



## wwPDB EM Validation Summary Report ⓘ

Nov 10, 2024 – 09:30 PM EST

PDB ID : 7MUQ  
EMDB ID : EMD-24018  
Title : Reconstruction of the Legionella pneumophila Dot/Icm T4SS 3DVA Map 1  
Authors : Sheedlo, M.J.; Durie, C.L.; Swanson, M.; Lacy, D.B.; Ohi, M.D.  
Deposited on : 2021-05-14  
Resolution : 4.60 Å (reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

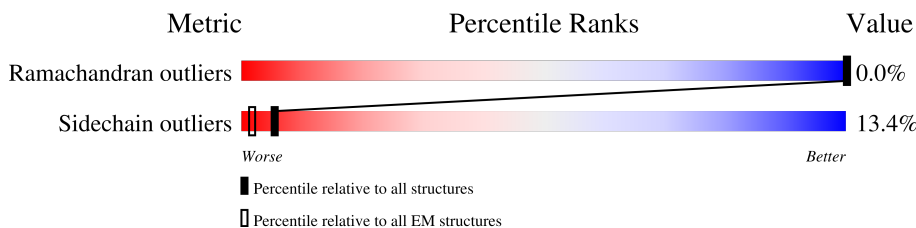
EMDB validation analysis : 0.0.1.dev113  
MolProbity : 4.02b-467  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP)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

# 1 Overall quality at a glance i

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

The reported resolution of this entry is 4.60 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	AG	1048	 13% 84%
1	Ag	1048	 97%
1	BG	1048	 13% 84%
1	Bg	1048	 97%
1	CG	1048	 13% 84%
1	Cg	1048	 97%
1	DG	1048	 14% 84%
1	Dg	1048	 97%
1	EG	1048	 13% 84%


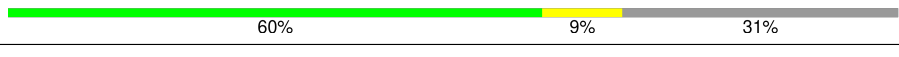
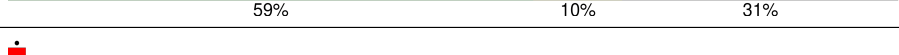
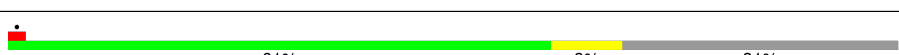

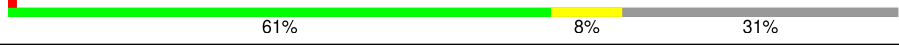
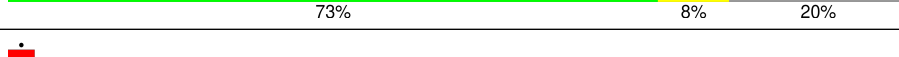
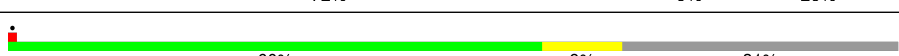

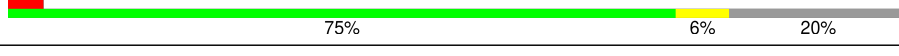
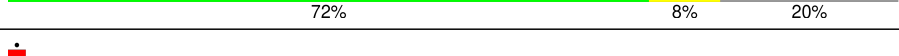
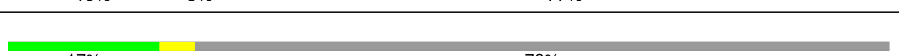













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Mol	Chain	Length	Quality of chain
1	Eg	1048	97%
1	FG	1048	14% 84%
1	Fg	1048	97%
1	GG	1048	14% 84%
1	Gg	1048	97%
1	HG	1048	14% 84%
1	Hg	1048	97%
1	IG	1048	15% 84%
1	Ig	1048	97%
1	JG	1048	14% 84%
1	Jg	1048	97%
1	KG	1048	14% 84%
1	Kg	1048	97%
1	LG	1048	14% 84%
1	Lg	1048	97%
1	MG	1048	13% 84%
1	Mg	1048	97%
1	NG	1048	13% 84%
1	OG	1048	14% 84%
1	PG	1048	14% 84%
1	VG	1048	97%
1	WG	1048	97%
1	XG	1048	97%
1	YG	1048	97%
1	ZG	1048	97%

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Mol	Chain	Length	Quality of chain
2	AC	303	 60% 9% 31%
2	BC	303	 60% 9% 31%
2	CC	303	 59% 10% 31%
2	DC	303	 72% 8% 20%
2	EC	303	 61% 8% 31%
2	FC	303	 59% 10% 31%
2	GC	303	 61% 8% 31%
2	HC	303	 73% 8% 20%
2	IC	303	 72% 9% 20%
2	JC	303	 60% 9% 31%
2	KC	303	 58% 11% 31%
2	LC	303	 75% 6% 20%
2	MC	303	 72% 8% 20%
3	AF	269	 19% 5% 77%
3	Af	269	 17% 78%
3	BF	269	 21% 77%
3	Bf	269	 20% 78%
3	CF	269	 20% 77%
3	Cf	269	 18% 78%
3	DF	269	 21% 77%
3	Df	269	 21% 78%
3	EF	269	 21% 77%
3	Ef	269	 19% 78%
3	FF	269	 21% 77%
3	Ff	269	 19% 78%


























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Mol	Chain	Length	Quality of chain
3	GF	269	21% 77%
3	Gf	269	20% 78%
3	HF	269	21% 77%
3	Hf	269	19% 78%
3	IF	269	20% 77%
3	If	269	18% 78%
3	JF	269	20% 77%
3	Jf	269	18% 78%
3	KF	269	21% 77%
3	Kf	269	20% 78%
3	LF	269	21% 77%
3	Lf	269	20% 78%
3	MF	269	21% 77%
3	Mf	269	20% 78%
3	VF	269	20% 77%
3	WF	269	20% 77%
3	XF	269	20% 77%
3	YF	269	21% 77%
3	ZF	269	20% 77%
4	AD	163	75% 11% 14%
4	Ad	163	76% 8% 16%
4	BD	163	77% 9% 14%
4	Bd	163	73% 11% 16%
4	CD	163	74% 12% 14%
4	Cd	163	76% 8% 16%






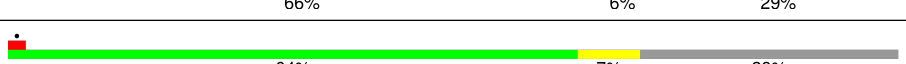
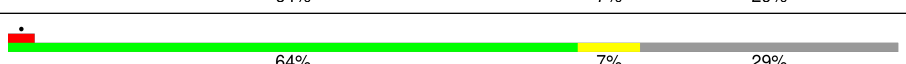
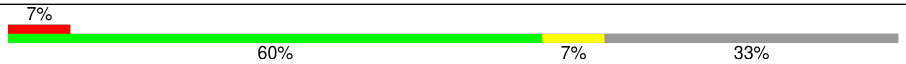


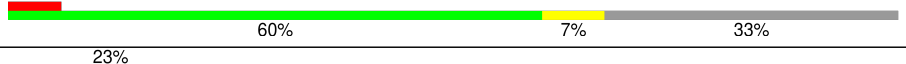
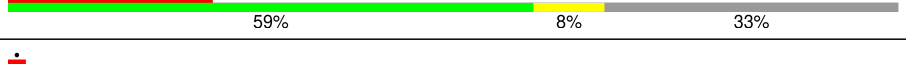

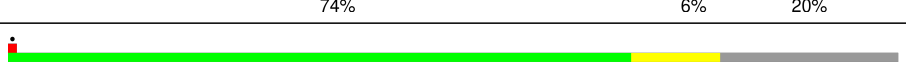
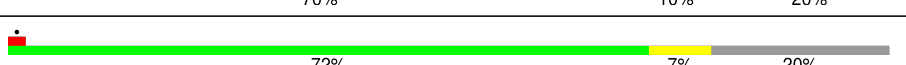










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Mol	Chain	Length	Quality of chain
4	DD	163	 77% 9% 14%
4	Dd	163	 74% 10% 16%
4	ED	163	 79% 7% 14%
4	Ed	163	 75% 9% 16%
4	FD	163	 76% 10% 14%
4	Fd	163	 75% 9% 16%
4	GD	163	 76% 10% 14%
4	Gd	163	 75% 9% 16%
4	HD	163	 80% 6% 14%
4	Hd	163	 76% 8% 16%
4	ID	163	 80% 6% 14%
4	Id	163	 75% 9% 16%
4	JD	163	 78% 8% 14%
4	Jd	163	 78% 6% 16%
4	KD	163	 81% 5% 14%
4	Kd	163	 77% 7% 16%
4	LD	163	 76% 10% 14%
4	Ld	163	 77% 7% 16%
4	MD	163	 80% 6% 14%
4	Md	163	 76% 8% 16%
5	AH	361	 63% 8% 29%
5	BH	361	 63% 8% 29%
5	CH	361	 63% 8% 29%
5	DH	361	 64% 7% 29%
5	EH	361	 62% 10% 29%

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Mol	Chain	Length	Quality of chain
5	FH	361	 63% 8% 29%
5	GH	361	 65% 6% 29%
5	HH	361	 63% 9% 29%
5	IH	361	 64% 7% 29%
5	JH	361	 66% 5% 29%
5	KH	361	 66% 6% 29%
5	LH	361	 64% 7% 29%
5	MH	361	 64% 7% 29%
5	VH	361	 7% 60% 7% 33%
5	WH	361	 14% 60% 7% 33%
5	XH	361	 21% 59% 8% 33%
5	YH	361	 6% 60% 7% 33%
5	ZH	361	 23% 59% 8% 33%
6	AK	189	 69% 11% 20%
6	BK	189	 74% 6% 20%
6	CK	189	 70% 10% 20%
6	DK	189	 72% 7% 20%
6	EK	189	 68% 12% 20%
6	FK	189	 69% 11% 20%
6	GK	189	 73% 7% 20%
6	HK	189	 70% 10% 20%
6	IK	189	 76% 10% 20%
6	JK	189	 69% 11% 20%
6	KK	189	 69% 11% 20%
6	LK	189	 70% 10% 20%

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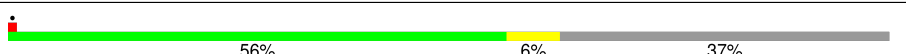
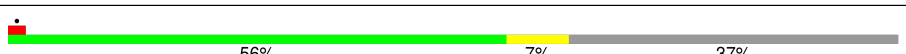
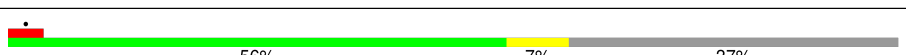
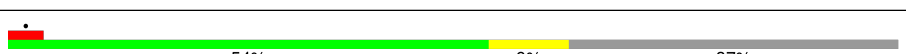


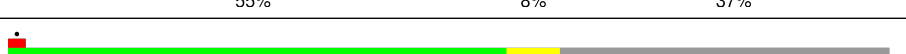
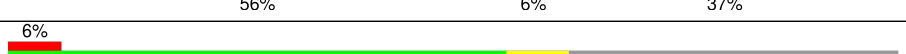
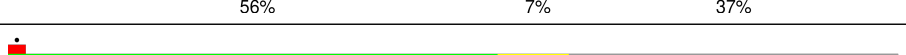
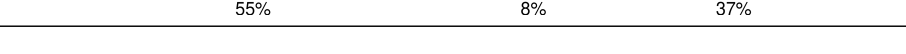
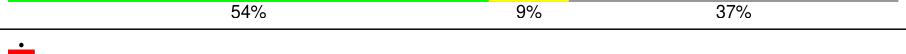


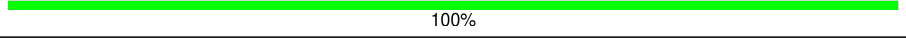
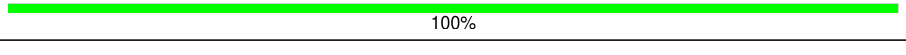
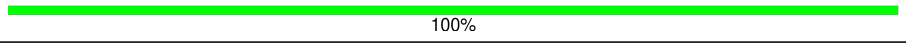
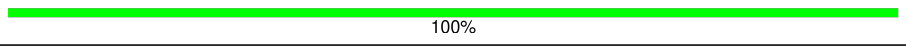
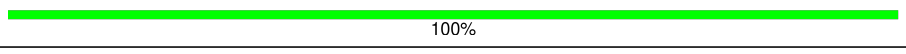
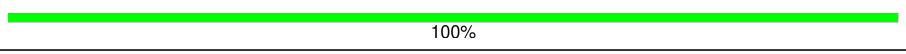
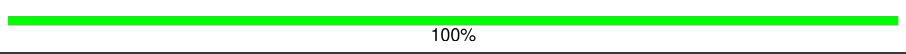
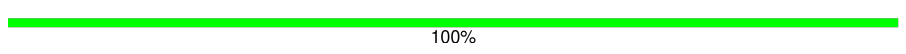
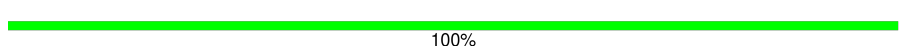
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Mol	Chain	Length	Quality of chain
6	MK	189	71% 8% 20%
7	AL	249	64% 5% 31%
7	BL	249	64% 5% 31%
7	CL	249	62% 8% 31%
7	DL	249	61% 8% 31%
7	EL	249	65% 5% 31%
7	FL	249	61% 8% 31%
7	GL	249	63% 7% 31%
7	HL	249	64% 6% 31%
7	IL	249	63% 6% 31%
7	JL	249	63% 6% 31%
7	KL	249	61% 8% 31%
7	LL	249	63% 6% 31%
7	ML	249	63% 6% 31%
8	AM	320	58% 7% 35%
8	BM	320	56% 9% 35%
8	CM	320	56% 9% 35%
8	DM	320	58% 7% 35%
8	EM	320	56% 9% 35%
8	FM	320	57% 8% 35%
8	GM	320	58% 7% 35%
8	HM	320	56% 9% 35%
8	IM	320	57% 8% 35%
8	JM	320	58% 7% 35%
8	KM	320	58% 8% 35%

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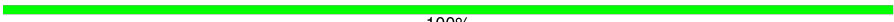
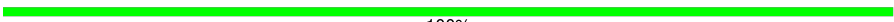










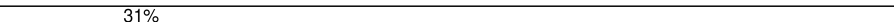

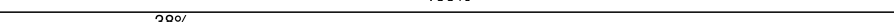
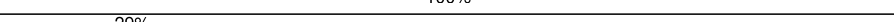
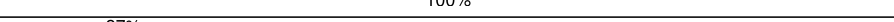
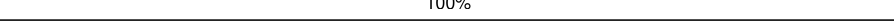
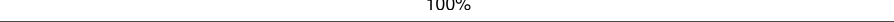
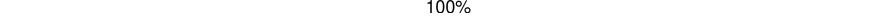


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Mol	Chain	Length	Quality of chain
8	LM	320	 58% 8% 35%
8	MM	320	 56% 9% 35%
9	AN	124	 58% 5% 37%
9	BN	124	 56% 6% 37%
9	CN	124	 56% 7% 37%
9	DN	124	 56% 7% 37%
9	EN	124	 54% 9% 37%
9	FN	124	 51% 12% 37%
9	GN	124	 55% 8% 37%
9	HN	124	 56% 6% 37%
9	IN	124	 6% 56% 7% 37%
9	JN	124	 55% 8% 37%
9	KN	124	 54% 9% 37%
9	LN	124	 56% 7% 37%
9	MN	124	 56% 7% 37%
10	AU	9	 100%
10	BU	9	 100%
10	CU	9	 100%
10	DU	9	 100%
10	EU	9	 100%
10	FU	9	 100%
10	GU	9	 100%
10	HU	9	 100%
10	IU	9	 100%
10	JU	9	 100%

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Mol	Chain	Length	Quality of chain
10	KU	9	 100%
10	LU	9	 100%
10	MU	9	 100%
11	AX	48	 35% 100%
11	BX	48	 44% 100%
11	CX	48	 23% 100%
11	DX	48	 29% 100%
11	EX	48	 25% 100%
11	FX	48	 35% 100%
11	GX	48	 21% 100%
11	HX	48	 31% 100%
11	IX	48	 27% 100%
11	JX	48	 31% 100%
11	KX	48	 31% 100%
11	LX	48	 35% 100%
11	MX	48	 38% 100%
11	VX	48	 29% 100%
11	WX	48	 27% 100%
11	XX	48	 25% 100%
11	YX	48	 33% 100%
11	ZX	48	 17% 100%

## 2 Entry composition [i](#)

There are 11 unique types of molecules in this entry. The entry contains 192370 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 IcmE protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	AG	165	1229	780	203	242	4	0	0
1	Gg	34	276	168	47	60	1	0	0
1	Hg	34	276	168	47	60	1	0	0
1	BG	165	1229	780	203	242	4	0	0
1	Bg	34	276	168	47	60	1	0	0
1	Ig	34	276	168	47	60	1	0	0
1	Jg	34	276	168	47	60	1	0	0
1	CG	165	1229	780	203	242	4	0	0
1	Kg	34	276	168	47	60	1	0	0
1	Lg	34	276	168	47	60	1	0	0
1	DG	165	1229	780	203	242	4	0	0
1	Cg	34	276	168	47	60	1	0	0
1	Mg	34	276	168	47	60	1	0	0
1	Ag	34	276	168	47	60	1	0	0
1	VG	34	276	168	47	60	1	0	0
1	WG	34	276	168	47	60	1	0	0
1	EG	165	1229	780	203	242	4	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	XG	34	Total	C	N	O	S	0	0
			276	168	47	60	1		
1	YG	34	Total	C	N	O	S	0	0
			276	168	47	60	1		
1	ZG	34	Total	C	N	O	S	0	0
			276	168	47	60	1		
1	FG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	Dg	34	Total	C	N	O	S	0	0
			276	168	47	60	1		
1	GG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	Eg	34	Total	C	N	O	S	0	0
			276	168	47	60	1		
1	Fg	34	Total	C	N	O	S	0	0
			276	168	47	60	1		
1	HG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	IG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	JG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	KG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	LG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	MG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	NG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	OG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		
1	PG	165	Total	C	N	O	S	0	0
			1229	780	203	242	4		

- Molecule 2 is a protein called DotC.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	BC	209	Total	C	N	O	S	0	0
			1667	1061	292	309	5		
2	EC	209	Total	C	N	O	S	0	0
			1667	1061	292	309	5		

