



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 2, 2023 – 09:18 AM EDT

PDB ID : 1C5D
Title : THE CRYSTAL STRUCTURE OF THE FAB FRAGMENT OF A RAT MONOCLONAL ANTIBODY AGAINST THE MAIN IMMUNOGENIC REGION OF THE HUMAN MUSCLE ACETYLCHOLINE RECEPTOR
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Deposited on : 1999-11-17
Resolution : 2.40 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.34

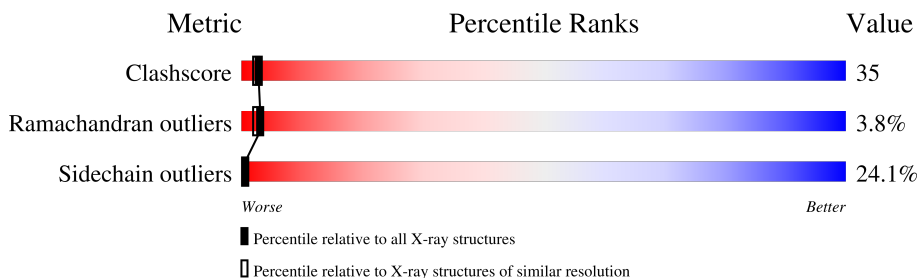
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.40 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))
Clashscore	141614	4398 (2.40-2.40)
Ramachandran outliers	138981	4318 (2.40-2.40)
Sidechain outliers	138945	4319 (2.40-2.40)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	213	31% (green), 51% (yellow), 15% (orange), 3% (red), 1% (grey)
1	L	213	51% (green), 38% (yellow), 10% (orange), 1% (red), 1% (grey)
2	B	215	43% (green), 40% (yellow), 16% (orange), 1% (red), 1% (grey)
2	H	215	37% (green), 48% (yellow), 13% (orange), 2% (red), 1% (grey)

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 6715 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 MONOCLONAL ANTIBODY AGAINST THE MAIN IMMUNOGENIC REGION OF THE HUMAN MUSCLE ACETYLCHOLINE RECEPTOR.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	L	213	Total 1638	C 1022	N 276	O 332	S 8	0	0	0
1	A	213	Total 1638	C 1022	N 276	O 332	S 8	0	0	0

- Molecule 2 is a protein called MONOCLONAL ANTIBODY AGAINST THE MAIN IMMUNOGENIC REGION OF THE HUMAN MUSCLE ACETYLCHOLINE RECEPTOR.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	H	214	Total 1609	C 1017	N 263	O 322	S 7	0	0	0
2	B	215	Total 1621	C 1023	N 267	O 324	S 7	0	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	L	95	Total 95	O 95	0	0
3	H	41	Total 41	O 41	0	0
3	A	37	Total 37	O 37	0	0
3	B	36	Total 36	O 36	0	0

3 Residue-property plots

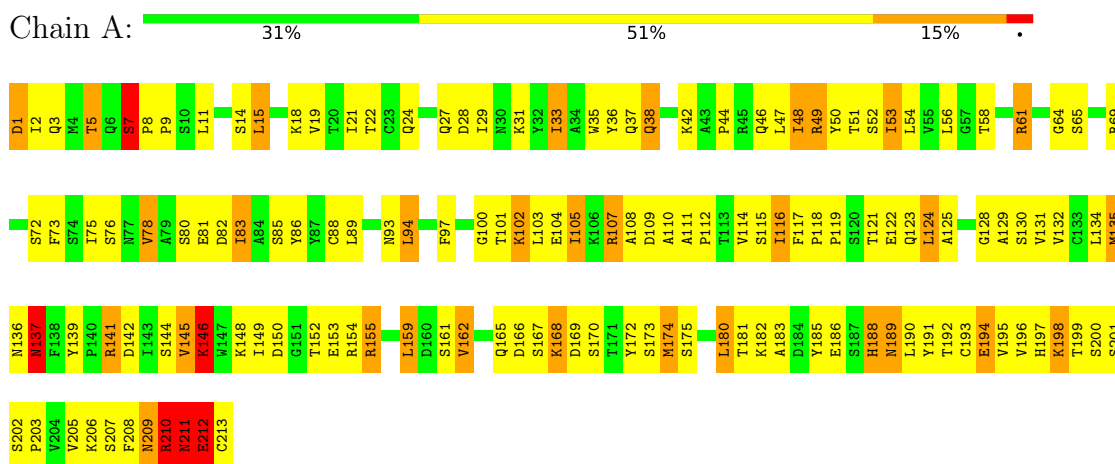
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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. 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.

Note EDS was not executed.

- Molecule 1: MONOCLONAL ANTIBODY AGAINST THE MAIN IMMUNOGENIC REGION OF THE HUMAN MUSCLE ACETYLCHOLINE RECEPTOR

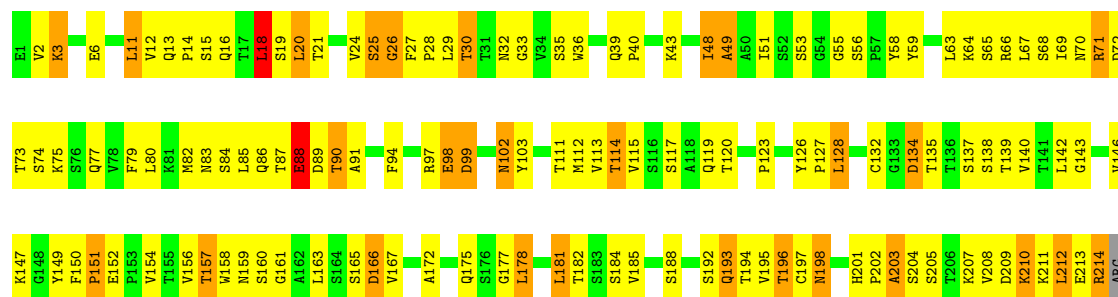


- Molecule 1: MONOCLONAL ANTIBODY AGAINST THE MAIN IMMUNOGENIC REGION OF THE HUMAN MUSCLE ACETYLCHOLINE RECEPTOR



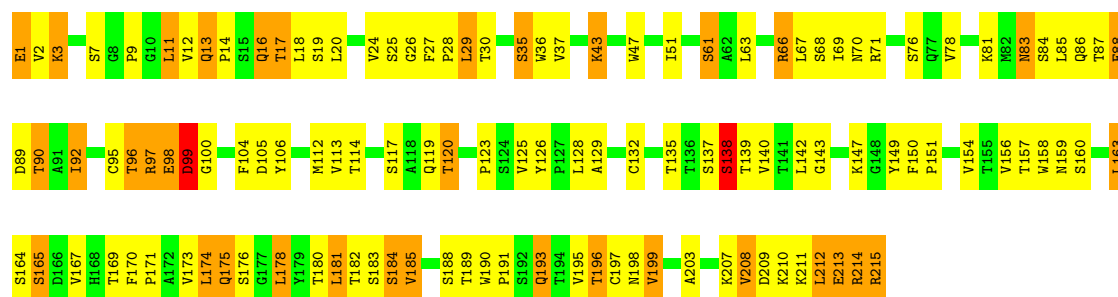
- Molecule 2: MONOCLONAL ANTIBODY AGAINST THE MAIN IMMUNOGENIC REGION OF THE HUMAN MUSCLE ACETYLCHOLINE RECEPTOR





