



wwPDB X-ray Structure Validation Summary Report ⓘ

Dec 19, 2023 – 09:48 pm GMT

PDB ID : 8CN9
Title : Factor VII binding Fab of the bispecific antibody HMB-001 in complex with Factor VII
Authors : Schluckebier, G.; Johansson, E.
Deposited on : 2023-02-22
Resolution : 3.40 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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 : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

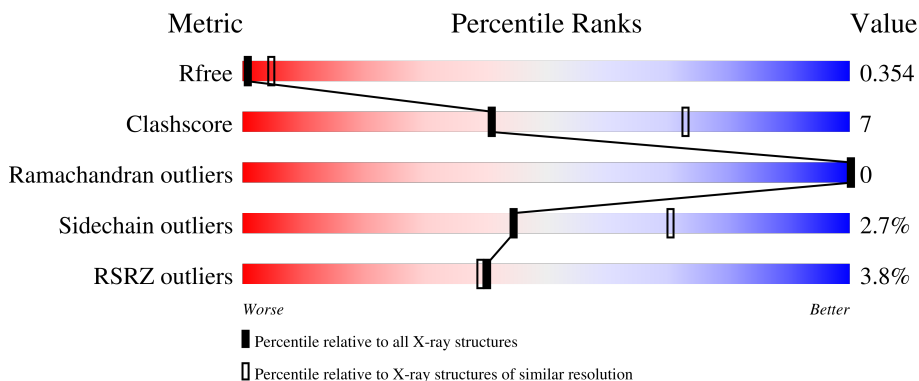
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.40 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}	130704	1026 (3.48-3.32)
Clashscore	141614	1055 (3.48-3.32)
Ramachandran outliers	138981	1038 (3.48-3.32)
Sidechain outliers	138945	1038 (3.48-3.32)
RSRZ outliers	127900	2173 (3.50-3.30)

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 $\leq 5\%$. 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	214	 5% 84% 15% .
1	F	214	 6% 78% 20% .
1	K	214	 2% 88% 11%
1	P	214	 % 80% 18% .
2	B	220	 2% 83% 15% ..

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Mol	Chain	Length	Quality of chain
2	G	220	 3% 80% 17% ..
2	L	220	 2% 80% 18% .
2	Q	220	 82% 16% .
3	C	254	 2% 79% 20%
3	H	254	 2% 83% 16% .
3	M	254	 4% 78% 19% ..
3	R	254	 % 74% 23% ..
4	D	107	 2% 66% 20% • 12%
4	I	107	 2% 81% 7% 11%
4	N	107	 4% 68% 20% • 11%
4	S	107	 % 66% 18% • 14%
5	E	219	 7% 75% 16% 9%
5	J	219	 6% 65% 22% 12%
5	O	219	 9% 58% 20% 22%
5	T	219	 9% 59% 15% • 26%

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 29516 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 Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	212	Total 1630	C 1025	N 274	O 327	S 4	0	0	0
1	F	209	Total 1607	C 1013	N 267	O 323	S 4	0	0	0
1	K	213	Total 1639	C 1030	N 275	O 330	S 4	0	0	0
1	P	210	Total 1617	C 1016	N 271	O 326	S 4	0	0	0

- Molecule 2 is a protein called Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	217	Total 1627	C 1027	N 272	O 323	S 5	0	0	0
2	G	216	Total 1621	C 1024	N 271	O 321	S 5	0	0	0
2	L	216	Total 1616	C 1020	N 268	O 323	S 5	0	0	0
2	Q	216	Total 1621	C 1024	N 271	O 321	S 5	0	0	0

- Molecule 3 is a protein called Coagulation factor VII.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	254	Total 1974	C 1253	N 351	O 357	S 13	0	0	0
3	H	254	Total 1974	C 1253	N 351	O 357	S 13	0	0	0
3	M	249	Total 1938	C 1232	N 343	O 350	S 13	0	0	0
3	R	249	Total 1938	C 1232	N 343	O 350	S 13	0	0	0

- Molecule 4 is a protein called Coagulation factor VII.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	94	Total 706	C 425	N 123	O 145	S 13	0	0	0
4	I	95	Total 714	C 429	N 124	O 148	S 13	0	0	0
4	N	95	Total 714	C 429	N 124	O 148	S 13	0	0	0
4	S	92	Total 689	C 414	N 120	O 142	S 13	0	0	0

