Full wwPDB X-ray Structure Validation Report (i)

Oct 23, 2023 – 01:54 PM EDT

PDB ID	:	2ZR1
Title	:	Agglutinin from Abrus Precatorius
Authors	:	Cheng, J.; Lu, T.H.; Liu, C.L.; Lin, J.Y.
Deposited on	:	2008-08-22
Resolution	:	2.60 Å(reported)

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

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

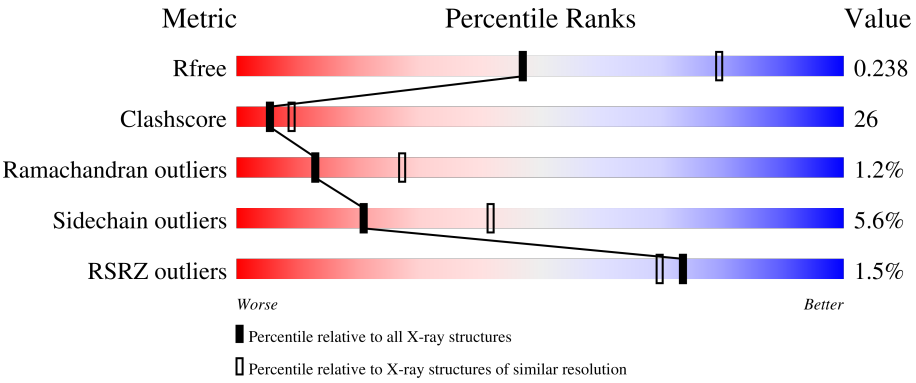
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 2.60 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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	258	67% 27%
1	C	258	46% 45% 6%
2	B	267	62% 33%
2	D	267	52% 43%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	NAG	B	268	X	-	-	-

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 8271 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.

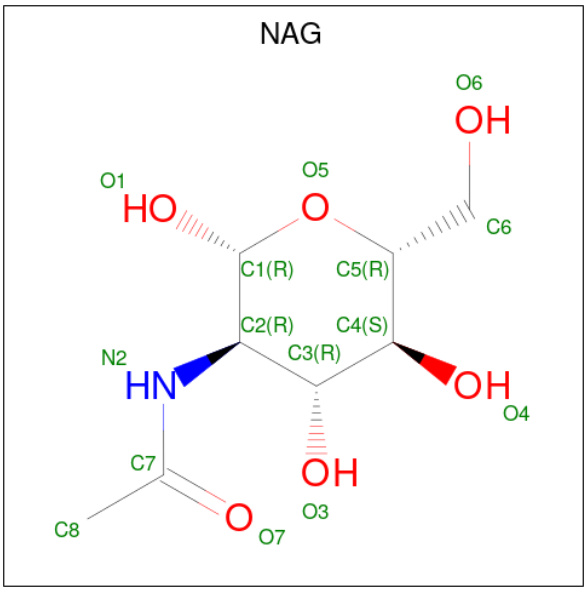
- Molecule 1 is a protein called Agglutinin-1 chain A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	250	Total	C	N	O	S	0	0	0
			1963	1246	337	376	4			
1	C	250	Total	C	N	O	S	0	0	0
			1963	1246	337	376	4			

- Molecule 2 is a protein called Agglutinin-1 chain B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	263	Total	C	N	O	S	0	0	0
			2067	1298	348	401	20			
2	D	263	Total	C	N	O	S	0	0	0
			2067	1298	348	401	20			

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total C N O 14 8 1 5	0	0
3	B	1	Total C N O 14 8 1 5	0	0
3	D	1	Total C N O 14 8 1 5	0	0

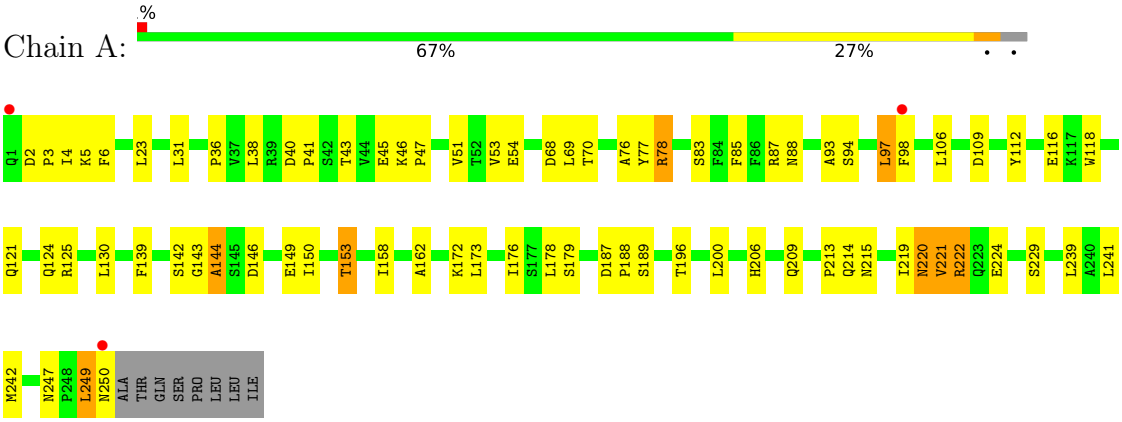
- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	36	Total O 36 36	0	0
4	B	49	Total O 49 49	0	0
4	C	50	Total O 50 50	0	0
4	D	34	Total O 34 34	0	0

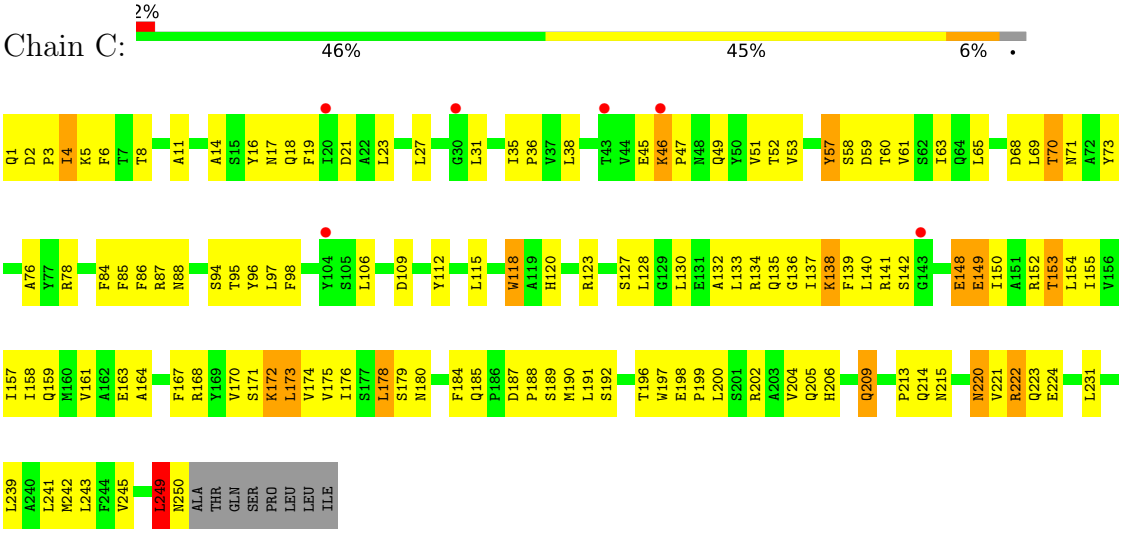
3 Residue-property plots (i)

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.