● Molecule 2: MONOCLONAL ANTIBODY AGAINST THE MAIN IMMUNOGENIC REGION OF THE HUMAN MUSCLE ACETYLCHOLINE RECEPTOR

Chain B: 43% 40% 16%



4 Data and refinement statistics

Xtrriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	79.71Å 110.08Å 199.52Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.40	Depositor
% Data completeness (in resolution range)	76.1 (20.00-2.40)	Depositor
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	X-PLOR 3.8	Depositor
R, R_{free}	0.196 , 0.304	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	6715	wwPDB-VP
Average B, all atoms (Å ²)	37.0	wwPDB-VP

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.47	0/1671	0.73	1/2267 (0.0%)
1	L	0.50	0/1671	0.75	0/2267
2	B	0.48	0/1663	0.76	0/2277
2	H	0.51	0/1651	0.77	1/2263 (0.0%)
All	All	0.49	0/6656	0.75	2/9074 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	7	SER	N-CA-C	5.60	126.13	111.00
2	H	18	LEU	CA-CB-CG	5.47	127.88	115.30

There are no chirality outliers.

There are no planarity outliers.

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	1638	0	1595	166	0
1	L	1638	0	1595	86	0
2	B	1621	0	1585	112	0
2	H	1609	0	1572	101	0
3	A	37	0	0	1	0
3	B	36	0	0	1	0
3	H	41	0	0	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	L	95	0	0	3	0
All	All	6715	0	6347	451	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 35.

