Full wwPDB X-ray Structure Validation Report (i)

Nov 11, 2024 – 11:21 PM EST

PDB ID	:	2OTO
Title	:	N-terminal fragment of Streptococcus pyogenes M1 protein
Authors	:	McNamara, C.W.; Ghosh, P.
Deposited on	:	2007-02-08
Resolution	:	3.04 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) were used in the production of this report:

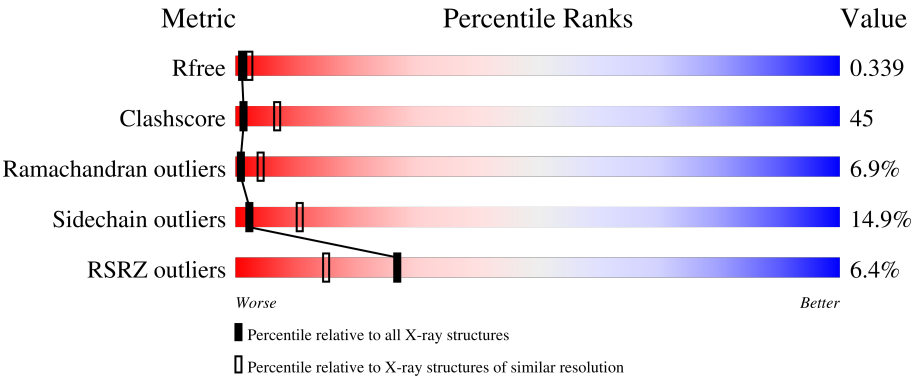
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.04 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	3418 (3.08-3.00)
Clashscore	180529	3811 (3.08-3.00)
Ramachandran outliers	177936	3656 (3.08-3.00)
Sidechain outliers	177891	3658 (3.08-3.00)
RSRZ outliers	164620	3430 (3.08-3.00)

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	155	4% 32% 41% 13% • 12%
1	B	155	9% 35% 42% 11% • 11%
1	C	155	4% 33% 45% 11% 11%
1	D	155	6% 37% 39% 10% 13%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 4521 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 M protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	137	Total	C	N	O	Se	0	0	0
			1131	691	208	231	1			
1	B	138	Total	C	N	O	Se	0	0	0
			1136	694	209	232	1			
1	C	138	Total	C	N	O	Se	0	0	0
			1136	694	209	232	1			
1	D	135	Total	C	N	O	Se	0	0	0
			1118	684	205	228	1			

There are 12 discrepancies between the modelled and reference sequences:

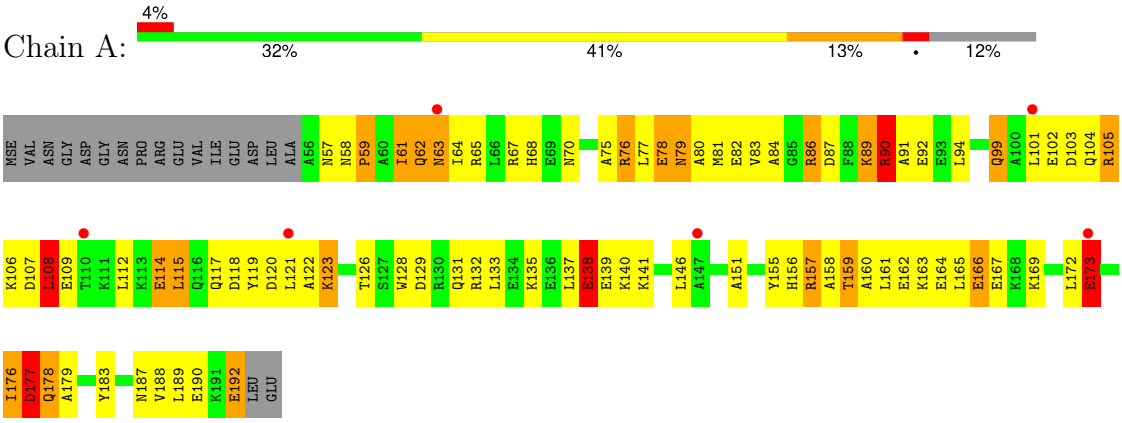
Chain	Residue	Modelled	Actual	Comment	Reference
A	40	MSE	-	SEE REMARK 999	UNP Q48WD8
A	41	VAL	-	expression tag	UNP Q48WD8
A	81	MSE	MET	modified residue	UNP Q48WD8
B	40	MSE	-	SEE REMARK 999	UNP Q48WD8
B	41	VAL	-	expression tag	UNP Q48WD8
B	81	MSE	MET	modified residue	UNP Q48WD8
C	40	MSE	-	SEE REMARK 999	UNP Q48WD8
C	41	VAL	-	expression tag	UNP Q48WD8
C	81	MSE	MET	modified residue	UNP Q48WD8
D	40	MSE	-	SEE REMARK 999	UNP Q48WD8
D	41	VAL	-	expression tag	UNP Q48WD8
D	81	MSE	MET	modified residue	UNP Q48WD8

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.

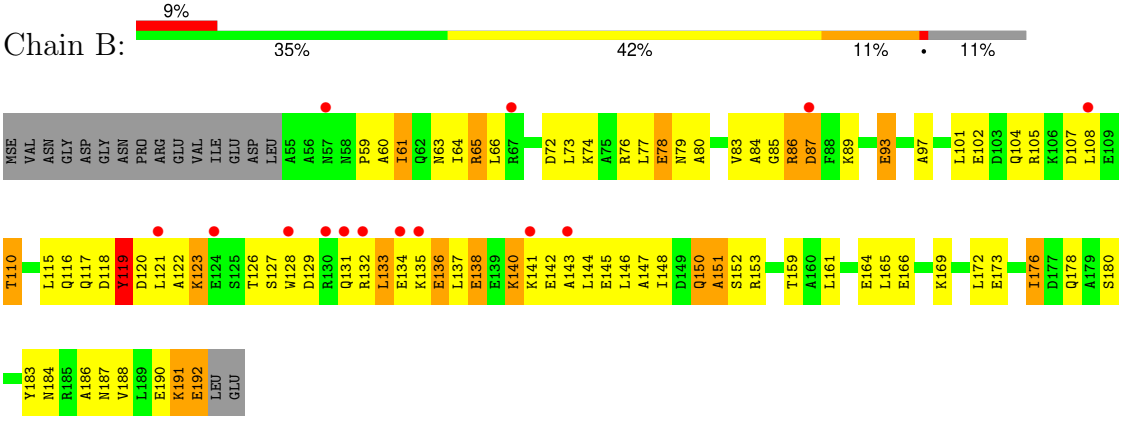
• Molecule 1: M protein

Chain A:



