:O	1:A:409:SER:N	2.47	0.47
1:B:132:VAL:O	1:B:135:TYR:HB3	2.15	0.47
1:B:133:ARG:NE	1:B:145:LYS:O	2.40	0.47
1:C:75:VAL:O	1:C:75:VAL:CG1	2.62	0.47
1:C:233:GLY:CA	1:C:419:VAL:HG21	2.44	0.47
1:C:346:ILE:HD11	1:C:430:VAL:HG12	1.96	0.47
1:D:268:ARG:NH1	1:D:427:PRO:O	2.46	0.47
1:D:399:GLY:HA2	1:D:420:GLY:CA	2.43	0.47
1:A:312:ILE:HG23	1:A:319:PHE:CE1	2.50	0.47
1:B:103:LEU:N	1:B:103:LEU:HD22	2.29	0.47
1:B:235:VAL:HG23	1:B:375:ARG:NE	2.29	0.47
1:C:284:LEU:HD12	1:C:307:VAL:HG21	1.95	0.47
1:D:108:THR:HB	1:D:276:GLN:HE22	1.79	0.47
1:D:222:ALA:O	1:D:223:ALA:CB	2.62	0.47
1:D:262:VAL:HG13	1:D:263:ILE:N	2.29	0.47
1:D:442:LYS:HD3	1:D:445:ARG:NH2	2.30	0.47
1:B:240:ASP:OD1	1:B:240:ASP:N	2.47	0.47
1:B:448:ASP:O	1:B:452:LYS:HD3	2.15	0.47
1:C:83:LEU:O	1:C:85:TYR:N	2.46	0.47
1:D:387:LYS:HE2	1:D:459:GLU:HB3	1.97	0.47
1:A:213:ILE:HG21	1:A:253:ARG:CD	2.44	0.47
1:A:375:ARG:NH1	1:A:384:GLU:OE1	2.47	0.47
1:B:83:LEU:O	1:B:85:TYR:N	2.42	0.47
1:B:87:ASN:O	1:B:87:ASN:CG	2.54	0.47
1:A:286:PRO:HB3	1:A:301:VAL:HG22	1.97	0.47
1:C:342:ARG:O	1:C:345:GLY:N	2.48	0.47
1:C:402:GLY:HA3	1:C:420:GLY:O	2.15	0.47
1:D:110:LYS:C	1:D:112:MET:H	2.19	0.47
1:D:370:LEU:HD23	1:D:386:VAL:O	2.14	0.47
1:B:128:ILE:HD11	1:B:258:ILE:HG13	1.98	0.46
1:D:94:HIS:N	1:D:95:PRO:HD2	2.30	0.46
1:D:141:LYS:HD3	1:D:141:LYS:N	2.31	0.46
1:D:350:ALA:HA	1:D:354:ILE:HG22	1.97	0.46
1:D:390:GLN:HB3	1:D:391:PRO:HD3	1.97	0.46
1:A:87:ASN:C	1:A:88:ASN:ND2	2.68	0.46
1:A:261:GLU:O	1:A:265:GLY:HA3	2.15	0.46
1:B:158:THR:O	1:B:160:ALA:N	2.49	0.46
1:C:416:MET:HE2	1:C:425:ILE:HD12	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:98:ILE:CD1	1:D:99:GLU:H	2.24	0.46
1:D:383:LEU:C	1:D:383:LEU:HD12	2.36	0.46
1:B:383:LEU:C	1:B:383:LEU:HD12	2.36	0.46
1:C:172:ALA:O	1:C:173:GLN:HB3	2.13	0.46
1:C:418:ALA:HA	1:C:422:THR:O	2.15	0.46
1:D:266:PHE:O	1:D:268:ARG:N	2.48	0.46
1:D:395:PHE:CG	1:D:401:VAL:HG11	2.51	0.46
1:A:187:PRO:HG3	1:A:242:TYR:CE2	2.51	0.46
1:C:262:VAL:HG13	1:C:263:ILE:N	2.31	0.46
1:A:127:THR:O	1:A:127:THR:HG22	2.16	0.46
1:A:441:ASP:N	1:A:441:ASP:OD1	2.49	0.46
1:B:128:ILE:CD1	1:B:258:ILE:HG13	2.46	0.46
1:B:235:VAL:HG23	1:B:375:ARG:HE	1.80	0.46
1:C:346:ILE:O	1:C:350:ALA:N	2.41	0.46
1:B:312:ILE:HD12	1:B:318:PHE:O	2.16	0.46
1:A:70:LYS:HB3	1:A:415:VAL:HG11	1.97	0.46
1:C:262:VAL:HG13	1:C:263:ILE:HG13	1.98	0.46
1:D:245:GLU:O	1:D:248:ARG:N	2.45	0.46
1:B:125:ASN:O	1:B:128:ILE:HG22	2.16	0.46
1:B:308:ALA:C	1:B:310:VAL:H	2.18	0.46
1:C:235:VAL:O	1:C:375:ARG:NE	2.49	0.46
1:D:203:ARG:NH1	1:D:248:ARG:HE	2.14	0.46
1:B:98:ILE:HG13	1:B:99:GLU:HG2	1.97	0.46
1:D:189:HIS:CG	1:D:193:ALA:HB3	2.51	0.46
1:A:149:SER:OG	1:A:150:ARG:N	2.46	0.45
1:D:144:LYS:HE2	1:D:218:GLU:O	2.15	0.45
1:D:334:ALA:O	1:D:337:ASN:N	2.48	0.45
1:A:235:VAL:O	1:A:236:ILE:HD13	2.15	0.45
1:B:128:ILE:HD13	1:B:258:ILE:CG1	2.40	0.45
1:B:261:GLU:HG3	1:B:285:MET:SD	2.56	0.45
1:B:388:SER:OG	1:B:391:PRO:HG2	2.14	0.45
1:C:111:HIS:CE1	1:C:281:GLN:HB3	2.50	0.45
