



Full wwPDB EM Validation Report ⓘ

Nov 20, 2022 – 06:29 PM EST

PDB ID : 7MUV
EMDB ID : EMD-24023
Title : Reconstruction of the Legionella pneumophila Dot/Icm T4SS 3DVA Map 3
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 Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

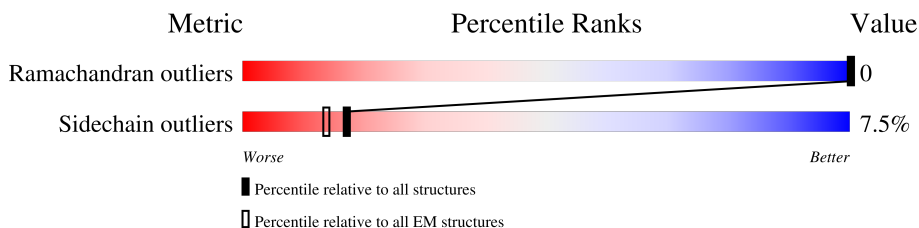
EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

1 Overall quality at a glance

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

The reported resolution of this entry is 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.



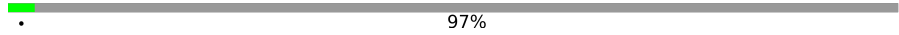

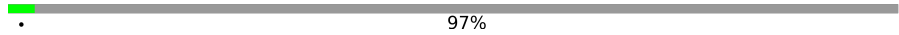

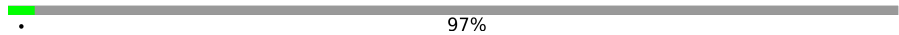

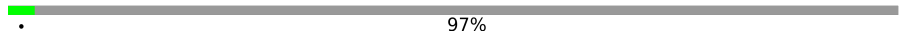

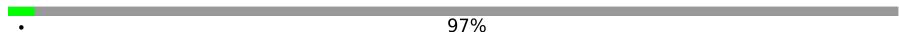

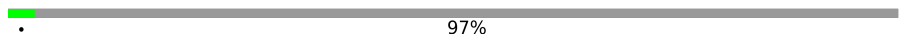



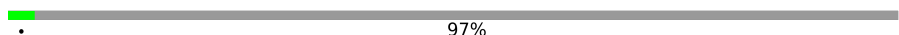

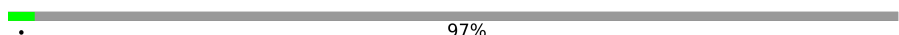



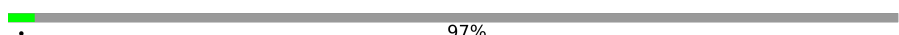
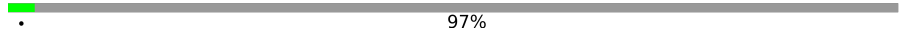
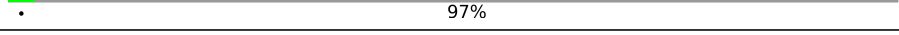
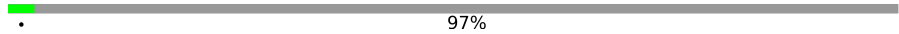
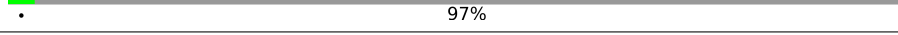
Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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

Mol	Chain	Length	Quality of chain
1	AG	1048	15% 84%
1	Ag	1048	97%
1	BG	1048	15% 84%
1	Bg	1048	97%
1	CG	1048	15% 84%
1	Cg	1048	97%
1	DG	1048	14% 84%
1	Dg	1048	97%
1	EG	1048	15% 84%







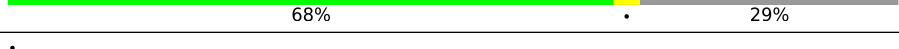
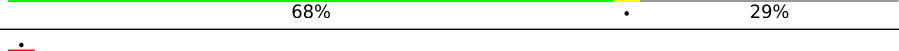
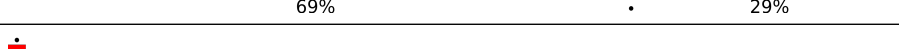
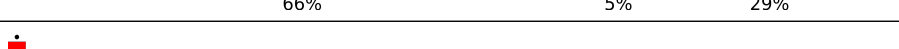
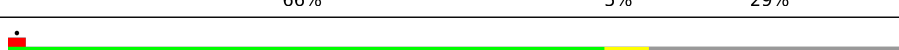

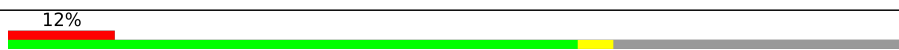

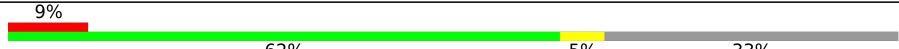





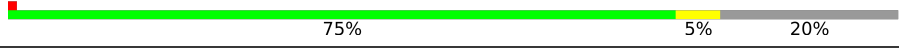
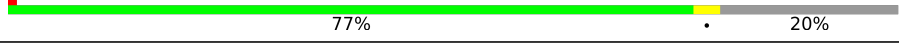



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Mol	Chain	Length	Quality of chain
1	Eg	1048	 97%
1	FG	1048	 15% 84%
1	Fg	1048	 97%
1	GG	1048	 15% 84%
1	Gg	1048	 97%
1	HG	1048	 15% 84%
1	Hg	1048	 97%
1	IG	1048	 15% 84%
1	Ig	1048	 97%
1	JG	1048	 14% 84%
1	Jg	1048	 97%
1	KG	1048	 15% 84%
1	Kg	1048	 97%
1	LG	1048	 15% 84%
1	Lg	1048	 97%
1	MG	1048	 15% 84%
1	Mg	1048	 97%
1	NG	1048	 15% 84%
1	OG	1048	 15% 84%
1	PG	1048	 15% 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	AH	361	 66% 5% 29%
2	BH	361	 67% 5% 29%
2	CH	361	 68% 5% 29%
2	DH	361	 68% 5% 29%
2	EH	361	 65% 6% 29%
2	FH	361	 68% 5% 29%
2	GH	361	 68% 5% 29%
2	HH	361	 68% 5% 29%
2	IH	361	 69% 5% 29%
2	JH	361	 66% 5% 29%
2	KH	361	 66% 5% 29%
2	LH	361	 67% 5% 29%
2	MH	361	 66% 5% 29%
2	VH	361	 12% 64% 5% 33%
2	WH	361	 23% 61% 6% 33%
2	XH	361	 9% 62% 5% 33%
2	YH	361	 23% 61% 7% 33%
2	ZH	361	 14% 62% 6% 33%
3	AK	189	 76% 5% 20%
3	BK	189	 76% 5% 20%
3	CK	189	 77% 5% 20%
3	DK	189	 75% 5% 20%
3	EK	189	 77% 5% 20%
3	FK	189	 76% 5% 20%
3	GK	189	 75% 5% 20%







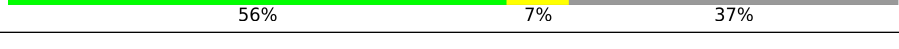
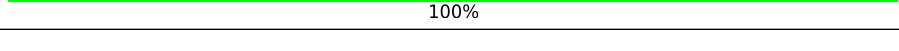
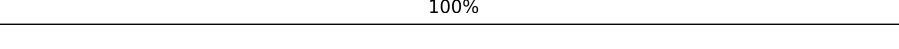
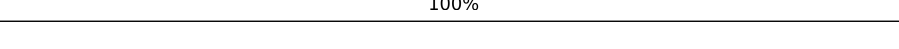
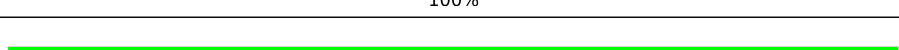
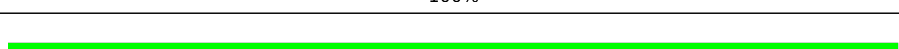
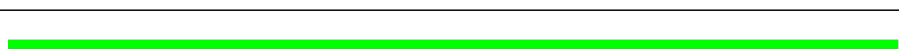
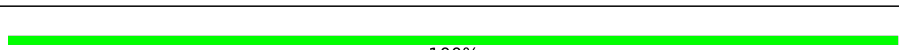
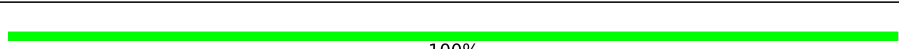

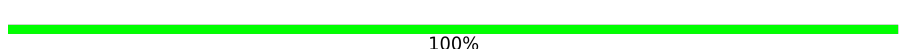
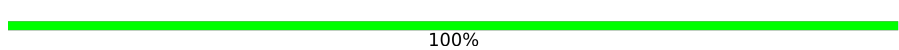
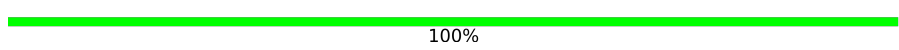
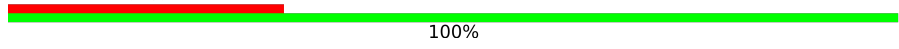
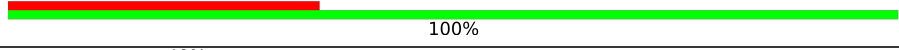
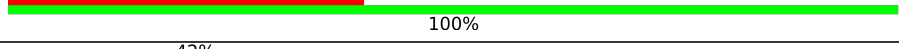
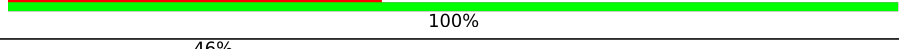
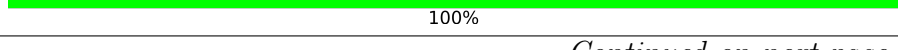

