Full wwPDB EM Validation Report

Mar 11, 2024 – 09:24 AM EDT

PDB ID	:	6PO2
EMDB ID	:	EMD-20407
Title	:	In situ structure of BTV RNA-dependent RNA polymerase in BTV core
Authors	:	He, Y.; Shivakoti, S.; Ding, K.; Cui, Y.; Roy, P.; Zhou, Z.H.
Deposited on	:	2019-07-03
Resolution	:	3.60 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 (i) 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 (i)) were used in the production of this report:

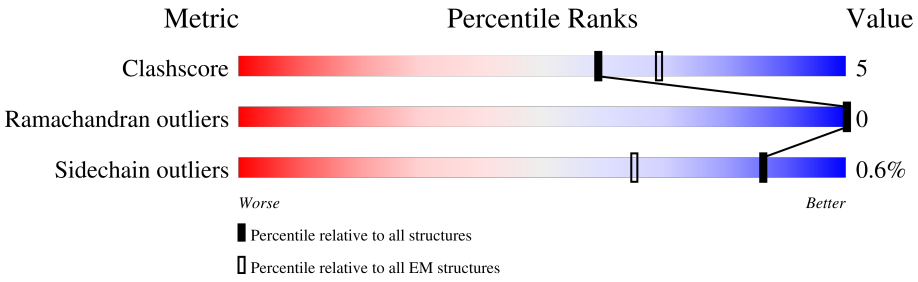
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.60 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 <=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	1302	61% 80% 15% ·
2	B	901	27% 89% 8% ·
2	C	901	52% 85% 12% ·
2	D	901	30% 86% 10% ·
2	E	901	52% 86% 12% ·
2	F	901	31% 85% 11% ·
2	G	901	53% 87% 12% ·
2	H	901	30% 84% 12% ·

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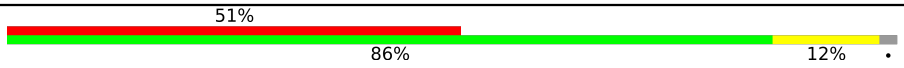
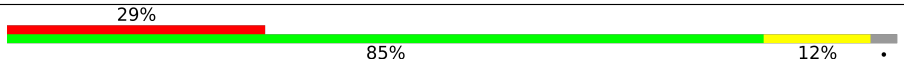
Mol	Chain	Length	Quality of chain
2	I	901	
2	J	901	
2	K	901	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 80873 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 RNA-directed RNA polymerase.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1244	Total	C	N	O	S	0	0
			10062	6417	1720	1865	60		

- Molecule 2 is a protein called Inner core structural protein VP3.

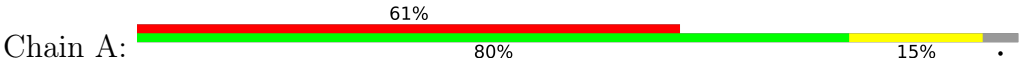
Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	872	Total	C	N	O	S	0	0
			7046	4496	1222	1287	41		
2	C	885	Total	C	N	O	S	0	0
			7151	4561	1239	1310	41		
2	D	863	Total	C	N	O	S	0	0
			6968	4448	1209	1271	40		
2	E	885	Total	C	N	O	S	0	0
			7151	4561	1239	1310	41		
2	F	868	Total	C	N	O	S	0	0
			6995	4463	1209	1283	40		
2	G	885	Total	C	N	O	S	0	0
			7151	4561	1239	1310	41		
2	H	868	Total	C	N	O	S	0	0
			7017	4476	1218	1282	41		
2	I	885	Total	C	N	O	S	0	0
			7151	4561	1239	1310	41		
2	J	870	Total	C	N	O	S	0	0
			7030	4484	1220	1285	41		
2	K	885	Total	C	N	O	S	0	0
			7151	4561	1239	1310	41		

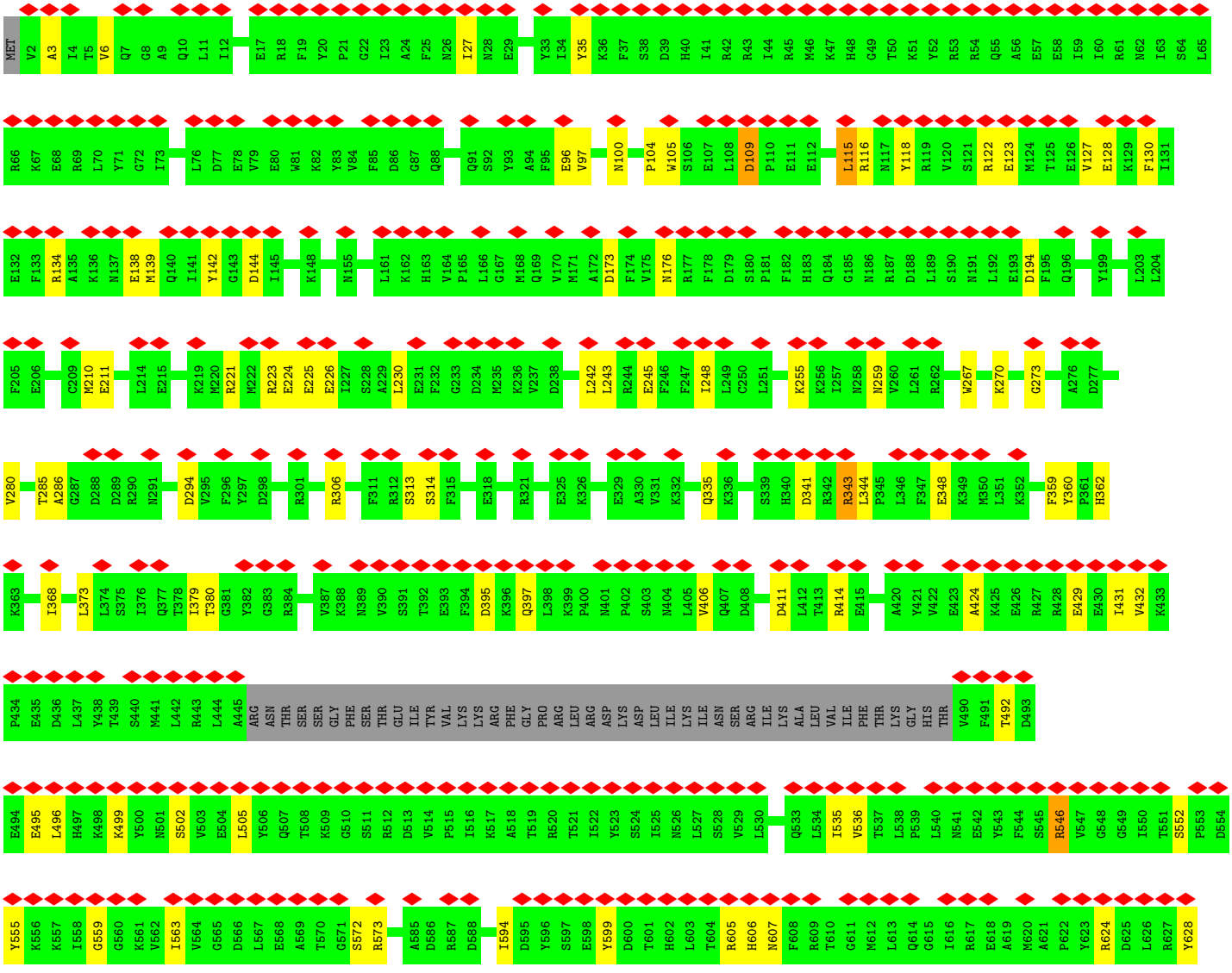
3 Residue-property plots (i)

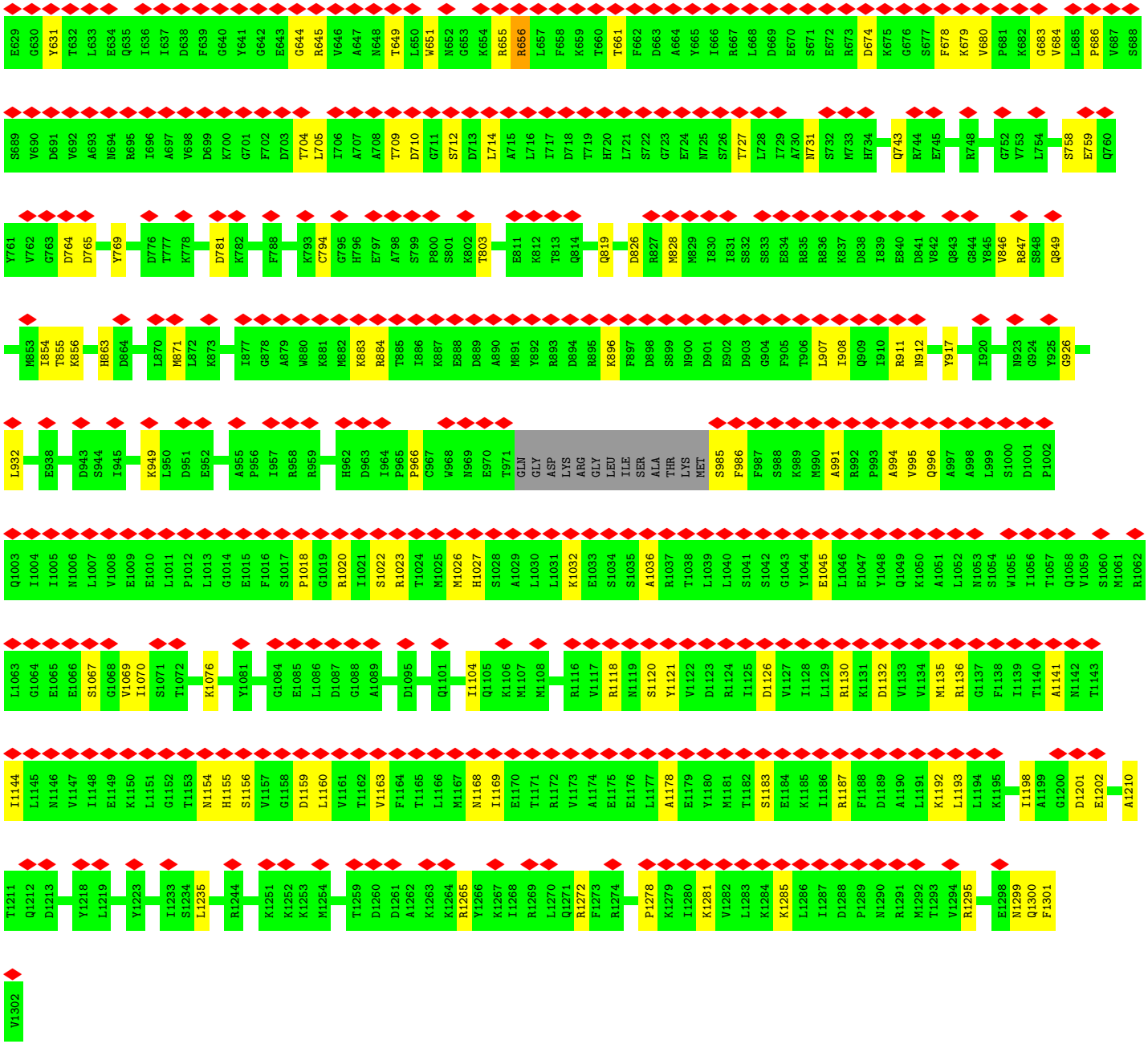
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

Chain A:

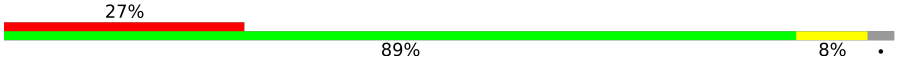


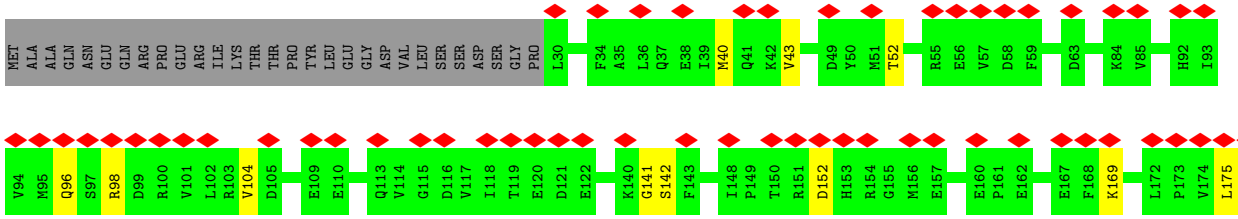


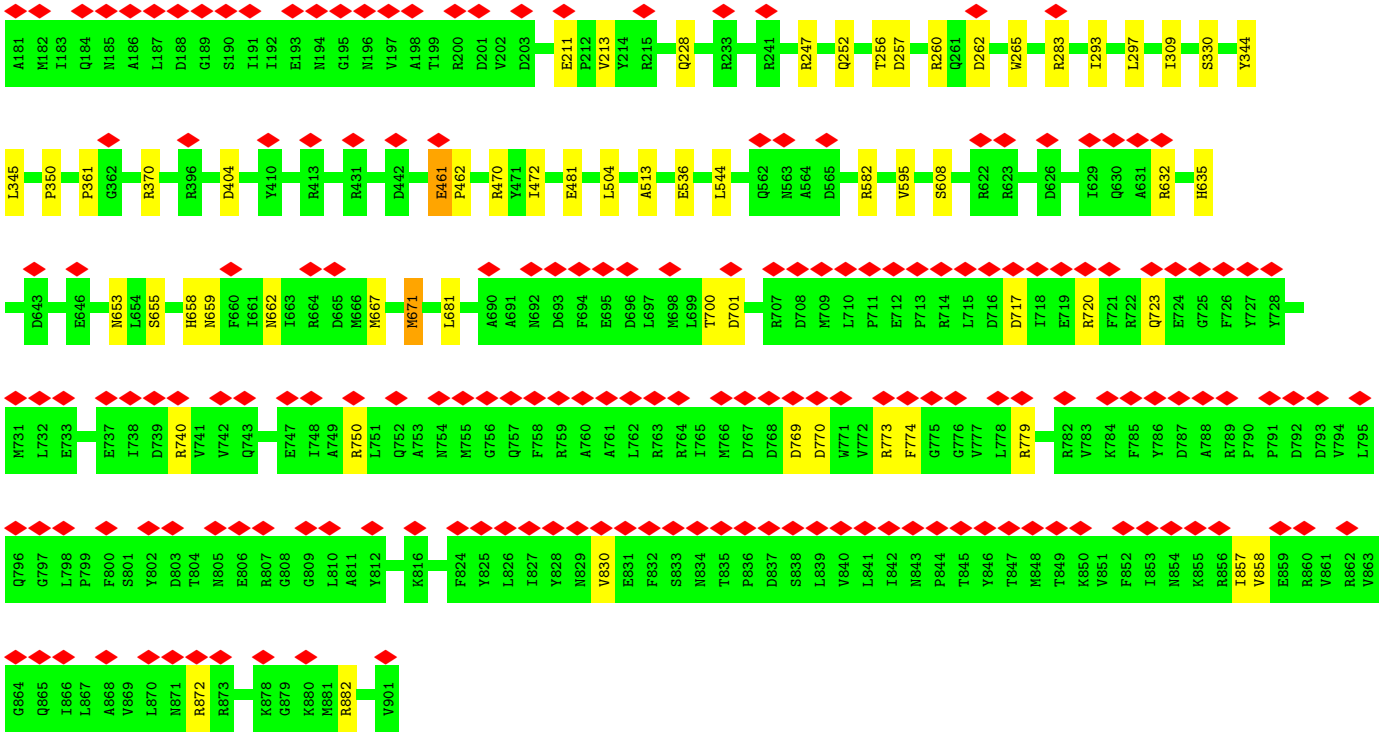


- Molecule 2: Inner core structural protein VP3

Chain B:

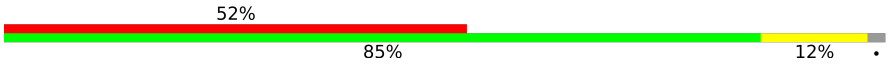


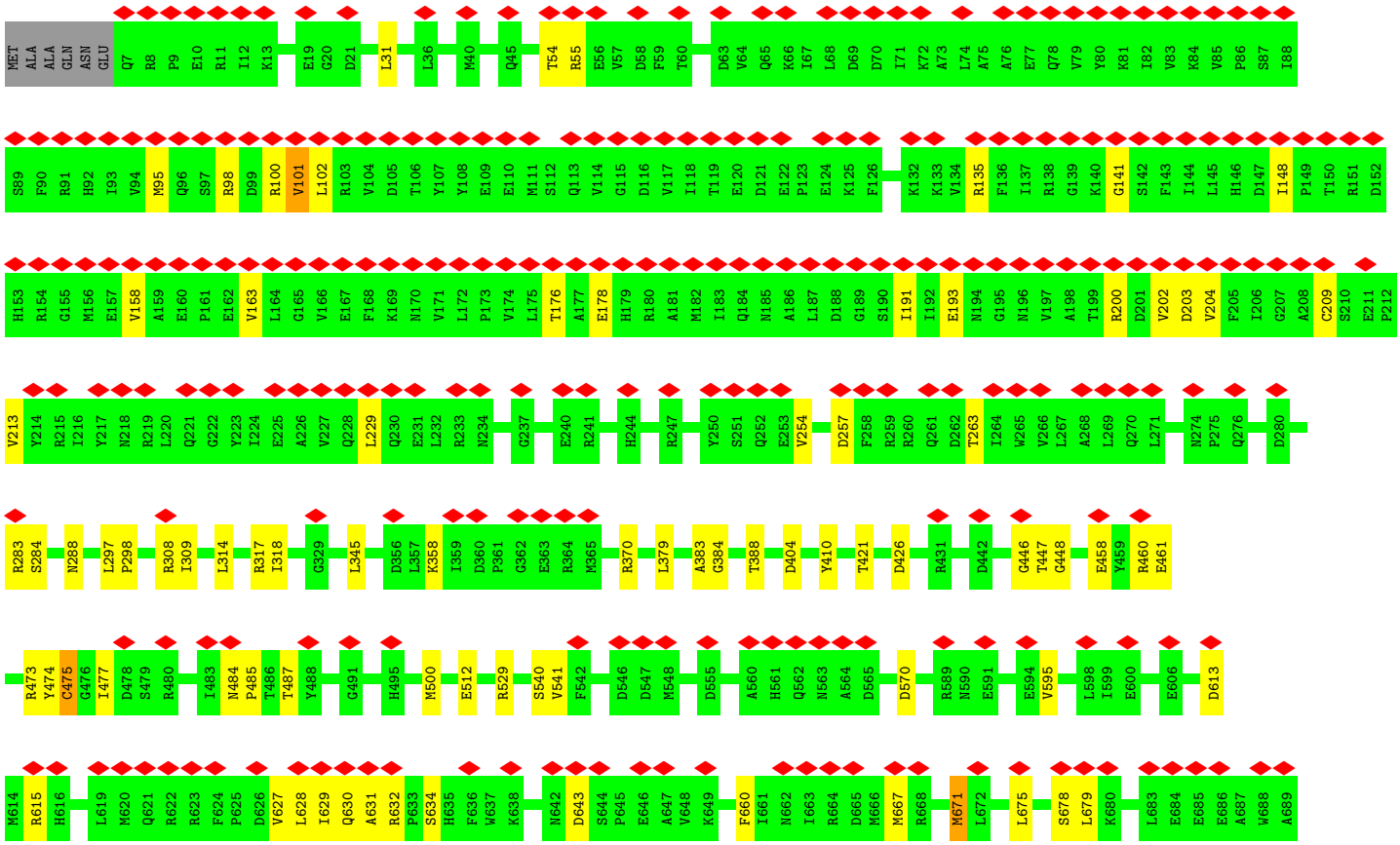


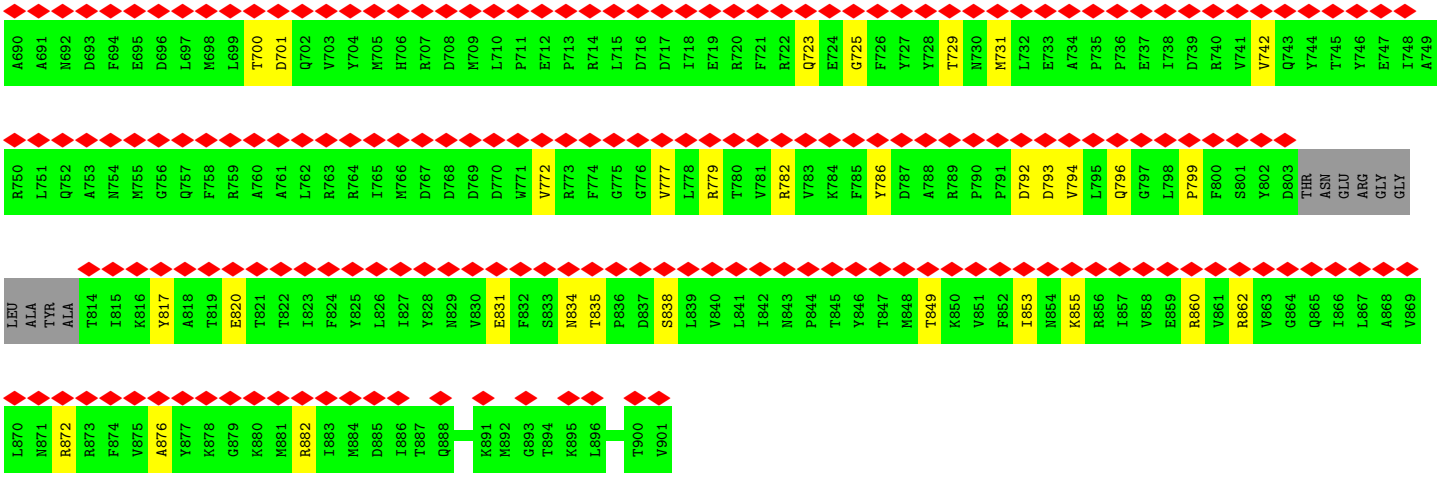


• Molecule 2: Inner core structural protein VP3

Chain C:

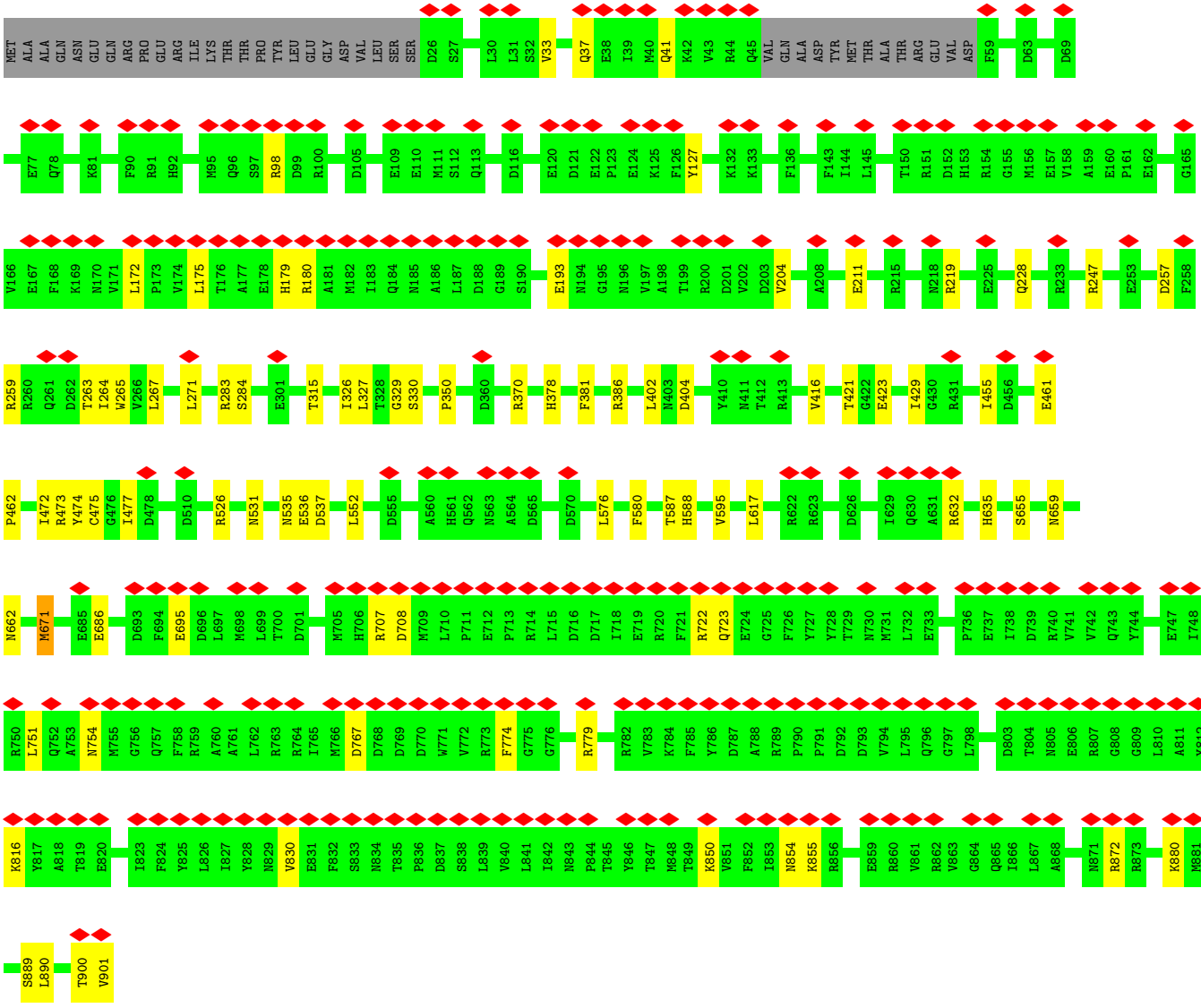






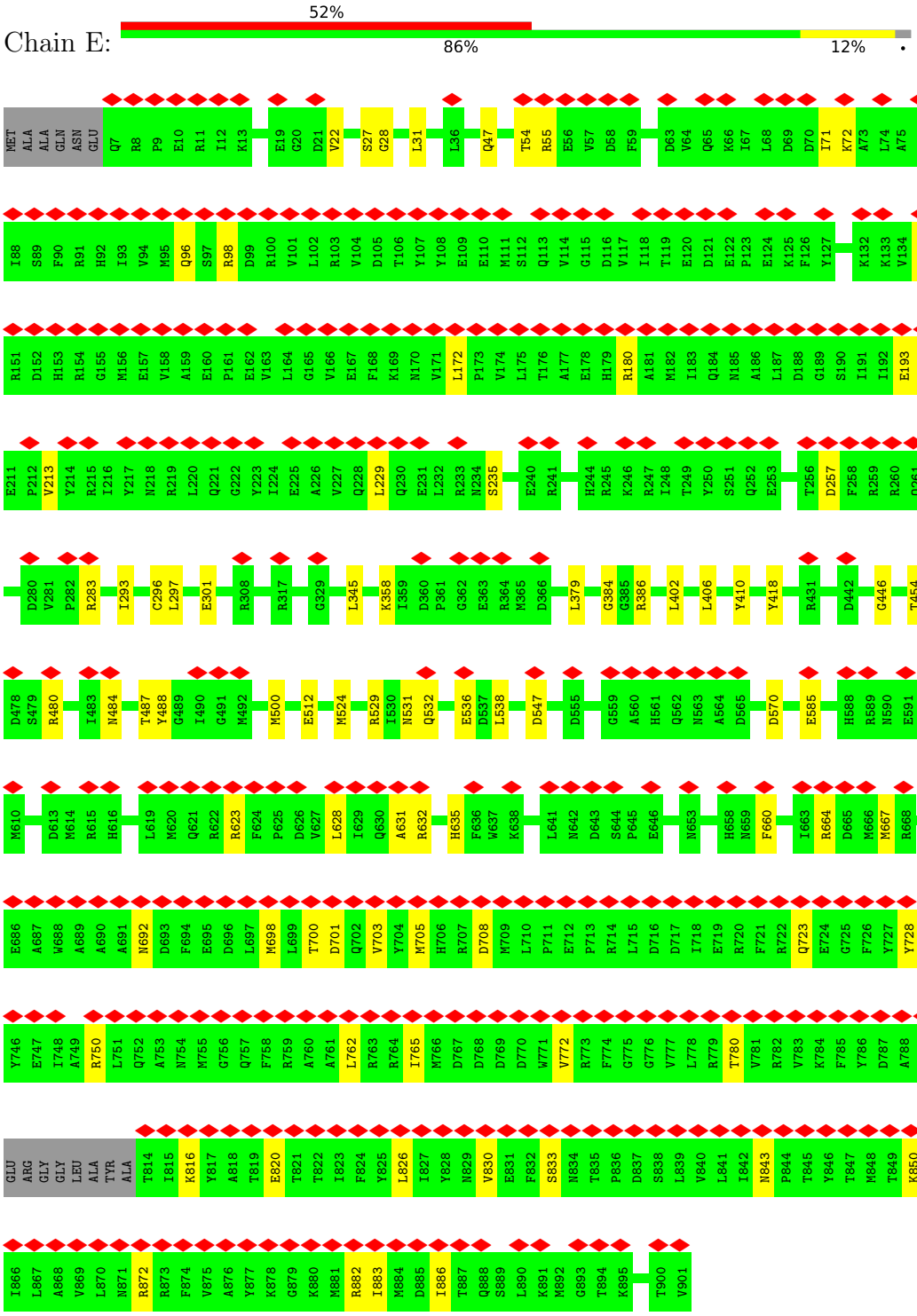
• Molecule 2: Inner core structural protein VP3

Chain D:



• Molecule 2: Inner core structural protein VP3

Chain E:



• Molecule 2: Inner core structural protein VP3

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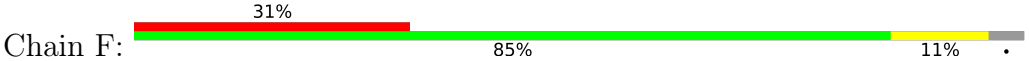
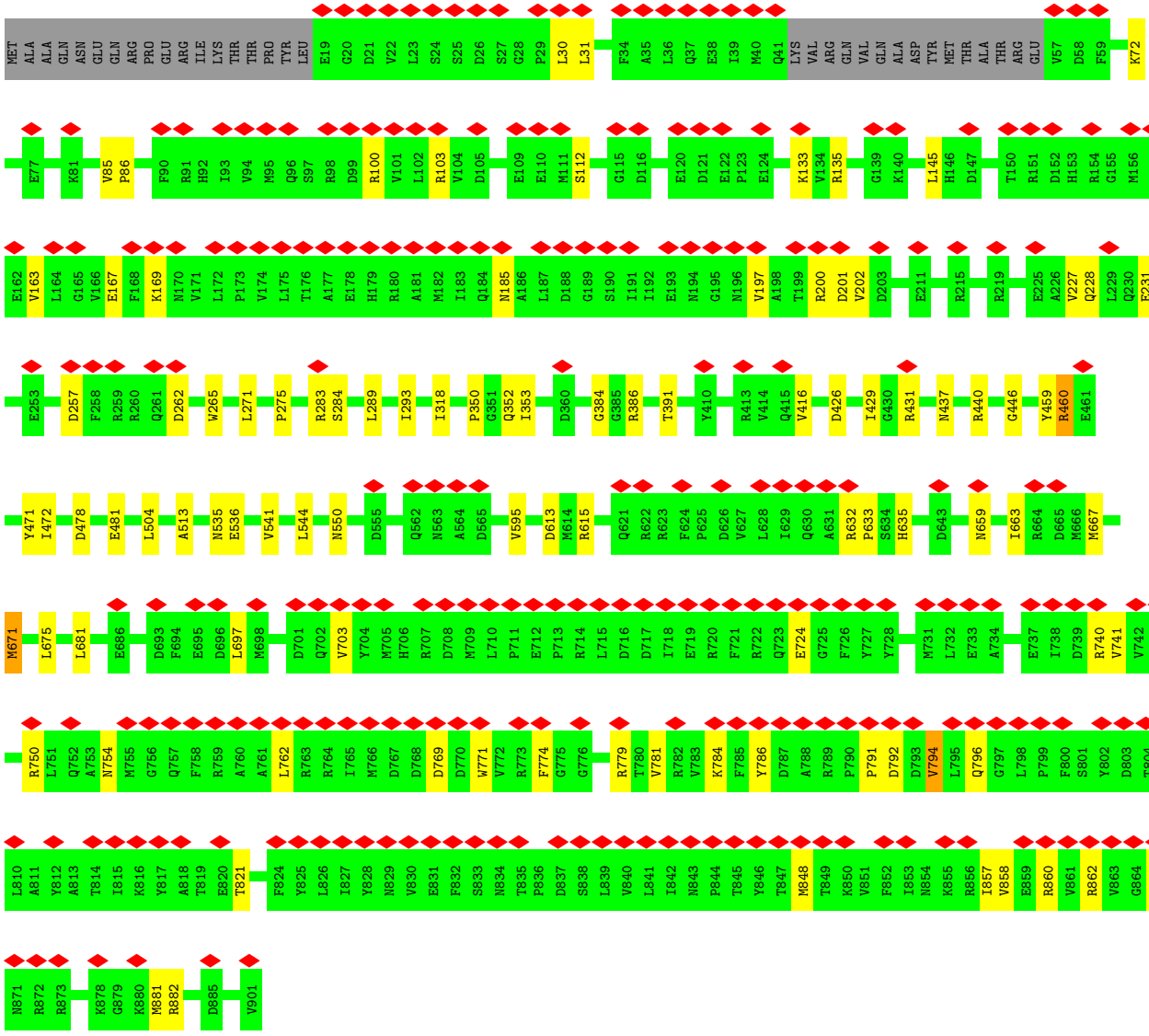
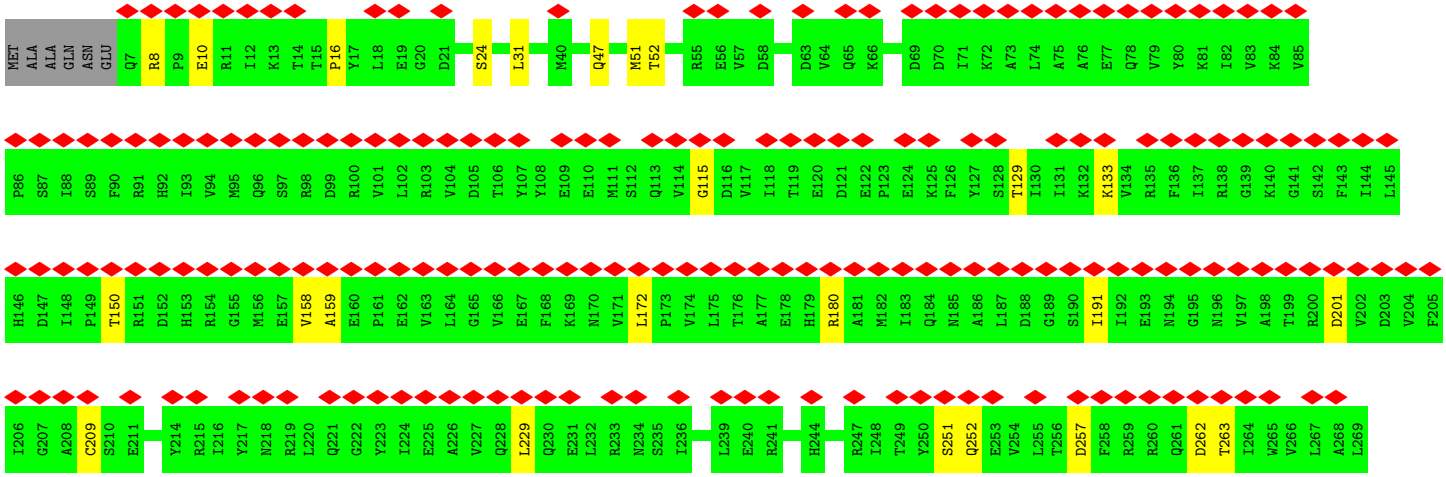
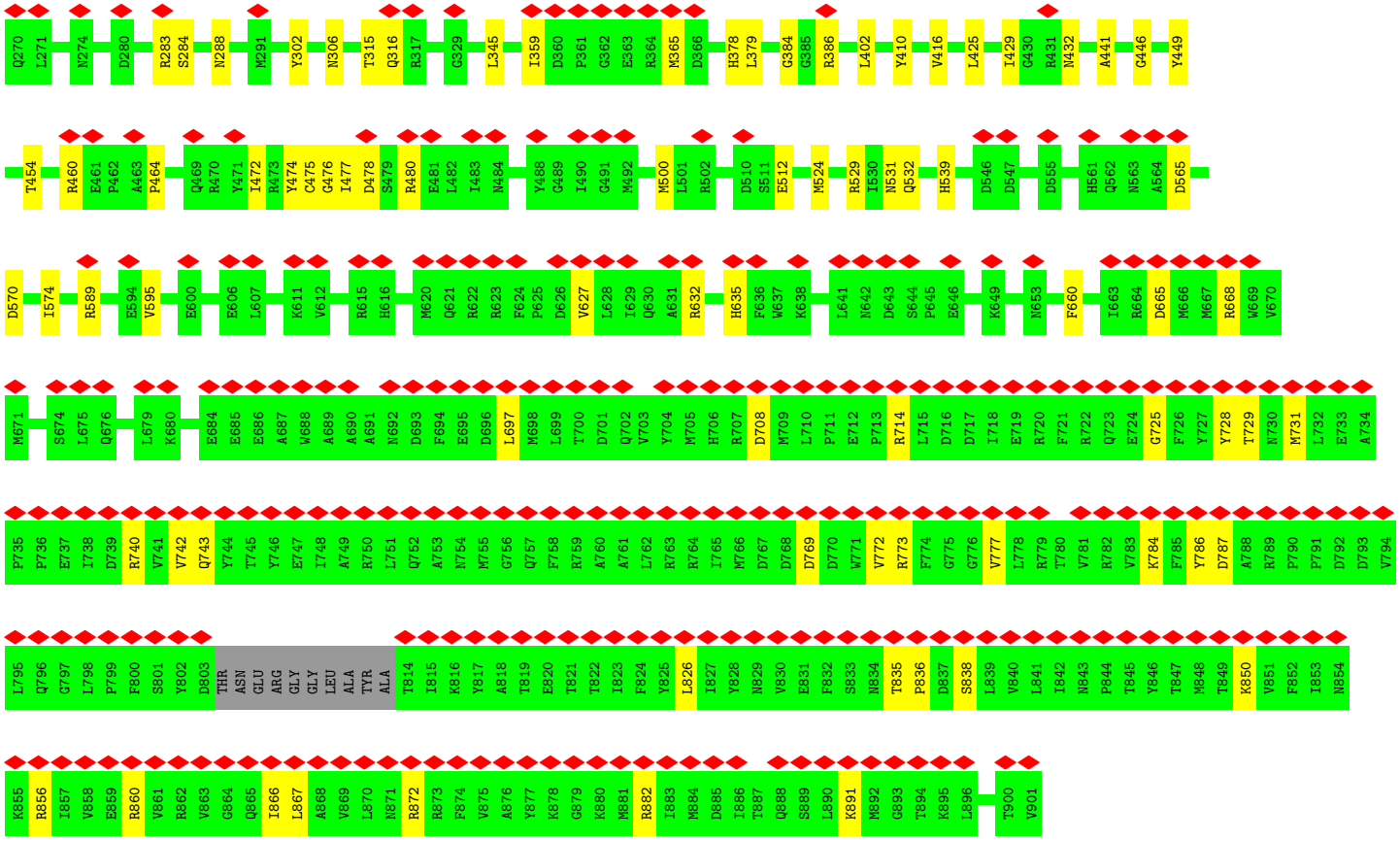




• Molecule 2: Inner core structural protein VP3

Chain G:





• Molecule 2: Inner core structural protein VP3

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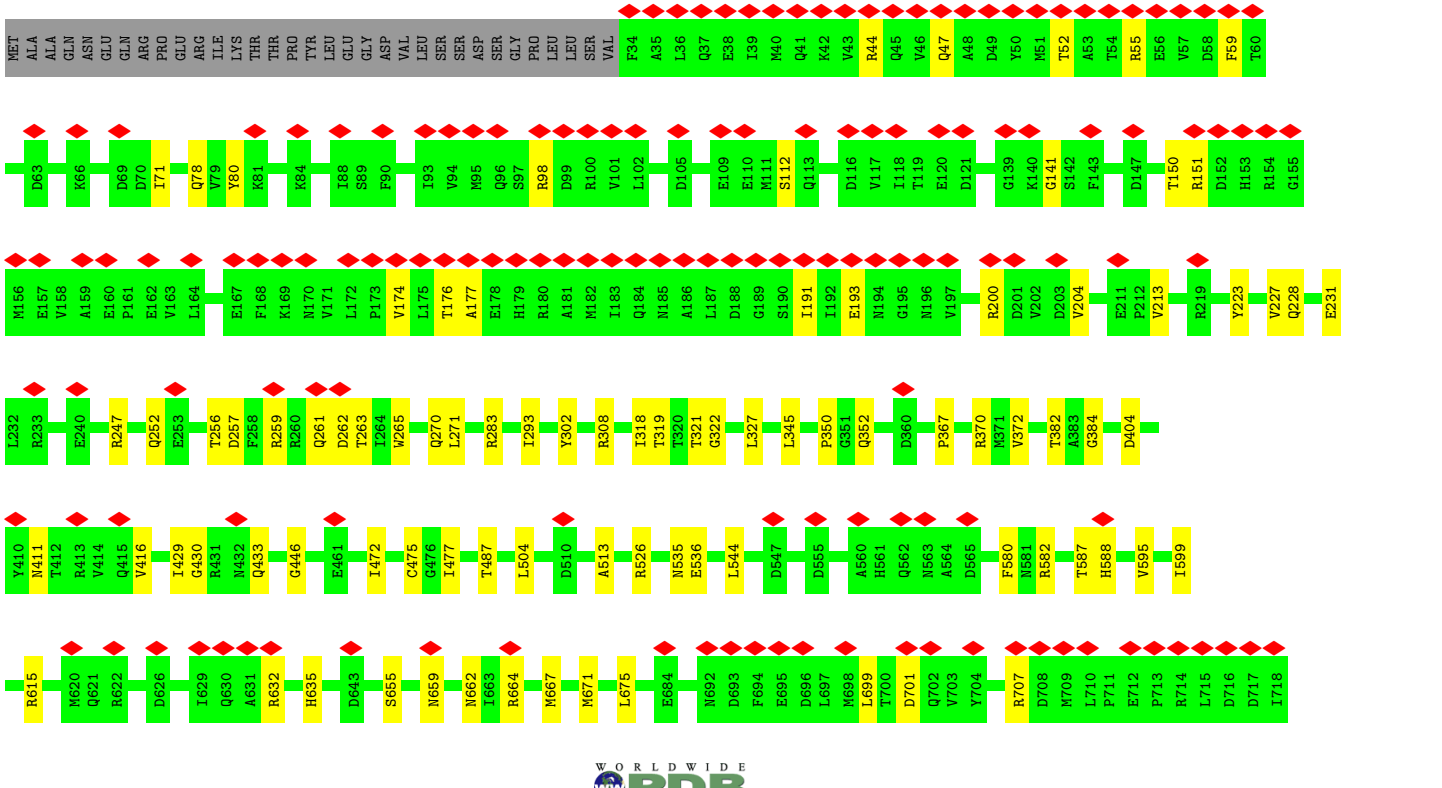
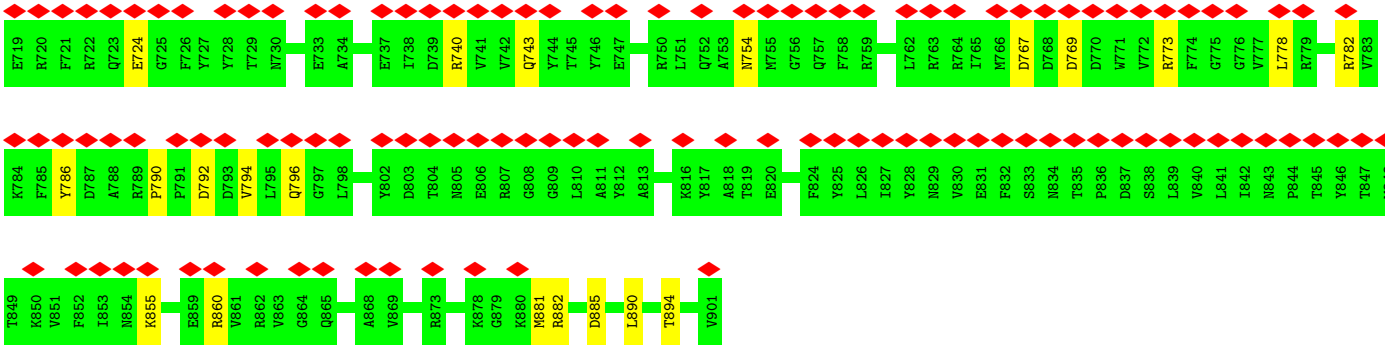
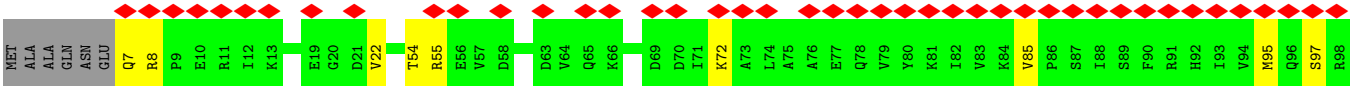
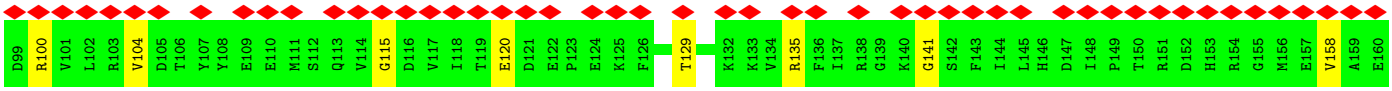


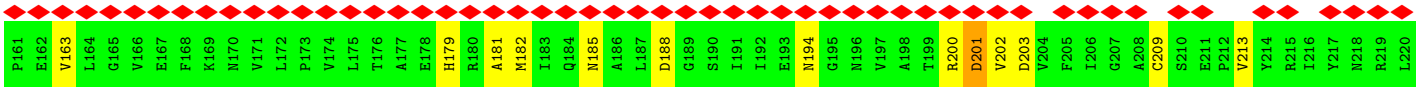


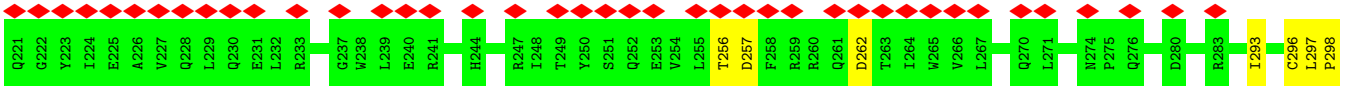
• Molecule 2: Inner core structural protein VP3

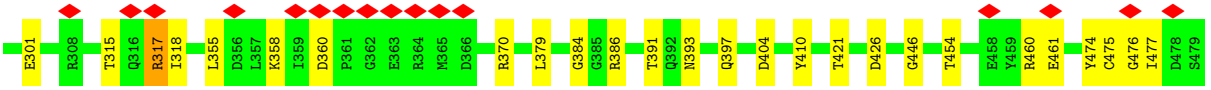
Chain I:

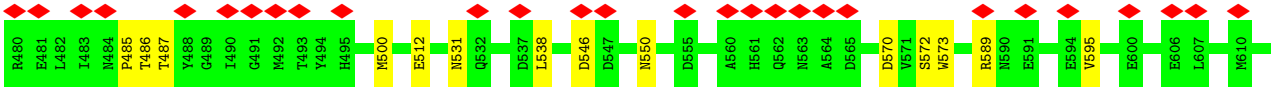


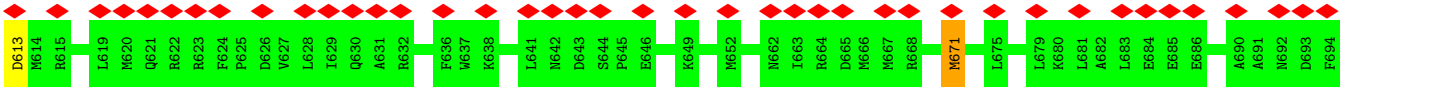


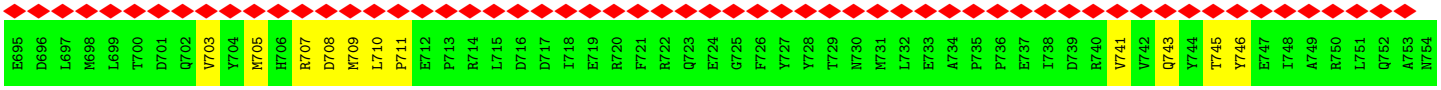


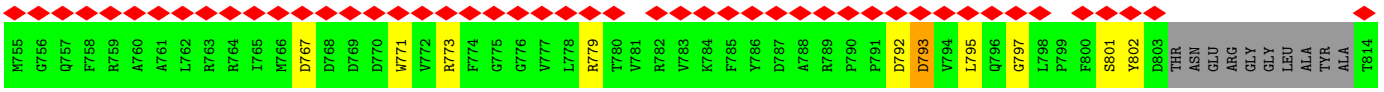


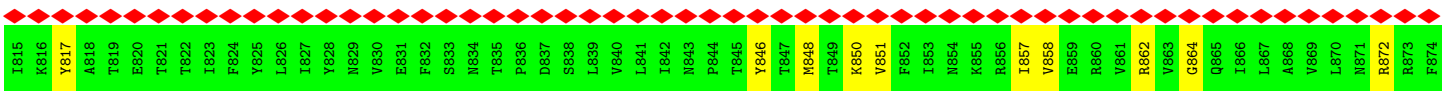


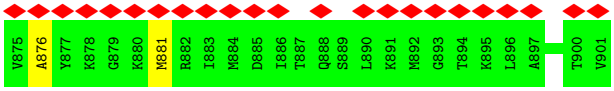






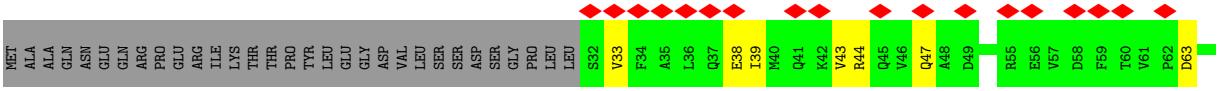


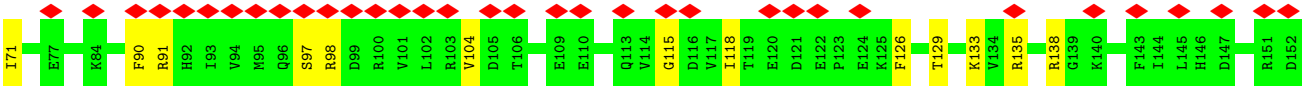


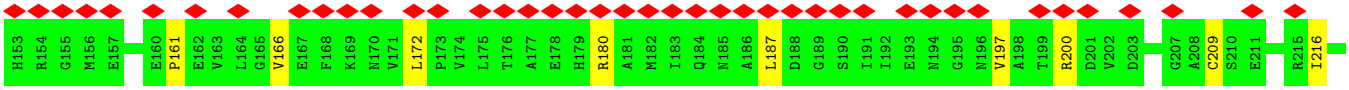


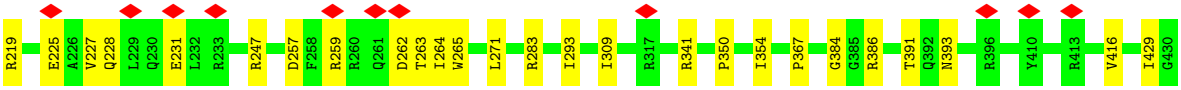
• Molecule 2: Inner core structural protein VP3

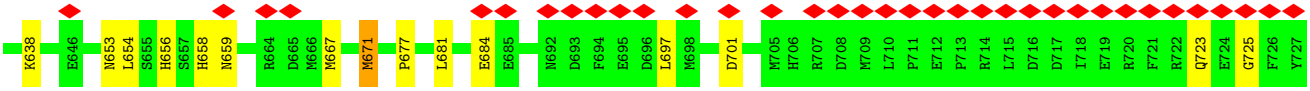
Chain J:

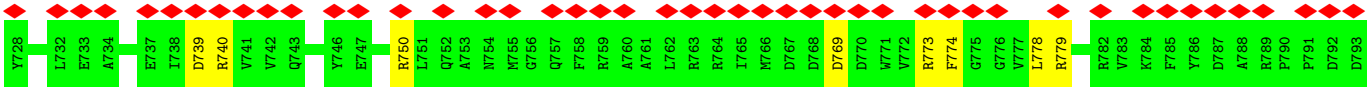


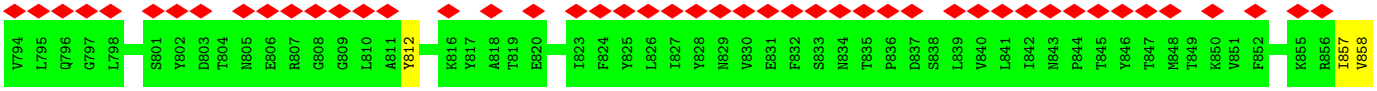


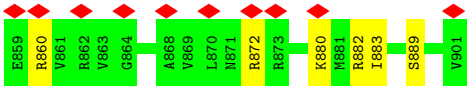






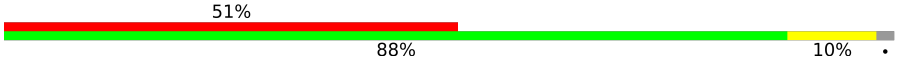


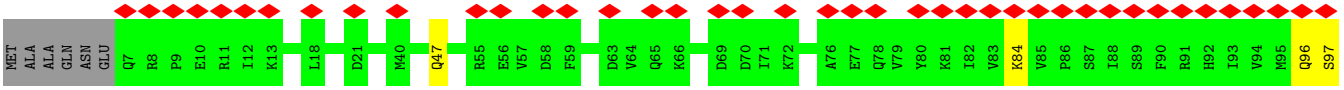


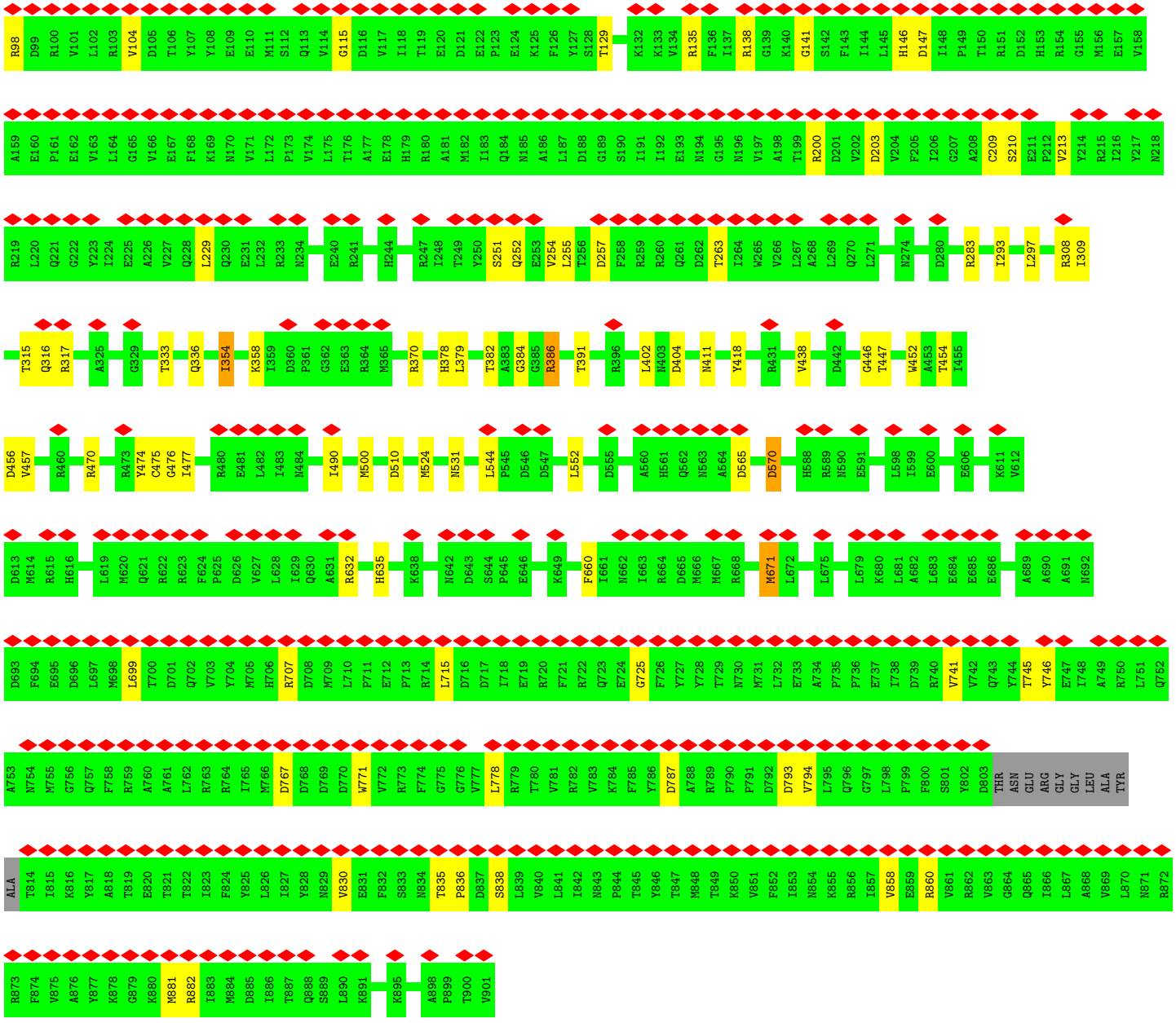


• Molecule 2: Inner core structural protein VP3

Chain K:






R98 D99 R100 V101 L102 R103 V104 D105 T106 Y107 Y108 E109 E110 M111 S112 Q113 V114 G115 D116 V117 I118 T119 E120 D121 E122 P123 E124 K125 F126 Y127 S128 T129 K132 K133 V134 R135 F136 I137 R138 G139 K140 G141 S142 F143 I144 L145 H146 D147 I148 P149 T150 R151 D152 H153 R154 G155 M156 E157 V158
A159 E160 P161 E162 V163 L164 G165 V166 E167 F168 K169 N170 V171 L172 P173 V174 L175 T176 A177 E178 H179 R180 A181 M182 I183 Q184 N185 A186 L187 D188 G189 S190 I191 I192 E193 N194 G195 N196 V197 A198 T199 R200 D201 V202 D203 Y204 F205 I206 G207 A208 C209 S210 E211 P212 V213 Y214 R215 I216 Y217 N218
R219 L220 Q221 G222 Y223 I224 E225 A226 V227 Q228 L229 Q230 E231 L232 R233 N234 E240 R241 H244 R247 I248 T249 Y250 S251 Q252 E253 V254 L255 T256 D257 F258 R259 R260 Q261 D262 T263 I264 W265 V266 L267 A268 L269 Q270 L271 N274 D280 R283 I293 L297 R308 I309
T315 Q316 R317 A325 G329 T333 Q336 I354 K358 I359 D360 P361 G362 E363 R364 M365 R370 H378 L379 T382 A383 G384 G385 R386 T391 R396 L402 N403 D404 N411 Y418 R431 V438 D442 G446 T447 W452 A453 T454 I455
D456 V457 R460 R470 R473 Y474 C475 G476 I477 R480 E481 L482 I483 N484 I490 M500 D510 M524 N531 L544 P545 D546 D547 L552 D555 A560 H561 Q562 N563 A564 D565 D570 H588 R589 N590 E591 L598 I599 E600 E606 K611 V612
D613 M614 R615 H616 L619 M620 Q621 R622 R623 F624 P625 D626 V627 L628 I629 Q630 A631 R632 H635 K638 N642 D643 S644 P645 E646 K649 F660 I661 N662 I663 R664 D665 M666 M667 R668 M671 L672 L675 L679 K680 L681 A682 L683 E684 E685 E686 A689 A690 A691 N692
D693 F694 E695 D696 L697 M698 L699 T700 D701 Q702 V703 Y704 M705 M706 R707 D708 M709 L710 P711 E712 P713 R714 L715 D716 D717 I718 E719 R720 F721 R722 Q723 E724 G725 F726 Y727 Y728 T729 N730 M731 L732 E733 A734 P735 P736 E737 I738 D739 R740 V741 V742 Q743 Y744 T745 Y746 E747 I748 A749 R750 L751 Q752
A753 N754 M755 G756 Q757 F758 R759 A760 A761 L762 R763 R764 I765 M766 D767 D768 D769 D770 W771 V772 R773 F774 G775 G776 V777 L778 R779 T780 V781 R782 V783 K784 F785 Y786 D787 A788 R789 P790 P791 D792 D793 V794 L795 Q796 G797 L798 P799 P800 S801 Y802 D803 THR ASN GLU ARG GLY GLY LEU ALA TYR
ALA T814 I815 K816 Y817 A818 T819 E820 T821 T822 I823 F824 Y825 L826 I827 Y828 N829 V830 E831 F832 S833 N834 T835 P836 D837 S838 L839 V840 L841 I842 N843 P844 T845 Y846 T847 M848 T849 K850 V851 F852 I853 N854 K855 R856 I857 V858 E859 R860 V861 R862 V863 G864 Q865 I866 L867 A868 V869 L870 N871 R872
R873 F874 V875 A876 Y877 K878 G879 K880 M881 R882 I883 M884 D885 I886 T887 Q888 S889 L890 K891 K895 A898 P899 T900 V901

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	150346	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 ($e^-/Å^2$)	32.0	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	0.076	Depositor
Minimum map value	-0.045	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.02	Depositor
Map size (Å)	348.16, 348.16, 348.16	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.36, 1.36, 1.36	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	0.31	0/10268	0.52	0/13862
2	B	0.36	0/7203	0.52	0/9782
2	C	0.33	0/7310	0.50	0/9927
2	D	0.37	0/7124	0.52	0/9673
2	E	0.32	0/7310	0.50	0/9927
2	F	0.37	0/7151	0.53	0/9712
2	G	0.33	0/7310	0.52	0/9927
2	H	0.37	0/7174	0.53	0/9742
2	I	0.33	0/7310	0.51	0/9927
2	J	0.37	0/7187	0.53	0/9760
2	K	0.33	0/7310	0.51	0/9927
All	All	0.34	0/82657	0.52	0/112166

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	10062	0	10106	128	0
2	B	7046	0	7032	56	0
2	C	7151	0	7137	74	0
2	D	6968	0	6955	68	0
2	E	7151	0	7137	65	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	F	6995	0	6968	68	0
2	G	7151	0	7137	69	0
2	H	7017	0	6996	77	0
2	I	7151	0	7137	74	0
2	J	7030	0	7010	73	0
2	K	7151	0	7137	77	0
All	All	80873	0	80752	770	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 5.

