



Full wwPDB EM Validation Report ⓘ

Nov 12, 2024 – 03:34 AM JST

PDB ID : 8WTJ
EMDB ID : EMD-37835
Title : XBB.1.5.70 spike protein in complex with ACE2
Authors : Feng, L.L.; Feng, L.L.
Deposited on : 2023-10-18
Resolution : 4.64 Å(reported)

This is a Full wwPDB EM 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/EMValidationReportHelp>

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:

EMDB validation analysis : 0.0.1.dev113
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

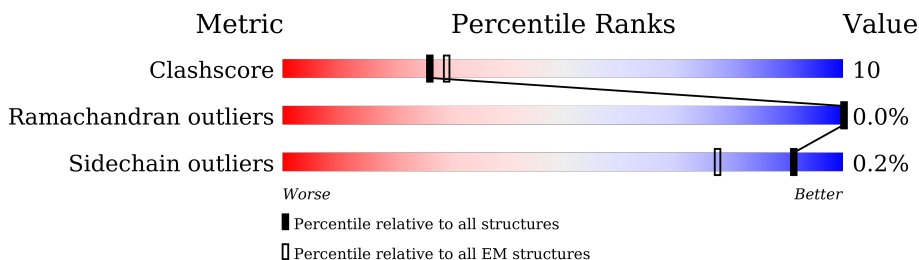
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.64 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1317	 6% 61% 20% 19%
1	B	1317	 6% 60% 21% 19%
1	C	1317	 14% 61% 19% 19%
2	E	594	 65% 76% 24%

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 29931 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Spike glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1066	Total	C	N	O	S	0	0
			8360	5346	1396	1579	39		
1	B	1066	Total	C	N	O	S	0	0
			8359	5344	1396	1580	39		
1	C	1067	Total	C	N	O	S	0	0
			8367	5350	1397	1581	39		

There are 165 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	19	ILE	THR	variant	UNP P0DTC2
A	?	-	LEU	deletion	UNP P0DTC2
A	?	-	PRO	deletion	UNP P0DTC2
A	?	-	PRO	deletion	UNP P0DTC2
A	24	SER	ALA	variant	UNP P0DTC2
A	80	ALA	VAL	variant	UNP P0DTC2
A	139	ASP	GLY	variant	UNP P0DTC2
A	?	-	TYR	deletion	UNP P0DTC2
A	142	GLN	HIS	variant	UNP P0DTC2
A	179	GLU	GLN	variant	UNP P0DTC2
A	209	GLU	VAL	variant	UNP P0DTC2
A	248	VAL	GLY	variant	UNP P0DTC2
A	335	HIS	GLY	variant	UNP P0DTC2
A	342	THR	ARG	variant	UNP P0DTC2
A	364	ILE	LEU	variant	UNP P0DTC2
A	367	PHE	SER	variant	UNP P0DTC2
A	369	PRO	SER	variant	UNP P0DTC2
A	371	PHE	SER	variant	UNP P0DTC2
A	372	ALA	THR	variant	UNP P0DTC2
A	401	ASN	ASP	variant	UNP P0DTC2
A	404	SER	ARG	variant	UNP P0DTC2
A	413	ASN	LYS	variant	UNP P0DTC2
A	436	LYS	ASN	variant	UNP P0DTC2
A	441	PRO	VAL	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	442	SER	GLY	variant	UNP P0DTC2
A	451	PHE	LEU	conflict	UNP P0DTC2
A	452	LEU	PHE	variant	UNP P0DTC2
A	456	LYS	ASN	variant	UNP P0DTC2
A	473	ASN	SER	variant	UNP P0DTC2
A	474	LYS	THR	variant	UNP P0DTC2
A	480	ALA	GLU	variant	UNP P0DTC2
A	482	PRO	PHE	variant	UNP P0DTC2
A	486	SER	PHE	variant	UNP P0DTC2
A	494	ARG	GLN	variant	UNP P0DTC2
A	497	TYR	ASN	variant	UNP P0DTC2
A	501	HIS	TYR	variant	UNP P0DTC2
A	610	GLY	ASP	variant	UNP P0DTC2
A	651	TYR	HIS	variant	UNP P0DTC2
A	675	LYS	ASN	variant	UNP P0DTC2
A	677	HIS	PRO	variant	UNP P0DTC2
A	678	GLY	ARG	conflict	UNP P0DTC2
A	679	SER	ARG	conflict	UNP P0DTC2
A	681	SER	ARG	conflict	UNP P0DTC2
A	760	LYS	ASN	variant	UNP P0DTC2
A	792	TYR	ASP	variant	UNP P0DTC2
A	813	PRO	PHE	conflict	UNP P0DTC2
A	825	THR	ALA	conflict	UNP P0DTC2
A	832	LYS	GLN	conflict	UNP P0DTC2
A	888	PRO	ALA	conflict	UNP P0DTC2
A	895	PRO	ALA	conflict	UNP P0DTC2
A	938	PRO	ALA	conflict	UNP P0DTC2
A	950	HIS	GLN	variant	UNP P0DTC2
A	965	LYS	ASN	variant	UNP P0DTC2
A	982	PRO	LYS	engineered mutation	UNP P0DTC2
A	983	PRO	VAL	engineered mutation	UNP P0DTC2
B	19	ILE	THR	variant	UNP P0DTC2
B	?	-	LEU	deletion	UNP P0DTC2
B	?	-	PRO	deletion	UNP P0DTC2
B	?	-	PRO	deletion	UNP P0DTC2
B	24	SER	ALA	variant	UNP P0DTC2
B	80	ALA	VAL	variant	UNP P0DTC2
B	139	ASP	GLY	variant	UNP P0DTC2
B	?	-	TYR	deletion	UNP P0DTC2
B	142	GLN	HIS	variant	UNP P0DTC2
B	179	GLU	GLN	variant	UNP P0DTC2
B	209	GLU	VAL	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	248	VAL	GLY	variant	UNP P0DTC2
B	335	HIS	GLY	variant	UNP P0DTC2
B	342	THR	ARG	variant	UNP P0DTC2
B	364	ILE	LEU	variant	UNP P0DTC2
B	367	PHE	SER	variant	UNP P0DTC2
B	369	PRO	SER	variant	UNP P0DTC2
B	371	PHE	SER	variant	UNP P0DTC2
B	372	ALA	THR	variant	UNP P0DTC2
B	401	ASN	ASP	variant	UNP P0DTC2
B	404	SER	ARG	variant	UNP P0DTC2
B	413	ASN	LYS	variant	UNP P0DTC2
B	436	LYS	ASN	variant	UNP P0DTC2
B	441	PRO	VAL	variant	UNP P0DTC2
B	442	SER	GLY	variant	UNP P0DTC2
B	451	PHE	LEU	conflict	UNP P0DTC2
B	452	LEU	PHE	variant	UNP P0DTC2
B	456	LYS	ASN	variant	UNP P0DTC2
B	473	ASN	SER	variant	UNP P0DTC2
B	474	LYS	THR	variant	UNP P0DTC2
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B	681	SER	ARG	conflict	UNP P0DTC2
B	760	LYS	ASN	variant	UNP P0DTC2
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B	832	LYS	GLN	conflict	UNP P0DTC2
B	888	PRO	ALA	conflict	UNP P0DTC2
B	895	PRO	ALA	conflict	UNP P0DTC2
B	938	PRO	ALA	conflict	UNP P0DTC2
B	950	HIS	GLN	variant	UNP P0DTC2
B	965	LYS	ASN	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	982	PRO	LYS	engineered mutation	UNP P0DTC2
B	983	PRO	VAL	engineered mutation	UNP P0DTC2
C	19	ILE	THR	variant	UNP P0DTC2
C	?	-	LEU	deletion	UNP P0DTC2
C	?	-	PRO	deletion	UNP P0DTC2
C	?	-	PRO	deletion	UNP P0DTC2
C	24	SER	ALA	variant	UNP P0DTC2
C	80	ALA	VAL	variant	UNP P0DTC2
C	139	ASP	GLY	variant	UNP P0DTC2
C	?	-	TYR	deletion	UNP P0DTC2
C	142	GLN	HIS	variant	UNP P0DTC2
C	179	GLU	GLN	variant	UNP P0DTC2
C	209	GLU	VAL	variant	UNP P0DTC2
C	248	VAL	GLY	variant	UNP P0DTC2
C	335	HIS	GLY	variant	UNP P0DTC2
C	342	THR	ARG	variant	UNP P0DTC2
C	364	ILE	LEU	variant	UNP P0DTC2
C	367	PHE	SER	variant	UNP P0DTC2
C	369	PRO	SER	variant	UNP P0DTC2
C	371	PHE	SER	variant	UNP P0DTC2
C	372	ALA	THR	variant	UNP P0DTC2
C	401	ASN	ASP	variant	UNP P0DTC2
C	404	SER	ARG	variant	UNP P0DTC2
C	413	ASN	LYS	variant	UNP P0DTC2
C	436	LYS	ASN	variant	UNP P0DTC2
C	441	PRO	VAL	variant	UNP P0DTC2
C	442	SER	GLY	variant	UNP P0DTC2
C	451	PHE	LEU	conflict	UNP P0DTC2
C	452	LEU	PHE	variant	UNP P0DTC2
C	456	LYS	ASN	variant	UNP P0DTC2
C	473	ASN	SER	variant	UNP P0DTC2
C	474	LYS	THR	variant	UNP P0DTC2
C	480	ALA	GLU	variant	UNP P0DTC2
C	482	PRO	PHE	variant	UNP P0DTC2
C	486	SER	PHE	variant	UNP P0DTC2
C	494	ARG	GLN	variant	UNP P0DTC2
C	497	TYR	ASN	variant	UNP P0DTC2
C	501	HIS	TYR	variant	UNP P0DTC2
C	610	GLY	ASP	variant	UNP P0DTC2
C	651	TYR	HIS	variant	UNP P0DTC2
C	675	LYS	ASN	variant	UNP P0DTC2
C	677	HIS	PRO	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	678	GLY	ARG	conflict	UNP P0DTC2
C	679	SER	ARG	conflict	UNP P0DTC2
C	681	SER	ARG	conflict	UNP P0DTC2
C	760	LYS	ASN	variant	UNP P0DTC2
C	792	TYR	ASP	variant	UNP P0DTC2
C	813	PRO	PHE	conflict	UNP P0DTC2
C	825	THR	ALA	conflict	UNP P0DTC2
C	832	LYS	GLN	conflict	UNP P0DTC2
C	888	PRO	ALA	conflict	UNP P0DTC2
C	895	PRO	ALA	conflict	UNP P0DTC2
C	938	PRO	ALA	conflict	UNP P0DTC2
C	950	HIS	GLN	variant	UNP P0DTC2
C	965	LYS	ASN	variant	UNP P0DTC2
C	982	PRO	LYS	engineered mutation	UNP P0DTC2
C	983	PRO	VAL	engineered mutation	UNP P0DTC2

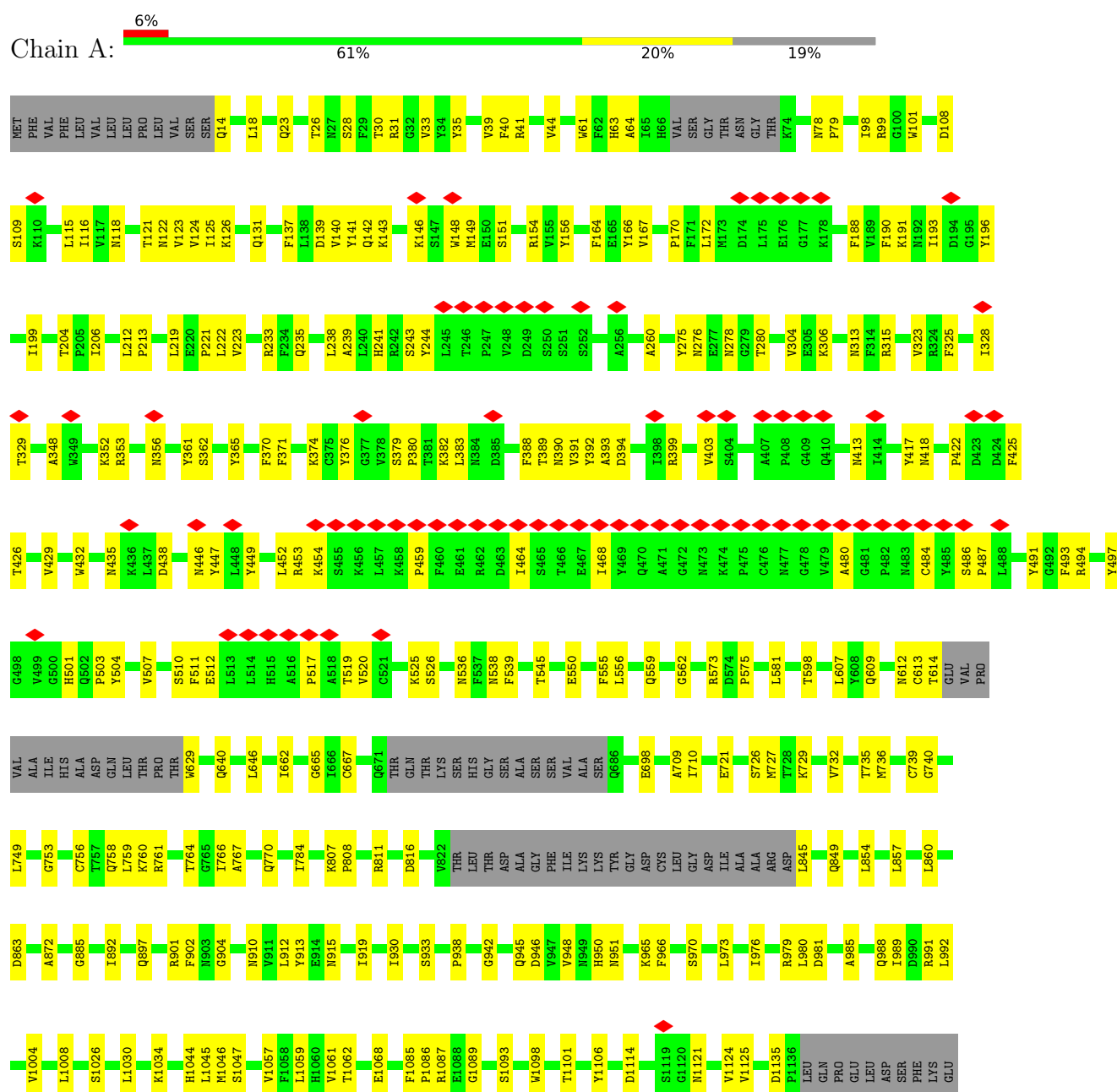
- Molecule 2 is a protein called Processed angiotensin-converting enzyme 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	594	Total	C	N	O	S	0	0
			4845	3099	803	914	29		

3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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: Spike glycoprotein



PHE LEU LEU ARG SER SER GLU VAL LEU LEU PHE GLN GLN PRO PRO GLY TRP SER SER HIS PRO PRO GLN PHE GLU GLY LYS GLY GLY GLY SER SER SER SER SER SER SER SER HIS HIS HIS HIS HIS HIS HIS HIS