1:C:114:HIS:HB3	1:C:322:TYR:HE1	1.82	0.45
1:C:291:LEU:HG	1:C:334:ALA:CB	2.46	0.45
1:D:134:TYR:O	1:D:138:LEU:HD13	2.16	0.45
1:A:159:VAL:HG13	1:B:126:ASP:OD1	2.16	0.45
1:A:235:VAL:CG1	1:A:382:ALA:HB3	2.46	0.45
1:A:334:ALA:HA	1:A:337:ASN:CB	2.47	0.45
1:A:418:ALA:HB2	1:A:423:MET:SD	2.56	0.45
1:B:260:ASP:OD1	1:B:262:VAL:HG23	2.17	0.45
1:B:431:LEU:CD2	1:B:436:VAL:CG2	2.94	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:283:ASP:HB3	1:C:307:VAL:HG21	1.98	0.45
1:A:313:GLU:O	1:A:314:GLU:HB3	2.16	0.45
1:A:338:ILE:HD12	1:A:339:ARG:N	2.31	0.45
1:A:440:ILE:HG22	1:A:441:ASP:N	2.32	0.45
1:B:354:ILE:O	1:B:354:ILE:HG13	2.15	0.45
1:C:95:PRO:HB3	1:C:96:PRO:HD3	1.98	0.45
1:C:146:VAL:HG13	1:C:221:VAL:HA	1.98	0.45
1:C:248:ARG:O	1:C:251:ALA:N	2.42	0.45
1:D:96:PRO:C	1:D:98:ILE:H	2.17	0.45
1:D:175:ASP:O	1:D:176:LEU:HD12	2.16	0.45
1:C:117:PHE:O	1:C:118:THR:HG23	2.16	0.45
1:D:182:GLU:N	1:D:182:GLU:OE1	2.50	0.45
1:A:321:GLY:O	1:A:324:TYR:N	2.49	0.45
1:C:260:ASP:OD1	1:C:262:VAL:HG12	2.16	0.45
1:D:107:VAL:HG22	1:D:108:THR:H	1.82	0.45
1:D:431:LEU:HG	1:D:432:SER:N	2.31	0.45
1:B:78:ARG:O	1:B:79:GLN:HB3	2.16	0.45
1:B:137:LYS:HG2	1:B:138:LEU:HD22	1.97	0.45
1:C:212:LYS:O	1:C:216:ILE:HG12	2.16	0.45
1:C:376:GLY:O	1:C:377:VAL:HG23	2.16	0.45
1:D:90:PHE:CD2	1:D:91:GLN:HG2	2.51	0.45
1:D:127:THR:HG23	1:D:130:ARG:NH2	2.32	0.45
1:D:340:ILE:HG23	1:D:344:GLU:CD	2.37	0.45
1:A:74:GLU:HA	1:A:293:SER:C	2.37	0.45
1:A:159:VAL:CG2	1:B:126:ASP:OD1	2.64	0.45
1:C:263:ILE:O	1:C:264:THR:C	2.54	0.45
1:A:395:PHE:HE2	1:A:459:GLU:HB3	1.82	0.45
1:C:349:ARG:HH22	1:C:432:SER:HA	1.82	0.45
1:C:406:ARG:O	1:C:409:SER:N	2.49	0.45
1:D:412:ASN:HD21	1:D:445:ARG:HE	1.65	0.45
1:A:209:LEU:O	1:A:210:GLU:C	2.55	0.45
1:A:283:ASP:HB2	1:A:284:LEU:HD12	1.98	0.45
1:A:437:ASP:HA	1:A:440:ILE:HD12	1.97	0.45
1:B:135:TYR:HE1	1:B:310:VAL:HG21	1.82	0.45
1:B:379:MET:O	1:B:380:VAL:HB	2.17	0.45
1:C:82:GLU:N	1:C:82:GLU:OE1	2.49	0.45
1:D:108:THR:N	1:D:109:PRO:CD	2.80	0.45
1:D:218:GLU:HB2	1:D:253:ARG:HD3	1.98	0.45
1:D:395:PHE:HZ	1:D:454:ILE:CG2	2.30	0.45
1:A:229:ILE:O	1:A:231:GLY:N	2.50	0.44
1:A:296:MET:HG3	1:A:333:VAL:HB	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:433:ARG:O	1:A:436:VAL:HB	2.16	0.44
1:B:128:ILE:HD11	1:B:258:ILE:CD1	2.38	0.44
1:B:370:LEU:HD11	1:B:451:HIS:HA	1.99	0.44
1:C:115:VAL:HG22	1:C:116:PHE:N	2.31	0.44
1:C:178:ILE:HB	1:C:179:PRO:HD2	1.99	0.44
1:C:362:TRP:CE2	1:C:381:ALA:HB1	2.52	0.44
1:D:85:TYR:O	1:D:87:ASN:N	2.50	0.44
1:C:70:LYS:HE2	1:D:91:GLN:O	2.18	0.44
1:C:86:TYR:CE1	1:D:86:TYR:HE1	2.35	0.44
1:C:187:PRO:HG3	1:C:242:TYR:CE2	2.52	0.44
1:C:275:SER:O	1:C:279:ASP:CA	2.65	0.44
1:C:317:GLU:OE1	1:C:317:GLU:N	2.41	0.44
1:D:229:ILE:HG23	1:D:236:ILE:O	2.17	0.44
1:A:70:LYS:HD2	1:A:415:VAL:CG1	2.47	0.44
1:A:151:GLU:HA	1:A:166:GLY:HA3	1.98	0.44
1:A:321:GLY:HA2	1:A:325:SER:HB3	2.00	0.44
1:B:100:LEU:N	1:B:100:LEU:HD23	2.32	0.44
1:D:439:LEU:HD12	1:D:439:LEU:O	2.17	0.44
