



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2018 – 07:16 pm GMT

PDB ID : 4ADF
Title : CRYSTAL STRUCTURE OF THE HUMAN COLONY-STIMULATING FACTOR 1 (hCSF-1) CYTOKINE IN COMPLEX WITH THE VIRAL RECEPTOR BARF1
Authors : Elegheert, J.; Bracke, N.; Savvides, S.N.
Deposited on : 2011-12-23
Resolution : 4.40 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7.3 (157068), CSD as539be (2018)
Xtriage (Phenix) : 1.13
EDS : trunk30967
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)
Refmac : 5.8.0158
CCP4 : 7.0 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk30967

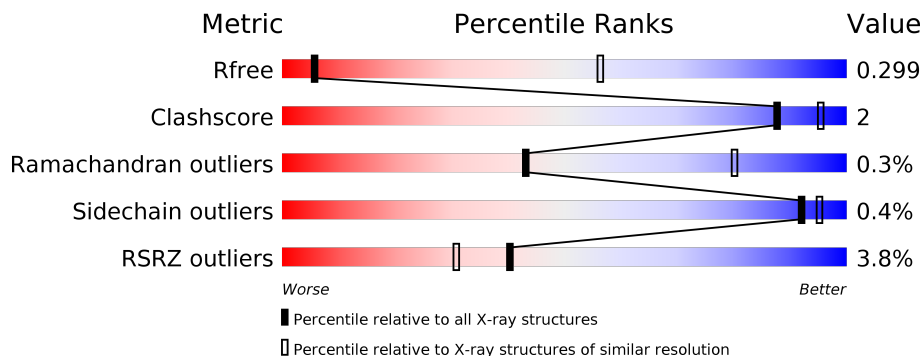
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 4.40 Å.

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





















Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	111664	1058 (5.08-3.70)
Clashscore	122126	1005 (5.08-3.72)
Ramachandran outliers	120053	1078 (5.08-3.70)
Sidechain outliers	120020	1061 (5.08-3.70)
RSRZ outliers	108989	1000 (5.12-3.62)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	208	
1	B	208	
1	C	208	
1	D	208	
1	E	208	
1	F	208	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	M	208	
1	N	208	
1	O	208	
1	P	208	
1	Q	208	
1	R	208	
2	G	153	
2	H	153	
2	I	153	
2	J	153	
2	K	153	
2	L	153	
2	S	153	
2	T	153	
2	U	153	
2	V	153	
2	W	153	
2	X	153	

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
5	MAN	C	303	-	-	-	X
5	MAN	C	304	-	-	-	X
5	MAN	C	305	-	-	-	X

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 32413 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 SECRETED PROTEIN BARF1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	188	1494	965	255	267	7	0	0	0
1	B	189	1498	967	255	269	7	0	0	0
1	C	186	1481	956	253	265	7	0	0	0
1	D	187	1487	960	253	267	7	0	0	0
1	E	187	1485	959	253	266	7	0	0	0
1	F	189	1495	965	255	268	7	0	0	0
1	M	191	1507	973	257	270	7	0	0	0
1	N	191	1517	978	259	273	7	0	0	0
1	O	186	1476	954	250	265	7	0	0	0
1	P	189	1502	970	256	269	7	0	0	0
1	Q	185	1481	958	252	264	7	0	0	0
1	R	186	1483	958	252	266	7	0	0	0

There are 96 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	222	LYS	-	expression tag	UNP P0CW72
A	223	HIS	-	expression tag	UNP P0CW72
A	224	HIS	-	expression tag	UNP P0CW72
A	225	HIS	-	expression tag	UNP P0CW72
A	226	HIS	-	expression tag	UNP P0CW72

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	227	HIS	-	expression tag	UNP P0CW72
A	228	HIS	-	expression tag	UNP P0CW72
A	169	SER	THR	engineered mutation	UNP P0CW72
B	222	LYS	-	expression tag	UNP P0CW72
B	223	HIS	-	expression tag	UNP P0CW72
B	224	HIS	-	expression tag	UNP P0CW72
B	225	HIS	-	expression tag	UNP P0CW72
B	226	HIS	-	expression tag	UNP P0CW72
B	227	HIS	-	expression tag	UNP P0CW72
B	228	HIS	-	expression tag	UNP P0CW72
B	169	SER	THR	engineered mutation	UNP P0CW72
C	222	LYS	-	expression tag	UNP P0CW72
C	223	HIS	-	expression tag	UNP P0CW72
C	224	HIS	-	expression tag	UNP P0CW72
C	225	HIS	-	expression tag	UNP P0CW72
C	226	HIS	-	expression tag	UNP P0CW72
C	227	HIS	-	expression tag	UNP P0CW72
C	228	HIS	-	expression tag	UNP P0CW72
C	169	SER	THR	engineered mutation	UNP P0CW72
D	222	LYS	-	expression tag	UNP P0CW72
D	223	HIS	-	expression tag	UNP P0CW72
D	224	HIS	-	expression tag	UNP P0CW72
D	225	HIS	-	expression tag	UNP P0CW72
D	226	HIS	-	expression tag	UNP P0CW72
D	227	HIS	-	expression tag	UNP P0CW72
D	228	HIS	-	expression tag	UNP P0CW72
D	169	SER	THR	engineered mutation	UNP P0CW72
E	222	LYS	-	expression tag	UNP P0CW72
E	223	HIS	-	expression tag	UNP P0CW72
E	224	HIS	-	expression tag	UNP P0CW72
E	225	HIS	-	expression tag	UNP P0CW72
E	226	HIS	-	expression tag	UNP P0CW72
E	227	HIS	-	expression tag	UNP P0CW72
E	228	HIS	-	expression tag	UNP P0CW72
E	169	SER	THR	engineered mutation	UNP P0CW72
F	222	LYS	-	expression tag	UNP P0CW72
F	223	HIS	-	expression tag	UNP P0CW72
F	224	HIS	-	expression tag	UNP P0CW72
F	225	HIS	-	expression tag	UNP P0CW72
F	226	HIS	-	expression tag	UNP P0CW72
F	227	HIS	-	expression tag	UNP P0CW72
F	228	HIS	-	expression tag	UNP P0CW72

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
F	169	SER	THR	engineered mutation	UNP P0CW72
M	222	LYS	-	expression tag	UNP P0CW72
M	223	HIS	-	expression tag	UNP P0CW72
M	224	HIS	-	expression tag	UNP P0CW72
M	225	HIS	-	expression tag	UNP P0CW72
M	226	HIS	-	expression tag	UNP P0CW72
M	227	HIS	-	expression tag	UNP P0CW72
M	228	HIS	-	expression tag	UNP P0CW72
M	169	SER	THR	engineered mutation	UNP P0CW72
N	222	LYS	-	expression tag	UNP P0CW72
N	223	HIS	-	expression tag	UNP P0CW72
N	224	HIS	-	expression tag	UNP P0CW72
N	225	HIS	-	expression tag	UNP P0CW72
N	226	HIS	-	expression tag	UNP P0CW72
N	227	HIS	-	expression tag	UNP P0CW72
N	228	HIS	-	expression tag	UNP P0CW72
N	169	SER	THR	engineered mutation	UNP P0CW72
O	222	LYS	-	expression tag	UNP P0CW72
O	223	HIS	-	expression tag	UNP P0CW72
O	224	HIS	-	expression tag	UNP P0CW72
O	225	HIS	-	expression tag	UNP P0CW72
O	226	HIS	-	expression tag	UNP P0CW72
O	227	HIS	-	expression tag	UNP P0CW72
O	228	HIS	-	expression tag	UNP P0CW72
O	169	SER	THR	engineered mutation	UNP P0CW72
P	222	LYS	-	expression tag	UNP P0CW72
P	223	HIS	-	expression tag	UNP P0CW72
P	224	HIS	-	expression tag	UNP P0CW72
P	225	HIS	-	expression tag	UNP P0CW72
P	226	HIS	-	expression tag	UNP P0CW72
P	227	HIS	-	expression tag	UNP P0CW72
P	228	HIS	-	expression tag	UNP P0CW72
P	169	SER	THR	engineered mutation	UNP P0CW72
Q	222	LYS	-	expression tag	UNP P0CW72
Q	223	HIS	-	expression tag	UNP P0CW72
Q	224	HIS	-	expression tag	UNP P0CW72
Q	225	HIS	-	expression tag	UNP P0CW72
Q	226	HIS	-	expression tag	UNP P0CW72
Q	227	HIS	-	expression tag	UNP P0CW72
Q	228	HIS	-	expression tag	UNP P0CW72
Q	169	SER	THR	engineered mutation	UNP P0CW72
R	222	LYS	-	expression tag	UNP P0CW72

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
R	223	HIS	-	expression tag	UNP P0CW72
R	224	HIS	-	expression tag	UNP P0CW72
R	225	HIS	-	expression tag	UNP P0CW72
R	226	HIS	-	expression tag	UNP P0CW72
R	227	HIS	-	expression tag	UNP P0CW72
R	228	HIS	-	expression tag	UNP P0CW72
R	169	SER	THR	engineered mutation	UNP P0CW72

- Molecule 2 is a protein called MACROPHAGE COLONY-STIMULATING FACTOR 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	G	145	1161	729	193	228	11	0	0	0
2	H	142	1145	722	192	220	11	0	0	0
2	I	137	1097	690	182	214	11	0	0	0
2	J	142	1149	723	192	223	11	0	0	0
2	K	143	1157	726	193	227	11	0	0	0
2	L	135	1089	686	183	209	11	0	0	0
2	S	144	1157	726	190	230	11	0	0	0
2	T	142	1148	723	191	223	11	0	0	0
2	U	144	1159	727	194	227	11	0	0	0
2	V	141	1140	719	192	218	11	0	0	0
2	W	142	1128	710	188	219	11	0	0	0
2	X	139	1113	702	183	217	11	0	0	0

There are 48 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	-3	GLY	-	expression tag	UNP P09603
G	-2	SER	-	expression tag	UNP P09603
G	-1	HIS	-	expression tag	UNP P09603

Continued on next page...

Continued from previous page...