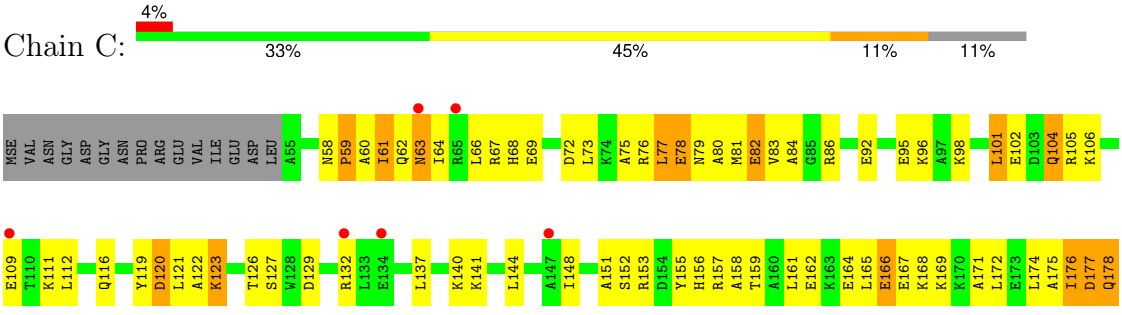
• Molecule 1: M protein

Chain B:

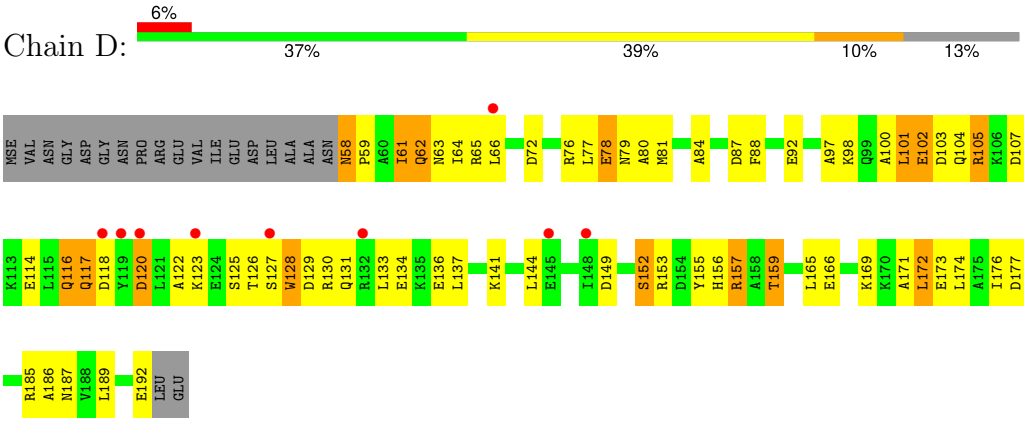


• Molecule 1: M protein

Chain C:



• Molecule 1: M protein



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α, β, γ	119.37Å 83.41Å 93.47Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	40.76 – 3.04 40.76 – 3.04	Depositor EDS
% Data completeness (in resolution range)	99.3 (40.76-3.04) 99.3 (40.76-3.04)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	4.12 (at 3.06Å)	Xtriage
Refinement program	REFMAC refmac_5.2.0005	Depositor
R, R_{free}	0.337 , 0.338 0.337 , 0.339	Depositor DCC
R_{free} test set	963 reflections (5.22%)	wwPDB-VP
Wilson B-factor (Å^2)	81.9	Xtriage
Anisotropy	0.385	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.26 , 69.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	4521	wwPDB-VP
Average B, all atoms (Å^2)	92.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.99% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.50	1/1138 (0.1%)	0.66	1/1517 (0.1%)
1	B	0.60	0/1143	0.74	1/1524 (0.1%)
1	C	0.58	1/1143 (0.1%)	0.68	1/1524 (0.1%)
1	D	0.48	1/1125 (0.1%)	0.58	0/1499
All	All	0.54	3/4549 (0.1%)	0.67	3/6064 (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	D	0	1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	152	SER	CB-OG	6.75	1.51	1.42
1	C	111	LYS	CE-NZ	6.07	1.64	1.49
1	A	89	LYS	CE-NZ	5.41	1.62	1.49

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	108	LEU	CA-CB-CG	6.59	130.46	115.30
1	C	61	ILE	C-N-CA	-6.24	106.10	121.70
1	B	119	TYR	CA-C-N	-6.19	103.58	117.20

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	59	PRO	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	1131	0	1129	114	0
1	B	1136	0	1134	151	0
1	C	1136	0	1134	170	3
1	D	1118	0	1118	110	3
All	All	4521	0	4515	406	3

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 45.