1:A:152:ASN:OD1	1:A:233:GLY:HA2	2.18	0.44
1:A:213:ILE:O	1:A:217:GLY:N	2.34	0.44
1:A:227:GLU:OE1	1:A:230:GLN:HA	2.18	0.44
1:B:229:ILE:CD1	1:B:237:ILE:HG22	2.48	0.44
1:B:289:LYS:HD2	1:B:289:LYS:N	2.32	0.44
1:D:395:PHE:CE2	1:D:459:GLU:OE1	2.70	0.44
1:A:108:THR:N	1:A:109:PRO:HD3	2.33	0.44
1:A:284:LEU:HD23	1:A:303:VAL:HG22	1.99	0.44
1:A:286:PRO:HA	1:A:301:VAL:HA	1.98	0.44
1:B:383:LEU:HD12	1:B:383:LEU:O	2.17	0.44
1:C:155:HIS:ND1	1:C:225:ILE:HD12	2.32	0.44
1:D:346:ILE:HD12	1:D:430:VAL:HG12	2.00	0.44
1:A:218:GLU:OE1	1:A:253:ARG:NE	2.49	0.44
1:A:405:CYS:HA	1:A:408:LEU:HB2	2.00	0.44
1:A:432:SER:O	1:A:436:VAL:HG23	2.17	0.44
1:C:150:ARG:CZ	1:C:226:ALA:HB1	2.47	0.44
1:C:262:VAL:HG22	1:C:289:LYS:HE3	2.00	0.44
1:C:387:LYS:NZ	1:C:459:GLU:O	2.47	0.44
1:A:75:VAL:HG12	1:A:268:ARG:HH21	1.83	0.44
1:A:296:MET:CE	1:A:329:VAL:HG12	2.48	0.44
1:B:361:ARG:NH1	1:B:440:ILE:HG21	2.32	0.44
1:B:415:VAL:O	1:B:415:VAL:HG13	2.17	0.44
1:C:174:GLY:O	1:C:176:LEU:N	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:83:LEU:N	1:A:85:TYR:CE2	2.86	0.44
1:A:238:PRO:HG3	1:A:243:TRP:CD1	2.53	0.44
1:B:77:TYR:OH	1:B:340:ILE:HG22	2.18	0.44
1:B:329:VAL:O	1:B:333:VAL:HG23	2.17	0.44
1:C:260:ASP:HA	1:C:286:PRO:HD2	2.00	0.44
1:C:335:ALA:O	1:C:339:ARG:HB2	2.17	0.44
1:C:349:ARG:NH1	1:C:430:VAL:O	2.51	0.44
1:A:242:TYR:CD1	1:A:243:TRP:N	2.86	0.44
1:B:229:ILE:HD13	1:B:237:ILE:HG22	2.00	0.44
1:C:74:GLU:HA	1:C:293:SER:C	2.38	0.44
1:C:217:GLY:O	1:C:220:ASN:N	2.50	0.44
1:A:286:PRO:HA	1:A:300:GLY:O	2.18	0.43
1:B:116:PHE:CZ	1:B:321:GLY:HA3	2.53	0.43
1:B:163:SER:HG	1:B:176:LEU:HD22	1.81	0.43
1:B:436:VAL:O	1:B:440:ILE:HD12	2.17	0.43
1:C:190:PHE:HZ	1:C:386:VAL:CG1	2.30	0.43
1:D:280:LEU:HD23	1:D:280:LEU:H	1.82	0.43
1:D:432:SER:O	1:D:435:GLN:HB2	2.18	0.43
1:A:148:ILE:HG22	1:A:149:SER:N	2.33	0.43
1:A:311:VAL:HG11	1:A:318:PHE:HB2	2.00	0.43
1:A:419:VAL:HB	1:A:422:THR:CG2	2.48	0.43
1:C:171:HIS:HA	1:C:176:LEU:HB2	2.00	0.43
1:A:135:TYR:CE2	1:A:256:LEU:HD21	2.53	0.43
1:A:141:LYS:O	1:A:143:TYR:N	2.45	0.43
1:A:173:GLN:OE1	1:A:175:ASP:OD2	2.36	0.43
1:C:363:ARG:NH2	1:C:376:GLY:H	2.15	0.43
1:D:83:LEU:O	1:D:85:TYR:N	2.51	0.43
1:A:379:MET:O	1:A:380:VAL:HB	2.18	0.43
1:B:143:TYR:CG	1:D:216:ILE:O	2.71	0.43
1:C:227:GLU:CG	1:C:260:ASP:HB3	2.49	0.43
1:D:142:PRO:O	1:D:145:LYS:CE	2.67	0.43
1:A:404:LEU:O	1:A:408:LEU:CD1	2.66	0.43
1:B:235:VAL:HG22	1:B:382:ALA:HB3	2.00	0.43
1:C:363:ARG:NH1	1:C:375:ARG:HA	2.34	0.43
1:D:197:ASP:OD1	1:D:199:ALA:HB3	2.18	0.43
1:D:283:ASP:OD2	1:D:306:ARG:CZ	2.66	0.43
1:A:444:ARG:HA	1:A:447:LEU:HB2	2.00	0.43
1:B:308:ALA:C	1:B:310:VAL:N	2.72	0.43
1:C:95:PRO:HB3	1:C:96:PRO:CD	2.49	0.43
1:C:231:GLY:O	1:C:232:ALA:HB3	2.17	0.43
1:D:85:TYR:O	1:D:86:TYR:C	2.57	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:103:LEU:O	1:A:104:LEU:HD12	2.19	0.43
1:A:235:VAL:O	1:A:375:ARG:CZ	2.67	0.43
1:B:136:TRP:CE3	1:B:139:LEU:HD12	2.53	0.43
1:B:431:LEU:HD21	1:B:436:VAL:CG2	2.49	0.43
