



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 25, 2023 – 07:16 AM EDT

PDB ID : 5W1K
Title : JUNV GP1 CR1-10 Fab CR1-28 Fab complex
Authors : Raymond, D.D.; Clark, L.E.; Abraham, J.
Deposited on : 2017-06-03
Resolution : 3.99 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
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35.1
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) : 2.35.1

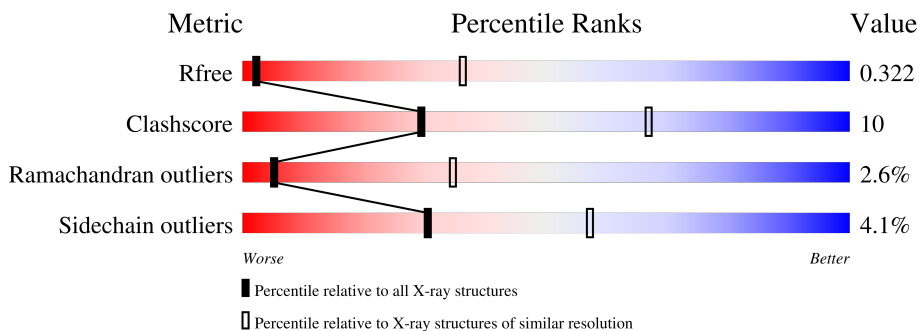
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.99 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.













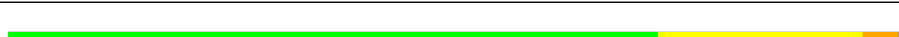


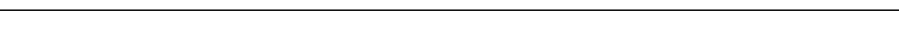
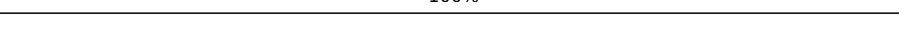
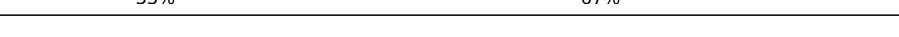
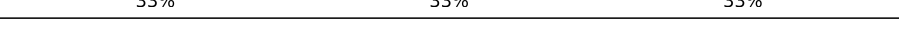
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1087 (4.30-3.70)
Clashscore	141614	1148 (4.30-3.70)
Ramachandran outliers	138981	1108 (4.30-3.70)
Sidechain outliers	138945	1099 (4.30-3.70)

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 $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	206	81% (green), 18% (yellow), 1% (orange), 0% (red), 0% (grey)
1	F	206	80% (green), 17% (yellow), 1% (orange), 0% (red), 0% (grey)
1	K	206	75% (green), 23% (yellow), 1% (orange), 0% (red), 0% (grey)
1	S	206	77% (green), 21% (yellow), 1% (orange), 1% (red), 0% (grey)
2	B	226	73% (green), 25% (yellow), 1% (orange), 0% (red), 0% (grey)
2	G	226	71% (green), 25% (yellow), 1% (orange), 0% (red), 0% (grey)
2	L	226	72% (green), 26% (yellow), 1% (orange), 0% (red), 0% (grey)

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Mol	Chain	Length	Quality of chain
2	T	226	 73% 23% .
3	C	213	 84% 15% .
3	H	213	 88% 9% .
3	M	213	 81% 17% .
3	N	213	 88% 11% .
4	D	225	 79% 20% .
4	I	225	 73% 25% .
4	O	225	 75% 24% .
4	Q	225	 76% 23% .
5	E	142	 72% 27% .
5	J	142	 73% 23% ..
5	P	142	 66% 31% .
5	R	142	 68% 31% ..
6	U	3	 100%
6	W	3	 33% 67%
6	X	3	 33% 33% 33%
7	V	2	 50% 50%

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 31130 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 CR1-28 Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	206	1590	994	272	319	5	0	0	0
1	F	206	1590	994	272	319	5	0	0	0
1	K	206	1590	994	272	319	5	0	0	0
1	S	206	1590	994	272	319	5	0	0	0

- Molecule 2 is a protein called CR1-28 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	226	1703	1074	286	337	6	0	0	0
2	G	226	1703	1074	286	337	6	0	0	0
2	L	226	1703	1074	286	337	6	0	0	0
2	T	226	1703	1074	286	337	6	0	0	0

- Molecule 3 is a protein called CR1-10 Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	213	1629	1019	276	330	4	0	0	0
3	H	213	1629	1019	276	330	4	0	0	0
3	M	213	1629	1019	276	330	4	0	0	0
3	N	211	1616	1012	274	326	4	0	0	0

- Molecule 4 is a protein called CR1-10 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	225	Total	C	N	O	S	0	0	0
			1673	1053	283	330	7			
4	I	225	Total	C	N	O	S	0	0	0
			1673	1053	283	330	7			
4	O	225	Total	C	N	O	S	0	0	0
			1673	1053	283	330	7			
4	Q	225	Total	C	N	O	S	0	0	0
			1673	1053	283	330	7			

- Molecule 5 is a protein called Pre-glycoprotein polyprotein GP complex.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	142	Total	C	N	O	S	0	0	0
			1153	745	190	208	10			
5	J	141	Total	C	N	O	S	0	0	0
			1145	741	189	205	10			
5	P	142	Total	C	N	O	S	0	0	0
			1153	745	190	208	10			
5	R	142	Total	C	N	O	S	0	0	0
			1153	745	190	208	10			

- Molecule 6 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
6	U	3	Total	C	N	O	0	0	0
			39	22	2	15			
6	W	3	Total	C	N	O	0	0	0
			39	22	2	15			
6	X	3	Total	C	N	O	0	0	0
			39	22	2	15			

- Molecule 7 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
7	V	2	28	16	2	10	0	0	0

- Molecule 8 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).

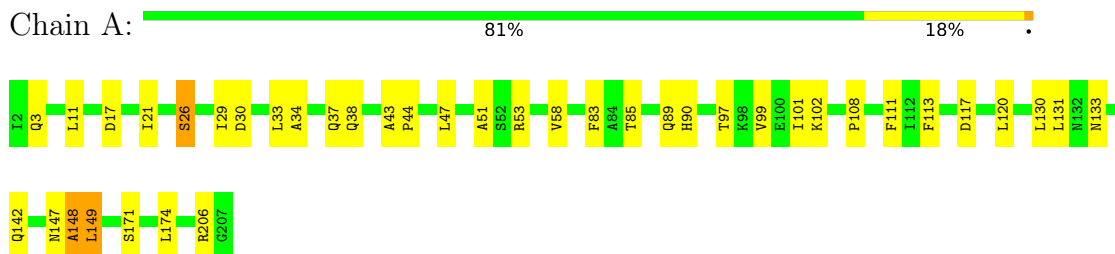


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
8	P	1	14	8	1	5	0	0

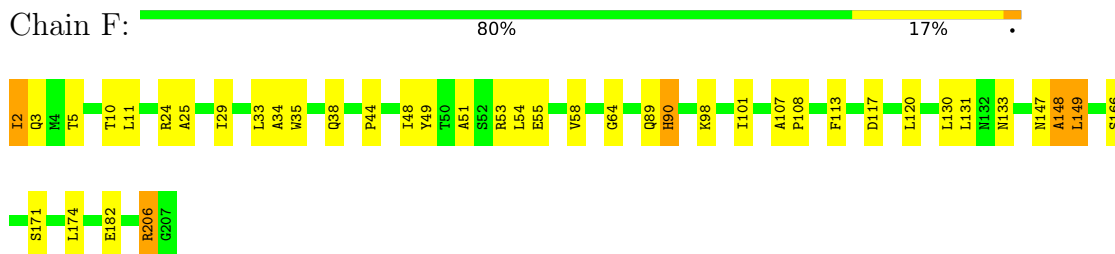
3 Residue-property plots [i](#)

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. 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.

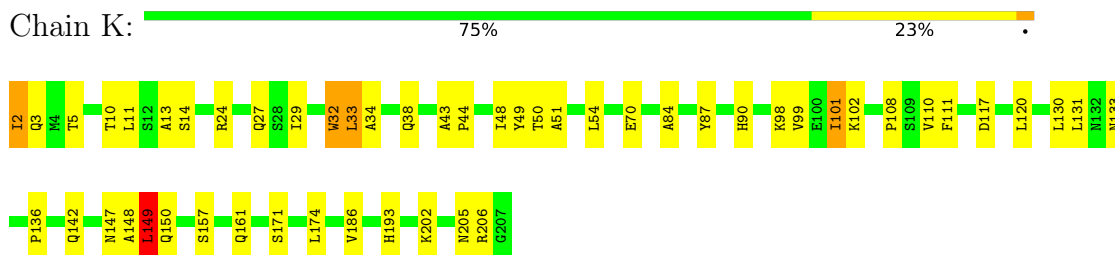
- Molecule 1: CR1-28 Fab light chain



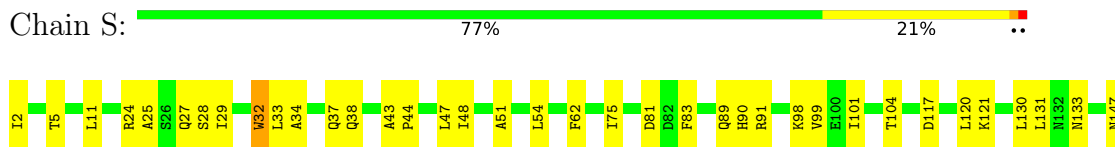
- Molecule 1: CR1-28 Fab light chain



- Molecule 1: CR1-28 Fab light chain



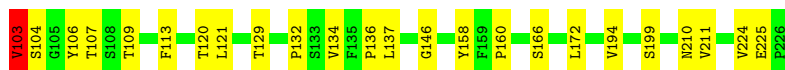
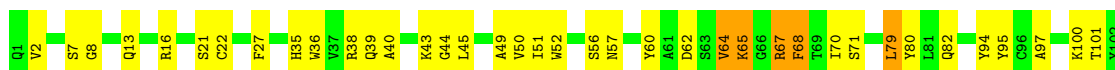
- Molecule 1: CR1-28 Fab light chain





- Molecule 2: CR1-28 Fab heavy chain

Chain B: 73% 25%



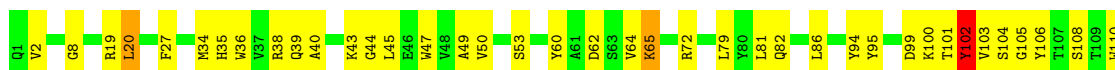
- Molecule 2: CR1-28 Fab heavy chain

Chain G: 71% 25%



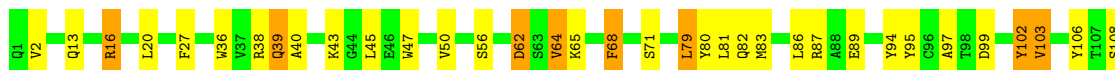
- Molecule 2: CR1-28 Fab heavy chain

Chain L: 72% 26%



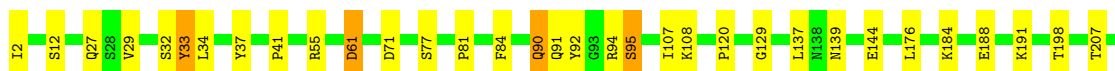
- Molecule 2: CR1-28 Fab heavy chain

Chain T: 73% 23%



- Molecule 3: CR1-10 Fab light chain

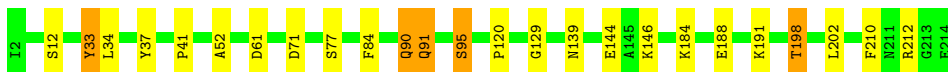
Chain C: 84% 15%





- Molecule 3: CR1-10 Fab light chain

Chain H: 88% 9%



- Molecule 3: CR1-10 Fab light chain

Chain M: 81% 17%



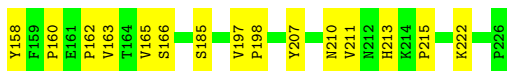
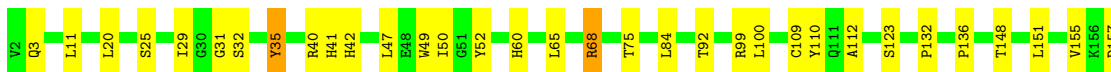
- Molecule 3: CR1-10 Fab light chain

