Full wwPDB X-ray Structure Validation Report (i)

Sep 9, 2023 – 09:37 PM EDT

PDB ID	:	4II7
Title	:	Archaellum Assembly ATPase FlaI
Authors	:	Reindl, S.; Williams, G.J.; Tainer, J.A.
Deposited on	:	2012-12-20
Resolution	:	3.59 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
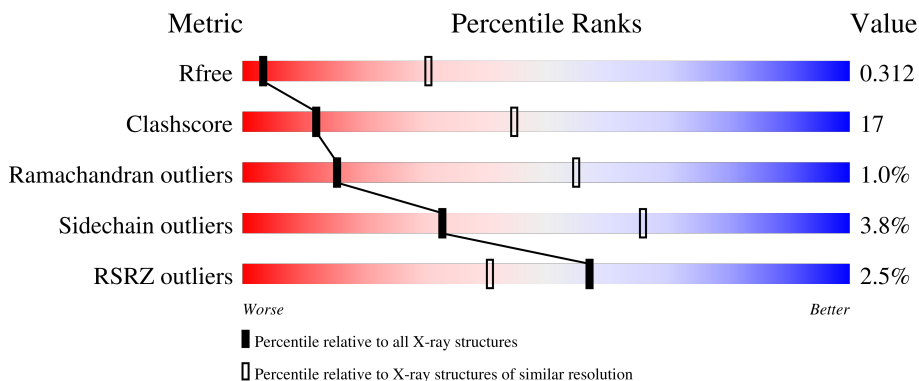http://www.wwpdb.org/validation/2017/FAQs#types.

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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 3.59 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	Percentile Ranks	Value
Rfree		0.312
Clashscore		17
Ramachandran outliers		1.0%
Sidechain outliers		3.8%
RSRZ outliers		2.5%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

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 <=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	513	% 64% 32% · ·
1	B	513	3% 62% 33% · ·
1	C	513	3% 69% 29% · ·
1	D	513	3% 70% 26% · ·

2 Entry composition ⓘ

There is only 1 type of molecule in this entry. The entry contains 16239 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 FlaI ATPase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	504	Total	C	N	O	S	0	0	0
			4064	2608	679	764	13			
1	B	500	Total	C	N	O	S	0	1	0
			4042	2597	681	750	14			
1	C	510	Total	C	N	O	S	3	0	0
			4116	2640	691	771	14			
1	D	498	Total	C	N	O	S	3	1	0
			4017	2580	673	751	13			

3 Residue-property plots ⓘ

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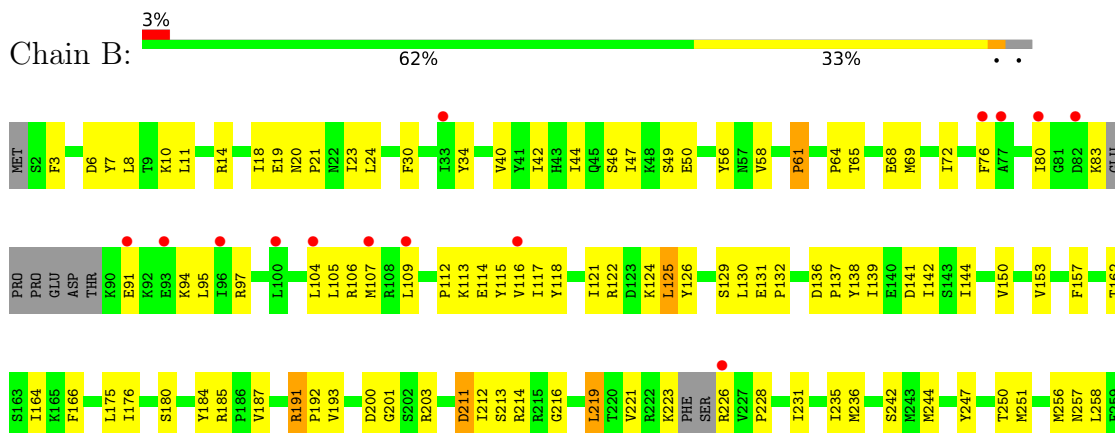 of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow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

- Molecule 1: FlaI ATPase

Chain A:

- Molecule 1: FlaI ATPase

Chain B:
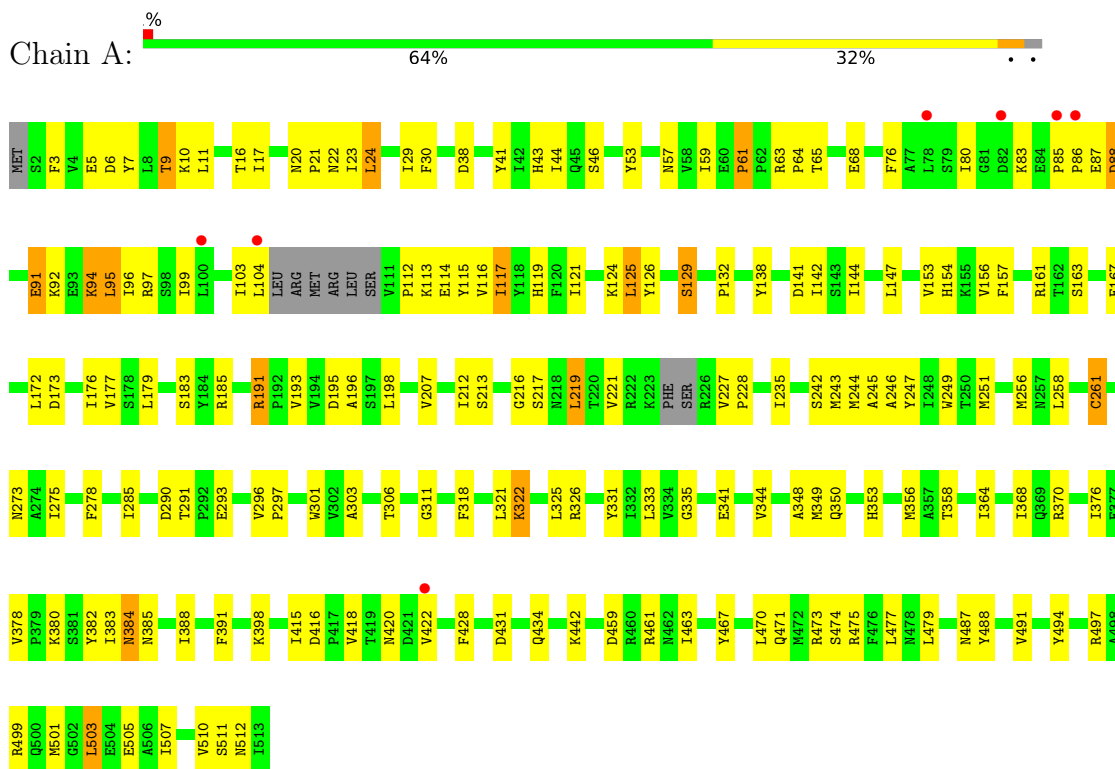
- Molecule 1: FlaI ATPase

- Molecule 1: FlaI ATPase

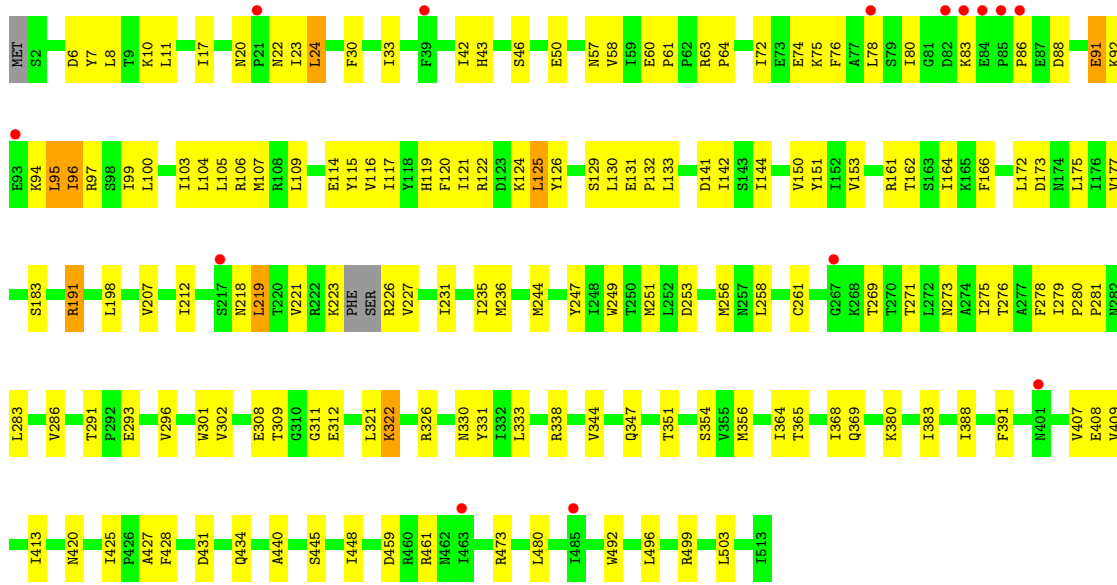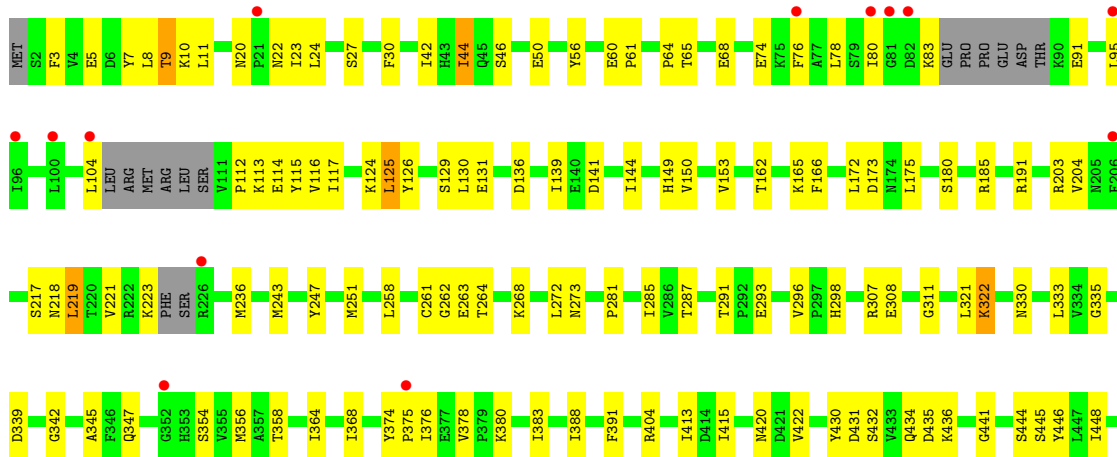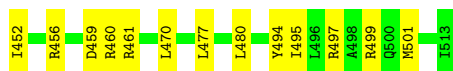I452 R456 D459 R460 R461 L470 L477 L480 Y494 I495 L496 R497 A498 R499 Q500 M501 I513

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 63	Depositor
Cell constants a, b, c, α, β, γ	130.02Å 130.02Å 311.77Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	49.92 – 3.59 49.92 – 3.59	Depositor EDS
% Data completeness (in resolution range)	99.8 (49.92-3.59) 94.5 (49.92-3.59)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.45 (at 3.57Å)	Xtriage
Refinement program	PHENIX 1.8.1_1168	Depositor
R, R_{free}	0.243 , 0.306 0.257 , 0.312	Depositor DCC
R_{free} test set	1990 reflections (5.73%)	wwPDB-VP
Wilson B-factor (Å^2)	121.1	Xtriage
Anisotropy	0.232	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.28 , 3.4	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.059 for h,-h-k,-l	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	16239	wwPDB-VP
Average B, all atoms (Å^2)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.00% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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	0.60	1/4146 (0.0%)	0.80	0/5619
1	B	0.57	0/4121	0.78	0/5578
1	C	0.46	0/4199	0.67	1/5690 (0.0%)
1	D	0.47	0/4096	0.67	1/5547 (0.0%)
All	All	0.53	1/16562 (0.0%)	0.73	2/22434 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	261	CYS	CB-SG	-5.45	1.73	1.81

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	219	LEU	CA-CB-CG	5.78	128.59	115.30
1	D	219	LEU	CA-CB-CG	5.60	128.19	115.30

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	4064	0	4105	136	0
1	B	4042	0	4106	199	1
1	C	4116	0	4168	129	1

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	4017	0	4067	99	0
All	All	16239	0	16446	557	1

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 17.

All (557) 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:258:LEU:HD23	1:B:388:ILE:CB	1.43	1.45
1:C:75:LYS:NZ	1:C:107:MET:HE2	1.20	1.42
1:C:75:LYS:HZ3	1:C:107:MET:CE	1.37	1.35
1:C:75:LYS:NZ	1:C:107:MET:CE	1.91	1.32
1:C:75:LYS:CD	1:C:107:MET:CE	2.12	1.28
1:C:75:LYS:CE	1:C:107:MET:CE	2.11	1.27
1:D:258:LEU:HD13	1:D:388:ILE:CB	1.65	1.26
1:B:258:LEU:CD2	1:B:388:ILE:CG2	2.12	1.25
1:A:258:LEU:HD13	1:A:388:ILE:CB	1.66	1.24
1:B:258:LEU:HD23	1:B:388:ILE:CG2	1.65	1.24
1:C:75:LYS:HD3	1:C:107:MET:CE	1.67	1.23
1:B:258:LEU:CD2	1:B:388:ILE:HB	1.72	1.18
1:A:258:LEU:HD13	1:A:388:ILE:HB	1.17	1.17
1:B:258:LEU:CD2	1:B:388:ILE:HG22	1.74	1.16
1:B:258:LEU:CD2	1:B:388:ILE:CB	2.23	1.12
1:A:258:LEU:HD13	1:A:388:ILE:CG2	1.79	1.11
1:C:75:LYS:CD	1:C:107:MET:HE1	1.78	1.11
1:D:61:PRO:HB3	1:D:115:TYR:HD2	1.15	1.09
1:B:109:LEU:CD1	1:B:116:VAL:HG21	1.82	1.08
1:D:258:LEU:HD13	1:D:388:ILE:HB	1.18	1.08
1:B:260:VAL:HA	1:B:390:LEU:HD11	1.35	1.08
1:A:144:ILE:HD12	1:A:219:LEU:HD11	1.32	1.07
1:B:260:VAL:HA	1:B:390:LEU:CD1	1.84	1.06
1:B:258:LEU:HD21	1:B:388:ILE:HG22	1.35	1.05
1:C:75:LYS:CE	1:C:107:MET:HE2	1.77	1.05
1:B:109:LEU:HD12	1:B:116:VAL:HG21	1.05	1.04
1:D:258:LEU:HD13	1:D:388:ILE:CG2	1.85	1.04
1:D:61:PRO:CB	1:D:115:TYR:HD2	1.69	1.04
1:B:260:VAL:HG22	1:B:390:LEU:HD21	1.36	1.02
1:B:260:VAL:CA	1:B:390:LEU:HD11	1.89	1.02
1:D:258:LEU:CD1	1:D:388:ILE:HG22	1.90	1.00
1:C:75:LYS:CE	1:C:107:MET:HE3	1.90	0.99