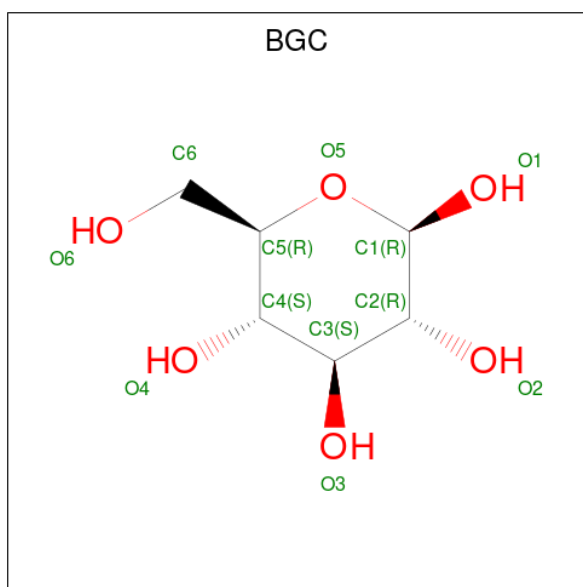
- Molecule 5 is a protein called Tissue factor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	200	Total 1603	C 1014	N 259	O 325	S 5	0	0	0
5	J	193	Total 1552	C 987	N 250	O 310	S 5	0	0	0
5	O	171	Total 1376	C 874	N 223	O 274	S 5	0	0	0
5	T	163	Total 1316	C 840	N 212	O 259	S 5	0	0	0

- Molecule 6 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total Ca 1 1	0	0
6	C	1	Total Ca 1 1	0	0
6	F	1	Total Ca 1 1	0	0
6	H	2	Total Ca 2 2	0	0
6	K	1	Total Ca 1 1	0	0
6	M	2	Total Ca 2 2	0	0
6	R	2	Total Ca 2 2	0	0

- Molecule 7 is beta-D-glucopyranose (three-letter code: BGC) (formula: C₆H₁₂O₆).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	D	1	Total C O 11 6 5	0	0
7	I	1	Total C O 11 6 5	0	0
7	S	1	Total C O 11 6 5	0	0

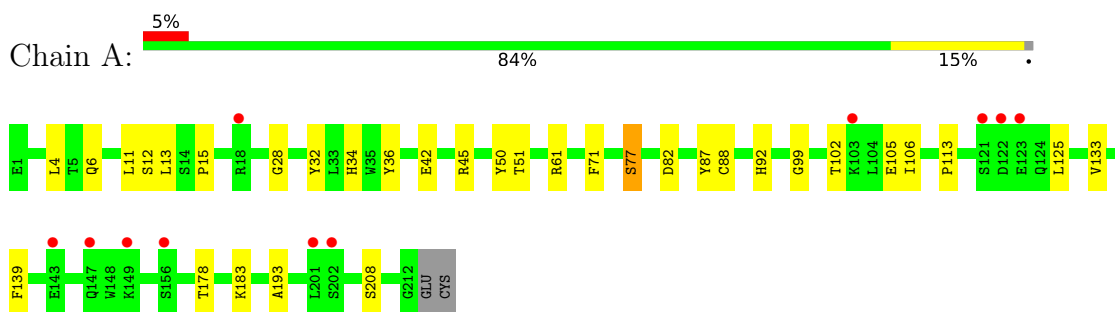
- Molecule 8 is CESIUM ION (three-letter code: CS) (formula: Cs).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	P	1	Total Cs 1 1	0	0

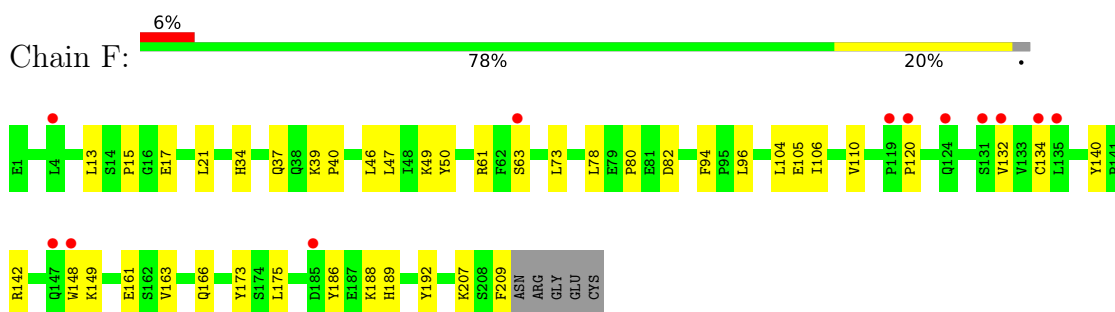
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

