



wwPDB EM Validation Summary Report ⓘ

Nov 8, 2022 – 06:53 AM JST

PDB ID : 5YKG
EMDB ID : EMD-6833
Title : Structure of pancreatic ATP-sensitive potassium channel bound with glibenclamide and ATPgammaS (Class2 at 4.57Å)
Authors : Chen, L.; Wu, J.X.
Deposited on : 2017-10-14
Resolution : 4.57 Å(reported)

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<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:

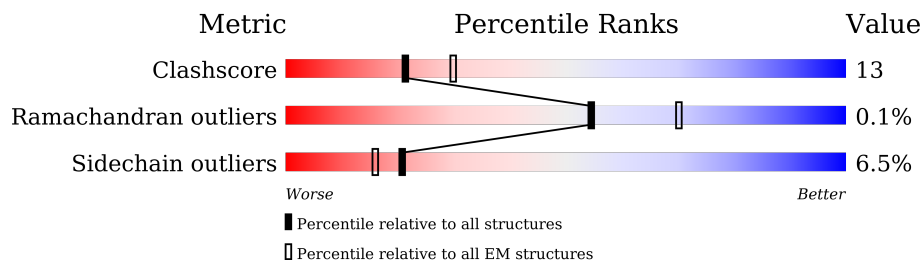
EMDB validation analysis : 0.0.1.dev43
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

1 Overall quality at a glance

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

The reported resolution of this entry is 4.57 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	390	
1	C	390	
1	E	390	
1	G	390	
2	B	1582	
2	D	1582	
2	F	1582	
2	H	1582	

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 50868 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.

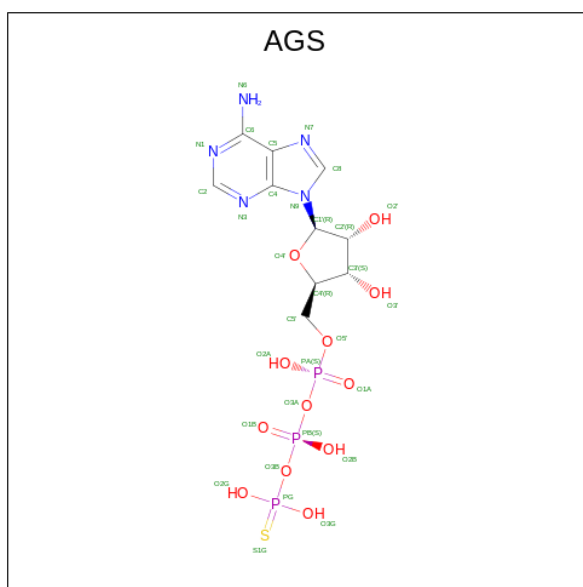
- Molecule 1 is a protein called ATP-sensitive inward rectifier potassium channel 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	325	Total 2433	C 1574	N 415	O 429	S 15	0	0
1	C	325	Total 2433	C 1574	N 415	O 429	S 15	0	0
1	E	325	Total 2433	C 1574	N 415	O 429	S 15	0	0
1	G	325	Total 2433	C 1574	N 415	O 429	S 15	0	0

- Molecule 2 is a protein called ATP-binding cassette sub-family C member 8 isoform X2.

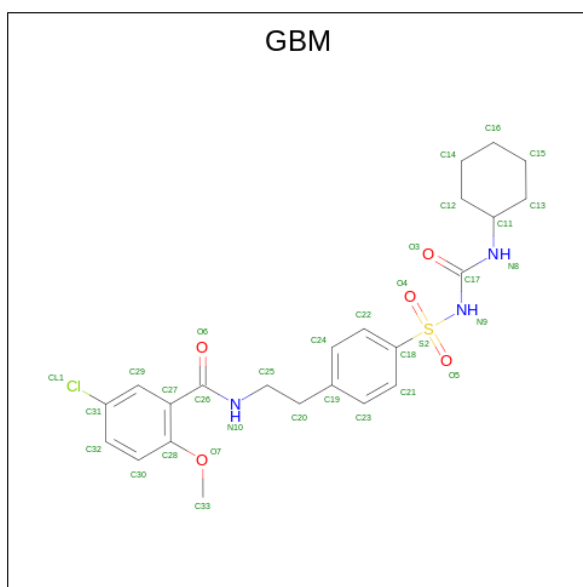
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	1309	Total 10189	C 6644	N 1724	O 1768	S 53	0	0
2	D	1309	Total 10189	C 6644	N 1724	O 1768	S 53	0	0
2	F	1309	Total 10189	C 6644	N 1724	O 1768	S 53	0	0
2	H	1309	Total 10189	C 6644	N 1724	O 1768	S 53	0	0

- Molecule 3 is PHOSPHOTHIOPHOSPHORIC ACID-ADENYLATE ESTER (three-letter code: AGS) (formula: $C_{10}H_{16}N_5O_{12}P_3S$).



Mol	Chain	Residues	Atoms					AltConf	
			Total	C	N	O	P		S
3	A	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	B	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	C	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	D	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	E	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	F	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	G	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	H	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	

- Molecule 4 is 5-chloro-N-(2-{4-[(cyclohexylcarbamoyl)sulfamoyl]phenyl}ethyl)-2-methoxybenzamide (three-letter code: GBM) (formula: C₂₃H₂₈ClN₃O₅S).

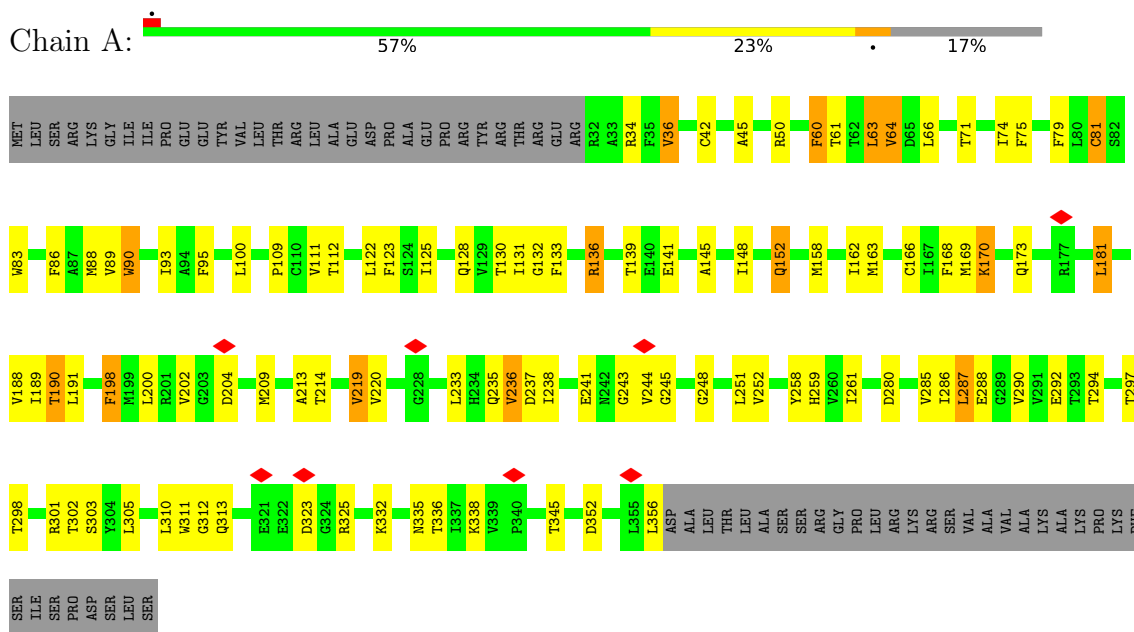


Mol	Chain	Residues	Atoms					AltConf	
			Total	C	Cl	N	O		S
4	B	1	Total 33	C 23	Cl 1	N 3	O 5	S 1	0
4	D	1	Total 33	C 23	Cl 1	N 3	O 5	S 1	0
4	F	1	Total 33	C 23	Cl 1	N 3	O 5	S 1	0
4	H	1	Total 33	C 23	Cl 1	N 3	O 5	S 1	0

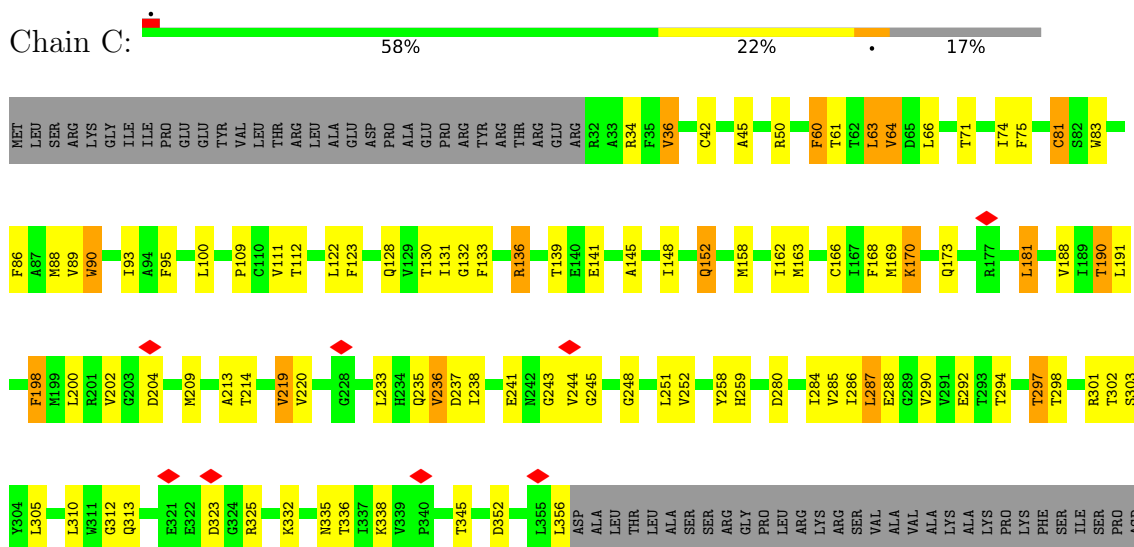
3 Residue-property plots

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: ATP-sensitive inward rectifier potassium channel 11



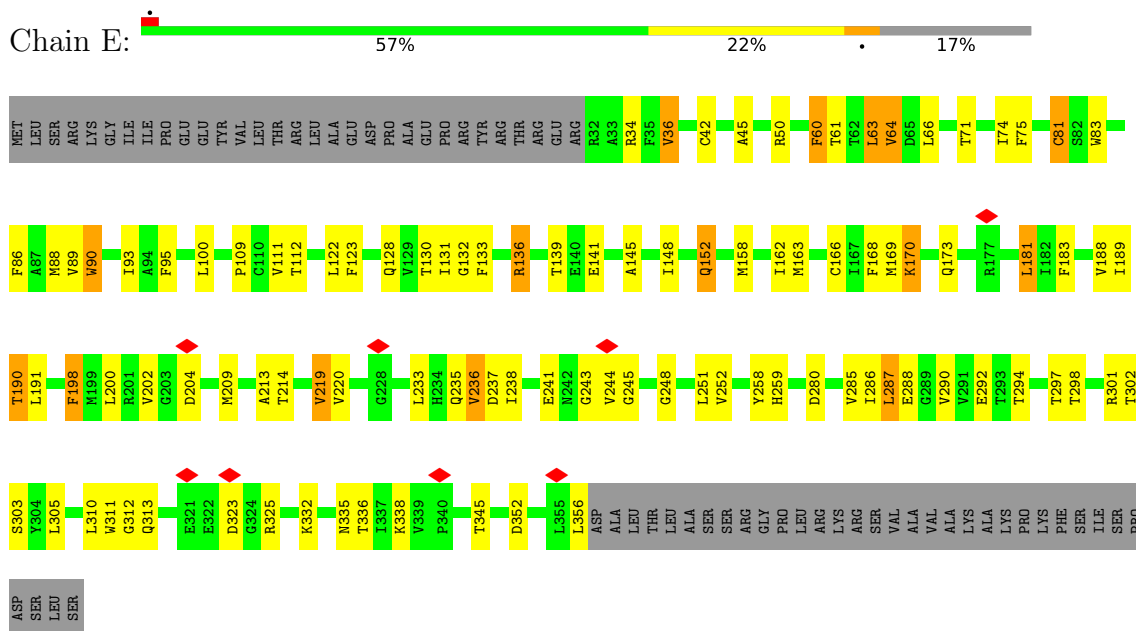
- Molecule 1: ATP-sensitive inward rectifier potassium channel 11



SER
LEU
SER

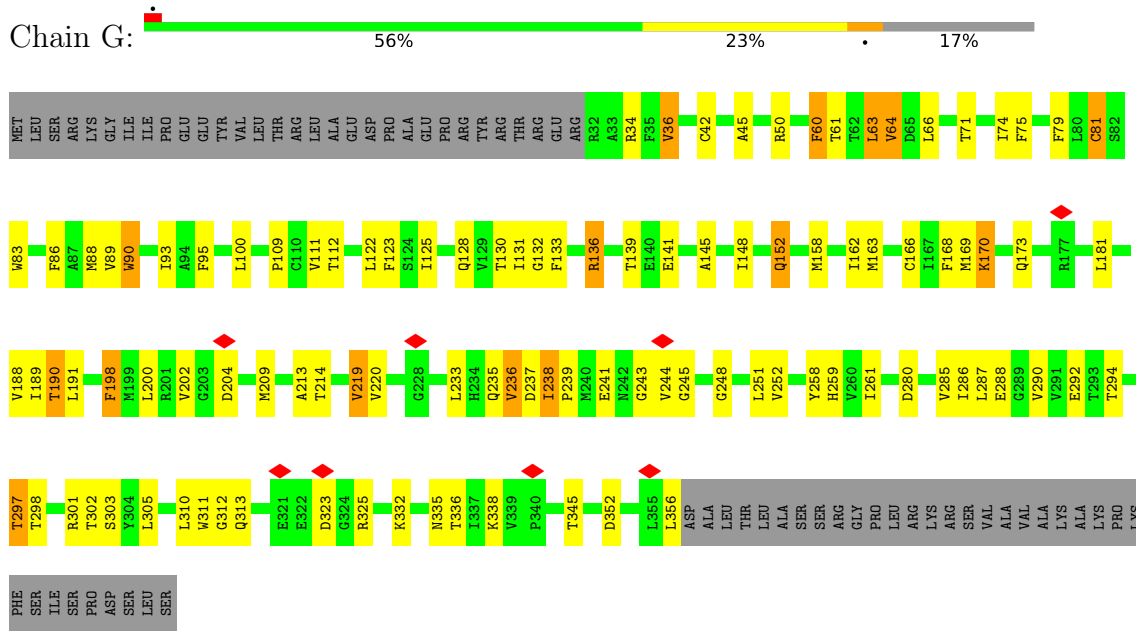
• Molecule 1: ATP-sensitive inward rectifier potassium channel 11

Chain E:



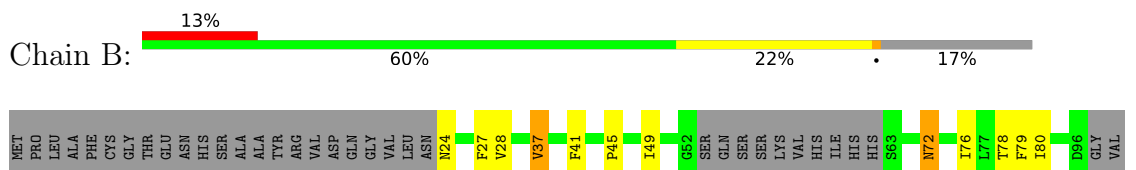
• Molecule 1: ATP-sensitive inward rectifier potassium channel 11

