



Full wwPDB EM Validation Report ⓘ

Nov 9, 2022 – 01:39 AM JST

PDB ID : 6ACJ
EMDB ID : EMD-9593
Title : Trypsin-cleaved and low pH-treated SARS-CoV spike glycoprotein and ACE2 complex, ACE2-bound conformation 2
Authors : Gui, M.; Song, W.
Deposited on : 2018-07-26
Resolution : 4.20 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.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

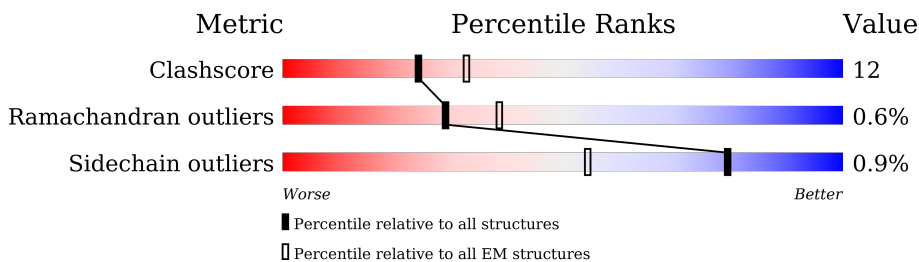
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.20 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	1203	
1	B	1203	
1	C	1203	
2	D	603	

2 Entry composition i

There are 2 unique types of molecules in this entry. The entry contains 29715 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
			Total	C	N	O	S		
1	A	1065	8302	5304	1374	1579	45	0	0
1	B	1065	8302	5304	1374	1579	45	0	0
1	C	1057	8241	5264	1364	1568	45	0	0

There are 21 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1197	SER	-	expression tag	UNP P59594
A	1198	HIS	-	expression tag	UNP P59594
A	1199	PRO	-	expression tag	UNP P59594
A	1200	GLN	-	expression tag	UNP P59594
A	1201	PHE	-	expression tag	UNP P59594
A	1202	GLU	-	expression tag	UNP P59594
A	1203	LYS	-	expression tag	UNP P59594
B	1197	SER	-	expression tag	UNP P59594
B	1198	HIS	-	expression tag	UNP P59594
B	1199	PRO	-	expression tag	UNP P59594
B	1200	GLN	-	expression tag	UNP P59594
B	1201	PHE	-	expression tag	UNP P59594
B	1202	GLU	-	expression tag	UNP P59594
B	1203	LYS	-	expression tag	UNP P59594
C	1197	SER	-	expression tag	UNP P59594
C	1198	HIS	-	expression tag	UNP P59594
C	1199	PRO	-	expression tag	UNP P59594
C	1200	GLN	-	expression tag	UNP P59594
C	1201	PHE	-	expression tag	UNP P59594
C	1202	GLU	-	expression tag	UNP P59594
C	1203	LYS	-	expression tag	UNP P59594

- Molecule 2 is a protein called Angiotensin-converting enzyme 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	D	597	4870	3115	806	920	29	0	0

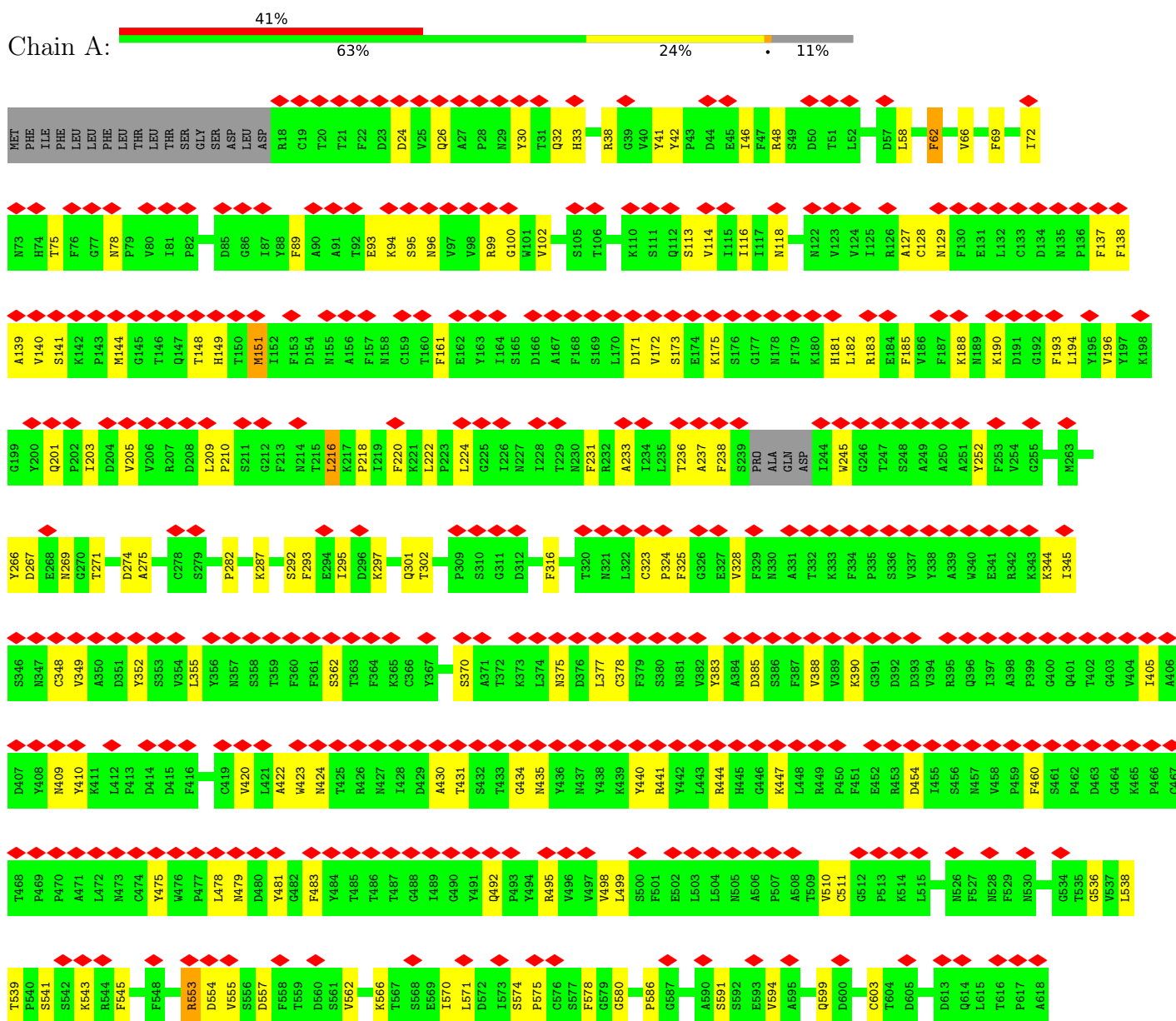
There are 6 discrepancies between the modelled and reference sequences:

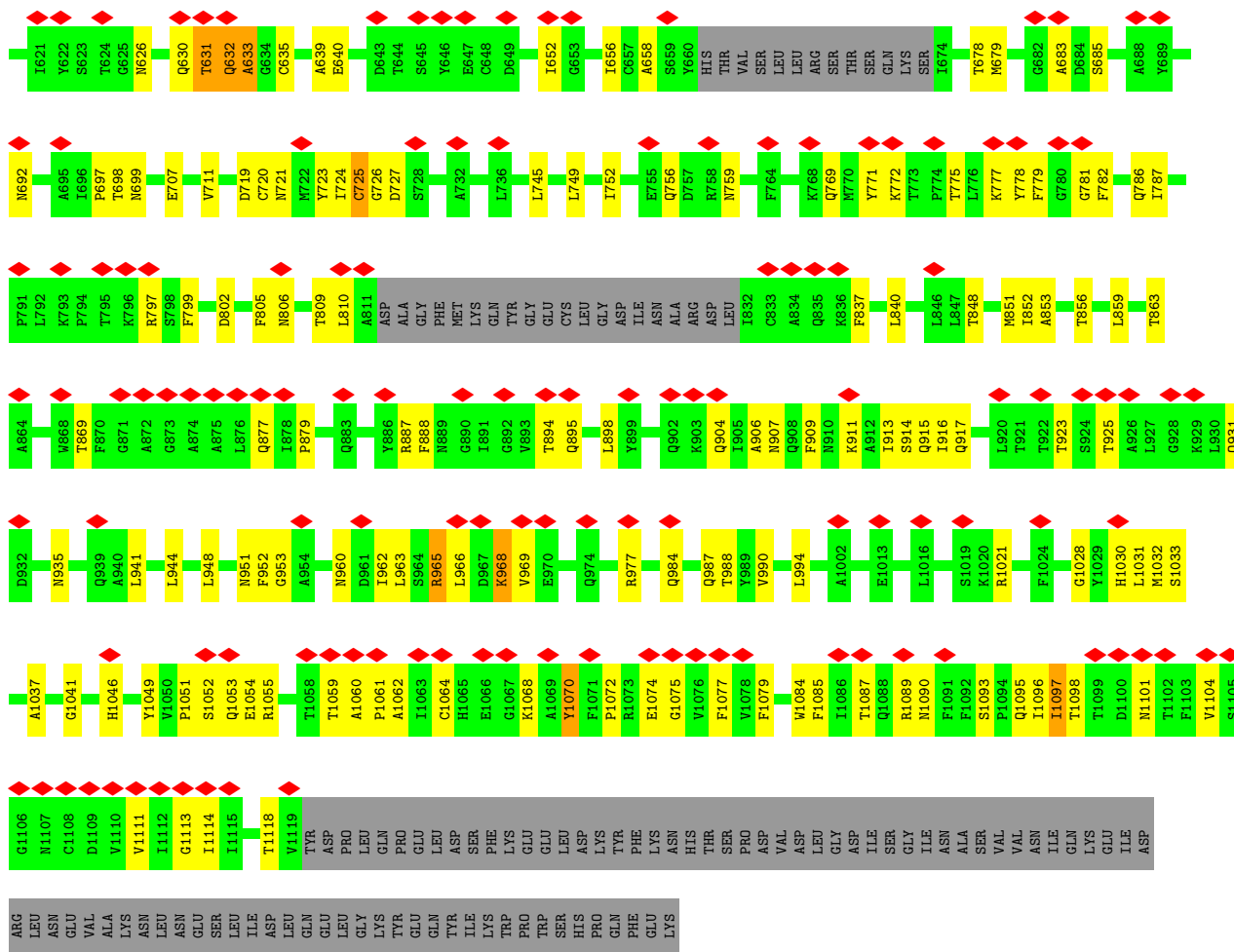
Chain	Residue	Modelled	Actual	Comment	Reference
D	616	HIS	-	expression tag	UNP Q9BYF1
D	617	HIS	-	expression tag	UNP Q9BYF1
D	618	HIS	-	expression tag	UNP Q9BYF1
D	619	HIS	-	expression tag	UNP Q9BYF1
D	620	HIS	-	expression tag	UNP Q9BYF1
D	621	HIS	-	expression tag	UNP Q9BYF1

3 Residue-property plots

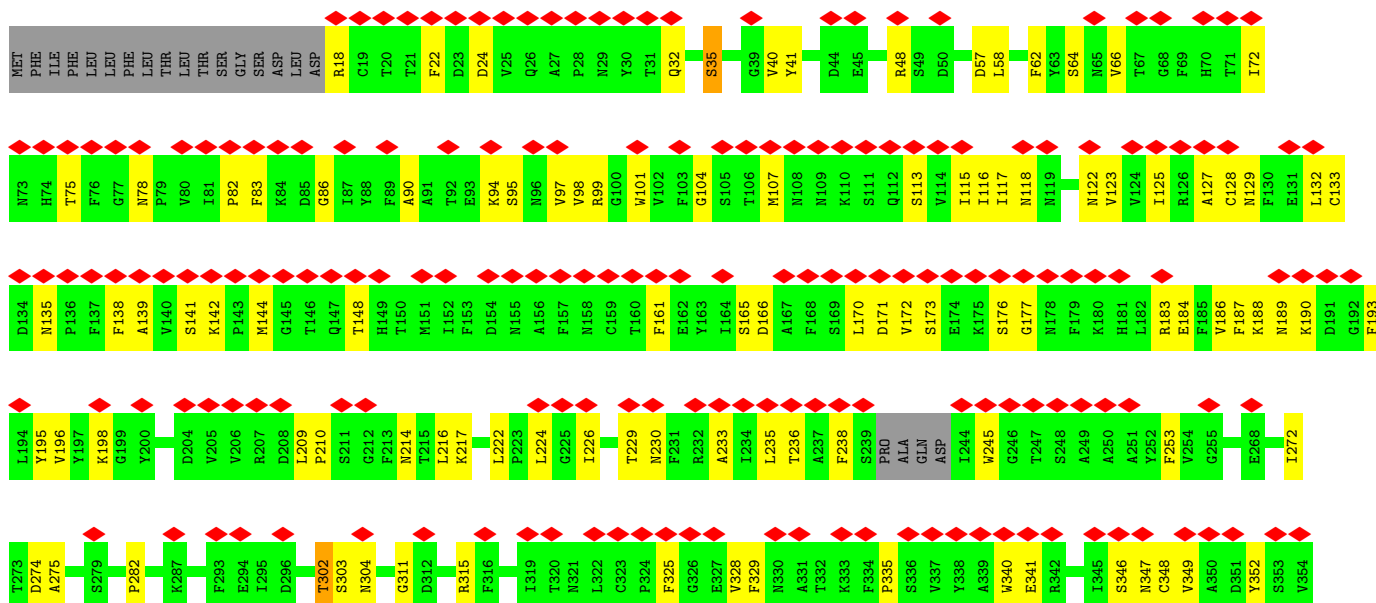
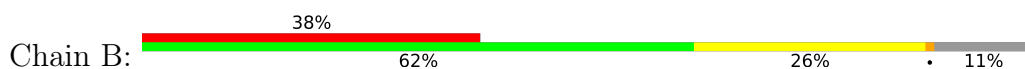
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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.