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Mol	Chain	Length	Quality of chain
3	HK	189	77% 20%
3	IK	189	75% 20%
3	JK	189	72% 20%
3	KK	189	75% 20%
3	LK	189	75% 20%
3	MK	189	71% 20%
4	AL	249	67% 31%
4	BL	249	64% 31%
4	CL	249	65% 31%
4	DL	249	65% 31%
4	EL	249	66% 31%
4	FL	249	64% 31%
4	GL	249	67% 31%
4	HL	249	68% 31%
4	IL	249	67% 31%
4	JL	249	66% 31%
4	KL	249	63% 31%
4	LL	249	65% 31%
4	ML	249	64% 31%
5	AN	124	57% 37%
5	BN	124	57% 37%
5	CN	124	58% 37%
5	DN	124	59% 37%
5	EN	124	57% 37%
5	FN	124	59% 37%

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Mol	Chain	Length	Quality of chain
5	GN	124	 58% 5% 37%
5	HN	124	 60% 5% 37%
5	IN	124	 60% 5% 37%
5	JN	124	 57% 6% 37%
5	KN	124	 60% 5% 37%
5	LN	124	 59% 5% 37%
5	MN	124	 56% 7% 37%
6	AU	9	 100%
6	BU	9	 100%
6	CU	9	 100%
6	DU	9	 100%
6	EU	9	 100%
6	FU	9	 100%
6	GU	9	 100%
6	HU	9	 100%
6	IU	9	 100%
6	JU	9	 100%
6	KU	9	 100%
6	LU	9	 100%
6	MU	9	 100%
7	AX	48	 31% 100%
7	BX	48	 35% 100%
7	CX	48	 40% 100%
7	DX	48	 42% 100%
7	EX	48	 46% 100%

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Mol	Chain	Length	Quality of chain
7	FX	48	29% 100%
7	GX	48	33% 100%
7	HX	48	44% 100%
7	IX	48	46% 100%
7	JX	48	31% 100%
7	KX	48	42% 100%
7	LX	48	29% 100%
7	MX	48	31% 100%
7	VX	48	42% 100%
7	WX	48	40% 100%
7	XX	48	29% 100%
7	YX	48	40% 100%
7	ZX	48	38% 100%
8	AD	163	82% 14%
8	Ad	163	79% 5% 16%
8	BD	163	82% 14%
8	Bd	163	80% 16%
8	CD	163	83% 14%
8	Cd	163	81% 16%
8	DD	163	83% 14%
8	Dd	163	80% 16%
8	ED	163	83% 14%
8	Ed	163	75% 9% 16%
8	FD	163	82% 14%
8	Fd	163	80% 16%








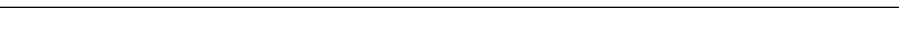
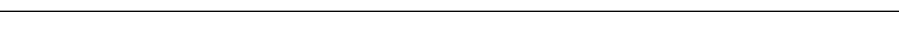
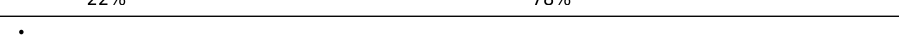
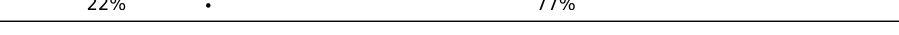
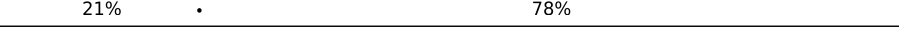













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Mol	Chain	Length	Quality of chain		
8	GD	163	81%	5%	14%
8	Gd	163	82%	•	16%
8	HD	163	80%	6%	14%
8	Hd	163	79%	5%	16%
8	ID	163	81%	5%	14%
8	Id	163	83%	•	16%
8	JD	163	82%	•	14%
8	Jd	163	80%	•	16%
8	KD	163	80%	6%	14%
8	Kd	163	82%	•	16%
8	LD	163	79%	7%	14%
8	Ld	163	80%	•	16%
8	MD	163	82%	•	14%
8	Md	163	79%	6%	16%
9	AF	269	23%		77%
9	Af	269	22%		78%
9	BF	269	23%	•	77%
9	Bf	269	21%	•	78%
9	CF	269	22%	•	77%
9	Cf	269	20%	•	78%
9	DF	269	23%	•	77%
9	Df	269	21%	•	78%
9	EF	269	23%	•	77%
9	Ef	269	21%	•	78%
9	FF	269	23%		77%





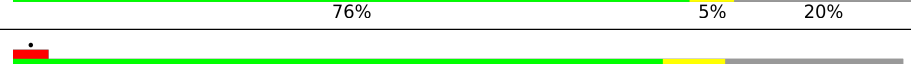
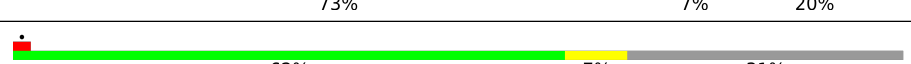
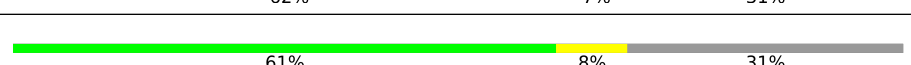
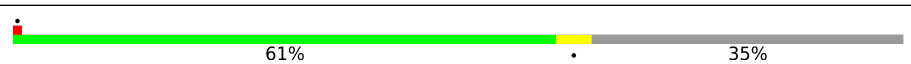

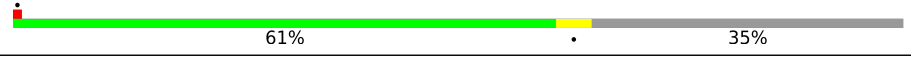
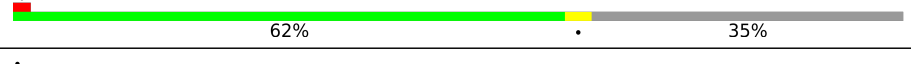
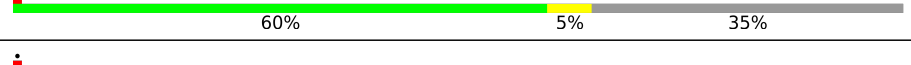

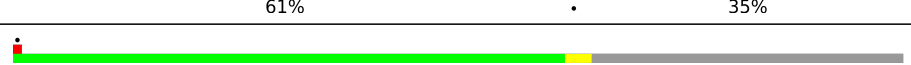

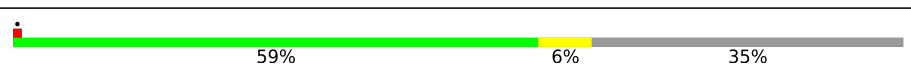





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Mol	Chain	Length	Quality of chain
9	Ff	269	 21% 78%
9	GF	269	 22% 77%
9	Gf	269	 22% 78%
9	HF	269	 22% 77%
9	Hf	269	 22% 78%
9	IF	269	 22% 77%
9	If	269	 20% 78%
9	JF	269	 22% 77%
9	Jf	269	 22% 78%
9	KF	269	 22% 77%
9	Kf	269	 21% 78%
9	LF	269	 22% 77%
9	Lf	269	 20% 78%
9	MF	269	 22% 77%
9	Mf	269	 22% 78%
9	VF	269	 23% 77%
9	WF	269	 23% 77%
9	XF	269	 23% 77%
9	YF	269	 22% 77%
9	ZF	269	 22% 77%
10	AC	303	 5% 76% 20%
10	BC	303	 73% 7% 20%
10	CC	303	 63% 6% 31%
10	DC	303	 64% 5% 31%
10	EC	303	 63% 6% 31%

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Mol	Chain	Length	Quality of chain
10	FC	303	 75% 5% 20%
10	GC	303	 62% 7% 31%
10	HC	303	 63% 6% 31%
10	IC	303	 62% 7% 31%
10	JC	303	 76% 5% 20%
10	KC	303	 73% 7% 20%
10	LC	303	 62% 7% 31%
10	MC	303	 61% 8% 31%
11	AM	320	 61% 5% 35%
11	BM	320	 61% 5% 35%
11	CM	320	 61% 5% 35%
11	DM	320	 62% 5% 35%
11	EM	320	 60% 5% 35%
11	FM	320	 60% 5% 35%
11	GM	320	 61% 5% 35%
11	HM	320	 62% 5% 35%
11	IM	320	 60% 5% 35%
11	JM	320	 59% 6% 35%
11	KM	320	 62% 5% 35%
11	LM	320	 60% 5% 35%
11	MM	320	 60% 5% 35%

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	Fg	34	276	168	47	60	1	0	0
1	Gg	34	276	168	47	60	1	0	0
1	BG	165	1229	780	203	242	4	0	0
1	Hg	34	276	168	47	60	1	0	0
1	Bg	34	276	168	47	60	1	0	0
1	Ig	34	276	168	47	60	1	0	0
1	CG	165	1229	780	203	242	4	0	0
1	Jg	34	276	168	47	60	1	0	0
1	Kg	34	276	168	47	60	1	0	0
1	DG	165	1229	780	203	242	4	0	0
1	Lg	34	276	168	47	60	1	0	0
1	Mg	34	276	168	47	60	1	0	0
1	EG	165	1229	780	203	242	4	0	0
1	VG	34	276	168	47	60	1	0	0
1	WG	34	276	168	47	60	1	0	0
1	XG	34	276	168	47	60	1	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
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	Cg	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	Dg	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		
1	Ag	34	Total	C	N	O	S	0	0
			276	168	47	60	1		
1	Eg	34	Total	C	N	O	S	0	0
			276	168	47	60	1		

- Molecule 2 is a protein called Type IV secretion protein IcmK.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	EH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		
2	FH	258	Total	C	N	O	S	0	0
			1983	1268	336	371	8		

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

- Molecule 3 is a protein called Inner membrane lipoprotein YiaD.

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

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

- Molecule 4 is a protein called Outer membrane protein, OmpA family protein.

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

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Mol	Chain	Residues	Atoms					AltConf	Trace
4	AL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
4	BL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
4	CL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		
4	DL	173	Total	C	N	O	S	0	0
			1388	877	253	253	5		

- Molecule 5 is a protein called Neurogenic locus notch.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	EN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	FN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	GN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	HN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	IN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	JN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	KN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	LN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	MN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	AN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	BN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	CN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		
5	DN	78	Total	C	N	O	S	0	0
			582	357	99	113	13		

- Molecule 6 is a protein called Unknown protein fragment.