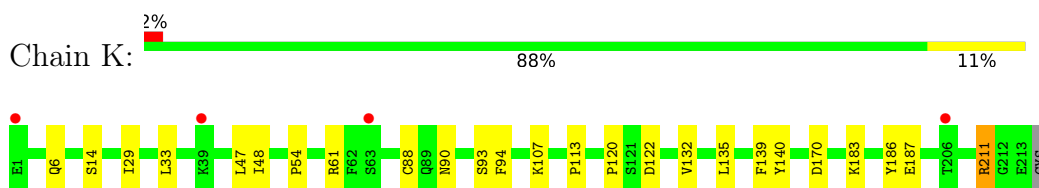
- Molecule 1: Fab light chain



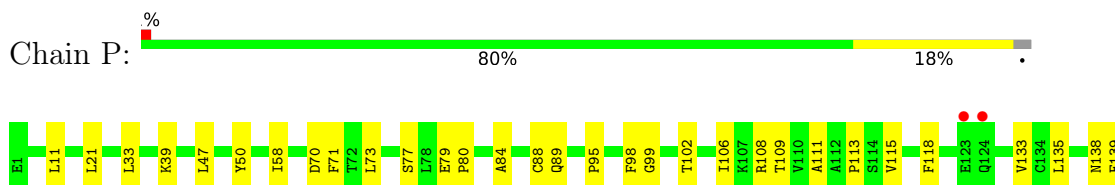
- Molecule 1: Fab light chain



- Molecule 1: Fab light chain

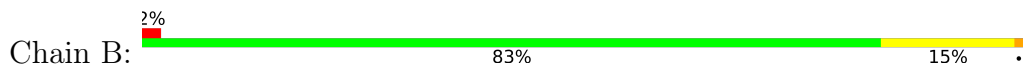


- Molecule 1: Fab light chain

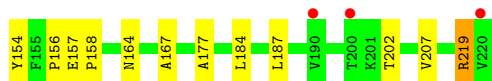
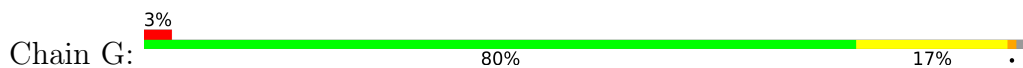




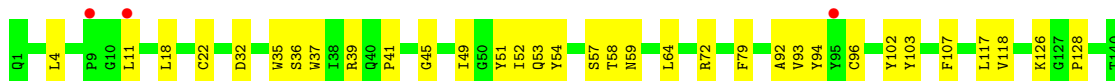
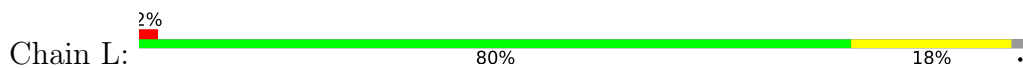
- Molecule 2: Fab heavy chain