All (406) 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:C:77:LEU:CA	1:D:77:LEU:HD21	1.36	1.54
1:C:58:ASN:HB2	1:C:61:ILE:CD1	1.42	1.49
1:A:63:ASN:CB	1:B:63:ASN:HD21	1.34	1.41
1:C:77:LEU:HA	1:D:77:LEU:CD2	1.57	1.33
1:C:58:ASN:HB2	1:C:61:ILE:CG1	1.63	1.26
1:C:58:ASN:O	1:C:61:ILE:N	1.73	1.19
1:A:63:ASN:HB2	1:B:63:ASN:ND2	1.60	1.17
1:A:77:LEU:CD1	1:B:77:LEU:HD23	1.80	1.11
1:A:77:LEU:CD1	1:B:77:LEU:CD2	2.29	1.11
1:C:58:ASN:CB	1:C:61:ILE:CD1	2.28	1.10
1:C:58:ASN:HB2	1:C:61:ILE:HD12	1.34	1.09
1:A:63:ASN:CB	1:B:63:ASN:ND2	2.15	1.09
1:C:58:ASN:HD22	1:C:61:ILE:HD11	1.12	1.08
1:B:77:LEU:O	1:B:79:ASN:N	1.87	1.07
1:C:77:LEU:HD13	1:D:76:ARG:HB2	1.34	1.07
1:C:76:ARG:HB3	1:D:77:LEU:HD13	1.09	1.06
1:B:120:ASP:O	1:B:123:LYS:HB3	1.52	1.06
1:A:77:LEU:HD12	1:B:77:LEU:HD23	1.38	1.05
1:B:132:ARG:HE	1:D:189:LEU:HD11	1.19	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:58:ASN:ND2	1:C:61:ILE:HD11	1.73	1.04
1:C:58:ASN:HD22	1:C:61:ILE:CD1	1.72	1.02
1:C:76:ARG:CB	1:D:77:LEU:HD13	1.90	1.02
1:C:58:ASN:HB2	1:C:61:ILE:HG13	1.36	1.01
1:A:77:LEU:HD13	1:B:77:LEU:CD2	1.92	0.99
1:A:77:LEU:HD12	1:B:77:LEU:CD2	1.91	0.99
1:B:132:ARG:HH21	1:D:189:LEU:HD12	1.29	0.98
1:B:128:TRP:HE3	1:B:129:ASP:OD1	1.47	0.97
1:B:150:GLN:HA	1:B:150:GLN:OE1	1.61	0.97
1:D:81:MSE:HE2	1:D:81:MSE:HA	1.48	0.96
1:C:76:ARG:HB3	1:D:77:LEU:CD1	1.94	0.96
1:C:58:ASN:CB	1:C:61:ILE:HD12	1.95	0.95
1:D:110:THR:O	1:D:114:GLU:HG2	1.66	0.95
1:A:63:ASN:HB2	1:B:63:ASN:HD21	0.77	0.94
1:D:128:TRP:HA	1:D:131:GLN:HG3	1.50	0.94
1:C:77:LEU:N	1:D:77:LEU:HD21	1.82	0.93
1:B:123:LYS:O	1:B:126:THR:HG22	1.70	0.92
1:C:123:LYS:O	1:C:126:THR:HG22	1.71	0.91
1:C:77:LEU:HD13	1:D:76:ARG:CB	2.02	0.90
1:C:58:ASN:CB	1:C:61:ILE:HG13	2.02	0.90
1:A:77:LEU:CD1	1:B:77:LEU:HD21	2.01	0.90
1:A:102:GLU:C	1:A:104:GLN:H	1.71	0.89
1:B:176:ILE:HD11	1:C:148:ILE:HG23	1.55	0.88
1:C:104:GLN:HE22	1:D:105:ARG:HD3	1.38	0.88
1:B:73:LEU:O	1:B:77:LEU:HG	1.74	0.88
1:C:77:LEU:CA	1:D:77:LEU:CD2	2.31	0.87
1:C:58:ASN:HB2	1:C:61:ILE:HD11	1.56	0.86
1:A:77:LEU:HA	1:B:77:LEU:HD21	1.54	0.86
1:C:77:LEU:CD1	1:D:76:ARG:CB	2.53	0.86
1:B:176:ILE:HD11	1:C:148:ILE:HA	1.58	0.86
1:B:190:GLU:HG2	1:C:137:LEU:HD23	1.58	0.86
1:C:62:GLN:O	1:C:64:ILE:N	2.09	0.86
1:B:140:LYS:O	1:B:144:LEU:HG	1.76	0.86
1:C:76:ARG:CB	1:D:77:LEU:CD1	2.53	0.85
1:A:80:ALA:HA	1:A:83:VAL:HG22	1.54	0.85
1:A:77:LEU:HA	1:B:77:LEU:CD2	2.06	0.84
1:B:77:LEU:O	1:B:78:GLU:C	2.16	0.84
1:B:184:ASN:O	1:B:188:VAL:HG23	1.78	0.84
1:A:77:LEU:HD22	1:B:73:LEU:HD22	1.59	0.83
1:B:60:ALA:HA	1:B:63:ASN:OD1	1.78	0.83
1:B:128:TRP:CE3	1:B:129:ASP:OD1	2.32	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:63:ASN:O	1:C:67:ARG:N	2.13	0.82
1:B:186:ALA:O	1:B:190:GLU:HG3	1.81	0.81
1:A:115:LEU:HB3	1:B:115:LEU:HD23	1.61	0.81
1:C:166:GLU:OE2	1:C:166:GLU:HA	1.79	0.80
1:B:176:ILE:HG12	1:C:151:ALA:HB3	1.62	0.80
1:C:77:LEU:HA	1:D:77:LEU:HD21	0.82	0.80
1:B:176:ILE:CD1	1:C:148:ILE:HA	2.10	0.80
1:A:104:GLN:O	1:A:107:ASP:N	2.15	0.80
1:A:86:ARG:HG2	1:A:87:ASP:H	1.46	0.79
1:B:132:ARG:HH21	1:D:189:LEU:CD1	1.95	0.79
1:A:77:LEU:CA	1:B:77:LEU:HD21	2.13	0.79
1:B:176:ILE:HG12	1:C:151:ALA:CB	2.13	0.79
1:C:77:LEU:CD1	1:D:76:ARG:HB3	2.12	0.79
1:C:77:LEU:HD11	1:C:81:MSE:HE2	1.65	0.78
1:A:151:ALA:HB1	1:D:176:ILE:HD11	1.66	0.77
1:C:77:LEU:HD11	1:D:76:ARG:HB3	1.65	0.77
1:A:75:ALA:O	1:A:77:LEU:N	2.19	0.76
1:A:140:LYS:HD2	1:B:136:GLU:OE2	1.86	0.75
1:B:127:SER:O	1:B:131:GLN:HG2	1.86	0.75
1:A:77:LEU:CB	1:B:77:LEU:HD21	2.17	0.75
1:A:86:ARG:HG2	1:A:87:ASP:N	2.01	0.75
1:A:105:ARG:O	1:A:109:GLU:HB2	1.87	0.75
1:B:132:ARG:NE	1:D:189:LEU:HD11	1.98	0.75
1:A:77:LEU:HD21	1:B:76:ARG:CZ	2.16	0.74
1:C:58:ASN:ND2	1:C:61:ILE:CD1	2.42	0.74
1:A:157:ARG:O	1:A:160:ALA:HB3	1.88	0.73
1:A:102:GLU:C	1:A:104:GLN:N	2.38	0.73
1:C:58:ASN:N	1:C:61:ILE:HD12	2.04	0.73
1:A:76:ARG:HG2	1:B:77:LEU:HD13	1.71	0.73
1:B:150:GLN:OE1	1:B:150:GLN:CA	2.37	0.72
1:C:112:LEU:HD12	1:D:112:LEU:HG	1.71	0.72
1:C:77:LEU:HD11	1:C:81:MSE:CE	2.19	0.72
1:A:104:GLN:HA	1:A:107:ASP:HB3	1.72	0.71
1:B:61:ILE:O	1:B:64:ILE:HG12	1.90	0.71
1:B:117:GLN:O	1:B:121:LEU:N	2.22	0.71
1:C:77:LEU:CD1	1:C:81:MSE:HE2	2.20	0.71
1:B:176:ILE:HD11	1:C:148:ILE:CA	2.20	0.71
1:A:63:ASN:CA	1:B:63:ASN:HD21	2.03	0.71
1:D:114:GLU:O	1:D:117:GLN:HG2	1.91	0.71
1:C:77:LEU:CB	1:D:77:LEU:HD21	2.18	0.70