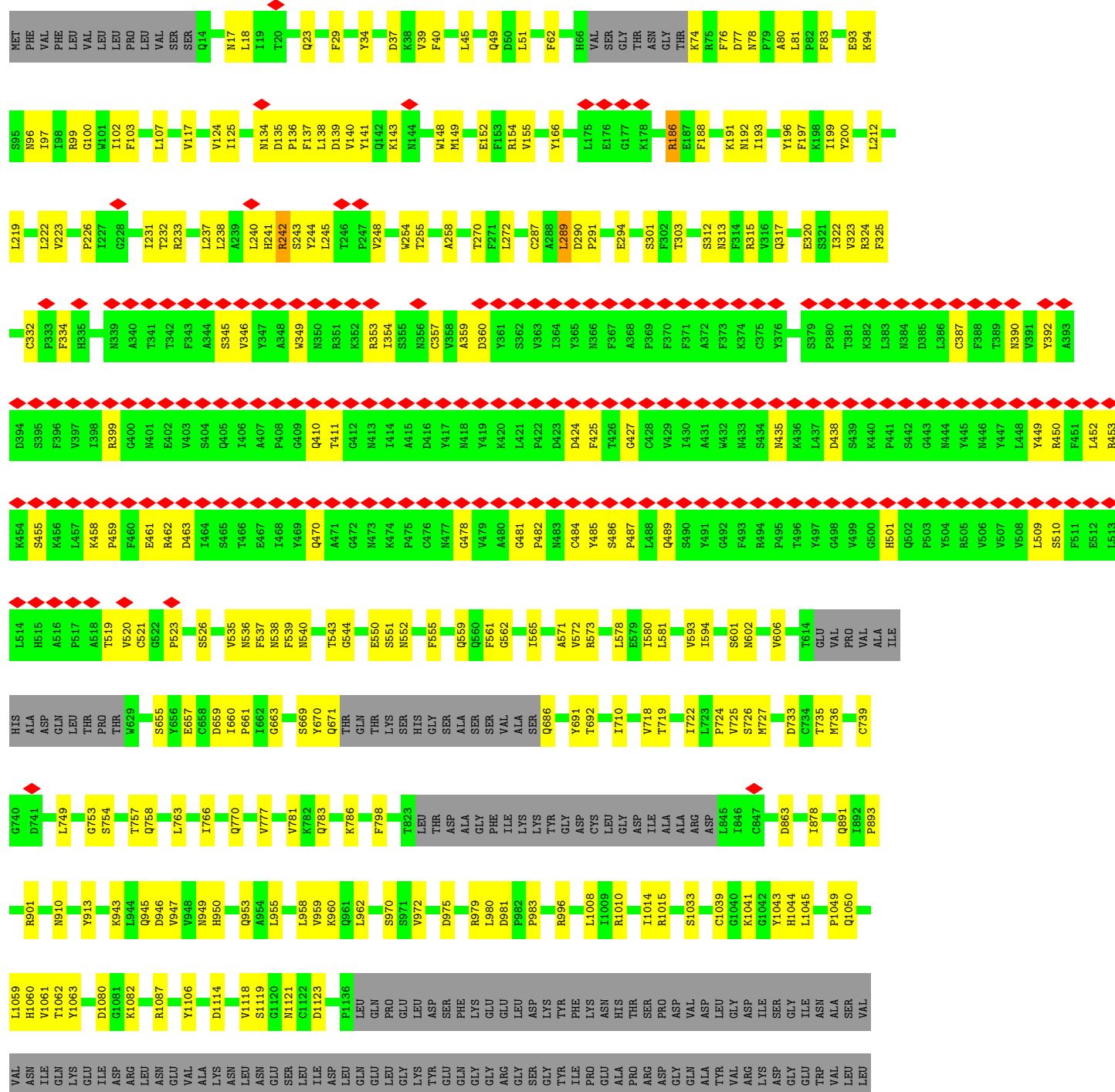
- Molecule 1: Spike glycoprotein

Chain B:



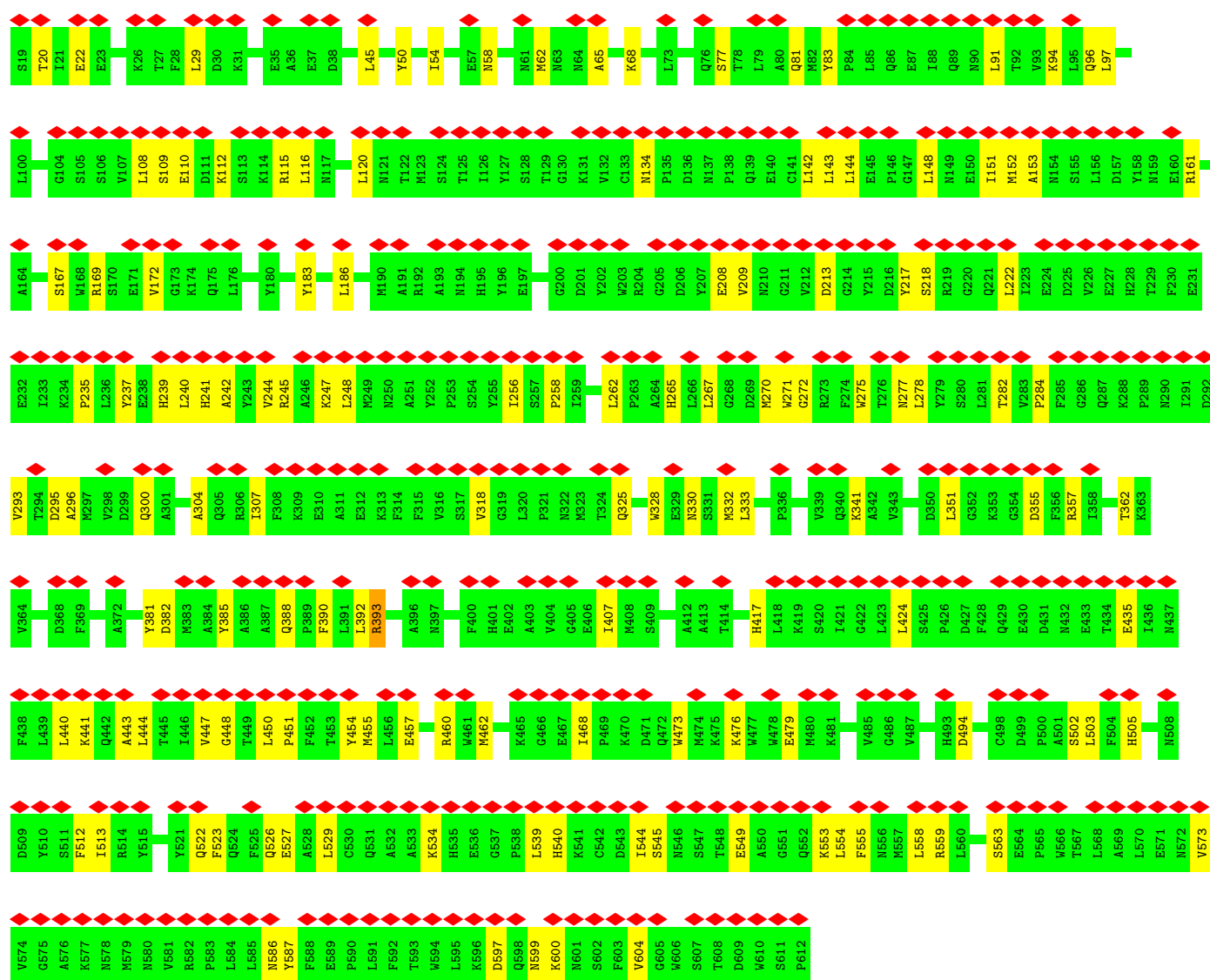
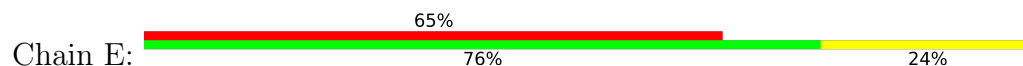
ASN	L860	E721	C613	H501	R433	N327	S201	S95	MET
HIS	I866	I722	T614	Q502	S434	I328	K202	N96	PHE
SER	K729	K729	VAL	P503	N435	L331	G215	I97	PHE
PRO	A872	D733	VAL	H505	R436	F343	L219	I98	LEU
ASP	L890	D733	ALA	Y508	D438	F343	L219	R99	VAL
VAL	L890	D733	ALA	Y508	S439	F343	L219	R99	LEU
ASP	I905	K736	ILE	L513	K440	Y347	L225	I102	LEU
LEU	T1071	I737	HIS	L513	K440	A348	P226	K110	PRO
GLY	T1072	I738	ALA	A516	Q443	N349	L227	T111	LEU
ASP	Q909	K752	ASP	A516	N444	R350	G228	Q112	VAL
ILE	Y913	Y752	GLN	P517	V445	R351	R233	S113	SER
SER	Y913	Y752	LEU	P517	V446	C357	R233	L114	SER
GLY	I766	I766	THR	V520	N446	V358	R233	L115	Q14
ILE	Q916	K782	PRO	V520	R450	L237	L237	L115	L18
ASN	Q916	K782	THR	P523	F451	L238	L238	L115	L18
ALA	I919	K783	THR	K524	L452	A239	A239	N119	I19
F1085	I919	K783	R630	K525	R453	L240	L240	A120	T20
F1086	I919	K783	R630	K525	R453	H241	H241	T121	R21
R1087	Q922	Y785	VAL	S526	K454	Y365	Y365	T121	R21
F1088	F923	K786	S655	S526	K454	F370	Y244	I125	S24
G1089	F923	K786	S655	S526	K454	F370	Y244	I125	S24
ASN	A926	Q800	D659	V530	S455	F371	L245	K126	Y25
ILE	Y1090	Q800	D659	V530	S455	A372	T246	V127	Y26
GLN	F1091	K807	Q671	K531	K456	S379	S250	N134	F29
LYS	S1093	P808	THR	N532	L457	T381	S250	D135	T30
ILE	S933	P813	GLN	V535	F460	K382	S251	P136	R31
ASP	Q945	I814	THR	N536	E461	D385	S252	Y143	F40
ARG	Q945	I814	LYS	N538	R462	L386	G253	Q142	F40
LEU	T1101	E815	SER	G541	L464	T389	W254	K146	D50
LEU	Y1106	D816	HIS	L542	S465	S395	A258	S147	L51
GLY	E1107	N820	GLY	T543	T466	F396	Y262	W148	P54
GLY	E1107	N820	SER	T544	E467	S399	L266	W149	F55
ALA	G967	T823	ALA	G546	L468	G400	R289	Y155	F56
LYS	A968	LEU	SER	T547	Q470	A471	R289	Y156	S57
ASN	Q988	THR	VAL	L548	A471	G400	N276	K178	W61
ASN	Q988	THR	VAL	L548	A471	N401	N276	K178	W61
GLY	R996	GLY	Q686	Q559	G472	P408	N276	F171	H66
LEU	Y1118	PHE	ILE	G562	N473	Q409	N276	L172	H66
ILE	Y1125	ILE	LYS	G562	K474	M173	T280	D174	VAL
ASP	P1136	LYS	LYS	V572	P475	Q410	T280	L75	SER
LEU	T1005	LYS	A697	B573	C476	T411	T280	D174	GLY
GLN	Q1006	TYR	E698	B574	N477	T411	T280	L75	THR
GLY	Q1007	GLY	N699	P575	C478	T411	T280	G177	ASN
LEU	L1008	ASP	S700	Q576	V479	T414	T280	K296	GLY
GLY	L1009	CYS	Y703	Q576	V479	T414	T280	K296	GLY
LYS	Y1033	LEU	S704	T577	A480	N418	T280	K296	THR
ASP	S1033	GLY	S704	T577	A480	N418	T280	K296	THR
TYR	C1039	ASP	N705	L581	G481	Y419	T280	R186	K74
GLY	C1039	ILE	N706	L581	G481	Y419	T280	R186	R75
PHE	Y1043	ALA	S707	D582	P482	K420	T280	R186	F76
LYS	Y1043	ALA	ALA	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
ARG	Y1043	ARG	ARG	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280	R186	D77
GLY	Y1043	GLY	GLY	D583	N483	L421	T280</		

- Molecule 1: Spike glycoprotein



SER	THR	PHE	LEU	GLY	GLY	SER	GLY	GLY	TYR	SER	THR	ILE	PRO	GLU	ALA	PRO	GLU	ASP	LYS	ARG	GLY	TRP	VAL	LEU	LEU	SER	THR	PHE	LEU	GLY	ARG	SER	LEU	GLU	VAL	LEU	PHE	GLN	GLY	PRO	TRP	SER	HIS	PRO	GLN	PHE	GLU	LYS	GLY	GLY	SER
GLY	GLY	GLY	GLY	GLY	SER	SER	ALA	ALA	TRP	SER	THR	HIS	PRO	GLN	PHE	GLU	LYS	HIS	HIS	HIS	HIS	VAL	TYR	THR	LEU	LEU	SER	PHE	LEU	GLY	ARG	SER	LEU	GLU	VAL	LEU	PHE	GLN	GLY	PRO	TRP	SER	HIS	PRO	GLN	PHE	GLU	LYS	GLY	GLY	SER

● Molecule 2: Processed angiotensin-converting enzyme 2



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	64562	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	52	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.962	Depositor
Minimum map value	-0.234	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.043	Depositor
Recommended contour level	0.25	Depositor
Map size (Å)	374.4, 374.4, 374.4	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.04, 1.04, 1.04	Depositor

5 Model quality

5.1 Standard geometry

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	0.28	0/8563	0.57	1/11654 (0.0%)
1	B	0.28	0/8562	0.55	1/11653 (0.0%)
1	C	0.27	0/8570	0.58	4/11664 (0.0%)
2	E	0.28	0/4981	0.57	2/6767 (0.0%)
All	All	0.28	0/30676	0.57	8/41738 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	C	0	1

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	149	MET	CA-CB-CG	6.28	123.97	113.30
1	C	289	LEU	CA-CB-CG	6.17	129.49	115.30
1	C	138	LEU	CA-CB-CG	6.07	129.25	115.30
2	E	455	MET	CB-CG-SD	6.03	130.48	112.40
1	C	578	LEU	CA-CB-CG	5.57	128.11	115.30
2	E	62	MET	CG-SD-CE	5.25	108.60	100.20
1	B	578	LEU	CA-CB-CG	5.21	127.28	115.30
1	A	736	MET	CA-CB-CG	5.20	122.15	113.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	242	ARG	Peptide