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	CC	209	Total 1667	C 1061	N 292	O 309	S 5	0	0
2	DC	243	Total 1921	C 1216	N 340	O 357	S 8	0	0
2	FC	209	Total 1667	C 1061	N 292	O 309	S 5	0	0
2	GC	209	Total 1667	C 1061	N 292	O 309	S 5	0	0
2	IC	243	Total 1921	C 1216	N 340	O 357	S 8	0	0
2	JC	209	Total 1667	C 1061	N 292	O 309	S 5	0	0
2	KC	209	Total 1667	C 1061	N 292	O 309	S 5	0	0
2	MC	243	Total 1921	C 1216	N 340	O 357	S 8	0	0
2	HC	243	Total 1921	C 1216	N 340	O 357	S 8	0	0
2	LC	243	Total 1921	C 1216	N 340	O 357	S 8	0	0
2	AC	209	Total 1667	C 1061	N 292	O 309	S 5	0	0

- Molecule 3 is a protein called DotF.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	AF	63	Total 483	C 308	N 84	O 90	S 1	0	0
3	GF	63	Total 483	C 308	N 84	O 90	S 1	0	0
3	Gf	59	Total 449	C 290	N 77	O 81	S 1	0	0
3	HF	63	Total 483	C 308	N 84	O 90	S 1	0	0
3	Hf	59	Total 449	C 290	N 77	O 81	S 1	0	0
3	IF	63	Total 483	C 308	N 84	O 90	S 1	0	0
3	If	59	Total 449	C 290	N 77	O 81	S 1	0	0
3	JF	63	Total 483	C 308	N 84	O 90	S 1	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	Jf	59	449	290	77	81	1	0	0
3	KF	63	483	308	84	90	1	0	0
3	Kf	59	449	290	77	81	1	0	0
3	LF	63	483	308	84	90	1	0	0
3	Lf	59	449	290	77	81	1	0	0
3	MF	63	483	308	84	90	1	0	0
3	Mf	59	449	290	77	81	1	0	0
3	VF	63	483	308	84	90	1	0	0
3	WF	63	483	308	84	90	1	0	0
3	XF	63	483	308	84	90	1	0	0
3	YF	63	483	308	84	90	1	0	0
3	Df	59	449	290	77	81	1	0	0
3	ZF	63	483	308	84	90	1	0	0
3	Af	59	449	290	77	81	1	0	0
3	BF	63	483	308	84	90	1	0	0
3	CF	63	483	308	84	90	1	0	0
3	Bf	59	449	290	77	81	1	0	0
3	Cf	59	449	290	77	81	1	0	0
3	DF	63	483	308	84	90	1	0	0
3	EF	63	483	308	84	90	1	0	0
3	Ef	59	449	290	77	81	1	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
3	FF	63	Total	C	N	O	S	0	0
			483	308	84	90	1		
3	Ff	59	Total	C	N	O	S	0	0
			449	290	77	81	1		

- Molecule 4 is a protein called DotD.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	GD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Gd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	HD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Hd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	ID	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Dd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	Id	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	JD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Jd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	KD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Kd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	LD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Ld	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	MD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Md	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	CD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Ad	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		

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Mol	Chain	Residues	Atoms					AltConf	Trace
4	BD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Bd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	AD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Cd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	DD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	ED	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Ed	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
4	FD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
4	Fd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		

- Molecule 5 is a protein called Type IV secretion protein IcmK.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	GH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	HH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	IH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	JH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	AH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	KH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	LH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	MH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	VH	243	Total	C	N	O	S	0	0
			1875	1201	319	348	7		
5	WH	243	Total	C	N	O	S	0	0
			1875	1201	319	348	7		

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Mol	Chain	Residues	Atoms					AltConf	Trace
5	XH	243	Total	C	N	O	S	0	0
			1875	1201	319	348	7		
5	YH	243	Total	C	N	O	S	0	0
			1875	1201	319	348	7		
5	ZH	243	Total	C	N	O	S	0	0
			1875	1201	319	348	7		
5	BH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	CH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	DH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	EH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
5	FH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		

- Molecule 6 is a protein called Inner membrane lipoprotein YiaD.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	GK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	HK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	IK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	JK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	KK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	LK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	AK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	MK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	BK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	CK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	DK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		

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Mol	Chain	Residues	Atoms					AltConf	Trace
6	EK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		
6	FK	151	Total	C	N	O	S	0	0
			1175	747	209	215	4		

- Molecule 7 is a protein called Outer membrane protein, OmpA family protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	GL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	HL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	IL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	JL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	KL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	LL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	ML	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	AL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	BL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	CL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	DL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	EL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
7	FL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		

- Molecule 8 is a protein called DUF2807 domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	GM	208	Total	C	N	O	S	0	0
			1650	1046	293	308	3		
8	HM	208	Total	C	N	O	S	0	0
			1650	1046	293	308	3		

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	IM	208	1650	1046	293	308	3	0	0
8	JM	208	1650	1046	293	308	3	0	0
8	KM	208	1650	1046	293	308	3	0	0
8	LM	208	1650	1046	293	308	3	0	0
8	MM	208	1650	1046	293	308	3	0	0
8	AM	208	1650	1046	293	308	3	0	0
8	BM	208	1650	1046	293	308	3	0	0
8	CM	208	1650	1046	293	308	3	0	0
8	DM	208	1650	1046	293	308	3	0	0
8	EM	208	1650	1046	293	308	3	0	0
8	FM	208	1650	1046	293	308	3	0	0

- Molecule 9 is a protein called Neurogenic locus notch.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	GN	78	582	357	99	113	13	0	0
9	HN	78	582	357	99	113	13	0	0
9	IN	78	582	357	99	113	13	0	0
9	JN	78	582	357	99	113	13	0	0
9	KN	78	582	357	99	113	13	0	0
9	LN	78	582	357	99	113	13	0	0
9	MN	78	582	357	99	113	13	0	0
9	AN	78	582	357	99	113	13	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
9	BN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
9	CN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
9	DN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
9	EN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
9	FN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		

- Molecule 10 is a protein called Unknown protein fragment.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	GU	9	Total	C	N	O	0	0
			45	27	9	9		
10	HU	9	Total	C	N	O	0	0
			45	27	9	9		
10	IU	9	Total	C	N	O	0	0
			45	27	9	9		
10	JU	9	Total	C	N	O	0	0
			45	27	9	9		
10	KU	9	Total	C	N	O	0	0
			45	27	9	9		
10	LU	9	Total	C	N	O	0	0
			45	27	9	9		
10	MU	9	Total	C	N	O	0	0
			45	27	9	9		
10	AU	9	Total	C	N	O	0	0
			45	27	9	9		
10	BU	9	Total	C	N	O	0	0
			45	27	9	9		
10	CU	9	Total	C	N	O	0	0
			45	27	9	9		
10	DU	9	Total	C	N	O	0	0
			45	27	9	9		
10	EU	9	Total	C	N	O	0	0
			45	27	9	9		
10	FU	9	Total	C	N	O	0	0
			45	27	9	9		

- Molecule 11 is a protein called Unknown protein fragment.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	GX	48	Total 240	C 144	N 48	O 48	0	0
11	DX	48	Total 240	C 144	N 48	O 48	0	0
11	HX	48	Total 240	C 144	N 48	O 48	0	0
11	IX	48	Total 240	C 144	N 48	O 48	0	0
11	JX	48	Total 240	C 144	N 48	O 48	0	0
11	KX	48	Total 240	C 144	N 48	O 48	0	0
11	LX	48	Total 240	C 144	N 48	O 48	0	0
11	MX	48	Total 240	C 144	N 48	O 48	0	0
11	VX	48	Total 240	C 144	N 48	O 48	0	0
11	WX	48	Total 240	C 144	N 48	O 48	0	0
11	XX	48	Total 240	C 144	N 48	O 48	0	0
11	YX	48	Total 240	C 144	N 48	O 48	0	0
11	ZX	48	Total 240	C 144	N 48	O 48	0	0
11	AX	48	Total 240	C 144	N 48	O 48	0	0
11	BX	48	Total 240	C 144	N 48	O 48	0	0
11	CX	48	Total 240	C 144	N 48	O 48	0	0
11	EX	48	Total 240	C 144	N 48	O 48	0	0
11	FX	48	Total 240	C 144	N 48	O 48	0	0

































































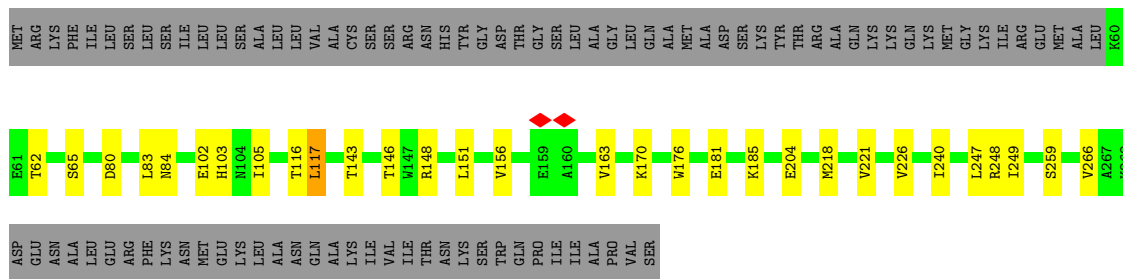




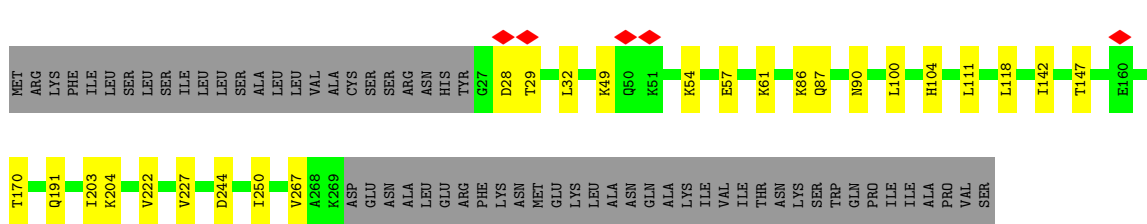




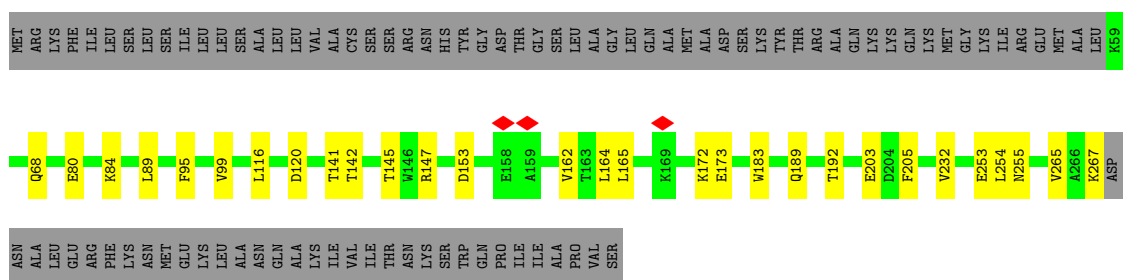




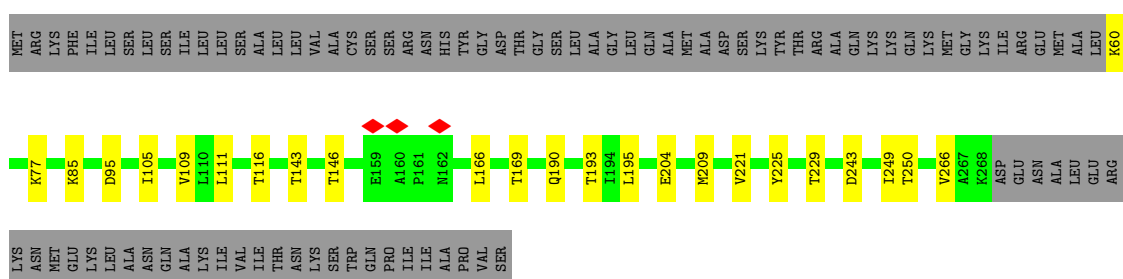
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● Molecule 2: DotC

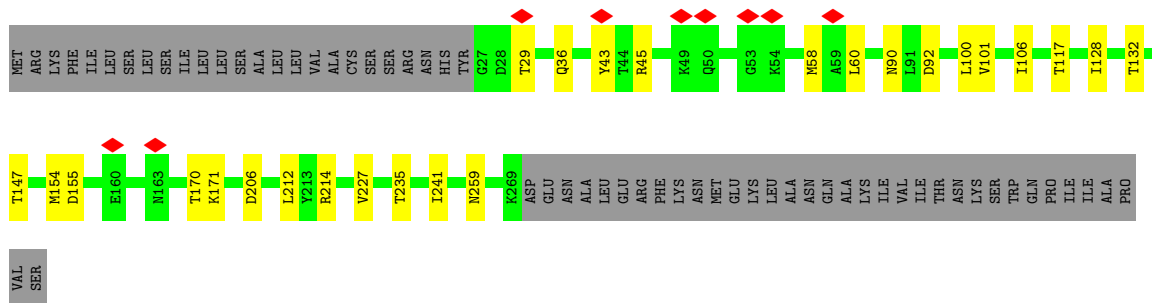


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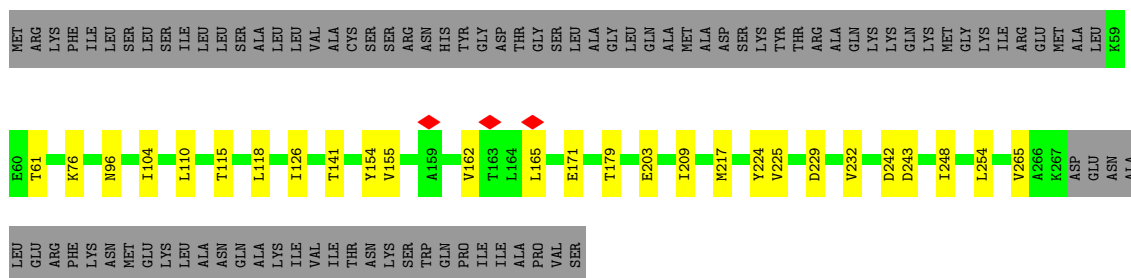


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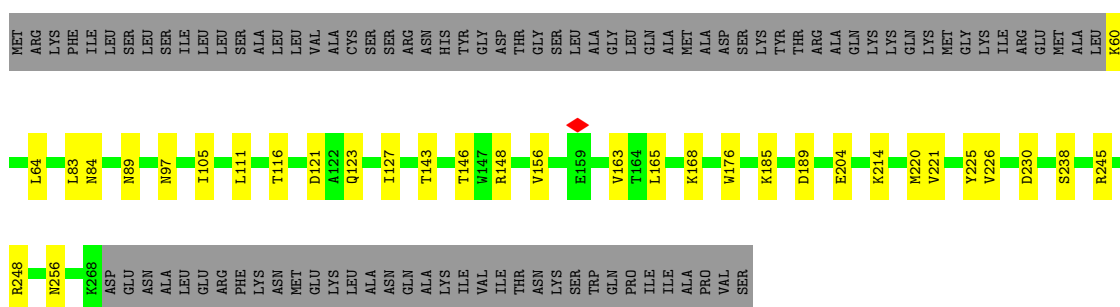




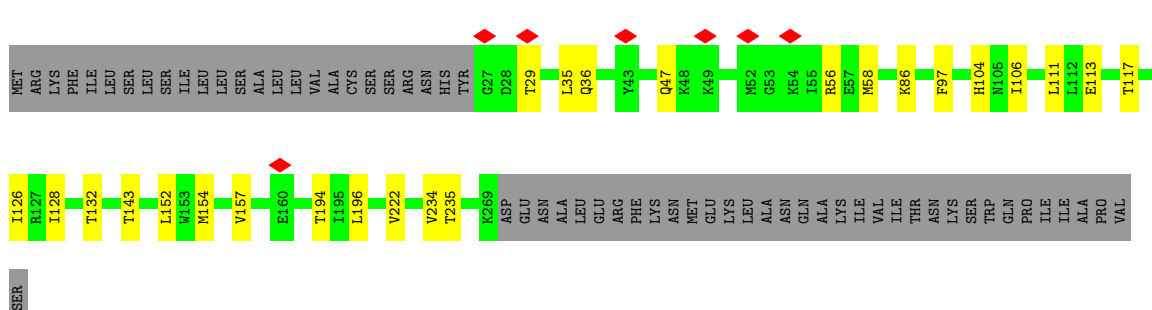
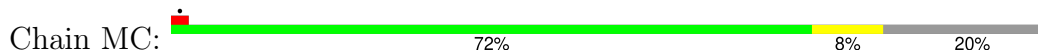
• Molecule 2: DotC