1:D:88:PHE:O	1:D:92:GLU:HB2	1.91	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:176:ILE:HD11	1:C:148:ILE:CG2	2.22	0.70
1:D:101:LEU:HA	1:D:104:GLN:HE21	1.56	0.70
1:D:116:GLN:O	1:D:120:ASP:HB2	1.92	0.69
1:A:102:GLU:O	1:A:104:GLN:N	2.25	0.69
1:A:83:VAL:HA	1:A:86:ARG:HD3	1.73	0.69
1:A:155:TYR:CD2	1:A:156:HIS:N	2.61	0.69
1:A:138:GLU:OE2	1:A:141:LYS:HD3	1.94	0.68
1:C:106:LYS:O	1:C:109:GLU:HB3	1.94	0.68
1:B:190:GLU:HG2	1:C:137:LEU:CD2	2.24	0.68
1:B:133:LEU:HD21	1:B:137:LEU:HD11	1.75	0.67
1:B:173:GLU:O	1:B:176:ILE:HG22	1.94	0.67
1:C:140:LYS:O	1:C:144:LEU:HB2	1.94	0.67
1:A:101:LEU:O	1:A:104:GLN:HB2	1.94	0.67
1:A:63:ASN:CA	1:B:63:ASN:ND2	2.57	0.67
1:C:77:LEU:N	1:D:77:LEU:CD2	2.55	0.67
1:A:137:LEU:HD11	1:D:189:LEU:HD22	1.77	0.66
1:C:77:LEU:N	1:D:77:LEU:HD11	2.10	0.66
1:B:164:GLU:OE1	1:D:157:ARG:NH1	2.27	0.66
1:C:112:LEU:HA	1:D:112:LEU:HD21	1.78	0.66
1:A:84:ALA:HA	1:B:84:ALA:HB2	1.77	0.66
1:B:176:ILE:CD1	1:C:148:ILE:HG23	2.24	0.66
1:A:77:LEU:CD2	1:B:73:LEU:HD22	2.26	0.66
1:A:192:GLU:O	1:A:192:GLU:HG2	1.95	0.66
1:A:115:LEU:HB3	1:B:115:LEU:CD2	2.25	0.65
1:D:128:TRP:HD1	1:D:128:TRP:O	1.80	0.65
1:B:187:ASN:O	1:B:188:VAL:C	2.35	0.64
1:C:102:GLU:HA	1:D:101:LEU:HD21	1.78	0.64
1:D:81:MSE:HE2	1:D:81:MSE:CA	2.26	0.64
1:C:126:THR:HG23	1:C:127:SER:N	2.11	0.64
1:B:138:GLU:OE2	1:B:138:GLU:HA	1.96	0.64
1:D:61:ILE:O	1:D:64:ILE:N	2.29	0.64
1:C:76:ARG:O	1:C:80:ALA:HB3	1.98	0.63
1:B:150:GLN:O	1:B:151:ALA:C	2.37	0.62
1:A:155:TYR:HD2	1:A:156:HIS:N	1.96	0.62
1:D:126:THR:O	1:D:130:ARG:HG3	2.00	0.62
1:A:63:ASN:CG	1:B:63:ASN:ND2	2.53	0.61
1:B:126:THR:HG23	1:B:127:SER:N	2.15	0.61
1:C:58:ASN:O	1:C:60:ALA:N	2.33	0.61
1:C:152:SER:HA	1:C:155:TYR:HB3	1.82	0.61
1:C:76:ARG:HB2	1:D:77:LEU:CD1	2.31	0.61
1:D:81:MSE:HA	1:D:81:MSE:CE	2.28	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:141:LYS:HE2	1:C:186:ALA:CB	2.32	0.60
1:C:188:VAL:HG12	1:C:189:LEU:CD1	2.31	0.60
1:A:75:ALA:C	1:A:77:LEU:H	2.06	0.59
1:C:62:GLN:O	1:C:63:ASN:C	2.41	0.59
1:B:183:TYR:HA	1:C:144:LEU:HD23	1.83	0.59
1:D:156:HIS:HA	1:D:159:THR:OG1	2.02	0.59
1:B:134:GLU:OE2	1:C:190:GLU:HG3	2.02	0.58
1:C:60:ALA:C	1:C:62:GLN:H	2.04	0.58
1:C:104:GLN:NE2	1:D:105:ARG:HD3	2.14	0.58
1:A:119:TYR:HE1	1:B:118:ASP:O	1.87	0.58
1:B:93:GLU:HA	1:B:93:GLU:OE2	2.02	0.58
1:B:119:TYR:O	1:B:120:ASP:C	2.42	0.58
1:C:188:VAL:HG12	1:C:189:LEU:HD12	1.85	0.58
1:B:65:ARG:HD3	1:B:66:LEU:HD23	1.86	0.58
1:A:91:ALA:O	1:A:94:LEU:N	2.36	0.58
1:A:79:ASN:HD22	1:A:80:ALA:N	2.02	0.58
1:A:151:ALA:HB1	1:D:176:ILE:CD1	2.34	0.58
1:A:155:TYR:HA	1:D:172:LEU:HD23	1.85	0.58
1:C:58:ASN:CB	1:C:61:ILE:CG1	2.54	0.57
1:A:128:TRP:CE3	1:A:129:ASP:OD1	2.57	0.57
1:B:115:LEU:O	1:B:118:ASP:N	2.37	0.57
1:C:77:LEU:HD11	1:D:76:ARG:CB	2.28	0.57
1:D:182:ASP:O	1:D:186:ALA:N	2.38	0.57
1:C:101:LEU:HD23	1:D:101:LEU:HD23	1.86	0.57
1:B:169:LYS:HZ3	1:C:158:ALA:HB3	1.68	0.57
1:A:120:ASP:O	1:A:123:LYS:HB3	2.04	0.57
1:A:77:LEU:HD13	1:B:77:LEU:HD21	1.71	0.57
1:B:83:VAL:O	1:B:86:ARG:HG3	2.05	0.56
1:B:176:ILE:HD12	1:B:176:ILE:O	2.04	0.56
1:D:128:TRP:O	1:D:128:TRP:CD1	2.58	0.56
1:A:108:LEU:HD12	1:A:109:GLU:N	2.20	0.56
1:B:148:ILE:HD11	1:C:179:ALA:HB3	1.88	0.56
1:A:108:LEU:HD11	1:B:108:LEU:HB3	1.87	0.56
1:B:74:LYS:O	1:B:78:GLU:HB2	2.04	0.56
1:B:137:LEU:O	1:B:141:LYS:HG3	2.06	0.56
1:A:173:GLU:O	1:A:176:ILE:HB	2.06	0.56
1:B:116:GLN:HE21	1:B:120:ASP:CG	2.08	0.56
1:B:123:LYS:O	1:B:126:THR:CG2	2.49	0.56
1:C:77:LEU:H	1:D:77:LEU:HD11	1.68	0.56
1:D:58:ASN:C	1:D:58:ASN:HD22	2.09	0.56
1:D:152:SER:O	1:D:155:TYR:N	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:61:ILE:HG22	1:C:61:ILE:O	2.06	0.56
1:A:77:LEU:HD13	1:B:77:LEU:HD23	1.59	0.55
1:A:79:ASN:O	1:A:82:GLU:N	2.36	0.55
1:B:104:GLN:O	1:B:104:GLN:HG2	2.06	0.55
1:C:58:ASN:CG	1:C:61:ILE:HD11	2.24	0.55
1:C:69:GLU:HA	1:C:72:ASP:HB2	1.89	0.55
1:D:61:ILE:HG13	1:D:62:GLN:H	1.70	0.55
1:A:58:ASN:HB2	1:A:61:ILE:HD12	1.89	0.55
1:A:104:GLN:O	1:A:105:ARG:C	2.43	0.55
1:C:116:GLN:O	1:C:120:ASP:N	2.28	0.55
1:D:72:ASP:HB3	1:D:76:ARG:HH12	1.71	0.55
1:A:138:GLU:OE2	1:A:138:GLU:HA	2.02	0.55
1:B:176:ILE:CG1	1:C:151:ALA:CB	2.85	0.55
1:C:161:LEU:HA	1:C:164:GLU:HB3	1.90	0.54
1:C:164:GLU:HA	1:C:167:GLU:CD	2.28	0.54
1:C:179:ALA:O	1:C:182:ASP:N	2.41	0.54
1:D:174:LEU:O	1:D:177:ASP:HB3	2.07	0.53
1:C:119:TYR:C	1:C:119:TYR:CD2	2.82	0.53