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	8360	0	8174	179	0
1	B	8359	0	8170	181	0
1	C	8367	0	8183	164	0
2	E	4845	0	4625	91	0
All	All	29931	0	29152	583	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 (583) 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:E:296:ALA:O	2:E:300:GLN:HB2	1.73	0.89
1:B:1089:GLY:HA3	1:B:1101:THR:O	1.77	0.83
1:A:1089:GLY:HA3	1:A:1101:THR:O	1.86	0.75
1:A:352:LYS:HB2	1:A:393:ALA:HB3	1.69	0.74
1:C:427:GLY:HA3	1:C:509:LEU:O	1.88	0.73
1:C:141:TYR:HB3	1:C:244:TYR:HB2	1.68	0.72
2:E:54:ILE:H	2:E:341:LYS:HB3	1.56	0.70
2:E:248:LEU:HD21	2:E:278:LEU:HD11	1.73	0.70
1:A:966:PHE:HB2	1:A:992:LEU:HD23	1.74	0.69
2:E:523:PHE:O	2:E:526:GLN:HB3	1.93	0.69
2:E:134:ASN:ND2	2:E:167:SER:OG	2.24	0.68
1:C:141:TYR:HA	1:C:241:HIS:HB2	1.76	0.68
1:B:562:GLY:HA2	1:C:40:PHE:HB3	1.77	0.67
1:C:80:ALA:HA	1:C:233:ARG:HH21	1.59	0.65
1:C:536:ASN:HA	1:C:544:GLY:O	1.96	0.65
1:A:1047:SER:HA	1:A:1059:LEU:O	1.96	0.65
1:B:102:ILE:HD13	1:B:237:LEU:HD23	1.78	0.65
1:B:141:TYR:HB3	1:B:244:TYR:HB2	1.78	0.64
1:A:729:LYS:HG3	1:A:857:LEU:HB2	1.80	0.64
1:C:188:PHE:HA	1:C:200:TYR:O	1.98	0.64
1:C:140:VAL:HG22	1:C:152:GLU:HB2	1.81	0.63
1:C:562:GLY:HA3	1:C:571:ALA:HB3	1.79	0.63
1:A:892:ILE:HD12	1:A:897:GLN:HB3	1.79	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:979:ARG:HG2	1:A:980:LEU:HD12	1.80	0.63
1:A:1046:MET:HB2	1:A:1061:VAL:HB	1.80	0.63
1:B:196:TYR:HA	1:B:226:PRO:HA	1.81	0.63
1:B:325:PHE:O	1:B:576:GLN:NE2	2.31	0.63
2:E:457:GLU:OE2	2:E:460:ARG:NH2	2.32	0.63
1:A:98:ILE:HD12	1:A:238:LEU:HB3	1.80	0.62
1:A:101:TRP:HB2	1:A:116:ILE:HB	1.81	0.62
1:A:910:ASN:ND2	1:C:1119:SER:OG	2.32	0.62
1:A:422:PRO:HA	1:A:459:PRO:HB3	1.81	0.62
1:B:99:ARG:HH22	1:B:175:LEU:HD22	1.62	0.62
2:E:169:ARG:NH1	2:E:270:MET:SD	2.73	0.62
1:A:122:ASN:HA	1:A:170:PRO:HD3	1.81	0.61
2:E:248:LEU:HD12	2:E:262:LEU:HD21	1.82	0.61
1:B:418:ASN:O	1:B:462:ARG:NH1	2.34	0.60
1:B:699:ASN:OD1	1:C:783:GLN:NE2	2.34	0.60
1:C:77:ASP:HB3	1:C:258:ALA:HB2	1.84	0.60
1:A:391:VAL:HB	1:A:520:VAL:HG21	1.82	0.60
1:B:21:ARG:NH2	1:B:134:ASN:OD1	2.35	0.60
1:C:51:LEU:HD12	1:C:191:LYS:HE3	1.82	0.59
1:B:80:ALA:HA	1:B:233:ARG:HH21	1.67	0.59
1:A:328:ILE:HG22	1:A:329:THR:HG23	1.83	0.59
1:A:710:ILE:HB	1:A:1106:TYR:HB2	1.85	0.59
2:E:539:LEU:HB3	2:E:587:TYR:HA	1.83	0.59
1:A:18:LEU:O	1:A:78:ASN:ND2	2.36	0.59
1:A:480:ALA:HB3	1:A:484:CYS:HB2	1.85	0.59
1:B:347:TYR:HB2	1:B:450:ARG:HE	1.67	0.59
1:C:136:PRO:HB3	1:C:155:VAL:HA	1.83	0.59
1:A:761:ARG:NH2	1:C:953:GLN:OE1	2.36	0.59
1:C:324:ARG:O	1:C:540:ASN:ND2	2.35	0.59
1:B:453:ARG:HH12	1:B:457:LEU:HD13	1.68	0.59
1:B:968:ALA:HA	1:B:988:GLN:HE21	1.67	0.58
1:C:727:MET:O	1:C:770:GLN:NE2	2.36	0.58
1:B:967:GLY:O	1:B:988:GLN:NE2	2.36	0.58
1:C:975:ASP:HB2	1:C:979:ARG:HH21	1.68	0.58
1:C:18:LEU:O	1:C:78:ASN:ND2	2.37	0.58
2:E:152:MET:O	2:E:161:ARG:NH2	2.36	0.58
1:A:313:ASN:ND2	1:B:733:ASP:OD2	2.37	0.58
1:B:440:LYS:HG3	1:B:443:GLY:H	1.67	0.58
1:C:29:PHE:H	1:C:212:LEU:HD22	1.68	0.58
1:C:781:VAL:HG22	1:C:783:GLN:H	1.68	0.58
2:E:172:VAL:HG11	2:E:502:SER:HB3	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:102:ILE:HA	1:B:114:LEU:O	2.04	0.57
1:C:1044:HIS:HA	1:C:1062:THR:HG22	1.86	0.57
1:A:727:MET:O	1:A:770:GLN:NE2	2.36	0.57
1:B:173:MET:SD	1:B:186:ARG:NH2	2.77	0.57
1:B:372:ALA:O	1:B:430:ILE:HA	2.04	0.57
1:C:96:ASN:O	1:C:99:ARG:NH2	2.37	0.57
1:C:726:SER:OG	1:C:770:GLN:NE2	2.36	0.57
1:C:959:VAL:HA	1:C:962:LEU:HD23	1.86	0.57
1:B:323:VAL:HG12	1:B:538:ASN:HB3	1.86	0.57
1:C:946:ASP:O	1:C:950:HIS:HB2	2.05	0.57
1:A:726:SER:OG	1:A:770:GLN:NE2	2.38	0.56
1:C:117:VAL:HB	1:C:124:VAL:HB	1.87	0.56
1:A:30:THR:O	1:A:31:ARG:NH1	2.38	0.56
1:B:450:ARG:HH11	1:B:453:ARG:HD3	1.71	0.56
1:C:392:TYR:HB2	1:C:510:SER:HB3	1.86	0.56
1:A:99:ARG:HD2	1:A:239:ALA:HB3	1.86	0.56
1:A:709:ALA:HB3	1:B:890:LEU:HB3	1.88	0.56
1:B:408:PRO:HB3	1:B:423:ASP:HA	1.86	0.56
2:E:152:MET:SD	2:E:161:ARG:NH1	2.79	0.56
1:A:399:ARG:HG2	1:A:501:HIS:HA	1.87	0.56
1:B:149:MET:SD	1:B:149:MET:N	2.78	0.56
1:B:325:PHE:HB2	1:B:525:LYS:H	1.70	0.56
1:A:735:THR:O	1:A:739:CYS:N	2.38	0.56
1:B:414:ILE:HA	1:B:418:ASN:HD22	1.71	0.56
1:B:435:ASN:HA	1:B:503:PRO:HG2	1.86	0.56
1:A:131:GLN:NE2	1:A:156:TYR:O	2.39	0.56
1:B:246:THR:O	1:B:250:SER:OG	2.24	0.56
1:A:222:LEU:HG	1:A:223:VAL:HG23	1.87	0.56
1:B:958:LEU:HD21	1:B:1003:TYR:HB2	1.87	0.56
1:A:325:PHE:HB2	1:A:525:LYS:HE3	1.88	0.55
1:A:379:SER:HB3	1:A:382:LYS:HB2	1.88	0.55
1:B:188:PHE:HB3	1:B:199:ILE:HD11	1.88	0.55
1:C:484:CYS:SG	1:C:485:TYR:N	2.79	0.55
2:E:553:LYS:NZ	2:E:573:VAL:O	2.39	0.55
1:A:562:GLY:HA2	1:B:40:PHE:HB3	1.88	0.55
1:B:315:ARG:NH2	1:C:733:ASP:OD1	2.40	0.55
1:C:757:THR:OG1	1:C:758:GLN:NE2	2.40	0.55
1:B:498:GLY:H	1:B:501:HIS:HB2	1.71	0.55
1:C:435:ASN:HA	1:C:438:ASP:HB2	1.87	0.55
1:A:193:ILE:O	1:A:196:TYR:HB2	2.05	0.55
1:C:332:CYS:HB3	1:C:359:ALA:HB2	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:39:VAL:O	1:C:559:GLN:NE2	2.40	0.54
1:A:394:ASP:O	1:A:507:VAL:HA	2.07	0.54
1:C:601:SER:OG	1:C:602:ASN:N	2.40	0.54
2:E:45:LEU:HD13	2:E:351:LEU:HD21	1.90	0.54
1:C:315:ARG:O	1:C:317:GLN:NE2	2.38	0.54
1:A:390:ASN:ND2	1:A:512:GLU:OE1	2.41	0.54
2:E:473:TRP:HA	2:E:476:LYS:HE3	1.89	0.54
1:A:758:GLN:HA	1:A:761:ARG:HG2	1.88	0.54
1:C:1080:ASP:O	1:C:1082:LYS:NZ	2.41	0.54
1:A:276:ASN:HD21	1:A:278:ASN:HB2	1.73	0.54
1:A:556:LEU:HB2	1:A:559:GLN:HB2	1.90	0.54
1:B:1009:ILE:HD13	1:C:1008:LEU:HD13	1.89	0.54
1:A:942:GLY:HA2	1:A:945:GLN:HB2	1.90	0.54
1:C:137:PHE:HB3	1:C:154:ARG:HD3	1.88	0.54
1:C:550:GLU:HA	1:C:581:LEU:HD23	1.90	0.54
2:E:239:HIS:O	2:E:599:ASN:ND2	2.41	0.54
1:A:417:TYR:O	1:A:453:ARG:NH1	2.41	0.54
1:A:497:TYR:HB3	1:A:501:HIS:HB2	1.89	0.54
1:B:913:TYR:HA	1:B:916:GLN:HB3	1.90	0.54
1:B:1091:PHE:HE1	1:B:1098:TRP:HB3	1.73	0.54
1:A:976:ILE:HG23	1:A:980:LEU:HD13	1.90	0.54
1:C:749:LEU:O	1:C:753:GLY:N	2.41	0.54
2:E:597:ASP:HA	2:E:600:LYS:HE3	1.90	0.54
1:A:140:VAL:O	1:A:241:HIS:ND1	2.41	0.53
1:C:77:ASP:OD1	1:C:78:ASN:N	2.41	0.53
2:E:382:ASP:OD1	2:E:385:TYR:OH	2.26	0.53
2:E:451:PRO:HA	2:E:454:TYR:HB3	1.90	0.53
1:B:435:ASN:ND2	1:B:502:GLN:OE1	2.41	0.53
1:B:738:ILE:HA	1:B:996:ARG:HH21	1.74	0.53
1:C:452:LEU:H	1:C:487:PRO:HB3	1.74	0.53
1:B:434:SER:HB3	1:B:505:ARG:HB2	1.91	0.53
1:B:66:HIS:HE1	1:B:240:LEU:HD11	1.73	0.53
1:B:531:LYS:NZ	1:B:532:ASN:OD1	2.41	0.53
1:B:1072:THR:HB	1:B:1093:SER:HB3	1.89	0.53
1:A:945:GLN:HA	1:A:948:VAL:HG12	1.90	0.53
1:C:93:GLU:O	1:C:186:ARG:NH2	2.42	0.53
2:E:245:ARG:HG3	2:E:262:LEU:HD13	1.89	0.53
1:A:494:ARG:NH1	1:A:497:TYR:OH	2.42	0.53
1:A:435:ASN:HA	1:A:503:PRO:HG2	1.91	0.53
1:B:347:TYR:HD2	1:B:450:ARG:HH21	1.55	0.53
1:B:587:SER:OG	1:B:630:ARG:NH2	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:20:THR:HG22	2:E:22:GLU:H	1.74	0.53
1:B:189:VAL:HB	1:B:200:TYR:HB2	1.91	0.52
1:C:320:GLU:HG2	1:C:535:VAL:HG23	1.90	0.52
1:A:353:ARG:NH1	1:A:391:VAL:O	2.37	0.52
1:A:517:PRO:HG2	1:B:226:PRO:HB2	1.91	0.52
1:A:811:ARG:HH21	1:A:816:ASP:HA	1.74	0.52
1:A:1124:VAL:HG23	1:A:1125:VAL:HG13	1.91	0.52
1:B:385:ASP:OD1	1:B:385:ASP:N	2.40	0.52
2:E:330:ASN:O	2:E:357:ARG:NH1	2.43	0.52
1:A:885:GLY:O	1:C:1041:LYS:NZ	2.42	0.52
1:B:480:ALA:HB3	1:B:484:CYS:HB2	1.91	0.52
1:A:613:CYS:HA	1:A:629:TRP:HB2	1.91	0.52
1:A:930:ILE:HA	1:A:933:SER:HB3	1.92	0.52
2:E:153:ALA:HB1	2:E:277:ASN:HD22	1.74	0.52
1:B:115:LEU:O	1:B:125:ILE:HA	2.10	0.52
1:A:863:ASP:OD1	1:A:863:ASP:N	2.42	0.52
1:B:530:VAL:HG11	1:B:535:VAL:HG21	1.92	0.52
1:A:137:PHE:HE1	1:A:238:LEU:HG	1.75	0.51
1:A:323:VAL:HB	1:A:525:LYS:HB3	1.92	0.51
1:B:28:SER:O	1:B:56:PHE:N	2.42	0.51
1:B:320:GLU:HG2	1:B:535:VAL:HG23	1.92	0.51
1:B:474:LYS:HD3	1:B:483:ASN:HD22	1.76	0.51
1:B:1046:MET:HB2	1:B:1061:VAL:HB	1.92	0.51
2:E:318:VAL:HA	2:E:545:SER:HA	1.91	0.51
1:A:732:VAL:O	1:A:760:LYS:NZ	2.44	0.51
1:B:655:SER:HG	1:B:692:THR:HG1	1.56	0.51
1:C:76:PHE:N	1:C:255:THR:O	2.43	0.51
1:B:365:TYR:OH	1:B:380:PRO:O	2.26	0.51
1:B:389:THR:OG1	1:B:516:ALA:O	2.28	0.51
1:C:551:SER:HB3	1:C:580:ILE:HG22	1.93	0.51
2:E:555:PHE:HA	2:E:558:LEU:HD12	1.91	0.51
1:A:41:ARG:NH1	1:A:275:TYR:OH	2.44	0.51
2:E:503:LEU:HG	2:E:505:HIS:H	1.75	0.51
1:B:923:PHE:O	1:B:926:ALA:HB3	2.10	0.51
1:A:108:ASP:HA	1:A:131:GLN:HA	1.93	0.51
1:B:399:ARG:NE	1:B:401:ASN:OD1	2.40	0.51
1:C:947:VAL:HA	1:C:1010:ARG:HH22	1.76	0.51
1:A:353:ARG:HH12	1:A:390:ASN:HB3	1.75	0.51
1:A:413:ASN:O	1:A:418:ASN:ND2	2.44	0.51
1:B:95:SER:HA	1:B:176:GLU:H	1.75	0.51
1:B:538:ASN:HD22	1:B:543:THR:HB	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:427:GLY:CA	1:C:509:LEU:O	2.59	0.51
1:C:1082:LYS:HA	1:C:1121:ASN:HA	1.93	0.51
1:A:525:LYS:HZ3	1:A:539:PHE:HA	1.75	0.51
1:C:125:ILE:HB	1:C:166:TYR:HB3	1.93	0.51