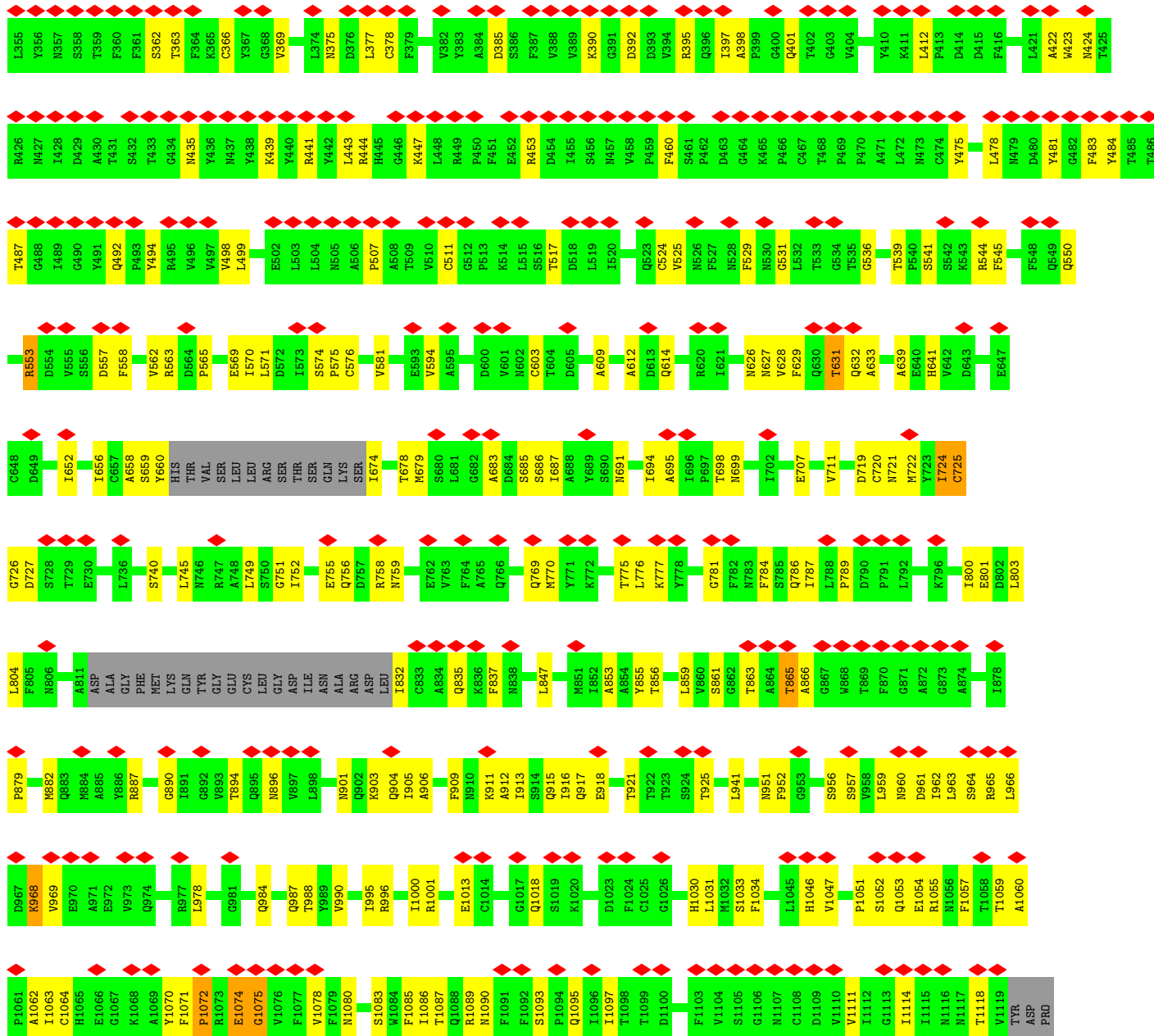
• Molecule 1: Spike glycoprotein



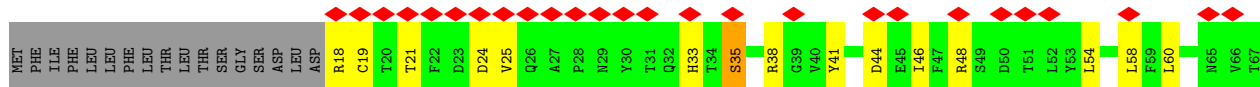
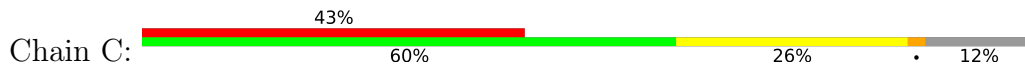


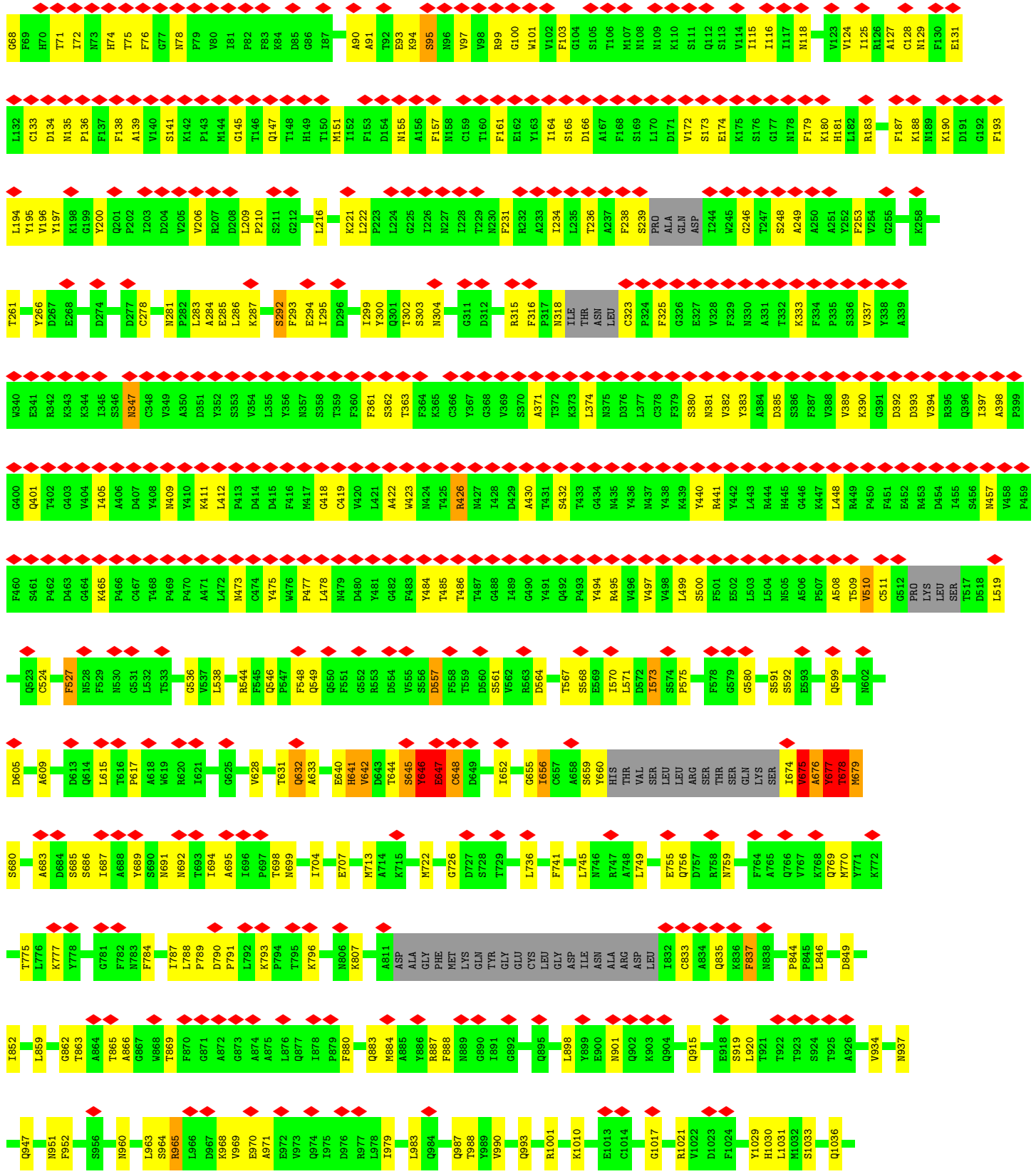
• Molecule 1: Spike glycoprotein





• Molecule 1: Spike glycoprotein



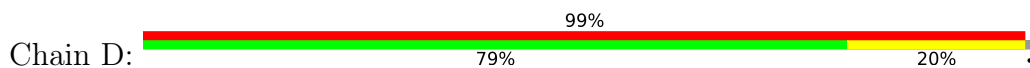


H1046	V1047	F1048	Y1049	S1052	Q1053	E1054	R1055	N1056	F1057	T1058	T1059	A1060	P1061	G1062	I1063	C1064	H1065	E1066	A1069	Y1070	F1071	P1072	R1073	E1074	G1075	V1076	F1077	Y1078	F1079	N1080	S1083	W1084	F1085	I1086	T1087	Q1088	R1089	N1090	F1091	F1092	S1093	F1094	Q1095	I1096	T1097	T1098	T1099	D1100	N1101	T1102	F1103	V1104	S1105	G1106	N1107	C1108
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D1109	V1110	V1111	I1112	G1113	I1114	I1115	N1116	N1117	T1118	V1119	TYR	ASP	GLN	GLU	LEU	GLY	GLN	LYS	TRP	GLU	GLU	TRP	TRP	GLU	ASP	LEU	LYS	TYR	THR	THR	THR	THR	ASP	VAL	ASP	LEU	GLY	ASP	ILE	SER	GLY	ILE	ASN	ALA	SER	VAL	VAL	ASN	ILE	GLN	LYS	GLU	ILE	ASP	ARG	LEU
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ASN	GLU	VAL	ALA	LYS	ASN	LEU	ASN	SER	LEU	ILE	ASP	LEU	GLN	LEU	GLY	LYS	TRP	LYS	TRP	GLU	TRP	TRP	GLU	ASP	LEU	LYS	TYR	HIS	GLN	GLN	PHE	LYS	ASP	GLN	ASP	GLY	ASP	ASP	ASP	VAL	VAL	VAL	ASN	ILE	ILE	GLN	LYS	GLU	ILE	ASP	ARG	LEU
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● Molecule 2: Angiotensin-converting enzyme 2



S19	T20	I21	E22	Q24	A25	K26	T27	F28	L29	D30	K31	F32	N33	H34	E35	A36	E37	D38	L39	F40	Y41	Q42	S43	S44	L45	A46	S47	W48	N49	Y50	M51	T52	M53	I54	T55	E56	E57	M58	V59	O60	N61	M62	M63	N64	A65	O66	D67	K68	W69	S70	A71	F72	L73	K74	E75	O76	S77	T78
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L79	A80	Q81	M82	Y83	P84	L85	Q86	E87	I88	Q89	N90	T91	V92	K94	S95	Q96	L97	Q98	L99	L100	Q101	Q102	N103	G104	S105	S106	V107	L108	S109	E110	D111	K112	S113	K114	R115	L116	N117	T118	I119	L120	M121	T122	M123	M124	T125	O126	Y127	S128	W129	G130	K131	V132	C133	N134	P135	D136	M137	P138
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Q139	E140	C141	L142	L143	L144	E145	P146	G147	L148	N149	E150	I151	M152	A153	N154	S155	L156	D157	Y158	M159	A160	R161	L162	W163	A164	W165	E166	V167	W168	R169	S170	E171	V172	G173	K174	Q175	L176	R177	P178	L179	Y180	E181	W182	Y183	V184	W185	L186	K187	S188	E189	M190	E191	A192	P193	A194	H195	Y196	E197	D198
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Y199	G200	D201	Y202	W203	R204	G205	D206	Y207	E208	V209	N210	G211	V212	D213	G214	Y215	D216	Y217	S218	R219	G220	Q221	L222	I223	E224	D225	V226	E227	H228	T229	F230	E231	E232	I233	K234	P235	L236	Y237	E238	H239	L240	H241	W242	A243	Y244	Y245	R246	A247	K248	M249	N250	A251	Y252	P253	S254	H255	I256	S257	P258
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I259	G260	C261	L262	P263	A264	H265	L266	L267	G268	D269	M270	W271	G272	R273	F274	W275	N276	L277	L278	Y279	S280	L281	T282	P283	F284	F285	G286	Q287	K288	P289	N290	I291	D292	V293	T294	D295	A296	M297	V298	D299	Q300	A301	W302	D303	A304	Q305	R306	I307	F308	K309	E310	A311	E312	K313	F314	F315	S316	S317	V318
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G319	L320	P321	N322	M323	T324	Q325	G326	F327	W328	E329	N330	S331	M332	L333	T334	D335	G336	G337	N338	V339	Q340	K341	A342	V343	C344	H345	P346	T347	A348	W349	D350	L351	G352	K353	G354	D355	F356	R357	I358	L359	M360	C361	T362	K363	V364	T365	M366	D367	D368	F369	L370	T371	A372	H373	H374	E375	M376	G377	H378
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I379	Q380	Y381	D382	M383	A384	Y385	A386	Q387	Q388	P389	F390	L391	L392	R393	N394	G395	A396	N397	E398	G399	F400	H401	E402	A403	V404	G405	E406	I407	M408	S409	L410	S411	A412	A413	T414	P415	K416	H417	L418	K419	S420	I421	G422	L423	L424	S425	P426	D427	F428	Q429	E430	D431	N432	E433	T434	E435	I436	M437	F438
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L439	L440	K441	Q442	A443	L444	T445	I446	V447	L448	T449	L450	P451	F452	T453	Y454	M455	L456	E457	K458	W459	R460	W461	M462	V463	L464	K465	G466	I467	E468	P469	K470	D471	Q472	W473	M474	K475	K476	W477	W478	E479	M480	K481	G482	E483	I484	V485	G486	V487	V488	E489	P490	V491	P492	H493	D494	E495	T496	Y497	C498
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D499	P500	A501	S502	F503	L504	H505	V506	S507	N508	D509	Y510	S511	F512	I513	R514	Y515	Y516	T517	R518	T519	L520	Y521	Q522	F523	Q524	F525	Q526	E527	A528	L529	C530	Q531	A532	A533	K534	H535	E536	G537	P538	L539	H540	K541	C542	D543	E544	S545	N546	S547	E548	E549	A550	G551	Q552	K553	L554	F555	N556	M557	L558
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R559	L560	G561	K562	S563	E564	P565	W566	T567	L568	A569	L570	E571	N572	V573	V574	G575	A576	K577	N578	M579	N580	Y581	R582	P583	L584	L585	Y587	F588	E589	P590	L591	F592	T593	N594	L595	K596	D597	Q598	N599	K600	N601	S602	F603	V604	G605	M606	S607	D608	M609	M610	S611	P612	Y613	A614	D615	HIS	HIS	HIS
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HIS
HIS
HIS

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	129462	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	33.479	Depositor
Minimum map value	-16.130	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.871	Depositor
Recommended contour level	8.0	Depositor
Map size (\AA)	380.16, 380.16, 380.16	wwPDB
Map dimensions	288, 288, 288	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.32, 1.32, 1.32	Depositor

5 Model quality i

5.1 Standard geometry i

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	0.50	1/8499 (0.0%)	0.70	3/11568 (0.0%)
1	B	0.50	1/8499 (0.0%)	0.70	1/11568 (0.0%)
1	C	0.55	8/8435 (0.1%)	0.77	10/11477 (0.1%)
2	D	0.31	0/5007	0.56	1/6803 (0.0%)
All	All	0.49	10/30440 (0.0%)	0.70	15/41416 (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	A	0	14
1	B	0	19
1	C	0	21
2	D	0	1
All	All	0	55

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	677	TYR	CE2-CZ	-8.20	1.27	1.38
1	A	725	CYS	CB-SG	-6.94	1.70	1.82
1	C	678	THR	CA-C	-5.93	1.37	1.52
1	C	676	ALA	C-O	-5.67	1.12	1.23
1	C	646	TYR	CE1-CZ	-5.53	1.31	1.38
1	B	725	CYS	CB-SG	-5.40	1.73	1.81
1	C	642	VAL	N-CA	-5.33	1.35	1.46
1	C	677	TYR	CD2-CE2	-5.32	1.31	1.39
1	C	677	TYR	CA-C	-5.21	1.39	1.52
1	C	677	TYR	CA-CB	-5.18	1.42	1.53

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	642	VAL	CB-CA-C	-7.37	97.40	111.40
1	C	647	GLU	C-N-CA	-7.22	103.65	121.70
1	B	557	ASP	CB-CG-OD1	7.20	124.78	118.30
1	C	641	HIS	O-C-N	6.86	133.67	122.70
1	C	641	HIS	CA-C-N	-6.62	102.64	117.20
1	A	557	ASP	CB-CG-OD1	6.46	124.11	118.30
1	C	677	TYR	CB-CG-CD2	-6.40	117.16	121.00
1	C	646	TYR	N-CA-C	5.95	127.06	111.00
2	D	558	LEU	CA-CB-CG	5.90	128.88	115.30
1	A	787	ILE	C-N-CA	5.56	135.60	121.70
1	C	846	LEU	CA-CB-CG	-5.39	102.91	115.30
1	C	678	THR	C-N-CA	-5.30	108.46	121.70
1	C	557	ASP	CB-CG-OD1	5.22	123.00	118.30
1	C	675	VAL	C-N-CA	5.18	134.65	121.70
1	A	216	LEU	CA-CB-CG	-5.01	103.78	115.30

There are no chirality outliers.