• Molecule 2: DotC



• Molecule 2: DotC



• Molecule 2: DotC





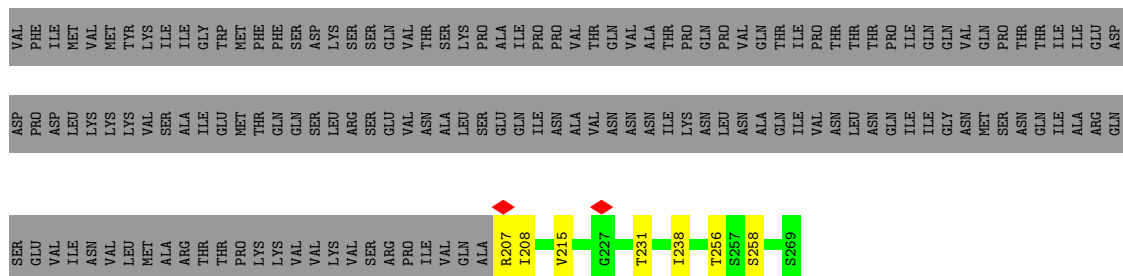




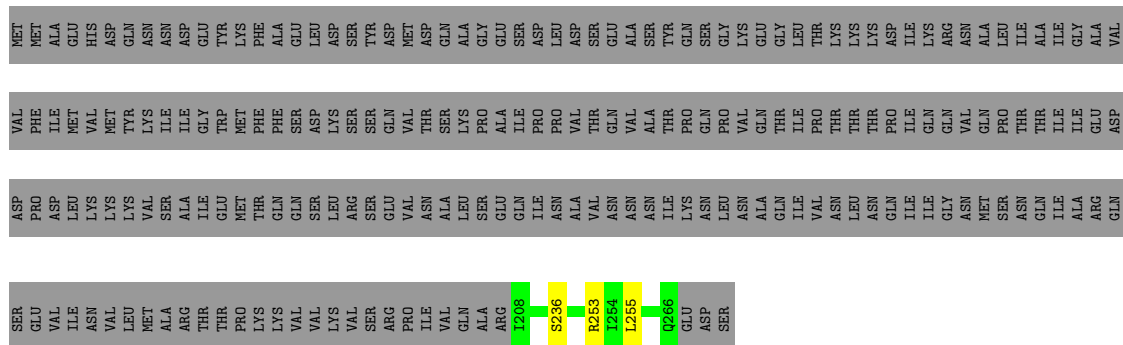




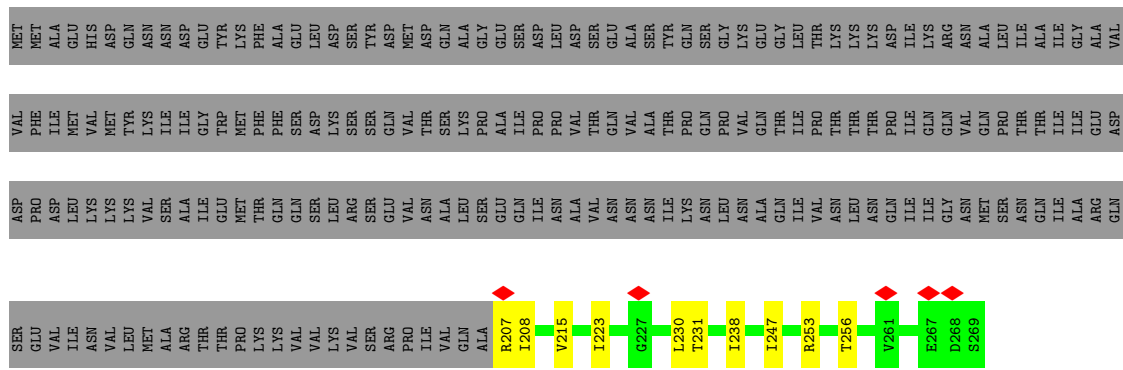




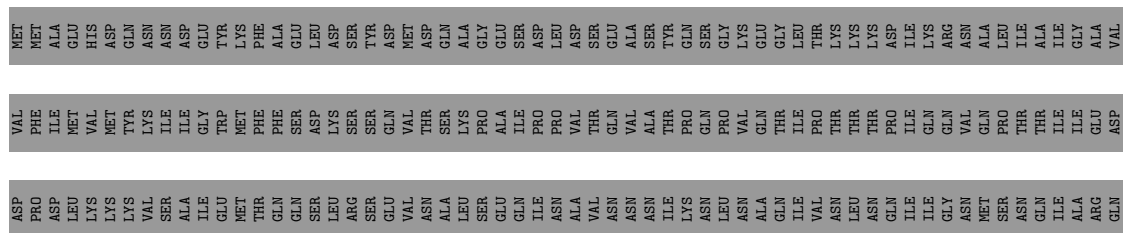
• Molecule 3: DotF



• Molecule 3: DotF



• Molecule 3: DotF

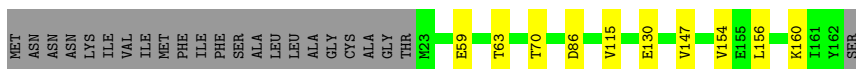




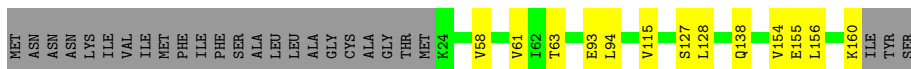
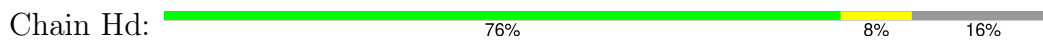




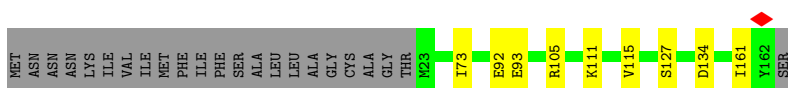
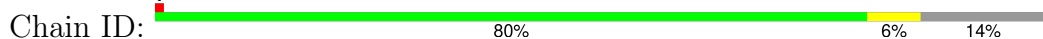




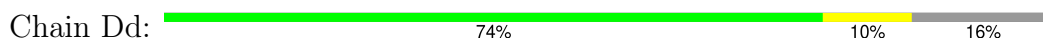
● Molecule 4: DotD



● Molecule 4: DotD



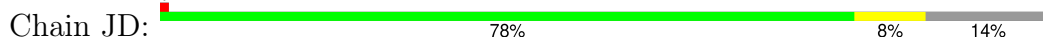
● Molecule 4: DotD



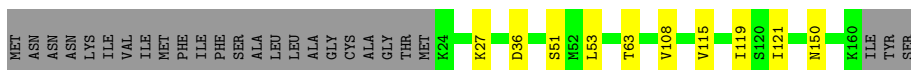
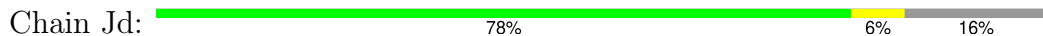
● Molecule 4: DotD



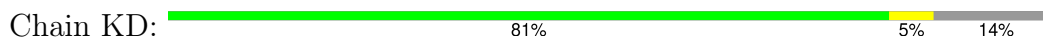
● Molecule 4: DotD

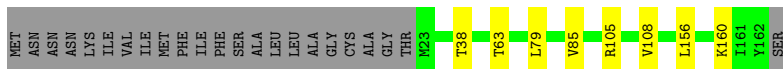


● Molecule 4: DotD

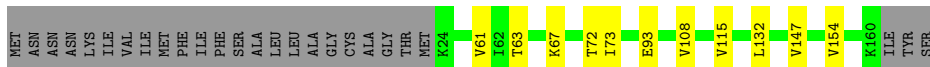
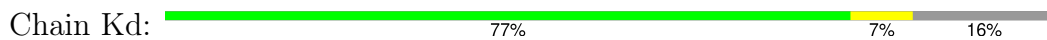


● Molecule 4: DotD

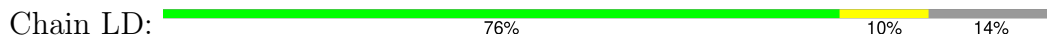




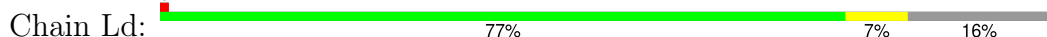
● Molecule 4: DotD



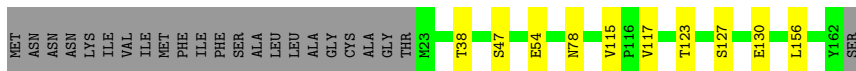
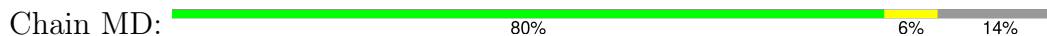
● Molecule 4: DotD



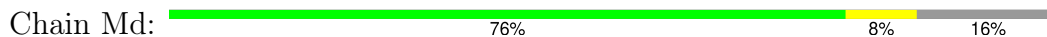
● Molecule 4: DotD



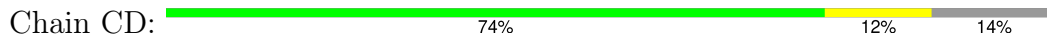
● Molecule 4: DotD



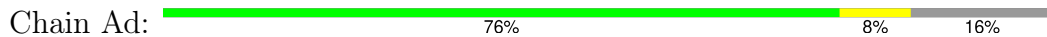
● Molecule 4: DotD



● Molecule 4: DotD

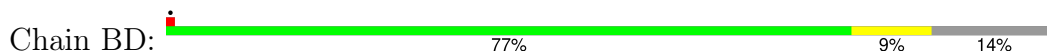


● Molecule 4: DotD





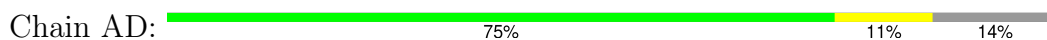
● Molecule 4: DotD



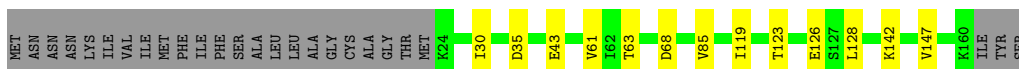
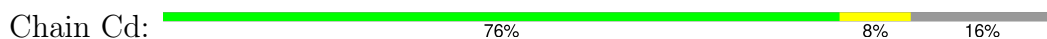
● Molecule 4: DotD



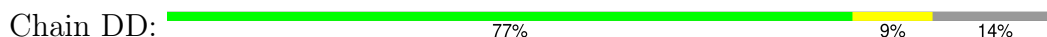
● Molecule 4: DotD



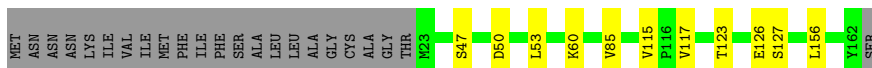
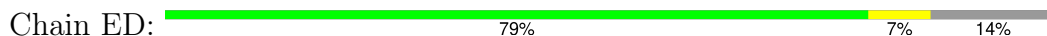
● Molecule 4: DotD



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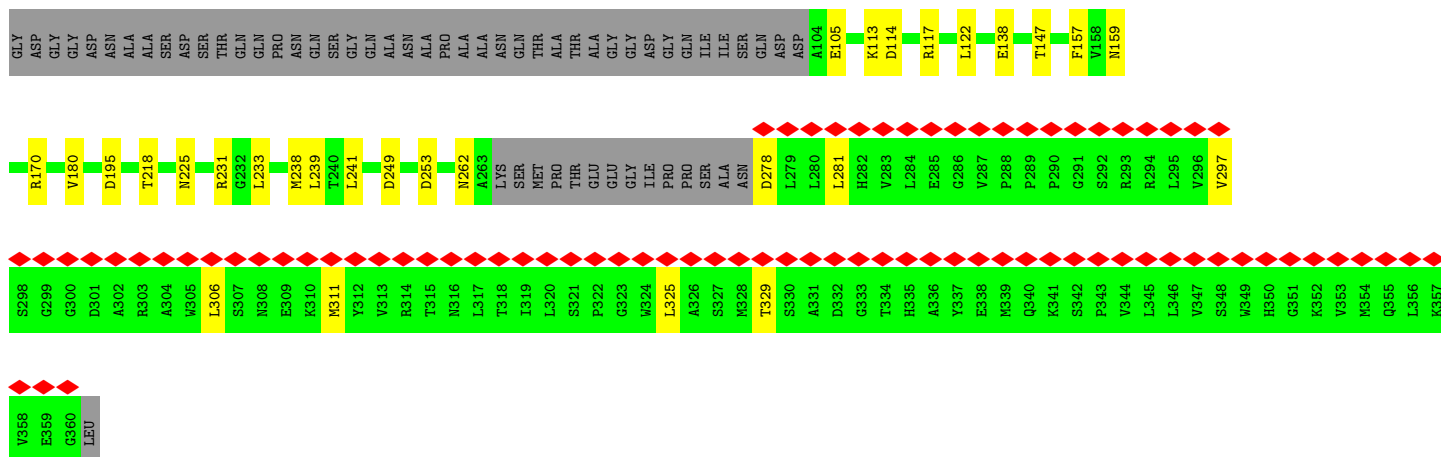




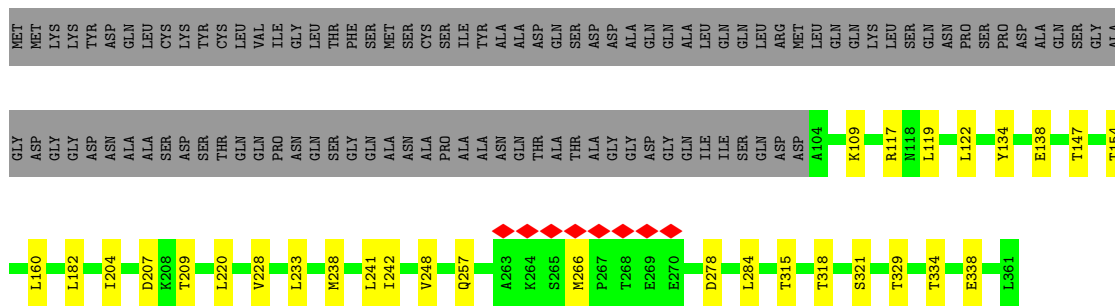




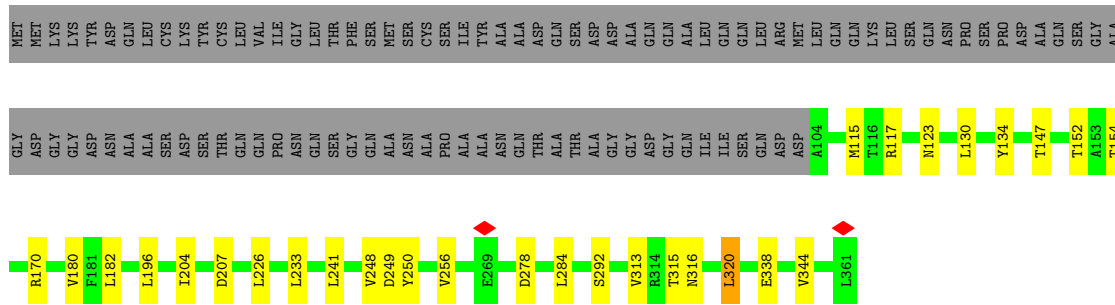




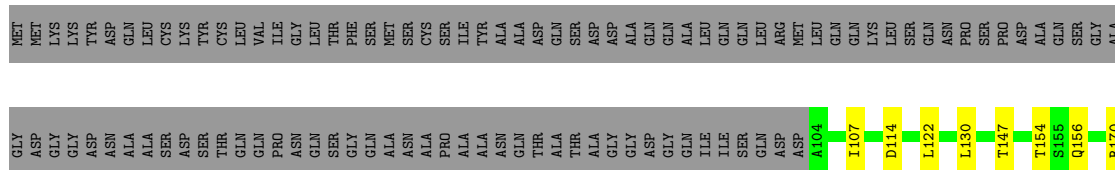
• Molecule 5: Type IV secretion protein IcmK



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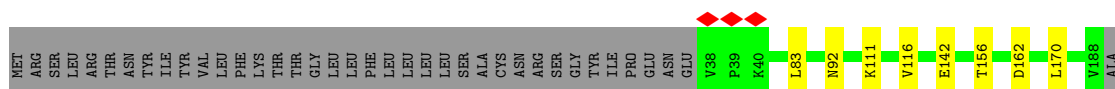
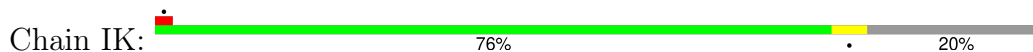
• Molecule 5: Type IV secretion protein IcmK







• Molecule 6: Inner membrane lipoprotein YiaD



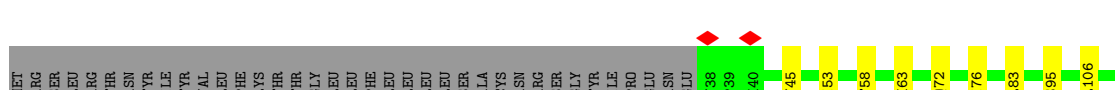
• Molecule 6: Inner membrane lipoprotein YiaD



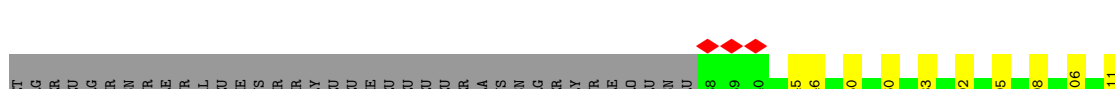
• Molecule 6: Inner membrane lipoprotein YiaD



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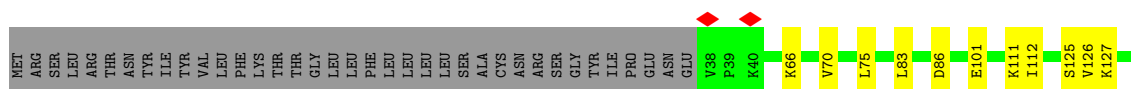
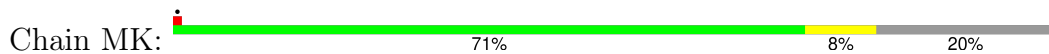


• Molecule 6: Inner membrane lipoprotein YiaD

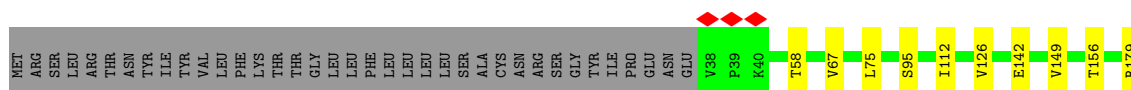
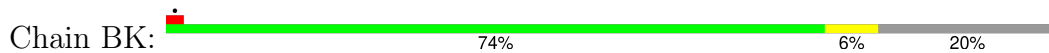




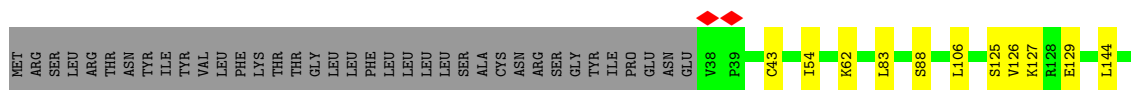
• Molecule 6: Inner membrane lipoprotein YiaD



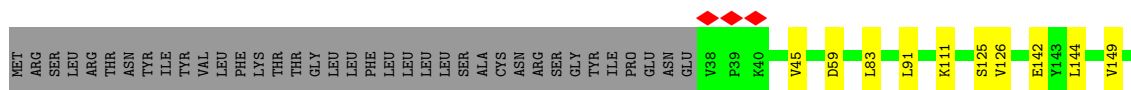
• Molecule 6: Inner membrane lipoprotein YiaD