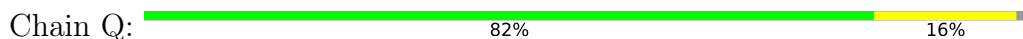
- Molecule 2: Fab heavy chain



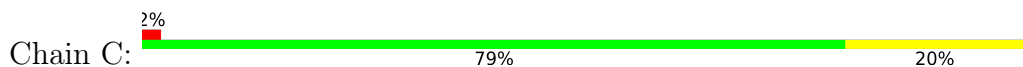
- Molecule 2: Fab heavy chain

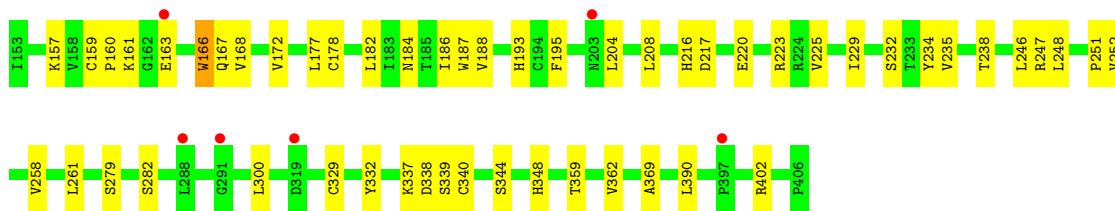


- Molecule 2: Fab heavy chain

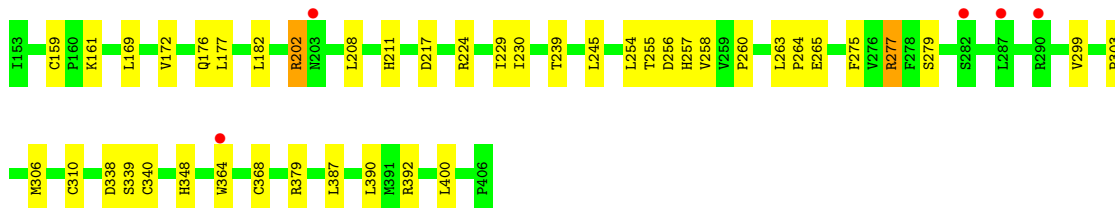
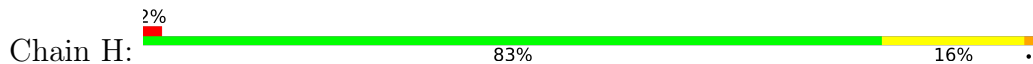


- Molecule 3: Coagulation factor VII

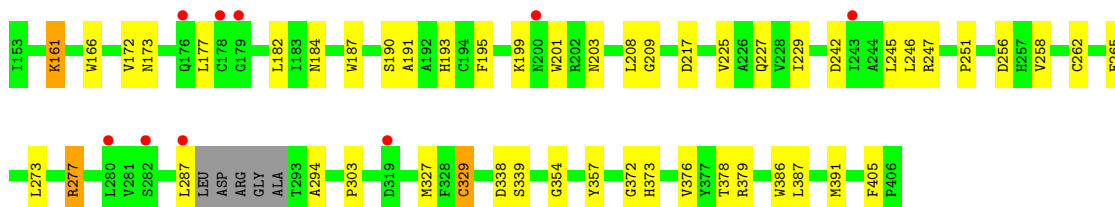
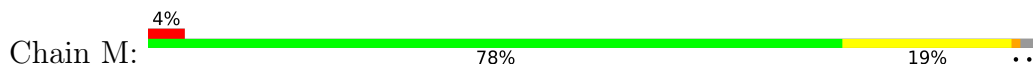




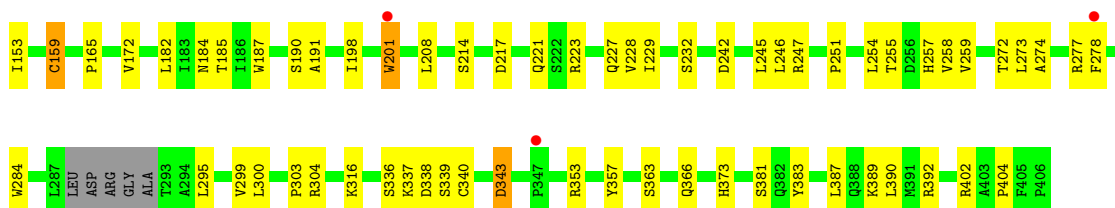
• Molecule 3: Coagulation factor VII



• Molecule 3: Coagulation factor VII



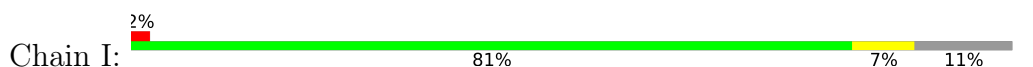
• Molecule 3: Coagulation factor VII



• Molecule 4: Coagulation factor VII



• Molecule 4: Coagulation factor VII





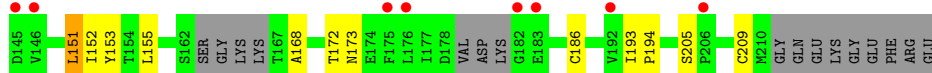
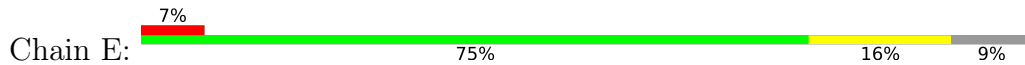
● Molecule 4: Coagulation factor VII



