



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 7, 2026 – 12:48 AM UTC

PDB ID : 4CIH / pdb\_00004cih  
Title : Structure of LntA-K180D-K181D from *Listeria monocytogenes*  
Authors : Lebreton, A.; Job, V.; Ragon, M.; Le Monnier, A.; Dessen, A.; Cossart, P.;  
Bierne, H.  
Deposited on : 2013-12-09  
Resolution : 2.22 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](mailto: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>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4-5-2 with Phenix2.0  
Mogul : 2022.3.0, CSD as543be (2022)  
Xtriage (Phenix) : 2.0  
EDS : 3.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
CCP4 : 9.0.010 (Gargrove)  
Density-Fitness : 1.0.12  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

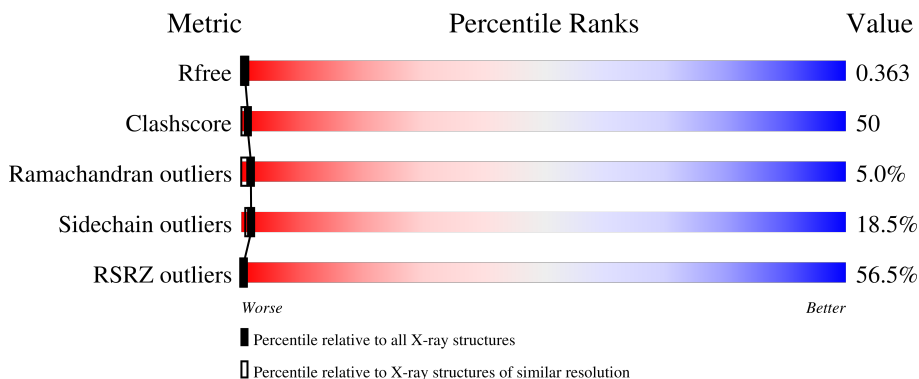
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.22 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	180053	7682 (2.24-2.20)
Clashscore	190562	8402 (2.24-2.20)
Ramachandran outliers	187476	8303 (2.24-2.20)
Sidechain outliers	187428	8304 (2.24-2.20)
RSRZ outliers	180081	7683 (2.24-2.20)

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  $\geq 3$ , 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	150	
1	B	150	
1	C	150	
1	D	150	

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 4806 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 LISTERIA NUCLEAR TARGETED PROTEIN A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	146	Total	C	N	O	Se	0	0	0
			1188	754	198	234	2			
1	B	146	Total	C	N	O	Se	0	0	0
			1188	754	198	234	2			
1	C	147	Total	C	N	O	Se	0	0	0
			1196	758	199	237	2			
1	D	146	Total	C	N	O	Se	0	0	0
			1188	754	198	234	2			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	180	ASP	LYS	engineered mutation	UNP Q8Y9T5
A	181	ASP	LYS	engineered mutation	UNP Q8Y9T5
B	180	ASP	LYS	engineered mutation	UNP Q8Y9T5
B	181	ASP	LYS	engineered mutation	UNP Q8Y9T5
C	180	ASP	LYS	engineered mutation	UNP Q8Y9T5
C	181	ASP	LYS	engineered mutation	UNP Q8Y9T5
D	180	ASP	LYS	engineered mutation	UNP Q8Y9T5
D	181	ASP	LYS	engineered mutation	UNP Q8Y9T5

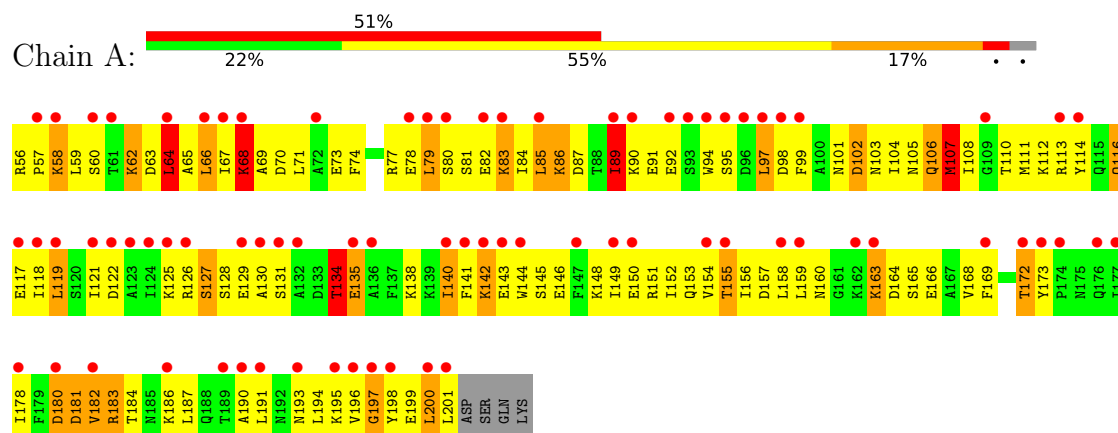
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	18	Total	O	0	0
			18	18		
2	B	13	Total	O	0	0
			13	13		
2	C	6	Total	O	0	0
			6	6		
2	D	9	Total	O	0	0
			9	9		

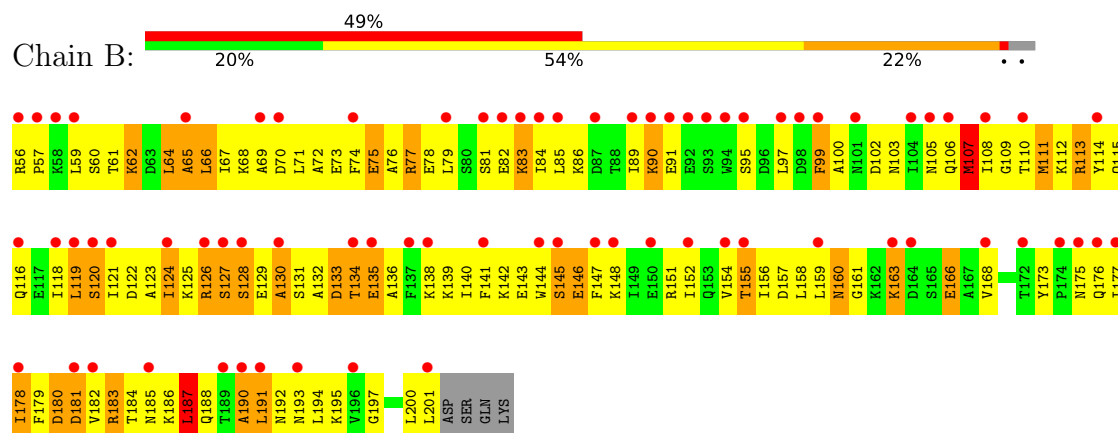
### 3 Residue-property plots [i](#)

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

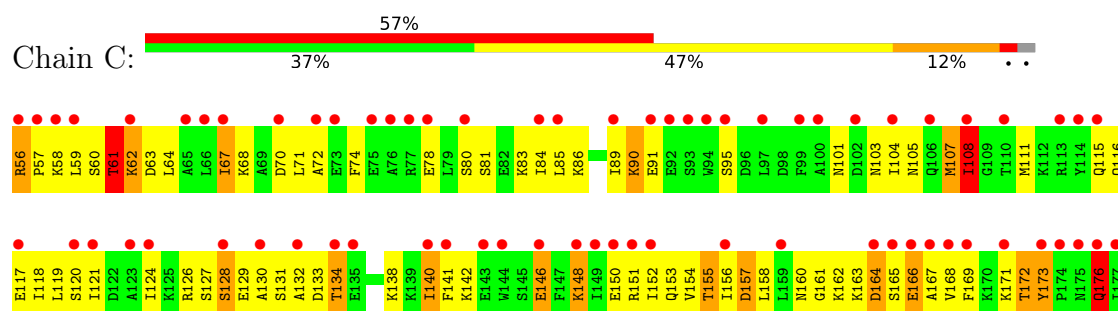
#### • Molecule 1: LISTERIA NUCLEAR TARGETED PROTEIN A