Chain N: 88% 11%



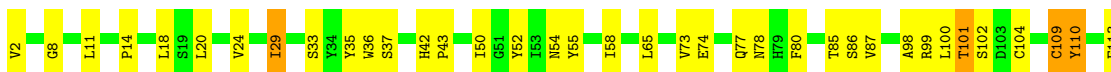
- Molecule 4: CR1-10 Fab heavy chain

Chain D: 79% 20%

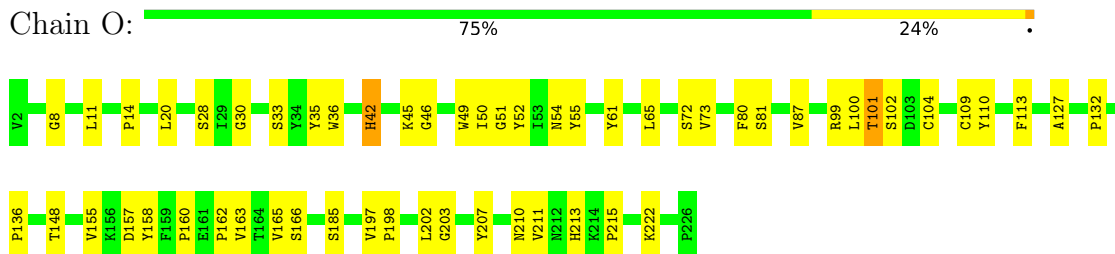


- Molecule 4: CR1-10 Fab heavy chain

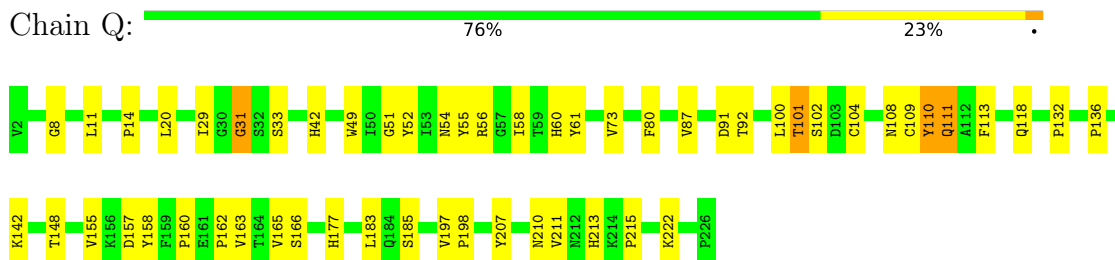
Chain I: 73% 25%



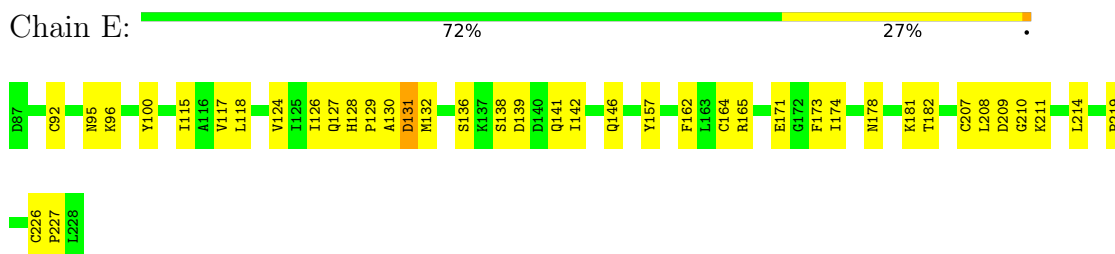
- Molecule 4: CR1-10 Fab heavy chain



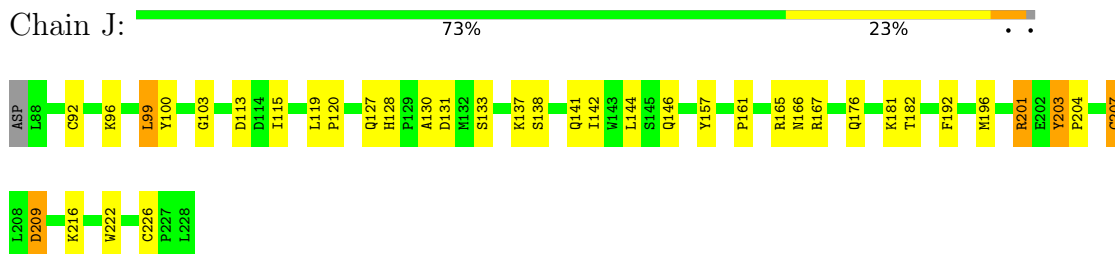
- Molecule 4: CR1-10 Fab heavy chain



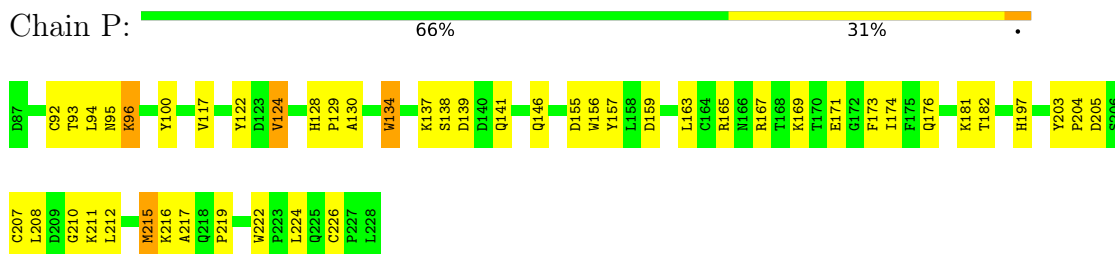
- Molecule 5: Pre-glycoprotein polyprotein GP complex



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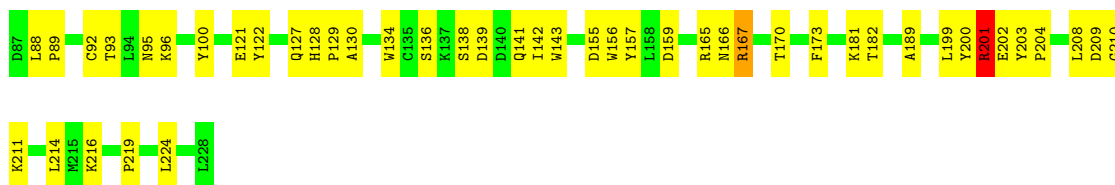


- Molecule 5: Pre-glycoprotein polyprotein GP complex



- Molecule 5: Pre-glycoprotein polyprotein GP complex

Chain R:  68% 31% ..



- Molecule 6: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain U:  100%



- Molecule 6: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain W:  33% 67%



- Molecule 6: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain X:  33% 33% 33%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain V:  50% 50%



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	154.84Å 132.23Å 167.42Å 90.00° 92.47° 90.00°	Depositor
Resolution (Å)	49.35 – 3.99 49.35 – 3.99	Depositor EDS
% Data completeness (in resolution range)	99.4 (49.35-3.99) 87.6 (49.35-3.99)	Depositor EDS
R_{merge}	0.72	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.33 (at 4.00Å)	Xtrriage
Refinement program	BUSTER 2.10.3	Depositor
R, R_{free}	0.237 , 0.288 0.300 , 0.322	Depositor DCC
R_{free} test set	2860 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	65.5	Xtrriage
Anisotropy	0.557	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 53.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.38$, $\langle L^2 \rangle = 0.20$	Xtrriage
Estimated twinning fraction	0.086 for h,-k,-l	Xtrriage
F_o, F_c correlation	0.82	EDS
Total number of atoms	31130	wwPDB-VP
Average B, all atoms (Å ²)	69.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 37.32 % 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 4.3700e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.44	0/1624	0.70	0/2204
1	F	0.42	0/1624	0.72	0/2204
1	K	0.44	0/1624	0.70	0/2204
1	S	0.44	0/1624	0.71	0/2204
2	B	0.44	0/1747	0.73	1/2383 (0.0%)
2	G	0.45	0/1747	0.77	1/2383 (0.0%)
2	L	0.43	0/1747	0.73	0/2383
2	T	0.43	0/1747	0.71	0/2383
3	C	0.41	0/1664	0.65	0/2258
3	H	0.41	0/1664	0.67	0/2258
3	M	0.40	0/1664	0.65	0/2258
3	N	0.42	0/1651	0.65	0/2241
4	D	0.41	0/1717	0.71	0/2344
4	I	0.41	0/1717	0.68	0/2344
4	O	0.40	0/1717	0.70	0/2344
4	Q	0.40	0/1717	0.70	0/2344
5	E	0.45	0/1189	0.69	0/1615
5	J	0.48	0/1181	0.71	0/1604
5	P	0.43	0/1189	0.66	0/1615
5	R	0.45	0/1189	0.71	0/1615
All	All	0.43	0/31743	0.70	2/43188 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	98	THR	C-N-CA	5.88	136.41	121.70
2	B	103	VAL	C-N-CA	5.22	134.75	121.70

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	1590	0	1552	31	0
1	F	1590	0	1552	29	0
1	K	1590	0	1552	37	0
1	S	1590	0	1552	26	0
2	B	1703	0	1646	48	0
2	G	1703	0	1646	58	0
2	L	1703	0	1646	61	0
2	T	1703	0	1646	31	0
3	C	1629	0	1580	24	0
3	H	1629	0	1580	15	0
3	M	1629	0	1580	22	0
3	N	1616	0	1571	11	0
4	D	1673	0	1616	32	0
4	I	1673	0	1616	32	0
4	O	1673	0	1616	31	0
4	Q	1673	0	1616	31	0
5	E	1153	0	1113	32	0
5	J	1145	0	1109	37	0
5	P	1153	0	1112	30	0
5	R	1153	0	1113	45	0
6	U	39	0	34	0	0
6	W	39	0	34	0	0
6	X	39	0	34	2	0
7	V	28	0	25	1	0
8	P	14	0	13	0	0
All	All	31130	0	30154	584	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 10.