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

- Molecule 7 is a protein called Unknown protein fragment.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	EX	48	Total	C	N	O	0	0
			240	144	48	48		
7	FX	48	Total	C	N	O	0	0
			240	144	48	48		
7	GX	48	Total	C	N	O	0	0
			240	144	48	48		
7	HX	48	Total	C	N	O	0	0
			240	144	48	48		
7	IX	48	Total	C	N	O	0	0
			240	144	48	48		
7	JX	48	Total	C	N	O	0	0
			240	144	48	48		
7	KX	48	Total	C	N	O	0	0
			240	144	48	48		

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Mol	Chain	Residues	Atoms				AltConf	Trace
7	LX	48	Total	C	N	O	0	0
			240	144	48	48		
7	MX	48	Total	C	N	O	0	0
			240	144	48	48		
7	VX	48	Total	C	N	O	0	0
			240	144	48	48		
7	WX	48	Total	C	N	O	0	0
			240	144	48	48		
7	XX	48	Total	C	N	O	0	0
			240	144	48	48		
7	YX	48	Total	C	N	O	0	0
			240	144	48	48		
7	ZX	48	Total	C	N	O	0	0
			240	144	48	48		
7	AX	48	Total	C	N	O	0	0
			240	144	48	48		
7	BX	48	Total	C	N	O	0	0
			240	144	48	48		
7	CX	48	Total	C	N	O	0	0
			240	144	48	48		
7	DX	48	Total	C	N	O	0	0
			240	144	48	48		

- Molecule 8 is a protein called DotD.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	Ed	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	FD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	Fd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	GD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	Gd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	HD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	Hd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	ID	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		

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Mol	Chain	Residues	Atoms					AltConf	Trace
8	Id	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	JD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	Jd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	KD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	Kd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	LD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	CD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	Ld	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	MD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	Md	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	Ad	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	BD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	Bd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	Cd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	DD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	Dd	137	Total	C	N	O	S	0	0
			1058	672	182	202	2		
8	AD	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		
8	ED	140	Total	C	N	O	S	0	0
			1086	692	185	206	3		

- Molecule 9 is a protein called DotF.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	Ef	59	Total	C	N	O	S	0	0
			449	290	77	81	1		

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	FF	63	483	308	84	90	1	0	0
9	Ff	59	449	290	77	81	1	0	0
9	AF	63	483	308	84	90	1	0	0
9	GF	63	483	308	84	90	1	0	0
9	Gf	59	449	290	77	81	1	0	0
9	HF	63	483	308	84	90	1	0	0
9	Hf	59	449	290	77	81	1	0	0
9	IF	63	483	308	84	90	1	0	0
9	If	59	449	290	77	81	1	0	0
9	JF	63	483	308	84	90	1	0	0
9	Jf	59	449	290	77	81	1	0	0
9	KF	63	483	308	84	90	1	0	0
9	Kf	59	449	290	77	81	1	0	0
9	LF	63	483	308	84	90	1	0	0
9	Lf	59	449	290	77	81	1	0	0
9	MF	63	483	308	84	90	1	0	0
9	Mf	59	449	290	77	81	1	0	0
9	VF	63	483	308	84	90	1	0	0
9	CF	63	483	308	84	90	1	0	0
9	WF	63	483	308	84	90	1	0	0
9	XF	63	483	308	84	90	1	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
9	YF	63	Total 483	C 308	N 84	O 90	S 1	0	0
9	ZF	63	Total 483	C 308	N 84	O 90	S 1	0	0
9	Af	59	Total 449	C 290	N 77	O 81	S 1	0	0
9	BF	63	Total 483	C 308	N 84	O 90	S 1	0	0
9	Bf	59	Total 449	C 290	N 77	O 81	S 1	0	0
9	Cf	59	Total 449	C 290	N 77	O 81	S 1	0	0
9	DF	63	Total 483	C 308	N 84	O 90	S 1	0	0
9	Df	59	Total 449	C 290	N 77	O 81	S 1	0	0
9	EF	63	Total 483	C 308	N 84	O 90	S 1	0	0

- Molecule 10 is a protein called DotC.

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

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Mol	Chain	Residues	Atoms					AltConf	Trace
10	LC	209	Total	C	N	O	S	0	0
			1667	1061	292	309	5		
10	MC	209	Total	C	N	O	S	0	0
			1667	1061	292	309	5		
10	AC	243	Total	C	N	O	S	0	0
			1921	1216	340	357	8		

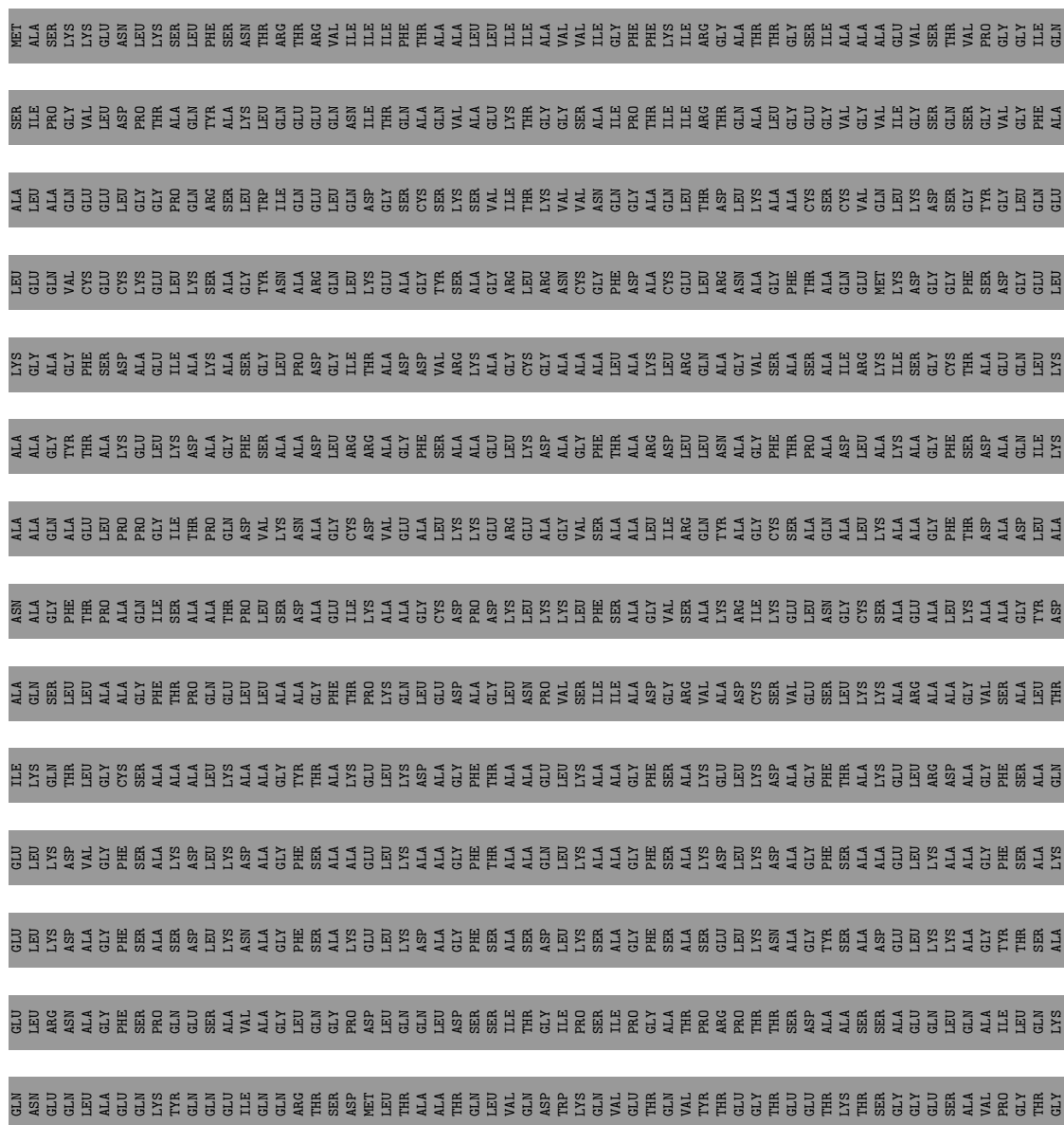
- Molecule 11 is a protein called DUF2807 domain-containing protein.

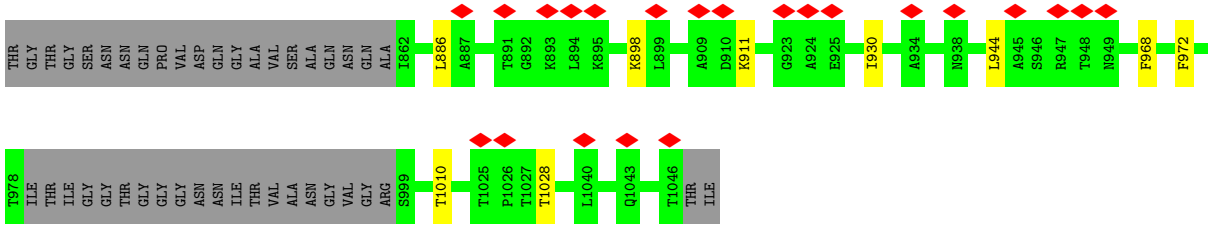
Mol	Chain	Residues	Atoms					AltConf	Trace
11	HM	208	Total	C	N	O	S	0	0
			1650	1046	293	308	3		
11	IM	208	Total	C	N	O	S	0	0
			1650	1046	293	308	3		
11	KM	208	Total	C	N	O	S	0	0
			1650	1046	293	308	3		
11	LM	208	Total	C	N	O	S	0	0
			1650	1046	293	308	3		
11	MM	208	Total	C	N	O	S	0	0
			1650	1046	293	308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