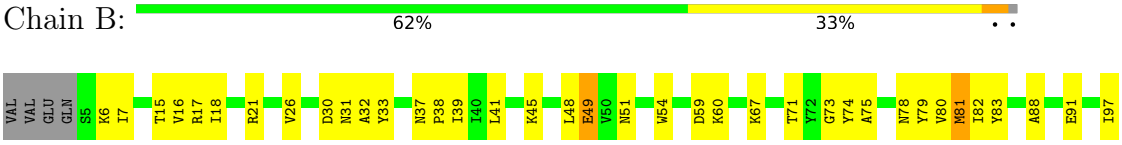
• Molecule 1: Agglutinin-1 chain A

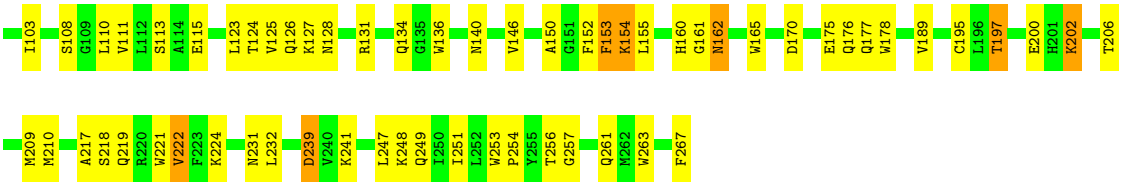


• Molecule 1: Agglutinin-1 chain A



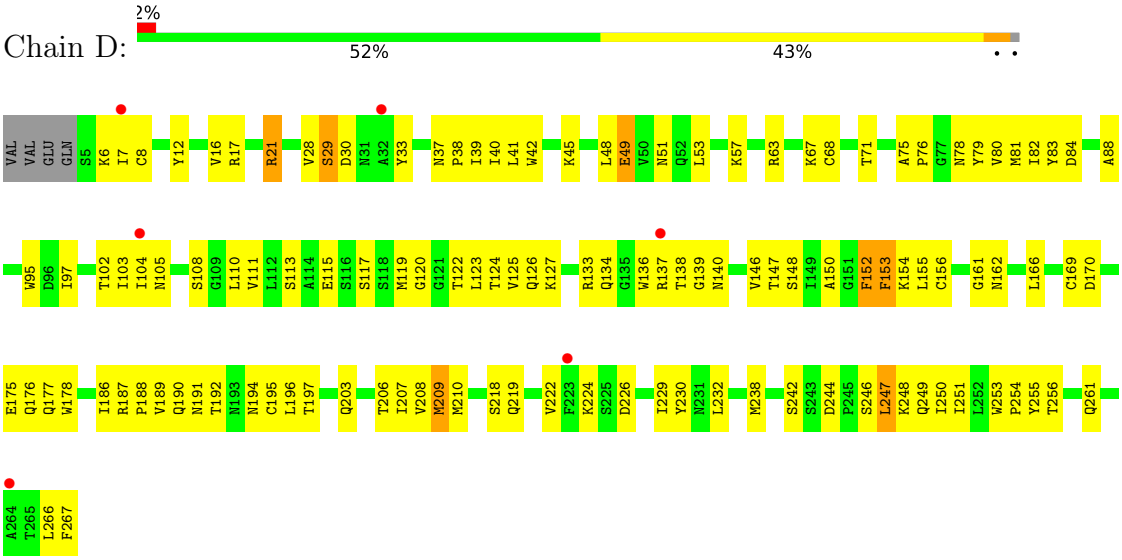
• Molecule 2: Agglutinin-1 chain B





• Molecule 2: Agglutinin-1 chain B

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	137.05Å 137.05Å 214.42Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.88 – 2.60 29.89 – 2.60	Depositor EDS
% Data completeness (in resolution range)	99.8 (19.88-2.60) 99.6 (29.89-2.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.07	Depositor
$< I/\sigma(I) >$ [1]	2.14 (at 2.61Å)	Xtriage
Refinement program	CNS 2.02	Depositor
R, R_{free}	0.199 , 0.227 0.207 , 0.238	Depositor DCC
R_{free} test set	6301 reflections (9.95%)	wwPDB-VP
Wilson B-factor (Å^2)	53.1	Xtriage
Anisotropy	0.111	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.21 , 75.3	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	0.94	EDS
Total number of atoms	8271	wwPDB-VP
Average B, all atoms (Å^2)	48.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 46.62 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.1158e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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

Bond lengths and bond angles in the following residue types are not validated in this section: NAG

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	0.49	0/2004	0.69	0/2730
1	C	0.45	0/2004	0.57	0/2730
2	B	0.45	0/2117	0.68	0/2876
2	D	0.40	0/2117	0.55	0/2876
All	All	0.45	0/8242	0.62	0/11212

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1963	0	1951	86	0
1	C	1963	0	1951	133	0
2	B	2067	0	1970	92	0
2	D	2067	0	1971	131	0
3	B	28	0	26	0	0
3	D	14	0	13	0	0
4	A	36	0	0	0	0
4	B	49	0	0	1	0
4	C	50	0	0	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	34	0	0	2	0
All	All	8271	0	7882	416	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 26.