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:258:LEU:CD1	1:A:388:ILE:HG22	1.92	0.98
1:D:61:PRO:HB3	1:D:115:TYR:CD2	1.97	0.98
1:B:107:MET:O	1:B:113:LYS:NZ	1.96	0.98
1:B:109:LEU:HD12	1:B:116:VAL:CG2	1.92	0.98
1:A:219:LEU:HD22	1:A:219:LEU:O	1.64	0.96
1:B:260:VAL:HG13	1:B:390:LEU:HD11	1.43	0.96
1:C:61:PRO:HB3	1:C:115:TYR:HD2	1.31	0.95
1:B:258:LEU:HD23	1:B:388:ILE:HB	0.95	0.95
1:C:75:LYS:HD3	1:C:107:MET:HE1	0.96	0.94
1:A:258:LEU:CD1	1:A:388:ILE:CG2	2.46	0.93
1:C:75:LYS:CD	1:C:107:MET:HE2	1.86	0.91
1:B:260:VAL:CG1	1:B:390:LEU:HD11	1.99	0.91
1:B:109:LEU:CD1	1:B:116:VAL:HG11	2.00	0.91
1:D:258:LEU:HD11	1:D:388:ILE:HG22	1.52	0.91
1:A:61:PRO:HB3	1:A:115:TYR:HD2	1.35	0.90
1:D:258:LEU:CD1	1:D:388:ILE:CG2	2.49	0.89
1:C:75:LYS:HE2	1:C:107:MET:HE3	1.56	0.87
1:B:390:LEU:HD12	1:B:390:LEU:O	1.74	0.86
1:B:109:LEU:HD11	1:B:116:VAL:HG11	1.56	0.86
1:B:61:PRO:HB3	1:B:115:TYR:HD2	1.42	0.85
1:B:72:ILE:HG13	1:B:107:MET:HE1	1.57	0.85
1:C:105:LEU:HD23	1:C:105:LEU:O	1.77	0.85
1:A:258:LEU:HD11	1:A:388:ILE:HG22	1.56	0.84
1:A:23:ILE:HG23	1:A:24:LEU:HD22	1.59	0.83
1:A:80:ILE:HG22	1:A:83:LYS:NZ	1.94	0.83
1:A:258:LEU:HD12	1:A:388:ILE:O	1.78	0.83
1:C:61:PRO:HB3	1:C:115:TYR:CD2	2.14	0.82
1:B:322:LYS:NZ	1:B:326:ARG:HH12	1.76	0.82
1:B:109:LEU:CD1	1:B:116:VAL:CG2	2.55	0.82
1:D:64:PRO:HG3	1:D:116:VAL:HG22	1.61	0.82
1:B:258:LEU:HD21	1:B:388:ILE:CG2	1.95	0.81
1:C:105:LEU:HD23	1:C:105:LEU:C	1.99	0.81
1:C:100:LEU:O	1:C:104:LEU:HG	1.81	0.80
1:C:150:VAL:O	1:C:162:THR:OG1	2.00	0.79
1:A:213:SER:OG	1:A:216:GLY:O	1.99	0.79
1:A:258:LEU:CD1	1:A:388:ILE:HB	2.07	0.77
1:C:61:PRO:CB	1:C:115:TYR:HD2	1.97	0.77
1:B:136:ASP:O	1:B:223:LYS:NZ	2.17	0.77
1:B:105:LEU:O	1:B:105:LEU:HD23	1.84	0.76
1:D:258:LEU:HD12	1:D:388:ILE:O	1.86	0.76
1:B:258:LEU:HD13	1:B:258:LEU:C	2.06	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:106:ARG:O	1:C:107:MET:HG3	1.86	0.75
1:B:72:ILE:HD11	1:B:107:MET:HE2	1.68	0.75
1:A:251:MET:HG3	1:A:388:ILE:HD11	1.67	0.74
1:B:129:SER:O	1:B:132:PRO:HD2	1.86	0.74
1:A:61:PRO:HB3	1:A:115:TYR:CD2	2.21	0.74
1:A:144:ILE:CD1	1:A:219:LEU:HD11	2.14	0.74
1:B:64:PRO:HG3	1:B:116:VAL:HG22	1.70	0.74
1:B:261:CYS:H	1:B:390:LEU:HD12	1.52	0.74
1:B:260:VAL:HG13	1:B:390:LEU:CD1	2.15	0.74
1:C:258:LEU:HD13	1:C:388:ILE:HB	1.70	0.73
1:B:322:LYS:HZ1	1:B:326:ARG:HH12	1.35	0.73
1:A:94:LYS:HD2	1:A:97:ARG:HG3	1.70	0.73
1:B:80:ILE:HG22	1:B:83:LYS:NZ	2.04	0.72
1:A:94:LYS:HA	1:A:97:ARG:HG3	1.71	0.72
1:B:219:LEU:O	1:B:219:LEU:HD22	1.90	0.72
1:C:100:LEU:HD22	1:C:104:LEU:HD11	1.72	0.71
1:B:228:PRO:HB2	1:B:488:TYR:CD2	2.25	0.71
1:C:308:GLU:OE1	1:D:322:LYS:NZ	2.22	0.71
1:D:61:PRO:CB	1:D:115:TYR:CD2	2.62	0.71
1:B:72:ILE:CG1	1:B:107:MET:CE	2.68	0.71
1:C:75:LYS:NZ	1:C:107:MET:HE3	1.97	0.71
1:B:109:LEU:CD1	1:B:116:VAL:CG1	2.69	0.70
1:C:191:ARG:HH11	1:C:191:ARG:HG3	1.56	0.70
1:D:144:ILE:HG12	1:D:150:VAL:HG22	1.73	0.70
1:B:144:ILE:HD12	1:B:219:LEU:HD11	1.71	0.70
1:D:431:ASP:OD2	1:D:434:GLN:HB2	1.90	0.70
1:B:144:ILE:HB	1:B:219:LEU:CD1	2.21	0.70
1:D:261:CYS:HB2	1:D:391:PHE:CD1	2.27	0.70
1:D:61:PRO:HB2	1:D:115:TYR:HD2	1.57	0.70
1:B:105:LEU:HD23	1:B:105:LEU:C	2.11	0.70
1:A:258:LEU:CD1	1:A:388:ILE:CB	2.59	0.70
1:B:364:ILE:O	1:B:368:ILE:HG12	1.92	0.69
1:D:130:LEU:HD21	1:D:144:ILE:HD11	1.74	0.69
1:D:258:LEU:CD1	1:D:388:ILE:HB	2.11	0.69
1:A:335:GLY:O	1:A:358:THR:OG1	2.10	0.69
1:B:390:LEU:HD12	1:B:390:LEU:C	2.12	0.69
1:C:322:LYS:HE2	1:C:326:ARG:HH12	1.57	0.69
1:C:60:GLU:HB3	1:C:61:PRO:HD2	1.75	0.69
1:D:23:ILE:HG23	1:D:24:LEU:HD22	1.72	0.69
1:A:65:THR:N	1:A:68:GLU:OE1	2.26	0.68
1:A:144:ILE:HB	1:A:219:LEU:HD13	1.74	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:106:ARG:O	1:C:107:MET:CG	2.41	0.68
1:B:40:VAL:HG11	1:B:132:PRO:HB3	1.76	0.67
1:C:271:THR:O	1:C:275:ILE:HG12	1.94	0.67
1:C:64:PRO:HG3	1:C:116:VAL:HG22	1.77	0.67
1:B:191:ARG:HG3	1:B:191:ARG:HH11	1.60	0.67
1:B:260:VAL:HA	1:B:390:LEU:CG	2.24	0.67
1:A:144:ILE:HB	1:A:219:LEU:CD1	2.25	0.67
1:D:136:ASP:O	1:D:223:LYS:NZ	2.28	0.66
1:B:61:PRO:HB3	1:B:115:TYR:CD2	2.27	0.66
1:B:347:GLN:O	1:B:347:GLN:NE2	2.29	0.66
1:B:301:TRP:NE1	1:B:303:ALA:HB2	2.11	0.66
1:D:60:GLU:HB3	1:D:61:PRO:HD2	1.77	0.66
1:B:65:THR:N	1:B:68:GLU:OE1	2.20	0.66
1:B:219:LEU:HD22	1:B:219:LEU:C	2.16	0.66
1:D:335:GLY:O	1:D:358:THR:OG1	2.11	0.66
1:A:219:LEU:HD22	1:A:219:LEU:C	2.15	0.65
1:B:257:ASN:HD21	1:B:349:MET:HB3	1.60	0.65
1:B:144:ILE:HB	1:B:219:LEU:HD13	1.79	0.65
1:D:413:ILE:HG12	1:D:446:TYR:CD2	2.32	0.65
1:B:260:VAL:CB	1:B:390:LEU:HD11	2.27	0.65
1:C:100:LEU:HD22	1:C:104:LEU:HD21	1.78	0.65
1:D:258:LEU:CD1	1:D:388:ILE:CB	2.59	0.65
1:D:203:ARG:NH1	1:D:203:ARG:HG3	2.10	0.65
1:B:23:ILE:HG23	1:B:24:LEU:HD22	1.79	0.65
1:A:191:ARG:HG3	1:A:191:ARG:HH11	1.62	0.64
1:C:459:ASP:OD2	1:C:461:ARG:NH1	2.31	0.64
1:A:95:LEU:O	1:A:99:ILE:HG13	1.97	0.64
1:C:207:VAL:HB	1:C:218:ASN:ND2	2.13	0.64
1:D:80:ILE:HG22	1:D:83:LYS:NZ	2.13	0.64
1:B:68:GLU:HB3	1:B:109:LEU:CD2	2.27	0.64
1:D:150:VAL:O	1:D:162:THR:OG1	2.06	0.64
1:A:235:ILE:HD13	1:A:242:SER:HA	1.79	0.63
1:A:80:ILE:HG22	1:A:83:LYS:HZ2	1.63	0.63
1:B:72:ILE:CG1	1:B:107:MET:HE1	2.26	0.63
1:B:260:VAL:O	1:B:358:THR:HA	1.97	0.63
1:B:219:LEU:HD13	1:B:219:LEU:N	2.14	0.63
1:A:219:LEU:HD13	1:A:219:LEU:N	2.13	0.62
1:C:64:PRO:HG2	1:C:116:VAL:HG13	1.81	0.62
1:B:72:ILE:HG13	1:B:107:MET:CE	2.28	0.62
1:C:380:LYS:NZ	1:C:420:ASN:OD1	2.31	0.62
1:B:258:LEU:HD22	1:B:388:ILE:O	2.00	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:105:LEU:C	1:C:105:LEU:CD2	2.68	0.62
1:D:141:ASP:HB2	1:D:153:VAL:HB	1.81	0.62
1:D:5:GLU:O	1:D:9:THR:OG1	2.17	0.62
1:B:114:GLU:CD	1:B:114:GLU:H	2.03	0.62
1:B:258:LEU:HD23	1:B:388:ILE:HG21	1.74	0.61
1:A:416:ASP:OD2	1:A:418:VAL:HB	2.00	0.61