All (55) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1052	SER	Peptide
1	A	1074	GLU	Peptide
1	A	1077	PHE	Peptide
1	A	151	MET	Peptide
1	A	553	ARG	Peptide
1	A	62	PHE	Peptide
1	A	631	THR	Peptide
1	A	633	ALA	Peptide
1	A	724	ILE	Peptide
1	A	725	CYS	Peptide
1	A	726	GLY	Peptide
1	A	727	ASP	Peptide
1	A	923	THR	Peptide
1	A	968	LYS	Peptide
1	B	1052	SER	Peptide
1	B	1074	GLU	Peptide
1	B	1075	GLY	Peptide
1	B	35	SER	Peptide
1	B	507	PRO	Peptide
1	B	553	ARG	Peptide
1	B	558	PHE	Peptide
1	B	576	CYS	Peptide
1	B	62	PHE	Peptide

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Mol	Chain	Res	Type	Group
1	B	629	PHE	Peptide
1	B	631	THR	Peptide
1	B	722	MET	Peptide
1	B	724	ILE	Peptide
1	B	726	GLY	Peptide
1	B	727	ASP	Peptide
1	B	776	LEU	Peptide
1	B	781	GLY	Peptide
1	B	837	PHE	Peptide
1	B	968	LYS	Peptide
1	C	1073	ARG	Peptide
1	C	1074	GLU	Peptide
1	C	1075	GLY	Peptide
1	C	1077	PHE	Peptide
1	C	151	MET	Peptide
1	C	206	VAL	Peptide
1	C	292	SER	Peptide
1	C	316	PHE	Peptide
1	C	347	ASN	Peptide
1	C	35	SER	Peptide
1	C	465	LYS	Peptide
1	C	511	CYS	Peptide
1	C	527	PHE	Peptide
1	C	54	LEU	Peptide
1	C	548	PHE	Peptide
1	C	567	THR	Peptide
1	C	573	ILE	Peptide
1	C	837	PHE	Peptide
1	C	865	THR	Peptide
1	C	95	SER	Peptide
1	C	97	VAL	Peptide
2	D	425	SER	Peptide

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	8302	0	8082	200	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	8302	0	8082	210	0
1	C	8241	0	8011	259	0
2	D	4870	0	4643	73	0
All	All	29715	0	28818	697	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 12.

