Full wwPDB EM Validation Report ⓘ

Oct 21, 2024 – 09:48 PM JST

PDB ID	:	7W7G
EMDB ID	:	EMD-32344
Title	:	Structure of Mammalian NALCN-FAM155A-UNC79-UNC80 quanternary complex
Authors	:	Chen, L.; Kang, Y.
Deposited on	:	2021-12-04
Resolution	:	3.20 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:

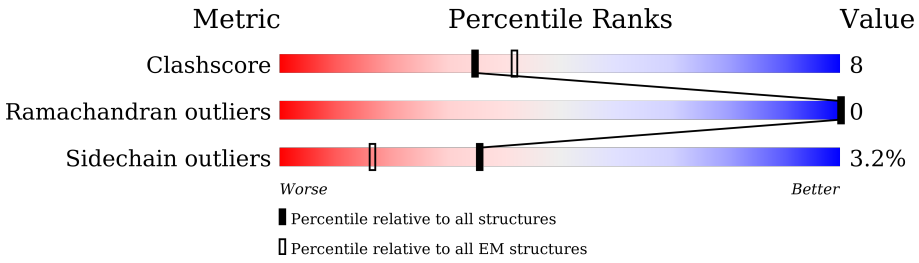
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.20 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	2654	11% 44% 13% • 42%
2	B	3326	6% 40% 11% • 49%
3	C	1738	15% 63% 14% • 23%
4	D	467	9% 28% 9% 63%

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 38143 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 Protein unc-79 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1528	Total	C	N	O	S	0	0
			12097	7833	1998	2161	105		

- Molecule 2 is a protein called Protein unc-80 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	1711	Total	C	N	O	S	0	0
			13777	8900	2351	2430	96		

- Molecule 3 is a protein called Sodium leak channel non-selective protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	1346	Total	C	N	O	S	0	0
			10847	7164	1777	1821	85		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	52	SER	PRO	conflict	UNP Q6Q760
C	748	ALA	THR	conflict	UNP Q6Q760

- Molecule 4 is a protein called Transmembrane protein FAM155A.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	173	Total	C	N	O	S	0	0
			1378	875	212	275	16		

- Molecule 5 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
5	A	1	Total	Zn	0
			1	1	

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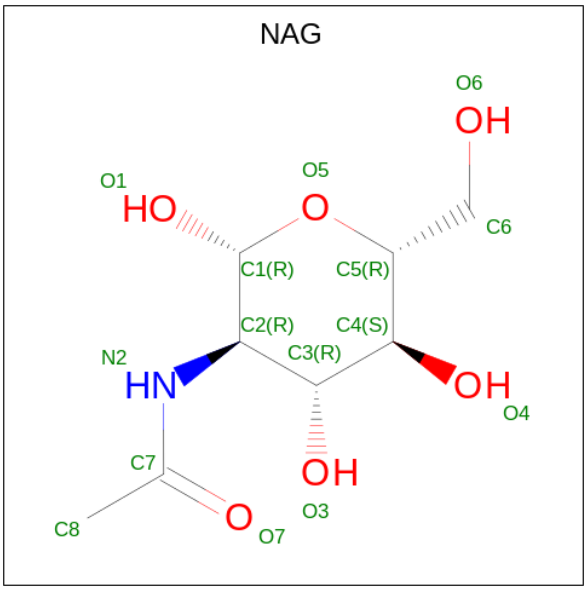
Mol	Chain	Residues	Atoms	AltConf
5	B	1	Total Zn 1 1	0

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$) (labeled as "Ligand of Interest" by depositor).



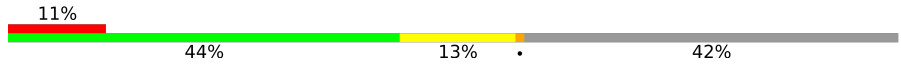
Mol	Chain	Residues	Atoms	AltConf
6	C	1	Total C N O 14 8 1 5	0
6	C	1	Total C N O 14 8 1 5	0
6	C	1	Total C N O 14 8 1 5	0

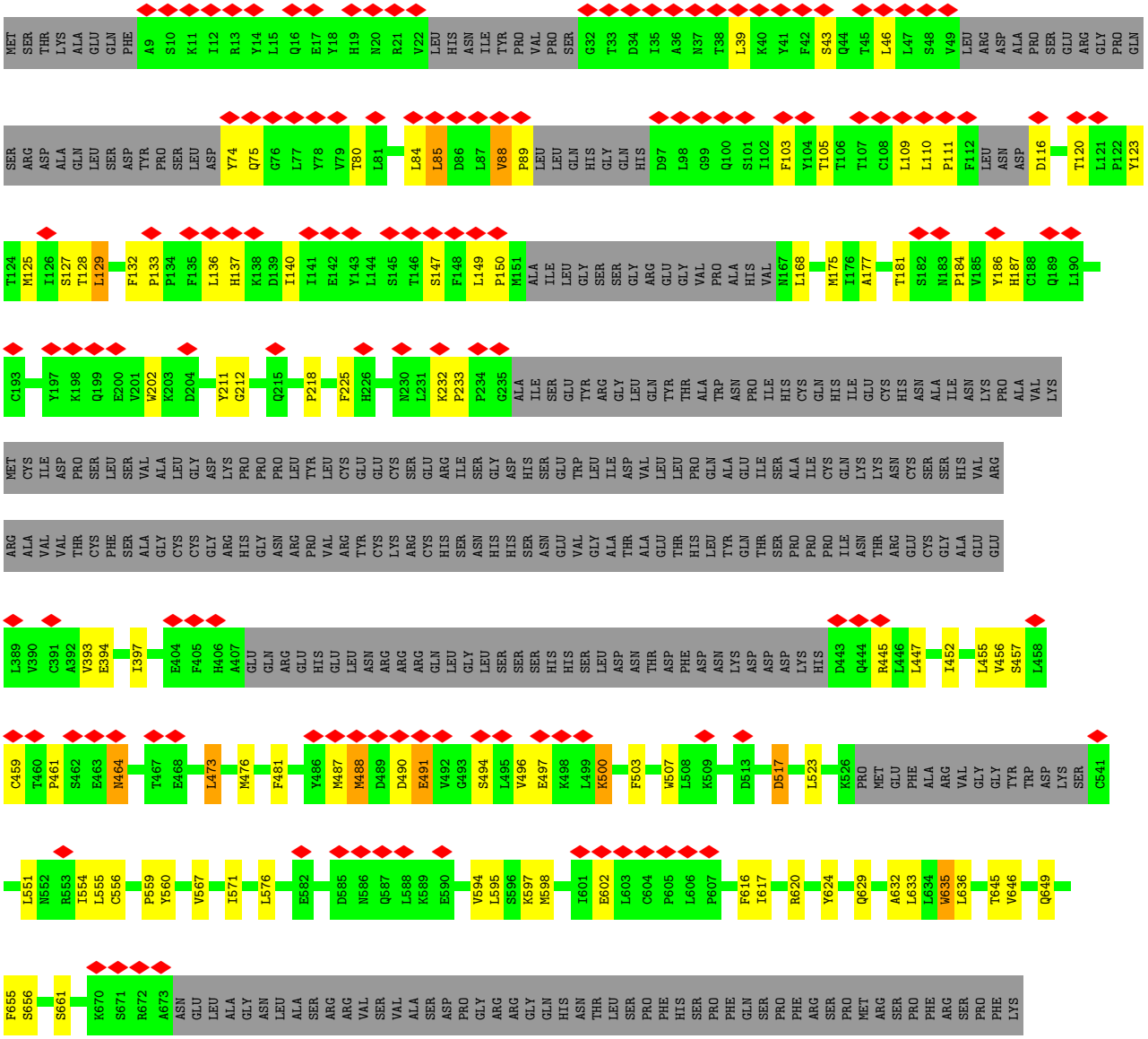
3 Residue-property plots (i)

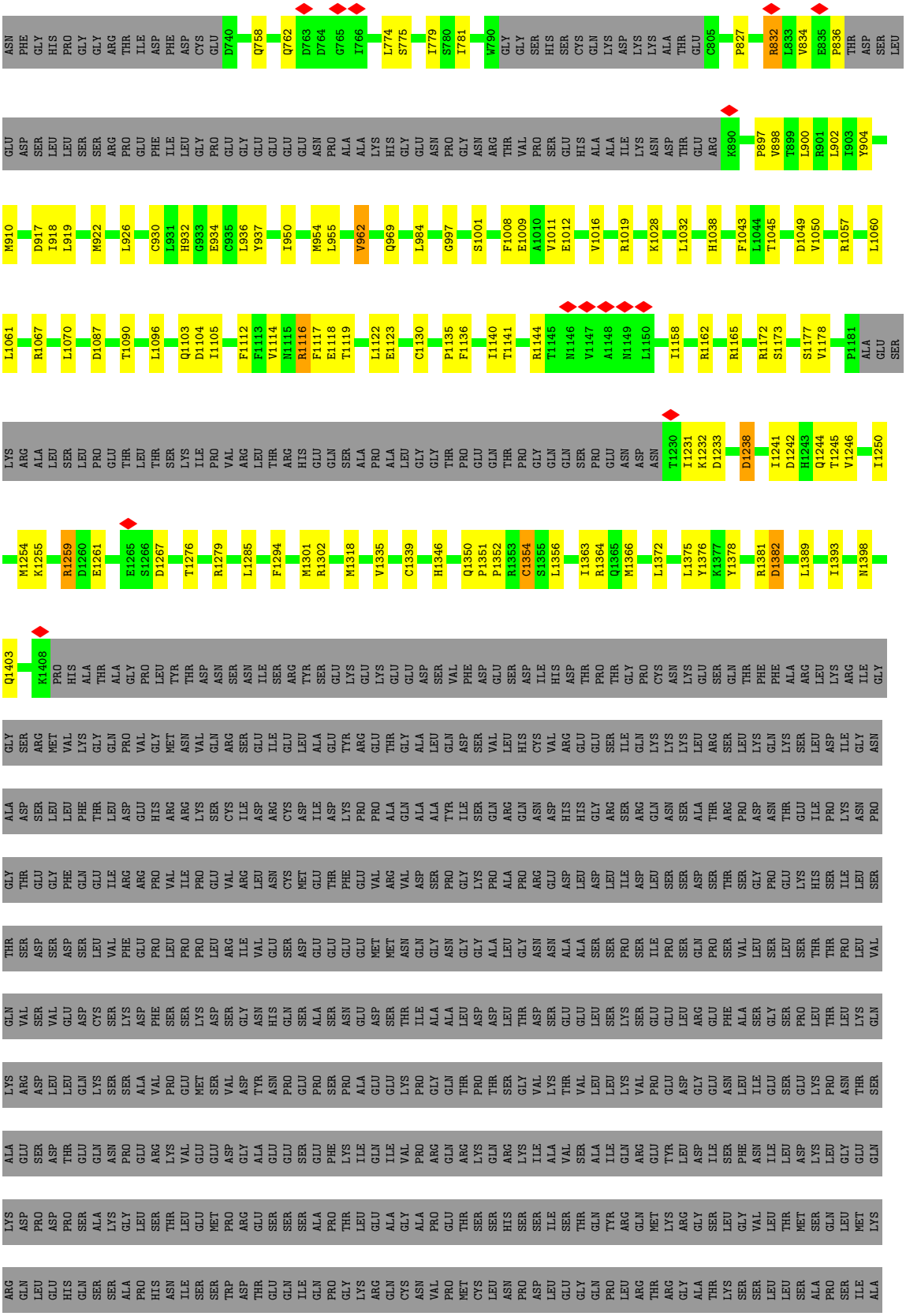
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

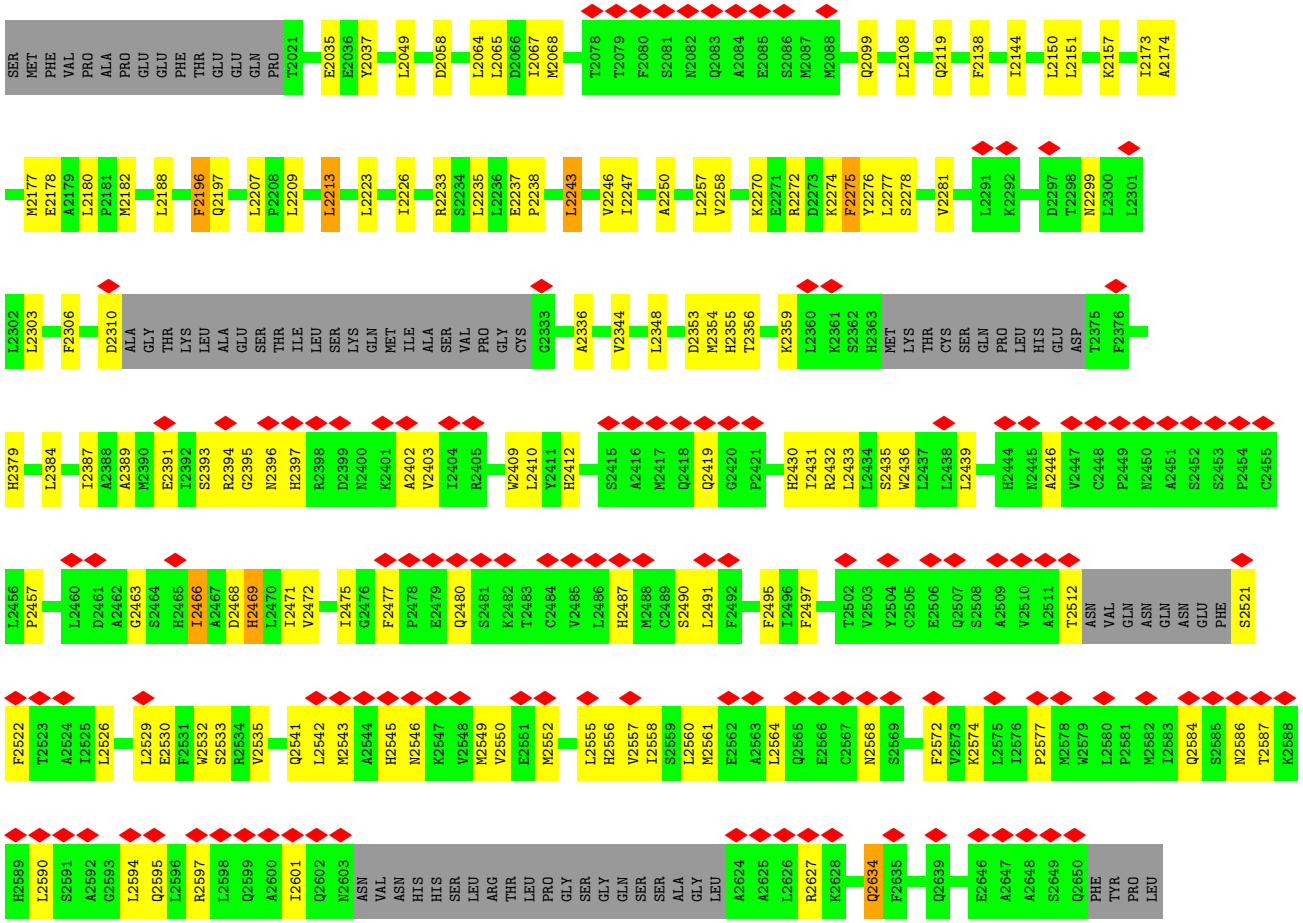
- Molecule 1: Protein unc-79 homolog

Chain A:



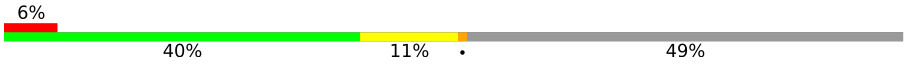


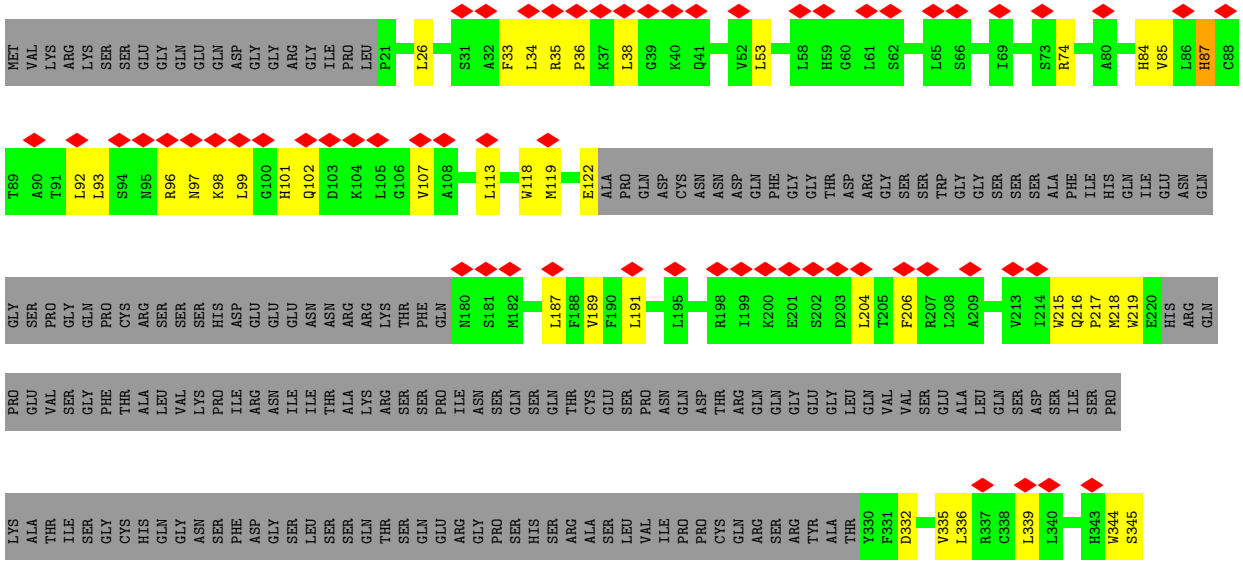

ASN PHE GLY HIS PRO GLY GLY ARG THR ILE ASP PHE ASP CYS GLU D740 Q758 Q762 D763 D764 G765 I766 L774 S775 I779 S780 I781 W790 GLY GLY SER HIS SER CYS GLN LYS ASP LYS LYS ALA THR GLU C805 P827 R832 L833 V834 E835 P836 THR ASP SER LEU
GLU ASP SER LEU LEU SER SER ARG PRO GLU PHE ILE LEU GLY PRO GLU GLY GLU GLU GLU GLU ASN PRO ALA ALA LYS HIS GLY GLU ASN PRO GLY ASN ARG THR VAL PRO SER GLU HIS ALA ALA ILE LYS ASN ASP THR GLU ARG K890 P897 V898 T899 L900 R901 L902 I903 Y904
M910 D917 I918 L919 M922 L926 C930 L931 H932 G933 E934 C935 L936 Y937 I950 M954 L955 V962 Q969 L984 G997 S1001 F1008 E1009 A1010 V1011 E1012 V1016 R1019 K1028 L1032 H1038 F1043 L1044 T1045 D1049 V1050 R1057 L1060
L1061 R1067 L1070 D1087 T1090 L1096 Q1103 D1104 I1105 F1112 F1113 V1114 N1115 R1116 F1117 E1118 T1119 L1122 E1123 C1130 P1135 F1136 I1140 T1141 R1144 T1145 N1146 V1147 A1148 N1149 L1150 I1158 R1162 R1165 R1172 S1173 S1177 V1178 P1181 ALA GLU SER
LYS ARG ALA LEU SER LEU PRO GLU THR LEU THR SER LYS ILE PRO VAL ARG LEU THR ARG HIS GLU GLN SER ALA PRO ALA LEU GLY GLY GLY THR PRO GLU GLN THR PRO GLY GLN GLN SER PRO GLU ASN ASP ASN T1230 I1231 K1232 D1233 D1238 I1241 D1242 H1243 Q1244 T1245 V1246 I1250
M1254 K1255 R1259 D1260 E1261 E1265 S1266 D1267 T1276 R1279 L1285 F1294 M1301 R1302 M1318 V1335 C1339 H1346 Q1350 P1351 P1352 R1353 C1354 S1355 L1356 I1363 R1364 Q1365 M1366 L1372 L1375 Y1376 K1377 Y1378 R1381 D1382 L1389 I1393 N1398
Q1403 K1408 PRO HIS ALA THR ALA GLY PRO LEU TYR THR ASP ASN SER ASN ILE SER ARG TYR SER GLU LYS GLU LYS GLU GLU ASP SER VAL PHE ASP GLU SER ASP ILE HIS ASP THR PRO THR GLY PRO CYS ASN LYS GLU GLN THR PHE PHE ALA ARG LEU LYS ARG ILE GLY
GLY SER ARG MET VAL LYS GLY GLN PRO VAL GLY MET ASN VAL GLN ARG SER GLU ILE GLU LEU ALA GLU TYR ARG GLU THR GLY ALA LEU GLN ASP SER VAL LEU HIS CYS VAL ARG GLU GLU SER ILE GLN LYS LYS LYS LEU ARG SER LEU LYS GLN LYS SER LEU ASP ILE GLY ASN
ALA ASP SER LEU LEU PHE THR LEU ASP GLU HIS ARG ARG LYS SER CYS ILE ASP ARG CYS ASP ILE ASP LYS PRO PRO ALA GLN ALA ALA ALA TYR ILE SER GLN ARG GLN ASN ASP HIS HIS GLY ARG SER ARG GLN ASN SER ALA THR ARG PRO ASP THR GLU ILE PRO LYS ASN PRO
GLY THR GLU GLY PHE GLN GLU ILE ARG ARG PRO VAL ILE PRO GLU VAL ARG LEU ASN CYS MET GLU THR PHE GLU VAL ARG VAL ASP SER PRO GLY LYS PRO ALA PRO ARG GLU ASP LEU ASP LEU ILE ASP LEU SER SER ASP SER THR SER GLY PRO GLU LYS HIS SER ILE LEU SER
THR SER ASP SER ASP SER LEU VAL PHE GLU PRO LEU PRO PRO LEU ARG ILE VAL GLU SER ASP GLU GLU GLU GLU MET MET ASN GLN GLY ASN GLY GLY GLY ALA LEU GLY ASN ASN ALA ALA SER SER PRO SER ILE PRO SER GLN PRO SER VAL LEU SER LEU SER THR THR PRO LEU LEU
GLN VAL SER VAL GLU ASP CYS SER LYS ASP PHE SER SER LYS ASP SER GLY ASN HIS GLN SER ALA SER ASN GLU ASP SER THR ILE ALA ALA LEU GLU ASP ASP LEU LEU THR ASP SER GLU LEU LEU SER LYS SER GLU GLU LEU ARG GLU PHE ALA SER GLY SER PRO LEU THR LEU LYS GLN
LYS ARG ASP LEU LEU GLN LYS SER SER ALA VAL PRO GLU MET SER VAL ASP TYR ASN PRO GLU PRO SER PRO ALA GLU GLU LYS PRO GLY GLN THR PRO THR SER GLY VAL LYS THR VAL LEU LEU LYS VAL PRO GLU ASP GLY GLU ASN LEU ILE GLU SER GLU LYS PRO ASN THR SER
ALA GLU SER ASP THR GLU GLN ASN PRO GLU ARG LYS VAL GLU GLU GLN ILE VAL PRO ARG GLN ARG LYS GLN ARG LYS ILE ALA VAL SER ALA ILE GLN ARG GLU TYR LEU ASP ILE SER PHE ASN ILE LEU ASP LYS LEU GLY GLU GLN
LYS ASP PRO ASP PRO SER ALA ALA PRO THR LEU GLU GLY ALA PRO GLU THR SER SER HIS SER SER SER ILE SER THR GLN TYR ARG GLN MET LYS ARG GLY ALA THR LYS SER LEU GLY VAL LEU LEU THR MET SER SER GLN LEU MET LYS
ARG GLN LEU GLU HIS GLN SER SER ALA PRO ASN HIS GLN ILE SER SER TRP ASP THR GLU GLN ILE GLN PRO GLY LYS ARG GLN CYS ASN VAL PRO MET CYS LEU ASN PRO ASP LEU GLU GLY GLN PRO LEU ARG THR ARG GLY ALA THR LYS SER SER LEU LEU SER ALA PRO GLU SER ILE ALA

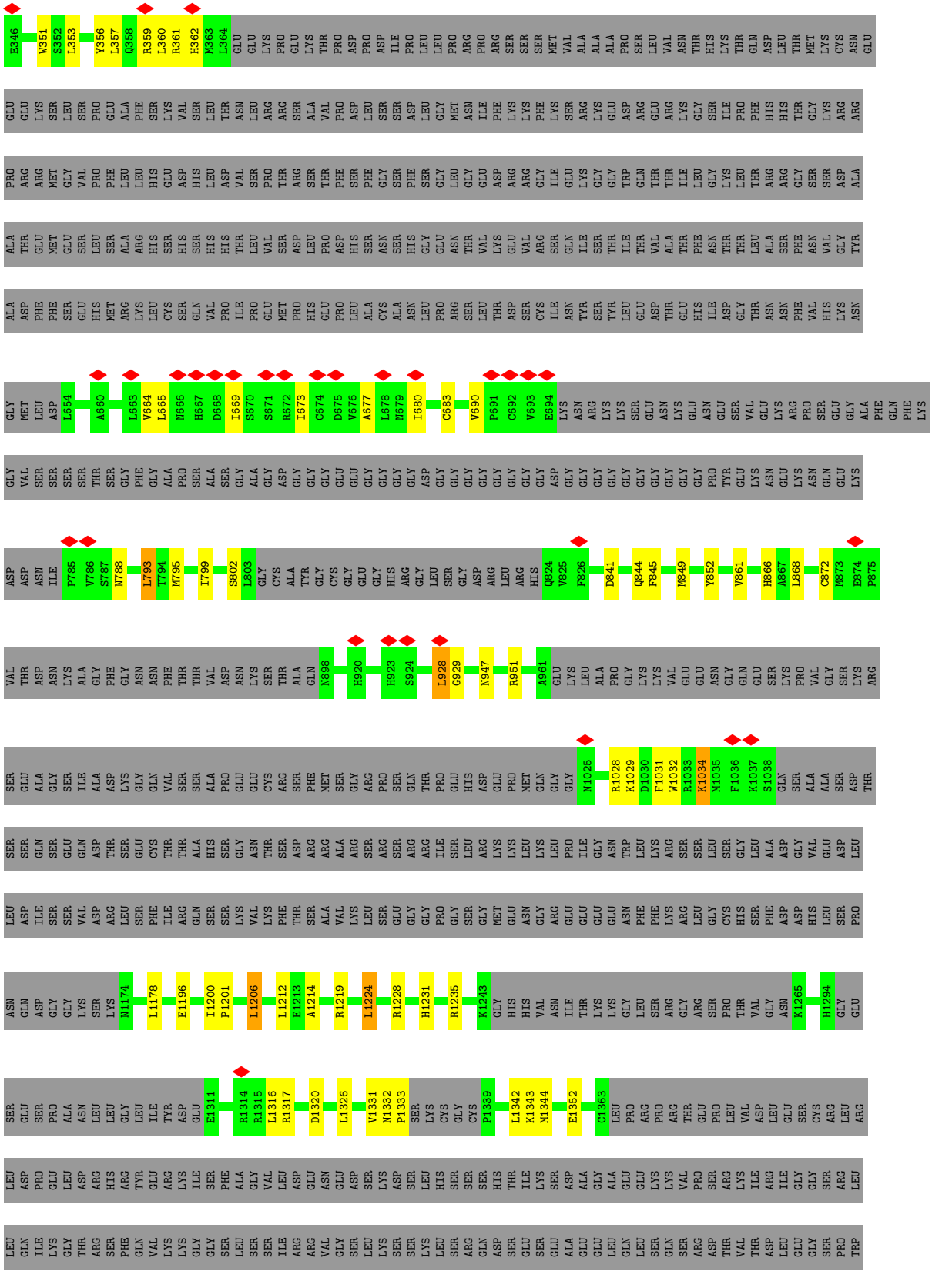


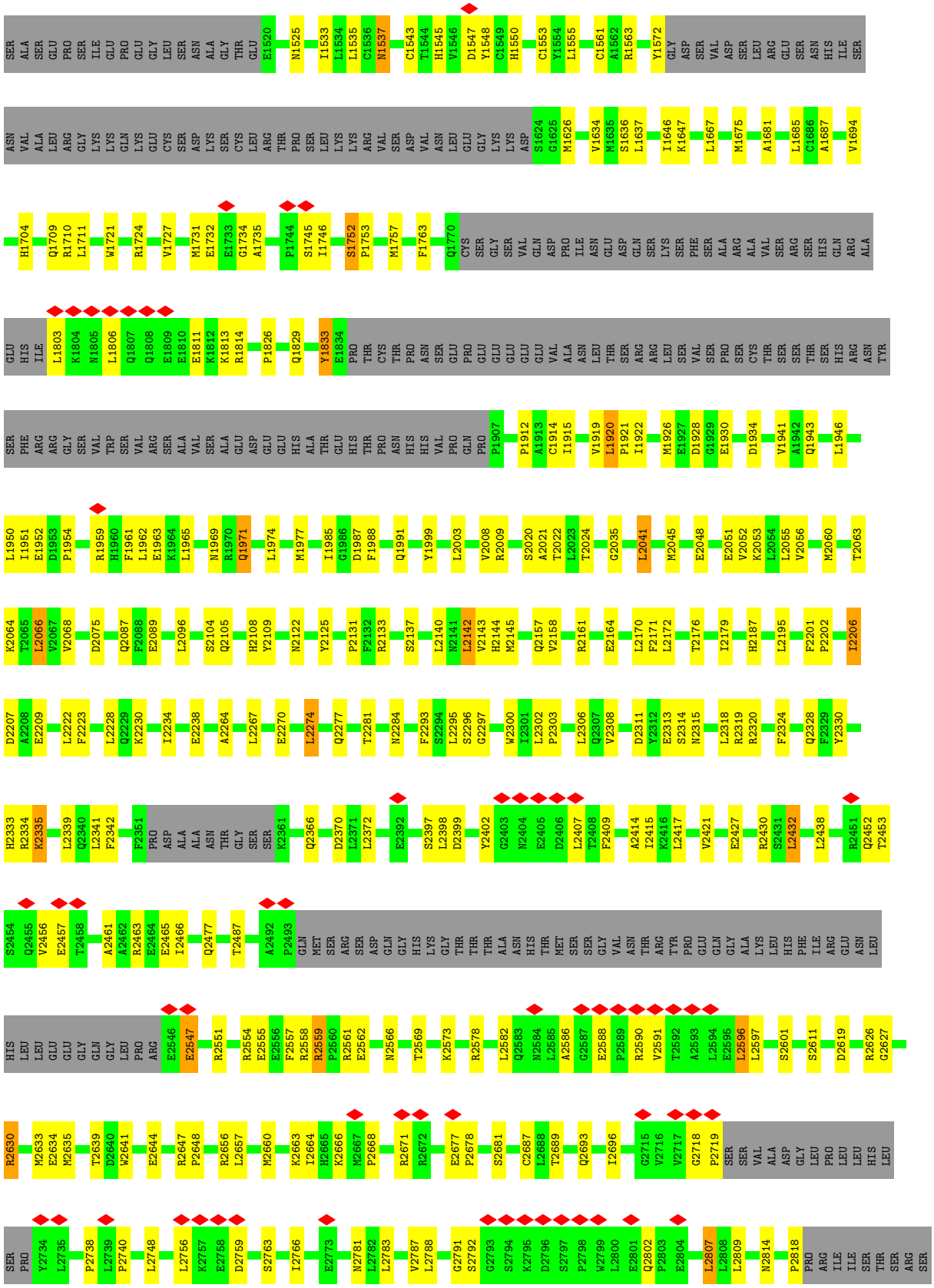
• Molecule 2: Protein unc-80 homolog

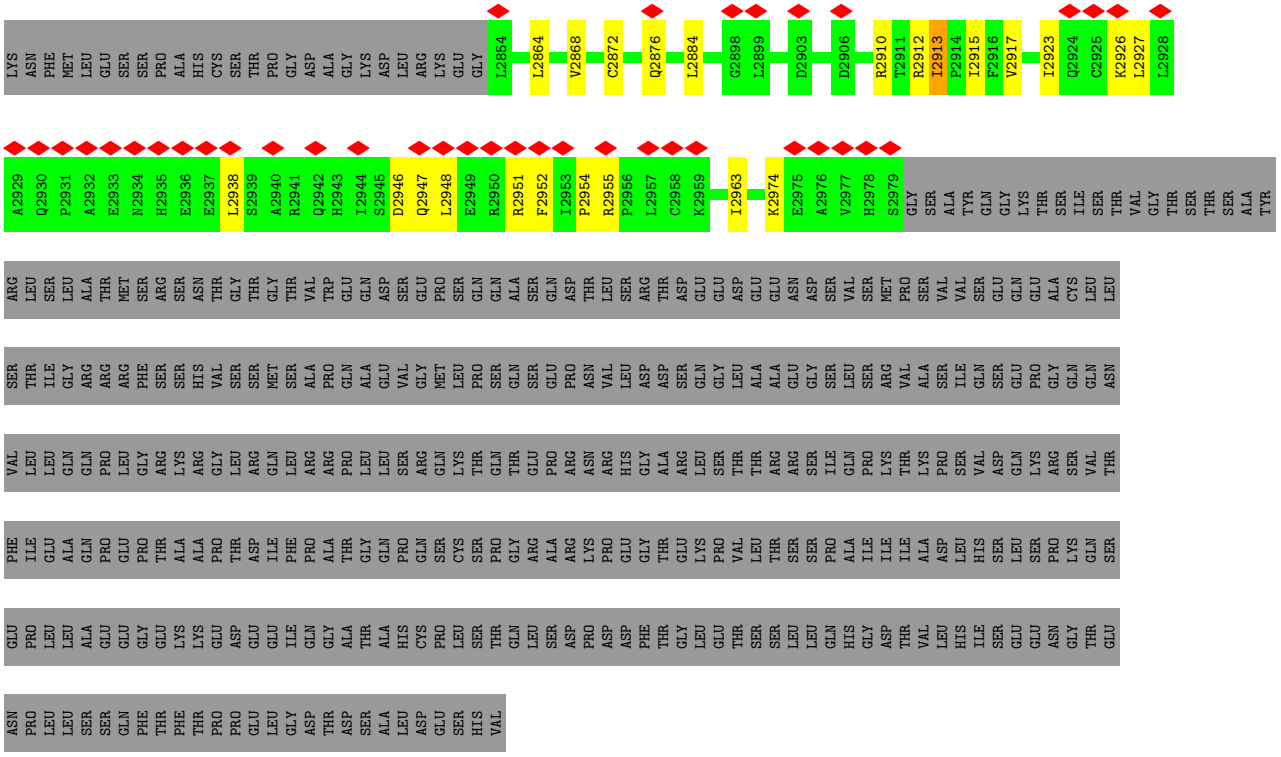
Chain B:





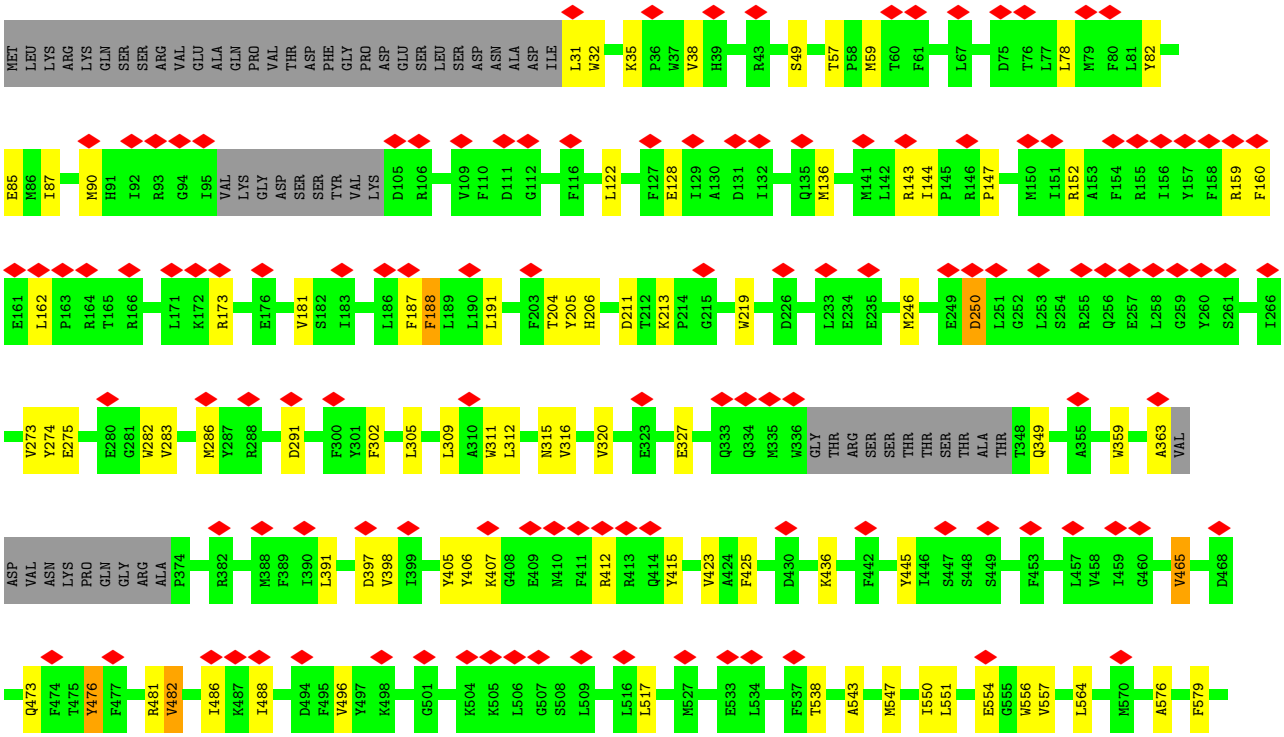

E346 W351 S352 L353 Y356 L357 Q358 R359 L360 R361 H362 M363 L364
P785 V786 S787 N788 L793 T794 M795 I799 S802 L803 Q824 V825 P826 D841 Q844 F845 M849 Y852 V861 H866 A867 L868 C872 M873 E874 P875
N898 H920 H923 S924 L928 G929 N947 R951 A961
N1025 R1028 K1029 D1030 F1031 W1032 R1033 K1034 M1035 F1036 K1037 S1038
N1174 L1178 E1196 I1200 P1201 L1206 L1212 E1213 A1214 R1219 L1224 R1228 H1231 R1235 K1243 K1265 H1294
E1311 R1314 R1315 L1316 R1317 D1320 L1326 V1331 N1332 P1333 P1339 L1342 K1343 M1344 E1352 C1363
L654 A660 L663 V664 L665 N666 H667 D668 I669 S670 S671 R672 I673 C674 D675 V676 A677 L678 N679 I680 C683 V690 P691 C692 V693 E694

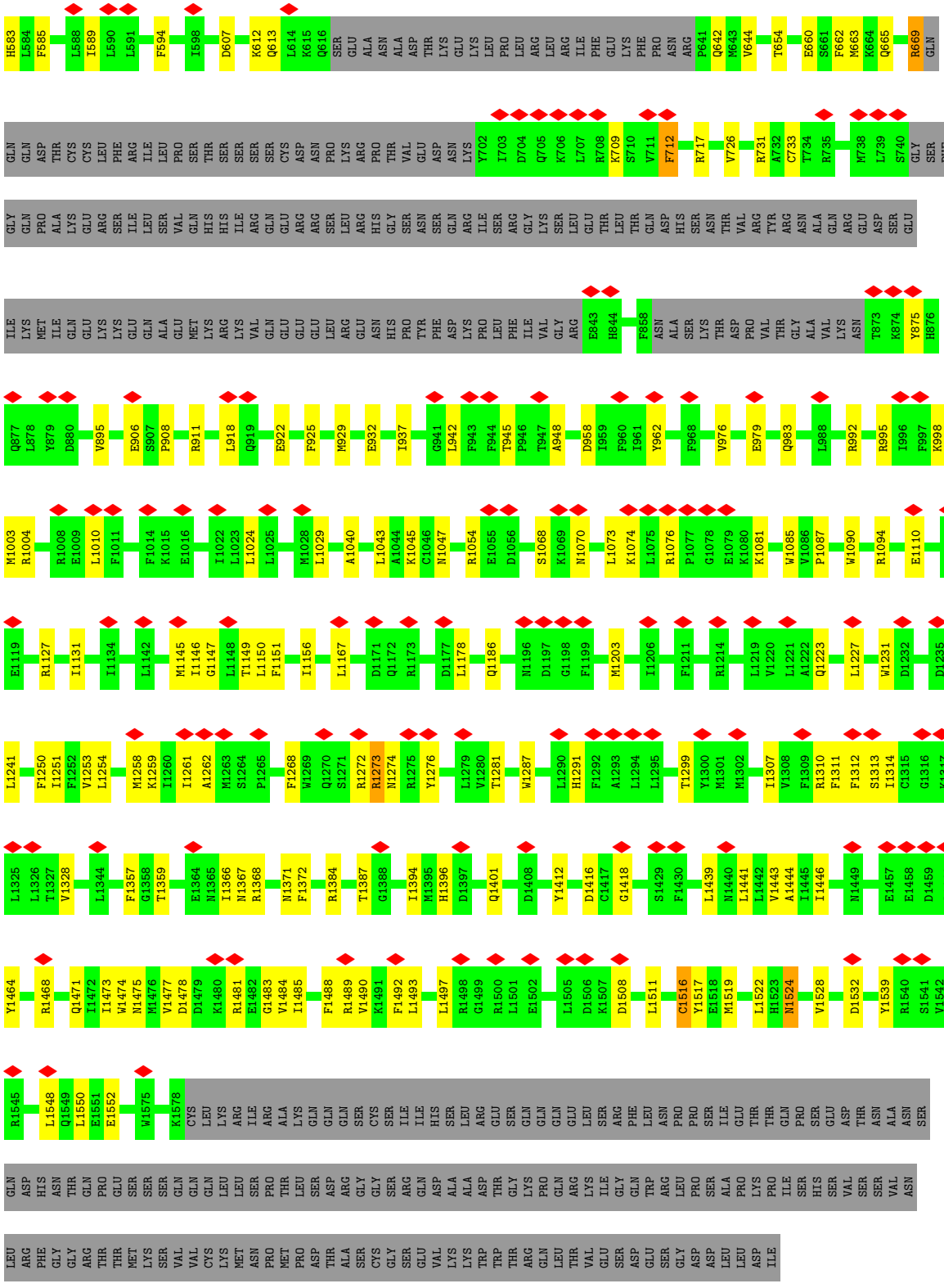




• Molecule 3: Sodium leak channel non-selective protein

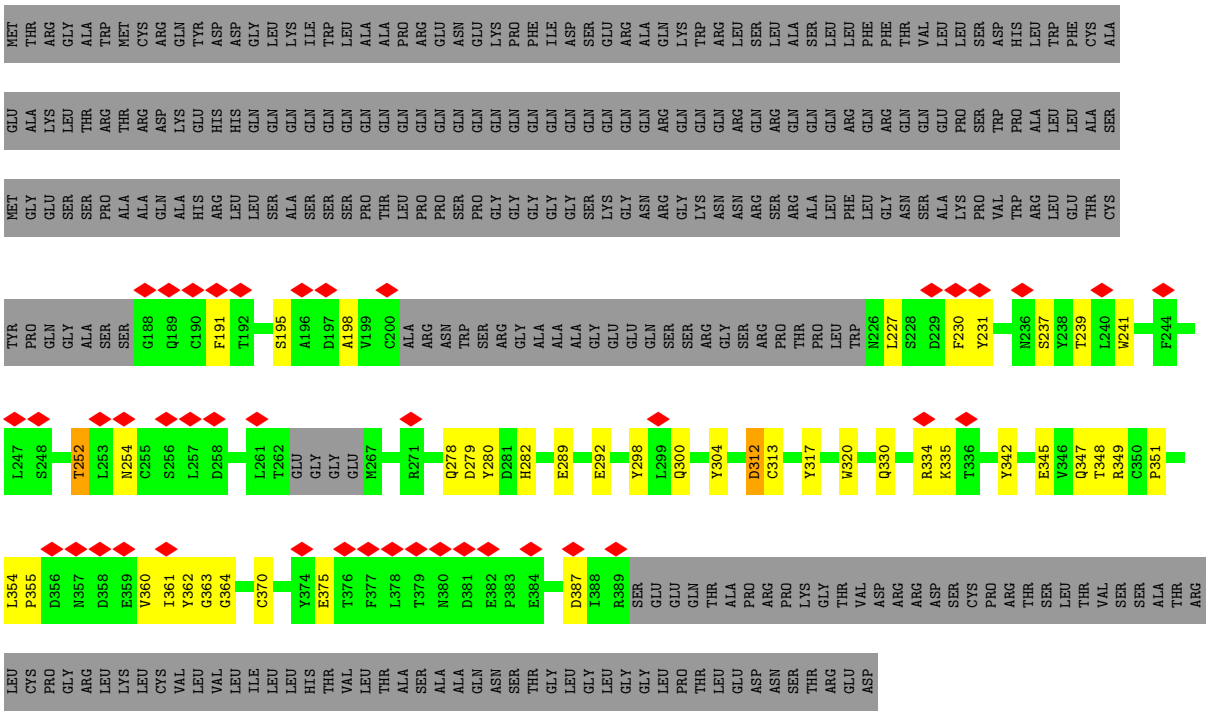
Chain C:





• Molecule 4: Transmembrane protein FAM155A

Chain D:


MET THR ARG GLY ALA TRP MET CYS ARG GLN TYR ASP ASP GLY LEU LYS ILE TRP LEU ALA ALA PRO ARG GLU ASN GLU LYS PRO PHE ILE ASP SER GLU ARG ALA GLN LYS TRP ARG LEU SER LEU ALA SER LEU LEU PHE PHE THR VAL LEU LEU SER ASP HIS LEU TRP PHE CYS ALA
GLU ALA LYS LEU THR ARG THR ARG ASP LYS GLU HIS HIS GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN ARG GLN GLN GLN ARG GLN GLN GLN ARG GLN GLN GLU PRO SER TRP PRO ALA LEU LEU ALA SER
MET GLY GLU SER SER PRO ALA ALA GLN ALA HIS ARG LEU LEU SER ALA SER SER SER PRO THR LEU PRO PRO SER PRO GLY GLY GLY GLY GLY SER LYS GLY ASN ARG GLY LYS ASN ASN ARG SER ARG ALA LEU PHE LEU GLY ASN SER ALA LYS PRO VAL TRP ARG LEU GLU THR CYS
TYR PRO GLN GLY ALA SER SER G188 Q189 C190 F191 T192 S195 A196 D197 A198 V199 C200 ALA ARG ASN TRP SER ARG GLY ALA ALA ALA GLY GLU GLN SER SER ARG GLY SER ARG PRO THR PRO LEU TRP N226 L227 S228 D229 F230 Y231 N236 S237 Y238 T239 L240 W241 F244
L247 S248 T252 L253 N254 C255 S256 L257 D258 L261 T262 GLU GLY GLY GLU M267 R271 Q278 D279 Y280 D281 H282 E289 E292 Y298 L299 Q300 Y304 D312 C313 Y317 W320 Q330 R334 K335 T336 Y342 E345 V346 Q347 T348 R349 C350 P351
L354 P355 D356 N357 D358 E359 V360 I361 Y362 G363 G364 C370 Y374 E375 T376 F377 L378 T379 N380 D381 E382 P383 E384 D387 I388 R389 SER GLU GLU GLN THR ALA PRO ARG PRO LYS GLY THR VAL ASP ARG ARG ASP SER CYS PRO ARG THR SER LEU THR VAL SER SER ALA THR ARG
LEU CYS PRO GLY ARG LEU LYS LEU CYS VAL LEU VAL LEU ILE LEU LEU HIS THR VAL LEU THR ALA SER ALA ALA GLN ASN SER THR GLY LEU GLY LEU GLY GLY LEU PRO THR LEU GLU ASP ASN SER THR ARG GLU ASP

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	275170	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	8.606	Depositor
Minimum map value	-0.139	Depositor
Average map value	0.087	Depositor
Map value standard deviation	0.155	Depositor
Recommended contour level	0.95	Depositor
Map size (Å)	370.72, 370.72, 370.72	wwPDB
Map dimensions	280, 280, 280	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.324, 1.324, 1.324	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, NAG

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	0.27	0/12360	0.43	0/16769
2	B	0.28	0/14084	0.46	0/19082
3	C	0.26	0/11121	0.43	0/15080
4	D	0.25	0/1410	0.41	0/1913
All	All	0.27	0/38975	0.44	0/52844

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	12097	0	12285	230	0
2	B	13777	0	14013	239	0
3	C	10847	0	10959	138	0
4	D	1378	0	1253	23	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
6	C	42	0	39	1	0
All	All	38143	0	38549	596	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 8.

