Full wwPDB EM Validation Report ⓘ

Nov 23, 2022 – 02:37 AM JST

PDB ID	:	7FAF
EMDB ID	:	EMD-31503
Title	:	S protein of SARS-CoV-2 in complex bound with P36-5D2 (state1)
Authors	:	Zhang, L.; Wang, X.; Zhang, S.; Shan, S.
Deposited on	:	2021-07-06
Resolution	:	3.69 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

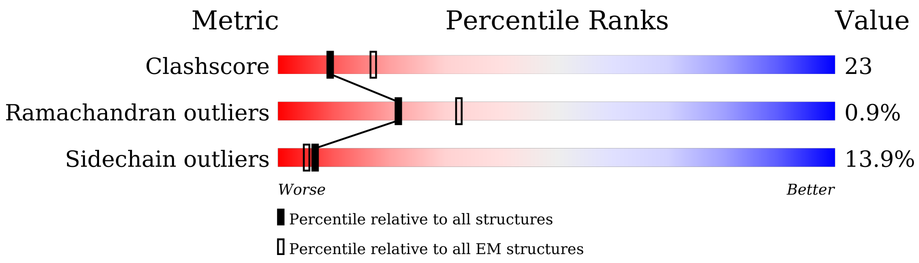
EMDB validation analysis	:	0.0.1.dev43
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

1 Overall quality at a glance ⓘ

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

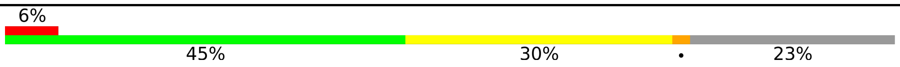
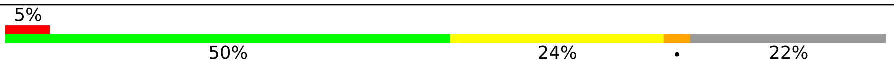
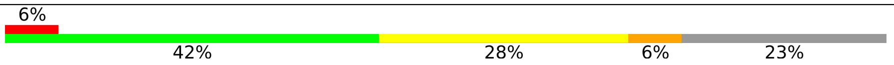
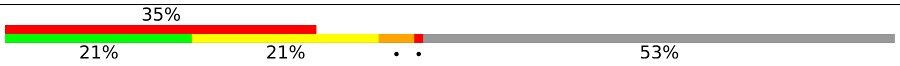
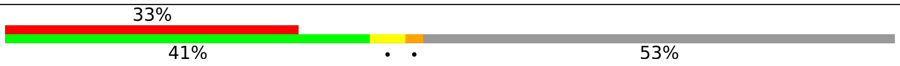
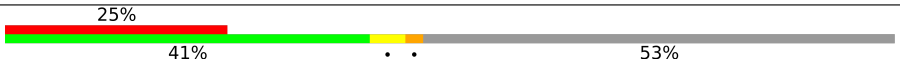
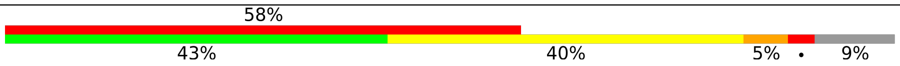
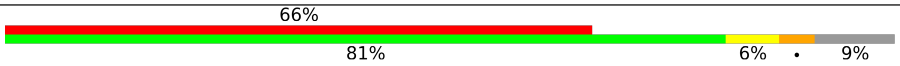
The reported resolution of this entry is 3.69 Å.

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	1298	 6% 45% 30% • 23%
1	B	1298	 5% 50% 24% • 22%
1	C	1298	 6% 42% 28% 6% 23%
2	H	471	 35% 21% 21% • • 53%
2	d	471	 33% 41% • • 53%
2	g	471	 25% 41% • • 53%
3	L	233	 58% 43% 40% 5% • 9%
3	c	233	 66% 81% 6% • 9%

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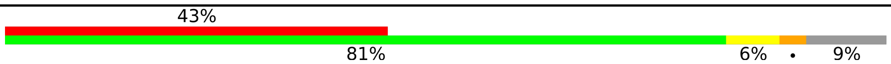
Mol	Chain	Length	Quality of chain
3	f	233	

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 33288 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Spike glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	996	7767	4952	1291	1488	36	0	0
1	B	1006	7863	5019	1308	1500	36	0	0
1	C	994	7743	4935	1288	1484	36	0	0

There are 297 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	682	GLY	ARG	engineered mutation	UNP P0DTC2
A	683	SER	ARG	engineered mutation	UNP P0DTC2
A	685	SER	ARG	engineered mutation	UNP P0DTC2
A	817	PRO	PHE	engineered mutation	UNP P0DTC2
A	892	PRO	ALA	engineered mutation	UNP P0DTC2
A	899	PRO	ALA	engineered mutation	UNP P0DTC2
A	942	PRO	ALA	engineered mutation	UNP P0DTC2
A	986	PRO	LYS	engineered mutation	UNP P0DTC2
A	987	PRO	VAL	engineered mutation	UNP P0DTC2
A	1209	GLY	-	expression tag	UNP P0DTC2
A	1210	SER	-	expression tag	UNP P0DTC2
A	1211	GLY	-	expression tag	UNP P0DTC2
A	1212	TYR	-	expression tag	UNP P0DTC2
A	1213	ILE	-	expression tag	UNP P0DTC2
A	1214	PRO	-	expression tag	UNP P0DTC2
A	1215	GLU	-	expression tag	UNP P0DTC2
A	1216	ALA	-	expression tag	UNP P0DTC2
A	1217	PRO	-	expression tag	UNP P0DTC2
A	1218	ARG	-	expression tag	UNP P0DTC2
A	1219	ASP	-	expression tag	UNP P0DTC2
A	1220	GLY	-	expression tag	UNP P0DTC2
A	1221	GLN	-	expression tag	UNP P0DTC2
A	1222	ALA	-	expression tag	UNP P0DTC2
A	1223	TYR	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1224	VAL	-	expression tag	UNP P0DTC2
A	1225	ARG	-	expression tag	UNP P0DTC2
A	1226	LYS	-	expression tag	UNP P0DTC2
A	1227	ASP	-	expression tag	UNP P0DTC2
A	1228	GLY	-	expression tag	UNP P0DTC2
A	1229	GLU	-	expression tag	UNP P0DTC2
A	1230	TRP	-	expression tag	UNP P0DTC2
A	1231	VAL	-	expression tag	UNP P0DTC2
A	1232	LEU	-	expression tag	UNP P0DTC2
A	1233	LEU	-	expression tag	UNP P0DTC2
A	1234	SER	-	expression tag	UNP P0DTC2
A	1235	THR	-	expression tag	UNP P0DTC2
A	1236	PHE	-	expression tag	UNP P0DTC2
A	1237	LEU	-	expression tag	UNP P0DTC2
A	1238	GLY	-	expression tag	UNP P0DTC2
A	1239	ARG	-	expression tag	UNP P0DTC2
A	1240	SER	-	expression tag	UNP P0DTC2
A	1241	LEU	-	expression tag	UNP P0DTC2
A	1242	GLU	-	expression tag	UNP P0DTC2
A	1243	VAL	-	expression tag	UNP P0DTC2
A	1244	LEU	-	expression tag	UNP P0DTC2
A	1245	PHE	-	expression tag	UNP P0DTC2
A	1246	GLN	-	expression tag	UNP P0DTC2
A	1247	GLY	-	expression tag	UNP P0DTC2
A	1248	PRO	-	expression tag	UNP P0DTC2
A	1249	GLY	-	expression tag	UNP P0DTC2
A	1250	HIS	-	expression tag	UNP P0DTC2
A	1251	HIS	-	expression tag	UNP P0DTC2
A	1252	HIS	-	expression tag	UNP P0DTC2
A	1253	HIS	-	expression tag	UNP P0DTC2
A	1254	HIS	-	expression tag	UNP P0DTC2
A	1255	HIS	-	expression tag	UNP P0DTC2
A	1256	HIS	-	expression tag	UNP P0DTC2
A	1257	HIS	-	expression tag	UNP P0DTC2
A	1258	SER	-	expression tag	UNP P0DTC2
A	1259	ALA	-	expression tag	UNP P0DTC2
A	1260	TRP	-	expression tag	UNP P0DTC2
A	1261	SER	-	expression tag	UNP P0DTC2
A	1262	HIS	-	expression tag	UNP P0DTC2
A	1263	PRO	-	expression tag	UNP P0DTC2
A	1264	GLN	-	expression tag	UNP P0DTC2
A	1265	PHE	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1266	GLU	-	expression tag	UNP P0DTC2
A	1267	LYS	-	expression tag	UNP P0DTC2
A	1268	GLY	-	expression tag	UNP P0DTC2
A	1269	GLY	-	expression tag	UNP P0DTC2
A	1270	GLY	-	expression tag	UNP P0DTC2
A	1271	SER	-	expression tag	UNP P0DTC2
A	1272	GLY	-	expression tag	UNP P0DTC2
A	1273	GLY	-	expression tag	UNP P0DTC2
A	1274	GLY	-	expression tag	UNP P0DTC2
A	1275	GLY	-	expression tag	UNP P0DTC2
A	1276	SER	-	expression tag	UNP P0DTC2
A	1277	GLY	-	expression tag	UNP P0DTC2
A	1278	GLY	-	expression tag	UNP P0DTC2
A	1279	SER	-	expression tag	UNP P0DTC2
A	1280	ALA	-	expression tag	UNP P0DTC2
A	1281	TRP	-	expression tag	UNP P0DTC2
A	1282	SER	-	expression tag	UNP P0DTC2
A	1283	HIS	-	expression tag	UNP P0DTC2
A	1284	PRO	-	expression tag	UNP P0DTC2
A	1285	GLN	-	expression tag	UNP P0DTC2
A	1286	PHE	-	expression tag	UNP P0DTC2
A	1287	GLU	-	expression tag	UNP P0DTC2
A	1288	LYS	-	expression tag	UNP P0DTC2
A	1289	GLY	-	expression tag	UNP P0DTC2
A	1290	SER	-	expression tag	UNP P0DTC2
A	1291	ASP	-	expression tag	UNP P0DTC2
A	1292	TYR	-	expression tag	UNP P0DTC2
A	1293	LYS	-	expression tag	UNP P0DTC2
A	1294	ASP	-	expression tag	UNP P0DTC2
A	1295	ASP	-	expression tag	UNP P0DTC2
A	1296	ASP	-	expression tag	UNP P0DTC2
A	1297	ASP	-	expression tag	UNP P0DTC2
A	1298	LYS	-	expression tag	UNP P0DTC2
B	682	GLY	ARG	engineered mutation	UNP P0DTC2
B	683	SER	ARG	engineered mutation	UNP P0DTC2
B	685	SER	ARG	engineered mutation	UNP P0DTC2
B	817	PRO	PHE	engineered mutation	UNP P0DTC2
B	892	PRO	ALA	engineered mutation	UNP P0DTC2
B	899	PRO	ALA	engineered mutation	UNP P0DTC2
B	942	PRO	ALA	engineered mutation	UNP P0DTC2
B	986	PRO	LYS	engineered mutation	UNP P0DTC2
B	987	PRO	VAL	engineered mutation	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1209	GLY	-	expression tag	UNP P0DTC2
B	1210	SER	-	expression tag	UNP P0DTC2
B	1211	GLY	-	expression tag	UNP P0DTC2
B	1212	TYR	-	expression tag	UNP P0DTC2
B	1213	ILE	-	expression tag	UNP P0DTC2
B	1214	PRO	-	expression tag	UNP P0DTC2
B	1215	GLU	-	expression tag	UNP P0DTC2
B	1216	ALA	-	expression tag	UNP P0DTC2
B	1217	PRO	-	expression tag	UNP P0DTC2
B	1218	ARG	-	expression tag	UNP P0DTC2
B	1219	ASP	-	expression tag	UNP P0DTC2
B	1220	GLY	-	expression tag	UNP P0DTC2
B	1221	GLN	-	expression tag	UNP P0DTC2
B	1222	ALA	-	expression tag	UNP P0DTC2
B	1223	TYR	-	expression tag	UNP P0DTC2
B	1224	VAL	-	expression tag	UNP P0DTC2
B	1225	ARG	-	expression tag	UNP P0DTC2
B	1226	LYS	-	expression tag	UNP P0DTC2
B	1227	ASP	-	expression tag	UNP P0DTC2
B	1228	GLY	-	expression tag	UNP P0DTC2
B	1229	GLU	-	expression tag	UNP P0DTC2
B	1230	TRP	-	expression tag	UNP P0DTC2
B	1231	VAL	-	expression tag	UNP P0DTC2
B	1232	LEU	-	expression tag	UNP P0DTC2
B	1233	LEU	-	expression tag	UNP P0DTC2
B	1234	SER	-	expression tag	UNP P0DTC2
B	1235	THR	-	expression tag	UNP P0DTC2
B	1236	PHE	-	expression tag	UNP P0DTC2
B	1237	LEU	-	expression tag	UNP P0DTC2
B	1238	GLY	-	expression tag	UNP P0DTC2
B	1239	ARG	-	expression tag	UNP P0DTC2
B	1240	SER	-	expression tag	UNP P0DTC2
B	1241	LEU	-	expression tag	UNP P0DTC2
B	1242	GLU	-	expression tag	UNP P0DTC2
B	1243	VAL	-	expression tag	UNP P0DTC2
B	1244	LEU	-	expression tag	UNP P0DTC2
B	1245	PHE	-	expression tag	UNP P0DTC2
B	1246	GLN	-	expression tag	UNP P0DTC2
B	1247	GLY	-	expression tag	UNP P0DTC2
B	1248	PRO	-	expression tag	UNP P0DTC2
B	1249	GLY	-	expression tag	UNP P0DTC2
B	1250	HIS	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1251	HIS	-	expression tag	UNP P0DTC2
B	1252	HIS	-	expression tag	UNP P0DTC2
B	1253	HIS	-	expression tag	UNP P0DTC2
B	1254	HIS	-	expression tag	UNP P0DTC2
B	1255	HIS	-	expression tag	UNP P0DTC2
B	1256	HIS	-	expression tag	UNP P0DTC2
B	1257	HIS	-	expression tag	UNP P0DTC2
B	1258	SER	-	expression tag	UNP P0DTC2
B	1259	ALA	-	expression tag	UNP P0DTC2
B	1260	TRP	-	expression tag	UNP P0DTC2
B	1261	SER	-	expression tag	UNP P0DTC2
B	1262	HIS	-	expression tag	UNP P0DTC2
B	1263	PRO	-	expression tag	UNP P0DTC2
B	1264	GLN	-	expression tag	UNP P0DTC2
B	1265	PHE	-	expression tag	UNP P0DTC2
B	1266	GLU	-	expression tag	UNP P0DTC2
B	1267	LYS	-	expression tag	UNP P0DTC2
B	1268	GLY	-	expression tag	UNP P0DTC2
B	1269	GLY	-	expression tag	UNP P0DTC2
B	1270	GLY	-	expression tag	UNP P0DTC2
B	1271	SER	-	expression tag	UNP P0DTC2
B	1272	GLY	-	expression tag	UNP P0DTC2
B	1273	GLY	-	expression tag	UNP P0DTC2
B	1274	GLY	-	expression tag	UNP P0DTC2
B	1275	GLY	-	expression tag	UNP P0DTC2
B	1276	SER	-	expression tag	UNP P0DTC2
B	1277	GLY	-	expression tag	UNP P0DTC2
B	1278	GLY	-	expression tag	UNP P0DTC2
B	1279	SER	-	expression tag	UNP P0DTC2
B	1280	ALA	-	expression tag	UNP P0DTC2
B	1281	TRP	-	expression tag	UNP P0DTC2
B	1282	SER	-	expression tag	UNP P0DTC2
B	1283	HIS	-	expression tag	UNP P0DTC2
B	1284	PRO	-	expression tag	UNP P0DTC2
B	1285	GLN	-	expression tag	UNP P0DTC2
B	1286	PHE	-	expression tag	UNP P0DTC2
B	1287	GLU	-	expression tag	UNP P0DTC2
B	1288	LYS	-	expression tag	UNP P0DTC2
B	1289	GLY	-	expression tag	UNP P0DTC2
B	1290	SER	-	expression tag	UNP P0DTC2
B	1291	ASP	-	expression tag	UNP P0DTC2
B	1292	TYR	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1293	LYS	-	expression tag	UNP P0DTC2
B	1294	ASP	-	expression tag	UNP P0DTC2
B	1295	ASP	-	expression tag	UNP P0DTC2
B	1296	ASP	-	expression tag	UNP P0DTC2
B	1297	ASP	-	expression tag	UNP P0DTC2
B	1298	LYS	-	expression tag	UNP P0DTC2
C	682	GLY	ARG	engineered mutation	UNP P0DTC2
C	683	SER	ARG	engineered mutation	UNP P0DTC2
C	685	SER	ARG	engineered mutation	UNP P0DTC2
C	817	PRO	PHE	engineered mutation	UNP P0DTC2
C	892	PRO	ALA	engineered mutation	UNP P0DTC2
C	899	PRO	ALA	engineered mutation	UNP P0DTC2
C	942	PRO	ALA	engineered mutation	UNP P0DTC2
C	986	PRO	LYS	engineered mutation	UNP P0DTC2
C	987	PRO	VAL	engineered mutation	UNP P0DTC2
C	1209	GLY	-	expression tag	UNP P0DTC2
C	1210	SER	-	expression tag	UNP P0DTC2
C	1211	GLY	-	expression tag	UNP P0DTC2
C	1212	TYR	-	expression tag	UNP P0DTC2
C	1213	ILE	-	expression tag	UNP P0DTC2
C	1214	PRO	-	expression tag	UNP P0DTC2
C	1215	GLU	-	expression tag	UNP P0DTC2
C	1216	ALA	-	expression tag	UNP P0DTC2
C	1217	PRO	-	expression tag	UNP P0DTC2
C	1218	ARG	-	expression tag	UNP P0DTC2
C	1219	ASP	-	expression tag	UNP P0DTC2
C	1220	GLY	-	expression tag	UNP P0DTC2
C	1221	GLN	-	expression tag	UNP P0DTC2
C	1222	ALA	-	expression tag	UNP P0DTC2
C	1223	TYR	-	expression tag	UNP P0DTC2
C	1224	VAL	-	expression tag	UNP P0DTC2
C	1225	ARG	-	expression tag	UNP P0DTC2
C	1226	LYS	-	expression tag	UNP P0DTC2
C	1227	ASP	-	expression tag	UNP P0DTC2
C	1228	GLY	-	expression tag	UNP P0DTC2
C	1229	GLU	-	expression tag	UNP P0DTC2
C	1230	TRP	-	expression tag	UNP P0DTC2
C	1231	VAL	-	expression tag	UNP P0DTC2
C	1232	LEU	-	expression tag	UNP P0DTC2
C	1233	LEU	-	expression tag	UNP P0DTC2
C	1234	SER	-	expression tag	UNP P0DTC2
C	1235	THR	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	1236	PHE	-	expression tag	UNP P0DTC2
C	1237	LEU	-	expression tag	UNP P0DTC2
C	1238	GLY	-	expression tag	UNP P0DTC2
C	1239	ARG	-	expression tag	UNP P0DTC2
C	1240	SER	-	expression tag	UNP P0DTC2
C	1241	LEU	-	expression tag	UNP P0DTC2
C	1242	GLU	-	expression tag	UNP P0DTC2
C	1243	VAL	-	expression tag	UNP P0DTC2
C	1244	LEU	-	expression tag	UNP P0DTC2
C	1245	PHE	-	expression tag	UNP P0DTC2
C	1246	GLN	-	expression tag	UNP P0DTC2
C	1247	GLY	-	expression tag	UNP P0DTC2
C	1248	PRO	-	expression tag	UNP P0DTC2
C	1249	GLY	-	expression tag	UNP P0DTC2
C	1250	HIS	-	expression tag	UNP P0DTC2
C	1251	HIS	-	expression tag	UNP P0DTC2
C	1252	HIS	-	expression tag	UNP P0DTC2
C	1253	HIS	-	expression tag	UNP P0DTC2
C	1254	HIS	-	expression tag	UNP P0DTC2
C	1255	HIS	-	expression tag	UNP P0DTC2
C	1256	HIS	-	expression tag	UNP P0DTC2
C	1257	HIS	-	expression tag	UNP P0DTC2
C	1258	SER	-	expression tag	UNP P0DTC2
C	1259	ALA	-	expression tag	UNP P0DTC2
C	1260	TRP	-	expression tag	UNP P0DTC2
C	1261	SER	-	expression tag	UNP P0DTC2
C	1262	HIS	-	expression tag	UNP P0DTC2
C	1263	PRO	-	expression tag	UNP P0DTC2
C	1264	GLN	-	expression tag	UNP P0DTC2
C	1265	PHE	-	expression tag	UNP P0DTC2
C	1266	GLU	-	expression tag	UNP P0DTC2
C	1267	LYS	-	expression tag	UNP P0DTC2
C	1268	GLY	-	expression tag	UNP P0DTC2
C	1269	GLY	-	expression tag	UNP P0DTC2
C	1270	GLY	-	expression tag	UNP P0DTC2
C	1271	SER	-	expression tag	UNP P0DTC2
C	1272	GLY	-	expression tag	UNP P0DTC2
C	1273	GLY	-	expression tag	UNP P0DTC2
C	1274	GLY	-	expression tag	UNP P0DTC2
C	1275	GLY	-	expression tag	UNP P0DTC2
C	1276	SER	-	expression tag	UNP P0DTC2
C	1277	GLY	-	expression tag	UNP P0DTC2

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	1278	GLY	-	expression tag	UNP P0DTC2
C	1279	SER	-	expression tag	UNP P0DTC2
C	1280	ALA	-	expression tag	UNP P0DTC2
C	1281	TRP	-	expression tag	UNP P0DTC2
C	1282	SER	-	expression tag	UNP P0DTC2
C	1283	HIS	-	expression tag	UNP P0DTC2
C	1284	PRO	-	expression tag	UNP P0DTC2
C	1285	GLN	-	expression tag	UNP P0DTC2
C	1286	PHE	-	expression tag	UNP P0DTC2
C	1287	GLU	-	expression tag	UNP P0DTC2
C	1288	LYS	-	expression tag	UNP P0DTC2
C	1289	GLY	-	expression tag	UNP P0DTC2
C	1290	SER	-	expression tag	UNP P0DTC2
C	1291	ASP	-	expression tag	UNP P0DTC2
C	1292	TYR	-	expression tag	UNP P0DTC2
C	1293	LYS	-	expression tag	UNP P0DTC2
C	1294	ASP	-	expression tag	UNP P0DTC2
C	1295	ASP	-	expression tag	UNP P0DTC2
C	1296	ASP	-	expression tag	UNP P0DTC2
C	1297	ASP	-	expression tag	UNP P0DTC2
C	1298	LYS	-	expression tag	UNP P0DTC2

- Molecule 2 is a protein called P36-5D2 heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	H	222	1670	1052	285	326	7	0	0
2	d	222	1670	1052	285	326	7	0	0
2	g	222	1670	1052	285	326	7	0	0

- Molecule 3 is a protein called P36-5D2 light chain.

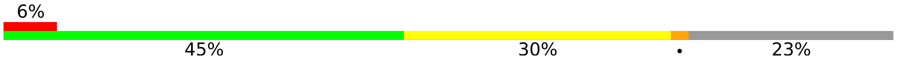
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	L	212	1635	1026	272	332	5	0	0
3	c	212	1635	1026	272	332	5	0	0
3	f	212	1635	1026	272	332	5	0	0

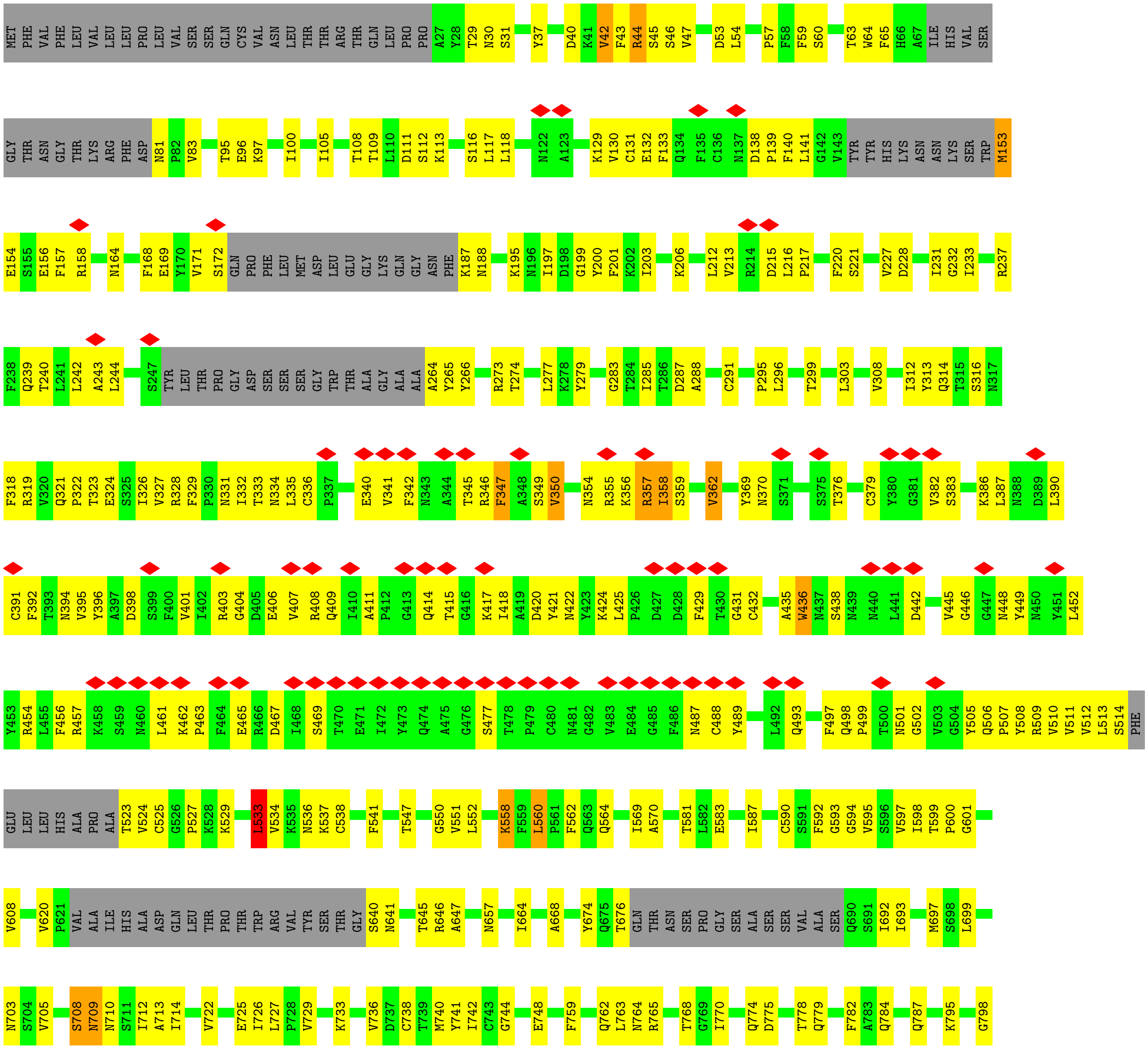
3 Residue-property plots ⓘ

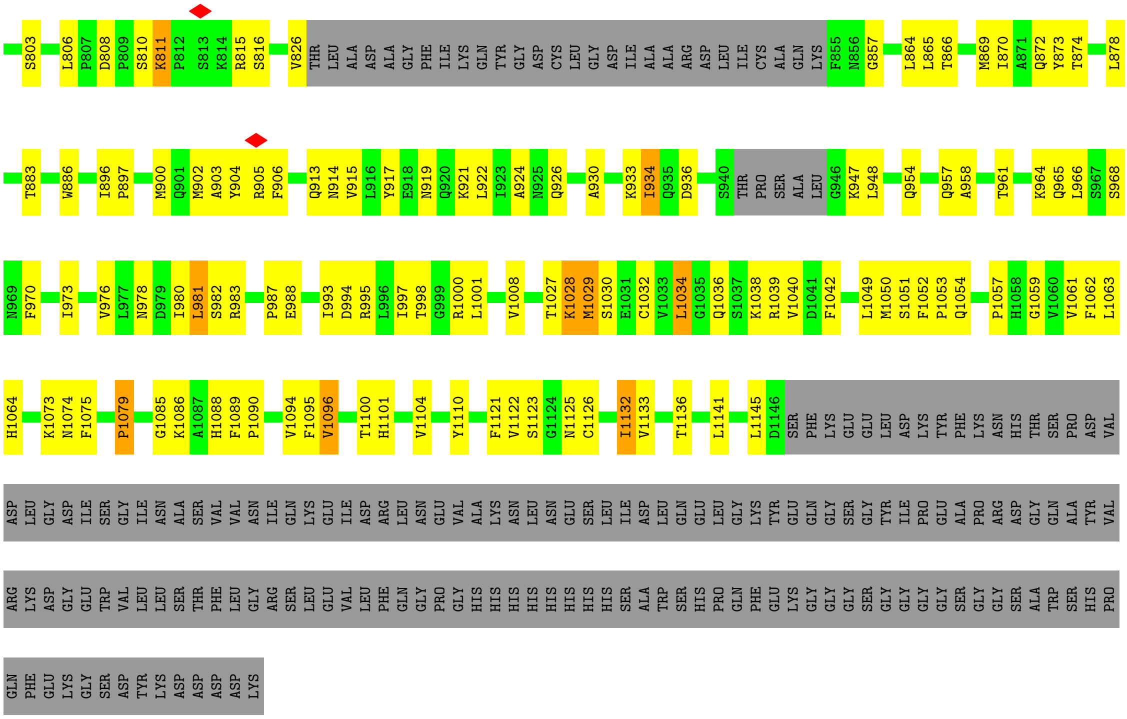
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Spike glycoprotein