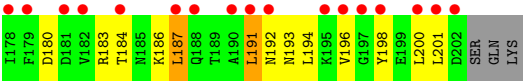


#### • Molecule 1: LISTERIA NUCLEAR TARGETED PROTEIN A

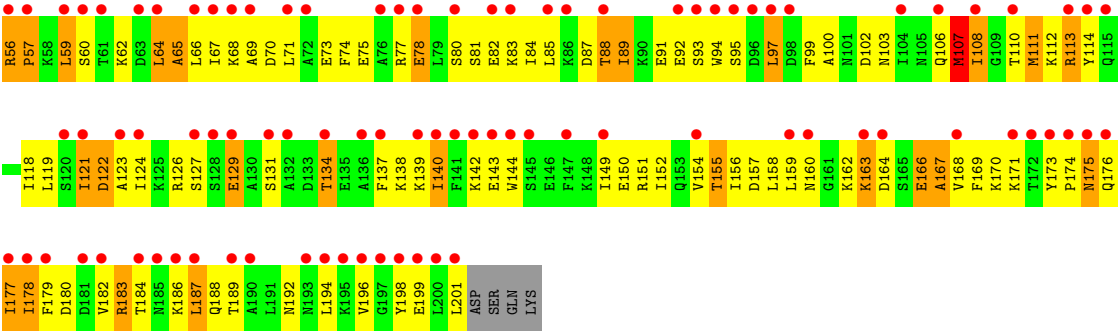


#### • Molecule 1: LISTERIA NUCLEAR TARGETED PROTEIN A





● Molecule 1: LISTERIA NUCLEAR TARGETED PROTEIN A



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 41	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	141.19Å 141.19Å 60.44Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.06 – 2.22 47.06 – 2.22	Depositor EDS
% Data completeness (in resolution range)	93.9 (47.06-2.22) 94.7 (47.06-2.22)	Depositor EDS
$R_{merge}$	0.01	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.54 (at 2.22Å)	Xtriage
Refinement program	REFMAC 5.8.0049	Depositor
R, $R_{free}$	0.278 , 0.309 0.331 , 0.363	Depositor DCC
$R_{free}$ test set	5622 reflections (10.03%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	35.4	Xtriage
Anisotropy	0.007	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.34 , 30.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.037 for h,-k,-l	Xtriage
Reported twinning fraction	0.511 for H, K, L 0.489 for -H, K, -L	Depositor
Outliers	1 of 56078 reflections (0.002%)	Xtriage
$F_o, F_c$ correlation	0.82	EDS
Total number of atoms	4806	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	41.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.43% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality

### 5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.83	0/1201	1.40	18/1608 (1.1%)
1	B	0.78	0/1201	1.35	17/1608 (1.1%)
1	C	0.74	0/1209	1.33	11/1619 (0.7%)
1	D	0.77	0/1201	1.32	8/1608 (0.5%)
All	All	0.78	0/4812	1.35	54/6443 (0.8%)

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

There are no bond length outliers.

All (54) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	167	ALA	N-CA-C	-9.61	101.69	113.41
1	C	95	SER	N-CA-C	8.38	120.50	110.44
1	D	56	ARG	CA-C-N	8.25	130.15	119.84
1	D	56	ARG	C-N-CA	8.25	130.15	119.84
1	A	108	ILE	N-CA-C	-8.23	103.25	110.74
1	B	124	ILE	N-CA-C	-7.46	101.82	112.35
1	B	73	GLU	N-CA-C	-7.34	103.59	112.54
1	D	65	ALA	N-CA-C	-6.97	103.62	111.14
1	A	107	MSE	N-CA-CB	-6.74	99.84	110.22
1	D	170	LYS	N-CA-C	6.61	118.14	111.07
1	B	187	LEU	N-CA-C	-6.55	104.06	111.07
1	C	176	GLN	N-CA-C	6.51	118.17	111.14
1	A	107	MSE	CB-CA-C	-6.50	98.61	110.63
1	A	64	LEU	CA-CB-CG	6.49	139.02	116.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	107	MSE	N-CA-CB	-6.47	100.55	110.13
1	A	134	THR	N-CA-C	6.40	118.13	111.03
1	C	193	ASN	N-CA-C	6.09	117.59	111.07
1	A	106	GLN	N-CA-C	6.09	117.92	111.28
1	C	148	LYS	N-CA-C	-6.05	104.80	111.82
1	B	178	ILE	N-CA-C	-5.98	104.48	111.00
1	A	85	LEU	N-CA-C	-5.81	104.64	110.97
1	B	133	ASP	N-CA-C	-5.79	105.05	111.36
1	B	111	MSE	CG-SE-CE	-5.78	86.20	98.92
1	D	175	ASN	N-CA-C	5.77	117.31	109.11
1	C	173	TYR	CA-C-N	5.70	125.55	119.28
1	C	173	TYR	C-N-CA	5.70	125.55	119.28
1	B	95	SER	N-CA-C	5.68	117.81	110.65
1	B	75	GLU	N-CA-C	-5.68	105.07	112.23
1	B	160	ASN	N-CA-C	-5.68	106.20	113.02
1	B	107	MSE	CG-SE-CE	-5.64	86.52	98.92
1	B	119	LEU	N-CA-C	-5.63	106.25	113.01
1	A	145	SER	N-CA-C	5.62	117.08	111.07
1	A	58	LYS	N-CA-C	5.52	116.91	108.52
1	C	107	MSE	CA-CB-CG	-5.51	103.09	114.10
1	D	144	TRP	N-CA-C	-5.50	105.69	112.90
1	B	107	MSE	N-CA-C	5.47	117.32	111.36
1	B	70	ASP	N-CA-C	5.45	117.22	111.28
1	A	182	VAL	N-CA-CB	5.42	116.53	110.51
1	B	99	PHE	N-CA-C	-5.40	105.56	111.82
1	A	86	LYS	N-CA-C	5.40	118.66	111.75
1	A	89	ILE	CB-CA-C	-5.30	104.91	111.70
1	C	67	ILE	CB-CA-C	-5.30	105.03	111.87
1	B	56	ARG	CA-C-N	5.25	125.41	119.90
1	B	56	ARG	C-N-CA	5.25	125.41	119.90
1	A	116	GLN	N-CA-C	-5.23	107.06	113.50
1	A	173	TYR	CA-C-N	5.21	126.36	119.84
1	A	173	TYR	C-N-CA	5.21	126.36	119.84
1	D	189	THR	N-CA-C	-5.13	105.31	112.45
1	B	78	GLU	N-CA-C	-5.12	105.82	111.71
1	A	102	ASP	N-CA-C	-5.10	106.32	112.54
1	A	68	LYS	N-CA-C	-5.07	105.83	111.36
1	C	128	SER	N-CA-C	5.07	117.54	111.71
1	C	108	ILE	CB-CA-C	-5.06	105.50	111.97
1	A	107	MSE	CA-CB-CG	-5.04	104.01	114.10

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	65	ALA	Peptide

## 5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1188	0	1211	141	0
1	B	1188	0	1211	155	0
1	C	1196	0	1215	115	0
1	D	1188	0	1211	118	0
2	A	18	0	0	5	0
2	B	13	0	0	1	0
2	C	6	0	0	1	0
2	D	9	0	0	0	0
All	All	4806	0	4848	485	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 50.

All (485) 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:D:180:ASP:O	1:D:184:THR:HG23	1.54	1.07
1:D:59:LEU:HD12	1:D:123:ALA:HB1	1.37	1.02
1:B:197:GLY:O	1:C:91:GLU:OE2	1.80	1.00
1:B:110:THR:HG22	1:B:114:TYR:CE2	1.95	1.00
1:B:127:SER:OG	1:B:135:GLU:OE1	1.79	0.99
1:A:131:SER:OG	1:A:134:THR:HG22	1.63	0.97
1:D:166:GLU:O	1:D:169:PHE:N	1.98	0.97
1:D:87:ASP:O	1:D:92:GLU:HG2	1.66	0.96
1:D:81:SER:O	1:D:85:LEU:HG	1.65	0.95
1:C:140:ILE:HD13	1:C:187:LEU:HA	1.46	0.95
1:B:85:LEU:O	1:B:89:ILE:HG12	1.67	0.95
1:A:79:LEU:HD13	1:B:83:LYS:HB2	1.50	0.94
1:B:176:GLN:HA	1:B:179:PHE:CB	1.98	0.93