All (451) 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:A:212:GLU:HB2	2:B:132:CYS:HB2	1.33	1.09
1:A:194:GLU:HB2	1:A:205:VAL:HG13	1.37	1.06
2:H:28:PRO:HB2	2:H:30:THR:HG23	1.34	1.03
2:H:196:THR:HB	2:H:211:LYS:HA	1.41	1.02
2:H:40:PRO:HG2	2:H:43:LYS:HB2	1.41	1.01
1:A:124:LEU:HD12	1:A:182:LYS:HG3	1.46	0.96
2:H:13:GLN:HB2	2:H:16:GLN:HG3	1.52	0.91
2:B:11:LEU:HD12	2:B:120:THR:HG22	1.55	0.89
2:B:87:THR:O	2:B:90:THR:HG22	1.72	0.89
2:B:119:GLN:HG3	3:B:251:HOH:O	1.71	0.89
2:B:196:THR:HB	2:B:211:LYS:HA	1.55	0.88
1:A:186:GLU:HA	1:A:210:ARG:HH21	1.40	0.87
2:H:90:THR:HG22	2:H:115:VAL:H	1.37	0.87
1:A:146:LYS:HZ3	1:A:195:VAL:HA	1.38	0.86
2:H:142:LEU:HD13	2:H:195:VAL:HG21	1.59	0.85
1:A:196:VAL:HG22	1:A:203:PRO:HB3	1.56	0.84
2:B:142:LEU:HD13	2:B:195:VAL:HG11	1.57	0.83
2:B:143:GLY:O	2:B:212:LEU:HD11	1.77	0.83
2:H:87:THR:O	2:H:90:THR:HG23	1.78	0.83
1:A:145:VAL:O	1:A:146:LYS:HG2	1.78	0.83
2:B:147:LYS:CB	2:B:180:THR:HG23	2.09	0.82
2:B:2:VAL:HG13	2:B:27:PHE:CD1	2.14	0.82
2:B:147:LYS:HB2	2:B:180:THR:HG23	1.62	0.81
1:A:194:GLU:HA	1:A:205:VAL:HA	1.62	0.80
2:B:3:LYS:HG3	2:B:25:SER:HB2	1.62	0.80
1:A:112:PRO:HD3	1:A:197:HIS:ND1	1.99	0.77
2:B:98:GLU:O	2:B:100:GLY:N	2.16	0.77
1:A:146:LYS:NZ	1:A:195:VAL:HA	1.98	0.77
1:A:181:THR:HG22	1:A:183:ALA:H	1.48	0.76
1:A:145:VAL:HG13	1:A:146:LYS:H	1.48	0.76
1:L:200:SER:O	1:L:201:SER:HB3	1.83	0.76
1:A:81:GLU:HA	1:A:167:SER:OG	1.86	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:18:LEU:HD22	2:H:20:LEU:HD12	1.66	0.75
2:H:213:GLU:O	2:H:214:ARG:HB2	1.87	0.75
2:H:143:GLY:O	2:H:212:LEU:HD21	1.86	0.74
1:L:123:GLN:O	1:L:126:THR:HB	1.86	0.74
1:L:37:GLN:CB	1:L:47:LEU:HD21	2.17	0.74
1:A:194:GLU:HB2	1:A:205:VAL:CG1	2.16	0.74
2:B:17:THR:HB	2:B:83:ASN:HB3	1.70	0.73
2:B:96:THR:HG21	2:B:104:PHE:HA	1.70	0.72
2:B:142:LEU:CD1	2:B:195:VAL:HG11	2.19	0.72
2:B:87:THR:O	2:B:90:THR:CG2	2.38	0.71
1:A:211:ASN:O	1:A:212:GLU:HG2	1.90	0.70
1:A:7:SER:O	1:A:9:PRO:HD3	1.90	0.70
1:A:36:TYR:CZ	1:A:46:GLN:HG3	2.25	0.70
2:B:2:VAL:HG13	2:B:27:PHE:CE1	2.27	0.70
2:H:98:GLU:HG2	2:H:99:ASP:N	2.05	0.70
1:A:114:VAL:HG22	1:A:135:MET:HG2	1.74	0.69
1:L:18:LYS:HD3	3:L:242:HOH:O	1.92	0.69
2:H:90:THR:CG2	2:H:115:VAL:H	2.06	0.69
1:A:50:TYR:HB2	1:A:53:ILE:HG23	1.74	0.69
1:A:146:LYS:HZ3	1:A:195:VAL:CA	2.04	0.69
1:A:145:VAL:HG22	1:A:146:LYS:N	2.06	0.69
1:A:194:GLU:HG3	1:A:205:VAL:HG22	1.74	0.68
1:A:212:GLU:CB	2:B:132:CYS:HB2	2.18	0.68
1:L:47:LEU:HD12	1:L:58:THR:HG23	1.74	0.68
1:A:81:GLU:HA	1:A:167:SER:HG	1.58	0.68
2:B:157:THR:OG1	2:B:198:ASN:HB2	1.93	0.67
2:H:90:THR:HB	2:H:114:THR:HA	1.75	0.67
1:L:166:ASP:HB3	1:L:169:ASP:OD1	1.95	0.67
1:L:200:SER:O	1:L:201:SER:CB	2.42	0.67
1:A:189:ASN:O	1:A:210:ARG:HB2	1.95	0.67
2:B:90:THR:HB	2:B:114:THR:HA	1.76	0.67
1:L:146:LYS:O	1:L:193:CYS:O	2.13	0.67
1:A:197:HIS:HB3	1:A:199:THR:HG22	1.76	0.67
1:L:37:GLN:HB2	1:L:47:LEU:HD21	1.75	0.67
1:L:50:TYR:HB3	1:L:53:ILE:HD13	1.75	0.66
1:L:25:ALA:O	1:L:69:ARG:NH1	2.29	0.66
1:A:196:VAL:HG22	1:A:203:PRO:CB	2.26	0.66
2:H:14:PRO:O	2:H:15:SER:HB2	1.94	0.65
2:B:98:GLU:O	2:B:98:GLU:HG2	1.96	0.65
2:B:96:THR:CG2	2:B:104:PHE:HA	2.27	0.65
1:A:209:ASN:O	1:A:210:ARG:HB2	1.97	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:66:ARG:NH2	2:B:89:ASP:OD2	2.29	0.64
2:H:36:TRP:HD1	2:H:69:ILE:HD12	1.62	0.64
1:A:8:PRO:HD2	1:A:21:ILE:HG23	1.79	0.64
2:B:29:LEU:HD22	2:B:76:SER:HA	1.79	0.64
2:B:9:PRO:O	2:B:113:VAL:HG22	1.98	0.64
2:B:181:LEU:HD23	2:B:181:LEU:C	2.18	0.64
1:A:37:GLN:HB2	1:A:47:LEU:HD11	1.78	0.64
2:H:90:THR:HG22	2:H:115:VAL:HB	1.78	0.63
1:L:117:PHE:HE1	1:L:134:LEU:HD22	1.63	0.63
2:H:165:SER:O	2:H:166:ASP:HB2	1.98	0.63
2:B:28:PRO:HB2	2:B:30:THR:OG1	1.99	0.63
1:A:191:TYR:HE2	1:A:210:ARG:HG2	1.64	0.63
1:A:165:GLN:HG3	1:A:172:TYR:CZ	2.34	0.62
1:A:191:TYR:CE2	1:A:210:ARG:HG2	2.33	0.62
2:B:163:LEU:HD23	2:B:165:SER:OG	1.99	0.62
2:B:163:LEU:HD22	2:B:185:VAL:HG21	1.81	0.62
1:L:145:VAL:HG13	1:L:145:VAL:O	1.99	0.62