Chain A:



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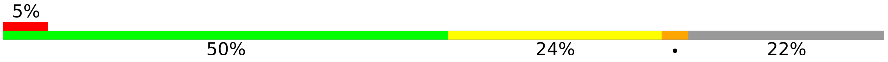
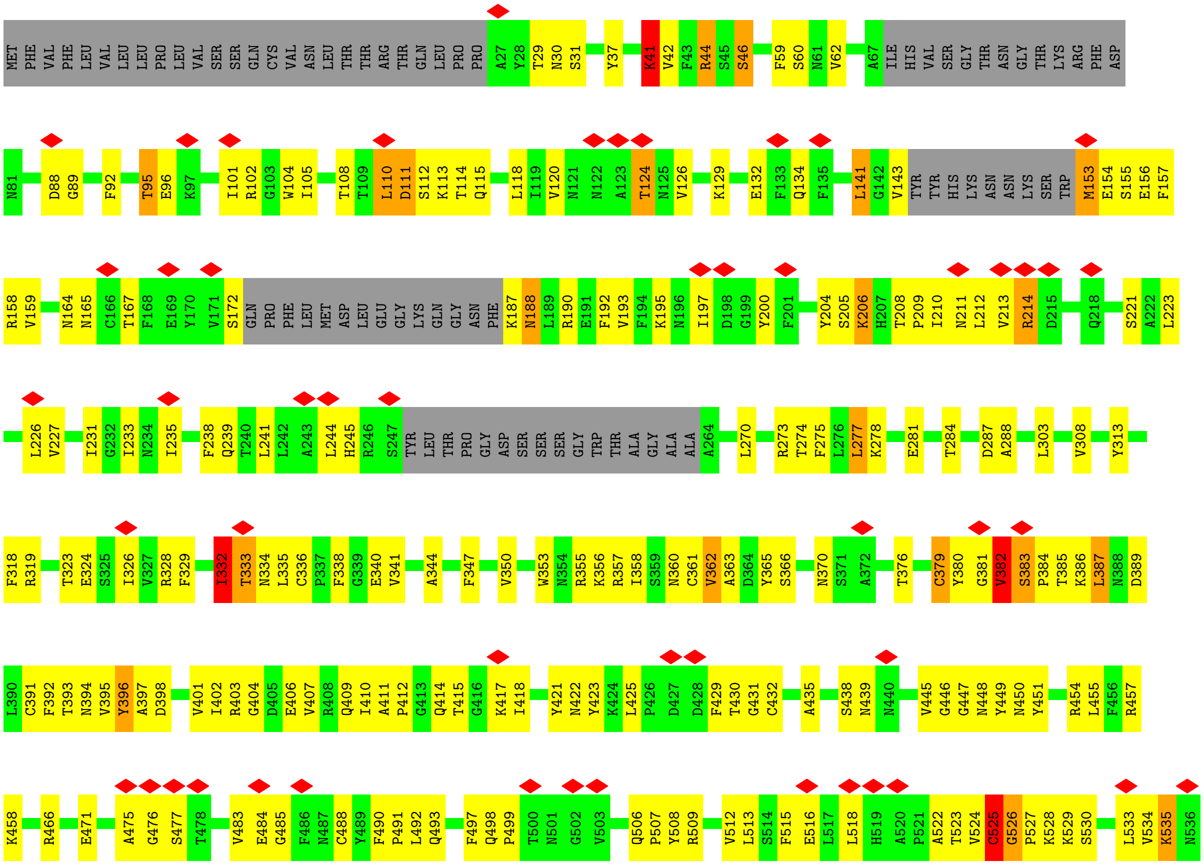
T883 W886 I896 P897 M900 Q901 M902 A903 Y904 R905 F906 Q913 N914 V915 L916 Y917 E918 N919 Q920 K921 L922 I923 A924 N925 Q926 A930 K933 I934 Q935 D936 S940 THR PRO SER ALA LEU G946 K947 L948 Q954 Q957 A958 T961 K964 Q965 L966 S967 S968
N969 F970 I973 V976 L977 N978 D979 I980 L981 S982 R983 P987 E988 I993 D994 R995 L996 I997 T998 G999 R1000 L1001 V1008 T1027 K1028 M1029 S1030 E1031 C1032 V1033 L1034 G1035 Q1036 S1037 K1038 R1039 V1040 D1041 F1042 L1049 M1050 S1051 F1052 P1053 Q1054 P1057 H1058 G1059 V1060 V1061 F1062 L1063
H1064 K1073 N1074 F1075 P1079 G1085 K1086 A1087 H1088 F1089 P1090 V1094 F1095 V1096 T1100 H1101 V1104 Y1110 F1121 V1122 S1123 G1124 N1125 C1126 I1132 V1133 T1136 L1141 L1145 D1146 SER PHE LYS GLU GLU LEU ASP LYS TYR PHE LYS ASN HIS THR SER PRO ASP VAL
ASP LEU GLY ASP ILE SER GLY ILE ASN ALA SER VAL VAL ASN ILE GLN LYS GLU ILE ASP ARG LEU ASN GLU VAL ALA LYS ASN LEU ASN GLU SER LEU ILE ASP LEU GLN GLU LEU GLY LYS TYR GLU GLN GLY SER GLY TYR ILE PRO GLU ALA PRO ARG ASP GLY GLN ALA TYR VAL
ARG LYS ASP GLY GLU TRP VAL LEU LEU SER THR PHE LEU GLY ARG SER LEU GLU VAL LEU PHE GLN GLY PRO GLY HIS HIS HIS HIS HIS HIS HIS HIS SER ALA TRP SER HIS PRO GLN PHE GLU LYS GLY GLY GLY SER GLY GLY GLY SER GLY GLY SER ALA TRP SER HIS PRO
GLN PHE GLU LYS GLY SER ASP TYR LYS ASP ASP ASP ASP LYS

- Molecule 1: Spike glycoprotein

Chain B:

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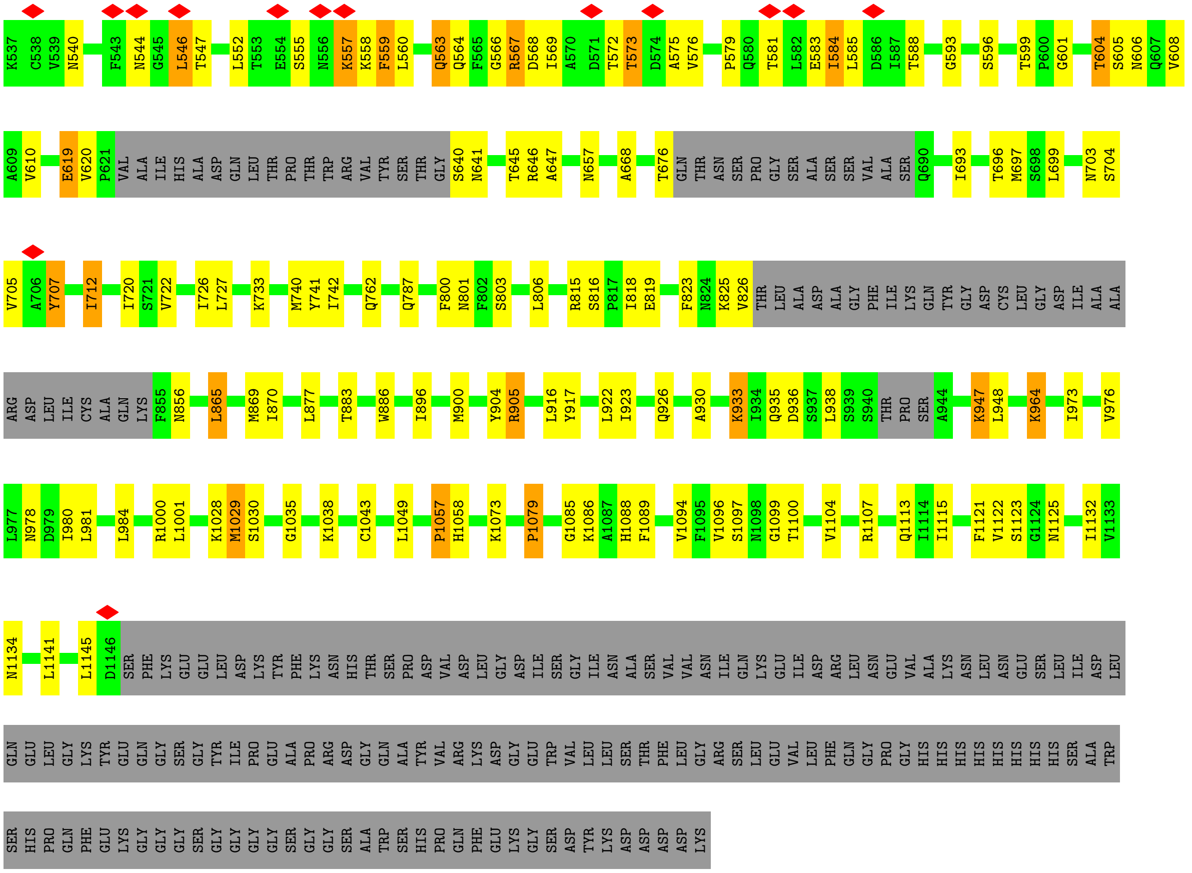
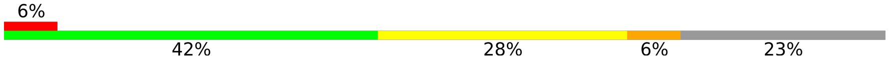
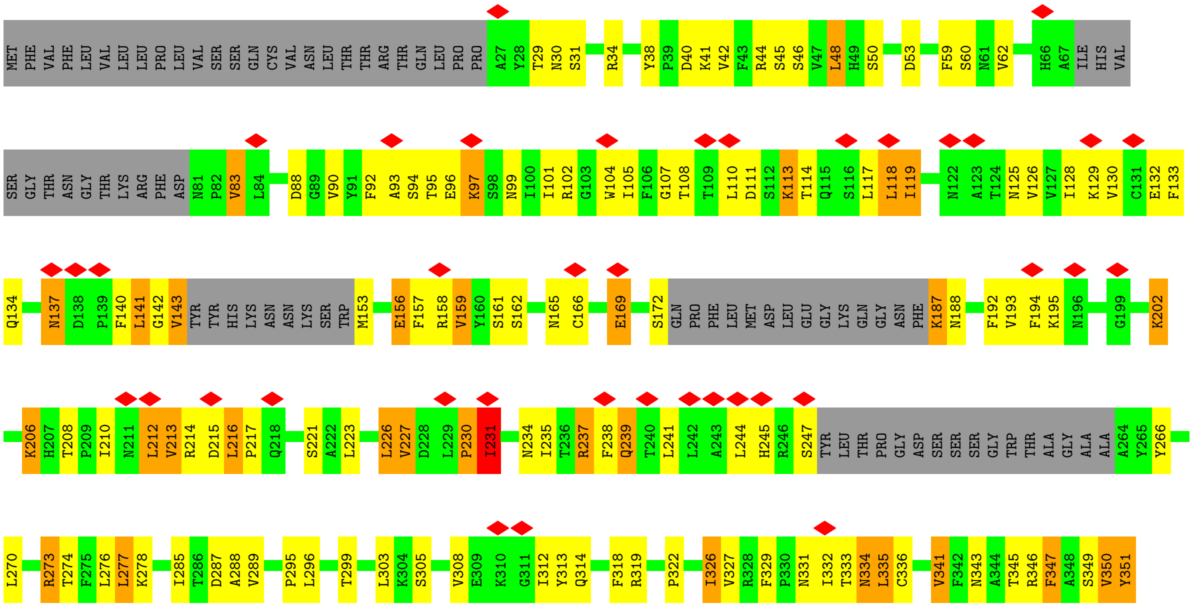
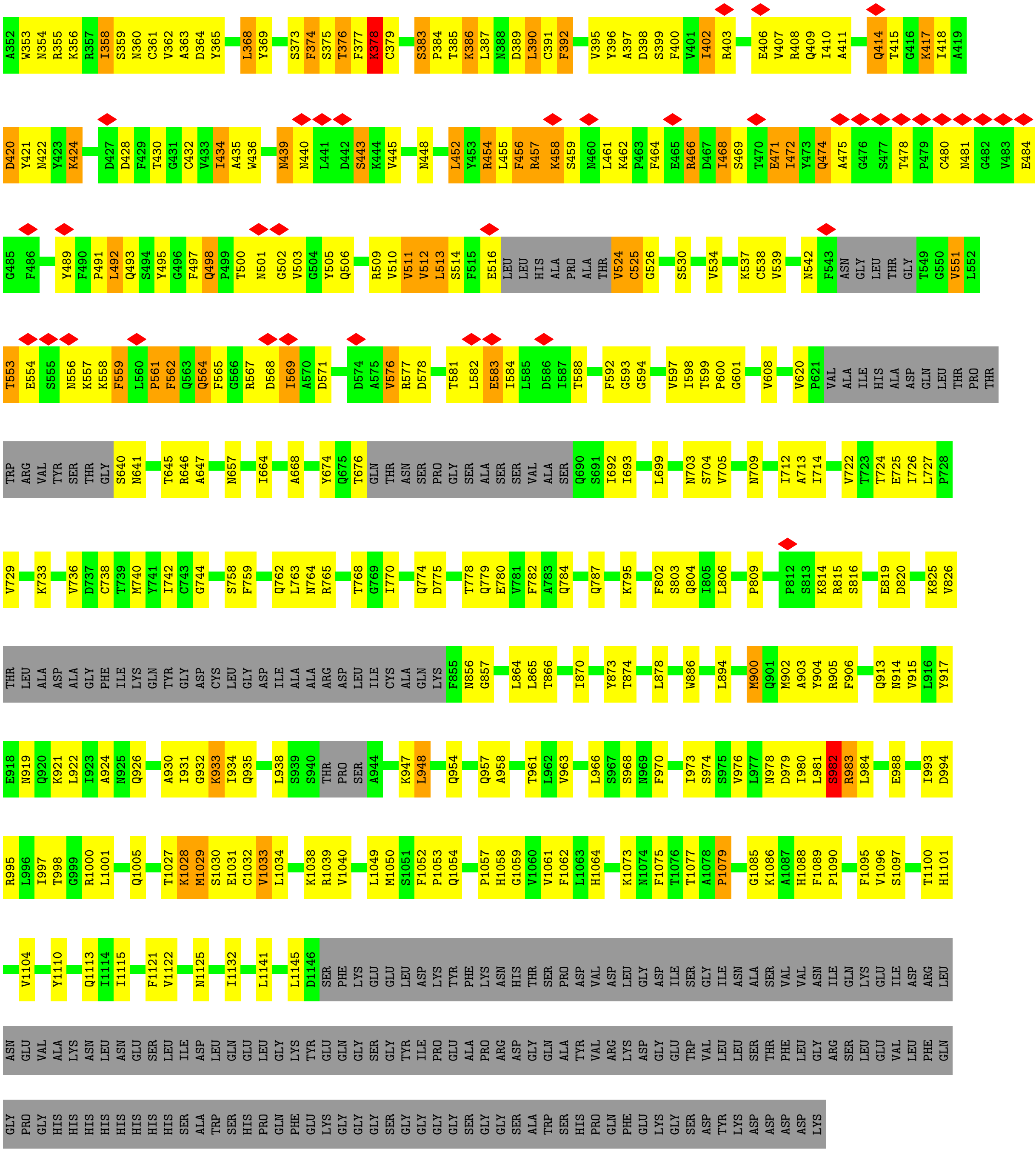
N81 D88 G89 F92 T95 E96 K97 I101 R102 G103 W104 I105 T108 T109 L110 D111 S112 K113 T114 Q115 L118 I119 V120 N121 N122 A123 T124 N125 V126 K129 E132 F133 V134 F135 L141 G142 V143 TYR TYR HIS LYS ASN ASN LYS SER TRP M153 E154 S155 E156 F157
R158 V159 N164 N165 C166 T167 F168 E169 Y170 V171 S172 GLN PRO PHE LEU MET ASP LEU GLU GLY LYS GLN GLY ASN PHE K187 N188 L189 R190 E191 F192 V193 F194 K195 N196 I197 D198 G199 Y200 F201 Y204 S205 K206 H207 T208 P209 I210 N211 L212 V213 R214 D215 Q218 S221 A222 L223
L226 V227 I231 G232 I233 N234 I235 F238 Q239 T240 L241 L242 A243 L244 H245 R246 S247 TYR LEU THR PRO GLY ASP SER SER SER GLY TRP THR ALA GLY ALA ALA A264 L270 R273 T274 F275 L276 L277 K278 E281 T284 D287 A288 L303 V308 Y313
F318 R319 T323 E324 S325 I326 V327 R328 F329 I332 T333 N334 L335 C336 P337 F338 G339 E340 V341 A344 F347 V350 W353 N354 R355 K356 R357 I358 S359 N360 C361 V362 A363 D364 Y365 S366 N370 S371 A372 T376 C379 Y380 G381 V382 S383 P384 T385 K386 L387 N388 D389
L390 C391 F392 T393 N394 V395 Y396 A397 D398 V401 I402 R403 G404 D405 E406 V407 R408 Q409 I410 A411 P412 G413 Q414 T415 G416 K417 I418 Y421 N422 Y423 K424 L425 P426 D427 D428 F429 T430 G431 C432 A435 S438 N439 N440 V445 G446 G447 N448 Y449 N450 Y451 R454 L455 F456 R457
K458 R466 E471 A475 G476 S477 T478 V483 E484 G485 F486 N487 C488 Y489 F490 P491 L492 Q493 F497 Q498 P499 T500 N501 G502 V503 Q506 P507 Y508 R509 V512 L513 S514 F515 E516 L517 L518 H519 A520 P521 A522 T523 V524 C525 G526 P527 K528 K529 S530 L533 V534 K535 N536



- Molecule 1: Spike glycoprotein

Chain C:


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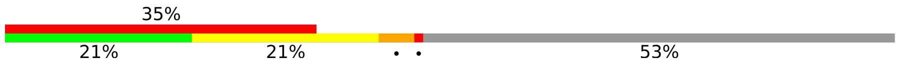
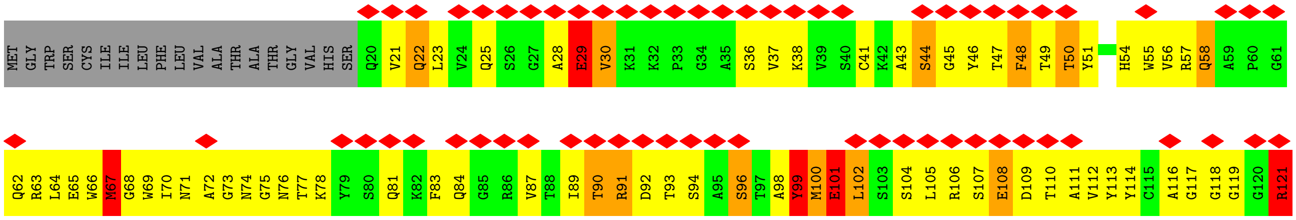
D420 Y421 N422 Y423 K424 D427 D428 F429 T430 G431 C432 V433 I434 A435 W436 N439 N440 L441 D442 S443 K444 V445 N448 L452 Y453 R454 L455 F456 R457 K458 S459 N460 L461 K462 P463 F464 E465 R466 D467 I468 S469 T470 E471 I472 Y473 Q474 A475 G476 S477 T478 P479 C480 N481 G482 V483 E484
G485 F486 Y489 F490 P491 L492 Q493 S494 Y495 G496 F497 Q498 P499 T500 N501 G502 V503 G504 Y505 Q506 R509 V510 V511 V512 L513 S514 F515 E516 LEU LEU HIS ALA PRO ALA THR V524 C525 G526 S530 V534 K537 C538 V539 N542 F543 ASN GLY LEU THR GLY T549 G550 V551 L552
T553 E554 S555 N556 K557 K558 F559 L560 P561 F562 Q563 Q564 F565 G566 R567 D568 I569 A570 D571 D574 A575 V576 R577 D578 T581 L582 E583 I584 L585 D586 I587 T588 F592 G593 G594 V597 I598 T599 P600 G601 V608 V620 P621 VAL ALA ILE HIS ALA ASP GLN LEU THR PRO THR
TRP ARG VAL TYR SER THR GLY S640 N641 T645 R646 A647 N657 I664 A668 Y674 Q675 T676 GLN THR ASN SER PRO GLY SER ALA SER SER VAL ALA SER Q690 S691 I692 I693 L699 N703 S704 V705 N709 I712 A713 I714 V722 T723 T724 E725 I726 L727 P728
V729 K733 V736 D737 C738 T739 M740 Y741 I742 C743 G744 S758 F759 Q762 L763 N764 R765 T768 G769 I770 Q774 D775 T778 Q779 E780 V781 F782 A783 Q784 Q787 K795 F802 S803 Q804 I805 L806 P809 P812 S813 K814 R815 S816 E819 D820 K825 V826
THR LEU ALA ASP ALA GLY PHE ILE LYS GLN TYR GLY ASP CYS LEU GLY ASP ILE ALA ALA ARG ASP LEU ILE CYS ALA GLN LYS F855 N856 G857 L864 L865 T866 I870 Y873 T874 L878 W886 L894 M900 Q901 M902 A903 Y904 R905 F906 Q913 N914 V915 L916 Y917
E918 N919 Q920 K921 L922 I923 A924 N925 Q926 A930 I931 G932 K933 I934 Q935 L938 S939 S940 THR PRO SER A944 K947 L948 Q954 Q957 A958 T961 L962 V963 L966 S967 S968 N969 F970 I973 S974 S975 V976 L977 N978 D979 I980 L981 S982 R983 L984 E988 I993 D994
R995 L996 I997 T998 G999 R1000 L1001 Q1005 T1027 K1028 M1029 S1030 E1031 C1032 V1033 L1034 K1038 R1039 V1040 L1049 M1050 S1051 F1052 P1053 Q1054 P1057 H1058 G1059 V1060 V1061 F1062 L1063 H1064 K1073 N1074 F1075 T1076 T1077 A1078 P1079 G1085 K1086 A1087 H1088 F1089 P1090 F1095 V1096 S1097 T1100 H1101
V1104 Y1110 Q1113 I1114 I1115 F1121 V1122 N1125 I1132 L1141 L1145 D1146 SER PHE LYS GLU GLU LEU ASP LYS TYR PHE LYS ASN HIS THR SER PRO ASP VAL ASP LEU GLY ASP ILE SER GLY ILE ASN ALA SER VAL VAL ASN ILE GLN LYS GLU ILE ASP ARG LEU
ASN GLU VAL ALA LYS ASN LEU ASN GLU SER LEU ILE ASP LEU GLN GLU LEU GLY LYS TYR GLU GLN GLY SER GLY TYR ILE PRO GLU ALA PRO ARG ASP GLY GLN ALA TYR VAL ARG LYS ASP GLY GLU TRP VAL LEU LEU SER THR PHE LEU GLY ARG SER LEU GLU VAL LEU PHE GLN
GLY PRO GLY HIS HIS HIS HIS HIS HIS HIS HIS SER ALA TRP SER HIS PRO GLN PHE GLU LYS GLY GLY GLY SER GLY GLY GLY SER GLY GLY SER ALA TRP SER HIS PRO GLN PHE GLU LYS GLY SER ASP TYR LYS ASP ASP ASP ASP LYS

- Molecule 2: P36-5D2 heavy chain

Chain H:

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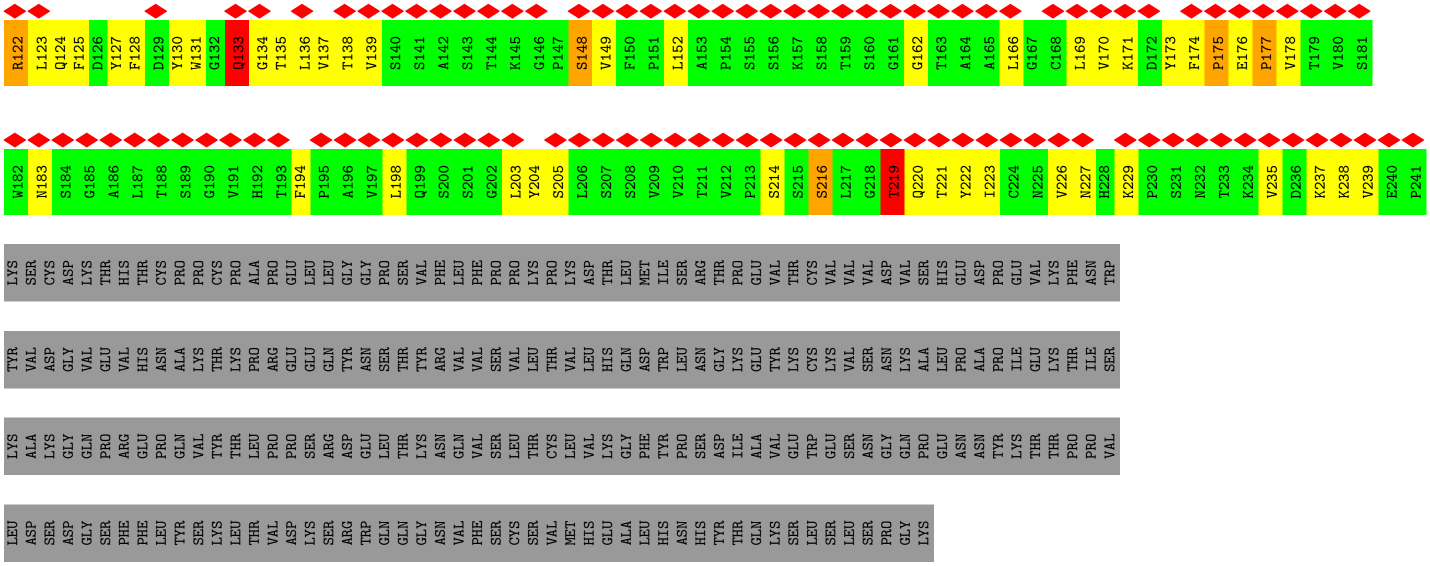
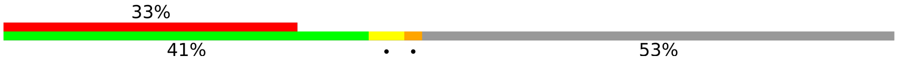
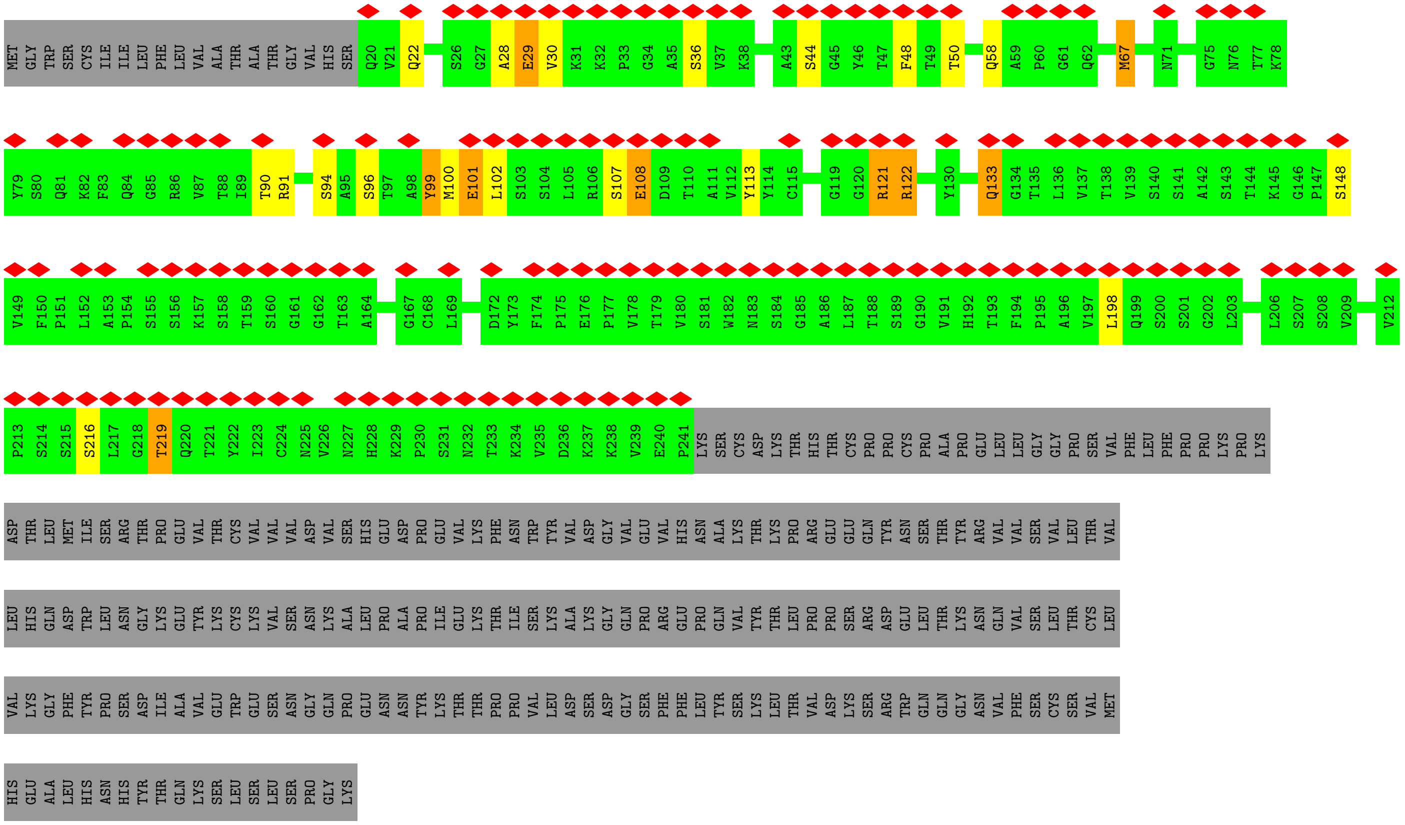
Q62 R63 L64 E65 W66 M67 G68 W69 I70 N71 A72 G73 N74 G75 N76 T77 K78 Y79 S80 Q81 K82 F83 Q84 G85 R86 V87 T88 I89 T90 R91 D92 T93 S94 A95 S96 T97 A98 Y99 M100 E101 L102 S103 S104 L105 R106 S107 E108 D109 T110 A111 V112 Y113 Y114 C115 A116 G117 G118 G119 G120 R121



- Molecule 2: P36-5D2 heavy chain

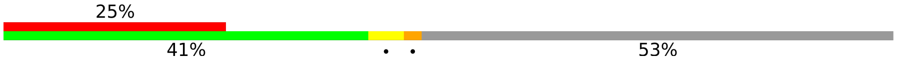
Chain d:

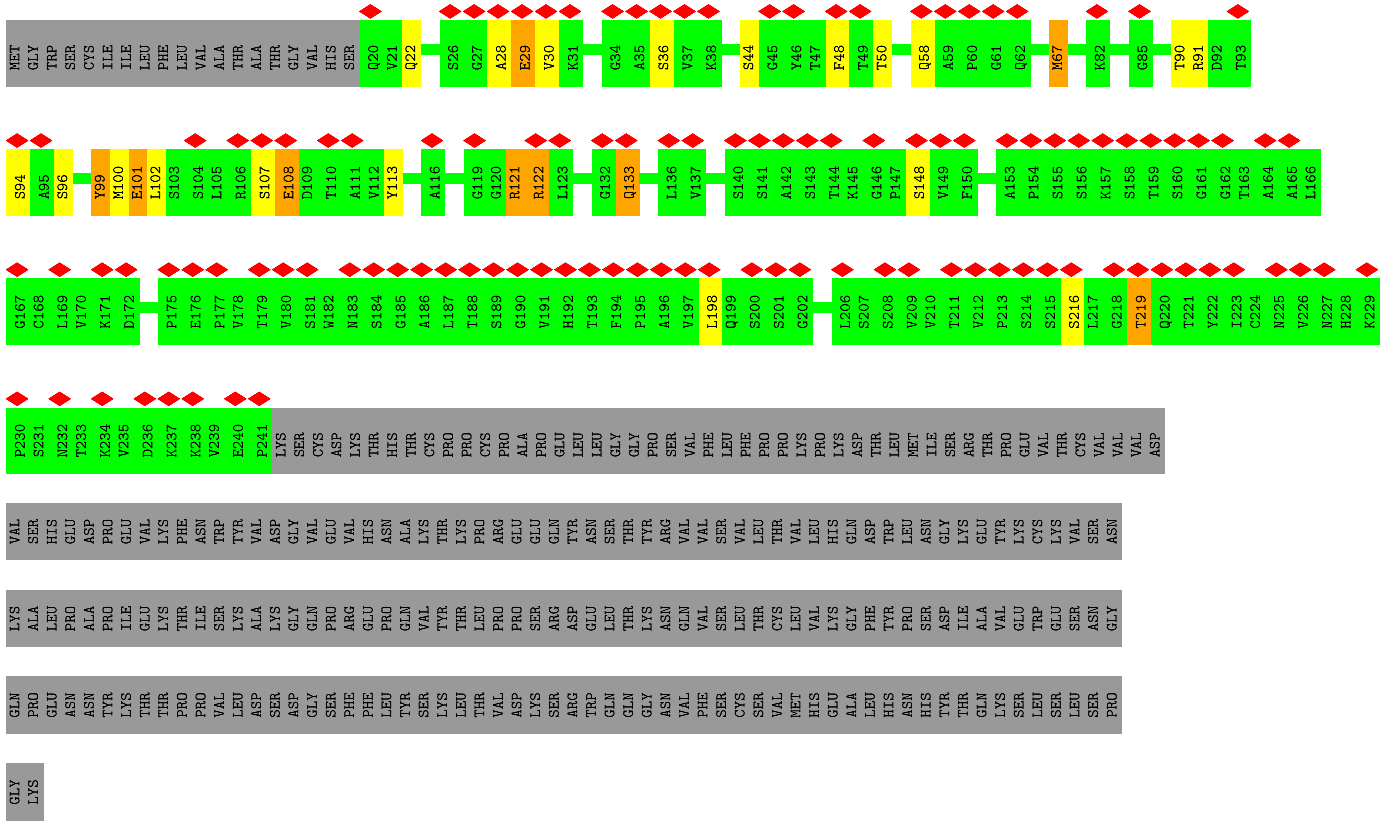




- Molecule 2: P36-5D2 heavy chain

Chain g:

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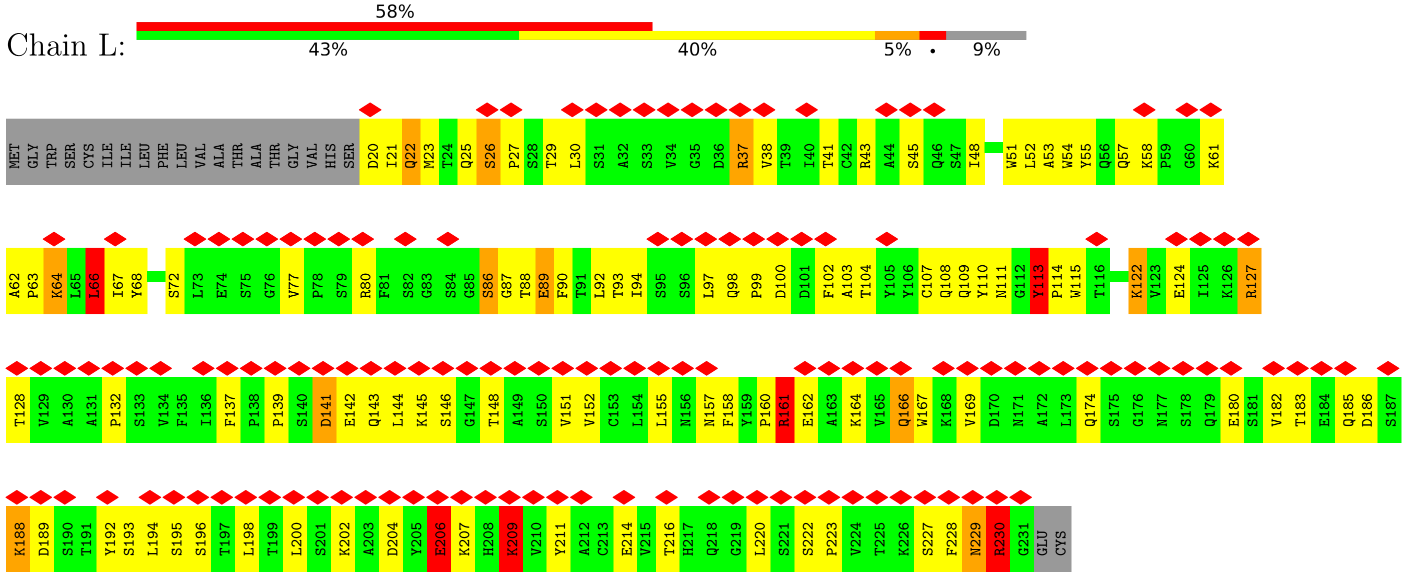
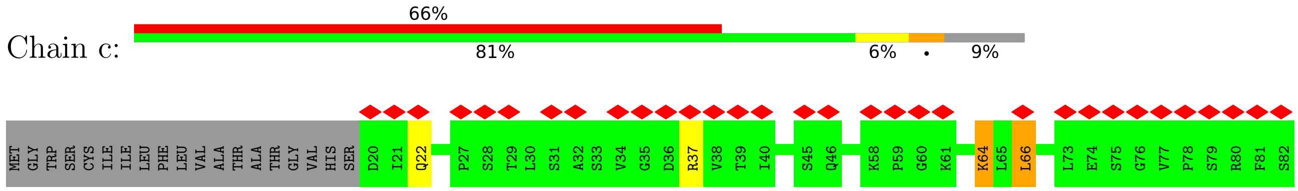
S94 A95 S96 Y99 M100 E101 L102 S103 S104 L105 R106 S107 E108 D109 T110 A111 V112 Y113 A116 G119 G120 R121 R122 L123 G132 Q133 L136 V137 S140 S141 A142 S143 T144 K145 G146 P147 S148 V149 F150 A153 P154 S155 S156 K157 S158 T159 S160 G161 G162 T163 A164 A165 L166
G167 C168 L169 V170 K171 D172 P175 E176 P177 V178 T179 V180 S181 W182 N183 S184 G185 A186 L187 T188 S189 G190 V191 H192 T193 F194 P195 A196 V197 L198 Q199 S200 S201 G202 L206 S207 S208 V209 V210 T211 V212 P213 S214 S215 S216 L217 G218 T219 Q220 T221 Y222 I223 C224 N225 V226 N227 H228 K229
P230 S231 N232 T233 K234 V235 D236 K237 K238 V239 E240 P241 LYS SER CYS ASP LYS THR HIS THR CYS PRO PRO CYS PRO ALA PRO GLU LEU LEU GLY GLY PRO SER VAL PHE LEU PHE PRO PRO LYS PRO LYS ASP THR LEU MET ILE SER ARG THR PRO GLU VAL THR CYS VAL VAL VAL ASP
VAL SER HIS GLU ASP PRO GLU VAL LYS PHE ASN TRP TYR VAL ASP GLY VAL GLU VAL HIS ASN ALA LYS THR LYS PRO ARG GLU GLU GLN TYR ASN SER THR TYR ARG VAL VAL SER VAL LEU THR VAL LEU HIS GLN ASP TRP LEU ASN GLY LYS GLU TYR LYS CYS LYS VAL SER ASN
LYS ALA LEU PRO ALA PRO ILE GLU LYS THR ILE SER LYS ALA LYS GLY GLN PRO ARG GLU PRO GLN VAL TYR THR LEU PRO PRO SER ARG ASP GLU LEU THR LYS ASN GLN VAL SER LEU THR CYS LEU VAL LYS GLY PHE TYR PRO SER ASP ILE ALA VAL GLU TRP GLU SER ASN GLY
GLN PRO GLU ASN ASN TYR LYS THR THR PRO PRO VAL LEU ASP SER ASP GLY SER PHE PHE LEU TYR SER LYS LEU THR VAL ASP LYS SER ARG TRP GLN GLN GLY ASN VAL PHE SER CYS SER VAL MET HIS GLU ALA LEU HIS ASN HIS TYR THR GLN LYS SER LEU SER LEU SER PRO
GLY LYS

- Molecule 3: P36-5D2 light chain


Chain L:
58%
43%
40%
5%
•
9%
MET GLY TRP SER CYS ILE ILE LEU PHE LEU VAL ALA THR ALA THR GLY VAL HIS SER D20 I21 Q22 M23 T24 Q25 S26 P27 S28 T29 L30 S31 A32 S33 V34 G35 D36 R37 V38 T39 I40 T41 C42 R43 A44 S45 Q46 S47 I48 W51 L52 A53 W54 Y55 Q56 Q57 K58 P59 G60 K61
A62 P63 K64 L65 L66 I67 Y68 S72 L73 E74 S75 G76 V77 P78 S79 R80 F81 S82 G83 S84 G85 S86 G87 T88 E89 F90 T91 L92 T93 I94 S95 S96 L97 Q98 P99 D100 D101 F102 A103 T104 Y105 Y106 C107 Q108 Q109 Y110 N111 G112 Y113 P114 W115 T116 K122 V123 E124 I125 K126 R127
T128 V129 A130 A131 P132 S133 V134 F135 I136 F137 P138 P139 S140 D141 E142 Q143 L144 K145 S146 G147 T148 A149 S150 V151 V152 C153 L154 L155 N156 N157 F158 Y159 P160 R161 E162 A163 K164 V165 Q166 W167 K168 V169 D170 N171 A172 L173 Q174 S175 G176 N177 S178 Q179 E180 S181 V182 T183 E184 Q185 D186 S187
K188 D189 S190 T191 Y192 S193 L194 S195 S196 T197 L198 T199 L200 S201 K202 A203 D204 Y205 E206 K207 H208 K209 V210 Y211 A212 C213 E214 V215 T216 H217 Q218 G219 L220 S221 S222 P223 V224 T225 K226 S227 F228 N229 R230 G231 GLU CYS

- Molecule 3: P36-5D2 light chain


Chain c:
66%
81%
6%
•
9%
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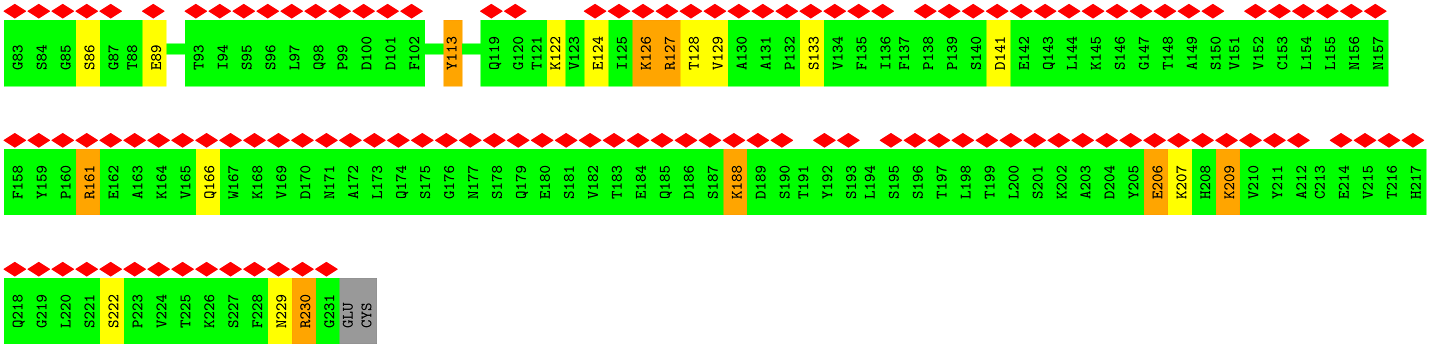
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F158 Y159 P160 R161 E162 A163 K164 V165 Q166 W167 K168 V169 D170 N171 A172 L173 Q174 S175 G176 N177 S178 Q179 E180 S181 V182 T183 E184 Q185 D186 S187 K188 D189 S190 T191 Y192 S193 L194 S195 S196 T197 L198 T199 L200 S201 K202 A203 D204 Y205 E206 K207 H208 K209 V210 Y211 A212 C213 E214 V215 T216 H217
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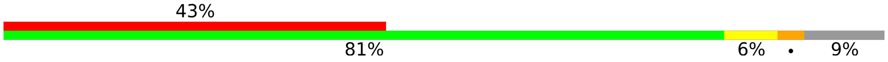
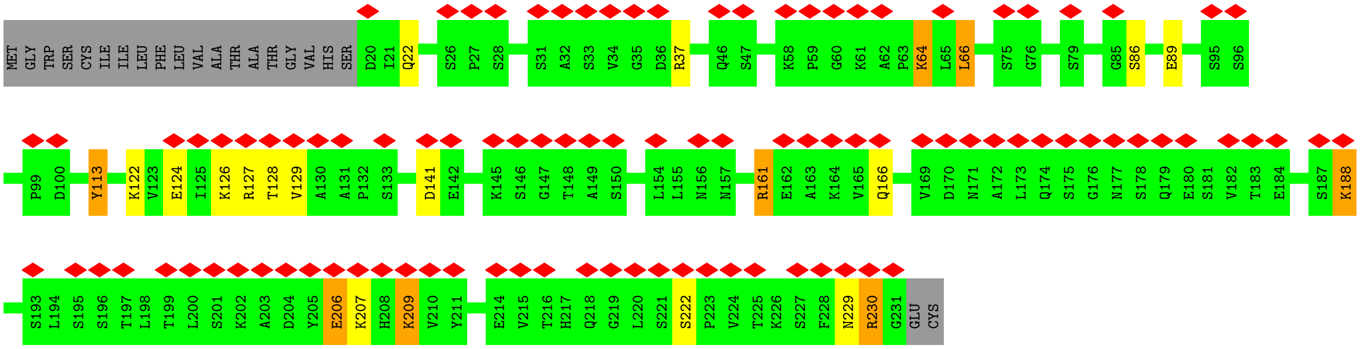
- Molecule 3: P36-5D2 light chain

Chain f:




MET GLY TRP SER CYS ILE ILE LEU PHE LEU VAL ALA THR ALA THR GLY VAL HIS SER D20 I21 Q22 S26 P27 S28 S31 A32 S33 V34 G35 D36 R37 Q46 S47 K58 P59 G60 K61 A62 P63 K64 L65 L66 S75 G76 S79 G85 S86 E89 S95 S96
P99 D100 Y113 K122 V123 E124 I125 K126 R127 T128 V129 A130 A131 P132 S133 D141 E142 K145 S146 G147 T148 A149 S150 L154 L155 N156 N157 R161 E162 A163 K164 V165 Q166 V169 D170 N171 A172 L173 Q174 S175 G176 N177 S178 Q179 E180 S181 V182 T183 E184 S187 K188
S193 L194 S195 S196 T197 L198 T199 L200 S201 K202 A203 D204 Y205 E206 K207 H208 K209 V210 Y211 E214 V215 T216 H217 Q218 G219 L220 S221 S222 P223 V224 T225 K226 S227 F228 N229 R230 G231 GLU CYS

4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	242871	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 $(e^-/\text{Å}^2)$	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.061	Depositor
Minimum map value	-0.023	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.00746	Depositor
Map size (Å)	310.40002, 310.40002, 310.40002	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.9700001, 0.9700001, 0.9700001	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	0.46	3/7940 (0.0%)	0.66	6/10806 (0.1%)
1	B	0.61	4/8041 (0.0%)	0.77	17/10942 (0.2%)
1	C	0.53	0/7914	0.68	8/10769 (0.1%)
2	H	0.57	3/1711 (0.2%)	1.30	16/2328 (0.7%)
2	d	0.57	3/1711 (0.2%)	1.30	15/2328 (0.6%)
2	g	0.57	3/1711 (0.2%)	1.30	15/2328 (0.6%)
3	L	0.50	0/1673	1.27	16/2274 (0.7%)
3	c	0.49	0/1673	1.27	16/2274 (0.7%)
3	f	0.50	0/1673	1.27	15/2274 (0.7%)
All	All	0.54	16/34047 (0.0%)	0.92	124/46323 (0.3%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	3
1	C	0	2
2	H	0	2
2	d	0	2
2	g	0	2
3	L	0	2
3	c	0	2
3	f	0	1
All	All	0	17

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	362	VAL	CB-CG1	-8.39	1.35	1.52
1	B	396	TYR	CD1-CE1	-8.12	1.27	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	396	TYR	CD2-CE2	-6.51	1.29	1.39
1	A	391	CYS	CB-SG	6.20	1.92	1.82
1	B	357	ARG	CG-CD	-6.11	1.36	1.51
1	A	436	TRP	CE3-CZ3	-6.02	1.28	1.38
2	H	101	GLU	CB-CG	5.75	1.63	1.52
2	g	101	GLU	CB-CG	5.75	1.63	1.52
2	d	101	GLU	CB-CG	5.73	1.63	1.52
2	g	99	TYR	CD1-CE1	-5.67	1.30	1.39
1	B	362	VAL	CB-CG2	-5.65	1.41	1.52
2	H	99	TYR	CD1-CE1	-5.63	1.30	1.39
2	d	99	TYR	CD1-CE1	-5.56	1.31	1.39
2	d	219	THR	CB-CG2	5.45	1.70	1.52
2	H	219	THR	CB-CG2	5.44	1.70	1.52
2	g	219	THR	CB-CG2	5.42	1.70	1.52