• Molecule 6: Inner membrane lipoprotein YiaD



• Molecule 6: Inner membrane lipoprotein YiaD

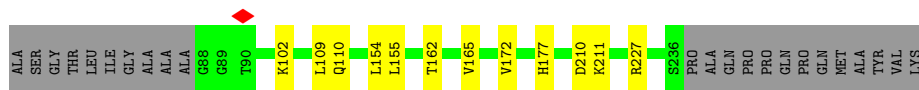


• Molecule 6: Inner membrane lipoprotein YiaD

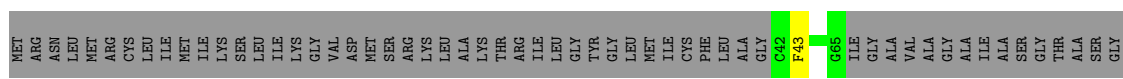




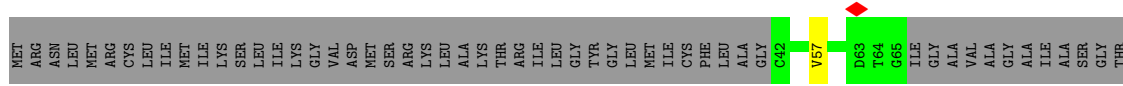




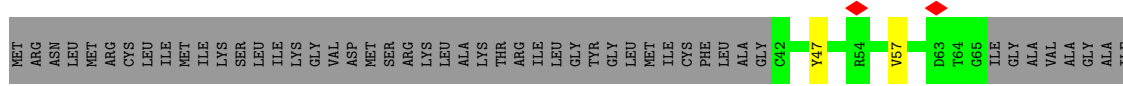
• Molecule 7: Outer membrane protein, OmpA family protein



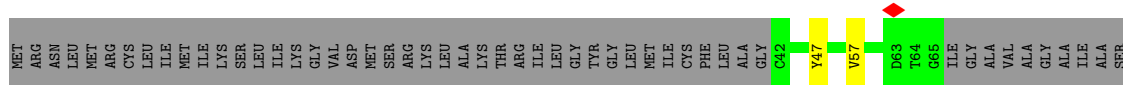
• Molecule 7: Outer membrane protein, OmpA family protein



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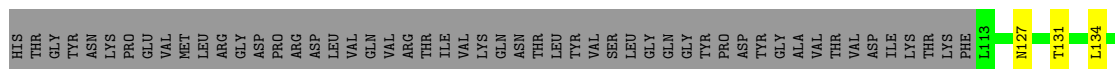
• Molecule 7: Outer membrane protein, OmpA family protein



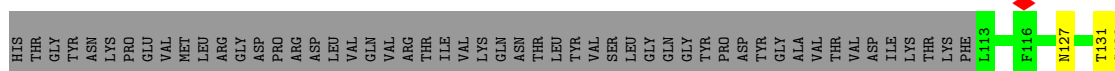
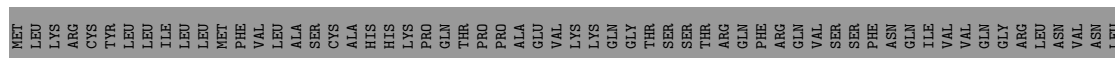




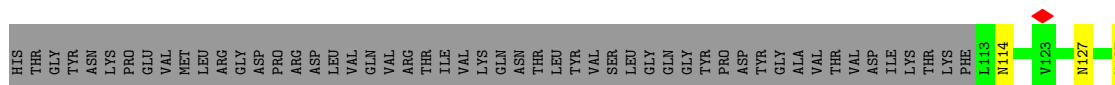
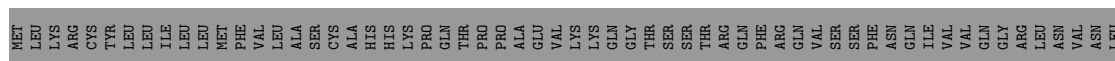




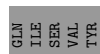
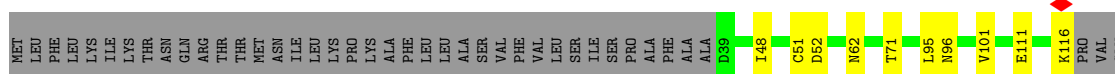
• Molecule 8: DUF2807 domain-containing protein



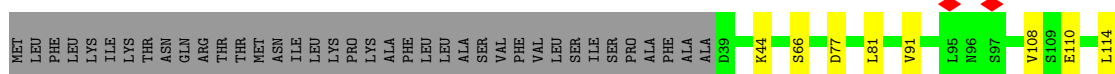
• Molecule 8: DUF2807 domain-containing protein



• Molecule 9: Neurogenic locus notch



• Molecule 9: Neurogenic locus notch



K116  
 PRO VAL GLN ILE SER VAL TYR

- Molecule 9: Neurogenic locus notch



MET LEU LEU PHE LEU LEU LYS ILE ILE LYS THR ASN GLN ARG THR THR MET MET ASN ILE ILE LEU LEU LYS PRO LYS ALA PHE LEU LEU LEU LEU ALA SER VAL PHE VAL VAL LEU LEU SER ILE SER PRO ALA PHE ALA ALA D39 Y65 S66 T67 T71 D77 L81 C84 V91 L95 N96 S97 D105

E110  
 Q115 K116  
 PRO VAL GLN ILE SER VAL TYR

- Molecule 9: Neurogenic locus notch



MET LEU LEU PHE LEU LEU LYS ILE ILE LYS THR ASN GLN ARG THR THR MET MET ASN ILE ILE LEU LEU LYS PRO LYS ALA PHE LEU LEU LEU LEU ALA SER VAL PHE VAL VAL LEU LEU SER ILE SER PRO ALA PHE ALA ALA D39 Y65 M76 D77 R82 G83 C84 C85 L86 V91 S97 L100 V101 M104

K116  
 PRO VAL GLN ILE SER VAL TYR

- Molecule 9: Neurogenic locus notch



MET LEU LEU PHE LEU LYS ILE ILE LYS THR ASN GLN ARG THR THR MET MET ASN ILE ILE LEU LEU LYS PRO LYS ALA PHE LEU LEU LEU LEU ALA SER VAL PHE VAL VAL LEU LEU SER ILE SER PRO ALA PHE ALA ALA D39 N62 Y69 C70 T71 L78 L81 L95 L100 E110 L114 Q115 K116 PRO

VAL GLU GLN ILE SER VAL TYR

- Molecule 9: Neurogenic locus notch

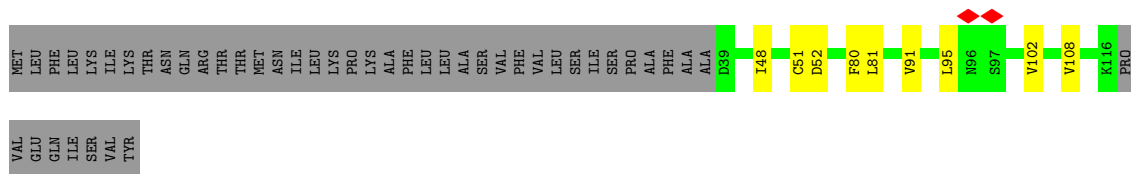


MET LEU LEU PHE LEU LYS ILE ILE LYS THR ASN GLN ARG THR THR MET MET ASN ILE ILE LEU LEU LYS PRO LYS ALA PHE LEU LEU LEU LEU ALA SER VAL PHE VAL VAL LEU LEU SER ILE SER PRO ALA PHE ALA ALA D39 V59 F64 M62 V91 L95 N96 S97 V101 V102 E110 L114 Q115 K116

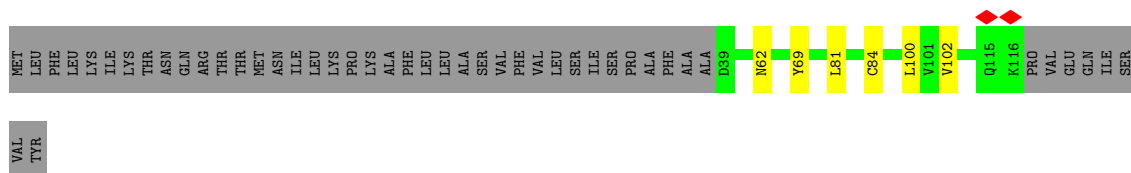
PRO VAL GLU GLN ILE SER VAL TYR

- Molecule 9: Neurogenic locus notch

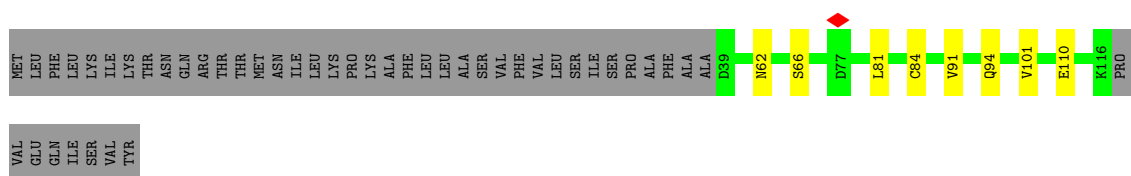




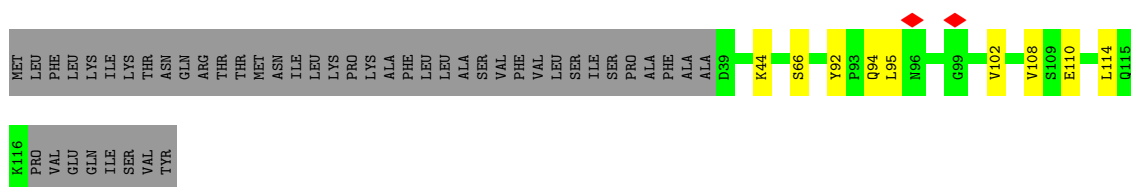
● Molecule 9: Neurogenic locus notch



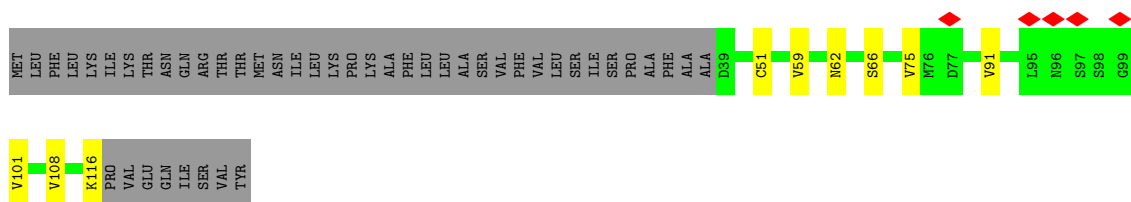
● Molecule 9: Neurogenic locus notch



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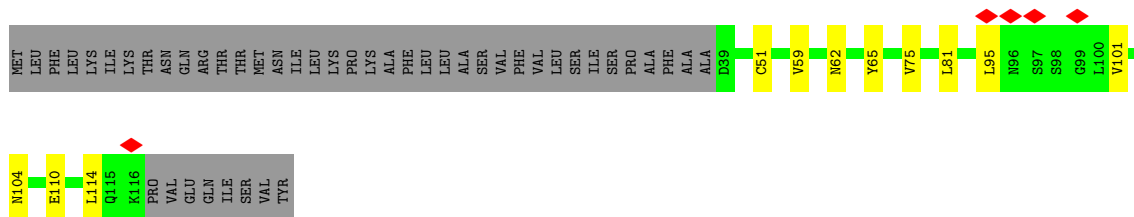


● Molecule 9: Neurogenic locus notch

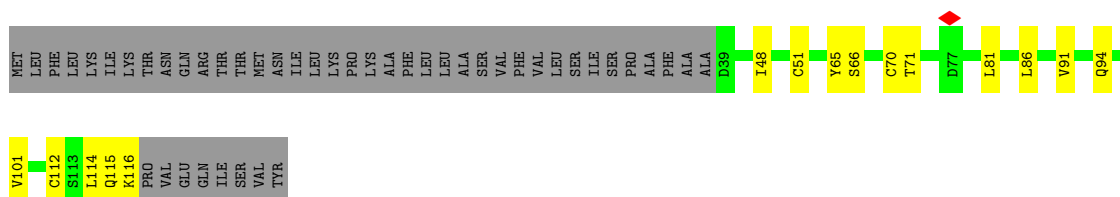


● Molecule 9: Neurogenic locus notch





- Molecule 9: Neurogenic locus notch



- Molecule 10: Unknown protein fragment



There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment



There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment



There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment



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- Molecule 10: Unknown protein fragment



There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment



There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment

Chain MU:  100%

There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment

Chain AU:  100%

There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment

Chain BU:  100%

There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment

Chain CU:  100%

There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment

Chain DU:  100%

There are no outlier residues recorded for this chain.

- Molecule 10: Unknown protein fragment

Chain EU:  100%

There are no outlier residues recorded for this chain.

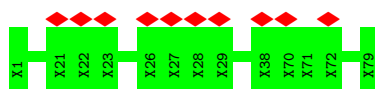
- Molecule 10: Unknown protein fragment

Chain FU:  100%

There are no outlier residues recorded for this chain.

- Molecule 11: Unknown protein fragment

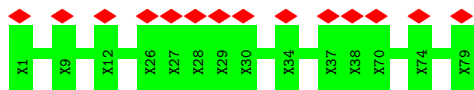
Chain GX:  21%  
100%



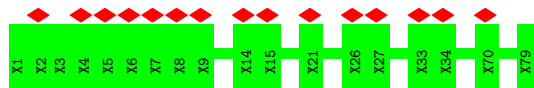
- Molecule 11: Unknown protein fragment

Chain DX:  29%  
100%

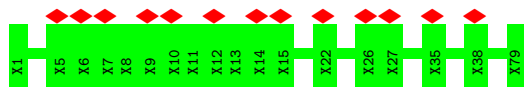




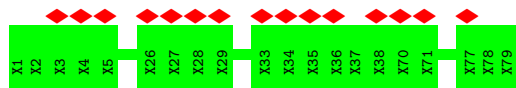
• Molecule 11: Unknown protein fragment



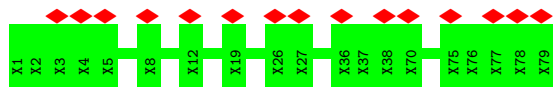
• Molecule 11: Unknown protein fragment



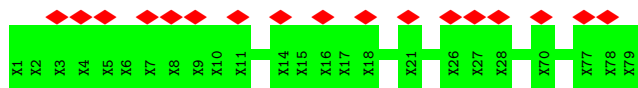
• Molecule 11: Unknown protein fragment



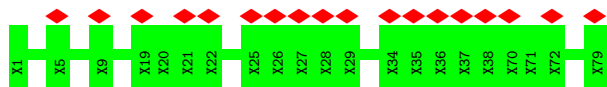
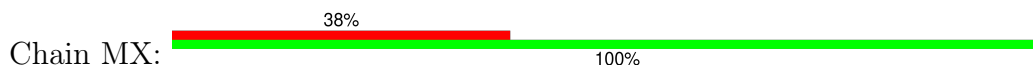
• Molecule 11: Unknown protein fragment



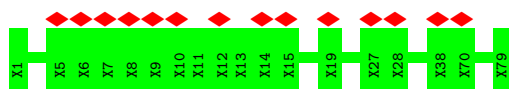
• Molecule 11: Unknown protein fragment



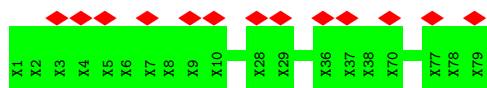
• Molecule 11: Unknown protein fragment



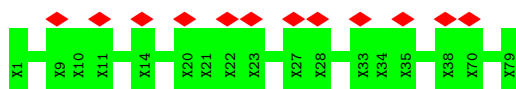
• Molecule 11: Unknown protein fragment



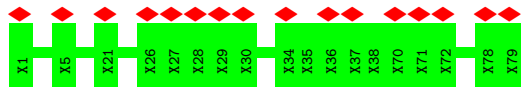
- Molecule 11: Unknown protein fragment



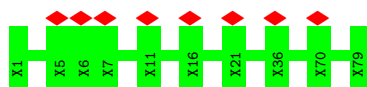
- Molecule 11: Unknown protein fragment



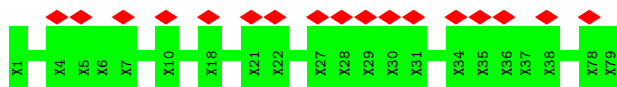
- Molecule 11: Unknown protein fragment



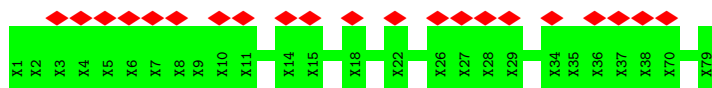
- Molecule 11: Unknown protein fragment



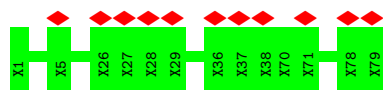
- Molecule 11: Unknown protein fragment



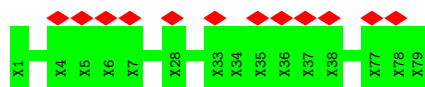
- Molecule 11: Unknown protein fragment



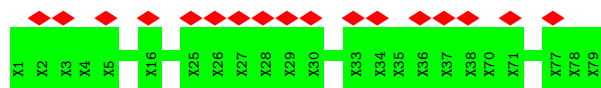
- Molecule 11: Unknown protein fragment



- Molecule 11: Unknown protein fragment



- Molecule 11: Unknown protein fragment



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	79720	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	9.547	Depositor
Minimum map value	-4.150	Depositor
Average map value	0.089	Depositor
Map value standard deviation	0.575	Depositor
Recommended contour level	2.25	Depositor
Map size ( $\text{\AA}$ )	561.0, 561.0, 561.0	wwPDB
Map dimensions	250, 250, 250	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	2.244, 2.244, 2.244	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	AG	0.32	0/1250	0.57	0/1699
1	Ag	0.31	0/278	0.46	0/377
1	BG	0.32	0/1250	0.58	0/1699
1	Bg	0.29	0/278	0.48	0/377
1	CG	0.33	0/1250	0.57	0/1699
1	Cg	0.28	0/278	0.47	0/377
1	DG	0.32	0/1250	0.56	0/1699
1	Dg	0.30	0/278	0.48	0/377
1	EG	0.31	0/1250	0.57	0/1699
1	Eg	0.30	0/278	0.46	0/377
1	FG	0.31	0/1250	0.56	0/1699
1	Fg	0.30	0/278	0.47	0/377
1	GG	0.32	0/1250	0.56	0/1699
1	Gg	0.31	0/278	0.50	0/377
1	HG	0.31	0/1250	0.56	0/1699
1	Hg	0.29	0/278	0.48	0/377
1	IG	0.32	0/1250	0.56	0/1699
1	Ig	0.31	0/278	0.48	0/377
1	JG	0.32	0/1250	0.56	0/1699
1	Jg	0.31	0/278	0.50	0/377
1	KG	0.33	0/1250	0.59	0/1699
1	Kg	0.31	0/278	0.48	0/377
1	LG	0.34	0/1250	0.56	0/1699
1	Lg	0.31	0/278	0.50	0/377
1	MG	0.33	0/1250	0.58	0/1699
1	Mg	0.32	0/278	0.48	0/377
1	NG	0.34	0/1250	0.58	0/1699
1	OG	0.34	0/1250	0.58	0/1699
1	PG	0.32	0/1250	0.58	0/1699
1	VG	0.31	0/278	0.52	0/377
1	WG	0.30	0/278	0.52	0/377
1	XG	0.32	0/278	0.51	0/377
1	YG	0.34	0/278	0.48	0/377
1	ZG	0.30	0/278	0.52	0/377