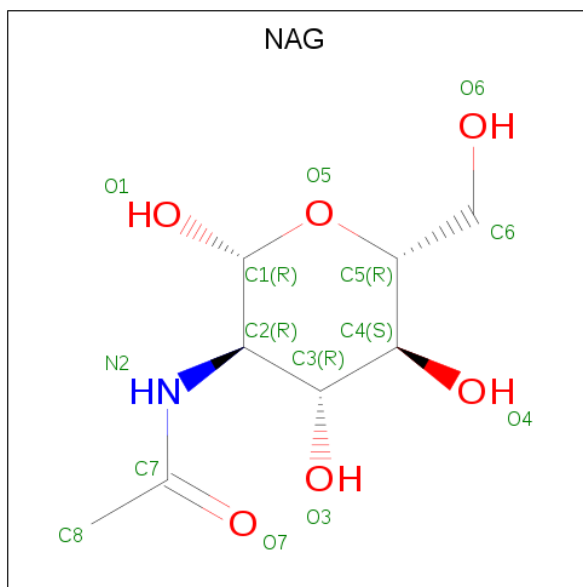
Chain	Residue	Modelled	Actual	Comment	Reference
G	0	MET	-	expression tag	UNP P09603
H	-3	GLY	-	expression tag	UNP P09603
H	-2	SER	-	expression tag	UNP P09603
H	-1	HIS	-	expression tag	UNP P09603
H	0	MET	-	expression tag	UNP P09603
I	-3	GLY	-	expression tag	UNP P09603
I	-2	SER	-	expression tag	UNP P09603
I	-1	HIS	-	expression tag	UNP P09603
I	0	MET	-	expression tag	UNP P09603
J	-3	GLY	-	expression tag	UNP P09603
J	-2	SER	-	expression tag	UNP P09603
J	-1	HIS	-	expression tag	UNP P09603
J	0	MET	-	expression tag	UNP P09603
K	-3	GLY	-	expression tag	UNP P09603
K	-2	SER	-	expression tag	UNP P09603
K	-1	HIS	-	expression tag	UNP P09603
K	0	MET	-	expression tag	UNP P09603
L	-3	GLY	-	expression tag	UNP P09603
L	-2	SER	-	expression tag	UNP P09603
L	-1	HIS	-	expression tag	UNP P09603
L	0	MET	-	expression tag	UNP P09603
S	-3	GLY	-	expression tag	UNP P09603
S	-2	SER	-	expression tag	UNP P09603
S	-1	HIS	-	expression tag	UNP P09603
S	0	MET	-	expression tag	UNP P09603
T	-3	GLY	-	expression tag	UNP P09603
T	-2	SER	-	expression tag	UNP P09603
T	-1	HIS	-	expression tag	UNP P09603
T	0	MET	-	expression tag	UNP P09603
U	-3	GLY	-	expression tag	UNP P09603
U	-2	SER	-	expression tag	UNP P09603
U	-1	HIS	-	expression tag	UNP P09603
U	0	MET	-	expression tag	UNP P09603
V	-3	GLY	-	expression tag	UNP P09603
V	-2	SER	-	expression tag	UNP P09603
V	-1	HIS	-	expression tag	UNP P09603
V	0	MET	-	expression tag	UNP P09603
W	-3	GLY	-	expression tag	UNP P09603
W	-2	SER	-	expression tag	UNP P09603
W	-1	HIS	-	expression tag	UNP P09603
W	0	MET	-	expression tag	UNP P09603
X	-3	GLY	-	expression tag	UNP P09603

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
X	-2	SER	-	expression tag	UNP P09603
X	-1	HIS	-	expression tag	UNP P09603
X	0	MET	-	expression tag	UNP P09603

- Molecule 3 is N-ACETYL-D-GLUCOSAMINE (three-letter code: NAG) (formula: C₈H₁₅NO₆).



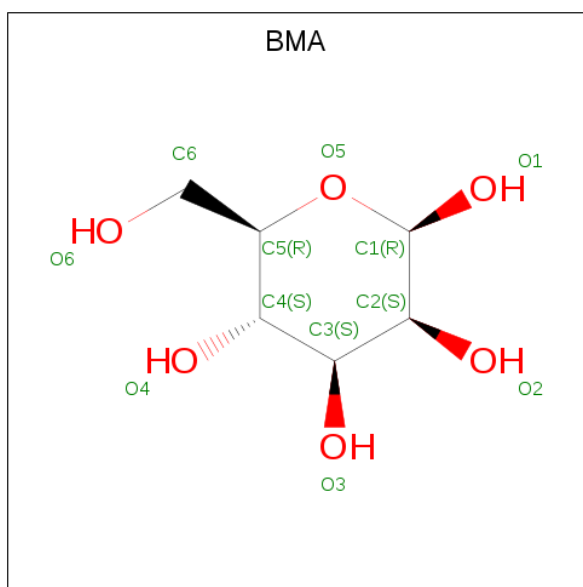
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
3	A	1	Total	C	N	O	0	0
			14	8	1	5		
3	A	1	Total	C	N	O	0	0
			14	8	1	5		
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	C	1	Total	C	N	O	0	0
			14	8	1	5		
3	C	1	Total	C	N	O	0	0
			14	8	1	5		
3	D	1	Total	C	N	O	0	0
	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

Continued on next page...

Continued from previous page...

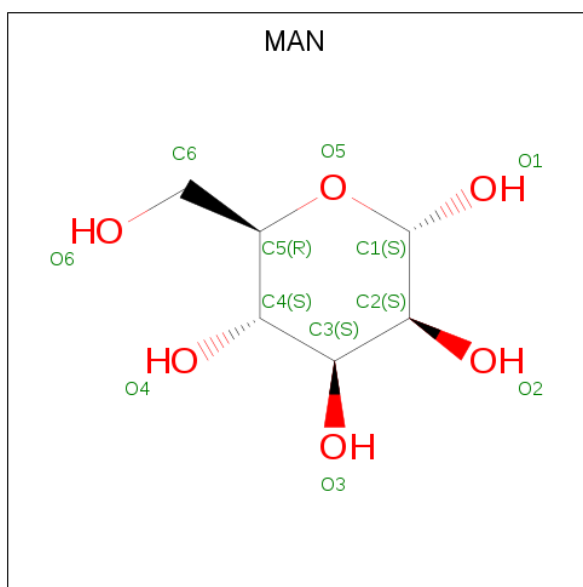
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	F	1	Total	C	N	O	0	0
			14	8	1	5		
3	F	1	Total	C	N	O	0	0
			14	8	1	5		
3	M	1	Total	C	N	O	0	0
			14	8	1	5		
3	M	1	Total	C	N	O	0	0
			14	8	1	5		
3	N	1	Total	C	N	O	0	0
			14	8	1	5		
3	N	1	Total	C	N	O	0	0
			14	8	1	5		
3	O	1	Total	C	N	O	0	0
			14	8	1	5		
3	O	1	Total	C	N	O	0	0
			14	8	1	5		
3	P	1	Total	C	N	O	0	0
			14	8	1	5		
3	P	1	Total	C	N	O	0	0
			14	8	1	5		
3	Q	1	Total	C	N	O	0	0
			14	8	1	5		
3	Q	1	Total	C	N	O	0	0
			14	8	1	5		
3	R	1	Total	C	N	O	0	0
			14	8	1	5		
3	R	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 4 is BETA-D-MANNOSE (three-letter code: BMA) (formula: C₆H₁₂O₆).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 11 6 5	0	0
4	B	1	Total C O 11 6 5	0	0
4	C	1	Total C O 11 6 5	0	0
4	D	1	Total C O 11 6 5	0	0
4	E	1	Total C O 11 6 5	0	0
4	F	1	Total C O 11 6 5	0	0
4	M	1	Total C O 11 6 5	0	0
4	N	1	Total C O 11 6 5	0	0
4	O	1	Total C O 11 6 5	0	0
4	P	1	Total C O 11 6 5	0	0
4	Q	1	Total C O 11 6 5	0	0
4	R	1	Total C O 11 6 5	0	0

- Molecule 5 is ALPHA-D-MANNOSE (three-letter code: MAN) (formula: C₆H₁₂O₆).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O 11 6 5	0	0
5	A	1	Total C O 11 6 5	0	0
5	A	1	Total C O 11 6 5	0	0
5	B	1	Total C O 11 6 5	0	0
5	B	1	Total C O 11 6 5	0	0
5	B	1	Total C O 11 6 5	0	0
5	B	1	Total C O 11 6 5	0	0
5	C	1	Total C O 11 6 5	0	0
5	C	1	Total C O 11 6 5	0	0
5	C	1	Total C O 11 6 5	0	0
5	C	1	Total C O 11 6 5	0	0
5	D	1	Total C O 11 6 5	0	0
5	D	1	Total C O 11 6 5	0	0
5	E	1	Total C O 11 6 5	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	E	1	Total	C	O	0	0
			11	6	5		
5	F	1	Total	C	O	0	0
			11	6	5		
5	F	1	Total	C	O	0	0
			11	6	5		
5	M	1	Total	C	O	0	0
			11	6	5		
5	M	1	Total	C	O	0	0
			11	6	5		
5	M	1	Total	C	O	0	0
			11	6	5		
5	N	1	Total	C	O	0	0
			11	6	5		
5	N	1	Total	C	O	0	0
			11	6	5		
5	N	1	Total	C	O	0	0
			11	6	5		
5	O	1	Total	C	O	0	0
			11	6	5		
5	O	1	Total	C	O	0	0
			11	6	5		
5	P	1	Total	C	O	0	0
			11	6	5		
5	P	1	Total	C	O	0	0
			11	6	5		
5	P	1	Total	C	O	0	0
			11	6	5		
5	Q	1	Total	C	O	0	0
			11	6	5		
5	Q	1	Total	C	O	0	0
			11	6	5		
5	Q	1	Total	C	O	0	0
			11	6	5		
5	Q	1	Total	C	O	0	0
			11	6	5		
5	R	1	Total	C	O	0	0
			11	6	5		
5	R	1	Total	C	O	0	0
			11	6	5		
5	R	1	Total	C	O	0	0
			11	6	5		

Continued on next page...


Continued from previous page...

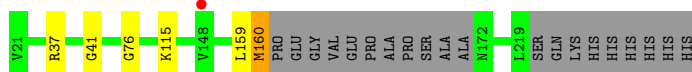
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
5	R	1	11	6	5	0	0

3 Residue-property plots [i](#)


These plots are drawn for all protein, RNA and DNA 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.