1:B:301:TRP:CE2	1:B:303:ALA:HB2	2.34	0.61
1:A:5:GLU:O	1:A:9:THR:OG1	2.18	0.61
1:B:286:VAL:HG22	1:B:302:VAL:HB	1.81	0.61
1:D:380:LYS:NZ	1:D:420:ASN:OD1	2.33	0.61
1:C:344:VAL:O	1:C:347:GLN:HB3	2.01	0.61
1:A:80:ILE:HG22	1:A:83:LYS:HZ1	1.65	0.61
1:B:64:PRO:HG2	1:B:116:VAL:HG13	1.82	0.61
1:B:379:PRO:HG2	1:B:382:TYR:CD1	2.36	0.61
1:B:219:LEU:HD13	1:B:219:LEU:H	1.65	0.60
1:D:287:THR:HG22	1:D:333:LEU:HB2	1.83	0.60
1:B:184:TYR:O	1:B:185:ARG:NH1	2.35	0.60
1:A:112:PRO:O	1:A:116:VAL:HG23	2.01	0.60
1:A:247:TYR:HA	1:A:470:LEU:HD11	1.84	0.60
1:B:258:LEU:HD22	1:B:388:ILE:C	2.22	0.60
1:D:434:GLN:HB3	1:D:436:LYS:HE2	1.83	0.60
1:B:126:TYR:HB3	1:B:131:GLU:OE1	2.01	0.60
1:B:130:LEU:HD21	1:B:144:ILE:HD11	1.83	0.60
1:B:323:ALA:O	1:B:327:GLN:HG3	2.01	0.60
1:B:180:SER:OG	1:B:187:VAL:HG13	2.01	0.60
1:B:258:LEU:CD2	1:B:388:ILE:HG21	2.24	0.60
1:B:415:ILE:HD13	1:B:422:VAL:HA	1.83	0.60
1:B:273:ASN:O	1:B:273:ASN:ND2	2.26	0.59
1:C:75:LYS:HZ3	1:C:107:MET:HE2	0.59	0.59
1:A:3:PHE:CE1	1:A:61:PRO:HD3	2.36	0.59
1:C:296:VAL:HB	1:C:301:TRP:CD2	2.37	0.59
1:B:3:PHE:CE1	1:B:61:PRO:HD3	2.38	0.58
1:B:185:ARG:NH2	1:B:305:VAL:HG21	2.18	0.58
1:A:141:ASP:HB2	1:A:153:VAL:HB	1.86	0.58
1:A:249:TRP:HE1	1:A:499:ARG:NH2	2.01	0.58
1:B:261:CYS:H	1:B:390:LEU:CD1	2.16	0.58
1:B:331:TYR:CE2	1:B:354:SER:HB3	2.38	0.58
1:C:130:LEU:HD21	1:C:144:ILE:HD11	1.84	0.58
1:D:203:ARG:HH22	1:D:291:THR:HG22	1.69	0.58
1:A:20:ASN:O	1:A:23:ILE:HG22	2.03	0.58
1:C:23:ILE:HG23	1:C:24:LEU:HD22	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:64:PRO:HG3	1:A:116:VAL:HG22	1.86	0.58
1:A:442:LYS:O	1:A:467:TYR:CZ	2.56	0.58
1:C:144:ILE:HG12	1:C:150:VAL:HG22	1.86	0.58
1:D:149:HIS:NE2	1:D:165:LYS:HE2	2.19	0.58
1:D:258:LEU:CD1	1:D:388:ILE:C	2.72	0.58
1:D:430:TYR:OH	1:D:435:ASP:OD1	2.13	0.57
1:B:296:VAL:HB	1:B:301:TRP:CD2	2.40	0.57
1:A:219:LEU:HD13	1:A:219:LEU:H	1.69	0.57
1:B:80:ILE:HG22	1:B:83:LYS:HZ1	1.69	0.57
1:A:243:MET:O	1:A:246:ALA:HB3	2.04	0.57
1:A:322:LYS:O	1:A:326:ARG:NH1	2.37	0.57
1:B:142:ILE:HB	1:B:221:VAL:HB	1.86	0.57
1:B:231:ILE:O	1:B:235:ILE:HG13	2.04	0.57
1:D:258:LEU:HD12	1:D:388:ILE:C	2.24	0.57
1:D:42:ILE:HG21	1:D:56:TYR:CE1	2.39	0.56
1:C:94:LYS:HD2	1:C:97:ARG:HG3	1.87	0.56
1:D:204:VAL:HG23	1:D:221:VAL:HG22	1.86	0.56
1:A:114:GLU:CD	1:A:114:GLU:H	2.08	0.56
1:A:415:ILE:HD13	1:A:422:VAL:HA	1.86	0.56
1:B:141:ASP:HB2	1:B:153:VAL:HB	1.85	0.56
1:D:203:ARG:HG3	1:D:203:ARG:HH11	1.70	0.56
1:B:228:PRO:HG3	1:B:295:THR:HB	1.87	0.56
1:C:75:LYS:HD2	1:C:107:MET:HE2	1.82	0.56
1:B:30:PHE:CE2	1:B:46:SER:HB3	2.41	0.56
1:B:390:LEU:CD1	1:B:390:LEU:C	2.74	0.56
1:A:7:TYR:O	1:A:10:LYS:HG2	2.06	0.56
1:C:364:ILE:O	1:C:368:ILE:HG12	2.05	0.56
1:A:144:ILE:HD12	1:A:219:LEU:CD1	2.21	0.55
1:C:286:VAL:HG22	1:C:302:VAL:HB	1.89	0.55
1:B:213:SER:O	1:B:216:GLY:N	2.38	0.55
1:B:258:LEU:C	1:B:258:LEU:CD1	2.75	0.55
1:C:7:TYR:O	1:C:10:LYS:HG2	2.07	0.55
1:D:296:VAL:HG12	1:D:298:HIS:H	1.71	0.55
1:C:258:LEU:HD12	1:C:388:ILE:O	2.07	0.55
1:D:251:MET:HG3	1:D:388:ILE:HD11	1.89	0.55
1:B:136:ASP:HB3	1:B:139:ILE:HD12	1.88	0.55
1:B:244:MET:HA	1:B:428:PHE:CZ	2.41	0.55
1:A:382:TYR:O	1:A:385:ASN:HB2	2.07	0.55
1:A:471:GLN:O	1:A:474:SER:HB3	2.07	0.55
1:B:322:LYS:NZ	1:B:326:ARG:NH1	2.50	0.55
1:B:72:ILE:HG12	1:B:107:MET:SD	2.47	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:94:LYS:HA	1:C:97:ARG:HG3	1.88	0.54
1:B:50:GLU:H	1:B:50:GLU:CD	2.09	0.54
1:D:291:THR:HG22	1:D:293:GLU:HG3	1.89	0.54
1:A:64:PRO:HG2	1:A:116:VAL:HG13	1.89	0.54
1:B:56:TYR:CD2	1:B:162:THR:HG22	2.43	0.54
1:B:144:ILE:HB	1:B:219:LEU:HD11	1.88	0.54
1:C:231:ILE:O	1:C:235:ILE:HG13	2.07	0.54
1:B:211:ASP:OD1	1:B:212:ILE:HG12	2.08	0.54
1:D:173:ASP:OD1	1:D:217:SER:OG	2.21	0.54
1:C:431:ASP:OD2	1:C:434:GLN:HB2	2.08	0.54
1:A:16:THR:OG1	1:A:17:ILE:N	2.40	0.53
1:A:258:LEU:CD1	1:A:388:ILE:C	2.77	0.53
1:B:14:ARG:HG2	1:B:14:ARG:HH11	1.73	0.53
1:C:61:PRO:CB	1:C:115:TYR:CD2	2.83	0.53
1:D:7:TYR:O	1:D:10:LYS:HG2	2.09	0.53
1:B:228:PRO:HB2	1:B:488:TYR:CE2	2.43	0.53
1:C:333:LEU:HD22	1:C:356:MET:HB2	1.90	0.53
1:B:333:LEU:HD22	1:B:356:MET:HB2	1.89	0.53
1:D:126:TYR:HB3	1:D:131:GLU:OE1	2.08	0.53
1:C:258:LEU:O	1:C:356:MET:HA	2.08	0.53
1:A:251:MET:SD	1:A:256:MET:HG3	2.48	0.53
1:B:191:ARG:HG3	1:B:191:ARG:NH1	2.23	0.53
1:B:250:THR:OG1	1:B:473:ARG:NH1	2.41	0.53
1:B:260:VAL:CA	1:B:390:LEU:CD1	2.62	0.52
1:A:244:MET:HA	1:A:428:PHE:CZ	2.44	0.52
1:C:106:ARG:C	1:C:107:MET:HG3	2.30	0.52
1:B:325:LEU:HD21	1:B:348:ALA:HB2	1.90	0.52
1:C:408:GLU:HA	1:C:428:PHE:O	2.09	0.52
1:D:459:ASP:OD2	1:D:461:ARG:NH1	2.42	0.52
1:D:104:LEU:HB3	1:D:113:LYS:HE3	1.91	0.52
1:B:105:LEU:C	1:B:105:LEU:CD2	2.76	0.52
1:B:192:PRO:HG2	1:B:193:VAL:HG23	1.91	0.52
1:C:114:GLU:H	1:C:114:GLU:CD	2.13	0.52
1:A:61:PRO:CB	1:A:115:TYR:HD2	2.16	0.52
1:A:147:LEU:HD22	1:A:167:GLU:O	2.10	0.52
1:A:258:LEU:HD12	1:A:388:ILE:C	2.29	0.52
1:B:40:VAL:CG1	1:B:132:PRO:HB3	2.38	0.52
1:B:257:ASN:ND2	1:B:349:MET:HB3	2.25	0.52
1:C:100:LEU:HD11	1:C:120:PHE:CD2	2.45	0.52
1:C:492:TRP:O	1:C:496:LEU:HG	2.10	0.52
1:B:109:LEU:HD13	1:B:116:VAL:CG2	2.39	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:68:GLU:HB3	1:B:109:LEU:HD22	1.92	0.51
1:B:104:LEU:HD23	1:B:107:MET:SD	2.51	0.51
1:B:213:SER:OG	1:B:216:GLY:O	2.21	0.51
1:B:260:VAL:HA	1:B:390:LEU:HG	1.92	0.51
1:B:374:TYR:CG	1:B:375:PRO:HA	2.45	0.51
1:D:281:PRO:HA	1:D:298:HIS:CD2	2.45	0.51
1:D:368:ILE:HD12	1:D:383:ILE:HG21	1.92	0.51
1:A:129:SER:O	1:A:132:PRO:HD2	2.09	0.51
1:A:322:LYS:HG2	1:A:344:VAL:HG11	1.92	0.51
1:B:228:PRO:CG	1:B:295:THR:HB	2.41	0.51
1:C:251:MET:SD	1:C:256:MET:HG3	2.50	0.51
1:B:416:ASP:OD2	1:B:418:VAL:HB	2.10	0.51
1:C:269:THR:HG21	1:C:293:GLU:OE1	2.10	0.51
1:A:125:LEU:HB3	1:A:126:TYR:CD1	2.45	0.51
1:A:398:LYS:HD2	1:A:398:LYS:N	2.26	0.51