All (596) 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:B:1545:HIS:HE1	2:B:1553:CYS:SG	1.88	0.97
1:A:1162:ARG:HE	1:A:1231:ILE:HG23	1.49	0.77
3:C:173:ARG:HH21	3:C:327:GLU:HB2	1.54	0.73
2:B:1214:ALA:O	2:B:1219:ARG:NH1	2.22	0.72
3:C:205:TYR:HA	3:C:246:MET:O	1.90	0.71
1:A:218:PRO:HG3	1:A:447:LEU:HD21	1.73	0.70
2:B:2314:SER:HA	3:C:709:LYS:HE2	1.73	0.70
2:B:1732:GLU:HG2	2:B:1734:GLY:H	1.56	0.70
2:B:38:LEU:HB2	2:B:98:LYS:HE3	1.73	0.70
1:A:2512:THR:HG1	1:A:2521:SER:N	1.88	0.69
3:C:398:VAL:HG11	3:C:482:VAL:HG12	1.75	0.69
2:B:2238:GLU:OE2	2:B:2284:ASN:ND2	2.26	0.69
1:A:2344:VAL:HG21	1:A:2391:GLU:HG3	1.73	0.69
3:C:613:GLN:HB3	3:C:1550:LEU:HD21	1.73	0.69
1:A:656:SER:HB3	1:A:781:ILE:HD11	1.75	0.68
1:A:646:VAL:O	1:A:762:GLN:NE2	2.26	0.68
1:A:2258:VAL:HG12	1:A:2306:PHE:HD1	1.56	0.68
1:A:1067:ARG:HG3	1:A:1105:ILE:HG22	1.76	0.67
2:B:2569:THR:HG22	2:B:2635:MET:HB2	1.76	0.67
2:B:360:LEU:HD12	2:B:680:ILE:HD11	1.76	0.67
1:A:1165:ARG:NH2	1:A:1242:ASP:OD1	2.28	0.67
1:A:1244:GLN:NE2	2:B:1930:GLU:OE1	2.28	0.67
2:B:2910:ARG:HB3	2:B:2955:ARG:HD3	1.78	0.66
3:C:188:PHE:HB3	3:C:309:LEU:HD21	1.76	0.66
1:A:225:PHE:O	1:A:232:LYS:NZ	2.28	0.65
1:A:834:VAL:HG11	1:A:1032:LEU:HD11	1.77	0.65
2:B:2554:ARG:NH1	2:B:2619:ASP:OD1	2.29	0.65
1:A:233:PRO:HD3	1:A:457:SER:HB3	1.79	0.65
2:B:1746:ILE:HD13	2:B:1959:ARG:HH22	1.62	0.64
2:B:1826:PRO:HB2	2:B:1829:GLN:HB2	1.78	0.64
3:C:906:GLU:HG2	3:C:918:LEU:HD13	1.77	0.64
3:C:1024:LEU:HD21	3:C:1147:GLY:HA3	1.78	0.64
3:C:1054:ARG:NH2	4:D:375:GLU:OE1	2.30	0.64
2:B:669:ILE:HA	2:B:673:ILE:HD11	1.79	0.64
3:C:1508:ASP:HB3	3:C:1511:LEU:HB3	1.79	0.64
3:C:1401:GLN:NE2	3:C:1418:GLY:O	2.31	0.64
1:A:2119:GLN:OE1	1:A:2157:LYS:NZ	2.32	0.63
2:B:97:ASN:HA	2:B:102:GLN:HE21	1.62	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:99:LEU:HD12	2:B:101:HIS:H	1.63	0.63
1:A:393:VAL:HG13	1:A:473:LEU:HD23	1.79	0.63
2:B:2432:LEU:HD13	2:B:2559:ARG:HG2	1.80	0.63
2:B:2453:THR:HG21	2:B:2465:GLU:HB2	1.80	0.63
1:A:110:LEU:HD23	1:A:147:SER:HB3	1.81	0.63
2:B:1721:TRP:O	2:B:1724:ARG:NH1	2.32	0.63
3:C:406:TYR:HB2	3:C:1040:ALA:HB1	1.80	0.63
1:A:2530:GLU:OE2	2:B:35:ARG:NH1	2.31	0.62
3:C:908:PRO:O	3:C:911:ARG:NH1	2.32	0.62
1:A:934:GLU:HB3	1:A:937:TYR:HB2	1.81	0.62
2:B:2295:LEU:O	3:C:665:GLN:NE2	2.31	0.62
2:B:1969:ASN:OD1	2:B:1971:GLN:NE2	2.33	0.62
1:A:1141:THR:O	1:A:1144:ARG:NH2	2.31	0.62
2:B:2105:GLN:HB3	2:B:2108:HIS:HB2	1.82	0.62
3:C:397:ASP:OD2	3:C:481:ARG:NH2	2.33	0.62
2:B:1344:MET:HB3	2:B:1637:LEU:HB3	1.81	0.61
2:B:1710:ARG:NH1	2:B:1928:ASP:OD2	2.33	0.61
1:A:1070:LEU:HB3	1:A:1105:ILE:HD13	1.81	0.61
1:A:1259:ARG:HH21	2:B:1987:ASP:HB2	1.65	0.61
2:B:951:ARG:HD2	2:B:1028:ARG:HD3	1.81	0.61
2:B:1667:LEU:HD13	2:B:1675:MET:HE1	1.82	0.61
1:A:445:ARG:HH12	1:A:490:ASP:HB3	1.64	0.61
4:D:237:SER:O	4:D:330:GLN:NE2	2.34	0.61
1:A:2233:ARG:HH21	1:A:2272:ARG:HH22	1.47	0.60
1:A:2409:TRP:HA	1:A:2412:HIS:HB3	1.83	0.60
2:B:357:LEU:HA	2:B:680:ILE:HD13	1.82	0.60
1:A:555:LEU:HD13	1:A:598:MET:HG2	1.83	0.60
1:A:2243:LEU:HD12	1:A:2277:LEU:HD12	1.84	0.60
2:B:361:ARG:NH1	2:B:683:CYS:SG	2.74	0.60
3:C:1045:LYS:HE3	3:C:1127:ARG:HG2	1.84	0.60
2:B:1920:LEU:HD23	2:B:1977:MET:HG3	1.84	0.60
2:B:2453:THR:OG1	2:B:2578:ARG:NH2	2.35	0.60
3:C:1471:GLN:O	3:C:1475:ASN:ND2	2.31	0.60
3:C:1010:LEU:HD13	3:C:1441:LEU:HD11	1.84	0.60
1:A:445:ARG:NH2	1:A:488:MET:SD	2.75	0.59
2:B:1724:ARG:NH2	2:B:1952:GLU:OE2	2.34	0.59
3:C:59:MET:HG3	3:C:538:THR:HB	1.83	0.59
1:A:2439:LEU:HD21	1:A:2634:GLN:HB2	1.84	0.59
1:A:133:PRO:HD2	1:A:136:LEU:HD12	1.84	0.59
1:A:2207:LEU:HD13	1:A:2213:LEU:HD12	1.84	0.59
2:B:2003:LEU:HD22	2:B:2022:THR:HG21	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2202:PRO:O	2:B:2206:ILE:HB	2.03	0.59
1:A:394:GLU:HB2	2:B:2952:PHE:HZ	1.68	0.59
1:A:2541:GLN:O	1:A:2545:HIS:ND1	2.36	0.59
4:D:335:LYS:HB2	4:D:387:ASP:HB3	1.85	0.58
2:B:2644:GLU:OE2	2:B:2647:ARG:NH1	2.37	0.58
3:C:283:VAL:HG13	3:C:1384:ARG:HD2	1.84	0.58
1:A:397:ILE:HG23	1:A:476:MET:HG3	1.86	0.58
2:B:1803:LEU:HD13	2:B:1806:LEU:HD12	1.84	0.58
3:C:1477:VAL:O	3:C:1489:ARG:NH2	2.36	0.58
1:A:1352:PRO:O	1:A:1398:ASN:ND2	2.37	0.58
1:A:1363:ILE:HA	1:A:1366:MET:HE2	1.86	0.58
1:A:624:TYR:O	1:A:629:GLN:NE2	2.37	0.58
3:C:412:ARG:NH2	3:C:415:TYR:O	2.37	0.58
3:C:1539:TYR:HE1	3:C:1548:LEU:HD21	1.68	0.58
4:D:278:GLN:O	4:D:282:HIS:ND1	2.37	0.58
3:C:998:LYS:O	3:C:1004:ARG:NH1	2.37	0.58
3:C:1186:GLN:O	3:C:1471:GLN:NE2	2.36	0.58
1:A:2469:HIS:O	1:A:2472:VAL:HG22	2.04	0.57
3:C:312:LEU:HD22	3:C:1446:ILE:HD11	1.86	0.57
1:A:2396:ASN:ND2	1:A:2457:PRO:O	2.37	0.57
2:B:1178:LEU:HD21	2:B:1326:LEU:HD22	1.86	0.57
1:A:2065:LEU:HA	1:A:2068:MET:HE2	1.86	0.57
2:B:2809:LEU:HD11	2:B:2884:LEU:HD21	1.85	0.57
3:C:1357:PHE:HB2	3:C:1372:PHE:HD2	1.69	0.57
1:A:617:ILE:HG12	1:A:635:TRP:HE1	1.70	0.57
1:A:184:PRO:HA	1:A:187:HIS:CE1	2.39	0.57
2:B:2334:ARG:HH11	2:B:2397:SER:HB3	1.70	0.57
2:B:2791:GLY:HA3	2:B:2872:CYS:HB3	1.84	0.57
3:C:585:PHE:O	3:C:589:ILE:HB	2.04	0.57
2:B:2109:TYR:HB3	2:B:2142:LEU:HD22	1.87	0.57
1:A:1376:TYR:OH	2:B:1763:PHE:O	2.20	0.57
1:A:2223:LEU:HD13	1:A:2235:LEU:HD21	1.86	0.57
1:A:2564:LEU:HB3	1:A:2572:PHE:HB2	1.86	0.57
1:A:2348:LEU:HD22	1:A:2433:LEU:HD11	1.85	0.57
3:C:311:TRP:O	3:C:315:ASN:ND2	2.38	0.57
2:B:2234:ILE:HG22	2:B:2281:THR:HG21	1.86	0.56
3:C:1287:TRP:NE1	3:C:1299:THR:O	2.38	0.56
2:B:1561:CYS:HB3	2:B:1637:LEU:HB2	1.87	0.56
1:A:576:LEU:HB3	1:A:635:TRP:HB2	1.88	0.56
1:A:2574:LYS:HE2	2:B:191:LEU:HD11	1.86	0.56
2:B:1525:ASN:O	2:B:1525:ASN:ND2	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1926:MET:HE2	2:B:1943:GLN:HG2	1.86	0.56
2:B:2555:GLU:HG2	2:B:2558:ARG:HH22	1.70	0.56
2:B:1634:VAL:C	2:B:1636:SER:H	2.09	0.56
3:C:181:VAL:HG21	3:C:320:VAL:HG21	1.87	0.56
2:B:1320:ASP:O	2:B:1563:ARG:NH1	2.35	0.56
1:A:2431:ILE:HD11	1:A:2469:HIS:HB3	1.88	0.56
1:A:775:SER:O	1:A:779:ILE:HG12	2.06	0.56
1:A:2379:HIS:ND1	1:A:2634:GLN:OE1	2.30	0.56
2:B:359:ARG:O	2:B:362:HIS:ND1	2.38	0.56
2:B:1919:VAL:HB	2:B:1961:PHE:HZ	1.71	0.56
1:A:1119:THR:O	1:A:1123:GLU:HG2	2.06	0.55
2:B:2089:GLU:HB2	2:B:2122:ASN:HB3	1.88	0.55
2:B:2270:GLU:HG2	2:B:2315:ASN:HD22	1.72	0.55
2:B:2946:ASP:HB3	2:B:2951:ARG:HH21	1.70	0.55
1:A:1250:ILE:O	1:A:1254:MET:HG2	2.07	0.55
3:C:275:GLU:HG3	3:C:557:VAL:HG21	1.89	0.55
2:B:2415:ILE:HG23	2:B:2438:LEU:HD21	1.89	0.55
1:A:181:THR:HB	1:A:186:TYR:HD2	1.72	0.55
2:B:1231:HIS:HE1	2:B:1235:ARG:HE	1.55	0.55
3:C:958:ASP:OD2	3:C:995:ARG:NH2	2.37	0.55
1:A:490:ASP:O	1:A:494:SER:N	2.31	0.55
1:A:1135:PRO:HB2	1:A:1246:VAL:HG21	1.87	0.55
1:A:88:VAL:HG13	1:A:89:PRO:HD3	1.89	0.54
1:A:1302:ARG:NH1	1:A:1339:CYS:O	2.36	0.54
1:A:2403:VAL:HG13	1:A:2410:LEU:HD23	1.88	0.54
3:C:1478:ASP:O	3:C:1481:ARG:NH2	2.39	0.54
1:A:617:ILE:HG21	1:A:636:LEU:HD22	1.89	0.54
2:B:2313:GLU:HG2	3:C:709:LYS:HE3	1.89	0.54
2:B:1201:PRO:HG2	2:B:1206:LEU:HD13	1.88	0.54
3:C:391:LEU:HD13	3:C:488:ILE:HG22	1.88	0.54
1:A:1130:CYS:HB3	1:A:1232:LYS:HE2	1.88	0.54
2:B:665:LEU:HD22	2:B:795:MET:HG3	1.89	0.54
3:C:128:GLU:OE2	3:C:143:ARG:NH2	2.40	0.54
1:A:779:ILE:HG23	1:A:902:LEU:HD22	1.90	0.54
1:A:2174:ALA:O	1:A:2178:GLU:HG2	2.08	0.54
2:B:2477:GLN:HE21	2:B:2597:LEU:H	1.55	0.54
1:A:551:LEU:HB3	1:A:594:VAL:HG11	1.90	0.54
1:A:2574:LYS:HE3	2:B:87:HIS:CE1	2.43	0.54
2:B:2008:VAL:HG21	2:B:2053:LYS:HG3	1.90	0.54
2:B:2781:ASN:OD1	2:B:2974:LYS:NZ	2.35	0.54
3:C:159:ARG:NH1	3:C:162:LEU:O	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:473:GLN:O	3:C:476:TYR:HB2	2.08	0.54
1:A:39:LEU:HD12	1:A:105:THR:HG21	1.90	0.54
1:A:2526:LEU:HB3	2:B:36:PRO:HB3	1.89	0.54
2:B:2763:SER:HB3	2:B:2807:LEU:HD23	1.88	0.54
3:C:1548:LEU:HD23	3:C:1552:GLU:HG2	1.90	0.53
1:A:1114:VAL:O	1:A:1118:GLU:HG2	2.08	0.53
1:A:1285:LEU:HD13	1:A:1335:VAL:HG21	1.89	0.53
1:A:1238:ASP:HB2	1:A:1241:ILE:HG12	1.90	0.53
2:B:1332:ASN:HB3	2:B:1333:PRO:HD3	1.90	0.53
2:B:2313:GLU:HA	2:B:2319:ARG:HD2	1.89	0.53
1:A:43:SER:HB2	1:A:105:THR:HG22	1.91	0.53
2:B:1721:TRP:NE1	2:B:1952:GLU:OE1	2.35	0.53
3:C:305:LEU:HG	3:C:309:LEU:HD12	1.90	0.53
1:A:758:GLN:HE21	1:A:762:GLN:HE21	1.57	0.53
3:C:1464:TYR:OH	3:C:1468:ARG:NH2	2.42	0.53
3:C:1367:ASN:O	3:C:1371:ASN:ND2	2.40	0.53
2:B:2179:ILE:HG13	2:B:2187:HIS:CD2	2.43	0.53
1:A:1267:ASP:N	1:A:1267:ASP:OD1	2.41	0.53
1:A:497:GLU:OE2	1:A:560:TYR:OH	2.27	0.53
1:A:836:PRO:HB3	1:A:1028:LYS:HB3	1.91	0.52
3:C:564:LEU:HD21	3:C:576:ALA:HB2	1.90	0.52
4:D:312:ASP:OD1	4:D:312:ASP:N	2.42	0.52
1:A:2487:HIS:O	1:A:2490:SER:OG	2.24	0.52
3:C:1259:LYS:HE3	3:C:1268:PHE:HE1	1.73	0.52
1:A:1356:LEU:O	1:A:1364:ARG:NE	2.42	0.52
1:A:1375:LEU:HD21	1:A:1389:LEU:HD21	1.90	0.52
2:B:2588:GLU:HG3	2:B:2590:ARG:H	1.74	0.52
2:B:332:ASP:O	2:B:356:TYR:OH	2.26	0.52
2:B:2947:GLN:HA	2:B:2951:ARG:HD2	1.92	0.52
1:A:496:VAL:HG13	1:A:500:LYS:HD3	1.91	0.52
2:B:2297:GLY:HA2	2:B:2300:TRP:HD1	1.74	0.52
3:C:144:ILE:O	3:C:147:PRO:HD2	2.10	0.52
2:B:189:VAL:HG11	2:B:335:VAL:HA	1.92	0.52
1:A:85:LEU:HD13	1:A:128:THR:HG22	1.92	0.52
2:B:1732:GLU:HB3	2:B:1735:ALA:HB2	1.91	0.52
2:B:1961:PHE:HB3	2:B:1974:LEU:HD13	1.91	0.52
2:B:336:LEU:HD12	2:B:339:LEU:HD12	1.91	0.52
2:B:1711:LEU:HD21	2:B:1941:VAL:HG21	1.91	0.52
2:B:2021:ALA:O	2:B:2024:THR:OG1	2.28	0.52
1:A:636:LEU:HD11	1:A:646:VAL:HG21	1.91	0.51
2:B:2366:GLN:NE2	2:B:2370:ASP:OD1	2.43	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:227:LEU:HA	4:D:230:PHE:HE2	1.75	0.51
1:A:2577:PRO:HG2	2:B:187:LEU:HD22	1.93	0.51
2:B:1543:CYS:SG	2:B:1550:HIS:ND1	2.83	0.51
1:A:1381:ARG:NH2	1:A:2058:ASP:OD1	2.42	0.51
2:B:1757:MET:HG2	2:B:2035:GLY:HA3	1.91	0.51
3:C:273:VAL:HG13	3:C:305:LEU:HD11	1.93	0.51
3:C:945:THR:HB	3:C:948:ALA:HB2	1.92	0.51
1:A:2543:MET:SD	1:A:2586:ASN:ND2	2.83	0.51
1:A:918:ILE:O	1:A:922:MET:HG3	2.10	0.51
2:B:2409:PHE:CZ	2:B:2414:ALA:HB2	2.46	0.51
3:C:1522:LEU:HD23	3:C:1532:ASP:HB3	1.93	0.51
1:A:116:ASP:OD1	1:A:116:ASP:N	2.43	0.51
1:A:175:MET:HE1	1:A:212:GLY:HA3	1.92	0.51
1:A:2594:LEU:H	1:A:2594:LEU:HD12	1.76	0.51
1:A:517:ASP:N	1:A:517:ASP:OD1	2.41	0.51
1:A:1382:ASP:N	1:A:1382:ASP:OD1	2.44	0.51
1:A:2468:ASP:O	1:A:2471:ILE:HG12	2.10	0.51
1:A:2533:SER:HB3	2:B:34:LEU:HD12	1.91	0.51
2:B:1646:ILE:HG22	2:B:1731:MET:HA	1.92	0.51
2:B:2293:PHE:HA	2:B:2296:SER:O	2.11	0.51
1:A:2049:LEU:HD13	1:A:2067:ILE:HG23	1.93	0.50
1:A:2526:LEU:HD23	2:B:36:PRO:HA	1.92	0.50
3:C:1081:LYS:NZ	6:C:2002:NAG:O5	2.38	0.50
1:A:1049:ASP:OD1	1:A:1050:VAL:N	2.44	0.50
2:B:2334:ARG:HH22	2:B:2407:LEU:HD13	1.75	0.50
1:A:1259:ARG:NH2	2:B:1987:ASP:HB2	2.25	0.50
1:A:2389:ALA:O	1:A:2393:SER:N	2.42	0.50
2:B:1681:ALA:HA	2:B:1727:VAL:HG22	1.94	0.50
2:B:2596:LEU:H	2:B:2596:LEU:HD23	1.77	0.50
2:B:1811:GLU:OE2	2:B:1814:ARG:NH2	2.44	0.50
3:C:612:LYS:HZ1	3:C:1167:LEU:HB3	1.76	0.50
2:B:53:LEU:O	2:B:74:ARG:NH2	2.42	0.50
2:B:841:ASP:HB3	2:B:844:GLN:HB2	1.94	0.50
4:D:227:LEU:HB2	4:D:241:TRP:HE3	1.77	0.50
1:A:2247:ILE:HD13	1:A:2303:LEU:HD21	1.93	0.50
3:C:204:THR:O	3:C:206:HIS:ND1	2.40	0.50
4:D:360:VAL:HG13	4:D:362:TYR:HE1	1.77	0.50
3:C:644:VAL:HG21	3:C:663:MET:HG3	1.94	0.50
3:C:1223:GLN:OE1	3:C:1310:ARG:NH1	2.45	0.50
1:A:1011:VAL:HG12	1:A:1061:LEU:HD12	1.93	0.49
2:B:216:GLN:HA	2:B:219:TRP:CE3	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:556:CYS:O	1:A:559:PRO:HD2	2.12	0.49
1:A:2213:LEU:HD21	1:A:2246:VAL:HG13	1.93	0.49
2:B:218:MET:O	2:B:351:TRP:NE1	2.35	0.49
2:B:2313:GLU:HA	2:B:2319:ARG:HH11	1.78	0.49
2:B:2664:ILE:HG12	2:B:2671:ARG:HG3	1.95	0.49
2:B:1985:ILE:HG22	2:B:1987:ASP:H	1.76	0.49
3:C:1485:ILE:HB	3:C:1489:ARG:HB2	1.95	0.49
1:A:2237:GLU:HB3	1:A:2238:PRO:HD3	1.94	0.49
3:C:1473:ILE:HG21	3:C:1497:LEU:HD23	1.95	0.49
1:A:2495:PHE:CG	1:A:2556:HIS:HB3	2.47	0.49
1:A:2558:ILE:O	1:A:2561:MET:HG2	2.13	0.49
2:B:2417:LEU:O	2:B:2421:VAL:HG23	2.12	0.49
2:B:2045:MET:HB3	2:B:2051:GLU:HA	1.93	0.49
3:C:32:TRP:O	3:C:35:LYS:NZ	2.40	0.49
3:C:486:ILE:HD11	3:C:496:VAL:HG21	1.95	0.49
3:C:1253:VAL:HG22	3:C:1281:THR:HB	1.95	0.49
1:A:2275:PHE:HB2	1:A:2278:SER:HB3	1.94	0.49
2:B:2308:VAL:HG12	2:B:2318:LEU:HD21	1.93	0.49
2:B:2802:GLN:NE2	2:B:2876:GLN:O	2.38	0.49
3:C:922:GLU:OE1	3:C:992:ARG:NH1	2.36	0.49
3:C:937:ILE:HG12	3:C:942:LEU:HD13	1.94	0.48
1:A:629:GLN:NE2	1:A:661:SER:OG	2.46	0.48
1:A:2557:VAL:O	1:A:2560:LEU:HB3	2.13	0.48
3:C:405:TYR:CZ	3:C:407:LYS:HE3	2.49	0.48
3:C:1273:ARG:H	3:C:1273:ARG:HE	1.61	0.48
2:B:1926:MET:SD	2:B:1946:LEU:HD12	2.53	0.48
2:B:2109:TYR:CE2	2:B:2144:HIS:HB2	2.48	0.48
2:B:2487:THR:O	2:B:2611:SER:OG	2.30	0.48
3:C:159:ARG:NH1	3:C:160:PHE:O	2.45	0.48
1:A:1060:LEU:HD21	2:B:2170:LEU:HD11	1.95	0.48
2:B:2068:VAL:HG22	2:B:2140:LEU:HB2	1.94	0.48
1:A:910:MET:HG3	1:A:919:LEU:HD22	1.95	0.48
1:A:2064:LEU:HD21	1:A:2108:LEU:HD13	1.96	0.48
2:B:2372:LEU:HG	2:B:2409:PHE:HE2	1.79	0.48
1:A:2546:ASN:HB3	1:A:2549:MET:HG2	1.95	0.48
3:C:211:ASP:OD1	3:C:211:ASP:N	2.42	0.48
3:C:517:LEU:HD21	3:C:551:LEU:HD22	1.96	0.48
3:C:250:ASP:OD1	3:C:250:ASP:N	2.47	0.48
2:B:1228:ARG:HD2	2:B:1626:MET:SD	2.53	0.48
2:B:2633:MET:SD	2:B:2681:SER:OG	2.64	0.48
1:A:897:PRO:HG2	1:A:900:LEU:HD13	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:49:SER:HB2	3:C:78:LEU:HD13	1.96	0.47
1:A:904:TYR:CD1	1:A:954:MET:HE1	2.49	0.47
1:A:2384:LEU:O	1:A:2387:ILE:HG12	2.13	0.47
2:B:2562:GLU:HG3	2:B:2627:GLY:HA3	1.96	0.47
3:C:82:TYR:HA	3:C:85:GLU:HG3	1.97	0.47
3:C:191:LEU:HB2	3:C:1311:PHE:HE2	1.79	0.47
2:B:2547:GLU:OE2	2:B:2551:ARG:NE	2.47	0.47
4:D:347:GLN:OE1	4:D:370:CYS:N	2.47	0.47
1:A:997:GLY:O	1:A:1001:SER:OG	2.28	0.47
1:A:2246:VAL:HA	1:A:2250:ALA:HB3	1.97	0.47
1:A:2574:LYS:HZ3	2:B:187:LEU:HD11	1.79	0.47
3:C:1490:VAL:HG11	3:C:1519:MET:HG3	1.96	0.47
2:B:2573:LYS:HD3	2:B:2634:GLU:HB3	1.96	0.47
2:B:2788:LEU:O	2:B:2792:SER:OG	2.23	0.47
3:C:1146:ILE:O	3:C:1150:LEU:N	2.40	0.47
2:B:866:HIS:NE2	2:B:872:CYS:HB3	2.29	0.47
3:C:1047:ASN:OD1	3:C:1047:ASN:N	2.46	0.47
3:C:1484:VAL:HA	3:C:1528:VAL:O	2.15	0.47
2:B:2096:LEU:HD23	2:B:2142:LEU:HD11	1.97	0.47
3:C:87:ILE:HA	3:C:90:MET:HG2	1.96	0.47