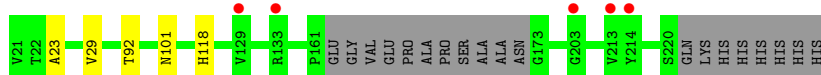
- Molecule 1: SECRETED PROTEIN BARF1

Chain A: 




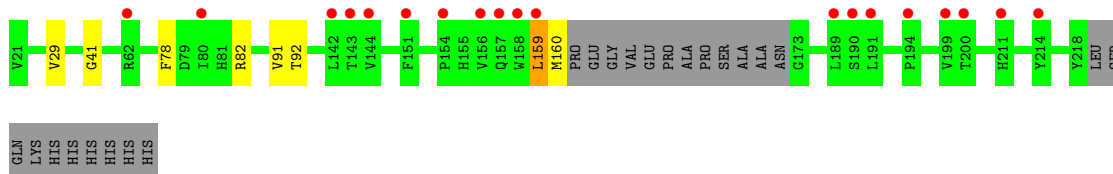
- Molecule 1: SECRETED PROTEIN BARF1

Chain B: 




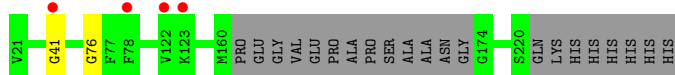
- Molecule 1: SECRETED PROTEIN BARF1

Chain C: 




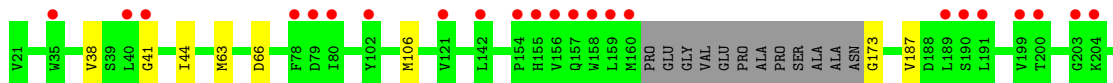
- Molecule 1: SECRETED PROTEIN BARF1

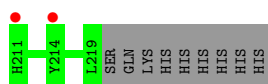
Chain D: 



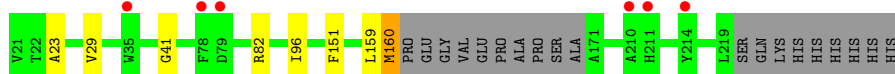
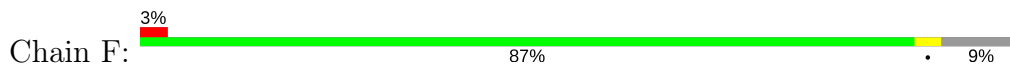
- Molecule 1: SECRETED PROTEIN BARF1

Chain E: 

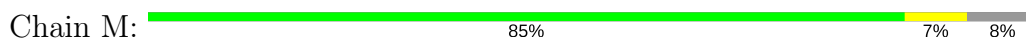




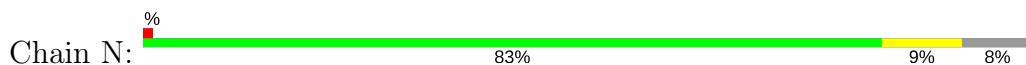
- Molecule 1: SECRETED PROTEIN BARF1



- Molecule 1: SECRETED PROTEIN BARF1

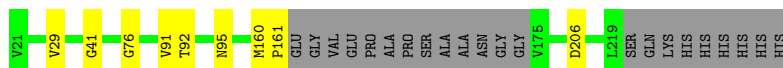
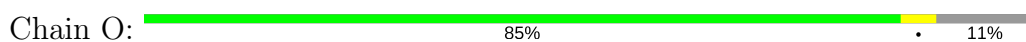


- Molecule 1: SECRETED PROTEIN BARF1

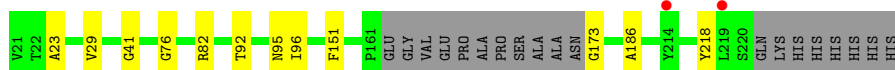
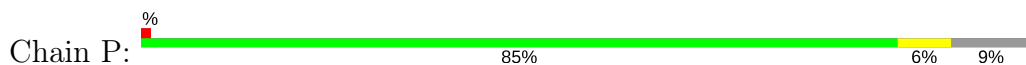


HIS

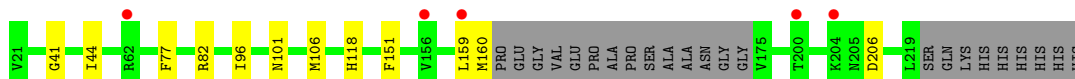
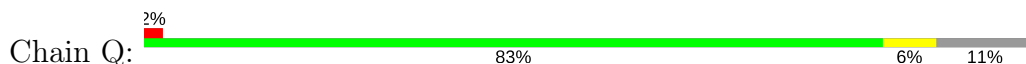
- Molecule 1: SECRETED PROTEIN BARF1



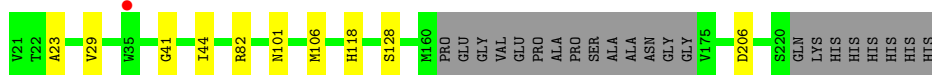
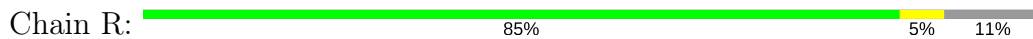
- Molecule 1: SECRETED PROTEIN BARF1



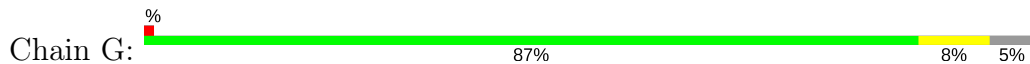
- Molecule 1: SECRETED PROTEIN BARF1



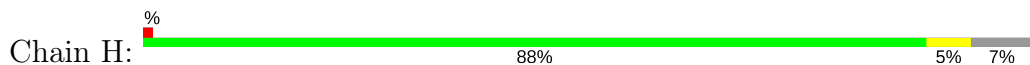
- Molecule 1: SECRETED PROTEIN BARF1



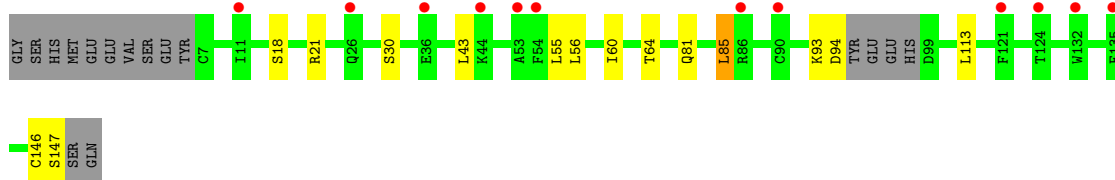
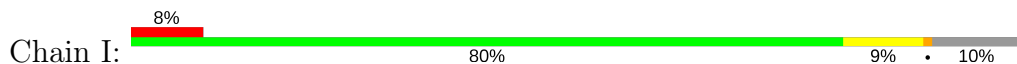
• Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1



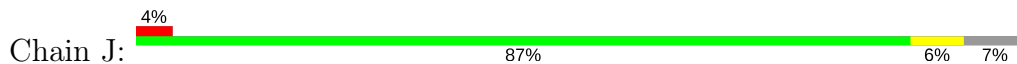
• Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1



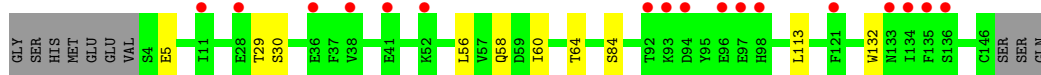
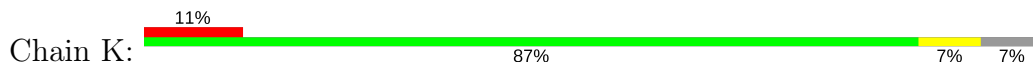
• Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1



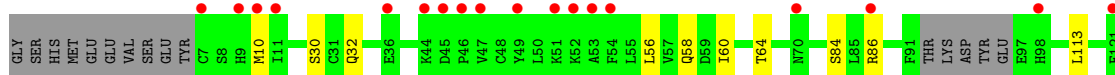
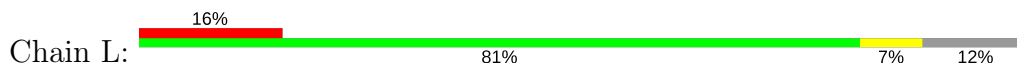
• Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1

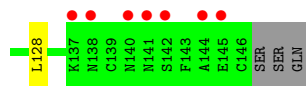


• Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1

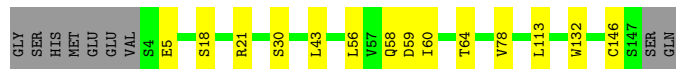
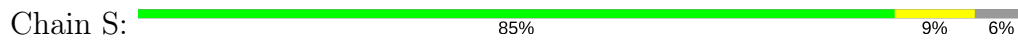


• Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1

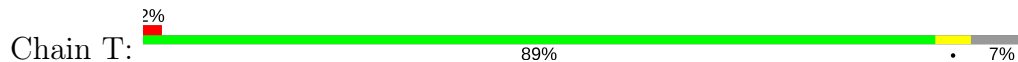




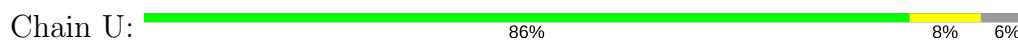
● Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1



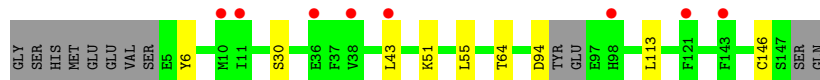
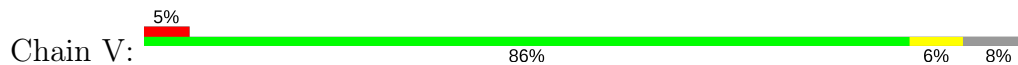
● Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1



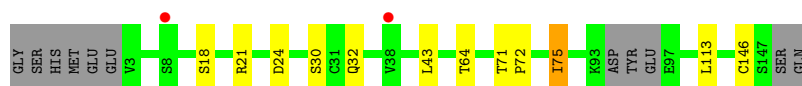
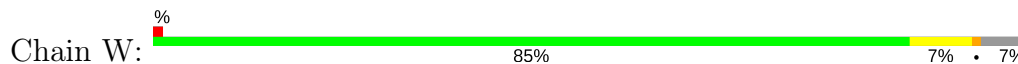
● Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1



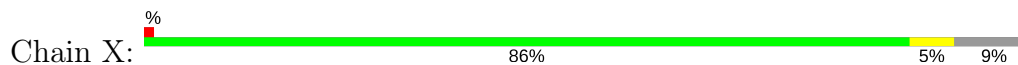
● Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1



● Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1



● Molecule 2: MACROPHAGE COLONY-STIMULATING FACTOR 1



4 Data and refinement statistics

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α , β , γ	218.44Å 218.44Å 331.17Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	75.85 – 4.40 75.85 – 4.40	Depositor EDS
% Data completeness (in resolution range)	99.1 (75.85-4.40) 99.2 (75.85-4.40)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.16 (at 4.46Å)	Xtrriage
Refinement program	PHENIX (PHENIX.REFINE)	Depositor
R, R_{free}	0.238 , 0.276 0.275 , 0.299	Depositor DCC
R_{free} test set	2874 reflections (4.94%)	wwPDB-VP
Wilson B-factor (Å ²)	165.8	Xtrriage
Anisotropy	0.413	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.28 , 182.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtrriage
Estimated twinning fraction	0.036 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.87	EDS
Total number of atoms	32413	wwPDB-VP
Average B, all atoms (Å ²)	216.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.75% of the height of the origin peak. No significant pseudotranslation is detected.*

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: BMA, NAG, MAN

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	0.31	0/1537	0.65	2/2090 (0.1%)
1	B	0.30	0/1542	0.57	0/2099
1	C	0.31	0/1524	0.60	1/2072 (0.0%)
1	D	0.30	0/1530	0.58	0/2082
1	E	0.30	0/1528	0.56	0/2079
1	F	0.34	0/1538	0.63	1/2093 (0.0%)
1	M	0.33	0/1551	0.63	0/2112
1	N	0.33	0/1561	0.63	0/2123
1	O	0.31	0/1520	0.62	0/2073
1	P	0.32	0/1546	0.58	0/2103
1	Q	0.31	0/1524	0.60	0/2073
1	R	0.32	0/1526	0.61	0/2077
2	G	0.33	0/1179	0.66	0/1591
2	H	0.35	0/1164	0.67	0/1568
2	I	0.31	0/1113	0.63	0/1500
2	J	0.31	0/1168	0.61	1/1574 (0.1%)
2	K	0.30	0/1176	0.58	0/1586
2	L	0.32	0/1106	0.63	1/1490 (0.1%)
2	S	0.32	0/1176	0.64	0/1589
2	T	0.34	0/1166	0.63	0/1570
2	U	0.33	0/1178	0.69	0/1589
2	V	0.30	0/1158	0.62	3/1558 (0.2%)
2	W	0.34	0/1145	0.70	1/1546 (0.1%)
2	X	0.35	0/1130	0.64	0/1523
All	All	0.32	0/32286	0.62	10/43760 (0.0%)

There are no bond length outliers.