All (416) 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)
2:B:153:PHE:O	2:B:154:LYS:HG3	1.49	1.12
1:C:61:VAL:HG13	1:C:141:ARG:HG2	1.42	1.01
1:C:167:PHE:HB2	1:C:170:VAL:HG23	1.43	1.00
2:B:256:THR:H	2:B:261:GLN:HE22	1.06	0.98
1:A:78:ARG:HB2	1:A:98:PHE:CE1	1.99	0.98
1:A:149:GLU:O	1:A:153:THR:HG22	1.64	0.97
2:B:71:THR:HG21	2:B:125:VAL:HG11	1.49	0.94
2:D:41:LEU:HG	2:D:123:LEU:HD21	1.51	0.92
1:A:85:PHE:CZ	1:A:98:PHE:HD2	1.90	0.89
1:A:249:LEU:C	1:A:249:LEU:HD23	1.95	0.87
1:A:78:ARG:HB2	1:A:98:PHE:HE1	1.36	0.87
2:D:169:CYS:HA	2:D:176:GLN:HE22	1.40	0.87
1:C:118:TRP:O	1:C:148:GLU:HG3	1.75	0.86
2:B:170:ASP:H	2:B:176:GLN:HE22	1.23	0.85
1:A:85:PHE:CE1	1:A:98:PHE:HD2	1.96	0.84
2:B:256:THR:H	2:B:261:GLN:NE2	1.74	0.84
2:B:197:THR:HB	2:B:219:GLN:HG2	1.58	0.84
1:C:220:ASN:ND2	1:C:224:GLU:H	1.77	0.82
1:A:249:LEU:HD23	1:A:250:ASN:N	1.94	0.82
1:C:209:GLN:HE21	1:C:209:GLN:HA	1.45	0.82
1:C:27:LEU:HD23	1:C:69:LEU:HD12	1.60	0.81
1:A:220:ASN:ND2	1:A:224:GLU:H	1.77	0.81
1:C:221:VAL:HG23	1:C:222:ARG:HD3	1.63	0.80
2:D:197:THR:HB	2:D:219:GLN:HG2	1.62	0.80
1:A:41:PRO:HG3	1:A:70:THR:HG23	1.62	0.80
1:A:85:PHE:CE1	1:A:98:PHE:CD2	2.71	0.79
1:C:149:GLU:O	1:C:153:THR:HG22	1.81	0.78
2:B:197:THR:HG21	2:B:210:MET:HB2	1.66	0.78
2:D:79:TYR:HA	2:D:124:THR:HG22	1.65	0.77
1:C:187:ASP:HB2	1:C:188:PRO:HD2	1.67	0.77
1:A:220:ASN:HD21	1:A:224:GLU:H	1.32	0.77
1:A:85:PHE:CZ	1:A:98:PHE:CD2	2.73	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:52:THR:HG22	1:C:97:LEU:HD11	1.66	0.76
1:C:170:VAL:O	1:C:174:VAL:HG23	1.85	0.76
2:B:153:PHE:C	2:B:154:LYS:HG3	2.06	0.76
1:C:51:VAL:CG2	1:C:69:LEU:HD13	2.16	0.76
2:D:229:ILE:HB	2:D:238:MET:HG3	1.69	0.74
2:B:177:GLN:HB3	2:B:189:VAL:HG21	1.69	0.74
2:D:256:THR:H	2:D:261:GLN:HE22	1.35	0.74
2:D:39:ILE:HB	2:D:80:VAL:HG23	1.69	0.73
2:D:207:ILE:HD12	2:D:250:ILE:HG22	1.69	0.73
2:B:108:SER:HB2	2:B:110:LEU:HD13	1.68	0.72
2:D:75:ALA:H	2:D:78:ASN:ND2	1.87	0.72
1:C:120:HIS:CE1	1:C:148:GLU:OE1	2.42	0.72
1:C:168:ARG:O	1:C:172:LYS:HD2	1.89	0.72
1:C:171:SER:O	1:C:175:VAL:HG23	1.89	0.72
2:D:83:TYR:CD1	2:D:88:ALA:HB2	2.24	0.72
1:A:209:GLN:HE21	1:A:209:GLN:HA	1.55	0.72
1:A:239:LEU:HD21	1:A:242:MET:HG2	1.73	0.71
1:C:220:ASN:HD21	1:C:224:GLU:H	1.36	0.71
1:A:83:SER:HB2	1:A:98:PHE:CG	2.26	0.71
1:A:179:SER:HB3	2:B:154:LYS:HG2	1.71	0.71
1:C:205:GLN:HE21	1:C:245:VAL:HB	1.54	0.71
2:B:146:VAL:HA	2:B:178:TRP:O	1.94	0.68
1:A:83:SER:HB2	1:A:98:PHE:CD1	2.28	0.68
2:D:75:ALA:H	2:D:78:ASN:HD22	1.42	0.68
2:B:195:CYS:O	2:B:197:THR:HG22	1.93	0.68
1:A:78:ARG:HB2	1:A:98:PHE:CD1	2.29	0.67
1:A:78:ARG:CB	1:A:98:PHE:HE1	2.07	0.67
1:A:250:ASN:H	2:B:7:ILE:HD11	1.59	0.67
2:B:71:THR:HG22	2:B:80:VAL:HG12	1.76	0.67
1:C:136:GLY:O	1:C:140:LEU:HG	1.94	0.67
1:C:51:VAL:HG21	1:C:69:LEU:HD13	1.77	0.67
2:B:256:THR:N	2:B:261:GLN:HE22	1.85	0.66
1:C:239:LEU:HD21	1:C:242:MET:HG2	1.77	0.66
1:A:5:LYS:HG2	1:A:6:PHE:N	2.11	0.66
2:B:67:LYS:HB2	2:B:82:ILE:HD11	1.77	0.66
2:B:73:GLY:C	2:B:78:ASN:HD22	1.98	0.66
1:C:173:LEU:HD13	1:C:176:ILE:HD11	1.77	0.66
1:A:68:ASP:OD1	1:A:70:THR:HB	1.96	0.65
1:A:83:SER:CB	1:A:98:PHE:CG	2.80	0.65
1:C:128:LEU:HB2	1:C:184:PHE:CE1	2.32	0.65
1:A:51:VAL:HG13	1:A:69:LEU:HD13	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:17:ARG:HG3	2:D:140:ASN:HA	1.78	0.64
2:B:91:GLU:HG2	4:B:288:HOH:O	1.98	0.64
2:D:115:GLU:OE1	2:D:126:GLN:HG3	1.98	0.64
1:A:83:SER:HB2	1:A:98:PHE:CD2	2.31	0.64
2:B:41:LEU:HG	2:B:123:LEU:HD21	1.80	0.64
1:A:222:ARG:HH22	2:B:177:GLN:HE22	1.43	0.64
1:C:120:HIS:CE1	1:C:148:GLU:CD	2.72	0.64
1:C:205:GLN:NE2	1:C:245:VAL:HB	2.12	0.64
1:A:249:LEU:CD2	1:A:250:ASN:N	2.61	0.63
1:A:45:GLU:HB3	1:A:47:PRO:HD2	1.79	0.63
1:A:76:ALA:HB1	1:A:98:PHE:HE2	1.63	0.63
1:C:139:PHE:CD2	1:C:149:GLU:OE1	2.52	0.63
2:D:152:PHE:HD1	2:D:152:PHE:H	1.47	0.63
1:C:65:LEU:HD11	1:C:157:ILE:CG2	2.29	0.62
2:D:40:ILE:HG22	2:D:122:THR:HA	1.80	0.62
1:C:46:LYS:H	1:C:47:PRO:HD2	1.63	0.62
2:D:256:THR:H	2:D:261:GLN:NE2	1.97	0.62
1:C:57:TYR:C	1:C:57:TYR:CD2	2.72	0.62
2:D:97:ILE:HD12	2:D:103:ILE:HD12	1.82	0.62
2:B:83:TYR:CD1	2:B:88:ALA:HB2	2.34	0.62
2:B:71:THR:HG21	2:B:125:VAL:CG1	2.25	0.62
1:A:83:SER:CB	1:A:98:PHE:CD1	2.84	0.61
1:C:120:HIS:ND1	1:C:148:GLU:CD	2.54	0.61
1:C:138:LYS:HD3	1:C:138:LYS:C	2.21	0.61
2:D:71:THR:HG21	2:D:125:VAL:HG11	1.83	0.61
2:D:41:LEU:HD21	2:D:136:TRP:HZ3	1.65	0.60
1:C:51:VAL:HG23	1:C:69:LEU:HD13	1.83	0.60
2:D:30:ASP:HB2	4:D:287:HOH:O	2.00	0.60
1:A:85:PHE:CZ	1:A:94:SER:HA	2.37	0.60
1:C:196:THR:C	1:C:199:PRO:HD2	2.22	0.60
1:C:61:VAL:HG13	1:C:141:ARG:CG	2.26	0.60