All (697) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:646:TYR:HB2	1:C:677:TYR:CE2	1.33	1.59
1:C:646:TYR:CB	1:C:677:TYR:CE2	1.90	1.53
1:C:647:GLU:O	1:C:648:CYS:CB	1.77	1.26
1:C:646:TYR:HB2	1:C:677:TYR:CD2	1.78	1.17
1:C:646:TYR:CA	1:C:677:TYR:CE2	2.28	1.16
1:C:646:TYR:CB	1:C:677:TYR:CZ	2.29	1.15
1:C:646:TYR:CA	1:C:677:TYR:HE2	1.57	1.14
1:C:646:TYR:HB2	1:C:677:TYR:CZ	1.85	1.12
1:C:678:THR:O	1:C:679:MET:HB2	1.40	1.08
1:C:647:GLU:O	1:C:648:CYS:HB3	1.49	1.07
1:C:647:GLU:OE1	1:C:680:SER:OG	1.73	1.06
1:C:656:ILE:HG12	1:C:677:TYR:O	1.57	1.04
1:C:655:GLY:O	1:C:678:THR:O	1.83	0.97
1:C:646:TYR:N	1:C:677:TYR:CE2	2.34	0.95
1:C:646:TYR:HB3	1:C:677:TYR:CZ	1.98	0.95
1:C:647:GLU:O	1:C:648:CYS:HB2	1.67	0.94
1:C:640:GLU:O	1:C:642:VAL:HG23	1.68	0.92
1:C:678:THR:O	1:C:679:MET:CB	2.16	0.92
1:C:678:THR:OG1	1:C:679:MET:N	2.03	0.87
2:D:346:PRO:HA	2:D:359:LEU:O	1.75	0.87
1:C:93:GLU:O	1:C:181:HIS:HB2	1.77	0.84
1:A:190:LYS:O	1:A:193:PHE:HB2	1.80	0.81
1:C:646:TYR:N	1:C:677:TYR:CD2	2.49	0.81
1:B:18:ARG:N	1:B:133:CYS:HG	1.78	0.80
1:B:113:SER:O	1:B:127:ALA:HA	1.81	0.80
1:C:647:GLU:N	1:C:677:TYR:OH	2.15	0.79
1:B:115:ILE:O	1:B:125:ILE:HA	1.82	0.79
1:B:190:LYS:O	1:B:193:PHE:HB2	1.82	0.79
1:C:418:GLY:HA3	1:C:499:LEU:O	1.84	0.78
1:C:1088:GLN:HE22	1:C:1093:SER:HB2	1.48	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:646:TYR:N	1:C:677:TYR:HE2	1.78	0.77
1:A:913:ILE:O	1:A:916:ILE:HB	1.85	0.77
1:B:909:PHE:O	1:B:912:ALA:HB3	1.85	0.77
2:D:566:TRP:O	2:D:570:LEU:HB2	1.85	0.76
1:C:564:ASP:HB3	1:C:568:SER:H	1.50	0.76
1:B:118:ASN:HB3	1:B:170:LEU:HD21	1.68	0.75
1:C:18:ARG:N	1:C:133:CYS:HG	1.85	0.75
1:C:646:TYR:HB3	1:C:677:TYR:OH	1.87	0.74
1:C:646:TYR:O	1:C:647:GLU:CG	2.36	0.73
1:C:648:CYS:N	1:C:677:TYR:OH	2.22	0.73
1:A:100:GLY:HA2	1:A:116:ILE:O	1.89	0.72
1:C:647:GLU:OE1	1:C:647:GLU:HA	1.90	0.71
1:C:677:TYR:HD1	1:C:677:TYR:H	1.38	0.71
1:A:348:CYS:SG	1:A:349:VAL:N	2.64	0.70
1:C:713:MET:HG2	1:C:756:GLN:HE22	1.55	0.70
1:A:895:GLN:HG3	1:B:1074:GLU:HG2	1.75	0.69
1:A:906:ALA:O	1:A:909:PHE:HB3	1.92	0.69
1:A:94:LYS:HB3	1:A:175:LYS:HB2	1.76	0.68
1:C:422:ALA:HA	1:C:495:ARG:O	1.94	0.68
1:B:835:GLN:NE2	1:C:575:PRO:O	2.26	0.68
1:C:1030:HIS:HE1	1:C:1033:SER:HB2	1.58	0.68
1:A:128:CYS:SG	1:A:129:ASN:N	2.67	0.67
1:C:707:GLU:OE1	1:C:1046:HIS:NE2	2.28	0.67
1:C:299:ILE:HD11	1:C:652:ILE:HG12	1.77	0.67
1:A:837:PHE:HB3	1:B:575:PRO:HD3	1.77	0.66
1:B:99:ARG:HH22	1:B:172:VAL:HA	1.60	0.66
1:A:1064:CYS:HB3	1:A:1114:ILE:HG23	1.77	0.66
1:A:1061:PRO:HD2	1:A:1113:GLY:H	1.61	0.65
1:A:707:GLU:OE1	1:A:1046:HIS:NE2	2.29	0.65
1:A:149:HIS:NE2	1:A:151:MET:SD	2.69	0.65
1:C:1063:ILE:HB	1:C:1070:TYR:HB2	1.79	0.64
1:A:960:ASN:H	1:A:963:LEU:HD13	1.62	0.64
1:C:656:ILE:CG1	1:C:677:TYR:O	2.39	0.64
1:B:340:TRP:O	1:B:453:ARG:NH1	2.31	0.64
1:C:722:MET:HA	1:C:726:GLY:HA2	1.80	0.64
1:A:58:LEU:HB2	1:A:188:LYS:HE3	1.80	0.64
1:A:1096:ILE:O	1:A:1101:ASN:ND2	2.30	0.64
1:C:686:SER:OG	1:C:687:ILE:N	2.31	0.63
1:C:887:ARG:NH1	1:C:1031:LEU:O	2.29	0.63
2:D:406:GLU:HG3	2:D:518:ARG:HD3	1.80	0.63
1:B:1059:THR:O	1:B:1080:ASN:ND2	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:347:ASN:H	1:C:509:THR:HB	1.62	0.63
1:C:1062:ALA:HB3	1:C:1111:VAL:HG13	1.81	0.63
1:A:887:ARG:NH1	1:A:1031:LEU:O	2.29	0.63
1:A:325:PHE:HA	1:A:328:VAL:HG12	1.80	0.63
1:A:1097:ILE:HD13	1:A:1118:THR:HA	1.81	0.63
1:B:107:MET:HA	1:B:132:LEU:HD12	1.80	0.62
1:B:348:CYS:SG	1:B:349:VAL:N	2.71	0.62
1:C:385:ASP:O	1:C:497:VAL:HA	1.98	0.62
1:A:869:THR:OG1	1:B:1089:ARG:NH1	2.32	0.62
1:A:632:GLN:NE2	1:C:833:CYS:SG	2.69	0.62
1:A:536:GLY:HA3	1:A:574:SER:HA	1.80	0.62
1:A:786:GLN:HB3	1:A:799:PHE:HB3	1.81	0.62
1:C:704:ILE:HG12	1:C:1047:VAL:HG22	1.82	0.62
1:B:707:GLU:OE1	1:B:1046:HIS:NE2	2.33	0.62
1:C:1096:ILE:O	1:C:1101:ASN:ND2	2.27	0.62
1:C:361:PHE:HA	1:C:423:TRP:HB3	1.83	0.61
1:B:127:ALA:HB3	1:B:161:PHE:HB3	1.82	0.61
1:B:652:ILE:HD11	1:B:658:ALA:HB2	1.82	0.61
1:C:646:TYR:HB3	1:C:677:TYR:CE2	2.12	0.61
1:B:101:TRP:HB2	1:B:116:ILE:HB	1.82	0.61
1:A:96:ASN:OD1	1:A:183:ARG:NH1	2.34	0.60
1:A:779:PHE:HB2	1:A:782:PHE:HB2	1.82	0.60
1:B:541:SER:HA	1:B:571:LEU:HG	1.83	0.60
1:A:139:ALA:HB3	1:A:148:THR:HB	1.83	0.60
1:C:363:THR:HB	1:C:422:ALA:HB3	1.83	0.60
1:B:94:LYS:HD2	1:B:176:SER:HA	1.82	0.60
1:B:484:TYR:HB2	1:B:487:THR:HB	1.83	0.60
1:A:182:LEU:HD23	1:A:201:GLN:HB3	1.82	0.60
1:A:1030:HIS:HE1	1:A:1033:SER:HB2	1.67	0.60
1:A:1097:ILE:HB	1:A:1118:THR:HG23	1.83	0.60
1:B:835:GLN:NE2	1:C:573:ILE:O	2.35	0.60
1:B:302:THR:HG23	1:B:581:VAL:HG23	1.82	0.60
1:C:524:CYS:HA	1:C:536:GLY:O	2.02	0.60
1:C:646:TYR:O	1:C:647:GLU:OE1	2.20	0.60
1:A:756:GLN:HA	1:A:759:ASN:HD22	1.67	0.60
1:C:656:ILE:HG13	1:C:678:THR:HA	1.82	0.60
1:A:378:CYS:HA	1:A:511:CYS:HA	1.83	0.59
1:B:385:ASP:HB2	1:B:498:VAL:HB	1.84	0.59
1:A:575:PRO:HD3	1:C:837:PHE:HB3	1.84	0.59
1:B:745:LEU:HD22	1:B:990:VAL:HG21	1.82	0.59
1:A:553:ARG:HE	1:C:46:ILE:HD13	1.67	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:435:ASN:HB3	1:A:483:PHE:HB2	1.84	0.59
1:B:315:ARG:NH1	1:B:517:THR:O	2.34	0.59
1:B:41:TYR:HB3	1:B:216:LEU:HD12	1.85	0.58
1:A:1054:GLU:O	1:A:1055:ARG:NH1	2.35	0.58
1:A:541:SER:HB3	1:A:543:LYS:HG2	1.84	0.58
1:B:209:LEU:HB2	1:B:253:PHE:HE2	1.69	0.58
1:B:913:ILE:O	1:B:916:ILE:HB	2.03	0.58
1:A:95:SER:HB3	1:A:175:LYS:HE3	1.86	0.58
1:A:138:PHE:HB2	1:A:236:THR:HA	1.85	0.58
1:A:316:PHE:O	1:A:566:LYS:NZ	2.36	0.58
1:A:887:ARG:NH1	1:A:1032:MET:SD	2.77	0.58
1:A:30:TYR:O	1:A:32:GLN:NE2	2.34	0.58
1:B:117:ILE:O	1:B:123:VAL:HA	2.03	0.58
1:A:626:ASN:ND2	1:A:640:GLU:OE2	2.35	0.58
1:C:398:ALA:HB3	1:C:401:GLN:HG3	1.85	0.58
1:A:325:PHE:HE1	1:A:345:ILE:HD13	1.67	0.57
1:C:281:ASN:H	1:C:284:ALA:HB3	1.68	0.57
1:B:1064:CYS:HB3	1:B:1114:ILE:HG23	1.86	0.57
1:B:282:PRO:HB2	1:B:594:VAL:HG21	1.86	0.57
1:B:887:ARG:NH1	1:B:1031:LEU:O	2.36	0.57
1:C:124:VAL:HG22	1:C:164:ILE:HG12	1.85	0.57
1:C:646:TYR:O	1:C:647:GLU:HG2	2.03	0.57
1:C:677:TYR:N	1:C:677:TYR:CD1	2.70	0.57
1:C:25:VAL:HA	1:C:76:PHE:HB3	1.85	0.57
1:A:196:VAL:HB	1:A:220:PHE:HB2	1.87	0.57
1:B:777:LYS:NZ	1:B:789:PRO:O	2.37	0.57
1:A:99:ARG:HD3	1:A:118:ASN:HB2	1.85	0.57
1:C:381:ASN:H	1:C:509:THR:HG1	1.51	0.57
2:D:132:VAL:O	2:D:141:CYS:HA	2.05	0.57
1:C:383:TYR:HB2	1:C:500:SER:HB2	1.86	0.57
1:B:755:GLU:OE1	1:B:1001:ARG:NH2	2.38	0.57
1:B:756:GLN:HA	1:B:759:ASN:HD22	1.69	0.57
1:C:58:LEU:HB2	1:C:188:LYS:HE3	1.86	0.57
1:C:1029:TYR:HB2	1:C:1049:TYR:HB3	1.85	0.57
1:A:711:VAL:HG22	1:A:1041:GLY:HA2	1.87	0.56
1:B:424:ASN:ND2	1:B:492:GLN:OE1	2.38	0.56
1:B:678:THR:OG1	1:B:679:MET:N	2.34	0.56
1:B:720:CYS:SG	1:B:721:ASN:N	2.78	0.56
1:B:1060:ALA:HB2	1:B:1080:ASN:HD22	1.69	0.56
1:C:390:LYS:HE3	1:C:392:ASP:HB2	1.87	0.56
1:B:128:CYS:SG	1:B:129:ASN:N	2.77	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:644:THR:HG22	1:C:644:THR:O	2.05	0.56
1:C:1054:GLU:O	1:C:1055:ARG:NH1	2.37	0.56
2:D:245:ARG:NH2	2:D:605:GLY:O	2.36	0.56
2:D:278:LEU:O	2:D:282:THR:N	2.38	0.56
2:D:389:PRO:HG2	2:D:392:LEU:HB2	1.88	0.56
1:B:563:ARG:HG3	1:B:569:GLU:HG3	1.86	0.56
1:B:184:GLU:OE1	1:B:214:ASN:ND2	2.34	0.56
1:C:405:ILE:HG23	1:C:409:ASN:HD22	1.70	0.56
1:B:740:SER:OG	1:C:947:GLN:NE2	2.39	0.56
1:B:698:THR:OG1	1:B:1053:GLN:OE1	2.23	0.56
1:B:1030:HIS:CE1	1:B:1033:SER:HB2	2.41	0.56
1:B:1086:ILE:O	1:B:1095:GLN:NE2	2.38	0.56
1:C:642:VAL:HG21	1:C:675:VAL:CB	2.35	0.56
2:D:51:ASN:HB3	2:D:359:LEU:HG	1.87	0.56
1:A:720:CYS:SG	1:A:721:ASN:N	2.79	0.56
1:C:128:CYS:SG	1:C:129:ASN:N	2.79	0.56
1:B:536:GLY:HA3	1:B:574:SER:HA	1.87	0.55
1:B:719:ASP:OD1	1:C:304:ASN:ND2	2.39	0.55
1:A:41:TYR:OH	1:A:188:LYS:NZ	2.29	0.55
1:A:678:THR:OG1	1:A:679:MET:N	2.38	0.55
1:A:987:GLN:NE2	1:B:988:THR:OG1	2.39	0.55
1:B:423:TRP:O	1:B:494:TYR:HA	2.07	0.55
1:A:440:TYR:O	1:A:478:LEU:HA	2.05	0.55
1:C:642:VAL:HG21	1:C:675:VAL:HB	1.87	0.55
1:A:745:LEU:HD22	1:A:990:VAL:HG21	1.87	0.55
1:A:769:GLN:HE21	1:B:685:SER:HB2	1.71	0.55
1:A:1098:THR:OG1	1:A:1101:ASN:ND2	2.40	0.55
2:D:402:GLU:HG3	2:D:518:ARG:HG3	1.88	0.55
1:A:631:THR:O	1:A:633:ALA:N	2.40	0.55
1:A:699:ASN:H	1:A:1053:GLN:HB2	1.72	0.55
1:B:32:GLN:HA	1:B:66:VAL:O	2.07	0.55
1:B:99:ARG:HH12	1:B:172:VAL:HG13	1.71	0.55
1:C:777:LYS:HZ2	1:C:791:PRO:HD3	1.71	0.55
1:B:959:LEU:HD23	1:B:962:ILE:HD11	1.89	0.54
1:C:188:LYS:HB3	1:C:195:TYR:HB2	1.88	0.54
1:C:380:SER:HA	1:C:509:THR:H	1.71	0.54
1:B:866:ALA:HB2	1:C:689:TYR:HE1	1.72	0.54
1:A:1062:ALA:HB3	1:A:1111:VAL:HG13	1.89	0.54
1:A:1064:CYS:HB2	1:A:1111:VAL:HG11	1.88	0.54
1:B:186:VAL:O	1:B:196:VAL:HA	2.07	0.54
1:C:394:VAL:HG21	1:C:494:TYR:HD2	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:648:CYS:H	1:C:677:TYR:HH	1.53	0.54
2:D:524:GLN:HB3	2:D:574:VAL:HG11	1.90	0.54
1:B:879:PRO:HB3	1:C:691:ASN:HA	1.88	0.54
1:C:362:SER:N	1:C:422:ALA:O	2.37	0.54
1:B:1093:SER:O	1:B:1095:GLN:NE2	2.40	0.54
1:A:441:ARG:NH1	1:A:454:ASP:O	2.41	0.54
1:A:953:GLY:O	1:A:977:ARG:NH1	2.39	0.54
1:C:141:SER:HB3	1:C:145:GLY:H	1.72	0.54
1:C:646:TYR:O	1:C:680:SER:OG	2.26	0.54
1:C:698:THR:OG1	1:C:1055:ARG:NH2	2.41	0.54
1:B:99:ARG:NH2	1:B:171:ASP:O	2.41	0.54
1:B:325:PHE:HA	1:B:328:VAL:HG12	1.89	0.54
1:B:378:CYS:HA	1:B:511:CYS:HA	1.90	0.54
1:B:90:ALA:HA	1:B:183:ARG:O	2.08	0.54
1:C:960:ASN:H	1:C:963:LEU:HD13	1.73	0.54
1:B:524:CYS:HA	1:B:536:GLY:O	2.08	0.54
1:A:113:SER:O	1:A:127:ALA:HA	2.08	0.53
1:A:652:ILE:HD11	1:A:658:ALA:HB2	1.89	0.53
1:A:888:PHE:HE2	1:A:898:LEU:HB2	1.73	0.53
1:C:441:ARG:HG3	1:C:477:PRO:HB2	1.91	0.53
2:D:119:ILE:HD12	2:D:179:LEU:HD22	1.88	0.53
1:A:323:CYS:N	1:A:348:CYS:SG	2.82	0.53
1:A:420:VAL:HG22	1:A:498:VAL:HG22	1.90	0.53
2:D:378:HIS:HE1	2:D:402:GLU:HA	1.73	0.53
1:A:749:LEU:HD23	1:A:752:ILE:HD12	1.91	0.53
1:B:905:ILE:O	1:B:909:PHE:N	2.38	0.53
1:C:90:ALA:HB3	1:C:253:PHE:HB2	1.90	0.53
1:C:411:LYS:HB2	1:C:448:LEU:HB2	1.90	0.53
1:C:934:VAL:HA	1:C:937:ASN:HD22	1.74	0.53
1:A:431:THR:OG1	1:A:434:GLY:O	2.26	0.53
1:B:392:ASP:OD1	1:B:395:ARG:NH2	2.41	0.53
1:B:960:ASN:HA	1:B:963:LEU:HB2	1.90	0.53
1:B:1063:ILE:HD11	1:B:1078:VAL:HG11	1.91	0.53
1:B:1097:ILE:HD13	1:B:1118:THR:HA	1.91	0.53
1:C:538:LEU:HD22	1:C:570:ILE:HD12	1.90	0.53
1:C:100:GLY:HA3	1:C:234:ILE:HB	1.89	0.53
1:C:283:LEU:HD22	1:C:592:SER:HB2	1.89	0.53
2:D:439:LEU:HB3	2:D:591:LEU:HD22	1.91	0.53
1:A:1079:PHE:HB2	1:A:1087:THR:HG23	1.91	0.53
1:B:78:ASN:ND2	1:B:233:ALA:O	2.36	0.53
1:B:377:LEU:HD22	1:B:531:GLY:HA2	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:337:VAL:HG22	1:C:389:VAL:HG12	1.91	0.53
1:B:626:ASN:ND2	1:B:639:ALA:O	2.42	0.52
1:C:432:SER:HA	1:C:484:TYR:HB3	1.91	0.52
1:C:646:TYR:O	1:C:647:GLU:CB	2.53	0.52
1:C:1078:VAL:HG22	1:C:1086:ILE:HG12	1.91	0.52
1:A:1051:PRO:HB3	1:A:1090:ASN:HD21	1.74	0.52
1:C:99:ARG:HE	1:C:118:ASN:HD22	1.58	0.52
2:D:233:ILE:HD11	2:D:581:VAL:HG21	1.91	0.52
1:A:543:LYS:HB3	1:A:545:PHE:HB2	1.91	0.52
1:B:444:ARG:NH1	1:B:447:LYS:O	2.42	0.52
1:C:94:LYS:NZ	1:C:249:ALA:O	2.40	0.52
2:D:351:LEU:HB2	2:D:355:ASP:O	2.09	0.52
1:A:352:TYR:HD1	1:A:355:LEU:HD12	1.74	0.52
1:B:99:ARG:HE	1:B:118:ASN:HD22	1.58	0.52
2:D:37:GLU:OE1	2:D:393:ARG:NH1	2.43	0.52
1:C:101:TRP:HB2	1:C:116:ILE:HB	1.91	0.52
1:C:486:THR:O	2:D:330:ASN:ND2	2.42	0.52
2:D:134:ASN:ND2	2:D:140:GLU:OE1	2.43	0.52
1:A:538:LEU:HD22	1:A:570:ILE:HD12	1.91	0.52
1:A:769:GLN:NE2	1:B:683:ALA:O	2.42	0.52
1:B:302:THR:OG1	1:B:303:SER:N	2.43	0.52
1:C:473:ASN:ND2	1:C:475:TYR:OH	2.42	0.52
2:D:75:GLU:O	2:D:78:THR:OG1	2.26	0.52
1:A:370:SER:OG	1:C:965:ARG:O	2.28	0.52
1:A:430:ALA:HA	1:A:435:ASN:HB2	1.92	0.52
1:B:35:SER:OG	1:B:64:SER:N	2.42	0.52
1:C:99:ARG:HD2	1:C:147:GLN:HE22	1.74	0.52
1:C:193:PHE:HA	1:C:222:LEU:O	2.10	0.52
1:B:397:ILE:HG23	1:B:412:LEU:HD11	1.92	0.51
1:C:292:SER:OG	1:C:293:PHE:N	2.43	0.51
1:A:301:GLN:NE2	1:A:302:THR:O	2.43	0.51
1:A:771:TYR:HD1	1:B:687:ILE:HG12	1.74	0.51
1:B:987:GLN:NE2	1:C:988:THR:OG1	2.42	0.51
1:C:238:PHE:HB2	1:C:246:GLY:H	1.74	0.51
1:A:1093:SER:O	1:A:1095:GLN:NE2	2.42	0.51
1:B:439:LYS:HD3	1:B:478:LEU:HB3	1.92	0.51
1:B:539:THR:HG23	1:B:571:LEU:HB2	1.91	0.51
1:C:302:THR:OG1	1:C:303:SER:N	2.42	0.51
1:B:116:ILE:HG13	1:B:125:ILE:HG12	1.92	0.51
1:B:303:SER:OG	1:B:304:ASN:N	2.43	0.51
1:C:646:TYR:H	1:C:677:TYR:HD2	1.51	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:208:GLU:OE2	2:D:219:ARG:NH1	2.44	0.51
1:A:988:THR:OG1	1:C:987:GLN:NE2	2.43	0.51
1:C:645:SER:HB3	1:C:680:SER:N	2.26	0.51
1:C:755:GLU:OE1	1:C:1001:ARG:NH2	2.44	0.51
2:D:148:LEU:HG	2:D:164:ALA:HB1	1.93	0.51
1:B:956:SER:OG	1:B:957:SER:N	2.41	0.51
1:C:440:TYR:O	1:C:478:LEU:HA	2.11	0.51
1:C:1063:ILE:H	1:C:1070:TYR:H	1.59	0.51
1:A:69:PHE:HB2	1:A:252:TYR:O	2.11	0.51
1:B:1063:ILE:HB	1:B:1070:TYR:HB2	1.91	0.51
1:A:26:GLN:HB2	1:A:75:THR:HA	1.93	0.50
1:C:138:PHE:HB2	1:C:236:THR:HG22	1.92	0.50
1:C:419:CYS:HB2	1:C:499:LEU:HD12	1.91	0.50
1:C:1086:ILE:O	1:C:1095:GLN:NE2	2.44	0.50
2:D:554:LEU:O	2:D:558:LEU:HB2	2.11	0.50
1:A:78:ASN:ND2	1:A:233:ALA:O	2.42	0.50
1:A:580:GLY:H	1:A:599:GLN:HB2	1.76	0.50
1:B:562:VAL:HG23	1:B:570:ILE:HG13	1.92	0.50
1:C:968:LYS:O	1:C:971:ALA:N	2.39	0.50
1:A:267:ASP:OD1	1:A:271:THR:N	2.40	0.50
1:B:1030:HIS:HE1	1:B:1033:SER:HB2	1.76	0.50
2:D:330:ASN:HB3	2:D:357:ARG:HE	1.76	0.50
1:A:1089:ARG:NH1	1:C:869:THR:OG1	2.44	0.50
1:C:174:GLU:HG3	1:C:248:SER:HB3	1.93	0.50
2:D:245:ARG:NH1	2:D:603:PHE:O	2.44	0.50
1:A:33:HIS:HB2	1:A:66:VAL:HB	1.93	0.50
1:C:1031:LEU:N	1:C:1047:VAL:O	2.45	0.50
1:C:1083:SER:HB3	1:C:1115:ILE:HG23	1.94	0.50
2:D:80:ALA:O	2:D:101:GLN:NE2	2.38	0.50
2:D:529:LEU:HD21	2:D:554:LEU:HD22	1.93	0.50
1:B:165:SER:OG	1:B:166:ASP:N	2.45	0.50
1:B:694:ILE:O	1:B:1057:PHE:N	2.39	0.50
1:C:591:SER:OG	1:C:592:SER:N	2.45	0.50
1:A:89:PHE:HB3	1:A:185:PHE:O	2.12	0.50
1:A:99:ARG:NH2	1:A:171:ASP:O	2.44	0.50
1:A:848:THR:O	1:A:852:ILE:N	2.36	0.50
1:C:190:LYS:O	1:C:193:PHE:HB2	2.12	0.50
1:C:380:SER:HB2	1:C:508:ALA:HA	1.94	0.50
1:A:656:ILE:HA	1:A:678:THR:HA	1.94	0.49
1:A:685:SER:HB2	1:C:769:GLN:HE21	1.76	0.49
1:B:612:ALA:O	1:B:614:GLN:NE2	2.41	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:803:LEU:HD13	1:B:921:THR:HG22	1.93	0.49
2:D:237:TYR:OH	2:D:485:VAL:O	2.20	0.49
1:B:962:ILE:HG13	1:B:963:LEU:HD12	1.94	0.49
1:C:145:GLY:HA3	1:C:173:SER:HB3	1.94	0.49
1:C:887:ARG:NH2	1:C:1017:GLY:O	2.45	0.49
2:D:275:TRP:HB3	2:D:444:LEU:HD12	1.94	0.49
1:C:527:PHE:HE1	1:C:538:LEU:HD11	1.77	0.49
1:A:362:SER:N	1:A:422:ALA:O	2.44	0.49
1:B:125:ILE:HD13	1:B:222:LEU:HD11	1.93	0.49
1:B:529:PHE:HE2	1:B:562:VAL:HG21	1.78	0.49
1:B:1031:LEU:N	1:B:1047:VAL:O	2.46	0.49
1:C:640:GLU:O	1:C:642:VAL:CG2	2.52	0.49
2:D:356:PHE:HB3	2:D:379:ILE:HD12	1.94	0.49
1:A:127:ALA:HB3	1:A:161:PHE:HB3	1.93	0.49
1:B:962:ILE:O	1:B:966:LEU:N	2.46	0.49
1:A:140:VAL:O	1:A:238:PHE:HA	2.13	0.49
1:B:960:ASN:O	1:B:964:SER:N	2.41	0.49
1:C:103:PHE:CD1	1:C:231:PHE:HB2	2.48	0.49
1:C:580:GLY:H	1:C:599:GLN:HB2	1.78	0.49
1:C:631:THR:O	1:C:631:THR:OG1	2.30	0.49
1:C:775:THR:HA	1:C:777:LYS:HE3	1.94	0.49
2:D:281:LEU:HD12	2:D:282:THR:HG23	1.94	0.49
2:D:435:GLU:OE2	2:D:540:HIS:NE2	2.46	0.49
1:B:609:ALA:HA	1:B:614:GLN:HB2	1.94	0.49
1:C:99:ARG:HE	1:C:118:ASN:HB2	1.77	0.49
1:B:903:LYS:O	1:B:906:ALA:HB3	2.13	0.49
1:C:285:GLU:OE2	1:C:302:THR:OG1	2.31	0.49
1:A:405:ILE:O	1:A:409:ASN:N	2.46	0.48
1:B:859:LEU:O	1:B:863:THR:OG1	2.21	0.48
2:D:588:PHE:O	2:D:592:PHE:N	2.46	0.48
1:A:292:SER:OG	1:A:293:PHE:N	2.45	0.48
1:A:960:ASN:HA	1:A:963:LEU:HD22	1.95	0.48
1:A:352:TYR:HD2	1:A:375:ASN:HB3	1.78	0.48
1:A:994:LEU:HG	1:B:995:ILE:HG21	1.95	0.48
1:A:1097:ILE:H	1:A:1097:ILE:HG13	1.45	0.48