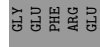
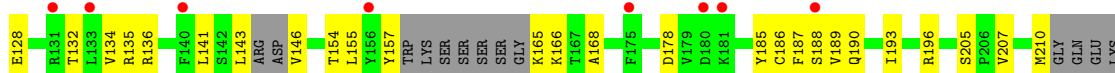
● Molecule 4: Coagulation factor VII



● Molecule 5: Tissue factor

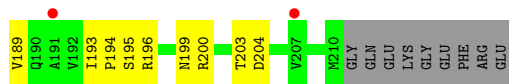
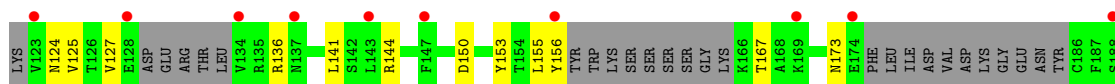


● Molecule 5: Tissue factor



● Molecule 5: Tissue factor





● Molecule 5: Tissue factor



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	144.78Å 100.79Å 181.74Å 90.00° 101.22° 90.00°	Depositor
Resolution (Å)	48.50 – 3.40 46.66 – 3.40	Depositor EDS
% Data completeness (in resolution range)	93.0 (48.50-3.40) 92.3 (46.66-3.40)	Depositor EDS
R_{merge}	0.31	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.15 (at 3.40Å)	Xtrriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.303 , 0.356 0.304 , 0.354	Depositor DCC
R_{free} test set	1878 reflections (2.86%)	wwPDB-VP
Wilson B-factor (Å ²)	65.9	Xtrriage
Anisotropy	0.650	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.23 , 19.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.37$, $\langle L^2 \rangle = 0.20$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.84	EDS
Total number of atoms	29516	wwPDB-VP
Average B, all atoms (Å ²)	64.0	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 46.38 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.1541e-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: BGC, CA, CS

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	0.25	0/1668	0.48	0/2267
1	F	0.26	0/1645	0.48	0/2237
1	K	0.25	0/1677	0.48	0/2279
1	P	0.25	0/1654	0.46	0/2246
2	B	0.25	0/1667	0.49	0/2277
2	G	0.26	0/1661	0.50	0/2269
2	L	0.25	0/1656	0.48	0/2263
2	Q	0.25	0/1661	0.49	0/2269
3	C	0.24	0/2024	0.49	0/2755
3	H	0.23	0/2024	0.49	0/2755
3	M	0.24	0/1987	0.49	0/2704
3	R	0.24	0/1987	0.50	0/2704
4	D	0.24	0/719	0.48	0/971
4	I	0.24	0/727	0.48	0/982
4	N	0.25	0/727	0.50	0/982
4	S	0.26	0/701	0.50	0/945
5	E	0.24	0/1637	0.48	0/2229
5	J	0.24	0/1583	0.48	0/2152
5	O	0.24	0/1402	0.48	0/1905
5	T	0.24	0/1347	0.49	0/1831
All	All	0.25	0/30154	0.49	0/41022

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [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	1630	0	1587	19	0
1	F	1607	0	1565	23	0
1	K	1639	0	1593	15	0
1	P	1617	0	1567	27	0
2	B	1627	0	1599	20	0
2	G	1621	0	1594	23	0
2	L	1616	0	1584	26	0
2	Q	1621	0	1594	23	0
3	C	1974	0	1950	33	0
3	H	1974	0	1951	24	0
3	M	1938	0	1912	34	0
3	R	1938	0	1913	39	0
4	D	706	0	639	12	0
4	I	714	0	644	4	0
4	N	714	0	644	14	0
4	S	689	0	620	14	0
5	E	1603	0	1543	20	0
5	J	1552	0	1511	32	0
5	O	1376	0	1337	25	0
5	T	1316	0	1270	21	0
6	A	1	0	0	0	0
6	C	1	0	0	0	0
6	F	1	0	0	0	0
6	H	2	0	0	0	0
6	K	1	0	0	0	0
6	M	2	0	0	0	0
6	R	2	0	0	0	0
7	D	11	0	8	0	0
7	I	11	0	9	0	0
7	S	11	0	8	0	0
8	P	1	0	0	0	0
All	All	29516	0	28642	415	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 7.