1:C:92:CYS:SG	1:C:324:TYR:HB2	2.59	0.43
1:C:259:VAL:O	1:C:286:PRO:CD	2.67	0.43
1:C:361:ARG:HH21	1:C:437:ASP:CB	2.32	0.43
1:C:407:ASP:HB3	1:C:411:LYS:NZ	2.34	0.43
1:C:443:ALA:O	1:C:447:LEU:HD23	2.19	0.43
1:A:283:ASP:HA	1:A:304:SER:OG	2.19	0.43
1:B:118:THR:HB	1:B:299:GLY:HA3	1.99	0.43
1:B:166:GLY:HA2	1:B:183:HIS:CE1	2.54	0.43
1:B:260:ASP:HA	1:B:286:PRO:HD2	2.01	0.43
1:C:135:TYR:CE2	1:C:256:LEU:HD11	2.54	0.43
1:C:373:GLU:O	1:C:383:LEU:HB2	2.19	0.43
1:D:98:ILE:HD12	1:D:99:GLU:CB	2.49	0.43
1:D:228:PRO:HA	1:D:243:TRP:CZ2	2.53	0.43
1:A:220:ASN:OD1	1:C:220:ASN:OD1	2.36	0.43
1:B:106:GLU:HG2	1:B:109:PRO:CG	2.49	0.43
1:B:147:VAL:HG21	1:B:164:LEU:HD21	2.00	0.43
1:B:283:ASP:O	1:B:284:LEU:HG	2.19	0.43
1:B:454:ILE:O	1:B:456:GLY:N	2.52	0.43
1:C:116:PHE:HB3	1:C:301:VAL:HB	1.99	0.43
1:C:377:VAL:CG1	1:C:378:GLY:N	2.81	0.43
1:D:415:VAL:HG13	1:D:415:VAL:O	2.18	0.43
1:A:103:LEU:N	1:A:103:LEU:HD23	2.34	0.42
1:A:152:ASN:HA	1:A:167:MET:HE2	2.01	0.42
1:B:106:GLU:HG2	1:B:109:PRO:HG3	2.00	0.42
1:A:152:ASN:C	1:A:167:MET:HE2	2.39	0.42
1:A:404:LEU:O	1:A:408:LEU:HG	2.18	0.42
1:B:342:ARG:O	1:B:345:GLY:N	2.42	0.42
1:C:308:ALA:C	1:C:310:VAL:H	2.22	0.42
1:C:385:LEU:O	1:C:394:ARG:CZ	2.63	0.42
1:D:76:ALA:HB2	1:D:429:LEU:HD12	2.01	0.42
1:A:85:TYR:O	1:A:86:TYR:C	2.58	0.42
1:A:144:LYS:O	1:A:222:ALA:HB2	2.19	0.42
1:A:397:GLU:HG2	1:A:400:LYS:HD3	2.02	0.42
1:B:136:TRP:CD1	1:B:222:ALA:HB1	2.55	0.42
1:B:395:PHE:CE2	1:B:459:GLU:OE1	2.72	0.42
1:D:150:ARG:HD3	1:D:224:PHE:HZ	1.83	0.42
1:D:158:THR:CG2	1:D:159:VAL:N	2.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:432:SER:O	1:D:435:GLN:N	2.51	0.42
1:B:315:GLY:HA3	1:B:319:PHE:HB2	2.00	0.42
1:C:110:LYS:O	1:C:111:HIS:CB	2.67	0.42
1:C:336:GLU:O	1:C:340:ILE:HB	2.20	0.42
1:A:113:ASN:OD1	1:A:305:ASP:OD2	2.36	0.42
1:A:287:ILE:N	1:A:300:GLY:O	2.38	0.42
1:B:75:VAL:HG22	1:B:293:SER:HA	2.01	0.42
1:B:88:ASN:HB3	1:B:98:ILE:CD1	2.50	0.42
1:D:100:LEU:HB3	1:D:103:LEU:HG	2.01	0.42
1:D:357:TYR:OH	1:D:437:ASP:OD1	2.22	0.42
1:A:224:PHE:CE1	1:A:225:ILE:O	2.72	0.42
1:A:334:ALA:HA	1:A:337:ASN:HB3	2.02	0.42
1:C:312:ILE:HA	1:C:319:PHE:HE1	1.85	0.42
1:A:215:GLU:CA	1:C:143:TYR:OH	2.67	0.42
1:B:89:PHE:CD2	1:B:89:PHE:N	2.87	0.42
1:B:335:ALA:O	1:B:338:ILE:HG12	2.20	0.42
1:C:362:TRP:NE1	1:C:381:ALA:HB1	2.35	0.42
1:D:402:GLY:HA3	1:D:420:GLY:O	2.20	0.42
1:A:207:GLN:O	1:A:211:ARG:HG3	2.20	0.42
1:A:224:PHE:CZ	1:A:226:ALA:HB2	2.55	0.42
1:A:320:HIS:O	1:A:324:TYR:CD1	2.73	0.42
1:A:349:ARG:HH22	1:A:432:SER:HA	1.84	0.42
1:C:105:SER:O	1:C:106:GLU:HG3	2.18	0.42
1:C:155:HIS:HD2	1:C:165:SER:HA	1.84	0.42
1:C:242:TYR:O	1:C:246:ILE:HG12	2.20	0.42
1:D:94:HIS:N	1:D:95:PRO:CD	2.82	0.42
1:D:259:VAL:HG23	1:D:282:PRO:HB3	2.02	0.42
1:D:284:LEU:HD12	1:D:284:LEU:N	2.34	0.42
1:A:394:ARG:HH21	1:A:398:PRO:HB3	1.83	0.42
1:B:186:GLN:HG2	1:B:192:ARG:HH21	1.84	0.42
1:C:72:LEU:HD11	1:C:263:ILE:CG2	2.50	0.42
1:A:107:VAL:O	1:A:108:THR:OG1	2.31	0.42