1:A:219:LEU:C	1:A:219:LEU:CD2	2.79	0.50
1:B:439:PHE:CD1	1:B:440:ALA:N	2.79	0.50
1:B:3:PHE:HB3	1:B:115:TYR:HE2	1.76	0.50
1:D:415:ILE:HD13	1:D:422:VAL:HA	1.94	0.50
1:D:497:ARG:O	1:D:501:MET:HG2	2.10	0.50
1:A:176:ILE:HD11	1:A:219:LEU:HD12	1.93	0.50
1:B:19:GLU:HA	1:B:34:TYR:HB2	1.92	0.50
1:B:288:ILE:HG22	1:B:317:LEU:HD22	1.94	0.50
1:A:63:ARG:HH11	1:A:119:HIS:HB3	1.76	0.50
1:A:88:ASP:O	1:A:92:LYS:HB2	2.12	0.50
1:B:279:ILE:HD13	1:B:331:TYR:CD1	2.47	0.50
1:C:20:ASN:OD1	1:C:22:ASN:HB2	2.11	0.50
1:B:219:LEU:C	1:B:219:LEU:CD2	2.80	0.50
1:B:118:TYR:O	1:B:122:ARG:HB2	2.12	0.50
1:A:43:HIS:HB3	1:A:57:ASN:HB2	1.94	0.49
1:C:117:ILE:O	1:C:121:ILE:HG12	2.12	0.49
1:D:61:PRO:HB2	1:D:115:TYR:CD2	2.42	0.49
1:C:72:ILE:HG23	1:C:103:ILE:HD11	1.94	0.49
1:D:30:PHE:CE2	1:D:46:SER:HB3	2.46	0.49
1:B:68:GLU:OE2	1:B:109:LEU:HD22	2.12	0.49
1:B:139:ILE:O	1:B:223:LYS:HD3	2.12	0.49
1:A:99:ILE:O	1:A:103:ILE:HG23	2.13	0.49
1:D:333:LEU:HD22	1:D:356:MET:HB2	1.94	0.49
1:A:325:LEU:HD21	1:A:348:ALA:HB2	1.95	0.49
1:B:65:THR:HG22	1:B:68:GLU:HG3	1.94	0.49
1:D:376:ILE:HG22	1:D:378:VAL:HG23	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:44:ILE:HD12	1:A:157:PHE:CZ	2.47	0.49
1:B:201:GLY:HA3	1:B:226:ARG:HB3	1.93	0.49
1:B:347:GLN:NE2	1:B:347:GLN:HA	2.27	0.49
1:D:114:GLU:CD	1:D:114:GLU:H	2.16	0.49
1:A:125:LEU:HB3	1:A:126:TYR:CE1	2.48	0.48
1:B:3:PHE:HB3	1:B:115:TYR:CE2	2.48	0.48
1:D:50:GLU:H	1:D:50:GLU:CD	2.16	0.48
1:B:461:ARG:HD3	1:C:440:ALA:O	2.13	0.48
1:D:166:PHE:CZ	1:D:175:LEU:HD22	2.48	0.48
1:C:86:PRO:HB2	1:C:92:LYS:CD	2.44	0.48
1:C:445:SER:HB3	1:C:448:ILE:HB	1.96	0.48
1:A:117:ILE:O	1:A:121:ILE:HG12	2.14	0.48
1:C:100:LEU:O	1:C:104:LEU:CG	2.58	0.48
1:C:88:ASP:O	1:C:92:LYS:HB2	2.13	0.48
1:D:243:MET:O	1:D:243:MET:HG3	2.13	0.48
1:C:142:ILE:HB	1:C:221:VAL:HB	1.94	0.48
1:A:291:THR:O	1:A:293:GLU:HG3	2.14	0.48
1:C:99:ILE:O	1:C:103:ILE:HG23	2.13	0.48
1:C:473:ARG:HG3	1:C:503:LEU:HD21	1.96	0.48
1:D:262:GLY:O	1:D:268:LYS:HD3	2.14	0.48
1:A:301:TRP:CE2	1:A:303:ALA:HB2	2.48	0.47
1:B:321:LEU:O	1:B:324:ALA:HB3	2.14	0.47
1:B:382:TYR:O	1:B:385:ASN:HB2	2.14	0.47
1:A:275:ILE:O	1:A:278:PHE:HB2	2.14	0.47
1:A:176:ILE:HG12	1:A:217:SER:HB3	1.96	0.47
1:B:42:ILE:HG21	1:B:56:TYR:CE1	2.49	0.47
1:B:94:LYS:HA	1:B:97:ARG:HG3	1.95	0.47
1:C:88:ASP:HB3	1:C:92:LYS:HD2	1.96	0.47
1:D:60:GLU:CB	1:D:61:PRO:HD2	2.45	0.47
1:D:144:ILE:O	1:D:218:ASN:HB2	2.15	0.47
1:A:510:VAL:C	1:A:512:ASN:H	2.18	0.47
1:B:21:PRO:HD2	1:B:138:TYR:CE1	2.50	0.47
1:B:180:SER:CB	1:B:187:VAL:HG13	2.44	0.47
1:B:203:ARG:HA	1:B:203:ARG:HD3	1.53	0.47
1:B:405:ARG:O	1:B:407:VAL:HG13	2.15	0.47
1:C:60:GLU:OE2	1:C:122:ARG:NH1	2.41	0.47
1:C:151:TYR:HE1	1:C:161:ARG:HB2	1.80	0.47
1:C:413:ILE:HD11	1:C:425:ILE:HG13	1.97	0.47
1:A:193:VAL:HG22	1:A:207:VAL:HG22	1.97	0.47
1:A:487:ASN:O	1:A:491:VAL:HG23	2.14	0.47
1:A:179:LEU:HD23	1:A:179:LEU:HA	1.67	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:273:ASN:HD22	1:B:273:ASN:C	2.16	0.46
1:A:318:PHE:N	1:A:341:GLU:HB3	2.30	0.46
1:B:94:LYS:HD2	1:B:97:ARG:HG3	1.98	0.46
1:B:200:ASP:O	1:B:226:ARG:HD3	2.15	0.46
1:A:290:ASP:HA	1:A:306:THR:OG1	2.14	0.46
1:B:125:LEU:HB3	1:B:126:TYR:CD1	2.49	0.46
1:C:30:PHE:CE2	1:C:46:SER:HB3	2.51	0.46
1:D:374:TYR:CG	1:D:375:PRO:HA	2.51	0.46
1:A:473:ARG:HG3	1:A:503:LEU:HD21	1.96	0.46
1:A:503:LEU:HD12	1:A:503:LEU:HA	1.75	0.46
1:B:166:PHE:CZ	1:B:175:LEU:HD22	2.50	0.46
1:C:249:TRP:CG	1:C:278:PHE:CD1	3.03	0.46
1:C:141:ASP:HB2	1:C:153:VAL:HB	1.97	0.46
1:A:350:GLN:HG2	1:A:382:TYR:CE2	2.50	0.46
1:B:7:TYR:O	1:B:10:LYS:HG2	2.16	0.46
1:B:261:CYS:N	1:B:390:LEU:CD1	2.79	0.46
1:C:17:ILE:HD13	1:C:33:ILE:HG23	1.98	0.46
1:D:24:LEU:O	1:D:27:SER:N	2.38	0.46
1:A:138:TYR:HB3	1:A:154:HIS:CE1	2.51	0.46
1:B:72:ILE:CD1	1:B:107:MET:HE2	2.42	0.46
1:B:268:LYS:HD2	1:B:358:THR:HB	1.96	0.46
1:A:364:ILE:O	1:A:368:ILE:HG12	2.16	0.46
1:B:379:PRO:HD2	1:B:382:TYR:HB2	1.97	0.46
1:C:253:ASP:OD1	1:C:499:ARG:NH2	2.44	0.46
1:D:65:THR:HG22	1:D:68:GLU:HG3	1.98	0.46
1:B:20:ASN:O	1:B:23:ILE:HG22	2.17	0.45
1:B:137:PRO:HG2	1:B:138:TYR:CD2	2.51	0.45
1:B:403:ILE:HD12	1:B:405:ARG:NE	2.31	0.45
1:C:144:ILE:O	1:C:218:ASN:HB2	2.16	0.45
1:C:166:PHE:CZ	1:C:175:LEU:HD22	2.50	0.45
1:C:223:LYS:HB3	1:C:223:LYS:HE2	1.84	0.45
1:A:235:ILE:CD1	1:A:242:SER:HA	2.47	0.45
1:B:14:ARG:HG2	1:B:14:ARG:NH1	2.31	0.45
1:B:219:LEU:CD1	1:B:219:LEU:N	2.80	0.45
1:C:191:ARG:HG3	1:C:191:ARG:NH1	2.28	0.45
1:C:212:ILE:HD11	1:D:307:ARG:NH1	2.32	0.45
1:C:261:CYS:HB2	1:C:391:PHE:CD1	2.50	0.45
1:C:368:ILE:HD12	1:C:383:ILE:HG21	1.98	0.45
1:D:452:ILE:O	1:D:456:ARG:HB2	2.16	0.45
1:A:219:LEU:CD1	1:A:219:LEU:N	2.80	0.45
1:B:44:ILE:HD12	1:B:157:PHE:CZ	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:144:ILE:HG12	1:B:150:VAL:HG22	1.97	0.45
1:B:402:LEU:HD23	1:B:404:ARG:NH1	2.32	0.45
1:C:226:ARG:HG3	1:C:227:VAL:HG23	1.96	0.45
1:D:342:GLY:O	1:D:345:ALA:HB3	2.17	0.45
1:C:126:TYR:HB3	1:C:131:GLU:OE1	2.16	0.45
1:B:439:PHE:HD1	1:B:440:ALA:N	2.15	0.45
1:C:96:ILE:H	1:C:96:ILE:HG12	1.59	0.45
1:C:100:LEU:CD2	1:C:104:LEU:HD21	2.45	0.45
1:B:150:VAL:O	1:B:162:THR:OG1	2.19	0.45
1:C:80:ILE:HG22	1:C:83:LYS:NZ	2.32	0.45
1:C:133:LEU:HD11	1:C:164:ILE:HD12	1.99	0.45
1:D:44:ILE:H	1:D:44:ILE:HG12	1.62	0.45
1:D:272:LEU:HD22	1:D:358:THR:HG23	1.97	0.45
1:B:176:ILE:HD11	1:B:219:LEU:HD12	1.99	0.45
1:C:409:VAL:O	1:C:427:ALA:N	2.49	0.45
1:A:142:ILE:HB	1:A:221:VAL:HB	1.98	0.45
1:A:503:LEU:O	1:A:507:ILE:HG13	2.17	0.45
1:D:74:GLU:O	1:D:78:LEU:HG	2.17	0.45
1:A:44:ILE:HD12	1:A:157:PHE:CE2	2.52	0.44
1:B:104:LEU:HD13	1:B:113:LYS:HG3	1.98	0.44
1:C:60:GLU:CB	1:C:61:PRO:HD2	2.45	0.44
1:A:185:ARG:HG3	1:A:196:ALA:HB2	2.00	0.44
1:D:139:ILE:O	1:D:223:LYS:HD3	2.16	0.44