The worst 5 of 415 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:G:157:GLU:HG3	2:G:158:PRO:HA	1.57	0.84
1:K:113:PRO:HB3	1:K:139:PHE:HB3	1.67	0.76
2:B:210:LYS:HG3	2:B:211:PRO:HD3	1.66	0.76
5:J:134:VAL:HG23	5:J:141:LEU:HB2	1.72	0.71
1:K:187:GLU:HA	1:K:211:ARG:HH12	1.55	0.71

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	210/214 (98%)	203 (97%)	7 (3%)	0	100	100
1	F	207/214 (97%)	192 (93%)	15 (7%)	0	100	100
1	K	211/214 (99%)	202 (96%)	9 (4%)	0	100	100
1	P	206/214 (96%)	197 (96%)	9 (4%)	0	100	100
2	B	213/220 (97%)	204 (96%)	9 (4%)	0	100	100
2	G	212/220 (96%)	201 (95%)	11 (5%)	0	100	100
2	L	212/220 (96%)	205 (97%)	7 (3%)	0	100	100
2	Q	212/220 (96%)	199 (94%)	13 (6%)	0	100	100
3	C	252/254 (99%)	245 (97%)	7 (3%)	0	100	100
3	H	252/254 (99%)	246 (98%)	6 (2%)	0	100	100
3	M	245/254 (96%)	242 (99%)	3 (1%)	0	100	100
3	R	245/254 (96%)	237 (97%)	8 (3%)	0	100	100
4	D	92/107 (86%)	85 (92%)	7 (8%)	0	100	100
4	I	93/107 (87%)	84 (90%)	9 (10%)	0	100	100
4	N	93/107 (87%)	88 (95%)	5 (5%)	0	100	100
4	S	88/107 (82%)	77 (88%)	11 (12%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	E	194/219 (89%)	187 (96%)	7 (4%)	0	100	100
5	J	185/219 (84%)	178 (96%)	7 (4%)	0	100	100
5	O	159/219 (73%)	149 (94%)	10 (6%)	0	100	100
5	T	155/219 (71%)	146 (94%)	9 (6%)	0	100	100
All	All	3736/4056 (92%)	3567 (96%)	169 (4%)	0	100	100

There are no Ramachandran outliers to report.

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	184/186 (99%)	183 (100%)	1 (0%)	88	94
1	F	182/186 (98%)	180 (99%)	2 (1%)	73	86
1	K	185/186 (100%)	181 (98%)	4 (2%)	52	75
1	P	183/186 (98%)	181 (99%)	2 (1%)	73	86
2	B	188/191 (98%)	183 (97%)	5 (3%)	44	70
2	G	187/191 (98%)	181 (97%)	6 (3%)	39	67
2	L	187/191 (98%)	184 (98%)	3 (2%)	62	81
2	Q	187/191 (98%)	184 (98%)	3 (2%)	62	81
3	C	216/216 (100%)	210 (97%)	6 (3%)	43	70
3	H	216/216 (100%)	209 (97%)	7 (3%)	39	67
3	M	213/216 (99%)	208 (98%)	5 (2%)	50	74
3	R	213/216 (99%)	205 (96%)	8 (4%)	33	61
4	D	82/92 (89%)	74 (90%)	8 (10%)	8	28
4	I	83/92 (90%)	81 (98%)	2 (2%)	49	74
4	N	83/92 (90%)	78 (94%)	5 (6%)	19	49
4	S	80/92 (87%)	76 (95%)	4 (5%)	24	54
5	E	185/200 (92%)	177 (96%)	8 (4%)	29	59

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	J	179/200 (90%)	175 (98%)	4 (2%)	52	75
5	O	160/200 (80%)	155 (97%)	5 (3%)	40	68
5	T	151/200 (76%)	148 (98%)	3 (2%)	55	77
All	All	3344/3540 (94%)	3253 (97%)	91 (3%)	44	70

5 of 91 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	M	166	TRP
1	P	11	LEU
3	M	277	ARG
4	N	114	CYS
2	Q	180	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
3	H	184	ASN
5	J	18	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 14 ligands modelled in this entry, 11 are monoatomic - leaving 3 for Mogul analysis.