2:E:382:ASP:HA	2:E:385:TYR:CZ	2.46	0.51
1:B:370:PHE:HA	1:B:432:TRP:HB3	1.92	0.50
1:B:815:GLU:OE2	1:B:1051:SER:N	2.44	0.50
2:E:134:ASN:HD22	2:E:167:SER:HG	1.52	0.50
2:E:332:MET:SD	2:E:332:MET:N	2.84	0.50
1:A:190:PHE:HD1	1:A:199:ILE:HD12	1.76	0.50
2:E:50:TYR:HD1	2:E:58:ASN:HB3	1.76	0.50
1:B:379:SER:HB3	1:B:382:LYS:HB2	1.94	0.50
1:C:981:ASP:OD1	1:C:981:ASP:N	2.44	0.50
2:E:235:PRO:O	2:E:239:HIS:ND1	2.43	0.50
2:E:244:VAL:HG23	2:E:282:THR:HG21	1.92	0.50
1:A:365:TYR:OH	1:A:380:PRO:O	2.29	0.50
1:A:845:LEU:O	1:A:849:GLN:NE2	2.45	0.50
1:C:955:LEU:HD13	1:C:958:LEU:HD13	1.94	0.50
2:E:443:ALA:O	2:E:448:GLY:N	2.45	0.50
1:B:31:ARG:NH1	1:B:215:GLY:O	2.41	0.50
1:B:141:TYR:HB2	1:B:241:HIS:HB3	1.94	0.50
1:B:485:TYR:OH	2:E:83:TYR:OH	2.27	0.50
2:E:390:PHE:HA	2:E:393:ARG:HD2	1.93	0.50
1:A:328:ILE:HD11	1:A:575:PRO:HG2	1.94	0.50
1:C:979:ARG:HG3	1:C:980:LEU:HG	1.94	0.50
1:B:26:THR:HG22	1:B:61:TRP:HB2	1.94	0.50
1:A:399:ARG:NH2	1:A:491:TYR:O	2.45	0.49
1:C:103:PHE:HB3	1:C:231:ILE:HD12	1.92	0.49
1:A:904:GLY:O	1:A:1034:LYS:NZ	2.44	0.49
1:A:988:GLN:HG3	1:A:991:ARG:HH22	1.76	0.49
1:B:136:PRO:HB3	1:B:155:VAL:HA	1.94	0.49
2:E:144:LEU:HD13	2:E:148:LEU:HD12	1.93	0.49
1:A:759:LEU:HD12	1:A:1004:VAL:HG21	1.95	0.49
2:E:108:LEU:HB3	2:E:112:LYS:HZ2	1.77	0.49
1:A:31:ARG:NH2	1:A:213:PRO:O	2.46	0.49
1:A:356:ASN:H	1:A:519:THR:HB	1.77	0.49
1:C:188:PHE:HB3	1:C:199:ILE:HD11	1.94	0.49
2:E:325:GLN:HA	2:E:328:TRP:HD1	1.77	0.49
1:B:112:GLN:HB3	1:B:127:VAL:HG22	1.94	0.49
1:C:83:PHE:N	1:C:232:THR:O	2.46	0.49
2:E:169:ARG:HH22	2:E:271:TRP:HA	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:529:LEU:HD11	2:E:554:LEU:HD13	1.95	0.49
1:A:199:ILE:HB	1:A:223:VAL:HB	1.95	0.49
1:A:612:ASN:ND2	1:A:614:THR:OG1	2.45	0.49
1:C:962:LEU:O	1:C:996:ARG:NH2	2.46	0.49
1:B:671:GLN:OE1	1:B:686:GLN:N	2.45	0.49
1:C:349:TRP:O	1:C:462:ARG:NH1	2.46	0.49
1:A:79:PRO:O	1:A:235:GLN:NE2	2.46	0.49
1:A:99:ARG:H	1:A:238:LEU:HA	1.77	0.49
1:A:118:ASN:HA	1:A:123:VAL:HG12	1.95	0.49
1:B:30:THR:O	1:B:31:ARG:NH1	2.43	0.49
1:B:54:PRO:HB2	1:B:57:SER:HB3	1.94	0.49
1:C:655:SER:OG	1:C:692:THR:OG1	2.31	0.49
1:B:89:PHE:HA	1:B:262:TYR:O	2.12	0.48
1:B:78:ASN:HD22	1:B:135:ASP:HB3	1.76	0.48
1:B:1125:VAL:HG12	1:C:913:TYR:HB3	1.94	0.48
1:C:1039:CYS:O	1:C:1060:HIS:ND1	2.45	0.48
1:C:1087:ARG:NE	1:C:1114:ASP:O	2.43	0.48
1:A:468:ILE:HG23	1:A:486:SER:HA	1.95	0.48
1:A:1085:PHE:HB3	1:B:909:GLN:HE21	1.79	0.48
1:B:98:ILE:HA	1:B:238:LEU:HA	1.94	0.48
1:C:345:SER:OG	1:C:346:VAL:N	2.46	0.48
1:A:323:VAL:HG12	1:A:538:ASN:HB3	1.95	0.48
2:E:213:ASP:OD1	2:E:213:ASP:N	2.45	0.48
1:B:51:LEU:HB3	1:B:266:LEU:HB3	1.96	0.48
1:C:49:GLN:HB2	1:C:270:THR:HG22	1.93	0.48
1:C:410:GLN:NE2	1:C:411:THR:O	2.46	0.48
1:A:452:LEU:HB2	1:A:487:PRO:HB3	1.95	0.48
1:A:422:PRO:HG2	1:A:425:PHE:HA	1.95	0.48
1:C:17:ASN:HD21	1:C:134:ASN:HD22	1.62	0.48
1:C:140:VAL:O	1:C:242:ARG:N	2.46	0.48
1:C:399:ARG:HD2	1:C:501:HIS:HA	1.96	0.48
1:C:450:ARG:NH2	1:C:463:ASP:OD2	2.39	0.48
1:A:140:VAL:HA	1:A:244:TYR:HD1	1.78	0.48
1:B:612:ASN:O	1:B:629:TRP:NE1	2.47	0.48
2:E:115:ARG:HD2	2:E:115:ARG:HA	1.72	0.48
1:A:555:PHE:HB3	1:A:559:GLN:HB3	1.96	0.48
1:A:946:ASP:O	1:A:950:HIS:ND1	2.41	0.48
1:B:434:SER:HA	1:B:437:LEU:HD13	1.94	0.48
1:B:444:ASN:N	1:B:492:GLY:O	2.47	0.48
1:B:713:ASN:HB3	1:B:1066:ALA:HB3	1.95	0.48
1:C:140:VAL:O	1:C:243:SER:N	2.31	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:360:ASP:N	1:C:360:ASP:OD1	2.47	0.48
1:C:945:GLN:O	1:C:949:ASN:ND2	2.47	0.48
1:A:1086:PRO:O	1:B:909:GLN:NE2	2.47	0.48
1:B:50:ASP:OD1	1:B:50:ASP:N	2.47	0.48
1:B:816:ASP:O	1:B:820:ASN:ND2	2.47	0.48
2:E:462:MET:HE2	2:E:468:ILE:HG21	1.95	0.48
1:A:849:GLN:HB3	1:A:854:LEU:HD22	1.96	0.47
1:C:387:CYS:HA	1:C:521:CYS:HB3	1.96	0.47
1:B:324:ARG:NH2	1:B:574:ASP:OD1	2.46	0.47
1:A:139:ASP:HB3	1:A:243:SER:H	1.79	0.47
1:A:756:CYS:HA	1:A:759:LEU:HD23	1.97	0.47
1:C:102:ILE:HG22	1:C:107:LEU:HD22	1.97	0.47
1:C:137:PHE:HZ	1:C:240:LEU:H	1.62	0.47
1:B:357:CYS:H	1:B:520:VAL:HG22	1.80	0.47
1:A:109:SER:OG	1:A:131:GLN:N	2.48	0.47
1:A:698:GLU:OE2	1:B:786:LYS:NZ	2.40	0.47
1:B:349:TRP:HZ3	1:B:351:ARG:HB2	1.79	0.47
1:B:706:ASN:HB2	1:B:1073:THR:H	1.79	0.47
1:C:192:ASN:HA	1:C:197:PHE:HA	1.97	0.47
1:C:555:PHE:HB2	1:C:573:ARG:HH12	1.78	0.47
1:B:174:ASP:OD1	1:B:174:ASP:N	2.47	0.47
1:B:315:ARG:HA	1:B:588:PHE:HA	1.96	0.47
1:B:325:PHE:HE1	1:B:523:PRO:HG2	1.79	0.47
1:B:349:TRP:HB3	1:B:396:PHE:HB3	1.97	0.47
1:B:572:VAL:HG12	1:B:583:ILE:HD11	1.96	0.47
1:C:353:ARG:NH2	1:C:519:THR:OG1	2.47	0.47
1:C:901:ARG:NH1	1:C:1045:LEU:O	2.44	0.47
2:E:275:TRP:HB2	2:E:444:LEU:HB3	1.96	0.47
2:E:447:VAL:HG13	2:E:450:LEU:HD12	1.96	0.47
1:A:740:GLY:H	1:A:973:LEU:HD13	1.80	0.47
1:B:321:SER:HA	1:B:536:ASN:O	2.14	0.47
1:B:343:PHE:CE2	1:B:395:SER:HB2	2.50	0.47
1:B:930:ILE:HA	1:B:933:SER:HB3	1.97	0.47
1:B:945:GLN:O	1:B:949:ASN:ND2	2.47	0.47
1:C:1123:ASP:N	1:C:1123:ASP:OD1	2.48	0.47
1:B:142:GLN:HB2	1:B:148:TRP:HB3	1.97	0.47
1:A:426:THR:O	1:A:511:PHE:N	2.47	0.47
1:C:424:ASP:OD1	1:C:425:PHE:N	2.48	0.47
1:C:722:ILE:HB	1:C:943:LYS:HE3	1.95	0.47
1:A:376:TYR:HB2	1:A:425:PHE:HD2	1.80	0.47
1:A:392:TYR:HB2	1:A:510:SER:HB3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:981:ASP:O	1:A:985:ALA:N	2.48	0.47
1:A:989:ILE:HG13	1:A:992:LEU:HD12	1.96	0.47
1:A:1135:ASP:OD1	1:A:1135:ASP:N	2.48	0.47
1:C:1049:PRO:O	1:C:1050:GLN:NE2	2.47	0.47
2:E:555:PHE:HA	2:E:558:LEU:HB2	1.97	0.47
1:A:141:TYR:HD2	1:A:143:LYS:HD3	1.80	0.46
1:C:981:ASP:HB2	1:C:983:PRO:HD2	1.97	0.46
2:E:237:TYR:HE1	2:E:448:GLY:HA2	1.80	0.46
1:A:44:VAL:HG11	1:C:565:ILE:HB	1.97	0.46
1:A:124:VAL:HG12	1:A:167:VAL:HG22	1.97	0.46
1:A:325:PHE:HB2	1:A:525:LYS:HB2	1.95	0.46
1:B:766:ILE:HD11	1:B:1008:LEU:HD23	1.96	0.46
1:A:1026:SER:HA	1:A:1030:LEU:HD12	1.98	0.46
1:B:31:ARG:HA	1:B:31:ARG:HD3	1.72	0.46
1:B:454:LYS:NZ	1:B:463:ASP:OD2	2.49	0.46
1:B:697:ALA:O	1:C:783:GLN:NE2	2.48	0.46
1:B:1087:ARG:NH2	1:B:1113:THR:O	2.46	0.46
1:C:191:LYS:HE2	1:C:193:ILE:HD13	1.97	0.46
2:E:29:LEU:HD11	2:E:97:LEU:HG	1.97	0.46
1:A:33:VAL:O	1:A:219:LEU:N	2.48	0.46
1:A:559:GLN:O	1:A:573:ARG:NH2	2.48	0.46
2:E:527:GLU:OE1	2:E:586:ASN:ND2	2.42	0.46
1:A:126:LYS:NZ	1:A:164:PHE:O	2.42	0.46
1:A:149:MET:SD	1:A:151:SER:OG	2.66	0.46
1:C:140:VAL:HG23	1:C:148:TRP:HE3	1.80	0.46
1:C:332:CYS:HB2	1:C:357:CYS:HB2	1.64	0.46
1:A:64:ALA:HA	1:A:260:ALA:HB2	1.97	0.46
1:B:325:PHE:H	1:B:526:SER:H	1.63	0.46
1:B:119:ASN:ND2	1:B:121:THR:OG1	2.47	0.46
1:B:438:ASP:OD1	1:B:438:ASP:N	2.46	0.46
1:A:371:PHE:HE2	1:A:403:VAL:HG11	1.81	0.46
1:A:35:TYR:HB2	1:A:221:PRO:HD3	1.97	0.46
1:A:665:GLY:N	1:B:860:LEU:O	2.46	0.46
1:C:325:PHE:H	1:C:526:SER:HB2	1.81	0.46
1:B:24:SER:OG	1:B:25:TYR:N	2.48	0.46
1:C:34:TYR:HA	1:C:219:LEU:H	1.80	0.46
2:E:381:TYR:HD1	2:E:558:LEU:HD23	1.80	0.46
2:E:494:ASP:OD1	2:E:494:ASP:N	2.49	0.45
1:B:82:PRO:HA	1:B:233:ARG:HA	1.98	0.45
1:B:543:THR:OG1	1:B:544:GLY:N	2.48	0.45
1:C:100:GLY:O	1:C:237:LEU:N	2.48	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:910:ASN:HA	1:A:913:TYR:HB2	1.98	0.45
1:A:966:PHE:HA	1:B:752:TYR:HE1	1.81	0.45
1:B:707:SER:OG	1:C:891:GLN:NE2	2.48	0.45
1:B:800:GLN:HA	1:B:813:PRO:HG2	1.97	0.45
2:E:295:ASP:OD1	2:E:295:ASP:N	2.47	0.45
1:A:121:THR:OG1	1:A:122:ASN:N	2.49	0.45
1:A:389:THR:O	1:A:519:THR:OG1	2.33	0.45
1:A:438:ASP:OD1	1:A:438:ASP:N	2.49	0.45
1:C:719:THR:O	1:C:1059:LEU:HA	2.16	0.45
1:C:97:ILE:HG22	1:C:238:LEU:HD12	1.99	0.45
1:C:270:THR:OG1	1:C:287:CYS:HB3	2.16	0.45
1:A:28:SER:HA	1:A:212:LEU:HD13	1.99	0.45
1:A:315:ARG:HD2	1:B:736:MET:HG3	1.98	0.45
1:A:761:ARG:HA	1:A:764:THR:HG22	1.98	0.45
1:B:429:VAL:HG22	1:B:508:VAL:HG22	1.98	0.45
1:A:142:GLN:HE22	1:A:148:TRP:HB3	1.82	0.45
1:B:703:TYR:HE1	1:C:893:PRO:HA	1.82	0.45
2:E:407:ILE:HG13	2:E:522:GLN:HA	1.98	0.45
1:A:362:SER:HA	1:A:365:TYR:HB2	1.99	0.45
1:B:434:SER:HB2	1:B:437:LEU:HB2	1.99	0.45
1:A:901:ARG:HB3	1:A:1045:LEU:HD12	1.98	0.45
1:B:572:VAL:HG13	1:B:581:LEU:HD13	1.99	0.45
1:B:1005:THR:HA	1:B:1008:LEU:HD12	1.99	0.45
1:C:1043:TYR:HB2	1:C:1063:TYR:HB3	1.98	0.45
1:A:26:THR:HG22	1:A:61:TRP:HB2	1.98	0.44
1:B:18:LEU:HG	1:B:20:THR:H	1.82	0.44
1:B:135:ASP:N	1:B:135:ASP:OD1	2.50	0.44
1:B:659:ASP:N	1:B:659:ASP:OD1	2.46	0.44
1:C:196:TYR:HE1	1:C:226:PRO:HB3	1.82	0.44
1:C:593:VAL:HG22	1:C:606:VAL:HG12	1.99	0.44
1:C:594:ILE:HG23	1:C:660:ILE:HG21	2.00	0.44
2:E:120:LEU:HD21	2:E:183:TYR:CD1	2.52	0.44
2:E:293:VAL:HG13	2:E:424:LEU:HD13	1.99	0.44
1:A:191:LYS:HD3	1:A:193:ILE:HG23	2.00	0.44
1:B:97:ILE:O	1:B:239:ALA:N	2.40	0.44
1:B:113:SER:N	1:B:128:CYS:O	2.49	0.44
1:C:519:THR:HG22	1:C:520:VAL:HG23	1.99	0.44
1:B:311:THR:OG1	1:B:312:SER:N	2.49	0.44