1:A:357:TYR:CD1	1:A:433:ARG:NH1	2.88	0.42
1:B:144:LYS:O	1:B:222:ALA:HB2	2.20	0.42
1:B:304:SER:O	1:B:308:ALA:N	2.52	0.42
1:B:346:ILE:O	1:B:350:ALA:N	2.52	0.42
1:C:83:LEU:HB3	1:C:84:PRO:HD2	2.01	0.42
1:C:425:ILE:HD12	1:C:439:LEU:HD13	2.00	0.42
1:D:147:VAL:HG22	1:D:181:ILE:HD13	2.01	0.42
1:A:74:GLU:OE1	1:A:428:PRO:HG3	2.20	0.41
1:A:135:TYR:OH	1:A:139:LEU:HD11	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:166:GLY:HA2	1:A:183:HIS:CD2	2.55	0.41
1:A:397:GLU:CB	1:A:400:LYS:HD3	2.50	0.41
1:A:414:LEU:HD23	1:A:416:MET:HE3	2.01	0.41
1:C:178:ILE:O	1:C:179:PRO:C	2.57	0.41
1:C:267:GLY:C	1:C:269:LEU:N	2.73	0.41
1:D:163:SER:CB	1:D:178:ILE:HG12	2.50	0.41
1:A:74:GLU:OE2	1:A:428:PRO:HB3	2.20	0.41
1:A:394:ARG:HA	1:A:394:ARG:NH1	2.34	0.41
1:B:225:ILE:HG23	1:B:225:ILE:O	2.20	0.41
1:D:87:ASN:OD1	1:D:88:ASN:N	2.53	0.41
1:D:106:GLU:HG3	1:D:112:MET:O	2.20	0.41
1:D:248:ARG:NH1	1:D:248:ARG:HB2	2.35	0.41
1:A:98:ILE:CG2	1:A:99:GLU:N	2.83	0.41
1:A:446:THR:HG22	1:A:446:THR:O	2.20	0.41
1:C:101:SER:HB2	1:C:328:PRO:HB3	2.01	0.41
1:C:146:VAL:CG2	1:C:147:VAL:N	2.83	0.41
1:C:333:VAL:O	1:C:336:GLU:N	2.53	0.41
1:C:349:ARG:O	1:C:354:ILE:N	2.47	0.41
1:D:149:SER:OG	1:D:225:ILE:HD11	2.20	0.41
1:A:349:ARG:O	1:A:353:GLU:HB3	2.20	0.41
1:B:118:THR:HG21	1:B:123:ASP:C	2.40	0.41
1:B:129:LEU:HD12	1:B:164:LEU:HD11	2.02	0.41
1:B:231:GLY:HA2	1:B:234:GLY:O	2.19	0.41
1:B:242:TYR:O	1:B:243:TRP:CB	2.68	0.41
1:B:354:ILE:HG12	1:B:431:LEU:O	2.21	0.41
1:B:376:GLY:O	1:B:377:VAL:CG2	2.68	0.41
1:C:269:LEU:C	1:C:269:LEU:HD12	2.40	0.41
1:C:291:LEU:HD23	1:C:298:ILE:HG23	2.00	0.41
1:A:409:SER:O	1:A:414:LEU:N	2.45	0.41
1:C:92:CYS:SG	1:C:93:SER:N	2.93	0.41
1:C:225:ILE:CG2	1:C:258:ILE:HD11	2.42	0.41
1:C:380:VAL:HG23	1:C:425:ILE:O	2.20	0.41
1:C:395:PHE:CE2	1:C:454:ILE:HG12	2.56	0.41
1:C:449:GLU:C	1:C:451:HIS:H	2.24	0.41
1:D:404:LEU:O	1:D:404:LEU:HG	2.21	0.41
1:A:160:ALA:O	1:A:164:LEU:HD23	2.21	0.41
1:A:353:GLU:OE2	1:A:433:ARG:NE	2.53	0.41
1:C:130:ARG:HG3	1:C:130:ARG:HH11	1.86	0.41
1:C:217:GLY:HA3	1:C:220:ASN:ND2	2.36	0.41
1:D:75:VAL:O	1:D:76:ALA:HB3	2.20	0.41
1:D:107:VAL:HG13	1:D:108:THR:N	2.34	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:238:PRO:HB2	1:D:242:TYR:HB3	2.02	0.41
1:D:285:MET:HG2	1:D:302:MET:CB	2.50	0.41
1:D:406:ARG:HG3	1:D:416:MET:O	2.19	0.41
1:A:143:TYR:HA	1:A:145:LYS:HG2	2.01	0.41
1:A:187:PRO:HA	1:A:201:PHE:CZ	2.55	0.41
1:A:331:ALA:O	1:A:333:VAL:C	2.58	0.41
1:A:418:ALA:HB2	1:A:423:MET:CE	2.51	0.41
1:B:98:ILE:O	1:B:99:GLU:C	2.59	0.41
1:B:218:GLU:OE2	1:B:253:ARG:HA	2.20	0.41
1:D:77:TYR:OH	1:D:340:ILE:HG22	2.21	0.41
1:A:371:VAL:CG2	1:A:383:LEU:HD13	2.51	0.41
1:B:134:TYR:OH	1:B:315:GLY:O	2.35	0.41
1:B:417:ARG:HG2	1:B:418:ALA:N	2.35	0.41
1:D:90:PHE:CD2	1:D:91:GLN:N	2.88	0.41
1:D:312:ILE:HA	1:D:319:PHE:HE1	1.85	0.41
1:D:394:ARG:HH22	1:D:401:VAL:HG13	1.85	0.41
1:D:410:VAL:HG23	1:D:411:LYS:N	2.34	0.41
1:A:264:THR:CG2	1:A:269:LEU:HD22	2.51	0.41