All (584) 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:53:ARG:HH22	2:B:103:VAL:HB	1.17	1.05
4:Q:110:TYR:CE2	5:R:134:TRP:HB3	1.98	0.99
2:G:33:ALA:CB	2:G:100:LYS:NZ	2.26	0.99
1:F:149:LEU:HD21	1:F:174:LEU:HD11	1.42	0.98
4:O:109:CYS:HB2	5:P:134:TRP:CE3	2.01	0.95
5:J:203:TYR:H	5:J:204:PRO:HD3	1.31	0.95
1:F:48:ILE:HG22	1:F:54:LEU:HD23	1.51	0.93
2:L:35:HIS:CD2	2:L:50:VAL:HG22	2.03	0.93
2:G:33:ALA:CB	2:G:100:LYS:HZ1	1.80	0.92
2:G:33:ALA:HB3	2:G:100:LYS:NZ	1.86	0.91
4:Q:110:TYR:HE2	5:R:134:TRP:HB3	1.35	0.91
1:A:21:ILE:HG21	1:A:97:THR:HG21	1.53	0.90
5:J:203:TYR:H	5:J:204:PRO:CD	1.85	0.89
2:G:33:ALA:HB2	2:G:100:LYS:NZ	1.89	0.88
2:B:64:VAL:HG22	2:B:68:PHE:CE2	2.08	0.87
5:P:124:VAL:HG11	5:P:134:TRP:HE1	1.40	0.86
5:J:181:LYS:HE3	5:J:207:CYS:HB3	1.57	0.86
2:B:64:VAL:HG22	2:B:68:PHE:HE2	1.40	0.85
4:O:109:CYS:HB2	5:P:134:TRP:HE3	1.40	0.84
1:A:149:LEU:HD21	1:A:174:LEU:HD11	1.58	0.83
1:F:149:LEU:CD2	1:F:174:LEU:HD11	2.08	0.82
1:A:53:ARG:NH2	2:B:103:VAL:HB	1.95	0.82
2:B:8:GLY:HA2	2:B:120:THR:HG21	1.60	0.82
5:J:99:LEU:HD22	5:J:203:TYR:HE2	1.45	0.82
4:O:8:GLY:HA3	4:O:20:LEU:HD23	1.61	0.81
2:G:33:ALA:HB2	2:G:100:LYS:HZ1	1.46	0.81
3:M:95:SER:HB3	5:R:157:TYR:HD1	1.46	0.81
3:N:95:SER:HB3	5:P:157:TYR:HD1	1.47	0.80
3:C:29:VAL:HG11	3:C:91:GLN:HE22	1.45	0.79
2:L:20:LEU:CD1	2:L:81:LEU:HB3	2.12	0.79
2:L:47:TRP:HE1	2:L:50:VAL:HG23	1.47	0.79
4:I:8:GLY:HA3	4:I:20:LEU:HD23	1.64	0.78
1:A:149:LEU:CD2	1:A:174:LEU:HD11	2.13	0.77
2:L:8:GLY:HA2	2:L:120:THR:HG21	1.66	0.77
3:H:95:SER:HB2	5:J:157:TYR:CD1	2.21	0.76
5:P:117:VAL:HG22	5:P:216:LYS:HE3	1.67	0.76
4:D:40:ARG:HH12	4:D:65:LEU:HD11	1.50	0.76
2:B:60:TYR:CE1	2:B:70:ILE:HG22	2.21	0.75
1:K:44:PRO:HG3	2:L:45:LEU:HD11	1.68	0.75
5:R:200:TYR:HD1	5:R:203:TYR:HH	1.31	0.75
1:F:35:TRP:CD1	1:F:48:ILE:HD11	2.23	0.73
2:G:33:ALA:CB	2:G:100:LYS:HZ2	1.99	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:134:VAL:HG21	2:G:211:VAL:HG11	1.70	0.73
2:L:101:THR:HA	2:L:106:TYR:O	1.88	0.72
2:T:20:LEU:HD12	2:T:81:LEU:HD22	1.70	0.72
5:J:96:LYS:HG2	5:J:203:TYR:HB2	1.72	0.72
5:J:115:ILE:HG23	2:L:102:TYR:HE2	1.53	0.72
2:B:13:GLN:HG2	2:B:16:ARG:NH1	2.04	0.72
1:A:21:ILE:CG2	1:A:97:THR:HG21	2.20	0.71
4:O:132:PRO:HB3	4:O:158:TYR:HB3	1.72	0.71
1:F:48:ILE:CG2	1:F:54:LEU:HD23	2.20	0.71
4:I:166:SER:HB2	4:I:210:ASN:HB2	1.72	0.71
2:L:134:VAL:HG21	2:L:211:VAL:HG11	1.72	0.71
1:S:89:GLN:HG3	1:S:90:HIS:H	1.56	0.71
1:A:89:GLN:HG3	1:A:90:HIS:H	1.54	0.71
5:E:126:ILE:HG23	5:E:131:ASP:HB2	1.73	0.71
2:B:35:HIS:HB3	2:B:50:VAL:HA	1.73	0.70
2:T:134:VAL:HG21	2:T:211:VAL:HG11	1.72	0.70
1:F:44:PRO:HG3	2:G:45:LEU:HD11	1.74	0.70
5:J:115:ILE:CG2	2:L:102:TYR:HE2	2.05	0.70
3:M:54:GLY:H	4:Q:108:ASN:HD21	1.39	0.70
1:A:30:ASP:OD1	5:P:212:LEU:HD11	1.93	0.69
4:D:166:SER:HB2	4:D:210:ASN:HB2	1.75	0.69
5:P:137:LYS:HG2	5:P:167:ARG:NH1	2.08	0.69
5:E:132:MET:HB2	5:E:146:GLN:HE21	1.57	0.69
1:K:101:ILE:HG23	1:K:161:GLN:HE22	1.57	0.69
2:B:134:VAL:HG21	2:B:211:VAL:HG11	1.75	0.69
2:L:36:TRP:CZ3	2:L:94:TYR:HB3	2.28	0.69
2:G:64:VAL:HG22	2:G:68:PHE:CE2	2.28	0.68
3:H:95:SER:HB2	5:J:157:TYR:HD1	1.58	0.68
1:A:38:GLN:HE21	1:A:44:PRO:HD3	1.58	0.68
2:L:20:LEU:HD11	2:L:81:LEU:HB3	1.74	0.68
4:Q:110:TYR:HE2	5:R:134:TRP:CB	2.05	0.68
2:B:132:PRO:HB3	2:B:158:TYR:HB3	1.76	0.67
1:A:44:PRO:HG3	2:B:45:LEU:HD11	1.75	0.67
4:I:212:ASN:HD21	4:I:214:LYS:HG2	1.59	0.67
4:I:132:PRO:HB3	4:I:158:TYR:HB3	1.75	0.67
4:Q:49:TRP:HZ2	4:Q:52:TYR:HD2	1.41	0.67
2:G:52:TRP:CZ3	2:G:100:LYS:HD3	2.30	0.66
1:K:11:LEU:HB3	1:K:99:VAL:HG12	1.77	0.66
1:A:113:PHE:CD2	2:B:137:LEU:HB3	2.30	0.66
1:K:2:ILE:HD11	1:K:29:ILE:HD11	1.77	0.66
5:R:121:GLU:H	1:S:27:GLN:HE22	1.44	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:133:SER:O	5:J:167:ARG:HD3	1.96	0.66
2:L:47:TRP:NE1	2:L:50:VAL:HG23	2.10	0.66
2:B:40:ALA:HB3	2:B:43:LYS:HG2	1.77	0.66
4:O:102:SER:CB	4:O:110:TYR:HA	2.26	0.66
2:B:35:HIS:HB2	2:B:49:ALA:O	1.96	0.66
2:G:8:GLY:HA2	2:G:120:THR:HG21	1.78	0.65
4:O:166:SER:HB2	4:O:210:ASN:HB2	1.78	0.65
5:R:200:TYR:HB3	5:R:203:TYR:CZ	2.30	0.65
1:K:38:GLN:HE21	1:K:44:PRO:HD3	1.62	0.65
3:C:37:TYR:OH	4:D:112:ALA:HB1	1.96	0.65
4:Q:132:PRO:HB3	4:Q:158:TYR:HB3	1.79	0.65
3:M:50:TYR:HB2	4:Q:111:GLN:HG2	1.79	0.65
4:Q:166:SER:HB2	4:Q:210:ASN:HB2	1.79	0.65
4:D:132:PRO:HB3	4:D:158:TYR:HB3	1.79	0.64
4:O:102:SER:HB2	4:O:110:TYR:HA	1.79	0.64
1:S:149:LEU:HD22	1:S:174:LEU:HD11	1.80	0.64
5:E:132:MET:CE	5:E:162:PHE:HE2	2.11	0.64
1:S:44:PRO:HG3	2:T:45:LEU:HD11	1.80	0.64
4:D:41:HIS:HB2	4:D:47:LEU:HD23	1.80	0.64
2:B:64:VAL:HG23	2:B:67:ARG:NH2	2.12	0.64
2:G:33:ALA:HB3	2:G:100:LYS:HZ1	1.56	0.63
1:K:50:THR:HG22	2:L:110:TRP:HZ3	1.63	0.63
2:L:132:PRO:HB3	2:L:158:TYR:HB3	1.78	0.63
2:G:33:ALA:HB2	2:G:53:SER:H	1.63	0.63
5:J:92:CYS:HB3	5:J:100:TYR:HB2	1.79	0.63
1:K:149:LEU:HD23	1:K:174:LEU:HD11	1.80	0.63
5:P:137:LYS:HG2	5:P:167:ARG:HH11	1.63	0.63
2:L:146:GLY:HA2	2:L:199:SER:HB3	1.81	0.62
2:T:99:ASP:HB2	2:T:112:TYR:CE2	2.34	0.62
4:D:68:ARG:HG3	4:D:84:LEU:HD12	1.82	0.62
2:B:146:GLY:HA2	2:B:199:SER:HB3	1.81	0.62
1:F:34:ALA:H	1:F:89:GLN:HB3	1.65	0.62
2:L:36:TRP:HZ3	2:L:94:TYR:HB3	1.64	0.62
3:N:34:LEU:HD11	3:N:89:CYS:HB2	1.80	0.62
4:D:3:GLN:HB2	4:D:25:SER:HB3	1.81	0.62
2:L:102:TYR:HD2	2:L:106:TYR:HD2	1.47	0.62
3:C:29:VAL:HG11	3:C:91:GLN:NE2	2.13	0.62
1:K:10:THR:HG22	1:K:98:LYS:HB2	1.81	0.61
2:G:64:VAL:HG13	2:G:68:PHE:CE2	2.36	0.61
2:G:64:VAL:HG22	2:G:68:PHE:HE2	1.65	0.61
2:B:64:VAL:CG2	2:B:68:PHE:HE2	2.14	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:I:74:GLU:HG2	4:I:77:GLN:OE1	2.01	0.60
2:L:40:ALA:HB3	2:L:43:LYS:HG2	1.80	0.60
2:T:40:ALA:HB3	2:T:43:LYS:HG2	1.81	0.60
5:E:132:MET:HE1	5:E:162:PHE:HE2	1.65	0.60
4:Q:31:GLY:HA3	4:Q:55:TYR:HB3	1.82	0.60
2:L:100:LYS:HG2	2:L:101:THR:H	1.67	0.60
1:S:38:GLN:HB2	1:S:44:PRO:HB3	1.83	0.60
5:P:93:THR:O	5:P:94:LEU:HD12	2.02	0.60
1:A:38:GLN:HB2	1:A:44:PRO:HB3	1.83	0.60
4:D:49:TRP:HZ2	4:D:52:TYR:HD2	1.48	0.60
2:G:40:ALA:HB3	2:G:43:LYS:HG2	1.84	0.60
2:L:108:SER:HB3	2:L:110:TRP:CD1	2.37	0.60
3:H:95:SER:CB	5:J:157:TYR:HD1	2.15	0.60
5:J:201:ARG:HA	5:J:201:ARG:NE	2.15	0.60
1:F:38:GLN:HB2	1:F:44:PRO:HB3	1.83	0.59
5:R:182:THR:HB	5:R:210:GLY:HA2	1.83	0.59
4:Q:54:ASN:HD22	4:Q:58:ILE:HD13	1.68	0.59
5:E:132:MET:CE	5:E:162:PHE:CE2	2.84	0.59
3:M:92:TYR:CZ	3:M:95:SER:HA	2.38	0.59
5:J:142:ILE:O	5:J:146:GLN:HG3	2.03	0.59
2:L:20:LEU:HD12	2:L:81:LEU:HB3	1.83	0.59
2:L:166:SER:HB3	2:L:210:ASN:HB2	1.85	0.59
2:L:86:LEU:HB3	2:L:124:VAL:HG11	1.85	0.59
1:F:10:THR:HG22	1:F:98:LYS:HB2	1.84	0.58
1:S:34:ALA:HA	1:S:48:ILE:O	2.03	0.58
2:T:86:LEU:HD22	2:T:124:VAL:HG21	1.86	0.58
4:D:148:THR:HA	4:D:198:PRO:HA	1.85	0.58
5:R:200:TYR:O	5:R:203:TYR:CE2	2.57	0.58
2:B:97:ALA:HB1	2:B:113:PHE:HB3	1.85	0.58
4:D:60:HIS:HD2	5:E:129:PRO:HG3	1.69	0.58
5:P:208:LEU:HD22	5:P:211:LYS:HD3	1.85	0.58
4:O:104:CYS:HB3	4:O:109:CYS:HA	1.85	0.57
2:G:132:PRO:HB3	2:G:158:TYR:HB3	1.85	0.57
5:P:182:THR:HB	5:P:210:GLY:HA2	1.85	0.57
4:I:148:THR:HA	4:I:198:PRO:HA	1.85	0.57
4:I:2:VAL:HG11	4:I:99:ARG:NH1	2.18	0.57
5:E:118:LEU:HD11	5:E:174:ILE:HG23	1.86	0.57
5:R:138:SER:HB3	5:R:141:GLN:HB2	1.87	0.57
2:L:35:HIS:ND1	2:L:113:PHE:CE2	2.73	0.57
2:B:13:GLN:HG2	2:B:16:ARG:HH12	1.68	0.57
3:C:90:GLN:OE1	4:D:112:ALA:HB2	2.05	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:173:PHE:HB3	5:E:219:PRO:HG3	1.85	0.56
5:R:134:TRP:CD1	5:R:167:ARG:HB3	2.40	0.56
3:C:33:TYR:CD1	3:C:92:TYR:HB3	2.39	0.56
1:F:38:GLN:HE21	1:F:44:PRO:HD3	1.70	0.56
2:G:146:GLY:HA2	2:G:199:SER:HB3	1.87	0.56
4:O:50:ILE:HG23	4:O:65:LEU:HD13	1.88	0.56
1:F:49:TYR:CE1	1:F:53:ARG:HD2	2.40	0.56
1:A:3:GLN:H	1:A:26:SER:HB2	1.69	0.56
1:K:130:LEU:HD22	2:L:194:VAL:HG21	1.87	0.56
3:M:34:LEU:HD11	3:M:89:CYS:HB2	1.87	0.56
3:M:37:TYR:HE1	3:M:90:GLN:HG2	1.71	0.55
5:R:173:PHE:HD2	5:R:219:PRO:HD3	1.69	0.55
5:P:92:CYS:HB3	5:P:100:TYR:HB2	1.88	0.55
2:G:136:PRO:HB3	2:G:224:VAL:HG22	1.86	0.55
2:B:64:VAL:HG13	2:B:68:PHE:CZ	2.41	0.55
1:K:38:GLN:HB2	1:K:44:PRO:HB3	1.87	0.55
2:T:146:GLY:HA2	2:T:199:SER:HB3	1.88	0.55
4:D:11:LEU:HB2	4:D:160:PRO:HG3	1.88	0.55
5:R:128:HIS:CD2	5:R:130:ALA:HB3	2.42	0.55
2:B:71:SER:HB3	2:B:80:TYR:HB2	1.89	0.55
1:A:148:ALA:O	1:A:149:LEU:HB2	2.06	0.55
1:K:5:THR:HB	1:K:24:ARG:HB2	1.89	0.55
2:L:20:LEU:HD13	2:L:36:TRP:CH2	2.42	0.55
4:O:136:PRO:HD3	4:O:222:LYS:HD2	1.89	0.55
4:O:73:VAL:HG23	4:O:80:PHE:HB3	1.89	0.54
4:Q:155:VAL:HG11	4:Q:163:VAL:HG21	1.87	0.54
5:R:134:TRP:CD1	5:R:167:ARG:HD2	2.43	0.54
3:H:90:GLN:O	3:H:91:GLN:HB3	2.07	0.54
1:S:37:GLN:HB2	1:S:47:LEU:HD11	1.89	0.54
2:B:64:VAL:CG2	2:B:68:PHE:CE2	2.89	0.54
5:J:99:LEU:HD22	5:J:203:TYR:CE2	2.34	0.54
5:R:122:TYR:HE2	1:S:2:ILE:HD11	1.72	0.54
1:K:157:SER:HB3	2:L:180:PRO:HD2	1.89	0.54
2:T:62:ASP:HA	2:T:65:LYS:HB2	1.90	0.54
3:C:95:SER:HB2	5:E:157:TYR:HD1	1.72	0.54
2:T:97:ALA:HB1	2:T:113:PHE:HB3	1.89	0.54
3:N:34:LEU:HD23	3:N:52:ALA:HB2	1.89	0.54
3:H:12:SER:HB2	1:S:121:LYS:HB3	1.90	0.54
4:O:148:THR:HA	4:O:198:PRO:HA	1.89	0.54
4:I:11:LEU:HB2	4:I:160:PRO:HG3	1.88	0.54
5:R:92:CYS:HB3	5:R:100:TYR:HB2	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:136:PRO:HB3	2:B:224:VAL:HG22	1.91	0.54
2:T:68:PHE:HB2	2:T:83:MET:HA	1.89	0.54
4:D:92:THR:HG23	4:D:123:SER:HA	1.90	0.53
1:F:148:ALA:O	1:F:149:LEU:HB2	2.08	0.53
2:G:33:ALA:HA	2:G:53:SER:HB2	1.91	0.53
2:L:125:SER:HB2	2:L:159:PHE:HZ	1.74	0.53
5:R:214:LEU:HB3	5:R:216:LYS:NZ	2.22	0.53
5:E:208:LEU:HD22	5:E:211:LYS:HD3	1.90	0.53
1:F:130:LEU:HD22	2:G:194:VAL:HG21	1.91	0.53
5:E:171:GLU:HG2	2:G:52:TRP:CZ3	2.44	0.53
1:S:43:ALA:HB2	2:T:95:TYR:CE2	2.44	0.53
2:T:166:SER:HB3	2:T:210:ASN:HB2	1.90	0.53
2:B:39:GLN:HG3	2:B:44:GLY:O	2.09	0.53
2:B:101:THR:HA	2:B:107:THR:HA	1.89	0.53
4:O:11:LEU:HB2	4:O:160:PRO:HG3	1.91	0.53
2:T:132:PRO:HB3	2:T:158:TYR:HB3	1.90	0.53
1:F:29:ILE:HG21	1:F:90:HIS:CD2	2.44	0.53
2:B:52:TRP:CH2	2:B:100:LYS:HE2	2.44	0.53
3:N:49:ILE:HG21	3:N:65:GLY:HA3	1.90	0.52
4:D:136:PRO:HD3	4:D:222:LYS:HD2	1.92	0.52
3:C:2:ILE:HD11	3:C:91:GLN:HE21	1.74	0.52
4:D:49:TRP:HZ2	4:D:52:TYR:CD2	2.26	0.52
2:L:136:PRO:HB3	2:L:224:VAL:HG22	1.90	0.52
2:B:68:PHE:HB2	2:B:82:GLN:O	2.09	0.52
2:G:64:VAL:HG23	2:G:67:ARG:CZ	2.39	0.52
4:Q:104:CYS:HB2	4:Q:109:CYS:HA	1.92	0.52
2:L:35:HIS:ND1	2:L:113:PHE:HE2	2.07	0.52
4:O:35:TYR:HB2	4:O:100:LEU:HB3	1.92	0.52
4:Q:136:PRO:HD3	4:Q:222:LYS:HD2	1.92	0.52
1:K:50:THR:CG2	2:L:110:TRP:HZ3	2.23	0.52
1:S:130:LEU:HD22	2:T:194:VAL:HG21	1.92	0.52
5:E:132:MET:HE1	5:E:162:PHE:CE2	2.44	0.52
3:H:37:TYR:HE1	3:H:90:GLN:HG2	1.73	0.52
4:I:24:VAL:CG2	4:I:78:ASN:HB3	2.39	0.52
4:Q:110:TYR:CE2	5:R:134:TRP:CB	2.81	0.52
2:B:38:ARG:HG3	2:B:94:TYR:CE1	2.45	0.51
4:Q:52:TYR:CE2	4:Q:60:HIS:HB3	2.45	0.51
5:E:182:THR:HB	5:E:210:GLY:HA2	1.91	0.51
1:F:5:THR:HB	1:F:24:ARG:HB2	1.92	0.51
5:J:165:ARG:NH2	2:L:108:SER:HB2	2.26	0.51
1:K:101:ILE:HG23	1:K:161:GLN:NE2	2.23	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:Q:148:THR:HA	4:Q:198:PRO:HA	1.91	0.51
2:T:136:PRO:HB3	2:T:224:VAL:HG22	1.91	0.51
5:E:173:PHE:HD2	5:E:219:PRO:HD3	1.76	0.51
1:K:38:GLN:HE22	2:L:39:GLN:NE2	2.07	0.51
5:P:169:LYS:HE2	5:P:171:GLU:OE1	2.09	0.51
1:A:113:PHE:HD2	2:B:137:LEU:HB3	1.75	0.51
5:E:124:VAL:HG23	5:E:164:CYS:HB3	1.93	0.51
4:I:155:VAL:HG11	4:I:163:VAL:HG21	1.92	0.51
5:P:129:PRO:HD3	5:P:156:TRP:CD2	2.46	0.51
5:R:128:HIS:HD2	5:R:130:ALA:H	1.59	0.51
5:R:134:TRP:HD1	5:R:167:ARG:HD2	1.74	0.51
2:G:33:ALA:CB	2:G:53:SER:H	2.23	0.51
3:C:95:SER:HB2	5:E:157:TYR:CD1	2.46	0.51
1:F:101:ILE:HD11	1:F:166:SER:HB2	1.93	0.51
2:L:38:ARG:HG3	2:L:94:TYR:CE1	2.45	0.51
4:Q:11:LEU:HB2	4:Q:160:PRO:HG3	1.92	0.51
4:Q:197:VAL:HG11	4:Q:207:TYR:CE2	2.46	0.51
2:B:64:VAL:HG23	2:B:67:ARG:HH21	1.76	0.51
1:A:111:PHE:HB3	1:A:113:PHE:HE1	1.76	0.51
3:H:33:TYR:O	3:H:91:GLN:HB2	2.10	0.50
5:R:93:THR:HG23	5:R:203:TYR:CE1	2.46	0.50
4:I:136:PRO:HD3	4:I:222:LYS:HD2	1.93	0.50
5:J:137:LYS:HE3	5:J:167:ARG:HG2	1.92	0.50
5:E:136:SER:O	5:E:142:ILE:HD11	2.12	0.50
1:F:25:ALA:HB1	1:F:29:ILE:HD12	1.93	0.50
3:M:29:VAL:HG12	3:M:31:SER:H	1.74	0.50
2:B:166:SER:HB3	2:B:210:ASN:HB2	1.94	0.50
4:D:155:VAL:HG11	4:D:163:VAL:HG21	1.93	0.50
4:D:213:HIS:CD2	4:D:215:PRO:HD2	2.46	0.50
2:L:2:VAL:HG22	2:L:27:PHE:HB3	1.94	0.50
3:N:95:SER:HB3	5:P:157:TYR:CD1	2.37	0.50
5:R:200:TYR:HB3	5:R:203:TYR:CE1	2.46	0.50
1:F:108:PRO:HB2	1:F:131:LEU:HB2	1.92	0.50
5:R:182:THR:CG2	6:X:2:NAG:H82	2.41	0.50
2:B:64:VAL:HG13	2:B:68:PHE:CE2	2.47	0.50
3:C:191:LYS:HE2	3:C:212:ARG:HH21	1.77	0.50
4:Q:213:HIS:CD2	4:Q:215:PRO:HD2	2.46	0.50
1:S:11:LEU:HB3	1:S:99:VAL:HG12	1.93	0.50
1:K:48:ILE:HB	1:K:54:LEU:HD23	1.94	0.49
1:K:136:PRO:HD2	1:K:193:HIS:CE1	2.46	0.49
4:D:197:VAL:HG11	4:D:207:TYR:CE2	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:P:165:ARG:HE	5:P:174:ILE:HG22	1.77	0.49
4:I:99:ARG:O	4:I:113:PHE:HA	2.12	0.49
4:D:165:VAL:HG22	4:D:211:VAL:HG22	1.95	0.49
4:I:213:HIS:CD2	4:I:215:PRO:HD2	2.48	0.49
1:K:108:PRO:HB2	1:K:131:LEU:HB2	1.95	0.49
1:S:25:ALA:HB1	1:S:29:ILE:HD12	1.95	0.49
4:O:54:ASN:ND2	5:P:146:GLN:HE22	2.09	0.49
4:O:99:ARG:O	4:O:113:PHE:HA	2.13	0.49
4:Q:73:VAL:HG23	4:Q:80:PHE:HB3	1.94	0.49
1:A:130:LEU:HD11	2:B:194:VAL:HG11	1.95	0.49