1:B:331:LEU:HB3	1:B:358:VAL:HB	1.99	0.44
1:B:420:LYS:NZ	1:B:421:LEU:O	2.37	0.44
1:C:74:LYS:HA	1:C:254:TRP:CE2	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:276:ASN:OD1	1:A:280:THR:N	2.50	0.44
1:B:276:ASN:OD1	1:B:280:THR:N	2.50	0.44
1:C:453:ARG:NE	1:C:455:SER:O	2.50	0.44
1:A:361:TYR:HD2	1:A:383:LEU:HB3	1.81	0.44
1:B:919:ILE:HA	1:B:922:GLN:HG2	1.98	0.44
1:C:659:ASP:OD1	1:C:659:ASP:N	2.49	0.44
2:E:351:LEU:HB2	2:E:355:ASP:HB3	2.00	0.44
1:A:403:VAL:HG21	1:A:504:TYR:HD2	1.82	0.44
1:A:40:PHE:N	1:C:561:PHE:O	2.50	0.44
1:A:536:ASN:HA	1:A:545:THR:HA	1.98	0.44
1:A:710:ILE:O	1:A:1068:GLU:HA	2.17	0.44
1:A:860:LEU:HD12	1:C:661:PRO:HB2	2.00	0.44
1:B:538:ASN:ND2	1:B:541:GLY:O	2.43	0.44
1:C:322:ILE:HG12	1:C:535:VAL:HG21	1.99	0.44
2:E:284:PRO:HG3	2:E:440:LEU:HD22	1.98	0.44
1:A:304:VAL:O	1:A:598:THR:OG1	2.28	0.44
1:C:718:VAL:HG12	1:C:1061:VAL:HG22	1.99	0.44
1:B:1078:CYS:HA	1:B:1082:LYS:O	2.18	0.43
1:C:291:PRO:HA	1:C:294:GLU:HG3	1.99	0.43
2:E:209:VAL:HB	2:E:217:TYR:H	1.83	0.43
1:A:125:ILE:HB	1:A:166:TYR:HB3	2.00	0.43
1:B:1085:PHE:HE2	1:C:910:ASN:HA	1.82	0.43
1:C:312:SER:OG	1:C:313:ASN:N	2.52	0.43
1:C:754:SER:O	1:C:758:GLN:NE2	2.45	0.43
1:C:242:ARG:HD3	1:C:254:TRP:CZ2	2.53	0.43
2:E:222:LEU:HD21	2:E:513:ILE:HG12	2.00	0.43
1:A:172:LEU:HD21	1:A:188:PHE:HZ	1.83	0.43
1:A:721:GLU:O	1:A:1057:VAL:HA	2.18	0.43
1:B:452:LEU:HB3	1:B:469:TYR:HD2	1.83	0.43
1:B:546:GLY:HA3	1:B:585:PRO:HA	2.00	0.43
1:C:37:ASP:OD1	1:C:37:ASP:N	2.52	0.43
1:C:537:PHE:O	1:C:543:THR:HA	2.18	0.43
1:C:725:VAL:HG21	1:C:777:VAL:HG11	2.00	0.43
1:C:733:ASP:OD2	1:C:736:MET:N	2.48	0.43
2:E:392:LEU:HD22	2:E:563:SER:HA	1.99	0.43
1:B:269:ARG:NH2	1:B:286:ASP:OD2	2.52	0.43
1:B:450:ARG:NH1	1:B:463:ASP:OD2	2.47	0.43
1:C:710:ILE:HG12	1:C:1106:TYR:HB2	2.00	0.43
1:A:860:LEU:HD13	1:C:663:GLY:HA2	2.00	0.43
1:B:573:ARG:HE	1:B:578:LEU:HA	1.84	0.43
1:B:721:GLU:HG3	1:B:1058:PHE:HB2	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:458:LYS:HG2	1:C:459:PRO:HD2	1.99	0.43
2:E:333:LEU:O	2:E:362:THR:N	2.49	0.43
2:E:441:LYS:HB2	2:E:441:LYS:HE3	1.87	0.43
1:A:388:PHE:HB2	1:A:520:VAL:HB	2.01	0.43
1:B:559:GLN:NE2	1:C:39:VAL:O	2.52	0.43
1:A:902:PHE:HE2	1:A:912:LEU:HD13	1.84	0.43
1:B:1082:LYS:HZ2	1:B:1118:VAL:HG12	1.84	0.43
1:A:40:PHE:HB3	1:C:562:GLY:HA2	2.01	0.43
1:B:718:VAL:HG12	1:B:1061:VAL:HG22	2.01	0.43
2:E:529:LEU:HD13	2:E:544:ILE:HD12	2.01	0.43
1:C:45:LEU:HB3	1:C:272:LEU:HD11	2.00	0.42
1:C:718:VAL:HA	1:C:1060:HIS:O	2.19	0.42
2:E:29:LEU:HD22	2:E:96:GLN:HB3	2.01	0.42
2:E:267:LEU:HD12	2:E:272:GLY:HA2	2.01	0.42
1:A:1093:SER:HB2	1:A:1098:TRP:CD2	2.53	0.42
1:C:360:ASP:HB3	1:C:523:PRO:HD2	2.01	0.42
2:E:275:TRP:HE3	2:E:278:LEU:HD23	1.84	0.42
1:A:146:LYS:HD2	1:A:146:LYS:HA	1.93	0.42
1:A:454:LYS:H	1:A:454:LYS:HG2	1.64	0.42
1:A:550:GLU:HA	1:A:581:LEU:HD23	2.00	0.42
1:B:18:LEU:HD22	1:B:76:PHE:CD2	2.54	0.42
1:B:362:SER:HA	1:B:365:TYR:HD2	1.83	0.42
1:B:710:ILE:HG21	1:B:1106:TYR:HB3	2.00	0.42
1:B:1101:THR:HB	1:B:1107:GLU:H	1.83	0.42
1:B:110:LYS:HD2	1:B:110:LYS:HA	1.85	0.42
1:C:671:GLN:OE1	1:C:686:GLN:N	2.52	0.42
1:C:863:ASP:OD1	1:C:863:ASP:N	2.50	0.42
1:C:960:LYS:HA	1:C:960:LYS:HD3	1.81	0.42
2:E:143:LEU:O	2:E:148:LEU:N	2.41	0.42
1:B:462:ARG:NH2	1:B:463:ASP:O	2.44	0.42
1:B:1069:LYS:HE2	1:B:1071:PHE:HE2	1.84	0.42
2:E:77:SER:O	2:E:81:GLN:NE2	2.39	0.42
2:E:330:ASN:OD1	2:E:357:ARG:NH2	2.53	0.42
1:A:115:LEU:HB2	1:A:126:LYS:HB2	2.01	0.42
1:B:722:ILE:HG13	1:B:1057:VAL:HG12	2.00	0.42
1:C:143:LYS:HZ1	1:C:245:LEU:HD11	1.84	0.42
1:C:222:LEU:HG	1:C:223:VAL:HG23	2.02	0.42
2:E:237:TYR:HA	2:E:240:LEU:HG	2.02	0.42
1:A:1044:HIS:HA	1:A:1062:THR:HG22	2.01	0.42
1:B:372:ALA:HB3	1:B:431:ALA:HB3	2.01	0.42
1:B:488:LEU:HD23	1:B:488:LEU:HA	1.94	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:18:LEU:HD23	1:C:18:LEU:HA	1.84	0.42
1:C:139:ASP:HB3	1:C:241:HIS:HA	2.01	0.42
1:A:446:ASN:OD1	1:A:447:TYR:N	2.53	0.42
1:A:607:LEU:HD13	1:A:646:LEU:HB3	2.01	0.42
1:B:1110:ILE:HD12	1:B:1110:ILE:HA	1.94	0.42
1:C:289:LEU:HG	1:C:290:ASP:H	1.84	0.42
1:C:334:PHE:HE1	1:C:354:ILE:HG21	1.85	0.42
1:A:1121:ASN:N	1:A:1121:ASN:OD1	2.53	0.42
1:B:136:PRO:HB2	1:B:155:VAL:HG12	2.01	0.42
1:C:245:LEU:HB2	1:C:248:VAL:HG22	2.02	0.42
2:E:245:ARG:NH2	2:E:258:PRO:O	2.50	0.42
2:E:417:HIS:CD2	2:E:545:SER:HG	2.34	0.42
1:A:374:LYS:HB2	1:A:429:VAL:HB	2.01	0.41
1:B:76:PHE:HB3	1:B:254:TRP:HB3	2.02	0.41
1:B:1006:GLN:HE21	1:B:1006:GLN:HB3	1.74	0.41
1:C:657:GLU:O	1:C:691:TYR:OH	2.31	0.41
2:E:388:GLN:HB3	2:E:392:LEU:HB2	2.01	0.41
1:A:14:GLN:HB3	1:A:154:ARG:HG2	2.02	0.41
1:A:1087:ARG:NE	1:A:1114:ASP:O	2.52	0.41
1:A:1114:ASP:OD1	1:A:1114:ASP:N	2.52	0.41
1:B:729:LYS:HB2	1:B:729:LYS:HE3	1.80	0.41
1:B:782:LYS:HA	1:B:782:LYS:HD3	1.94	0.41
1:B:807:LYS:HZ3	1:B:808:PRO:HD2	1.85	0.41
1:C:78:ASN:N	1:C:78:ASN:OD1	2.53	0.41
1:C:669:SER:OG	1:C:670:TYR:N	2.52	0.41
2:E:435:GLU:HB2	2:E:540:HIS:NE2	2.34	0.41
1:A:749:LEU:O	1:A:753:GLY:N	2.49	0.41
1:B:452:LEU:HB2	1:B:487:PRO:HB3	2.02	0.41
2:E:256:ILE:HG21	2:E:262:LEU:HD12	2.01	0.41
1:A:140:VAL:HB	1:A:148:TRP:HB2	2.01	0.41
1:A:306:LYS:HD3	1:A:306:LYS:HA	1.91	0.41
1:A:325:PHE:H	1:A:526:SER:H	1.69	0.41
1:A:938:PRO:O	1:A:942:GLY:N	2.47	0.41
1:B:202:LYS:HB2	1:B:219:LEU:HG	2.02	0.41
1:C:301:SER:OG	1:C:303:THR:O	2.38	0.41
1:A:348:ALA:HB2	1:A:464:ILE:HA	2.02	0.41
1:B:155:VAL:HG23	1:B:156:TYR:H	1.84	0.41
1:B:1033:SER:OG	1:B:1039:CYS:SG	2.70	0.41
2:E:65:ALA:HA	2:E:68:LYS:HE3	2.02	0.41
2:E:142:LEU:HD22	2:E:151:ILE:HD13	2.03	0.41
2:E:534:LYS:NZ	2:E:549:GLU:OE1	2.40	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:204:THR:HG23	1:A:206:ILE:HG23	2.02	0.41
1:B:195:GLY:HA3	1:B:228:GLY:HA2	2.03	0.41
1:C:458:LYS:HE3	1:C:461:GLU:OE2	2.21	0.41
2:E:91:LEU:HA	2:E:94:LYS:HB3	2.03	0.41
2:E:241:HIS:CE1	2:E:245:ARG:HD3	2.56	0.41
2:E:304:ALA:HA	2:E:307:ILE:HB	2.03	0.41
1:A:353:ARG:HH22	1:A:390:ASN:HB3	1.86	0.41
1:A:493:PHE:CD2	1:A:503:PRO:HB3	2.56	0.41
1:A:766:ILE:HD11	1:A:1008:LEU:HD22	2.01	0.41
1:B:905:ILE:HD12	1:B:1043:TYR:HB3	2.03	0.41
1:C:62:PHE:HE2	1:C:81:LEU:HD21	1.86	0.41
1:C:449:TYR:CE1	1:C:489:GLN:HB2	2.56	0.41
1:C:1082:LYS:HD3	1:C:1118:VAL:HG11	2.02	0.41
1:C:1082:LYS:HE3	1:C:1082:LYS:HB3	1.91	0.41
2:E:242:ALA:HB2	2:E:604:VAL:HA	2.02	0.41
2:E:476:LYS:HA	2:E:479:GLU:HG2	2.02	0.41
1:A:23:GLN:O	1:A:63:HIS:NE2	2.54	0.41
1:A:807:LYS:HZ2	1:A:808:PRO:HD2	1.85	0.41
1:B:75:ARG:HB3	1:B:258:ALA:N	2.36	0.41
1:C:1033:SER:OG	1:C:1039:CYS:SG	2.70	0.41
1:A:370:PHE:HA	1:A:432:TRP:HB3	2.03	0.41
1:A:390:ASN:O	1:A:511:PHE:HA	2.21	0.41
1:A:609:GLN:HE21	1:B:858:PRO:HD2	1.86	0.41
1:A:727:MET:HB2	1:A:951:ASN:HD21	1.85	0.41
1:A:729:LYS:HD2	1:A:767:ALA:HB1	2.03	0.41
1:A:915:ASN:O	1:A:919:ILE:HG12	2.21	0.41
1:A:965:LYS:HZ2	1:A:970:SER:HA	1.85	0.41
1:B:225:LEU:HG	1:B:227:ILE:HB	2.01	0.41
1:B:285:VAL:HG21	1:B:296:LYS:HD2	2.03	0.41
1:C:135:ASP:N	1:C:135:ASP:OD1	2.54	0.41
1:C:735:THR:O	1:C:739:CYS:N	2.43	0.41
2:E:161:ARG:NH1	2:E:265:HIS:O	2.48	0.41
2:E:186:LEU:HD23	2:E:186:LEU:HA	1.94	0.41
2:E:208:GLU:HG3	2:E:218:SER:HA	2.03	0.41
1:B:327:ASN:HB3	1:B:328:ILE:H	1.65	0.41
1:B:700:SER:HB2	1:C:786:LYS:HG2	2.03	0.41
1:C:726:SER:OG	1:C:727:MET:N	2.54	0.41
1:A:23:GLN:NE2	1:A:61:TRP:O	2.52	0.40
1:A:449:TYR:HB3	1:A:491:TYR:HE1	1.85	0.40
1:B:548:LEU:HD22	1:B:583:ILE:HD12	2.03	0.40
1:C:94:LYS:HD3	1:C:94:LYS:HA	1.74	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:552:ASN:OD1	1:C:552:ASN:N	2.54	0.40
1:C:724:PRO:HB2	1:C:1014:ILE:HD11	2.03	0.40
2:E:247:LYS:HD2	2:E:247:LYS:HA	1.93	0.40
2:E:527:GLU:HA	2:E:539:LEU:HD11	2.03	0.40
1:B:784:ILE:HG13	1:B:872:ALA:HB2	2.02	0.40
1:C:481:GLY:HA3	1:C:482:PRO:HD3	1.95	0.40
1:C:798:PHE:CE2	1:C:878:ILE:HD11	2.56	0.40
2:E:460:ARG:HH22	2:E:512:PHE:HB3	1.86	0.40
1:A:976:ILE:O	1:A:980:LEU:N	2.38	0.40
1:B:704:SER:OG	1:B:705:ASN:N	2.55	0.40
1:B:711:PRO:HA	1:B:1068:GLU:HA	2.03	0.40
1:C:200:TYR:HB3	1:C:219:LEU:HB2	2.04	0.40
1:C:763:LEU:HA	1:C:766:ILE:HG12	2.03	0.40
1:A:662:ILE:HG12	1:A:667:CYS:HA	2.03	0.40
1:B:66:HIS:HB2	1:B:75:ARG:HE	1.86	0.40
1:C:323:VAL:HA	1:C:538:ASN:HB3	2.04	0.40
1:C:970:SER:OG	1:C:972:VAL:O	2.37	0.40
1:A:371:PHE:HB3	1:A:432:TRP:HA	2.04	0.40
1:A:612:ASN:OD1	1:A:640:GLN:NE2	2.54	0.40
1:A:784:ILE:HG13	1:A:872:ALA:HB2	2.02	0.40
1:B:113:SER:OG	1:B:128:CYS:O	2.32	0.40
1:B:866:ILE:HD12	1:B:866:ILE:HA	1.89	0.40
1:C:470:GLN:OE1	1:C:478:GLY:N	2.52	0.40
1:C:486:SER:HA	1:C:487:PRO:HD3	1.88	0.40
1:C:539:PHE:CG	1:C:572:VAL:HG21	2.57	0.40
2:E:109:SER:OG	2:E:110:GLU:N	2.54	0.40
2:E:116:LEU:O	2:E:120:LEU:HB2	2.22	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 PDB entries followed by that with respect to all EM entries.