All (770) 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:K:438:VAL:HG11	2:K:452:TRP:CZ2	1.57	1.37
2:K:438:VAL:HG11	2:K:452:TRP:CH2	1.65	1.32
2:D:461:GLU:CG	2:D:462:PRO:HD3	1.67	1.23
2:K:438:VAL:CG1	2:K:452:TRP:CZ2	2.23	1.21
2:G:595:VAL:HG22	2:G:891:LYS:NZ	1.60	1.16
2:K:477:ILE:HD11	2:K:524:MET:HE2	1.28	1.15
2:C:475:CYS:SG	2:C:477:ILE:HG12	1.88	1.12
2:K:438:VAL:CG1	2:K:452:TRP:CH2	2.31	1.12
2:D:461:GLU:HG3	2:D:462:PRO:HD3	1.12	1.12
2:K:477:ILE:HD11	2:K:524:MET:CE	1.84	1.07
2:D:461:GLU:HG3	2:D:462:PRO:CD	1.86	1.04
2:G:595:VAL:CG2	2:G:891:LYS:NZ	2.22	1.02
2:G:477:ILE:HD11	2:G:524:MET:HE2	1.49	0.95
2:G:477:ILE:HD11	2:G:524:MET:CE	1.97	0.94
2:F:671:MET:HE3	2:F:671:MET:HA	1.50	0.93
2:E:477:ILE:HD11	2:E:524:MET:CE	2.04	0.88
2:K:141:GLY:HA2	2:K:213:VAL:HG13	1.56	0.88
2:H:475:CYS:SG	2:H:477:ILE:HD11	2.14	0.88
2:D:461:GLU:HG2	2:D:462:PRO:HD3	1.56	0.87
2:K:671:MET:HA	2:K:671:MET:HE3	1.54	0.87
2:G:595:VAL:CG2	2:G:891:LYS:HZ1	1.90	0.84
2:G:595:VAL:HG22	2:G:891:LYS:HZ2	1.40	0.83
2:K:438:VAL:HG11	2:K:452:TRP:HZ2	1.42	0.81
2:D:461:GLU:CG	2:D:462:PRO:CD	2.52	0.80
2:C:101:VAL:C	2:C:102:LEU:HD12	2.02	0.79
2:H:475:CYS:SG	2:H:477:ILE:HG13	2.24	0.78
2:D:475:CYS:SG	2:D:477:ILE:HG13	2.23	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:141:GLY:HA2	2:E:213:VAL:HG13	1.66	0.77
2:H:475:CYS:SG	2:H:477:ILE:CD1	2.72	0.77
2:E:791:PRO:O	2:E:794:VAL:HG23	1.86	0.76
2:E:477:ILE:HD11	2:E:524:MET:HE2	1.69	0.74
2:K:438:VAL:HG12	2:K:452:TRP:CH2	2.22	0.74
2:C:475:CYS:SG	2:C:477:ILE:CG1	2.72	0.73
2:E:793:ASP:OD1	2:E:793:ASP:N	2.20	0.73
1:A:1160:LEU:O	1:A:1163:VAL:HG22	1.87	0.73
2:H:667:MET:O	2:H:671:MET:HG3	1.89	0.72
2:K:438:VAL:HG11	2:K:452:TRP:HH2	1.54	0.69
2:D:283:ARG:HE	2:D:659:ASN:HB3	1.56	0.69
2:D:474:TYR:O	2:D:475:CYS:SG	2.51	0.69
2:H:475:CYS:SG	2:H:477:ILE:CG1	2.80	0.69
2:F:667:MET:O	2:F:671:MET:HG2	1.92	0.69
2:G:209:CYS:H	2:G:872:ARG:HG3	1.59	0.67
2:D:472:ILE:H	2:D:535:ASN:HD21	1.41	0.67
2:B:671:MET:HE3	2:B:671:MET:HA	1.75	0.67
2:J:461:GLU:HA	2:J:461:GLU:OE1	1.93	0.67
2:F:671:MET:HA	2:F:671:MET:CE	2.23	0.67
2:G:477:ILE:HD11	2:G:524:MET:HE3	1.76	0.67
2:I:793:ASP:O	2:I:797:GLY:HA3	1.95	0.66
2:B:667:MET:O	2:B:671:MET:HG2	1.95	0.66
2:C:475:CYS:HG	2:C:477:ILE:HG12	1.59	0.66
1:A:230:LEU:HD11	1:A:368:ILE:HB	1.78	0.65
2:K:477:ILE:HD11	2:K:524:MET:HE3	1.74	0.65
2:I:793:ASP:O	2:I:797:GLY:CA	2.44	0.65
2:C:102:LEU:HD12	2:C:102:LEU:N	2.12	0.65
2:E:474:TYR:H	2:E:531:ASN:HD21	1.45	0.64
2:E:135:ARG:HD2	2:E:138:ARG:HH21	1.61	0.64
2:G:595:VAL:HG22	2:G:891:LYS:HZ3	1.58	0.64
2:D:474:TYR:H	2:D:531:ASN:HD21	1.46	0.63
2:D:671:MET:HA	2:D:671:MET:HE3	1.78	0.63
2:D:632:ARG:H	2:D:635:HIS:HD2	1.45	0.63
2:H:472:ILE:H	2:H:535:ASN:HD21	1.46	0.63
2:J:667:MET:CE	2:J:671:MET:CE	2.77	0.63
2:F:632:ARG:H	2:F:635:HIS:HD2	1.46	0.62
2:E:201:ASP:OD1	2:E:202:VAL:HG13	1.99	0.62
2:J:474:TYR:H	2:J:531:ASN:HD21	1.47	0.62
2:C:667:MET:SD	2:C:671:MET:CE	2.88	0.62
1:A:499:LYS:HG3	1:A:644:GLY:HA3	1.82	0.62
2:C:384:GLY:HA2	2:C:446:GLY:HA3	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:96:GLU:O	1:A:100:ASN:ND2	2.32	0.61
2:E:728:TYR:HB3	2:E:826:LEU:HB3	1.83	0.61
2:J:667:MET:HE3	2:J:671:MET:CE	2.30	0.61
2:K:671:MET:HA	2:K:671:MET:CE	2.29	0.61
1:A:764:ASP:O	1:A:765:ASP:OD1	2.18	0.61
2:E:791:PRO:O	2:E:795:LEU:HD23	2.00	0.61
2:D:526:ARG:HH12	2:D:580:PHE:HA	1.63	0.61
2:H:327:LEU:HG	2:H:372:VAL:HG11	1.82	0.61
2:H:59:PHE:HD2	2:I:317:ARG:HH22	1.49	0.61
2:E:31:LEU:HD13	2:E:345:LEU:HD13	1.82	0.61
2:I:474:TYR:H	2:I:531:ASN:HD21	1.48	0.61
2:J:135:ARG:NH1	2:J:684:GLU:OE2	2.33	0.61
1:A:406:VAL:HG13	1:A:607:ASN:HD22	1.65	0.60
2:D:472:ILE:O	2:D:531:ASN:ND2	2.34	0.60
1:A:995:VAL:HG22	1:A:1168:ASN:HB3	1.83	0.60
2:J:526:ARG:NH2	2:J:580:PHE:O	2.35	0.60
2:C:667:MET:SD	2:C:671:MET:HE3	2.42	0.60
2:F:416:VAL:HG22	2:F:429:ILE:HG13	1.84	0.60
2:K:141:GLY:CA	2:K:213:VAL:HG13	2.30	0.60
2:J:857:ILE:HG12	2:J:858:VAL:HG23	1.84	0.59
2:K:293:ILE:HG23	2:K:297:LEU:HD12	1.82	0.59
2:B:247:ARG:NH1	2:B:536:GLU:OE1	2.35	0.59
2:E:801:SER:HB2	2:E:816:LYS:HB2	1.84	0.59
2:E:667:MET:O	2:E:671:MET:HG2	2.02	0.59
2:E:750:ARG:HH22	2:F:185:ASN:HD21	1.49	0.59
1:A:1265:ARG:NH2	1:A:1301:PHE:O	2.35	0.59
1:A:1281:LYS:HB3	1:A:1285:LYS:HE2	1.84	0.59
2:C:370:ARG:NH2	2:C:404:ASP:OD2	2.36	0.59
2:I:358:LYS:HB2	2:I:570:ASP:HB3	1.84	0.58
2:F:283:ARG:HD3	2:F:659:ASN:HB3	1.86	0.58
2:F:460:ARG:NH1	2:F:478:ASP:OD1	2.35	0.58
2:G:475:CYS:O	2:G:475:CYS:SG	2.62	0.58
2:G:474:TYR:H	2:G:531:ASN:HD21	1.51	0.58
2:D:37:GLN:O	2:D:41:GLN:NE2	2.37	0.58
1:A:397:GLN:OE1	1:A:606:HIS:ND1	2.36	0.58
2:F:460:ARG:HG2	2:F:460:ARG:HH21	1.68	0.58
1:A:884:ARG:HE	1:A:896:LYS:HZ2	1.52	0.58
2:F:791:PRO:HD2	2:F:794:VAL:HG21	1.85	0.58
2:J:209:CYS:H	2:J:872:ARG:HG3	1.69	0.58
2:I:386:ARG:NH2	2:I:454:THR:O	2.37	0.58
2:B:96:GLN:HE22	2:B:830:VAL:H	1.52	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:774:PHE:O	2:D:779:ARG:NH2	2.37	0.57
1:A:1160:LEU:CD2	1:A:1178:ALA:HA	2.33	0.57
2:F:437:ASN:OD1	2:F:440:ARG:NH2	2.35	0.57
1:A:1154:ASN:ND2	1:A:1156:SER:O	2.37	0.57
2:B:774:PHE:O	2:B:779:ARG:NH2	2.38	0.57
2:I:370:ARG:NH2	2:I:404:ASP:OD2	2.37	0.57
2:I:475:CYS:O	2:I:475:CYS:SG	2.62	0.57
2:K:200:ARG:NH1	2:K:203:ASP:OD1	2.36	0.57
2:E:477:ILE:HD11	2:E:524:MET:HE1	1.83	0.57
2:G:595:VAL:CG2	2:G:891:LYS:HZ2	2.05	0.57
2:H:141:GLY:HA3	2:H:213:VAL:HG13	1.86	0.57
2:F:472:ILE:H	2:F:535:ASN:HD21	1.53	0.57
2:G:16:PRO:O	2:G:306:ASN:ND2	2.37	0.57
2:H:350:PRO:HG2	2:H:472:ILE:HD13	1.86	0.57
2:J:283:ARG:HE	2:J:659:ASN:HB3	1.69	0.57
2:I:7:GLN:HG3	2:I:8:ARG:HG3	1.87	0.57
2:B:632:ARG:NH2	2:C:484:ASN:OD1	2.37	0.57
1:A:656:ARG:NH2	1:A:712:SER:OG	2.38	0.57
2:E:293:ILE:HG23	2:E:297:LEU:HD12	1.85	0.57
2:H:227:VAL:HA	2:H:231:GLU:HB2	1.86	0.57
2:J:416:VAL:HG22	2:J:429:ILE:HG13	1.87	0.57
2:B:595:VAL:HG12	2:B:595:VAL:O	2.04	0.56
2:C:95:MET:SD	2:C:102:LEU:HD11	2.45	0.56
2:G:384:GLY:HA2	2:G:446:GLY:HA3	1.87	0.56
2:J:259:ARG:NH2	2:J:880:LYS:O	2.38	0.56
2:K:370:ARG:NH2	2:K:404:ASP:OD2	2.38	0.56
2:K:671:MET:HE3	2:K:671:MET:CA	2.27	0.56
2:H:247:ARG:NH1	2:H:536:GLU:OE2	2.37	0.56
2:H:370:ARG:NH2	2:H:404:ASP:OD2	2.38	0.56
2:H:786:TYR:OH	2:H:794:VAL:HG21	2.05	0.56
2:K:793:ASP:OD1	2:K:793:ASP:N	2.38	0.56
2:F:352:GLN:HE21	2:F:544:LEU:HB2	1.70	0.56
2:D:475:CYS:SG	2:D:477:ILE:CG1	2.93	0.56
2:D:259:ARG:NH2	2:D:880:LYS:O	2.39	0.56
2:J:750:ARG:HD3	2:K:254:VAL:HG11	1.87	0.56
1:A:1272:ARG:HH22	1:A:1300:GLN:HE21	1.53	0.56
2:D:526:ARG:NH2	2:D:580:PHE:O	2.38	0.56
2:K:835:THR:HB	2:K:838:SER:HB3	1.87	0.56
2:G:714:ARG:NH2	2:G:836:PRO:O	2.39	0.56
2:K:452:TRP:HD1	2:K:452:TRP:O	1.89	0.56
2:K:104:VAL:HG22	2:K:858:VAL:HG22	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:758:SER:HB3	1:A:769:TYR:HB2	1.88	0.56
2:C:729:THR:HG22	2:C:731:MET:H	1.71	0.56
2:J:384:GLY:HA2	2:J:446:GLY:HA3	1.88	0.56
2:B:632:ARG:H	2:B:635:HIS:HD2	1.53	0.55
2:F:247:ARG:NH1	2:F:536:GLU:OE2	2.39	0.55
2:D:475:CYS:SG	2:D:477:ILE:CD1	2.94	0.55
2:F:133:LYS:HG2	2:F:697:LEU:HD22	1.88	0.55
2:G:47:GLN:HG2	2:G:52:THR:HG21	1.88	0.55
2:H:262:ASP:HB2	2:H:881:MET:HG2	1.87	0.55
2:G:454:THR:HG21	2:G:476:GLY:N	2.21	0.55
2:J:172:LEU:O	2:J:180:ARG:NH2	2.39	0.55
2:H:271:LEU:HD22	2:H:890:LEU:HD13	1.88	0.55
2:C:742:VAL:HB	2:C:772:VAL:HG23	1.89	0.55
1:A:1299:ASN:ND2	2:D:315:THR:O	2.40	0.55
2:B:361:PRO:HG3	2:D:901:VAL:HB	1.88	0.55
2:F:85:VAL:HG23	2:F:163:VAL:HA	1.88	0.55
2:I:410:TYR:OH	2:I:512:GLU:OE2	2.23	0.55
2:J:161:PRO:HB3	2:J:187:LEU:HD21	1.88	0.55
1:A:994:ALA:HA	2:H:47:GLN:HE22	1.71	0.55
2:G:632:ARG:H	2:G:635:HIS:HD2	1.54	0.55
2:F:595:VAL:HG12	2:F:595:VAL:O	2.07	0.54
1:A:1155:HIS:O	2:H:308:ARG:NH1	2.41	0.54
2:C:200:ARG:NH1	2:C:202:VAL:O	2.40	0.54
2:C:570:ASP:OD1	2:C:570:ASP:N	2.40	0.54
2:G:570:ASP:N	2:G:570:ASP:OD1	2.38	0.54
1:A:130:PHE:HB2	1:A:683:GLY:HA3	1.90	0.54
2:C:100:ARG:HA	2:C:862:ARG:HA	1.89	0.54
2:E:475:CYS:SG	2:E:475:CYS:O	2.66	0.54
2:E:632:ARG:H	2:E:635:HIS:HD2	1.55	0.54
2:E:664:ARG:NH2	2:F:201:ASP:OD1	2.39	0.54
2:H:475:CYS:SG	2:H:475:CYS:O	2.65	0.54
2:I:201:ASP:OD2	2:I:881:MET:HE2	2.08	0.54
2:K:671:MET:CE	2:K:671:MET:CA	2.86	0.54
1:A:496:LEU:O	1:A:645:ARG:NH1	2.41	0.54
1:A:535:ILE:HG13	1:A:536:VAL:HG13	1.88	0.54
2:F:740:ARG:NH1	2:F:769:ASP:O	2.40	0.54
2:I:141:GLY:CA	2:I:213:VAL:HG13	2.37	0.54
1:A:492:THR:HB	1:A:495:GLU:HB2	1.90	0.54
2:B:350:PRO:HG2	2:B:472:ILE:HD13	1.89	0.54
2:I:384:GLY:HA2	2:I:446:GLY:HA3	1.90	0.54
2:J:350:PRO:HG2	2:J:472:ILE:HD13	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:386:ARG:NH2	2:J:454:THR:O	2.41	0.54
2:J:701:ASP:OD2	2:J:773:ARG:NH2	2.40	0.54
1:A:854:ILE:HG21	1:A:1201:ASP:HB2	1.90	0.54
2:E:477:ILE:CD1	2:E:524:MET:HE2	2.38	0.54
2:I:360:ASP:OD1	2:I:360:ASP:N	2.39	0.54
2:I:595:VAL:HG12	2:I:595:VAL:O	2.08	0.54
2:J:667:MET:CE	2:J:671:MET:HE1	2.38	0.54
2:G:51:MET:SD	2:H:78:GLN:NE2	2.75	0.54
2:H:504:LEU:HB3	2:H:513:ALA:HB2	1.88	0.54
2:I:181:ALA:O	2:I:185:ASN:ND2	2.41	0.54
2:K:315:THR:OG1	2:K:316:GLN:N	2.41	0.54
2:K:263:THR:HG22	2:K:882:ARG:HE	1.73	0.54
2:C:209:CYS:H	2:C:872:ARG:HG3	1.73	0.53
2:K:115:GLY:HA3	2:K:129:THR:HG23	1.90	0.53
2:I:201:ASP:OD2	2:I:881:MET:CE	2.56	0.53
2:K:475:CYS:O	2:K:475:CYS:SG	2.66	0.53
2:F:792:ASP:O	2:F:796:GLN:NE2	2.42	0.53
2:G:729:THR:HG22	2:G:731:MET:H	1.73	0.53
2:F:227:VAL:HA	2:F:231:GLU:HB2	1.90	0.53
2:D:98:ARG:HB2	2:D:723:GLN:HE22	1.73	0.53
2:G:784:LYS:HB3	2:G:786:TYR:CE2	2.43	0.53
2:H:302:TYR:HB3	2:H:582:ARG:HB3	1.90	0.53
2:C:595:VAL:HG12	2:C:595:VAL:O	2.09	0.53
2:J:200:ARG:NH2	2:J:263:THR:O	2.42	0.53
1:A:194:ASP:N	1:A:194:ASP:OD1	2.42	0.53
1:A:223:ARG:HH11	2:J:33:VAL:HG22	1.74	0.53
2:J:257:ASP:OD1	2:J:257:ASP:N	2.41	0.53
2:J:264:ILE:HB	2:J:883:ILE:HG12	1.91	0.53
2:K:454:THR:HG21	2:K:476:GLY:N	2.24	0.53
2:C:667:MET:SD	2:C:671:MET:HE1	2.49	0.53
2:D:264:ILE:HB	2:D:883:ILE:HG12	1.91	0.53
2:E:265:TRP:HB3	2:E:886:ILE:HD13	1.91	0.53
2:D:175:LEU:HD11	2:D:179:HIS:HB3	1.91	0.53
1:A:1070:ILE:HB	1:A:1192:LYS:HD2	1.91	0.52
2:B:283:ARG:HE	2:B:659:ASN:HB3	1.73	0.52
2:J:658:HIS:HB2	2:K:309:ILE:HA	1.91	0.52
2:C:158:VAL:HG12	2:C:191:ILE:HG22	1.91	0.52
2:E:762:LEU:HA	2:E:765:ILE:HD12	1.92	0.52
2:G:315:THR:OG1	2:G:316:GLN:N	2.41	0.52
2:H:699:LEU:HD12	2:H:778:LEU:HB3	1.91	0.52
1:A:343:ARG:NH2	1:A:348:GLU:OE2	2.42	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:424:ALA:HB1	1:A:429:GLU:HB2	1.91	0.52
2:B:175:LEU:O	2:B:180:ARG:NH2	2.42	0.52
2:D:326:ILE:HA	2:F:31:LEU:HD22	1.91	0.52
2:F:384:GLY:HA2	2:F:446:GLY:HA3	1.90	0.52
2:C:358:LYS:HB2	2:C:570:ASP:HB2	1.91	0.52
2:J:90:PHE:HB2	2:J:166:VAL:HG12	1.91	0.52
2:E:229:LEU:HD21	2:E:257:ASP:HB2	1.91	0.52
2:K:632:ARG:H	2:K:635:HIS:HD2	1.58	0.52
1:A:285:THR:HG23	2:K:317:ARG:HD2	1.91	0.52
1:A:411:ASP:OD2	1:A:414:ARG:NH1	2.43	0.52
2:H:367:PRO:HG3	2:J:309:ILE:HG13	1.92	0.52
2:B:141:GLY:HA3	2:B:213:VAL:HG13	1.92	0.52
2:C:263:THR:HG1	2:C:882:ARG:HH21	1.57	0.52
2:E:454:THR:HG21	2:E:476:GLY:N	2.25	0.52
2:H:283:ARG:HE	2:H:659:ASN:HB3	1.74	0.52
2:H:662:ASN:ND2	2:I:487:THR:O	2.43	0.52
2:J:677:PRO:HA	2:J:681:LEU:HD23	1.90	0.52
2:J:725:GLY:O	2:J:860:ARG:NH2	2.42	0.52
2:E:358:LYS:HB2	2:E:570:ASP:HB3	1.91	0.52
2:E:410:TYR:OH	2:E:512:GLU:OE2	2.28	0.52
2:I:572:SER:OG	2:I:573:TRP:N	2.43	0.52
1:A:280:VAL:HG21	1:A:362:HIS:HD2	1.75	0.51
1:A:552:SER:HB3	1:A:555:TYR:HB2	1.91	0.51
2:C:98:ARG:HG3	2:C:723:GLN:HE22	1.75	0.51
2:I:421:THR:OG1	2:I:426:ASP:OD2	2.28	0.51
1:A:826:ASP:OD1	1:A:826:ASP:N	2.39	0.51
2:B:750:ARG:HD3	2:C:254:VAL:HG11	1.91	0.51
2:H:176:THR:OG1	2:H:177:ALA:N	2.44	0.51
2:J:283:ARG:HH11	2:K:490:ILE:HG12	1.75	0.51
2:B:671:MET:HA	2:B:671:MET:CE	2.40	0.51
2:C:475:CYS:SG	2:C:475:CYS:O	2.68	0.51
2:G:262:ASP:N	2:G:262:ASP:OD1	2.43	0.51
2:B:262:ASP:OD1	2:B:262:ASP:N	2.42	0.51
2:C:835:THR:HB	2:C:838:SER:HB3	1.92	0.51
2:D:267:LEU:HD11	2:D:890:LEU:HD11	1.92	0.51
2:I:741:VAL:HG12	2:I:771:TRP:HB2	1.91	0.51
2:J:667:MET:HE3	2:J:671:MET:HE2	1.93	0.51
2:H:252:GLN:O	2:H:256:THR:OG1	2.25	0.51
1:A:27:ILE:O	1:A:912:ASN:ND2	2.40	0.51
1:A:1159:ASP:OD1	2:H:44:ARG:NH1	2.44	0.51
2:D:211:GLU:OE1	2:D:872:ARG:NH2	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:707:ARG:NH2	2:D:767:ASP:OD1	2.38	0.51
2:I:95:MET:HG3	2:I:97:SER:H	1.76	0.51
2:J:44:ARG:HA	2:J:47:GLN:HB2	1.92	0.51
2:B:104:VAL:HG22	2:B:858:VAL:HG22	1.93	0.51
2:C:135:ARG:NH2	2:C:613:ASP:OD2	2.44	0.51
2:F:671:MET:CE	2:F:671:MET:CA	2.86	0.51
2:G:10:GLU:OE1	2:G:529:ARG:NH2	2.44	0.51
2:H:384:GLY:HA2	2:H:446:GLY:HA3	1.91	0.51
2:J:115:GLY:HA3	2:J:129:THR:HG23	1.93	0.51
2:B:40:MET:HA	2:B:43:VAL:HG12	1.92	0.51
2:C:229:LEU:HD21	2:C:257:ASP:HB2	1.92	0.51
2:E:595:VAL:HG12	2:E:595:VAL:O	2.11	0.51
2:E:780:THR:HB	2:E:820:GLU:HG2	1.91	0.51
1:A:594:ILE:HG22	1:A:803:THR:HG23	1.93	0.51
1:A:1018:PRO:HB2	1:A:1169:ILE:HD11	1.93	0.51
2:E:172:LEU:O	2:E:180:ARG:NH2	2.44	0.51
2:I:779:ARG:NH2	2:I:817:TYR:O	2.43	0.51
1:A:985:SER:OG	1:A:986:PHE:N	2.42	0.50
2:B:257:ASP:OD2	2:B:882:ARG:NH1	2.41	0.50
2:C:283:ARG:NH2	2:C:660:PHE:O	2.43	0.50
2:D:695:GLU:OE2	2:D:854:ASN:N	2.45	0.50
2:E:384:GLY:HA2	2:E:446:GLY:HA3	1.92	0.50
2:C:678:SER:OG	2:C:679:LEU:N	2.44	0.50
2:G:410:TYR:OH	2:G:512:GLU:OE2	2.30	0.50
1:A:115:LEU:HD23	1:A:116:ARG:H	1.76	0.50
2:F:135:ARG:NH2	2:F:613:ASP:OD2	2.44	0.50
2:F:633:PRO:HB2	2:F:663:ILE:HG12	1.93	0.50
2:H:430:GLY:O	2:H:433:GLN:NE2	2.45	0.50
2:I:857:ILE:HG22	2:I:858:VAL:HG23	1.92	0.50
1:A:911:ARG:NH2	1:A:966:PRO:O	2.44	0.50
2:G:402:LEU:HD23	2:G:425:LEU:HD21	1.92	0.50
2:H:318:ILE:HG13	2:H:319:THR:HG23	1.94	0.50
2:I:703:VAL:HG23	2:I:851:VAL:HG22	1.94	0.50
1:A:3:ALA:HB3	1:A:6:VAL:HG12	1.93	0.50
1:A:546:ARG:NH2	1:A:559:GLY:O	2.44	0.50
2:H:141:GLY:CA	2:H:213:VAL:HG13	2.41	0.50
2:K:384:GLY:HA2	2:K:446:GLY:HA3	1.94	0.50
2:F:262:ASP:OD1	2:F:262:ASP:N	2.40	0.50
2:I:85:VAL:HG12	2:I:163:VAL:HG12	1.93	0.50
2:C:135:ARG:NH1	2:C:643:ASP:OD2	2.45	0.50
1:A:949:LYS:NZ	2:J:38:GLU:OE2	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1141:ALA:HA	1:A:1144:ILE:HG22	1.94	0.50
2:C:203:ASP:HB2	2:C:876:ALA:HB3	1.93	0.50
2:D:421:THR:HB	2:D:423:GLU:HG3	1.94	0.50
2:F:86:PRO:HD3	2:F:145:LEU:HD21	1.94	0.50
2:G:472:ILE:O	2:G:531:ASN:ND2	2.45	0.50
2:J:654:LEU:HA	2:K:308:ARG:HH22	1.77	0.50
2:E:703:VAL:HG23	2:E:851:VAL:HG12	1.92	0.50
1:A:432:VAL:O	1:A:628:TYR:OH	2.30	0.49
2:C:421:THR:OG1	2:C:426:ASP:OD2	2.28	0.49
2:D:263:THR:HG22	2:D:882:ARG:HG2	1.93	0.49
2:E:529:ARG:NE	2:E:585:GLU:OE2	2.46	0.49
2:H:754:ASN:ND2	2:I:257:ASP:OD1	2.45	0.49
1:A:313:SER:OG	1:A:314:SER:N	2.45	0.49
2:C:700:THR:OG1	2:C:701:ASP:N	2.45	0.49
2:G:708:ASP:HB2	2:G:850:LYS:HZ1	1.76	0.49
2:K:715:LEU:HG	2:K:836:PRO:HB3	1.93	0.49
1:A:35:TYR:HA	1:A:908:ILE:HG12	1.92	0.49
1:A:104:PRO:HB3	1:A:118:TYR:HB3	1.95	0.49
2:D:193:GLU:HB3	2:D:204:VAL:HG23	1.93	0.49
2:H:259:ARG:O	2:H:263:THR:OG1	2.29	0.49
2:J:499:GLU:OE2	2:J:502:ARG:NH2	2.45	0.49
2:K:229:LEU:HD21	2:K:257:ASP:HB2	1.95	0.49
1:A:1120:SER:OG	1:A:1121:TYR:N	2.46	0.49
2:B:658:HIS:HB2	2:C:309:ILE:HA	1.94	0.49
2:C:540:SER:OG	2:C:541:VAL:N	2.45	0.49
2:D:475:CYS:SG	2:D:477:ILE:HD11	2.52	0.49
2:G:379:LEU:HD23	2:G:500:MET:HG2	1.94	0.49
2:I:179:HIS:HA	2:I:182:MET:HB2	1.94	0.49
1:A:273:GLY:O	1:A:819:GLN:NE2	2.45	0.49
2:B:370:ARG:NH2	2:B:404:ASP:OD2	2.44	0.49
2:C:632:ARG:HG2	2:C:634:SER:H	1.78	0.49
2:C:792:ASP:HB3	2:C:796:GLN:HE21	1.77	0.49
2:I:454:THR:HG21	2:I:476:GLY:N	2.28	0.49
2:B:211:GLU:OE1	2:B:872:ARG:NH2	2.46	0.49
2:B:283:ARG:O	2:B:655:SER:OG	2.30	0.49
2:G:665:ASP:OD1	2:G:668:ARG:NH2	2.45	0.49
2:I:710:LEU:HD12	2:I:711:PRO:HD2	1.95	0.49
2:K:382:THR:HG22	2:K:384:GLY:H	1.77	0.49
2:B:701:ASP:OD2	2:B:773:ARG:NH2	2.45	0.49
2:D:284:SER:O	2:D:284:SER:OG	2.31	0.49
1:A:379:ILE:HG13	1:A:380:THR:HG23	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:96:GLN:NE2	2:E:830:VAL:O	2.42	0.49
2:K:358:LYS:HB2	2:K:570:ASP:HB2	1.95	0.49
2:C:615:ARG:HH12	2:C:675:LEU:HD21	1.78	0.49
2:C:628:LEU:HB3	2:C:631:ALA:HB2	1.95	0.49
2:H:263:THR:HG23	2:H:882:ARG:HG3	1.94	0.49
2:H:595:VAL:O	2:H:595:VAL:HG12	2.13	0.49
1:A:863:HIS:HE1	1:A:932:LEU:H	1.61	0.48
2:B:662:ASN:HB2	2:C:485:PRO:HG3	1.93	0.48
2:J:293:ILE:HG21	2:K:315:THR:HG22	1.95	0.48
2:K:84:LYS:NZ	2:K:147:ASP:O	2.40	0.48
2:G:365:MET:HE1	2:G:574:ILE:HD12	1.96	0.48
2:H:200:ARG:HB3	2:H:881:MET:HE1	1.94	0.48
2:J:71:ILE:HG21	2:J:599:ILE:HG23	1.95	0.48
2:K:251:SER:OG	2:K:252:GLN:N	2.46	0.48
1:A:224:GLU:O	2:J:44:ARG:NH2	2.40	0.48
2:F:504:LEU:HB3	2:F:513:ALA:HB2	1.95	0.48
2:H:475:CYS:HG	2:H:477:ILE:CG1	2.25	0.48
2:I:801:SER:OG	2:I:802:TYR:N	2.46	0.48
1:A:134:ARG:HE	1:A:138:GLU:HB2	1.79	0.48
2:H:223:TYR:OH	2:H:270:GLN:NE2	2.46	0.48
2:H:724:GLU:HB2	2:H:860:ARG:HH12	1.78	0.48
2:K:354:ILE:CG2	2:K:391:THR:HG23	2.43	0.48
2:K:707:ARG:NH1	2:K:767:ASP:OD1	2.47	0.48
1:A:1132:ASP:HB2	1:A:1135:MET:HB2	1.96	0.48
2:E:27:SER:OG	2:E:28:GLY:N	2.46	0.48
2:F:103:ARG:NH1	2:F:865:GLN:O	2.47	0.48
2:B:293:ILE:HG23	2:B:297:LEU:HD12	1.96	0.48
2:C:54:THR:HB	2:D:882:ARG:HB2	1.94	0.48
2:J:472:ILE:H	2:J:535:ASN:HD21	1.61	0.48
2:K:725:GLY:O	2:K:860:ARG:NH1	2.46	0.48
2:B:653:ASN:O	2:C:308:ARG:NH2	2.47	0.48
2:D:228:GLN:OE1	2:D:265:TRP:N	2.44	0.48
2:F:284:SER:O	2:F:284:SER:OG	2.32	0.48
2:G:284:SER:O	2:G:288:ASN:ND2	2.47	0.48
2:I:743:GLN:OE1	2:I:773:ARG:NH1	2.46	0.48
2:F:133:LYS:HD3	2:F:697:LEU:HB3	1.94	0.48
2:F:754:ASN:ND2	2:G:257:ASP:OD1	2.40	0.48
2:H:112:SER:O	2:H:782:ARG:NH1	2.46	0.48
1:A:572:SER:OG	1:A:573:ARG:N	2.46	0.48
1:A:655:ARG:HH22	1:A:678:PHE:HB3	1.79	0.48
2:C:725:GLY:O	2:C:860:ARG:NH1	2.42	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:209:CYS:H	2:E:872:ARG:HG3	1.78	0.48
2:E:833:SER:O	2:E:833:SER:OG	2.31	0.48