3:C:979:GLU:N	3:C:983:GLN:OE1	2.42	0.47
3:C:1068:SER:OG	3:C:1070:ASN:OD1	2.31	0.47
3:C:1110:GLU:OE2	3:C:1396:HIS:NE2	2.47	0.47
1:A:2597:ARG:O	1:A:2601:ILE:HG12	2.15	0.47
2:B:1572:TYR:CZ	2:B:1626:MET:HG2	2.50	0.47
1:A:2058:ASP:OD1	1:A:2058:ASP:N	2.46	0.47
2:B:336:LEU:HB2	2:B:356:TYR:OH	2.14	0.47
2:B:1950:LEU:O	2:B:1954:PRO:HG3	2.15	0.47
3:C:312:LEU:O	3:C:316:VAL:HG23	2.14	0.47
1:A:175:MET:HE3	2:B:2917:VAL:HG21	1.97	0.46
2:B:2738:PRO:HB2	2:B:2740:PRO:HD2	1.97	0.46
1:A:1012:GLU:O	1:A:1016:VAL:HG23	2.15	0.46
2:B:2456:VAL:HG12	2:B:2457:GLU:H	1.80	0.46
1:A:452:ILE:HG13	1:A:500:LYS:HE3	1.98	0.46
1:A:2396:ASN:O	1:A:2397:HIS:ND1	2.48	0.46
4:D:361:ILE:HG22	4:D:363:GLY:H	1.80	0.46
1:A:2353:ASP:HB2	1:A:2356:THR:HG23	1.97	0.46
1:A:1165:ARG:HD3	1:A:1165:ARG:HA	1.68	0.46
2:B:96:ARG:NH2	2:B:102:GLN:O	2.49	0.46
2:B:2179:ILE:HG13	2:B:2187:HIS:HD2	1.80	0.46
2:B:2554:ARG:HD3	2:B:2619:ASP:OD2	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:642:GLN:HG2	3:C:660:GLU:HG3	1.96	0.46
1:A:211:TYR:OH	2:B:2912:ARG:NH1	2.48	0.46
1:A:1276:THR:HG23	1:A:1279:ARG:NH2	2.31	0.46
1:A:2491:LEU:HB3	1:A:2556:HIS:CD2	2.51	0.46
2:B:353:LEU:HD11	2:B:664:VAL:HG11	1.97	0.46
2:B:1316:LEU:HD23	2:B:1548:TYR:HD2	1.81	0.46
3:C:1258:MET:O	3:C:1261:ILE:HG13	2.15	0.46
4:D:342:TYR:O	4:D:345:GLU:HB2	2.16	0.46
2:B:2913:ILE:HG22	2:B:2915:ILE:HG12	1.97	0.46
3:C:1043:LEU:O	3:C:1127:ARG:NH1	2.40	0.46
2:B:2176:THR:HG22	2:B:2187:HIS:NE2	2.31	0.45
2:B:2657:LEU:HA	2:B:2660:MET:HG2	1.98	0.45
4:D:230:PHE:O	4:D:239:THR:HA	2.16	0.45
1:A:1375:LEU:HD11	1:A:1393:ILE:HD11	1.98	0.45
1:A:2468:ASP:O	1:A:2472:VAL:HG13	2.16	0.45
2:B:2626:ARG:CZ	2:B:2630:ARG:HH22	2.30	0.45
1:A:136:LEU:O	1:A:140:ILE:HG12	2.17	0.45
1:A:1158:ILE:HG22	1:A:1162:ARG:HH12	1.81	0.45
1:A:1318:MET:O	1:A:1378:TYR:OH	2.26	0.45
2:B:85:VAL:HG21	2:B:119:MET:SD	2.57	0.45
2:B:2230:LYS:O	2:B:2234:ILE:HG13	2.16	0.45
2:B:2306:LEU:HD21	2:B:2341:LEU:HD11	1.98	0.45
2:B:2466:ILE:HD13	2:B:2591:VAL:HG11	1.97	0.45
4:D:354:LEU:HD12	4:D:355:PRO:HD2	1.98	0.45
1:A:2182:MET:O	1:A:2226:ILE:HA	2.16	0.45
1:A:2590:LEU:HD13	1:A:2594:LEU:HB2	1.98	0.45
2:B:690:VAL:HG23	2:B:788:ASN:HB2	1.99	0.45
2:B:1034:LYS:HD3	2:B:1212:LEU:HD23	1.98	0.45
2:B:2041:LEU:HD11	2:B:2171:PHE:HZ	1.82	0.45
2:B:2264:ALA:HB1	2:B:2274:LEU:HD11	1.98	0.45
1:A:456:VAL:HG21	1:A:503:PHE:HB3	1.99	0.45
2:B:2087:GLN:HA	2:B:2125:TYR:HA	1.99	0.45
3:C:1273:ARG:H	3:C:1273:ARG:NE	2.14	0.45
1:A:128:THR:HB	1:A:132:PHE:CE2	2.52	0.45
1:A:2310:ASP:OD2	1:A:2336:ALA:N	2.50	0.45
2:B:1962:LEU:HD13	2:B:1999:TYR:CD1	2.52	0.45
1:A:149:LEU:HB2	1:A:150:PRO:HD3	1.99	0.45
1:A:2035:GLU:OE1	1:A:2037:TYR:OH	2.30	0.45
1:A:2463:GLY:O	1:A:2466:ILE:HG12	2.17	0.45
2:B:2792:SER:HB3	2:B:2963:ILE:HG12	1.98	0.45
4:D:195:SER:HB2	4:D:198:ALA:HB2	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1087:ASP:OD1	1:A:1173:SER:HB2	2.17	0.45
1:A:2354:MET:SD	1:A:2354:MET:N	2.74	0.45
1:A:2529:LEU:HD21	2:B:87:HIS:CE1	2.52	0.45
1:A:2552:MET:O	1:A:2555:LEU:HB2	2.16	0.45
2:B:1545:HIS:CE1	2:B:1555:LEU:HB2	2.52	0.45
3:C:1516:CYS:SG	3:C:1517:TYR:N	2.90	0.45
1:A:555:LEU:HD21	1:A:597:LYS:HD3	1.98	0.44
1:A:919:LEU:HD13	1:A:962:VAL:HG23	1.99	0.44
1:A:2144:ILE:HD13	1:A:2180:LEU:HD13	1.99	0.44
2:B:2952:PHE:HD2	2:B:2954:PRO:HD3	1.82	0.44
1:A:461:PRO:HD3	1:A:507:TRP:HE1	1.82	0.44
1:A:464:ASN:OD1	1:A:464:ASN:N	2.51	0.44
1:A:2542:LEU:HA	1:A:2545:HIS:HD1	1.82	0.44
2:B:2066:LEU:HA	2:B:2137:SER:HB2	1.99	0.44
3:C:594:PHE:HB3	3:C:1149:THR:HG21	2.00	0.44
1:A:168:LEU:HD12	1:A:168:LEU:H	1.82	0.44
2:B:93:LEU:HD11	2:B:113:LEU:HD21	1.99	0.44
2:B:2339:LEU:HD12	3:C:662:PHE:HE2	1.81	0.44
2:B:2626:ARG:NH1	2:B:2630:ARG:HH22	2.16	0.44
4:D:304:TYR:CG	4:D:351:PRO:HB3	2.52	0.44
1:A:1103:GLN:NE2	1:A:1261:GLU:OE1	2.50	0.44
2:B:26:LEU:HB3	2:B:84:HIS:CD2	2.53	0.44
2:B:928:LEU:HD13	2:B:929:GLY:H	1.83	0.44
2:B:2335:LYS:HG3	2:B:2417:LEU:HD11	1.99	0.44
2:B:2453:THR:HG22	2:B:2461:ALA:HB1	2.00	0.44
3:C:665:GLN:O	3:C:669:ARG:HG2	2.17	0.44
1:A:80:THR:O	1:A:84:LEU:HG	2.17	0.44
1:A:1294:PHE:CD1	1:A:1301:MET:HE1	2.53	0.44
1:A:2409:TRP:CZ3	1:A:2430:HIS:HB3	2.53	0.44
3:C:1311:PHE:O	3:C:1314:ILE:HG22	2.16	0.44
1:A:123:TYR:O	1:A:127:SER:N	2.49	0.44
1:A:2395:GLY:HA3	1:A:2402:ALA:HB2	1.99	0.44
1:A:103:PHE:HE2	1:A:125:MET:HE3	1.83	0.44
1:A:110:LEU:HB3	1:A:111:PRO:HD3	2.00	0.44
1:A:779:ILE:HG22	1:A:898:VAL:HG12	2.00	0.44
1:A:1008:PHE:CZ	1:A:1057:ARG:HD2	2.53	0.44
1:A:1096:LEU:HD21	1:A:1255:LYS:HD2	1.99	0.44
2:B:1224:LEU:HB3	2:B:1626:MET:HE1	1.99	0.44
2:B:2582:LEU:O	2:B:2586:ALA:N	2.51	0.44
3:C:1268:PHE:CE2	3:C:1274:ASN:HB3	2.53	0.44
1:A:2099:GLN:HG2	2:B:1833:TYR:HB3	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:976:VAL:O	3:C:1412:TYR:N	2.51	0.44
1:A:827:PRO:HD2	1:A:932:HIS:O	2.18	0.43
1:A:1011:VAL:HG13	1:A:1043:PHE:CE1	2.53	0.43
2:B:2020:SER:HA	2:B:2164:GLU:HG2	1.99	0.43
2:B:2267:LEU:HD21	3:C:726:VAL:HG21	2.00	0.43
2:B:2923:ILE:HA	2:B:2927:LEU:HB3	1.99	0.43
1:A:523:LEU:HD22	1:A:554:ILE:HG12	2.00	0.43
1:A:649:GLN:HG3	1:A:774:LEU:HD11	2.00	0.43
2:B:2718:GLY:HA2	2:B:2719:PRO:HD3	1.85	0.43
3:C:1203:MET:HG2	3:C:1261:ILE:HD11	1.99	0.43
2:B:1946:LEU:HD23	2:B:1946:LEU:HA	1.75	0.43
1:A:491:GLU:H	1:A:491:GLU:HG3	1.66	0.43
2:B:1951:ILE:HD13	2:B:1951:ILE:HA	1.81	0.43
2:B:2656:ARG:HD2	2:B:2656:ARG:HA	1.76	0.43
2:B:2923:ILE:HG22	2:B:2948:LEU:HD11	1.98	0.43
3:C:291:ASP:OD1	3:C:1368:ARG:NH2	2.47	0.43
1:A:187:HIS:CD2	1:A:187:HIS:H	2.35	0.43
2:B:1533:ILE:O	2:B:1537:ASN:HB2	2.19	0.43
2:B:2639:THR:HB	2:B:2641:TRP:CE2	2.53	0.43
1:A:455:LEU:O	1:A:459:CYS:HB3	2.18	0.43
1:A:595:LEU:HD23	1:A:598:MET:HE2	2.01	0.43
1:A:832:ARG:H	1:A:832:ARG:HG3	1.56	0.43
2:B:2463:ARG:HH22	2:B:2588:GLU:HB3	1.84	0.43
2:B:2666:LYS:HB3	2:B:2668:PRO:HD2	2.01	0.43
4:D:334:ARG:NH1	4:D:334:ARG:HA	2.34	0.43
2:B:204:LEU:HD11	2:B:215:TRP:HD1	1.83	0.43
1:A:2150:LEU:HD21	1:A:2173:ILE:HG12	2.00	0.43
1:A:2529:LEU:HD21	2:B:87:HIS:NE2	2.33	0.43
1:A:2564:LEU:HD13	1:A:2572:PHE:HB2	2.01	0.43
2:B:1647:LYS:HA	2:B:1731:MET:O	2.19	0.43
2:B:1687:ALA:HB2	2:B:1694:VAL:HG11	2.01	0.43
1:A:46:LEU:HD23	1:A:109:LEU:HD13	2.01	0.43
1:A:177:ALA:O	1:A:181:THR:OG1	2.36	0.43
1:A:620:ARG:HG3	1:A:632:ALA:HB2	1.99	0.43
1:A:2574:LYS:HE2	2:B:191:LEU:HD21	2.00	0.43
2:B:1920:LEU:HB2	2:B:1921:PRO:HD3	2.01	0.43
2:B:2557:PHE:O	2:B:2561:ARG:NH1	2.52	0.43
3:C:349:GLN:HA	3:C:363:ALA:HA	2.00	0.43
2:B:2051:GLU:HG3	2:B:2055:LEU:HD12	2.00	0.43
2:B:2333:HIS:HE2	2:B:2398:LEU:HD12	1.84	0.43
3:C:895:VAL:HG12	3:C:925:PHE:HD1	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2354:MET:HB3	1:A:2432:ARG:NH1	2.33	0.42
2:B:118:TRP:NE1	2:B:122:GLU:OE1	2.52	0.42
2:B:1206:LEU:HD12	2:B:1206:LEU:HA	1.76	0.42
2:B:1912:PRO:HG2	2:B:1915:ILE:HG12	2.01	0.42
2:B:2311:ASP:HA	3:C:712:PHE:HD2	1.84	0.42
2:B:2430:ARG:NH2	3:C:669:ARG:HB2	2.34	0.42
3:C:995:ARG:HH12	3:C:999:LEU:HD11	1.83	0.42
3:C:1087:PRO:HD3	4:D:320:TRP:CZ2	2.54	0.42
3:C:1272:ARG:HB2	3:C:1273:ARG:HH21	1.83	0.42
3:C:1524:ASN:OD1	3:C:1524:ASN:N	2.52	0.42
2:B:677:ALA:HB1	2:B:795:MET:HE3	2.01	0.42
1:A:633:LEU:HD23	1:A:633:LEU:HA	1.85	0.42
1:A:1060:LEU:HD12	2:B:2228:LEU:HD13	2.02	0.42
1:A:2270:LYS:O	1:A:2274:LYS:HG3	2.20	0.42
2:B:2060:MET:HB2	2:B:2131:PRO:HB2	2.01	0.42
2:B:2647:ARG:N	2:B:2648:PRO:HD2	2.34	0.42
3:C:274:TYR:OH	3:C:583:HIS:ND1	2.33	0.42
3:C:397:ASP:HB2	3:C:425:PHE:CG	2.55	0.42
3:C:1251:ILE:O	3:C:1254:LEU:HG	2.18	0.42
2:B:2689:THR:HG22	2:B:2696:ILE:HD13	2.02	0.42
3:C:550:ILE:HA	3:C:556:TRP:HB3	2.00	0.42
1:A:2419:GLN:HB3	1:A:2480:GLN:HE22	1.84	0.42
1:A:2435:SER:HB3	1:A:2497:PHE:HB2	2.02	0.42
2:B:1219:ARG:HE	2:B:1342:LEU:HD21	1.83	0.42
2:B:2158:VAL:HG12	2:B:2222:LEU:HD21	2.01	0.42
1:A:452:ILE:HG21	1:A:500:LYS:NZ	2.34	0.42
1:A:1038:HIS:CD2	1:A:1177:SER:HG	2.37	0.42
1:A:2151:LEU:HD21	1:A:2196:PHE:CD2	2.54	0.42
1:A:2584:GLN:O	1:A:2587:THR:OG1	2.32	0.42
3:C:1156:ILE:HG12	3:C:1444:ALA:HB2	2.02	0.42
2:B:852:TYR:CE2	2:B:861:VAL:HG12	2.55	0.42
2:B:1752:SER:OG	2:B:1753:PRO:HD3	2.20	0.42
3:C:1359:THR:O	3:C:1416:ASP:HA	2.19	0.42
4:D:191:PHE:H	4:D:231:TYR:HD2	1.67	0.42
4:D:252:THR:O	4:D:254:ASN:N	2.45	0.42
1:A:147:SER:O	1:A:150:PRO:HD2	2.19	0.42
1:A:2197:GLN:HG3	1:A:2238:PRO:HG2	2.01	0.42
1:A:2209:LEU:O	1:A:2250:ALA:HA	2.20	0.42
3:C:1074:LYS:HA	3:C:1076:ARG:NH1	2.34	0.42
2:B:1200:ILE:HA	2:B:1201:PRO:HA	1.73	0.42
2:B:1647:LYS:HD3	2:B:1731:MET:O	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2064:LYS:HD3	2:B:2133:ARG:HH21	1.84	0.42
1:A:103:PHE:HZ	1:A:128:THR:HG21	1.84	0.42
1:A:461:PRO:HD3	1:A:507:TRP:NE1	2.35	0.42
1:A:1350:GLN:HB2	1:A:1351:PRO:HD3	2.02	0.42
1:A:2463:GLY:HA2	1:A:2466:ILE:HD13	2.02	0.42
2:B:2324:PHE:O	2:B:2328:GLN:HG2	2.20	0.42
2:B:2566:ASN:OD1	2:B:2627:GLY:HA2	2.20	0.42
3:C:1178:LEU:HD22	3:C:1461:LEU:HG	2.02	0.42
1:A:2247:ILE:O	1:A:2299:ASN:ND2	2.38	0.41
2:B:947:ASN:OD1	2:B:1032:TRP:NE1	2.52	0.41
2:B:2399:ASP:HB3	2:B:2402:TYR:HD2	1.85	0.41
3:C:35:LYS:O	3:C:38:VAL:HG12	2.20	0.41
1:A:936:LEU:HD23	1:A:936:LEU:HA	1.87	0.41
1:A:936:LEU:HB3	1:A:984:LEU:HD11	2.02	0.41
1:A:1112:PHE:O	1:A:1116:ARG:HD2	2.20	0.41
1:A:2065:LEU:HD13	3:C:359:TRP:CZ2	2.55	0.41
1:A:2257:LEU:HD11	1:A:2281:VAL:HG21	2.02	0.41
2:B:33:PHE:HE2	2:B:92:LEU:HD22	1.84	0.41
2:B:1317:ARG:NH1	2:B:1547:ASP:OD1	2.53	0.41
2:B:2342:PHE:CZ	2:B:2414:ALA:HB1	2.55	0.41
4:D:289:GLU:HA	4:D:292:GLU:HG2	2.02	0.41
1:A:2233:ARG:HH21	1:A:2272:ARG:NH2	2.16	0.41
2:B:1704:HIS:CE1	2:B:1709:GLN:HG3	2.56	0.41
2:B:2195:LEU:HD22	2:B:2201:PHE:CD1	2.55	0.41
3:C:219:TRP:NE1	3:C:1073:LEU:HB3	2.36	0.41
3:C:423:VAL:HG22	3:C:465:VAL:HG22	2.02	0.41
3:C:929:MET:HE2	3:C:962:TYR:HB2	2.01	0.41
3:C:1085:TRP:O	4:D:317:TYR:OH	2.30	0.41
3:C:1314:ILE:HD12	3:C:1314:ILE:HA	1.85	0.41
3:C:1474:TRP:HZ2	3:C:1483:GLY:HA2	1.85	0.41
1:A:2532:TRP:HA	1:A:2535:VAL:HG22	2.02	0.41
2:B:2330:TYR:CZ	2:B:2409:PHE:HB2	2.55	0.41
3:C:1000:VAL:HB	3:C:1003:MET:HG2	2.01	0.41
1:A:74:TYR:HB2	1:A:75:GLN:H	1.75	0.41
1:A:129:LEU:HD12	1:A:137:HIS:CD2	2.55	0.41
1:A:2564:LEU:O	1:A:2568:ASN:N	2.50	0.41
2:B:2677:GLU:HB2	2:B:2678:PRO:HD3	2.01	0.41
3:C:1227:LEU:HD21	3:C:1307:ILE:HD12	2.03	0.41
1:A:2555:LEU:O	1:A:2558:ILE:HG12	2.20	0.41
2:B:799:ILE:O	2:B:802:SER:OG	2.27	0.41
2:B:2639:THR:O	2:B:2693:GLN:NE2	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2687:CYS:SG	2:B:2748:LEU:HB2	2.61	0.41
4:D:298:TYR:CE2	4:D:300:GLN:HB2	2.56	0.41
1:A:926:LEU:O	1:A:930:CYS:N	2.43	0.41
1:A:1241:ILE:O	1:A:1245:THR:HG23	2.20	0.41
1:A:2173:ILE:O	1:A:2177:MET:HG2	2.21	0.41
2:B:1343:LYS:HD3	2:B:1535:LEU:HD21	2.03	0.41
2:B:2783:LEU:O	2:B:2787:VAL:HG23	2.21	0.41
2:B:2864:LEU:O	2:B:2868:VAL:HG23	2.21	0.41
3:C:473:GLN:HE21	3:C:1131:ILE:HG13	1.86	0.41
3:C:1237:VAL:O	3:C:1240:PRO:HD2	2.20	0.41
1:A:445:ARG:HG2	1:A:487:MET:HE1	2.03	0.41
1:A:567:VAL:HG12	1:A:571:ILE:HD13	2.02	0.41
1:A:1012:GLU:HB2	1:A:1057:ARG:CZ	2.50	0.41
1:A:1117:PHE:HB3	1:A:1140:ILE:HG21	2.03	0.41
2:B:1745:SER:OG	2:B:1963:GLU:OE2	2.38	0.41
2:B:2009:ARG:NH2	2:B:2048:GLU:OE1	2.38	0.41
2:B:2209:GLU:N	2:B:2209:GLU:OE1	2.54	0.41
2:B:2452:GLN:O	2:B:2456:VAL:HG23	2.21	0.41
2:B:2948:LEU:HD23	2:B:2948:LEU:HA	1.94	0.41
3:C:286:MET:HA	3:C:302:PHE:CE2	2.56	0.41
3:C:579:PHE:HD1	3:C:579:PHE:HA	1.76	0.41
3:C:1439:LEU:O	3:C:1443:VAL:HG23	2.21	0.41
1:A:616:PHE:CE2	1:A:617:ILE:HG13	2.56	0.41
1:A:1045:THR:HG21	1:A:1178:VAL:HG13	2.03	0.41
1:A:1112:PHE:CE1	1:A:1116:ARG:HD3	2.56	0.41
1:A:2355:HIS:O	1:A:2359:LYS:HG2	2.21	0.41
2:B:1763:PHE:HE1	2:B:1813:LYS:HA	1.86	0.41
2:B:2756:LEU:HG	2:B:2759:ASP:HB3	2.02	0.41
1:A:2419:GLN:OE1	1:A:2475:ILE:HG22	2.21	0.40
2:B:1231:HIS:HB2	2:B:1352:GLU:OE1	2.21	0.40
2:B:1922:ILE:O	2:B:1926:MET:HG3	2.21	0.40
2:B:2143:VAL:HG12	2:B:2145:MET:HG3	2.03	0.40
2:B:2157:GLN:O	2:B:2161:ARG:HG3	2.21	0.40
2:B:2302:LEU:N	2:B:2303:PRO:HD2	2.36	0.40
3:C:282:TRP:NE1	3:C:1387:THR:O	2.45	0.40
3:C:1045:LYS:HA	3:C:1090:TRP:CE2	2.56	0.40
1:A:2157:LYS:HE3	1:A:2157:LYS:HB2	1.87	0.40
1:A:2446:ALA:O	1:A:2627:ARG:NH2	2.53	0.40
2:B:344:TRP:HD1	2:B:345:SER:H	1.69	0.40
2:B:680:ILE:HD12	2:B:680:ILE:HA	1.94	0.40
2:B:2814:ASN:O	2:B:2818:PRO:HD2	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:543:ALA:O	3:C:547:MET:HG2	2.21	0.40
3:C:1203:MET:HB3	3:C:1262:ALA:HB2	2.03	0.40
3:C:1231:TRP:HE1	3:C:1241:LEU:HD13	1.86	0.40
1:A:633:LEU:HD21	1:A:655:PHE:CE1	2.56	0.40
1:A:1011:VAL:HG13	1:A:1043:PHE:HE1	1.85	0.40
1:A:1346:HIS:HB3	1:A:1354:CYS:SG	2.62	0.40
1:A:2546:ASN:O	1:A:2550:VAL:HG13	2.20	0.40
2:B:2763:SER:HA	2:B:2766:ILE:HG12	2.03	0.40
3:C:213:LYS:HA	3:C:213:LYS:HD3	1.93	0.40
3:C:607:ASP:OD1	3:C:607:ASP:N	2.53	0.40
3:C:1276:TYR:CE1	3:C:1313:SER:HB2	2.56	0.40
1:A:1019:ARG:NH2	1:A:1061:LEU:HD22	2.37	0.40
1:A:1045:THR:HG21	1:A:1178:VAL:O	2.21	0.40
2:B:216:GLN:HB3	2:B:217:PRO:HD3	2.03	0.40
2:B:793:LEU:HD11	2:B:845:PHE:CD1	2.56	0.40
2:B:2104:SER:OG	2:B:2105:GLN:OE1	2.27	0.40
3:C:312:LEU:HD13	3:C:1328:VAL:HG13	2.03	0.40
3:C:554:GLU:HB3	3:C:1117:TRP:HE1	1.86	0.40
1:A:917:ASP:OD1	3:C:717:ARG:NH2	2.53	0.40
1:A:2590:LEU:HD12	1:A:2595:GLN:HG2	2.04	0.40
2:B:2172:LEU:O	2:B:2176:THR:HG23	2.22	0.40
2:B:2409:PHE:HZ	2:B:2414:ALA:HB2	1.87	0.40
3:C:436:LYS:HE3	3:C:445:TYR:HE1	1.86	0.40
3:C:1094:ARG:HD2	4:D:364:GLY:O	2.22	0.40
3:C:1366:ILE:HD11	3:C:1394:ILE:HG23	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	1492/2654 (56%)	1441 (97%)	51 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	B	1671/3326 (50%)	1586 (95%)	85 (5%)	0	100	100
3	C	1330/1738 (76%)	1294 (97%)	36 (3%)	0	100	100
4	D	167/467 (36%)	157 (94%)	10 (6%)	0	100	100
All	All	4660/8185 (57%)	4478 (96%)	182 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	1363/2366 (58%)	1315 (96%)	48 (4%)	31	63
2	B	1529/2916 (52%)	1478 (97%)	51 (3%)	33	64
3	C	1174/1572 (75%)	1143 (97%)	31 (3%)	41	70
4	D	157/409 (38%)	150 (96%)	7 (4%)	23	56
All	All	4223/7263 (58%)	4086 (97%)	137 (3%)	36	65