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	1056/1317 (80%)	955 (90%)	101 (10%)	0	100	100
1	B	1056/1317 (80%)	960 (91%)	96 (9%)	0	100	100
1	C	1057/1317 (80%)	953 (90%)	103 (10%)	1 (0%)	48	83
2	E	592/594 (100%)	567 (96%)	25 (4%)	0	100	100
All	All	3761/4545 (83%)	3435 (91%)	325 (9%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	23	GLN

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	934/1139 (82%)	933 (100%)	1 (0%)	92	95
1	B	934/1139 (82%)	932 (100%)	2 (0%)	92	93
1	C	935/1139 (82%)	932 (100%)	3 (0%)	91	91
2	E	525/525 (100%)	523 (100%)	2 (0%)	89	90
All	All	3328/3942 (84%)	3320 (100%)	8 (0%)	91	93

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	233	ARG
1	B	75	ARG
1	B	1006	GLN
1	C	186	ARG
1	C	390	ASN
1	C	1015	ARG
2	E	393	ARG
2	E	559	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such

sidechains are listed below:

Mol	Chain	Res	Type
1	A	640	GLN
1	B	820	ASN
1	C	134	ASN
1	C	783	GLN
2	E	134	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

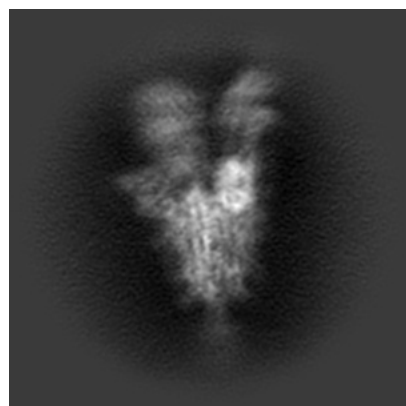
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-37835. These allow visual inspection of the internal detail of the map and identification of artifacts.

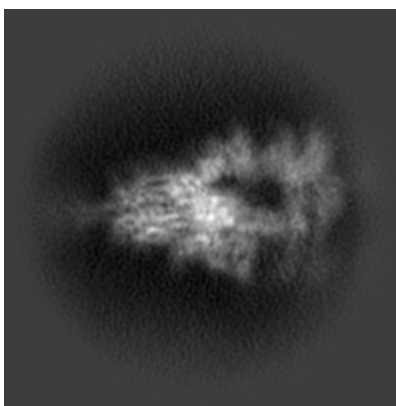
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

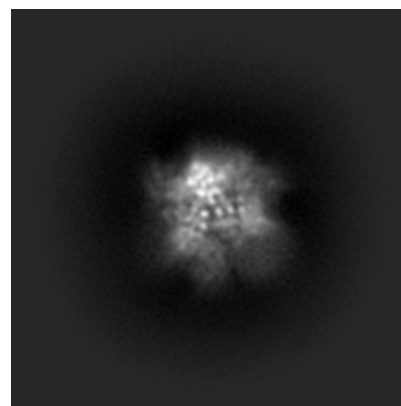
6.1.1 Primary map



X

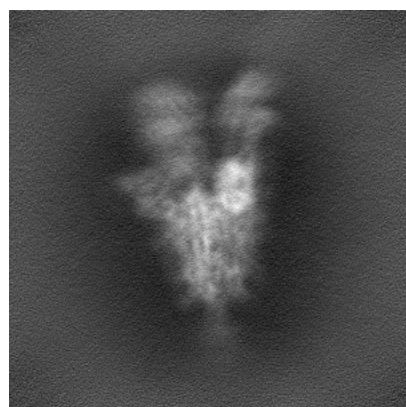


Y

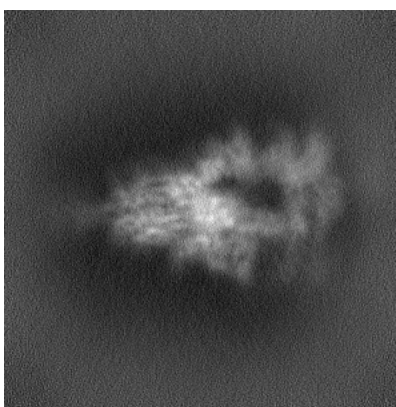


Z

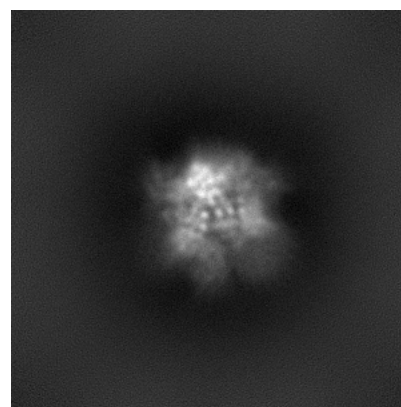
6.1.2 Raw map



X



Y

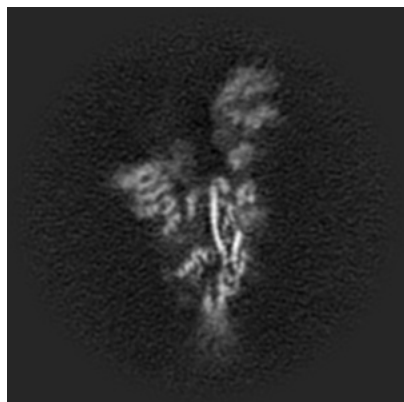


Z

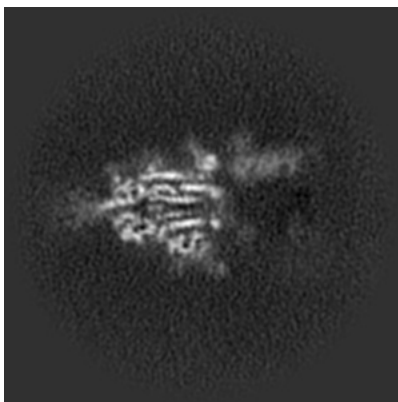
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

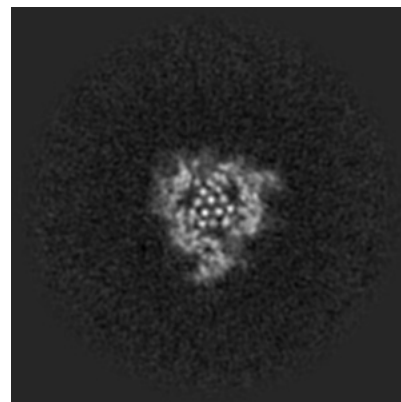
6.2.1 Primary map



X Index: 180

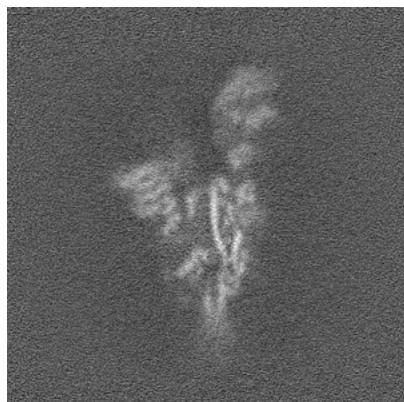


Y Index: 180



Z Index: 180

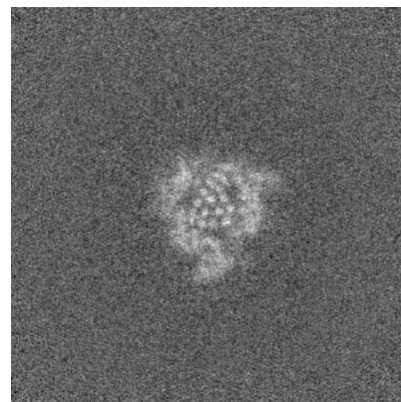
6.2.2 Raw map



X Index: 180



Y Index: 180

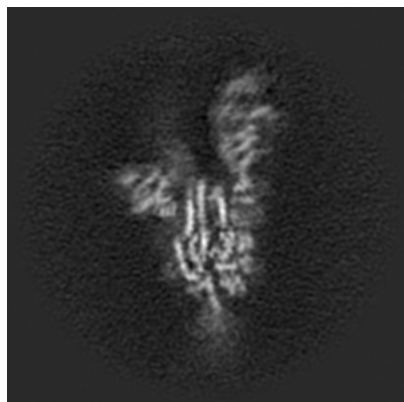


Z Index: 180

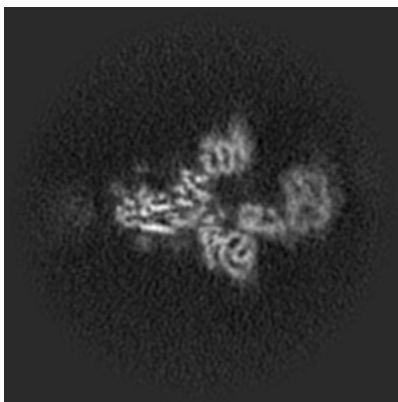
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

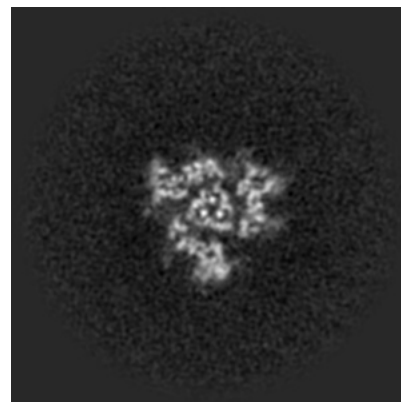
6.3.1 Primary map



X Index: 172

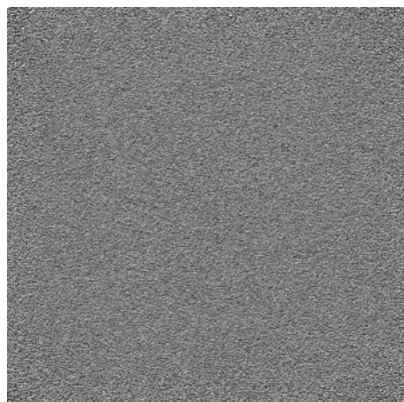


Y Index: 204

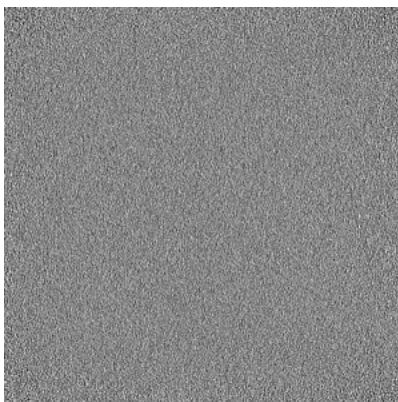


Z Index: 188

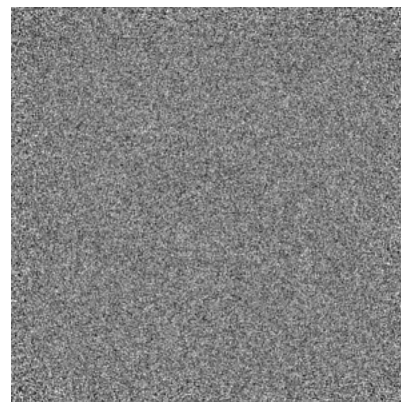
6.3.2 Raw map



X Index: 0



Y Index: 0

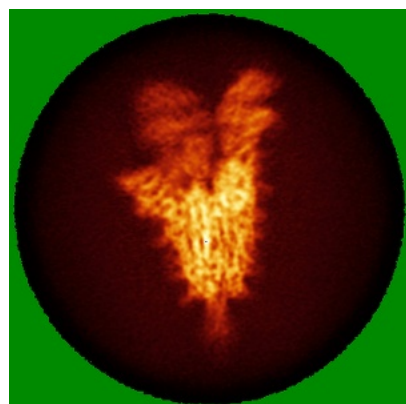


Z Index: 359

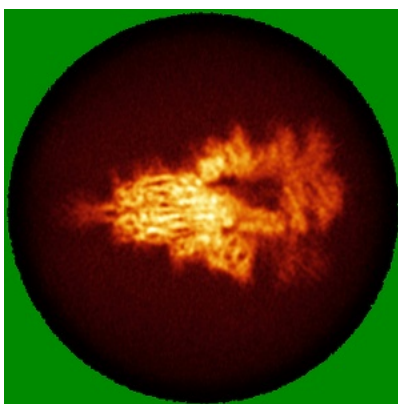
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