2:D:177:GLN:HB3	2:D:189:VAL:HG21	1.83	0.60
1:A:215:ASN:OD1	1:A:229:SER:HB2	2.02	0.60
1:C:222:ARG:NH1	2:D:177:GLN:HE22	1.99	0.60
2:D:191:ASN:HD22	2:D:194:ASN:HD22	1.48	0.60
1:A:83:SER:HB2	1:A:98:PHE:CE1	2.37	0.60
1:C:180:ASN:OD1	2:D:154:LYS:HD2	2.02	0.59
2:D:175:GLU:HG3	2:D:190:GLN:NE2	2.17	0.59
1:A:249:LEU:C	1:A:249:LEU:CD2	2.68	0.59
1:C:49:GLN:O	1:C:49:GLN:HG2	2.01	0.59
2:D:16:VAL:HB	2:D:139:GLY:HA2	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:139:PHE:HE2	1:C:150:ILE:HG13	1.67	0.59
1:C:191:LEU:HD12	1:C:192:SER:N	2.18	0.59
2:B:6:LYS:HE2	2:B:7:ILE:HG22	1.84	0.59
1:C:155:ILE:HG22	1:C:159:GLN:HE21	1.67	0.59
2:D:57:LYS:HE2	2:D:63:ARG:NH1	2.17	0.59
2:D:148:SER:HB2	2:D:266:LEU:HB2	1.84	0.59
2:D:146:VAL:HA	2:D:178:TRP:O	2.02	0.58
2:D:40:ILE:HD12	2:D:120:GLY:HA2	1.85	0.58
1:A:4:ILE:HD13	1:A:23:LEU:HA	1.86	0.58
1:A:220:ASN:HD22	1:A:220:ASN:C	2.06	0.58
1:C:196:THR:O	1:C:199:PRO:HD2	2.04	0.58
2:B:59:ASP:O	2:B:60:LYS:HB2	2.04	0.58
1:C:204:VAL:HG13	1:C:231:LEU:HD11	1.86	0.58
1:A:31:LEU:HD12	1:A:36:PRO:HA	1.86	0.57
2:D:175:GLU:HG3	2:D:190:GLN:HE22	1.69	0.57
2:D:207:ILE:HD13	2:D:238:MET:SD	2.44	0.57
1:A:76:ALA:CB	1:A:98:PHE:HE2	2.17	0.57
1:A:247:ASN:O	2:B:7:ILE:HD12	2.03	0.57
1:C:8:THR:OG1	1:C:134:ARG:HG2	2.04	0.57
2:D:222:VAL:HG13	2:D:230:TYR:HB3	1.86	0.57
2:B:39:ILE:HB	2:B:80:VAL:HG23	1.86	0.57
2:B:33:TYR:OH	2:B:51:ASN:HA	2.05	0.57
2:D:97:ILE:HG23	2:D:103:ILE:HD13	1.87	0.57
2:D:177:GLN:O	2:D:189:VAL:HG23	2.04	0.57
2:B:222:VAL:HG22	2:B:224:LYS:HG2	1.86	0.57
1:A:77:TYR:C	1:A:98:PHE:CZ	2.79	0.56
1:A:222:ARG:NH2	2:B:177:GLN:HE22	2.03	0.56
1:A:76:ALA:HB1	1:A:98:PHE:CE2	2.40	0.56
1:C:198:GLU:HB3	1:C:199:PRO:HD3	1.86	0.56
1:C:173:LEU:O	1:C:176:ILE:HG12	2.05	0.56
1:C:209:GLN:HA	1:C:209:GLN:NE2	2.19	0.56
1:C:57:TYR:C	1:C:57:TYR:HD2	2.07	0.56
2:B:79:TYR:HA	2:B:124:THR:HG22	1.87	0.56
1:A:77:TYR:O	1:A:98:PHE:CZ	2.59	0.56
1:A:93:ALA:O	1:A:97:LEU:HB2	2.06	0.56
2:B:175:GLU:CD	2:B:175:GLU:H	2.09	0.56
1:C:63:ILE:HD13	1:C:140:LEU:HD12	1.87	0.56
2:D:33:TYR:OH	2:D:51:ASN:HA	2.05	0.56
1:C:2:ASP:CG	1:C:3:PRO:HD2	2.26	0.56
1:C:14:ALA:O	1:C:18:GLN:HG3	2.06	0.56
2:D:71:THR:HG23	2:D:95:TRP:CZ2	2.41	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:97:ILE:HG23	2:D:103:ILE:CD1	2.36	0.56
2:B:202:LYS:HB2	2:B:202:LYS:NZ	2.21	0.55
1:C:222:ARG:HH12	2:D:177:GLN:HE22	1.53	0.55
2:D:147:THR:HB	2:D:267:PHE:HB3	1.87	0.55
2:B:75:ALA:H	2:B:78:ASN:ND2	2.05	0.55
1:C:46:LYS:HB2	1:C:47:PRO:HD3	1.88	0.55
1:A:125:ARG:HG3	1:A:125:ARG:HH11	1.71	0.55
1:A:209:GLN:HE22	2:B:97:ILE:H	1.55	0.55
2:B:17:ARG:HG3	2:B:140:ASN:HA	1.88	0.55
1:C:23:LEU:HD13	1:C:53:VAL:HG21	1.88	0.55
1:A:87:ARG:HB2	1:A:106:LEU:O	2.08	0.54
1:A:196:THR:O	1:A:196:THR:HG22	2.07	0.54
1:C:130:LEU:HD22	1:C:178:LEU:HD21	1.89	0.54
1:A:172:LYS:O	1:A:172:LYS:HD3	2.07	0.54
2:D:155:LEU:HD13	2:D:166:LEU:HD13	1.90	0.54
2:B:97:ILE:HG23	2:B:103:ILE:HD13	1.90	0.54
2:D:79:TYR:CA	2:D:124:THR:HG22	2.35	0.54
1:A:83:SER:HB2	1:A:98:PHE:CE2	2.43	0.53
2:B:71:THR:CG2	2:B:125:VAL:CG1	2.86	0.53
2:D:48:LEU:HD12	2:D:53:LEU:HD21	1.91	0.53
2:D:137:ARG:HG2	2:D:138:THR:N	2.23	0.53
1:C:38:LEU:HD13	1:C:242:MET:O	2.09	0.53
1:C:133:LEU:O	1:C:137:ILE:HG13	2.09	0.53
1:C:159:GLN:HA	1:C:163:GLU:CG	2.38	0.53
2:B:153:PHE:C	2:B:154:LYS:CG	2.77	0.53
2:D:153:PHE:O	2:D:155:LEU:HG	2.08	0.53
2:D:178:TRP:CE3	2:D:186:ILE:HG22	2.44	0.53
2:D:191:ASN:HD22	2:D:194:ASN:ND2	2.06	0.52
2:B:131:ARG:HA	2:B:217:ALA:HA	1.91	0.52
1:C:58:SER:C	1:C:60:THR:H	2.12	0.52
1:C:138:LYS:HD3	1:C:138:LYS:O	2.09	0.52
2:D:229:ILE:HG21	2:D:238:MET:HE1	1.92	0.52
2:B:241:LYS:HD2	2:B:249:GLN:OE1	2.09	0.52
1:C:68:ASP:HB3	1:C:71:ASN:OD1	2.09	0.52
2:D:246:SER:O	2:D:248:LYS:HG3	2.10	0.52
1:C:46:LYS:HB3	1:C:96:TYR:CE2	2.44	0.52
2:D:229:ILE:HG13	2:D:238:MET:HE2	1.91	0.52
1:A:139:PHE:CE1	1:A:144:ALA:HB3	2.45	0.52
1:C:35:ILE:HB	1:C:242:MET:HE1	1.91	0.52
1:A:206:HIS:HB3	1:A:213:PRO:HG2	1.91	0.52
1:A:5:LYS:HE2	1:A:54:GLU:OE2	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:36:PRO:HB2	1:C:241:LEU:HD23	1.92	0.52
1:C:209:GLN:NE2	2:D:97:ILE:H	2.07	0.52
1:C:249:LEU:HD13	1:C:250:ASN:ND2	2.25	0.52
1:C:249:LEU:H	2:D:7:ILE:HD11	1.75	0.51
1:A:83:SER:HB2	1:A:98:PHE:CZ	2.45	0.51
2:D:45:LYS:HE3	2:D:49:GLU:HG3	1.92	0.51
2:D:67:LYS:HD2	2:D:84:ASP:HA	1.93	0.51
2:D:206:THR:HA	2:D:251:ILE:HA	1.93	0.51
2:D:67:LYS:HB2	2:D:82:ILE:HD11	1.92	0.51
2:B:257:GLY:H	2:B:261:GLN:NE2	2.08	0.51
2:D:206:THR:HG21	2:D:249:GLN:HE21	1.75	0.51
2:D:71:THR:HG22	2:D:80:VAL:HG12	1.92	0.51
2:D:48:LEU:HD11	2:D:140:ASN:HB3	1.91	0.51
2:D:197:THR:HG21	2:D:210:MET:HB2	1.92	0.51