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:126:ARG:O	1:B:127:SER:C	2.11	0.93
1:C:154:VAL:HG11	1:C:166:GLU:HG2	1.53	0.91
1:B:57:PRO:HB2	1:B:130:ALA:HB2	1.53	0.90
1:C:59:LEU:HB3	1:C:64:LEU:HD13	1.51	0.90
1:A:180:ASP:O	1:A:184:THR:HG23	1.71	0.90
1:A:140:ILE:HD11	1:A:183:ARG:HA	1.52	0.90
1:C:84:ILE:HD12	1:C:107:MSE:HE2	1.52	0.90
1:B:57:PRO:HB3	1:B:123:ALA:HB2	1.54	0.89
1:C:59:LEU:HB3	1:C:64:LEU:CD1	2.02	0.89
1:D:182:VAL:CG1	1:D:186:LYS:HE3	2.03	0.89
1:B:59:LEU:HD12	1:B:134:THR:HB	1.54	0.88
1:D:134:THR:HG22	1:D:194:LEU:HD21	1.53	0.88
1:A:82:GLU:HB3	1:B:83:LYS:HE2	1.57	0.86
1:B:127:SER:O	1:B:129:GLU:N	2.08	0.86
1:D:59:LEU:HD12	1:D:123:ALA:CB	2.04	0.86
1:A:130:ALA:HB1	2:A:2001:HOH:O	1.75	0.86
1:B:113:ARG:HD2	1:D:162:LYS:HG3	1.56	0.85
1:D:92:GLU:HB2	1:D:95:SER:HB3	1.59	0.85
1:B:129:GLU:O	1:B:130:ALA:O	1.94	0.85
1:A:77:ARG:NH2	1:B:77:ARG:HH21	1.73	0.85
1:B:105:ASN:HA	1:B:108:ILE:HD12	1.59	0.85
1:B:197:GLY:N	1:C:89:ILE:O	2.10	0.84
1:A:168:VAL:O	1:A:172:THR:CG2	2.25	0.84
1:D:84:ILE:HD12	1:D:107:MSE:CE	2.07	0.84
1:A:168:VAL:O	1:A:172:THR:HG22	1.77	0.84
1:A:73:GLU:HB3	1:A:114:TYR:CE2	2.13	0.83
1:B:158:LEU:O	1:B:161:GLY:N	2.10	0.83
1:B:176:GLN:HA	1:B:179:PHE:HB3	1.59	0.83
1:A:83:LYS:HD3	1:B:83:LYS:HG2	1.61	0.82
1:B:127:SER:CB	1:B:135:GLU:OE1	2.27	0.82
1:B:143:GLU:OE1	1:B:183:ARG:HD2	1.79	0.82
1:D:151:ARG:O	1:D:155:THR:HG23	1.79	0.82
1:D:140:ILE:HD11	1:D:186:LYS:HB2	1.63	0.81
1:C:140:ILE:CD1	1:C:187:LEU:HA	2.11	0.81
1:A:73:GLU:CB	1:A:114:TYR:CE2	2.63	0.81
1:B:62:LYS:HE2	1:C:166:GLU:OE2	1.79	0.81
1:B:176:GLN:HA	1:B:179:PHE:HB2	1.61	0.80
1:D:103:ASN:O	1:D:107:MSE:HG3	1.81	0.80
1:B:127:SER:C	1:B:129:GLU:H	1.90	0.80
1:D:140:ILE:HG23	1:D:187:LEU:HD23	1.64	0.80
1:A:131:SER:OG	1:A:134:THR:CG2	2.31	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:180:ASP:O	1:C:184:THR:HG23	1.82	0.79
1:A:85:LEU:O	1:A:89:ILE:HG12	1.82	0.79
1:B:59:LEU:CD1	1:B:134:THR:HB	2.13	0.78
1:C:103:ASN:O	1:C:107:MSE:HG3	1.83	0.77
1:A:157:ASP:O	1:A:160:ASN:HB2	1.84	0.77
1:A:60:SER:N	1:A:63:ASP:OD2	2.12	0.77
1:C:140:ILE:HD13	1:C:187:LEU:CA	2.15	0.77
1:A:117:GLU:OE1	1:D:163:LYS:HE2	1.84	0.77
1:C:168:VAL:HG11	1:D:171:LYS:HD2	1.66	0.77
1:B:128:SER:N	1:B:135:GLU:OE1	2.18	0.76
1:C:84:ILE:HD12	1:C:107:MSE:CE	2.15	0.76
1:A:187:LEU:HD23	1:A:187:LEU:O	1.86	0.76
1:A:68:LYS:HE3	1:D:89:ILE:O	1.84	0.76
1:A:157:ASP:O	1:A:160:ASN:N	2.18	0.75
1:C:84:ILE:CD1	1:C:107:MSE:HE2	2.17	0.75
1:C:131:SER:OG	1:C:134:THR:HG22	1.85	0.75
1:A:73:GLU:HB3	1:A:114:TYR:CZ	2.21	0.74
1:B:175:ASN:O	1:B:179:PHE:HB2	1.87	0.74
1:C:103:ASN:O	1:C:107:MSE:CG	2.34	0.74
1:B:141:PHE:O	1:B:145:SER:OG	2.04	0.74
1:A:84:ILE:HD12	1:A:107:MSE:CE	2.18	0.74
1:D:59:LEU:CD1	1:D:123:ALA:HB1	2.14	0.74
1:C:86:LYS:O	1:C:90:LYS:HB3	1.86	0.74
1:C:140:ILE:HD11	1:C:187:LEU:N	2.03	0.74
1:B:127:SER:OG	1:B:128:SER:N	2.17	0.73
1:A:67:ILE:HG12	1:A:118:ILE:HG12	1.71	0.73
1:C:140:ILE:CD1	1:C:187:LEU:CA	2.66	0.73
1:C:154:VAL:CG1	1:C:166:GLU:HG2	2.18	0.73
1:B:148:LYS:HG2	1:B:151:ARG:HH21	1.53	0.72
1:C:140:ILE:CD1	1:C:187:LEU:N	2.52	0.72
1:D:177:ILE:HG22	1:D:178:ILE:HD13	1.70	0.72
1:B:152:ILE:O	1:B:156:ILE:HG22	1.90	0.72
1:D:179:PHE:O	1:D:183:ARG:HB2	1.88	0.72
1:B:127:SER:CB	1:B:138:LYS:HD2	2.19	0.72
1:A:73:GLU:OE1	1:B:77:ARG:NH1	2.23	0.71
1:A:131:SER:O	1:A:134:THR:HG23	1.90	0.71
1:C:59:LEU:HD12	1:C:194:LEU:HD22	1.71	0.71
1:D:140:ILE:CD1	1:D:186:LYS:HB2	2.21	0.71
1:D:154:VAL:HG21	1:D:169:PHE:HB2	1.73	0.70
1:B:124:ILE:O	1:B:138:LYS:HG3	1.92	0.69
1:B:140:ILE:HD11	1:B:186:LYS:HB2	1.74	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:79:LEU:HD22	1:B:83:LYS:NZ	2.08	0.69
1:B:173:TYR:CD1	1:B:179:PHE:CE2	2.81	0.69
1:C:169:PHE:HE2	1:C:176:GLN:CD	2.00	0.69
1:D:59:LEU:HD12	1:D:59:LEU:N	2.08	0.69
1:B:65:ALA:O	1:B:66:LEU:C	2.35	0.68
1:B:113:ARG:HD2	1:D:162:LYS:CG	2.23	0.68
1:B:158:LEU:O	1:B:161:GLY:CA	2.41	0.68
1:B:140:ILE:CD1	1:B:186:LYS:HB2	2.24	0.68
1:C:108:ILE:HD11	1:C:152:ILE:HG22	1.75	0.68
1:D:151:ARG:O	1:D:155:THR:CG2	2.42	0.68
1:C:158:LEU:HD11	1:C:166:GLU:HG3	1.77	0.67
1:A:82:GLU:HG2	1:B:83:LYS:HE2	1.77	0.67
1:A:119:LEU:HD21	1:A:142:LYS:HG3	1.75	0.67
1:D:182:VAL:HG13	1:D:186:LYS:HE3	1.77	0.67
1:A:73:GLU:HB2	1:A:114:TYR:CE2	2.28	0.67
1:D:166:GLU:O	1:D:167:ALA:C	2.37	0.67
1:A:77:ARG:HH21	1:B:76:ALA:HB1	1.60	0.66
1:A:144:TRP:HE1	1:A:184:THR:HG22	1.60	0.66
1:D:102:ASP:O	1:D:106:GLN:HG3	1.94	0.66
1:D:118:ILE:HA	1:D:121:ILE:HD12	1.78	0.66
1:A:82:GLU:CB	1:B:83:LYS:HE2	2.25	0.66
1:D:84:ILE:CD1	1:D:107:MSE:CE	2.73	0.66
1:D:164:ASP:O	1:D:167:ALA:HB3	1.94	0.66
1:A:151:ARG:O	1:A:155:THR:HG22	1.96	0.66
1:A:113:ARG:NH2	1:A:117:GLU:OE2	2.28	0.66
1:A:140:ILE:HD13	1:A:186:LYS:CB	2.26	0.66
1:B:126:ARG:O	1:B:129:GLU:N	2.28	0.66
1:A:146:GLU:O	1:A:149:ILE:N	2.30	0.65
1:A:63:ASP:O	1:A:66:LEU:HB3	1.96	0.65
1:D:140:ILE:CG2	1:D:187:LEU:HD23	2.26	0.65
1:A:73:GLU:CB	1:A:114:TYR:CZ	2.79	0.65
1:B:147:PHE:HZ	1:B:176:GLN:HB3	1.61	0.65
1:B:158:LEU:O	1:B:161:GLY:HA2	1.95	0.65
1:B:180:ASP:O	1:B:182:VAL:N	2.30	0.65
1:A:140:ILE:HD13	1:A:186:LYS:HB3	1.78	0.65