2:D:365:THR:HG22	2:D:367:ASP:H	1.78	0.48
1:A:46:ILE:HD13	1:B:553:ARG:HE	1.78	0.48
1:A:388:VAL:HG22	1:A:495:ARG:HG2	1.94	0.48
1:A:41:TYR:HB3	1:A:216:LEU:HB2	1.94	0.48
1:A:692:ASN:HA	1:A:1059:THR:HG22	1.95	0.48
1:C:21:THR:HA	1:C:135:ASN:HD22	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:139:ALA:HB1	1:C:239:SER:HB2	1.95	0.48
1:C:381:ASN:N	1:C:509:THR:HG1	2.12	0.48
2:D:482:ARG:NH2	2:D:613:TYR:OH	2.47	0.48
1:B:82:PRO:HA	1:B:230:ASN:HA	1.95	0.48
1:B:188:LYS:HB3	1:B:195:TYR:HB2	1.94	0.48
1:C:129:ASN:ND2	1:C:157:PHE:O	2.47	0.48
1:C:605:ASP:O	1:C:609:ALA:HB2	2.13	0.48
1:C:968:LYS:HG3	1:C:969:VAL:HG23	1.96	0.48
1:B:894:THR:HG23	1:B:896:ASN:H	1.79	0.48
1:B:912:ALA:O	1:B:916:ILE:N	2.35	0.48
1:B:1064:CYS:HB2	1:B:1111:VAL:HG21	1.95	0.48
1:C:898:LEU:O	1:C:901:ASN:N	2.35	0.48
1:A:222:LEU:HB3	1:A:224:LEU:HG	1.96	0.48
1:A:772:LYS:HB2	1:B:686:SER:HA	1.96	0.48
1:A:914:SER:O	1:A:917:GLN:HB2	2.14	0.48
1:A:444:ARG:NH1	1:A:447:LYS:O	2.46	0.48
1:C:115:ILE:O	1:C:125:ILE:HA	2.13	0.48
1:C:127:ALA:HB3	1:C:161:PHE:HB3	1.96	0.48
2:D:503:LEU:HD23	2:D:505:HIS:H	1.79	0.48
1:A:539:THR:HG23	1:A:571:LEU:HB2	1.95	0.48
1:A:887:ARG:HH12	1:A:1032:MET:HA	1.78	0.48
1:C:694:ILE:N	1:C:1057:PHE:O	2.45	0.48
1:A:141:SER:HB3	1:A:144:MET:HB2	1.96	0.47
1:A:203:ILE:HD13	1:A:210:PRO:HG3	1.94	0.47
1:C:646:TYR:O	1:C:647:GLU:CD	2.53	0.47
2:D:247:LYS:HD2	2:D:250:ASN:HD22	1.79	0.47
1:A:203:ILE:HD12	1:A:205:VAL:HG23	1.96	0.47
1:A:859:LEU:O	1:A:863:THR:OG1	2.27	0.47
1:A:879:PRO:HB3	1:B:691:ASN:HA	1.97	0.47
1:A:984:GLN:HE21	1:B:984:GLN:HE22	1.62	0.47
1:B:1062:ALA:HB3	1:B:1111:VAL:HG13	1.95	0.47
2:D:198:ASP:OD1	2:D:201:ASP:N	2.46	0.47
1:B:139:ALA:HB3	1:B:148:THR:HB	1.96	0.47
1:B:188:LYS:HE2	1:B:190:LYS:HB2	1.96	0.47
1:B:652:ILE:HB	1:B:656:ILE:HG22	1.96	0.47
1:C:315:ARG:HH22	1:C:519:LEU:HB3	1.80	0.47
1:C:745:LEU:HD22	1:C:990:VAL:HG21	1.96	0.47
1:C:968:LYS:HG3	1:C:969:VAL:H	1.79	0.47
1:A:697:PRO:HB3	1:A:1053:GLN:H	1.80	0.47
1:A:1060:ALA:HA	1:A:1113:GLY:HA3	1.96	0.47
1:B:86:GLY:CA	1:B:187:PHE:O	2.63	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1065:HIS:HB3	1:C:1070:TYR:HE2	1.79	0.47
2:D:344:CYS:HB3	2:D:361:CYS:HB2	1.76	0.47
1:A:575:PRO:HG2	1:C:835:GLN:HG2	1.95	0.47
1:B:329:PHE:HZ	1:B:499:LEU:HD11	1.79	0.47
1:B:390:LYS:HE2	1:B:481:TYR:HA	1.95	0.47
1:C:605:ASP:O	1:C:609:ALA:CB	2.63	0.47
1:C:628:VAL:HG13	1:C:641:HIS:CE1	2.49	0.47
1:C:628:VAL:HG13	1:C:641:HIS:NE2	2.30	0.47
1:C:777:LYS:NZ	1:C:789:PRO:O	2.44	0.47
1:C:784:PHE:O	1:C:788:LEU:N	2.42	0.47
2:D:184:VAL:HG12	2:D:464:PHE:HE1	1.80	0.47
1:A:698:THR:OG1	1:A:1053:GLN:OE1	2.19	0.47
1:B:24:ASP:O	1:B:245:TRP:NE1	2.40	0.47
1:B:628:VAL:HG22	1:B:641:HIS:CE1	2.49	0.47
1:C:646:TYR:C	1:C:680:SER:OG	2.53	0.47
1:C:1060:ALA:HB3	1:C:1080:ASN:HD22	1.80	0.47
1:A:377:LEU:HD11	1:C:964:SER:HB2	1.96	0.47
1:B:22:PHE:H	1:B:135:ASN:HD22	1.61	0.47
1:B:770:MET:N	1:C:683:ALA:O	2.48	0.47
1:C:165:SER:OG	1:C:166:ASP:N	2.46	0.47
1:C:418:GLY:CA	1:C:499:LEU:O	2.60	0.47
1:C:713:MET:SD	1:C:993:GLN:NE2	2.88	0.47
1:C:790:ASP:HB2	1:C:793:LYS:HG2	1.96	0.47
1:A:460:PHE:N	1:A:475:TYR:O	2.48	0.47
1:A:633:ALA:HB2	1:C:844:PRO:HG3	1.97	0.47
1:C:131:GLU:OE1	1:C:155:ASN:ND2	2.48	0.47
1:C:979:ILE:O	1:C:983:LEU:HB2	2.15	0.47
1:A:114:VAL:HG23	1:A:127:ALA:HB2	1.96	0.47
1:A:424:ASN:ND2	1:A:492:GLN:OE1	2.43	0.47
1:B:97:VAL:HG12	1:B:98:VAL:HG13	1.98	0.47
2:D:116:LEU:HD13	2:D:186:LEU:HB2	1.97	0.47
1:B:1013:GLU:OE2	1:C:1021:ARG:NE	2.46	0.46
1:B:769:GLN:HE22	1:C:685:SER:HB3	1.81	0.46
1:B:861:SER:O	1:B:865:THR:OG1	2.32	0.46
1:B:960:ASN:H	1:B:963:LEU:HD13	1.80	0.46
1:C:194:LEU:O	1:C:221:LYS:HA	2.14	0.46
1:C:849:ASP:HA	1:C:852:ILE:HD12	1.96	0.46
1:C:180:LYS:O	1:C:200:TYR:OH	2.31	0.46
1:A:99:ARG:HH12	1:A:172:VAL:HG13	1.81	0.46
1:B:784:PHE:HA	1:B:787:ILE:HD12	1.97	0.46
1:C:24:ASP:OD2	1:C:74:HIS:ND1	2.36	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:645:SER:HB3	1:C:680:SER:CA	2.45	0.46
1:C:787:ILE:HG23	1:C:1036:GLN:HE22	1.81	0.46
1:B:198:LYS:O	1:B:217:LYS:N	2.34	0.46
1:B:911:LYS:O	1:B:915:GLN:N	2.42	0.46
1:C:41:TYR:OH	1:C:188:LYS:NZ	2.43	0.46
1:C:91:ALA:HB3	1:C:183:ARG:HB2	1.98	0.46
1:A:370:SER:OG	1:C:970:GLU:OE2	2.25	0.46
1:B:603:CYS:HB3	1:B:627:ASN:HD21	1.79	0.46
1:C:95:SER:H	1:C:181:HIS:CD2	2.34	0.46
1:C:646:TYR:N	1:C:677:TYR:HD2	2.07	0.46
1:A:575:PRO:O	1:C:835:GLN:NE2	2.36	0.46
1:C:286:LEU:HD11	1:C:300:TYR:HD2	1.81	0.46
1:C:287:LYS:HA	1:C:295:ILE:HD11	1.98	0.46
1:C:381:ASN:N	1:C:509:THR:OG1	2.43	0.46
1:A:93:GLU:HG3	1:A:183:ARG:HH22	1.81	0.46
1:A:626:ASN:ND2	1:A:639:ALA:O	2.48	0.46
2:D:453:THR:HG21	2:D:516:TYR:HB2	1.98	0.46
1:B:104:GLY:O	1:B:229:THR:N	2.41	0.46
1:B:346:SER:OG	1:B:347:ASN:N	2.48	0.46
1:A:775:THR:HA	1:A:777:LYS:HG3	1.97	0.46
1:C:116:ILE:HA	1:C:125:ILE:HG12	1.98	0.46
1:B:340:TRP:CE2	1:B:453:ARG:HD3	2.51	0.45
1:B:398:ALA:HB3	1:B:401:GLN:HG3	1.98	0.45
1:A:274:ASP:OD1	1:A:275:ALA:N	2.48	0.45
1:C:807:LYS:NZ	1:C:920:LEU:O	2.38	0.45
1:A:809:THR:OG1	1:A:810:LEU:N	2.50	0.45
2:D:539:LEU:HD23	2:D:587:TYR:HB2	1.97	0.45
1:A:324:PRO:O	1:A:328:VAL:N	2.39	0.45
1:A:440:TYR:HB3	1:A:481:TYR:HE1	1.82	0.45
1:B:311:GLY:H	1:B:525:VAL:HG12	1.80	0.45
1:B:631:THR:O	1:B:633:ALA:N	2.40	0.45
1:C:371:ALA:HA	1:C:374:LEU:HD22	1.98	0.45
1:A:72:ILE:H	1:A:75:THR:HB	1.82	0.45
1:C:698:THR:OG1	1:C:1053:GLN:OE1	2.20	0.45
2:D:32:PHE:O	2:D:36:ALA:CB	2.64	0.45
1:A:802:ASP:O	1:A:806:ASN:ND2	2.49	0.45
1:B:362:SER:N	1:B:422:ALA:O	2.47	0.45
1:B:366:CYS:HB3	1:B:369:VAL:HG23	1.99	0.45
1:B:660:TYR:HB2	1:B:674:ILE:HA	1.98	0.45
1:B:721:ASN:HD22	1:C:304:ASN:HD22	1.65	0.45
2:D:81:GLN:NE2	2:D:103:ASN:OD1	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:554:ASP:OD1	1:A:555:VAL:N	2.49	0.45
1:B:138:PHE:HB2	1:B:236:THR:HG22	1.98	0.45
1:B:224:LEU:HB3	1:B:226:ILE:HG12	1.98	0.45
1:B:363:THR:HB	1:B:422:ALA:HB3	1.97	0.45
1:A:269:ASN:OD1	1:B:544:ARG:NE	2.49	0.45
1:A:344:LYS:HG3	1:A:383:TYR:HE1	1.81	0.45
1:B:435:ASN:HB3	1:B:483:PHE:HB2	1.99	0.45
1:B:563:ARG:NE	1:B:569:GLU:OE2	2.49	0.45
1:C:646:TYR:C	1:C:677:TYR:HE2	2.17	0.45
1:C:951:ASN:OD1	1:C:952:PHE:N	2.49	0.45
2:D:518:ARG:O	2:D:522:GLN:HB2	2.16	0.45
1:A:948:LEU:HD23	1:A:948:LEU:HA	1.75	0.45
1:C:642:VAL:HG21	1:C:675:VAL:CA	2.46	0.45
2:D:247:LYS:HA	2:D:250:ASN:HD22	1.81	0.45
2:D:370:LEU:HB3	2:D:409:SER:HB2	1.99	0.44
1:A:848:THR:HB	1:A:851:MET:HB2	1.98	0.44
1:B:775:THR:HA	1:B:777:LYS:HE3	1.99	0.44
1:C:209:LEU:HD12	1:C:210:PRO:HD2	1.99	0.44
1:C:397:ILE:HA	1:C:412:LEU:HD21	1.98	0.44
1:C:426:ARG:HA	1:C:430:ALA:HB3	1.99	0.44
1:C:674:ILE:HD12	1:C:675:VAL:O	2.17	0.44
1:B:95:SER:OG	1:B:173:SER:O	2.27	0.44
1:B:951:ASN:OD1	1:B:952:PHE:N	2.50	0.44
1:A:24:ASP:HB3	1:A:245:TRP:HE1	1.83	0.44
1:A:352:TYR:HA	1:A:355:LEU:HD12	1.99	0.44
1:A:405:ILE:HG23	1:A:409:ASN:HD22	1.82	0.44
1:B:978:LEU:HD23	1:B:978:LEU:HA	1.85	0.44
1:C:35:SER:HB2	1:C:60:LEU:HD21	1.98	0.44
1:A:951:ASN:OD1	1:A:952:PHE:N	2.48	0.44
1:B:1080:ASN:HA	1:B:1083:SER:HA	2.00	0.44
1:C:187:PHE:HE1	1:C:196:VAL:HG13	1.81	0.44
1:A:282:PRO:HB2	1:A:594:VAL:HG21	2.00	0.44
1:A:385:ASP:OD2	1:A:410:TYR:OH	2.33	0.44
1:C:19:CYS:HB3	1:C:134:ASP:HB2	1.99	0.44
1:C:441:ARG:HH22	1:C:457:ASN:HA	1.82	0.44
1:C:615:LEU:HB3	1:C:617:PRO:HD2	2.00	0.44
1:B:86:GLY:HA3	1:B:187:PHE:O	2.17	0.44
1:B:335:PRO:HG3	1:B:341:GLU:HB2	1.98	0.44
1:C:38:ARG:NH2	1:C:210:PRO:O	2.40	0.44
2:D:237:TYR:HD1	2:D:447:VAL:HG12	1.82	0.44
2:D:566:TRP:O	2:D:570:LEU:CB	2.63	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:209:LEU:HD12	1:A:210:PRO:HD2	2.00	0.44
1:B:352:TYR:HD2	1:B:375:ASN:HB3	1.81	0.44
1:B:1051:PRO:HG3	1:B:1090:ASN:HD21	1.83	0.44
1:C:561:SER:HB3	1:C:571:LEU:HD23	1.99	0.44
1:A:1079:PHE:CE2	1:A:1084:TRP:HB2	2.53	0.44
1:B:78:ASN:HB2	1:B:235:LEU:HD13	1.99	0.44
1:B:1031:LEU:HD12	1:B:1031:LEU:HA	1.85	0.44
1:C:323:CYS:O	1:C:325:PHE:N	2.50	0.44
1:B:460:PHE:N	1:B:475:TYR:O	2.51	0.43
1:C:631:THR:O	1:C:633:ALA:N	2.52	0.43
1:A:96:ASN:HA	1:A:183:ARG:HH12	1.83	0.43
1:A:698:THR:H	1:A:1053:GLN:HB2	1.84	0.43
1:A:778:TYR:CZ	1:A:781:GLY:HA2	2.53	0.43
1:C:884:MET:HE3	1:C:1031:LEU:HD21	2.00	0.43
1:C:1102:THR:OG1	1:C:1103:PHE:N	2.50	0.43
2:D:33:ASN:ND2	2:D:390:PHE:H	2.16	0.43
2:D:482:ARG:NH2	2:D:611:SER:OG	2.51	0.43
1:C:72:ILE:H	1:C:75:THR:HB	1.82	0.43
1:A:370:SER:H	1:C:965:ARG:HB2	1.83	0.43
1:A:968:LYS:HD3	1:A:968:LYS:HA	1.91	0.43
1:C:99:ARG:NE	1:C:118:ASN:HB2	2.33	0.43
1:A:1070:TYR:HE1	1:A:1104:VAL:HA	1.84	0.43
1:B:224:LEU:HD13	1:B:226:ILE:HD11	2.01	0.43
2:D:152:MET:HE2	2:D:270:MET:HA	2.00	0.43
1:A:390:LYS:HG2	1:A:483:PHE:HZ	1.83	0.43
1:B:656:ILE:HG12	1:B:678:THR:HA	2.00	0.43
1:B:915:GLN:O	1:B:918:GLU:HB2	2.17	0.43
1:C:546:GLN:HB2	1:C:549:GLN:OE1	2.19	0.43
1:A:390:LYS:HG2	1:A:483:PHE:CZ	2.53	0.43
1:A:575:PRO:HB3	1:A:578:PHE:HE1	1.84	0.43
1:A:856:THR:HG21	1:A:1037:ALA:HB2	2.00	0.43
1:A:348:CYS:HB3	1:A:510:VAL:HG22	2.01	0.43
1:A:895:GLN:HB2	1:B:1071:PHE:CD2	2.53	0.43
1:A:1021:ARG:H	1:A:1021:ARG:HG2	1.71	0.43
1:B:72:ILE:H	1:B:75:THR:HB	1.84	0.43
1:A:287:LYS:HA	1:A:295:ILE:HD11	2.01	0.43
1:A:965:ARG:HB2	1:B:369:VAL:HA	2.01	0.43
1:C:1030:HIS:CE1	1:C:1033:SER:HB2	2.46	0.43
1:A:95:SER:OG	1:A:173:SER:O	2.37	0.43
1:A:1028:GLY:HA3	1:A:1049:TYR:H	1.82	0.43
1:B:274:ASP:OD1	1:B:275:ALA:N	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:959:LEU:O	1:B:961:ASP:N	2.52	0.43
1:C:71:THR:OG1	1:C:75:THR:O	2.28	0.43
1:C:99:ARG:HH22	1:C:172:VAL:HG22	1.84	0.43
1:C:261:THR:HB	1:C:278:CYS:HB2	2.01	0.43
1:C:315:ARG:HH12	1:C:519:LEU:HB3	1.83	0.43
1:C:544:ARG:O	1:C:546:GLN:NE2	2.52	0.43
1:C:862:GLY:HA2	1:C:866:ALA:HB3	2.01	0.43
1:A:840:LEU:HD13	1:A:941:LEU:HD11	2.01	0.42
1:A:1079:PHE:HE2	1:A:1084:TRP:HB2	1.84	0.42
1:C:659:SER:OG	1:C:660:TYR:N	2.52	0.42
2:D:375:GLU:HA	2:D:378:HIS:HD2	1.84	0.42
1:A:137:PHE:HB2	1:A:237:ALA:HB2	2.00	0.42
1:A:562:VAL:HG23	1:A:570:ILE:HG13	2.00	0.42
1:C:197:TYR:HB3	1:C:216:LEU:HB3	2.01	0.42
1:C:640:GLU:O	1:C:642:VAL:N	2.46	0.42
2:D:209:VAL:HG11	2:D:565:PRO:HB3	2.00	0.42
1:B:142:LYS:HB2	1:B:238:PHE:HB3	2.01	0.42
1:B:176:SER:OG	1:B:177:GLY:N	2.50	0.42
1:B:721:ASN:ND2	1:C:304:ASN:HD22	2.17	0.42
1:B:724:ILE:HG22	1:B:725:CYS:HB2	2.01	0.42
1:B:1072:PRO:HB3	1:B:1078:VAL:HG22	1.99	0.42
2:D:205:GLY:HA2	2:D:208:GLU:HB2	2.00	0.42
1:C:292:SER:OG	1:C:294:GLU:N	2.52	0.42
1:B:209:LEU:HD12	1:B:210:PRO:HD2	2.01	0.42
1:B:853:ALA:O	1:B:856:THR:OG1	2.30	0.42
1:B:1054:GLU:O	1:B:1055:ARG:NH1	2.52	0.42
1:C:756:GLN:HA	1:C:759:ASN:HD22	1.84	0.42
2:D:247:LYS:HB2	2:D:282:THR:HG22	2.00	0.42
1:A:362:SER:H	1:A:423:TRP:HA	1.84	0.42
1:B:122:ASN:OD1	1:B:123:VAL:N	2.52	0.42
1:B:996:ARG:O	1:B:1000:ILE:HB	2.20	0.42
1:C:382:VAL:H	1:C:510:VAL:HG11	1.84	0.42
1:C:1098:THR:H	1:C:1101:ASN:ND2	2.18	0.42
2:D:362:THR:HG23	2:D:368:ASP:HB3	2.01	0.42
1:B:138:PHE:HB2	1:B:236:THR:HA	2.01	0.42
1:C:78:ASN:HD21	1:C:136:PRO:HG2	1.85	0.42
2:D:461:TRP:O	2:D:465:LYS:CB	2.68	0.42
1:A:603:CYS:N	1:A:635:CYS:SG	2.92	0.42
1:A:1079:PHE:HB3	1:A:1085:PHE:C	2.39	0.42
1:B:40:VAL:HG11	1:B:272:ILE:HG21	2.00	0.42
1:B:751:GLY:O	1:B:755:GLU:HG2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:398:ALA:H	1:C:412:LEU:HG	1.84	0.42
1:A:95:SER:H	1:A:181:HIS:CD2	2.37	0.42
1:A:911:LYS:O	1:A:915:GLN:N	2.46	0.42
1:B:749:LEU:HD23	1:B:749:LEU:HA	1.86	0.42
1:B:1097:ILE:H	1:B:1097:ILE:HG13	1.52	0.42
1:C:707:GLU:OE2	1:C:1010:LYS:NZ	2.35	0.42
1:C:960:ASN:HA	1:C:963:LEU:HD22	2.02	0.42
2:D:320:LEU:HD13	2:D:380:GLN:HG2	2.02	0.42
1:B:786:GLN:OE1	1:B:917:GLN:NE2	2.53	0.42
1:C:33:HIS:HD2	1:C:68:GLY:HA3	1.84	0.42
1:C:880:PHE:HA	1:C:883:GLN:HB2	2.02	0.42
2:D:56:GLU:HA	2:D:59:VAL:HG12	2.01	0.42
2:D:557:MET:HA	2:D:560:LEU:HD13	2.02	0.42
1:A:38:ARG:NH2	1:A:210:PRO:O	2.42	0.41
1:A:42:TYR:HB2	1:A:218:PRO:HD3	2.01	0.41
1:A:630:GLN:HG2	1:A:631:THR:H	1.84	0.41
1:B:801:GLU:HA	1:B:804:LEU:HD12	2.01	0.41
1:B:916:ILE:HD13	1:B:916:ILE:HA	1.88	0.41
2:D:581:VAL:HG13	2:D:585:LEU:HD23	2.02	0.41
1:B:83:PHE:HE2	1:B:189:ASN:HB2	1.86	0.41
1:B:968:LYS:HD3	1:B:968:LYS:HA	1.83	0.41
1:A:683:ALA:O	1:C:770:MET:N	2.53	0.41
1:A:904:GLN:HA	1:A:907:ASN:HD22	1.85	0.41
1:B:961:ASP:OD1	1:B:965:ARG:NH1	2.38	0.41
1:B:1060:ALA:HB2	1:B:1080:ASN:ND2	2.34	0.41
1:C:78:ASN:ND2	1:C:136:PRO:HG2	2.35	0.41
1:C:645:SER:CB	1:C:680:SER:HB3	2.50	0.41
1:A:1068:LYS:NZ	1:A:1104:VAL:HG13	2.35	0.41
1:C:48:ARG:HB2	1:C:266:TYR:CE2	2.55	0.41
2:D:198:ASP:OD1	2:D:204:ARG:NH2	2.53	0.41
1:A:853:ALA:O	1:A:856:THR:OG1	2.32	0.41
1:A:877:GLN:HE21	1:B:695:ALA:HB3	1.85	0.41
1:B:832:ILE:O	1:C:632:GLN:NE2	2.53	0.41
1:C:432:SER:HB3	1:C:485:THR:HB	2.03	0.41
2:D:326:GLY:O	2:D:330:ASN:HB2	2.20	0.41
1:A:719:ASP:OD1	1:A:721:ASN:N	2.50	0.41
1:B:141:SER:HB3	1:B:144:MET:HB2	2.02	0.41
1:B:659:SER:OG	1:B:660:TYR:N	2.49	0.41
1:A:102:VAL:O	1:A:231:PHE:HA	2.20	0.41
1:B:1085:PHE:HB3	1:B:1095:GLN:H	1.85	0.41
1:C:131:GLU:HB2	1:C:155:ASN:HD22	1.84	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:915:GLN:O	1:C:919:SER:OG	2.30	0.41
1:A:89:PHE:HD2	1:A:185:PHE:HB2	1.86	0.41
1:A:499:LEU:HA	1:A:499:LEU:HD23	1.90	0.41
1:A:692:ASN:HD22	1:A:1059:THR:HG22	1.85	0.41
1:B:545:PHE:HZ	1:B:550:GLN:HA	1.84	0.41
1:B:800:ILE:O	1:B:804:LEU:HG	2.21	0.41
1:C:136:PRO:HB2	1:C:234:ILE:HG12	2.01	0.41
2:D:581:VAL:HG22	2:D:584:LEU:HB3	2.02	0.41
1:A:48:ARG:HB2	1:A:266:TYR:CD2	2.56	0.41
1:A:440:TYR:OH	1:A:479:ASN:ND2	2.54	0.41
1:A:962:ILE:O	1:A:966:LEU:N	2.54	0.41
1:B:835:GLN:HE21	1:C:575:PRO:HG2	1.85	0.41
1:B:890:GLY:O	1:B:1018:GLN:NE2	2.54	0.41
1:C:44:ASP:OD2	1:C:48:ARG:NH1	2.54	0.41
1:C:695:ALA:HB1	1:C:1055:ARG:H	1.86	0.41
1:C:741:PHE:CD2	1:C:983:LEU:HD21	2.56	0.41
2:D:32:PHE:O	2:D:36:ALA:HB3	2.20	0.41
2:D:41:TYR:CG	2:D:353:LYS:HD2	2.56	0.41
2:D:149:ASN:HA	2:D:152:MET:HB2	2.03	0.41
2:D:406:GLU:HG3	2:D:518:ARG:HH21	1.86	0.41
2:D:418:LEU:HD13	2:D:418:LEU:HA	1.91	0.41
1:A:931:GLN:O	1:A:935:ASN:ND2	2.54	0.41
1:B:315:ARG:HB3	1:B:565:PRO:HD2	2.03	0.41
1:C:389:VAL:HB	1:C:393:ASP:HB2	2.02	0.41
1:C:736:LEU:HD23	1:C:736:LEU:HA	1.85	0.41
1:A:586:PRO:HG2	1:A:591:SER:HB3	2.03	0.40
1:A:723:TYR:CE1	1:A:944:LEU:HG	2.56	0.40
1:A:1068:LYS:HB2	1:A:1068:LYS:HE3	1.87	0.40
1:B:18:ARG:N	1:B:133:CYS:SG	2.88	0.40
1:B:758:ARG:CZ	1:B:1001:ARG:HH12	2.34	0.40
1:B:909:PHE:HZ	1:B:1034:PHE:HE2	1.69	0.40
1:C:94:LYS:HA	1:C:181:HIS:CD2	2.56	0.40
1:C:382:VAL:HG22	1:C:510:VAL:HG11	2.03	0.40
1:C:749:LEU:HD23	1:C:749:LEU:HA	1.90	0.40
1:A:297:LYS:HG3	1:A:586:PRO:HA	2.03	0.40
1:C:859:LEU:O	1:C:863:THR:OG1	2.28	0.40
1:C:888:PHE:CZ	1:C:898:LEU:HB2	2.56	0.40
1:A:749:LEU:HD23	1:A:749:LEU:HA	1.77	0.40
1:B:441:ARG:NH2	1:B:443:LEU:O	2.53	0.40
1:B:847:LEU:HD11	1:B:855:TYR:HE2	1.86	0.40
1:B:1063:ILE:HG21	1:B:1118:THR:HG21	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:94:LYS:HD2	1:C:179:PHE:HA	2.04	0.40
2:D:560:LEU:HD23	2:D:564:GLU:HB2	2.02	0.40
1:A:194:LEU:HD12	1:A:194:LEU:HA	1.91	0.40
1:A:797:ARG:HD2	1:A:805:PHE:CE2	2.56	0.40
1:B:57:ASP:OD1	1:B:58:LEU:N	2.54	0.40
2:D:130:GLY:HA3	2:D:172:VAL:HG11	2.03	0.40
2:D:261:CYS:HB2	2:D:488:VAL:HG13	2.03	0.40
1:B:749:LEU:HD23	1:B:752:ILE:HD12	2.03	0.40
1:B:901:ASN:O	1:B:904:GLN:HB3	2.22	0.40
1:B:941:LEU:HA	1:B:941:LEU:HD12	1.83	0.40
1:C:95:SER:H	1:C:181:HIS:CG	2.40	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	1057/1203 (88%)	853 (81%)	199 (19%)	5 (0%)	29	68
1	B	1057/1203 (88%)	848 (80%)	204 (19%)	5 (0%)	29	68
1	C	1045/1203 (87%)	840 (80%)	193 (18%)	12 (1%)	14	52
2	D	595/603 (99%)	562 (94%)	33 (6%)	0	100	100
All	All	3754/4212 (89%)	3103 (83%)	629 (17%)	22 (1%)	29	64