2:D:224:LYS:HE2	2:D:230:TYR:HB2	1.94	0.50
1:A:46:LYS:N	1:A:47:PRO:HD2	2.27	0.50
2:B:6:LYS:NZ	2:B:6:LYS:HB3	2.26	0.50
2:B:41:LEU:HD21	2:B:136:TRP:HZ3	1.76	0.50
1:C:68:ASP:OD1	1:C:70:THR:HG22	2.11	0.50
2:D:78:ASN:O	2:D:125:VAL:HG22	2.12	0.50
1:A:209:GLN:HA	1:A:209:GLN:NE2	2.23	0.50
2:B:37:ASN:ND2	2:B:38:PRO:HD2	2.26	0.50
2:D:115:GLU:OE2	2:D:133:ARG:HD2	2.12	0.50
2:B:206:THR:HA	2:B:251:ILE:HG22	1.92	0.50
2:B:153:PHE:O	2:B:155:LEU:HG	2.12	0.50
1:C:52:THR:CG2	1:C:97:LEU:HD11	2.38	0.49
2:D:17:ARG:HB2	2:D:139:GLY:O	2.13	0.49
2:B:175:GLU:CD	2:B:175:GLU:N	2.65	0.49
1:C:88:ASN:HB2	1:C:109:ASP:HB3	1.94	0.49
1:C:172:LYS:HE3	1:C:172:LYS:CA	2.42	0.49
2:D:152:PHE:N	2:D:152:PHE:CD1	2.80	0.49
1:A:88:ASN:HB2	1:A:109:ASP:HB3	1.94	0.49
1:A:130:LEU:HD13	1:A:178:LEU:HD21	1.93	0.49
2:B:45:LYS:HD2	2:B:49:GLU:HG3	1.95	0.49
2:B:80:VAL:HG22	2:B:123:LEU:HB2	1.95	0.49
1:C:206:HIS:CE1	2:D:8:CYS:HB3	2.48	0.49
1:C:1:GLN:HG3	4:C:290:HOH:O	2.12	0.49
2:D:155:LEU:CD1	2:D:166:LEU:HD13	2.43	0.49
1:A:2:ASP:HB2	1:A:3:PRO:HD2	1.94	0.49
1:A:187:ASP:OD1	1:A:187:ASP:N	2.37	0.49
1:C:17:ASN:O	1:C:21:ASP:CG	2.51	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:220:ASN:ND2	1:A:220:ASN:C	2.66	0.49
2:B:31:ASN:HD22	2:B:51:ASN:HB3	1.78	0.49
2:B:239:ASP:C	2:B:239:ASP:OD2	2.50	0.49
1:C:187:ASP:OD2	1:C:189:SER:OG	2.30	0.49
2:D:197:THR:HA	2:D:218:SER:O	2.11	0.49
2:B:15:THR:HA	2:B:54:TRP:O	2.12	0.48
1:C:249:LEU:N	2:D:7:ILE:HD11	2.28	0.48
1:C:45:GLU:HG2	1:C:46:LYS:HG3	1.95	0.48
1:C:213:PRO:HB3	2:D:12:TYR:CD2	2.48	0.48
2:D:187:ARG:HD3	2:D:192:THR:O	2.12	0.48
1:C:172:LYS:HE3	1:C:172:LYS:HA	1.95	0.48
2:D:16:VAL:HB	2:D:139:GLY:CA	2.43	0.48
2:B:18:ILE:O	2:B:26:VAL:HG23	2.13	0.48
1:C:138:LYS:CE	1:C:142:SER:HB3	2.43	0.48
1:A:146:ASP:O	1:A:150:ILE:HG13	2.14	0.48
1:C:46:LYS:H	1:C:47:PRO:CD	2.27	0.48
1:C:187:ASP:OD1	1:C:187:ASP:N	2.45	0.48
1:C:16:TYR:CE2	1:C:174:VAL:HB	2.48	0.48
1:A:209:GLN:NE2	2:B:97:ILE:H	2.12	0.48
2:B:39:ILE:HG12	2:B:81:MET:HA	1.95	0.48
2:B:71:THR:CG2	2:B:125:VAL:HG11	2.31	0.48
1:C:78:ARG:HD2	1:C:98:PHE:CD1	2.49	0.48
1:A:78:ARG:CB	1:A:98:PHE:CE1	2.82	0.48
2:D:224:LYS:HB2	2:D:226:ASP:OD1	2.14	0.48
1:A:221:VAL:HG22	2:B:267:PHE:O	2.14	0.48
2:D:104:ILE:HB	2:D:111:VAL:HG12	1.96	0.48
2:D:108:SER:HB2	2:D:110:LEU:HD13	1.94	0.48
2:B:32:ALA:HB3	2:B:37:ASN:OD1	2.14	0.47
2:B:113:SER:OG	2:B:134:GLN:HG2	2.13	0.47
1:C:172:LYS:HE3	1:C:172:LYS:N	2.29	0.47
2:B:177:GLN:O	2:B:189:VAL:HG23	2.14	0.47
1:C:132:ALA:O	1:C:135:GLN:HB3	2.13	0.47
2:D:71:THR:HG23	2:D:95:TRP:HZ2	1.78	0.47
2:D:154:LYS:HG3	2:D:154:LYS:O	2.15	0.47
1:A:76:ALA:CB	1:A:98:PHE:CE2	2.97	0.47
2:B:111:VAL:CG1	2:B:128:ASN:HB2	2.45	0.47
1:C:112:TYR:CE1	1:C:123:ARG:HD3	2.49	0.47
1:C:222:ARG:O	1:C:223:GLN:HB2	2.15	0.47
2:D:127:LYS:NZ	2:D:127:LYS:HB3	2.29	0.47
2:D:150:ALA:HA	2:D:156:CYS:HA	1.96	0.47
2:B:165:TRP:CD2	2:B:248:LYS:HB3	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:161:VAL:O	1:C:164:ALA:HB3	2.14	0.47
2:B:73:GLY:CA	2:B:78:ASN:HD22	2.27	0.47
2:B:170:ASP:H	2:B:176:GLN:NE2	2.02	0.47
1:C:17:ASN:O	1:C:21:ASP:OD2	2.33	0.47
1:C:206:HIS:HB3	1:C:213:PRO:HG2	1.97	0.47
2:D:253:TRP:CG	2:D:254:PRO:HD2	2.49	0.47
1:A:40:ASP:O	1:A:43:THR:HB	2.15	0.46
1:A:189:SER:HA	1:A:219:ILE:O	2.15	0.46
2:B:67:LYS:HB2	2:B:82:ILE:CD1	2.44	0.46
1:C:1:GLN:CG	4:C:290:HOH:O	2.62	0.46
1:C:204:VAL:HG13	1:C:231:LEU:CD1	2.44	0.46
2:D:229:ILE:HG21	2:D:238:MET:CE	2.45	0.46
1:C:87:ARG:HB2	1:C:106:LEU:O	2.15	0.46
1:C:205:GLN:NE2	1:C:245:VAL:H	2.13	0.46
1:C:127:SER:HA	1:C:185:GLN:HG2	1.97	0.46
2:D:42:TRP:CE3	2:D:119:MET:HG2	2.49	0.46
2:D:206:THR:HG21	2:D:249:GLN:NE2	2.30	0.46
2:B:127:LYS:NZ	2:B:127:LYS:HB3	2.31	0.46
1:C:154:LEU:O	1:C:158:ILE:HG13	2.15	0.46
2:B:253:TRP:CG	2:B:254:PRO:HD2	2.50	0.46
1:C:209:GLN:HE22	2:D:97:ILE:H	1.63	0.46
1:A:249:LEU:HB3	2:B:7:ILE:CD1	2.46	0.46
2:D:152:PHE:HD1	2:D:152:PHE:N	2.12	0.46
1:A:249:LEU:HD23	1:A:250:ASN:CA	2.45	0.45
2:B:16:VAL:HA	2:B:140:ASN:OD1	2.16	0.45
1:A:77:TYR:N	1:A:98:PHE:HZ	2.15	0.45
1:C:8:THR:HA	1:C:11:ALA:HB2	1.97	0.45
2:D:63:ARG:HG2	2:D:68:CYS:SG	2.56	0.45
1:A:88:ASN:HB2	1:A:109:ASP:CB	2.46	0.45
2:B:150:ALA:O	2:B:263:TRP:HA	2.16	0.45
1:C:71:ASN:OD1	1:C:73:TYR:HB2	2.17	0.45
1:A:78:ARG:CA	1:A:98:PHE:HE1	2.29	0.45
2:D:97:ILE:HD12	2:D:103:ILE:CD1	2.46	0.45
2:D:104:ILE:HA	2:D:111:VAL:HA	1.99	0.45
1:A:83:SER:HB3	1:A:98:PHE:CD1	2.52	0.45
2:B:162:ASN:N	2:B:162:ASN:HD22	2.15	0.45
2:B:247:LEU:O	2:B:248:LYS:C	2.56	0.45
2:D:147:THR:OG1	2:D:148:SER:N	2.50	0.45
1:C:86:PHE:CE2	1:C:115:LEU:HD21	2.51	0.45