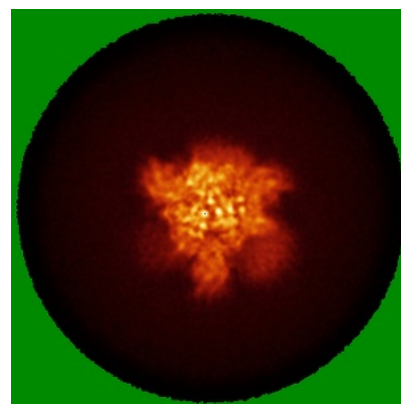
6.4.1 Primary map



X

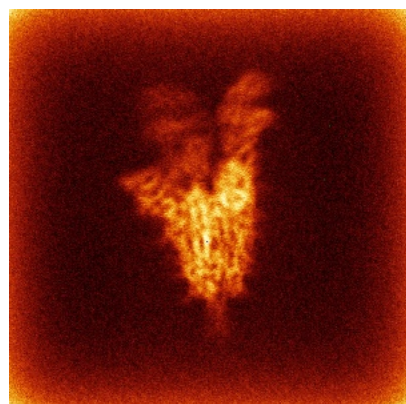


Y

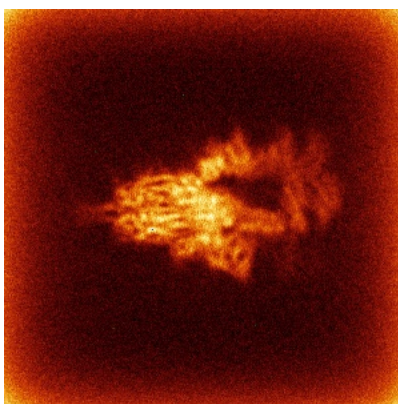


Z

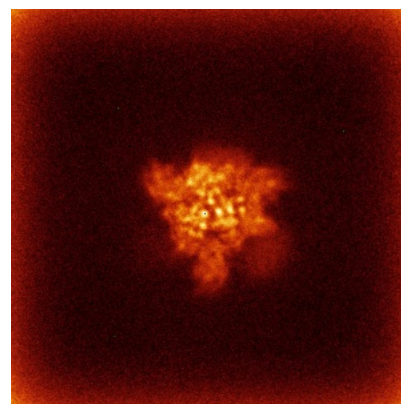
6.4.2 Raw map



X



Y

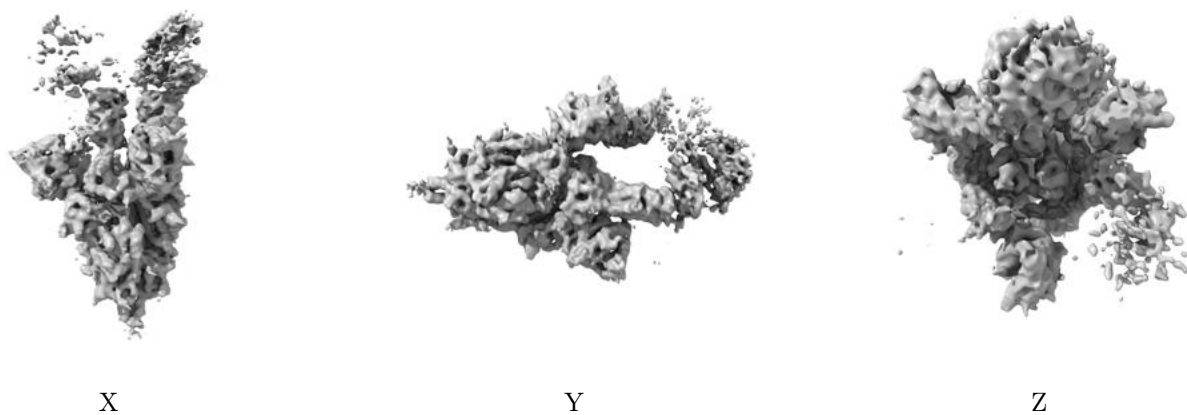


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

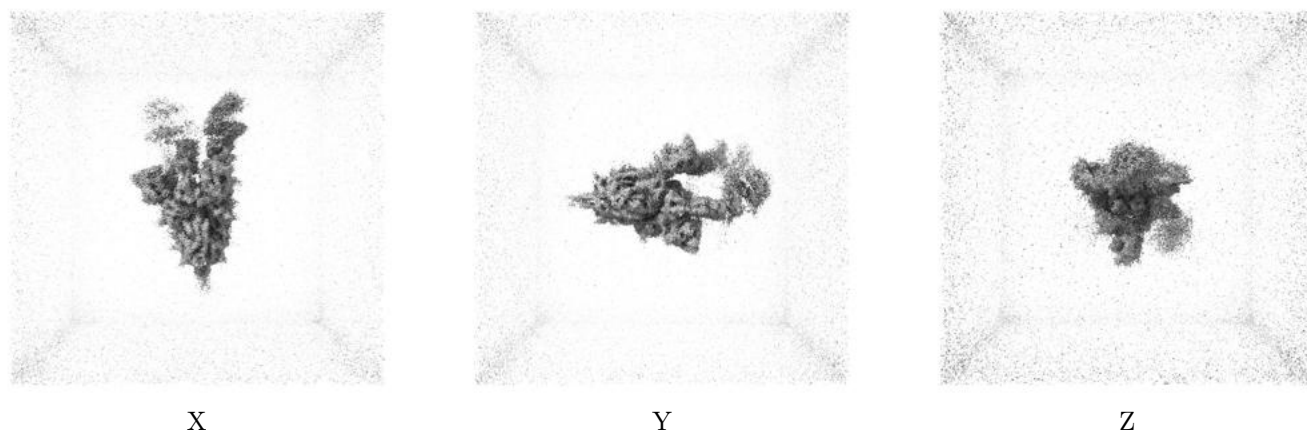
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.25. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

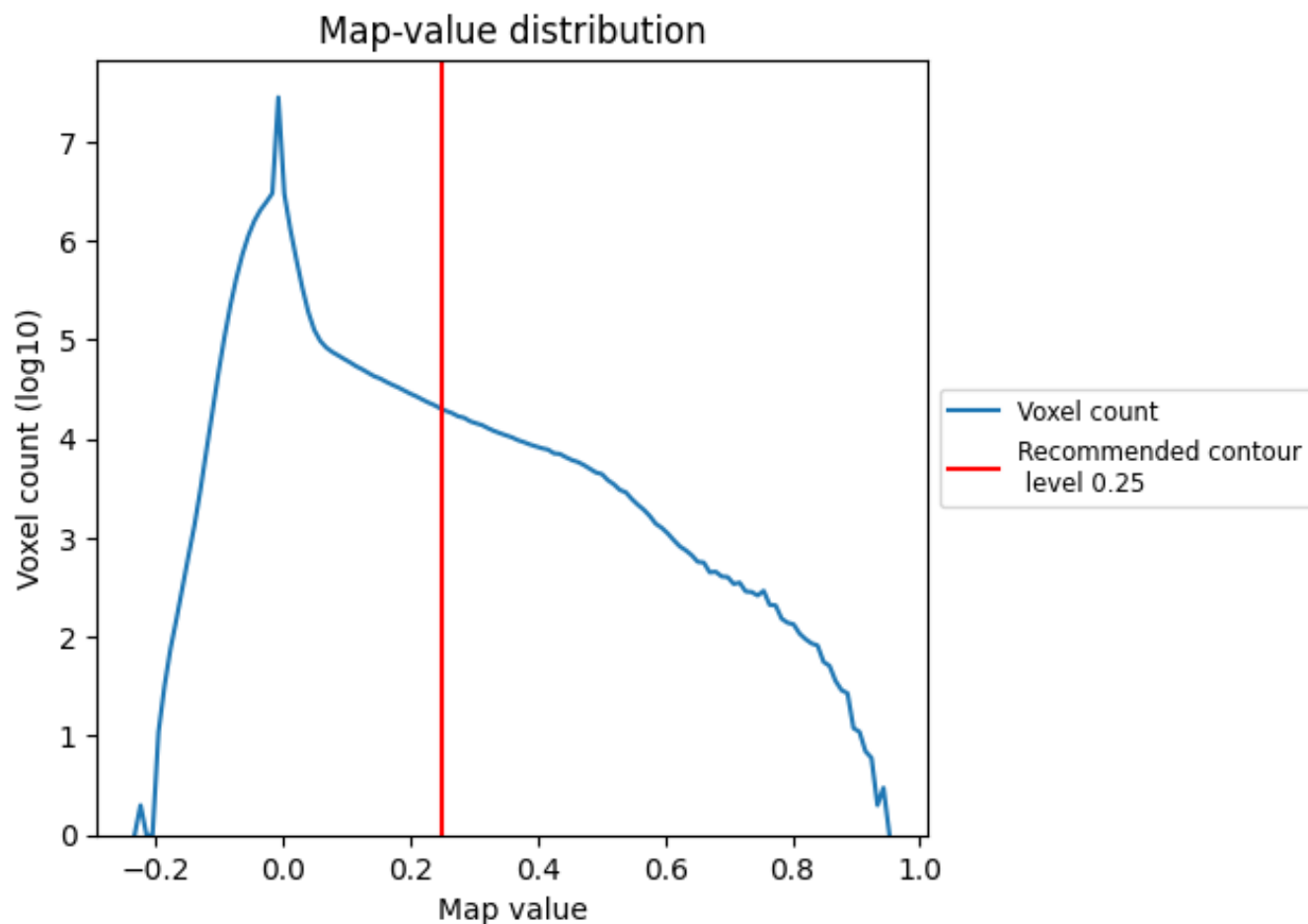
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

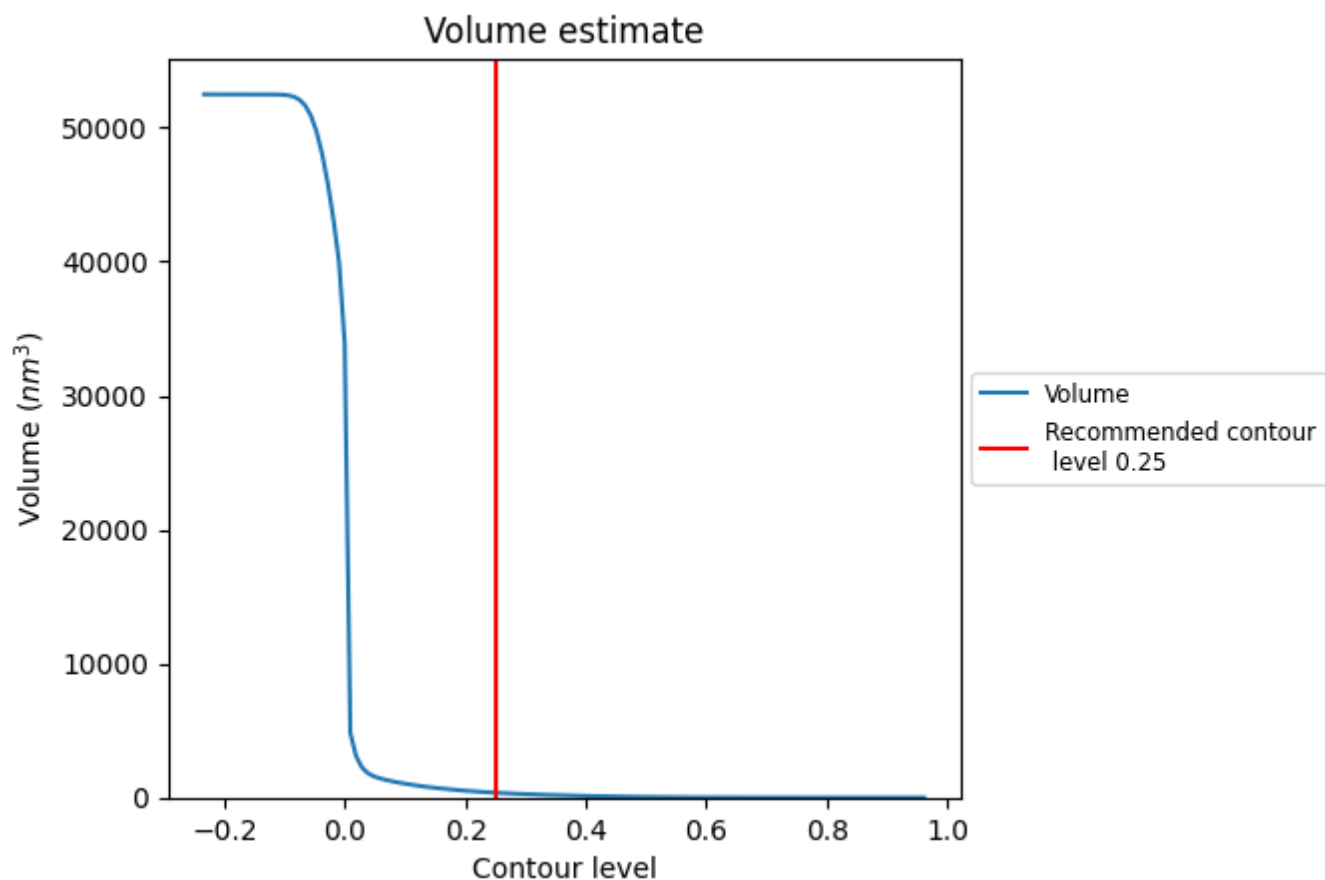
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