1:A:93:ASN:O	1:A:94:LEU:HB2	1.99	0.62
2:B:199:VAL:HB	2:B:208:VAL:HG13	1.82	0.61
1:L:21:ILE:HG12	1:L:101:THR:HG21	1.82	0.61
1:A:119:PRO:HB2	1:A:124:LEU:HD21	1.82	0.61
1:A:7:SER:HB3	1:A:8:PRO:HD3	1.82	0.61
1:A:149:ILE:O	1:A:152:THR:HG22	1.99	0.61
2:B:129:ALA:HB2	2:B:212:LEU:HD23	1.82	0.61
1:L:114:VAL:HA	1:L:134:LEU:O	2.01	0.61
2:B:137:SER:O	2:B:138:SER:HB2	2.01	0.61
1:L:107:ARG:HG2	1:L:108:ALA:N	2.15	0.61
2:H:193:GLN:HA	2:H:193:GLN:OE1	2.00	0.61
1:A:210:ARG:HD2	1:A:210:ARG:O	2.01	0.60
1:L:33:ILE:HG22	1:L:51:THR:HA	1.83	0.60
1:L:155:ARG:NH1	1:L:155:ARG:HG2	2.15	0.60
2:B:96:THR:CG2	2:B:106:TYR:O	2.49	0.60
2:B:164:SER:O	2:B:167:VAL:HG23	2.01	0.60
2:H:2:VAL:HG13	2:H:27:PHE:HD2	1.66	0.60
1:A:194:GLU:CB	1:A:205:VAL:HG13	2.22	0.60
2:B:123:PRO:HB3	2:B:149:TYR:HB3	1.83	0.60
2:B:189:THR:CB	2:B:193:GLN:HB2	2.31	0.60
2:H:128:LEU:HB2	2:H:143:GLY:C	2.22	0.59
1:A:121:THR:HG23	1:A:122:GLU:H	1.66	0.59
1:A:123:GLN:HE22	1:A:130:SER:HB2	1.65	0.59
1:A:118:PRO:HB3	1:A:208:PHE:CE1	2.37	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:192:THR:HG23	1:A:205:VAL:CG1	2.33	0.59
1:A:182:LYS:O	1:A:186:GLU:HG2	2.03	0.59
2:B:189:THR:HB	2:B:193:GLN:HB2	1.83	0.59
2:B:88:GLU:H	2:B:88:GLU:CD	2.06	0.58
2:B:147:LYS:HB3	2:B:180:THR:HG23	1.85	0.58
2:H:11:LEU:HG	2:H:151:PRO:HG3	1.85	0.58
2:H:18:LEU:HD12	2:H:82:MET:H	1.69	0.58
1:A:5:THR:HG23	1:A:24:GLN:HB3	1.86	0.58
1:A:2:ILE:HD13	1:A:29:ILE:HG22	1.86	0.57
1:A:102:LYS:CB	1:A:102:LYS:NZ	2.67	0.57
2:H:128:LEU:HB2	2:H:143:GLY:O	2.04	0.57
1:A:155:ARG:HB3	1:A:155:ARG:CZ	2.34	0.57
2:B:97:ARG:HH11	2:B:99:ASP:HB3	1.68	0.57
2:B:159:ASN:HD21	2:B:195:VAL:HA	1.69	0.57
2:H:138:SER:O	2:H:188:SER:HA	2.05	0.57
2:B:13:GLN:HG3	2:B:117:SER:HA	1.87	0.57
1:A:49:ARG:HH21	1:A:50:TYR:HE2	1.53	0.57
1:L:160:ASP:HB3	1:L:174:MET:CE	2.35	0.56
2:B:24:VAL:HG22	2:B:27:PHE:CZ	2.40	0.56
2:H:6:GLU:HB2	2:H:111:THR:HG23	1.87	0.56
2:H:85:LEU:HB3	2:H:115:VAL:HG21	1.86	0.56
2:H:115:VAL:HG12	2:H:115:VAL:O	2.06	0.56
2:B:163:LEU:CD1	2:B:195:VAL:HG23	2.35	0.56
1:L:155:ARG:HG2	1:L:155:ARG:HH11	1.70	0.56
1:L:6:GLN:HE21	1:L:21:ILE:CG2	2.19	0.56
1:A:118:PRO:HB3	1:A:208:PHE:CZ	2.41	0.56
2:B:29:LEU:O	2:B:71:ARG:NH1	2.38	0.56
2:B:86:GLN:O	2:B:89:ASP:HB2	2.06	0.56
2:B:165:SER:HB2	2:B:185:VAL:HG22	1.88	0.56
1:A:54:LEU:HD22	1:A:58:THR:HG21	1.88	0.56
1:A:194:GLU:HB2	1:A:205:VAL:HG22	1.88	0.56
1:A:38:GLN:HG3	1:A:44:PRO:HA	1.88	0.56
1:L:159:LEU:HD23	1:L:159:LEU:O	2.06	0.56
1:L:132:VAL:HG21	2:H:128:LEU:HD11	1.87	0.56
2:H:39:GLN:C	2:H:91:ALA:HB1	2.27	0.56
2:H:48:ILE:O	2:H:49:ALA:O	2.23	0.56
1:L:123:GLN:HG3	2:H:126:TYR:CE2	2.42	0.55
2:H:24:VAL:HB	2:H:29:LEU:HD11	1.87	0.55
2:B:214:ARG:H	2:B:214:ARG:HD3	1.70	0.55
1:A:189:ASN:HD22	1:A:210:ARG:HB3	1.72	0.55
1:A:107:ARG:NH2	1:A:110:ALA:HB2	2.22	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:18:LEU:HD11	2:B:20:LEU:CD2	2.37	0.55
2:B:96:THR:HG23	2:B:106:TYR:O	2.07	0.55
1:L:17:ASP:O	1:L:78:VAL:HG22	2.06	0.55
2:H:167:VAL:HG22	2:H:185:VAL:HG23	1.89	0.55
2:H:123:PRO:HB3	2:H:149:TYR:HB3	1.88	0.55
1:A:124:LEU:HD12	1:A:182:LYS:CG	2.30	0.55
2:B:128:LEU:C	2:B:212:LEU:HD21	2.27	0.55
1:L:141:ARG:HG3	1:L:172:TYR:CD1	2.42	0.55
1:A:186:GLU:CA	1:A:210:ARG:HH21	2.17	0.55
1:A:144:SER:CB	1:A:146:LYS:HZ1	2.21	0.54
1:A:102:LYS:NZ	1:A:102:LYS:HB2	2.23	0.54
1:A:119:PRO:HB2	1:A:124:LEU:CD2	2.37	0.54
2:B:18:LEU:HD11	2:B:20:LEU:HD21	1.89	0.54
1:L:180:LEU:HD12	1:L:180:LEU:N	2.22	0.54
2:H:13:GLN:HB2	2:H:16:GLN:CG	2.32	0.54
1:A:166:ASP:C	1:A:168:LYS:H	2.11	0.54
1:A:194:GLU:HG3	1:A:203:PRO:HB2	1.88	0.54
2:B:163:LEU:HD22	2:B:185:VAL:CG2	2.37	0.54
1:L:117:PHE:CE1	1:L:134:LEU:HD22	2.41	0.54
1:A:146:LYS:HG2	1:A:194:GLU:O	2.08	0.54
2:B:51:ILE:HB	2:B:69:ILE:HG12	1.88	0.54
2:B:163:LEU:C	2:B:165:SER:H	2.11	0.54
1:A:129:ALA:HB3	1:A:180:LEU:HD12	1.89	0.54
1:A:36:TYR:CE2	1:A:46:GLN:HG3	2.43	0.54
2:B:11:LEU:HD23	2:B:114:THR:O	2.08	0.54
1:L:147:TRP:O	1:L:153:GLU:HA	2.07	0.53