1:B:165:LEU:HD23	1:C:162:GLU:HG3	1.91	0.53
1:C:123:LYS:O	1:C:126:THR:CG2	2.50	0.53
1:A:102:GLU:OE1	1:A:105:ARG:HB3	2.08	0.53
1:A:162:GLU:OE2	1:D:169:LYS:HE3	2.08	0.53
1:C:58:ASN:CA	1:C:61:ILE:HD12	2.38	0.53
1:D:182:ASP:HA	1:D:185:ARG:HB3	1.90	0.53
1:A:64:ILE:HA	1:A:67:ARG:HB2	1.89	0.53
1:D:61:ILE:O	1:D:62:GLN:C	2.47	0.53
1:A:159:THR:HG23	1:D:169:LYS:NZ	2.24	0.53
1:A:169:LYS:HG3	1:D:155:TYR:CE1	2.43	0.53
1:B:187:ASN:O	1:B:191:LYS:HG2	2.09	0.52
1:A:151:ALA:HB1	1:D:176:ILE:CG1	2.39	0.52
1:B:142:GLU:C	1:B:144:LEU:H	2.11	0.52
1:B:190:GLU:CG	1:C:137:LEU:CD2	2.87	0.52
1:A:155:TYR:CD2	1:A:155:TYR:C	2.84	0.52
1:A:189:LEU:HD22	1:C:132:ARG:HH21	1.75	0.52
1:C:78:GLU:HG3	1:C:79:ASN:N	2.25	0.52
1:B:132:ARG:O	1:B:135:LYS:HB2	2.09	0.52
1:C:168:LYS:HA	1:C:171:ALA:HB3	1.90	0.52
1:B:101:LEU:O	1:B:104:GLN:N	2.44	0.51
1:C:64:ILE:O	1:C:68:HIS:HB2	2.10	0.51
1:C:182:ASP:HA	1:C:185:ARG:HB2	1.92	0.51
1:C:77:LEU:O	1:C:78:GLU:C	2.49	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:58:ASN:CG	1:C:61:ILE:CD1	2.77	0.51
1:C:126:THR:CG2	1:C:127:SER:N	2.74	0.50
1:C:166:GLU:OE2	1:C:169:LYS:HD3	2.12	0.50
1:D:187:ASN:N	1:D:187:ASN:HD22	2.07	0.50
1:B:159:THR:OG1	1:C:169:LYS:HE3	2.12	0.50
1:B:176:ILE:HG12	1:C:151:ALA:HB1	1.92	0.50
1:C:120:ASP:O	1:C:123:LYS:HB3	2.12	0.50
1:C:60:ALA:C	1:C:62:GLN:N	2.64	0.50
1:D:166:GLU:O	1:D:169:LYS:HB2	2.12	0.50
1:A:86:ARG:CG	1:A:87:ASP:N	2.72	0.50
1:B:77:LEU:O	1:B:80:ALA:N	2.44	0.49
1:B:133:LEU:CD2	1:B:137:LEU:HD11	2.39	0.49
1:A:99:GLN:HA	1:A:99:GLN:OE1	2.12	0.49
1:C:155:TYR:CD2	1:C:155:TYR:O	2.65	0.49
1:A:75:ALA:C	1:A:77:LEU:N	2.64	0.49
1:A:102:GLU:CD	1:A:105:ARG:HB3	2.32	0.49
1:B:126:THR:CG2	1:B:127:SER:N	2.75	0.49
1:A:63:ASN:HA	1:B:63:ASN:ND2	2.28	0.49
1:A:77:LEU:HB2	1:B:77:LEU:HD21	1.93	0.49
1:D:153:ARG:O	1:D:157:ARG:HB2	2.13	0.49
1:B:161:LEU:HD23	1:C:165:LEU:HD11	1.94	0.49
1:D:79:ASN:OD1	1:D:80:ALA:N	2.45	0.49
1:B:192:GLU:OE2	1:B:192:GLU:N	2.45	0.48
1:C:119:TYR:CD2	1:C:120:ASP:N	2.81	0.48
1:B:169:LYS:HZ3	1:C:159:THR:H	1.61	0.48
1:C:119:TYR:O	1:C:122:ALA:N	2.46	0.48
1:A:155:TYR:CA	1:D:172:LEU:HD23	2.43	0.48
1:C:59:PRO:HA	1:C:62:GLN:HG2	1.95	0.48
1:A:135:LYS:O	1:A:139:GLU:HG3	2.14	0.48
1:A:166:GLU:OE2	1:A:166:GLU:HA	2.14	0.48
1:A:77:LEU:HA	1:B:77:LEU:HD22	1.92	0.48
1:A:89:LYS:O	1:A:90:ARG:C	2.51	0.48
1:C:129:ASP:OD1	1:D:129:ASP:HB3	2.14	0.48
1:B:127:SER:C	1:B:131:GLN:HG2	2.33	0.48
1:C:119:TYR:HD2	1:C:120:ASP:N	2.11	0.48
1:C:63:ASN:O	1:C:66:LEU:N	2.46	0.48
1:B:169:LYS:NZ	1:C:158:ALA:HB3	2.29	0.48
1:C:98:LYS:HZ1	1:D:97:ALA:HB3	1.79	0.48
1:A:62:GLN:C	1:A:64:ILE:H	2.18	0.47
1:C:62:GLN:HB2	1:D:63:ASN:HD21	1.78	0.47
1:D:102:GLU:O	1:D:105:ARG:HG3	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:77:LEU:O	1:D:81:MSE:HG2	2.15	0.47
1:B:141:LYS:HE2	1:C:186:ALA:HB1	1.95	0.47
1:B:151:ALA:HA	1:C:172:LEU:HD22	1.96	0.47
1:C:184:ASN:O	1:C:187:ASN:N	2.48	0.47
1:D:100:ALA:O	1:D:103:ASP:HB2	2.14	0.47
1:B:97:ALA:O	1:B:101:LEU:HG	2.15	0.47
1:D:101:LEU:HA	1:D:104:GLN:NE2	2.27	0.47
1:B:117:GLN:HA	1:B:120:ASP:HB2	1.96	0.47
1:C:77:LEU:N	1:D:77:LEU:CD1	2.76	0.47
1:C:98:LYS:HE3	1:D:98:LYS:HB3	1.97	0.47
1:A:158:ALA:O	1:A:161:LEU:N	2.44	0.46
1:C:184:ASN:O	1:C:185:ARG:C	2.54	0.46
1:B:142:GLU:O	1:B:144:LEU:N	2.49	0.46
1:B:176:ILE:CG1	1:C:151:ALA:HB3	2.39	0.46
1:A:102:GLU:OE1	1:A:105:ARG:CB	2.64	0.46
1:C:77:LEU:O	1:C:79:ASN:N	2.49	0.46
1:A:104:GLN:O	1:A:106:LYS:N	2.48	0.46
1:C:58:ASN:O	1:C:59:PRO:C	2.53	0.46
1:C:92:GLU:O	1:C:95:GLU:HB3	2.16	0.46
1:B:166:GLU:O	1:B:169:LYS:HB2	2.16	0.46
1:C:58:ASN:CB	1:C:61:ILE:HD11	2.21	0.46
1:D:61:ILE:O	1:D:64:ILE:HG12	2.15	0.46
1:A:115:LEU:HD23	1:A:115:LEU:HA	1.76	0.46
1:B:169:LYS:NZ	1:C:159:THR:H	2.13	0.46
1:A:67:ARG:HG3	1:B:66:LEU:HD11	1.98	0.46
1:A:126:THR:OG1	1:B:126:THR:HB	2.16	0.46
1:C:79:ASN:O	1:C:82:GLU:N	2.49	0.46
1:C:66:LEU:O	1:D:66:LEU:HD13	2.16	0.45
1:A:151:ALA:CB	1:D:176:ILE:CG1	2.93	0.45
1:C:126:THR:HG23	1:C:127:SER:H	1.81	0.45
1:B:165:LEU:HD12	1:B:165:LEU:HA	1.78	0.45
1:B:146:LEU:O	1:B:147:ALA:C	2.54	0.45
1:B:142:GLU:C	1:B:144:LEU:N	2.69	0.45
1:A:79:ASN:ND2	1:A:80:ALA:N	2.65	0.45
1:B:165:LEU:HD23	1:C:162:GLU:CG	2.46	0.45
1:B:176:ILE:HD13	1:C:148:ILE:HA	1.92	0.45
1:C:182:ASP:N	1:C:182:ASP:OD2	2.47	0.45
1:A:187:ASN:O	1:A:190:GLU:HB3	2.17	0.45
1:B:190:GLU:OE1	1:C:141:LYS:NZ	2.50	0.45