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
2	AC	0.38	0/1702	0.55	0/2315
2	BC	0.39	0/1702	0.57	0/2315
2	CC	0.39	0/1702	0.59	1/2315 (0.0%)
2	DC	0.38	0/1957	0.55	0/2651
2	EC	0.39	0/1702	0.55	0/2315
2	FC	0.39	0/1702	0.57	0/2315
2	GC	0.39	0/1702	0.55	0/2315
2	HC	0.38	0/1957	0.54	0/2651
2	IC	0.37	0/1957	0.53	0/2651
2	JC	0.39	0/1702	0.56	0/2315
2	KC	0.40	0/1702	0.57	0/2315
2	LC	0.38	0/1957	0.55	0/2651
2	MC	0.36	0/1957	0.54	0/2651
3	AF	0.28	0/490	0.55	0/660
3	Af	0.32	0/456	0.54	0/615
3	BF	0.29	0/490	0.54	0/660
3	Bf	0.30	0/456	0.54	0/615
3	CF	0.28	0/490	0.57	0/660
3	Cf	0.31	0/456	0.53	0/615
3	DF	0.29	0/490	0.54	0/660
3	Df	0.31	0/456	0.54	0/615
3	EF	0.28	0/490	0.53	0/660
3	Ef	0.30	0/456	0.56	0/615
3	FF	0.28	0/490	0.55	0/660
3	Ff	0.33	0/456	0.52	0/615
3	GF	0.30	0/490	0.55	0/660
3	Gf	0.30	0/456	0.54	0/615
3	HF	0.28	0/490	0.55	0/660
3	Hf	0.31	0/456	0.53	0/615
3	IF	0.30	0/490	0.54	0/660
3	If	0.31	0/456	0.57	0/615
3	JF	0.31	0/490	0.54	0/660
3	Jf	0.31	0/456	0.55	0/615
3	KF	0.28	0/490	0.54	0/660
3	Kf	0.31	0/456	0.55	0/615
3	LF	0.28	0/490	0.54	0/660
3	Lf	0.30	0/456	0.54	0/615
3	MF	0.27	0/490	0.55	0/660
3	Mf	0.30	0/456	0.56	0/615
3	VF	0.29	0/490	0.57	0/660
3	WF	0.30	0/490	0.56	0/660
3	XF	0.29	0/490	0.55	0/660
3	YF	0.29	0/490	0.54	0/660

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
3	ZF	0.29	0/490	0.54	0/660
4	AD	0.37	0/1107	0.56	0/1502
4	Ad	0.36	0/1078	0.52	0/1463
4	BD	0.38	0/1107	0.57	0/1502
4	Bd	0.37	0/1078	0.54	0/1463
4	CD	0.38	0/1107	0.58	0/1502
4	Cd	0.36	0/1078	0.54	0/1463
4	DD	0.38	0/1107	0.57	0/1502
4	Dd	0.35	0/1078	0.53	0/1463
4	ED	0.37	0/1107	0.56	0/1502
4	Ed	0.35	0/1078	0.52	0/1463
4	FD	0.37	0/1107	0.56	0/1502
4	Fd	0.35	0/1078	0.52	0/1463
4	GD	0.36	0/1107	0.56	0/1502
4	Gd	0.36	0/1078	0.52	0/1463
4	HD	0.38	0/1107	0.55	0/1502
4	Hd	0.35	0/1078	0.54	0/1463
4	ID	0.37	0/1107	0.55	0/1502
4	Id	0.36	0/1078	0.54	0/1463
4	JD	0.38	0/1107	0.55	0/1502
4	Jd	0.35	0/1078	0.51	0/1463
4	KD	0.39	0/1107	0.55	0/1502
4	Kd	0.35	0/1078	0.52	0/1463
4	LD	0.36	0/1107	0.54	0/1502
4	Ld	0.36	0/1078	0.55	0/1463
4	MD	0.38	0/1107	0.56	0/1502
4	Md	0.34	0/1078	0.52	0/1463
5	AH	0.35	0/2033	0.55	0/2775
5	BH	0.35	0/2033	0.57	0/2775
5	CH	0.35	0/2033	0.56	0/2775
5	DH	0.35	0/2033	0.54	0/2775
5	EH	0.34	0/2033	0.54	0/2775
5	FH	0.34	0/2033	0.55	0/2775
5	GH	0.35	0/2033	0.55	0/2775
5	HH	0.35	0/2033	0.55	0/2775
5	IH	0.34	0/2033	0.55	0/2775
5	JH	0.34	0/2033	0.55	0/2775
5	KH	0.34	0/2033	0.54	0/2775
5	LH	0.35	0/2033	0.55	0/2775
5	MH	0.36	0/2033	0.55	0/2775
5	VH	0.30	0/1921	0.52	0/2620
5	WH	0.29	0/1921	0.53	0/2620
5	XH	0.29	0/1921	0.53	0/2620

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
5	YH	0.31	0/1921	0.53	0/2620
5	ZH	0.30	0/1921	0.55	0/2620
6	AK	0.38	0/1195	0.56	0/1616
6	BK	0.40	0/1195	0.58	0/1616
6	CK	0.38	0/1195	0.56	0/1616
6	DK	0.39	0/1195	0.56	0/1616
6	EK	0.39	0/1195	0.58	0/1616
6	FK	0.38	0/1195	0.57	0/1616
6	GK	0.39	0/1195	0.57	0/1616
6	HK	0.39	0/1195	0.57	0/1616
6	IK	0.39	0/1195	0.56	0/1616
6	JK	0.40	0/1195	0.57	0/1616
6	KK	0.41	0/1195	0.56	0/1616
6	LK	0.37	0/1195	0.58	0/1616
6	MK	0.39	0/1195	0.56	0/1616
7	AL	0.37	0/1417	0.58	0/1912
7	BL	0.36	0/1417	0.59	0/1912
7	CL	0.38	0/1417	0.59	0/1912
7	DL	0.36	0/1417	0.59	0/1912
7	EL	0.38	0/1417	0.59	0/1912
7	FL	0.39	0/1417	0.59	0/1912
7	GL	0.38	0/1417	0.57	0/1912
7	HL	0.38	0/1417	0.58	0/1912
7	IL	0.39	0/1417	0.60	0/1912
7	JL	0.39	0/1417	0.58	0/1912
7	KL	0.38	0/1417	0.60	0/1912
7	LL	0.38	0/1417	0.59	0/1912
7	ML	0.37	0/1417	0.59	0/1912
8	AM	0.35	0/1678	0.59	0/2262
8	BM	0.35	0/1678	0.60	0/2262
8	CM	0.34	0/1678	0.62	0/2262
8	DM	0.33	0/1678	0.58	0/2262
8	EM	0.33	0/1678	0.60	0/2262
8	FM	0.34	0/1678	0.58	0/2262
8	GM	0.34	0/1678	0.60	0/2262
8	HM	0.34	0/1678	0.58	0/2262
8	IM	0.34	0/1678	0.60	0/2262
8	JM	0.34	0/1678	0.61	1/2262 (0.0%)
8	KM	0.34	0/1678	0.59	0/2262
8	LM	0.34	0/1678	0.58	0/2262
8	MM	0.33	0/1678	0.60	0/2262
9	AN	0.39	0/593	0.55	0/799
9	BN	0.42	0/593	0.61	0/799



Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
9	CN	0.42	0/593	0.54	0/799
9	DN	0.39	0/593	0.55	0/799
9	EN	0.40	0/593	0.55	0/799
9	FN	0.39	0/593	0.56	0/799
9	GN	0.42	0/593	0.54	0/799
9	HN	0.39	0/593	0.56	0/799
9	IN	0.40	0/593	0.57	0/799
9	JN	0.39	0/593	0.58	0/799
9	KN	0.41	0/593	0.59	0/799
9	LN	0.42	0/593	0.56	0/799
9	MN	0.39	0/593	0.57	0/799
All	All	0.35	0/191071	0.56	2/258997 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	LC	0	1
5	CH	0	1
All	All	0	2

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	CC	117	LEU	CA-CB-CG	5.73	128.47	115.30
8	JM	134	LEU	CA-CB-CG	5.59	128.17	115.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
5	CH	320	LEU	Peptide
2	LC	30	GLY	Peptide

## 5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

## 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	AG	161/1048 (15%)	147 (91%)	14 (9%)	0	100	100
1	Ag	32/1048 (3%)	32 (100%)	0	0	100	100
1	BG	161/1048 (15%)	143 (89%)	18 (11%)	0	100	100
1	Bg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	CG	161/1048 (15%)	146 (91%)	15 (9%)	0	100	100
1	Cg	32/1048 (3%)	32 (100%)	0	0	100	100
1	DG	161/1048 (15%)	152 (94%)	9 (6%)	0	100	100
1	Dg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	EG	161/1048 (15%)	150 (93%)	11 (7%)	0	100	100
1	Eg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	FG	161/1048 (15%)	149 (92%)	12 (8%)	0	100	100
1	Fg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	GG	161/1048 (15%)	147 (91%)	14 (9%)	0	100	100
1	Gg	32/1048 (3%)	30 (94%)	2 (6%)	0	100	100
1	HG	161/1048 (15%)	152 (94%)	9 (6%)	0	100	100
1	Hg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	IG	161/1048 (15%)	154 (96%)	7 (4%)	0	100	100
1	Ig	32/1048 (3%)	32 (100%)	0	0	100	100
1	JG	161/1048 (15%)	153 (95%)	8 (5%)	0	100	100
1	Jg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	KG	161/1048 (15%)	153 (95%)	8 (5%)	0	100	100
1	Kg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	LG	161/1048 (15%)	150 (93%)	11 (7%)	0	100	100
1	Lg	32/1048 (3%)	32 (100%)	0	0	100	100
1	MG	161/1048 (15%)	147 (91%)	14 (9%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	Mg	32/1048 (3%)	30 (94%)	2 (6%)	0	100	100
1	NG	161/1048 (15%)	151 (94%)	10 (6%)	0	100	100
1	OG	161/1048 (15%)	148 (92%)	13 (8%)	0	100	100
1	PG	161/1048 (15%)	149 (92%)	12 (8%)	0	100	100
1	VG	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	WG	32/1048 (3%)	32 (100%)	0	0	100	100
1	XG	32/1048 (3%)	30 (94%)	2 (6%)	0	100	100
1	YG	32/1048 (3%)	30 (94%)	2 (6%)	0	100	100
1	ZG	32/1048 (3%)	32 (100%)	0	0	100	100
2	AC	207/303 (68%)	191 (92%)	16 (8%)	0	100	100
2	BC	207/303 (68%)	195 (94%)	12 (6%)	0	100	100
2	CC	207/303 (68%)	188 (91%)	19 (9%)	0	100	100
2	DC	241/303 (80%)	229 (95%)	12 (5%)	0	100	100
2	EC	207/303 (68%)	192 (93%)	15 (7%)	0	100	100
2	FC	207/303 (68%)	189 (91%)	18 (9%)	0	100	100
2	GC	207/303 (68%)	192 (93%)	15 (7%)	0	100	100
2	HC	241/303 (80%)	227 (94%)	14 (6%)	0	100	100
2	IC	241/303 (80%)	226 (94%)	15 (6%)	0	100	100
2	JC	207/303 (68%)	187 (90%)	20 (10%)	0	100	100
2	KC	207/303 (68%)	190 (92%)	17 (8%)	0	100	100
2	LC	241/303 (80%)	226 (94%)	15 (6%)	0	100	100
2	MC	241/303 (80%)	229 (95%)	12 (5%)	0	100	100
3	AF	61/269 (23%)	56 (92%)	5 (8%)	0	100	100
3	Af	57/269 (21%)	53 (93%)	4 (7%)	0	100	100
3	BF	61/269 (23%)	60 (98%)	1 (2%)	0	100	100
3	Bf	57/269 (21%)	52 (91%)	5 (9%)	0	100	100
3	CF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
3	Cf	57/269 (21%)	51 (90%)	6 (10%)	0	100	100
3	DF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
3	Df	57/269 (21%)	54 (95%)	3 (5%)	0	100	100
3	EF	61/269 (23%)	58 (95%)	3 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	Ef	57/269 (21%)	52 (91%)	5 (9%)	0	100	100
3	FF	61/269 (23%)	58 (95%)	3 (5%)	0	100	100
3	Ff	57/269 (21%)	52 (91%)	5 (9%)	0	100	100
3	GF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
3	Gf	57/269 (21%)	53 (93%)	4 (7%)	0	100	100
3	HF	61/269 (23%)	55 (90%)	6 (10%)	0	100	100
3	Hf	57/269 (21%)	52 (91%)	5 (9%)	0	100	100
3	IF	61/269 (23%)	56 (92%)	5 (8%)	0	100	100
3	If	57/269 (21%)	54 (95%)	3 (5%)	0	100	100
3	JF	61/269 (23%)	56 (92%)	5 (8%)	0	100	100
3	Jf	57/269 (21%)	54 (95%)	3 (5%)	0	100	100
3	KF	61/269 (23%)	60 (98%)	1 (2%)	0	100	100
3	Kf	57/269 (21%)	53 (93%)	4 (7%)	0	100	100
3	LF	61/269 (23%)	56 (92%)	5 (8%)	0	100	100
3	Lf	57/269 (21%)	55 (96%)	2 (4%)	0	100	100
3	MF	61/269 (23%)	55 (90%)	6 (10%)	0	100	100
3	Mf	57/269 (21%)	54 (95%)	3 (5%)	0	100	100
3	VF	61/269 (23%)	59 (97%)	2 (3%)	0	100	100
3	WF	61/269 (23%)	54 (88%)	7 (12%)	0	100	100
3	XF	61/269 (23%)	58 (95%)	3 (5%)	0	100	100
3	YF	61/269 (23%)	56 (92%)	5 (8%)	0	100	100
3	ZF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
4	AD	138/163 (85%)	130 (94%)	8 (6%)	0	100	100
4	Ad	135/163 (83%)	133 (98%)	2 (2%)	0	100	100
4	BD	138/163 (85%)	127 (92%)	10 (7%)	1 (1%)	19	56
4	Bd	135/163 (83%)	130 (96%)	5 (4%)	0	100	100
4	CD	138/163 (85%)	131 (95%)	7 (5%)	0	100	100
4	Cd	135/163 (83%)	130 (96%)	5 (4%)	0	100	100
4	DD	138/163 (85%)	127 (92%)	11 (8%)	0	100	100
4	Dd	135/163 (83%)	129 (96%)	6 (4%)	0	100	100
4	ED	138/163 (85%)	132 (96%)	6 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	Ed	135/163 (83%)	131 (97%)	4 (3%)	0	100	100
4	FD	138/163 (85%)	130 (94%)	8 (6%)	0	100	100
4	Fd	135/163 (83%)	128 (95%)	7 (5%)	0	100	100
4	GD	138/163 (85%)	128 (93%)	10 (7%)	0	100	100
4	Gd	135/163 (83%)	126 (93%)	9 (7%)	0	100	100
4	HD	138/163 (85%)	131 (95%)	7 (5%)	0	100	100
4	Hd	135/163 (83%)	126 (93%)	9 (7%)	0	100	100
4	ID	138/163 (85%)	131 (95%)	7 (5%)	0	100	100
4	Id	135/163 (83%)	128 (95%)	7 (5%)	0	100	100
4	JD	138/163 (85%)	129 (94%)	9 (6%)	0	100	100
4	Jd	135/163 (83%)	127 (94%)	8 (6%)	0	100	100
4	KD	138/163 (85%)	129 (94%)	9 (6%)	0	100	100
4	Kd	135/163 (83%)	130 (96%)	5 (4%)	0	100	100
4	LD	138/163 (85%)	130 (94%)	8 (6%)	0	100	100
4	Ld	135/163 (83%)	131 (97%)	4 (3%)	0	100	100
4	MD	138/163 (85%)	133 (96%)	5 (4%)	0	100	100
4	Md	135/163 (83%)	126 (93%)	9 (7%)	0	100	100
5	AH	256/361 (71%)	235 (92%)	21 (8%)	0	100	100
5	BH	256/361 (71%)	244 (95%)	12 (5%)	0	100	100
5	CH	256/361 (71%)	242 (94%)	14 (6%)	0	100	100
5	DH	256/361 (71%)	244 (95%)	12 (5%)	0	100	100
5	EH	256/361 (71%)	247 (96%)	9 (4%)	0	100	100
5	FH	256/361 (71%)	244 (95%)	12 (5%)	0	100	100
5	GH	256/361 (71%)	246 (96%)	10 (4%)	0	100	100
5	HH	256/361 (71%)	242 (94%)	14 (6%)	0	100	100
5	IH	256/361 (71%)	240 (94%)	16 (6%)	0	100	100
5	JH	256/361 (71%)	244 (95%)	12 (5%)	0	100	100
5	KH	256/361 (71%)	242 (94%)	14 (6%)	0	100	100
5	LH	256/361 (71%)	241 (94%)	15 (6%)	0	100	100
5	MH	256/361 (71%)	245 (96%)	11 (4%)	0	100	100
5	VH	239/361 (66%)	229 (96%)	10 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	WH	239/361 (66%)	229 (96%)	10 (4%)	0	100	100
5	XH	239/361 (66%)	232 (97%)	7 (3%)	0	100	100
5	YH	239/361 (66%)	230 (96%)	9 (4%)	0	100	100
5	ZH	239/361 (66%)	229 (96%)	10 (4%)	0	100	100
6	AK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
6	BK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
6	CK	149/189 (79%)	142 (95%)	7 (5%)	0	100	100
6	DK	149/189 (79%)	142 (95%)	7 (5%)	0	100	100
6	EK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
6	FK	149/189 (79%)	142 (95%)	7 (5%)	0	100	100
6	GK	149/189 (79%)	139 (93%)	10 (7%)	0	100	100
6	HK	149/189 (79%)	146 (98%)	3 (2%)	0	100	100
6	IK	149/189 (79%)	144 (97%)	5 (3%)	0	100	100
6	JK	149/189 (79%)	144 (97%)	5 (3%)	0	100	100
6	KK	149/189 (79%)	139 (93%)	10 (7%)	0	100	100
6	LK	149/189 (79%)	140 (94%)	9 (6%)	0	100	100
6	MK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
7	AL	169/249 (68%)	162 (96%)	7 (4%)	0	100	100
7	BL	169/249 (68%)	161 (95%)	8 (5%)	0	100	100
7	CL	169/249 (68%)	159 (94%)	10 (6%)	0	100	100
7	DL	169/249 (68%)	160 (95%)	9 (5%)	0	100	100
7	EL	169/249 (68%)	161 (95%)	8 (5%)	0	100	100
7	FL	169/249 (68%)	163 (96%)	6 (4%)	0	100	100
7	GL	169/249 (68%)	162 (96%)	7 (4%)	0	100	100
7	HL	169/249 (68%)	160 (95%)	9 (5%)	0	100	100
7	IL	169/249 (68%)	161 (95%)	8 (5%)	0	100	100
7	JL	169/249 (68%)	163 (96%)	6 (4%)	0	100	100
7	KL	169/249 (68%)	161 (95%)	8 (5%)	0	100	100
7	LL	169/249 (68%)	161 (95%)	8 (5%)	0	100	100
7	ML	169/249 (68%)	159 (94%)	10 (6%)	0	100	100
8	AM	206/320 (64%)	190 (92%)	16 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	BM	206/320 (64%)	187 (91%)	19 (9%)	0	100	100
8	CM	206/320 (64%)	187 (91%)	19 (9%)	0	100	100
8	DM	206/320 (64%)	189 (92%)	17 (8%)	0	100	100
8	EM	206/320 (64%)	191 (93%)	15 (7%)	0	100	100
8	FM	206/320 (64%)	185 (90%)	21 (10%)	0	100	100
8	GM	206/320 (64%)	191 (93%)	15 (7%)	0	100	100
8	HM	206/320 (64%)	195 (95%)	11 (5%)	0	100	100
8	IM	206/320 (64%)	186 (90%)	20 (10%)	0	100	100
8	JM	206/320 (64%)	188 (91%)	18 (9%)	0	100	100
8	KM	206/320 (64%)	190 (92%)	16 (8%)	0	100	100
8	LM	206/320 (64%)	185 (90%)	21 (10%)	0	100	100
8	MM	206/320 (64%)	189 (92%)	17 (8%)	0	100	100
9	AN	76/124 (61%)	68 (90%)	8 (10%)	0	100	100
9	BN	76/124 (61%)	67 (88%)	9 (12%)	0	100	100
9	CN	76/124 (61%)	66 (87%)	10 (13%)	0	100	100
9	DN	76/124 (61%)	66 (87%)	10 (13%)	0	100	100
9	EN	76/124 (61%)	68 (90%)	8 (10%)	0	100	100
9	FN	76/124 (61%)	68 (90%)	8 (10%)	0	100	100
9	GN	76/124 (61%)	71 (93%)	5 (7%)	0	100	100
9	HN	76/124 (61%)	71 (93%)	5 (7%)	0	100	100
9	IN	76/124 (61%)	72 (95%)	4 (5%)	0	100	100
9	JN	76/124 (61%)	69 (91%)	7 (9%)	0	100	100
9	KN	76/124 (61%)	68 (90%)	8 (10%)	0	100	100
9	LN	76/124 (61%)	66 (87%)	10 (13%)	0	100	100
9	MN	76/124 (61%)	69 (91%)	7 (9%)	0	100	100
All	All	23724/70112 (34%)	22279 (94%)	1444 (6%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	BD	28	PRO