1:A:158:ILE:O	1:A:162:ALA:HB3	2.17	0.44
1:A:143:GLY:O	1:A:144:ALA:C	2.54	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:179:SER:CB	2:B:154:LYS:HG2	2.44	0.44
1:C:57:TYR:CD2	1:C:57:TYR:O	2.70	0.44
1:C:58:SER:O	1:C:60:THR:N	2.49	0.44
2:D:28:VAL:O	2:D:29:SER:C	2.56	0.44
2:D:256:THR:N	2:D:261:GLN:HE22	2.08	0.44
2:B:221:TRP:CZ3	2:B:231:ASN:HB2	2.52	0.44
1:C:76:ALA:HB2	1:C:85:PHE:HA	1.99	0.44
2:D:178:TRP:HE3	2:D:186:ILE:HG22	1.82	0.44
2:D:196:LEU:HA	2:D:208:VAL:O	2.18	0.44
1:C:222:ARG:HH22	2:D:146:VAL:HG12	1.82	0.44
2:B:41:LEU:HD21	2:B:136:TRP:CZ3	2.52	0.44
1:C:176:ILE:HG22	2:D:154:LYS:HA	2.00	0.44
1:C:179:SER:HB3	2:D:154:LYS:HD3	1.98	0.44
1:C:202:ARG:HG3	1:C:245:VAL:HG11	1.99	0.44
2:D:155:LEU:HD13	2:D:166:LEU:HB3	1.98	0.44
1:C:205:GLN:HE22	1:C:245:VAL:H	1.64	0.44
2:D:150:ALA:HB2	2:D:156:CYS:SG	2.58	0.44
1:A:77:TYR:C	1:A:98:PHE:HZ	2.21	0.44
2:B:111:VAL:HG13	2:B:128:ASN:HB2	2.00	0.44
1:C:200:LEU:O	1:C:204:VAL:HG23	2.17	0.44
2:B:161:GLY:C	2:B:162:ASN:HD22	2.20	0.44
2:D:49:GLU:HB2	2:D:51:ASN:OD1	2.18	0.44
2:B:83:TYR:HD1	2:B:88:ALA:HB2	1.80	0.43
1:C:4:ILE:HG22	1:C:4:ILE:O	2.17	0.43
1:C:6:PHE:HB2	1:C:19:PHE:CE1	2.53	0.43
2:B:160:HIS:CD2	2:B:165:TRP:CE2	3.05	0.43
2:D:195:CYS:O	2:D:197:THR:HG22	2.18	0.43
2:D:232:LEU:H	2:D:232:LEU:HD22	1.84	0.43
1:C:5:LYS:HG2	1:C:6:PHE:N	2.34	0.43
2:D:57:LYS:HE2	2:D:63:ARG:HH11	1.83	0.43
1:A:112:TYR:O	1:A:116:GLU:HG3	2.18	0.43
1:C:138:LYS:HE2	1:C:142:SER:HB3	2.01	0.43
1:C:164:ALA:HA	1:C:170:VAL:HB	2.00	0.43
1:A:77:TYR:C	1:A:98:PHE:CE1	2.92	0.43
2:D:6:LYS:HG2	2:D:7:ILE:N	2.34	0.43
2:D:255:TYR:HA	2:D:261:GLN:HE22	1.83	0.43
1:A:78:ARG:N	1:A:98:PHE:HE1	2.17	0.43
1:A:51:VAL:CG1	1:A:69:LEU:HD13	2.47	0.42
1:C:196:THR:O	1:C:196:THR:HG22	2.19	0.42
2:D:57:LYS:HG3	2:D:63:ARG:HD2	2.01	0.42
2:D:169:CYS:HA	2:D:176:GLN:NE2	2.21	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:251:ILE:C	2:B:251:ILE:HD12	2.39	0.42
1:C:155:ILE:CG2	1:C:159:GLN:HE21	2.32	0.42
2:D:207:ILE:CD1	2:D:250:ILE:HG22	2.45	0.42
1:C:58:SER:C	1:C:60:THR:N	2.72	0.42
1:C:197:TRP:CH2	1:C:243:LEU:HD23	2.54	0.42
2:D:244:ASP:HB3	2:D:247:LEU:HD12	2.01	0.42
1:A:172:LYS:HD3	1:A:172:LYS:C	2.39	0.42
2:D:115:GLU:HG2	4:D:271:HOH:O	2.19	0.42
2:D:104:ILE:HG12	2:D:105:ASN:N	2.35	0.42
1:A:179:SER:HB2	2:B:154:LYS:HB3	2.01	0.42
1:C:6:PHE:HB2	1:C:19:PHE:CD1	2.55	0.42
2:D:17:ARG:HG2	2:D:53:LEU:HD23	2.02	0.42
1:C:78:ARG:HB2	1:C:98:PHE:CZ	2.55	0.42
2:D:41:LEU:HD23	2:D:41:LEU:HA	1.94	0.42
2:D:123:LEU:HD22	2:D:136:TRP:HH2	1.84	0.42
2:D:161:GLY:C	2:D:162:ASN:HD22	2.24	0.42
2:B:241:LYS:HD3	2:B:247:LEU:HD13	2.01	0.41
1:C:130:LEU:HB2	1:C:178:LEU:HG	2.02	0.41
1:C:95:THR:O	1:C:95:THR:HG22	2.19	0.41
2:D:45:LYS:NZ	2:D:51:ASN:HD21	2.19	0.41
2:D:113:SER:OG	2:D:134:GLN:HG2	2.20	0.41
2:B:115:GLU:OE1	2:B:126:GLN:HG3	2.20	0.41
2:D:37:ASN:OD1	2:D:38:PRO:HD2	2.20	0.41
2:D:246:SER:C	2:D:248:LYS:H	2.23	0.41
1:C:152:ARG:HH11	1:C:152:ARG:HG2	1.85	0.41
1:C:173:LEU:HD13	1:C:176:ILE:CD1	2.47	0.41
2:D:6:LYS:HG2	2:D:7:ILE:H	1.86	0.41
2:B:197:THR:HA	2:B:218:SER:O	2.21	0.41
2:D:79:TYR:HA	2:D:124:THR:HA	2.03	0.41
2:B:91:GLU:HA	2:B:91:GLU:OE2	2.21	0.41
1:C:139:PHE:CE2	1:C:150:ILE:HG13	2.52	0.41
1:C:172:LYS:O	1:C:176:ILE:HG23	2.21	0.41
2:B:200:GLU:OE1	2:B:202:LYS:HD3	2.21	0.41
2:D:170:ASP:H	2:D:176:GLN:NE2	2.18	0.41
2:B:73:GLY:HA3	2:B:78:ASN:ND2	2.36	0.41
2:B:74:TYR:OH	2:B:91:GLU:HB2	2.20	0.41
2:B:153:PHE:O	2:B:154:LYS:C	2.58	0.41
2:B:202:LYS:HB2	2:B:202:LYS:HZ3	1.86	0.41
1:C:31:LEU:HD12	1:C:35:ILE:C	2.41	0.41
1:C:249:LEU:N	2:D:7:ILE:CD1	2.84	0.41
2:B:209:MET:O	2:B:210:MET:HG2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:84:PHE:CD1	1:C:84:PHE:N	2.89	0.41
1:C:176:ILE:HA	2:D:154:LYS:HB3	2.03	0.41
1:A:187:ASP:HB2	1:A:188:PRO:HD2	2.03	0.40
1:A:124:GLN:HG3	1:A:125:ARG:HG2	2.02	0.40
1:C:206:HIS:ND1	2:D:8:CYS:HB3	2.37	0.40
2:D:162:ASN:HA	2:D:209:MET:HB2	2.03	0.40
1:C:85:PHE:CZ	1:C:94:SER:HA	2.55	0.40
1:C:128:LEU:CD1	1:C:190:MET:HE1	2.52	0.40
2:D:21:ARG:NH1	2:D:117:SER:HA	2.37	0.40
2:D:162:ASN:HD22	2:D:162:ASN:N	2.18	0.40
2:D:203:GLN:HG2	2:D:253:TRP:CZ3	2.57	0.40
2:D:247:LEU:O	2:D:248:LYS:C	2.59	0.40
1:C:202:ARG:HG2	1:C:206:HIS:CD2	2.56	0.40
2:D:75:ALA:HA	2:D:76:PRO:HD3	1.98	0.40
2:D:187:ARG:HA	2:D:188:PRO:HD3	1.94	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	248/258 (96%)	235 (95%)	10 (4%)	3 (1%)	13 27
1	C	248/258 (96%)	208 (84%)	35 (14%)	5 (2%)	7 14
2	B	261/267 (98%)	241 (92%)	19 (7%)	1 (0%)	34 57
2	D	261/267 (98%)	230 (88%)	28 (11%)	3 (1%)	14 30
All	All	1018/1050 (97%)	914 (90%)	92 (9%)	12 (1%)	13 27