All (10) bond angle outliers are listed below:

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	160	MET	CA-CB-CG	8.81	128.28	113.30
2	W	75	ILE	CG1-CB-CG2	-5.90	98.43	111.40
2	V	6	TYR	CB-CG-CD1	5.43	124.26	121.00
2	L	128	LEU	CA-CB-CG	5.34	127.59	115.30
2	J	128	LEU	CA-CB-CG	5.34	127.59	115.30
2	V	55	LEU	CA-CB-CG	5.25	127.39	115.30
1	C	159	LEU	N-CA-C	5.21	125.07	111.00
1	A	37	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	F	160	MET	CA-CB-CG	5.06	121.89	113.30
2	V	6	TYR	CB-CG-CD2	-5.02	117.99	121.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1494	0	1464	3	0
1	B	1498	0	1463	4	0
1	C	1481	0	1451	6	0
1	D	1487	0	1453	1	0
1	E	1485	0	1451	4	0
1	F	1495	0	1458	5	0
1	M	1507	0	1470	10	0
1	N	1517	0	1484	15	0
1	O	1476	0	1430	7	0
1	P	1502	0	1474	9	0
1	Q	1481	0	1456	8	0
1	R	1483	0	1450	7	0
2	G	1161	0	1115	8	0
2	H	1145	0	1112	4	0
2	I	1097	0	1062	9	0
2	J	1149	0	1111	4	0
2	K	1157	0	1110	7	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	L	1089	0	1053	5	0
2	S	1157	0	1095	10	0
2	T	1148	0	1117	3	0
2	U	1159	0	1111	7	0
2	V	1140	0	1111	3	0
2	W	1128	0	1078	8	0
2	X	1113	0	1074	5	0
3	A	28	0	24	0	0
3	B	28	0	24	1	0
3	C	28	0	24	0	0
3	D	28	0	24	0	0
3	E	28	0	24	1	0
3	F	28	0	24	0	0
3	M	28	0	24	0	0
3	N	28	0	24	1	0
3	O	28	0	24	1	0
3	P	28	0	24	1	0
3	Q	28	0	24	1	0
3	R	28	0	24	0	0
4	A	11	0	8	0	0
4	B	11	0	8	1	0
4	C	11	0	8	0	0
4	D	11	0	8	0	0
4	E	11	0	8	1	0
4	F	11	0	8	0	0
4	M	11	0	8	1	0
4	N	11	0	8	0	0
4	O	11	0	8	0	0
4	P	11	0	8	0	0
4	Q	11	0	8	0	0
4	R	11	0	8	1	0
5	A	33	0	29	0	0
5	B	44	0	38	1	0
5	C	44	0	38	0	0
5	D	22	0	20	0	0
5	E	22	0	20	1	0
5	F	22	0	20	0	0
5	M	33	0	29	1	0
5	N	33	0	29	0	0
5	O	22	0	20	0	0
5	P	33	0	29	0	0
5	Q	44	0	38	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	R	44	0	38	0	0
All	All	32413	0	31385	137	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 2.