### 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	AG	135/765 (18%)	109 (81%)	26 (19%)	1	7
1	Ag	31/765 (4%)	26 (84%)	5 (16%)	2	11
1	BG	135/765 (18%)	110 (82%)	25 (18%)	1	8
1	Bg	31/765 (4%)	24 (77%)	7 (23%)	1	5
1	CG	135/765 (18%)	108 (80%)	27 (20%)	1	6
1	Cg	31/765 (4%)	25 (81%)	6 (19%)	1	7
1	DG	135/765 (18%)	115 (85%)	20 (15%)	2	13
1	Dg	31/765 (4%)	24 (77%)	7 (23%)	1	5
1	EG	135/765 (18%)	111 (82%)	24 (18%)	1	9
1	Eg	31/765 (4%)	27 (87%)	4 (13%)	3	15
1	FG	135/765 (18%)	116 (86%)	19 (14%)	3	14
1	Fg	31/765 (4%)	28 (90%)	3 (10%)	6	22
1	GG	135/765 (18%)	113 (84%)	22 (16%)	2	11
1	Gg	31/765 (4%)	27 (87%)	4 (13%)	3	15
1	HG	135/765 (18%)	115 (85%)	20 (15%)	2	13
1	Hg	31/765 (4%)	24 (77%)	7 (23%)	1	5
1	IG	135/765 (18%)	122 (90%)	13 (10%)	7	22
1	Ig	31/765 (4%)	28 (90%)	3 (10%)	6	22
1	JG	135/765 (18%)	117 (87%)	18 (13%)	3	15
1	Jg	31/765 (4%)	19 (61%)	12 (39%)	0	0
1	KG	135/765 (18%)	114 (84%)	21 (16%)	2	12
1	Kg	31/765 (4%)	25 (81%)	6 (19%)	1	7
1	LG	135/765 (18%)	117 (87%)	18 (13%)	3	15
1	Lg	31/765 (4%)	24 (77%)	7 (23%)	1	5
1	MG	135/765 (18%)	106 (78%)	29 (22%)	1	5
1	Mg	31/765 (4%)	27 (87%)	4 (13%)	3	15

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	NG	135/765 (18%)	108 (80%)	27 (20%)	1	6
1	OG	135/765 (18%)	112 (83%)	23 (17%)	1	10
1	PG	135/765 (18%)	114 (84%)	21 (16%)	2	12
1	VG	31/765 (4%)	27 (87%)	4 (13%)	3	15
1	WG	31/765 (4%)	27 (87%)	4 (13%)	3	15
1	XG	31/765 (4%)	25 (81%)	6 (19%)	1	7
1	YG	31/765 (4%)	29 (94%)	2 (6%)	14	35
1	ZG	31/765 (4%)	25 (81%)	6 (19%)	1	7
2	AC	178/257 (69%)	151 (85%)	27 (15%)	2	12
2	BC	178/257 (69%)	150 (84%)	28 (16%)	2	12
2	CC	178/257 (69%)	148 (83%)	30 (17%)	1	10
2	DC	203/257 (79%)	178 (88%)	25 (12%)	4	16
2	EC	178/257 (69%)	154 (86%)	24 (14%)	3	15
2	FC	178/257 (69%)	149 (84%)	29 (16%)	2	11
2	GC	178/257 (69%)	154 (86%)	24 (14%)	3	15
2	HC	203/257 (79%)	180 (89%)	23 (11%)	4	18
2	IC	203/257 (79%)	177 (87%)	26 (13%)	3	15
2	JC	178/257 (69%)	151 (85%)	27 (15%)	2	12
2	KC	178/257 (69%)	145 (82%)	33 (18%)	1	8
2	LC	203/257 (79%)	187 (92%)	16 (8%)	10	29
2	MC	203/257 (79%)	178 (88%)	25 (12%)	4	16
3	AF	53/237 (22%)	40 (76%)	13 (24%)	0	3
3	Af	49/237 (21%)	37 (76%)	12 (24%)	0	3
3	BF	53/237 (22%)	46 (87%)	7 (13%)	3	15
3	Bf	49/237 (21%)	45 (92%)	4 (8%)	9	28
3	CF	53/237 (22%)	43 (81%)	10 (19%)	1	7
3	Cf	49/237 (21%)	39 (80%)	10 (20%)	1	6
3	DF	53/237 (22%)	47 (89%)	6 (11%)	4	18
3	Df	49/237 (21%)	46 (94%)	3 (6%)	15	37
3	EF	53/237 (22%)	47 (89%)	6 (11%)	4	18
3	Ef	49/237 (21%)	42 (86%)	7 (14%)	2	13

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	FF	53/237 (22%)	47 (89%)	6 (11%)	4	18
3	Ff	49/237 (21%)	41 (84%)	8 (16%)	2	11
3	GF	53/237 (22%)	47 (89%)	6 (11%)	4	18
3	Gf	49/237 (21%)	43 (88%)	6 (12%)	4	16
3	HF	53/237 (22%)	46 (87%)	7 (13%)	3	15
3	Hf	49/237 (21%)	42 (86%)	7 (14%)	2	13
3	IF	53/237 (22%)	45 (85%)	8 (15%)	2	12
3	If	49/237 (21%)	38 (78%)	11 (22%)	1	5
3	JF	53/237 (22%)	45 (85%)	8 (15%)	2	12
3	Jf	49/237 (21%)	39 (80%)	10 (20%)	1	6
3	KF	53/237 (22%)	46 (87%)	7 (13%)	3	15
3	Kf	49/237 (21%)	43 (88%)	6 (12%)	4	16
3	LF	53/237 (22%)	47 (89%)	6 (11%)	4	18
3	Lf	49/237 (21%)	43 (88%)	6 (12%)	4	16
3	MF	53/237 (22%)	46 (87%)	7 (13%)	3	15
3	Mf	49/237 (21%)	43 (88%)	6 (12%)	4	16
3	VF	53/237 (22%)	45 (85%)	8 (15%)	2	12
3	WF	53/237 (22%)	45 (85%)	8 (15%)	2	12
3	XF	53/237 (22%)	44 (83%)	9 (17%)	1	10
3	YF	53/237 (22%)	46 (87%)	7 (13%)	3	15
3	ZF	53/237 (22%)	43 (81%)	10 (19%)	1	7
4	AD	121/139 (87%)	103 (85%)	18 (15%)	2	12
4	Ad	118/139 (85%)	105 (89%)	13 (11%)	5	19
4	BD	121/139 (87%)	107 (88%)	14 (12%)	4	17
4	Bd	118/139 (85%)	100 (85%)	18 (15%)	2	12
4	CD	121/139 (87%)	102 (84%)	19 (16%)	2	12
4	Cd	118/139 (85%)	105 (89%)	13 (11%)	5	19
4	DD	121/139 (87%)	107 (88%)	14 (12%)	4	17
4	Dd	118/139 (85%)	102 (86%)	16 (14%)	3	14
4	ED	121/139 (87%)	110 (91%)	11 (9%)	7	24
4	Ed	118/139 (85%)	104 (88%)	14 (12%)	4	17

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	FD	121/139 (87%)	105 (87%)	16 (13%)	3	15
4	Fd	118/139 (85%)	103 (87%)	15 (13%)	3	15
4	GD	121/139 (87%)	105 (87%)	16 (13%)	3	15
4	Gd	118/139 (85%)	104 (88%)	14 (12%)	4	17
4	HD	121/139 (87%)	111 (92%)	10 (8%)	9	28
4	Hd	118/139 (85%)	105 (89%)	13 (11%)	5	19
4	ID	121/139 (87%)	112 (93%)	9 (7%)	11	31
4	Id	118/139 (85%)	103 (87%)	15 (13%)	3	15
4	JD	121/139 (87%)	108 (89%)	13 (11%)	5	19
4	Jd	118/139 (85%)	108 (92%)	10 (8%)	8	27
4	KD	121/139 (87%)	113 (93%)	8 (7%)	14	34
4	Kd	118/139 (85%)	107 (91%)	11 (9%)	7	23
4	LD	121/139 (87%)	105 (87%)	16 (13%)	3	15
4	Ld	118/139 (85%)	106 (90%)	12 (10%)	6	21
4	MD	121/139 (87%)	111 (92%)	10 (8%)	9	28
4	Md	118/139 (85%)	105 (89%)	13 (11%)	5	19
5	AH	220/300 (73%)	191 (87%)	29 (13%)	3	15
5	BH	220/300 (73%)	190 (86%)	30 (14%)	3	14
5	CH	220/300 (73%)	190 (86%)	30 (14%)	3	14
5	DH	220/300 (73%)	193 (88%)	27 (12%)	4	16
5	EH	220/300 (73%)	185 (84%)	35 (16%)	2	11
5	FH	220/300 (73%)	191 (87%)	29 (13%)	3	15
5	GH	220/300 (73%)	198 (90%)	22 (10%)	6	21
5	HH	220/300 (73%)	189 (86%)	31 (14%)	3	14
5	IH	220/300 (73%)	194 (88%)	26 (12%)	4	17
5	JH	220/300 (73%)	201 (91%)	19 (9%)	8	27
5	KH	220/300 (73%)	200 (91%)	20 (9%)	7	24
5	LH	220/300 (73%)	194 (88%)	26 (12%)	4	17
5	MH	220/300 (73%)	194 (88%)	26 (12%)	4	17
5	VH	207/300 (69%)	181 (87%)	26 (13%)	3	16
5	WH	207/300 (69%)	182 (88%)	25 (12%)	4	16

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	XH	207/300 (69%)	178 (86%)	29 (14%)	3	14
5	YH	207/300 (69%)	182 (88%)	25 (12%)	4	16
5	ZH	207/300 (69%)	178 (86%)	29 (14%)	3	14
6	AK	129/163 (79%)	109 (84%)	20 (16%)	2	12
6	BK	129/163 (79%)	118 (92%)	11 (8%)	8	27
6	CK	129/163 (79%)	111 (86%)	18 (14%)	3	14
6	DK	129/163 (79%)	115 (89%)	14 (11%)	5	19
6	EK	129/163 (79%)	107 (83%)	22 (17%)	1	10
6	FK	129/163 (79%)	108 (84%)	21 (16%)	2	11
6	GK	129/163 (79%)	116 (90%)	13 (10%)	6	21
6	HK	129/163 (79%)	111 (86%)	18 (14%)	3	14
6	IK	129/163 (79%)	121 (94%)	8 (6%)	15	37
6	JK	129/163 (79%)	109 (84%)	20 (16%)	2	12
6	KK	129/163 (79%)	109 (84%)	20 (16%)	2	12
6	LK	129/163 (79%)	110 (85%)	19 (15%)	2	13
6	MK	129/163 (79%)	113 (88%)	16 (12%)	4	16
7	AL	148/203 (73%)	135 (91%)	13 (9%)	8	25
7	BL	148/203 (73%)	135 (91%)	13 (9%)	8	25
7	CL	148/203 (73%)	129 (87%)	19 (13%)	3	15
7	DL	148/203 (73%)	128 (86%)	20 (14%)	3	15
7	EL	148/203 (73%)	137 (93%)	11 (7%)	11	31
7	FL	148/203 (73%)	128 (86%)	20 (14%)	3	15
7	GL	148/203 (73%)	131 (88%)	17 (12%)	4	17
7	HL	148/203 (73%)	134 (90%)	14 (10%)	7	22
7	IL	148/203 (73%)	133 (90%)	15 (10%)	6	21
7	JL	148/203 (73%)	133 (90%)	15 (10%)	6	21
7	KL	148/203 (73%)	128 (86%)	20 (14%)	3	15
7	LL	148/203 (73%)	133 (90%)	15 (10%)	6	21
7	ML	148/203 (73%)	132 (89%)	16 (11%)	5	19
8	AM	175/276 (63%)	154 (88%)	21 (12%)	4	17
8	BM	175/276 (63%)	147 (84%)	28 (16%)	2	11

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	CM	175/276 (63%)	147 (84%)	28 (16%)	2	11
8	DM	175/276 (63%)	152 (87%)	23 (13%)	3	15
8	EM	175/276 (63%)	147 (84%)	28 (16%)	2	11
8	FM	175/276 (63%)	148 (85%)	27 (15%)	2	12
8	GM	175/276 (63%)	152 (87%)	23 (13%)	3	15
8	HM	175/276 (63%)	145 (83%)	30 (17%)	1	10
8	IM	175/276 (63%)	148 (85%)	27 (15%)	2	12
8	JM	175/276 (63%)	155 (89%)	20 (11%)	4	17
8	KM	175/276 (63%)	151 (86%)	24 (14%)	3	14
8	LM	175/276 (63%)	151 (86%)	24 (14%)	3	14
8	MM	175/276 (63%)	147 (84%)	28 (16%)	2	11
9	AN	66/107 (62%)	60 (91%)	6 (9%)	7	24
9	BN	66/107 (62%)	58 (88%)	8 (12%)	4	16
9	CN	66/107 (62%)	57 (86%)	9 (14%)	3	14
9	DN	66/107 (62%)	57 (86%)	9 (14%)	3	14
9	EN	66/107 (62%)	55 (83%)	11 (17%)	2	10
9	FN	66/107 (62%)	51 (77%)	15 (23%)	0	5
9	GN	66/107 (62%)	56 (85%)	10 (15%)	2	12
9	HN	66/107 (62%)	58 (88%)	8 (12%)	4	16
9	IN	66/107 (62%)	57 (86%)	9 (14%)	3	14
9	JN	66/107 (62%)	56 (85%)	10 (15%)	2	12
9	KN	66/107 (62%)	55 (83%)	11 (17%)	2	10
9	LN	66/107 (62%)	57 (86%)	9 (14%)	3	14
9	MN	66/107 (62%)	57 (86%)	9 (14%)	3	14
All	All	20484/55449 (37%)	17744 (87%)	2740 (13%)	5	14

5 of 2740 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	JC	248	ILE
9	EN	51	CYS
2	MC	157	VAL
2	JC	242	ASP
1	GG	1037	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 28 such sidechains are listed below:

Mol	Chain	Res	Type
5	YH	159	ASN
9	FN	115	GLN
5	CH	205	GLN
1	NG	1020	GLN
2	JC	218	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

### 5.7 Other polymers [i](#)

There are no such residues in this entry.

### 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
11	JX	1
11	BX	1
11	VX	1
11	KX	1
11	DX	1

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Mol	Chain	Number of breaks
11	YX	1
11	XX	1
11	ZX	1
11	LX	1
11	GX	1
11	EX	1
11	MX	1
11	WX	1
11	HX	1
11	CX	1
11	IX	1
11	FX	1
11	AX	1

The worst 5 of 18 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	JX	38:UNK	C	70:UNK	N	26.33
1	BX	38:UNK	C	70:UNK	N	25.95
1	VX	38:UNK	C	70:UNK	N	25.89
1	KX	38:UNK	C	70:UNK	N	25.61
1	DX	38:UNK	C	70:UNK	N	25.45

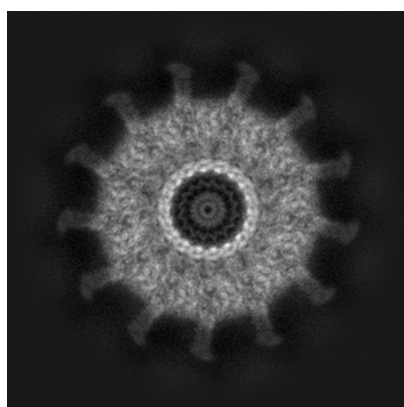
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-24018. These allow visual inspection of the internal detail of the map and identification of artifacts.