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	215	ASN
1	A	249	LEU
1	C	249	LEU
2	B	153	PHE
1	C	4	ILE
1	C	46	LYS
1	C	59	ASP
2	D	29	SER
1	A	142	SER
1	A	144	ALA
2	D	153	PHE
2	D	247	LEU

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	218/225 (97%)	203 (93%)	15 (7%)	15	31
1	C	218/225 (97%)	203 (93%)	15 (7%)	15	31
2	B	229/233 (98%)	216 (94%)	13 (6%)	20	41
2	D	229/233 (98%)	222 (97%)	7 (3%)	40	66
All	All	894/916 (98%)	844 (94%)	50 (6%)	21	42

All (50) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	38	LEU
1	A	53	VAL
1	A	78	ARG
1	A	97	LEU
1	A	118	TRP
1	A	121	GLN
1	A	153	THR
1	A	173	LEU
1	A	176	ILE
1	A	200	LEU

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Mol	Chain	Res	Type
1	A	214	GLN
1	A	220	ASN
1	A	221	VAL
1	A	222	ARG
1	A	241	LEU
2	B	21	ARG
2	B	30	ASP
2	B	48	LEU
2	B	49	GLU
2	B	81	MET
2	B	152	PHE
2	B	154	LYS
2	B	162	ASN
2	B	197	THR
2	B	202	LYS
2	B	222	VAL
2	B	232	LEU
2	B	239	ASP
1	C	57	TYR
1	C	70	THR
1	C	118	TRP
1	C	138	LYS
1	C	148	GLU
1	C	149	GLU
1	C	153	THR
1	C	172	LYS
1	C	173	LEU
1	C	178	LEU
1	C	209	GLN
1	C	214	GLN
1	C	220	ASN
1	C	222	ARG
1	C	249	LEU
2	D	21	ARG
2	D	49	GLU
2	D	81	MET
2	D	102	THR
2	D	152	PHE
2	D	209	MET
2	D	242	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (41) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	18	GLN
1	A	49	GLN
1	A	159	GLN
1	A	185	GLN
1	A	209	GLN
1	A	214	GLN
1	A	220	ASN
1	A	223	GLN
2	B	31	ASN
2	B	35	ASN
2	B	37	ASN
2	B	78	ASN
2	B	162	ASN
2	B	176	GLN
2	B	177	GLN
2	B	203	GLN
2	B	214	ASN
2	B	261	GLN
1	C	18	GLN
1	C	49	GLN
1	C	103	GLN
1	C	124	GLN
1	C	159	GLN
1	C	185	GLN
1	C	205	GLN
1	C	206	HIS
1	C	209	GLN
1	C	214	GLN
1	C	220	ASN
1	C	250	ASN
2	D	31	ASN
2	D	35	ASN
2	D	78	ASN
2	D	162	ASN
2	D	176	GLN
2	D	177	GLN
2	D	190	GLN
2	D	194	ASN
2	D	203	GLN
2	D	258	ASN
2	D	261	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