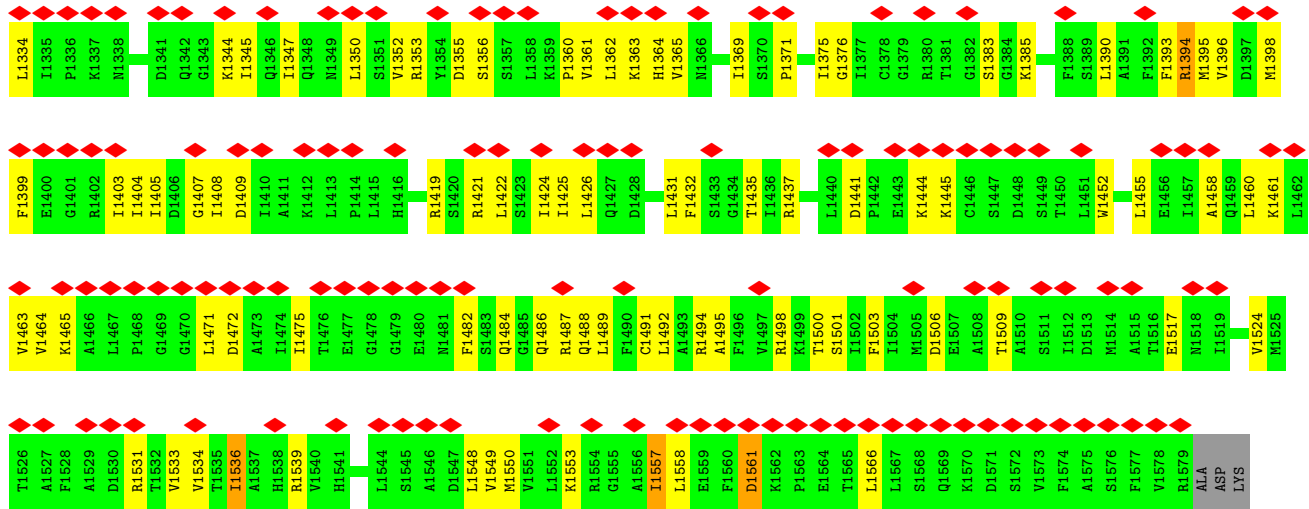
Chain G:



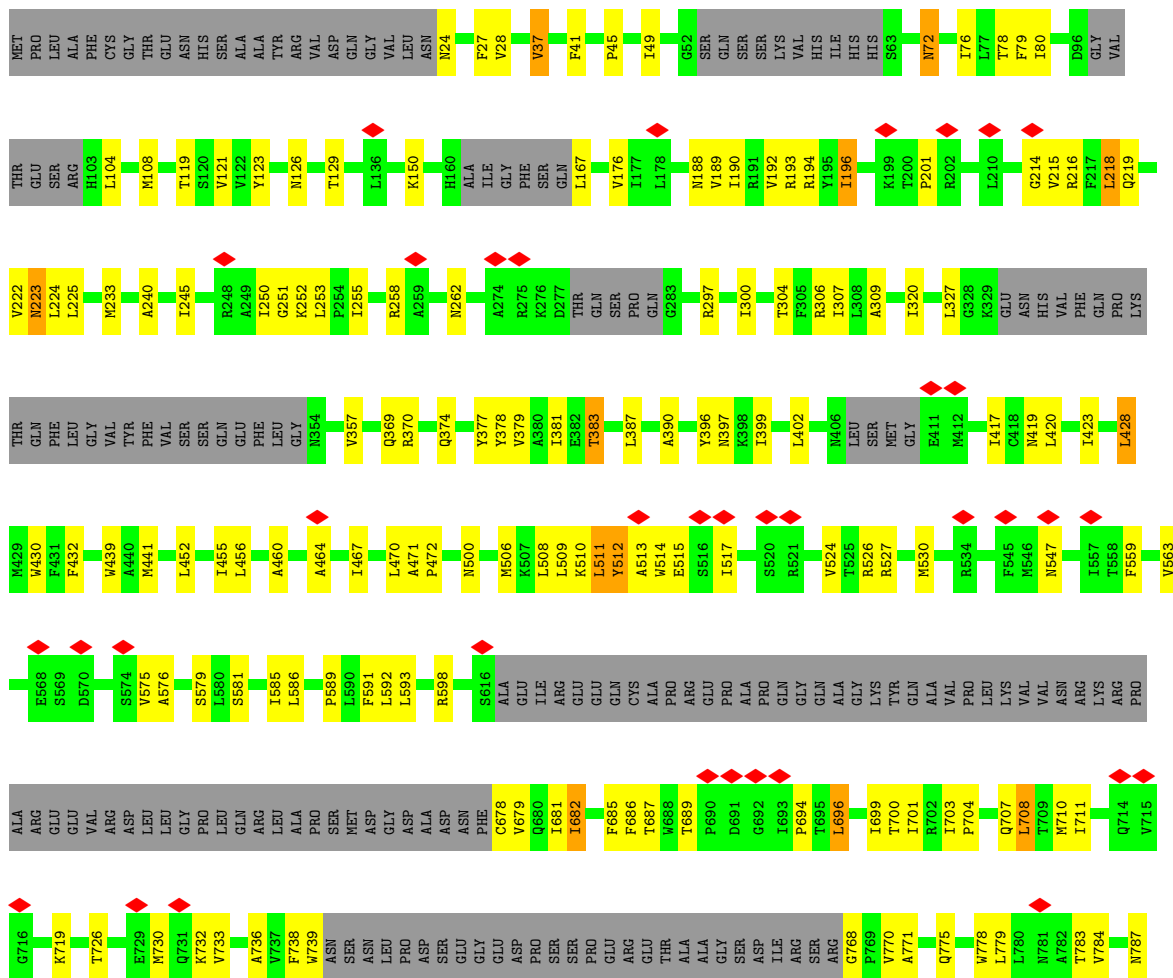
• Molecule 2: ATP-binding cassette sub-family C member 8 isoform X2

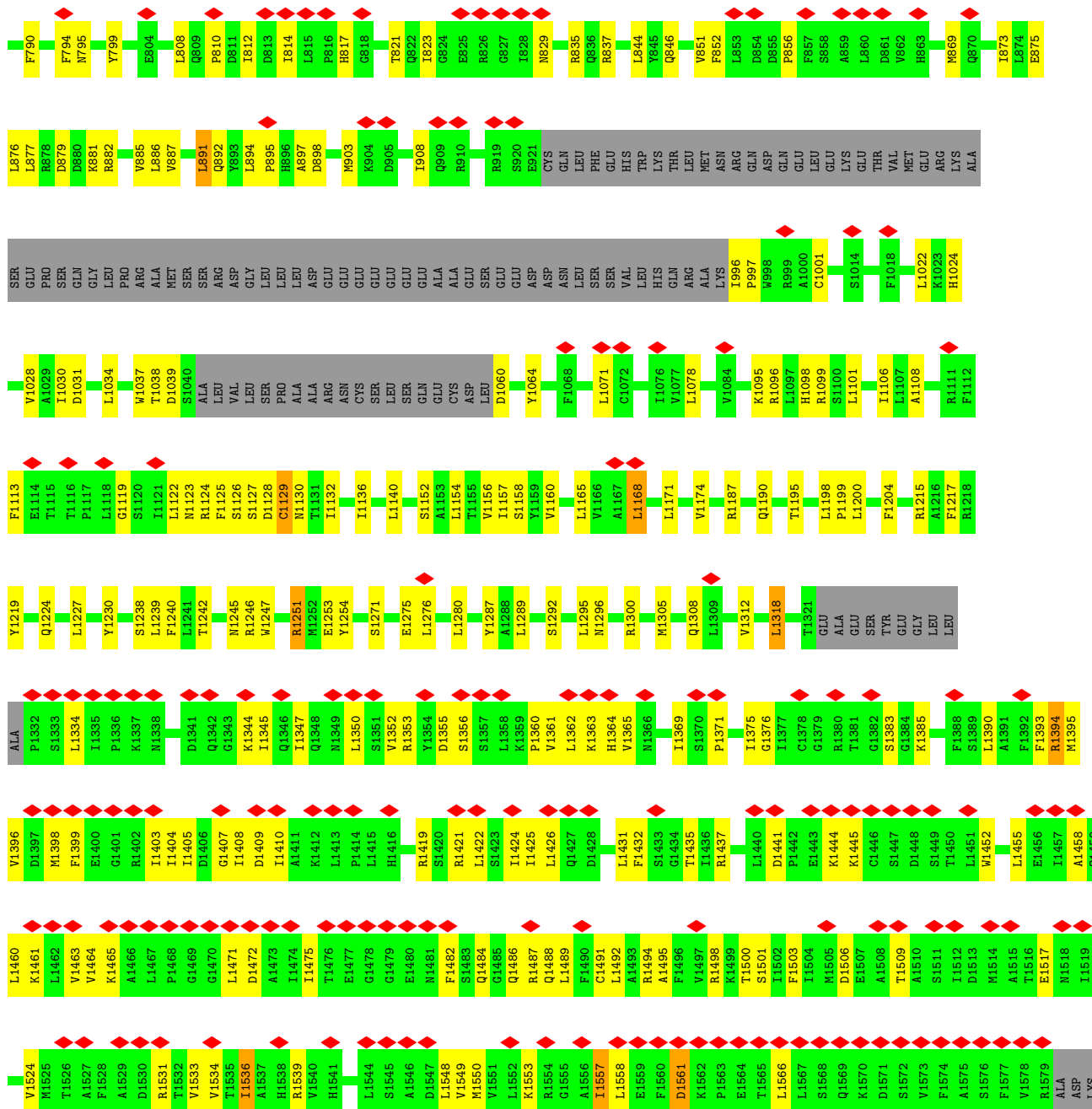
Chain B:



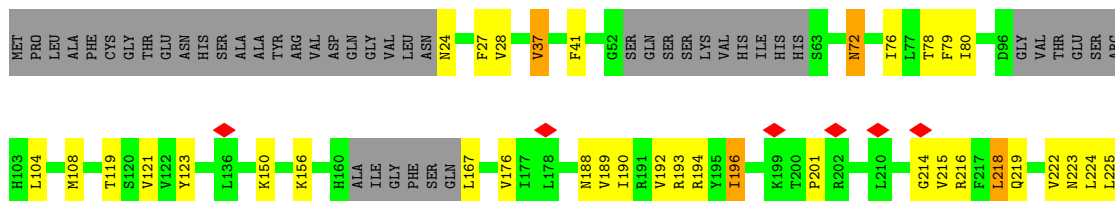


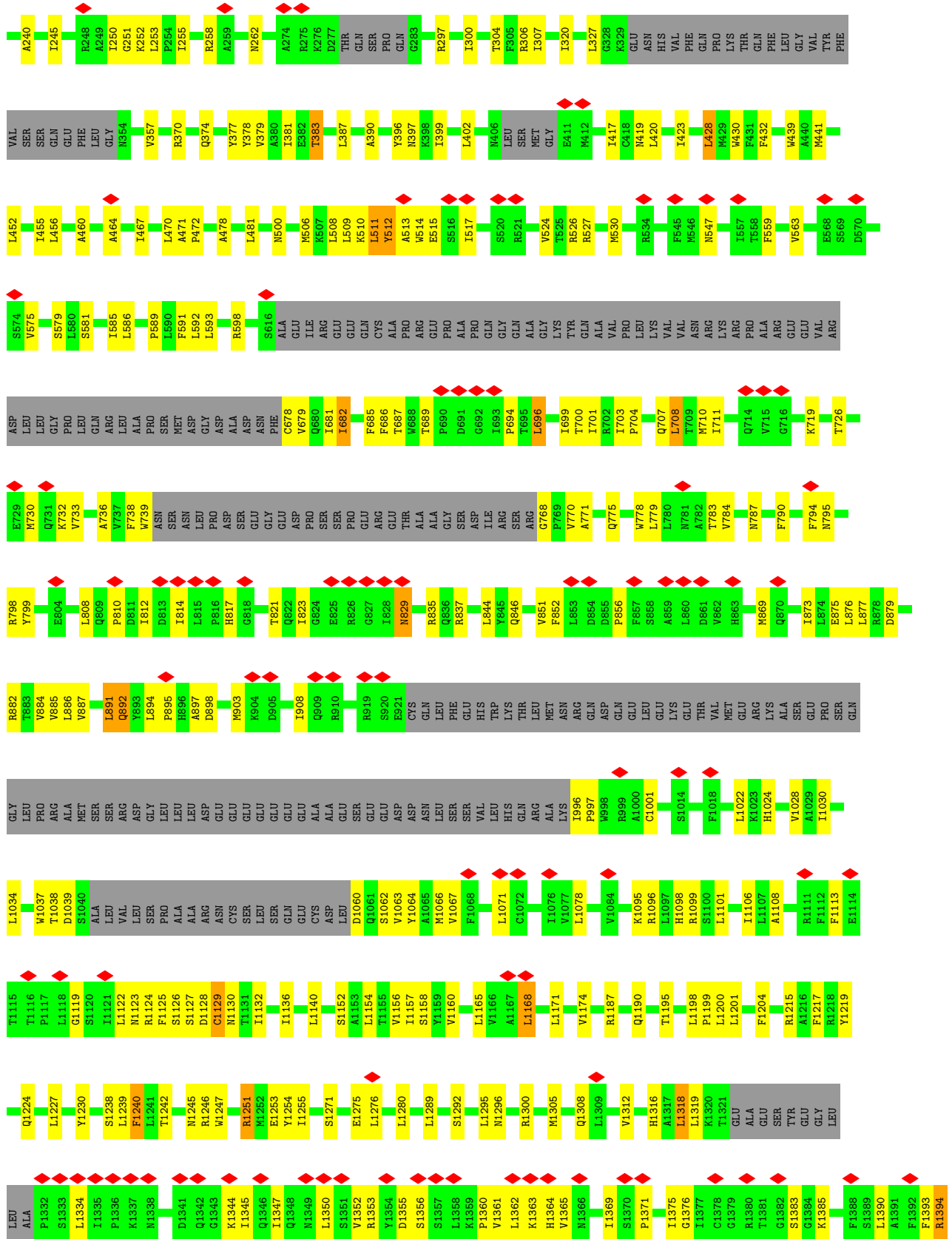
● Molecule 2: ATP-binding cassette sub-family C member 8 isoform X2