1:A:212:ILE:O	1:B:304:GLU:HA	2.18	0.44
1:B:104:LEU:HB3	1:B:113:LYS:HE3	2.00	0.44
1:A:463:ILE:HD12	1:A:463:ILE:HA	1.72	0.44
1:B:343:ASN:HB2	1:B:376:ILE:O	2.18	0.44
1:B:68:GLU:HB3	1:B:109:LEU:HD21	1.98	0.44
1:C:43:HIS:HB3	1:C:57:ASN:HB2	1.98	0.44
1:C:95:LEU:O	1:C:99:ILE:HG13	2.17	0.44
1:D:477:LEU:HD23	1:D:477:LEU:HA	1.82	0.44
1:B:247:TYR:C	1:B:247:TYR:CD2	2.90	0.44
1:A:173:ASP:O	1:A:177:VAL:HG23	2.18	0.44
1:C:33:ILE:HA	1:C:42:ILE:O	2.18	0.44
1:A:431:ASP:OD2	1:A:434:GLN:HB2	2.17	0.44
1:B:495:ILE:O	1:B:499:ARG:HG3	2.17	0.44
1:C:207:VAL:HB	1:C:218:ASN:HD21	1.82	0.44
1:A:41:TYR:O	1:A:59:ILE:HB	2.18	0.44
1:B:180:SER:HB2	1:B:185:ARG:O	2.18	0.44
1:A:64:PRO:CG	1:A:116:VAL:HG13	2.48	0.43
1:C:331:TYR:CE2	1:C:354:SER:HB3	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:21:PRO:HB2	1:A:156:VAL:HG21	2.00	0.43
1:A:376:ILE:HG22	1:A:378:VAL:HG23	1.99	0.43
1:C:88:ASP:HB3	1:C:91:GLU:OE2	2.18	0.43
1:D:247:TYR:HA	1:D:470:LEU:HD11	1.99	0.43
1:A:20:ASN:OD1	1:A:22:ASN:HB2	2.18	0.43
1:A:228:PRO:HB2	1:A:488:TYR:CD2	2.53	0.43
1:B:58:VAL:HG21	1:B:164:ILE:HD11	2.01	0.43
1:B:76:PHE:CE2	1:B:124:LYS:HE2	2.53	0.43
1:C:151:TYR:CE1	1:C:161:ARG:HB2	2.53	0.43
1:A:195:ASP:OD2	1:B:326:ARG:HG2	2.19	0.43
1:A:297:PRO:HG3	1:A:488:TYR:HE1	1.84	0.43
1:B:117:ILE:O	1:B:121:ILE:HG12	2.18	0.43
1:A:76:PHE:CE2	1:A:124:LYS:HE2	2.54	0.43
1:A:322:LYS:HB3	1:A:322:LYS:HE2	1.76	0.43
1:A:350:GLN:HG2	1:A:382:TYR:HE2	1.82	0.43
1:B:144:ILE:CD1	1:B:219:LEU:HD11	2.45	0.43
1:B:431:ASP:OD2	1:B:434:GLN:HB2	2.19	0.43
1:D:330:ASN:O	1:D:354:SER:HB2	2.18	0.43
1:D:494:TYR:O	1:D:497:ARG:HB3	2.19	0.43
1:C:100:LEU:HD22	1:C:104:LEU:CD1	2.46	0.43
1:C:280:PRO:HD2	1:C:283:LEU:HD12	2.01	0.43
1:D:261:CYS:O	1:D:391:PHE:HA	2.19	0.43
1:D:445:SER:OG	1:D:448:ILE:HG13	2.19	0.43
1:A:104:LEU:HB3	1:A:113:LYS:HE3	2.01	0.42
1:A:261:CYS:HB2	1:A:391:PHE:CD1	2.54	0.42
1:A:459:ASP:OD2	1:A:461:ARG:NH1	2.52	0.42
1:B:345:ALA:O	1:B:349:MET:HG3	2.19	0.42
1:C:7:TYR:CD1	1:C:10:LYS:HE3	2.54	0.42
1:C:291:THR:O	1:C:293:GLU:N	2.49	0.42
1:B:409:VAL:O	1:B:427:ALA:N	2.47	0.42
1:D:430:TYR:CE2	1:D:432:SER:HA	2.54	0.42
1:A:227:VAL:HA	1:A:228:PRO:HD3	1.77	0.42
1:B:72:ILE:HG12	1:B:107:MET:CE	2.47	0.42
1:B:247:TYR:HA	1:B:470:LEU:HD11	2.01	0.42
1:B:258:LEU:HA	1:B:388:ILE:O	2.19	0.42
1:B:439:PHE:HD1	1:B:440:ALA:H	1.67	0.42
1:C:30:PHE:CD2	1:C:46:SER:HB3	2.54	0.42
1:C:61:PRO:HB2	1:C:115:TYR:HB3	2.01	0.42
1:C:244:MET:O	1:C:247:TYR:HB3	2.19	0.42
1:D:80:ILE:HG22	1:D:83:LYS:HZ2	1.82	0.42
1:B:413:ILE:HG12	1:B:446:TYR:CD2	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:58:VAL:HG21	1:C:164:ILE:HD11	2.01	0.42
1:C:244:MET:HA	1:C:428:PHE:CZ	2.54	0.42
1:D:191:ARG:NE	1:D:308:GLU:O	2.51	0.42
1:A:57:ASN:HA	1:A:163:SER:HB3	2.02	0.42
1:B:434:GLN:HG3	1:B:436:LYS:HZ1	1.85	0.42
1:C:125:LEU:HD22	1:C:125:LEU:HA	1.84	0.42
1:D:203:ARG:HH12	1:D:291:THR:HG23	1.84	0.42
1:A:85:PRO:HA	1:A:86:PRO:HD3	1.89	0.42
1:C:129:SER:O	1:C:132:PRO:HD2	2.20	0.42
1:A:144:ILE:HB	1:A:219:LEU:HD11	2.00	0.42
1:A:333:LEU:HD22	1:A:356:MET:HB2	2.02	0.42
1:A:475:ARG:O	1:A:479:LEU:HD13	2.20	0.42
1:C:74:GLU:O	1:C:78:LEU:HG	2.19	0.42
1:A:497:ARG:NH1	1:A:501:MET:HE1	2.34	0.42
1:A:501:MET:O	1:A:505:GLU:HB2	2.20	0.42
1:C:76:PHE:CE2	1:C:124:LYS:HE2	2.55	0.42
1:C:309:THR:OG1	1:C:312:GLU:O	2.30	0.42
1:A:86:PRO:HB2	1:A:92:LYS:CD	2.50	0.41
1:A:183:SER:OG	1:A:198:LEU:HD23	2.19	0.41
1:A:296:VAL:HB	1:A:301:TRP:CD2	2.55	0.41
1:B:242:SER:OG	1:B:474:SER:O	2.37	0.41
1:B:283:LEU:HB3	1:B:330:ASN:CB	2.50	0.41
1:B:342:GLY:O	1:B:345:ALA:N	2.49	0.41
1:D:20:ASN:OD1	1:D:22:ASN:HB2	2.20	0.41
1:B:50:GLU:CD	1:B:50:GLU:N	2.73	0.41
1:D:364:ILE:O	1:D:368:ILE:HG12	2.21	0.41
1:A:383:ILE:O	1:A:385:ASN:N	2.54	0.41
1:C:365:THR:O	1:C:369:GLN:HG3	2.20	0.41
1:A:63:ARG:HD2	1:A:119:HIS:CG	2.56	0.41
1:B:68:GLU:OE2	1:B:109:LEU:CD2	2.67	0.41
1:C:281:PRO:HG3	1:C:496:LEU:HD22	2.02	0.41
1:D:20:ASN:O	1:D:23:ILE:HG22	2.20	0.41
1:D:180:SER:HB2	1:D:185:ARG:O	2.20	0.41
1:D:495:ILE:O	1:D:499:ARG:HG3	2.19	0.41
1:C:8:LEU:HA	1:C:8:LEU:HD12	1.87	0.41
1:C:276:THR:HG23	1:C:279:ILE:HD12	2.01	0.41
1:B:47:ILE:HD11	1:B:49:SER:HB2	2.03	0.41
1:B:371:LEU:HD23	1:B:371:LEU:HA	1.87	0.41
1:C:391:PHE:O	1:C:407:VAL:HG22	2.21	0.41
1:D:76:PHE:CE2	1:D:124:LYS:HE2	2.55	0.41
1:A:88:ASP:HB3	1:A:91:GLU:OE2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:245:ALA:HB3	1:A:477:LEU:HD13	2.01	0.41
1:C:258:LEU:HD13	1:C:388:ILE:CB	2.43	0.41
1:A:380:LYS:C	1:A:382:TYR:H	2.23	0.41
1:A:494:TYR:HA	1:A:497:ARG:HB3	2.03	0.41
1:B:440:ALA:O	1:D:460:ARG:NH2	2.52	0.41
1:B:471:GLN:O	1:B:475:ARG:HG3	2.20	0.41
1:C:183:SER:OG	1:C:198:LEU:HD23	2.20	0.41
1:C:283:LEU:HB3	1:C:330:ASN:CB	2.50	0.41
1:C:50:GLU:H	1:C:50:GLU:CD	2.25	0.41
1:D:3:PHE:CD2	1:D:115:TYR:HE2	2.39	0.41
1:D:112:PRO:HB2	1:D:115:TYR:HD1	1.86	0.41
1:A:53:TYR:HB2	1:A:161:ARG:NH1	2.36	0.40
1:A:349:MET:HA	1:A:353:HIS:O	2.20	0.40
1:D:125:LEU:HA	1:D:125:LEU:HD22	1.86	0.40
1:A:30:PHE:CE2	1:A:46:SER:HB3	2.57	0.40
1:A:380:LYS:NZ	1:A:420:ASN:OD1	2.52	0.40
1:B:112:PRO:O	1:B:116:VAL:HG23	2.20	0.40
1:B:402:LEU:HD12	1:B:402:LEU:HA	1.77	0.40
1:D:285:ILE:HD13	1:D:298:HIS:CG	2.55	0.40
1:D:380:LYS:HB2	1:D:380:LYS:HE3	1.86	0.40
1:A:88:ASP:HB3	1:A:92:LYS:HD2	2.03	0.40
1:A:285:ILE:HD12	1:A:285:ILE:N	2.37	0.40
1:A:370:ARG:O	1:A:376:ILE:HD12	2.21	0.40
1:B:30:PHE:CZ	1:B:46:SER:HB3	2.57	0.40
1:C:380:LYS:HB2	1:C:380:LYS:HE3	1.85	0.40
1:D:112:PRO:HB2	1:D:115:TYR:CD1	2.56	0.40
1:A:247:TYR:O	1:A:251:MET:HG2	2.22	0.40
1:B:251:MET:SD	1:B:256:MET:HG3	2.62	0.40
1:C:173:ASP:O	1:C:177:VAL:HG23	2.22	0.40
1:D:8:LEU:HD12	1:D:8:LEU:HA	1.78	0.40
1:D:441:GLY:O	1:D:444:SER:OG	2.34	0.40
1:B:8:LEU:HD12	1:B:8:LEU:HA	1.83	0.40
1:C:63:ARG:HD2	1:C:119:HIS:CG	2.56	0.40