1:B:182:VAL:HG13	1:B:186:LYS:HE3	1.79	0.65
1:D:119:LEU:HD21	1:D:142:LYS:HB2	1.79	0.65
1:A:154:VAL:HG21	1:A:169:PHE:HD2	1.61	0.65
1:A:68:LYS:HD2	1:A:196:VAL:HG13	1.80	0.64
1:A:101:ASN:O	1:A:105:ASN:HB2	1.97	0.64
1:B:136:ALA:O	1:B:140:ILE:HG22	1.98	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:188:GLN:O	1:D:192:ASN:CG	2.41	0.64
1:C:140:ILE:CD1	1:C:186:LYS:C	2.71	0.64
1:D:84:ILE:HD12	1:D:107:MSE:HE1	1.80	0.64
1:A:122:ASP:O	1:A:125:LYS:HB3	1.98	0.63
1:A:77:ARG:NH2	1:B:77:ARG:NH2	2.46	0.63
1:A:103:ASN:O	1:A:107:MSE:HG3	1.98	0.63
1:A:197:GLY:O	1:D:91:GLU:CD	2.41	0.63
1:C:131:SER:O	1:C:132:ALA:C	2.41	0.63
1:D:140:ILE:HG23	1:D:187:LEU:CD2	2.28	0.63
1:A:66:LEU:C	1:A:66:LEU:HD12	2.23	0.62
1:B:180:ASP:O	1:B:181:ASP:C	2.42	0.62
1:A:66:LEU:HD12	1:A:66:LEU:O	2.00	0.62
1:B:133:ASP:OD2	1:B:193:ASN:HB3	1.99	0.62
1:A:168:VAL:O	1:A:172:THR:HG23	1.98	0.62
1:C:131:SER:O	1:C:134:THR:CG2	2.48	0.62
1:B:113:ARG:HG3	1:D:162:LYS:HE2	1.81	0.62
1:D:59:LEU:CD1	1:D:123:ALA:CB	2.75	0.62
1:A:73:GLU:HB3	1:A:114:TYR:OH	2.00	0.62
1:A:84:ILE:HD12	1:A:107:MSE:HE3	1.82	0.61
1:A:144:TRP:CD2	1:A:187:LEU:HD12	2.34	0.61
1:C:72:ALA:HA	1:C:198:TYR:OH	2.00	0.61
1:A:74:PHE:CE2	1:A:111:MSE:HE2	2.34	0.61
1:A:85:LEU:O	1:A:89:ILE:CG1	2.49	0.61
1:C:131:SER:O	1:C:134:THR:HG22	2.00	0.61
1:C:124:ILE:O	1:C:127:SER:HB2	2.00	0.61
1:A:82:GLU:CG	1:B:83:LYS:HE2	2.30	0.61
1:B:127:SER:C	1:B:129:GLU:N	2.57	0.61
1:C:80:SER:C	1:C:107:MSE:HE1	2.26	0.61
1:A:99:PHE:HZ	1:B:201:LEU:HD22	1.66	0.61
1:A:197:GLY:O	1:D:91:GLU:HG3	2.01	0.61
1:A:95:SER:HA	1:A:99:PHE:CD2	2.36	0.60
1:A:95:SER:HA	1:A:99:PHE:HD2	1.66	0.60
1:C:74:PHE:CE1	1:C:111:MSE:HE3	2.36	0.60
1:A:194:LEU:O	1:A:195:LYS:HB2	2.01	0.60
1:C:169:PHE:CE2	1:C:176:GLN:CD	2.80	0.60
1:B:127:SER:HB2	1:B:135:GLU:OE1	2.00	0.59
1:B:62:LYS:CE	1:C:166:GLU:OE2	2.49	0.59
1:B:194:LEU:C	1:B:195:LYS:HG3	2.27	0.59
1:A:77:ARG:HH21	1:B:76:ALA:CB	2.15	0.59
1:A:77:ARG:HD2	1:A:110:THR:CG2	2.31	0.59
1:B:151:ARG:O	1:B:155:THR:HG22	2.03	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:157:ASP:O	1:B:160:ASN:N	2.34	0.59
1:B:110:THR:CG2	1:B:114:TYR:CE2	2.80	0.59
1:B:127:SER:C	1:B:135:GLU:HB2	2.27	0.59
1:B:173:TYR:HD1	1:B:179:PHE:CE2	2.20	0.59
1:D:78:GLU:HG2	1:D:111:MSE:HE3	1.85	0.59
1:A:103:ASN:O	1:A:107:MSE:CG	2.51	0.59
1:B:181:ASP:O	1:B:185:ASN:ND2	2.35	0.59
1:C:107:MSE:O	1:C:111:MSE:HG3	2.02	0.59
1:D:66:LEU:O	1:D:67:ILE:C	2.46	0.58
1:B:102:ASP:O	1:B:106:GLN:HG3	2.03	0.58
1:B:173:TYR:CE1	1:B:179:PHE:CZ	2.91	0.58
1:A:57:PRO:HB2	1:A:130:ALA:HB2	1.85	0.58
1:A:158:LEU:C	1:A:160:ASN:H	2.11	0.58
1:D:87:ASP:O	1:D:92:GLU:CG	2.45	0.58
1:B:60:SER:O	1:B:64:LEU:HD13	2.04	0.57
1:B:190:ALA:O	1:B:192:ASN:N	2.37	0.57
1:A:119:LEU:HD11	1:A:142:LYS:CG	2.35	0.57
1:A:198:TYR:CE1	1:A:200:LEU:HD23	2.40	0.57
1:B:147:PHE:CZ	1:B:176:GLN:HB3	2.39	0.57
1:D:75:GLU:OE1	1:D:198:TYR:OH	2.20	0.56
1:A:81:SER:O	1:A:85:LEU:HG	2.05	0.56
1:A:140:ILE:HG23	1:A:141:PHE:N	2.20	0.56
1:A:193:ASN:ND2	2:A:2016:HOH:O	2.34	0.56
1:B:126:ARG:NH1	1:B:129:GLU:OE2	2.39	0.56
1:C:116:GLN:O	1:C:120:SER:N	2.38	0.56
1:A:83:LYS:HD3	1:B:83:LYS:CG	2.33	0.56
1:D:59:LEU:CD1	1:D:59:LEU:N	2.68	0.56
1:A:187:LEU:HD22	1:A:191:LEU:CD1	2.35	0.56
1:B:182:VAL:O	1:B:186:LYS:HG3	2.06	0.56
1:B:103:ASN:O	1:B:106:GLN:HB2	2.04	0.56
1:B:97:LEU:O	1:B:100:ALA:HB3	2.06	0.56
1:A:59:LEU:HD13	1:A:64:LEU:CD1	2.36	0.56
1:B:107:MSE:O	1:B:111:MSE:HB2	2.06	0.56
1:D:94:TRP:CD1	1:D:95:SER:N	2.74	0.56
1:A:84:ILE:HB	1:A:104:ILE:HD11	1.88	0.56
1:A:149:ILE:O	1:A:150:GLU:C	2.49	0.56
1:B:154:VAL:O	1:B:158:LEU:HG	2.06	0.56
1:C:140:ILE:C	1:C:142:LYS:H	2.14	0.56
1:A:71:LEU:HD11	1:A:191:LEU:HD21	1.86	0.55
1:D:188:GLN:O	1:D:192:ASN:OD1	2.24	0.55
1:A:66:LEU:N	1:D:158:LEU:HD13	2.21	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:144:TRP:O	1:B:145:SER:C	2.48	0.55
1:D:103:ASN:O	1:D:107:MSE:CG	2.53	0.55
1:D:80:SER:HB3	1:D:107:MSE:HE1	1.88	0.55
1:C:191:LEU:O	1:C:192:ASN:C	2.50	0.55
1:C:115:GLN:O	1:C:119:LEU:HG	2.07	0.55
1:C:187:LEU:HD22	1:C:191:LEU:CD1	2.37	0.55
1:D:73:GLU:O	1:D:77:ARG:HG2	2.07	0.55
1:B:157:ASP:O	1:B:158:LEU:C	2.49	0.55
1:A:127:SER:HB2	1:A:135:GLU:HA	1.89	0.54
1:B:190:ALA:O	1:B:193:ASN:N	2.38	0.54
1:C:59:LEU:CD1	1:C:194:LEU:HD22	2.37	0.54
1:D:99:PHE:CD1	1:D:99:PHE:C	2.85	0.54
1:B:126:ARG:O	1:B:128:SER:N	2.40	0.54
1:D:138:LYS:O	1:D:139:LYS:C	2.48	0.54
1:B:127:SER:HB3	1:B:138:LYS:HD2	1.88	0.54
1:B:127:SER:HG	1:B:128:SER:H	1.54	0.54
1:D:73:GLU:HB2	1:D:114:TYR:CE2	2.44	0.53
1:D:65:ALA:O	1:D:69:ALA:N	2.37	0.53
1:D:59:LEU:CD1	1:D:59:LEU:H	2.21	0.53
1:B:110:THR:CG2	1:B:114:TYR:CZ	2.91	0.53
1:D:175:ASN:O	1:D:179:PHE:HB2	2.09	0.53
1:A:79:LEU:HD22	1:B:83:LYS:HE3	1.90	0.53
1:C:140:ILE:CG2	1:C:141:PHE:N	2.72	0.53
1:A:77:ARG:HD2	1:A:110:THR:HG22	1.88	0.53
1:B:69:ALA:HA	2:B:2003:HOH:O	2.08	0.53
1:B:90:LYS:O	1:B:91:GLU:HB2	2.09	0.53
1:B:119:LEU:HD13	1:B:142:LYS:HG3	1.89	0.53
1:D:119:LEU:HA	1:D:124:ILE:HG21	1.90	0.53
1:A:68:LYS:HD2	1:A:196:VAL:CG1	2.39	0.53
1:B:59:LEU:HD21	1:B:124:ILE:CD1	2.39	0.53
1:C:168:VAL:O	1:C:172:THR:HG22	2.09	0.53
1:D:92:GLU:C	1:D:94:TRP:N	2.65	0.53