1:B:77:LEU:C	1:B:79:ASN:N	2.62	0.44
1:A:151:ALA:CB	1:D:176:ILE:HG12	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:159:THR:HG23	1:D:169:LYS:HZ2	1.81	0.44
1:B:83:VAL:C	1:B:85:GLY:N	2.70	0.44
1:A:132:ARG:O	1:A:135:LYS:HB2	2.17	0.44
1:C:77:LEU:HD12	1:D:77:LEU:HD23	1.99	0.44
1:A:104:GLN:C	1:A:106:LYS:N	2.70	0.44
1:B:190:GLU:HG3	1:C:137:LEU:HD21	1.98	0.44
1:A:166:GLU:HA	1:A:169:LYS:HB3	1.99	0.44
1:B:132:ARG:NH2	1:D:189:LEU:CD1	2.72	0.44
1:B:169:LYS:HZ3	1:C:159:THR:N	2.16	0.44
1:A:166:GLU:OE2	1:A:166:GLU:CA	2.65	0.44
1:B:172:LEU:HD11	1:C:151:ALA:HA	1.99	0.44
1:C:79:ASN:O	1:C:83:VAL:N	2.50	0.44
1:C:119:TYR:C	1:C:121:LEU:N	2.69	0.44
1:C:169:LYS:HB3	1:C:169:LYS:HE2	1.84	0.44
1:D:122:ALA:O	1:D:125:SER:HB3	2.18	0.44
1:D:128:TRP:CD1	1:D:128:TRP:C	2.90	0.44
1:D:171:ALA:HA	1:D:174:LEU:HD12	1.99	0.44
1:A:176:ILE:O	1:A:177:ASP:C	2.56	0.43
1:C:129:ASP:OD2	1:D:129:ASP:CB	2.65	0.43
1:A:114:GLU:O	1:A:117:GLN:HB3	2.17	0.43
1:B:121:LEU:O	1:B:122:ALA:C	2.56	0.43
1:B:176:ILE:HD13	1:B:176:ILE:HA	1.90	0.43
1:B:176:ILE:HD11	1:C:148:ILE:CB	2.48	0.43
1:C:83:VAL:HG22	1:C:86:ARG:CZ	2.48	0.43
1:B:107:ASP:O	1:B:110:THR:HB	2.19	0.43
1:A:101:LEU:HD23	1:B:101:LEU:HB2	2.01	0.43
1:A:128:TRP:O	1:A:131:GLN:HB3	2.18	0.43
1:C:92:GLU:OE1	1:C:92:GLU:HA	2.18	0.43
1:D:114:GLU:OE1	1:D:114:GLU:HA	2.18	0.43
1:B:190:GLU:CG	1:C:137:LEU:HD21	2.49	0.43
1:D:178:GLN:NE2	1:D:181:GLN:HB3	2.33	0.43
1:D:117:GLN:HE21	1:D:117:GLN:HB3	1.64	0.43
1:B:161:LEU:HD23	1:C:165:LEU:HD21	2.00	0.43
1:C:62:GLN:HB2	1:D:63:ASN:ND2	2.33	0.43
1:A:155:TYR:HB2	1:D:172:LEU:HD23	2.00	0.42
1:B:101:LEU:O	1:B:102:GLU:C	2.57	0.42
1:B:115:LEU:O	1:B:116:GLN:C	2.57	0.42
1:B:141:LYS:HE2	1:C:186:ALA:HB3	2.01	0.42
1:C:177:ASP:O	1:C:178:GLN:C	2.56	0.42
1:C:76:ARG:CB	1:D:77:LEU:HD11	2.45	0.42
1:C:83:VAL:O	1:C:86:ARG:HG2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:121:LEU:O	1:A:122:ALA:C	2.56	0.42
1:B:72:ASP:O	1:B:76:ARG:N	2.37	0.42
1:B:83:VAL:C	1:B:85:GLY:H	2.21	0.42
1:D:123:LYS:HD2	1:D:123:LYS:HA	1.86	0.42
1:A:78:GLU:O	1:A:81:MSE:HB2	2.20	0.42
1:A:118:ASP:O	1:A:121:LEU:HB2	2.19	0.42
1:C:179:ALA:O	1:C:180:SER:C	2.57	0.42
1:A:163:LYS:C	1:A:165:LEU:H	2.23	0.42
1:B:87:ASP:N	1:B:87:ASP:OD1	2.53	0.42
1:B:135:LYS:O	1:B:138:GLU:HB2	2.19	0.42
1:B:72:ASP:O	1:B:76:ARG:HB2	2.20	0.42
1:C:58:ASN:HB3	1:C:61:ILE:HG13	1.98	0.42
1:A:58:ASN:HA	1:A:59:PRO:HD2	1.55	0.42
1:A:68:HIS:C	1:A:70:ASN:N	2.73	0.42
1:C:59:PRO:O	1:C:62:GLN:N	2.45	0.42
1:D:104:GLN:O	1:D:107:ASP:HB3	2.19	0.42
1:B:169:LYS:NZ	1:C:159:THR:N	2.68	0.42
1:D:87:ASP:O	1:D:88:PHE:C	2.58	0.42
1:A:115:LEU:HD13	1:B:115:LEU:HD23	2.01	0.42
1:B:126:THR:CG2	1:B:127:SER:H	2.33	0.42
1:B:150:GLN:O	1:B:153:ARG:N	2.53	0.42
1:C:126:THR:O	1:C:129:ASP:N	2.27	0.42
1:A:64:ILE:CG2	1:A:65:ARG:N	2.82	0.41
1:B:173:GLU:HA	1:B:176:ILE:HG22	2.01	0.41
1:C:76:ARG:HB2	1:D:77:LEU:HD11	2.02	0.41
1:C:121:LEU:O	1:C:122:ALA:C	2.56	0.41
1:C:129:ASP:CG	1:D:129:ASP:HB3	2.41	0.41
1:A:91:ALA:O	1:A:92:GLU:C	2.58	0.41
1:A:178:GLN:NE2	1:A:178:GLN:HA	2.34	0.41
1:B:131:GLN:HA	1:B:131:GLN:OE1	2.20	0.41
1:C:75:ALA:O	1:C:76:ARG:C	2.58	0.41
1:C:102:GLU:HG2	1:D:101:LEU:HD11	2.02	0.41
1:C:157:ARG:HD2	1:C:157:ARG:HA	1.81	0.41
1:C:175:ALA:O	1:C:176:ILE:C	2.58	0.41
1:D:186:ALA:O	1:D:189:LEU:HB3	2.21	0.41
1:A:63:ASN:O	1:A:63:ASN:OD1	2.37	0.41
1:A:62:GLN:O	1:A:64:ILE:N	2.52	0.41
1:B:186:ALA:CB	1:C:141:LYS:HE3	2.51	0.41
1:C:129:ASP:OD2	1:D:129:ASP:HB2	2.20	0.41
1:D:108:LEU:HA	1:D:111:LYS:HB2	2.02	0.41
1:A:179:ALA:O	1:A:183:TYR:N	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:150:GLN:HE22	1:B:153:ARG:HH11	1.68	0.41
1:B:128:TRP:CH2	1:D:192:GLU:HG2	2.56	0.41
1:C:126:THR:CG2	1:C:127:SER:H	2.33	0.41
1:C:152:SER:O	1:C:156:HIS:N	2.54	0.41
1:D:149:ASP:CG	1:D:153:ARG:HH12	2.24	0.41
1:B:145:GLU:O	1:B:148:ILE:HB	2.21	0.41
1:B:165:LEU:HB3	1:C:162:GLU:OE2	2.20	0.41
1:C:63:ASN:O	1:C:66:LEU:C	2.59	0.41
1:C:126:THR:O	1:C:127:SER:C	2.59	0.40
1:D:141:LYS:O	1:D:144:LEU:HB2	2.20	0.40
1:C:62:GLN:OE1	1:C:62:GLN:HA	2.22	0.40
1:B:164:GLU:CD	1:D:157:ARG:NH1	2.74	0.40
1:D:78:GLU:O	1:D:81:MSE:HB2	2.20	0.40
1:D:137:LEU:O	1:D:141:LYS:HG3	2.21	0.40
1:C:84:ALA:HB2	1:D:84:ALA:HB2	2.04	0.40
1:C:92:GLU:O	1:C:96:LYS:HG3	2.22	0.40
1:D:61:ILE:HG13	1:D:62:GLN:N	2.34	0.40
1:D:165:LEU:O	1:D:166:GLU:C	2.60	0.40