2:I:202:VAL:HG13	2:I:203:ASP:N	2.29	0.48
2:K:135:ARG:HD2	2:K:138:ARG:HH21	1.78	0.48
2:H:740:ARG:NH1	2:H:769:ASP:O	2.47	0.47
2:I:705:MET:HG3	2:I:848:MET:HB3	1.96	0.47
2:J:393:ASN:OD1	2:K:411:ASN:ND2	2.47	0.47
1:A:1278:PRO:HB2	1:A:1281:LYS:HB2	1.95	0.47
2:F:671:MET:HE3	2:F:671:MET:CA	2.32	0.47
2:G:464:PRO:HG2	2:G:539:HIS:CE1	2.49	0.47
1:A:656:ARG:HH22	1:A:714:LEU:HA	1.78	0.47
2:C:193:GLU:HB3	2:C:204:VAL:HB	1.95	0.47
2:D:722:ARG:NH1	2:D:830:VAL:O	2.46	0.47
2:E:532:GLN:NE2	2:E:536:GLU:OE2	2.48	0.47
2:K:456:ASP:N	2:K:456:ASP:OD1	2.45	0.47
1:A:572:SER:HA	1:A:1202:GLU:HB2	1.96	0.47
1:A:255:LYS:O	1:A:259:ASN:ND2	2.47	0.47
2:E:418:TYR:OH	2:F:481:GLU:OE1	2.33	0.47
2:I:793:ASP:OD1	2:I:793:ASP:N	2.44	0.47
2:J:138:ARG:HA	2:J:216:ILE:HG21	1.96	0.47
2:J:197:VAL:HG13	2:J:225:GLU:HG3	1.97	0.47
1:A:655:ARG:NH2	1:A:679:LYS:O	2.48	0.47
2:J:91:ARG:HG3	2:J:104:VAL:HB	1.96	0.47
2:K:96:GLN:NE2	2:K:830:VAL:O	2.41	0.47
1:A:1201:ASP:OD1	1:A:1201:ASP:N	2.47	0.47
2:D:172:LEU:O	2:D:180:ARG:NH2	2.47	0.47
2:F:200:ARG:HD2	2:F:881:MET:HE1	1.96	0.47
2:F:857:ILE:HG13	2:F:858:VAL:HG23	1.96	0.47
2:H:321:THR:OG1	2:H:322:GLY:N	2.47	0.47
2:I:120:GLU:OE2	2:I:817:TYR:N	2.48	0.47
2:K:354:ILE:HG22	2:K:391:THR:HG23	1.97	0.47
1:A:674:ASP:N	1:A:674:ASP:OD1	2.48	0.47
2:B:470:ARG:NH1	2:B:544:LEU:O	2.44	0.47
2:D:754:ASN:ND2	2:E:257:ASP:OD1	2.48	0.47
2:H:615:ARG:HH12	2:H:675:LEU:HD21	1.80	0.47
2:H:707:ARG:NH1	2:H:767:ASP:OD1	2.42	0.47
1:A:35:TYR:HB3	1:A:907:LEU:HD23	1.96	0.47
2:B:52:THR:O	2:C:317:ARG:NH1	2.48	0.47
2:B:882:ARG:HH21	2:K:47:GLN:HE21	1.62	0.47
2:D:461:GLU:HG3	2:D:462:PRO:N	2.21	0.47
2:E:708:ASP:OD2	2:E:850:LYS:NZ	2.40	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:197:VAL:HG22	2:F:202:VAL:HG21	1.97	0.47
2:K:141:GLY:HA2	2:K:213:VAL:CG1	2.38	0.47
1:A:335:GLN:HE22	1:A:341:ASP:HA	1.80	0.47
2:E:98:ARG:H	2:E:723:GLN:HE22	1.62	0.47
2:H:345:LEU:HD22	2:I:318:ILE:HD13	1.96	0.47
2:H:416:VAL:HG22	2:H:429:ILE:HG13	1.97	0.47
1:A:267:TRP:HA	1:A:270:LYS:HD2	1.97	0.46
2:F:350:PRO:HG2	2:F:472:ILE:HD13	1.98	0.46
2:F:460:ARG:HH21	2:F:460:ARG:CG	2.25	0.46
2:G:743:GLN:OE1	2:G:773:ARG:NH1	2.42	0.46
2:H:150:THR:OG1	2:H:151:ARG:N	2.48	0.46
2:B:152:ASP:OD1	2:B:152:ASP:N	2.48	0.46
2:D:587:THR:OG1	2:D:588:HIS:N	2.48	0.46
2:H:283:ARG:O	2:H:655:SER:OG	2.31	0.46
1:A:286:ALA:O	2:J:341:ARG:NH1	2.47	0.46
1:A:294:ASP:OD1	1:A:294:ASP:N	2.44	0.46
2:E:22:VAL:HG13	2:E:301:GLU:HB3	1.96	0.46
2:F:293:ILE:HG21	2:G:315:THR:HG22	1.97	0.46
2:J:247:ARG:NH1	2:J:536:GLU:OE2	2.48	0.46
2:J:667:MET:CE	2:J:671:MET:HE2	2.45	0.46
2:J:774:PHE:HB2	2:J:779:ARG:HH22	1.81	0.46
1:A:306:ARG:NH1	2:J:63:ASP:OD2	2.40	0.46
2:I:100:ARG:HH21	2:I:862:ARG:HH22	1.63	0.46
2:I:262:ASP:OD1	2:I:262:ASP:N	2.43	0.46
2:I:745:THR:OG1	2:I:746:TYR:N	2.48	0.46
2:J:627:VAL:HG21	2:J:778:LEU:HG	1.97	0.46
2:F:675:LEU:HD12	2:F:681:LEU:HD11	1.98	0.46
2:G:565:ASP:HB2	2:H:261:GLN:HE21	1.80	0.46
2:K:209:CYS:SG	2:K:210:SER:N	2.88	0.46
1:A:138:GLU:HG2	1:A:139:MET:HG3	1.98	0.46
1:A:226:GLU:HG2	2:J:44:ARG:HH21	1.79	0.46
1:A:995:VAL:HA	1:A:1168:ASN:HD22	1.80	0.46
2:C:799:PRO:HG3	2:C:849:THR:HG23	1.98	0.46
2:E:480:ARG:O	2:E:484:ASN:N	2.46	0.46
2:J:437:ASN:HD22	2:J:440:ARG:HH21	1.62	0.46
2:G:441:ALA:HB2	2:G:449:TYR:HE1	1.80	0.46
2:J:739:ASP:OD1	2:J:739:ASP:N	2.40	0.46
1:A:173:ASP:HA	1:A:176:ASN:HD21	1.80	0.46
1:A:546:ARG:HH12	1:A:563:ILE:HD13	1.81	0.46
2:B:671:MET:CE	2:B:671:MET:CA	2.94	0.46
2:B:740:ARG:NH1	2:B:770:ASP:OD1	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:141:GLY:HA2	2:C:213:VAL:HG13	1.98	0.46
2:D:416:VAL:HG22	2:D:429:ILE:HG13	1.98	0.46
2:E:402:LEU:HG	2:E:406:LEU:HD23	1.98	0.46
2:G:866:ILE:HG22	2:G:867:LEU:HD12	1.97	0.46
2:K:257:ASP:N	2:K:257:ASP:OD1	2.40	0.46
1:A:1132:ASP:O	1:A:1136:ARG:N	2.49	0.46
2:F:275:PRO:HB3	2:F:541:VAL:HG12	1.98	0.46
2:G:150:THR:HG22	2:G:159:ALA:HA	1.97	0.46
2:H:352:GLN:HE21	2:H:544:LEU:HD13	1.81	0.46
2:K:699:LEU:HD13	2:K:778:LEU:HD13	1.97	0.46
1:A:431:ILE:HD11	1:A:536:VAL:HA	1.97	0.45
2:B:141:GLY:CA	2:B:213:VAL:HG13	2.47	0.45
2:I:546:ASP:O	2:I:550:ASN:ND2	2.49	0.45
2:K:741:VAL:HG22	2:K:771:TRP:HB2	1.97	0.45
2:K:745:THR:OG1	2:K:746:TYR:N	2.48	0.45
1:A:991:ALA:O	1:A:996:GLN:NE2	2.49	0.45
2:B:700:THR:OG1	2:B:701:ASP:N	2.49	0.45
2:E:79:VAL:HG21	2:E:680:LYS:HG3	1.98	0.45
2:E:235:SER:HB3	2:E:271:LEU:HD23	1.97	0.45
2:G:595:VAL:HG12	2:G:595:VAL:O	2.15	0.45
2:I:671:MET:HE2	2:I:671:MET:HB3	1.73	0.45
1:A:144:ASP:OD1	1:A:144:ASP:N	2.49	0.45
2:E:283:ARG:NH2	2:E:660:PHE:O	2.49	0.45
2:F:426:ASP:OD1	2:F:437:ASN:ND2	2.50	0.45
2:I:158:VAL:HG21	2:I:188:ASP:HA	1.99	0.45
2:K:283:ARG:NH2	2:K:660:PHE:O	2.50	0.45
1:A:684:VAL:HG13	1:A:705:LEU:HB3	1.99	0.45
1:A:1076:LYS:HG3	2:D:33:VAL:HG13	1.98	0.45
2:B:98:ARG:H	2:B:723:GLN:HE22	1.65	0.45
2:I:203:ASP:HB2	2:I:876:ALA:HB3	1.99	0.45
2:K:97:SER:OG	2:K:98:ARG:N	2.49	0.45
2:G:742:VAL:HG23	2:G:772:VAL:HG23	1.98	0.45
1:A:221:ARG:NH2	1:A:225:GLU:OE1	2.45	0.45
2:D:247:ARG:NH1	2:D:536:GLU:OE2	2.50	0.45
2:I:296:CYS:HB2	2:I:538:LEU:HD23	1.98	0.45
2:B:252:GLN:O	2:B:256:THR:OG1	2.34	0.45
2:G:263:THR:HG22	2:G:882:ARG:HE	1.81	0.45
2:H:228:GLN:OE1	2:H:265:TRP:N	2.50	0.45
1:A:1183:SER:O	1:A:1187:ARG:N	2.38	0.45
2:C:148:ILE:HB	2:C:163:VAL:HG11	1.99	0.45
2:H:754:ASN:HA	2:I:256:THR:HG23	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:605:ARG:NH1	1:A:794:CYS:O	2.49	0.45
2:B:330:SER:O	2:B:330:SER:OG	2.34	0.45
2:B:662:ASN:ND2	2:C:487:THR:O	2.49	0.45
2:D:855:LYS:HA	2:D:855:LYS:HD3	1.79	0.45
2:F:741:VAL:HG12	2:F:771:TRP:HB2	1.98	0.45
2:I:862:ARG:HG3	2:I:864:GLY:H	1.82	0.45
1:A:245:GLU:HG3	1:A:344:LEU:HD23	1.98	0.45
2:B:257:ASP:OD1	2:B:257:ASP:N	2.45	0.45
2:B:309:ILE:HG13	2:J:367:PRO:HG3	1.99	0.45
2:F:784:LYS:CE	2:F:786:TYR:OH	2.65	0.45
1:A:1198:ILE:HD11	1:A:1235:LEU:HB3	1.99	0.44
2:K:146:HIS:NE2	2:K:881:MET:O	2.51	0.44
2:K:470:ARG:NH1	2:K:544:LEU:O	2.48	0.44
2:K:510:ASP:N	2:K:510:ASP:OD1	2.44	0.44
2:G:728:TYR:HB3	2:G:826:LEU:HB3	1.99	0.44
2:H:257:ASP:OD1	2:H:257:ASP:N	2.40	0.44
1:A:242:LEU:HD23	1:A:373:LEU:HD21	1.99	0.44
1:A:709:THR:OG1	1:A:710:ASP:N	2.51	0.44
2:C:102:LEU:N	2:C:102:LEU:CD1	2.80	0.44
2:C:786:TYR:OH	2:C:794:VAL:HG21	2.18	0.44
2:D:455:ILE:HB	2:D:473:ARG:HH21	1.81	0.44
2:G:595:VAL:HG23	2:G:891:LYS:NZ	2.22	0.44
2:I:54:THR:OG1	2:I:55:ARG:N	2.50	0.44
2:J:227:VAL:HA	2:J:231:GLU:HB2	1.98	0.44
2:D:381:PHE:HE2	2:D:576:LEU:HD11	1.82	0.44
2:G:229:LEU:HD11	2:G:257:ASP:HB2	1.99	0.44
2:K:474:TYR:H	2:K:531:ASN:HD21	1.66	0.44
1:A:210:MET:HG2	1:A:379:ILE:HA	1.99	0.44
1:A:680:VAL:HG21	1:A:686:PRO:HB3	1.99	0.44
2:C:410:TYR:OH	2:C:512:GLU:OE2	2.35	0.44
2:D:315:THR:O	2:D:315:THR:OG1	2.36	0.44
2:D:595:VAL:HG12	2:D:595:VAL:O	2.17	0.44
2:I:293:ILE:HG23	2:I:297:LEU:HD12	2.00	0.44
2:B:142:SER:O	2:B:142:SER:OG	2.34	0.44
2:D:900:THR:OG1	2:D:901:VAL:N	2.49	0.44
2:E:547:ASP:OD1	2:E:547:ASP:N	2.47	0.44
2:F:257:ASP:OD1	2:F:257:ASP:N	2.39	0.44
2:G:24:SER:HB3	2:G:302:TYR:HD2	1.81	0.44
2:I:72:LYS:HD3	2:I:595:VAL:HG11	2.00	0.44
2:J:98:ARG:HB2	2:J:723:GLN:HE22	1.83	0.44
1:A:655:ARG:HH12	1:A:678:PHE:HB3	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:169:LYS:HE3	2:B:169:LYS:HB3	1.80	0.44
2:B:481:GLU:OE1	2:K:418:TYR:OH	2.30	0.44
2:D:655:SER:O	2:D:659:ASN:N	2.49	0.44
1:A:109:ASP:OD1	1:A:109:ASP:N	2.30	0.44
2:B:461:GLU:CB	2:B:462:PRO:HD3	2.48	0.44
2:H:662:ASN:HB2	2:I:485:PRO:HG2	1.99	0.44
2:I:141:GLY:HA2	2:I:213:VAL:HG13	1.99	0.44
2:D:219:ARG:HG2	2:D:686:GLU:HG3	2.00	0.43
2:F:228:GLN:OE1	2:F:265:TRP:N	2.49	0.43
2:G:115:GLY:HA3	2:G:129:THR:HG23	2.00	0.43
2:I:707:ARG:NH1	2:I:767:ASP:OD1	2.51	0.43
2:J:812:TYR:HE1	2:K:255:LEU:HD12	1.82	0.43
2:H:80:TYR:OH	2:H:885:ASP:OD2	2.27	0.43
2:I:115:GLY:HA3	2:I:129:THR:HG23	1.98	0.43
2:K:452:TRP:CD1	2:K:452:TRP:C	2.90	0.43
1:A:273:GLY:HA3	1:A:359:PHE:HB3	1.99	0.43
1:A:395:ASP:N	1:A:395:ASP:OD1	2.52	0.43
1:A:1032:LYS:HA	1:A:1036:ALA:HB3	2.01	0.43
2:B:260:ARG:NH2	2:K:565:ASP:OD1	2.51	0.43
2:B:740:ARG:NH1	2:B:769:ASP:O	2.48	0.43
2:D:889:SER:O	2:D:889:SER:OG	2.35	0.43
2:J:774:PHE:O	2:J:779:ARG:NH2	2.51	0.43
1:A:1295:ARG:HD2	2:F:318:ILE:HD13	2.01	0.43
2:C:458:GLU:OE2	2:C:460:ARG:NE	2.51	0.43
2:I:257:ASP:OD1	2:I:257:ASP:N	2.44	0.43
2:I:298:PRO:HB3	2:I:589:ARG:HA	2.01	0.43
2:F:100:ARG:HE	2:F:862:ARG:HG2	1.84	0.43
2:G:158:VAL:HA	2:G:191:ILE:HA	1.99	0.43
2:G:172:LEU:O	2:G:180:ARG:NH2	2.52	0.43
2:K:386:ARG:HG2	2:K:457:VAL:HG12	2.01	0.43
1:A:1295:ARG:HG2	2:F:30:LEU:HG	2.00	0.43
2:C:284:SER:O	2:C:288:ASN:ND2	2.52	0.43
2:J:740:ARG:NH1	2:J:769:ASP:O	2.43	0.43
2:K:200:ARG:HH22	2:K:203:ASP:HA	1.84	0.43
2:C:54:THR:OG1	2:C:55:ARG:N	2.51	0.43
2:C:627:VAL:HG22	2:C:777:VAL:HA	2.00	0.43
2:E:193:GLU:HG3	2:E:194:ASN:HD22	1.83	0.43
2:E:628:LEU:HD12	2:E:631:ALA:HB2	1.99	0.43
2:G:283:ARG:NH2	2:G:660:PHE:O	2.52	0.43
2:I:795:LEU:HD23	2:I:795:LEU:HA	1.84	0.43
1:A:123:GLU:HB3	1:A:128:GLU:HG3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:502:SER:HB2	1:A:505:LEU:HD23	2.01	0.43
1:A:1069:VAL:HG12	1:A:1193:LEU:HB2	2.01	0.43
2:C:782:ARG:NE	2:C:820:GLU:OE2	2.52	0.43
2:F:724:GLU:HG3	2:F:860:ARG:HH12	1.83	0.43
2:G:595:VAL:HG23	2:G:891:LYS:HZ1	1.76	0.43
2:H:792:ASP:O	2:H:796:GLN:NE2	2.52	0.43
2:I:379:LEU:HD23	2:I:500:MET:HG2	2.00	0.43
2:G:627:VAL:HG22	2:G:777:VAL:HA	2.00	0.43
2:K:552:LEU:HD23	2:K:552:LEU:HA	1.87	0.43
2:K:787:ASP:OD1	2:K:787:ASP:N	2.48	0.43
1:A:871:MET:SD	1:A:917:TYR:OH	2.71	0.43
1:A:1118:ARG:HG3	1:A:1210:ALA:HB1	2.01	0.43
2:J:97:SER:OG	2:J:98:ARG:N	2.52	0.43
2:B:293:ILE:HD12	2:C:314:LEU:HD12	2.01	0.42
2:G:251:SER:OG	2:G:252:GLN:N	2.52	0.42
2:J:118:ILE:HD12	2:J:126:PHE:HD1	1.84	0.42
1:A:97:VAL:HG21	1:A:248:ILE:HD11	2.01	0.42
1:A:211:GLU:HG2	1:A:243:LEU:HD21	2.01	0.42
1:A:847:ARG:NH1	1:A:926:GLY:O	2.50	0.42
2:H:664:ARG:NE	2:I:486:THR:O	2.52	0.42
2:J:386:ARG:HE	2:J:456:ASP:HB2	1.84	0.42
2:C:297:LEU:HD12	2:C:298:PRO:HD2	2.01	0.42
2:D:378:HIS:CD2	2:D:402:LEU:HD22	2.53	0.42
2:F:352:GLN:NE2	2:F:544:LEU:HB2	2.33	0.42
2:H:587:THR:OG1	2:H:588:HIS:N	2.52	0.42
2:I:460:ARG:O	2:I:461:GLU:HG3	2.19	0.42
2:J:43:VAL:HG12	2:J:47:GLN:HG3	2.01	0.42
1:A:599:TYR:HE2	1:A:731:ASN:HB2	1.84	0.42
2:C:474:TYR:O	2:C:475:CYS:SG	2.77	0.42
2:D:816:LYS:HB2	2:D:816:LYS:HE3	1.86	0.42
2:E:47:GLN:HE21	2:F:882:ARG:HH21	1.66	0.42
2:H:632:ARG:H	2:H:635:HIS:HD2	1.66	0.42
2:J:228:GLN:OE1	2:J:265:TRP:N	2.53	0.42
2:K:333:THR:HG23	2:K:336:GLN:H	1.85	0.42
2:C:31:LEU:HD13	2:C:345:LEU:HD13	2.02	0.42
2:E:262:ASP:O	2:E:882:ARG:N	2.51	0.42
2:F:703:VAL:HG21	2:F:821:THR:HG21	2.01	0.42
2:G:416:VAL:HB	2:G:429:ILE:HD12	2.00	0.42
2:I:708:ASP:HB3	2:I:850:LYS:HZ1	1.84	0.42
2:B:608:SER:HB3	2:B:681:LEU:HD13	2.00	0.42
2:G:478:ASP:OD2	2:G:480:ARG:NE	2.48	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:526:ARG:NH2	2:H:580:PHE:O	2.52	0.42
2:H:743:GLN:HE22	2:H:773:ARG:HH11	1.67	0.42
2:J:133:LYS:NZ	2:J:697:LEU:O	2.50	0.42
1:A:314:SER:OG	1:A:781:ASP:OD1	2.30	0.42
1:A:1023:ARG:O	1:A:1027:HIS:N	2.45	0.42
2:D:751:LEU:HD23	2:D:751:LEU:HA	1.92	0.42
2:G:359:ILE:HG23	2:H:894:THR:HG23	2.02	0.42
1:A:743:GLN:NE2	1:A:759:GLU:OE2	2.36	0.42
2:B:344:TYR:OH	2:B:582:ARG:O	2.27	0.42
2:C:383:ALA:HA	2:C:388:THR:HG22	2.01	0.42
2:D:475:CYS:HG	2:D:477:ILE:HG13	1.81	0.42
2:E:72:LYS:HE2	2:E:72:LYS:HB3	1.89	0.42
2:F:289:LEU:HD21	2:F:353:ILE:HD11	2.02	0.42
2:F:762:LEU:HD23	2:F:762:LEU:HA	1.93	0.42
2:G:464:PRO:HG2	2:G:539:HIS:HE1	1.84	0.42
2:I:393:ASN:HD21	2:I:397:GLN:HE21	1.66	0.42
2:J:257:ASP:OD2	2:J:882:ARG:NH1	2.44	0.42
2:J:262:ASP:N	2:J:262:ASP:OD1	2.52	0.42
2:D:257:ASP:N	2:D:257:ASP:OD1	2.53	0.42
2:E:209:CYS:SG	2:E:210:SER:N	2.93	0.42
2:F:112:SER:OG	2:F:781:VAL:O	2.33	0.42
2:G:725:GLY:O	2:G:860:ARG:NH1	2.53	0.42
2:G:787:ASP:OD1	2:G:787:ASP:N	2.44	0.42
2:I:194:ASN:O	2:I:200:ARG:HD3	2.20	0.42
2:K:447:THR:O	2:K:452:TRP:CD2	2.73	0.42
2:C:779:ARG:NH2	2:C:817:TYR:O	2.53	0.42
2:D:327:LEU:O	2:D:330:SER:OG	2.37	0.42
2:F:796:GLN:HA	2:F:848:MET:HB2	2.02	0.42
2:H:701:ASP:OD1	2:H:701:ASP:N	2.50	0.42
1:A:605:ARG:CZ	1:A:607:ASN:HD21	2.32	0.41
1:A:1022:SER:O	1:A:1026:MET:N	2.45	0.41
1:A:1104:ILE:HD12	2:J:39:ILE:HG23	2.02	0.41
2:D:370:ARG:NH2	2:D:404:ASP:OD2	2.38	0.41
2:E:487:THR:OG1	2:E:488:TYR:N	2.53	0.41
2:G:8:ARG:HH22	2:G:589:ARG:HH21	1.68	0.41
2:K:379:LEU:HD23	2:K:500:MET:HG2	2.01	0.41
1:A:883:LYS:HA	1:A:883:LYS:HD2	1.93	0.41
2:F:459:TYR:OH	2:F:550:ASN:OD1	2.37	0.41
2:H:193:GLU:HB2	2:H:204:VAL:HG13	2.01	0.41
2:I:202:VAL:CG1	2:I:203:ASP:N	2.82	0.41
2:C:853:ILE:HG22	2:C:855:LYS:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:350:PRO:HG2	2:D:472:ILE:HD13	2.01	0.41
2:E:200:ARG:O	2:E:201:ASP:HB3	2.20	0.41
2:H:855:LYS:HA	2:H:855:LYS:HD3	1.89	0.41
1:A:649:THR:OG1	1:A:651:TRP:NE1	2.51	0.41
1:A:1155:HIS:HB2	2:H:308:ARG:HH12	1.85	0.41
2:E:54:THR:OG1	2:E:55:ARG:N	2.53	0.41
2:E:296:CYS:HB2	2:E:538:LEU:HD23	2.02	0.41
2:G:432:ASN:OD1	2:G:432:ASN:N	2.48	0.41
2:I:104:VAL:HG22	2:I:858:VAL:HG22	2.02	0.41
2:I:135:ARG:NH2	2:I:613:ASP:OD2	2.47	0.41
2:I:209:CYS:H	2:I:872:ARG:HG3	1.85	0.41
1:A:628:TYR:N	1:A:631:TYR:O	2.54	0.41
2:B:345:LEU:HD22	2:C:318:ILE:HD13	2.03	0.41
2:D:461:GLU:HG2	2:D:462:PRO:CD	2.37	0.41
2:D:662:ASN:OD1	2:D:662:ASN:N	2.45	0.41
2:F:615:ARG:HH12	2:F:675:LEU:HD21	1.84	0.41
2:G:133:LYS:HD3	2:G:697:LEU:HB3	2.03	0.41
2:I:355:LEU:O	2:I:391:THR:OG1	2.31	0.41
1:A:883:LYS:HB2	1:A:1045:GLU:HG2	2.02	0.41
1:A:1067:SER:HB3	1:A:1278:PRO:HG3	2.03	0.41
1:A:1126:ASP:O	1:A:1130:ARG:N	2.53	0.41
2:C:379:LEU:HD21	2:C:500:MET:HG2	2.03	0.41
2:E:700:THR:OG1	2:E:701:ASP:N	2.53	0.41
2:H:71:ILE:HG21	2:H:599:ILE:HG23	2.03	0.41
2:J:219:ARG:HD2	2:J:219:ARG:HA	1.86	0.41
1:A:828:MET:HG3	1:A:856:LYS:HD3	2.02	0.41
2:C:831:GLU:H	2:C:834:ASN:ND2	2.18	0.41
2:D:552:LEU:HD23	2:D:552:LEU:HA	1.90	0.41
2:E:71:ILE:HG21	2:E:599:ILE:HG23	2.02	0.41
2:G:31:LEU:HD13	2:G:345:LEU:HD13	2.03	0.41
2:H:411:ASN:OD1	2:H:411:ASN:N	2.53	0.41
2:H:786:TYR:CD1	2:H:790:PRO:HB3	2.55	0.41
2:J:354:ILE:HD12	2:J:391:THR:HG22	2.01	0.41
1:A:105:TRP:HD1	1:A:127:VAL:HG11	1.85	0.41
1:A:846:VAL:HA	1:A:849:GLN:HB3	2.02	0.41
2:C:95:MET:SD	2:C:102:LEU:CD1	3.08	0.41
2:D:127:TYR:HD1	2:D:617:LEU:HD22	1.85	0.41
2:E:264:ILE:HB	2:E:883:ILE:HG12	2.03	0.41
2:F:167:GLU:HG2	2:F:169:LYS:HG2	2.03	0.41
2:K:671:MET:HE2	2:K:671:MET:HB3	1.84	0.41
1:A:280:VAL:HG21	1:A:362:HIS:CD2	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:828:MET:SD	1:A:855:THR:OG1	2.79	0.41
1:A:1070:ILE:HD12	1:A:1070:ILE:HA	1.87	0.41
2:B:504:LEU:HB3	2:B:513:ALA:HB2	2.02	0.41
2:C:176:THR:HG22	2:C:178:GLU:H	1.86	0.41
2:C:460:ARG:HH21	2:C:473:ARG:HD2	1.84	0.41
2:E:379:LEU:HD23	2:E:500:MET:HG2	2.02	0.41
2:G:740:ARG:NH2	2:G:769:ASP:O	2.54	0.41
2:H:778:LEU:HD23	2:H:778:LEU:HA	1.89	0.41
2:J:632:ARG:H	2:J:635:HIS:HD2	1.68	0.41
2:J:653:ASN:HA	2:J:656:HIS:HB2	2.02	0.41
2:B:228:GLN:OE1	2:B:265:TRP:N	2.54	0.41
2:E:843:ASN:HD22	2:E:843:ASN:HA	1.69	0.41
2:F:431:ARG:HE	2:F:431:ARG:HB3	1.67	0.41
2:G:835:THR:HB	2:G:838:SER:HB3	2.02	0.41
2:B:857:ILE:HG22	2:B:858:VAL:HG23	2.03	0.40
2:C:447:THR:OG1	2:C:448:GLY:N	2.54	0.40
2:C:629:ILE:HG13	2:C:630:GLN:HG3	2.03	0.40
2:C:793:ASP:OD1	2:C:793:ASP:N	2.53	0.40
2:E:623:ARG:NH2	2:E:692:ASN:O	2.40	0.40
2:H:98:ARG:HG2	2:H:174:VAL:HG12	2.03	0.40
2:J:638:LYS:HA	2:J:638:LYS:HD2	1.83	0.40
1:A:1154:ASN:HD22	1:A:1159:ASP:HB3	1.85	0.40
2:B:717:ASP:HB3	2:B:720:ARG:HB3	2.03	0.40
2:D:708:ASP:OD2	2:D:850:LYS:NZ	2.40	0.40
2:F:72:LYS:HE2	2:F:72:LYS:HB3	1.80	0.40
2:F:774:PHE:O	2:F:779:ARG:NH1	2.54	0.40
2:G:378:HIS:CD2	2:G:402:LEU:HD22	2.56	0.40
2:I:297:LEU:HD23	2:I:297:LEU:HA	1.93	0.40
2:K:378:HIS:CD2	2:K:402:LEU:HD22	2.56	0.40
1:A:661:THR:O	1:A:704:THR:OG1	2.39	0.40
2:E:705:MET:HB3	2:E:772:VAL:HG13	2.02	0.40
2:F:460:ARG:CG	2:F:460:ARG:NH2	2.81	0.40
2:F:784:LYS:HE3	2:F:786:TYR:OH	2.22	0.40
2:H:293:ILE:HG21	2:I:315:THR:HG22	2.03	0.40
2:I:460:ARG:HD3	2:I:460:ARG:HA	1.90	0.40
2:J:889:SER:O	2:J:889:SER:OG	2.37	0.40
2:H:487:THR:O	2:H:487:THR:OG1	2.40	0.40
2:I:22:VAL:HG13	2:I:301:GLU:HB3	2.04	0.40
2:I:705:MET:HE3	2:I:848:MET:HG2	2.04	0.40
2:B:671:MET:HE3	2:B:671:MET:CA	2.46	0.40
2:D:329:GLY:HA3	2:F:31:LEU:HB2	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:10:GLU:HG2	2:G:532:GLN:HE22	1.86	0.40
2:H:191:ILE:HD12	2:H:191:ILE:HA	1.86	0.40
2:H:382:THR:HG22	2:H:384:GLY:H	1.87	0.40
2:I:709:MET:HA	2:I:846:TYR:HA	2.04	0.40
2:K:474:TYR:H	2:K:531:ASN:ND2	2.19	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	1238/1302 (95%)	1153 (93%)	85 (7%)	0	100	100
2	B	870/901 (97%)	829 (95%)	41 (5%)	0	100	100
2	C	881/901 (98%)	825 (94%)	56 (6%)	0	100	100
2	D	859/901 (95%)	828 (96%)	31 (4%)	0	100	100
2	E	881/901 (98%)	828 (94%)	53 (6%)	0	100	100
2	F	864/901 (96%)	822 (95%)	42 (5%)	0	100	100
2	G	881/901 (98%)	836 (95%)	45 (5%)	0	100	100
2	H	866/901 (96%)	813 (94%)	53 (6%)	0	100	100
2	I	881/901 (98%)	829 (94%)	52 (6%)	0	100	100
2	J	868/901 (96%)	821 (95%)	47 (5%)	0	100	100
2	K	881/901 (98%)	830 (94%)	51 (6%)	0	100	100
All	All	9970/10312 (97%)	9414 (94%)	556 (6%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	1110/1161 (96%)	1099 (99%)	11 (1%)	76	88
2	B	767/792 (97%)	765 (100%)	2 (0%)	92	97
2	C	782/792 (99%)	777 (99%)	5 (1%)	86	94
2	D	759/792 (96%)	755 (100%)	4 (0%)	88	95
2	E	782/792 (99%)	776 (99%)	6 (1%)	81	91
2	F	763/792 (96%)	755 (99%)	8 (1%)	76	88
2	G	782/792 (99%)	778 (100%)	4 (0%)	88	95
2	H	763/792 (96%)	761 (100%)	2 (0%)	92	97
2	I	782/792 (99%)	776 (99%)	6 (1%)	81	91
2	J	765/792 (97%)	761 (100%)	4 (0%)	88	95
2	K	782/792 (99%)	777 (99%)	5 (1%)	86	94
All	All	8837/9081 (97%)	8780 (99%)	57 (1%)	86	94