All (137) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	85	LEU
1	A	88	VAL
1	A	120	THR
1	A	129	LEU
1	A	202	TRP
1	A	464	ASN
1	A	473	LEU
1	A	481	PHE
1	A	488	MET
1	A	491	GLU
1	A	500	LYS
1	A	517	ASP
1	A	602	GLU

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Mol	Chain	Res	Type
1	A	635	TRP
1	A	645	THR
1	A	832	ARG
1	A	950	ILE
1	A	955	LEU
1	A	962	VAL
1	A	969	GLN
1	A	1009	GLU
1	A	1090	THR
1	A	1104	ASP
1	A	1116	ARG
1	A	1122	LEU
1	A	1136	PHE
1	A	1172	ARG
1	A	1233	ASP
1	A	1238	ASP
1	A	1259	ARG
1	A	1354	CYS
1	A	1372	LEU
1	A	1382	ASP
1	A	1403	GLN
1	A	2138	PHE
1	A	2188	LEU
1	A	2196	PHE
1	A	2213	LEU
1	A	2243	LEU
1	A	2275	PHE
1	A	2276	TYR
1	A	2394	ARG
1	A	2436	TRP
1	A	2466	ILE
1	A	2469	HIS
1	A	2477	PHE
1	A	2522	PHE
1	A	2634	GLN
2	B	87	HIS
2	B	107	VAL
2	B	206	PHE
2	B	793	LEU
2	B	849	MET
2	B	868	LEU
2	B	928	LEU

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Mol	Chain	Res	Type
2	B	1029	LYS
2	B	1031	PHE
2	B	1034	LYS
2	B	1196	GLU
2	B	1206	LEU
2	B	1224	LEU
2	B	1331	VAL
2	B	1537	ASN
2	B	1685	LEU
2	B	1752	SER
2	B	1833	TYR
2	B	1914	CYS
2	B	1920	LEU
2	B	1934	ASP
2	B	1965	LEU
2	B	1971	GLN
2	B	1988	PHE
2	B	1991	GLN
2	B	2041	LEU
2	B	2052	VAL
2	B	2056	VAL
2	B	2063	THR
2	B	2066	LEU
2	B	2075	ASP
2	B	2142	LEU
2	B	2206	ILE
2	B	2207	ASP
2	B	2223	PHE
2	B	2274	LEU
2	B	2277	GLN
2	B	2320	ARG
2	B	2335	LYS
2	B	2427	GLU
2	B	2432	LEU
2	B	2547	GLU
2	B	2559	ARG
2	B	2596	LEU
2	B	2601	SER
2	B	2630	ARG
2	B	2663	LYS
2	B	2807	LEU
2	B	2913	ILE

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Mol	Chain	Res	Type
2	B	2926	LYS
2	B	2938	LEU
3	C	31	LEU
3	C	57	THR
3	C	122	LEU
3	C	136	MET
3	C	152	ARG
3	C	187	PHE
3	C	188	PHE
3	C	250	ASP
3	C	465	VAL
3	C	476	TYR
3	C	482	VAL
3	C	654	THR
3	C	669	ARG
3	C	712	PHE
3	C	731	ARG
3	C	733	CYS
3	C	875	TYR
3	C	932	GLU
3	C	1029	LEU
3	C	1145	MET
3	C	1151	PHE
3	C	1250	PHE
3	C	1273	ARG
3	C	1291	HIS
3	C	1312	PHE
3	C	1318	HIS
3	C	1488	PHE
3	C	1492	PHE
3	C	1493	LEU
3	C	1516	CYS
3	C	1524	ASN
4	D	252	THR
4	D	279	ASP
4	D	280	TYR
4	D	312	ASP
4	D	313	CYS
4	D	348	THR
4	D	349	ARG

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

Mol	Chain	Res	Type
1	A	758	GLN
2	B	1545	HIS
2	B	2477	GLN
3	C	63	HIS
3	C	315	ASN
3	C	1471	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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 5 ligands modelled in this entry, 2 are monoatomic - leaving 3 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
6	NAG	C	2001	3	14,14,15	0.19	0	17,19,21	0.41	0
6	NAG	C	2003	3	14,14,15	0.21	0	17,19,21	0.45	0
6	NAG	C	2002	3	14,14,15	0.21	0	17,19,21	0.46	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	C	2001	3	-	4/6/23/26	0/1/1/1
6	NAG	C	2003	3	-	0/6/23/26	0/1/1/1
6	NAG	C	2002	3	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	C	2001	NAG	C4-C5-C6-O6
6	C	2001	NAG	O5-C5-C6-O6
6	C	2001	NAG	C8-C7-N2-C2
6	C	2001	NAG	O7-C7-N2-C2

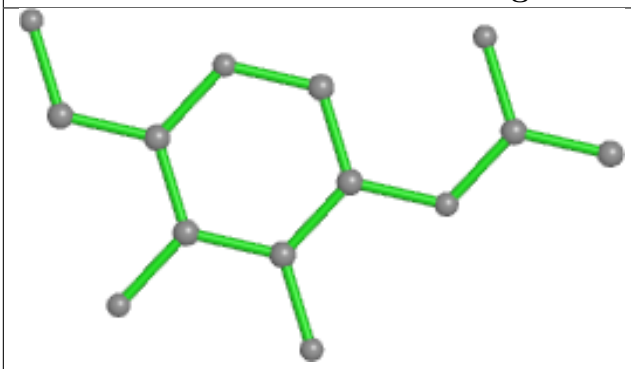
There are no ring outliers.