1:C:168:VAL:O	1:C:172:THR:N	2.41	0.52
1:D:137:PHE:O	1:D:140:ILE:HG22	2.10	0.52
1:D:158:LEU:C	1:D:160:ASN:H	2.18	0.52
1:C:140:ILE:HD11	1:C:186:LYS:C	2.32	0.52
1:D:107:MSE:O	1:D:108:ILE:C	2.51	0.52
1:D:131:SER:OG	1:D:134:THR:HG23	2.09	0.52
1:A:79:LEU:HD22	1:B:83:LYS:CE	2.40	0.52
1:A:156:ILE:O	1:A:157:ASP:C	2.53	0.52
1:D:84:ILE:CD1	1:D:107:MSE:HE2	2.39	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:187:LEU:HD23	1:A:187:LEU:C	2.35	0.52
1:C:108:ILE:HD11	1:C:152:ILE:CG2	2.39	0.52
1:C:118:ILE:O	1:C:121:ILE:HG13	2.09	0.52
1:D:140:ILE:CD1	1:D:186:LYS:CB	2.87	0.52
1:A:60:SER:H	1:A:63:ASP:CG	2.14	0.52
1:B:124:ILE:HG23	1:B:138:LYS:HB2	1.92	0.51
1:D:81:SER:CB	1:D:152:ILE:HD13	2.40	0.51
1:B:110:THR:HG22	1:B:114:TYR:CZ	2.44	0.51
1:C:140:ILE:HD12	1:C:186:LYS:C	2.36	0.51
1:D:121:ILE:O	1:D:124:ILE:N	2.36	0.51
1:A:79:LEU:CD1	1:B:83:LYS:HB2	2.32	0.51
1:A:119:LEU:HD11	1:A:142:LYS:HG3	1.91	0.51
1:C:151:ARG:O	1:C:155:THR:HG23	2.09	0.51
1:B:81:SER:OG	1:B:107:MSE:HE3	2.10	0.51
1:B:151:ARG:O	1:B:155:THR:CG2	2.58	0.51
1:D:139:LYS:HE2	1:D:143:GLU:OE2	2.11	0.51
1:B:68:LYS:HE2	1:B:197:GLY:O	2.11	0.51
1:A:140:ILE:HD11	1:A:183:ARG:CA	2.33	0.50
1:B:129:GLU:C	1:B:130:ALA:O	2.53	0.50
1:D:118:ILE:HA	1:D:121:ILE:CD1	2.41	0.50
1:D:110:THR:O	1:D:111:MSE:C	2.53	0.50
1:C:56:ARG:HE	1:C:56:ARG:N	2.08	0.50
1:A:157:ASP:O	1:A:160:ASN:CB	2.59	0.50
1:A:82:GLU:O	1:A:83:LYS:C	2.54	0.50
1:B:145:SER:O	1:B:146:GLU:C	2.54	0.50
1:A:112:LYS:O	1:A:116:GLN:HG2	2.12	0.50
1:A:90:LYS:O	1:A:91:GLU:HB2	2.11	0.50
1:A:140:ILE:CD1	1:A:186:LYS:HB2	2.41	0.49
1:B:68:LYS:HE2	1:B:197:GLY:C	2.36	0.49
1:C:140:ILE:HD12	1:C:186:LYS:O	2.13	0.49
1:D:97:LEU:O	1:D:100:ALA:HB3	2.12	0.49
1:C:156:ILE:HG23	1:C:157:ASP:N	2.28	0.49
1:D:64:LEU:CD1	1:D:64:LEU:N	2.75	0.49
1:D:140:ILE:HD11	1:D:186:LYS:CB	2.39	0.49
1:D:194:LEU:O	1:D:196:VAL:HG23	2.12	0.49
1:C:60:SER:O	1:C:63:ASP:N	2.46	0.49
1:A:187:LEU:C	1:A:187:LEU:CD2	2.86	0.49
1:B:131:SER:OG	1:B:132:ALA:N	2.46	0.49
1:B:195:LYS:HB3	1:C:90:LYS:HD2	1.94	0.49
1:C:160:ASN:CB	1:C:162:LYS:HE3	2.42	0.49
1:A:154:VAL:HG21	1:A:169:PHE:CD2	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:190:ALA:O	1:A:194:LEU:HG	2.12	0.49
1:A:197:GLY:O	1:D:91:GLU:CG	2.60	0.49
1:C:154:VAL:HG22	1:C:165:SER:OG	2.13	0.49
1:D:78:GLU:HG2	1:D:111:MSE:CE	2.43	0.49
1:D:149:ILE:O	1:D:150:GLU:C	2.54	0.49
1:C:146:GLU:OE2	1:C:146:GLU:HA	2.07	0.48
1:D:74:PHE:O	1:D:78:GLU:HB2	2.13	0.48
1:A:84:ILE:CD1	1:A:107:MSE:CE	2.90	0.48
1:A:201:LEU:HD23	1:B:99:PHE:HZ	1.77	0.48
1:C:148:LYS:NZ	2:C:2002:HOH:O	2.37	0.48
1:D:121:ILE:O	1:D:122:ASP:C	2.57	0.48
1:A:140:ILE:HD13	1:A:186:LYS:HB2	1.92	0.48
1:B:127:SER:HB2	1:B:138:LYS:HD2	1.94	0.48
1:C:72:ALA:HB2	1:C:198:TYR:CE1	2.48	0.48
1:A:198:TYR:HE1	1:A:200:LEU:HD23	1.78	0.48
1:B:69:ALA:O	1:B:72:ALA:HB3	2.14	0.48
1:B:145:SER:O	1:B:147:PHE:N	2.47	0.48
1:A:144:TRP:NE1	1:A:184:THR:HG22	2.27	0.48
1:D:81:SER:HB2	1:D:152:ILE:HD13	1.96	0.48
1:A:106:GLN:HB3	2:A:2006:HOH:O	2.14	0.48
1:B:110:THR:O	1:B:113:ARG:HB2	2.14	0.48
1:B:158:LEU:C	1:B:161:GLY:H	2.19	0.48
1:C:158:LEU:O	1:C:161:GLY:N	2.46	0.48
1:C:169:PHE:CE1	1:C:173:TYR:CD2	3.01	0.48
1:D:69:ALA:O	1:D:73:GLU:HG2	2.14	0.48
1:C:131:SER:C	1:C:133:ASP:N	2.71	0.47
1:D:126:ARG:O	1:D:129:GLU:N	2.37	0.47
1:C:67:ILE:HG22	1:C:68:LYS:N	2.28	0.47
1:A:158:LEU:C	1:A:160:ASN:N	2.69	0.47
1:B:68:LYS:CE	1:B:197:GLY:O	2.62	0.47
1:A:103:ASN:O	1:A:104:ILE:C	2.54	0.47
1:C:127:SER:OG	1:C:138:LYS:CB	2.62	0.47
1:C:140:ILE:C	1:C:142:LYS:N	2.72	0.47
1:B:112:LYS:O	1:B:113:ARG:C	2.58	0.47
1:C:116:GLN:O	1:C:117:GLU:C	2.57	0.47
1:C:169:PHE:HE2	1:C:176:GLN:CG	2.26	0.47
1:D:166:GLU:O	1:D:168:VAL:N	2.48	0.47
1:A:66:LEU:H	1:D:158:LEU:HD13	1.79	0.47
1:B:176:GLN:CA	1:B:179:PHE:HB3	2.39	0.47
1:B:197:GLY:O	1:C:91:GLU:CD	2.56	0.47
1:A:89:ILE:HG12	1:A:89:ILE:H	1.39	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:178:ILE:O	1:A:182:VAL:HG23	2.15	0.47
1:B:57:PRO:O	1:B:130:ALA:HA	2.15	0.47
1:C:119:LEU:HA	1:C:124:ILE:HG21	1.97	0.46
1:A:66:LEU:O	1:A:67:ILE:C	2.59	0.46
1:B:116:GLN:O	1:B:120:SER:HB3	2.16	0.46
1:A:152:ILE:O	1:A:153:GLN:C	2.58	0.46
1:C:169:PHE:CE2	1:C:176:GLN:CG	2.98	0.46
1:C:130:ALA:CB	1:C:134:THR:HG21	2.44	0.46
1:B:68:LYS:HE3	1:C:89:ILE:O	2.15	0.46
1:C:201:LEU:HD23	1:C:201:LEU:HA	1.56	0.46
1:A:87:ASP:OD2	2:A:2004:HOH:O	2.21	0.46
1:B:163:LYS:NZ	1:B:166:GLU:HB3	2.31	0.46
1:C:86:LYS:O	1:C:89:ILE:HG22	2.16	0.46
1:C:142:LYS:O	1:C:146:GLU:HB2	2.15	0.46
1:D:92:GLU:O	1:D:94:TRP:N	2.49	0.46
1:B:62:LYS:HE3	1:C:169:PHE:CE2	2.51	0.46
1:D:157:ASP:O	1:D:160:ASN:N	2.44	0.46
1:C:130:ALA:HB1	1:C:134:THR:HG21	1.97	0.46
1:B:190:ALA:O	1:B:191:LEU:C	2.57	0.46
1:C:60:SER:O	1:C:61:THR:C	2.59	0.46
1:C:74:PHE:CZ	1:C:111:MSE:HE3	2.51	0.46
1:C:70:ASP:O	1:C:74:PHE:HB2	2.16	0.45
1:C:71:LEU:HD13	1:C:198:TYR:CD2	2.50	0.45
1:C:81:SER:HA	1:C:107:MSE:HE3	1.98	0.45
1:D:201:LEU:HD23	1:D:201:LEU:HA	1.81	0.45
1:A:94:TRP:HE3	2:A:2005:HOH:O	1.98	0.45
1:B:120:SER:HA	1:B:125:LYS:HE2	1.98	0.45
1:B:187:LEU:HB3	1:B:200:LEU:HD11	1.98	0.45
1:C:131:SER:O	1:C:134:THR:HG23	2.16	0.45