All (57) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	109	ASP
1	A	115	LEU
1	A	122	ARG
1	A	142	TYR
1	A	343	ARG
1	A	360	TYR
1	A	546	ARG
1	A	624	ARG
1	A	656	ARG
1	A	727	THR
1	A	1020	ARG
2	B	461	GLU
2	B	671	MET
2	C	101	VAL
2	C	461	GLU

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Mol	Chain	Res	Type
2	C	475	CYS
2	C	529	ARG
2	C	671	MET
2	D	271	LEU
2	D	386	ARG
2	D	537	ASP
2	D	671	MET
2	E	201	ASP
2	E	386	ARG
2	E	698	MET
2	E	745	THR
2	E	793	ASP
2	E	794	VAL
2	F	271	LEU
2	F	386	ARG
2	F	391	THR
2	F	460	ARG
2	F	471	TYR
2	F	671	MET
2	F	750	ARG
2	F	794	VAL
2	G	201	ASP
2	G	386	ARG
2	G	460	ARG
2	G	856	ARG
2	H	52	THR
2	H	55	ARG
2	I	201	ASP
2	I	317	ARG
2	I	477	ILE
2	I	671	MET
2	I	792	ASP
2	I	793	ASP
2	J	271	LEU
2	J	461	GLU
2	J	487	THR
2	J	671	MET
2	K	354	ILE
2	K	386	ARG
2	K	570	ASP
2	K	671	MET
2	K	794	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (149) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	91	GLN
1	A	176	ASN
1	A	259	ASN
1	A	283	GLN
1	A	335	GLN
1	A	377	GLN
1	A	401	ASN
1	A	407	GLN
1	A	507	GLN
1	A	648	ASN
1	A	843	GLN
1	A	863	HIS
1	A	867	GLN
1	A	1299	ASN
1	A	1300	GLN
2	B	45	GLN
2	B	96	GLN
2	B	389	ASN
2	B	437	ASN
2	B	450	ASN
2	B	531	ASN
2	B	535	ASN
2	B	550	ASN
2	B	635	HIS
2	B	676	GLN
2	B	702	GLN
2	B	723	GLN
2	B	743	GLN
2	C	92	HIS
2	C	153	HIS
2	C	230	GLN
2	C	288	ASN
2	C	411	ASN
2	C	531	ASN
2	C	532	GLN
2	C	539	HIS
2	C	621	GLN
2	C	635	HIS
2	C	642	ASN
2	C	653	ASN
2	C	676	GLN