All (137) 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:J:10:MET:SD	2:J:86:ARG:NH1	2.64	0.71
1:A:159:LEU:O	1:A:160:MET:HG2	1.96	0.65
2:I:55:LEU:HD22	2:I:93:LYS:HD2	1.81	0.63
1:F:159:LEU:O	1:F:160:MET:HG2	1.99	0.62
1:F:23:ALA:CB	1:F:29:VAL:HG21	2.29	0.61
2:U:5:GLU:HB2	2:U:132:TRP:CZ3	2.36	0.61
1:N:160:MET:HB3	1:N:161:PRO:HA	1.82	0.60
2:X:64:THR:HG21	2:X:113:LEU:HD21	1.82	0.60
2:S:64:THR:HG21	2:S:113:LEU:HD21	1.84	0.59
2:U:64:THR:HG21	2:U:113:LEU:HD21	1.85	0.59
2:G:88:LYS:HE2	2:S:78:VAL:HG21	1.84	0.59
2:I:64:THR:HG21	2:I:113:LEU:HD21	1.84	0.58
2:L:10:MET:SD	2:L:86:ARG:NH1	2.78	0.57
2:W:24:ASP:OD1	2:X:68:ARG:NH1	2.38	0.56
1:B:23:ALA:HB3	1:B:29:VAL:HG21	1.89	0.55
1:M:23:ALA:CB	1:M:29:VAL:HG21	2.37	0.55
2:S:5:GLU:HB2	2:S:132:TRP:CZ3	2.41	0.55
2:W:64:THR:HG21	2:W:113:LEU:HD21	1.88	0.54
1:C:29:VAL:HG12	1:C:91:VAL:CG2	2.37	0.54
1:F:82:ARG:NH2	2:L:32:GLN:OE1	2.41	0.54
2:K:58:GLN:NE2	2:K:84:SER:OG	2.41	0.54
2:J:64:THR:HG21	2:J:113:LEU:HD21	1.90	0.54
2:V:64:THR:HG21	2:V:113:LEU:HD21	1.90	0.54
2:K:64:THR:HG21	2:K:113:LEU:HD21	1.89	0.54
4:M:302:BMA:H62	5:M:303:MAN:H5	1.90	0.53
1:P:23:ALA:CB	1:P:29:VAL:HG21	2.37	0.53
2:K:5:GLU:HB2	2:K:132:TRP:CZ3	2.43	0.53
1:F:23:ALA:HB1	1:F:29:VAL:HG21	1.90	0.53
1:P:82:ARG:NH2	2:U:32:GLN:OE1	2.42	0.53
2:G:64:THR:HG21	2:G:113:LEU:HD21	1.91	0.52
1:O:29:VAL:HG12	1:O:91:VAL:CG1	2.39	0.52
1:N:29:VAL:HG12	1:N:91:VAL:CG2	2.38	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:23:ALA:CB	1:B:29:VAL:HG21	2.39	0.51
1:R:23:ALA:CB	1:R:29:VAL:HG21	2.40	0.51
2:I:93:LYS:O	2:I:94:ASP:CB	2.59	0.51
2:T:64:THR:HG21	2:T:113:LEU:HD21	1.91	0.51
1:R:82:ARG:NH2	2:W:32:GLN:OE1	2.45	0.50
1:P:173:GLY:N	1:P:186:ALA:O	2.44	0.50
1:P:23:ALA:HB3	1:P:29:VAL:HG21	1.93	0.50
1:C:159:LEU:C	1:C:160:MET:HG2	2.32	0.49
2:I:146:CYS:O	2:I:147:SER:HB3	2.13	0.49
2:L:64:THR:HG21	2:L:113:LEU:HD21	1.95	0.48
2:S:18:SER:HA	2:S:21:ARG:NH1	2.29	0.48
1:N:159:LEU:O	1:N:160:MET:HB2	2.14	0.48
2:J:58:GLN:OE1	2:J:84:SER:OG	2.32	0.47
2:S:56:LEU:HD23	2:S:60:ILE:HG13	1.96	0.47
1:C:82:ARG:NH2	2:J:32:GLN:OE1	2.47	0.47
2:H:64:THR:HG21	2:H:113:LEU:HD21	1.95	0.47
3:B:300:NAG:O3	3:B:301:NAG:O5	2.25	0.47
2:W:71:THR:OG1	2:X:24:ASP:HB3	2.14	0.47
2:G:5:GLU:O	2:G:6:TYR:HB2	2.14	0.47
1:M:23:ALA:HB3	1:M:29:VAL:HG21	1.96	0.47
1:M:76:GLY:HA2	1:N:92:THR:HG21	1.97	0.46
1:O:92:THR:HG21	1:P:76:GLY:HA2	1.98	0.46
2:S:5:GLU:HB2	2:S:132:TRP:CE3	2.51	0.46
2:U:99:ASP:OD1	2:U:100:LYS:N	2.49	0.46
1:O:95:ASN:ND2	3:O:300:NAG:O7	2.48	0.46
2:G:56:LEU:HD23	2:G:60:ILE:HG13	1.97	0.46
1:Q:101:ASN:OD1	1:Q:118:HIS:ND1	2.49	0.46
2:H:43:LEU:HD23	2:H:49:TYR:HA	1.98	0.45
1:N:98:HIS:NE2	3:N:300:NAG:H61	2.32	0.45
2:X:56:LEU:HD23	2:X:60:ILE:HG13	1.98	0.45
1:E:63:MET:HE3	1:E:66:ASP:HA	1.98	0.45
2:G:56:LEU:CD2	2:G:60:ILE:HD11	2.47	0.45
1:R:23:ALA:HB3	1:R:29:VAL:HG21	1.98	0.45
1:Q:77:PHE:CG	3:Q:300:NAG:H61	2.51	0.45
2:I:56:LEU:HD23	2:I:60:ILE:HG13	1.99	0.45
2:S:56:LEU:CD2	2:S:60:ILE:HD11	2.47	0.45
1:Q:44:ILE:HG21	1:Q:106:MET:HB3	1.98	0.45
2:V:51:LYS:NZ	2:V:94:ASP:OD2	2.39	0.44
2:L:58:GLN:OE1	2:L:84:SER:OG	2.35	0.44
2:W:71:THR:OG1	2:W:72:PRO:HD2	2.17	0.44
2:S:58:GLN:CG	2:S:59:ASP:N	2.81	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S:58:GLN:HG3	2:S:59:ASP:N	2.32	0.44
2:W:43:LEU:HD13	2:W:146:CYS:SG	2.57	0.44
1:N:101:ASN:OD1	1:N:118:HIS:ND1	2.50	0.44
1:A:76:GLY:HA2	1:B:92:THR:HG21	1.99	0.44
1:N:78:PHE:CE2	1:N:91:VAL:HG12	2.52	0.44
1:B:101:ASN:OD1	1:B:118:HIS:ND1	2.51	0.44
1:E:173:GLY:N	1:E:187:VAL:HG22	2.33	0.44
1:N:44:ILE:HG21	1:N:106:MET:HB3	1.99	0.44
1:N:159:LEU:O	1:N:160:MET:CB	2.65	0.44
2:G:132:TRP:CZ3	2:G:133:ASN:HB2	2.53	0.43
1:Q:44:ILE:CG2	1:Q:106:MET:HB3	2.47	0.43
1:P:95:ASN:HD22	3:P:300:NAG:C7	2.30	0.43
1:A:115:LYS:NZ	1:N:110:GLU:OE1	2.51	0.43
1:R:101:ASN:OD1	1:R:118:HIS:ND1	2.52	0.43
2:G:43:LEU:HD13	2:G:146:CYS:SG	2.58	0.43
1:O:91:VAL:HG13	1:O:91:VAL:O	2.19	0.43
1:N:218:TYR:OH	1:R:206:ASP:OD2	2.34	0.43
2:U:56:LEU:HD23	2:U:60:ILE:HG13	1.99	0.43
4:B:302:BMA:O2	5:B:306:MAN:H2	2.19	0.43
1:Q:159:LEU:O	1:Q:160:MET:CB	2.66	0.43
1:P:218:TYR:OH	1:Q:206:ASP:OD2	2.36	0.43
2:W:18:SER:HA	2:W:21:ARG:NH1	2.34	0.43
2:H:18:SER:O	2:H:21:ARG:HG2	2.19	0.42
1:M:92:THR:HG21	1:N:76:GLY:HA2	2.00	0.42
1:E:38:VAL:HG12	2:K:29:THR:HA	2.01	0.42
1:E:44:ILE:HG21	1:E:106:MET:HB3	2.02	0.42
4:E:302:BMA:O2	5:E:304:MAN:C1	2.67	0.42
2:I:18:SER:HA	2:I:21:ARG:NH1	2.34	0.42
1:F:96:ILE:HD12	1:F:151:PHE:CG	2.54	0.42
2:I:56:LEU:CD2	2:I:60:ILE:HD11	2.49	0.42
2:K:60:ILE:O	2:K:64:THR:N	2.49	0.42
2:U:56:LEU:CD2	2:U:60:ILE:HD11	2.50	0.42
1:Q:82:ARG:NH2	2:X:32:GLN:OE1	2.52	0.42
1:M:42:PRO:HG3	1:M:82:ARG:CZ	2.50	0.41
2:G:64:THR:CG2	2:G:113:LEU:HD21	2.50	0.41
2:V:43:LEU:HD13	2:V:146:CYS:SG	2.59	0.41
1:C:91:VAL:HG23	1:C:91:VAL:O	2.21	0.41
3:E:301:NAG:H83	3:E:301:NAG:H3	2.02	0.41
1:M:101:ASN:OD1	1:M:118:HIS:ND1	2.53	0.41
2:T:43:LEU:HD23	2:T:49:TYR:HA	2.02	0.41
1:N:82:ARG:NH2	2:T:32:GLN:OE1	2.54	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:81:GLN:O	2:I:85:LEU:HD13	2.21	0.41
2:K:5:GLU:HB2	2:K:132:TRP:CE3	2.55	0.41
2:S:43:LEU:HD13	2:S:146:CYS:SG	2.61	0.41
2:H:64:THR:CG2	2:H:113:LEU:HD21	2.50	0.41
4:R:302:BMA:O4	4:R:302:BMA:O6	2.24	0.41
1:M:148:VAL:CG2	1:M:156:VAL:HG22	2.51	0.41
1:P:96:ILE:HD12	1:P:151:PHE:CG	2.56	0.41
1:M:44:ILE:HG21	1:M:106:MET:HB3	2.02	0.41
1:Q:96:ILE:HD12	1:Q:151:PHE:CG	2.56	0.41
2:U:43:LEU:HD13	2:U:146:CYS:SG	2.61	0.41
2:I:43:LEU:HD13	2:I:146:CYS:SG	2.61	0.41
1:M:82:ARG:HG2	1:M:83:SER:N	2.36	0.41
1:N:91:VAL:HG23	1:N:91:VAL:O	2.21	0.41
1:M:218:TYR:OH	1:O:206:ASP:OD2	2.33	0.41
1:R:44:ILE:HG21	1:R:106:MET:HB3	2.03	0.40
2:L:56:LEU:HD23	2:L:60:ILE:HG13	2.02	0.40
1:N:127:LEU:O	1:R:128:SER:HA	2.21	0.40
1:O:76:GLY:HA2	1:P:92:THR:HG21	2.03	0.40
2:W:71:THR:OG1	2:W:72:PRO:CD	2.70	0.40
2:K:56:LEU:HD23	2:K:60:ILE:HG13	2.02	0.40
1:O:160:MET:HB3	1:O:161:PRO:HA	2.03	0.40
1:C:78:PHE:CE2	1:C:91:VAL:HG12	2.56	0.40
1:C:92:THR:HG21	1:D:76:GLY:HA2	2.03	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	184/208 (88%)	177 (96%)	6 (3%)	1 (0%)	31 73
1	B	185/208 (89%)	178 (96%)	7 (4%)	0	100 100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	182/208 (88%)	175 (96%)	6 (3%)	1 (0%)	31	73
1	D	183/208 (88%)	176 (96%)	6 (3%)	1 (0%)	31	73
1	E	183/208 (88%)	176 (96%)	6 (3%)	1 (0%)	31	73
1	F	185/208 (89%)	177 (96%)	7 (4%)	1 (0%)	31	73
1	M	187/208 (90%)	178 (95%)	9 (5%)	0	100	100
1	N	187/208 (90%)	179 (96%)	6 (3%)	2 (1%)	16	57
1	O	182/208 (88%)	176 (97%)	5 (3%)	1 (0%)	31	73
1	P	185/208 (89%)	178 (96%)	6 (3%)	1 (0%)	31	73
1	Q	181/208 (87%)	174 (96%)	6 (3%)	1 (1%)	27	69
1	R	182/208 (88%)	175 (96%)	6 (3%)	1 (0%)	31	73
2	G	143/153 (94%)	139 (97%)	4 (3%)	0	100	100
2	H	140/153 (92%)	136 (97%)	4 (3%)	0	100	100
2	I	133/153 (87%)	130 (98%)	3 (2%)	0	100	100
2	J	140/153 (92%)	136 (97%)	4 (3%)	0	100	100
2	K	141/153 (92%)	139 (99%)	2 (1%)	0	100	100
2	L	131/153 (86%)	128 (98%)	3 (2%)	0	100	100
2	S	142/153 (93%)	138 (97%)	4 (3%)	0	100	100
2	T	140/153 (92%)	136 (97%)	4 (3%)	0	100	100
2	U	142/153 (93%)	138 (97%)	4 (3%)	0	100	100
2	V	137/153 (90%)	133 (97%)	4 (3%)	0	100	100
2	W	138/153 (90%)	134 (97%)	4 (3%)	0	100	100
2	X	135/153 (88%)	130 (96%)	5 (4%)	0	100	100
All	All	3868/4332 (89%)	3736 (97%)	121 (3%)	11 (0%)	43	80

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	N	160	MET
1	A	41	GLY
1	C	41	GLY
1	D	41	GLY
1	E	41	GLY
1	F	41	GLY
1	N	41	GLY

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	O	41	GLY
1	P	41	GLY
1	Q	41	GLY
1	R	41	GLY

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	166/183 (91%)	166 (100%)	0	100	100
1	B	167/183 (91%)	167 (100%)	0	100	100
1	C	165/183 (90%)	165 (100%)	0	100	100
1	D	166/183 (91%)	166 (100%)	0	100	100
1	E	165/183 (90%)	165 (100%)	0	100	100
1	F	165/183 (90%)	165 (100%)	0	100	100
1	M	166/183 (91%)	166 (100%)	0	100	100
1	N	169/183 (92%)	168 (99%)	1 (1%)	87	93
1	O	164/183 (90%)	164 (100%)	0	100	100
1	P	168/183 (92%)	168 (100%)	0	100	100
1	Q	166/183 (91%)	166 (100%)	0	100	100
1	R	166/183 (91%)	166 (100%)	0	100	100
2	G	133/145 (92%)	132 (99%)	1 (1%)	83	91
2	H	131/145 (90%)	130 (99%)	1 (1%)	83	91
2	I	127/145 (88%)	125 (98%)	2 (2%)	65	83
2	J	132/145 (91%)	131 (99%)	1 (1%)	83	91
2	K	133/145 (92%)	132 (99%)	1 (1%)	83	91
2	L	125/145 (86%)	124 (99%)	1 (1%)	83	91
2	S	132/145 (91%)	131 (99%)	1 (1%)	83	91
2	T	132/145 (91%)	131 (99%)	1 (1%)	83	91

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	U	133/145 (92%)	131 (98%)	2 (2%)	67	84
2	V	131/145 (90%)	130 (99%)	1 (1%)	83	91
2	W	128/145 (88%)	126 (98%)	2 (2%)	65	83
2	X	128/145 (88%)	127 (99%)	1 (1%)	83	91
All	All	3558/3936 (90%)	3542 (100%)	16 (0%)	92	95

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	G	30	SER
2	H	30	SER
2	I	30	SER
2	I	85	LEU
2	J	30	SER
2	K	30	SER
2	L	30	SER
1	N	172	ASN
2	S	30	SER
2	T	30	SER
2	U	30	SER
2	U	147	SER
2	V	30	SER
2	W	30	SER
2	W	75	ILE
2	X	30	SER

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	81	HIS
2	G	9	HIS
2	K	58	GLN
1	M	81	HIS
2	V	42	GLN
2	W	70	ASN

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](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