3 Residue-property plots i

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

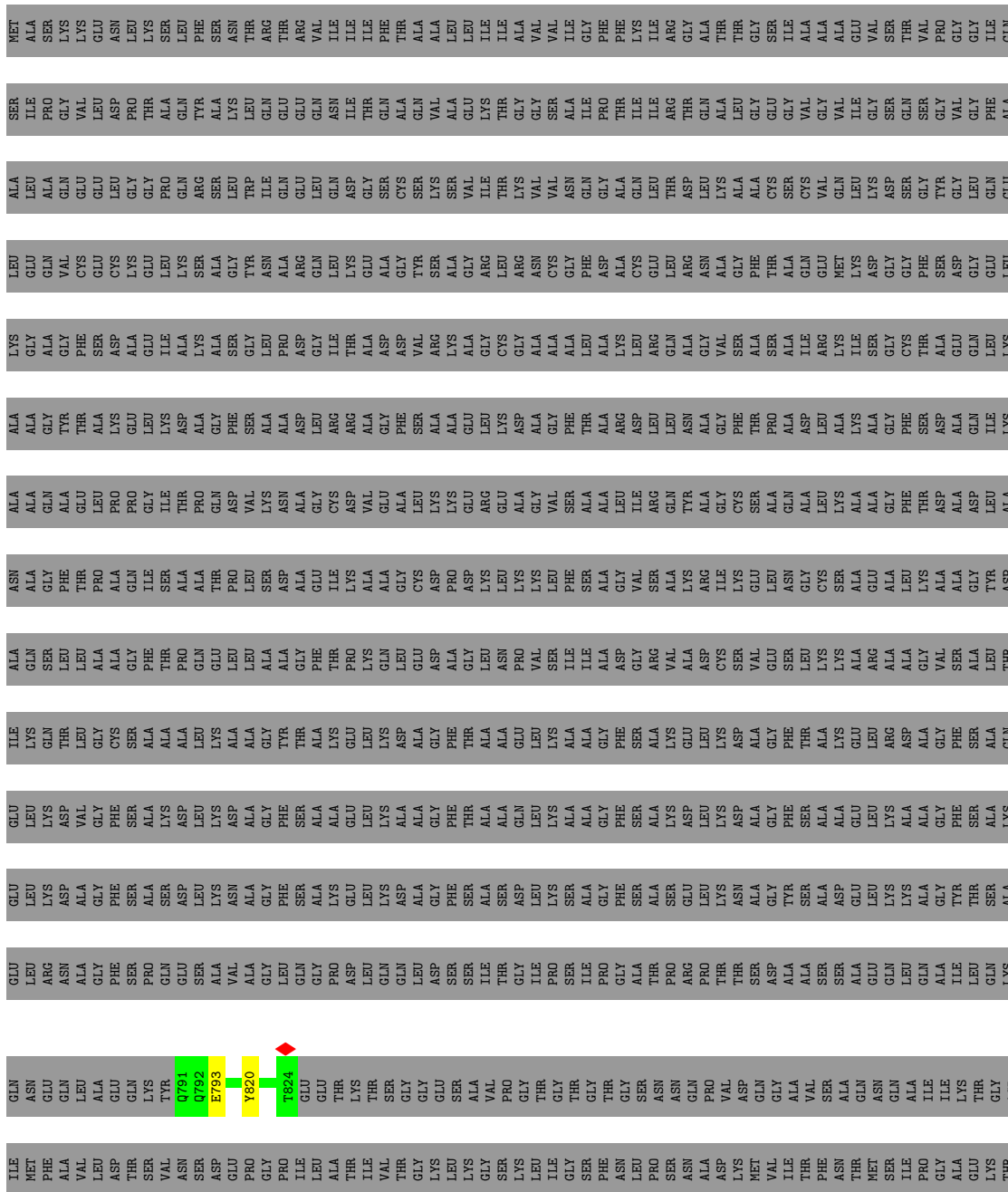
- Molecule 1: IcmE protein

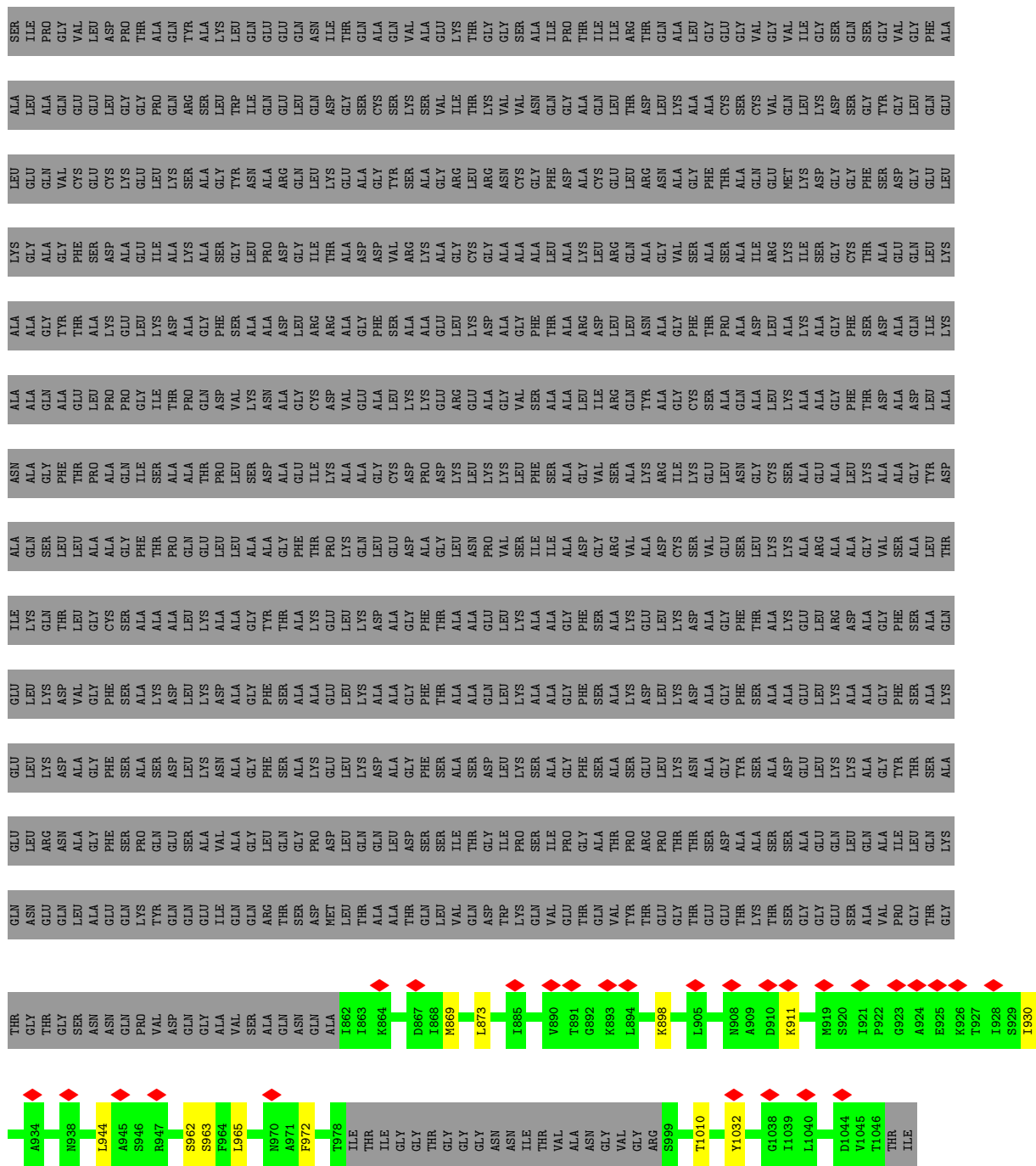




● Molecule 1: IcmE protein

Chain Fg: 97%





● Molecule 1: IcmE protein

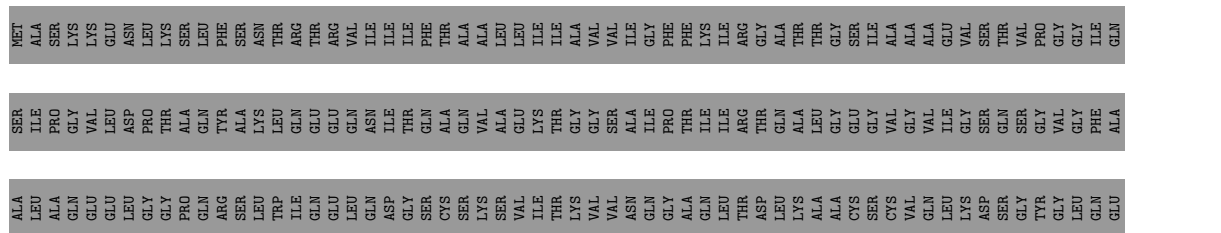
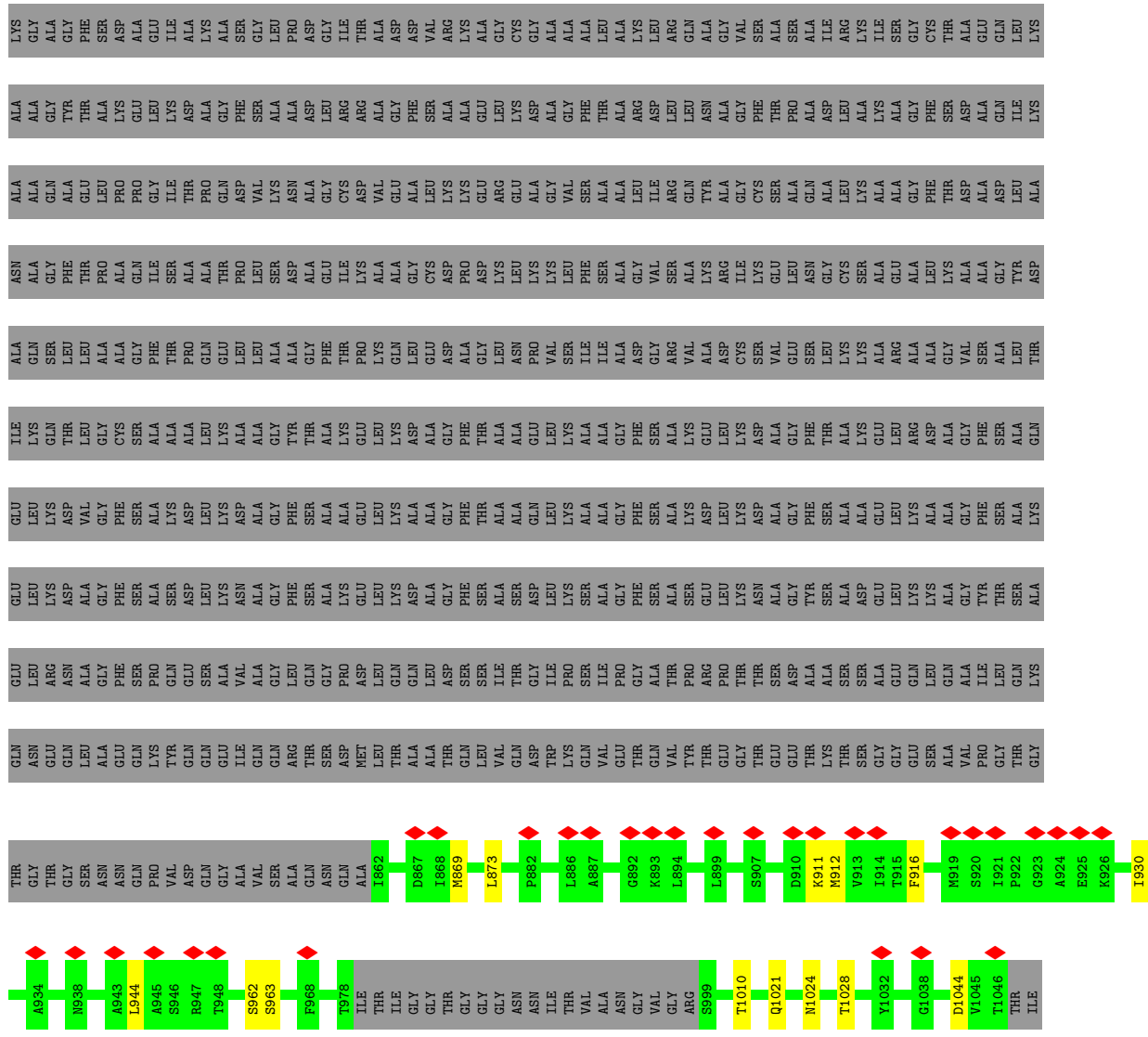