All (1) 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:B:106:ARG:O	1:C:107:MET:CA[4_544]	1.94	0.26

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	498/513 (97%)	464 (93%)	26 (5%)	8 (2%)	9	46
1	B	492/513 (96%)	457 (93%)	30 (6%)	5 (1%)	15	55
1	C	506/513 (99%)	476 (94%)	27 (5%)	3 (1%)	25	64
1	D	490/513 (96%)	464 (95%)	23 (5%)	3 (1%)	25	64
All	All	1986/2052 (97%)	1861 (94%)	106 (5%)	19 (1%)	15	55

All (19) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	61	PRO
1	A	88	ASP
1	A	95	LEU
1	A	384	ASN
1	B	214	ARG
1	C	95	LEU
1	C	338	ARG
1	A	87	GLU
1	D	95	LEU
1	D	263	GLU
1	A	94	LYS
1	A	511	SER
1	B	18	ILE
1	B	61	PRO
1	B	95	LEU
1	A	311	GLY
1	B	311	GLY
1	C	311	GLY
1	D	311	GLY

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	454/463 (98%)	434 (96%)	20 (4%)	28	63
1	B	451/463 (97%)	436 (97%)	15 (3%)	38	69
1	C	460/463 (99%)	444 (96%)	16 (4%)	36	68
1	D	448/463 (97%)	430 (96%)	18 (4%)	31	65
All	All	1813/1852 (98%)	1744 (96%)	69 (4%)	33	66