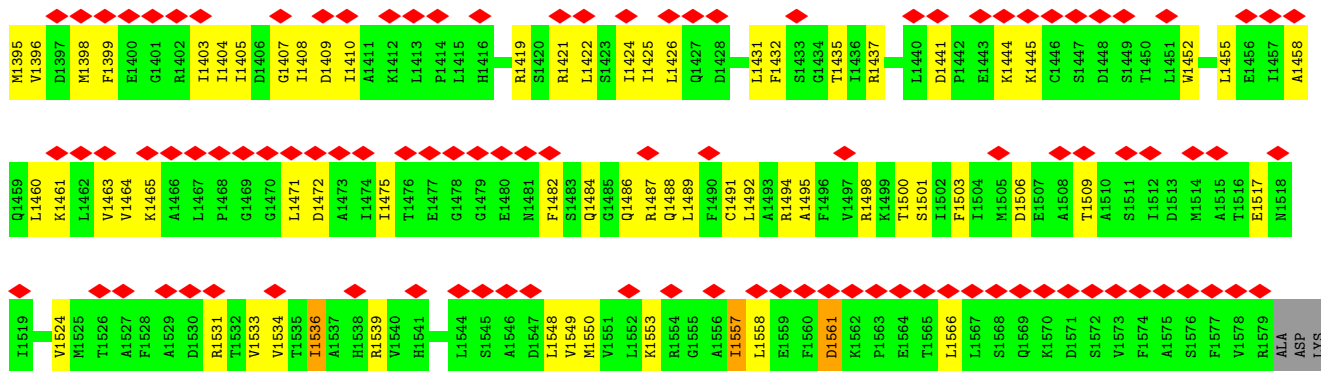




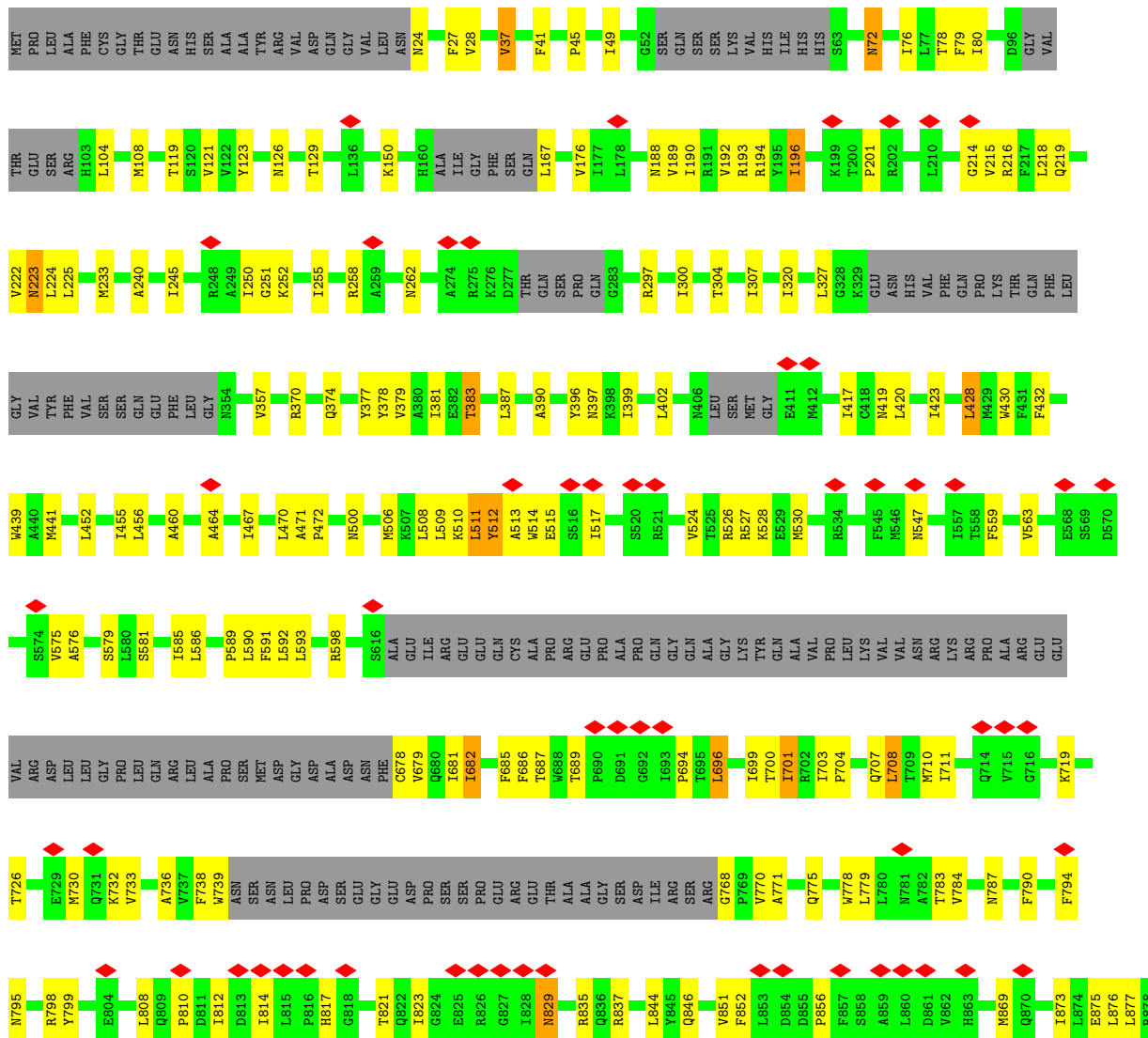
● Molecule 2: ATP-binding cassette sub-family C member 8 isoform X2







• Molecule 2: ATP-binding cassette sub-family C member 8 isoform X2



D879	R882	V884	V885	V886	V887	L891	Q892	Y893	L894	H895	H896	H897	M903	K904	D905	I908	Q909	R910	R919	S920	E921	CYS	GLN	LEU	GLU	PHE	GLU	HIS	TRP	LYS	THR	LEU	MET	ASN	ARG	GLN	ASP	GLN	GLU	LEU	LEU	LYS	LYS	THR	THR	VAL	ASN	ASN	MIO66	VIO67	FIO68	LIO71	CIO72	IIO76	VIO77	LIO78	VIO84	KIO95	RIO96	LIO97	HIO98	RIO99	SIO100	SIO101	SIO104	FIO18	LIO22	KIO23	HIO24	VIO28	AIO29	EIO114
SER	GLN	GLY	LEU	PRO	ARG	ALA	MET	SER	SER	LEU	ARG	ASP	GLY	LEU	LEU	LEU	ASP	GLU	GLU	GLU	GLU	GLU	ALA	ALA	ALA	GLU	SER	LEU	SER	VAL	HIS	GLN	ARG	ALA	LYS	I996	F997	W998	R999	AIO00	GLIO01	SIO104	FIO18	LIO22	KIO23	HIO24	VIO28	AIO29	EIO114																							
IIO90	LIO94	WIO37	TIO38	DIO59	SIO40	ALA	LEU	VAL	LEU	VAL	SER	PRD	ALA	ALA	ASN	ASN	SER	SER	GLU	GLN	CYS	ASP	LEU	DIO60	QIO61	VIO66	YIO63	YIO64	AIO65	MIO66	VIO67	FIO68	LIO71	CIO72	IIO76	VIO77	LIO78	VIO84	KIO95	RIO96	LIO97	HIO98	RIO99	SIO100	LIO101	AIO108	RIO111	FIO112	FIO113	EIO114																						
TII15	TII16	PII17	LII18	GII19	SII20	LII21	LII22	MII23	RII24	VAL	LEU	FII25	SII26	SII27	DII28	CII29	MII30	TII31	LII32	IIO36	LII40	SII52	AII53	LII54	FII55	IIO56	IIO57	SII58	YII59	VII60	LII65	VII66	AII67	LII68	LII71	VII74	RII87	QII90	TII95	LII98	PII99	LII200	FII204	RII215	AII216	FII217	FII218	YII219																								
QII24	LII27	YII20	SII28	LII29	FII240	LII241	TII242	MII245	RII246	WII247	RII251	MII252	EII253	YII254	SII271	EII275	LII276	LII280	LII289	SII292	LII295	PII360	MII296	RII300	MII305	QII308	LII309	VII312	HII316	AII317	LII318	LII319	KII320	TII321	GLU	ALA	GLU	SER	TIV	GLY	LEU	LEU	ALA																													
PII332	SII333	LII334	IIO335	PII336	KII337	MII338	DII341	QII342	GII343	KII344	IIO345	QII346	LII347	QII348	LII350	SII351	RII352	YII354	DII355	SII356	SII357	LII358	KII359	VII361	LII362	KII363	HII364	VII365	MII366	IIO369	SII370	PII371	IIO375	GII376	IIO377	CII378	GII379	RII380	TII381	GII382	SII383	GII384	KII385	FII388	SII389	LII390	AII391	FII392	RII393	RII394	MII395	VII396																				
DII397	MII398	FII399	EII400	GII401	RII402	IIO403	IIO404	IIO405	DII406	GII407	IIO408	DII409	IIO410	AII411	KII412	LII413	PII414	LII415	HII416	RII419	SII420	RII421	LII422	SII423	LII424	IIO425	LII426	QII427	DII428	LII431	FII432	SII433	GII434	TII435	HII436	RII437	LII440	DII441	PII442	EII443	KII444	KII445	SII446	SII447	DII448	SII449	TII450	LII451	WII452	LII455	EII456	IIO457	IIO458	QII459	LII460																	
KII461	LII462	VII463	VII464	KII465	AII466	LII467	PII468	GII469	GII470	LII471	DII472	AII473	IIO474	IIO475	TII476	EII477	GII478	EII479	EII480	NII481	FII482	SII483	QII484	GII485	QII486	RII487	QII488	LII489	FII490	CII491	LII492	AII493	RII494	AII495	FII496	VII497	RII498	KII499	TII500	SII501	IIO502	FII503	IIO504	MII505	DII506	EII507	AII508	TII509	AII510	SII511	IIO512	DII513	MII514	AII515	TII516	EII517	MII518	IIO519														
VII524	MII525	TII526	AII527	FII528	AII529	DII530	RII531	TII532	VII533	VII534	TII535	IIO536	AII537	HII538	RII539	VII540	HII541	LII544	SII545	AII546	DII547	LII548	VII549	MII550	VII551	LII552	KII553	RII554	GII555	AII556	IIO557	LII558	EII559	FII560	DII561	PII563	EII564	FII565	LII566	LII567	SII568	QII569	KII570	DII571	SII572	VII573	FII574	AII575	SII576	FII577	RII579	ALA	ASP	LYS																		

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	40340	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 ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.082	Depositor
Minimum map value	-0.034	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.022	Depositor
Map size (\AA)	329.15997, 329.15997, 329.15997	wwPDB
Map dimensions	312, 312, 312	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.055, 1.055, 1.055	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.26	0/2486	0.47	0/3391
1	C	0.26	0/2486	0.47	0/3391
1	E	0.26	0/2486	0.47	0/3391
1	G	0.26	0/2486	0.47	0/3391
2	B	0.27	0/10394	0.44	0/14113
2	D	0.27	0/10394	0.44	0/14113
2	F	0.27	0/10394	0.44	0/14113
2	H	0.27	0/10394	0.44	0/14113
All	All	0.27	0/51520	0.44	0/70016

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2433	0	2404	63	0
1	C	2433	0	2404	61	0
1	E	2433	0	2404	60	0
1	G	2433	0	2404	63	0
2	B	10189	0	10510	279	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	D	10189	0	10510	276	0
2	F	10189	0	10510	282	0
2	H	10189	0	10510	280	0
3	A	31	0	12	2	0
3	B	31	0	12	2	0
3	C	31	0	12	2	0
3	D	31	0	12	2	0
3	E	31	0	12	2	0
3	F	31	0	12	2	0
3	G	31	0	12	2	0
3	H	31	0	12	2	0
4	B	33	0	28	4	0
4	D	33	0	28	4	0
4	F	33	0	28	3	0
4	H	33	0	28	3	0
All	All	50868	0	51864	1347	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 13.

The worst 5 of 1347 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:1350:LEU:HD11	2:F:1403:ILE:HD11	1.20	1.19
2:D:1350:LEU:HD11	2:D:1403:ILE:HD11	1.20	1.17
2:H:1350:LEU:HD11	2:H:1403:ILE:HD11	1.20	1.15
2:B:1350:LEU:HD11	2:B:1403:ILE:HD11	1.20	1.13
2:D:512:TYR:CB	2:D:1498:ARG:HH12	1.65	1.10

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	323/390 (83%)	307 (95%)	15 (5%)	1 (0%)	41	76
1	C	323/390 (83%)	307 (95%)	15 (5%)	1 (0%)	41	76
1	E	323/390 (83%)	307 (95%)	15 (5%)	1 (0%)	41	76
1	G	323/390 (83%)	307 (95%)	15 (5%)	1 (0%)	41	76
2	B	1285/1582 (81%)	1231 (96%)	53 (4%)	1 (0%)	51	85
2	D	1285/1582 (81%)	1231 (96%)	53 (4%)	1 (0%)	51	85
2	F	1285/1582 (81%)	1231 (96%)	53 (4%)	1 (0%)	51	85
2	H	1285/1582 (81%)	1231 (96%)	53 (4%)	1 (0%)	51	85
All	All	6432/7888 (82%)	6152 (96%)	272 (4%)	8 (0%)	54	85

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	244	VAL
1	C	244	VAL
1	E	244	VAL
1	G	244	VAL
2	B	214	GLY

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	253/339 (75%)	224 (88%)	29 (12%)	5	23
1	C	253/339 (75%)	224 (88%)	29 (12%)	5	23
1	E	253/339 (75%)	224 (88%)	29 (12%)	5	23
1	G	253/339 (75%)	224 (88%)	29 (12%)	5	23
2	B	1102/1371 (80%)	1043 (95%)	59 (5%)	22	49
2	D	1102/1371 (80%)	1043 (95%)	59 (5%)	22	49
2	F	1102/1371 (80%)	1043 (95%)	59 (5%)	22	49
2	H	1102/1371 (80%)	1043 (95%)	59 (5%)	22	49

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	5420/6840 (79%)	5068 (94%)	352 (6%)	21 43

5 of 352 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	F	708	LEU
1	G	287	LEU
2	F	892	GLN
2	F	1550	MET
2	H	222	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 21 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	259	HIS
1	G	48	ASN
2	H	485	GLN
1	G	128	GLN
1	G	46	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

12 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The

Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	GBM	H	2001	-	35,35,35	2.03	4 (11%)	48,48,48	1.87	7 (14%)
4	GBM	D	2001	-	35,35,35	2.03	4 (11%)	48,48,48	1.87	7 (14%)
3	AGS	H	2002	-	26,33,33	1.89	3 (11%)	26,52,52	1.47	4 (15%)
3	AGS	G	401	-	26,33,33	1.88	3 (11%)	26,52,52	1.53	4 (15%)
3	AGS	F	2002	-	26,33,33	1.89	3 (11%)	26,52,52	1.47	4 (15%)
3	AGS	A	401	-	26,33,33	1.88	3 (11%)	26,52,52	1.53	4 (15%)
4	GBM	B	2001	-	35,35,35	2.03	4 (11%)	48,48,48	1.87	7 (14%)
3	AGS	E	401	-	26,33,33	1.88	3 (11%)	26,52,52	1.53	4 (15%)
3	AGS	C	401	-	26,33,33	1.88	3 (11%)	26,52,52	1.53	4 (15%)
3	AGS	B	2002	-	26,33,33	1.89	3 (11%)	26,52,52	1.47	4 (15%)
4	GBM	F	2001	-	35,35,35	2.03	4 (11%)	48,48,48	1.87	7 (14%)
3	AGS	D	2002	-	26,33,33	1.89	3 (11%)	26,52,52	1.47	4 (15%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	GBM	H	2001	-	-	8/27/35/35	0/3/3/3
4	GBM	D	2001	-	-	8/27/35/35	0/3/3/3
3	AGS	H	2002	-	-	2/17/38/38	0/3/3/3
3	AGS	G	401	-	-	3/17/38/38	0/3/3/3
3	AGS	F	2002	-	-	2/17/38/38	0/3/3/3
3	AGS	A	401	-	-	3/17/38/38	0/3/3/3
4	GBM	B	2001	-	-	8/27/35/35	0/3/3/3
3	AGS	E	401	-	-	3/17/38/38	0/3/3/3
3	AGS	C	401	-	-	3/17/38/38	0/3/3/3
3	AGS	B	2002	-	-	2/17/38/38	0/3/3/3
4	GBM	F	2001	-	-	8/27/35/35	0/3/3/3
3	AGS	D	2002	-	-	2/17/38/38	0/3/3/3

The worst 5 of 40 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	2001	GBM	C18-S2	-10.14	1.60	1.76
4	D	2001	GBM	C18-S2	-10.14	1.60	1.76
4	F	2001	GBM	C18-S2	-10.14	1.60	1.76
4	H	2001	GBM	C18-S2	-10.14	1.60	1.76
3	A	401	AGS	PG-S1G	7.96	2.08	1.90

The worst 5 of 60 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	2001	GBM	O5-S2-O4	-9.69	107.64	119.55
4	D	2001	GBM	O5-S2-O4	-9.69	107.64	119.55
4	F	2001	GBM	O5-S2-O4	-9.69	107.64	119.55
4	H	2001	GBM	O5-S2-O4	-9.69	107.64	119.55
3	A	401	AGS	PA-O3A-PB	-4.02	119.03	132.83

There are no chirality outliers.