All (22) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	632	GLN
1	C	648	CYS
1	C	676	ALA
1	A	632	GLN

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Mol	Chain	Res	Type
1	A	1072	PRO
1	B	1072	PRO
1	C	647	GLU
1	C	679	MET
1	C	1072	PRO
1	B	925	THR
1	C	632	GLN
1	C	645	SER
1	C	1076	VAL
1	A	925	THR
1	B	969	VAL
1	C	675	VAL
1	C	692	ASN
1	A	969	VAL
1	C	557	ASP
1	B	1075	GLY
1	C	1075	GLY
1	A	1075	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 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	922/1048 (88%)	917 (100%)	5 (0%)	88	93
1	B	922/1048 (88%)	915 (99%)	7 (1%)	81	89
1	C	914/1048 (87%)	902 (99%)	12 (1%)	69	82
2	D	527/533 (99%)	521 (99%)	6 (1%)	73	84
All	All	3285/3677 (89%)	3255 (99%)	30 (1%)	79	87

All (30) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	62	PHE
1	A	894	THR
1	A	965	ARG

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Mol	Chain	Res	Type
1	A	1070	TYR
1	A	1097	ILE
1	B	48	ARG
1	B	302	THR
1	B	699	ASN
1	B	711	VAL
1	B	865	THR
1	B	882	MET
1	B	1087	THR
1	C	318	ASN
1	C	333	LYS
1	C	426	ARG
1	C	510	VAL
1	C	646	TYR
1	C	647	GLU
1	C	656	ILE
1	C	677	TYR
1	C	678	THR
1	C	699	ASN
1	C	796	LYS
1	C	965	ARG
2	D	53	ASN
2	D	114	LYS
2	D	273	ARG
2	D	288	LYS
2	D	341	LYS
2	D	455	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (61) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	181	HIS
1	A	301	GLN
1	A	479	ASN
1	A	589	ASN
1	A	632	GLN
1	A	692	ASN
1	A	759	ASN
1	A	769	GLN
1	A	806	ASN
1	A	877	GLN
1	A	889	ASN

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Mol	Chain	Res	Type
1	A	907	ASN
1	A	935	ASN
1	A	937	ASN
1	A	987	GLN
1	A	993	GLN
1	A	1005	ASN
1	A	1090	ASN
1	A	1101	ASN
1	B	70	HIS
1	B	118	ASN
1	B	135	ASN
1	B	699	ASN
1	B	733	ASN
1	B	759	ASN
1	B	766	GLN
1	B	769	GLN
1	B	806	ASN
1	B	835	GLN
1	B	904	GLN
1	B	984	GLN
1	B	987	GLN
1	B	1101	ASN
1	C	112	GLN
1	C	129	ASN
1	C	135	ASN
1	C	147	GLN
1	C	155	ASN
1	C	181	HIS
1	C	214	ASN
1	C	304	ASN
1	C	318	ASN
1	C	473	ASN
1	C	479	ASN
1	C	523	GLN
1	C	632	GLN
1	C	699	ASN
1	C	759	ASN
1	C	769	GLN
1	C	947	GLN
1	C	987	GLN
1	C	993	GLN
1	C	1030	HIS

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Mol	Chain	Res	Type
1	C	1088	GLN
2	D	53	ASN
2	D	210	ASN
2	D	239	HIS
2	D	250	ASN
2	D	437	ASN
2	D	526	GLN
2	D	552	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides 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.