Table of amino acid residues for Molecule 1: IcmE protein. The table consists of 13 columns of residue names. Some residues are highlighted in yellow (Q791, L802, Q814, V815, E816, T824) and others in green (Q791, L802, Q814, V815, E816, T824).

- Molecule 1: IcmE protein

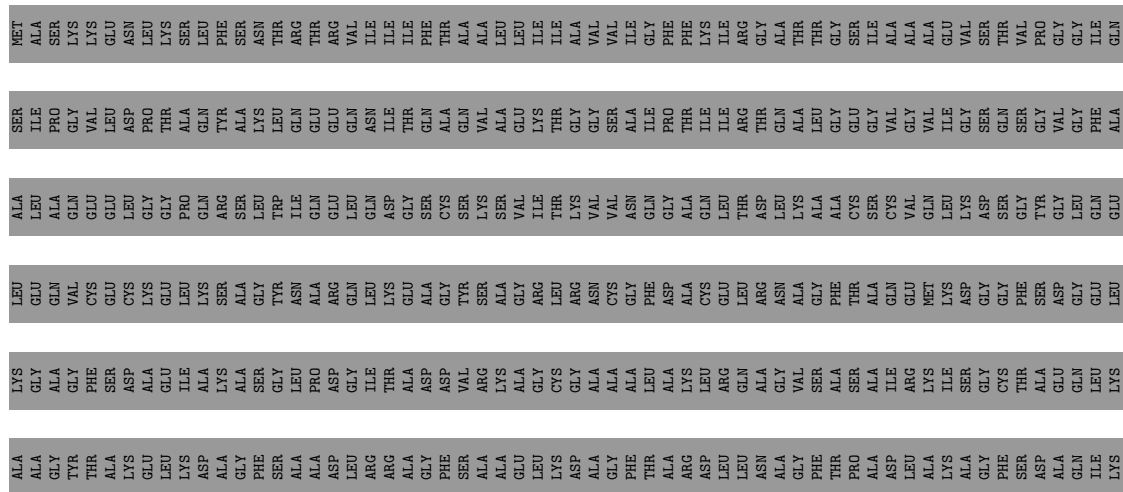
Chain Kg: 97%

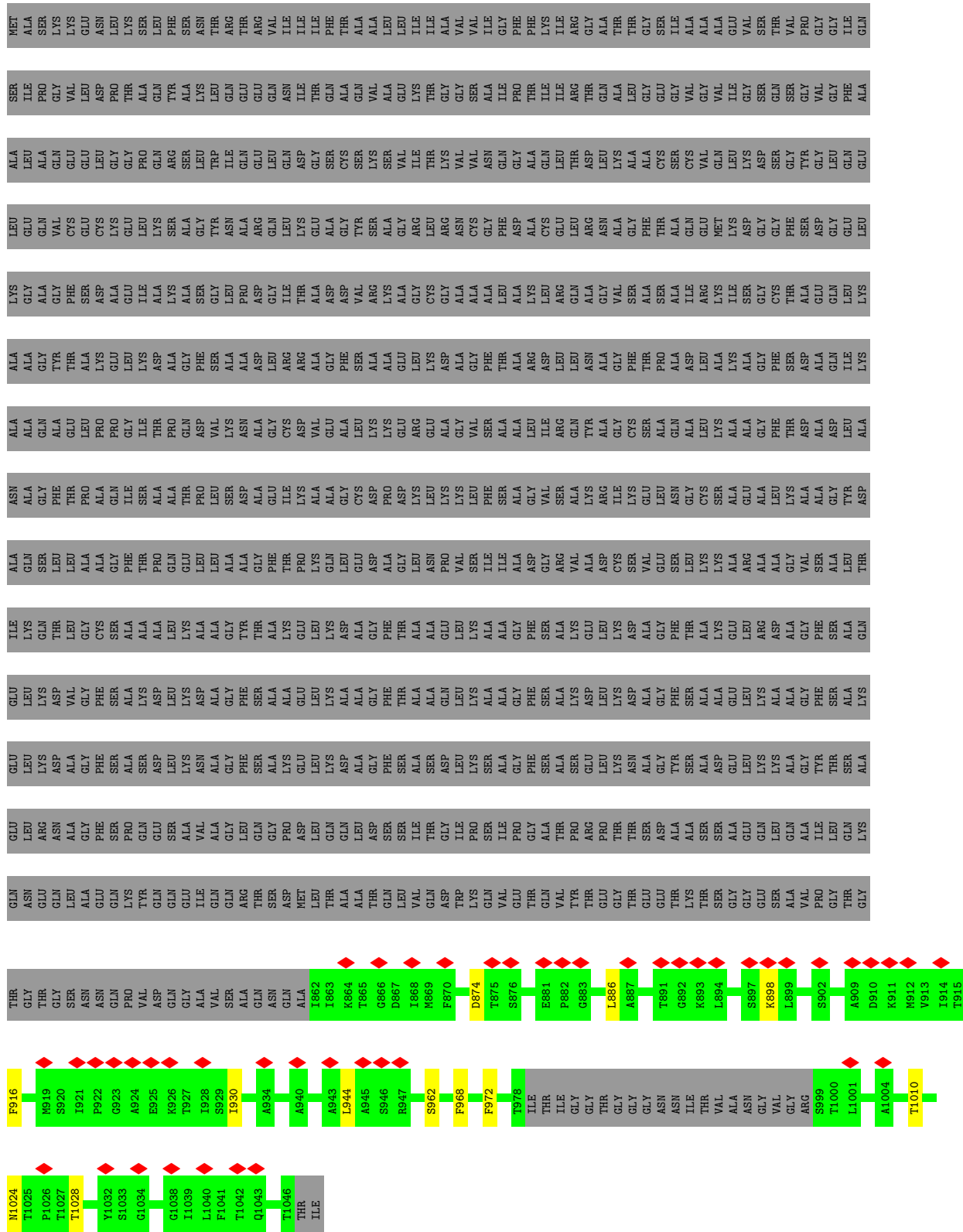
Table of amino acid residues for Chain Kg. The table consists of 13 columns of residue names.