All (124) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	g	102	LEU	CB-CG-CD1	26.81	156.58	111.00
2	d	102	LEU	CB-CG-CD1	26.81	156.58	111.00
2	H	102	LEU	CB-CG-CD1	26.81	156.58	111.00
2	d	102	LEU	CB-CG-CD2	-22.69	72.43	111.00
2	g	102	LEU	CB-CG-CD2	-22.67	72.46	111.00
2	H	102	LEU	CB-CG-CD2	-22.67	72.46	111.00
3	c	66	LEU	CB-CG-CD1	22.29	148.90	111.00
3	f	66	LEU	CB-CG-CD1	22.27	148.86	111.00
3	f	66	LEU	CB-CG-CD2	-22.26	73.15	111.00
3	c	66	LEU	CB-CG-CD2	-22.26	73.16	111.00
3	L	66	LEU	CB-CG-CD1	22.23	148.80	111.00
3	L	66	LEU	CB-CG-CD2	-22.23	73.21	111.00
3	L	188	LYS	CB-CG-CD	-15.29	71.84	111.60
3	c	188	LYS	CB-CG-CD	-15.29	71.85	111.60
3	f	188	LYS	CB-CG-CD	-15.28	71.86	111.60
1	B	387	LEU	CA-CB-CG	12.10	143.14	115.30
2	g	99	TYR	CB-CG-CD1	-11.88	113.87	121.00
2	d	99	TYR	CB-CG-CD1	-11.87	113.88	121.00
2	H	99	TYR	CB-CG-CD1	-11.80	113.92	121.00
3	c	188	LYS	CA-CB-CG	11.46	138.61	113.40
3	f	188	LYS	CA-CB-CG	11.45	138.59	113.40
3	L	188	LYS	CA-CB-CG	11.43	138.56	113.40
2	d	122	ARG	NE-CZ-NH1	-9.83	115.39	120.30
2	g	122	ARG	NE-CZ-NH1	-9.79	115.40	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	H	122	ARG	NE-CZ-NH1	-9.76	115.42	120.30
1	B	383	SER	N-CA-CB	-9.65	96.03	110.50
3	c	64	LYS	CB-CG-CD	9.39	136.01	111.60
3	f	64	LYS	CB-CG-CD	9.38	135.98	111.60
3	L	64	LYS	CB-CG-CD	9.36	135.95	111.60
3	c	230	ARG	CG-CD-NE	9.23	131.18	111.80
3	L	230	ARG	CG-CD-NE	9.23	131.18	111.80
3	f	230	ARG	CG-CD-NE	9.22	131.17	111.80
1	C	1033	VAL	O-C-N	9.12	137.30	122.70
1	B	383	SER	CA-CB-OG	9.10	135.77	111.20
1	A	533	LEU	C-N-CA	-8.58	100.24	121.70
2	d	122	ARG	CG-CD-NE	-8.44	94.08	111.80
2	H	122	ARG	CG-CD-NE	-8.41	94.14	111.80
2	g	122	ARG	CG-CD-NE	-8.40	94.16	111.80
3	c	230	ARG	CB-CG-CD	-7.83	91.24	111.60
3	f	230	ARG	CB-CG-CD	-7.82	91.28	111.60
3	L	230	ARG	CB-CG-CD	-7.81	91.30	111.60
2	d	121	ARG	CA-CB-CG	-7.77	96.30	113.40
2	H	121	ARG	CA-CB-CG	-7.77	96.30	113.40
2	g	121	ARG	CA-CB-CG	-7.74	96.36	113.40
3	L	66	LEU	CA-CB-CG	7.74	133.09	115.30
3	c	66	LEU	CA-CB-CG	7.67	132.93	115.30
3	f	66	LEU	CA-CB-CG	7.67	132.93	115.30
3	f	188	LYS	N-CA-CB	7.57	124.22	110.60
3	c	188	LYS	N-CA-CB	7.56	124.22	110.60
3	L	188	LYS	N-CA-CB	7.56	124.21	110.60
1	B	329	PHE	CB-CA-C	-7.12	96.15	110.40
1	C	1033	VAL	C-N-CA	-6.93	104.38	121.70
2	g	101	GLU	CA-C-N	-6.89	102.05	117.20
2	H	101	GLU	CA-C-N	-6.88	102.06	117.20
2	d	101	GLU	CA-C-N	-6.87	102.08	117.20
2	g	122	ARG	CB-CG-CD	6.77	129.21	111.60
2	H	122	ARG	CB-CG-CD	6.75	129.14	111.60
2	d	122	ARG	CB-CG-CD	6.74	129.12	111.60
1	B	383	SER	CB-CA-C	6.71	122.86	110.10
1	C	1033	VAL	CA-C-N	-6.68	102.50	117.20
3	c	161	ARG	NE-CZ-NH1	-6.63	116.99	120.30
3	L	161	ARG	NE-CZ-NH1	-6.49	117.06	120.30
3	f	161	ARG	NE-CZ-NH1	-6.47	117.07	120.30
1	A	1079	PRO	CA-N-CD	-6.32	102.66	111.50
1	C	1079	PRO	CA-N-CD	-6.31	102.67	111.50
1	B	1079	PRO	CA-N-CD	-6.29	102.69	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	384	PRO	CA-N-CD	-6.23	102.78	111.50
1	C	1079	PRO	N-CD-CG	-6.23	93.86	103.20
1	A	1079	PRO	N-CD-CG	-6.20	93.90	103.20
1	B	1079	PRO	N-CD-CG	-6.19	93.91	103.20
3	c	230	ARG	CD-NE-CZ	-6.17	114.96	123.60
3	f	230	ARG	CD-NE-CZ	-6.11	115.05	123.60
3	L	230	ARG	CD-NE-CZ	-6.10	115.06	123.60
2	d	67	MET	CA-CB-CG	6.08	123.63	113.30
2	H	67	MET	CA-CB-CG	6.03	123.56	113.30
2	g	67	MET	CA-CB-CG	6.02	123.53	113.30
2	g	101	GLU	CB-CA-C	-5.95	98.50	110.40
2	d	122	ARG	NE-CZ-NH2	5.93	123.27	120.30
2	d	101	GLU	CB-CA-C	-5.93	98.54	110.40
3	f	230	ARG	NE-CZ-NH1	5.91	123.25	120.30
2	H	101	GLU	CB-CA-C	-5.90	98.60	110.40
3	L	230	ARG	NE-CZ-NH1	5.86	123.23	120.30
2	g	122	ARG	NE-CZ-NH2	5.81	123.21	120.30
2	H	122	ARG	NE-CZ-NH2	5.80	123.20	120.30
1	A	391	CYS	CA-CB-SG	5.78	124.40	114.00
2	H	113	TYR	CB-CG-CD1	-5.68	117.59	121.00
3	c	230	ARG	NE-CZ-NH1	5.67	123.13	120.30
3	L	206	GLU	C-N-CA	-5.59	107.73	121.70
3	c	206	GLU	C-N-CA	-5.59	107.73	121.70
3	f	206	GLU	C-N-CA	-5.58	107.74	121.70
2	d	113	TYR	CB-CG-CD1	-5.55	117.67	121.00
2	g	113	TYR	CB-CG-CD1	-5.53	117.68	121.00
3	f	230	ARG	NE-CZ-NH2	-5.47	117.57	120.30
1	B	800	PHE	CB-CA-C	5.43	121.26	110.40
1	B	357	ARG	NE-CZ-NH1	-5.41	117.60	120.30
3	L	230	ARG	NE-CZ-NH2	-5.38	117.61	120.30
1	B	379	CYS	CA-CB-SG	5.37	123.67	114.00
2	d	133	GLN	CA-CB-CG	5.37	125.20	113.40
3	L	209	LYS	CA-CB-CG	5.36	125.19	113.40
3	c	209	LYS	CA-CB-CG	5.36	125.19	113.40
2	H	133	GLN	CA-CB-CG	5.36	125.19	113.40
1	B	384	PRO	N-CA-C	5.36	126.02	112.10
2	g	133	GLN	CA-CB-CG	5.35	125.18	113.40
1	A	1028	LYS	CG-CD-CE	-5.35	95.85	111.90
1	C	1028	LYS	CG-CD-CE	-5.35	95.85	111.90
3	f	209	LYS	CA-CB-CG	5.32	125.11	113.40
1	B	384	PRO	CA-C-N	5.31	128.88	117.20
1	C	982	SER	O-C-N	-5.30	114.21	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	384	PRO	N-CD-CG	-5.28	95.28	103.20
2	g	29	GLU	CB-CA-C	5.17	120.73	110.40
2	H	29	GLU	CB-CA-C	5.16	120.72	110.40
2	d	29	GLU	CB-CA-C	5.15	120.70	110.40
3	c	230	ARG	NE-CZ-NH2	-5.13	117.74	120.30
1	C	1029	MET	CB-CG-SD	5.11	127.72	112.40
1	A	1029	MET	CB-CG-SD	5.10	127.69	112.40
1	B	384	PRO	CA-CB-CG	-5.07	94.37	104.00
3	L	66	LEU	CB-CA-C	5.07	119.83	110.20
1	B	386	LYS	CA-CB-CG	5.05	124.52	113.40
1	B	362	VAL	CA-CB-CG2	-5.05	103.32	110.90
2	H	101	GLU	N-CA-CB	5.05	119.69	110.60
2	g	101	GLU	N-CA-CB	5.04	119.67	110.60
2	d	101	GLU	N-CA-CB	5.03	119.66	110.60
3	c	66	LEU	CB-CA-C	5.02	119.74	110.20
2	H	203	LEU	C-N-CA	5.02	134.25	121.70

There are no chirality outliers.

All (17) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	981	LEU	Mainchain
1	B	382	VAL	Peptide
1	B	41	LYS	Peptide
1	B	704	SER	Peptide
1	C	981	LEU	Peptide
1	C	982	SER	Mainchain
2	H	100	MET	Peptide
2	H	28	ALA	Peptide
3	L	113	TYR	Peptide
3	L	26	SER	Peptide
3	c	113	TYR	Peptide
3	c	126	LYS	Peptide
2	d	100	MET	Peptide
2	d	28	ALA	Peptide
3	f	113	TYR	Peptide
2	g	100	MET	Peptide
2	g	28	ALA	Peptide

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	7767	0	7557	387	0
1	B	7863	0	7673	236	0
1	C	7743	0	7518	306	0
2	H	1670	0	1630	110	0
2	d	1670	0	1630	0	0
2	g	1670	0	1630	0	0
3	L	1635	0	1577	97	0
3	c	1635	0	1577	0	0
3	f	1635	0	1577	0	0
All	All	33288	0	32369	1055	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 23.

All (1055) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:379:CYS:SG	1:C:384:PRO:HB3	1.49	1.50
1:A:323:THR:H	1:A:537:LYS:NZ	1.29	1.29
1:A:197:ILE:O	1:A:200:TYR:HB2	1.40	1.18
1:C:295:PRO:HB2	1:C:608:VAL:HG11	1.29	1.12
1:C:383:SER:HB2	1:C:386:LYS:HE3	1.27	1.11
1:C:379:CYS:SG	1:C:384:PRO:CB	2.39	1.11
1:A:323:THR:N	1:A:537:LYS:HZ1	1.49	1.10
1:A:319:ARG:CZ	1:A:592:PHE:HB2	1.82	1.09
1:C:319:ARG:CZ	1:C:592:PHE:HB2	1.83	1.09
3:L:206:GLU:HA	3:L:230:ARG:NH1	1.69	1.07
1:A:295:PRO:HB2	1:A:608:VAL:HG11	1.28	1.07
1:A:326:ILE:HG21	1:A:534:VAL:HG22	1.41	1.02
1:B:380:TYR:C	1:B:382:VAL:H	1.59	1.02
1:A:703:ASN:HB2	1:C:787:GLN:HG2	1.36	1.01
1:A:200:TYR:OH	1:B:394:ASN:ND2	1.93	1.01
1:C:341:VAL:HG11	1:C:356:LYS:HG2	1.44	0.97
1:A:97:LYS:HB2	1:A:187:LYS:HD3	1.45	0.97
1:A:383:SER:H	1:A:386:LYS:HE3	1.26	0.97

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:110:THR:HG22	2:H:139:VAL:H	1.29	0.97
3:L:166:GLN:NE2	3:L:214:GLU:OE1	1.97	0.97
1:C:383:SER:CB	1:C:386:LYS:HE3	1.97	0.94
1:B:318:PHE:CZ	1:B:620:VAL:O	2.22	0.93
1:A:787:GLN:HG2	1:B:703:ASN:HB2	1.49	0.93
1:A:318:PHE:CZ	1:A:620:VAL:O	2.22	0.93
1:C:379:CYS:HB2	1:C:384:PRO:HG3	1.50	0.92
1:A:462:LYS:HD2	1:A:463:PRO:HD2	1.51	0.91
1:C:318:PHE:CZ	1:C:620:VAL:O	2.22	0.91
1:A:108:THR:O	1:A:237:ARG:NH1	2.03	0.91
1:A:153:MET:HG2	1:A:154:GLU:H	1.33	0.91
1:A:599:THR:HG22	1:A:601:GLY:H	1.37	0.90
1:A:703:ASN:CB	1:C:787:GLN:HG2	2.02	0.89
1:A:328:ARG:HH12	1:A:533:LEU:HA	1.35	0.88
1:A:883:THR:HG21	1:B:705:VAL:CG1	2.04	0.88
1:C:599:THR:HG22	1:C:601:GLY:H	1.37	0.88
1:B:41:LYS:HG3	1:C:562:PHE:HD2	1.39	0.87
1:B:381:GLY:HA3	1:B:430:THR:HA	1.55	0.87
1:A:323:THR:N	1:A:537:LYS:NZ	2.15	0.87
1:A:917:TYR:CZ	1:B:1079:PRO:HB3	2.08	0.87
1:B:355:ARG:HH21	1:B:396:TYR:HD2	1.20	0.87
1:C:865:LEU:HD22	1:C:870:ILE:HG13	1.57	0.87
1:C:784:GLN:HB2	1:C:1029:MET:HE3	1.58	0.86
1:A:326:ILE:HD13	1:A:534:VAL:H	1.41	0.86
1:A:865:LEU:HD22	1:A:870:ILE:HG13	1.57	0.85
2:H:57:ARG:NH1	2:H:65:GLU:OE2	2.09	0.85
1:A:130:VAL:HG11	1:A:231:ILE:HD11	1.54	0.85
1:A:139:PRO:HD2	1:A:239:GLN:HE22	1.40	0.84
1:A:382:VAL:HG23	1:A:386:LYS:HZ2	1.42	0.84
1:B:379:CYS:HB3	1:B:432:CYS:HA	1.60	0.84
1:B:350:VAL:HG21	1:B:418:ILE:HD11	1.59	0.83
1:A:795:LYS:NZ	1:A:806:LEU:HD22	1.95	0.82
1:A:409:GLN:NE2	1:A:415:THR:O	2.13	0.82
3:L:22:GLN:N	3:L:22:GLN:OE1	2.11	0.82
1:A:456:PHE:HE2	1:A:489:TYR:HD2	1.26	0.82
1:A:826:VAL:HG23	1:A:1057:PRO:HG2	1.60	0.82
1:C:795:LYS:NZ	1:C:806:LEU:HD22	1.94	0.82
1:A:883:THR:HG21	1:B:705:VAL:HG11	1.63	0.81
2:H:133:GLN:N	2:H:133:GLN:OE1	2.11	0.81
1:C:826:VAL:HG23	1:C:1057:PRO:HG2	1.60	0.81
2:H:148:SER:HB3	2:H:171:LYS:O	1.81	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:382:VAL:HB	1:B:383:SER:HB3	1.63	0.80
1:A:456:PHE:HE2	1:A:489:TYR:CD2	1.98	0.80
3:L:143:GLN:NE2	3:L:146:SER:OG	2.13	0.80
1:A:379:CYS:HB3	1:A:432:CYS:HA	1.63	0.80
1:A:239:GLN:HG2	1:A:240:THR:H	1.47	0.79
2:H:54:HIS:ND1	2:H:128:PHE:HE1	1.81	0.79
3:L:180:GLU:HG2	3:L:194:LEU:HD11	1.65	0.79
1:C:206:LYS:HB2	1:C:223:LEU:HG	1.66	0.78
1:B:412:PRO:HD3	1:B:425:LEU:HD23	1.63	0.78
1:B:398:ASP:OD2	1:B:423:TYR:OH	1.99	0.78
1:A:141:LEU:HB2	1:A:156:GLU:HB2	1.64	0.78
1:A:733:LYS:HE3	1:A:774:GLN:HB3	1.66	0.78
3:L:132:PRO:HB3	3:L:158:PHE:HB3	1.66	0.78
1:B:402:ILE:HD13	1:B:410:ILE:HD11	1.64	0.78
1:C:733:LYS:HE3	1:C:774:GLN:HB3	1.66	0.78
1:C:905:ARG:HD3	1:C:1049:LEU:HD22	1.66	0.78
1:A:1039:ARG:CZ	1:C:1039:ARG:NH1	2.47	0.77
1:C:314:GLN:HE22	1:C:594:GLY:HA3	1.49	0.77
1:A:570:ALA:HB1	1:C:963:VAL:CG1	2.15	0.77
1:A:456:PHE:CE2	1:A:489:TYR:HD2	2.01	0.77
1:A:722:VAL:HA	1:A:1064:HIS:O	1.85	0.77
2:H:56:VAL:HB	2:H:128:PHE:HE2	1.49	0.77
1:C:295:PRO:CB	1:C:608:VAL:HG11	2.13	0.77
1:C:722:VAL:HA	1:C:1064:HIS:O	1.85	0.77
1:A:905:ARG:HD3	1:A:1049:LEU:HD22	1.66	0.77
1:A:295:PRO:CB	1:A:608:VAL:HG11	2.13	0.76
2:H:90:THR:OG1	2:H:91:ARG:N	2.13	0.76
1:A:314:GLN:HE22	1:A:594:GLY:HA3	1.49	0.75
1:C:803:SER:OG	1:C:804:GLN:OE1	2.05	0.75
1:A:323:THR:H	1:A:537:LYS:HZ1	0.75	0.74
1:A:973:ILE:HD11	1:A:980:ILE:HD13	1.70	0.74
1:B:865:LEU:HD22	1:B:870:ILE:HG13	1.70	0.74
1:A:303:LEU:HD11	1:A:313:TYR:CE2	2.23	0.73
1:A:200:TYR:CZ	1:B:394:ASN:ND2	2.55	0.73
1:A:370:ASN:HD21	1:B:476:GLY:HA3	1.53	0.73
1:B:303:LEU:HD11	1:B:313:TYR:CE2	2.23	0.73
1:A:865:LEU:HD11	1:A:873:TYR:HE2	1.52	0.73
3:L:209:LYS:HD3	3:L:230:ARG:NH2	2.02	0.73
1:C:303:LEU:HD11	1:C:313:TYR:CE2	2.23	0.73
1:B:356:LYS:HE3	1:B:397:ALA:HB3	1.71	0.73
1:C:341:VAL:CG1	1:C:356:LYS:HG2	2.16	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:393:THR:HA	1:B:522:ALA:HA	1.71	0.72
1:B:490:PHE:CE2	1:B:492:LEU:HB2	2.23	0.72
2:H:106:ARG:O	2:H:109:ASP:HB2	1.89	0.72
1:B:366:SER:O	1:B:370:ASN:ND2	2.22	0.72
1:C:973:ILE:HD11	1:C:980:ILE:HD13	1.70	0.72
3:L:110:TYR:HA	3:L:115:TRP:CD1	2.25	0.72
1:C:303:LEU:HD12	1:C:308:VAL:HG22	1.71	0.72
1:A:536:ASN:N	1:A:552:LEU:O	2.22	0.72
3:L:37:ARG:NH1	3:L:38:VAL:O	2.23	0.72
3:L:166:GLN:HG3	3:L:214:GLU:HB3	1.72	0.72
3:L:143:GLN:NE2	3:L:148:THR:O	2.23	0.72
1:C:865:LEU:HD11	1:C:873:TYR:HE2	1.52	0.72
1:B:379:CYS:CB	1:B:432:CYS:HA	2.20	0.72
1:B:409:GLN:NE2	1:B:415:THR:O	2.23	0.71
1:C:319:ARG:NE	1:C:592:PHE:HB2	2.04	0.71
1:B:303:LEU:HD12	1:B:308:VAL:HG22	1.71	0.71
2:H:221:THR:HA	2:H:238:LYS:NZ	2.06	0.71
1:A:319:ARG:NE	1:A:592:PHE:HB2	2.04	0.71
1:A:357:ARG:NH2	1:A:396:TYR:HE1	1.89	0.70
1:A:303:LEU:HD12	1:A:308:VAL:HG22	1.71	0.70
1:C:865:LEU:HD11	1:C:873:TYR:CE2	2.26	0.70
1:A:319:ARG:NH2	1:A:592:PHE:HB2	2.05	0.70
1:C:319:ARG:NH2	1:C:592:PHE:HB2	2.05	0.70
1:A:1079:PRO:HB3	1:C:917:TYR:CZ	2.27	0.70
2:H:38:LYS:HE3	2:H:99:TYR:HB3	1.73	0.70
1:C:452:LEU:HB3	1:C:492:LEU:HG	1.72	0.69
1:A:187:LYS:N	1:A:212:LEU:O	2.25	0.69
1:A:712:ILE:HD11	1:C:900:MET:HG2	1.74	0.69
1:A:112:SER:O	1:A:113:LYS:HG2	1.92	0.69
1:A:865:LEU:HD11	1:A:873:TYR:CE2	2.26	0.69
1:C:921:LYS:O	1:C:924:ALA:HB3	1.93	0.69
3:L:57:GLN:HE21	3:L:63:PRO:HB3	1.58	0.69
1:A:921:LYS:O	1:A:924:ALA:HB3	1.93	0.69
2:H:148:SER:O	2:H:170:VAL:HA	1.92	0.69
1:A:775:ASP:O	1:A:779:GLN:NE2	2.26	0.69
1:B:303:LEU:HD11	1:B:313:TYR:HE2	1.58	0.68
1:A:968:SER:HB2	1:A:970:PHE:CE1	2.28	0.68
1:B:869:MET:HB3	1:C:699:LEU:HD21	1.76	0.68
1:C:878:LEU:HD11	1:C:1052:PHE:HB3	1.75	0.68
1:C:577:ARG:HH11	1:C:584:ILE:HD11	1.59	0.68
1:C:600:PRO:HD3	1:C:692:ILE:HD11	1.76	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:775:ASP:O	1:C:779:GLN:NE2	2.26	0.68
3:L:80:ARG:HH12	3:L:98:GLN:HB3	1.57	0.68
3:L:200:LEU:HD13	3:L:204:ASP:HB3	1.76	0.68
1:C:1028:LYS:HG3	1:C:1032:CYS:SG	2.34	0.68
1:B:102:ARG:HG3	1:B:141:LEU:HD11	1.76	0.68
1:C:982:SER:OG	1:C:983:ARG:N	2.25	0.68
2:H:54:HIS:CD2	2:H:69:TRP:HB3	2.29	0.68
1:B:393:THR:HG21	1:B:518:LEU:H	1.58	0.67
1:A:379:CYS:CB	1:A:432:CYS:HA	2.24	0.67
1:A:878:LEU:HD11	1:A:1052:PHE:HB3	1.75	0.67
1:B:402:ILE:HG12	1:B:406:GLU:HG3	1.75	0.67
1:B:409:GLN:C	1:B:414:GLN:HE21	1.96	0.67
1:A:600:PRO:HD3	1:A:692:ILE:HD11	1.75	0.67
3:L:80:ARG:HH22	3:L:98:GLN:HB2	1.58	0.67
3:L:206:GLU:HA	3:L:230:ARG:HH11	1.54	0.67
1:C:142:GLY:HA2	1:C:244:LEU:H	1.60	0.67
1:C:303:LEU:HD11	1:C:313:TYR:HE2	1.58	0.67
1:C:968:SER:HB2	1:C:970:PHE:CE1	2.28	0.67
1:B:439:ASN:ND2	1:B:506:GLN:OE1	2.27	0.67
1:A:116:SER:HA	1:A:233:ILE:HD11	1.77	0.67
1:C:319:ARG:NH2	1:C:593:GLY:H	1.92	0.67
1:A:318:PHE:CE1	1:A:620:VAL:O	2.48	0.67
1:A:319:ARG:NH2	1:A:593:GLY:H	1.92	0.67
3:L:37:ARG:HH12	3:L:93:THR:HA	1.59	0.67
1:C:865:LEU:CD2	1:C:870:ILE:HG13	2.24	0.67
1:C:318:PHE:CE1	1:C:620:VAL:O	2.48	0.66
1:B:402:ILE:CD1	1:B:410:ILE:HD11	2.25	0.66
1:B:318:PHE:CE1	1:B:620:VAL:O	2.48	0.66
1:C:379:CYS:CB	1:C:384:PRO:HG3	2.24	0.66
1:A:390:LEU:HG	1:A:392:PHE:CE1	2.30	0.66
1:A:1089:PHE:HB2	1:A:1121:PHE:CE1	2.31	0.66
1:A:387:LEU:HA	1:A:390:LEU:CD2	2.25	0.66
2:H:71:ASN:HD22	2:H:76:ASN:HD22	1.44	0.66
1:A:865:LEU:CD2	1:A:870:ILE:HG13	2.24	0.66
1:B:1089:PHE:HB2	1:B:1121:PHE:CE1	2.31	0.65
1:A:303:LEU:HD11	1:A:313:TYR:HE2	1.58	0.65
1:B:206:LYS:HB2	1:B:223:LEU:HG	1.76	0.65
1:A:231:ILE:HG23	1:A:233:ILE:H	1.61	0.65
1:A:725:GLU:CD	1:A:1064:HIS:NE2	2.50	0.65
3:L:99:PRO:HA	3:L:102:PHE:CE2	2.32	0.65
1:C:725:GLU:CD	1:C:1064:HIS:NE2	2.50	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1089:PHE:HB2	1:C:1121:PHE:CE1	2.31	0.65
1:A:994:ASP:OD1	1:A:995:ARG:N	2.30	0.65
1:C:856:ASN:HD21	1:C:966:LEU:HD12	1.61	0.65
2:H:63:ARG:NH2	3:L:23:MET:O	2.29	0.65
1:C:295:PRO:HB2	1:C:608:VAL:CG1	2.18	0.64
1:A:328:ARG:HH22	1:A:533:LEU:HG	1.61	0.64
2:H:54:HIS:HE2	2:H:66:TRP:HE1	1.44	0.64
1:C:993:ILE:O	1:C:997:ILE:HG12	1.98	0.64
1:A:865:LEU:HD23	1:A:866:THR:O	1.98	0.64
1:C:994:ASP:OD1	1:C:995:ARG:N	2.30	0.64
1:A:993:ILE:O	1:A:997:ILE:HG12	1.98	0.64
1:A:357:ARG:HH21	1:A:396:TYR:HE1	1.44	0.64
1:A:442:ASP:OD2	1:A:509:ARG:NE	2.31	0.64
1:C:327:VAL:HA	1:C:542:ASN:HB2	1.80	0.64
1:C:341:VAL:HG11	1:C:356:LYS:CG	2.23	0.64
1:A:132:GLU:HB2	1:A:164:ASN:OD1	1.98	0.64
3:L:141:ASP:O	3:L:144:LEU:N	2.29	0.64
1:A:65:PHE:HB3	1:A:81:ASN:HD21	1.63	0.63
1:A:976:VAL:HG12	1:A:978:ASN:H	1.63	0.63
1:A:431:GLY:HA3	1:A:513:LEU:O	1.98	0.63
1:B:353:TRP:O	1:B:466:ARG:HD3	1.98	0.63
1:B:1104:VAL:HG13	1:B:1115:ILE:HG12	1.80	0.63
2:H:74:ASN:OD1	2:H:75:GLY:N	2.27	0.63
1:A:95:THR:O	1:A:96:GLU:HG3	1.99	0.63
1:C:825:LYS:NZ	1:C:938:LEU:HB3	2.13	0.63
1:A:725:GLU:OE2	1:A:1028:LYS:HE2	1.99	0.63
1:A:436:TRP:CH2	1:A:509:ARG:HB3	2.34	0.63
1:C:976:VAL:HG12	1:C:978:ASN:H	1.63	0.63
1:C:865:LEU:HD23	1:C:866:THR:O	1.98	0.62
3:L:216:THR:HG22	3:L:223:PRO:HB3	1.80	0.62
1:A:326:ILE:CG2	1:A:534:VAL:HG22	2.22	0.62
1:A:759:PHE:O	1:A:762:GLN:HG2	1.99	0.62
1:B:141:LEU:HB2	1:B:156:GLU:HB2	1.82	0.62
1:B:490:PHE:HE2	1:B:492:LEU:HB2	1.65	0.62
1:A:44:ARG:O	1:A:283:GLY:HA2	1.99	0.62
1:A:864:LEU:HG	1:B:697:MET:HE1	1.82	0.62
1:B:381:GLY:O	1:B:382:VAL:HG13	1.98	0.62
2:H:30:VAL:HG22	2:H:138:THR:HB	1.80	0.62
1:C:1104:VAL:HG13	1:C:1115:ILE:HG12	1.80	0.62
2:H:81:GLN:O	2:H:84:GLN:HG2	2.00	0.62
1:C:141:LEU:HB2	1:C:156:GLU:HB2	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:111:ASP:OD1	1:A:112:SER:N	2.31	0.61
3:L:37:ARG:NH1	3:L:93:THR:HA	2.15	0.61
2:H:47:THR:HB	2:H:49:THR:HG23	1.80	0.61
1:B:883:THR:HG21	1:C:705:VAL:HG11	1.82	0.61
1:C:759:PHE:O	1:C:762:GLN:HG2	1.99	0.61
1:A:411:ALA:HB3	1:A:414:GLN:HE22	1.65	0.61
1:C:347:PHE:CD2	1:C:509:ARG:HG2	2.35	0.61
3:L:164:LYS:HD3	3:L:216:THR:OG1	2.00	0.61
3:L:167:TRP:HE1	3:L:196:SER:HG	1.49	0.61
1:C:733:LYS:HD2	1:C:733:LYS:N	2.16	0.61
1:A:138:ASP:O	1:A:158:ARG:NH2	2.33	0.61
1:A:733:LYS:HD2	1:A:733:LYS:N	2.16	0.61
1:A:1086:LYS:HD2	1:A:1122:VAL:HG11	1.83	0.61
2:H:81:GLN:HA	2:H:84:GLN:HG2	1.82	0.61
1:C:803:SER:HA	1:C:806:LEU:CD2	2.30	0.61
1:C:1086:LYS:HD2	1:C:1122:VAL:HG11	1.83	0.61
1:B:404:GLY:O	1:B:407:VAL:HG13	2.01	0.61
1:B:1086:LYS:HD2	1:B:1122:VAL:HG11	1.83	0.61
1:C:1027:THR:O	1:C:1030:SER:OG	2.15	0.61
1:C:1053:PRO:O	1:C:1054:GLN:NE2	2.27	0.61
1:A:436:TRP:CH2	1:A:509:ARG:CB	2.84	0.61
1:C:902:MET:HA	1:C:905:ARG:HG2	1.83	0.61
1:A:130:VAL:HB	1:A:168:PHE:HB3	1.81	0.61
1:A:37:TYR:OH	1:A:53:ASP:OD2	2.12	0.61
1:A:424:LYS:HE3	1:A:461:LEU:O	2.00	0.61
1:A:725:GLU:OE2	1:A:1064:HIS:NE2	2.34	0.61
2:H:149:VAL:HG12	2:H:237:LYS:HD3	1.82	0.61
1:B:404:GLY:HA2	1:B:508:TYR:CD1	2.36	0.60
1:C:448:ASN:HB2	1:C:497:PHE:HB2	1.82	0.60
1:A:403:ARG:NH2	1:A:406:GLU:OE2	2.34	0.60
2:H:71:ASN:HB3	2:H:76:ASN:H	1.67	0.60
1:B:341:VAL:HG21	1:B:356:LYS:HZ1	1.66	0.60
1:C:795:LYS:HZ3	1:C:806:LEU:HD22	1.66	0.60
1:C:804:GLN:HG2	1:C:935:GLN:OE1	2.01	0.60
1:A:904:TYR:OH	1:B:1094:VAL:CG1	2.50	0.60
1:A:1027:THR:O	1:A:1030:SER:OG	2.15	0.60
1:B:380:TYR:C	1:B:382:VAL:N	2.39	0.60
1:B:380:TYR:O	1:B:382:VAL:N	2.30	0.60
1:C:725:GLU:OE2	1:C:1064:HIS:NE2	2.34	0.60
2:H:119:GLY:O	2:H:121:ARG:N	2.34	0.60
1:C:775:ASP:C	1:C:779:GLN:HE22	2.05	0.60