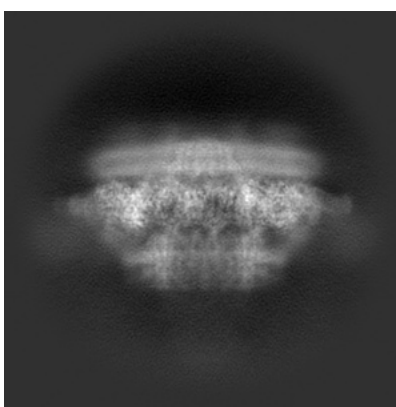
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

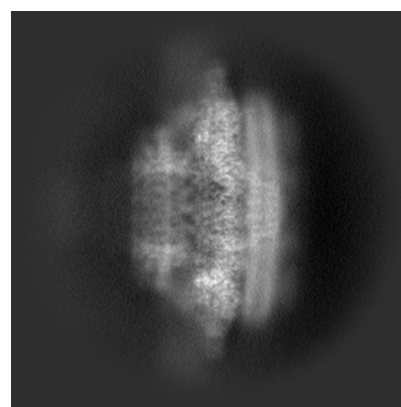
#### 6.1.1 Primary map



X



Y

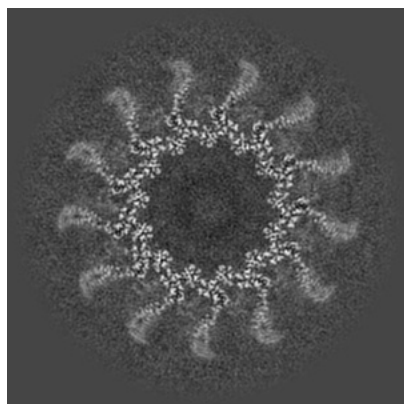


Z

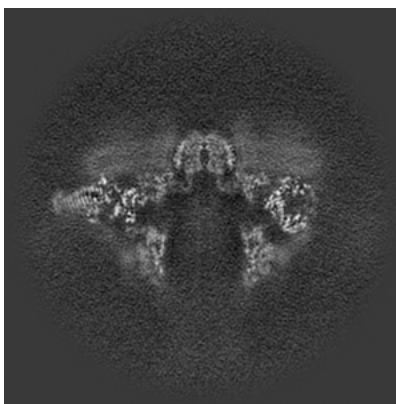
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

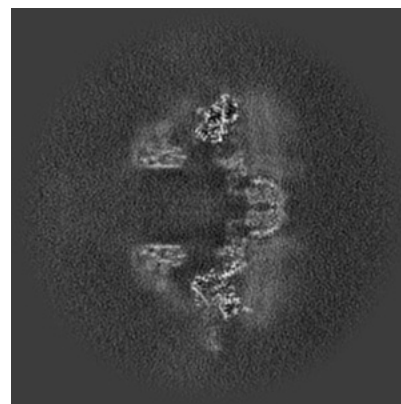
#### 6.2.1 Primary map



X Index: 125



Y Index: 125



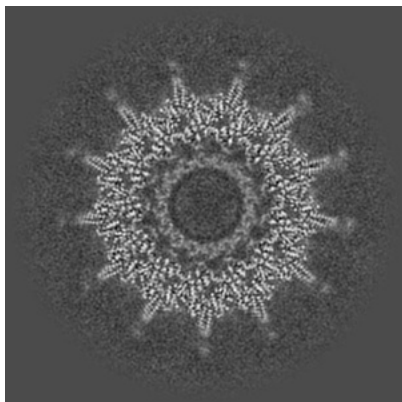
Z Index: 125



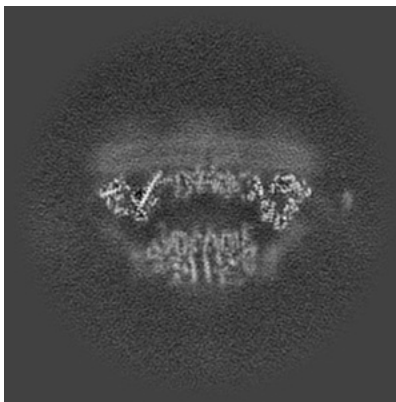
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

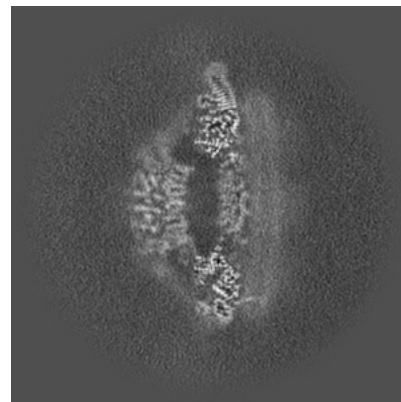
### 6.3.1 Primary map



X Index: 134



Y Index: 101

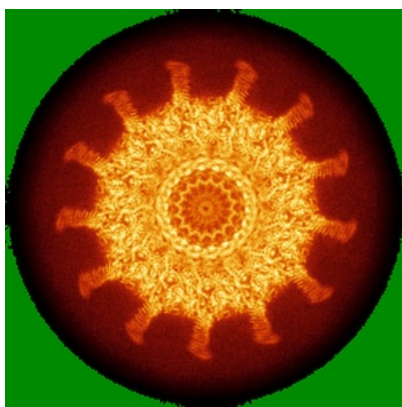


Z Index: 151

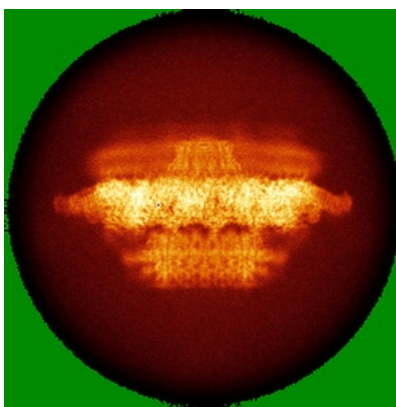
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

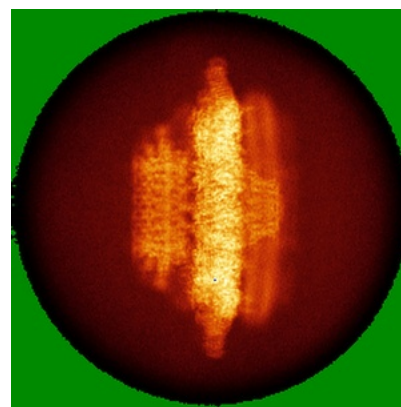
### 6.4.1 Primary map



X



Y

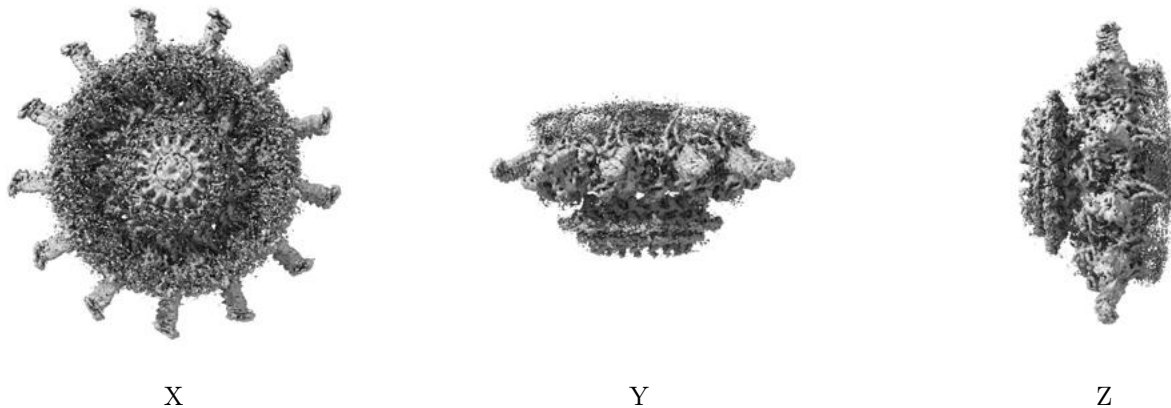


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 2.25. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

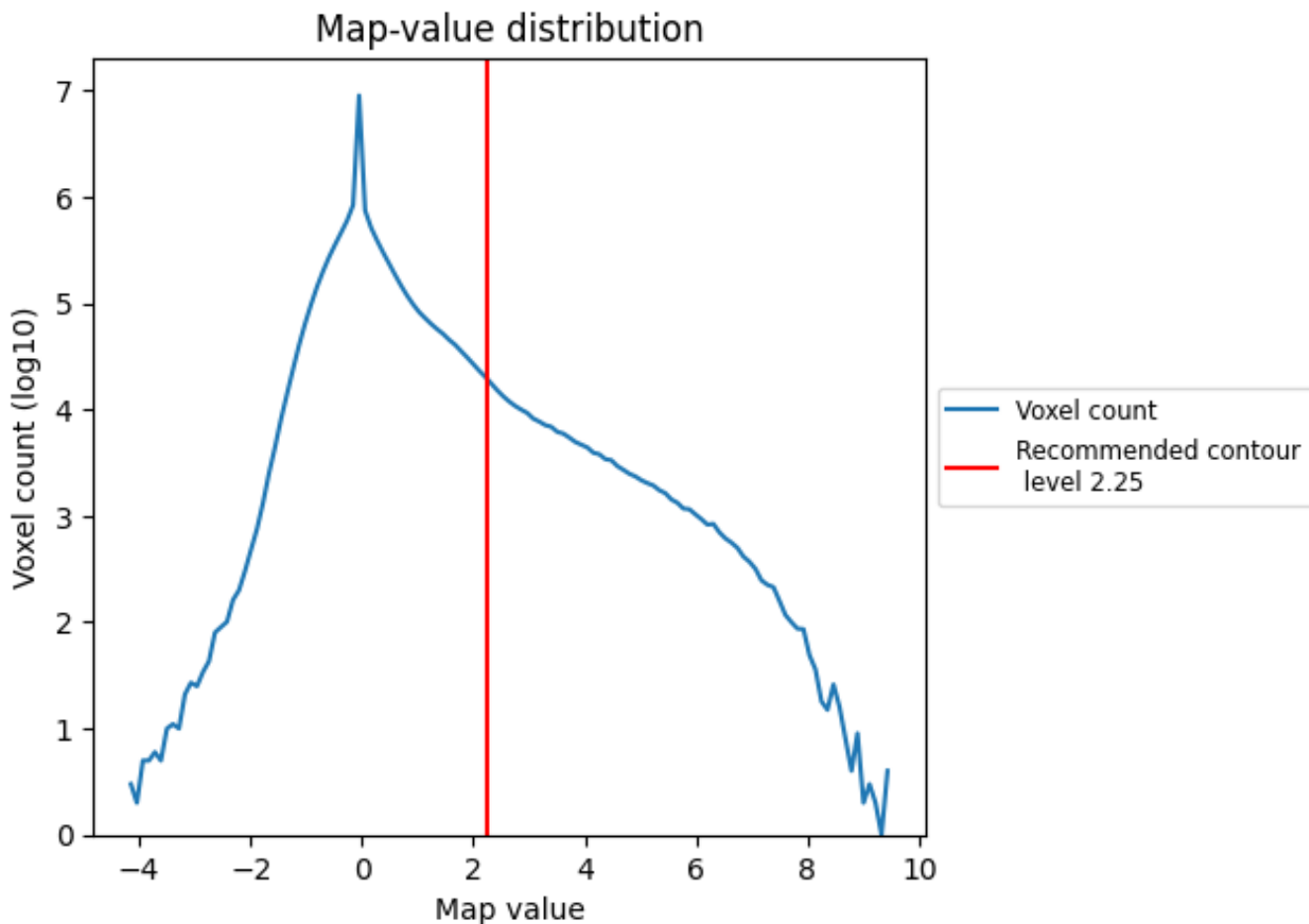
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

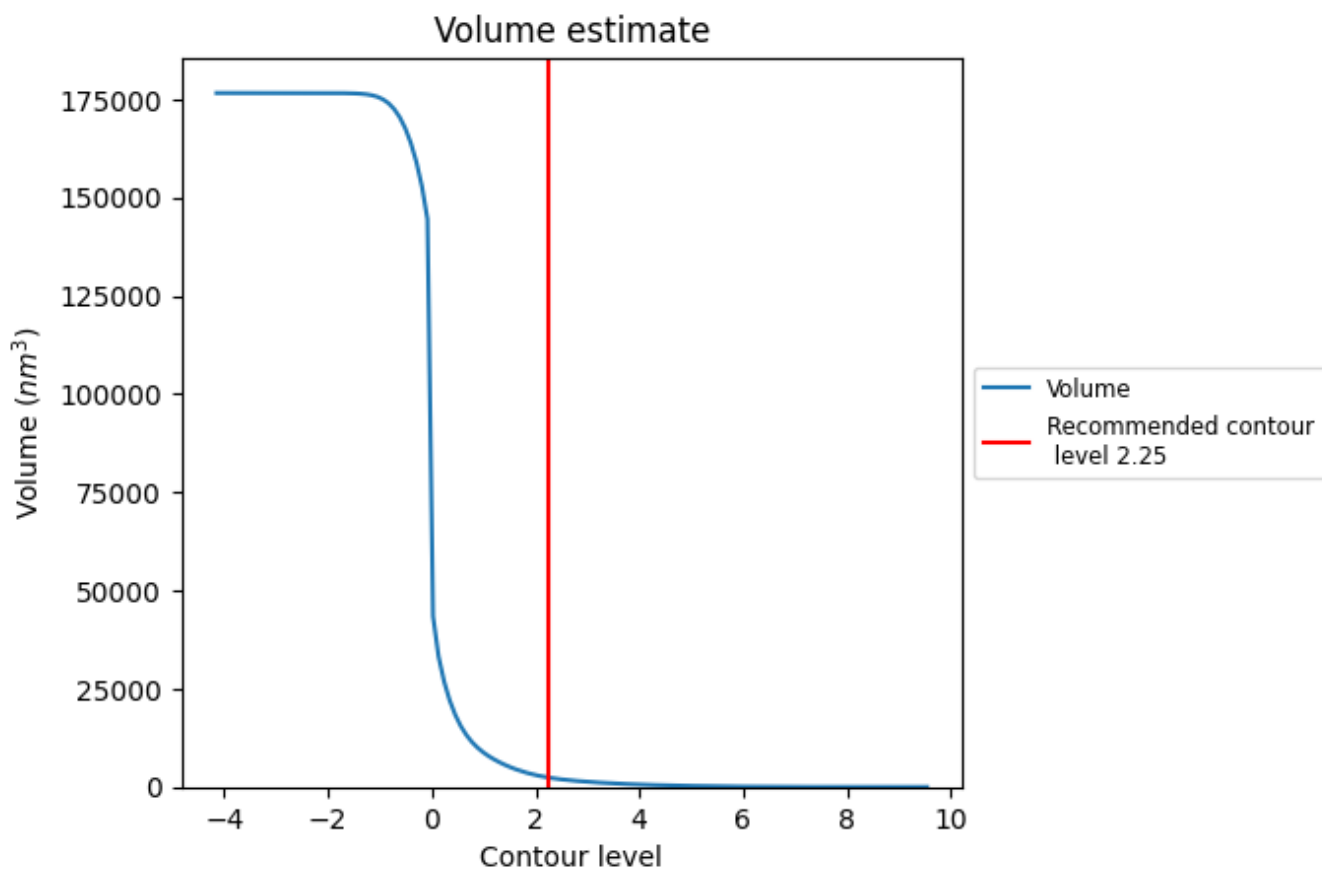
This section contains the results of statistical analysis of the map.