2:B:35:HIS:NE2	2:B:113:PHE:HE2	2.11	0.49
1:K:84:ALA:O	1:K:99:VAL:HG22	2.13	0.49
2:L:20:LEU:HD13	2:L:36:TRP:CZ3	2.48	0.49
2:L:53:SER:HA	2:L:72:ARG:HH22	1.77	0.49
2:G:2:VAL:HG22	2:G:27:PHE:HB3	1.95	0.48
4:I:37:SER:HG	4:I:52:TYR:HB3	1.78	0.48
1:K:32:TRP:O	1:K:33:LEU:HD12	2.13	0.48
2:L:53:SER:HA	2:L:72:ARG:NH2	2.28	0.48
5:P:124:VAL:O	5:P:163:LEU:HD23	2.13	0.48
5:P:138:SER:HB3	5:P:141:GLN:HB2	1.94	0.48
2:B:2:VAL:HG22	2:B:27:PHE:HB3	1.95	0.48
2:G:64:VAL:HG13	2:G:68:PHE:HE2	1.76	0.48
2:G:98:THR:HB	2:G:99:ASP:H	1.38	0.48
3:H:191:LYS:HE2	3:H:212:ARG:HH21	1.78	0.48
5:R:182:THR:HG23	6:X:2:NAG:H82	1.95	0.48
2:L:100:LYS:HG2	2:L:101:THR:N	2.28	0.48
3:N:129:GLY:HA2	3:N:184:LYS:HB2	1.95	0.48
4:O:33:SER:O	4:O:101:THR:HA	2.13	0.48
4:O:213:HIS:CD2	4:O:215:PRO:HD2	2.48	0.48
5:P:128:HIS:NE2	5:P:130:ALA:HB3	2.28	0.48
5:E:132:MET:HE2	5:E:162:PHE:CE2	2.47	0.48
2:G:60:TYR:HB2	2:G:65:LYS:HD2	1.95	0.48
2:L:62:ASP:HA	2:L:65:LYS:HB2	1.95	0.48
2:T:71:SER:HB3	2:T:80:TYR:HB2	1.96	0.48
5:E:178:ASN:HA	5:E:214:LEU:HD23	1.96	0.48
1:S:89:GLN:HG3	1:S:90:HIS:N	2.26	0.48
1:A:117:ASP:HA	1:A:120:LEU:HD12	1.96	0.48
2:L:49:ALA:HA	2:L:60:TYR:HA	1.95	0.48
2:T:129:THR:HG23	2:T:160:PRO:HD3	1.95	0.48
1:K:32:TRP:HB3	1:K:90:HIS:HD1	1.78	0.48
5:P:176:GLN:HB2	5:P:216:LYS:HD3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:89:GLN:CG	1:A:90:HIS:H	2.23	0.48
4:I:37:SER:OG	4:I:52:TYR:HB3	2.13	0.48
2:T:2:VAL:HG22	2:T:27:PHE:HB3	1.96	0.48
5:P:222:TRP:CZ2	5:P:226:CYS:HB3	2.49	0.47
5:J:119:LEU:HD13	1:K:29:ILE:HD12	1.96	0.47
5:J:127:GLN:HB3	5:J:161:PRO:HB3	1.96	0.47
2:T:64:VAL:HG22	2:T:68:PHE:CD2	2.49	0.47
2:L:60:TYR:HB2	2:L:65:LYS:HG3	1.96	0.47
3:N:184:LYS:O	3:N:188:GLU:HG2	2.14	0.47
5:R:216:LYS:HD3	2:T:106:TYR:CE1	2.49	0.47
4:D:29:ILE:HB	4:D:75:THR:HG22	1.96	0.47
2:B:22:CYS:HB2	2:B:36:TRP:CH2	2.50	0.47
2:B:51:ILE:HG13	2:B:57:ASN:HA	1.95	0.47
4:I:165:VAL:HG22	4:I:211:VAL:HG22	1.96	0.47
1:K:111:PHE:HD2	2:L:150:ALA:HB2	1.79	0.47
3:H:184:LYS:O	3:H:188:GLU:HG2	2.14	0.47
4:O:30:GLY:HA3	4:O:55:TYR:HB3	1.96	0.47
4:I:50:ILE:HG23	4:I:65:LEU:HD13	1.96	0.47
5:J:203:TYR:N	5:J:204:PRO:CD	2.63	0.47
1:K:2:ILE:HD13	1:K:27:GLN:H	1.80	0.47
2:L:86:LEU:HD22	2:L:124:VAL:HG21	1.97	0.47
5:P:181:LYS:HD2	5:P:207:CYS:HB3	1.97	0.47
1:F:117:ASP:HA	1:F:120:LEU:HD12	1.97	0.47
5:J:138:SER:HB3	5:J:141:GLN:HB2	1.96	0.47
5:J:181:LYS:CB	5:J:209:ASP:HA	2.44	0.47
3:C:12:SER:HB3	3:C:108:LYS:HE3	1.96	0.47
1:A:34:ALA:H	1:A:89:GLN:HB3	1.79	0.47
1:A:108:PRO:HB2	1:A:131:LEU:HB2	1.97	0.47
1:F:113:PHE:CD2	2:G:137:LEU:HB3	2.50	0.47
5:J:181:LYS:HB2	5:J:209:ASP:HA	1.97	0.47
2:L:47:TRP:HE1	2:L:50:VAL:CG2	2.25	0.47
5:P:96:LYS:HG3	5:P:204:PRO:HD2	1.97	0.47
5:P:203:TYR:CE2	5:P:205:ASP:HA	2.50	0.47
5:R:214:LEU:CB	5:R:216:LYS:NZ	2.78	0.47
1:F:182:GLU:HA	1:F:206:ARG:HH12	1.80	0.46
2:G:33:ALA:HB3	2:G:100:LYS:CE	2.44	0.46
2:G:129:THR:HG23	2:G:160:PRO:HD3	1.96	0.46
3:M:4:LEU:HD11	3:M:91:GLN:HB2	1.97	0.46
5:R:136:SER:O	5:R:142:ILE:HD11	2.15	0.46
2:L:39:GLN:HG3	2:L:44:GLY:O	2.16	0.46
1:A:29:ILE:HG21	1:A:90:HIS:CD2	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:113:PHE:CE2	2:B:137:LEU:HB3	2.50	0.46
5:J:176:GLN:HE21	5:J:216:LYS:NZ	2.12	0.46
4:O:165:VAL:HG22	4:O:211:VAL:HG22	1.96	0.46
1:K:43:ALA:HB2	2:L:95:TYR:CE2	2.51	0.46
3:N:116:VAL:HG22	3:N:137:LEU:HG	1.97	0.46
5:P:215:MET:HE1	5:P:217:ALA:HB2	1.98	0.46
5:E:138:SER:HB3	5:E:141:GLN:HB2	1.97	0.46
2:L:50:VAL:HG21	2:L:111:TYR:CE1	2.51	0.46
3:N:34:LEU:HA	3:N:90:GLN:O	2.15	0.46
4:O:155:VAL:HG11	4:O:163:VAL:HG21	1.98	0.46
4:Q:33:SER:HB2	4:Q:102:SER:H	1.80	0.46
5:J:113:ASP:OD1	5:J:115:ILE:HB	2.16	0.46
3:M:34:LEU:HB3	3:M:52:ALA:HB2	1.97	0.46
1:S:149:LEU:HD23	1:S:151:SER:H	1.81	0.46
4:D:49:TRP:CZ2	4:D:52:TYR:HD2	2.31	0.45
4:I:42:HIS:CG	4:I:43:PRO:HD2	2.52	0.45
2:G:38:ARG:HG3	2:G:94:TYR:CE1	2.52	0.45
2:G:39:GLN:HG3	2:G:44:GLY:O	2.16	0.45
4:I:24:VAL:HG22	4:I:78:ASN:HB3	1.97	0.45
1:K:87:TYR:CD2	2:L:45:LEU:HD12	2.51	0.45
1:K:110:VAL:O	1:K:202:LYS:HG3	2.17	0.45
4:O:197:VAL:HG11	4:O:207:TYR:CE2	2.51	0.45
2:B:129:THR:HG23	2:B:160:PRO:HD3	1.98	0.45
1:S:38:GLN:HE21	1:S:44:PRO:HD3	1.82	0.45
3:C:27:GLN:HE22	3:C:94:ARG:HD2	1.81	0.45
5:E:165:ARG:NH2	2:G:108:SER:HB2	2.32	0.45
2:G:33:ALA:HB1	2:G:51:ILE:O	2.16	0.45
3:M:129:GLY:HA2	3:M:184:LYS:HB2	1.98	0.45
1:S:5:THR:HB	1:S:24:ARG:HB2	1.98	0.45
3:C:37:TYR:OH	4:D:112:ALA:CB	2.64	0.45
3:H:34:LEU:HB3	3:H:52:ALA:HB2	1.99	0.45
5:J:128:HIS:HB3	5:J:131:ASP:OD1	2.16	0.45
3:M:137:LEU:HB2	3:M:176:LEU:HB3	1.97	0.45
4:Q:49:TRP:CZ2	4:Q:52:TYR:HD2	2.29	0.45
1:S:48:ILE:HG12	1:S:54:LEU:HG	1.98	0.45
2:B:62:ASP:HA	2:B:65:LYS:HB2	1.99	0.45
3:C:129:GLY:HA2	3:C:184:LYS:HB2	1.97	0.45
2:B:106:TYR:OH	5:P:216:LYS:HG3	2.17	0.45
3:C:37:TYR:HE1	3:C:90:GLN:CG	2.30	0.45
2:G:49:ALA:HA	2:G:60:TYR:HA	1.99	0.45
2:T:39:GLN:O	2:T:39:GLN:HG3	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:S:32:TRP:HB3	1:S:90:HIS:CD2	2.51	0.45
2:G:34:MET:HB3	2:G:79:LEU:HD22	1.98	0.45
2:G:47:TRP:HZ2	2:G:50:VAL:HB	1.82	0.45
2:B:35:HIS:CB	2:B:50:VAL:HA	2.46	0.44
2:G:36:TRP:NE1	2:G:81:LEU:HB2	2.31	0.44
1:K:38:GLN:NE2	2:L:39:GLN:HE22	2.14	0.44
4:Q:165:VAL:HG22	4:Q:211:VAL:HG22	2.00	0.44
1:S:148:ALA:O	1:S:149:LEU:HB2	2.17	0.44
2:T:16:ARG:O	2:T:86:LEU:HD12	2.17	0.44
2:T:38:ARG:HG3	2:T:94:TYR:CE1	2.52	0.44
1:A:38:GLN:NE2	1:A:44:PRO:HD3	2.26	0.44
5:J:181:LYS:HD2	5:J:209:ASP:HA	1.99	0.44
5:J:181:LYS:HD2	5:J:209:ASP:N	2.32	0.44
3:N:191:LYS:HE2	3:N:212:ARG:HH21	1.81	0.44
4:Q:8:GLY:HA3	4:Q:20:LEU:HD23	1.99	0.44
4:D:40:ARG:HH11	4:D:50:ILE:HG12	1.83	0.44
4:Q:104:CYS:HB3	5:R:134:TRP:CD1	2.53	0.44
3:H:146:LYS:HD2	3:H:198:THR:HB	1.99	0.44
5:R:129:PRO:HD3	5:R:156:TRP:CE2	2.52	0.44
4:D:35:TYR:HB2	4:D:100:LEU:HB3	2.00	0.44
4:I:73:VAL:HG23	4:I:80:PHE:HB3	2.00	0.44
5:R:129:PRO:HD3	5:R:156:TRP:CD2	2.53	0.44
4:I:98:ALA:HB1	4:I:113:PHE:HB3	1.99	0.44
3:M:150:LYS:HB2	3:M:194:ALA:HB3	2.00	0.44
5:R:181:LYS:HB2	5:R:209:ASP:HA	1.99	0.44
2:B:7:SER:HB3	2:B:21:SER:OG	2.18	0.44
5:E:181:LYS:HD2	5:E:207:CYS:HB3	2.00	0.44
1:F:48:ILE:HD12	1:F:64:GLY:HA3	2.00	0.44
4:O:30:GLY:H	4:O:36:TRP:HZ2	1.66	0.44
5:R:128:HIS:NE2	5:R:130:ALA:HB3	2.33	0.44
3:H:95:SER:HB2	5:J:157:TYR:CE1	2.52	0.44
5:R:208:LEU:HD13	5:R:211:LYS:CE	2.48	0.43
2:G:39:GLN:OE1	2:G:95:TYR:HE2	2.00	0.43
2:G:94:TYR:O	2:G:119:GLY:HA2	2.18	0.43
5:J:103:GLY:HA3	5:J:144:LEU:HD13	2.00	0.43
1:K:14:SER:H	1:K:102:LYS:HE2	1.84	0.43
1:K:186:VAL:HG22	1:K:205:ASN:ND2	2.33	0.43
3:M:151:VAL:HG13	3:M:193:TYR:CE2	2.52	0.43
4:D:40:ARG:HH12	4:D:65:LEU:CD1	2.25	0.43
2:G:52:TRP:CZ3	2:G:100:LYS:CD	3.00	0.43
4:O:203:GLY:H	2:T:13:GLN:HE22	1.65	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:36:TRP:NE1	2:B:79:LEU:HD12	2.33	0.43
1:F:49:TYR:CD1	2:G:102:TYR:HE1	2.36	0.43
4:I:29:ILE:HG23	4:I:36:TRP:NE1	2.33	0.43
3:M:191:LYS:HE2	3:M:212:ARG:HH21	1.84	0.43
2:T:47:TRP:HZ2	2:T:50:VAL:HG12	1.83	0.43
4:I:85:THR:HG22	4:I:86:SER:N	2.34	0.43
2:L:39:GLN:NE2	2:L:95:TYR:HE1	2.16	0.43
3:M:120:PRO:HB3	3:M:210:PHE:CE1	2.54	0.43
5:E:117:VAL:HG22	2:G:110:TRP:CZ2	2.54	0.43
4:I:54:ASN:HD22	4:I:58:ILE:HD13	1.83	0.43
2:G:101:THR:HG22	2:G:107:THR:HB	2.00	0.43
4:I:102:SER:HB3	4:I:110:TYR:HD2	1.84	0.43
1:F:55:GLU:O	1:F:58:VAL:HG12	2.19	0.43
5:R:181:LYS:HG2	5:R:189:ALA:HB1	1.99	0.43
5:R:208:LEU:HD22	5:R:211:LYS:HD3	2.00	0.43
3:C:34:LEU:HA	3:C:90:GLN:O	2.19	0.43
4:I:35:TYR:HB2	4:I:100:LEU:HB2	2.01	0.43
2:L:20:LEU:HD11	2:L:81:LEU:HD22	2.01	0.43
1:A:47:LEU:O	1:A:58:VAL:HG11	2.18	0.43
2:G:101:THR:HA	2:G:106:TYR:O	2.18	0.43
4:I:14:PRO:HA	4:I:87:VAL:HG23	2.01	0.43
5:R:93:THR:HG23	5:R:203:TYR:CZ	2.54	0.43
4:I:42:HIS:CD2	4:I:43:PRO:HD2	2.54	0.42
4:O:202:LEU:HB3	2:T:13:GLN:HE22	1.84	0.42
2:G:91:THR:HG23	2:G:123:THR:HG22	2.01	0.42
3:H:129:GLY:HA2	3:H:184:LYS:HB2	2.00	0.42
1:K:117:ASP:HA	1:K:120:LEU:HD12	2.01	0.42
5:R:203:TYR:N	5:R:204:PRO:HD3	2.35	0.42
1:S:117:ASP:HA	1:S:120:LEU:HD12	2.01	0.42
1:A:83:PHE:HA	1:A:99:VAL:HG23	2.01	0.42
4:D:35:TYR:HD1	4:D:35:TYR:N	2.17	0.42
1:F:107:ALA:HB2	4:O:127:ALA:HA	2.02	0.42
2:B:39:GLN:OE1	2:B:95:TYR:HE1	2.02	0.42
4:D:49:TRP:CZ2	4:D:52:TYR:CD2	3.07	0.42
1:F:2:ILE:CD1	1:F:29:ILE:HD11	2.49	0.42
2:G:181:ALA:HA	2:G:191:LEU:HB3	2.01	0.42
5:R:200:TYR:HD1	5:R:203:TYR:OH	1.94	0.42
2:T:36:TRP:HE1	2:T:79:LEU:HD22	1.84	0.42
1:F:49:TYR:CE1	2:G:102:TYR:CE1	3.08	0.42
2:G:64:VAL:HG13	2:G:68:PHE:CZ	2.54	0.42
5:J:192:PHE:O	5:J:196:MET:HG2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:O:42:HIS:HB3	4:O:45:LYS:HB2	2.01	0.42
2:T:102:TYR:CZ	2:T:103:VAL:HG12	2.54	0.42
5:E:115:ILE:HG12	2:G:102:TYR:HE2	1.84	0.42
2:G:60:TYR:HD1	2:G:68:PHE:CE1	2.38	0.42
5:J:222:TRP:CZ2	5:J:226:CYS:HB3	2.55	0.42
3:M:92:TYR:HB2	3:M:97:TYR:CE1	2.55	0.42
4:D:35:TYR:N	4:D:35:TYR:CD1	2.87	0.42
4:D:40:ARG:O	4:D:47:LEU:HD22	2.19	0.42
5:E:165:ARG:HB2	5:E:174:ILE:HG22	2.02	0.42
1:S:206:ARG:HH21	1:S:207:GLY:HA3	1.85	0.42
4:D:35:TYR:CE2	5:E:130:ALA:HB2	2.55	0.42
2:L:19:ARG:HG3	2:L:82:GLN:HA	2.02	0.42
1:A:37:GLN:HB2	1:A:47:LEU:HD11	2.02	0.42
3:C:120:PRO:HB3	3:C:210:PHE:CE1	2.55	0.42
2:G:52:TRP:HE3	2:G:109:THR:HG23	1.85	0.42
4:Q:14:PRO:HA	4:Q:87:VAL:HG23	2.02	0.42
5:E:171:GLU:CG	2:G:52:TRP:CZ3	3.02	0.41
1:F:34:ALA:N	1:F:89:GLN:HB3	2.33	0.41
1:S:83:PHE:HA	1:S:99:VAL:HG23	2.02	0.41
1:A:43:ALA:HB2	2:B:95:TYR:CE2	2.55	0.41
2:B:79:LEU:HD22	2:B:79:LEU:HA	1.95	0.41
3:C:33:TYR:HD1	3:C:92:TYR:HB3	1.84	0.41
4:D:50:ILE:HG23	4:D:65:LEU:HD13	2.03	0.41
5:E:226:CYS:HA	5:E:227:PRO:HD3	1.94	0.41
2:G:64:VAL:CG2	2:G:68:PHE:HE2	2.32	0.41
5:J:115:ILE:CG2	2:L:102:TYR:CE2	2.95	0.41
1:K:13:ALA:HA	1:K:102:LYS:HG3	2.01	0.41
1:K:38:GLN:NE2	1:K:44:PRO:HD3	2.33	0.41
2:L:127:ALA:HB3	2:L:159:PHE:CZ	2.54	0.41
4:O:72:SER:H	4:O:81:SER:HB2	1.85	0.41
5:R:216:LYS:HD3	2:T:106:TYR:CZ	2.56	0.41
1:A:101:ILE:HG22	1:A:102:LYS:N	2.36	0.41
3:C:55:ARG:HD3	3:C:61:ASP:HA	2.01	0.41
5:E:92:CYS:HB3	5:E:100:TYR:HB2	2.02	0.41
2:G:166:SER:HB3	2:G:210:ASN:HB2	2.01	0.41
2:L:184:GLN:HG2	2:L:188:LEU:O	2.20	0.41
3:M:41:PRO:HG3	3:M:84:PHE:HE2	1.85	0.41
3:M:184:LYS:O	3:M:188:GLU:HG2	2.19	0.41
1:A:130:LEU:HD22	2:B:194:VAL:HG21	2.02	0.41
4:D:32:SER:O	4:D:35:TYR:HE1	2.02	0.41
5:E:208:LEU:HB2	5:E:211:LYS:HB3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:32:TRP:HE3	1:K:90:HIS:HE1	1.67	0.41
4:O:49:TRP:HZ2	4:O:52:TYR:CD2	2.39	0.41
4:Q:110:TYR:CZ	5:R:134:TRP:HB3	2.50	0.41
4:Q:110:TYR:OH	5:R:134:TRP:HE3	2.03	0.41
3:C:33:TYR:N	3:C:33:TYR:CD2	2.88	0.41
1:F:49:TYR:CE1	2:G:102:TYR:HE1	2.38	0.41
5:J:182:THR:HG21	7:V:2:NAG:H82	2.03	0.41
5:P:155:ASP:O	5:P:159:ASP:HB2	2.20	0.41
5:R:88:LEU:HD23	5:R:88:LEU:HA	1.94	0.41
1:S:206:ARG:NH2	1:S:207:GLY:HA3	2.35	0.41
4:I:18:LEU:HD22	4:I:122:VAL:HG11	2.02	0.41
2:L:47:TRP:CE2	2:L:50:VAL:HG23	2.56	0.41
4:O:14:PRO:HA	4:O:87:VAL:HG23	2.02	0.41
5:R:155:ASP:O	5:R:159:ASP:HB2	2.21	0.41
1:A:149:LEU:HD23	1:A:174:LEU:HD11	1.99	0.41
1:K:32:TRP:HB3	1:K:90:HIS:ND1	2.35	0.41
3:M:12:SER:HB3	3:M:108:LYS:HE3	2.01	0.41
5:P:208:LEU:HB2	5:P:211:LYS:HB3	2.02	0.41
3:C:37:TYR:HE1	3:C:90:GLN:HG2	1.86	0.41
3:C:137:LEU:HD13	3:C:176:LEU:HB3	2.03	0.41
3:H:41:PRO:HG3	3:H:84:PHE:HE2	1.86	0.41
4:I:104:CYS:HB3	4:I:109:CYS:HA	2.03	0.41
5:J:165:ARG:HH21	2:L:108:SER:HB2	1.86	0.41
1:K:34:ALA:HB2	2:L:112:TYR:CD1	2.56	0.41
3:M:34:LEU:HD12	3:M:90:GLN:O	2.21	0.41
4:O:51:GLY:HA3	4:O:61:TYR:HD1	1.86	0.41
5:R:201:ARG:HA	5:R:201:ARG:HD3	1.86	0.41
2:T:64:VAL:HG22	2:T:68:PHE:HD2	1.85	0.41
3:C:81:PRO:HA	3:C:107:ILE:HG21	2.03	0.41
5:E:171:GLU:HG3	2:G:52:TRP:CE3	2.56	0.41
4:I:33:SER:O	4:I:101:THR:HA	2.21	0.41
1:S:62:PHE:HD1	1:S:75:ILE:HG12	1.86	0.41
5:J:128:HIS:CD2	5:J:130:ALA:HB3	2.55	0.40
2:L:34:MET:HB3	2:L:79:LEU:HD22	2.02	0.40
2:L:110:TRP:CE3	2:L:112:TYR:CE2	3.09	0.40
3:M:55:ARG:HD3	3:M:61:ASP:HA	2.02	0.40
2:T:183:LEU:HD12	2:T:189:TYR:CZ	2.57	0.40
3:H:120:PRO:HB3	3:H:210:PHE:CE1	2.55	0.40
5:P:173:PHE:O	5:P:219:PRO:HD2	2.21	0.40
4:Q:56:ARG:HG2	5:R:143:TRP:CE2	2.56	0.40
3:C:184:LYS:O	3:C:188:GLU:HG2	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:181:LYS:HB2	5:E:209:ASP:HA	2.03	0.40
4:I:102:SER:HB2	5:J:133:SER:CB	2.52	0.40
3:M:67:GLY:HA3	3:M:72:PHE:HA	2.03	0.40
3:N:81:PRO:HA	3:N:107:ILE:HG21	2.04	0.40
4:Q:51:GLY:HA3	4:Q:61:TYR:HD1	1.87	0.40
3:C:41:PRO:HG3	3:C:84:PHE:HE2	1.87	0.40
1:K:14:SER:HB2	1:K:102:LYS:HB2	2.04	0.40
4:Q:52:TYR:CZ	4:Q:60:HIS:HB3	2.57	0.40
1:S:32:TRP:HB3	1:S:90:HIS:HD2	1.87	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	204/206 (99%)	175 (86%)	23 (11%)	6 (3%)	4	32
1	F	204/206 (99%)	172 (84%)	24 (12%)	8 (4%)	3	26
1	K	204/206 (99%)	176 (86%)	22 (11%)	6 (3%)	4	32
1	S	204/206 (99%)	172 (84%)	24 (12%)	8 (4%)	3	26
2	B	224/226 (99%)	183 (82%)	35 (16%)	6 (3%)	5	34
2	G	224/226 (99%)	186 (83%)	28 (12%)	10 (4%)	2	24
2	L	224/226 (99%)	187 (84%)	29 (13%)	8 (4%)	3	28
2	T	224/226 (99%)	189 (84%)	28 (12%)	7 (3%)	4	31
3	C	211/213 (99%)	192 (91%)	14 (7%)	5 (2%)	6	36
3	H	211/213 (99%)	193 (92%)	13 (6%)	5 (2%)	6	36
3	M	211/213 (99%)	195 (92%)	12 (6%)	4 (2%)	8	40
3	N	209/213 (98%)	191 (91%)	15 (7%)	3 (1%)	11	46
4	D	223/225 (99%)	196 (88%)	24 (11%)	3 (1%)	12	48