1 monomer is involved in 1 short contact:

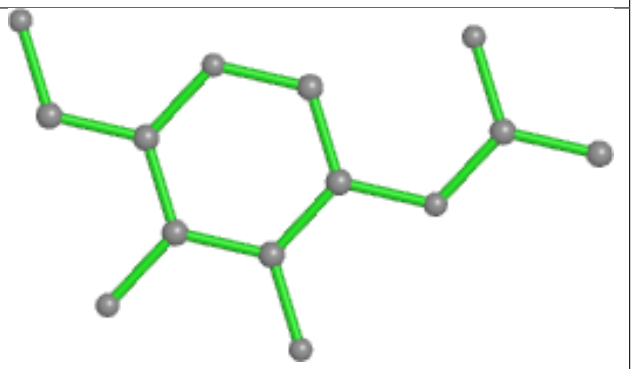
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	C	2002	NAG	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

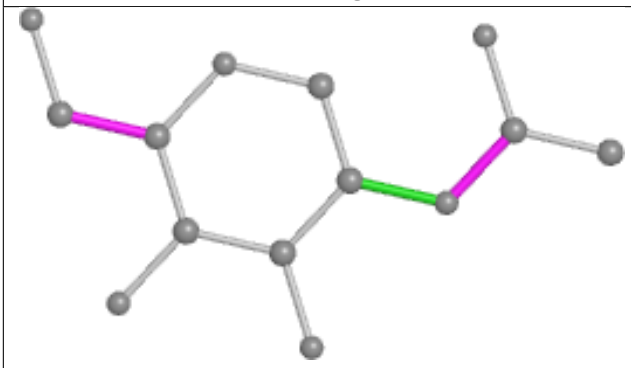
Ligand NAG C 2001



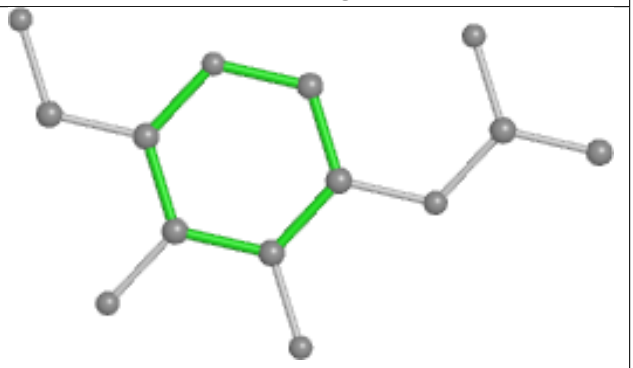
Bond lengths



Bond angles

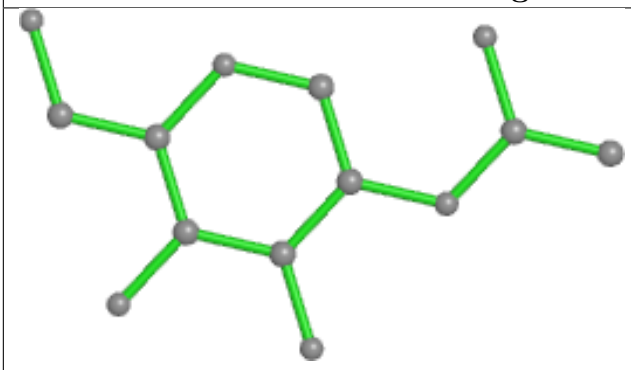


Torsions

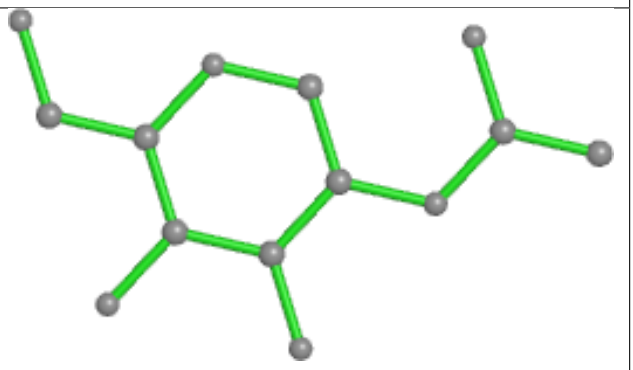


Rings

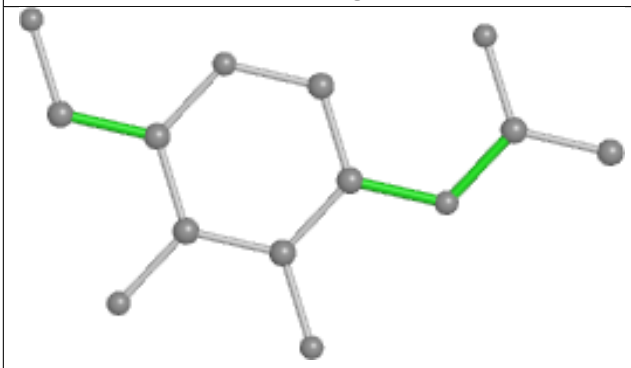
Ligand NAG C 2003



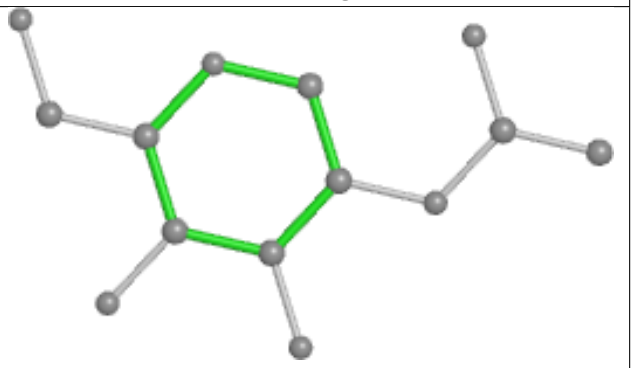
Bond lengths



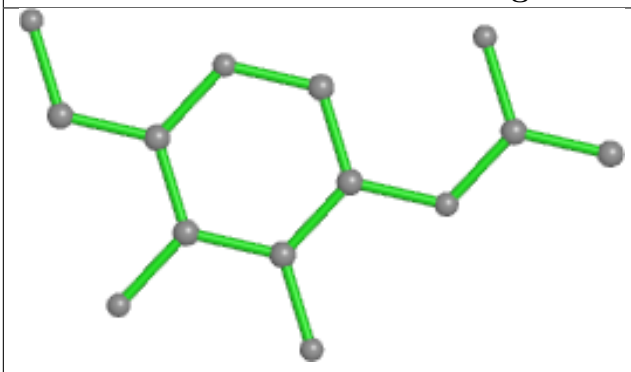
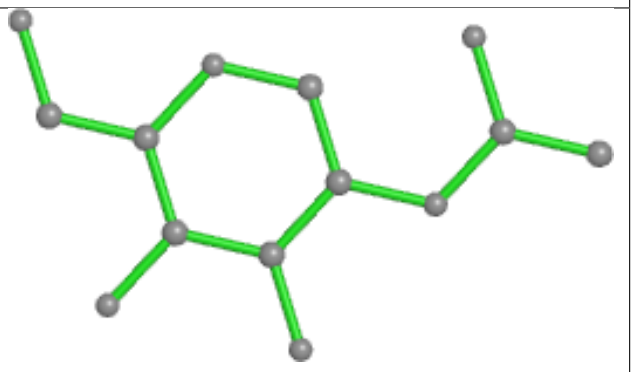
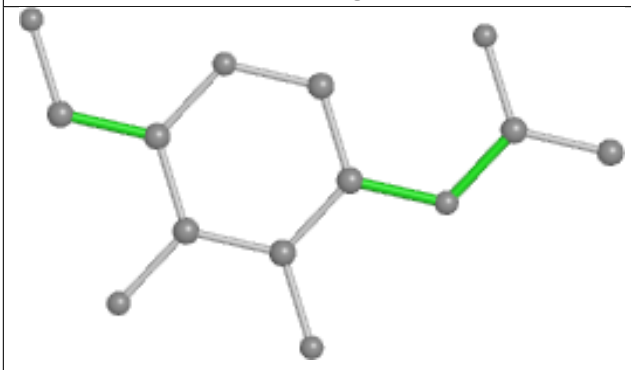
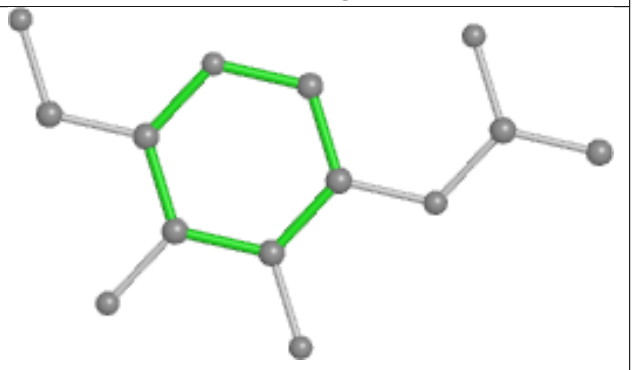
Bond angles



Torsions



Rings

Ligand NAG C 2002	
 Bond lengths	 Bond angles
 Torsions	 Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

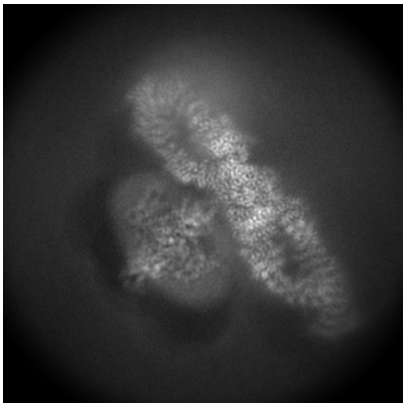
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-32344. These allow visual inspection of the internal detail of the map and identification of artifacts.

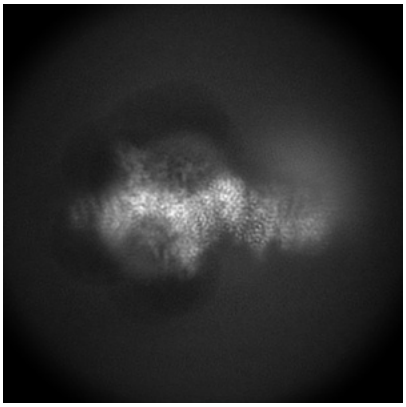
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

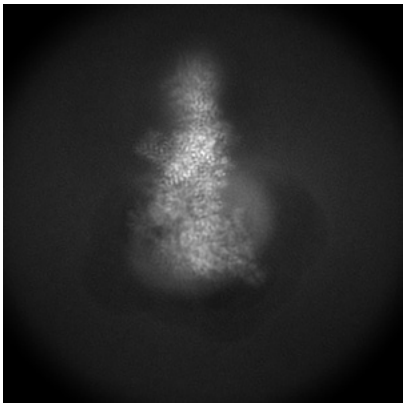
6.1.1 Primary map



X



Y

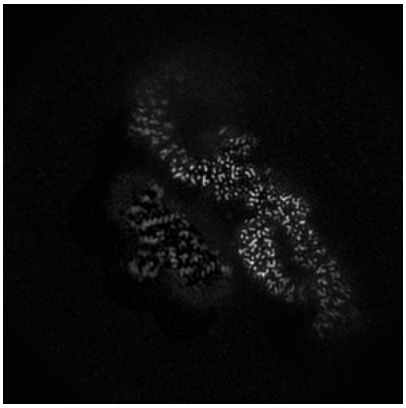


Z

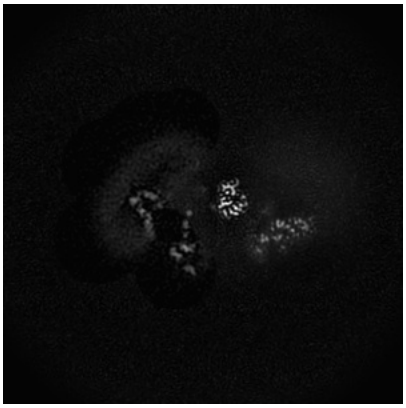
The images above show the map projected in three orthogonal directions.

6.2 Central slices

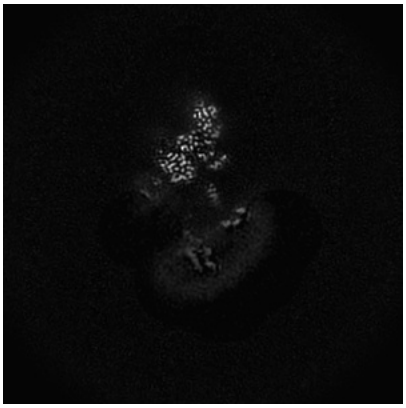
6.2.1 Primary map



X Index: 140



Y Index: 140

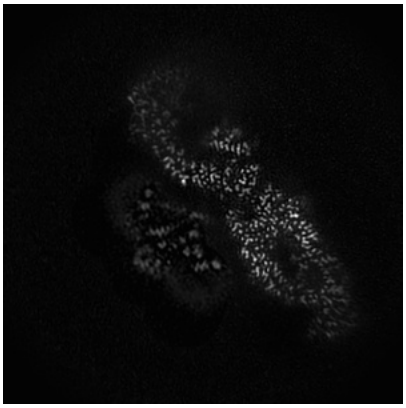


Z Index: 140

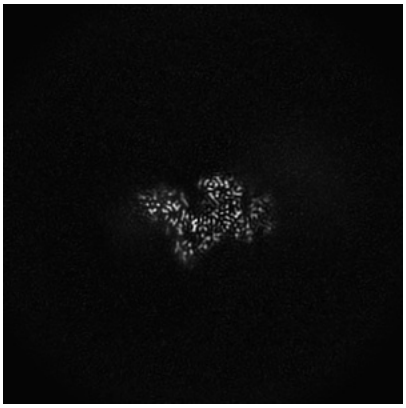
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

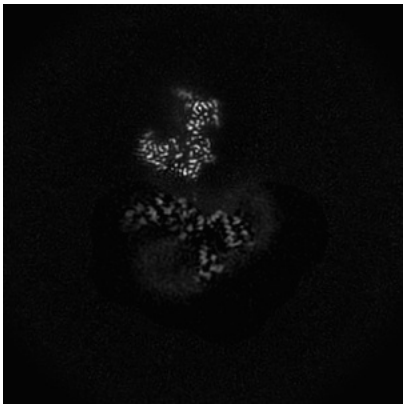
6.3.1 Primary map



X Index: 135



Y Index: 170

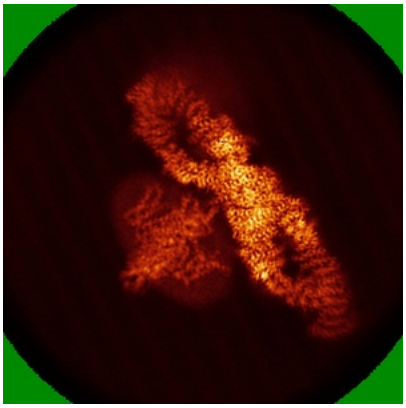


Z Index: 126

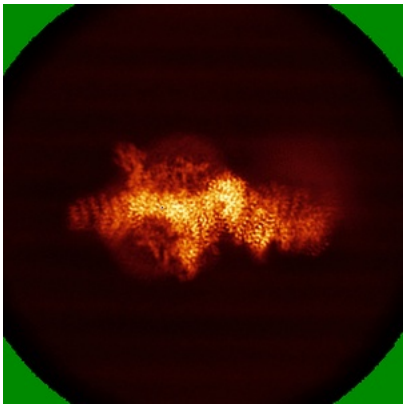
The images above show the largest variance slices of the map in three orthogonal directions.

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

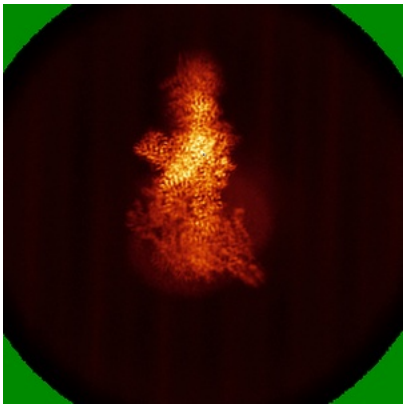
6.4.1 Primary map



X



Y

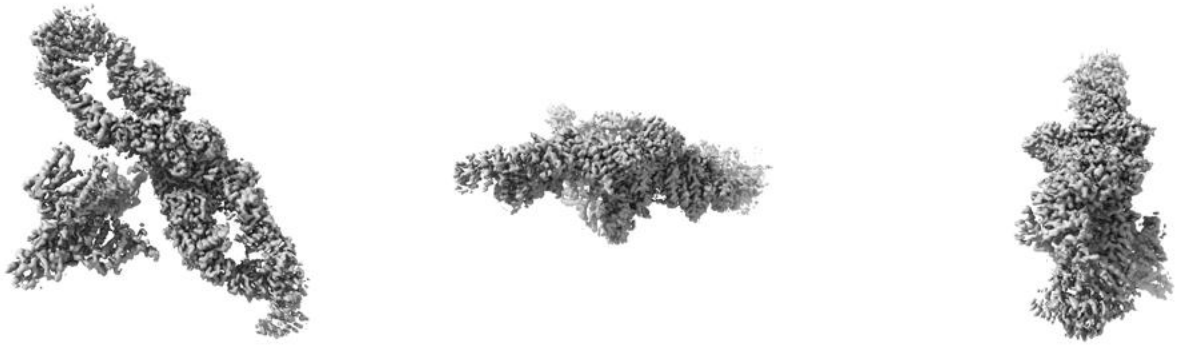


Z

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 0.95. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

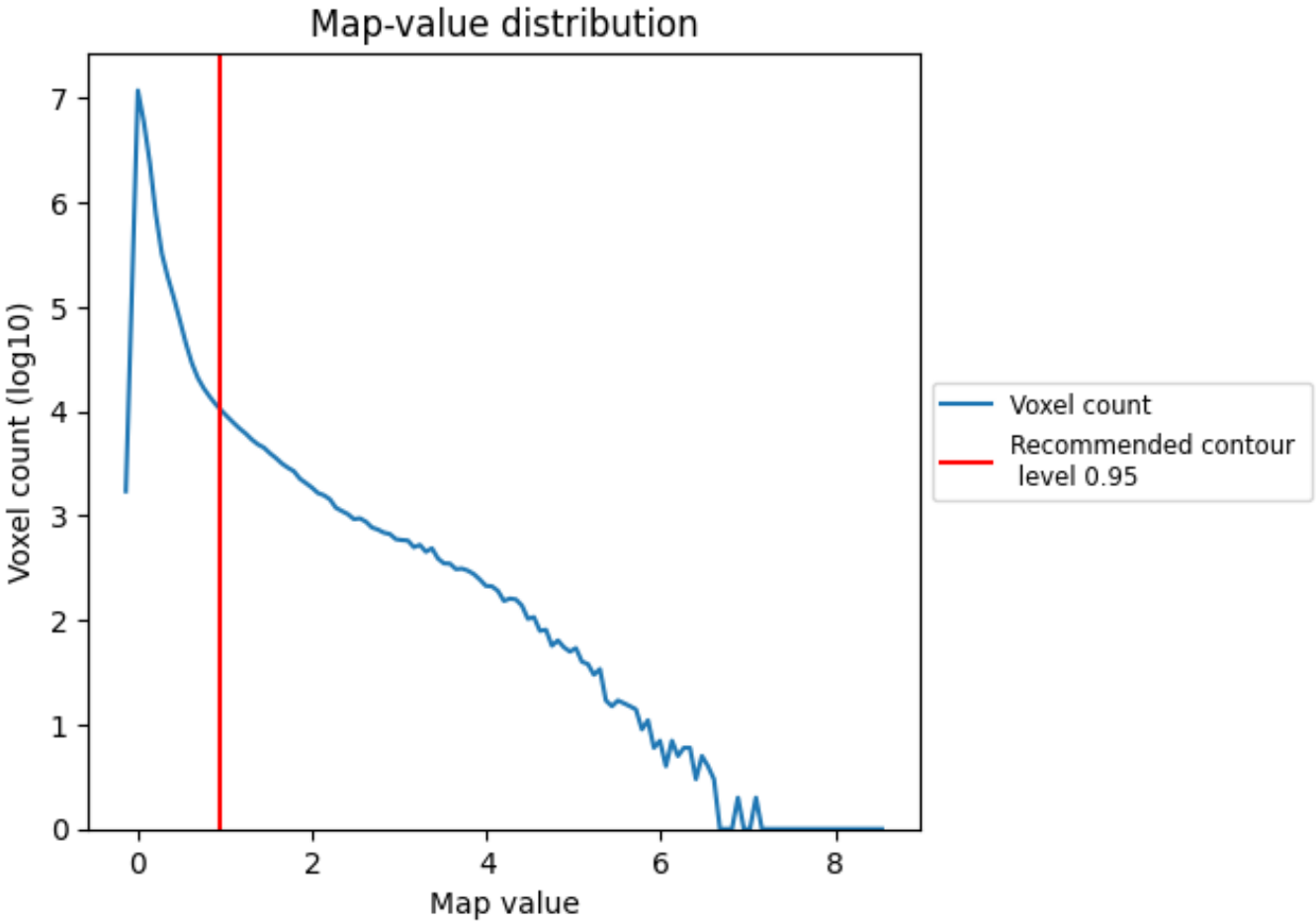
6.6 Mask visualisation (i)