5 of 52 torsion outliers are listed below:

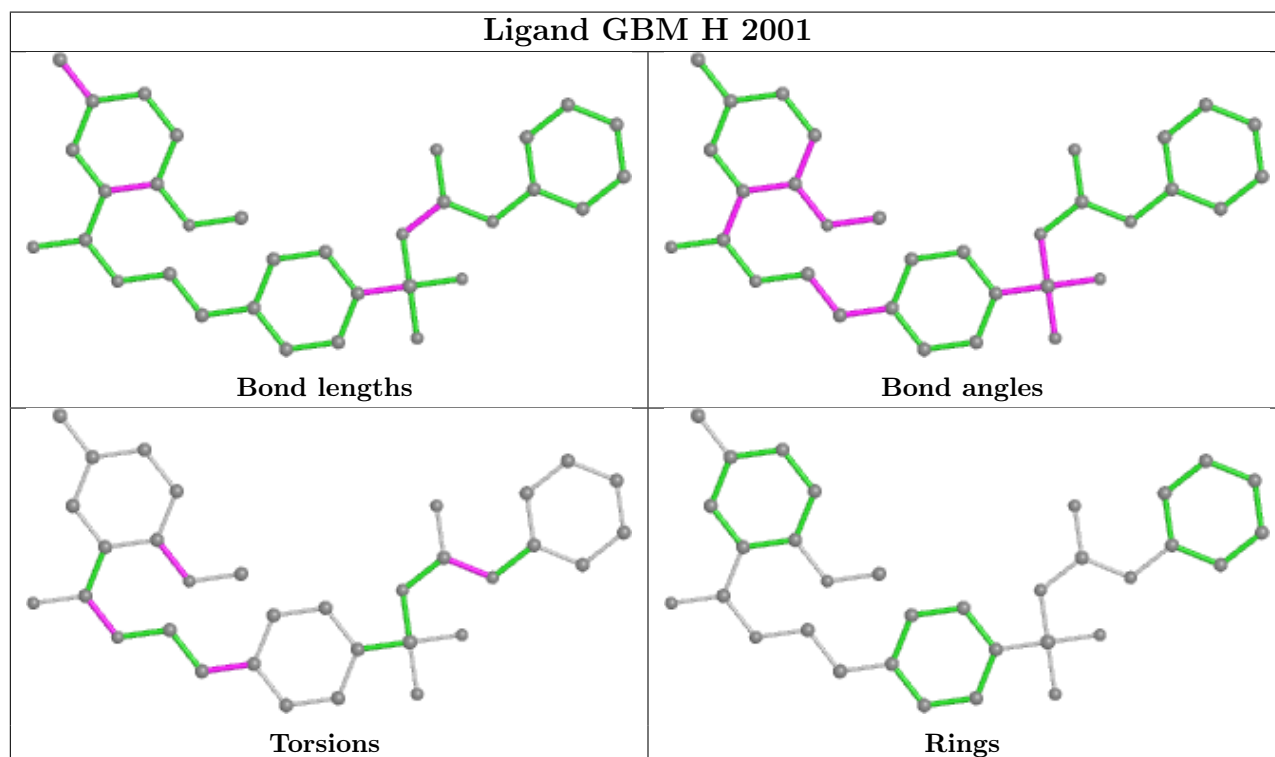
Mol	Chain	Res	Type	Atoms
3	A	401	AGS	O4'-C4'-C5'-O5'
3	B	2002	AGS	PB-O3B-PG-O2G
3	B	2002	AGS	PB-O3B-PG-O3G
3	C	401	AGS	O4'-C4'-C5'-O5'
3	D	2002	AGS	PB-O3B-PG-O2G

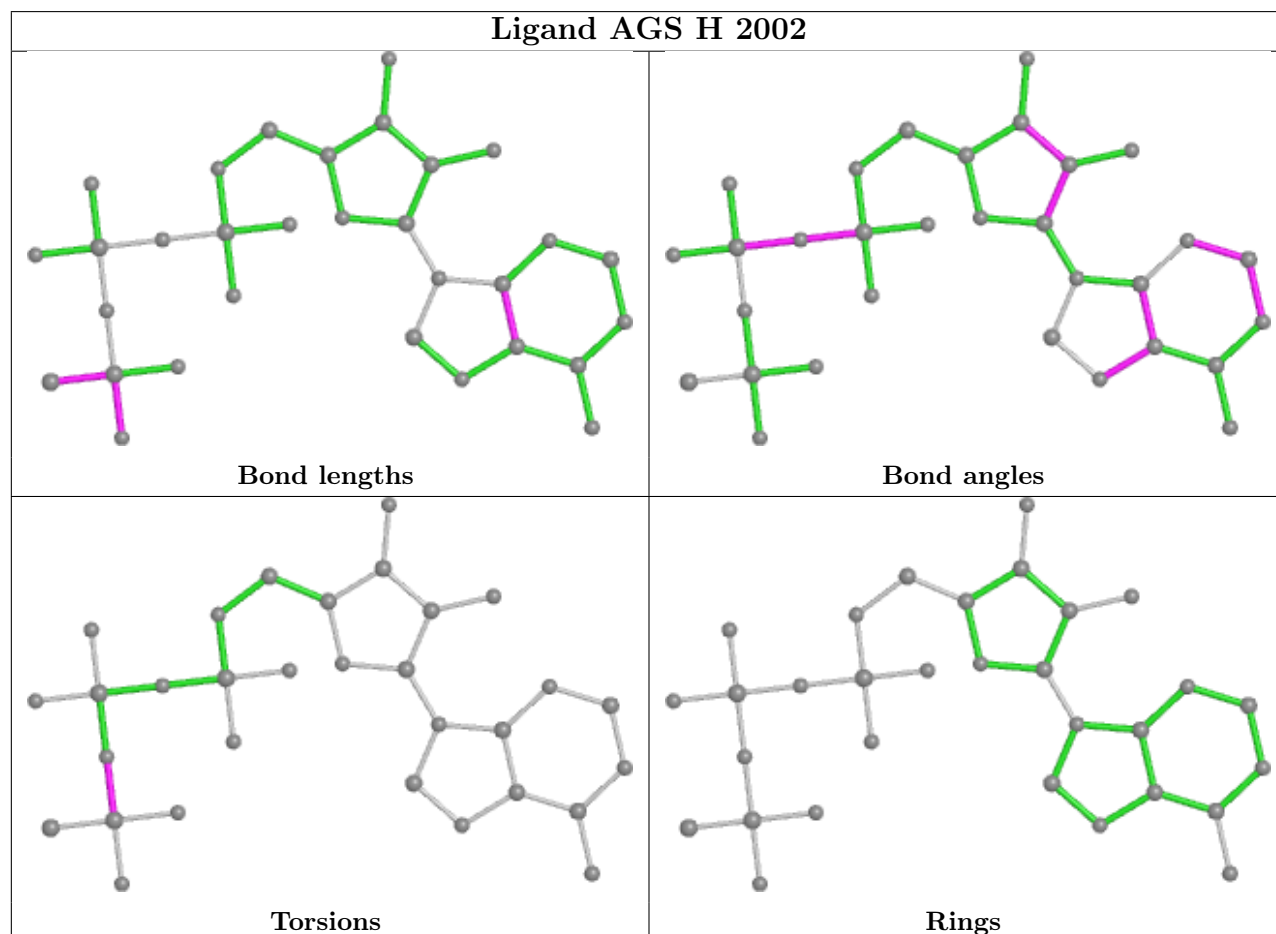
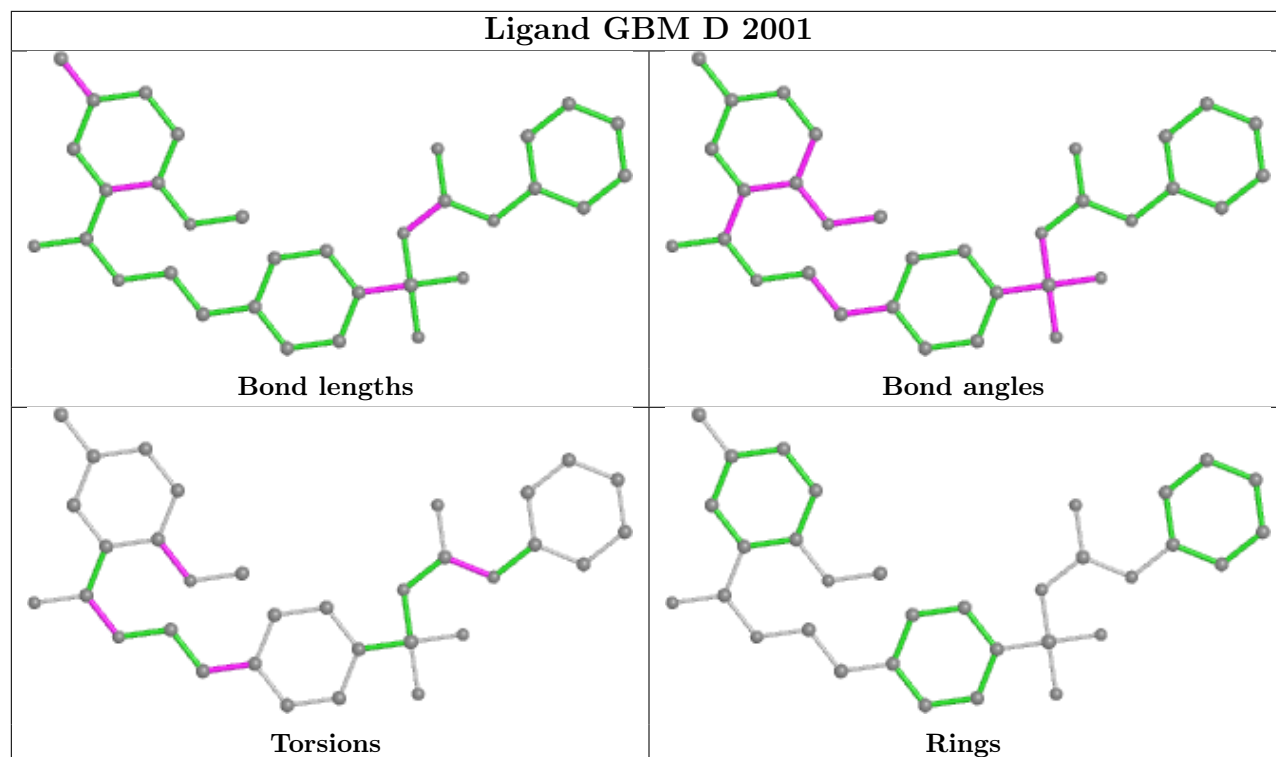
There are no ring outliers.

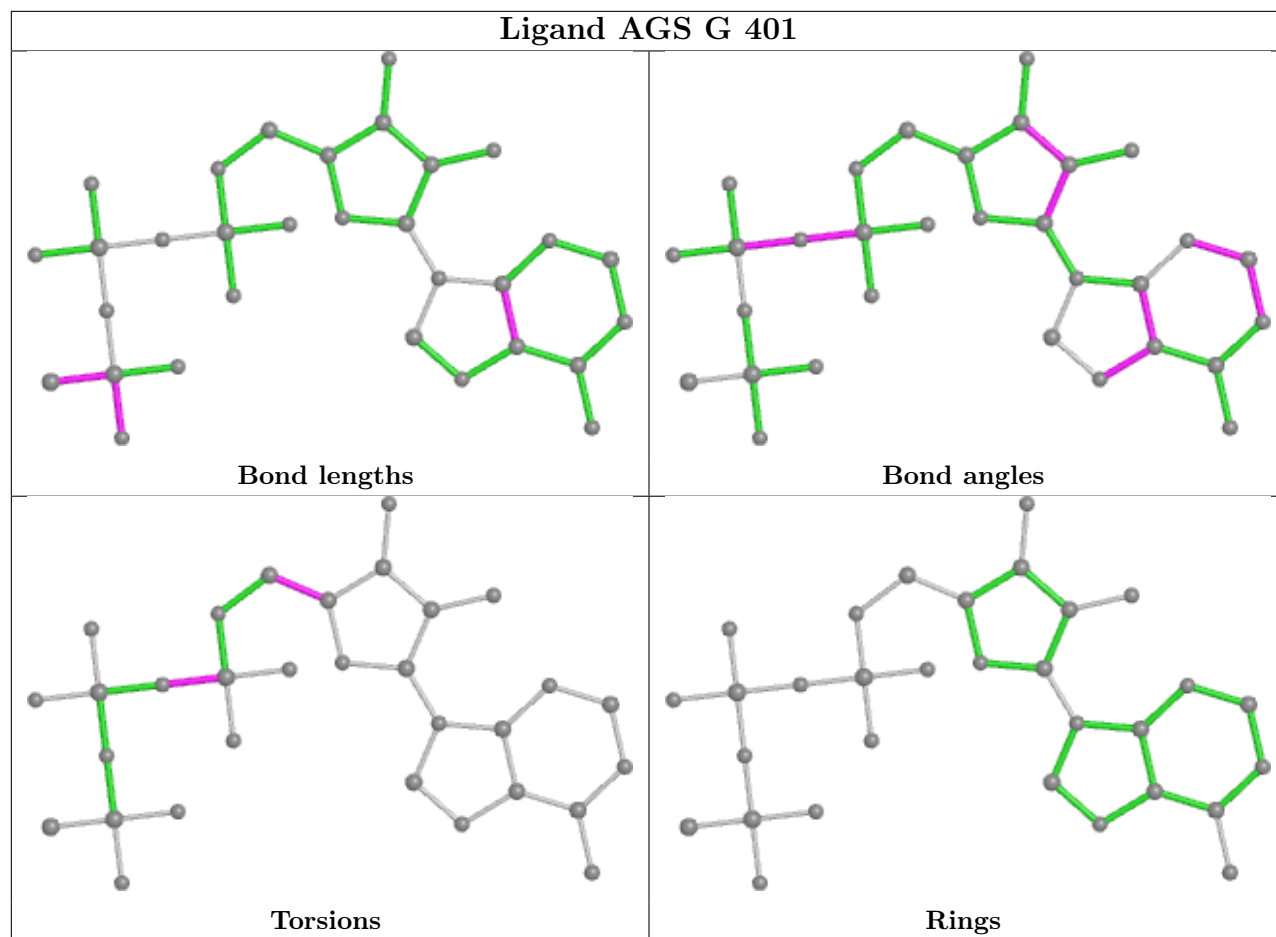
12 monomers are involved in 30 short contacts:

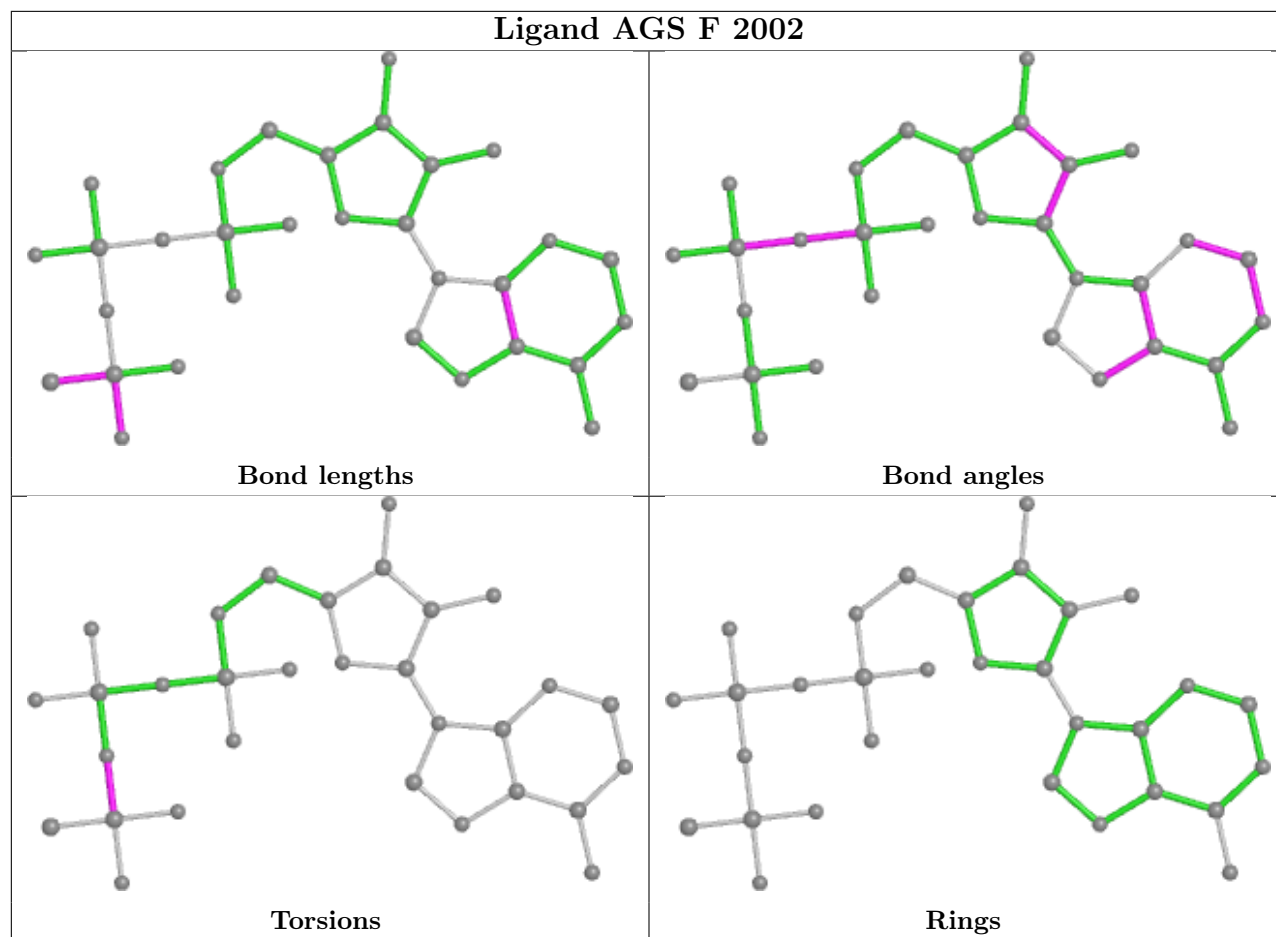
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	H	2001	GBM	3	0
4	D	2001	GBM	4	0
3	H	2002	AGS	2	0
3	G	401	AGS	2	0
3	F	2002	AGS	2	0
3	A	401	AGS	2	0
4	B	2001	GBM	4	0
3	E	401	AGS	2	0
3	C	401	AGS	2	0
3	B	2002	AGS	2	0
4	F	2001	GBM	3	0
3	D	2002	AGS	2	0

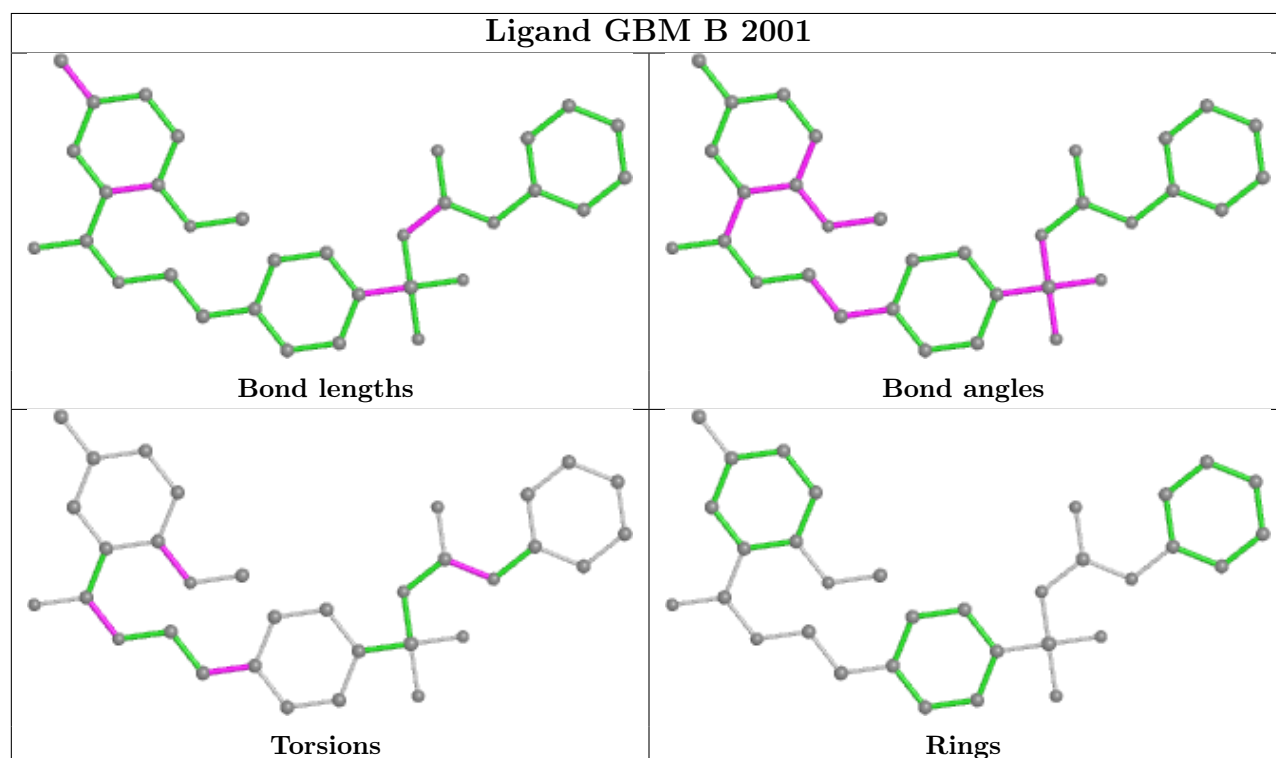
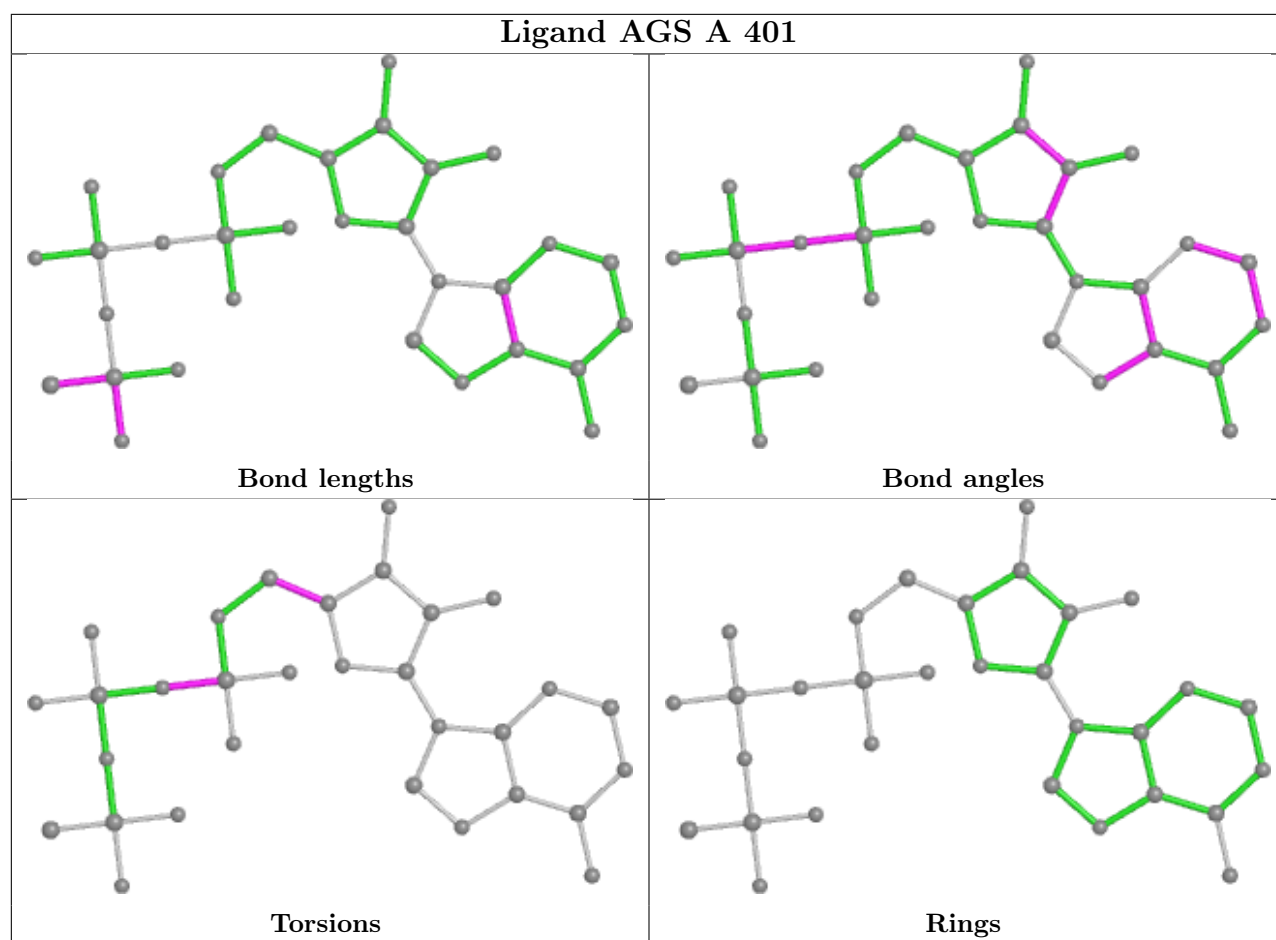
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