72 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	A	300	1,3	14,14,15	0.52	0	17,19,21	1.05	1 (5%)
3	NAG	A	301	3,4	14,14,15	0.53	0	17,19,21	0.68	0
4	BMA	A	302	3,5	11,11,12	0.66	0	15,15,17	0.91	0
5	MAN	A	303	5,4	11,11,12	0.56	0	15,15,17	0.94	1 (6%)
5	MAN	A	304	5	11,11,12	0.59	0	15,15,17	1.02	1 (6%)
5	MAN	A	305	4	11,11,12	0.60	0	15,15,17	0.75	1 (6%)
3	NAG	B	300	1,3	14,14,15	0.59	0	17,19,21	1.35	3 (17%)
3	NAG	B	301	3,4	14,14,15	0.54	0	17,19,21	0.95	1 (5%)
4	BMA	B	302	3,5	11,11,12	0.60	0	15,15,17	2.19	2 (13%)
5	MAN	B	303	5,4	11,11,12	0.52	0	15,15,17	1.61	2 (13%)
5	MAN	B	304	5	11,11,12	0.58	0	15,15,17	0.67	0
5	MAN	B	305	5	11,11,12	0.59	0	15,15,17	1.00	1 (6%)
5	MAN	B	306	4	11,11,12	0.65	0	15,15,17	1.55	3 (20%)
3	NAG	C	300	1,3	14,14,15	0.52	0	17,19,21	1.64	2 (11%)
3	NAG	C	301	3,4	14,14,15	0.55	0	17,19,21	0.96	0
4	BMA	C	302	3,5	11,11,12	0.56	0	15,15,17	1.79	3 (20%)
5	MAN	C	303	5,4	11,11,12	0.59	0	15,15,17	1.38	2 (13%)
5	MAN	C	304	5	11,11,12	0.59	0	15,15,17	0.83	0
5	MAN	C	305	5	11,11,12	0.55	0	15,15,17	0.78	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	MAN	C	306	4	11,11,12	0.63	0	15,15,17	0.87	1 (6%)
3	NAG	D	300	1,3	14,14,15	0.59	0	17,19,21	1.85	4 (23%)
3	NAG	D	301	3,4	14,14,15	0.59	0	17,19,21	1.01	1 (5%)
4	BMA	D	302	3,5	11,11,12	0.58	0	15,15,17	1.56	3 (20%)
5	MAN	D	303	4	11,11,12	0.52	0	15,15,17	0.84	1 (6%)
5	MAN	D	304	4	11,11,12	0.62	0	15,15,17	0.85	1 (6%)
3	NAG	E	300	1,3	14,14,15	0.65	0	17,19,21	1.15	1 (5%)
3	NAG	E	301	3,4	14,14,15	0.59	0	17,19,21	0.97	0
4	BMA	E	302	3,5	11,11,12	0.70	0	15,15,17	1.80	3 (20%)
5	MAN	E	303	4	11,11,12	0.58	0	15,15,17	0.96	1 (6%)
5	MAN	E	304	4	11,11,12	0.48	0	15,15,17	1.21	2 (13%)
3	NAG	F	300	1,3	14,14,15	0.56	0	17,19,21	1.50	4 (23%)
3	NAG	F	301	3,4	14,14,15	0.54	0	17,19,21	0.89	1 (5%)
4	BMA	F	302	3,5	11,11,12	0.76	0	15,15,17	1.51	1 (6%)
5	MAN	F	303	4	11,11,12	0.58	0	15,15,17	0.85	0
5	MAN	F	304	4	11,11,12	0.52	0	15,15,17	1.05	2 (13%)
3	NAG	M	300	1,3	14,14,15	0.55	0	17,19,21	1.16	2 (11%)
3	NAG	M	301	3,4	14,14,15	0.53	0	17,19,21	0.70	0
4	BMA	M	302	3,5	11,11,12	0.70	0	15,15,17	0.90	0
5	MAN	M	303	5,4	11,11,12	0.54	0	15,15,17	1.30	2 (13%)
5	MAN	M	304	5	11,11,12	0.67	0	15,15,17	0.72	0
5	MAN	M	305	4	11,11,12	0.59	0	15,15,17	0.87	0
3	NAG	N	300	1,3	14,14,15	0.59	0	17,19,21	1.47	3 (17%)
3	NAG	N	301	3,4	14,14,15	0.57	0	17,19,21	0.78	0
4	BMA	N	302	3,5	11,11,12	0.70	0	15,15,17	1.58	3 (20%)
5	MAN	N	303	5,4	11,11,12	0.49	0	15,15,17	1.44	2 (13%)
5	MAN	N	304	5	11,11,12	0.50	0	15,15,17	1.25	1 (6%)
5	MAN	N	305	4	11,11,12	0.49	0	15,15,17	1.08	2 (13%)
3	NAG	O	300	1,3	14,14,15	0.60	0	17,19,21	0.99	1 (5%)
3	NAG	O	301	3,4	14,14,15	0.54	0	17,19,21	0.78	0
4	BMA	O	302	3,5	11,11,12	0.58	0	15,15,17	1.65	3 (20%)
5	MAN	O	303	4	11,11,12	0.54	0	15,15,17	0.99	1 (6%)
5	MAN	O	304	4	11,11,12	0.56	0	15,15,17	0.92	1 (6%)
3	NAG	P	300	1,3	14,14,15	0.55	0	17,19,21	1.22	2 (11%)
3	NAG	P	301	3,4	14,14,15	0.58	0	17,19,21	1.11	1 (5%)
4	BMA	P	302	3,5	11,11,12	0.81	0	15,15,17	1.22	1 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	MAN	P	303	5,4	11,11,12	0.61	0	15,15,17	0.80	1 (6%)
5	MAN	P	304	5	11,11,12	0.64	0	15,15,17	0.70	0
5	MAN	P	305	4	11,11,12	0.65	0	15,15,17	0.98	1 (6%)
3	NAG	Q	300	1,3	14,14,15	0.53	0	17,19,21	1.35	3 (17%)
3	NAG	Q	301	3,4	14,14,15	0.51	0	17,19,21	0.72	0
4	BMA	Q	302	3,5	11,11,12	0.75	0	15,15,17	1.31	3 (20%)
5	MAN	Q	303	5,4	11,11,12	0.59	0	15,15,17	1.64	3 (20%)
5	MAN	Q	304	5	11,11,12	0.59	0	15,15,17	0.90	1 (6%)
5	MAN	Q	305	5	11,11,12	0.50	0	15,15,17	1.27	2 (13%)
5	MAN	Q	306	4	11,11,12	0.60	0	15,15,17	1.11	1 (6%)
3	NAG	R	300	1,3	14,14,15	0.51	0	17,19,21	1.40	2 (11%)
3	NAG	R	301	3,4	14,14,15	0.58	0	17,19,21	0.89	1 (5%)
4	BMA	R	302	3,5	11,11,12	0.68	0	15,15,17	1.76	5 (33%)
5	MAN	R	303	5,4	11,11,12	0.61	0	15,15,17	1.10	1 (6%)
5	MAN	R	304	5	11,11,12	0.57	0	15,15,17	1.02	1 (6%)
5	MAN	R	305	5	11,11,12	0.64	0	15,15,17	0.90	1 (6%)
5	MAN	R	306	4	11,11,12	0.46	0	15,15,17	2.02	3 (20%)

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. ^{1,2} means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	A	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	A	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	A	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	A	303	5,4	-	0/2/19/22	0/1/1/1
5	MAN	A	304	5	-	0/2/19/22	0/1/1/1
5	MAN	A	305	4	-	0/2/19/22	0/1/1/1
3	NAG	B	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	B	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	B	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	B	303	5,4	-	0/2/19/22	0/1/1/1
5	MAN	B	304	5	-	0/2/19/22	0/1/1/1
5	MAN	B	305	5	-	0/2/19/22	0/1/1/1
5	MAN	B	306	4	-	0/2/19/22	0/1/1/1
3	NAG	C	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	C	301	3,4	-	0/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	BMA	C	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	C	303	5,4	-	0/2/19/22	0/1/1/1
5	MAN	C	304	5	-	0/2/19/22	0/1/1/1
5	MAN	C	305	5	-	0/2/19/22	0/1/1/1
5	MAN	C	306	4	-	0/2/19/22	0/1/1/1
3	NAG	D	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	D	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	D	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	D	303	4	-	0/2/19/22	0/1/1/1
5	MAN	D	304	4	-	0/2/19/22	0/1/1/1
3	NAG	E	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	E	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	E	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	E	303	4	-	0/2/19/22	0/1/1/1
5	MAN	E	304	4	-	0/2/19/22	0/1/1/1
3	NAG	F	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	F	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	F	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	F	303	4	-	0/2/19/22	0/1/1/1
5	MAN	F	304	4	-	0/2/19/22	0/1/1/1
3	NAG	M	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	M	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	M	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	M	303	5,4	-	0/2/19/22	0/1/1/1
5	MAN	M	304	5	-	0/2/19/22	0/1/1/1
5	MAN	M	305	4	-	0/2/19/22	0/1/1/1
3	NAG	N	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	N	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	N	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	N	303	5,4	-	0/2/19/22	0/1/1/1
5	MAN	N	304	5	-	0/2/19/22	0/1/1/1
5	MAN	N	305	4	-	0/2/19/22	0/1/1/1
3	NAG	O	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	O	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	O	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	O	303	4	-	0/2/19/22	0/1/1/1
5	MAN	O	304	4	-	0/2/19/22	0/1/1/1
3	NAG	P	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	P	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	P	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	P	303	5,4	-	0/2/19/22	0/1/1/1
5	MAN	P	304	5	-	0/2/19/22	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	MAN	P	305	4	-	0/2/19/22	0/1/1/1
3	NAG	Q	300	1,3	-	1/6/23/26	0/1/1/1
3	NAG	Q	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	Q	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	Q	303	5,4	-	0/2/19/22	0/1/1/1
5	MAN	Q	304	5	-	0/2/19/22	0/1/1/1
5	MAN	Q	305	5	-	0/2/19/22	0/1/1/1
5	MAN	Q	306	4	-	0/2/19/22	0/1/1/1
3	NAG	R	300	1,3	-	0/6/23/26	0/1/1/1
3	NAG	R	301	3,4	-	0/6/23/26	0/1/1/1
4	BMA	R	302	3,5	-	0/2/19/22	0/1/1/1
5	MAN	R	303	5,4	-	0/2/19/22	0/1/1/1
5	MAN	R	304	5	-	0/2/19/22	0/1/1/1
5	MAN	R	305	5	-	0/2/19/22	0/1/1/1
5	MAN	R	306	4	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