1:C:187:LEU:HD22	1:C:191:LEU:HD12	1.98	0.45
1:B:57:PRO:HB3	1:B:123:ALA:CB	2.34	0.45
1:B:187:LEU:O	1:B:188:GLN:C	2.58	0.45
1:D:70:ASP:HB2	1:D:118:ILE:HD11	1.99	0.45
1:D:166:GLU:OE1	1:D:169:PHE:HB3	2.16	0.45
1:A:77:ARG:HD2	1:A:110:THR:HG21	1.98	0.45
1:A:89:ILE:C	1:A:91:GLU:N	2.72	0.45
1:D:87:ASP:HB3	1:D:92:GLU:HG3	1.98	0.45
1:D:166:GLU:OE1	1:D:166:GLU:HA	2.17	0.45
1:D:159:LEU:HD23	1:D:159:LEU:HA	1.78	0.45
1:A:82:GLU:HG3	1:A:86:LYS:HE3	1.98	0.45
1:C:141:PHE:O	1:C:141:PHE:CG	2.69	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:88:THR:O	1:D:89:ILE:C	2.59	0.45
1:A:165:SER:O	1:A:169:PHE:HB2	2.17	0.45
1:D:112:LYS:O	1:D:113:ARG:C	2.60	0.45
1:A:150:GLU:O	1:A:154:VAL:HG23	2.17	0.44
1:B:79:LEU:O	1:B:82:GLU:HB3	2.17	0.44
1:C:101:ASN:O	1:C:105:ASN:OD1	2.35	0.44
1:C:169:PHE:CE2	1:C:176:GLN:HG2	2.52	0.44
1:D:111:MSE:O	1:D:114:TYR:HB2	2.17	0.44
1:D:121:ILE:O	1:D:123:ALA:N	2.50	0.44
1:A:66:LEU:HD11	1:A:70:ASP:OD2	2.17	0.44
1:D:173:TYR:O	1:D:174:PRO:C	2.60	0.44
1:C:187:LEU:HB3	1:C:200:LEU:HD11	1.99	0.44
1:B:113:ARG:HD2	1:D:162:LYS:CE	2.48	0.44
1:B:178:ILE:O	1:B:179:PHE:C	2.59	0.44
1:D:182:VAL:HG12	1:D:186:LYS:HE3	1.94	0.44
1:D:134:THR:HA	1:D:194:LEU:HD11	2.00	0.44
1:D:178:ILE:HD13	1:D:178:ILE:N	2.33	0.44
1:A:97:LEU:O	1:A:101:ASN:ND2	2.51	0.43
1:C:164:ASP:OD1	1:C:164:ASP:N	2.48	0.43
1:C:169:PHE:O	1:C:171:LYS:N	2.50	0.43
1:C:59:LEU:CB	1:C:64:LEU:CD1	2.85	0.43
1:C:130:ALA:O	1:C:131:SER:C	2.61	0.43
1:A:150:GLU:O	1:A:153:GLN:HB3	2.18	0.43
1:C:140:ILE:HG23	1:C:141:PHE:N	2.33	0.43
1:D:188:GLN:O	1:D:192:ASN:ND2	2.51	0.43
1:A:64:LEU:HG	1:A:196:VAL:CG2	2.49	0.43
1:B:163:LYS:NZ	1:B:163:LYS:HB3	2.34	0.43
1:D:73:GLU:CB	1:D:114:TYR:CE2	3.01	0.43
1:A:62:LYS:HG3	1:D:155:THR:HG22	2.01	0.43
1:B:79:LEU:HD23	1:B:79:LEU:HA	1.47	0.43
1:A:82:GLU:HG2	1:B:83:LYS:CE	2.48	0.43
1:A:141:PHE:CD1	1:A:141:PHE:C	2.97	0.43
1:A:183:ARG:HA	1:A:183:ARG:HD3	1.82	0.43
1:B:65:ALA:O	1:B:67:ILE:N	2.51	0.43
1:B:127:SER:HB3	1:B:138:LYS:CD	2.49	0.43
1:B:138:LYS:HD3	1:B:139:LYS:N	2.33	0.43
1:B:160:ASN:O	1:B:161:GLY:C	2.61	0.43
1:C:71:LEU:O	1:C:74:PHE:HB3	2.19	0.43
1:A:140:ILE:HG23	1:A:141:PHE:H	1.82	0.43
1:C:169:PHE:C	1:C:171:LYS:N	2.77	0.43
1:B:108:ILE:O	1:B:109:GLY:C	2.60	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:112:LYS:O	1:B:116:GLN:HG2	2.19	0.43
1:A:83:LYS:HE3	1:B:79:LEU:HD22	2.01	0.43
1:B:89:ILE:HG12	1:B:89:ILE:H	1.69	0.43
1:D:175:ASN:O	1:D:179:PHE:N	2.42	0.43
1:A:187:LEU:HD22	1:A:191:LEU:HD12	2.01	0.42
1:D:92:GLU:O	1:D:95:SER:N	2.51	0.42
1:C:150:GLU:C	1:C:152:ILE:N	2.76	0.42
1:B:62:LYS:NZ	1:C:166:GLU:OE2	2.52	0.42
1:A:181:ASP:O	1:A:182:VAL:C	2.61	0.42
1:C:171:LYS:HA	1:C:171:LYS:HD2	1.84	0.42
1:D:64:LEU:O	1:D:68:LYS:HB2	2.20	0.42
1:B:107:MSE:O	1:B:108:ILE:C	2.62	0.42
1:B:115:GLN:HG3	1:B:145:SER:HB2	2.00	0.42
1:A:69:ALA:O	1:A:73:GLU:HG2	2.20	0.42
1:A:80:SER:O	1:A:84:ILE:HG13	2.19	0.42
1:B:71:LEU:HD23	1:B:71:LEU:HA	1.76	0.42
1:C:160:ASN:HB3	1:C:162:LYS:HE3	2.01	0.42
1:D:92:GLU:C	1:D:94:TRP:H	2.27	0.42
1:C:81:SER:N	1:C:107:MSE:HE1	2.34	0.42
1:D:180:ASP:O	1:D:184:THR:CG2	2.45	0.42
1:A:121:ILE:O	1:A:122:ASP:C	2.62	0.41
1:C:104:ILE:HA	1:C:107:MSE:HB2	2.02	0.41
1:B:159:LEU:C	1:B:161:GLY:H	2.27	0.41
1:D:67:ILE:O	1:D:71:LEU:HG	2.20	0.41
1:C:56:ARG:N	1:C:56:ARG:NE	2.68	0.41
1:C:60:SER:O	1:C:62:LYS:N	2.52	0.41
1:D:140:ILE:HD13	1:D:186:LYS:CB	2.51	0.41
1:D:158:LEU:C	1:D:160:ASN:N	2.73	0.41
1:A:103:ASN:C	1:A:107:MSE:HG3	2.44	0.41
1:A:187:LEU:O	1:A:187:LEU:CD2	2.65	0.41
1:C:150:GLU:O	1:C:151:ARG:C	2.61	0.41
1:B:82:GLU:OE2	1:B:86:LYS:HE3	2.20	0.41
1:B:85:LEU:O	1:B:86:LYS:C	2.63	0.41
1:C:169:PHE:O	1:C:172:THR:N	2.51	0.41
1:A:92:GLU:O	1:A:95:SER:N	2.43	0.41
1:B:97:LEU:HA	1:B:97:LEU:HD12	1.82	0.41
1:B:110:THR:O	1:B:113:ARG:CB	2.68	0.41
1:C:154:VAL:HA	1:C:157:ASP:HB2	2.01	0.41
1:D:82:GLU:OE1	1:D:82:GLU:HA	2.21	0.41
1:C:200:LEU:O	1:C:201:LEU:C	2.64	0.41
1:A:98:ASP:O	1:A:102:ASP:OD2	2.38	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:154:VAL:HG22	1:A:165:SER:HB2	2.03	0.41
1:A:140:ILE:O	1:A:143:GLU:N	2.53	0.41
1:A:163:LYS:O	1:A:164:ASP:C	2.64	0.41
1:A:198:TYR:O	1:A:198:TYR:CD1	2.74	0.41
1:B:75:GLU:O	1:B:76:ALA:C	2.64	0.41
1:B:108:ILE:HG22	1:B:112:LYS:HE3	2.03	0.41
1:B:110:THR:HG22	1:B:114:TYR:HE2	1.71	0.41
1:C:152:ILE:O	1:C:153:GLN:C	2.64	0.41
1:D:111:MSE:O	1:D:112:LYS:C	2.64	0.41
1:B:72:ALA:C	1:B:74:PHE:N	2.78	0.41
1:A:79:LEU:HD22	1:B:83:LYS:HZ1	1.83	0.40
1:D:127:SER:C	1:D:129:GLU:N	2.79	0.40
1:C:57:PRO:HG3	1:C:126:ARG:NH2	2.35	0.40
1:C:171:LYS:HG3	1:D:168:VAL:CG1	2.52	0.40
1:C:187:LEU:HD22	1:C:191:LEU:HD11	2.03	0.40
1:B:190:ALA:C	1:B:192:ASN:N	2.79	0.40
1:C:85:LEU:HD13	1:C:155:THR:OG1	2.21	0.40
1:D:71:LEU:O	1:D:75:GLU:HG3	2.21	0.40
1:B:76:ALA:O	1:B:79:LEU:HB2	2.21	0.40
1:C:148:LYS:HE2	1:C:151:ARG:NH2	2.36	0.40
1:B:110:THR:HG23	1:B:113:ARG:HH11	1.86	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	144/150 (96%)	106 (74%)	31 (22%)	7 (5%)	1	0
1	B	144/150 (96%)	114 (79%)	18 (12%)	12 (8%)	0	0
1	C	145/150 (97%)	125 (86%)	19 (13%)	1 (1%)	18	18
1	D	144/150 (96%)	116 (81%)	19 (13%)	9 (6%)	1	0