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Mol	Chain	Res	Type
2	C	723	GLN
2	C	796	GLN
2	C	834	ASN
2	C	854	ASN
2	D	41	GLN
2	D	196	ASN
2	D	417	ASN
2	D	433	GLN
2	D	437	ASN
2	D	531	ASN
2	D	532	GLN
2	D	535	ASN
2	D	635	HIS
2	D	659	ASN
2	D	676	GLN
2	D	723	GLN
2	D	757	GLN
2	E	113	GLN
2	E	194	ASN
2	E	389	ASN
2	E	417	ASN
2	E	467	HIS
2	E	531	ASN
2	E	635	HIS
2	E	653	ASN
2	E	692	ASN
2	E	723	GLN
2	E	754	ASN
2	E	843	ASN
2	F	185	ASN
2	F	244	HIS
2	F	450	ASN
2	F	495	HIS
2	F	531	ASN
2	F	532	GLN
2	F	535	ASN
2	F	550	ASN
2	F	635	HIS
2	F	676	GLN
2	F	702	GLN
2	F	743	GLN
2	F	805	ASN

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Mol	Chain	Res	Type
2	F	829	ASN
2	G	218	ASN
2	G	230	GLN
2	G	270	GLN
2	G	288	ASN
2	G	378	HIS
2	G	467	HIS
2	G	531	ASN
2	G	539	HIS
2	G	635	HIS
2	G	642	ASN
2	G	706	HIS
2	H	47	GLN
2	H	288	ASN
2	H	437	ASN
2	H	450	ASN
2	H	532	GLN
2	H	535	ASN
2	H	550	ASN
2	H	635	HIS
2	H	642	ASN
2	H	659	ASN
2	H	702	GLN
2	H	743	GLN
2	H	757	GLN
2	H	796	GLN
2	H	829	ASN
2	I	47	GLN
2	I	185	ASN
2	I	389	ASN
2	I	393	ASN
2	I	415	GLN
2	I	417	ASN
2	I	531	ASN
2	I	550	ASN
2	I	635	HIS
2	I	653	ASN
2	I	706	HIS
2	J	179	HIS
2	J	244	HIS
2	J	288	ASN
2	J	292	ASN

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Mol	Chain	Res	Type
2	J	389	ASN
2	J	417	ASN
2	J	433	GLN
2	J	437	ASN
2	J	531	ASN
2	J	535	ASN
2	J	635	HIS
2	J	659	ASN
2	J	743	GLN
2	J	754	ASN
2	J	829	ASN
2	J	834	ASN
2	K	47	GLN
2	K	65	GLN
2	K	92	HIS
2	K	228	GLN
2	K	276	GLN
2	K	378	HIS
2	K	433	GLN
2	K	635	HIS
2	K	653	ASN
2	K	706	HIS
2	K	723	GLN
2	K	834	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

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.

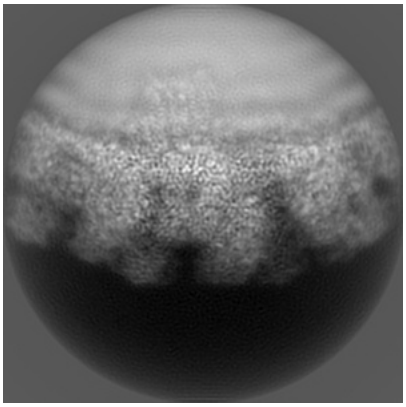
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-20407. These allow visual inspection of the internal detail of the map and identification of artifacts.

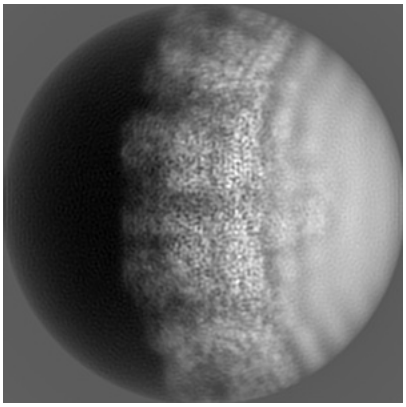
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

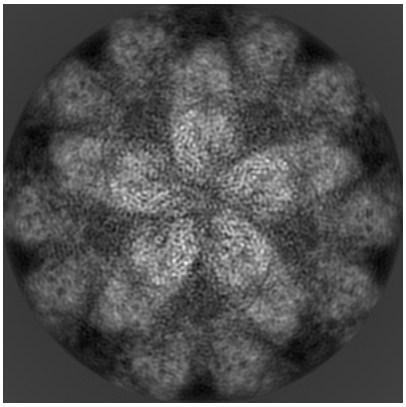
6.1.1 Primary map



X



Y

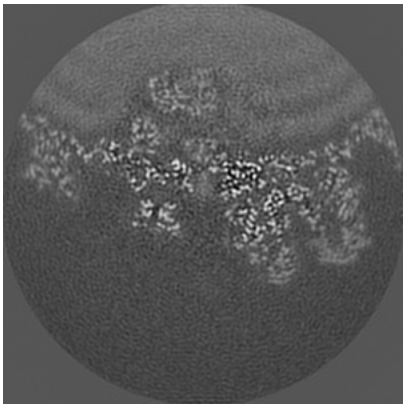


Z

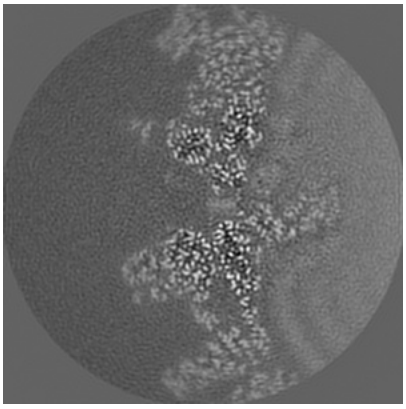
The images above show the map projected in three orthogonal directions.

6.2 Central slices

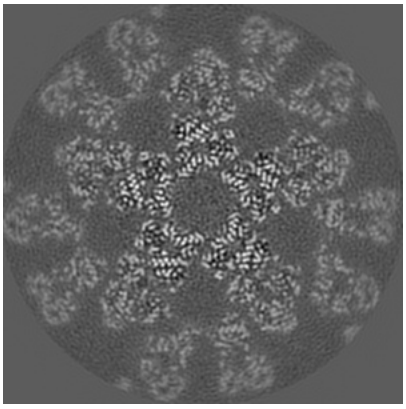
6.2.1 Primary map



X Index: 128



Y Index: 128

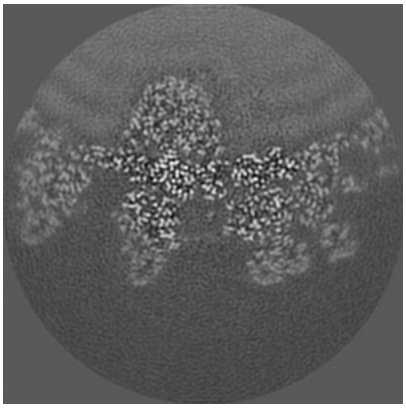


Z Index: 128

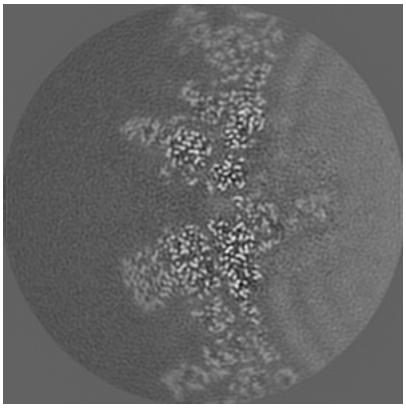
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

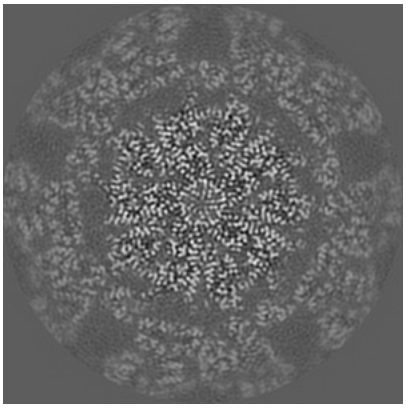
6.3.1 Primary map



X Index: 114



Y Index: 132

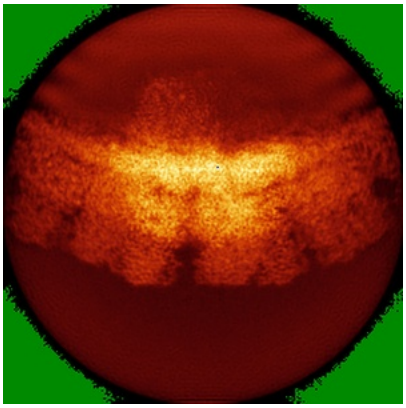


Z Index: 149

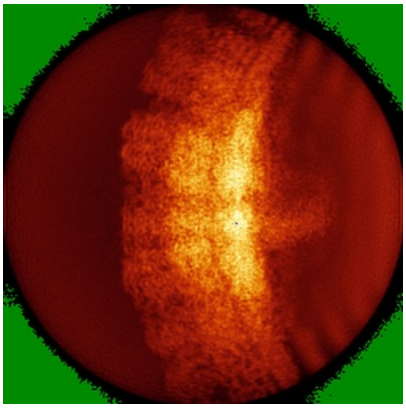
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

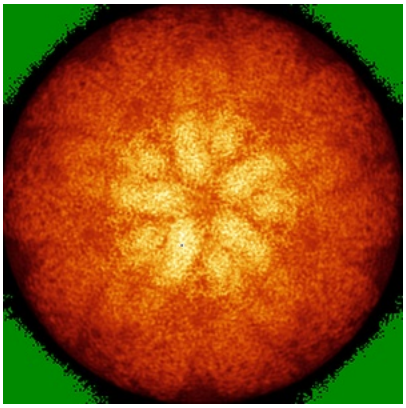
6.4.1 Primary map



X



Y



Z

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

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.02. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