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	I	223/225 (99%)	199 (89%)	18 (8%)	6 (3%)	5	34
4	O	223/225 (99%)	201 (90%)	18 (8%)	4 (2%)	8	41
4	Q	223/225 (99%)	198 (89%)	20 (9%)	5 (2%)	6	37
5	E	140/142 (99%)	125 (89%)	13 (9%)	2 (1%)	11	46
5	J	139/142 (98%)	114 (82%)	23 (16%)	2 (1%)	11	46
5	P	140/142 (99%)	125 (89%)	13 (9%)	2 (1%)	11	46
5	R	140/142 (99%)	118 (84%)	17 (12%)	5 (4%)	3	28
All	All	4005/4048 (99%)	3487 (87%)	413 (10%)	105 (3%)	5	34

All (105) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	149	LEU
2	B	103	VAL
2	B	104	SER
2	B	109	THR
3	C	32	SER
3	C	77	SER
3	C	139	ASN
1	F	149	LEU
2	G	65	LYS
3	H	77	SER
3	H	139	ASN
4	I	202	LEU
5	J	203	TYR
1	K	149	LEU
2	L	65	LYS
2	L	102	TYR
3	M	139	ASN
4	O	101	THR
5	R	201	ARG
1	S	91	ARG
2	T	103	VAL
2	T	108	SER
2	T	109	THR
1	A	133	ASN
1	A	148	ALA
1	A	206	ARG
2	B	65	LYS
2	B	68	PHE