• Molecule 1: IcmE protein

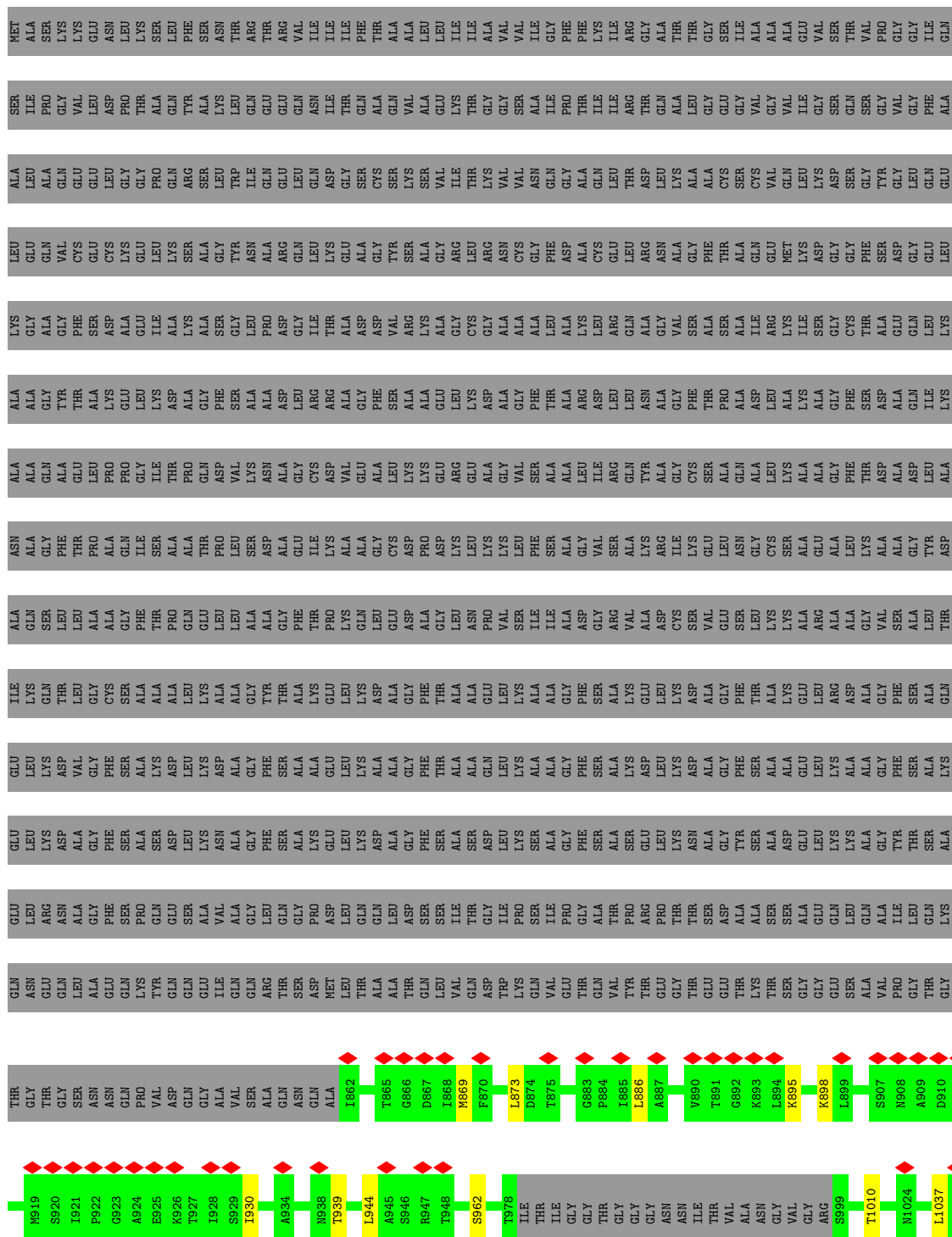
Chain Lg: 97%



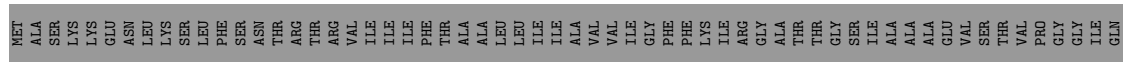


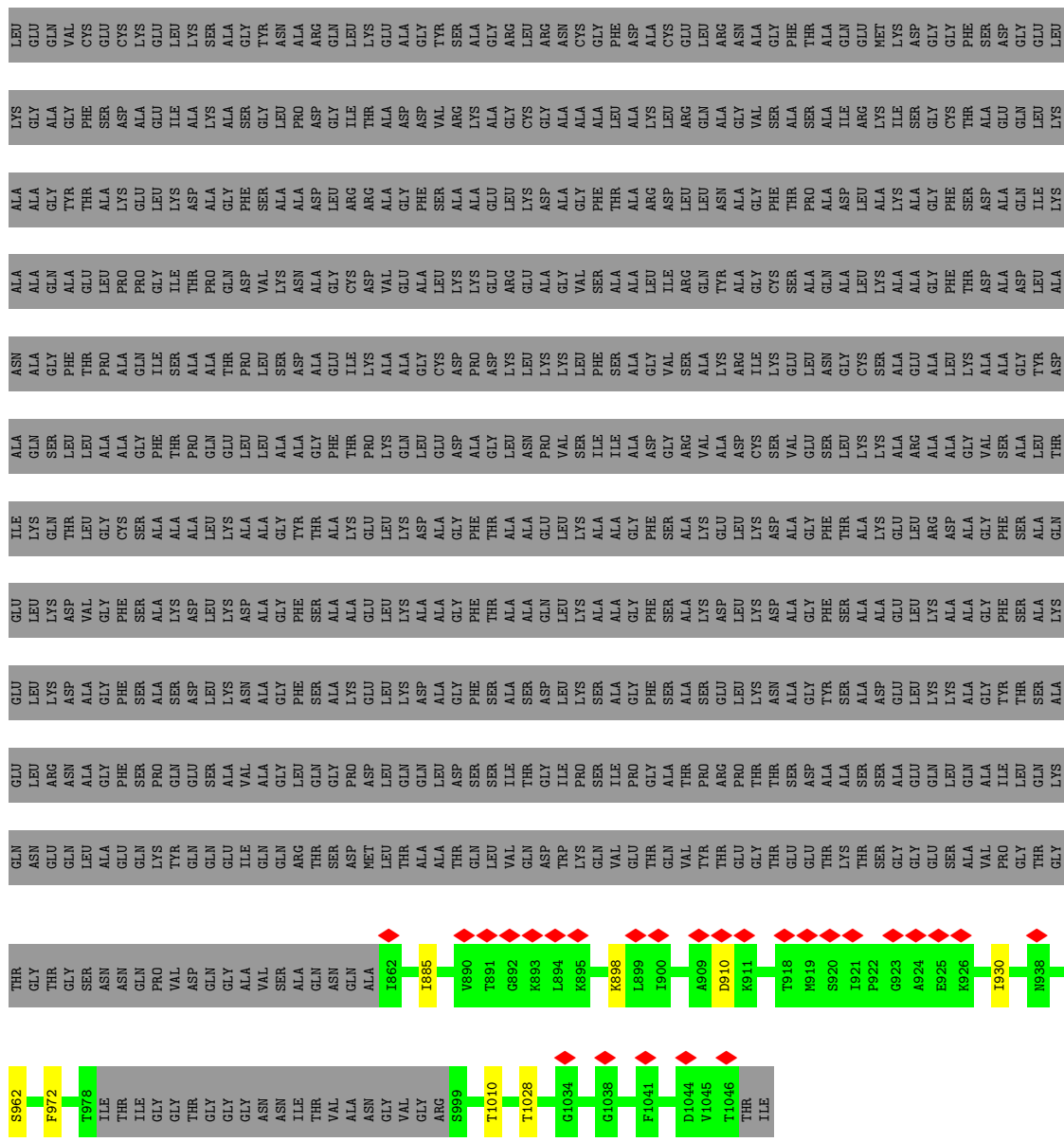
● Molecule 1: IcmE protein



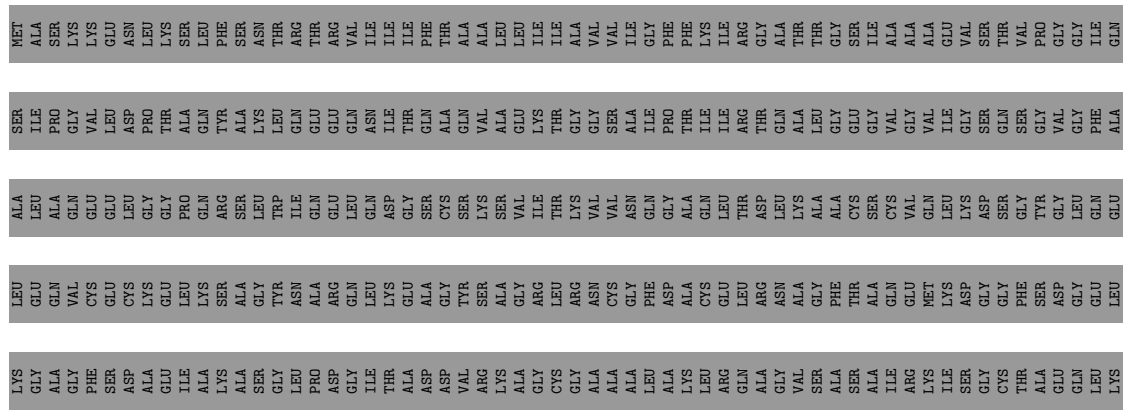


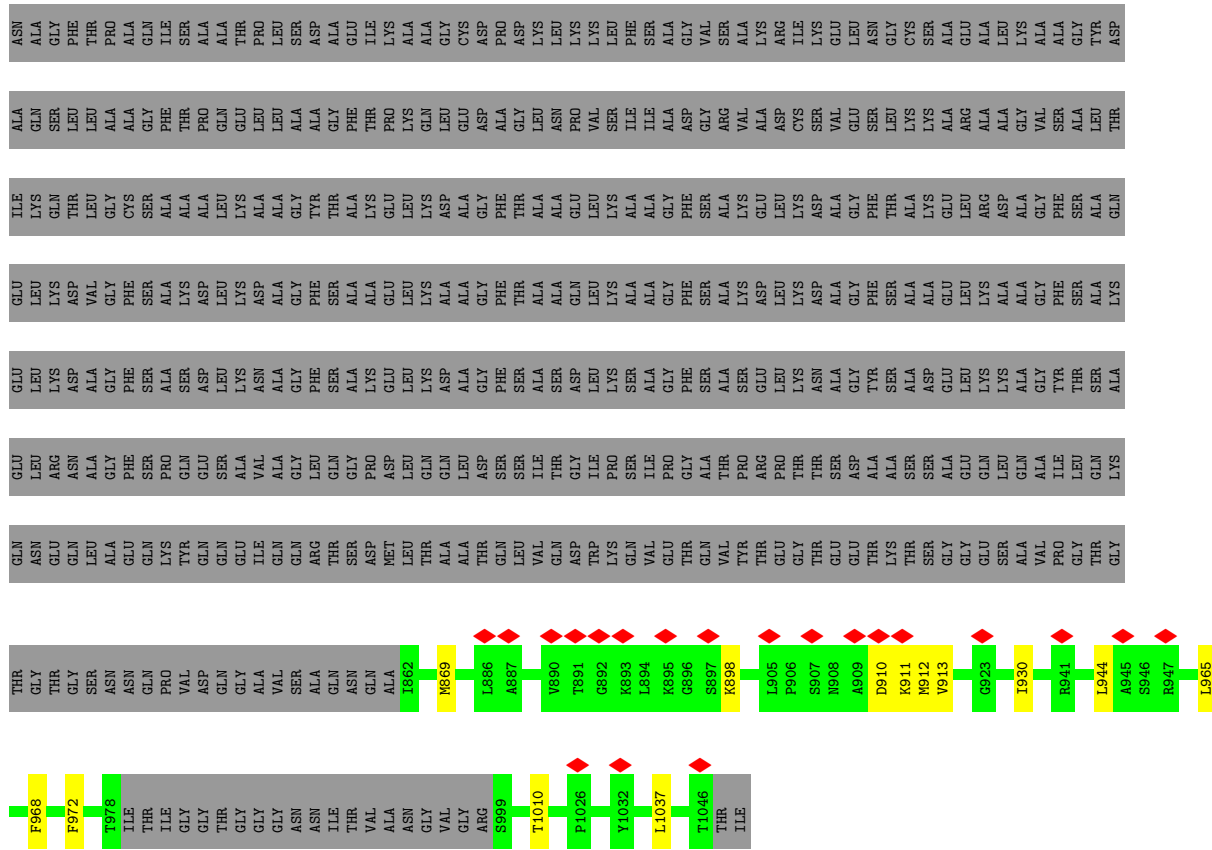
• Molecule 1: IcmE protein





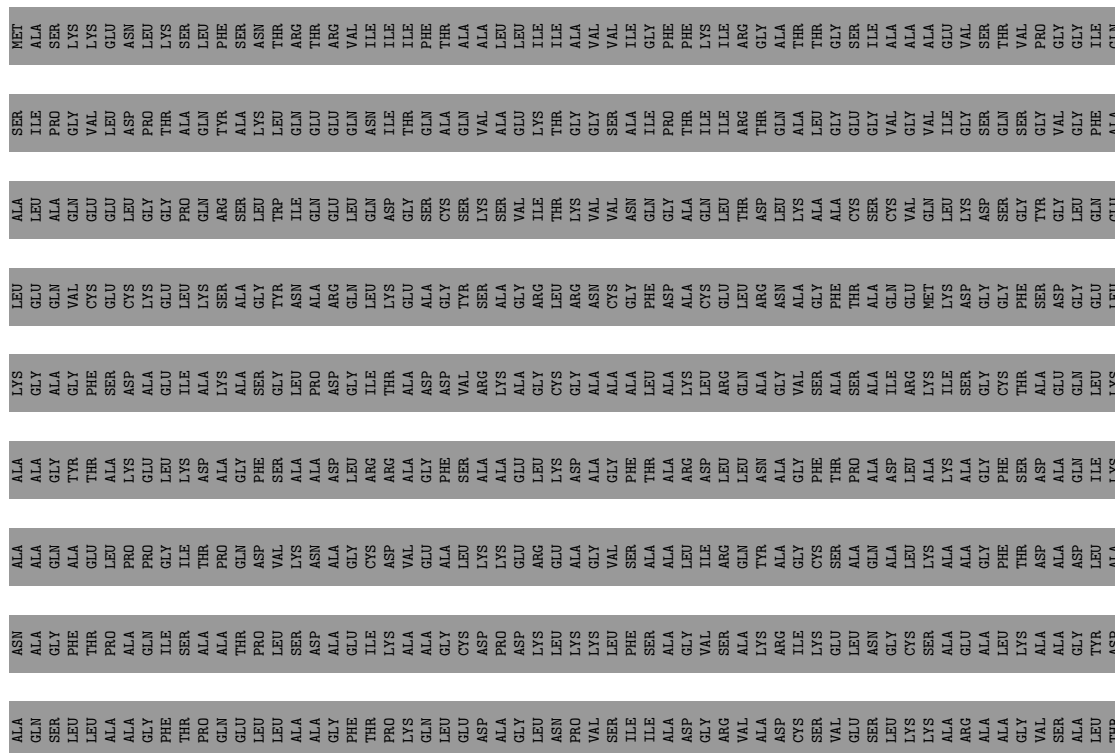
● Molecule 1: IcmE protein

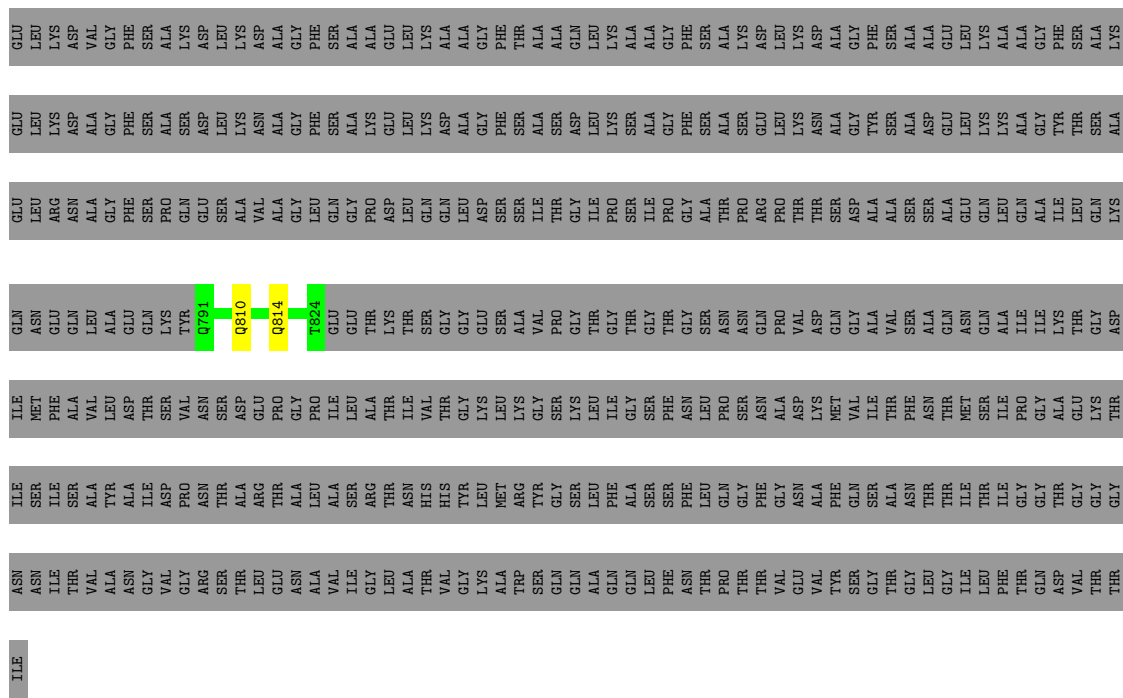




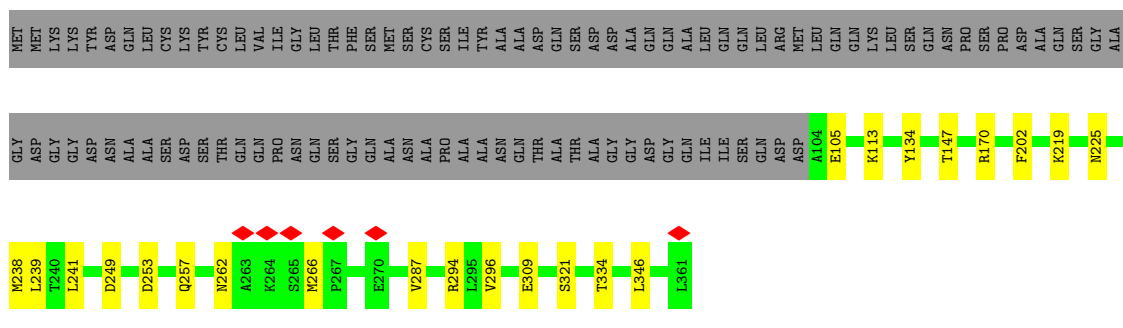
• Molecule 1: IcmE protein

Chain Ag: . 97%

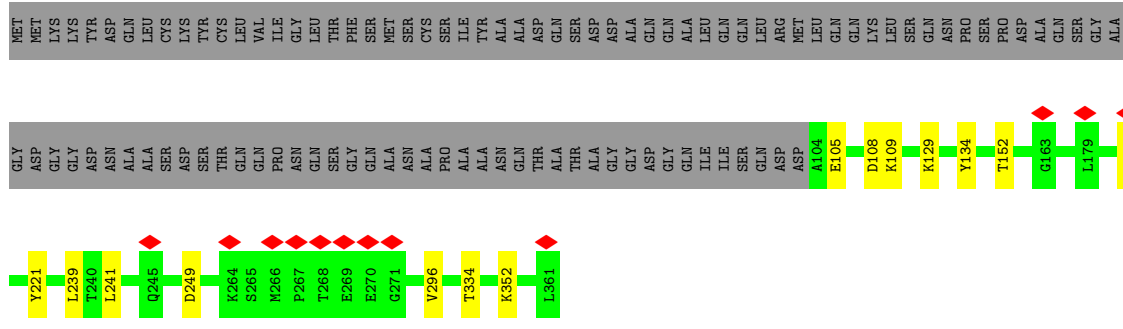




• Molecule 2: Type IV secretion protein IcmK