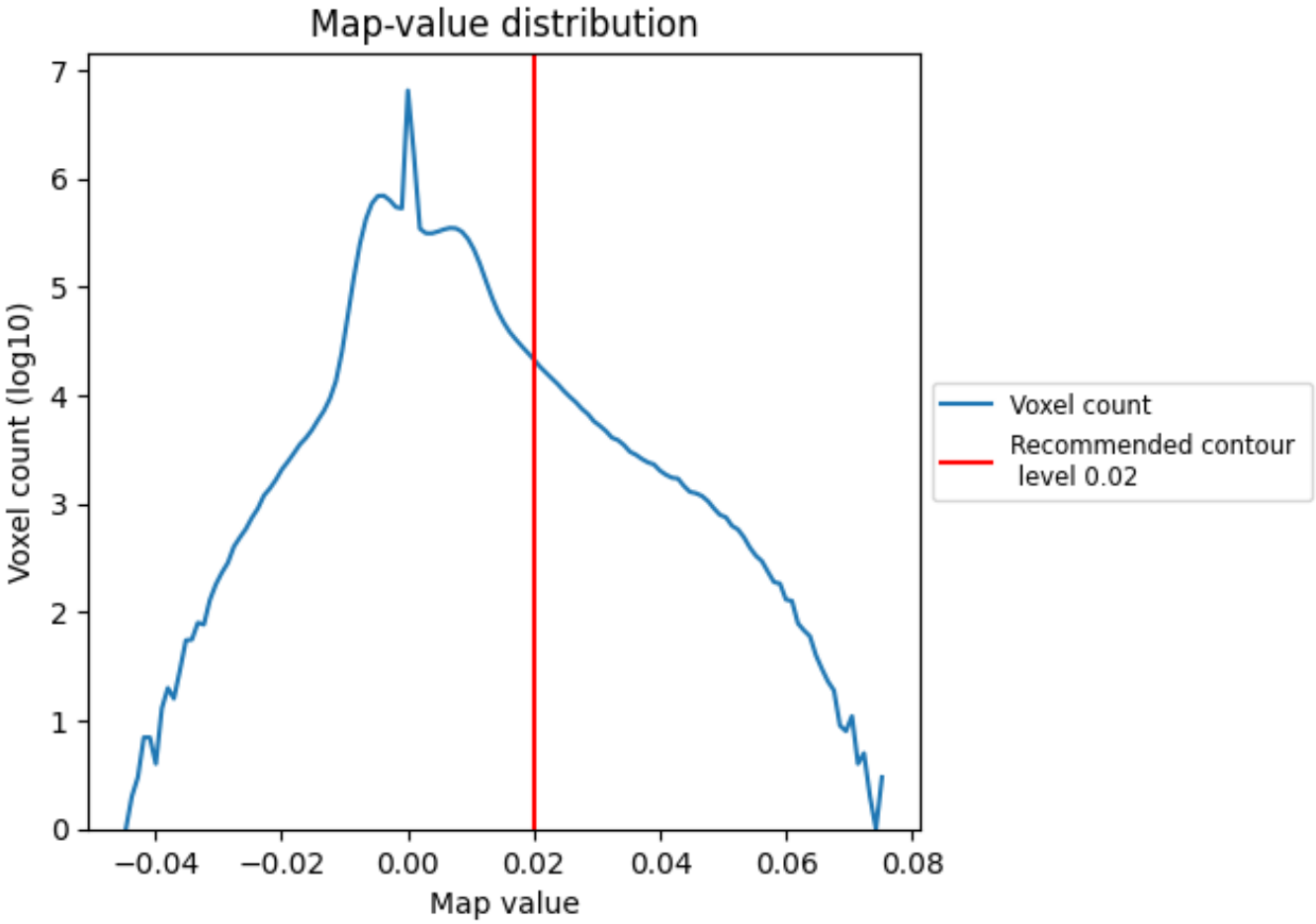
6.6 Mask visualisation (i)

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

7 Map analysis

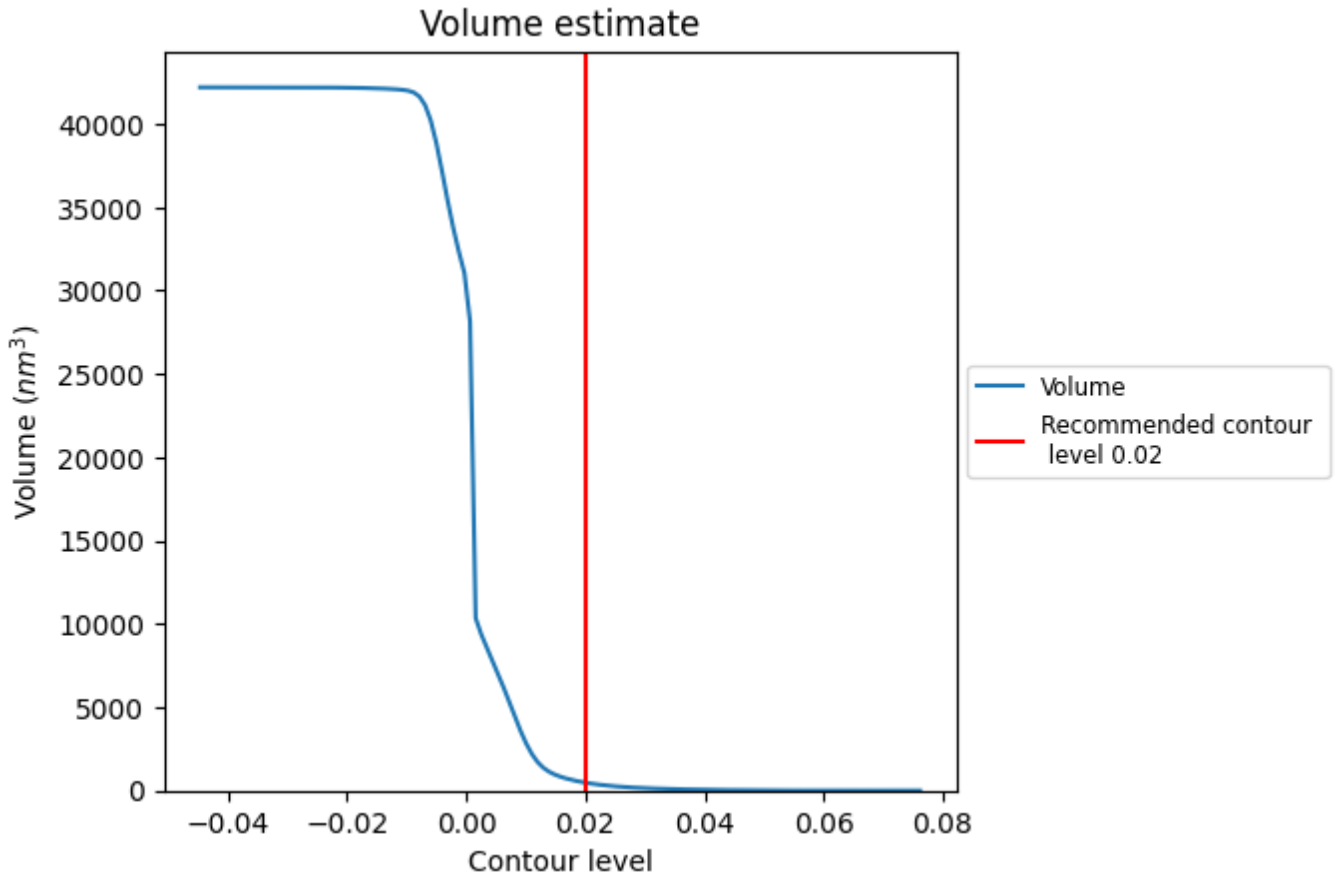
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

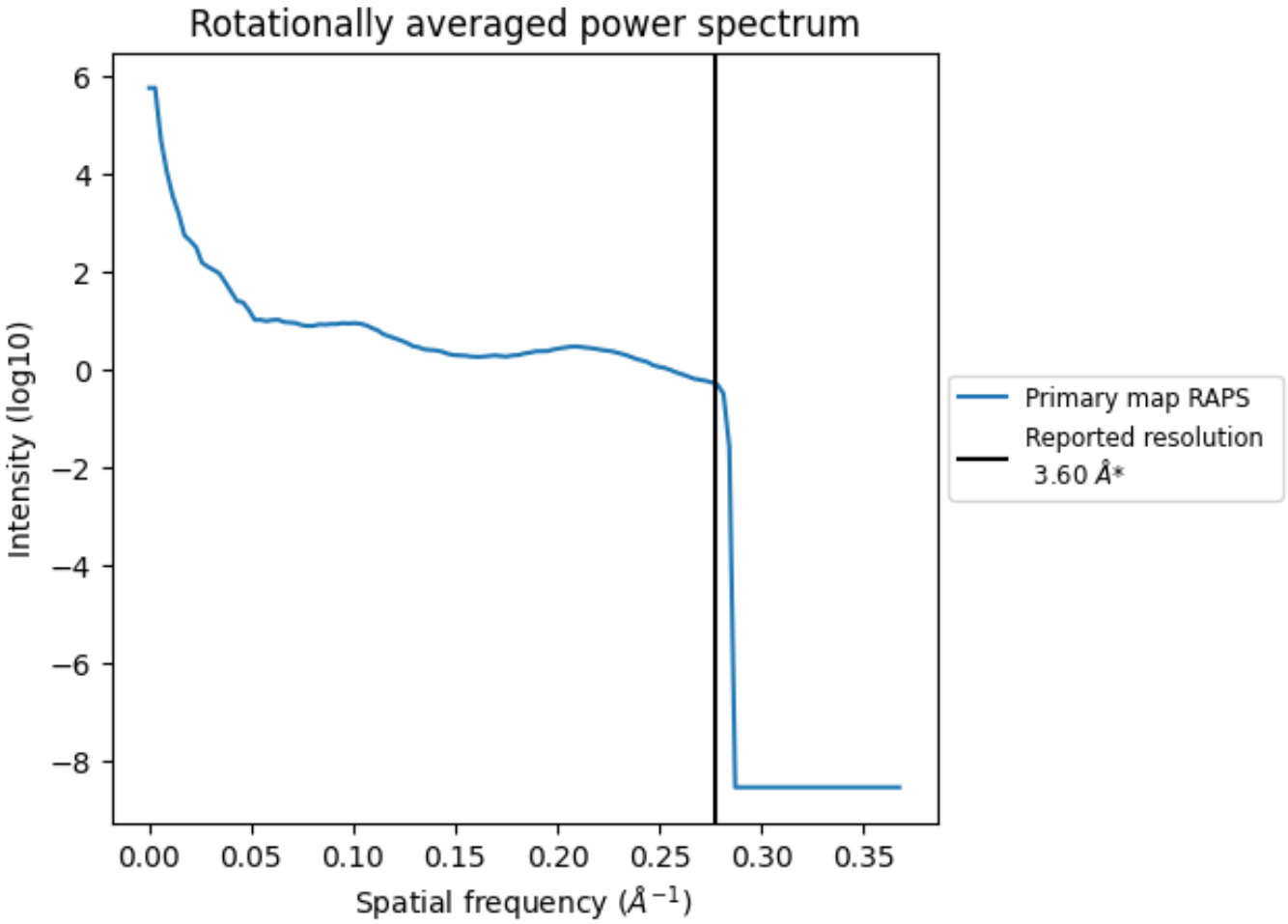
7.2 Volume estimate (i)



The volume at the recommended contour level is 474 nm^3; this corresponds to an approximate mass of 428 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 0.278 Å^{-1}

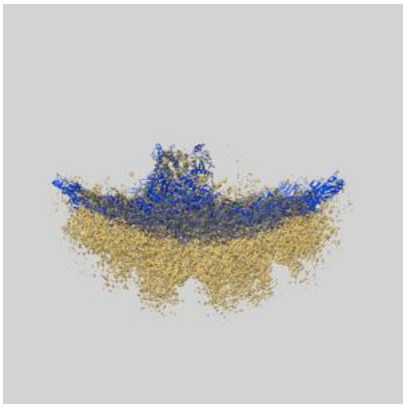
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

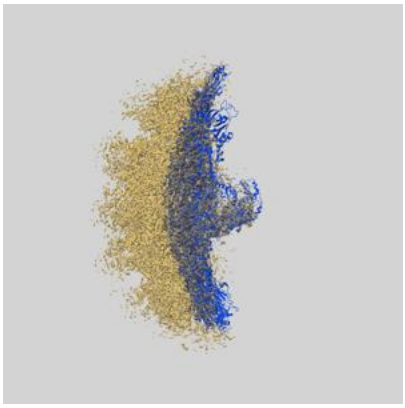
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-20407 and PDB model 6PO2. Per-residue inclusion information can be found in section 3 on page 5.

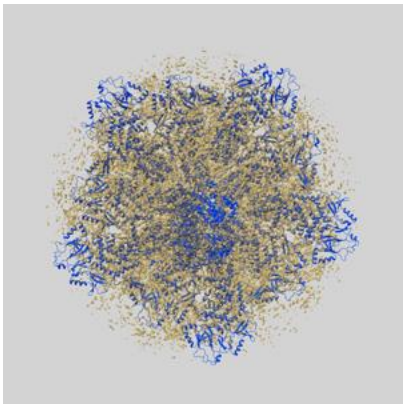
9.1 Map-model overlay



X



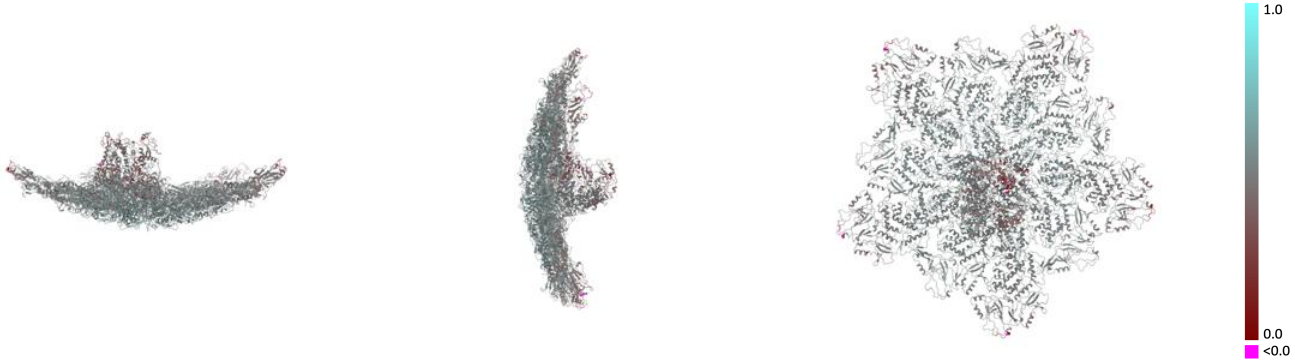
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.02 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.

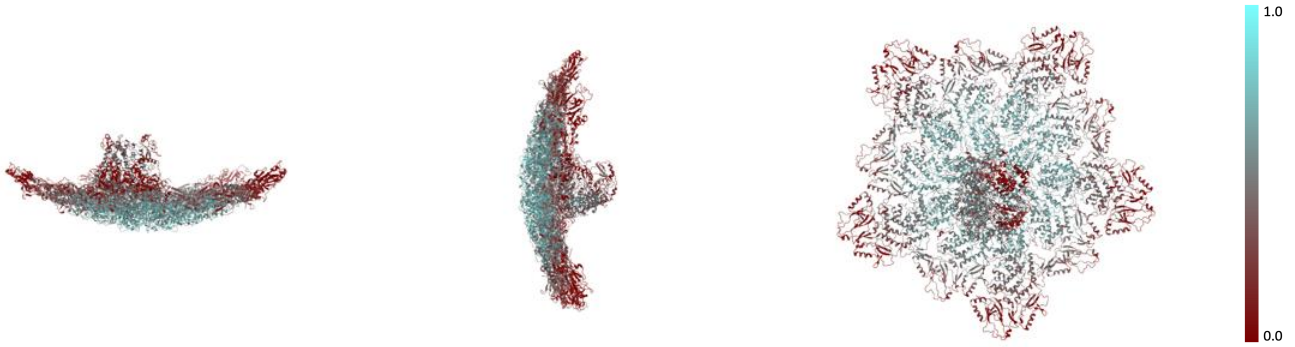
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according 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.

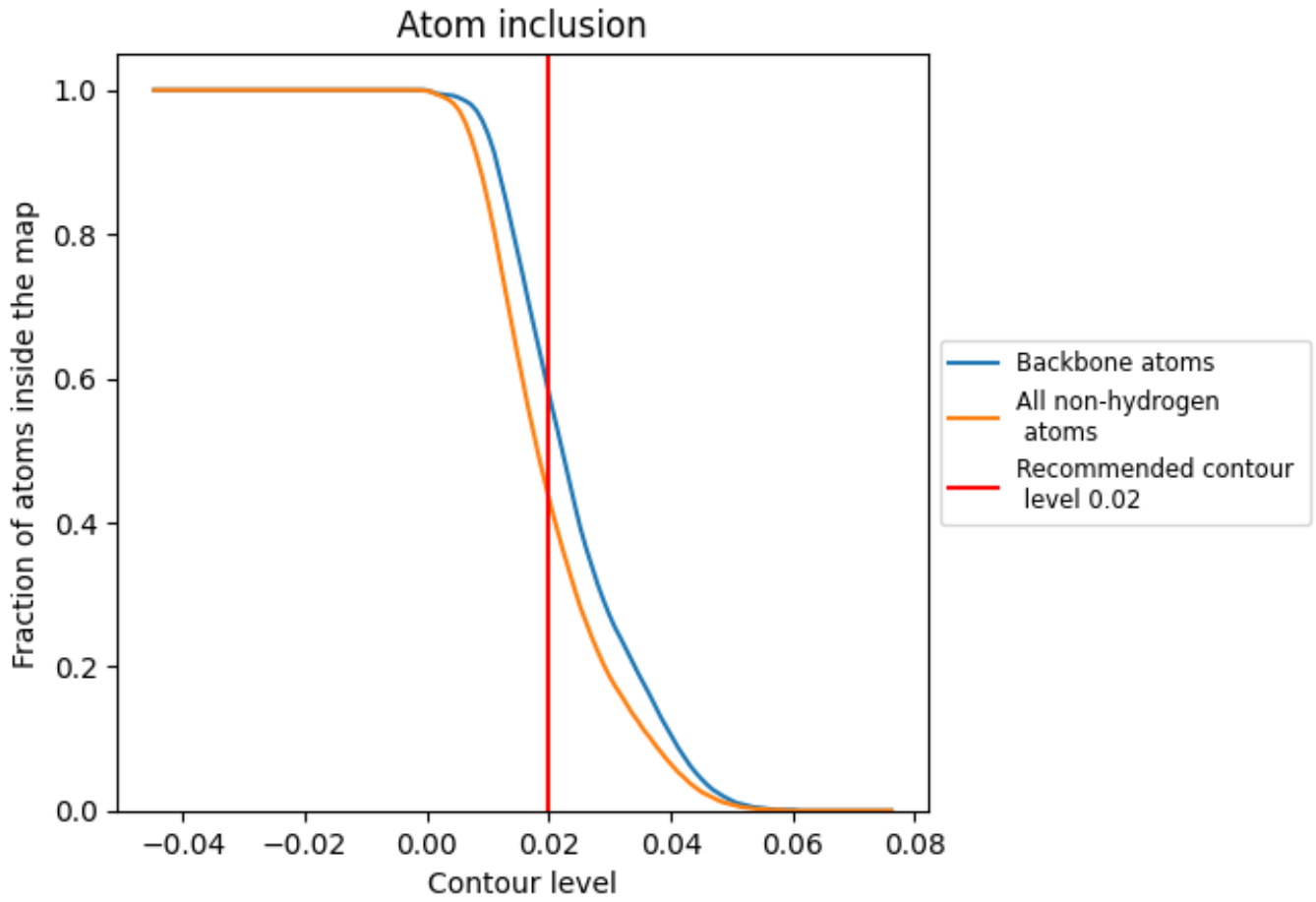
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.02).

9.4 Atom inclusion (i)



At the recommended contour level, 58% of all backbone atoms, 43% 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 (0.02) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4340	0.4970
A	0.3050	0.4370
B	0.5430	0.5230
C	0.3780	0.4900
D	0.5320	0.5200
E	0.3720	0.4890
F	0.5140	0.5160
G	0.3700	0.4880
H	0.5190	0.5150
I	0.3790	0.4930
J	0.5410	0.5240
K	0.3820	0.4920