All (69) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	ASP
1	A	9	THR
1	A	11	LEU
1	A	24	LEU
1	A	29	ILE
1	A	38	ASP
1	A	91	GLU
1	A	96	ILE
1	A	117	ILE
1	A	125	LEU
1	A	129	SER
1	A	172	LEU
1	A	191	ARG
1	A	219	LEU
1	A	273	ASN
1	A	321	LEU
1	A	322	LYS
1	A	331	TYR
1	A	384	ASN
1	A	503	LEU
1	B	6	ASP
1	B	11	LEU
1	B	69	MET
1	B	91	GLU

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Mol	Chain	Res	Type
1	B	125	LEU
1	B	191	ARG
1	B	211	ASP
1	B	219	LEU
1	B	236	MET
1	B	273	ASN
1	B	321	LEU
1	B	322	LYS
1	B	347	GLN
1	B	390	LEU
1	B	480	LEU
1	C	6	ASP
1	C	11	LEU
1	C	24	LEU
1	C	91	GLU
1	C	96	ILE
1	C	109	LEU
1	C	125	LEU
1	C	172	LEU
1	C	191	ARG
1	C	219	LEU
1	C	236	MET
1	C	273	ASN
1	C	321	LEU
1	C	322	LYS
1	C	351	THR
1	C	480	LEU
1	D	9	THR
1	D	11	LEU
1	D	44	ILE
1	D	91	GLU
1	D	117	ILE
1	D	125	LEU
1	D	129	SER
1	D	172	LEU
1	D	219	LEU
1	D	236	MET
1	D	264	THR
1	D	273	ASN
1	D	321	LEU
1	D	322	LYS
1	D	339	ASP

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Mol	Chain	Res	Type
1	D	347	GLN
1	D	404	ARG
1	D	480	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	360	HIS
1	A	471	GLN
1	B	257	ASN
1	B	434	GLN
1	C	218	ASN
1	D	347	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	504/513 (98%)	-0.07	7 (1%)	75	61	1, 11, 79, 112	0
1	B	500/513 (97%)	0.01	16 (3%)	47	32	1, 19, 81, 138	0
1	C	510/513 (99%)	0.09	14 (2%)	54	38	3, 49, 85, 133	1 (0%)
1	D	498/513 (97%)	0.04	13 (2%)	56	40	7, 47, 88, 108	1 (0%)
All	All	2012/2052 (98%)	0.02	50 (2%)	57	41	1, 35, 83, 138	2 (0%)

All (50) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	82	ASP	5.6
1	A	85	PRO	5.0
1	D	82	ASP	5.0
1	C	93	GLU	4.7
1	B	226	ARG	4.4
1	B	93	GLU	4.1
1	D	95	LEU	3.9
1	A	82	ASP	3.9
1	C	78	LEU	3.8
1	D	21	PRO	3.6
1	D	375	PRO	3.6
1	D	100	LEU	3.6
1	B	415	ILE	3.6
1	C	21	PRO	3.5
1	B	96	ILE	3.5
1	D	80	ILE	3.5
1	C	83	LYS	3.5
1	B	76	PHE	3.4
1	B	109	LEU	3.4
1	C	39	PHE	3.2
1	A	78	LEU	3.1

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Mol	Chain	Res	Type	RSRZ
1	D	104	LEU	2.9
1	B	107	MET	2.9
1	C	401	ASN	2.9
1	B	91	GLU	2.9
1	B	82	ASP	2.8
1	C	463	ILE	2.7
1	B	267	GLY	2.7
1	D	96	ILE	2.7
1	C	85	PRO	2.6
1	B	100	LEU	2.5
1	D	352	GLY	2.5
1	A	422	VAL	2.5
1	A	100	LEU	2.5
1	B	80	ILE	2.4
1	C	86	PRO	2.3
1	A	104	LEU	2.3
1	C	84	GLU	2.3
1	A	86	PRO	2.3
1	D	226	ARG	2.3
1	C	485	ILE	2.3
1	B	116	VAL	2.3
1	B	104	LEU	2.2
1	D	76	PHE	2.2
1	D	206	PHE	2.1
1	D	81	GLY	2.1
1	B	77	ALA	2.0
1	C	267	GLY	2.0
1	C	217	SER	2.0
1	B	33	ILE	2.0

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.