All (103) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	300	NAG	O5-C1-C2	-4.82	104.86	111.52
3	C	300	NAG	O5-C1-C2	-4.39	105.46	111.52
5	B	306	MAN	O5-C1-C2	-3.85	104.77	110.78
3	R	300	NAG	O5-C1-C2	-3.70	106.41	111.52
3	E	300	NAG	O5-C1-C2	-3.43	106.78	111.52
5	C	303	MAN	O5-C1-C2	-3.28	105.67	110.78
3	N	300	NAG	O5-C1-C2	-3.17	107.14	111.52
3	Q	300	NAG	O5-C1-C2	-3.11	107.23	111.52
3	B	300	NAG	O5-C1-C2	-2.91	107.50	111.52
3	F	300	NAG	O5-C1-C2	-2.85	107.59	111.52
3	P	300	NAG	O5-C1-C2	-2.82	107.63	111.52
4	N	302	BMA	O5-C5-C6	-2.76	102.77	107.15
4	O	302	BMA	O3-C3-C2	-2.66	105.09	110.04
3	F	300	NAG	C6-C5-C4	-2.63	106.77	112.99
4	R	302	BMA	C3-C4-C5	-2.61	105.58	110.24
3	B	300	NAG	C3-C4-C5	-2.55	105.69	110.24
4	Q	302	BMA	O5-C1-C2	-2.54	106.82	110.78
4	Q	302	BMA	C1-O5-C5	-2.52	108.72	112.19
3	Q	300	NAG	C6-C5-C4	-2.42	107.26	112.99
3	B	301	NAG	O5-C1-C2	-2.32	108.32	111.52
5	Q	305	MAN	C2-C3-C4	-2.27	106.92	110.87
3	D	300	NAG	C6-C5-C4	-2.21	107.77	112.99

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	N	300	NAG	C6-C5-C4	-2.20	107.79	112.99
5	R	306	MAN	C6-C5-C4	-2.18	107.83	112.99
5	N	305	MAN	O5-C1-C2	-2.14	107.44	110.78
3	M	300	NAG	O5-C1-C2	-2.07	108.66	111.52
5	A	305	MAN	O5-C1-C2	-2.06	107.56	110.78
4	C	302	BMA	C6-C5-C4	-2.04	108.16	112.99
4	R	302	BMA	C2-C3-C4	-2.04	107.32	110.87
5	A	303	MAN	O5-C1-C2	-2.03	107.62	110.78
5	B	306	MAN	C1-O5-C5	-2.02	109.42	112.19
5	E	304	MAN	C6-C5-C4	-2.01	108.24	112.99
3	B	300	NAG	C1-O5-C5	2.00	114.94	112.19
3	F	300	NAG	O5-C5-C6	2.02	110.34	107.15
5	D	304	MAN	C1-C2-C3	2.03	112.23	109.66
3	P	300	NAG	O5-C5-C6	2.05	110.39	107.15
5	F	304	MAN	C1-C2-C3	2.05	112.26	109.66
3	D	301	NAG	C1-O5-C5	2.09	115.06	112.19
4	Q	302	BMA	O5-C5-C6	2.10	110.48	107.15
3	F	301	NAG	C1-O5-C5	2.19	115.20	112.19
4	R	302	BMA	O4-C4-C3	2.21	115.50	110.34
5	N	305	MAN	O5-C5-C6	2.22	110.66	107.15
3	R	301	NAG	O5-C5-C6	2.24	110.69	107.15
5	P	303	MAN	O5-C5-C6	2.24	110.70	107.15
5	Q	303	MAN	O5-C5-C6	2.25	110.71	107.15
3	O	300	NAG	C1-O5-C5	2.27	115.31	112.19
4	D	302	BMA	O5-C5-C6	2.28	110.76	107.15
5	R	305	MAN	O5-C5-C6	2.30	110.78	107.15
3	N	300	NAG	C1-O5-C5	2.31	115.36	112.19
5	C	306	MAN	C1-C2-C3	2.33	112.61	109.66
3	Q	300	NAG	C4-C3-C2	2.35	114.45	111.02
5	E	303	MAN	O5-C5-C6	2.39	110.94	107.15
5	Q	304	MAN	C1-C2-C3	2.41	112.71	109.66
3	R	300	NAG	O5-C5-C6	2.47	111.05	107.15
5	B	305	MAN	O5-C5-C6	2.51	111.12	107.15
5	B	306	MAN	C1-C2-C3	2.51	112.84	109.66
5	A	304	MAN	O5-C5-C6	2.53	111.15	107.15
5	O	304	MAN	C1-O5-C5	2.55	115.70	112.19
5	D	303	MAN	O5-C5-C6	2.65	111.34	107.15
5	M	303	MAN	C1-O5-C5	2.66	115.85	112.19
5	C	303	MAN	O3-C3-C4	2.67	116.59	110.34
3	D	300	NAG	C1-C2-N2	2.68	115.06	110.49
3	A	300	NAG	C1-O5-C5	2.71	115.92	112.19
4	D	302	BMA	C1-O5-C5	2.72	115.93	112.19

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	O	302	BMA	O3-C3-C4	2.72	116.70	110.34
5	N	303	MAN	C1-C2-C3	2.74	113.13	109.66
5	R	304	MAN	C1-C2-C3	2.76	113.15	109.66
4	E	302	BMA	C1-C2-C3	2.78	113.18	109.66
5	R	303	MAN	O3-C3-C2	2.82	115.27	110.04
5	O	303	MAN	C1-O5-C5	2.85	116.11	112.19
4	B	302	BMA	C1-O5-C5	2.85	116.11	112.19
5	F	304	MAN	C1-O5-C5	2.87	116.13	112.19
4	N	302	BMA	O3-C3-C4	2.88	117.06	110.34
5	P	305	MAN	C1-C2-C3	2.97	113.42	109.66
3	P	301	NAG	C1-O5-C5	2.98	116.28	112.19
5	Q	303	MAN	C1-O5-C5	3.01	116.33	112.19
4	R	302	BMA	O5-C5-C6	3.01	111.92	107.15
5	Q	303	MAN	O3-C3-C2	3.03	115.67	110.04
4	E	302	BMA	C1-O5-C5	3.05	116.39	112.19
5	R	306	MAN	C1-C2-C3	3.09	113.57	109.66
4	N	302	BMA	C1-O5-C5	3.10	116.45	112.19
5	Q	306	MAN	C1-C2-C3	3.15	113.65	109.66
3	M	300	NAG	O5-C5-C6	3.19	112.20	107.15
3	D	300	NAG	C1-O5-C5	3.26	116.67	112.19
3	F	300	NAG	C1-O5-C5	3.26	116.68	112.19
5	E	304	MAN	C1-O5-C5	3.29	116.71	112.19
5	Q	305	MAN	C1-O5-C5	3.31	116.74	112.19
3	C	300	NAG	C1-O5-C5	3.49	116.99	112.19
5	M	303	MAN	C1-C2-C3	3.51	114.09	109.66
5	N	304	MAN	C1-O5-C5	3.51	117.01	112.19
4	R	302	BMA	C1-C2-C3	3.54	114.14	109.66
4	O	302	BMA	C1-C2-C3	3.74	114.39	109.66
4	P	302	BMA	O2-C2-C1	3.82	116.87	109.17
5	B	303	MAN	C1-O5-C5	3.82	117.44	112.19
4	C	302	BMA	C1-C2-C3	4.11	114.86	109.66
4	D	302	BMA	C1-C2-C3	4.22	115.00	109.66
5	N	303	MAN	C1-O5-C5	4.24	118.02	112.19
5	B	303	MAN	C1-C2-C3	4.32	115.12	109.66
4	E	302	BMA	O3-C3-C2	4.49	118.39	110.04
4	C	302	BMA	C1-O5-C5	4.59	118.50	112.19
4	F	302	BMA	O2-C2-C1	4.75	118.76	109.17
5	R	306	MAN	C1-O5-C5	6.29	120.84	112.19
4	B	302	BMA	O3-C3-C2	7.09	123.23	110.04

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	Q	300	NAG	O7-C7-N2-C2

There are no ring outliers.

14 monomers are involved in 10 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	300	NAG	1	0
3	B	301	NAG	1	0
4	B	302	BMA	1	0
5	B	306	MAN	1	0
3	E	301	NAG	1	0
4	E	302	BMA	1	0
5	E	304	MAN	1	0
4	M	302	BMA	1	0
5	M	303	MAN	1	0
3	N	300	NAG	1	0
3	O	300	NAG	1	0
3	P	300	NAG	1	0
3	Q	300	NAG	1	0
4	R	302	BMA	1	0

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

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, 95th 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	188/208 (90%)	0.27	1 (0%) 90 86	143, 190, 239, 281	0
1	B	189/208 (90%)	0.34	5 (2%) 56 45	146, 194, 242, 283	0
1	C	186/208 (89%)	0.55	19 (10%) 7 6	157, 209, 248, 289	0
1	D	187/208 (89%)	0.20	4 (2%) 63 54	150, 202, 238, 288	0
1	E	187/208 (89%)	0.62	25 (13%) 3 3	167, 212, 249, 290	0
1	F	189/208 (90%)	0.22	6 (3%) 47 36	145, 205, 246, 291	0
1	M	191/208 (91%)	0.19	1 (0%) 90 86	143, 193, 248, 317	0
1	N	191/208 (91%)	0.32	3 (1%) 72 62	142, 189, 242, 289	0
1	O	186/208 (89%)	0.13	0 100 100	132, 196, 237, 280	0
1	P	189/208 (90%)	0.23	2 (1%) 80 72	153, 193, 245, 281	0
1	Q	185/208 (88%)	0.28	5 (2%) 54 44	146, 199, 240, 280	0
1	R	186/208 (89%)	0.09	1 (0%) 90 86	135, 192, 238, 285	0
2	G	145/153 (94%)	0.37	1 (0%) 87 82	140, 215, 266, 338	0
2	H	142/153 (92%)	0.12	1 (0%) 87 82	155, 230, 283, 323	0
2	I	137/153 (89%)	0.50	12 (8%) 10 8	178, 246, 290, 316	0
2	J	142/153 (92%)	0.27	6 (4%) 36 28	184, 250, 298, 334	0
2	K	143/153 (93%)	0.29	17 (11%) 4 5	179, 248, 296, 336	0
2	L	135/153 (88%)	0.92	25 (18%) 1 1	187, 248, 301, 350	0
2	S	144/153 (94%)	0.16	0 100 100	161, 225, 278, 327	0
2	T	142/153 (92%)	0.11	3 (2%) 63 54	164, 240, 292, 331	0
2	U	144/153 (94%)	-0.02	0 100 100	176, 243, 299, 325	0
2	V	141/153 (92%)	0.24	8 (5%) 24 19	166, 237, 280, 324	0
2	W	142/153 (92%)	0.21	2 (1%) 75 66	169, 235, 288, 321	0
2	X	139/153 (90%)	0.15	2 (1%) 75 66	159, 228, 282, 314	0

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
All	All	3950/4332 (91%)	0.28	149 (3%) 40 31	132, 210, 279, 350	0