All (3) 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:C:190:GLU:OE1	1:D:65:ARG:NH1[3_647]	1.87	0.33
1:C:190:GLU:OE2	1:D:65:ARG:CZ[3_647]	2.16	0.04
1:C:190:GLU:OE2	1:D:65:ARG:NE[3_647]	2.18	0.02

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	135/155 (87%)	84 (62%)	37 (27%)	14 (10%)	0 1

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	B	136/155 (88%)	91 (67%)	36 (26%)	9 (7%)	1 5
1	C	136/155 (88%)	93 (68%)	34 (25%)	9 (7%)	1 5
1	D	133/155 (86%)	98 (74%)	30 (23%)	5 (4%)	2 13
All	All	540/620 (87%)	366 (68%)	137 (25%)	37 (7%)	1 4

All (37) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	59	PRO
1	A	76	ARG
1	A	173	GLU
1	A	176	ILE
1	B	78	GLU
1	C	63	ASN
1	C	78	GLU
1	D	62	GLN
1	D	118	ASP
1	A	61	ILE
1	A	63	ASN
1	A	90	ARG
1	A	103	ASP
1	B	191	LYS
1	C	59	PRO
1	D	61	ILE
1	A	123	LYS
1	A	178	GLN
1	B	59	PRO
1	B	123	LYS
1	B	143	ALA
1	B	151	ALA
1	C	77	LEU
1	C	123	LYS
1	D	173	GLU
1	A	79	ASN
1	A	164	GLU
1	B	110	THR
1	B	152	SER
1	C	184	ASN
1	A	138	GLU
1	A	177	ASP
1	B	178	GLN