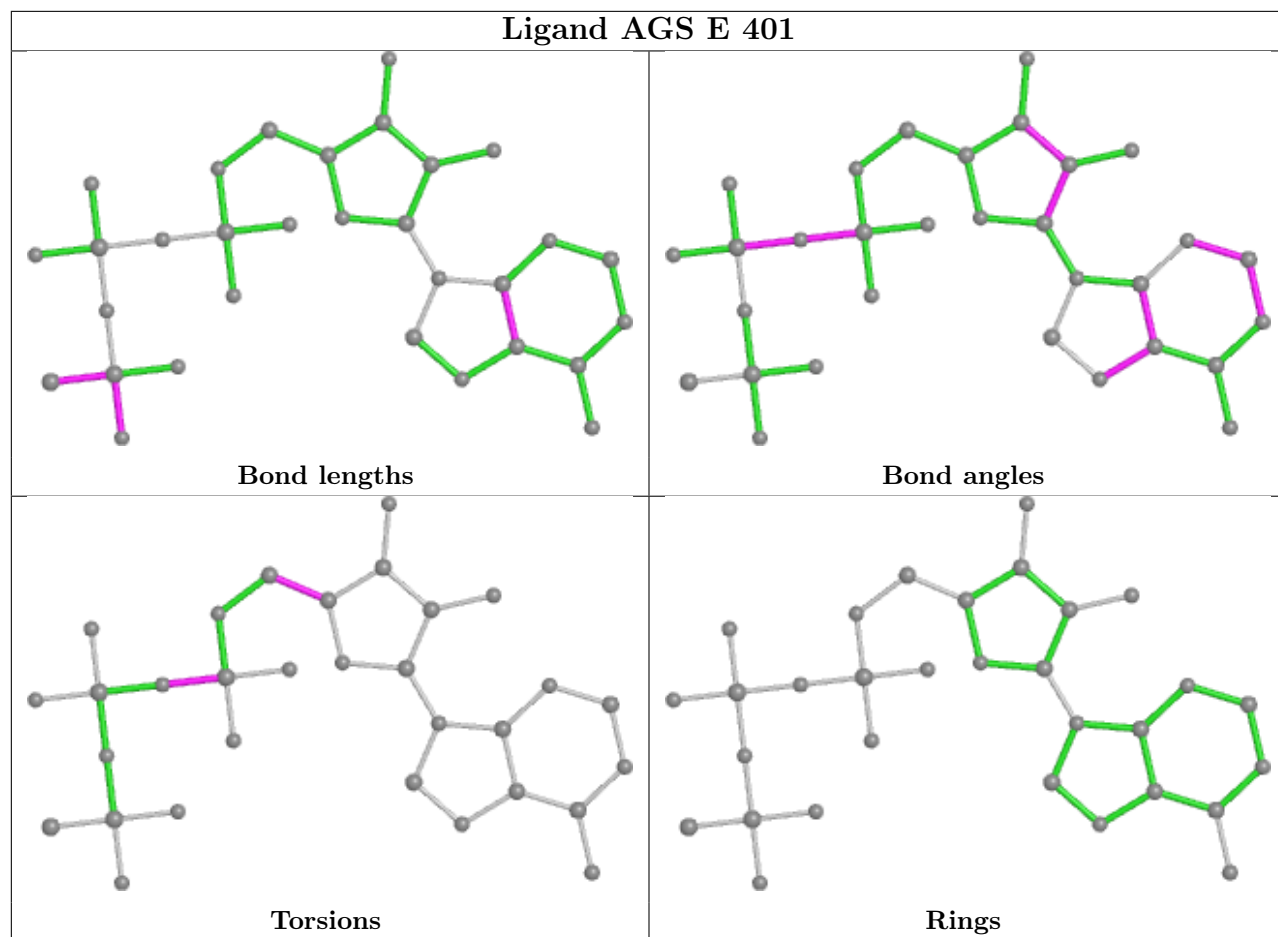


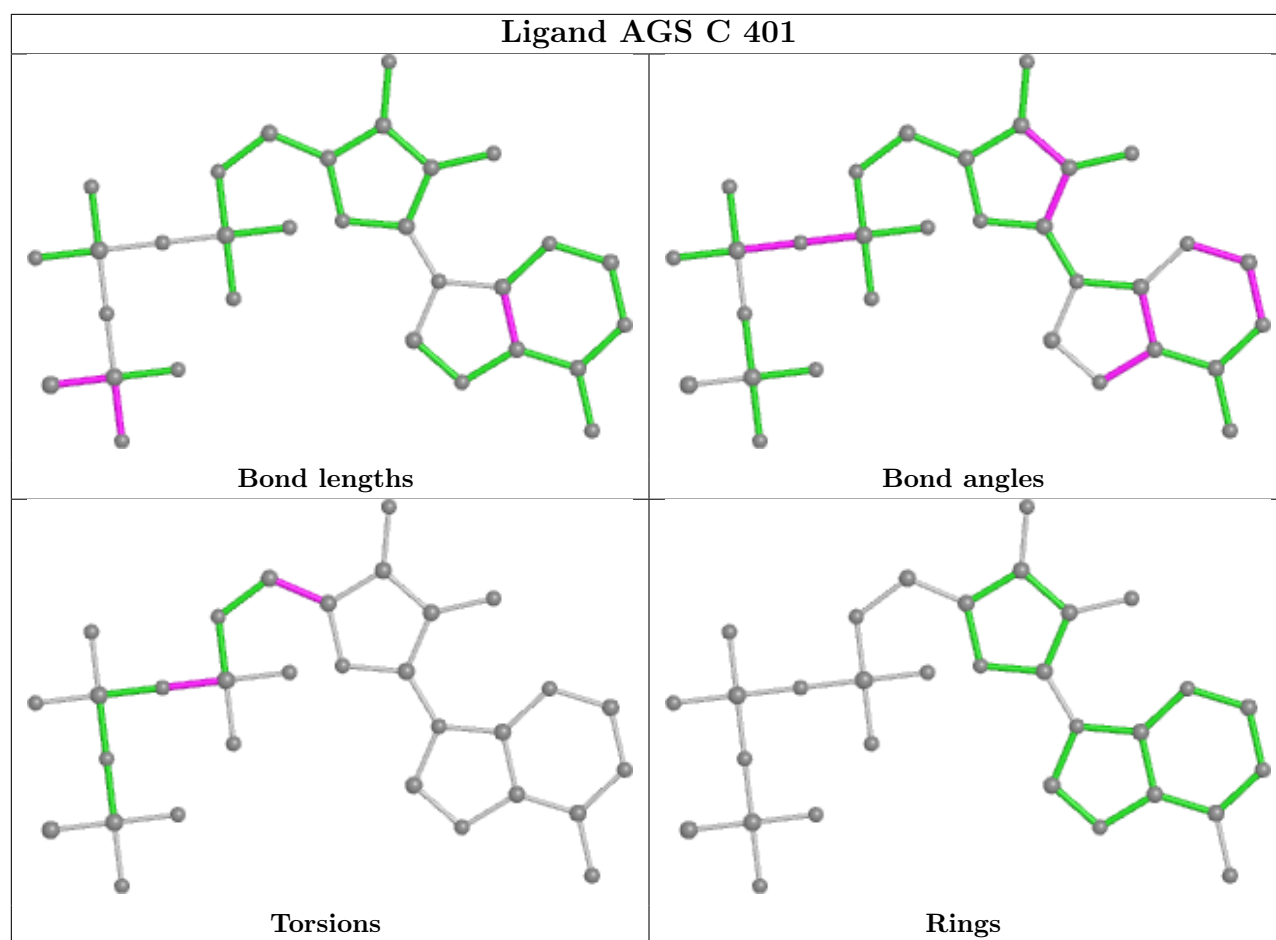


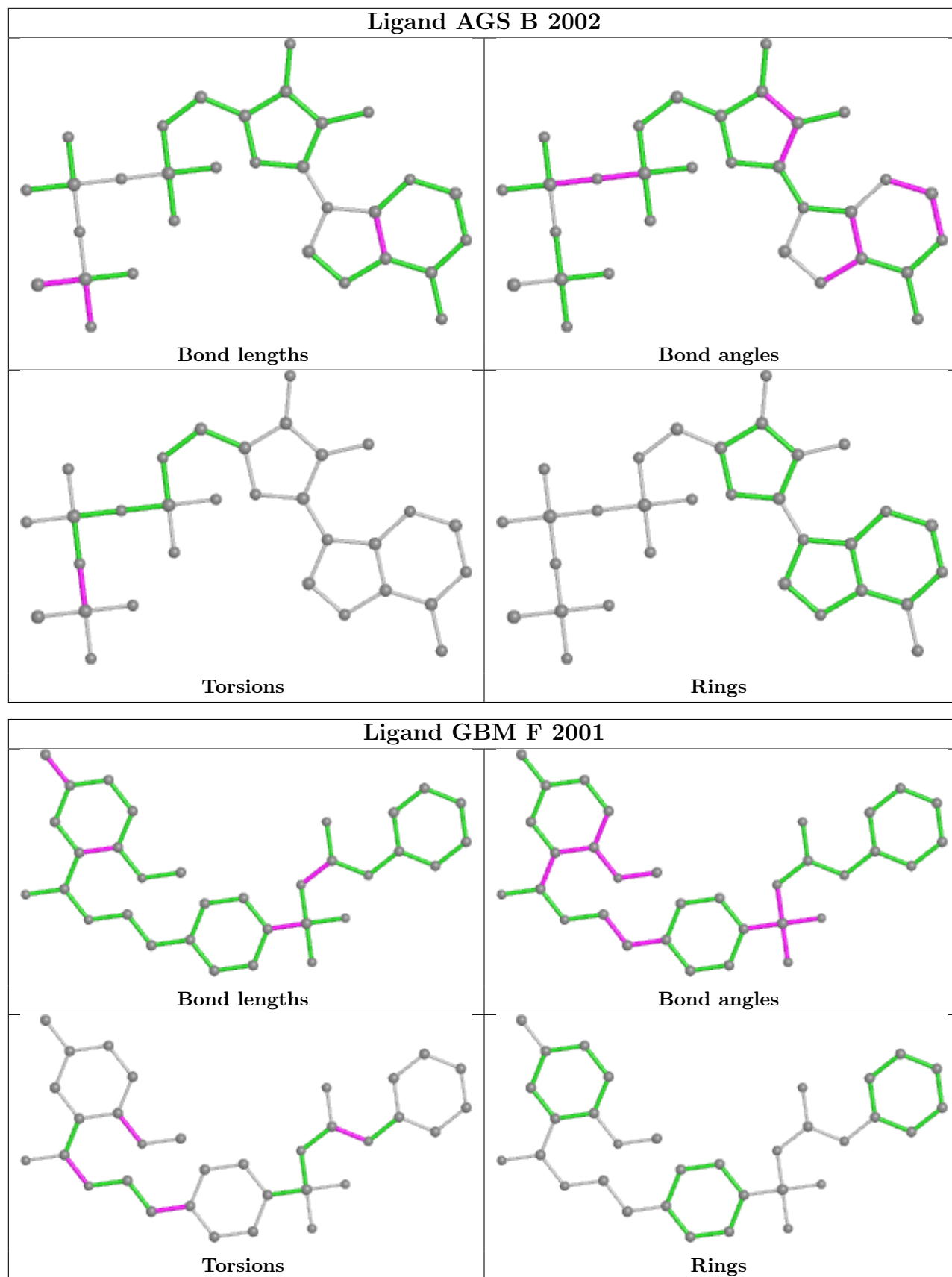


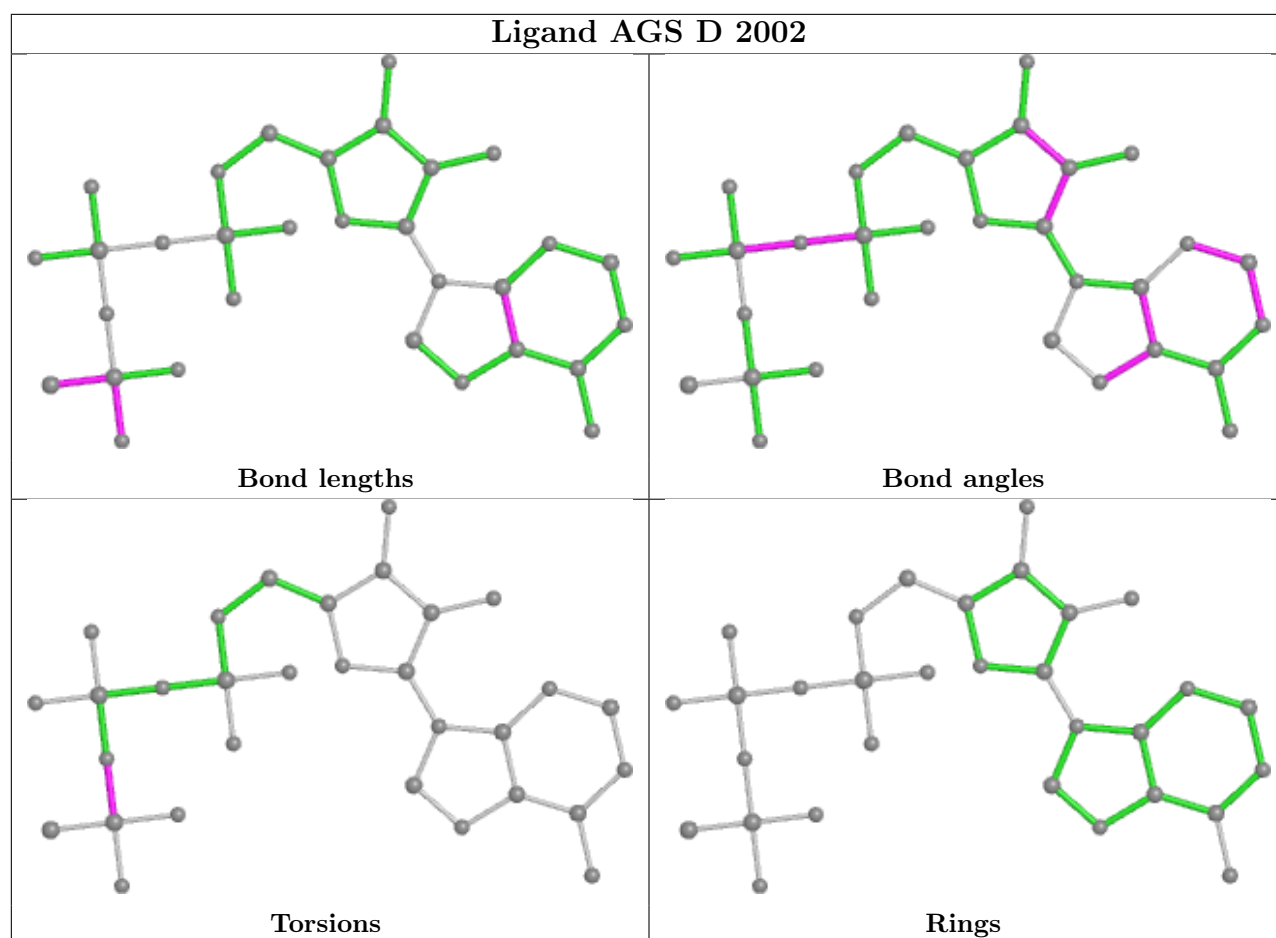












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

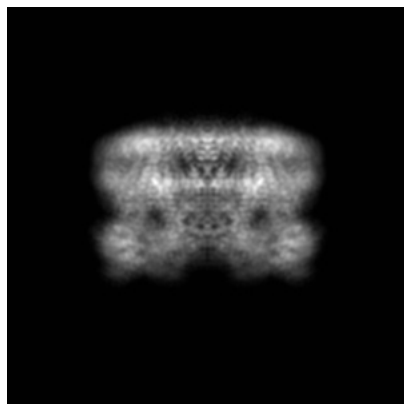
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-6833. These allow visual inspection of the internal detail of the map and identification of artifacts.

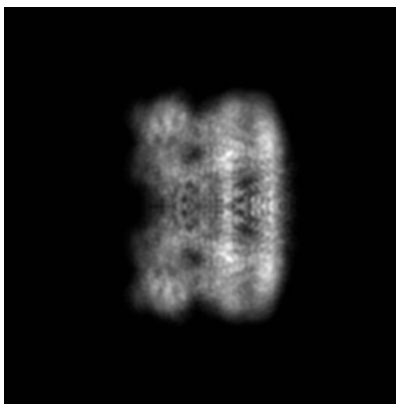
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

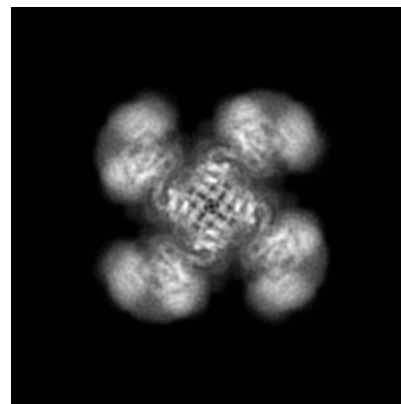
6.1.1 Primary map



X

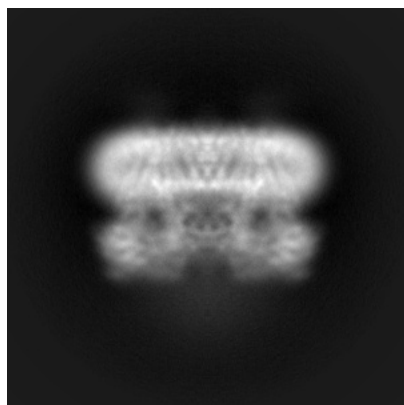


Y

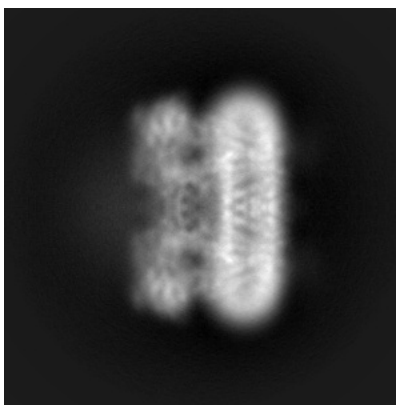


Z

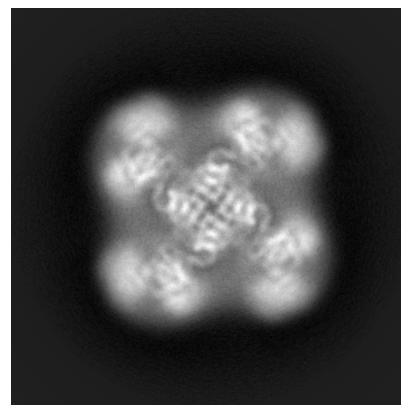
6.1.2 Raw map



X



Y



Z

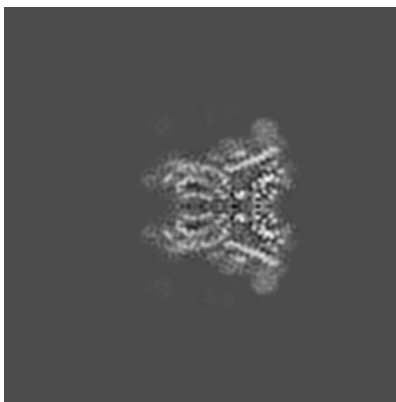
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