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Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
1:A:775:ASP:C	1:A:779:GLN:HE22	2.04	0.60
1:C:1085:GLY:O	1:C:1125:ASN:ND2	2.35	0.59
1:B:402:ILE:HG13	1:B:418:ILE:HD13	1.82	0.59
1:C:778:THR:HG23	1:C:782:PHE:CE2	2.37	0.59
1:A:129:LYS:NZ	1:A:169:GLU:OE2	2.33	0.59
1:C:598:ILE:HG23	1:C:664:ILE:HG21	1.85	0.59
1:C:119:ILE:HG23	1:C:128:ILE:HG12	1.84	0.59
1:C:922:LEU:HB2	1:C:926:GLN:HE22	1.67	0.59
1:A:295:PRO:HB2	1:A:608:VAL:CG1	2.18	0.59
1:B:1085:GLY:O	1:B:1125:ASN:ND2	2.35	0.59
1:A:598:ILE:HG23	1:A:664:ILE:HG21	1.85	0.59
1:A:274:THR:HG23	1:A:291:CYS:HB2	1.85	0.59
1:A:452:LEU:HG	1:A:493:GLN:O	2.03	0.59
1:C:350:VAL:HB	1:C:422:ASN:HB3	1.84	0.59
1:C:1029:MET:O	1:C:1033:VAL:HG12	2.03	0.59
1:A:902:MET:HA	1:A:905:ARG:HG2	1.83	0.59
1:A:1039:ARG:NH2	1:C:1039:ARG:HH12	2.01	0.59
1:A:1085:GLY:O	1:A:1125:ASN:ND2	2.35	0.59
3:L:98:GLN:HG3	3:L:100:ASP:H	1.68	0.59
1:A:778:THR:HG23	1:A:782:PHE:CE2	2.37	0.59
1:A:1053:PRO:O	1:A:1054:GLN:NE2	2.28	0.58
2:H:58:GLN:HB2	2:H:64:LEU:HD22	1.85	0.58
1:B:438:SER:O	1:B:507:PRO:HG2	2.03	0.58
1:A:922:LEU:HB2	1:A:926:GLN:HE22	1.67	0.58
1:A:357:ARG:NH2	1:A:396:TYR:CE1	2.70	0.58
1:A:904:TYR:OH	1:B:1094:VAL:HG11	2.04	0.58
1:C:729:VAL:HG21	1:C:782:PHE:HZ	1.68	0.58
1:A:725:GLU:OE2	1:A:1028:LYS:CE	2.51	0.58
2:H:222:TYR:H	2:H:238:LYS:NZ	2.02	0.58
1:A:729:VAL:HG21	1:A:782:PHE:HZ	1.68	0.58
2:H:55:TRP:O	2:H:67:MET:HB2	2.03	0.58
1:B:360:ASN:HA	1:B:523:THR:HG22	1.85	0.58
1:B:599:THR:HG22	1:B:601:GLY:H	1.69	0.58
1:A:917:TYR:CE1	1:B:1079:PRO:HB3	2.39	0.58
1:A:795:LYS:HZ3	1:A:806:LEU:HD22	1.66	0.58
2:H:171:LYS:HD2	2:H:205:SER:HB2	1.85	0.58
1:B:105:ILE:HG23	1:B:241:LEU:HD21	1.85	0.58
1:B:353:TRP:HZ3	1:B:355:ARG:HH11	1.50	0.57
1:C:314:GLN:HE22	1:C:594:GLY:CA	2.16	0.57
1:C:1054:GLN:NE2	1:C:1054:GLN:HA	2.17	0.57
1:A:511:VAL:HG22	1:A:512:VAL:N	2.19	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1054:GLN:NE2	1:A:1054:GLN:HA	2.17	0.57
1:B:425:LEU:HD11	1:B:429:PHE:CD1	2.39	0.57
1:A:45:SER:OG	1:A:46:SER:N	2.38	0.57
1:B:431:GLY:HA3	1:B:513:LEU:O	2.04	0.57
1:B:513:LEU:HD21	1:B:515:PHE:CZ	2.39	0.57
1:B:877:LEU:HD21	1:B:1029:MET:HE3	1.85	0.57
2:H:149:VAL:HG22	2:H:170:VAL:HG22	1.85	0.57
1:A:44:ARG:NH2	1:A:279:TYR:OH	2.37	0.57
2:H:71:ASN:HB2	2:H:76:ASN:HB2	1.85	0.57
2:H:166:LEU:HD21	2:H:239:VAL:HG11	1.87	0.57
1:A:425:LEU:HD21	1:A:429:PHE:CD2	2.38	0.57
2:H:101:GLU:HG3	2:H:102:LEU:H	1.69	0.57
3:L:160:PRO:HG2	3:L:162:GLU:CD	2.25	0.57
1:B:973:ILE:HD11	1:B:980:ILE:HD13	1.87	0.57
1:C:581:THR:HG23	1:C:583:GLU:HG2	1.85	0.57
1:C:886:TRP:HH2	1:C:904:TYR:HD2	1.52	0.57
1:A:886:TRP:HH2	1:A:904:TYR:HD2	1.51	0.57
2:H:100:MET:HE1	2:H:102:LEU:HD21	1.87	0.57
2:H:216:SER:HA	2:H:219:THR:HG23	1.87	0.57
1:A:328:ARG:NH1	1:A:533:LEU:HA	2.15	0.57
1:A:570:ALA:HB1	1:C:963:VAL:HG12	1.85	0.57
3:L:54:TRP:HD1	3:L:67:ILE:HB	1.70	0.57
1:C:454:ARG:HD3	1:C:457:ARG:HG3	1.87	0.57
1:A:153:MET:HG2	1:A:154:GLU:N	2.12	0.56
1:A:1028:LYS:HG3	1:A:1032:CYS:SG	2.45	0.56
3:L:54:TRP:CD1	3:L:67:ILE:HB	2.41	0.56
1:C:418:ILE:HA	1:C:422:ASN:HB2	1.87	0.56
1:A:314:GLN:HE22	1:A:594:GLY:CA	2.16	0.56
1:A:903:ALA:HB1	1:A:913:GLN:HG2	1.87	0.56
1:A:973:ILE:HD11	1:A:980:ILE:CD1	2.34	0.56
1:C:722:VAL:HG11	1:C:931:ILE:HD13	1.87	0.56
1:A:357:ARG:HH12	1:A:394:ASN:HB2	1.70	0.56
1:B:886:TRP:HH2	1:B:904:TYR:HD2	1.52	0.56
1:C:973:ILE:HD11	1:C:980:ILE:CD1	2.34	0.56
1:C:968:SER:HB2	1:C:970:PHE:HE1	1.69	0.56
1:A:970:PHE:HE2	1:C:759:PHE:HE2	1.54	0.56
1:C:825:LYS:HZ1	1:C:938:LEU:HB3	1.70	0.56
1:A:54:LEU:HD12	1:A:195:LYS:HZ2	1.71	0.56
1:A:764:ASN:O	1:A:768:THR:HG23	2.06	0.56
3:L:66:LEU:HB3	3:L:77:VAL:HG11	1.88	0.56
1:B:446:GLY:C	1:B:498:GLN:HG3	2.26	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:398:ASP:O	1:A:511:VAL:HG23	2.05	0.56
2:H:55:TRP:C	2:H:67:MET:HB2	2.27	0.56
3:L:37:ARG:NH2	3:L:93:THR:OG1	2.38	0.56
1:A:968:SER:HB2	1:A:970:PHE:HE1	1.69	0.55
3:L:61:LYS:HG3	3:L:62:ALA:N	2.20	0.55
1:B:365:TYR:CD2	1:B:387:LEU:HD23	2.41	0.55
1:C:903:ALA:HB1	1:C:913:GLN:HG2	1.87	0.55
1:A:425:LEU:HD11	1:A:429:PHE:CD1	2.42	0.55
1:A:886:TRP:HH2	1:A:904:TYR:CD2	2.24	0.55
1:C:374:PHE:HA	1:C:436:TRP:HB3	1.87	0.55
1:B:1035:GLY:HA3	1:C:1040:VAL:HG21	1.89	0.55
2:H:71:ASN:N	2:H:76:ASN:O	2.40	0.55
3:L:155:LEU:HD12	3:L:194:LEU:HD23	1.87	0.55
1:C:764:ASN:O	1:C:768:THR:HG23	2.06	0.55
1:C:886:TRP:HH2	1:C:904:TYR:CD2	2.24	0.55
2:H:162:GLY:O	2:H:214:SER:N	2.33	0.55
3:L:51:TRP:CD1	3:L:111:ASN:HA	2.42	0.55
1:C:997:ILE:O	1:C:1001:LEU:HD23	2.07	0.55
2:H:25:GLN:HB3	2:H:41:CYS:HB3	1.89	0.55
2:H:50:THR:HG23	2:H:73:GLY:HA3	1.89	0.55
3:L:157:ASN:ND2	3:L:189:ASP:OD2	2.39	0.55
1:B:742:ILE:HG12	1:B:1000:ARG:HB3	1.87	0.55
1:A:100:ILE:HG22	1:A:242:LEU:HD22	1.89	0.54
3:L:58:LYS:HD2	3:L:61:LYS:HE2	1.89	0.54
1:A:328:ARG:HH12	1:A:533:LEU:CA	2.12	0.54
1:A:883:THR:CG2	1:B:705:VAL:HG11	2.36	0.54
2:H:219:THR:O	2:H:219:THR:OG1	2.26	0.54
1:A:787:GLN:HG2	1:B:703:ASN:CB	2.31	0.54
3:L:104:THR:HG22	3:L:122:LYS:HG3	1.89	0.54
1:B:363:ALA:HB1	1:B:365:TYR:CE1	2.43	0.54
1:C:886:TRP:CH2	1:C:904:TYR:HD2	2.26	0.54
1:A:886:TRP:CH2	1:A:904:TYR:HD2	2.26	0.54
1:C:92:PHE:HB3	1:C:192:PHE:HB2	1.88	0.54
1:B:188:ASN:HA	1:B:209:PRO:HA	1.89	0.54
1:C:102:ARG:HG3	1:C:141:LEU:HD11	1.87	0.54
3:L:61:LYS:HG3	3:L:62:ALA:H	1.73	0.54
1:A:332:ILE:HB	1:A:362:VAL:HG11	1.90	0.54
2:H:69:TRP:CE2	2:H:78:LYS:HB3	2.43	0.54
1:C:387:LEU:CD2	1:C:432:CYS:SG	2.96	0.54
1:A:227:VAL:HG12	1:A:228:ASP:H	1.73	0.54
2:H:221:THR:HA	2:H:238:LYS:HZ1	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:379:CYS:HB3	1:B:432:CYS:CA	2.36	0.54
1:A:404:GLY:HA2	1:A:508:TYR:CD1	2.42	0.54
1:A:547:THR:CG2	1:C:978:ASN:HD22	2.21	0.54
3:L:113:TYR:HB3	3:L:114:PRO:HD3	1.90	0.54
1:C:1033:VAL:CG1	1:C:1034:LEU:N	2.70	0.54
3:L:185:GLN:HB2	3:L:192:TYR:CZ	2.42	0.54
1:B:886:TRP:CH2	1:B:904:TYR:HD2	2.26	0.54
1:A:570:ALA:HB1	1:C:963:VAL:HB	1.89	0.53
2:H:128:PHE:HB3	2:H:131:TRP:CZ2	2.43	0.53
1:A:997:ILE:O	1:A:1001:LEU:HD23	2.07	0.53
2:H:54:HIS:CG	2:H:128:PHE:HE1	2.25	0.53
2:H:48:PHE:HE2	2:H:96:SER:HB3	1.73	0.53
1:B:422:ASN:ND2	1:B:454:ARG:HB2	2.24	0.53
1:B:916:LEU:HD12	1:B:923:ILE:HD13	1.91	0.53
1:A:212:LEU:HG	1:A:213:VAL:H	1.73	0.53
1:A:436:TRP:CE3	1:A:436:TRP:N	2.77	0.53
1:A:896:ILE:HG22	1:B:712:ILE:HG12	1.89	0.53
1:A:954:GLN:O	1:A:957:GLN:HG3	2.07	0.53
1:C:452:LEU:HD23	1:C:492:LEU:HB3	1.90	0.53
1:C:954:GLN:O	1:C:957:GLN:HG3	2.07	0.53
1:A:105:ILE:HG12	1:A:239:GLN:HB3	1.91	0.53
1:A:382:VAL:HG23	1:A:386:LYS:NZ	2.21	0.53
3:L:167:TRP:CG	3:L:198:LEU:HD12	2.43	0.53
3:L:186:ASP:CB	3:L:189:ASP:HB3	2.39	0.53
1:B:417:LYS:HD3	1:B:455:LEU:HD11	1.90	0.53
1:B:430:THR:OG1	1:B:515:PHE:O	2.25	0.53
1:C:379:CYS:SG	1:C:384:PRO:CG	2.96	0.53
1:C:902:MET:HA	1:C:905:ARG:HH11	1.74	0.53
1:A:914:ASN:OD1	1:A:915:VAL:N	2.41	0.53
1:A:902:MET:HA	1:A:905:ARG:HH11	1.74	0.53
1:A:987:PRO:HB2	1:A:988:GLU:OE1	2.08	0.53
2:H:25:GLN:OE1	2:H:25:GLN:N	2.42	0.53
3:L:185:GLN:HB2	3:L:192:TYR:CE1	2.43	0.53
1:B:323:THR:OG1	1:B:324:GLU:OE1	2.25	0.53
1:B:445:VAL:HG12	1:B:499:PRO:HG2	1.91	0.53
1:B:917:TYR:CZ	1:C:1079:PRO:HB3	2.44	0.53
1:C:351:TYR:HB2	1:C:454:ARG:HE	1.74	0.53
1:C:930:ALA:O	1:C:933:LYS:HG3	2.09	0.53
1:B:287:ASP:OD1	1:B:288:ALA:N	2.42	0.53
1:C:424:LYS:HB2	1:C:461:LEU:HD23	1.89	0.53
1:C:914:ASN:OD1	1:C:915:VAL:N	2.41	0.53

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Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
3:L:52:LEU:HA	3:L:108:GLN:O	2.09	0.52
1:A:874:THR:O	1:A:878:LEU:HD23	2.09	0.52
1:A:1040:VAL:H	1:C:1031:GLU:CD	2.12	0.52
1:A:550:GLY:HA2	1:A:590:CYS:SG	2.49	0.52
2:H:112:VAL:HG22	2:H:136:LEU:HD13	1.91	0.52
1:B:382:VAL:CA	1:B:383:SER:HB2	2.39	0.52
1:C:874:THR:O	1:C:878:LEU:HD23	2.09	0.52
1:B:886:TRP:HH2	1:B:904:TYR:CD2	2.27	0.52
1:A:699:LEU:HD22	1:C:873:TYR:OH	2.08	0.52
1:A:970:PHE:CE2	1:C:759:PHE:HE2	2.28	0.52
2:H:99:TYR:N	2:H:99:TYR:CD1	2.77	0.52
3:L:27:PRO:HD2	3:L:30:LEU:HD11	1.90	0.52
1:B:826:VAL:HG23	1:B:1057:PRO:HG2	1.91	0.52
1:A:454:ARG:NH2	1:A:469:SER:O	2.21	0.52
1:A:808:ASP:HB3	1:A:811:LYS:HB2	1.91	0.52
2:H:58:GLN:O	2:H:111:ALA:HB1	2.09	0.52
3:L:182:VAL:HG22	3:L:183:THR:O	2.09	0.52
1:B:350:VAL:O	1:B:353:TRP:HD1	1.93	0.52
1:C:474:GLN:HB3	1:C:480:CYS:H	1.75	0.52
1:A:97:LYS:HB2	1:A:187:LYS:CD	2.29	0.52
1:A:436:TRP:CH2	1:A:509:ARG:HB2	2.45	0.52
1:A:714:ILE:HG22	1:A:1110:TYR:HB2	1.91	0.52
1:A:964:LYS:NZ	1:C:758:SER:HB3	2.25	0.52
1:B:41:LYS:HG3	1:C:562:PHE:CD2	2.31	0.52
1:A:501:ASN:OD1	1:A:502:GLY:N	2.42	0.52
2:H:38:LYS:HD3	2:H:101:GLU:OE1	2.10	0.52
1:B:948:LEU:HD11	1:B:1058:HIS:HB2	1.91	0.52
1:A:357:ARG:HH22	1:A:394:ASN:CG	2.14	0.52
1:B:132:GLU:HG3	1:B:165:ASN:HB2	1.91	0.52
2:H:221:THR:HA	2:H:238:LYS:HZ3	1.75	0.51
1:B:815:ARG:HH12	1:B:823:PHE:HB2	1.75	0.51
1:B:425:LEU:HD21	1:B:429:PHE:CG	2.46	0.51
1:C:714:ILE:HG22	1:C:1110:TYR:HB2	1.92	0.51
1:A:45:SER:O	1:A:47:VAL:HG22	2.11	0.51
1:A:319:ARG:HH22	1:A:593:GLY:H	1.59	0.51
1:A:424:LYS:HZ1	1:A:463:PRO:HD3	1.75	0.51
3:L:57:GLN:O	3:L:103:ALA:HB1	2.09	0.51
1:A:570:ALA:HB1	1:C:963:VAL:CB	2.40	0.51
1:A:883:THR:CG2	1:B:705:VAL:CG1	2.86	0.51
2:H:227:ASN:HD21	2:H:229:LYS:NZ	2.08	0.51
1:B:382:VAL:CB	1:B:383:SER:HB3	2.38	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:406:GLU:O	1:B:409:GLN:HB2	2.10	0.51
1:C:948:LEU:HD21	1:C:1058:HIS:H	1.74	0.51
1:C:287:ASP:OD1	1:C:288:ALA:N	2.42	0.51
1:A:117:LEU:HD12	1:A:118:LEU:H	1.76	0.51
1:B:490:PHE:CD1	1:B:491:PRO:HD2	2.46	0.51
1:C:365:TYR:CE2	1:C:513:LEU:HD13	2.45	0.51
1:A:438:SER:OG	1:A:509:ARG:HG3	2.11	0.51
1:A:697:MET:HE1	1:C:864:LEU:HG	1.93	0.51
1:A:994:ASP:O	1:A:998:THR:HG23	2.11	0.51
1:B:403:ARG:HB3	1:B:406:GLU:HG2	1.93	0.51
3:L:55:TYR:CB	3:L:57:GLN:HE22	2.23	0.51
3:L:158:PHE:HE2	3:L:161:ARG:O	1.94	0.51
1:A:714:ILE:HD11	1:A:1096:VAL:HG11	1.93	0.51
2:H:23:LEU:HD13	2:H:43:ALA:HA	1.93	0.51
2:H:194:PHE:CE1	3:L:183:THR:HB	2.46	0.51
1:C:994:ASP:O	1:C:998:THR:HG23	2.11	0.51
1:A:287:ASP:OD1	1:A:288:ALA:N	2.42	0.51
1:A:722:VAL:HG12	1:A:930:ALA:HB1	1.93	0.51
3:L:57:GLN:HB2	3:L:104:THR:OG1	2.10	0.50
1:C:974:SER:HB3	1:C:983:ARG:NH2	2.26	0.50
1:A:153:MET:CG	1:A:154:GLU:H	2.13	0.50
1:A:914:ASN:ND2	1:B:1123:SER:OG	2.38	0.50
1:C:725:GLU:OE2	1:C:1028:LYS:HE2	2.11	0.50
2:H:54:HIS:ND1	2:H:128:PHE:CE1	2.71	0.50
2:H:70:ILE:HD12	2:H:76:ASN:O	2.12	0.50
1:B:37:TYR:HB3	1:B:223:LEU:HB2	1.92	0.50
1:B:341:VAL:HG11	1:B:356:LYS:HZ3	1.76	0.50
1:B:485:GLY:N	1:B:488:CYS:HB2	2.25	0.50
1:C:870:ILE:O	1:C:874:THR:HG23	2.11	0.50
1:A:42:VAL:H	1:B:564:GLN:H	1.58	0.50
1:A:201:PHE:HE2	1:A:203:ILE:HD11	1.76	0.50
1:A:462:LYS:HD2	1:A:463:PRO:CD	2.34	0.50
1:A:477:SER:O	1:A:487:ASN:ND2	2.44	0.50
1:B:421:TYR:CD1	1:B:457:ARG:HB3	2.47	0.50
1:C:498:GLN:O	1:C:501:ASN:HB2	2.12	0.50
1:B:340:GLU:O	1:B:344:ALA:N	2.44	0.50
1:B:447:GLY:N	1:B:498:GLN:HG3	2.27	0.50
1:B:1104:VAL:HG23	1:B:1113:GLN:HB2	1.93	0.50
1:C:97:LYS:HB2	1:C:187:LYS:HD2	1.93	0.50
1:C:132:GLU:HG3	1:C:165:ASN:HB2	1.93	0.50
1:C:645:THR:HG22	1:C:647:ALA:H	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:988:GLU:OE1	1:C:988:GLU:N	2.44	0.50
1:A:454:ARG:NH2	1:A:467:ASP:O	2.40	0.50
1:A:733:LYS:HE3	1:A:774:GLN:CB	2.39	0.50
2:H:62:GLN:HG2	2:H:63:ARG:H	1.77	0.50
1:C:439:ASN:HA	1:C:443:SER:HB2	1.94	0.50
1:C:1088:HIS:HA	1:C:1121:PHE:O	2.12	0.50
1:A:227:VAL:HG12	1:A:228:ASP:N	2.26	0.50
1:A:645:THR:HG22	1:A:647:ALA:H	1.77	0.50
1:B:645:THR:HG22	1:B:647:ALA:H	1.77	0.50
1:C:48:LEU:HD13	1:C:305:SER:HA	1.92	0.50
3:L:137:PHE:HB2	3:L:152:VAL:HB	1.93	0.50
1:B:340:GLU:OE1	1:B:341:VAL:HG13	2.12	0.50
1:B:344:ALA:HB3	1:B:347:PHE:HE1	1.77	0.50
1:B:391:CYS:SG	1:B:522:ALA:HB1	2.52	0.50
1:C:856:ASN:ND2	1:C:966:LEU:HD12	2.26	0.50
1:A:870:ILE:O	1:A:874:THR:HG23	2.11	0.49
1:A:1126:CYS:HB2	1:A:1132:ILE:HG21	1.94	0.49
3:L:68:TYR:O	3:L:72:SER:OG	2.29	0.49
1:C:403:ARG:HB2	1:C:406:GLU:HG3	1.94	0.49
1:A:729:VAL:HG22	1:A:1059:GLY:HA2	1.94	0.49
3:L:54:TRP:CG	3:L:92:LEU:HD12	2.47	0.49
1:B:401:VAL:HB	1:B:451:TYR:CE2	2.47	0.49
1:C:729:VAL:HG22	1:C:1059:GLY:HA2	1.94	0.49
3:L:52:LEU:HD13	3:L:90:PHE:CD2	2.47	0.49
3:L:139:PRO:HD3	3:L:151:VAL:HG22	1.93	0.49
1:C:212:LEU:HD23	1:C:217:PRO:HB3	1.93	0.49
1:B:365:TYR:HD2	1:B:387:LEU:HB3	1.76	0.49
1:B:544:ASN:HD21	1:B:579:PRO:HB3	1.77	0.49
1:B:1088:HIS:HA	1:B:1121:PHE:O	2.12	0.49
1:C:133:PHE:HD1	1:C:162:SER:O	1.95	0.49
1:A:370:ASN:ND2	1:B:477:SER:H	2.10	0.49
1:A:409:GLN:HA	1:A:414:GLN:HE21	1.77	0.49
1:A:905:ARG:HH21	1:A:1050:MET:HB2	1.77	0.49
1:A:988:GLU:OE1	1:A:988:GLU:N	2.44	0.49
1:A:1088:HIS:HA	1:A:1121:PHE:O	2.12	0.49
1:B:409:GLN:O	1:B:414:GLN:NE2	2.43	0.49
1:B:1088:HIS:ND1	1:B:1122:VAL:HG22	2.28	0.49
1:C:34:ARG:HG3	1:C:216:LEU:HD21	1.94	0.49
1:C:1033:VAL:HG13	1:C:1034:LEU:N	2.26	0.49
1:C:1104:VAL:HG23	1:C:1113:GLN:HB2	1.93	0.49
2:H:110:THR:HG22	2:H:139:VAL:N	2.12	0.49