1:L:19:VAL:HG22	1:L:75:ILE:HB	1.90	0.53
1:A:123:GLN:HG2	1:A:128:GLY:O	2.08	0.53
2:B:2:VAL:HG13	2:B:27:PHE:HD1	1.73	0.53
1:L:194:GLU:HA	1:L:204:VAL:O	2.09	0.53
1:A:83:ILE:HD11	1:A:105:ILE:HB	1.90	0.53
2:H:98:GLU:HG3	2:H:103:TYR:CE2	2.43	0.53
2:H:181:LEU:C	2:H:181:LEU:HD23	2.28	0.53
2:H:142:LEU:HD22	2:H:212:LEU:HD12	1.91	0.53
1:A:146:LYS:NZ	1:A:196:VAL:H	2.07	0.53
1:A:61:ARG:NH1	1:A:82:ASP:OD2	2.40	0.53
1:A:75:ILE:HG21	1:A:78:VAL:HG13	1.91	0.53
1:A:103:LEU:C	1:A:103:LEU:HD23	2.30	0.52
2:H:40:PRO:HA	2:H:91:ALA:HB2	1.90	0.52
2:B:213:GLU:HB3	2:B:214:ARG:HD3	1.90	0.52
2:H:40:PRO:HG2	2:H:43:LYS:CB	2.28	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:174:MET:HG3	1:A:175:SER:N	2.25	0.52
2:H:90:THR:HG22	2:H:115:VAL:N	2.16	0.52
2:H:213:GLU:O	2:H:214:ARG:CB	2.57	0.52
2:B:125:VAL:HG21	2:B:208:VAL:HG11	1.90	0.52
2:H:40:PRO:HA	2:H:91:ALA:CB	2.40	0.52
2:H:201:HIS:CE1	2:H:203:ALA:HB3	2.44	0.52
1:A:194:GLU:CG	1:A:205:VAL:HG22	2.39	0.52
1:L:160:ASP:HB3	1:L:174:MET:HE3	1.90	0.52
2:H:86:GLN:O	2:H:89:ASP:HB2	2.09	0.52
1:A:202:SER:HB2	1:A:203:PRO:CD	2.40	0.52
2:B:128:LEU:O	2:B:212:LEU:HD21	2.10	0.52
2:B:140:VAL:HG11	2:B:190:TRP:CZ3	2.44	0.52
1:L:188:HIS:O	1:L:210:ARG:NH1	2.42	0.52
1:L:8:PRO:HG3	1:L:11:LEU:HD22	1.91	0.51
1:L:123:GLN:O	1:L:126:THR:CB	2.56	0.51
1:A:198:LYS:HD3	1:A:198:LYS:N	2.24	0.51
2:B:1:GLU:HA	2:B:1:GLU:OE1	2.11	0.51
1:L:114:VAL:O	1:L:206:LYS:HD3	2.09	0.51
1:A:83:ILE:HA	1:A:103:LEU:HD22	1.92	0.51
2:H:21:THR:HG1	2:H:79:PHE:HD1	1.58	0.51
1:L:149:ILE:HD11	1:L:178:LEU:HD21	1.93	0.51
1:L:118:PRO:HB3	1:L:208:PHE:CZ	2.45	0.51
1:A:146:LYS:HZ3	1:A:196:VAL:N	2.09	0.51
2:B:150:PHE:CE1	2:B:151:PRO:HB3	2.46	0.51
1:L:61:ARG:HG2	1:L:61:ARG:HH11	1.75	0.51
2:H:2:VAL:HG13	2:H:27:PHE:CD2	2.46	0.51
1:A:132:VAL:HG12	1:A:134:LEU:HD13	1.93	0.51
2:B:96:THR:HG22	2:B:106:TYR:O	2.11	0.51
1:A:15:LEU:HD13	1:A:78:VAL:O	2.10	0.50
1:L:146:LYS:HE2	1:L:196:VAL:HG23	1.93	0.50
2:H:49:ALA:HA	2:H:58:TYR:O	2.12	0.50
1:L:118:PRO:HB3	1:L:208:PHE:CE1	2.47	0.50
1:A:194:GLU:CA	1:A:205:VAL:HA	2.35	0.50
2:B:169:THR:HA	2:B:183:SER:HA	1.91	0.50
1:L:126:THR:HG22	1:L:128:GLY:H	1.77	0.50
1:A:117:PHE:CB	2:B:128:LEU:HD22	2.42	0.50
2:H:87:THR:C	2:H:89:ASP:H	2.15	0.50
2:H:202:PRO:O	2:H:204:SER:N	2.45	0.50
1:A:210:ARG:HD2	1:A:210:ARG:C	2.32	0.50
1:A:19:VAL:HG22	1:A:75:ILE:HB	1.94	0.50
2:B:3:LYS:CG	2:B:25:SER:HB2	2.37	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:39:LYS:HD3	1:L:84:ALA:HB2	1.94	0.49
1:L:163:THR:HG23	1:L:164:ASP:N	2.27	0.49
1:L:1:ASP:OD1	1:L:1:ASP:N	2.45	0.49
2:H:146:VAL:HG11	2:H:154:VAL:HG21	1.94	0.49
2:H:6:GLU:OE2	2:H:94:PHE:HA	2.11	0.49
1:A:18:LYS:HA	1:A:75:ILE:O	2.11	0.49
1:A:182:LYS:O	1:A:186:GLU:CG	2.61	0.49
2:H:28:PRO:O	2:H:32:ASN:HB2	2.12	0.49
2:H:87:THR:O	2:H:89:ASP:N	2.45	0.49
1:A:145:VAL:HG13	1:A:146:LYS:N	2.22	0.49
2:H:59:TYR:CE1	2:H:69:ILE:HG22	2.48	0.49
2:H:157:THR:OG1	2:H:198:ASN:OD1	2.29	0.49
2:H:48:ILE:CG2	2:H:63:LEU:HD12	2.43	0.49
1:A:11:LEU:CD1	1:A:19:VAL:HB	2.43	0.49
2:B:174:LEU:HA	2:B:178:LEU:O	2.13	0.49
1:A:136:ASN:HB3	1:A:137:ASN:OD1	2.12	0.49
1:A:209:ASN:HB3	1:A:212:GLU:OE2	2.13	0.48
1:L:186:GLU:HA	1:L:210:ARG:HD2	1.95	0.48
1:L:29:ILE:HD11	1:L:71:PHE:CE1	2.48	0.48
1:L:37:GLN:HB3	1:L:47:LEU:HD21	1.94	0.48
2:H:48:ILE:HG22	2:H:63:LEU:HD12	1.95	0.48
1:A:166:ASP:HB3	1:A:169:ASP:OD1	2.14	0.48
1:L:35:TRP:CZ3	1:L:88:CYS:HB3	2.49	0.48
2:H:55:GLY:HA3	2:H:71:ARG:NH1	2.29	0.48
1:A:114:VAL:HG22	1:A:135:MET:CG	2.43	0.48
1:A:35:TRP:HB2	1:A:48:ILE:HB	1.94	0.48
1:A:49:ARG:HD3	1:A:53:ILE:HG13	1.96	0.48
1:L:155:ARG:HH11	1:L:155:ARG:CG	2.26	0.48
2:H:36:TRP:CD1	2:H:69:ILE:HD12	2.46	0.48
2:H:43:LYS:HE3	3:H:226:HOH:O	2.12	0.48
2:H:48:ILE:HB	2:H:67:LEU:HD11	1.96	0.47
2:H:202:PRO:C	2:H:204:SER:H	2.17	0.47
1:A:102:LYS:HB2	1:A:102:LYS:HZ2	1.79	0.47
1:A:136:ASN:ND2	1:A:173:SER:HB3	2.28	0.47
2:B:83:ASN:O	2:B:84:SER:HB2	2.14	0.47
1:A:212:GLU:HG3	2:B:132:CYS:SG	2.54	0.47