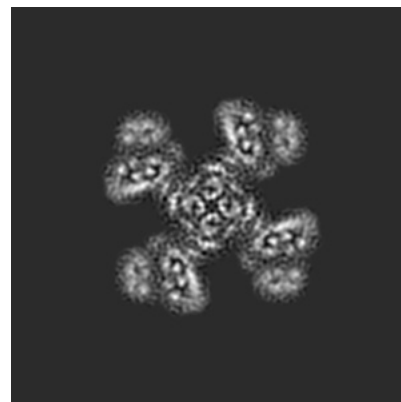
6.2.1 Primary map



X Index: 156

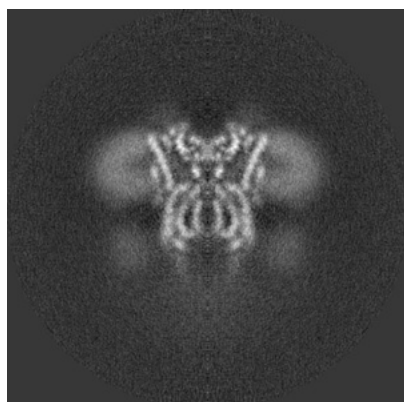


Y Index: 156

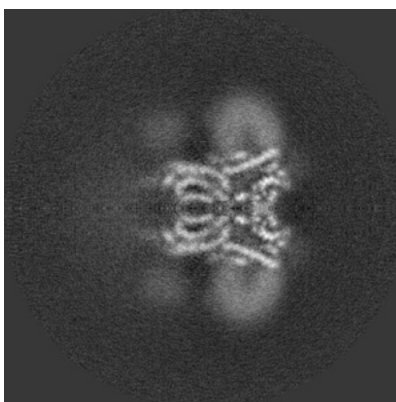


Z Index: 156

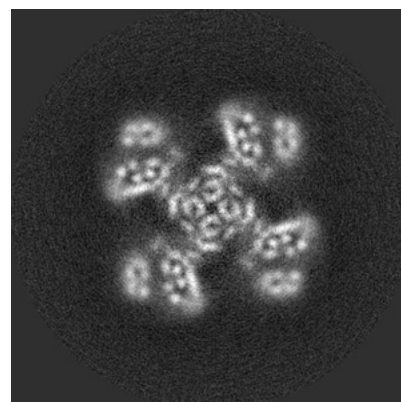
6.2.2 Raw map



X Index: 156



Y Index: 156

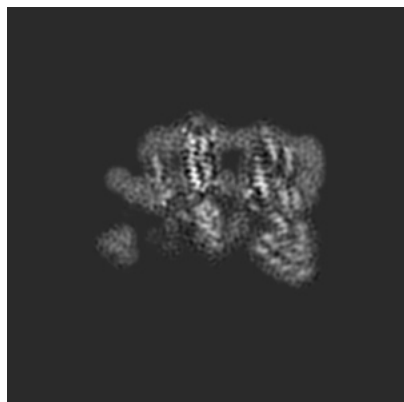


Z Index: 156

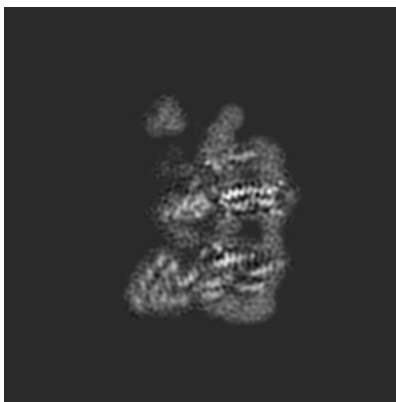
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

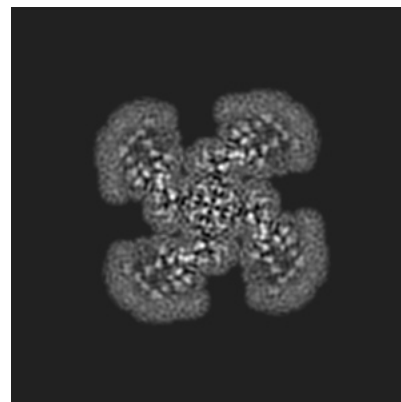
6.3.1 Primary map



X Index: 187

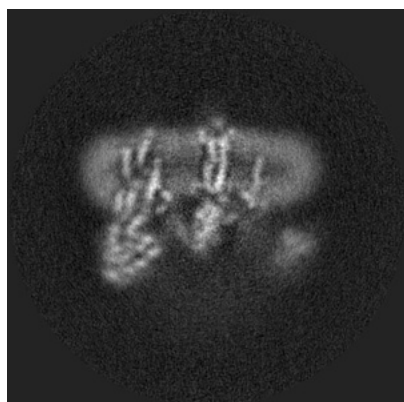


Y Index: 187

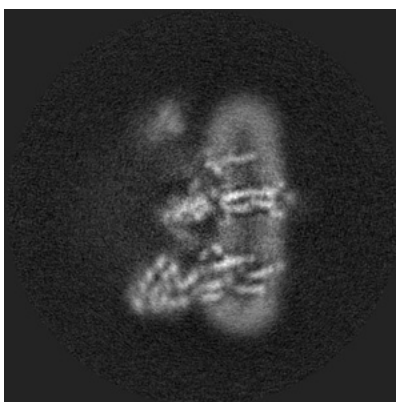


Z Index: 175

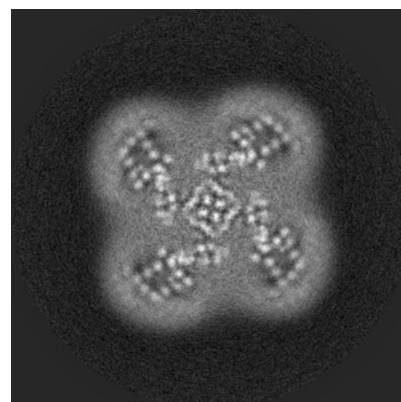
6.3.2 Raw map



X Index: 125



Y Index: 187

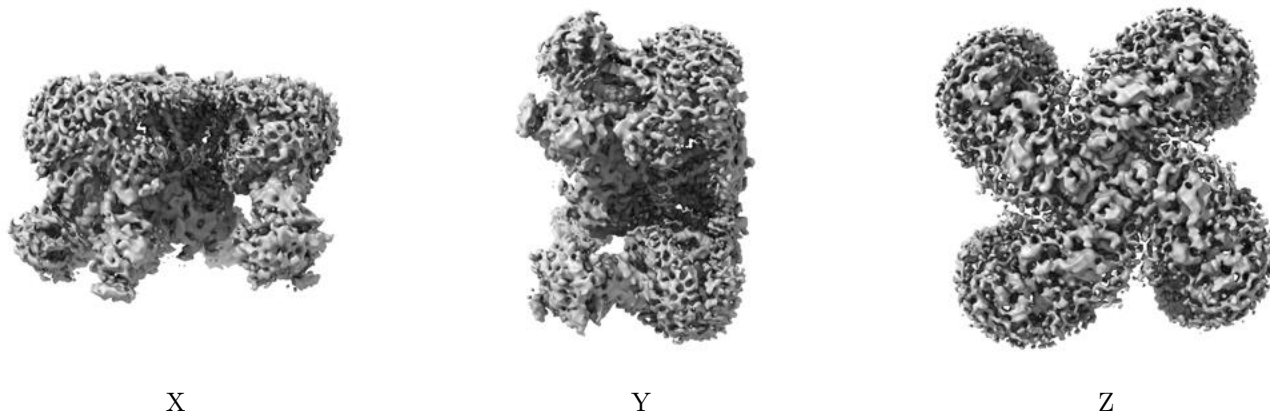


Z Index: 174

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

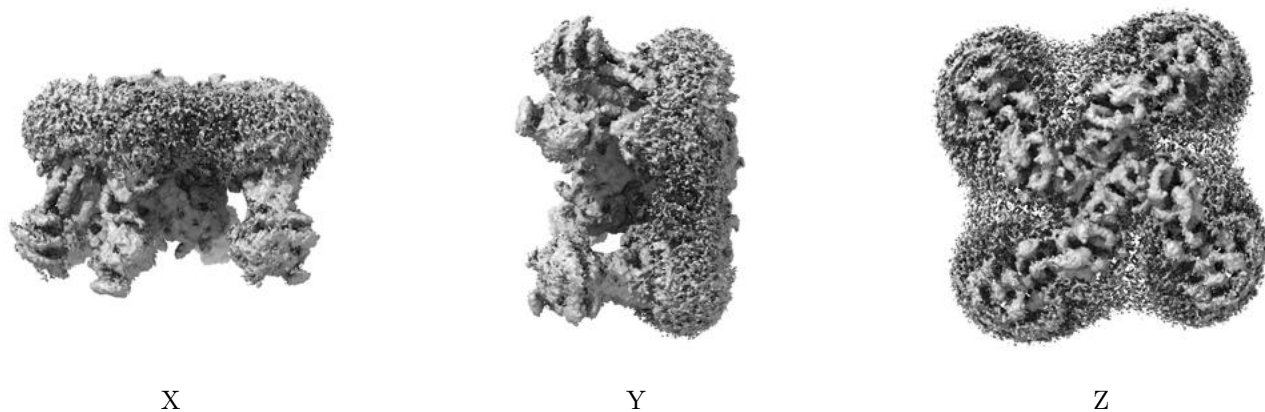
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.022. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



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

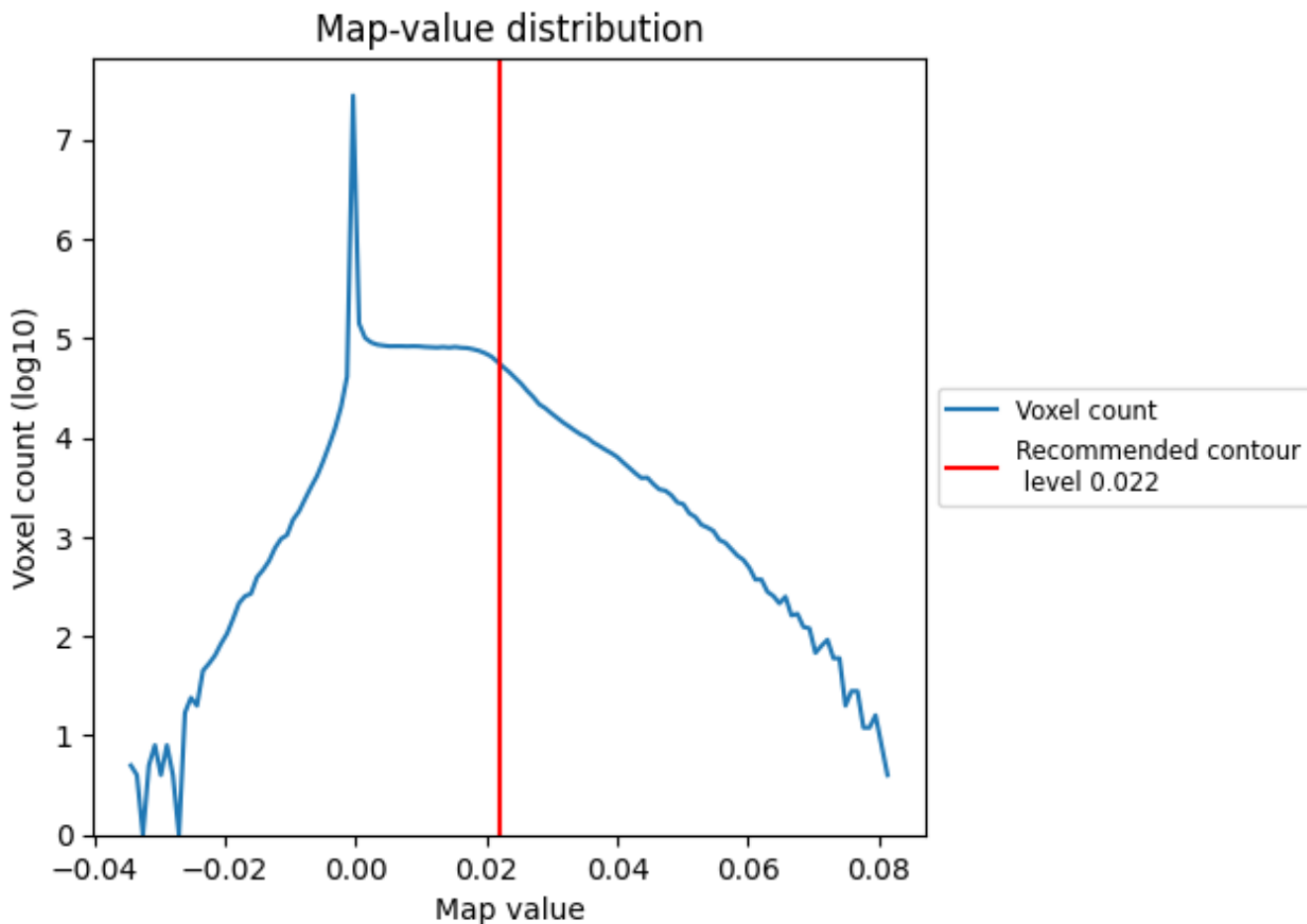
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

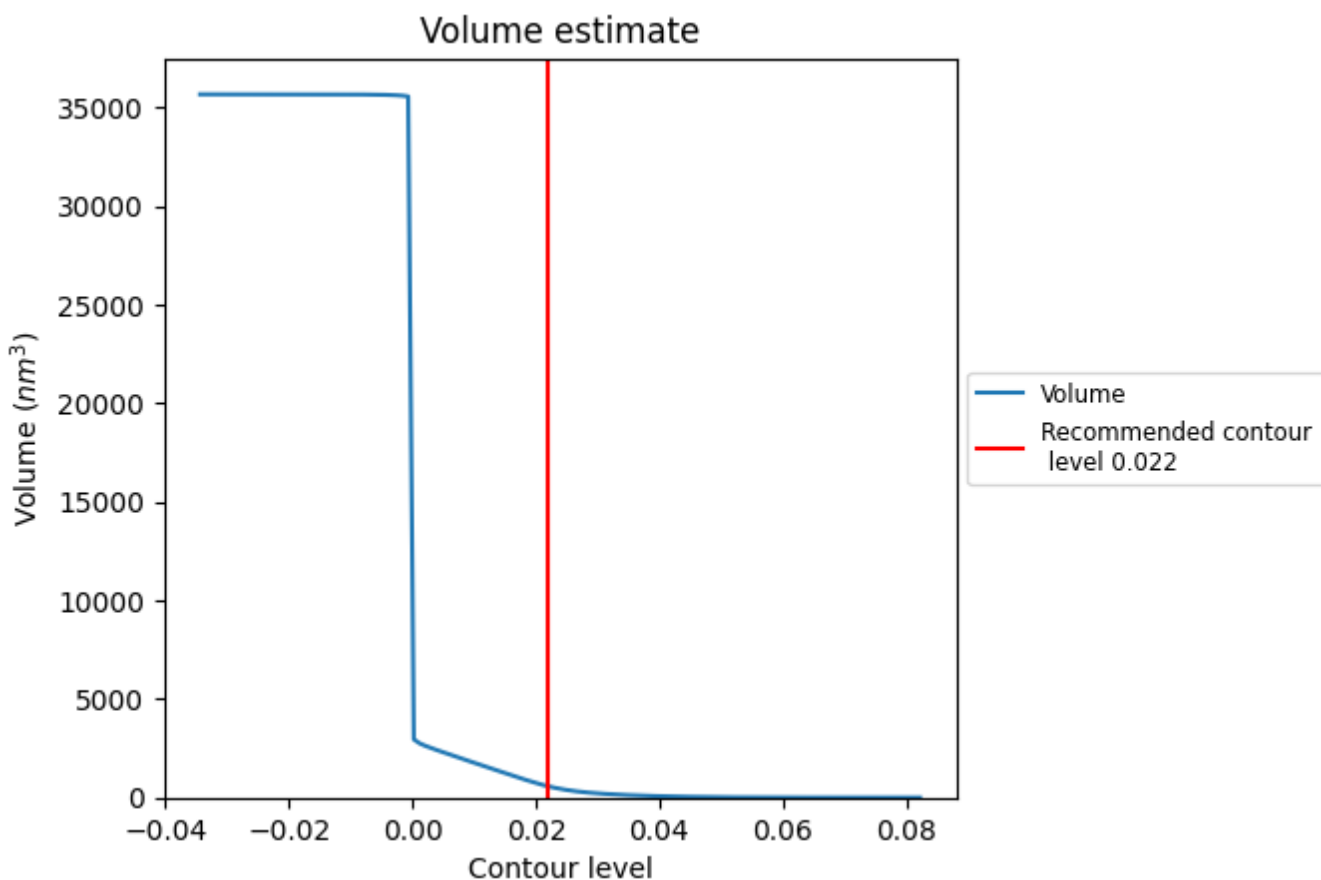
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