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	577/600 (96%)	461 (80%)	87 (15%)	29 (5%)	<b>1</b> <b>0</b>

All (29) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	127	SER
1	A	180	ASP
1	B	127	SER
1	B	128	SER
1	B	130	ALA
1	C	61	THR
1	D	93	SER
1	D	122	ASP
1	A	200	LEU
1	B	113	ARG
1	B	191	LEU
1	D	60	SER
1	D	108	ILE
1	D	121	ILE
1	D	176	GLN
1	A	119	LEU
1	B	66	LEU
1	B	122	ASP
1	B	146	GLU
1	B	180	ASP
1	B	181	ASP
1	A	66	LEU
1	A	181	ASP
1	B	65	ALA
1	D	167	ALA
1	A	197	GLY
1	B	190	ALA
1	D	113	ARG
1	D	57	PRO

### 5.3.2 Protein sidechains ⓘ

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

The Analysed column shows the number of residues for which the sidechain conformation was

analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	132/134 (98%)	105 (80%)	27 (20%)	1	1
1	B	132/134 (98%)	109 (83%)	23 (17%)	2	1
1	C	133/134 (99%)	109 (82%)	24 (18%)	2	1
1	D	132/134 (98%)	108 (82%)	24 (18%)	2	1
All	All	529/536 (99%)	431 (82%)	98 (18%)	1	1

All (98) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	56	ARG
1	A	58	LYS
1	A	62	LYS
1	A	64	LEU
1	A	68	LYS
1	A	78	GLU
1	A	79	LEU
1	A	83	LYS
1	A	89	ILE
1	A	97	LEU
1	A	107	MSE
1	A	126	ARG
1	A	128	SER
1	A	129	GLU
1	A	134	THR
1	A	135	GLU
1	A	138	LYS
1	A	140	ILE
1	A	142	LYS
1	A	148	LYS
1	A	155	THR
1	A	159	LEU
1	A	163	LYS
1	A	166	GLU
1	A	172	THR
1	A	183	ARG
1	A	199	GLU
1	B	61	THR
1	B	62	LYS
1	B	64	LEU
1	B	77	ARG

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Mol	Chain	Res	Type
1	B	83	LYS
1	B	84	ILE
1	B	90	LYS
1	B	107	MSE
1	B	118	ILE
1	B	120	SER
1	B	121	ILE
1	B	126	ARG
1	B	134	THR
1	B	135	GLU
1	B	145	SER
1	B	155	THR
1	B	163	LYS
1	B	166	GLU
1	B	168	VAL
1	B	177	ILE
1	B	183	ARG
1	B	184	THR
1	B	187	LEU
1	C	56	ARG
1	C	58	LYS
1	C	61	THR
1	C	62	LYS
1	C	78	GLU
1	C	83	LYS
1	C	90	LYS
1	C	108	ILE
1	C	128	SER
1	C	129	GLU
1	C	134	THR
1	C	140	ILE
1	C	146	GLU
1	C	155	THR
1	C	157	ASP
1	C	163	LYS
1	C	164	ASP
1	C	166	GLU
1	C	172	THR
1	C	176	GLN
1	C	183	ARG
1	C	187	LEU
1	C	191	LEU

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Mol	Chain	Res	Type
1	C	196	VAL
1	D	56	ARG
1	D	57	PRO
1	D	59	LEU
1	D	62	LYS
1	D	64	LEU
1	D	78	GLU
1	D	83	LYS
1	D	88	THR
1	D	89	ILE
1	D	97	LEU
1	D	107	MSE
1	D	111	MSE
1	D	129	GLU
1	D	134	THR
1	D	140	ILE
1	D	155	THR
1	D	156	ILE
1	D	163	LYS
1	D	166	GLU
1	D	177	ILE
1	D	178	ILE
1	D	183	ARG
1	D	187	LEU
1	D	199	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	105	ASN
1	A	115	GLN
1	A	116	GLN
1	B	105	ASN
1	C	105	ASN
1	D	175	ASN
1	D	176	GLN

### 5.3.3 RNA ⓘ

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 oligosaccharides 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

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	144/150 (96%)	2.39	77 (53%) 0 0	25, 40, 54, 120	0
1	B	144/150 (96%)	2.25	74 (51%) 0 0	28, 40, 52, 66	0
1	C	145/150 (96%)	2.36	86 (59%) 0 0	25, 42, 54, 71	0
1	D	144/150 (96%)	2.37	89 (61%) 0 0	28, 42, 52, 62	0
All	All	577/600 (96%)	2.34	326 (56%) 0 0	25, 41, 54, 120	0

All (326) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	94	TRP	15.5
1	C	94	TRP	9.4
1	B	95	SER	8.8
1	C	187	LEU	7.6
1	A	93	SER	7.4
1	B	92	GLU	7.2
1	D	94	TRP	7.0
1	A	95	SER	7.0
1	C	95	SER	6.9
1	B	94	TRP	6.6
1	D	136	ALA	6.3
1	B	114	TYR	6.1
1	B	175	ASN	5.9
1	D	178	ILE	4.9
1	D	96	ASP	4.9
1	C	123	ALA	4.9
1	C	184	THR	4.8
1	A	172	THR	4.7
1	C	200	LEU	4.6
1	A	144	TRP	4.6
1	B	124	ILE	4.5

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Mol	Chain	Res	Type	RSRZ
1	B	58	LYS	4.5
1	A	57	PRO	4.5
1	B	101	ASN	4.4
1	A	67	ILE	4.4
1	B	87	ASP	4.4
1	C	89	ILE	4.3
1	D	56	ARG	4.3
1	A	97	LEU	4.2
1	A	90	LYS	4.2
1	A	114	TYR	4.2
1	A	147	PHE	4.2
1	D	197	GLY	4.1
1	B	163	LYS	4.1
1	A	61	THR	4.0
1	D	95	SER	4.0
1	A	68	LYS	4.0
1	A	119	LEU	4.0
1	B	191	LEU	4.0
1	A	109	GLY	4.0
1	D	121	ILE	4.0
1	D	182	VAL	4.0
1	D	144	TRP	3.9
1	D	201	LEU	3.9
1	C	128	SER	3.9
1	A	200	LEU	3.9
1	B	89	ILE	3.9
1	D	176	GLN	3.9
1	C	196	VAL	3.9
1	C	179	PHE	3.8
1	C	92	GLU	3.8
1	C	198	TYR	3.8
1	A	136	ALA	3.8
1	D	78	GLU	3.8
1	A	125	LYS	3.7
1	A	64	LEU	3.7
1	C	171	LYS	3.7
1	B	57	PRO	3.7
1	D	110	THR	3.7
1	D	190	ALA	3.7
1	C	110	THR	3.7
1	B	174	PRO	3.7
1	C	124	ILE	3.6