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Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
3:L:98:GLN:CD	3:L:99:PRO:HD2	2.33	0.49
1:B:92:PHE:HB3	1:B:192:PHE:HB2	1.93	0.49
3:L:144:LEU:HA	3:L:202:LYS:CE	2.41	0.49
1:B:341:VAL:HG21	1:B:356:LYS:NZ	2.27	0.49
1:C:905:ARG:HG3	1:C:906:PHE:N	2.27	0.49
1:A:748:GLU:HG2	1:A:981:LEU:HD11	1.94	0.49
1:A:1039:ARG:CZ	1:C:1039:ARG:HH12	2.25	0.49
1:C:390:LEU:HD22	1:C:391:CYS:N	2.28	0.49
1:C:1033:VAL:HG13	1:C:1034:LEU:HD23	1.95	0.49
1:A:171:VAL:HG22	1:A:172:SER:H	1.78	0.49
1:A:336:CYS:HB3	1:A:358:ILE:HD11	1.95	0.49
1:A:738:CYS:SG	1:A:742:ILE:HD12	2.53	0.49
2:H:56:VAL:HB	2:H:128:PHE:CE2	2.38	0.49
3:L:52:LEU:HD11	3:L:107:CYS:HB2	1.95	0.49
1:B:382:VAL:HA	1:B:383:SER:HB2	1.94	0.49
1:A:1094:VAL:HG11	1:C:904:TYR:OH	2.13	0.49
2:H:29:GLU:O	2:H:137:VAL:HA	2.12	0.49
2:H:99:TYR:N	2:H:99:TYR:HD1	2.10	0.49
2:H:112:VAL:HA	2:H:135:THR:O	2.12	0.49
1:A:713:ALA:HB3	1:C:894:LEU:HB3	1.94	0.48
1:A:970:PHE:HE2	1:C:759:PHE:CE2	2.30	0.48
3:L:97:LEU:HD21	3:L:102:PHE:HE1	1.78	0.48
1:C:319:ARG:HH22	1:C:593:GLY:H	1.59	0.48
2:H:57:ARG:NH2	2:H:111:ALA:HB2	2.28	0.48
1:B:95:THR:HB	1:B:214:ARG:HA	1.95	0.48
1:C:905:ARG:HH21	1:C:1050:MET:HB2	1.77	0.48
3:L:29:THR:C	3:L:30:LEU:HD12	2.34	0.48
1:A:322:PRO:HB3	1:A:538:CYS:O	2.13	0.48
1:A:914:ASN:HD22	1:B:1123:SER:CB	2.26	0.48
1:A:917:TYR:CE1	1:B:1079:PRO:CB	2.97	0.48
1:C:738:CYS:SG	1:C:742:ILE:HD12	2.53	0.48
2:H:69:TRP:NE1	2:H:78:LYS:HB3	2.29	0.48
3:L:132:PRO:CB	3:L:158:PHE:HB3	2.39	0.48
1:B:640:SER:OG	1:B:641:ASN:N	2.47	0.48
1:B:976:VAL:HG12	1:B:978:ASN:H	1.77	0.48
1:C:378:LYS:HB3	1:C:378:LYS:HE3	1.48	0.48
1:A:640:SER:OG	1:A:641:ASN:N	2.47	0.48
1:A:803:SER:HA	1:A:806:LEU:CD2	2.43	0.48
1:A:905:ARG:HG3	1:A:906:PHE:N	2.27	0.48
3:L:228:PHE:HD2	3:L:229:ASN:O	1.96	0.48
1:B:41:LYS:HB3	1:C:564:GLN:H	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1088:HIS:ND1	1:A:1122:VAL:HG22	2.28	0.48
1:B:676:THR:HB	1:B:693:ILE:HG21	1.96	0.48
1:A:323:THR:OG1	1:A:324:GLU:OE1	2.25	0.48
1:A:436:TRP:CZ3	1:A:509:ARG:O	2.67	0.48
1:A:676:THR:HB	1:A:693:ILE:HG21	1.96	0.48
2:H:37:VAL:HG12	2:H:105:LEU:HD11	1.95	0.48
3:L:54:TRP:HB2	3:L:67:ILE:HB	1.95	0.48
1:B:308:VAL:HG13	1:B:313:TYR:HE2	1.79	0.48
1:B:455:LEU:HB3	1:B:493:GLN:HE22	1.79	0.48
1:C:640:SER:OG	1:C:641:ASN:N	2.47	0.48
1:C:979:ASP:HA	1:C:982:SER:OG	2.13	0.48
2:H:173:TYR:O	2:H:204:TYR:HB2	2.13	0.48
1:C:502:GLY:O	1:C:506:GLN:HG3	2.13	0.48
1:A:488:CYS:O	1:A:489:TYR:HD1	1.97	0.47
2:H:22:GLN:HA	2:H:22:GLN:OE1	2.14	0.47
2:H:116:ALA:HA	2:H:130:TYR:O	2.13	0.47
2:H:152:LEU:HD21	2:H:169:LEU:HB2	1.96	0.47
3:L:54:TRP:HD1	3:L:67:ILE:CB	2.27	0.47
1:C:1088:HIS:ND1	1:C:1122:VAL:HG22	2.28	0.47
1:A:435:ALA:CB	1:A:510:VAL:HG22	2.44	0.47
1:B:422:ASN:HD21	1:B:454:ARG:HB2	1.78	0.47
1:C:417:LYS:HA	1:C:417:LYS:HD3	1.47	0.47
1:A:31:SER:O	1:A:59:PHE:HA	2.14	0.47
3:L:55:TYR:HB3	3:L:57:GLN:HE22	1.79	0.47
1:B:722:VAL:HG12	1:B:930:ALA:HB1	1.96	0.47
1:A:541:PHE:CZ	1:A:587:ILE:HD13	2.50	0.47
3:L:21:ILE:HD12	3:L:109:GLN:OE1	2.15	0.47
1:B:353:TRP:CZ3	1:B:355:ARG:NH1	2.82	0.47
1:A:308:VAL:HG13	1:A:313:TYR:HE2	1.79	0.47
2:H:133:GLN:HA	3:L:62:ALA:HB2	1.97	0.47
3:L:113:TYR:HB3	3:L:114:PRO:CD	2.42	0.47
1:C:308:VAL:HG13	1:C:313:TYR:HE2	1.79	0.47
1:C:383:SER:O	1:C:387:LEU:HD13	2.14	0.47
1:C:733:LYS:HE3	1:C:774:GLN:CB	2.39	0.47
1:A:105:ILE:HG22	1:A:118:LEU:HD12	1.96	0.47
1:A:140:PHE:CD1	1:A:244:LEU:HD13	2.49	0.47
1:A:296:LEU:CD1	1:A:599:THR:HG21	2.45	0.47
1:A:741:TYR:CZ	1:A:966:LEU:HD21	2.50	0.47
2:H:166:LEU:HD11	2:H:239:VAL:HG11	1.97	0.47
1:C:296:LEU:CD1	1:C:599:THR:HG21	2.45	0.47
1:A:326:ILE:CD1	1:A:534:VAL:H	2.19	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:448:ASN:OD1	1:A:449:TYR:N	2.48	0.47
2:H:89:ILE:HG12	2:H:100:MET:HB3	1.95	0.47
1:C:93:ALA:HB3	1:C:266:TYR:HB2	1.96	0.47
1:C:319:ARG:HD3	1:C:592:PHE:CB	2.45	0.47
1:C:931:ILE:O	1:C:934:ILE:HG22	2.14	0.47
1:A:1141:LEU:HD21	1:A:1145:LEU:HD13	1.97	0.47
1:B:355:ARG:NH2	1:B:396:TYR:HD2	1.99	0.47
1:C:193:VAL:HG13	1:C:270:LEU:HD11	1.97	0.47
1:A:350:VAL:HG11	1:A:418:ILE:HD11	1.96	0.47
2:H:54:HIS:HD2	2:H:68:GLY:O	1.98	0.47
1:B:525:CYS:HB2	1:B:526:GLY:H	1.32	0.47
1:A:319:ARG:HD3	1:A:592:PHE:CB	2.45	0.46
3:L:52:LEU:HD13	3:L:90:PHE:HD2	1.79	0.46
1:B:193:VAL:HG13	1:B:270:LEU:HD11	1.97	0.46
1:C:210:ILE:HG21	1:C:217:PRO:HG3	1.96	0.46
1:C:676:THR:HB	1:C:693:ILE:HG21	1.96	0.46
1:C:1141:LEU:HD21	1:C:1145:LEU:HD13	1.97	0.46
1:B:356:LYS:CE	1:B:397:ALA:HB3	2.42	0.46
1:C:50:SER:HB2	1:C:276:LEU:HD12	1.96	0.46
1:C:107:GLY:HA2	1:C:235:ILE:HG22	1.97	0.46
1:A:131:CYS:HB2	1:A:133:PHE:CE1	2.51	0.46
1:A:547:THR:HG22	1:C:978:ASN:HD22	1.81	0.46
2:H:51:TYR:CE1	2:H:118:GLY:HA2	2.51	0.46
1:B:1141:LEU:HD21	1:B:1145:LEU:HD13	1.97	0.46
1:C:551:VAL:HG13	1:C:553:THR:HG22	1.96	0.46
1:A:902:MET:SD	1:A:905:ARG:NH1	2.89	0.46
1:B:421:TYR:CE1	1:B:457:ARG:HB3	2.50	0.46
1:B:29:THR:HG22	1:B:30:ASN:H	1.80	0.46
1:B:328:ARG:HD3	1:B:328:ARG:HA	1.67	0.46
1:B:355:ARG:HG3	1:B:466:ARG:HH12	1.81	0.46
1:C:363:ALA:HB2	1:C:524:VAL:HG12	1.98	0.46
1:C:1028:LYS:HE3	1:C:1028:LYS:HB3	1.62	0.46
1:A:46:SER:HA	1:A:279:TYR:O	2.15	0.46
2:H:222:TYR:H	2:H:238:LYS:HZ2	1.62	0.46
1:B:787:GLN:HG2	1:C:703:ASN:HB2	1.97	0.46
1:C:803:SER:HA	1:C:806:LEU:HD21	1.97	0.46
1:A:206:LYS:NZ	1:A:221:SER:OG	2.45	0.46
2:H:44:SER:O	2:H:44:SER:OG	2.23	0.46
2:H:46:TYR:CD2	2:H:47:THR:HG23	2.51	0.46
2:H:70:ILE:CD1	2:H:77:THR:HG22	2.46	0.46
2:H:83:PHE:O	2:H:87:VAL:HG12	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:48:ILE:HD13	3:L:111:ASN:HD22	1.81	0.46
1:B:418:ILE:HA	1:B:422:ASN:OD1	2.15	0.46
1:B:471:GLU:OE2	1:B:471:GLU:N	2.48	0.46
1:A:95:THR:HA	1:A:188:ASN:O	2.16	0.46
1:C:129:LYS:HG2	1:C:169:GLU:HA	1.97	0.46
1:A:395:VAL:HA	1:A:514:SER:O	2.16	0.46
1:B:361:CYS:C	1:B:362:VAL:HG23	2.36	0.46
1:B:410:ILE:N	1:B:410:ILE:HD12	2.31	0.46
1:B:559:PHE:HD2	1:B:584:ILE:HG23	1.80	0.46
1:C:299:THR:OG1	1:C:597:VAL:HG11	2.16	0.46
1:C:980:ILE:C	1:C:982:SER:H	2.19	0.46
1:A:112:SER:N	1:A:133:PHE:O	2.49	0.46
3:L:211:TYR:O	3:L:227:SER:OG	2.27	0.46
1:B:448:ASN:O	1:B:449:TYR:HD1	1.99	0.46
1:C:113:LYS:HE2	1:C:114:THR:HG23	1.97	0.46
1:C:187:LYS:HB3	1:C:188:ASN:H	1.67	0.46
1:C:712:ILE:HG13	1:C:713:ALA:N	2.30	0.46
1:C:725:GLU:OE2	1:C:1028:LYS:CE	2.64	0.46
1:A:597:VAL:HG13	1:A:608:VAL:HG13	1.99	0.45
2:H:37:VAL:HG11	2:H:105:LEU:HD21	1.98	0.45
2:H:117:GLY:O	2:H:130:TYR:HB2	2.15	0.45
1:A:220:PHE:HE2	1:A:285:ILE:HG22	1.81	0.45
1:A:326:ILE:HD13	1:A:534:VAL:HG22	1.97	0.45
1:A:328:ARG:HH22	1:A:533:LEU:CG	2.27	0.45
1:A:725:GLU:O	1:A:1061:VAL:HA	2.16	0.45
1:A:726:ILE:C	1:A:727:LEU:HD12	2.37	0.45
1:A:1094:VAL:CG1	1:C:904:TYR:OH	2.63	0.45
1:B:566:GLY:HA3	1:B:575:ALA:HB3	1.97	0.45
1:C:365:TYR:HE2	1:C:513:LEU:HD13	1.81	0.45
1:A:357:ARG:HH22	1:A:394:ASN:HB2	1.81	0.45
1:B:332:ILE:HB	1:B:333:THR:H	1.64	0.45
1:B:425:LEU:HD21	1:B:429:PHE:CD2	2.52	0.45
1:C:402:ILE:HD11	1:C:510:VAL:HG21	1.98	0.45
1:C:778:THR:HG23	1:C:782:PHE:CD2	2.51	0.45
1:C:902:MET:SD	1:C:905:ARG:NH1	2.89	0.45
1:A:299:THR:OG1	1:A:597:VAL:HG11	2.16	0.45
1:A:560:LEU:HD22	1:A:560:LEU:HA	1.69	0.45
1:A:970:PHE:CE2	1:C:759:PHE:CE2	3.03	0.45
2:H:48:PHE:HE1	2:H:72:ALA:O	1.99	0.45
3:L:183:THR:HG22	3:L:193:SER:H	1.80	0.45
1:B:347:PHE:CD2	1:B:509:ARG:HG2	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:365:TYR:OH	1:B:515:PHE:HZ	1.98	0.45
1:C:551:VAL:HG12	1:C:588:THR:OG1	2.17	0.45
1:A:917:TYR:OH	1:B:1079:PRO:HB3	2.15	0.45
1:A:958:ALA:O	1:A:961:THR:HG22	2.16	0.45
2:H:29:GLU:CG	2:H:137:VAL:HG22	2.46	0.45
1:B:409:GLN:NE2	1:B:415:THR:C	2.69	0.45
1:C:29:THR:HG22	1:C:30:ASN:H	1.80	0.45
1:A:29:THR:HG22	1:A:30:ASN:H	1.80	0.45
1:A:200:TYR:CE1	1:B:394:ASN:ND2	2.81	0.45
1:A:446:GLY:HA2	1:A:498:GLN:NE2	2.32	0.45
1:B:513:LEU:HD21	1:B:515:PHE:CE1	2.51	0.45
1:C:336:CYS:HB3	1:C:358:ILE:HD11	1.97	0.45
1:A:722:VAL:HG13	1:A:934:ILE:HG12	1.98	0.45
1:A:778:THR:HG23	1:A:782:PHE:HE2	1.82	0.45
2:H:38:LYS:HD2	2:H:100:MET:C	2.36	0.45
2:H:176:GLU:HA	2:H:177:PRO:HA	1.80	0.45
2:H:226:VAL:CG1	2:H:235:VAL:HB	2.47	0.45
3:L:37:ARG:HD3	3:L:38:VAL:N	2.32	0.45
1:B:277:LEU:HD12	1:B:277:LEU:HA	1.81	0.45
1:B:455:LEU:HB3	1:B:493:GLN:NE2	2.32	0.45
1:C:714:ILE:HD12	1:C:1075:PHE:HD2	1.82	0.45
1:C:736:VAL:HA	1:C:857:GLY:O	2.17	0.45
1:A:81:ASN:ND2	1:A:265:TYR:OH	2.50	0.45
1:B:393:THR:HG21	1:B:518:LEU:HB2	1.98	0.45
1:C:472:ILE:H	1:C:472:ILE:HG12	1.31	0.45
1:C:958:ALA:O	1:C:961:THR:HG22	2.16	0.45
1:A:357:ARG:HH22	1:A:394:ASN:CB	2.30	0.45
1:A:736:VAL:HA	1:A:857:GLY:O	2.17	0.45
1:A:770:ILE:O	1:A:774:GLN:HG2	2.17	0.45
1:A:778:THR:HG23	1:A:782:PHE:CD2	2.51	0.45
1:B:382:VAL:CA	1:B:383:SER:CB	2.94	0.45
1:C:742:ILE:HD13	1:C:1001:LEU:CD2	2.47	0.45
1:A:65:PHE:O	1:A:264:ALA:HA	2.16	0.45
1:A:376:THR:OG1	1:A:435:ALA:HB3	2.17	0.45
1:A:448:ASN:HB3	1:A:497:PHE:HB2	1.99	0.45
1:A:742:ILE:HD13	1:A:1001:LEU:HD22	1.98	0.45
1:C:226:LEU:HB3	1:C:227:VAL:H	1.58	0.45
1:C:770:ILE:O	1:C:774:GLN:HG2	2.17	0.45
1:A:57:PRO:O	1:A:60:SER:OG	2.31	0.44
1:A:570:ALA:CB	1:C:963:VAL:CG1	2.93	0.44
1:A:736:VAL:O	1:A:764:ASN:ND2	2.51	0.44

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Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
1:A:869:MET:HB3	1:B:699:LEU:HD21	1.97	0.44
3:L:58:LYS:O	3:L:61:LYS:HB3	2.17	0.44
3:L:169:VAL:HB	3:L:174:GLN:NE2	2.32	0.44
1:C:803:SER:HA	1:C:806:LEU:HD23	1.97	0.44
1:A:63:THR:O	1:A:266:TYR:HD1	2.00	0.44
2:H:25:GLN:HE22	2:H:134:GLY:N	2.15	0.44
2:H:100:MET:CE	2:H:102:LEU:HD21	2.47	0.44
1:B:324:GLU:O	1:B:324:GLU:HG2	2.17	0.44
1:B:905:ARG:HD3	1:B:1049:LEU:HB3	1.98	0.44
1:C:117:LEU:HA	1:C:130:VAL:HA	1.98	0.44
1:C:597:VAL:HG13	1:C:608:VAL:HG13	1.98	0.44
1:A:1090:PRO:HD3	1:A:1095:PHE:CE2	2.52	0.44
1:C:97:LYS:HD3	1:C:97:LYS:HA	1.67	0.44
1:C:105:ILE:HG22	1:C:118:LEU:HA	1.99	0.44
1:A:435:ALA:HB2	1:A:510:VAL:HG22	1.99	0.44
3:L:86:SER:OG	3:L:87:GLY:N	2.50	0.44
3:L:167:TRP:CD2	3:L:198:LEU:HD12	2.52	0.44
1:B:404:GLY:HA2	1:B:508:TYR:HD1	1.81	0.44
1:B:720:ILE:HG13	1:B:923:ILE:HG23	1.99	0.44
1:A:319:ARG:NH2	1:A:593:GLY:N	2.63	0.44
1:A:324:GLU:O	1:A:324:GLU:HG2	2.18	0.44
1:A:562:PHE:HZ	1:C:38:TYR:CD2	2.35	0.44
1:A:729:VAL:HG21	1:A:782:PHE:CZ	2.51	0.44
3:L:48:ILE:HG23	3:L:51:TRP:HB2	1.99	0.44
1:B:205:SER:HB3	1:B:226:LEU:HD13	1.99	0.44
1:B:803:SER:HA	1:B:806:LEU:CD2	2.48	0.44
1:C:724:THR:HG21	1:C:934:ILE:HD11	1.98	0.44
1:A:212:LEU:HD23	1:A:215:ASP:HB2	2.00	0.44
1:A:369:TYR:CZ	1:B:475:ALA:HB1	2.52	0.44
1:A:436:TRP:N	1:A:436:TRP:HE3	2.16	0.44
1:A:488:CYS:O	1:A:489:TYR:CD1	2.71	0.44
1:A:864:LEU:HG	1:B:697:MET:CE	2.47	0.44
1:A:897:PRO:HA	1:B:707:TYR:HE2	1.82	0.44
1:A:964:LYS:HZ2	1:C:758:SER:HB3	1.82	0.44
3:L:61:LYS:CG	3:L:62:ALA:N	2.80	0.44
1:C:187:LYS:HA	1:C:187:LYS:HD3	1.75	0.44
1:C:212:LEU:HD13	1:C:212:LEU:HA	1.75	0.44
1:C:379:CYS:SG	1:C:384:PRO:HG3	2.58	0.44
1:C:392:PHE:O	1:C:524:VAL:HG23	2.17	0.44
1:C:740:MET:HE2	1:C:740:MET:HA	2.00	0.44
1:A:231:ILE:HD12	1:A:231:ILE:HA	1.80	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:327:VAL:HG22	1:A:329:PHE:HE2	1.83	0.44
1:A:369:TYR:CE2	1:B:475:ALA:HB1	2.52	0.44
1:A:445:VAL:HA	1:A:499:PRO:CD	2.48	0.44
1:A:511:VAL:CG2	1:A:512:VAL:N	2.80	0.44
1:A:964:LYS:HZ1	1:C:758:SER:CB	2.31	0.44
1:B:153:MET:HB2	1:B:154:GLU:H	1.63	0.44
1:B:546:LEU:HD11	1:B:573:THR:HG21	2.00	0.44
1:B:935:GLN:H	1:B:935:GLN:HG3	1.42	0.44
1:C:137:ASN:HD22	1:C:137:ASN:HA	1.57	0.44
1:C:456:PHE:HD1	1:C:456:PHE:HA	1.73	0.44
1:C:466:ARG:H	1:C:466:ARG:HG3	1.71	0.44
1:C:726:ILE:C	1:C:727:LEU:HD12	2.37	0.44
1:C:825:LYS:HE2	1:C:938:LEU:O	2.17	0.44
1:A:733:LYS:HD2	1:A:733:LYS:H	1.82	0.44
2:H:104:SER:O	2:H:106:ARG:NH1	2.50	0.44
1:B:379:CYS:SG	1:B:383:SER:O	2.76	0.44
1:A:319:ARG:NE	1:A:592:PHE:CB	2.80	0.44
1:A:902:MET:HA	1:A:905:ARG:NH1	2.33	0.44
1:B:89:GLY:HA3	1:B:270:LEU:HD12	2.00	0.44
1:B:417:LYS:HD3	1:B:455:LEU:CD1	2.48	0.44
1:B:922:LEU:HB2	1:B:926:GLN:HE22	1.83	0.44
1:C:334:ASN:H	1:C:362:VAL:HG23	1.83	0.44
1:C:725:GLU:O	1:C:1061:VAL:HA	2.17	0.44
1:A:100:ILE:O	1:A:242:LEU:HA	2.18	0.43
1:A:387:LEU:HA	1:A:390:LEU:HD22	1.98	0.43
2:H:92:ASP:O	2:H:96:SER:HA	2.18	0.43
2:H:183:ASN:OD1	2:H:223:ILE:N	2.31	0.43
2:H:194:PHE:HE2	3:L:195:SER:HB3	1.82	0.43
1:C:31:SER:O	1:C:59:PHE:HA	2.17	0.43
1:C:276:LEU:HB3	1:C:289:VAL:HB	1.99	0.43
1:C:456:PHE:O	1:C:491:PRO:HG3	2.18	0.43
1:C:736:VAL:O	1:C:764:ASN:ND2	2.51	0.43
1:C:763:LEU:HD11	1:C:1005:GLN:NE2	2.33	0.43
1:A:109:THR:HA	1:A:237:ARG:HH22	1.83	0.43
1:A:277:LEU:HD12	1:A:285:ILE:HG21	1.98	0.43
3:L:20:ASP:O	3:L:22:GLN:OE1	2.35	0.43
1:B:206:LYS:HD2	1:B:206:LYS:HA	1.57	0.43
1:C:379:CYS:HA	1:C:432:CYS:HA	1.99	0.43
1:C:733:LYS:HD2	1:C:733:LYS:H	1.82	0.43
1:A:140:PHE:HB2	1:A:242:LEU:O	2.18	0.43
1:A:919:ASN:O	1:A:922:LEU:HG	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:193:VAL:HB	1:B:204:TYR:HB2	2.00	0.43
1:B:567:ARG:HD3	1:B:567:ARG:HA	1.62	0.43
1:C:475:ALA:HB2	1:C:489:TYR:HE2	1.83	0.43
1:C:934:ILE:HA	1:C:934:ILE:HD12	1.75	0.43
1:A:83:VAL:HG11	1:A:237:ARG:HE	1.83	0.43
2:H:71:ASN:HD22	2:H:76:ASN:ND2	2.11	0.43
1:B:815:ARG:HH11	1:B:819:GLU:HG2	1.83	0.43
1:C:932:GLY:HA2	1:C:935:GLN:NE2	2.33	0.43
1:A:714:ILE:HD12	1:A:1075:PHE:HD2	1.83	0.43
1:A:742:ILE:HD13	1:A:1001:LEU:CD2	2.48	0.43
3:L:66:LEU:O	3:L:67:ILE:HD13	2.18	0.43
1:B:328:ARG:HG3	1:B:579:PRO:HD2	2.00	0.43
1:B:398:ASP:OD1	1:B:512:VAL:HB	2.19	0.43
1:B:619:GLU:H	1:B:619:GLU:HG3	1.46	0.43
1:C:551:VAL:HG13	1:C:553:THR:CG2	2.49	0.43
1:A:425:LEU:HD21	1:A:429:PHE:CG	2.54	0.43
1:A:763:LEU:HD22	1:A:1008:VAL:HG21	2.01	0.43
1:A:1039:ARG:CZ	1:C:1039:ARG:HH11	2.28	0.43
2:H:74:ASN:OD1	2:H:76:ASN:ND2	2.52	0.43
1:C:117:LEU:HD13	1:C:130:VAL:HG22	2.01	0.43
1:A:216:LEU:HD12	1:A:217:PRO:HD2	2.00	0.43
1:A:328:ARG:HD3	1:A:328:ARG:HA	1.67	0.43
1:A:421:TYR:CD1	1:A:457:ARG:HB3	2.54	0.43
1:A:538:CYS:N	1:A:551:VAL:HG22	2.34	0.43
1:C:565:PHE:HB3	1:C:576:VAL:HG12	1.99	0.43
1:A:53:ASP:CG	1:A:54:LEU:H	2.21	0.43
1:A:501:ASN:OD1	1:A:505:TYR:HB2	2.19	0.43
1:A:904:TYR:CZ	1:B:1107:ARG:NE	2.86	0.43
1:B:385:THR:C	1:B:387:LEU:H	2.22	0.43
1:B:483:VAL:HG22	1:B:484:GLU:H	1.84	0.43
1:C:411:ALA:HB3	1:C:414:GLN:HB3	2.00	0.43
1:C:434:ILE:O	1:C:510:VAL:HA	2.19	0.43
1:C:577:ARG:O	1:C:578:ASP:C	2.57	0.43
1:A:865:LEU:CD1	1:A:873:TYR:HE2	2.27	0.43
2:H:56:VAL:HG23	2:H:66:TRP:HA	2.00	0.43
2:H:125:PHE:CD2	2:H:127:TYR:CZ	3.07	0.43
1:C:143:VAL:HG13	1:C:247:SER:HB3	2.01	0.43
1:C:809:PRO:HA	1:C:814:LYS:CD	2.48	0.43
1:A:740:MET:SD	1:A:744:GLY:HA2	2.59	0.43
2:H:219:THR:O	2:H:220:GLN:HG2	2.19	0.43
1:B:356:LYS:HD2	1:B:358:ILE:HD12	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1123:SER:CB	1:C:914:ASN:HD22	2.30	0.42
3:L:43:ARG:CZ	3:L:89:GLU:OE2	2.67	0.42
1:B:31:SER:O	1:B:59:PHE:HA	2.19	0.42
1:B:1038:LYS:HE2	1:B:1038:LYS:HB3	1.89	0.42
1:C:278:LYS:HD2	1:C:287:ASP:HB3	2.00	0.42
1:C:468:ILE:H	1:C:468:ILE:HG13	1.59	0.42
1:C:657:ASN:OD1	1:C:657:ASN:O	2.37	0.42
1:C:1090:PRO:HD3	1:C:1095:PHE:CE2	2.54	0.42
1:A:703:ASN:HB3	1:C:787:GLN:HG2	1.95	0.42
1:A:826:VAL:HG21	1:A:948:LEU:HD23	2.01	0.42
3:L:209:LYS:HD3	3:L:230:ARG:HH22	1.81	0.42
1:C:600:PRO:HB3	1:C:674:TYR:HB2	2.01	0.42
1:C:740:MET:SD	1:C:744:GLY:HA2	2.59	0.42
1:C:919:ASN:O	1:C:922:LEU:HG	2.18	0.42
2:H:38:LYS:HD2	2:H:100:MET:O	2.19	0.42
3:L:88:THR:OG1	3:L:89:GLU:OE1	2.37	0.42
1:B:332:ILE:H	1:B:332:ILE:HG13	1.45	0.42
1:B:411:ALA:N	1:B:414:GLN:HE22	2.17	0.42
1:B:646:ARG:HB3	1:B:668:ALA:CB	2.50	0.42
1:C:83:VAL:HG13	1:C:239:GLN:HB2	2.00	0.42
1:C:277:LEU:HG	1:C:285:ILE:HD13	2.01	0.42
1:A:502:GLY:O	1:A:506:GLN:HG2	2.20	0.42
1:B:278:LYS:HD2	1:B:287:ASP:HB3	2.01	0.42
1:B:409:GLN:HE22	1:B:415:THR:C	2.20	0.42
1:C:646:ARG:HB3	1:C:668:ALA:CB	2.50	0.42
1:C:865:LEU:HD21	1:C:870:ILE:N	2.34	0.42
1:A:421:TYR:CE1	1:A:457:ARG:HB3	2.54	0.42
1:B:341:VAL:CG1	1:B:356:LYS:HZ3	2.33	0.42
1:B:439:ASN:HB3	1:B:507:PRO:HD2	2.02	0.42
1:B:741:TYR:HD2	1:B:742:ILE:HG13	1.84	0.42
1:C:319:ARG:NE	1:C:592:PHE:CB	2.80	0.42
1:A:64:TRP:HD1	1:A:65:PHE:N	2.18	0.42
1:A:199:GLY:HA2	1:A:232:GLY:HA2	2.02	0.42
1:A:569:ILE:HD12	1:A:569:ILE:H	1.85	0.42
1:A:726:ILE:O	1:A:947:LYS:HD2	2.19	0.42
1:A:976:VAL:HG12	1:A:978:ASN:N	2.33	0.42
2:H:29:GLU:HG3	2:H:137:VAL:HG22	2.02	0.42
3:L:202:LYS:HD3	3:L:202:LYS:HA	1.84	0.42
1:B:425:LEU:HD12	1:B:425:LEU:HA	1.84	0.42
1:B:825:LYS:NZ	1:B:938:LEU:HB3	2.34	0.42
1:A:415:THR:OG1	1:A:420:ASP:OD1	2.32	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:657:ASN:OD1	1:A:657:ASN:O	2.37	0.42
1:A:865:LEU:HD21	1:A:870:ILE:N	2.34	0.42
2:H:93:THR:C	2:H:96:SER:H	2.23	0.42
2:H:114:TYR:HE2	3:L:62:ALA:CB	2.33	0.42
3:L:110:TYR:HA	3:L:115:TRP:HD1	1.79	0.42
3:L:122:LYS:HB3	3:L:122:LYS:HE3	1.38	0.42
1:B:393:THR:CG2	1:B:518:LEU:H	2.30	0.42
1:C:319:ARG:NH2	1:C:593:GLY:N	2.63	0.42
1:C:368:LEU:HD12	1:C:368:LEU:HA	1.87	0.42
1:C:902:MET:HA	1:C:905:ARG:NH1	2.33	0.42
1:A:326:ILE:O	1:A:326:ILE:HG13	2.20	0.42
1:A:407:VAL:HG13	1:A:408:ARG:HD2	2.01	0.42
1:B:376:THR:HB	1:B:435:ALA:HB3	2.00	0.42
1:B:394:ASN:OD1	1:B:516:GLU:OE2	2.38	0.42
1:C:129:LYS:HE3	1:C:133:PHE:HZ	1.83	0.42
1:A:43:PHE:CE1	1:B:557:LYS:HE3	2.55	0.42
1:A:347:PHE:HB3	1:A:401:VAL:CG2	2.49	0.42
1:A:726:ILE:HB	1:A:947:LYS:HD2	2.02	0.42
1:A:897:PRO:HA	1:B:707:TYR:CE2	2.54	0.42
2:H:101:GLU:CG	2:H:102:LEU:H	2.30	0.42
1:B:326:ILE:O	1:B:326:ILE:HG13	2.20	0.42
1:B:396:TYR:O	1:B:513:LEU:HA	2.19	0.42
1:C:729:VAL:HG21	1:C:782:PHE:CZ	2.51	0.42
1:A:869:MET:CE	1:B:696:THR:CG2	2.98	0.41
2:H:55:TRP:CD2	2:H:100:MET:SD	3.13	0.41
2:H:174:PHE:HA	2:H:175:PRO:HA	1.83	0.41
2:H:183:ASN:HD21	2:H:222:TYR:HA	1.85	0.41
3:L:37:ARG:HG2	3:L:94:ILE:O	2.19	0.41
1:B:560:LEU:HB2	1:B:563:GLN:HG3	2.01	0.41
1:C:1038:LYS:HB2	1:C:1039:ARG:NH2	2.35	0.41
1:A:171:VAL:HG22	1:A:172:SER:N	2.34	0.41
1:A:231:ILE:HG23	1:A:232:GLY:N	2.36	0.41
1:A:403:ARG:HH21	1:A:417:LYS:HE2	1.86	0.41
1:A:646:ARG:HB3	1:A:668:ALA:CB	2.50	0.41
1:A:1038:LYS:HB2	1:A:1039:ARG:NH2	2.35	0.41
3:L:25:GLN:HG3	3:L:41:THR:O	2.20	0.41
1:B:409:GLN:C	1:B:414:GLN:NE2	2.70	0.41
1:B:697:MET:H	1:B:697:MET:HG2	1.68	0.41
1:C:335:LEU:HD22	1:C:335:LEU:HA	1.81	0.41
1:A:1028:LYS:HB3	1:A:1028:LYS:HE3	1.62	0.41
1:A:1053:PRO:HB3	1:A:1062:PHE:CE1	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:110:LEU:HD13	1:B:110:LEU:HA	1.74	0.41
1:B:430:THR:O	1:B:515:PHE:HB2	2.20	0.41
1:C:398:ASP:HB2	1:C:512:VAL:HG13	2.03	0.41
1:C:559:PHE:CZ	1:C:561:PRO:HA	2.55	0.41
1:C:1053:PRO:HB3	1:C:1062:PHE:CE1	2.55	0.41
1:A:57:PRO:HB3	1:A:273:ARG:CZ	2.50	0.41
1:A:65:PHE:CB	1:A:81:ASN:HD21	2.30	0.41
1:A:312:ILE:HG13	1:A:598:ILE:HG13	2.02	0.41
1:A:326:ILE:HG21	1:A:534:VAL:CG2	2.29	0.41
1:A:784:GLN:HB2	1:A:1029:MET:HE3	2.01	0.41
2:H:21:VAL:HG22	2:H:45:GLY:HA2	2.01	0.41
2:H:223:ILE:HG13	2:H:237:LYS:C	2.41	0.41
1:B:275:PHE:HB3	1:B:277:LEU:HD13	2.02	0.41
1:C:391:CYS:HB2	1:C:525:CYS:HB3	1.91	0.41
2:H:128:PHE:HD2	2:H:131:TRP:CH2	2.39	0.41
3:L:22:GLN:HG2	3:L:45:SER:CB	2.51	0.41
1:B:535:LYS:HD3	1:B:535:LYS:HA	1.73	0.41
1:C:90:VAL:HB	1:C:194:PHE:HD2	1.84	0.41
1:C:376:THR:HB	1:C:435:ALA:HB3	2.03	0.41
1:C:778:THR:HG23	1:C:782:PHE:HE2	1.82	0.41
1:A:558:LYS:HE2	1:A:558:LYS:HB2	1.84	0.41
1:A:1079:PRO:HB3	1:C:917:TYR:OH	2.20	0.41
1:B:44:ARG:HE	1:B:44:ARG:HB2	1.49	0.41
1:B:353:TRP:CE2	1:B:466:ARG:HG3	2.54	0.41
1:B:930:ALA:O	1:B:933:LYS:HG3	2.21	0.41
1:A:131:CYS:H	1:A:133:PHE:HE1	1.67	0.41
1:A:141:LEU:HA	1:A:157:PHE:H	1.85	0.41
1:A:872:GLN:HB2	1:B:699:LEU:CD1	2.50	0.41
2:H:123:LEU:HD12	2:H:124:GLN:CB	2.50	0.41
1:C:353:TRP:HB3	1:C:400:PHE:HB3	2.03	0.41
1:C:765:ARG:C	1:C:765:ARG:HD2	2.41	0.41
1:C:856:ASN:ND2	1:C:966:LEU:CD1	2.83	0.41
1:A:436:TRP:CZ2	1:A:509:ARG:HB2	2.55	0.41
1:A:438:SER:O	1:A:507:PRO:HG2	2.21	0.41
1:A:462:LYS:HB3	1:A:465:GLU:OE2	2.20	0.41
3:L:142:GLU:HA	3:L:145:LYS:NZ	2.36	0.41
1:B:657:ASN:O	1:B:657:ASN:OD1	2.37	0.41
1:C:319:ARG:CD	1:C:592:PHE:HB2	2.51	0.41
1:C:569:ILE:H	1:C:569:ILE:HG13	1.31	0.41
1:C:775:ASP:C	1:C:779:GLN:NE2	2.71	0.41
1:A:201:PHE:CE2	1:A:203:ILE:HD11	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:316:SER:O	1:A:595:VAL:N	2.52	0.41
1:A:966:LEU:HD23	1:A:966:LEU:HA	1.85	0.41
1:A:1028:LYS:HA	1:A:1042:PHE:CE2	2.55	0.41
1:A:1034:LEU:H	1:A:1034:LEU:HG	1.79	0.41
2:H:91:ARG:HA	2:H:98:ALA:HA	2.03	0.41
1:B:319:ARG:HA	1:B:319:ARG:HD3	1.94	0.41
1:C:230:PRO:HB2	1:C:231:ILE:H	1.65	0.41
1:C:525:CYS:HB2	1:C:526:GLY:H	1.71	0.41
1:A:538:CYS:HA	1:A:550:GLY:O	2.21	0.41
1:A:600:PRO:HB3	1:A:674:TYR:HB2	2.01	0.41
1:A:1141:LEU:CD1	1:C:1141:LEU:HD12	2.50	0.41
2:H:227:ASN:HD21	2:H:229:LYS:HZ3	1.67	0.41
1:B:395:VAL:HG22	1:B:515:PHE:CD1	2.56	0.41
1:C:273:ARG:HA	1:C:273:ARG:HD2	1.80	0.41
1:C:390:LEU:CD2	1:C:391:CYS:N	2.84	0.41
1:A:141:LEU:O	1:A:243:ALA:HA	2.20	0.40
1:A:328:ARG:NH2	1:A:533:LEU:HG	2.31	0.40
1:A:965:GLN:HE22	1:C:758:SER:H	1.69	0.40
1:A:1028:LYS:HZ1	1:A:1028:LYS:HG2	1.70	0.40
3:L:52:LEU:HD23	3:L:53:ALA:N	2.36	0.40
1:B:447:GLY:CA	1:B:498:GLN:HG3	2.50	0.40
1:C:397:ALA:HB1	1:C:511:VAL:HG23	2.03	0.40
1:C:712:ILE:HB	1:C:1077:THR:HG21	2.01	0.40
1:C:780:GLU:OE2	1:C:780:GLU:HA	2.21	0.40
1:A:105:ILE:HD11	1:A:239:GLN:OE1	2.21	0.40
1:A:321:GLN:HA	1:A:321:GLN:OE1	2.21	0.40
3:L:186:ASP:HB3	3:L:189:ASP:HB3	2.03	0.40
1:B:319:ARG:NH2	1:B:593:GLY:H	2.19	0.40
1:B:448:ASN:O	1:B:449:TYR:CD1	2.74	0.40
1:C:105:ILE:HG23	1:C:241:LEU:HD11	2.03	0.40
1:A:57:PRO:HB3	1:A:273:ARG:NH2	2.36	0.40
1:A:395:VAL:HG12	1:A:524:VAL:HG21	2.02	0.40
1:A:422:ASN:ND2	1:A:454:ARG:HB2	2.36	0.40
1:A:708:SER:HB2	1:A:709:ASN:H	1.66	0.40
1:A:740:MET:HE2	1:A:740:MET:HA	2.02	0.40
1:A:741:TYR:CE1	1:A:966:LEU:HD21	2.56	0.40
3:L:229:ASN:OD1	3:L:229:ASN:N	2.54	0.40
1:B:336:CYS:HA	1:B:361:CYS:HB2	2.03	0.40
1:B:726:ILE:HB	1:B:947:LYS:HG3	2.03	0.40
1:C:312:ILE:HG13	1:C:598:ILE:HG13	2.02	0.40
1:C:326:ILE:H	1:C:326:ILE:HG13	1.78	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:765:ARG:C	1:A:765:ARG:HD2	2.41	0.40
1:A:864:LEU:O	1:B:697:MET:CE	2.69	0.40
1:A:1040:VAL:N	1:C:1031:GLU:OE2	2.54	0.40
1:A:1051:SER:HA	1:A:1063:LEU:O	2.22	0.40
1:B:448:ASN:HB3	1:B:497:PHE:HB2	2.03	0.40
1:B:818:ILE:HD13	1:B:818:ILE:HA	1.96	0.40
1:B:964:LYS:HB3	1:B:964:LYS:HE2	1.39	0.40
1:C:383:SER:HB3	1:C:386:LYS:HG3	2.02	0.40
1:A:212:LEU:CD2	1:A:215:ASP:HB2	2.52	0.40
3:L:132:PRO:HD2	3:L:220:LEU:HD21	2.03	0.40
1:C:202:LYS:HD3	1:C:202:LYS:HA	3.97	0.40
1:C:458:LYS:HG2	1:C:471:GLU:HB3	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	976/1298 (75%)	881 (90%)	92 (9%)	3 (0%)	41	74
1	B	988/1298 (76%)	866 (88%)	109 (11%)	13 (1%)	12	47
1	C	972/1298 (75%)	846 (87%)	113 (12%)	13 (1%)	12	47
2	H	220/471 (47%)	194 (88%)	23 (10%)	3 (1%)	11	45
2	d	220/471 (47%)	195 (89%)	24 (11%)	1 (0%)	29	66
2	g	220/471 (47%)	196 (89%)	23 (10%)	1 (0%)	29	66
3	L	210/233 (90%)	191 (91%)	17 (8%)	2 (1%)	15	51
3	c	210/233 (90%)	191 (91%)	17 (8%)	2 (1%)	15	51
3	f	210/233 (90%)	191 (91%)	18 (9%)	1 (0%)	29	66
All	All	4226/6006 (70%)	3751 (89%)	436 (10%)	39 (1%)	21	54