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
7	BGC	D	201	-	11,11,12	1.36	1 (9%)	15,16,17	1.10	2 (13%)
7	BGC	I	201	-	11,11,12	1.31	1 (9%)	15,16,17	1.48	4 (26%)
7	BGC	S	201	-	11,11,12	1.18	1 (9%)	15,16,17	0.96	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
7	BGC	D	201	-	-	-	0/1/1/1
7	BGC	I	201	-	-	-	0/1/1/1
7	BGC	S	201	-	-	-	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	D	201	BGC	O5-C1	3.37	1.51	1.42
7	I	201	BGC	O5-C1	3.30	1.51	1.42
7	S	201	BGC	O5-C1	2.94	1.50	1.42

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	I	201	BGC	O5-C5-C4	2.65	114.28	109.52
7	I	201	BGC	C6-C5-C4	-2.62	108.24	113.07
7	I	201	BGC	C1-C2-C3	2.46	115.42	110.31
7	D	201	BGC	O5-C5-C4	2.24	113.54	109.52
7	D	201	BGC	C6-C5-C4	-2.08	109.22	113.07

There are no chirality outliers.

There are no torsion outliers.

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](#)

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	212/214 (99%)	0.34	11 (5%) 27 27	34, 68, 108, 118	0
1	F	209/214 (97%)	0.27	12 (5%) 23 24	28, 58, 93, 106	0
1	K	213/214 (99%)	0.22	4 (1%) 66 65	32, 63, 96, 109	0
1	P	210/214 (98%)	0.21	3 (1%) 75 74	31, 60, 90, 119	0
2	B	217/220 (98%)	0.08	4 (1%) 68 67	29, 64, 94, 110	0
2	G	216/220 (98%)	0.11	7 (3%) 47 46	33, 62, 88, 115	0
2	L	216/220 (98%)	0.01	4 (1%) 66 65	36, 64, 88, 111	0
2	Q	216/220 (98%)	-0.05	1 (0%) 91 90	32, 64, 86, 98	0
3	C	254/254 (100%)	0.20	6 (2%) 59 57	24, 52, 85, 132	0
3	H	254/254 (100%)	0.20	5 (1%) 65 64	25, 53, 87, 105	0
3	M	249/254 (98%)	0.16	9 (3%) 42 42	28, 55, 89, 135	0
3	R	249/254 (98%)	0.19	3 (1%) 79 77	30, 55, 88, 142	0
4	D	94/107 (87%)	0.00	2 (2%) 63 62	32, 64, 88, 101	0
4	I	95/107 (88%)	0.07	2 (2%) 63 62	38, 65, 91, 102	0
4	N	95/107 (88%)	-0.02	4 (4%) 36 35	42, 68, 94, 108	0
4	S	92/107 (85%)	0.10	1 (1%) 80 79	43, 72, 101, 109	0
5	E	200/219 (91%)	0.27	15 (7%) 14 16	30, 64, 99, 113	0
5	J	193/219 (88%)	0.29	13 (6%) 17 19	29, 67, 115, 132	0
5	O	171/219 (78%)	0.51	19 (11%) 5 6	35, 82, 124, 138	0
5	T	163/219 (74%)	0.55	20 (12%) 4 5	35, 73, 114, 127	0
All	All	3818/4056 (94%)	0.19	145 (3%) 40 39	24, 61, 101, 142	0

The worst 5 of 145 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
5	O	112	THR	6.2
1	F	148	TRP	6.0
5	T	132	THR	5.0
1	F	132	VAL	4.9
3	C	397	PRO	4.5

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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
6	CA	M	502	1/1	0.73	0.12	57,57,57,57	0
6	CA	R	502	1/1	0.74	0.10	65,65,65,65	0
7	BGC	S	201	11/12	0.78	0.15	72,91,108,114	0
7	BGC	I	201	11/12	0.79	0.22	70,80,93,96	0
7	BGC	D	201	11/12	0.84	0.17	75,89,107,112	0
6	CA	C	501	1/1	0.84	0.13	66,66,66,66	0
6	CA	H	502	1/1	0.84	0.10	49,49,49,49	0
6	CA	K	301	1/1	0.88	0.23	80,80,80,80	0
6	CA	R	501	1/1	0.88	0.13	52,52,52,52	0
6	CA	M	501	1/1	0.89	0.12	52,52,52,52	0
6	CA	A	301	1/1	0.90	0.17	36,36,36,36	0
6	CA	H	501	1/1	0.94	0.19	71,71,71,71	0
8	CS	P	301	1/1	0.95	0.05	115,115,115,115	0
6	CA	F	301	1/1	0.97	0.11	54,54,54,54	0

6.5 Other polymers [i](#)

There are no such residues in this entry.