2:B:137:SER:O	2:B:138:SER:CB	2.62	0.47
1:L:124:LEU:C	1:L:126:THR:H	2.17	0.47
2:H:73:THR:HG23	2:H:74:SER:N	2.28	0.47
1:A:7:SER:HB3	1:A:8:PRO:CD	2.44	0.47
1:A:123:GLN:NE2	1:A:130:SER:HB2	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:189:ASN:HA	1:A:210:ARG:HG3	1.96	0.47
2:H:214:ARG:HD2	2:H:214:ARG:HA	1.53	0.47
1:A:2:ILE:HG12	1:A:27:GLN:HB2	1.96	0.47
1:A:122:GLU:O	1:A:125:ALA:HB3	2.15	0.47
1:A:189:ASN:ND2	1:A:210:ARG:HB3	2.29	0.47
2:B:12:VAL:HG12	2:B:13:GLN:N	2.30	0.47
1:L:120:SER:HB3	2:H:127:PRO:HD2	1.96	0.47
1:A:123:GLN:HE22	1:A:130:SER:CB	2.27	0.47
1:A:146:LYS:NZ	1:A:196:VAL:N	2.63	0.47
1:L:56:LEU:HD23	1:L:56:LEU:N	2.30	0.47
1:A:114:VAL:HG21	1:A:195:VAL:CG2	2.44	0.47
2:H:90:THR:O	2:H:91:ALA:HB2	2.15	0.47
2:B:167:VAL:HG22	2:B:185:VAL:HG23	1.97	0.47
1:L:83:ILE:O	1:L:84:ALA:HB2	2.15	0.46
1:L:129:ALA:HB3	1:L:180:LEU:CD1	2.45	0.46
1:A:33:ILE:HG22	1:A:51:THR:HA	1.97	0.46
1:A:189:ASN:O	1:A:209:ASN:O	2.34	0.46
2:H:160:SER:N	2:H:198:ASN:OD1	2.40	0.46
2:H:152:GLU:OE2	2:H:172:ALA:HB3	2.16	0.46
1:A:209:ASN:CB	1:A:212:GLU:OE2	2.63	0.46
2:B:167:VAL:HA	2:B:184:SER:O	2.16	0.46
1:A:83:ILE:HA	1:A:103:LEU:CD2	2.46	0.46
1:A:121:THR:HG23	1:A:122:GLU:N	2.30	0.46
2:H:98:GLU:O	2:H:102:ASN:O	2.34	0.46
1:A:149:ILE:O	1:A:152:THR:CG2	2.64	0.46
2:H:137:SER:C	2:H:139:THR:H	2.19	0.46
1:L:180:LEU:HD13	1:L:185:TYR:HB2	1.98	0.45
1:A:188:HIS:ND1	1:A:188:HIS:N	2.64	0.45
1:L:212:GLU:O	2:H:132:CYS:HA	2.16	0.45
1:A:103:LEU:HD23	1:A:103:LEU:O	2.15	0.45
1:A:209:ASN:O	1:A:210:ARG:CB	2.64	0.45
1:L:168:LYS:HE2	1:L:168:LYS:HB3	1.73	0.45
2:H:88:GLU:HA	3:H:224:HOH:O	2.15	0.45
2:H:127:PRO:HG3	2:H:210:LYS:HD3	1.98	0.45
1:A:2:ILE:HD13	1:A:29:ILE:CG2	2.45	0.45
2:B:104:PHE:N	2:B:104:PHE:CD1	2.84	0.45
1:A:89:LEU:HD13	1:A:97:PHE:CZ	2.51	0.45
1:A:146:LYS:O	1:A:193:CYS:O	2.34	0.45
2:H:3:LYS:HE3	2:H:3:LYS:HB2	1.81	0.45
1:L:61:ARG:NH2	1:L:82:ASP:OD1	2.42	0.45
2:B:28:PRO:C	2:B:30:THR:H	2.19	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:99:ASP:OD1	2:B:99:ASP:C	2.55	0.45
2:B:151:PRO:HD2	2:B:203:ALA:CB	2.46	0.45
1:A:5:THR:CG2	1:A:24:GLN:HB3	2.46	0.45
2:B:18:LEU:O	2:B:81:LYS:HA	2.17	0.45
2:B:174:LEU:HG	2:B:174:LEU:O	2.17	0.45
2:H:208:VAL:HG22	2:H:209:ASP:N	2.32	0.45
1:A:7:SER:O	1:A:9:PRO:CD	2.64	0.45
1:A:86:TYR:O	1:A:100:GLY:HA2	2.17	0.45
2:B:37:VAL:HG22	2:B:47:TRP:HA	1.99	0.45
1:A:22:THR:HA	1:A:72:SER:HA	1.97	0.45
1:A:132:VAL:CG1	1:A:134:LEU:HD13	2.47	0.45
1:L:94:LEU:HD12	1:L:94:LEU:HA	1.77	0.44
1:L:107:ARG:HG2	1:L:108:ALA:H	1.79	0.44
1:L:61:ARG:HH11	1:L:61:ARG:CG	2.31	0.44
2:B:123:PRO:CB	2:B:149:TYR:HB3	2.47	0.44
2:H:177:GLY:O	2:H:178:LEU:HD13	2.17	0.44
1:A:194:GLU:CB	1:A:205:VAL:HG22	2.46	0.44
2:B:2:VAL:HA	2:B:26:GLY:HA3	1.99	0.44
2:H:51:ILE:HA	2:H:56:SER:O	2.17	0.44
1:L:124:LEU:C	1:L:126:THR:N	2.70	0.44
1:L:180:LEU:HD12	1:L:180:LEU:H	1.83	0.44
2:H:195:VAL:HG23	2:H:195:VAL:O	2.17	0.44
1:A:141:ARG:HH22	1:A:162:VAL:HB	1.82	0.44
1:A:180:LEU:CD1	1:A:185:TYR:HB2	2.48	0.44
1:A:192:THR:HG23	1:A:205:VAL:HG13	1.99	0.44
2:B:87:THR:O	2:B:89:ASP:N	2.50	0.44
2:B:163:LEU:HD11	2:B:195:VAL:HG23	1.99	0.44
1:L:162:VAL:HG23	3:L:276:HOH:O	2.16	0.44
2:H:24:VAL:CB	2:H:29:LEU:HD11	2.47	0.44
1:A:102:LYS:HB3	1:A:102:LYS:HZ3	1.81	0.44
1:A:192:THR:HA	1:A:207:SER:OG	2.17	0.44
2:B:213:GLU:HA	2:B:213:GLU:OE1	2.18	0.44
2:H:67:LEU:HD22	2:H:80:LEU:HD11	2.00	0.44
1:A:35:TRP:CE2	1:A:73:PHE:HB2	2.53	0.44
1:L:200:SER:HB2	1:L:202:SER:O	2.18	0.44
2:B:92:ILE:CD1	2:B:112:MET:HG2	2.48	0.44
1:A:1:ASP:OD2	2:B:61:SER:HB2	2.18	0.44
1:A:35:TRP:CZ3	1:A:88:CYS:HB3	2.53	0.43
2:B:181:LEU:HD23	2:B:181:LEU:O	2.18	0.43
1:L:123:GLN:HG3	2:H:126:TYR:CZ	2.54	0.43
1:A:107:ARG:HG2	1:A:139:TYR:CD2	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:111:ALA:HA	1:A:199:THR:HG21	1.99	0.43
1:A:211:ASN:O	1:A:212:GLU:O	2.36	0.43
2:B:123:PRO:CA	2:B:149:TYR:HB3	2.48	0.43
1:A:54:LEU:HD22	1:A:58:THR:CG2	2.49	0.43
1:A:123:GLN:HB2	2:B:126:TYR:CE1	2.54	0.43