All (39) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	H	177	PRO
1	B	41	LYS
1	B	42	VAL
1	B	159	VAL
1	B	527	PRO
1	C	42	VAL
1	C	159	VAL
1	C	231	ILE
1	C	561	PRO
1	C	562	PHE
1	A	527	PRO
2	H	108	GLU
2	d	108	GLU
2	g	108	GLU
1	B	46	SER
1	B	382	VAL
1	C	230	PRO
1	C	237	ARG
1	C	378	LYS
1	A	42	VAL
1	B	1099	GLY
1	C	213	VAL
1	C	709	ASN
3	L	113	TYR
3	L	127	ARG
3	c	113	TYR
3	c	127	ARG
3	f	113	TYR
1	B	604	THR
1	C	420	ASP
1	B	111	ASP
1	B	124	THR
1	B	332	ILE
1	B	525	CYS
1	B	526	GLY
1	C	322	PRO
1	C	530	SER
1	A	798	GLY
2	H	175	PRO

5.3.2 Protein sidechains ⓘ

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

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	872/1125 (78%)	816 (94%)	56 (6%)	17	48
1	B	883/1125 (78%)	750 (85%)	133 (15%)	3	17
1	C	867/1125 (77%)	678 (78%)	189 (22%)	1	6
2	H	184/412 (45%)	159 (86%)	25 (14%)	3	21
2	d	184/412 (45%)	160 (87%)	24 (13%)	4	22
2	g	184/412 (45%)	160 (87%)	24 (13%)	4	22
3	L	186/203 (92%)	165 (89%)	21 (11%)	6	28
3	c	186/203 (92%)	163 (88%)	23 (12%)	4	24
3	f	186/203 (92%)	164 (88%)	22 (12%)	5	26
All	All	3732/5220 (72%)	3215 (86%)	517 (14%)	7	20

All (517) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	40	ASP
1	A	44	ARG
1	A	153	MET
1	A	331	ASN
1	A	333	THR
1	A	334	ASN
1	A	335	LEU
1	A	340	GLU
1	A	341	VAL
1	A	342	PHE
1	A	345	THR
1	A	346	ARG
1	A	347	PHE
1	A	349	SER
1	A	350	VAL
1	A	354	ASN
1	A	355	ARG
1	A	356	LYS

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Mol	Chain	Res	Type
1	A	357	ARG
1	A	358	ILE
1	A	359	SER
1	A	523	THR
1	A	525	CYS
1	A	529	LYS
1	A	533	LEU
1	A	558	LYS
1	A	560	LEU
1	A	564	GLN
1	A	581	THR
1	A	583	GLU
1	A	705	VAL
1	A	708	SER
1	A	709	ASN
1	A	710	ASN
1	A	810	SER
1	A	811	LYS
1	A	815	ARG
1	A	816	SER
1	A	900	MET
1	A	933	LYS
1	A	934	ILE
1	A	936	ASP
1	A	982	SER
1	A	983	ARG
1	A	1000	ARG
1	A	1034	LEU
1	A	1036	GLN
1	A	1073	LYS
1	A	1074	ASN
1	A	1096	VAL
1	A	1100	THR
1	A	1101	HIS
1	A	1104	VAL
1	A	1132	ILE
1	A	1133	VAL
1	A	1136	THR
2	H	22	GLN
2	H	29	GLU
2	H	30	VAL
2	H	36	SER

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Mol	Chain	Res	Type
2	H	44	SER
2	H	48	PHE
2	H	50	THR
2	H	58	GLN
2	H	67	MET
2	H	90	THR
2	H	91	ARG
2	H	94	SER
2	H	96	SER
2	H	99	TYR
2	H	101	GLU
2	H	107	SER
2	H	108	GLU
2	H	121	ARG
2	H	122	ARG
2	H	133	GLN
2	H	148	SER
2	H	178	VAL
2	H	198	LEU
2	H	216	SER
2	H	219	THR
3	L	22	GLN
3	L	26	SER
3	L	37	ARG
3	L	64	LYS
3	L	66	LEU
3	L	86	SER
3	L	89	GLU
3	L	122	LYS
3	L	124	GLU
3	L	127	ARG
3	L	128	THR
3	L	141	ASP
3	L	161	ARG
3	L	166	GLN
3	L	188	LYS
3	L	206	GLU
3	L	207	LYS
3	L	209	LYS
3	L	222	SER
3	L	229	ASN
3	L	230	ARG

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Mol	Chain	Res	Type
3	c	22	GLN
3	c	37	ARG
3	c	64	LYS
3	c	66	LEU
3	c	86	SER
3	c	89	GLU
3	c	122	LYS
3	c	124	GLU
3	c	126	LYS
3	c	127	ARG
3	c	128	THR
3	c	129	VAL
3	c	133	SER
3	c	141	ASP
3	c	161	ARG
3	c	166	GLN
3	c	188	LYS
3	c	206	GLU
3	c	207	LYS
3	c	209	LYS
3	c	222	SER
3	c	229	ASN
3	c	230	ARG
2	d	22	GLN
2	d	29	GLU
2	d	30	VAL
2	d	36	SER
2	d	44	SER
2	d	48	PHE
2	d	50	THR
2	d	58	GLN
2	d	67	MET
2	d	90	THR
2	d	91	ARG
2	d	94	SER
2	d	96	SER
2	d	99	TYR
2	d	101	GLU
2	d	107	SER
2	d	108	GLU
2	d	121	ARG
2	d	122	ARG

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Mol	Chain	Res	Type
2	d	133	GLN
2	d	148	SER
2	d	198	LEU
2	d	216	SER
2	d	219	THR
3	f	22	GLN
3	f	37	ARG
3	f	64	LYS
3	f	66	LEU
3	f	86	SER
3	f	89	GLU
3	f	122	LYS
3	f	124	GLU
3	f	126	LYS
3	f	127	ARG
3	f	128	THR
3	f	129	VAL
3	f	141	ASP
3	f	161	ARG
3	f	166	GLN
3	f	188	LYS
3	f	206	GLU
3	f	207	LYS
3	f	209	LYS
3	f	222	SER
3	f	229	ASN
3	f	230	ARG
2	g	22	GLN
2	g	29	GLU
2	g	30	VAL
2	g	36	SER
2	g	44	SER
2	g	48	PHE
2	g	50	THR
2	g	58	GLN
2	g	67	MET
2	g	90	THR
2	g	91	ARG
2	g	94	SER
2	g	96	SER
2	g	99	TYR
2	g	101	GLU

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Mol	Chain	Res	Type
2	g	107	SER
2	g	108	GLU
2	g	121	ARG
2	g	122	ARG
2	g	133	GLN
2	g	148	SER
2	g	198	LEU
2	g	216	SER
2	g	219	THR
1	B	44	ARG
1	B	46	SER
1	B	60	SER
1	B	62	VAL
1	B	88	ASP
1	B	95	THR
1	B	96	GLU
1	B	101	ILE
1	B	104	TRP
1	B	108	THR
1	B	110	LEU
1	B	111	ASP
1	B	112	SER
1	B	113	LYS
1	B	114	THR
1	B	115	GLN
1	B	118	LEU
1	B	120	VAL
1	B	124	THR
1	B	126	VAL
1	B	129	LYS
1	B	134	GLN
1	B	141	LEU
1	B	143	VAL
1	B	153	MET
1	B	155	SER
1	B	157	PHE
1	B	158	ARG
1	B	164	ASN
1	B	167	THR
1	B	172	SER
1	B	187	LYS
1	B	188	ASN

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Mol	Chain	Res	Type
1	B	190	ARG
1	B	195	LYS
1	B	197	ILE
1	B	200	TYR
1	B	206	LYS
1	B	208	THR
1	B	210	ILE
1	B	211	ASN
1	B	212	LEU
1	B	213	VAL
1	B	214	ARG
1	B	221	SER
1	B	227	VAL
1	B	231	ILE
1	B	233	ILE
1	B	235	ILE
1	B	238	PHE
1	B	239	GLN
1	B	244	LEU
1	B	245	HIS
1	B	273	ARG
1	B	274	THR
1	B	277	LEU
1	B	281	GLU
1	B	284	THR
1	B	332	ILE
1	B	333	THR
1	B	334	ASN
1	B	335	LEU
1	B	338	PHE
1	B	389	ASP
1	B	392	PHE
1	B	450	ASN
1	B	458	LYS
1	B	524	VAL
1	B	525	CYS
1	B	528	LYS
1	B	529	LYS
1	B	530	SER
1	B	533	LEU
1	B	534	VAL
1	B	535	LYS

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Mol	Chain	Res	Type
1	B	540	ASN
1	B	546	LEU
1	B	547	THR
1	B	552	LEU
1	B	555	SER
1	B	557	LYS
1	B	558	LYS
1	B	559	PHE
1	B	563	GLN
1	B	567	ARG
1	B	568	ASP
1	B	569	ILE
1	B	572	THR
1	B	573	THR
1	B	576	VAL
1	B	581	THR
1	B	583	GLU
1	B	584	ILE
1	B	585	LEU
1	B	588	THR
1	B	596	SER
1	B	604	THR
1	B	605	SER
1	B	606	ASN
1	B	608	VAL
1	B	610	VAL
1	B	619	GLU
1	B	707	TYR
1	B	712	ILE
1	B	727	LEU
1	B	733	LYS
1	B	740	MET
1	B	762	GLN
1	B	801	ASN
1	B	816	SER
1	B	856	ASN
1	B	865	LEU
1	B	896	ILE
1	B	900	MET
1	B	905	ARG
1	B	933	LYS
1	B	936	ASP

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Mol	Chain	Res	Type
1	B	947	LYS
1	B	964	LYS
1	B	981	LEU
1	B	984	LEU
1	B	1001	LEU
1	B	1028	LYS
1	B	1029	MET
1	B	1030	SER
1	B	1043	CYS
1	B	1057	PRO
1	B	1073	LYS
1	B	1096	VAL
1	B	1097	SER
1	B	1100	THR
1	B	1132	ILE
1	B	1134	ASN
1	C	40	ASP
1	C	41	LYS
1	C	44	ARG
1	C	45	SER
1	C	46	SER
1	C	48	LEU
1	C	53	ASP
1	C	60	SER
1	C	62	VAL
1	C	83	VAL
1	C	88	ASP
1	C	94	SER
1	C	95	THR
1	C	96	GLU
1	C	97	LYS
1	C	99	ASN
1	C	101	ILE
1	C	104	TRP
1	C	108	THR
1	C	110	LEU
1	C	111	ASP
1	C	113	LYS
1	C	118	LEU
1	C	119	ILE
1	C	125	ASN
1	C	126	VAL

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Mol	Chain	Res	Type
1	C	134	GLN
1	C	137	ASN
1	C	140	PHE
1	C	141	LEU
1	C	143	VAL
1	C	153	MET
1	C	156	GLU
1	C	157	PHE
1	C	158	ARG
1	C	159	VAL
1	C	161	SER
1	C	166	CYS
1	C	169	GLU
1	C	172	SER
1	C	187	LYS
1	C	195	LYS
1	C	202	LYS
1	C	206	LYS
1	C	208	THR
1	C	212	LEU
1	C	213	VAL
1	C	214	ARG
1	C	215	ASP
1	C	216	LEU
1	C	221	SER
1	C	226	LEU
1	C	227	VAL
1	C	231	ILE
1	C	234	ASN
1	C	237	ARG
1	C	238	PHE
1	C	239	GLN
1	C	245	HIS
1	C	273	ARG
1	C	274	THR
1	C	277	LEU
1	C	326	ILE
1	C	329	PHE
1	C	331	ASN
1	C	332	ILE
1	C	333	THR
1	C	334	ASN

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Mol	Chain	Res	Type
1	C	335	LEU
1	C	341	VAL
1	C	343	ASN
1	C	345	THR
1	C	346	ARG
1	C	347	PHE
1	C	349	SER
1	C	350	VAL
1	C	351	TYR
1	C	354	ASN
1	C	355	ARG
1	C	358	ILE
1	C	359	SER
1	C	360	ASN
1	C	361	CYS
1	C	364	ASP
1	C	368	LEU
1	C	369	TYR
1	C	373	SER
1	C	374	PHE
1	C	375	SER
1	C	376	THR
1	C	377	PHE
1	C	378	LYS
1	C	383	SER
1	C	385	THR
1	C	386	LYS
1	C	389	ASP
1	C	390	LEU
1	C	392	PHE
1	C	395	VAL
1	C	396	TYR
1	C	399	SER
1	C	402	ILE
1	C	407	VAL
1	C	408	ARG
1	C	409	GLN
1	C	410	ILE
1	C	414	GLN
1	C	415	THR
1	C	417	LYS
1	C	420	ASP

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Mol	Chain	Res	Type
1	C	421	TYR
1	C	424	LYS
1	C	428	ASP
1	C	430	THR
1	C	434	ILE
1	C	439	ASN
1	C	440	ASN
1	C	443	SER
1	C	445	VAL
1	C	452	LEU
1	C	454	ARG
1	C	455	LEU
1	C	456	PHE
1	C	457	ARG
1	C	458	LYS
1	C	459	SER
1	C	462	LYS
1	C	464	PHE
1	C	466	ARG
1	C	468	ILE
1	C	469	SER
1	C	471	GLU
1	C	472	ILE
1	C	474	GLN
1	C	478	THR
1	C	481	ASN
1	C	484	GLU
1	C	492	LEU
1	C	493	GLN
1	C	495	TYR
1	C	498	GLN
1	C	500	THR
1	C	503	VAL
1	C	505	TYR
1	C	511	VAL
1	C	512	VAL
1	C	513	LEU
1	C	514	SER
1	C	516	GLU
1	C	524	VAL
1	C	525	CYS
1	C	534	VAL

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Mol	Chain	Res	Type
1	C	537	LYS
1	C	538	CYS
1	C	539	VAL
1	C	551	VAL
1	C	553	THR
1	C	554	GLU
1	C	556	ASN
1	C	557	LYS
1	C	558	LYS
1	C	559	PHE
1	C	564	GLN
1	C	567	ARG
1	C	568	ASP
1	C	569	ILE
1	C	571	ASP
1	C	576	VAL
1	C	582	LEU
1	C	583	GLU
1	C	704	SER
1	C	802	PHE
1	C	815	ARG
1	C	816	SER
1	C	819	GLU
1	C	820	ASP
1	C	900	MET
1	C	933	LYS
1	C	947	LYS
1	C	948	LEU
1	C	983	ARG
1	C	984	LEU
1	C	1000	ARG
1	C	1073	LYS
1	C	1096	VAL
1	C	1097	SER
1	C	1100	THR
1	C	1101	HIS
1	C	1132	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (49) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	239	GLN

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Mol	Chain	Res	Type
1	A	370	ASN
1	A	414	GLN
1	A	613	GLN
1	A	657	ASN
1	A	779	GLN
1	A	935	GLN
1	A	965	GLN
1	A	1005	GLN
1	A	1135	ASN
2	H	76	ASN
2	H	227	ASN
3	L	57	GLN
3	L	111	ASN
3	L	143	GLN
3	c	57	GLN
3	c	143	GLN
2	d	76	ASN
2	d	227	ASN
3	f	57	GLN
3	f	143	GLN
2	g	76	ASN
2	g	227	ASN
1	B	137	ASN
1	B	188	ASN
1	B	370	ASN
1	B	422	ASN
1	B	544	ASN
1	B	580	GLN
1	B	606	ASN
1	B	657	ASN
1	B	762	GLN
1	B	787	GLN
1	B	804	GLN
1	B	965	GLN
1	C	81	ASN
1	C	115	GLN
1	C	137	ASN
1	C	239	GLN
1	C	360	ASN
1	C	422	ASN
1	C	613	GLN
1	C	657	ASN

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Mol	Chain	Res	Type
1	C	779	GLN
1	C	856	ASN
1	C	920	GLN
1	C	965	GLN
1	C	978	ASN
1	C	1005	GLN

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 ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