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

7 Map analysis

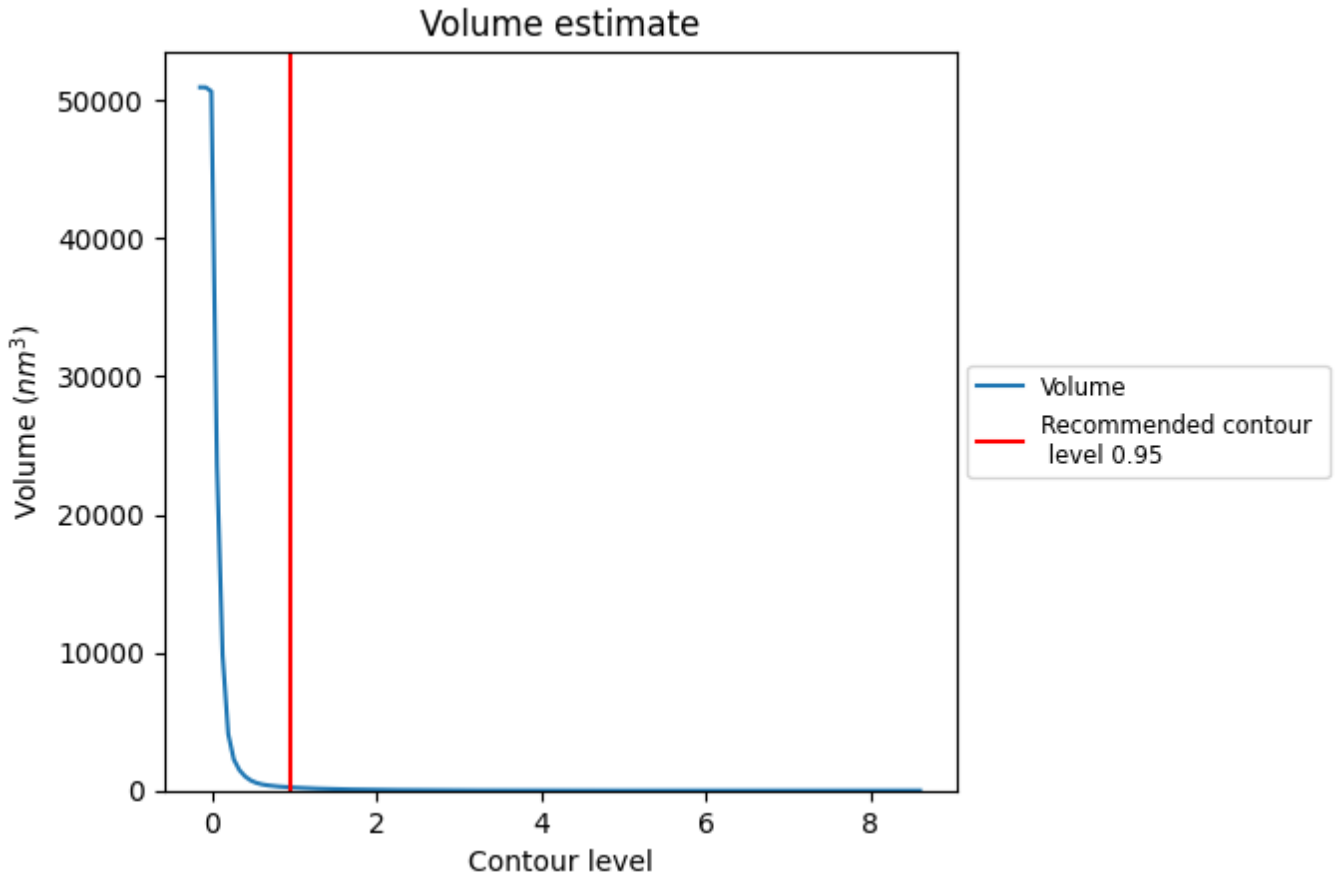
This section contains the results of statistical analysis of the map.

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.

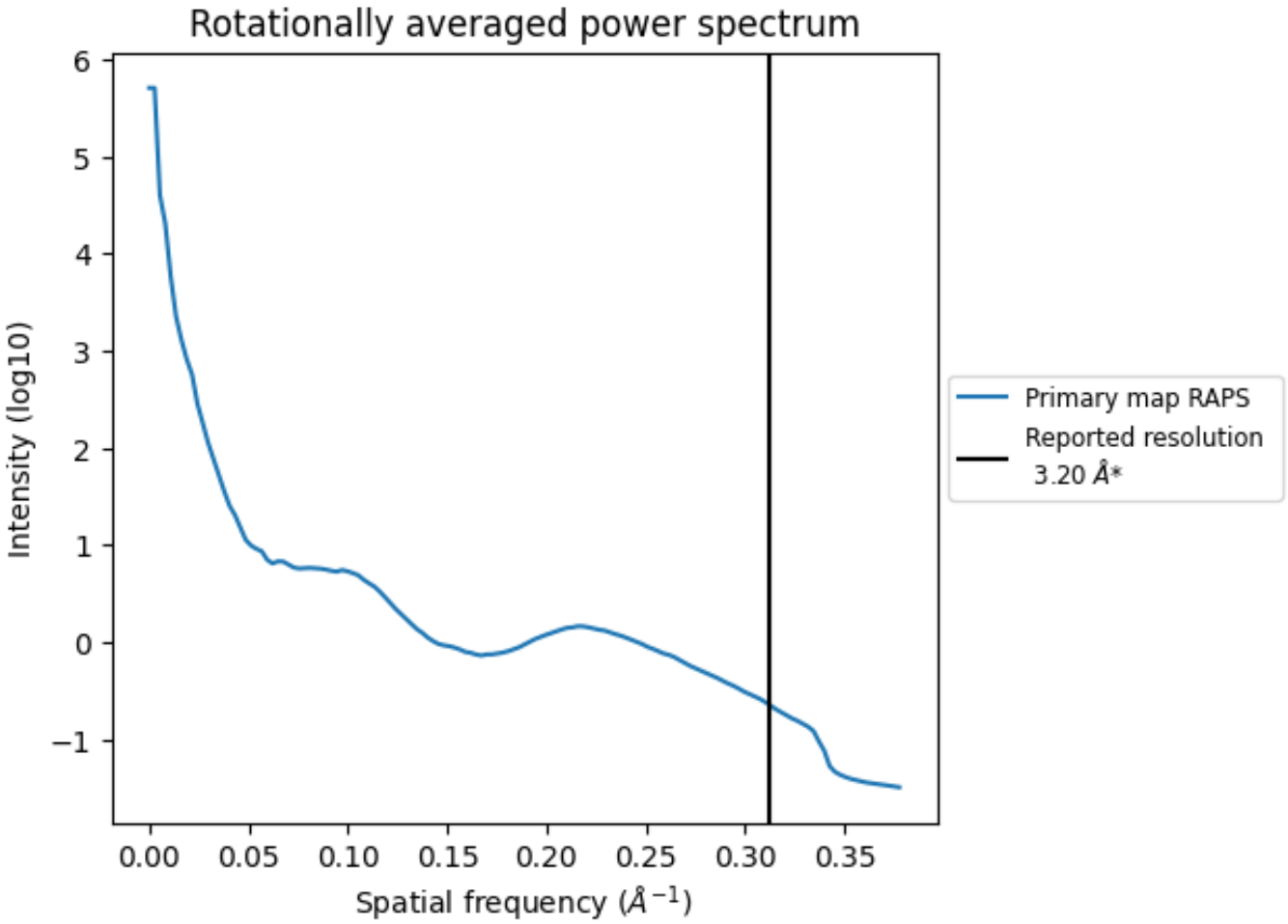
7.2 Volume estimate



The volume at the recommended contour level is 234 nm^3; this corresponds to an approximate mass of 211 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 0.312 Å^{-1}

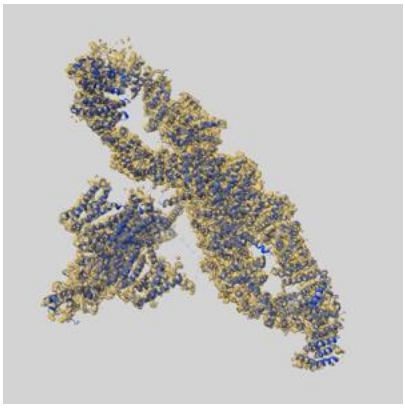
8 Fourier-Shell correlation (i)

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

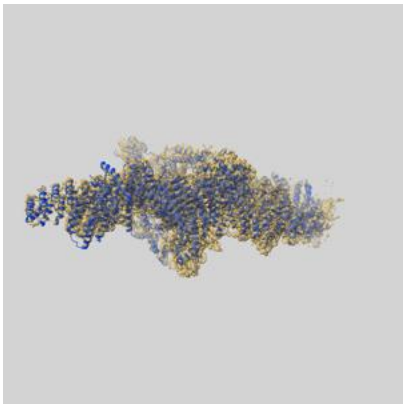
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-32344 and PDB model 7W7G. Per-residue inclusion information can be found in section 3 on page 5.

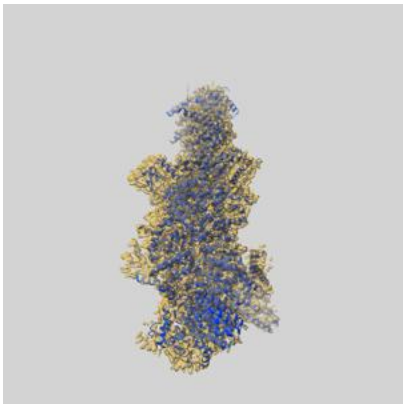
9.1 Map-model overlay



X



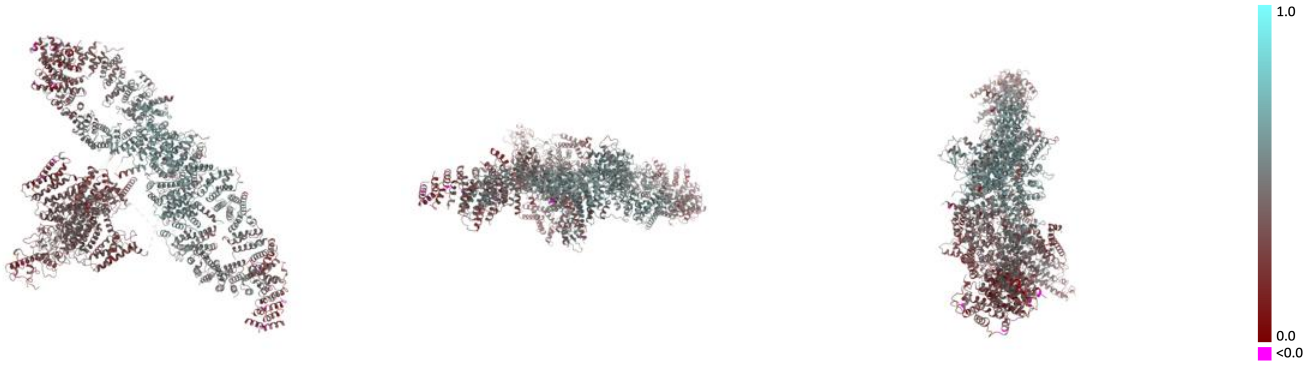
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.95 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.

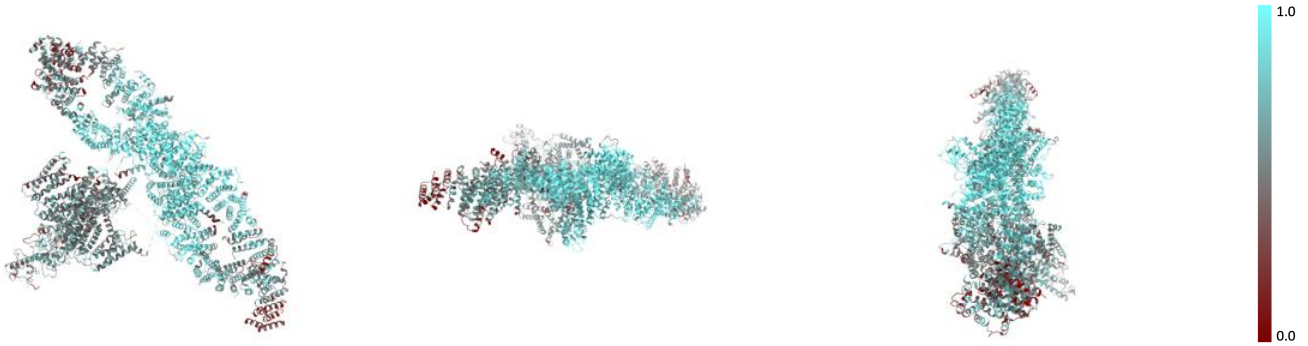
9.2 Q-score mapped to coordinate model (i)



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.

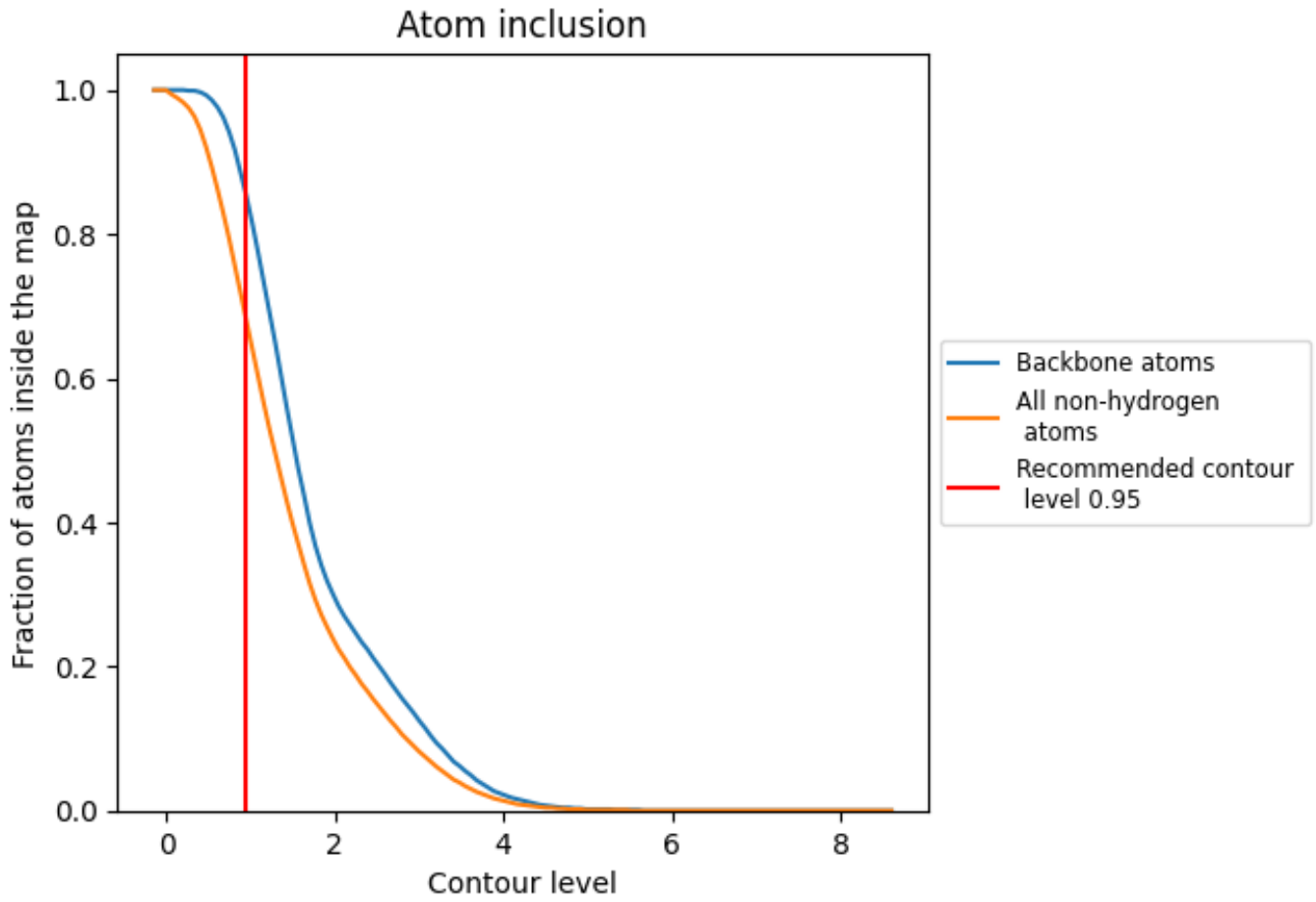
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.95).

9.4 Atom inclusion (i)



At the recommended contour level, 85% of all backbone atoms, 68% 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 (0.95) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6820	0.4200
A	0.7210	0.4400
B	0.7710	0.4660
C	0.5450	0.3520
D	0.5240	0.3220