1:A:212:GLU:O	1:A:213:CYS:O	2.35	0.43
1:L:164:ASP:O	1:L:165:GLN:C	2.56	0.43
1:A:29:ILE:HD11	1:A:33:ILE:HG13	2.00	0.43
1:A:159:LEU:HD13	2:B:173:VAL:HG21	1.99	0.43
1:A:7:SER:HB2	3:A:226:HOH:O	2.18	0.43
1:A:150:ASP:HA	1:A:190:LEU:HB3	1.99	0.43
2:B:69:ILE:HG23	2:B:69:ILE:O	2.19	0.43
2:B:170:PHE:HB2	2:B:182:THR:O	2.18	0.43
2:B:189:THR:OG1	2:B:193:GLN:HB2	2.18	0.43
1:A:8:PRO:O	1:A:101:THR:OG1	2.22	0.43
1:A:146:LYS:CG	1:A:194:GLU:O	2.67	0.43
1:L:35:TRP:CH2	1:L:88:CYS:HB3	2.53	0.43
1:L:78:VAL:HB	1:L:105:ILE:HD11	2.00	0.43
1:L:146:LYS:HE2	1:L:196:VAL:CG2	2.48	0.43
2:H:195:VAL:O	2:H:195:VAL:CG2	2.66	0.43
1:A:102:LYS:CB	1:A:102:LYS:HZ3	2.31	0.43
1:L:81:GLU:OE1	1:A:56:LEU:HD21	2.19	0.43
1:L:185:TYR:CZ	1:L:210:ARG:HG3	2.54	0.43
2:H:159:ASN:C	2:H:161:GLY:H	2.22	0.43
2:B:35:SER:O	2:B:95:CYS:HA	2.18	0.43
2:B:175:GLN:HE21	2:B:175:GLN:HB2	1.72	0.43
1:A:52:SER:HB3	1:A:64:GLY:O	2.19	0.42
2:H:86:GLN:HB2	2:H:88:GLU:OE2	2.19	0.42
2:B:96:THR:HG21	2:B:104:PHE:CA	2.44	0.42
1:L:18:LYS:CD	3:L:242:HOH:O	2.61	0.42
1:L:141:ARG:HG3	1:L:172:TYR:CG	2.54	0.42
2:B:11:LEU:HA	2:B:114:THR:O	2.19	0.42
1:A:50:TYR:HB2	1:A:53:ILE:CG2	2.45	0.42
2:B:195:VAL:O	2:B:195:VAL:HG13	2.20	0.42
1:L:119:PRO:HD3	1:L:131:VAL:HG22	2.01	0.42
2:H:33:GLY:HA3	2:H:98:GLU:OE1	2.20	0.42
1:A:18:LYS:HB2	1:A:76:SER:HA	2.02	0.42
2:B:43:LYS:HA	2:B:43:LYS:HD2	1.90	0.42
1:L:33:ILE:HD11	1:L:88:CYS:HB2	2.02	0.42
2:H:98:GLU:CG	2:H:99:ASP:N	2.81	0.42
1:A:145:VAL:HG22	1:A:146:LYS:H	1.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:14:PRO:C	2:B:16:GLN:H	2.23	0.42
2:H:18:LEU:CD2	2:H:20:LEU:HD12	2.44	0.41
2:H:158:TRP:CH2	2:H:197:CYS:HB3	2.55	0.41
2:B:158:TRP:CH2	2:B:197:CYS:HB3	2.54	0.41
2:B:163:LEU:HD23	2:B:165:SER:CB	2.50	0.41
1:L:45:ARG:O	1:L:47:LEU:HD22	2.19	0.41
2:H:25:SER:HB3	2:H:26:GLY:H	1.61	0.41
2:H:210:LYS:HB2	2:H:210:LYS:HE2	1.68	0.41
1:A:146:LYS:HZ1	1:A:196:VAL:H	1.67	0.41
1:L:29:ILE:O	1:L:30:ASN:HB2	2.20	0.41
1:L:145:VAL:O	1:L:145:VAL:CG1	2.67	0.41
1:L:148:LYS:HB2	1:L:192:THR:HB	2.03	0.41
2:H:48:ILE:O	2:H:48:ILE:HG12	2.20	0.41
2:H:140:VAL:HG23	2:H:142:LEU:HG	2.02	0.41
1:A:165:GLN:HE21	1:A:170:SER:CA	2.33	0.41
1:L:50:TYR:O	1:L:52:SER:N	2.46	0.41
1:A:119:PRO:HG3	1:A:130:SER:N	2.35	0.41
2:B:98:GLU:O	2:B:98:GLU:CG	2.65	0.41
1:L:141:ARG:HG3	1:L:172:TYR:CE1	2.55	0.41
2:H:12:VAL:HG12	2:H:16:GLN:HB2	2.03	0.41
2:H:87:THR:C	2:H:89:ASP:N	2.73	0.41
1:L:52:SER:HB3	1:L:64:GLY:O	2.20	0.41
1:A:35:TRP:CH2	1:A:88:CYS:HB3	2.55	0.41
1:A:116:ILE:HG13	1:A:117:PHE:N	2.36	0.41
2:H:18:LEU:HD12	2:H:82:MET:N	2.33	0.41
2:H:20:LEU:HD11	2:H:113:VAL:HG21	2.02	0.41
2:H:150:PHE:HA	2:H:151:PRO:HA	1.79	0.41
1:A:11:LEU:HD13	1:A:19:VAL:HB	2.02	0.41
2:B:12:VAL:HG11	2:B:85:LEU:CD1	2.50	0.41
2:B:170:PHE:O	2:B:171:PRO:C	2.59	0.41
1:L:90:GLN:HG3	1:L:96:THR:HB	2.03	0.41
2:H:70:ASN:HB2	3:H:249:HOH:O	2.21	0.41
2:H:72:ASP:OD1	2:H:74:SER:HB3	2.21	0.41
1:A:61:ARG:NH1	1:A:82:ASP:OD1	2.54	0.41
1:A:135:MET:SD	1:A:195:VAL:HG11	2.61	0.41
1:A:146:LYS:HZ3	1:A:195:VAL:C	2.24	0.41
2:B:36:TRP:HE1	2:B:78:VAL:HG12	1.85	0.41
2:B:105:ASP:OD1	2:B:105:ASP:N	2.46	0.41
1:L:186:GLU:HA	1:L:210:ARG:CD	2.50	0.40
1:A:194:GLU:HB2	1:A:205:VAL:CB	2.51	0.40
1:A:149:ILE:HG23	1:A:191:TYR:CE1	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:2:VAL:CG1	2:H:27:PHE:CD2	3.05	0.40
1:A:14:SER:O	1:A:15:LEU:C	2.59	0.40
1:A:117:PHE:CG	2:B:128:LEU:HD22	2.56	0.40
1:A:211:ASN:HB2	1:A:212:GLU:H	1.53	0.40
1:A:8:PRO:O	1:A:101:THR:HG23	2.21	0.40
1:A:197:HIS:CG	1:A:199:THR:HG22	2.55	0.40
1:A:200:SER:C	1:A:202:SER:H	2.25	0.40
2:B:63:LEU:O	2:B:67:LEU:HB2	2.22	0.40
2:B:214:ARG:O	2:B:215:ARG:CB	2.69	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	211/213 (99%)	179 (85%)	19 (9%)	13 (6%)	1	0
1	L	211/213 (99%)	194 (92%)	13 (6%)	4 (2%)	8	10
2	B	213/215 (99%)	186 (87%)	20 (9%)	7 (3%)	4	3
2	H	212/215 (99%)	180 (85%)	24 (11%)	8 (4%)	3	2
All	All	847/856 (99%)	739 (87%)	76 (9%)	32 (4%)	3	2