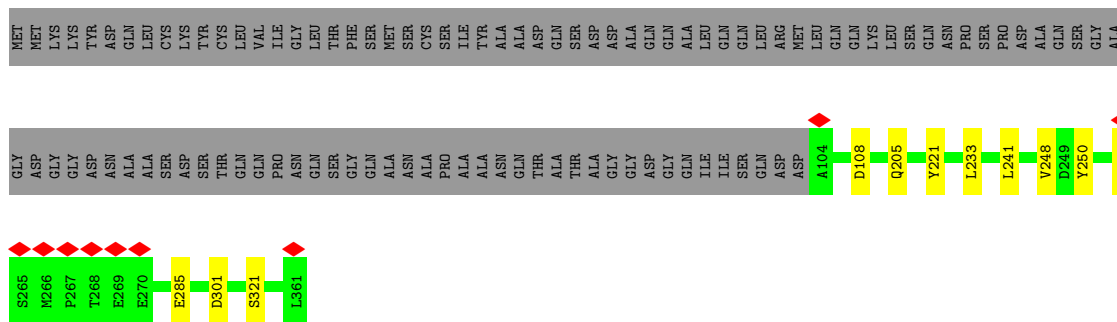


• Molecule 2: Type IV secretion protein IcmK

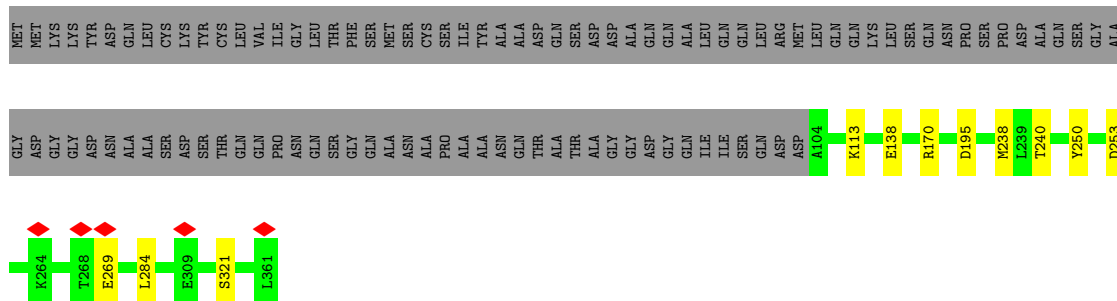


• Molecule 2: Type IV secretion protein IcmK

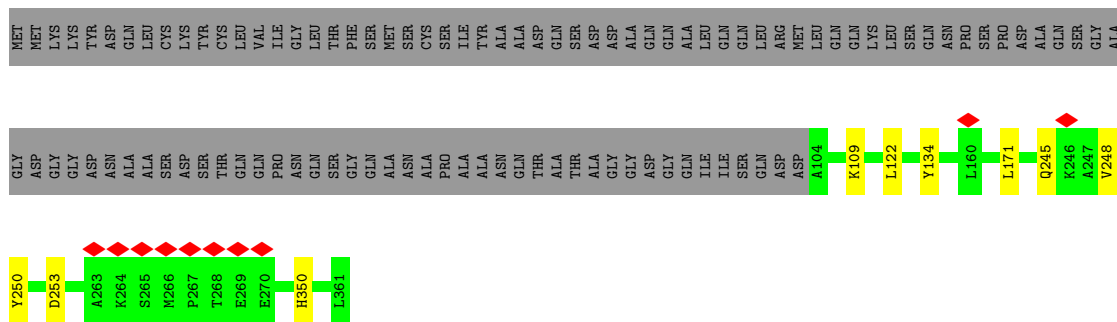




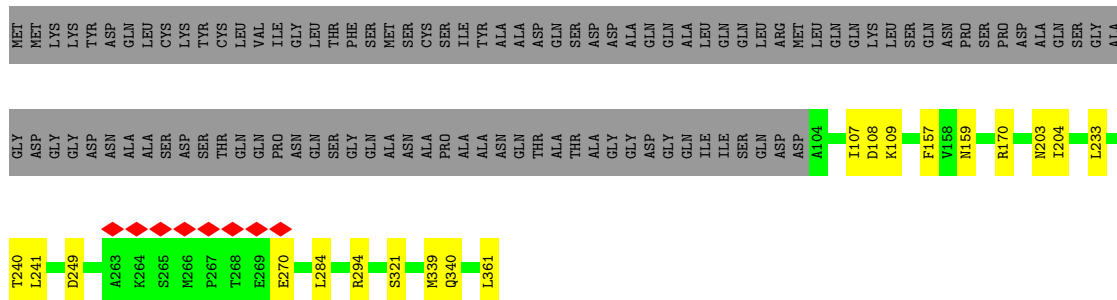
• Molecule 2: Type IV secretion protein IcmK



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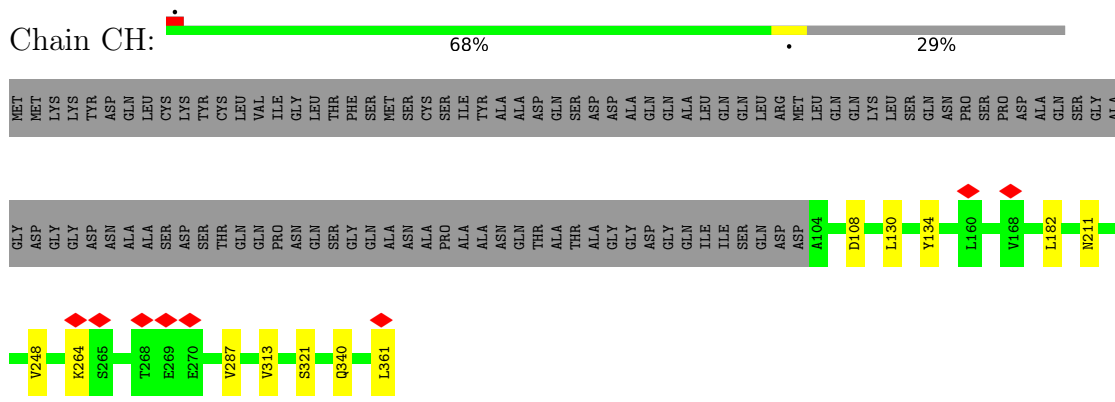


• Molecule 2: Type IV secretion protein IcmK

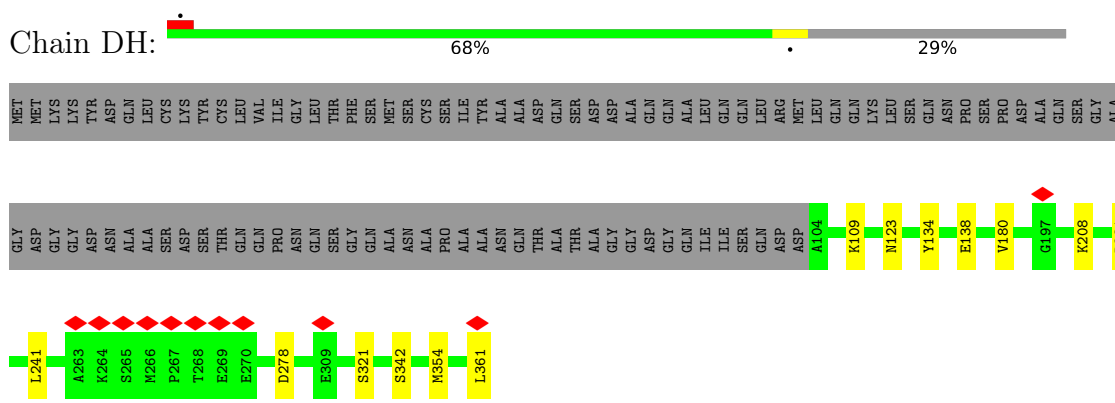


• Molecule 2: Type IV secretion protein IcmK

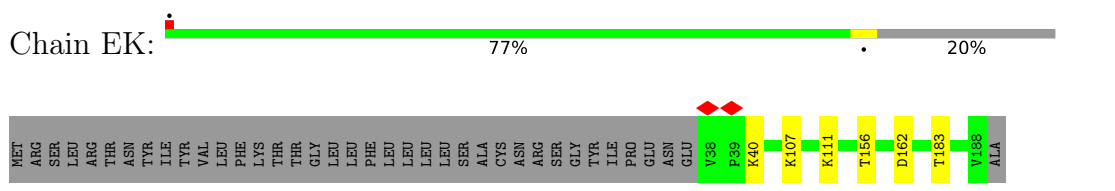