3 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	NAG	B	268	2	14,14,15	0.63	0	17,19,21	1.08	1 (5%)
3	NAG	B	269	2	14,14,15	0.59	0	17,19,21	0.81	0
3	NAG	D	268	2	14,14,15	0.68	0	17,19,21	0.76	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	B	268	2	1/1/5/7	4/6/23/26	0/1/1/1
3	NAG	B	269	2	-	4/6/23/26	0/1/1/1
3	NAG	D	268	2	-	4/6/23/26	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	268	NAG	C1-O5-C5	2.65	115.78	112.19

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
3	B	268	NAG	C1

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	268	NAG	C8-C7-N2-C2
3	B	268	NAG	O7-C7-N2-C2
3	B	269	NAG	C8-C7-N2-C2
3	D	268	NAG	C8-C7-N2-C2
3	D	268	NAG	O7-C7-N2-C2
3	B	269	NAG	O7-C7-N2-C2
3	B	268	NAG	C4-C5-C6-O6
3	B	268	NAG	O5-C5-C6-O6
3	B	269	NAG	C4-C5-C6-O6
3	B	269	NAG	O5-C5-C6-O6
3	D	268	NAG	C4-C5-C6-O6
3	D	268	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

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	250/258 (96%)	-0.55	3 (1%) 79 76	25, 30, 49, 91	0
1	C	250/258 (96%)	0.08	6 (2%) 59 53	40, 59, 77, 99	0
2	B	263/267 (98%)	-0.55	0 100 100	25, 35, 53, 83	0
2	D	263/267 (98%)	-0.11	6 (2%) 60 54	49, 64, 78, 85	0
All	All	1026/1050 (97%)	-0.28	15 (1%) 73 70	25, 49, 75, 99	0

All (15) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	7	ILE	3.2
2	D	223	PHE	3.2
1	C	46	LYS	3.1
1	C	143	GLY	3.0
1	C	43	THR	2.9
2	D	32	ALA	2.7
1	A	98	PHE	2.7
1	A	250	ASN	2.5
2	D	264	ALA	2.3
1	A	1	GLN	2.3
2	D	137	ARG	2.3
1	C	20	ILE	2.2
1	C	104	TYR	2.1
2	D	104	ILE	2.1
1	C	30	GLY	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	NAG	D	268	14/15	0.83	0.22	64,67,73,74	0
3	NAG	B	269	14/15	0.96	0.12	35,38,48,50	0
3	NAG	B	268	14/15	0.96	0.15	37,43,48,62	0

6.5 Other polymers (i)

There are no such residues in this entry.