All (32) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	L	201	SER
1	L	212	GLU
2	H	49	ALA
1	A	211	ASN
1	A	212	GLU
2	B	99	ASP

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Mol	Chain	Res	Type
2	B	165	SER
2	B	213	GLU
1	L	84	ALA
2	H	84	SER
2	H	88	GLU
2	H	163	LEU
2	H	203	ALA
1	A	137	ASN
1	A	194	GLU
1	A	209	ASN
1	A	210	ARG
2	B	138	SER
2	H	134	ASP
1	A	108	ALA
2	B	88	GLU
2	B	176	SER
1	L	194	GLU
2	H	151	PRO
1	A	94	LEU
1	A	145	VAL
1	A	146	LYS
1	A	28	ASP
2	H	26	GLY
1	A	7	SER
1	A	83	ILE
2	B	191	PRO

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	187/187 (100%)	137 (73%)	50 (27%)	0	0
1	L	187/187 (100%)	155 (83%)	32 (17%)	2	2
2	B	187/187 (100%)	140 (75%)	47 (25%)	0	0
2	H	186/187 (100%)	135 (73%)	51 (27%)	0	0

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	747/748 (100%)	567 (76%)	180 (24%)	0 0

All (180) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	L	1	ASP
1	L	11	LEU
1	L	14	SER
1	L	24	GLN
1	L	28	ASP
1	L	31	LYS
1	L	33	ILE
1	L	42	LYS
1	L	54	LEU
1	L	58	THR
1	L	61	ARG
1	L	65	SER
1	L	67	SER
1	L	73	PHE
1	L	76	SER
1	L	78	VAL
1	L	81	GLU
1	L	124	LEU
1	L	126	THR
1	L	134	LEU
1	L	141	ARG
1	L	144	SER
1	L	146	LYS
1	L	155	ARG
1	L	156	ASP
1	L	159	LEU
1	L	163	THR
1	L	180	LEU
1	L	187	SER
1	L	198	LYS
1	L	206	LYS
1	L	208	PHE
2	H	3	LYS
2	H	11	LEU
2	H	18	LEU
2	H	19	SER
2	H	20	LEU

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Mol	Chain	Res	Type
2	H	25	SER
2	H	30	THR
2	H	35	SER
2	H	48	ILE
2	H	53	SER
2	H	64	LYS
2	H	65	SER
2	H	66	ARG
2	H	68	SER
2	H	71	ARG
2	H	75	LYS
2	H	77	GLN
2	H	83	ASN
2	H	88	GLU
2	H	90	THR
2	H	97	ARG
2	H	98	GLU
2	H	99	ASP
2	H	102	ASN
2	H	112	MET
2	H	114	THR
2	H	117	SER
2	H	119	GLN
2	H	120	THR
2	H	128	LEU
2	H	134	ASP
2	H	135	THR
2	H	147	LYS
2	H	156	VAL
2	H	157	THR
2	H	166	ASP
2	H	175	GLN
2	H	178	LEU
2	H	181	LEU
2	H	182	THR
2	H	184	SER
2	H	192	SER
2	H	193	GLN
2	H	194	THR
2	H	196	THR
2	H	198	ASN
2	H	205	SER

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Mol	Chain	Res	Type
2	H	207	LYS
2	H	210	LYS
2	H	212	LEU
2	H	214	ARG
1	A	1	ASP
1	A	3	GLN
1	A	5	THR
1	A	7	SER
1	A	15	LEU
1	A	31	LYS
1	A	33	ILE
1	A	38	GLN
1	A	42	LYS
1	A	48	ILE
1	A	49	ARG
1	A	53	ILE
1	A	61	ARG
1	A	65	SER
1	A	69	ARG
1	A	78	VAL
1	A	80	SER
1	A	85	SER
1	A	102	LYS
1	A	104	GLU
1	A	105	ILE
1	A	107	ARG
1	A	109	ASP
1	A	115	SER
1	A	116	ILE
1	A	124	LEU
1	A	131	VAL
1	A	135	MET
1	A	137	ASN
1	A	141	ARG
1	A	142	ASP
1	A	146	LYS
1	A	148	LYS
1	A	153	GLU
1	A	154	ARG
1	A	155	ARG
1	A	159	LEU
1	A	161	SER

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Mol	Chain	Res	Type
1	A	162	VAL
1	A	168	LYS
1	A	174	MET
1	A	180	LEU
1	A	188	HIS
1	A	189	ASN
1	A	198	LYS
1	A	201	SER
1	A	206	LYS
1	A	210	ARG
1	A	211	ASN
1	A	212	GLU
2	B	1	GLU
2	B	3	LYS
2	B	7	SER
2	B	11	LEU
2	B	13	GLN
2	B	16	GLN
2	B	17	THR
2	B	19	SER
2	B	29	LEU
2	B	35	SER
2	B	43	LYS
2	B	61	SER
2	B	66	ARG
2	B	68	SER
2	B	70	ASN
2	B	83	ASN
2	B	90	THR
2	B	92	ILE
2	B	96	THR
2	B	97	ARG
2	B	98	GLU
2	B	99	ASP
2	B	120	THR
2	B	135	THR
2	B	138	SER
2	B	139	THR
2	B	154	VAL
2	B	156	VAL
2	B	160	SER
2	B	163	LEU

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Mol	Chain	Res	Type
2	B	174	LEU
2	B	175	GLN
2	B	178	LEU
2	B	181	LEU
2	B	184	SER
2	B	185	VAL
2	B	188	SER
2	B	193	GLN
2	B	196	THR
2	B	199	VAL
2	B	207	LYS
2	B	208	VAL
2	B	209	ASP
2	B	210	LYS
2	B	212	LEU
2	B	214	ARG
2	B	215	ARG

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

Mol	Chain	Res	Type
1	L	24	GLN
1	L	37	GLN
1	L	136	ASN
1	L	137	ASN
2	H	77	GLN
2	H	86	GLN
1	A	27	GLN
1	A	38	GLN
1	A	165	GLN
1	A	189	ASN
2	B	39	GLN
2	B	86	GLN
2	B	159	ASN
2	B	175	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.