All (149) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	190	SER	6.2
2	L	7	CYS	5.0
2	L	44	LYS	5.0
1	C	189	LEU	4.7
2	L	53	ALA	4.3
2	I	86	ARG	4.3
2	L	70	ASN	4.3
1	C	199	VAL	4.3
1	C	142	LEU	4.3
2	K	96	GLU	4.2
2	I	135	PHE	3.9
2	K	135	PHE	3.9
2	K	36	GLU	3.9
2	K	92	THR	3.9
2	L	98	HIS	3.9
2	V	98	HIS	3.8
2	K	98	HIS	3.7
1	E	156	VAL	3.6
1	E	78	PHE	3.6
1	E	41	GLY	3.6
2	L	52	LYS	3.5
1	F	78	PHE	3.5
1	B	129	VAL	3.4
1	C	191	LEU	3.4
1	E	199	VAL	3.4
2	L	46	PRO	3.3
1	E	155	HIS	3.3
2	L	45	ASP	3.3
2	K	136	SER	3.3
1	B	214	TYR	3.2
1	C	156	VAL	3.2
2	V	36	GLU	3.2
1	D	123	LYS	3.2
1	N	204	LYS	3.1
1	F	210	ALA	3.0
2	W	8	SER	3.0
2	X	135	PHE	3.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
2	L	144	ALA	3.0
2	L	36	GLU	3.0
1	C	157	GLN	2.9
2	J	97	GLU	2.9
2	L	49	TYR	2.9
2	L	9	HIS	2.9
1	C	214	TYR	2.9
1	E	40	LEU	2.9
1	Q	156	VAL	2.8
1	E	158	TRP	2.8
1	B	203	GLY	2.8
1	C	159	LEU	2.8
1	E	154	PRO	2.8
1	Q	204	LYS	2.8
1	Q	159	LEU	2.8
2	I	11	ILE	2.8
2	L	47	VAL	2.8
2	L	86	ARG	2.8
1	C	143	THR	2.7
2	I	54	PHE	2.7
2	T	91	PHE	2.7
1	C	62	ARG	2.7
1	E	200	THR	2.7
2	L	54	PHE	2.7
2	K	97	GLU	2.6
2	I	36	GLU	2.6
2	T	11	ILE	2.6
1	E	121	VAL	2.6
2	K	38	VAL	2.6
1	E	203	GLY	2.6
1	Q	200	THR	2.6
2	J	67	PHE	2.6
1	F	211	HIS	2.6
1	N	62	ARG	2.5
2	K	134	ILE	2.5
1	C	151	PHE	2.5
2	J	11	ILE	2.5
1	E	211	HIS	2.5
1	P	214	TYR	2.5
2	I	121	PHE	2.5
2	J	28	GLU	2.5
1	E	159	LEU	2.5

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	R	35	TRP	2.5
2	L	51	LYS	2.5
1	E	204	LYS	2.5
1	E	191	LEU	2.5
2	L	138	ASN	2.5
1	C	154	PRO	2.4
1	B	133	ARG	2.4
2	L	140	ASN	2.4
1	N	156	VAL	2.4
2	K	94	ASP	2.4
2	I	44	LYS	2.4
2	X	90	CYS	2.4
1	E	157	GLN	2.4
1	E	214	TYR	2.4
1	B	213	VAL	2.4
2	L	10	MET	2.4
2	K	11	ILE	2.4
1	F	35	TRP	2.4
2	L	11	ILE	2.4
2	V	143	PHE	2.4
2	K	41	GLU	2.4
1	Q	62	ARG	2.4
2	I	124	THR	2.4
2	G	96	GLU	2.4
2	L	141	ASN	2.4
2	V	38	VAL	2.3
2	L	137	LYS	2.3
2	J	132	TRP	2.3
1	D	41	GLY	2.3
1	D	122	VAL	2.3
2	L	142	SER	2.3
1	E	189	LEU	2.3
1	D	78	PHE	2.3
1	E	79	ASP	2.3
1	F	79	ASP	2.3
1	C	211	HIS	2.3
2	I	132	TRP	2.3
2	H	135	PHE	2.3
1	E	35	TRP	2.2
2	T	98	HIS	2.2
1	C	200	THR	2.2
2	V	43	LEU	2.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
2	L	145	GLU	2.2
2	K	133	ASN	2.2
1	P	219	LEU	2.2
2	V	121	PHE	2.2
1	E	102	TYR	2.2
2	V	11	ILE	2.2
2	V	10	MET	2.2
1	E	160	MET	2.2
1	M	63	MET	2.2
2	J	133	ASN	2.2
2	K	28	GLU	2.2
1	A	148	VAL	2.1
1	F	214	TYR	2.1
1	C	80	ILE	2.1
2	K	121	PHE	2.1
1	C	158	TRP	2.1
1	C	144	VAL	2.1
1	E	190	SER	2.1
1	E	142	LEU	2.1
1	C	194	PRO	2.1
2	K	93	LYS	2.1
2	K	52	LYS	2.0
2	I	90	CYS	2.0
2	W	38	VAL	2.0
2	I	53	ALA	2.0
2	I	26	GLN	2.0
2	L	121	PHE	2.0
1	E	80	ILE	2.0

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

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

6.3 Carbohydrates [i](#)

There are no carbohydrates 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, 95th 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
5	MAN	C	304	11/12	0.46	0.91	240,308,366,376	0
5	MAN	R	305	11/12	0.51	0.36	248,304,355,371	0
5	MAN	C	303	11/12	0.63	0.51	292,310,342,361	0
5	MAN	F	304	11/12	0.64	0.35	223,300,324,344	0
5	MAN	D	303	11/12	0.65	0.35	186,281,322,333	0
5	MAN	M	304	11/12	0.66	0.27	229,267,300,324	0
5	MAN	C	305	11/12	0.67	0.45	217,289,309,314	0
5	MAN	M	303	11/12	0.71	0.22	242,274,322,327	0
5	MAN	E	303	11/12	0.73	0.23	184,249,291,304	0
5	MAN	Q	306	11/12	0.73	0.32	200,242,264,268	0
5	MAN	P	305	11/12	0.74	0.30	214,290,327,327	0
5	MAN	B	305	11/12	0.75	0.25	227,270,316,333	0
5	MAN	E	304	11/12	0.76	0.28	222,282,306,313	0
5	MAN	B	304	11/12	0.77	0.30	219,268,297,306	0
5	MAN	P	304	11/12	0.77	0.35	294,320,348,349	0
5	MAN	N	304	11/12	0.77	0.30	165,285,305,311	0
5	MAN	Q	303	11/12	0.77	0.19	268,299,347,351	0
4	BMA	E	302	11/12	0.78	0.12	239,257,278,284	0
5	MAN	A	304	11/12	0.79	0.31	172,278,292,311	0
4	BMA	C	302	11/12	0.79	0.31	208,249,289,300	0
5	MAN	Q	304	11/12	0.79	0.20	189,286,305,313	0
4	BMA	F	302	11/12	0.80	0.19	197,221,242,300	0
5	MAN	N	305	11/12	0.81	0.24	183,247,291,293	0
5	MAN	C	306	11/12	0.82	0.25	178,249,271,281	0
5	MAN	R	306	11/12	0.82	0.22	216,284,323,332	0
5	MAN	A	305	11/12	0.83	0.23	179,283,319,340	0
5	MAN	N	303	11/12	0.83	0.20	222,259,293,368	0
5	MAN	R	303	11/12	0.83	0.14	256,287,316,320	0
4	BMA	P	302	11/12	0.83	0.18	189,230,277,279	0
3	NAG	C	301	14/15	0.84	0.31	182,258,282,287	0
3	NAG	C	300	14/15	0.84	0.19	223,276,318,345	0
5	MAN	O	304	11/12	0.84	0.27	213,249,288,290	0
3	NAG	R	300	14/15	0.84	0.26	154,190,260,269	0
5	MAN	R	304	11/12	0.85	0.25	233,279,298,326	0
3	NAG	E	300	14/15	0.85	0.22	185,254,298,308	0
5	MAN	A	303	11/12	0.86	0.25	215,291,309,312	0
3	NAG	D	301	14/15	0.86	0.24	152,204,221,276	0
3	NAG	R	301	14/15	0.86	0.28	171,184,232,241	0
5	MAN	D	304	11/12	0.86	0.31	204,256,281,283	0
5	MAN	Q	305	11/12	0.86	0.32	254,324,359,371	0
5	MAN	B	303	11/12	0.86	0.24	270,298,320,337	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	BMA	A	302	11/12	0.86	0.14	196,227,268,279	0
5	MAN	F	303	11/12	0.87	0.27	229,290,322,341	0
4	BMA	M	302	11/12	0.87	0.15	199,229,289,318	0
5	MAN	M	305	11/12	0.88	0.22	159,266,328,347	0
5	MAN	B	306	11/12	0.89	0.24	186,234,277,304	0
4	BMA	D	302	11/12	0.89	0.22	191,228,274,332	0
4	BMA	Q	302	11/12	0.90	0.16	175,205,224,271	0
3	NAG	E	301	14/15	0.90	0.27	206,257,279,286	0
5	MAN	P	303	11/12	0.90	0.28	235,283,301,320	0
3	NAG	Q	300	14/15	0.91	0.22	172,210,247,251	0
5	MAN	O	303	11/12	0.91	0.28	172,240,270,283	0
3	NAG	P	300	14/15	0.91	0.27	129,218,239,239	0
3	NAG	D	300	14/15	0.92	0.20	202,246,270,275	0
3	NAG	N	301	14/15	0.92	0.30	113,159,214,279	0
3	NAG	F	300	14/15	0.92	0.28	194,268,287,303	0
3	NAG	F	301	14/15	0.92	0.21	154,216,246,271	0
3	NAG	M	301	14/15	0.93	0.27	157,188,237,248	0
3	NAG	N	300	14/15	0.93	0.30	101,187,221,223	0
3	NAG	Q	301	14/15	0.93	0.28	148,181,242,292	0
3	NAG	A	300	14/15	0.94	0.28	158,184,245,246	0
3	NAG	P	301	14/15	0.94	0.25	109,185,229,268	0
3	NAG	O	300	14/15	0.94	0.35	164,202,282,318	0
4	BMA	N	302	11/12	0.94	0.13	122,186,227,233	0
4	BMA	O	302	11/12	0.94	0.18	202,211,256,269	0
3	NAG	B	300	14/15	0.94	0.24	158,192,224,246	0
3	NAG	O	301	14/15	0.94	0.27	147,178,203,238	0
3	NAG	B	301	14/15	0.95	0.30	145,197,251,263	0
4	BMA	B	302	11/12	0.95	0.12	176,222,235,279	0
3	NAG	A	301	14/15	0.95	0.30	111,181,227,233	0
3	NAG	M	300	14/15	0.96	0.31	142,190,244,278	0
4	BMA	R	302	11/12	0.96	0.12	155,209,248,250	0

6.5 Other polymers [i](#)

There are no such residues in this entry.