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Mol	Chain	Res	Type	RSRZ
1	A	98	ASP	3.6
1	D	64	LEU	3.6
1	C	132	ALA	3.6
1	D	57	PRO	3.6
1	B	85	LEU	3.6
1	C	114	TYR	3.6
1	A	190	ALA	3.6
1	C	176	GLN	3.5
1	B	106	GLN	3.5
1	C	56	ARG	3.5
1	B	120	SER	3.5
1	C	93	SER	3.5
1	D	97	LEU	3.5
1	D	59	LEU	3.5
1	A	182	VAL	3.5
1	A	126	ARG	3.5
1	D	134	THR	3.4
1	B	178	ILE	3.4
1	D	177	ILE	3.4
1	C	164	ASP	3.4
1	A	140	ILE	3.4
1	A	129	GLU	3.4
1	B	119	LEU	3.4
1	C	178	ILE	3.4
1	D	198	TYR	3.4
1	D	93	SER	3.4
1	A	92	GLU	3.3
1	B	154	VAL	3.3
1	A	142	LYS	3.3
1	B	201	LEU	3.3
1	D	199	GLU	3.3
1	D	127	SER	3.3
1	B	185	ASN	3.3
1	C	149	ILE	3.3
1	D	174	PRO	3.3
1	D	172	THR	3.3
1	D	68	LYS	3.3
1	D	72	ALA	3.3
1	A	159	LEU	3.3
1	D	71	LEU	3.3
1	A	177	ILE	3.3
1	A	58	LYS	3.3

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Mol	Chain	Res	Type	RSRZ
1	A	191	LEU	3.2
1	D	66	LEU	3.2
1	C	168	VAL	3.2
1	D	154	VAL	3.2
1	A	173	TYR	3.2
1	B	83	LYS	3.1
1	D	92	GLU	3.1
1	D	143	GLU	3.1
1	A	72	ALA	3.1
1	D	69	ALA	3.1
1	C	57	PRO	3.1
1	A	121	ILE	3.1
1	C	75	GLU	3.1
1	A	66	LEU	3.1
1	C	97	LEU	3.1
1	A	169	PHE	3.1
1	A	124	ILE	3.0
1	A	189	THR	3.0
1	B	181	ASP	3.0
1	C	173	TYR	3.0
1	A	96	ASP	3.0
1	C	169	PHE	3.0
1	C	108	ILE	3.0
1	A	197	GLY	3.0
1	C	65	ALA	3.0
1	B	126	ARG	3.0
1	B	147	PHE	2.9
1	D	77	ARG	2.9
1	A	117	GLU	2.9
1	D	83	LYS	2.9
1	A	113	ARG	2.9
1	A	123	ALA	2.9
1	D	147	PHE	2.9
1	D	196	VAL	2.9
1	B	108	ILE	2.9
1	C	67	ILE	2.9
1	D	164	ASP	2.9
1	A	141	PHE	2.9
1	C	104	ILE	2.9
1	C	159	LEU	2.8
1	A	99	PHE	2.8
1	A	130	ALA	2.8

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Mol	Chain	Res	Type	RSRZ
1	C	140	ILE	2.8
1	B	90	LYS	2.8
1	B	70	ASP	2.8
1	B	105	ASN	2.8
1	D	120	SER	2.8
1	C	59	LEU	2.8
1	C	76	ALA	2.8
1	D	123	ALA	2.8
1	C	78	GLU	2.8
1	D	168	VAL	2.8
1	A	149	ILE	2.8
1	C	134	THR	2.8
1	D	128	SER	2.8
1	C	72	ALA	2.8
1	C	195	LYS	2.8
1	A	154	VAL	2.8
1	C	197	GLY	2.8
1	A	78	GLU	2.8
1	C	100	ALA	2.8
1	B	135	GLU	2.7
1	C	85	LEU	2.7
1	B	56	ARG	2.7
1	D	179	PHE	2.7
1	C	190	ALA	2.7
1	D	76	ALA	2.7
1	B	110	THR	2.7
1	C	181	ASP	2.7
1	B	93	SER	2.7
1	B	69	ALA	2.7
1	C	182	VAL	2.7
1	A	82	GLU	2.7
1	A	83	LYS	2.7
1	A	89	ILE	2.7
1	C	84	ILE	2.7
1	A	131	SER	2.7
1	D	60	SER	2.7
1	B	130	ALA	2.6
1	B	91	GLU	2.6
1	B	196	VAL	2.6
1	D	181	ASP	2.6
1	B	121	ILE	2.6
1	C	151	ARG	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	158	LEU	2.6
1	B	159	LEU	2.6
1	D	186	LYS	2.6
1	B	190	ALA	2.6
1	B	74	PHE	2.6
1	C	113	ARG	2.6
1	A	196	VAL	2.6
1	D	140	ILE	2.6
1	C	117	GLU	2.6
1	D	132	ALA	2.6
1	B	98	ASP	2.6
1	B	118	ILE	2.6
1	D	139	LYS	2.6
1	C	77	ARG	2.5
1	B	164	ASP	2.5
1	D	142	LYS	2.5
1	B	176	GLN	2.5
1	C	191	LEU	2.5
1	D	194	LEU	2.5
1	D	200	LEU	2.5
1	D	160	ASN	2.5
1	C	148	LYS	2.5
1	B	189	THR	2.5
1	D	124	ILE	2.5
1	C	135	GLU	2.5
1	C	166	GLU	2.5
1	B	127	SER	2.5
1	C	146	GLU	2.5
1	D	137	PHE	2.5
1	B	177	ILE	2.5
1	B	84	ILE	2.4
1	D	104	ILE	2.4
1	D	98	ASP	2.4
1	D	88	THR	2.4
1	A	60	SER	2.4
1	B	137	PHE	2.4
1	C	152	ILE	2.4
1	C	115	GLN	2.4
1	D	175	ASN	2.4
1	A	162	LYS	2.4
1	B	148	LYS	2.4
1	D	141	PHE	2.4

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Mol	Chain	Res	Type	RSRZ
1	D	163	LYS	2.4
1	D	171	LYS	2.4
1	A	198	TYR	2.4
1	D	129	GLU	2.4
1	D	189	THR	2.4
1	B	128	SER	2.4
1	B	168	VAL	2.4
1	A	79	LEU	2.4
1	B	116	GLN	2.4
1	B	144	TRP	2.4
1	A	180	ASP	2.3
1	B	172	THR	2.3
1	C	121	ILE	2.3
1	D	149	ILE	2.3
1	C	66	LEU	2.3
1	D	82	GLU	2.3
1	C	58	LYS	2.3
1	C	167	ALA	2.3
1	B	134	THR	2.3
1	A	150	GLU	2.3
1	B	82	GLU	2.3
1	D	185	ASN	2.3
1	B	65	ALA	2.3
1	A	176	GLN	2.3
1	D	115	GLN	2.3
1	D	85	LEU	2.3
1	C	144	TRP	2.3
1	C	80	SER	2.3
1	A	195	LYS	2.3
1	C	62	LYS	2.3
1	D	86	LYS	2.3
1	C	141	PHE	2.2
1	D	131	SER	2.2
1	B	104	ILE	2.2
1	A	85	LEU	2.2
1	C	201	LEU	2.2
1	C	175	ASN	2.2
1	C	192	ASN	2.2
1	A	174	PRO	2.2
1	A	143	GLU	2.2
1	C	91	GLU	2.2
1	C	143	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
1	D	184	THR	2.2
1	D	173	TYR	2.2
1	B	141	PHE	2.2
1	A	135	GLU	2.2
1	A	80	SER	2.2
1	B	155	THR	2.2
1	C	120	SER	2.2
1	D	80	SER	2.2
1	B	79	LEU	2.2
1	D	187	LEU	2.2
1	C	202	ASP	2.2
1	D	195	LYS	2.2
1	C	106	GLN	2.2
1	D	61	THR	2.2
1	D	113	ARG	2.1
1	B	59	LEU	2.1
1	D	67	ILE	2.1
1	D	108	ILE	2.1
1	B	182	VAL	2.1
1	A	186	LYS	2.1
1	C	99	PHE	2.1
1	B	138	LYS	2.1
1	B	193	ASN	2.1
1	C	70	ASP	2.1
1	A	132	ALA	2.1
1	A	122	ASP	2.1
1	A	178	ILE	2.1
1	B	152	ILE	2.1
1	C	177	ILE	2.1
1	D	106	GLN	2.1
1	C	174	PRO	2.1
1	A	155	THR	2.1
1	C	165	SER	2.1
1	D	145	SER	2.1
1	A	201	LEU	2.1
1	B	97	LEU	2.1
1	D	159	LEU	2.1
1	A	118	ILE	2.1
1	C	156	ILE	2.1
1	D	114	TYR	2.1
1	B	81	SER	2.0
1	C	73	GLU	2.0

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Mol	Chain	Res	Type	RSRZ
1	C	130	ALA	2.0
1	C	150	GLU	2.0
1	C	188	GLN	2.0
1	C	102	ASP	2.0
1	D	63	ASP	2.0
1	B	99	PHE	2.0
1	B	145	SER	2.0
1	B	150	GLU	2.0
1	A	193	ASN	2.0
1	D	193	ASN	2.0
1	A	163	LYS	2.0

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

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

## 6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 6.4 Ligands [i](#)

There are no ligands in this entry.

## 6.5 Other polymers [i](#)

There are no such residues in this entry.