1:B:127:THR:O	1:B:127:THR:HG22	2.20	0.41
1:B:155:HIS:CD2	1:B:165:SER:HA	2.56	0.41
1:B:266:PHE:CE2	1:B:291:LEU:HD12	2.56	0.41
1:B:303:VAL:HG12	1:B:304:SER:N	2.36	0.41
1:B:417:ARG:HB3	1:B:424:ILE:HG23	2.03	0.41
1:C:159:VAL:HG21	1:D:160:ALA:HB2	2.03	0.41
1:C:298:ILE:HG23	1:C:298:ILE:O	2.21	0.41
1:C:303:VAL:HG12	1:C:304:SER:N	2.36	0.41
1:C:361:ARG:NE	1:C:437:ASP:OD1	2.45	0.41
1:D:218:GLU:OE1	1:D:253:ARG:HA	2.21	0.41
1:D:349:ARG:NH1	1:D:431:LEU:O	2.54	0.41
1:D:424:ILE:HG13	1:D:425:ILE:N	2.36	0.41
1:A:146:VAL:HG12	1:A:180:GLY:HA2	2.03	0.41
1:D:164:LEU:HD22	1:D:181:ILE:HD12	2.03	0.41
1:A:242:TYR:HD1	1:A:243:TRP:N	2.18	0.40
1:A:312:ILE:HD12	1:A:319:PHE:HD1	1.85	0.40
1:B:128:ILE:O	1:B:128:ILE:HG12	2.20	0.40
1:D:136:TRP:CE3	1:D:139:LEU:HD12	2.56	0.40
1:D:146:VAL:HG12	1:D:180:GLY:HA2	2.03	0.40
1:D:188:TYR:CE1	1:D:190:PHE:HB3	2.56	0.40
1:D:365:LEU:HB2	1:D:371:VAL:CG1	2.51	0.40
1:A:390:GLN:HB2	1:A:391:PRO:CD	2.51	0.40
1:B:103:LEU:N	1:B:103:LEU:CD2	2.85	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:128:ILE:HD11	1:B:258:ILE:CG1	2.52	0.40
1:B:152:ASN:HB3	1:B:186:GLN:OE1	2.20	0.40
1:C:440:ILE:CG2	1:C:444:ARG:HH21	2.34	0.40
1:D:382:ALA:HB1	1:D:423:MET:O	2.21	0.40
1:B:263:ILE:HG22	1:B:264:THR:N	2.35	0.40
1:C:73:ALA:HA	1:C:289:LYS:HD3	2.02	0.40
1:C:119:GLY:O	1:C:120:SER:HB3	2.21	0.40
1:C:153:ALA:O	1:C:165:SER:HB2	2.22	0.40
1:C:336:GLU:HA	1:C:339:ARG:HB3	2.02	0.40
1:C:384:GLU:HG3	1:C:422:THR:HG22	2.03	0.40
1:D:288:ALA:HB2	1:D:299:GLY:HA2	2.02	0.40
1:A:178:ILE:HB	1:A:179:PRO:CD	2.51	0.40
1:A:235:VAL:HG12	1:A:382:ALA:HB3	2.04	0.40
1:A:383:LEU:HD12	1:A:383:LEU:C	2.41	0.40
1:A:393:GLU:HG2	1:A:394:ARG:O	2.21	0.40
1:C:110:LYS:O	1:C:111:HIS:ND1	2.52	0.40
1:C:354:ILE:HG12	1:C:431:LEU:O	2.22	0.40
1:D:347:ILE:HG13	1:D:348:GLU:HG2	2.04	0.40
1:B:107:VAL:C	1:B:109:PRO:HD3	2.40	0.40
1:B:362:TRP:C	1:B:364:GLU:H	2.24	0.40
1:C:114:HIS:HB3	1:C:322:TYR:CE1	2.56	0.40
1:C:203:ARG:HA	1:C:245:GLU:OE1	2.22	0.40
1:C:261:GLU:HG3	1:C:285:MET:CE	2.49	0.40
1:C:346:ILE:HG21	1:C:429:LEU:HB2	2.03	0.40
1:C:363:ARG:CZ	1:C:375:ARG:HA	2.52	0.40
1:C:418:ALA:HB2	1:C:423:MET:HA	2.03	0.40
1:D:182:GLU:OE2	1:D:216:ILE:CD1	2.69	0.40
1:D:245:GLU:O	1:D:246:ILE:C	2.60	0.40
1:D:306:ARG:O	1:D:309:LYS:N	2.55	0.40
1:D:395:PHE:CE2	1:D:454:ILE:HG12	2.57	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	387/465 (83%)	287 (74%)	75 (19%)	25 (6%)	1	16
1	B	387/465 (83%)	285 (74%)	71 (18%)	31 (8%)	1	11
1	C	389/465 (84%)	272 (70%)	87 (22%)	30 (8%)	1	12
1	D	387/465 (83%)	287 (74%)	78 (20%)	22 (6%)	1	18
All	All	1550/1860 (83%)	1131 (73%)	311 (20%)	108 (7%)	1	14

All (108) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	313	GLU
1	B	101	SER
1	B	236	ILE
1	B	243	TRP
1	B	266	PHE
1	B	272	TRP
1	B	380	VAL
1	C	111	HIS
1	C	144	LYS
1	C	264	THR
1	C	268	ARG
1	C	272	TRP
1	D	86	TYR
1	D	98	ILE
1	D	107	VAL
1	D	232	ALA
1	A	86	TYR
1	A	144	LYS
1	A	242	TYR
1	A	254	ASP
1	A	272	TRP
1	A	289	LYS