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Mol	Chain	Res	Type
3	C	144	GLU
1	F	148	ALA
1	F	206	ARG
2	G	54	ASP
2	G	99	ASP
2	G	103	VAL
2	G	104	SER
2	G	109	THR
3	H	91	GLN
3	H	144	GLU
4	I	29	ILE
4	I	110	TYR
1	K	133	ASN
1	K	148	ALA
2	L	104	SER
2	L	105	GLY
3	M	77	SER
3	N	77	SER
3	N	139	ASN
3	N	144	GLU
1	S	133	ASN
1	S	148	ALA
1	S	149	LEU
2	T	56	SER
2	T	64	VAL
1	A	147	ASN
3	C	95	SER
4	D	31	GLY
4	D	157	ASP
5	E	96	LYS
1	F	90	HIS
1	F	133	ASN
2	G	56	SER
2	G	68	PHE
2	G	188	LEU
3	H	95	SER
4	I	101	THR
1	K	3	GLN
2	L	99	ASP
2	L	188	LEU
3	M	31	SER
3	M	144	GLU

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Mol	Chain	Res	Type
4	O	46	GLY
5	P	96	LYS
4	Q	101	THR
5	R	89	PRO
1	S	28	SER
1	S	147	ASN
2	T	186	SER
1	A	51	ALA
5	E	95	ASN
1	F	3	GLN
1	F	51	ALA
4	I	157	ASP
1	K	147	ASN
4	O	157	ASP
5	P	95	ASN
4	Q	157	ASP
5	R	96	LYS
5	R	167	ARG
2	T	110	TRP
2	B	64	VAL
2	G	64	VAL
1	K	51	ALA
4	Q	29	ILE
5	R	95	ASN
1	S	51	ALA
1	S	206	ARG
1	F	147	ASN
5	J	120	PRO
4	Q	162	PRO
2	L	103	VAL
4	Q	31	GLY
4	I	162	PRO
2	L	64	VAL
4	D	162	PRO
4	O	162	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	181/181 (100%)	174 (96%)	7 (4%)	32	58
1	F	181/181 (100%)	177 (98%)	4 (2%)	52	71
1	K	181/181 (100%)	170 (94%)	11 (6%)	18	47
1	S	181/181 (100%)	168 (93%)	13 (7%)	14	42
2	B	190/190 (100%)	184 (97%)	6 (3%)	39	62
2	G	190/190 (100%)	184 (97%)	6 (3%)	39	62
2	L	190/190 (100%)	185 (97%)	5 (3%)	46	67
2	T	190/190 (100%)	176 (93%)	14 (7%)	13	41
3	C	182/182 (100%)	176 (97%)	6 (3%)	38	62
3	H	182/182 (100%)	176 (97%)	6 (3%)	38	62
3	M	182/182 (100%)	176 (97%)	6 (3%)	38	62
3	N	181/182 (100%)	177 (98%)	4 (2%)	52	71
4	D	189/189 (100%)	180 (95%)	9 (5%)	25	53
4	I	189/189 (100%)	185 (98%)	4 (2%)	53	72
4	O	189/189 (100%)	186 (98%)	3 (2%)	62	79
4	Q	189/189 (100%)	176 (93%)	13 (7%)	15	43
5	E	129/129 (100%)	125 (97%)	4 (3%)	40	63
5	J	128/129 (99%)	123 (96%)	5 (4%)	32	58
5	P	129/129 (100%)	122 (95%)	7 (5%)	22	50
5	R	129/129 (100%)	120 (93%)	9 (7%)	15	43
All	All	3482/3484 (100%)	3340 (96%)	142 (4%)	30	57

All (142) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	LEU
1	A	17	ASP
1	A	26	SER
1	A	33	LEU
1	A	85	THR
1	A	142	GLN
1	A	171	SER
2	B	56	SER
2	B	67	ARG

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Mol	Chain	Res	Type
2	B	79	LEU
2	B	121	LEU
2	B	172	LEU
2	B	225	GLU
3	C	33	TYR
3	C	61	ASP
3	C	71	ASP
3	C	90	GLN
3	C	198	THR
3	C	207	THR
4	D	20	LEU
4	D	35	TYR
4	D	42	HIS
4	D	68	ARG
4	D	99	ARG
4	D	109	CYS
4	D	110	TYR
4	D	151	LEU
4	D	185	SER
5	E	127	GLN
5	E	128	HIS
5	E	131	ASP
5	E	139	ASP
1	F	2	ILE
1	F	11	LEU
1	F	33	LEU
1	F	171	SER
2	G	50	VAL
2	G	51	ILE
2	G	72	ARG
2	G	109	THR
2	G	172	LEU
2	G	225	GLU
3	H	33	TYR
3	H	61	ASP
3	H	71	ASP
3	H	90	GLN
3	H	198	THR
3	H	202	LEU
4	I	55	TYR
4	I	109	CYS
4	I	151	LEU

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Mol	Chain	Res	Type
4	I	185	SER
5	J	99	LEU
5	J	166	ASN
5	J	201	ARG
5	J	207	CYS
5	J	209	ASP
1	K	2	ILE
1	K	32	TRP
1	K	33	LEU
1	K	49	TYR
1	K	70	GLU
1	K	101	ILE
1	K	142	GLN
1	K	149	LEU
1	K	150	GLN
1	K	171	SER
1	K	206	ARG
2	L	20	LEU
2	L	102	TYR
2	L	113	PHE
2	L	118	GLN
2	L	172	LEU
3	M	61	ASP
3	M	71	ASP
3	M	90	GLN
3	M	95	SER
3	M	198	THR
3	M	207	THR
3	N	55	ARG
3	N	61	ASP
3	N	71	ASP
3	N	198	THR
4	O	28	SER
4	O	42	HIS
4	O	185	SER
5	P	122	TYR
5	P	124	VAL
5	P	134	TRP
5	P	139	ASP
5	P	197	HIS
5	P	215	MET
5	P	224	LEU

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Mol	Chain	Res	Type
4	Q	42	HIS
4	Q	91	ASP
4	Q	92	THR
4	Q	100	LEU
4	Q	101	THR
4	Q	110	TYR
4	Q	111	GLN
4	Q	113	PHE
4	Q	118	GLN
4	Q	142	LYS
4	Q	177	HIS
4	Q	183	LEU
4	Q	185	SER
5	R	127	GLN
5	R	139	ASP
5	R	165	ARG
5	R	166	ASN
5	R	170	THR
5	R	199	LEU
5	R	201	ARG
5	R	202	GLU
5	R	224	LEU
1	S	32	TRP
1	S	33	LEU
1	S	81	ASP
1	S	98	LYS
1	S	101	ILE
1	S	104	THR
1	S	131	LEU
1	S	149	LEU
1	S	150	GLN
1	S	167	THR
1	S	171	SER
1	S	205	ASN
1	S	206	ARG
2	T	16	ARG
2	T	39	GLN
2	T	62	ASP
2	T	68	PHE
2	T	79	LEU
2	T	82	GLN
2	T	87	ARG

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Mol	Chain	Res	Type
2	T	89	GLU
2	T	102	TYR
2	T	112	TYR
2	T	118	GLN
2	T	192	SER
2	T	202	LEU
2	T	225	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	38	GLN
1	A	155	GLN
1	A	184	HIS
2	B	57	ASN
3	C	27	GLN
3	C	91	GLN
5	E	146	GLN
5	E	150	ASN
1	F	38	GLN
1	F	89	GLN
1	F	90	HIS
1	F	205	ASN
4	I	212	ASN
5	J	95	ASN
5	J	154	HIS
5	J	166	ASN
5	J	176	GLN
1	K	38	GLN
1	K	161	GLN
1	K	205	ASN
2	L	39	GLN
2	L	59	ASN
5	P	128	HIS
5	P	146	GLN
4	Q	54	ASN
4	Q	108	ASN
4	Q	111	GLN
4	Q	118	GLN
4	Q	168	ASN
5	R	146	GLN
5	R	176	GLN

5.3.3 RNA [i](#)

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](#)

11 monosaccharides 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
6	NAG	U	1	5,6	14,14,15	0.63	0	17,19,21	1.80	3 (17%)
6	NAG	U	2	6	14,14,15	0.83	0	17,19,21	1.12	2 (11%)
6	BMA	U	3	6	11,11,12	0.46	0	15,15,17	1.03	1 (6%)
7	NAG	V	1	5,7	14,14,15	0.54	0	17,19,21	0.97	1 (5%)
7	NAG	V	2	7	14,14,15	0.60	0	17,19,21	1.12	1 (5%)
6	NAG	W	1	5,6	14,14,15	0.48	0	17,19,21	0.86	1 (5%)
6	NAG	W	2	6	14,14,15	0.43	0	17,19,21	1.00	1 (5%)
6	BMA	W	3	6	11,11,12	0.51	0	15,15,17	0.79	0
6	NAG	X	1	5,6	14,14,15	0.43	0	17,19,21	0.84	1 (5%)
6	NAG	X	2	6	14,14,15	0.48	0	17,19,21	0.77	1 (5%)
6	BMA	X	3	6	11,11,12	0.51	0	15,15,17	0.80	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
6	NAG	U	1	5,6	-	3/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	U	2	6	-	4/6/23/26	0/1/1/1
6	BMA	U	3	6	-	1/2/19/22	0/1/1/1
7	NAG	V	1	5,7	-	4/6/23/26	0/1/1/1
7	NAG	V	2	7	-	3/6/23/26	0/1/1/1
6	NAG	W	1	5,6	-	4/6/23/26	0/1/1/1
6	NAG	W	2	6	-	4/6/23/26	0/1/1/1
6	BMA	W	3	6	-	0/2/19/22	0/1/1/1
6	NAG	X	1	5,6	-	1/6/23/26	0/1/1/1
6	NAG	X	2	6	-	4/6/23/26	0/1/1/1
6	BMA	X	3	6	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	U	1	NAG	C1-C2-N2	-5.05	101.87	110.49
6	U	1	NAG	C1-O5-C5	-3.52	107.42	112.19
6	W	2	NAG	O5-C1-C2	3.04	116.09	111.29
6	U	3	BMA	C1-O5-C5	3.00	116.25	112.19
7	V	2	NAG	C1-O5-C5	2.97	116.22	112.19
6	U	2	NAG	C2-N2-C7	2.90	127.03	122.90
6	U	1	NAG	C2-N2-C7	2.85	126.97	122.90
7	V	1	NAG	C2-N2-C7	2.50	126.46	122.90
6	X	2	NAG	O5-C1-C2	2.45	115.16	111.29
6	X	1	NAG	C1-C2-N2	2.20	114.25	110.49
6	W	1	NAG	C2-N2-C7	2.18	126.01	122.90
6	U	2	NAG	O5-C1-C2	-2.09	108.00	111.29

There are no chirality outliers.