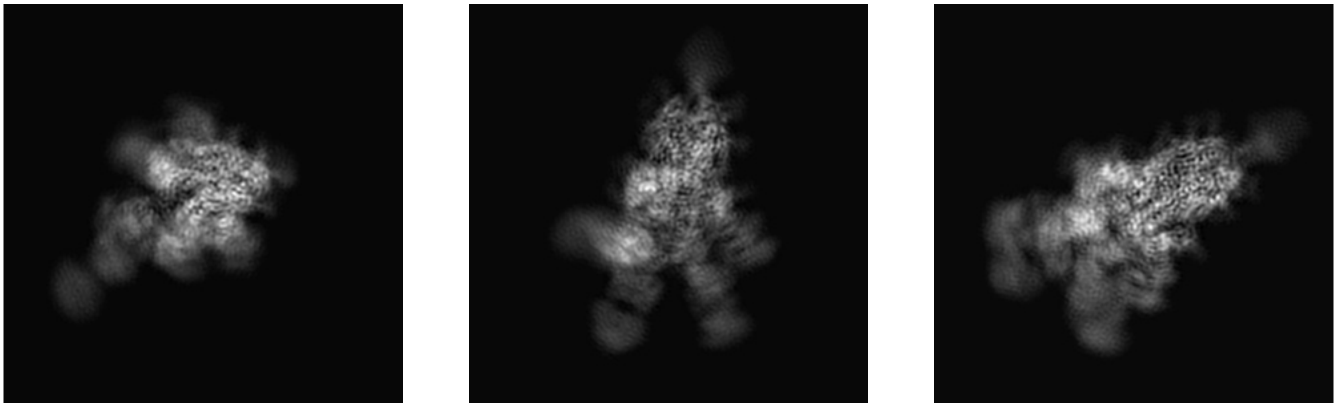
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-31503. 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

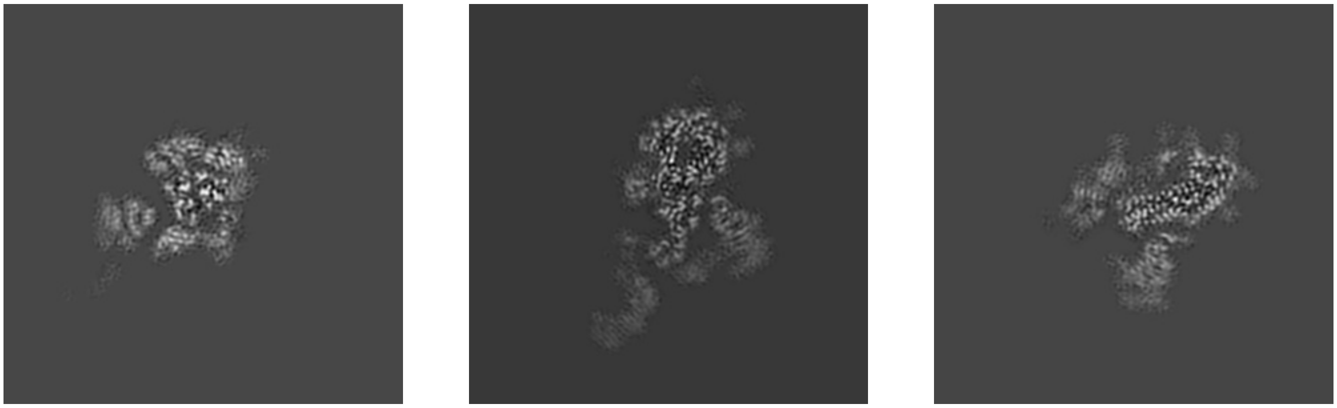


X Y Z

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

6.2 Central slices

6.2.1 Primary map

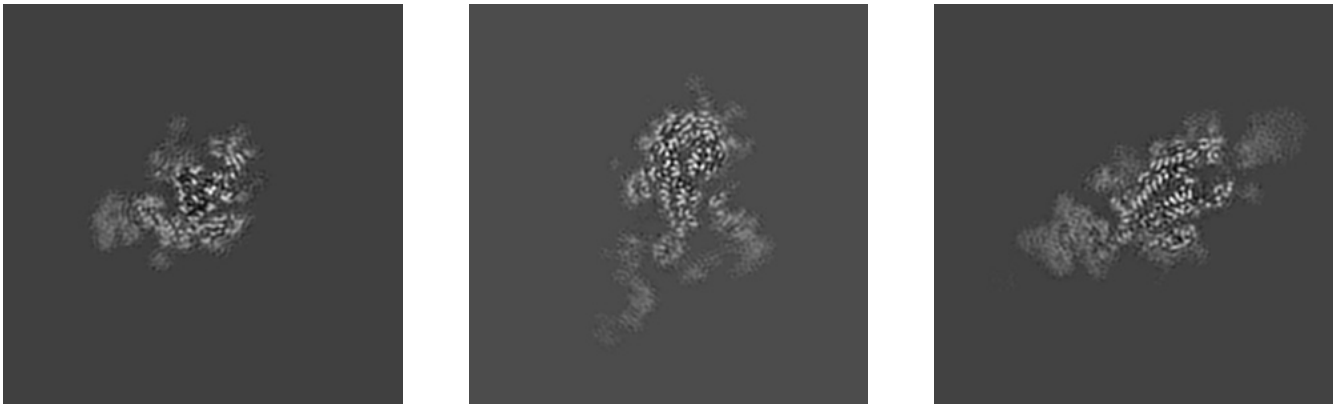


X Index: 160 Y Index: 160 Z Index: 160

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

6.3 Largest variance slices

6.3.1 Primary map

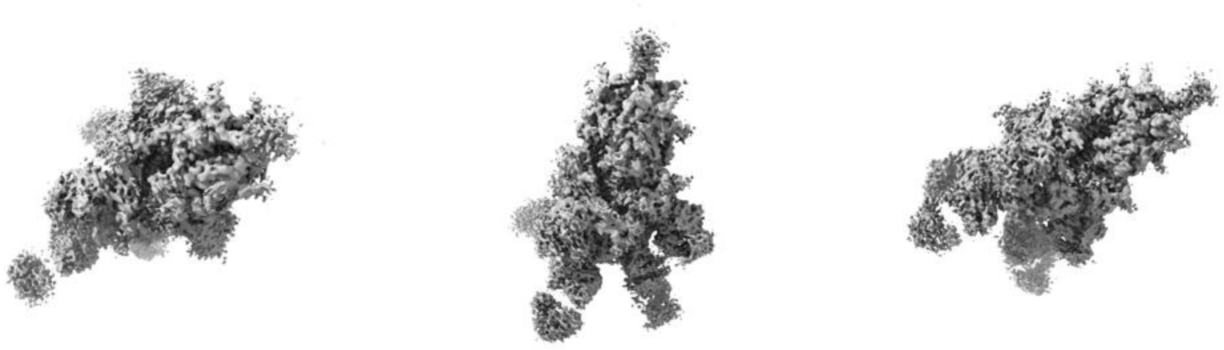


X Index: 171 Y Index: 163 Z Index: 181

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

6.4 Orthogonal surface views

6.4.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.00746. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

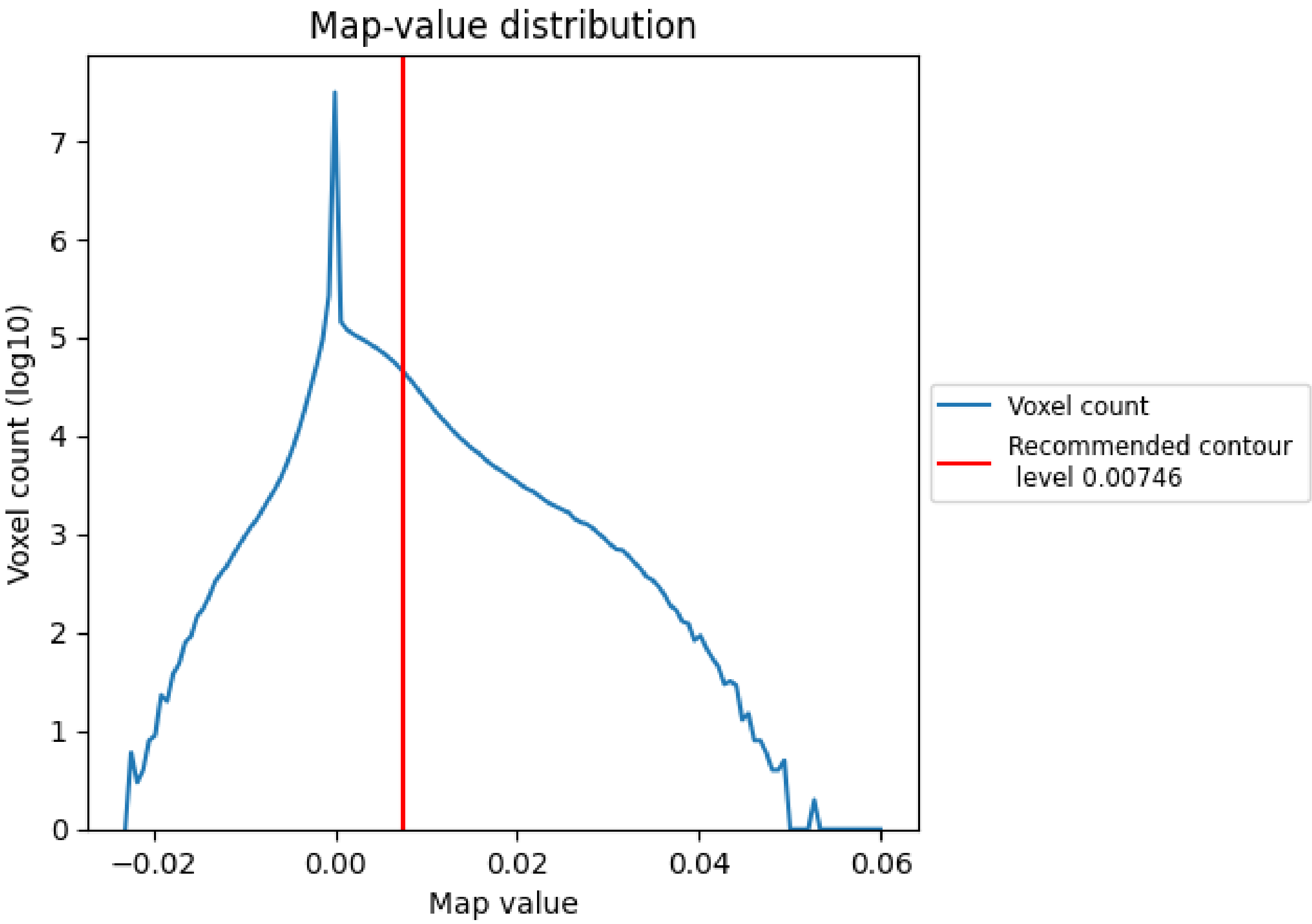
6.5 Mask visualisation ⓘ

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

7 Map analysis ⓘ

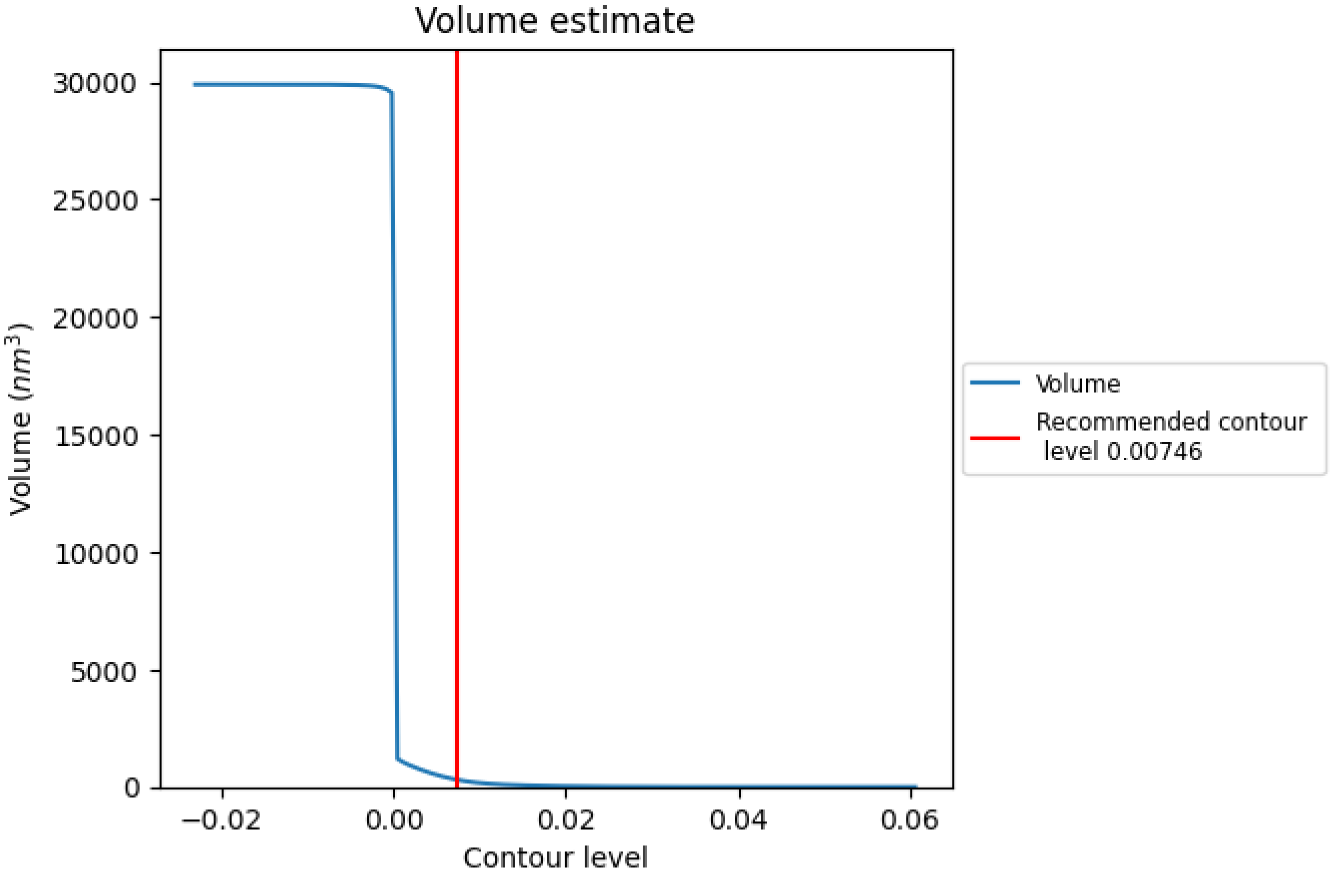
This section contains the results of statistical analysis of the map.

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.

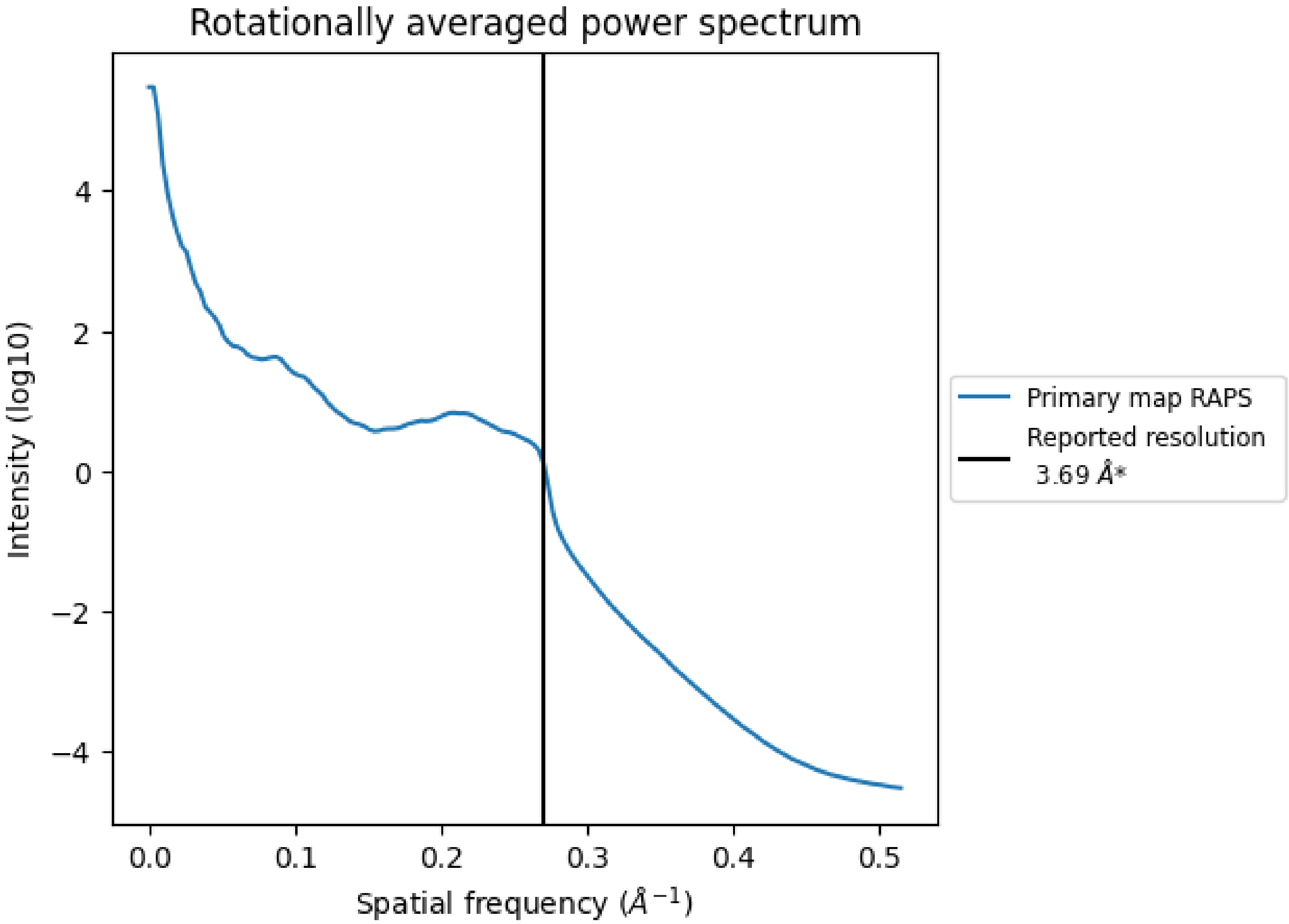
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 299 nm^3; this corresponds to an approximate mass of 270 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.271 $\AA^{-1}$

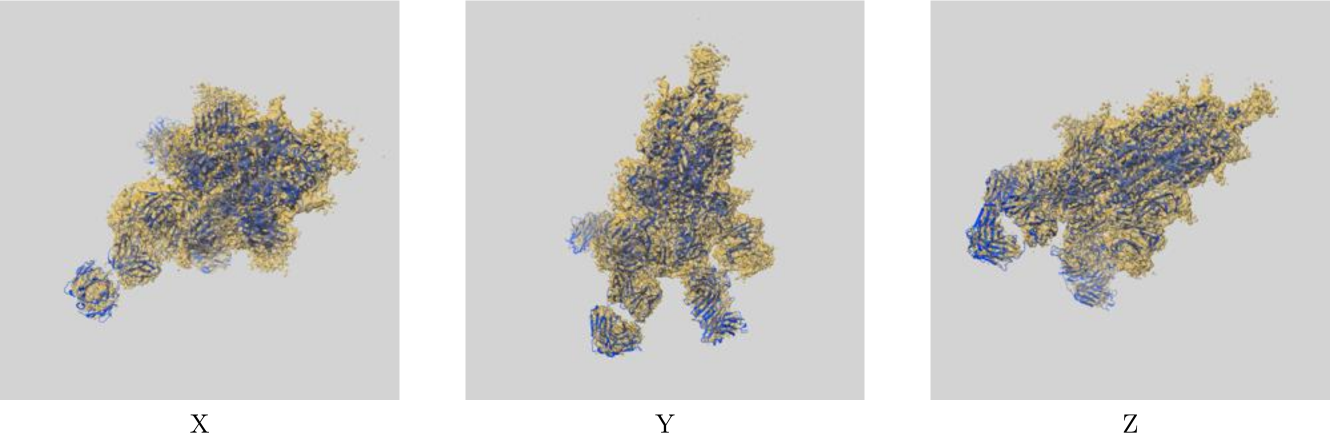
8 Fourier-Shell correlation ⓘ

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

9 Map-model fit ⓘ

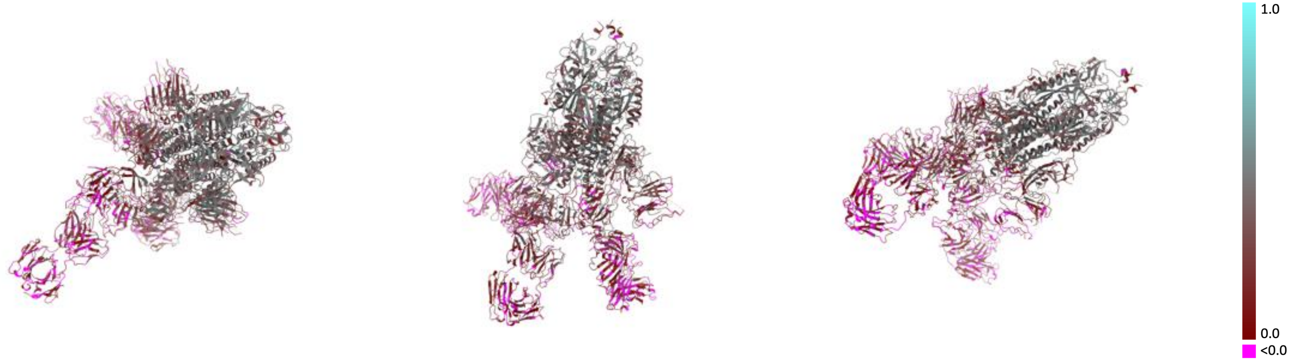
This section contains information regarding the fit between EMDB map EMD-31503 and PDB model 7FAF. Per-residue inclusion information can be found in section 3 on page 12.

9.1 Map-model overlay ⓘ



The images above show the 3D surface view of the map at the recommended contour level 0.00746 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.

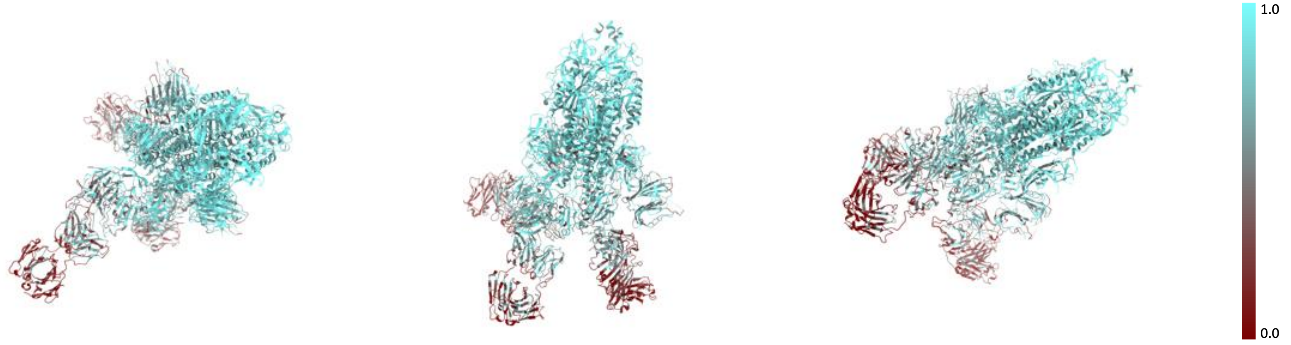
9.2 Q-score mapped to coordinate model ⓘ



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.

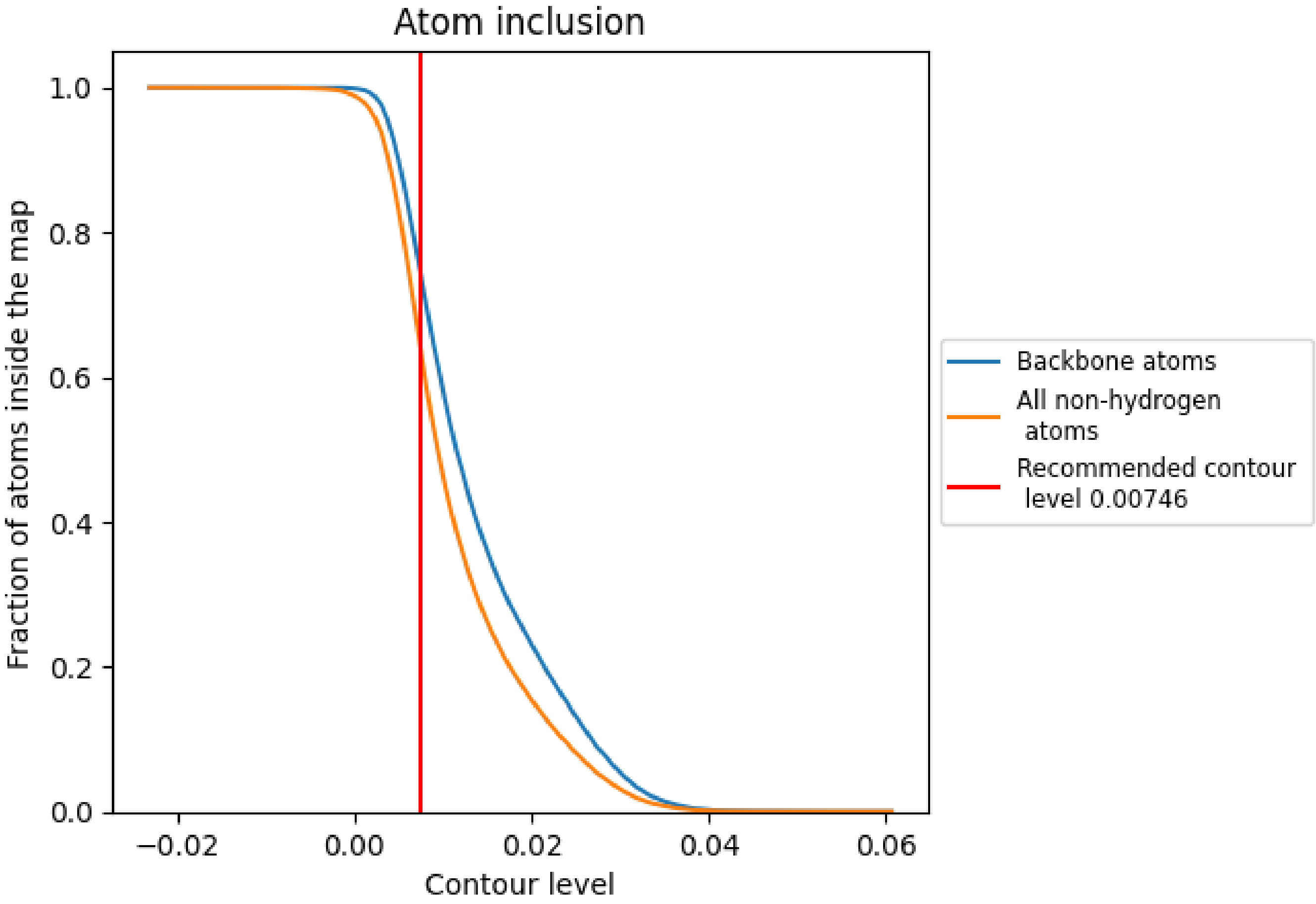
9.3 Atom inclusion mapped to coordinate model ⓘ



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 (0.00746).

9.4 Atom inclusion ⓘ



At the recommended contour level, 74% of all backbone atoms, 64% 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 (0.00746) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6399	0.2580
A	0.7756	0.3340
B	0.7719	0.3300
C	0.7626	0.2980
H	0.2665	0.0990
L	0.3126	0.0960
c	0.2797	0.0510
d	0.2787	0.0900
f	0.4475	0.1520
g	0.4110	0.1670