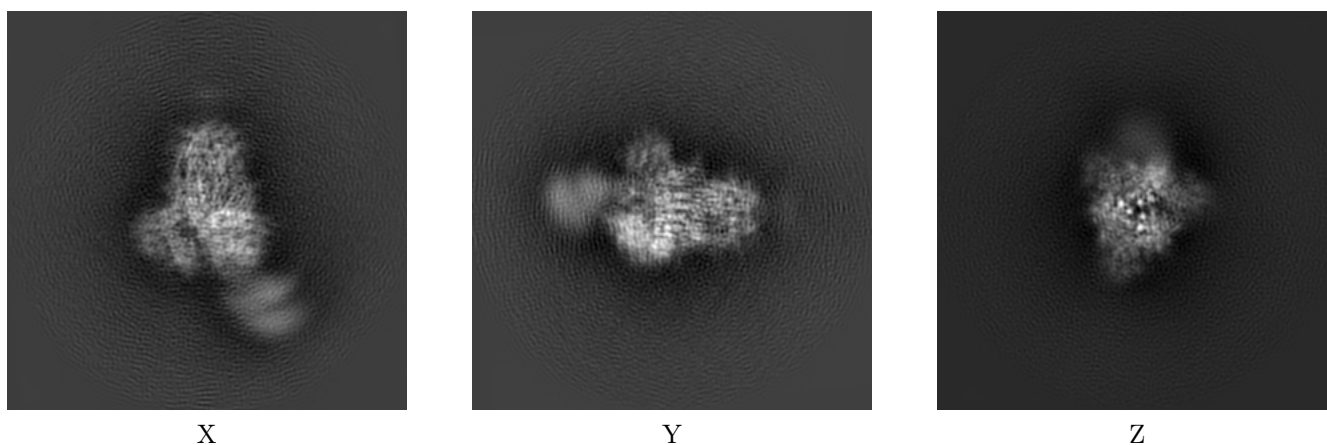
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-9593. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

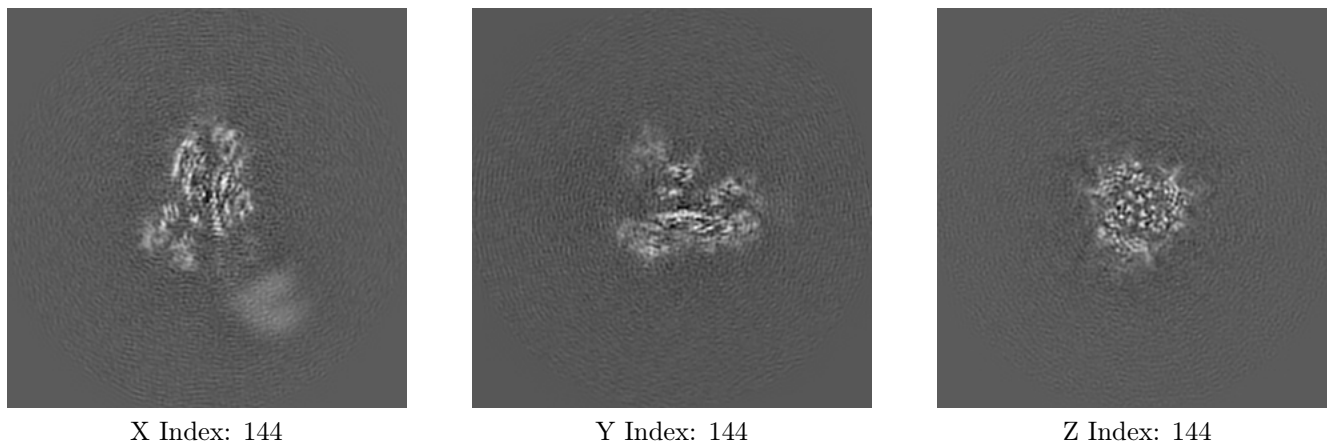
6.1.1 Primary map



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

6.2 Central slices [i](#)

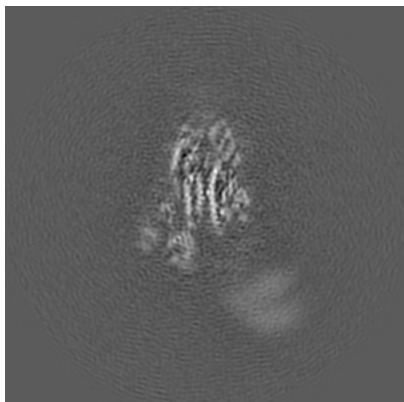
6.2.1 Primary map



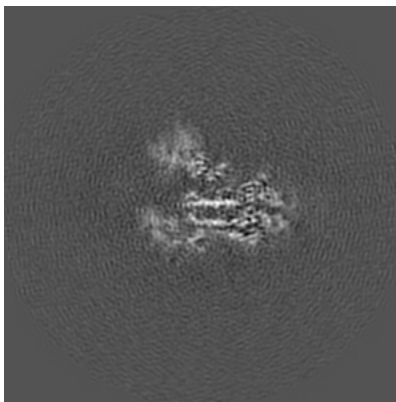
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

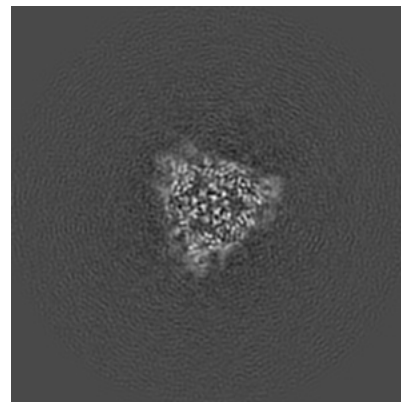
6.3.1 Primary map



X Index: 146



Y Index: 149



Z Index: 141

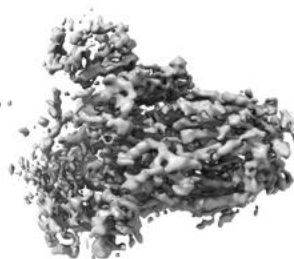
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

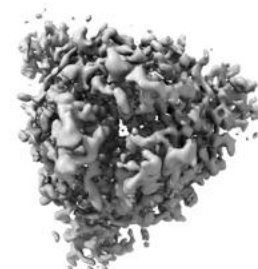
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 8.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

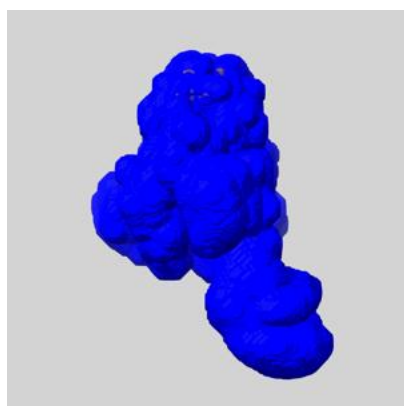
6.5 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

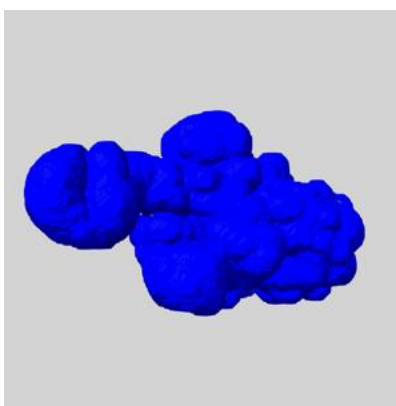
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

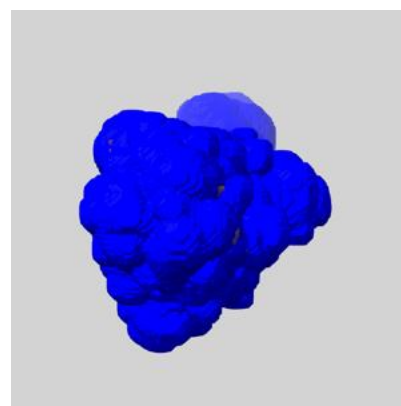
6.5.1 emd_9593_msk_1.map [i](#)



X



Y

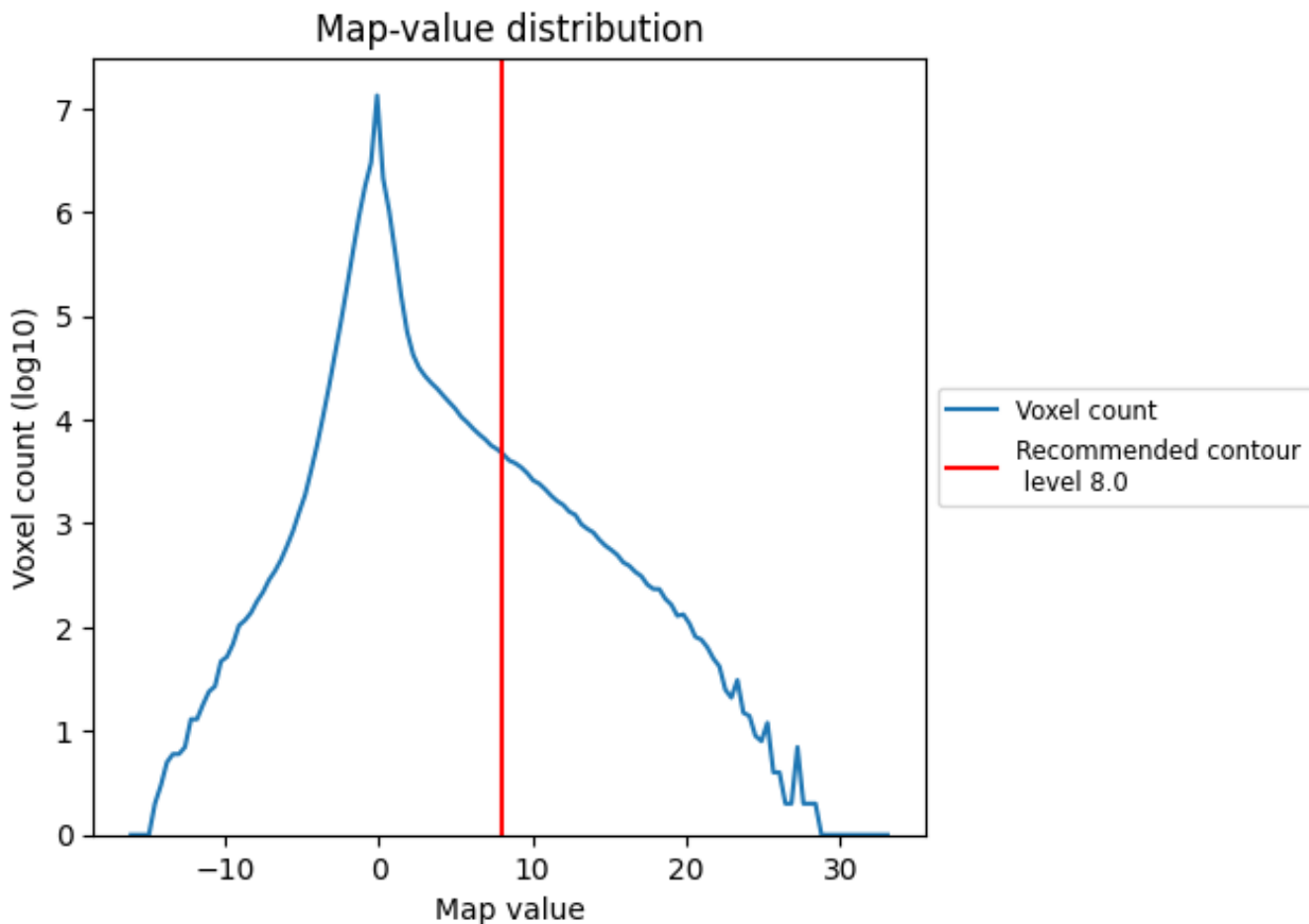


Z

7 Map analysis [i](#)

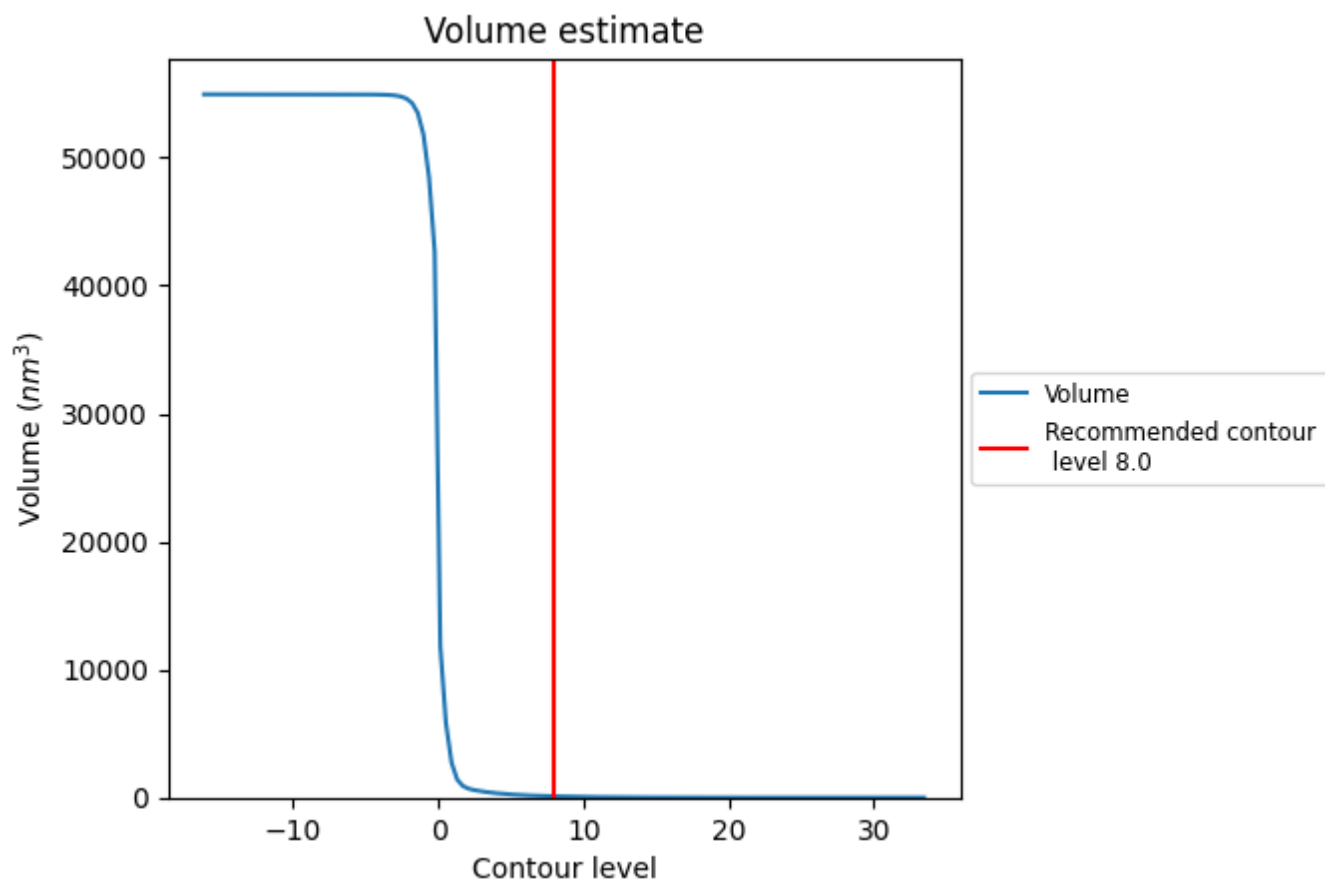
This section contains the results of statistical analysis of the map.

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.