1	A	366	GLY
1	A	380	VAL
1	B	99	GLU
1	B	110	LYS
1	B	392	LEU
1	C	86	TYR
1	C	95	PRO
1	C	194	PRO

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Mol	Chain	Res	Type
1	C	232	ALA
1	C	263	ILE
1	C	366	GLY
1	D	85	TYR
1	D	223	ALA
1	D	306	ARG
1	A	73	ALA
1	A	88	ASN
1	A	93	SER
1	A	100	LEU
1	A	171	HIS
1	A	286	PRO
1	A	348	GLU
1	B	85	TYR
1	B	86	TYR
1	B	93	SER
1	B	239	PRO
1	B	309	LYS
1	B	455	GLY
1	C	96	PRO
1	C	342	ARG
1	D	97	ALA
1	D	110	LYS
1	D	242	TYR
1	D	272	TRP
1	D	315	GLY
1	A	77	TYR
1	A	80	MET
1	A	194	PRO
1	A	266	PHE
1	B	77	TYR
1	B	88	ASN
1	B	91	GLN
1	B	96	PRO
1	B	169	ALA
1	B	289	LYS
1	B	366	GLY
1	C	78	ARG
1	C	135	TYR
1	C	173	GLN
1	C	209	LEU
1	C	277	TYR

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Mol	Chain	Res	Type
1	C	288	ALA
1	C	332	ALA
1	D	289	LYS
1	D	421	GLY
1	A	218	GLU
1	A	333	VAL
1	B	87	ASN
1	B	269	LEU
1	C	226	ALA
1	C	267	GLY
1	D	194	PRO
1	D	226	ALA
1	D	267	GLY
1	D	286	PRO
1	B	235	VAL
1	B	401	VAL
1	C	333	VAL
1	D	239	PRO
1	B	262	VAL
1	C	142	PRO
1	C	378	GLY
1	C	420	GLY
1	D	84	PRO
1	B	108	THR
1	C	98	ILE
1	C	107	VAL
1	B	386	VAL
1	D	307	VAL
1	A	142	PRO
1	A	255	ILE
1	B	265	GLY
1	B	430	VAL
1	C	326	GLY
1	C	399	GLY
1	A	298	ILE
1	D	236	ILE

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	315/377 (84%)	308 (98%)	7 (2%)	52	77
1	B	314/377 (83%)	305 (97%)	9 (3%)	42	72
1	C	316/377 (84%)	307 (97%)	9 (3%)	43	72
1	D	314/377 (83%)	310 (99%)	4 (1%)	69	86
All	All	1259/1508 (84%)	1230 (98%)	29 (2%)	50	76

All (29) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	102	ARG
1	A	114	HIS
1	A	167	MET
1	A	188	TYR
1	A	240	ASP
1	A	324	TYR
1	A	417	ARG
1	B	79	GLN
1	B	89	PHE
1	B	90	PHE
1	B	102	ARG
1	B	116	PHE
1	B	141	LYS
1	B	188	TYR
1	B	240	ASP
1	B	242	TYR
1	C	99	GLU
1	C	126	ASP
1	C	143	TYR
1	C	186	GLN
1	C	188	TYR
1	C	269	LEU
1	C	280	LEU
1	C	433	ARG
1	C	442	LYS
1	D	197	ASP
1	D	280	LEU
1	D	304	SER
1	D	319	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	88	ASN
1	A	111	HIS
1	A	155	HIS
1	A	171	HIS
1	A	281	GLN
1	A	337	ASN
1	C	94	HIS
1	C	113	ASN
1	C	220	ASN
1	C	337	ASN
1	D	155	HIS
1	D	276	GLN
1	D	368	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	389/465 (83%)	0.42	39 (10%) 7 4	77, 125, 171, 205	0
1	B	389/465 (83%)	0.22	30 (7%) 13 8	79, 120, 161, 198	0
1	C	391/465 (84%)	0.61	56 (14%) 2 2	78, 138, 172, 206	0
1	D	389/465 (83%)	0.66	54 (13%) 2 2	82, 134, 183, 208	0
All	All	1558/1860 (83%)	0.48	179 (11%) 4 3	77, 128, 174, 208	0

All (179) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	163	SER	14.9
1	C	411	LYS	12.4
1	D	175	ASP	9.8
1	D	163	SER	9.2
1	C	233	GLY	9.0
1	C	404	LEU	8.9
1	D	174	GLY	7.9
1	B	175	ASP	7.8
1	B	163	SER	7.6
1	C	274	GLY	6.9
1	D	167	MET	6.8
1	A	156	GLY	6.2
1	C	168	LYS	6.1
1	D	323	THR	6.0
1	C	400	LYS	6.0
1	D	173	GLN	5.9
1	A	403	SER	5.8
1	A	155	HIS	5.8
1	A	160	ALA	5.7
1	A	164	LEU	5.6
1	C	449	GLU	5.6

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Mol	Chain	Res	Type	RSRZ
1	D	324	TYR	5.5