All (28) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	U	1	NAG	C3-C2-N2-C7
6	U	1	NAG	C8-C7-N2-C2
6	U	1	NAG	O7-C7-N2-C2
6	U	2	NAG	C8-C7-N2-C2
6	U	2	NAG	O7-C7-N2-C2
7	V	1	NAG	C8-C7-N2-C2
7	V	1	NAG	O7-C7-N2-C2
7	V	1	NAG	C1-C2-N2-C7

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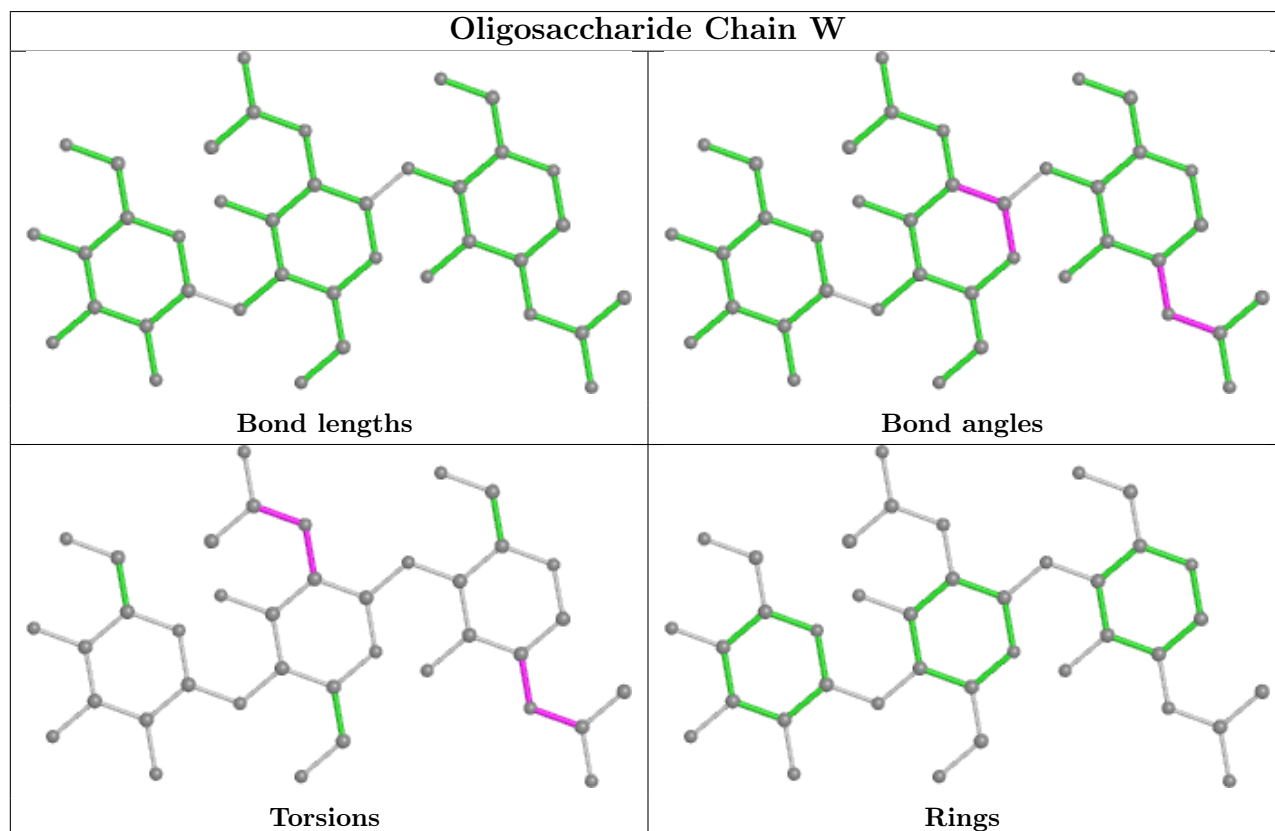
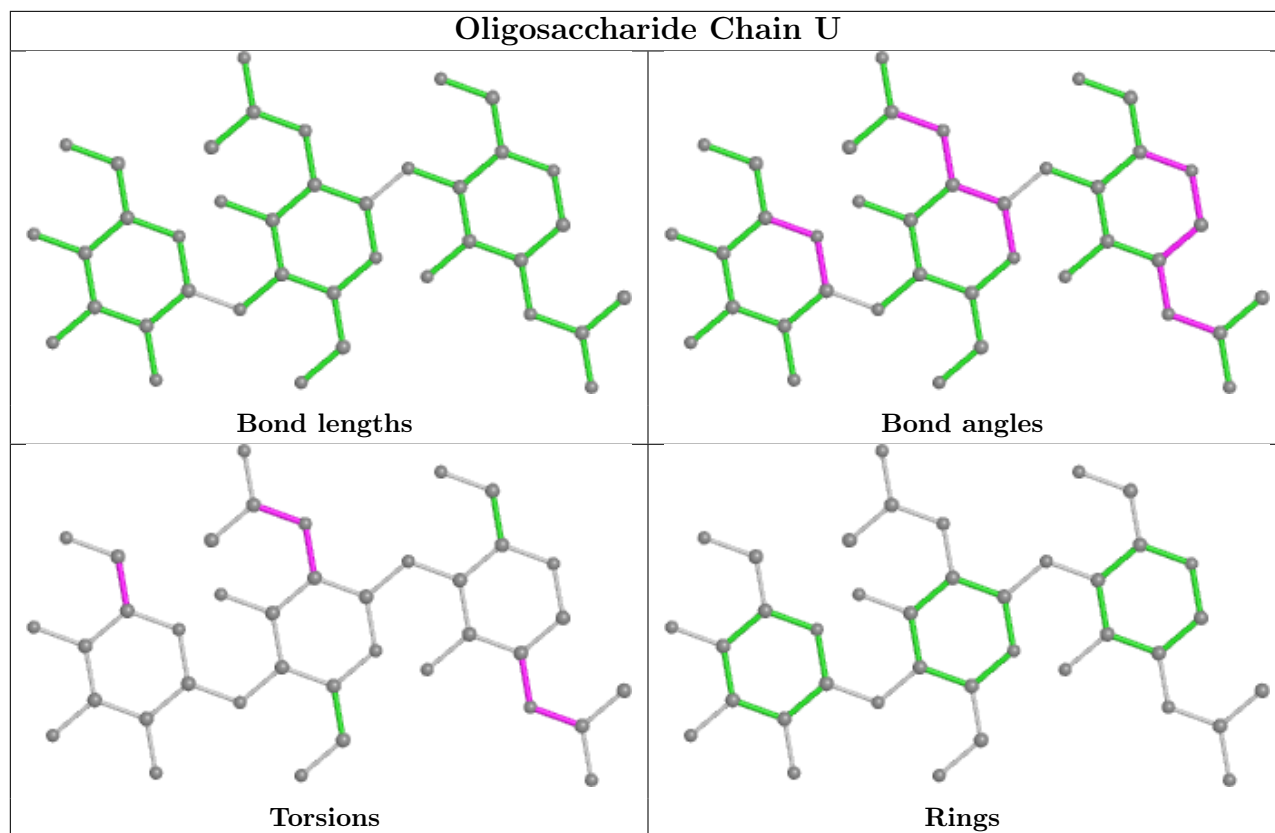
Mol	Chain	Res	Type	Atoms
6	X	2	NAG	C8-C7-N2-C2
6	X	2	NAG	O7-C7-N2-C2
7	V	2	NAG	C8-C7-N2-C2
7	V	2	NAG	O7-C7-N2-C2
6	W	2	NAG	C8-C7-N2-C2
6	W	2	NAG	C1-C2-N2-C7
6	X	2	NAG	C1-C2-N2-C7
6	W	2	NAG	O7-C7-N2-C2
6	X	1	NAG	C1-C2-N2-C7
6	W	1	NAG	O7-C7-N2-C2
7	V	2	NAG	O5-C5-C6-O6
6	W	1	NAG	C1-C2-N2-C7
6	U	3	BMA	O5-C5-C6-O6
6	U	2	NAG	C3-C2-N2-C7
6	W	1	NAG	C8-C7-N2-C2
6	U	2	NAG	C1-C2-N2-C7
6	W	2	NAG	C3-C2-N2-C7
6	W	1	NAG	C3-C2-N2-C7
6	X	2	NAG	C3-C2-N2-C7
7	V	1	NAG	C3-C2-N2-C7

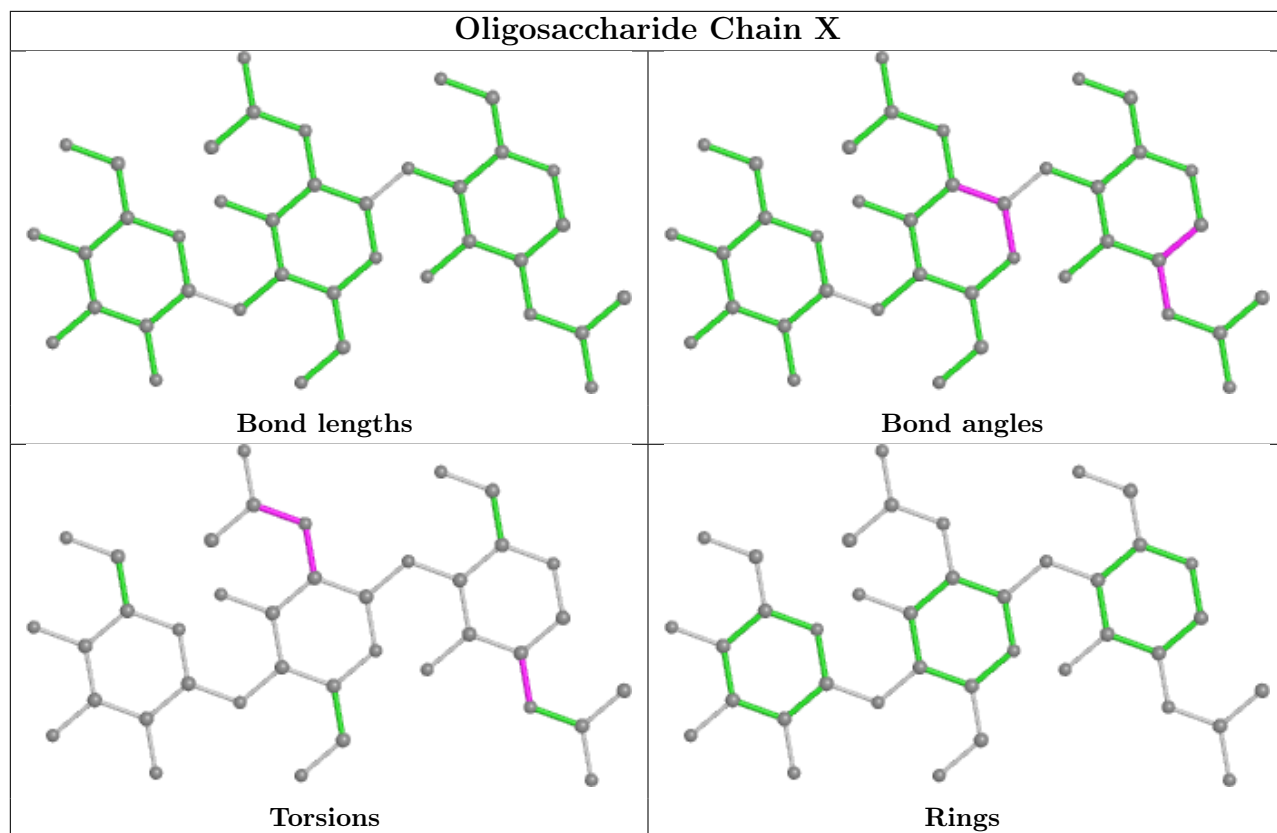
There are no ring outliers.