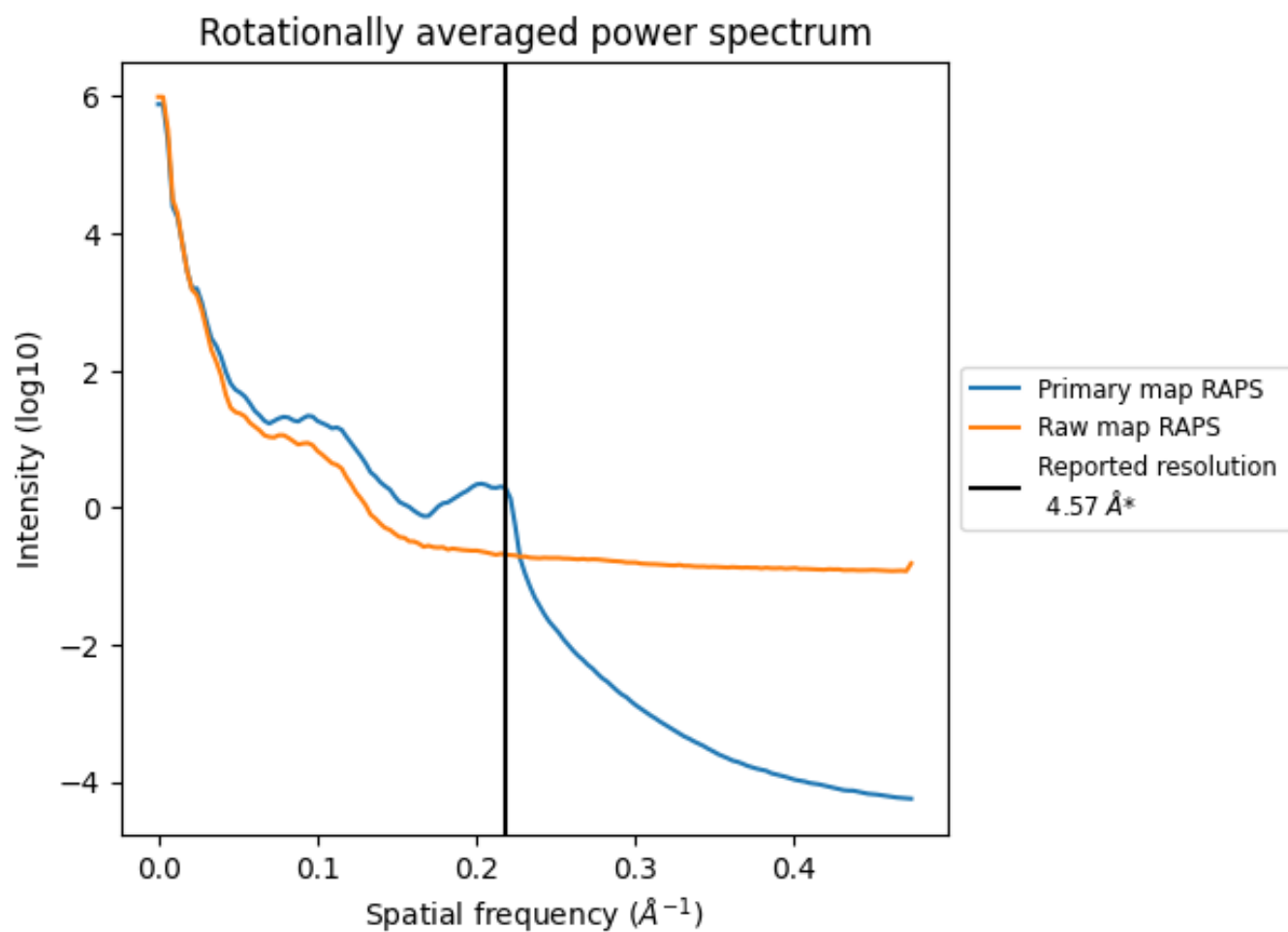
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 573 nm^3 ; this corresponds to an approximate mass of 517 kDa.

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

7.3 Rotationally averaged power spectrum [i](#)

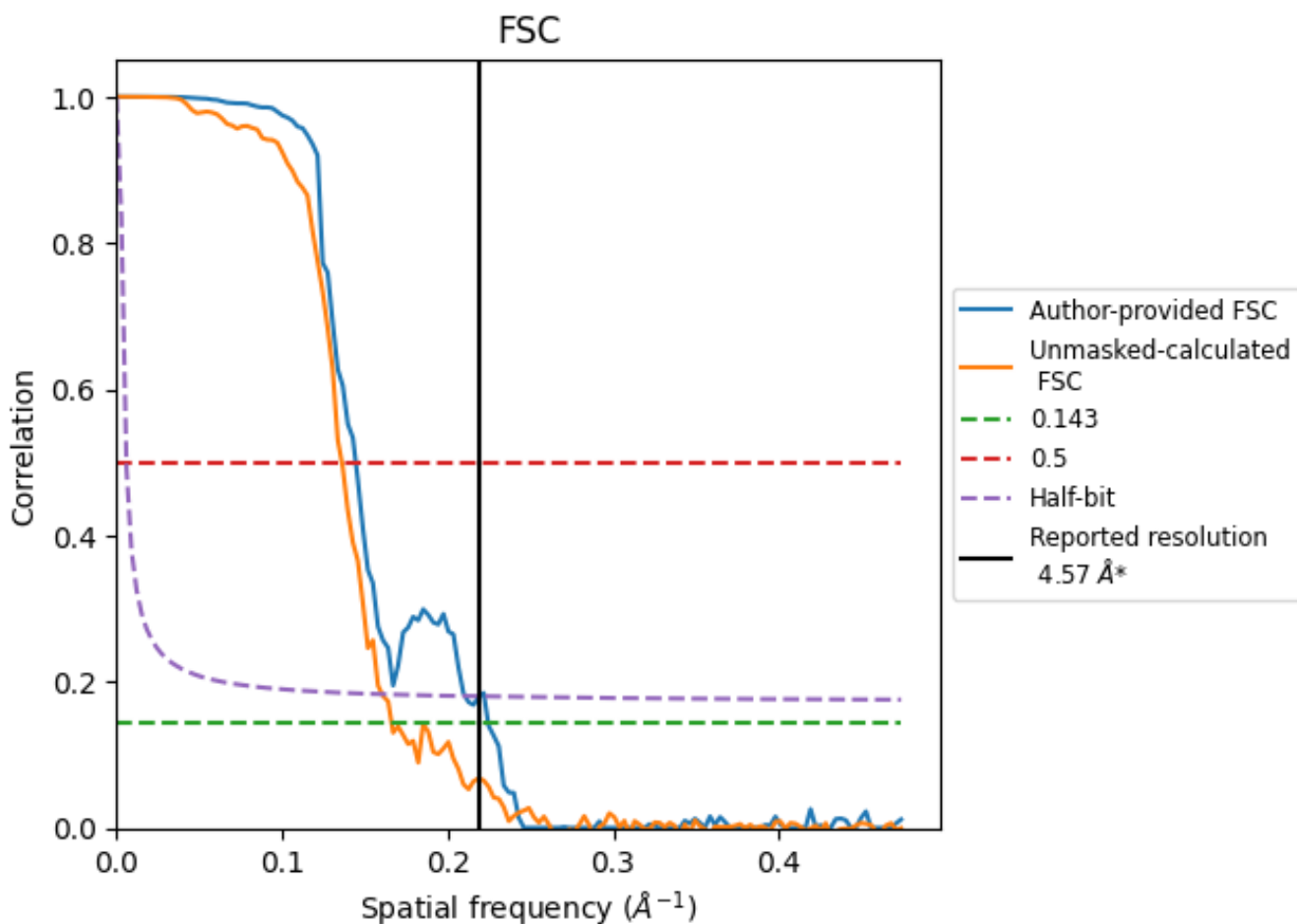


*Reported resolution corresponds to spatial frequency of 0.219 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.219 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.57	-	-
Author-provided FSC curve	4.45	6.92	4.75
Unmasked-calculated*	6.02	7.35	6.23

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.02 differs from the reported value 4.57 by more than 10 %

9 Map-model fit [i](#)

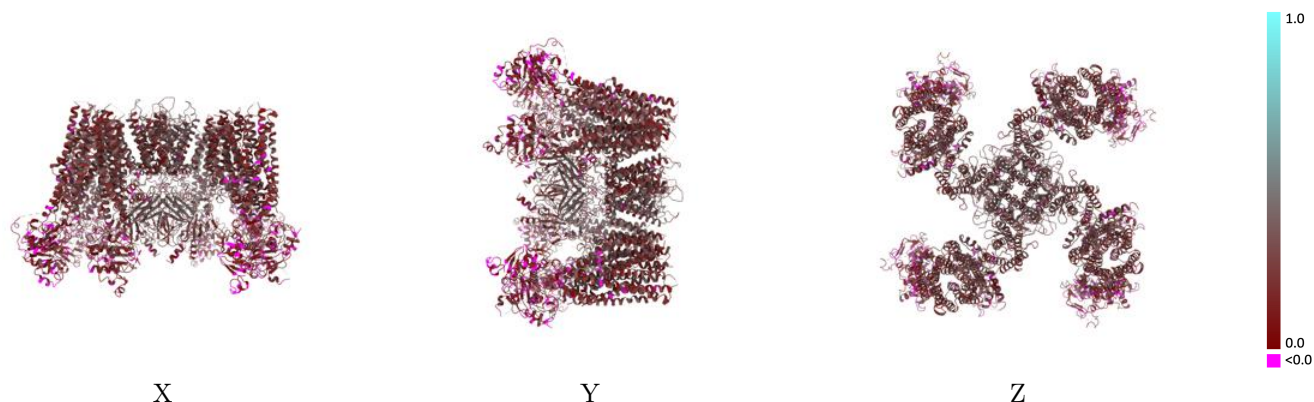
This section contains information regarding the fit between EMDB map EMD-6833 and PDB model 5YKG. Per-residue inclusion information can be found in section [3](#) on page [6](#).

9.1 Map-model overlay [i](#)



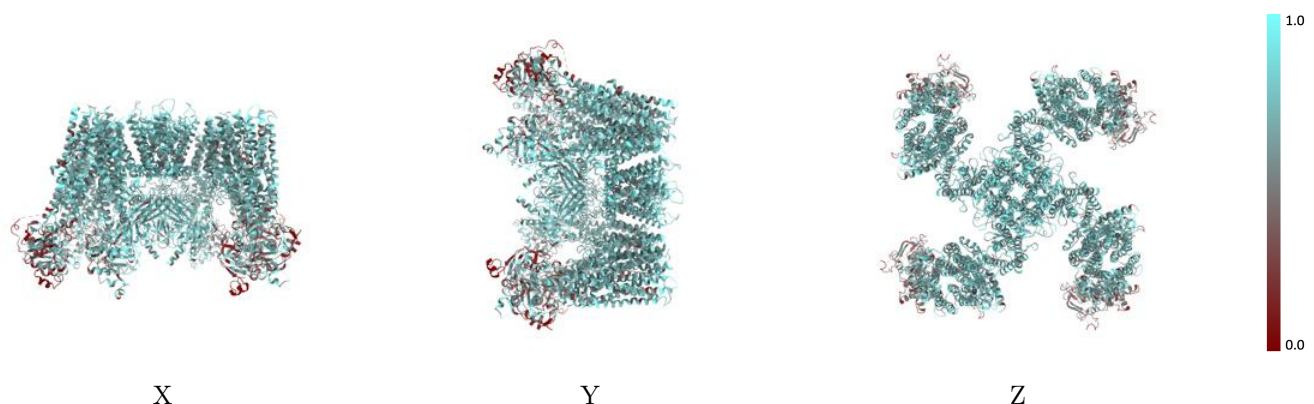
The images above show the 3D surface view of the map at the recommended contour level 0.022 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



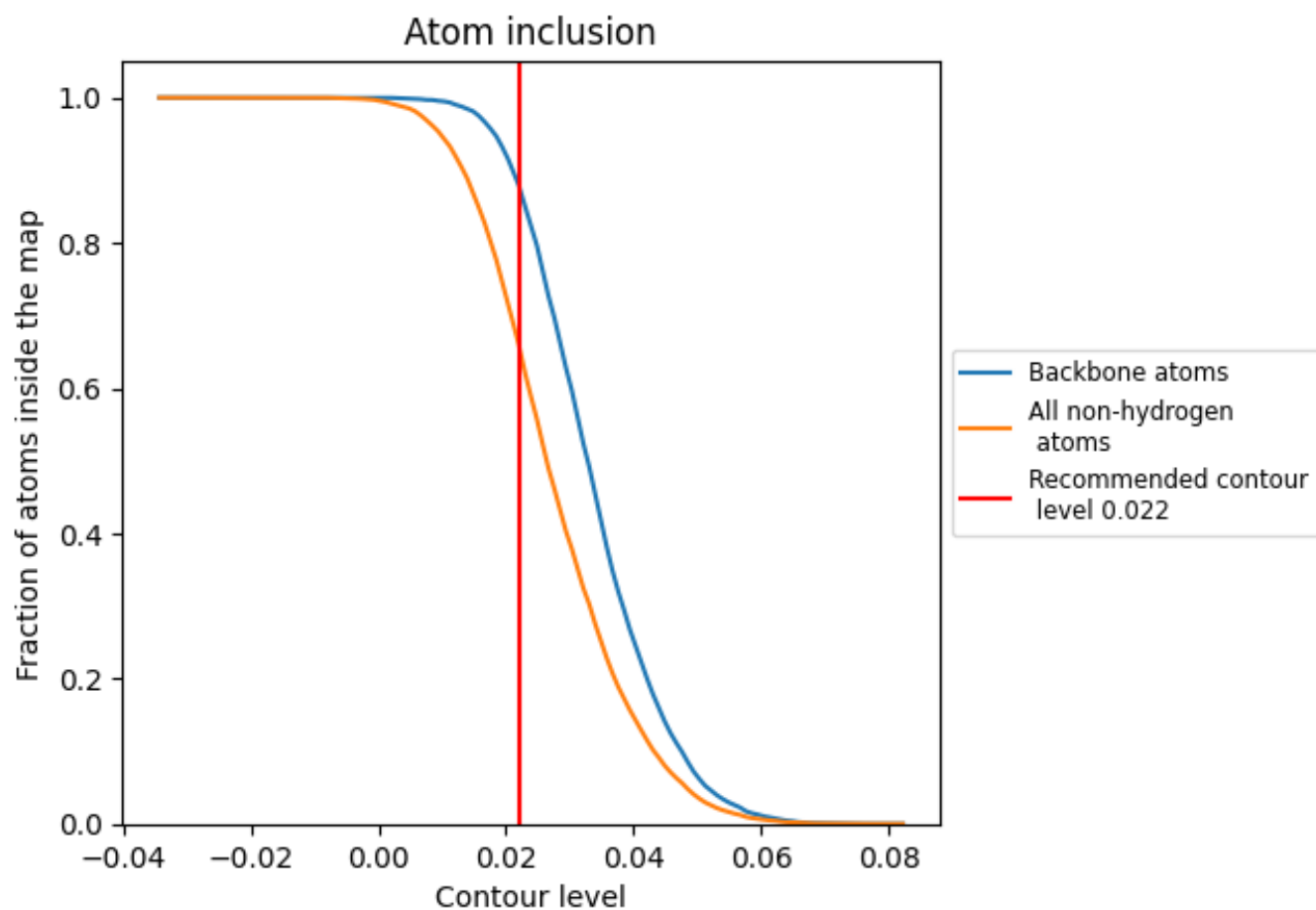
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.022).



















9.4 Atom inclusion [i](#)



At the recommended contour level, 88% of all backbone atoms, 66% 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 (0.022) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6599	 0.2260
A	 0.7683	 0.3100
B	 0.6339	 0.2050
C	 0.7683	 0.3090
D	 0.6338	 0.2060
E	 0.7683	 0.3100
F	 0.6337	 0.2070
G	 0.7683	 0.3100
H	 0.6338	 0.2070