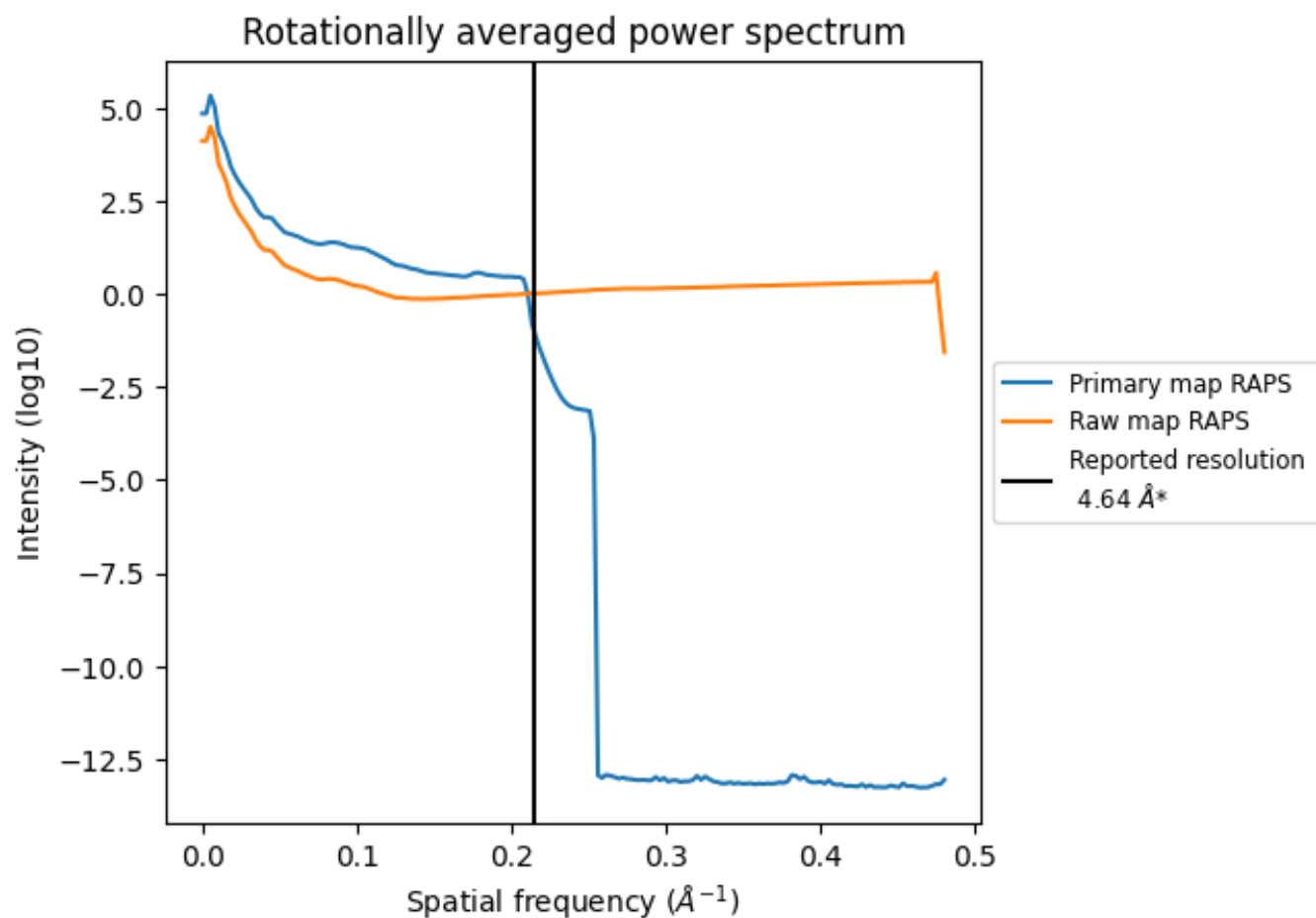
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 362 nm³; this corresponds to an approximate mass of 327 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

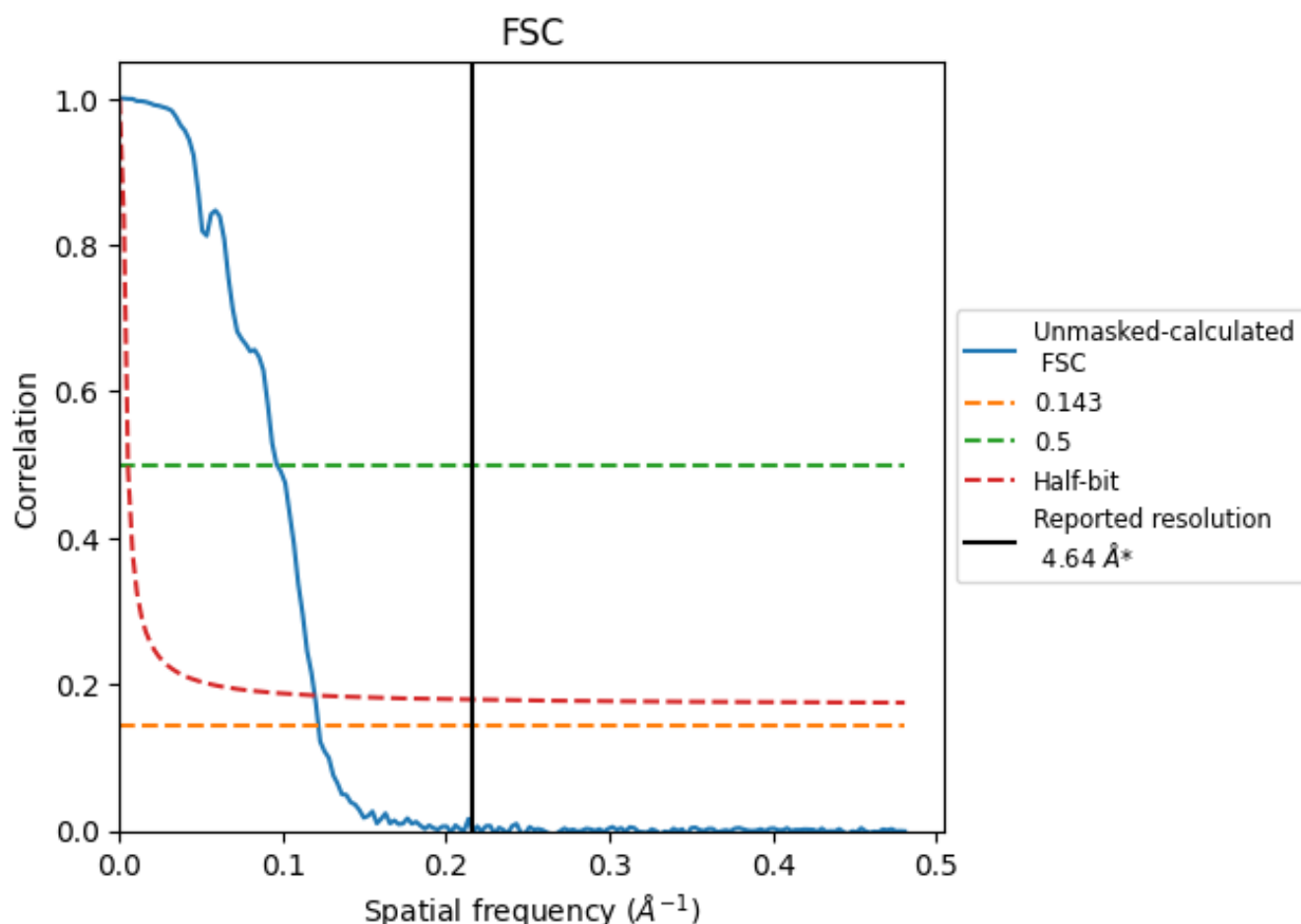


*Reported resolution corresponds to spatial frequency of 0.216 \AA^{-1}

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.216 Å⁻¹

8.2 Resolution estimates [i](#)

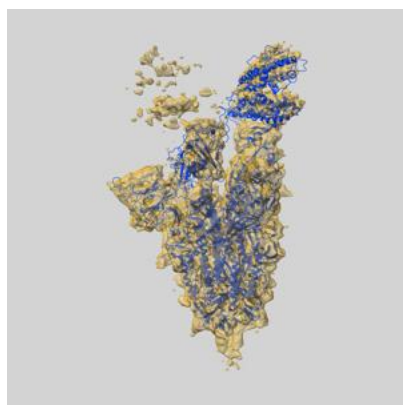
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.64	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	8.21	10.40	8.36

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 8.21 differs from the reported value 4.64 by more than 10 %

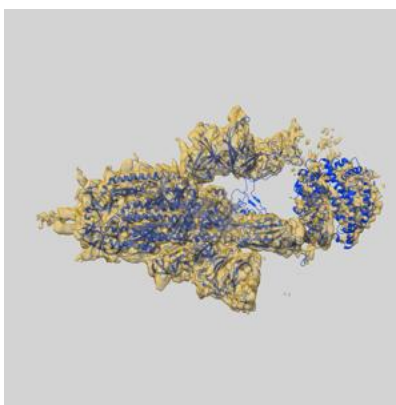
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-37835 and PDB model 8WTJ. Per-residue inclusion information can be found in [section 3](#) on [page 8](#).

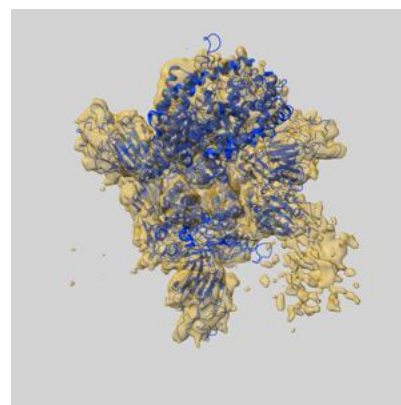
9.1 Map-model overlay [i](#)



X



Y



Z

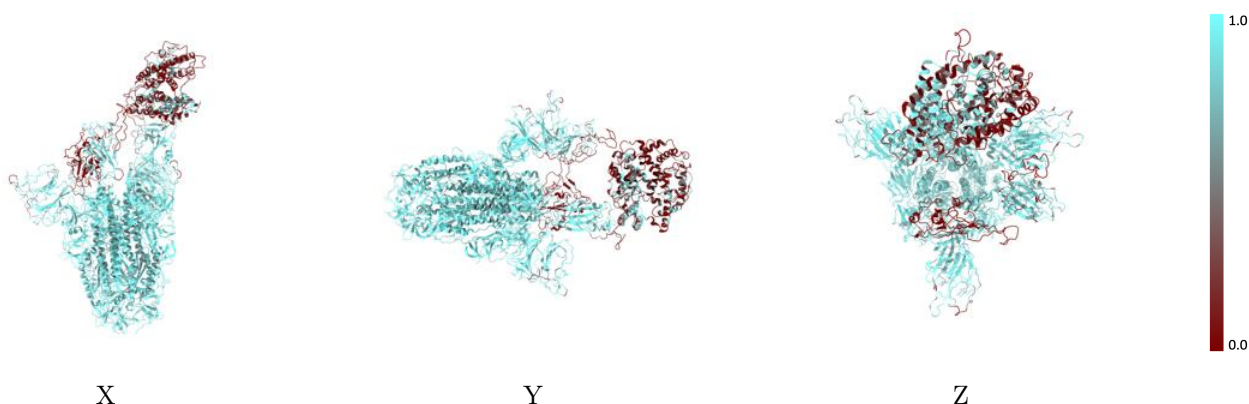
The images above show the 3D surface view of the map at the recommended contour level 0.25 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



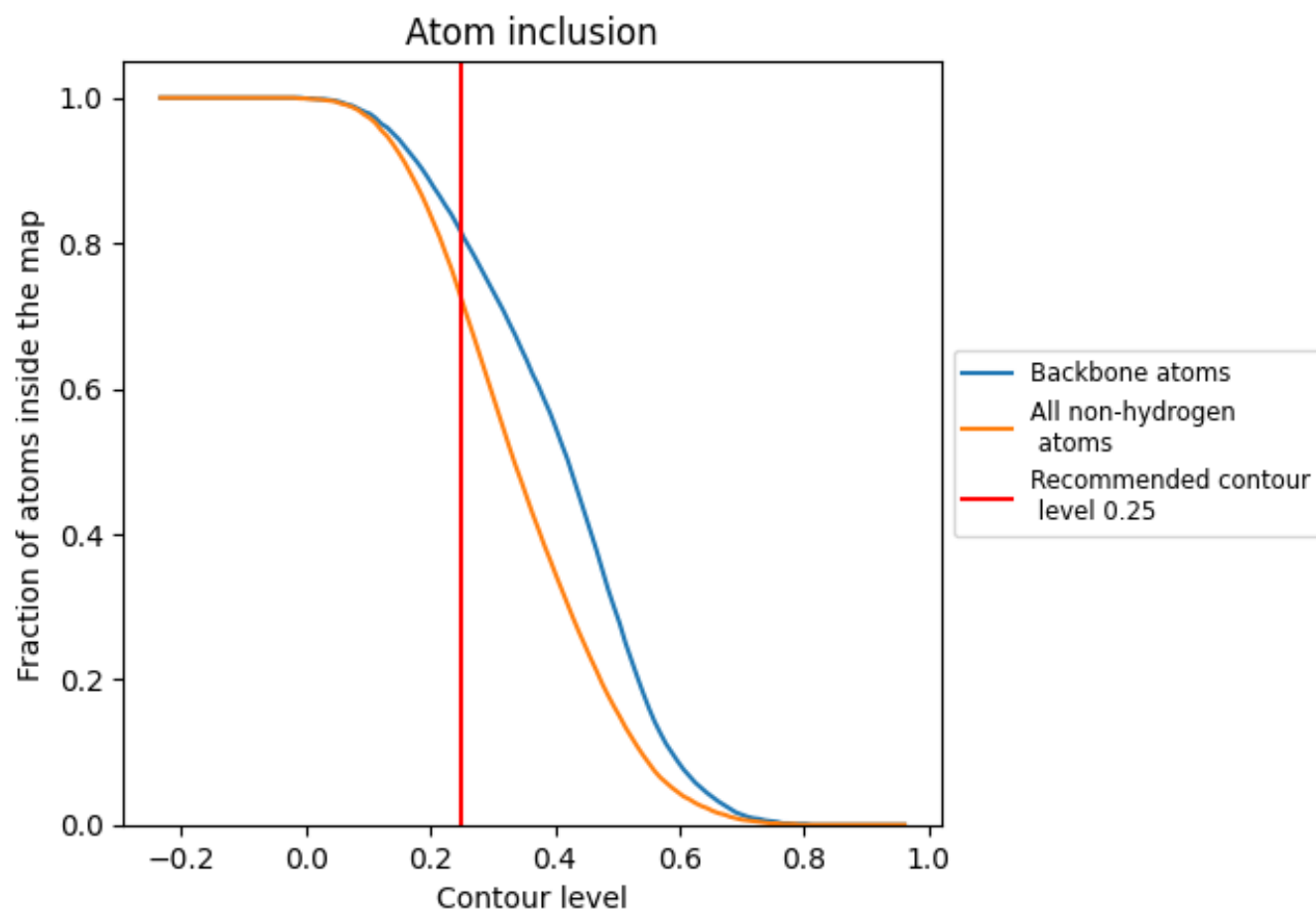
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.25).

9.4 Atom inclusion [i](#)



At the recommended contour level, 81% of all backbone atoms, 72% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div></div> 0.7230	<div></div> 0.2020
A	<div></div> 0.8170	<div></div> 0.2210
B	<div></div> 0.8510	<div></div> 0.2300
C	<div></div> 0.7350	<div></div> 0.2210
E	<div></div> 0.3220	<div></div> 0.0900