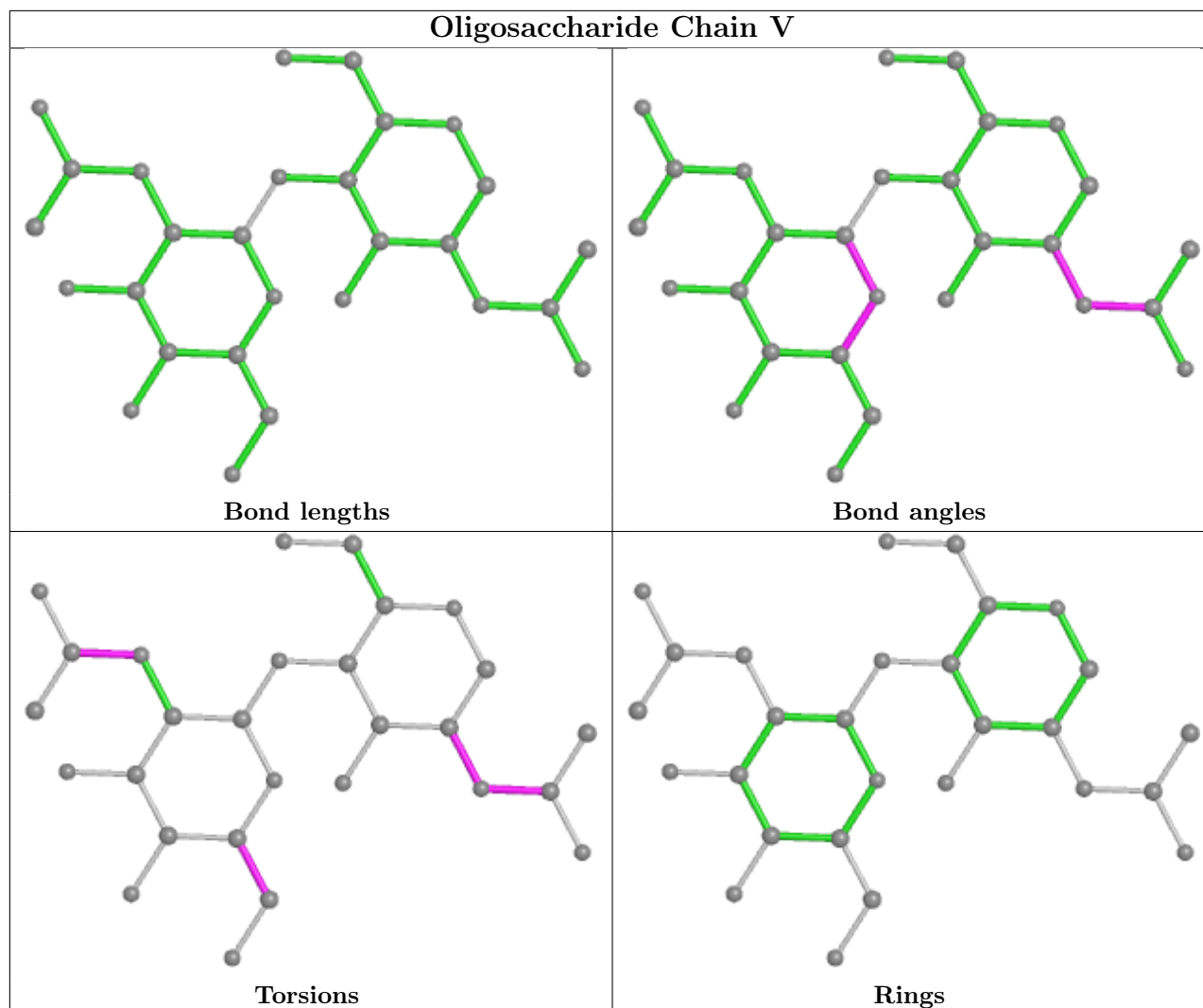
2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	X	2	NAG	2	0
7	V	2	NAG	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.







5.6 Ligand geometry [i](#)

1 ligand is 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	$\# Z > 2$
8	NAG	P	301	5	14,14,15	0.47	0	17,19,21	1.07	2 (11%)

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
8	NAG	P	301	5	-	1/6/23/26	0/1/1/1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	P	301	NAG	C2-N2-C7	2.89	127.01	122.90
8	P	301	NAG	C1-C2-N2	2.21	114.26	110.49

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	P	301	NAG	C3-C2-N2-C7

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.

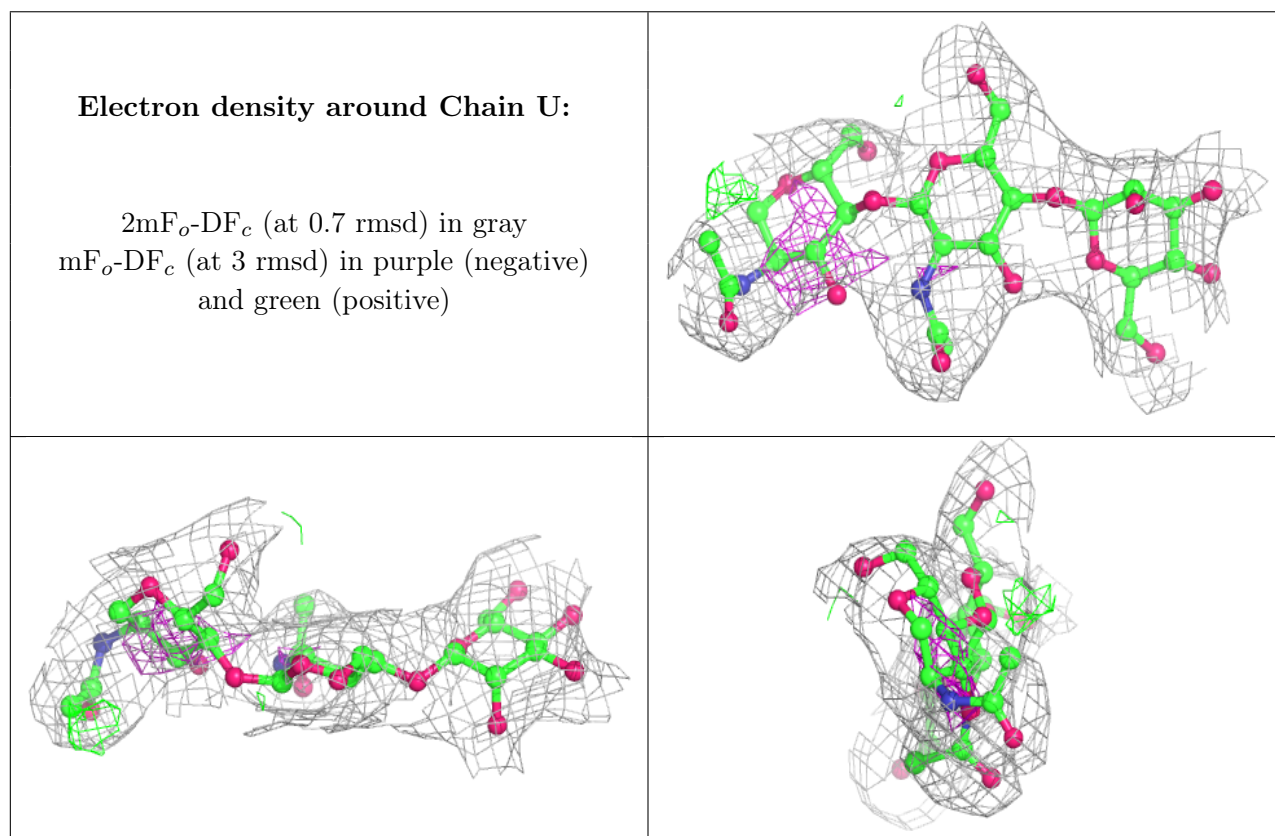
6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates [i](#)

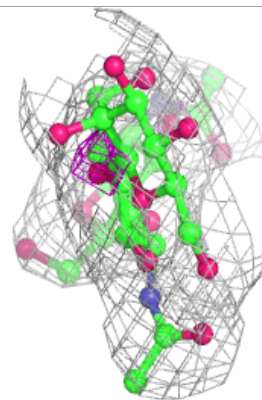
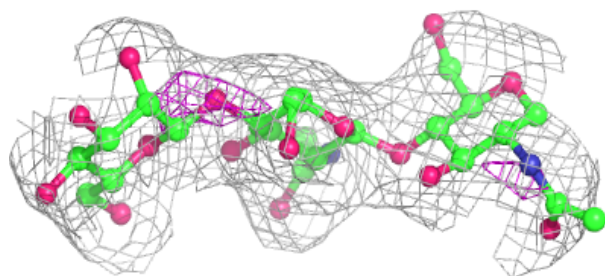
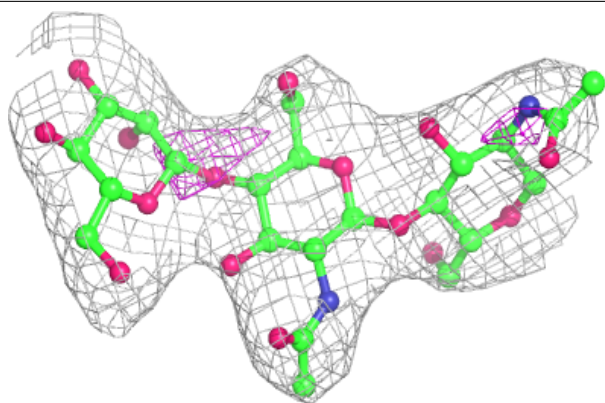
Unable to reproduce the depositors R factor - this section is therefore empty.

The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

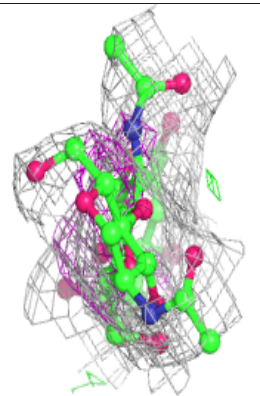
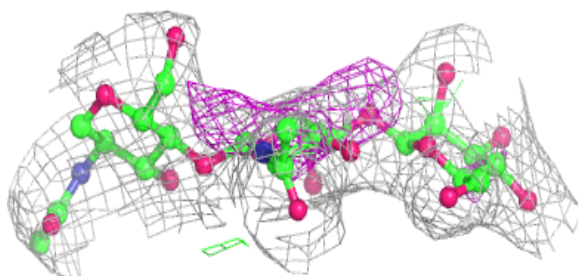
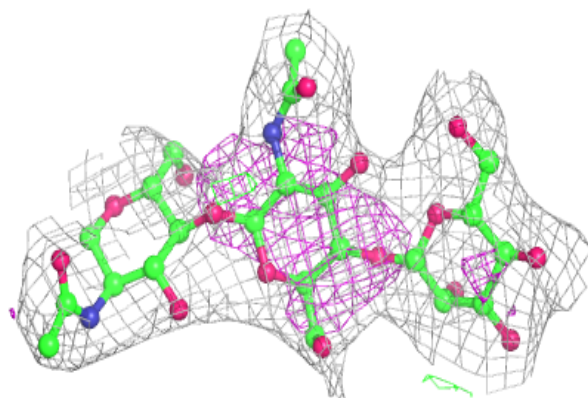


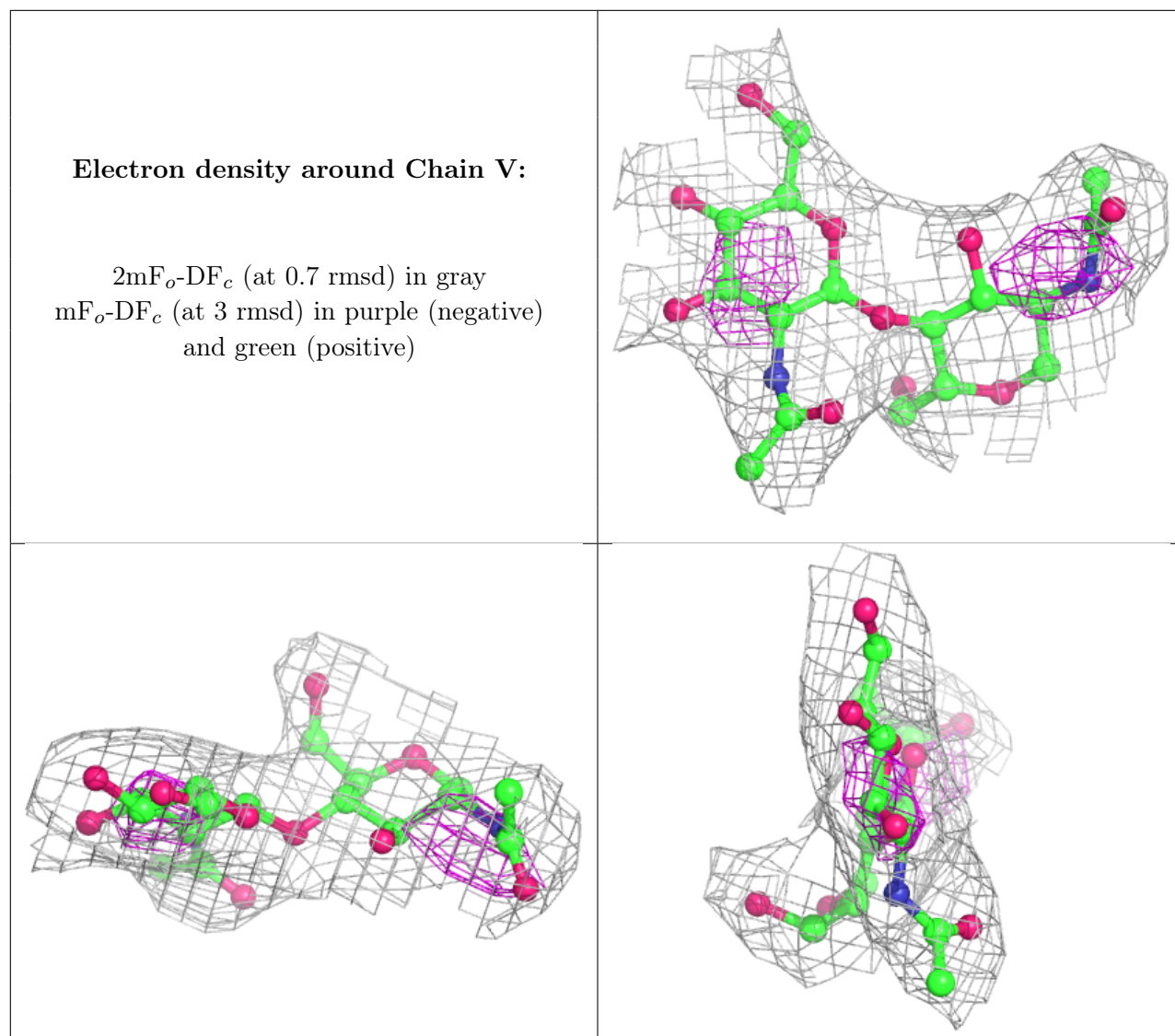
Electron density around Chain W:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around Chain X:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.4 Ligands [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.

6.5 Other polymers [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.