1	D	176	LEU	5.4
1	C	407	ASP	5.3
1	C	403	SER	5.2
1	A	159	VAL	5.2
1	A	411	LYS	5.1
1	D	162	ALA	5.1
1	D	439	LEU	5.1
1	A	455	GLY	5.0
1	A	459	GLU	5.0
1	A	173	GLN	4.9
1	B	411	LYS	4.6
1	D	438	GLU	4.6
1	D	168	LYS	4.5
1	D	379	MET	4.4
1	C	70	LYS	4.4
1	C	90	PHE	4.4
1	C	397	GLU	4.4
1	A	457	ALA	4.4
1	C	164	LEU	4.3
1	D	155	HIS	4.3
1	B	155	HIS	4.3
1	D	164	LEU	4.3
1	C	167	MET	4.3
1	B	168	LYS	4.2
1	C	399	GLY	4.2
1	C	435	GLN	4.2
1	C	398	PRO	4.2
1	A	162	ALA	4.2
1	A	326	GLY	4.1
1	B	453	ALA	4.1
1	D	325	SER	4.0
1	C	412	ASN	4.0
1	A	458	LEU	4.0
1	C	159	VAL	3.9
1	C	420	GLY	3.9
1	C	111	HIS	3.8
1	C	450	THR	3.8
1	C	175	ASP	3.7
1	B	172	ALA	3.7
1	C	158	THR	3.7
1	A	322	TYR	3.7

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Mol	Chain	Res	Type	RSRZ
1	D	314	GLU	3.7
1	D	177	PRO	3.6
1	C	191	GLY	3.6
1	B	164	LEU	3.6
1	D	411	LYS	3.5
1	A	80	MET	3.5
1	C	234	GLY	3.5
1	B	170	MET	3.5
1	C	169	ALA	3.4
1	B	171	HIS	3.4
1	D	417	ARG	3.4
1	D	156	GLY	3.4
1	D	102	ARG	3.4
1	B	407	ASP	3.4
1	C	451	HIS	3.4
1	C	350	ALA	3.4
1	C	232	ALA	3.3
1	A	454	ILE	3.3
1	A	90	PHE	3.3
1	A	456	GLY	3.2
1	C	236	ILE	3.2
1	D	317	GLU	3.2
1	D	159	VAL	3.2
1	A	281	GLN	3.1
1	B	77	TYR	3.1
1	B	174	GLY	3.1
1	A	161	GLY	3.1
1	A	91	GLN	3.1
1	B	159	VAL	3.1
1	A	165	SER	3.1
1	A	314	GLU	3.0
1	D	223	ALA	3.0
1	D	165	SER	3.0
1	B	370	LEU	3.0
1	D	170	MET	3.0
1	D	172	ALA	3.0
1	B	167	MET	2.9
1	C	187	PRO	2.9
1	D	92	CYS	2.9
1	A	323	THR	2.9
1	C	171	HIS	2.8
1	D	373	GLU	2.8

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Mol	Chain	Res	Type	RSRZ
1	C	110	LYS	2.8
1	D	233	GLY	2.8
1	D	169	ALA	2.7
1	B	416	MET	2.7
1	B	160	ALA	2.7
1	C	362	TRP	2.7
1	D	91	GLN	2.7
1	A	175	ASP	2.7
1	C	459	GLU	2.7
1	C	163	SER	2.7
1	A	221	VAL	2.7
1	A	379	MET	2.7
1	D	400	LYS	2.6
1	B	400	LYS	2.6
1	A	449	GLU	2.6
1	B	156	GLY	2.6
1	C	452	LYS	2.5
1	C	80	MET	2.5
1	C	410	VAL	2.5
1	D	449	GLU	2.5
1	D	264	THR	2.5
1	B	169	ALA	2.5
1	D	171	HIS	2.5
1	D	95	PRO	2.5
1	C	117	PHE	2.5
1	C	102	ARG	2.5
1	C	431	LEU	2.4
1	D	90	PHE	2.4
1	D	322	TYR	2.4
1	C	396	GLU	2.4
1	C	170	MET	2.4
1	D	407	ASP	2.4
1	B	178	ILE	2.4
1	C	78	ARG	2.3
1	C	122	SER	2.3
1	D	77	TYR	2.3
1	D	303	VAL	2.3
1	D	236	ILE	2.3
1	D	459	GLU	2.3
1	C	322	TYR	2.3
1	D	274	GLY	2.3
1	D	326	GLY	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	322	TYR	2.3
1	B	419	VAL	2.3
1	A	306	ARG	2.3
1	C	155	HIS	2.3
1	D	157	SER	2.2
1	C	363	ARG	2.2
1	A	174	GLY	2.2
1	B	320	HIS	2.2
1	D	160	ALA	2.2
1	A	400	LYS	2.2
1	A	176	LEU	2.2
1	A	158	THR	2.2
1	D	118	THR	2.2
1	A	177	PRO	2.2
1	B	413	GLY	2.2
1	D	370	LEU	2.2
1	C	295	TYR	2.2
1	B	193	ALA	2.1
1	C	194	PRO	2.1
1	B	439	LEU	2.1
1	D	384	GLU	2.1
1	A	94	HIS	2.1
1	B	165	SER	2.1
1	C	416	MET	2.1
1	D	416	MET	2.1
1	D	457	ALA	2.1
1	A	429	LEU	2.1
1	C	453	ALA	2.1
1	C	69	ARG	2.1
1	C	176	LEU	2.0
1	A	402	GLY	2.0
1	B	418	ALA	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

There are no ligands in this entry.

6.5 Other polymers

There are no such residues in this entry.