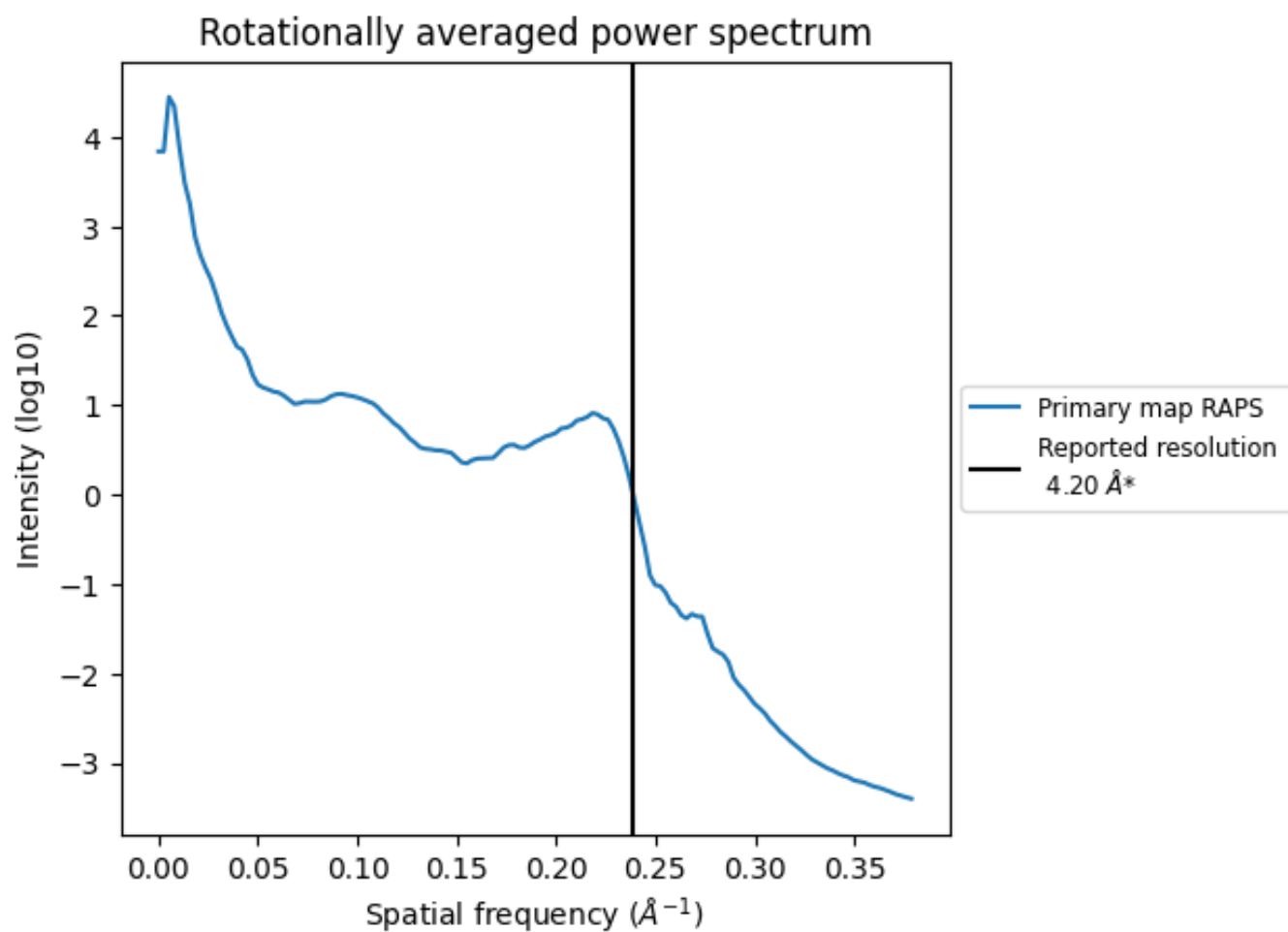
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 100 nm^3 ; this corresponds to an approximate mass of 90 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 [i](#)

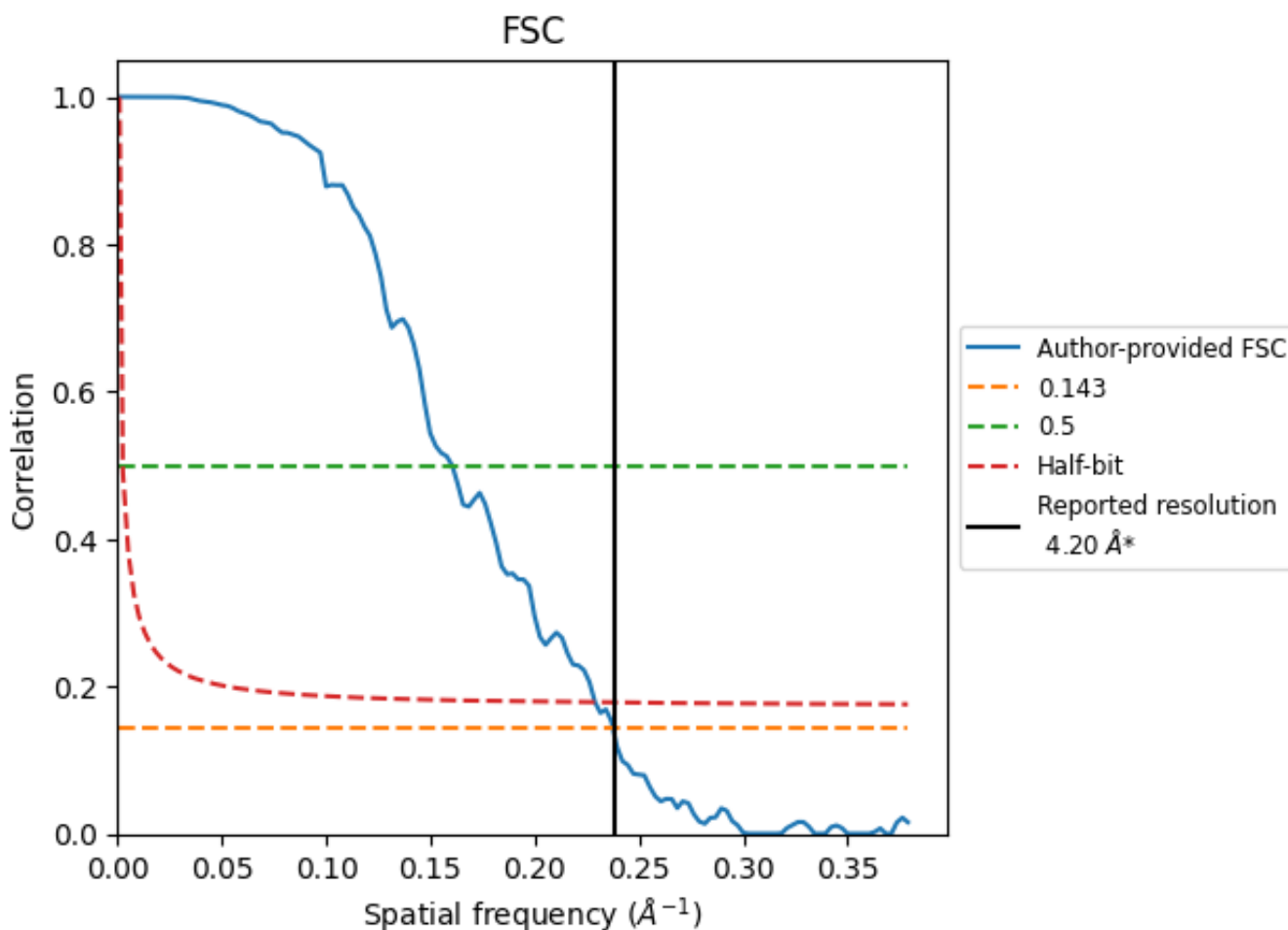


*Reported resolution corresponds to spatial frequency of 0.238\AA^{-1}

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 0.238 Å⁻¹

8.2 Resolution estimates [i](#)

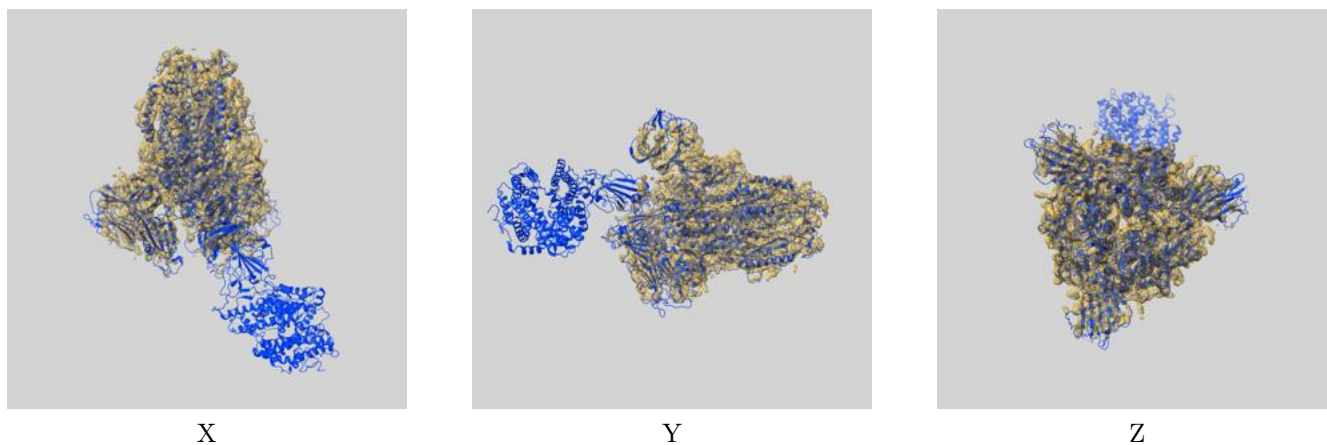
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.20	-	-
Author-provided FSC curve	4.21	6.24	4.37
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

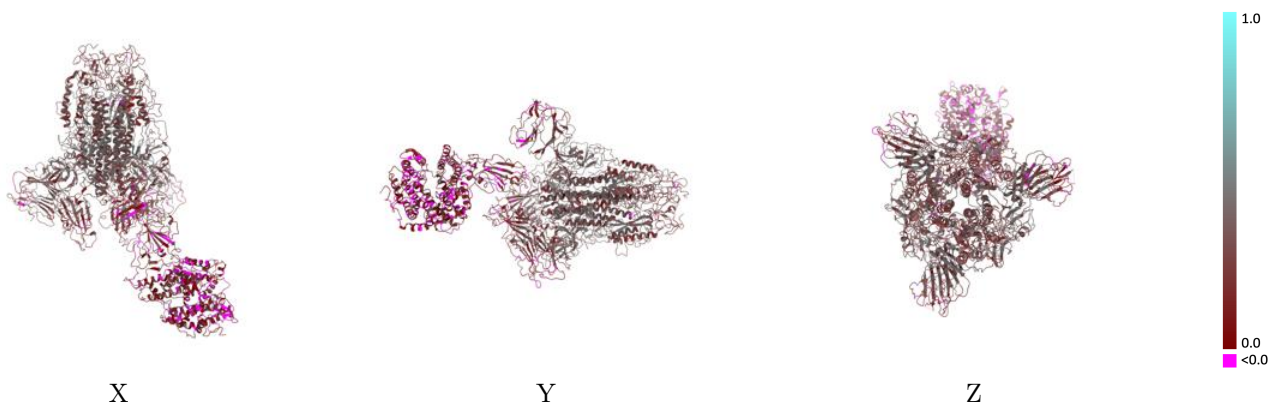
This section contains information regarding the fit between EMDB map EMD-9593 and PDB model 6ACJ. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



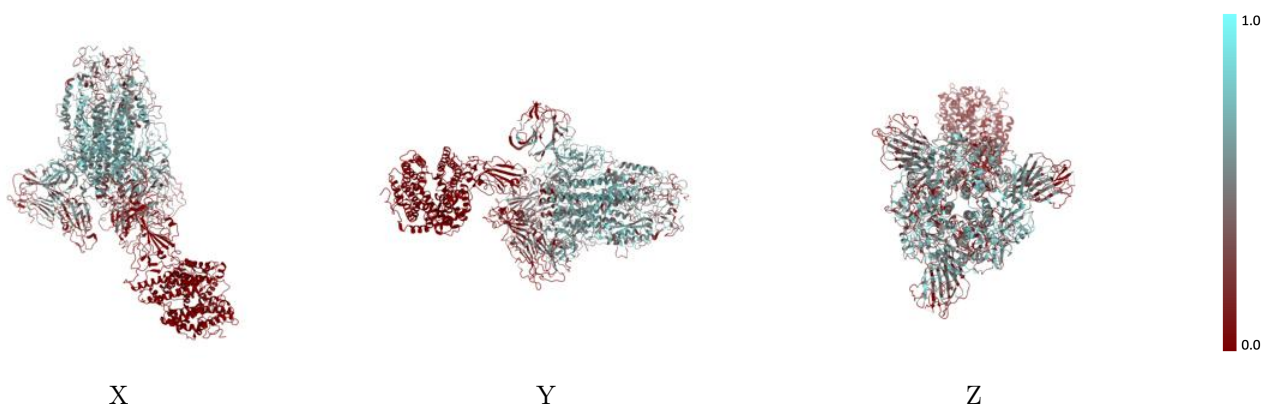
The images above show the 3D surface view of the map at the recommended contour level 8.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



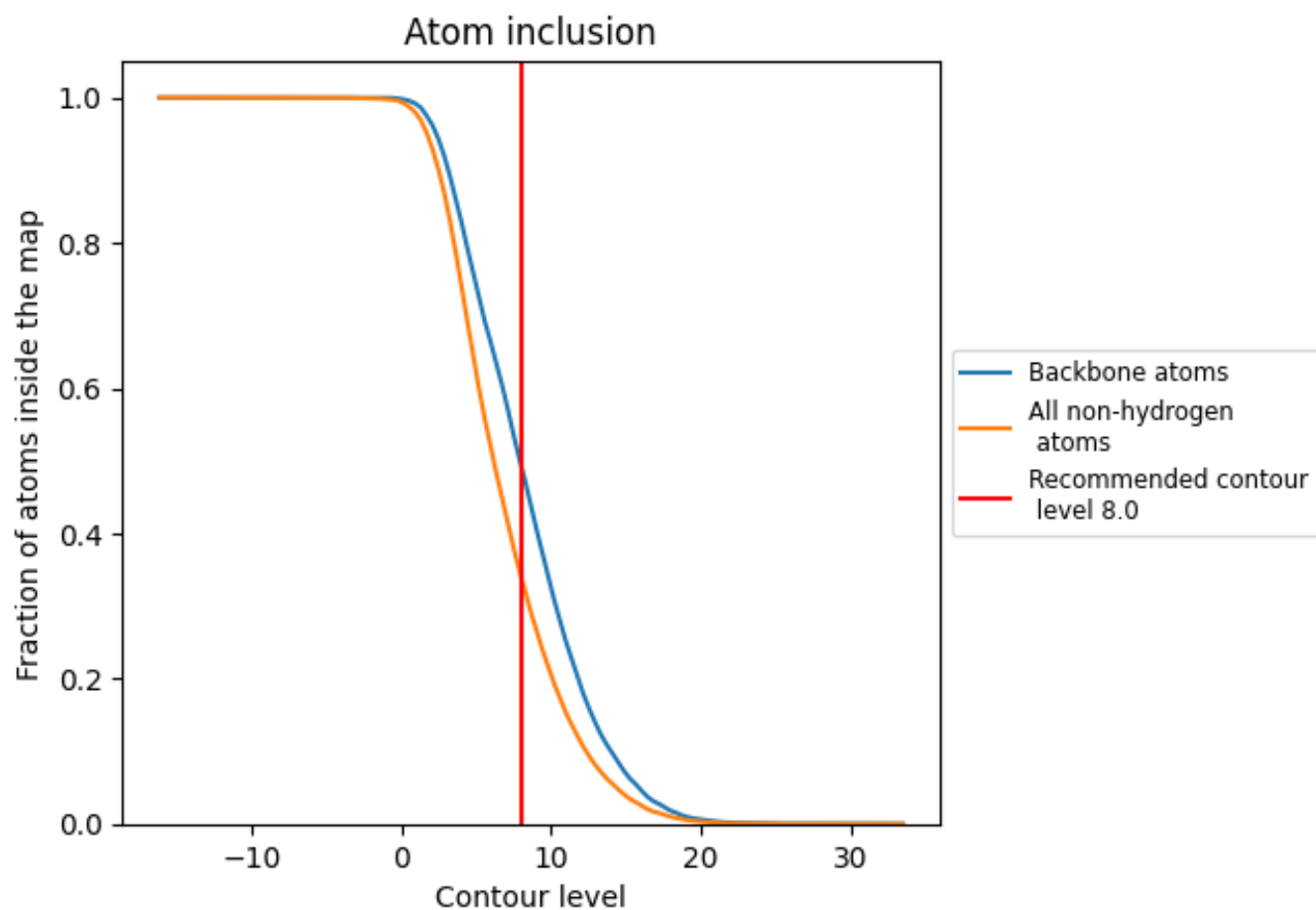
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (8.0).











9.4 Atom inclusion [i](#)



At the recommended contour level, 49% of all backbone atoms, 34% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (8.0) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.3399	 0.2770
A	 0.4188	 0.3200
B	 0.4253	 0.3080
C	 0.3748	 0.2960
D	 0.0000	 0.1150