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Mol	Chain	Res	Type
1	C	178	GLN
1	D	120	ASP
1	C	82	GLU
1	C	176	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	118/131 (90%)	95 (80%)	23 (20%)	1 5
1	B	118/131 (90%)	102 (86%)	16 (14%)	3 13
1	C	118/131 (90%)	104 (88%)	14 (12%)	4 17
1	D	117/131 (89%)	100 (86%)	17 (14%)	2 11
All	All	471/524 (90%)	401 (85%)	70 (15%)	2 10

All (70) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	57	ASN
1	A	62	GLN
1	A	78	GLU
1	A	86	ARG
1	A	90	ARG
1	A	99	GLN
1	A	105	ARG
1	A	108	LEU
1	A	112	LEU
1	A	114	GLU
1	A	115	LEU
1	A	133	LEU
1	A	138	GLU
1	A	146	LEU
1	A	157	ARG
1	A	159	THR
1	A	166	GLU

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Mol	Chain	Res	Type
1	A	167	GLU
1	A	172	LEU
1	A	173	GLU
1	A	177	ASP
1	A	188	VAL
1	A	192	GLU
1	B	61	ILE
1	B	65	ARG
1	B	86	ARG
1	B	87	ASP
1	B	89	LYS
1	B	93	GLU
1	B	105	ARG
1	B	119	TYR
1	B	133	LEU
1	B	136	GLU
1	B	138	GLU
1	B	140	LYS
1	B	150	GLN
1	B	176	ILE
1	B	180	SER
1	B	192	GLU
1	C	73	LEU
1	C	101	LEU
1	C	104	GLN
1	C	105	ARG
1	C	120	ASP
1	C	153	ARG
1	C	166	GLU
1	C	174	LEU
1	C	177	ASP
1	C	181	GLN
1	C	182	ASP
1	C	189	LEU
1	C	191	LYS
1	C	192	GLU
1	D	58	ASN
1	D	78	GLU
1	D	101	LEU
1	D	102	GLU
1	D	105	ARG
1	D	116	GLN

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Mol	Chain	Res	Type
1	D	117	GLN
1	D	127	SER
1	D	128	TRP
1	D	133	LEU
1	D	134	GLU
1	D	136	GLU
1	D	157	ARG
1	D	159	THR
1	D	172	LEU
1	D	180	SER
1	D	182	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	63	ASN
1	A	70	ASN
1	A	79	ASN
1	A	116	GLN
1	B	63	ASN
1	B	116	GLN
1	C	58	ASN
1	C	104	GLN
1	C	181	GLN
1	C	184	ASN
1	D	58	ASN
1	D	178	GLN
1	D	181	GLN
1	D	187	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (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^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	136/155 (87%)	0.39	6 (4%) 39 23	43, 84, 126, 154	0
1	B	137/155 (88%)	0.55	14 (10%) 13 8	40, 85, 122, 166	0
1	C	137/155 (88%)	0.29	6 (4%) 39 23	53, 97, 148, 175	0
1	D	134/155 (86%)	0.41	9 (6%) 25 14	44, 84, 126, 177	0
All	All	544/620 (87%)	0.41	35 (6%) 27 15	40, 89, 133, 177	0

All (35) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	124	GLU	5.7
1	D	145	GLU	5.3
1	A	147	ALA	5.0
1	C	109	GLU	4.1
1	B	134	GLU	4.0
1	A	63	ASN	3.7
1	D	148	ILE	3.6
1	C	63	ASN	3.6
1	D	127	SER	3.4
1	C	147	ALA	3.3
1	B	135	LYS	3.2
1	B	131	GLN	3.2
1	B	132	ARG	3.2
1	B	130	ARG	3.0
1	D	132	ARG	3.0
1	D	123	LYS	2.9
1	B	121	LEU	2.6
1	B	143	ALA	2.5
1	B	57	ASN	2.5
1	D	120	ASP	2.5
1	A	101	LEU	2.5

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Mol	Chain	Res	Type	RSRZ
1	C	65	ARG	2.5
1	C	134	GLU	2.3
1	A	173	GLU	2.3
1	D	118	ASP	2.2
1	D	119	TYR	2.2
1	B	128	TRP	2.2
1	C	132	ARG	2.2
1	B	67	ARG	2.1
1	A	110	THR	2.1
1	B	141	LYS	2.1
1	A	121	LEU	2.1
1	B	87	ASP	2.1
1	B	108	LEU	2.0
1	D	66	LEU	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.