### 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.

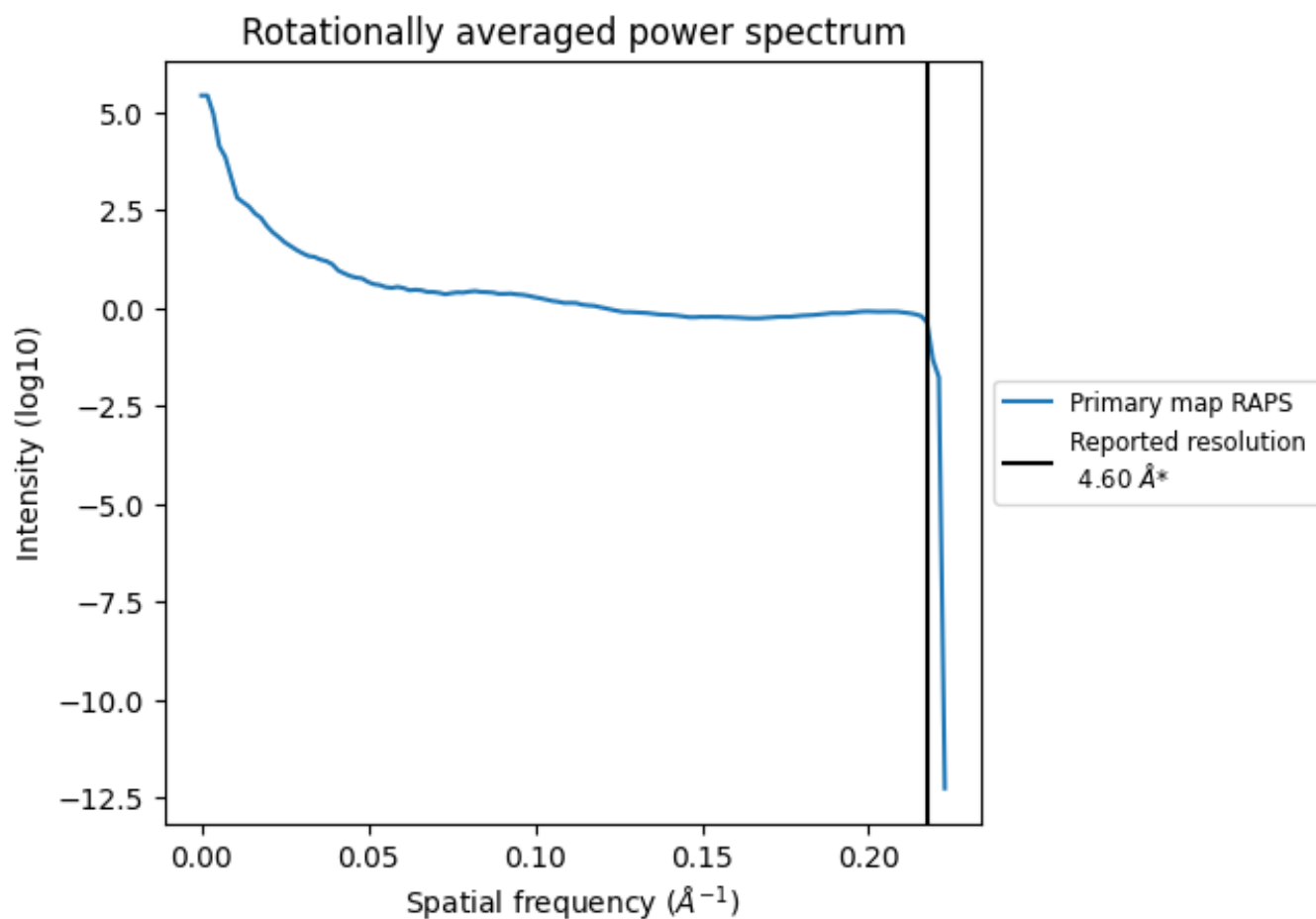
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2389 nm<sup>3</sup>; this corresponds to an approximate mass of 2158 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 0.217 Å<sup>-1</sup>

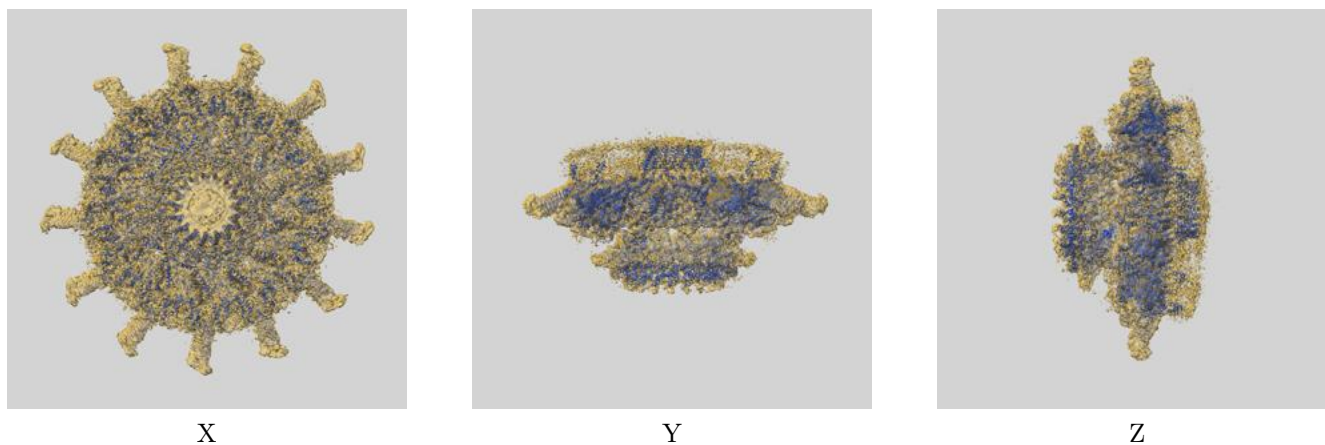
## 8 Fourier-Shell correlation

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

## 9 Map-model fit [i](#)

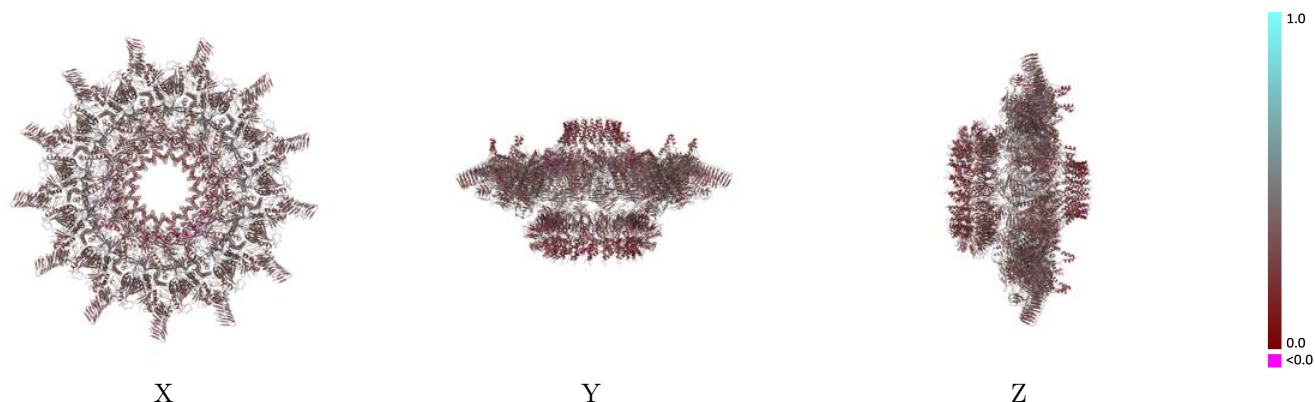
This section contains information regarding the fit between EMDB map EMD-24018 and PDB model 7MUQ. Per-residue inclusion information can be found in section [3](#) on page [22](#).

### 9.1 Map-model overlay [i](#)



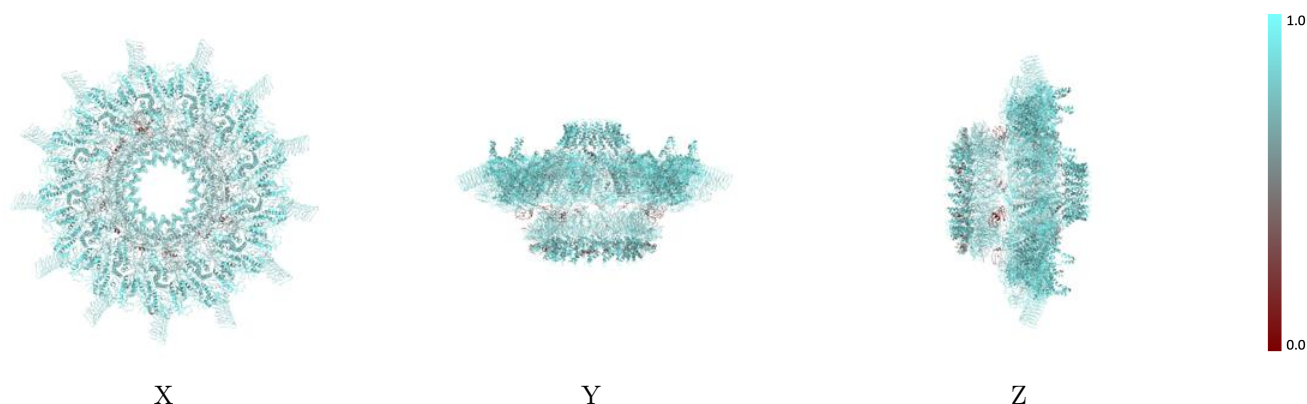
The images above show the 3D surface view of the map at the recommended contour level 2.25 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



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

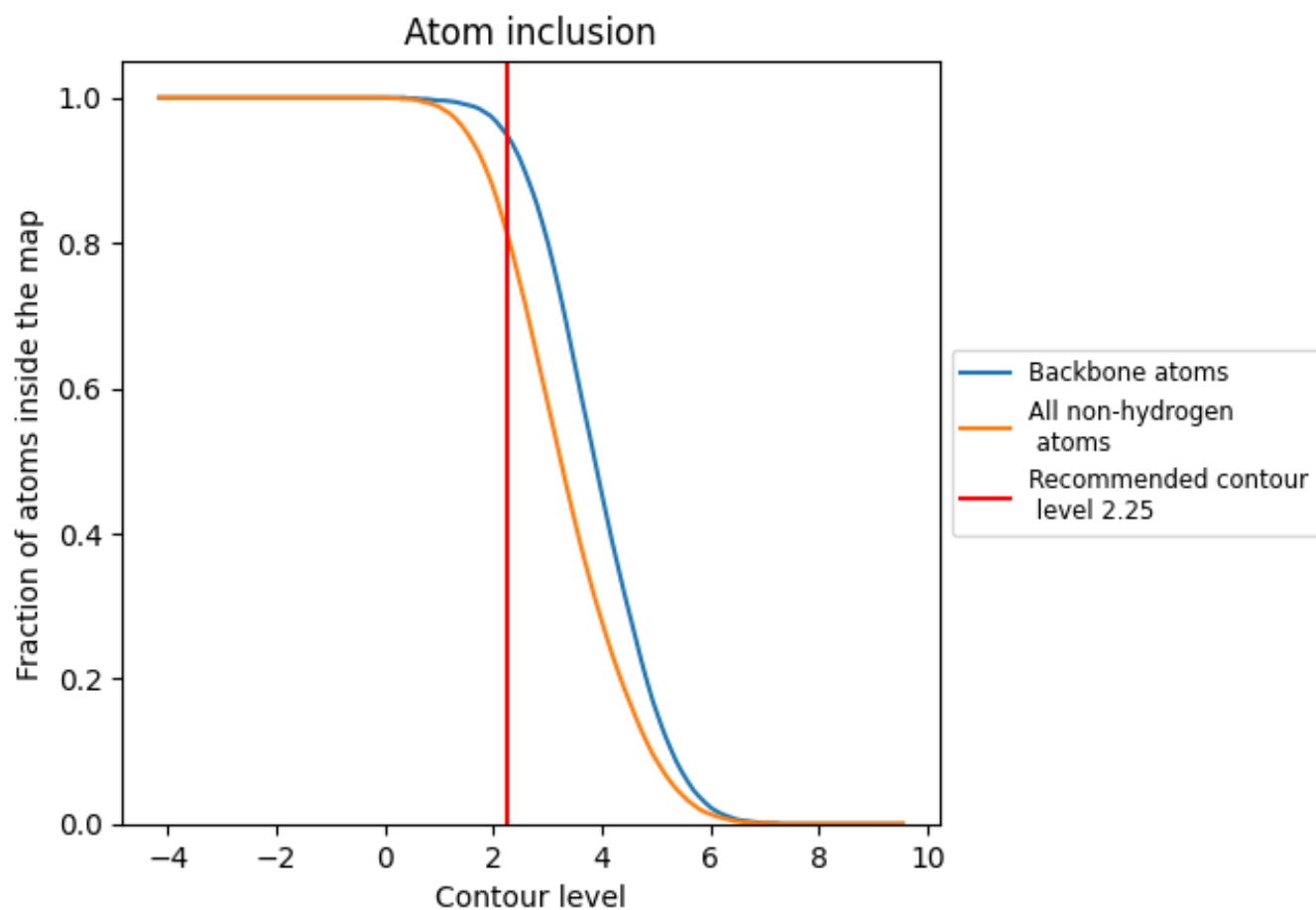
## 9.3 Atom inclusion mapped to coordinate model [i](#)



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 (2.25).









































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 82% 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 (2.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8150	 0.3350
AC	 0.8600	 0.3620
AD	 0.8420	 0.3710
AF	 0.7790	 0.2470
AG	 0.7070	 0.2330
AH	 0.8130	 0.3320
AK	 0.8490	 0.3780
AL	 0.8630	 0.3550
AM	 0.8350	 0.3520
AN	 0.8020	 0.3790
AU	 1.0000	 0.4870
AX	 0.5670	 0.2380
Ad	 0.8570	 0.3580
Af	 0.8040	 0.3300
Ag	 0.8490	 0.3040
BC	 0.8730	 0.3660
BD	 0.8460	 0.3790
BF	 0.7790	 0.2670
BG	 0.6860	 0.2220
BH	 0.8100	 0.3300
BK	 0.8510	 0.3730
BL	 0.8640	 0.3530
BM	 0.8420	 0.3600
BN	 0.8550	 0.3800
BU	 1.0000	 0.5100
BX	 0.5580	 0.2280
Bd	 0.8450	 0.3640
Bf	 0.8410	 0.3260
Bg	 0.8240	 0.3030
CC	 0.8620	 0.3660
CD	 0.8650	 0.3770
CF	 0.7920	 0.2800
CG	 0.6740	 0.2220
CH	 0.8380	 0.3380
CK	 0.8610	 0.3650























































































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Chain	Atom inclusion	Q-score
CL	 0.8660	 0.3510
CM	 0.8540	 0.3480
CN	 0.8440	 0.3790
CU	 1.0000	 0.4610
CX	 0.7250	 0.3180
Cd	 0.8520	 0.3640
Cf	 0.8200	 0.3220
Cg	 0.8490	 0.2960
DC	 0.8100	 0.3530
DD	 0.8560	 0.3670
DF	 0.7640	 0.2450
DG	 0.7190	 0.2400
DH	 0.8280	 0.3300
DK	 0.8480	 0.3720
DL	 0.8540	 0.3500
DM	 0.8500	 0.3510
DN	 0.8180	 0.3700
DU	 1.0000	 0.4710
DX	 0.6170	 0.2590
Dd	 0.8660	 0.3620
Df	 0.8360	 0.3250
Dg	 0.8270	 0.2810
EC	 0.8380	 0.3520
ED	 0.8440	 0.3740
EF	 0.8130	 0.2610
EG	 0.7070	 0.2470
EH	 0.8310	 0.3220
EK	 0.8510	 0.3730
EL	 0.8470	 0.3520
EM	 0.8470	 0.3520
EN	 0.8110	 0.3730
EU	 1.0000	 0.4780
EX	 0.7210	 0.2470
Ed	 0.8440	 0.3490
Ef	 0.8250	 0.3470
Eg	 0.8050	 0.2740
FC	 0.8620	 0.3580
FD	 0.8440	 0.3680
FF	 0.7660	 0.2560
FG	 0.7180	 0.2540
FH	 0.8420	 0.3240
FK	 0.8580	 0.3710





















































































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Chain	Atom inclusion	Q-score
FL	 0.8600	 0.3500
FM	 0.8550	 0.3540
FN	 0.8550	 0.3970
FU	 1.0000	 0.5090
FX	 0.5960	 0.2440
Fd	 0.8460	 0.3530
Ff	 0.8570	 0.3430
Fg	 0.7980	 0.2630
GC	 0.8550	 0.3660
GD	 0.8480	 0.3710
GF	 0.7960	 0.2650
GG	 0.7270	 0.2700
GH	 0.8210	 0.3260
GK	 0.8700	 0.3790
GL	 0.8750	 0.3560
GM	 0.8420	 0.3520
GN	 0.8530	 0.3860
GU	 0.9780	 0.4780
GX	 0.7330	 0.2880
Gd	 0.8560	 0.3620
Gf	 0.7990	 0.3160
Gg	 0.8570	 0.2720
HC	 0.8190	 0.3550
HD	 0.8400	 0.3820
HF	 0.7500	 0.2500
HG	 0.7410	 0.2810
HH	 0.8390	 0.3350
HK	 0.8570	 0.3750
HL	 0.8760	 0.3540
HM	 0.8520	 0.3550
HN	 0.8360	 0.3850
HU	 0.9780	 0.5230
HX	 0.6370	 0.2570
Hd	 0.8520	 0.3510
Hf	 0.8200	 0.3240
Hg	 0.8750	 0.3090
IC	 0.8060	 0.3470
ID	 0.8360	 0.3690
IF	 0.7600	 0.2630
IG	 0.7360	 0.2920
IH	 0.8210	 0.3290
IK	 0.8550	 0.3760





















































































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Chain	Atom inclusion	Q-score
IL	 0.8550	 0.3550
IM	 0.8490	 0.3540
IN	 0.8110	 0.3860
IU	 1.0000	 0.5190
IX	 0.6790	 0.2750
Id	 0.8540	 0.3610
If	 0.8470	 0.3300
Ig	 0.8380	 0.2770
JC	 0.8470	 0.3620
JD	 0.8380	 0.3750
JF	 0.8020	 0.2510
JG	 0.7540	 0.2950
JH	 0.8260	 0.3320
JK	 0.8540	 0.3750
JL	 0.8610	 0.3600
JM	 0.8590	 0.3540
JN	 0.8250	 0.3750
JU	 0.9780	 0.5050
JX	 0.6250	 0.2110
Jd	 0.8500	 0.3660
Jf	 0.8180	 0.3440
Jg	 0.8380	 0.2980
KC	 0.8540	 0.3650
KD	 0.8420	 0.3680
KF	 0.7880	 0.2610
KG	 0.7540	 0.3050
KH	 0.8320	 0.3340
KK	 0.8690	 0.3770
KL	 0.8640	 0.3520
KM	 0.8320	 0.3570
KN	 0.8580	 0.3910
KU	 0.9780	 0.4860
KX	 0.6620	 0.2820
Kd	 0.8630	 0.3620
Kf	 0.7930	 0.3310
Kg	 0.8380	 0.3100
LC	 0.8150	 0.3410
LD	 0.8500	 0.3630
LF	 0.7920	 0.2840
LG	 0.7540	 0.3100
LH	 0.8150	 0.3330
LK	 0.8600	 0.3690



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Chain	Atom inclusion	Q-score
LL	 0.8750	 0.3590
LM	 0.8280	 0.3450
LN	 0.8370	 0.3890
LU	 1.0000	 0.4790
LX	 0.6370	 0.2470
Ld	 0.8640	 0.3640
Lf	 0.8500	 0.3280
Lg	 0.8460	 0.2740
MC	 0.8210	 0.3530
MD	 0.8460	 0.3630
MF	 0.7370	 0.2480
MG	 0.7350	 0.2550
MH	 0.8040	 0.3280
MK	 0.8590	 0.3770
ML	 0.8640	 0.3650
MM	 0.8430	 0.3620
MN	 0.8230	 0.3820
MU	 1.0000	 0.4830
MX	 0.5670	 0.2530
Md	 0.8520	 0.3590
Mf	 0.8270	 0.3410
Mg	 0.8380	 0.2750
NG	 0.7270	 0.2380
OG	 0.7790	 0.2970
PG	 0.7340	 0.2450
VF	 0.7980	 0.2570
VG	 0.7680	 0.2800
VH	 0.7210	 0.3100
VX	 0.6370	 0.2660
WF	 0.8050	 0.2480
WG	 0.7720	 0.2560
WH	 0.6650	 0.3050
WX	 0.6620	 0.2720
XF	 0.8130	 0.2470
XG	 0.7980	 0.2560
XH	 0.6070	 0.2980
XX	 0.6620	 0.2760
YF	 0.8090	 0.2640
YG	 0.8120	 0.2890
YH	 0.7270	 0.3090
YX	 0.6170	 0.2650
ZF	 0.7450	 0.2580

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Chain	Atom inclusion	Q-score
ZG	 0.7980	 0.2780
ZH	 0.5240	 0.2790
ZX	 0.7460	 0.3150