• Molecule 2: Type IV secretion protein IcmK



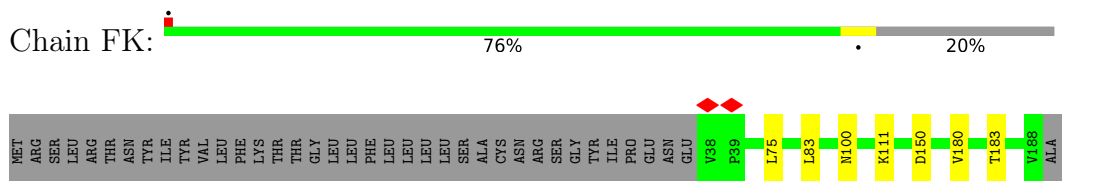
• Molecule 2: Type IV secretion protein IcmK



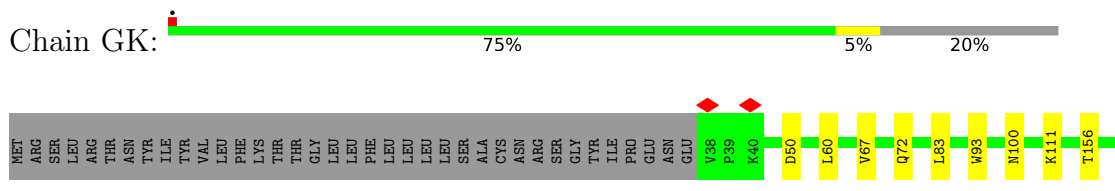
• Molecule 3: Inner membrane lipoprotein YiaD



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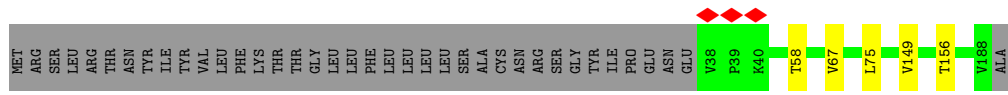
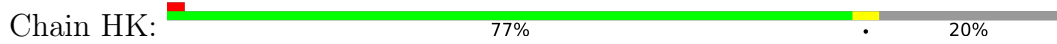


• Molecule 3: Inner membrane lipoprotein YiaD

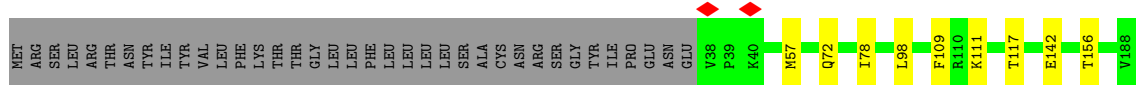
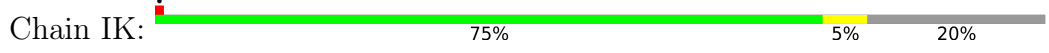


ALA

• Molecule 3: Inner membrane lipoprotein YiaD

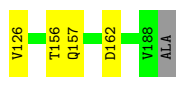
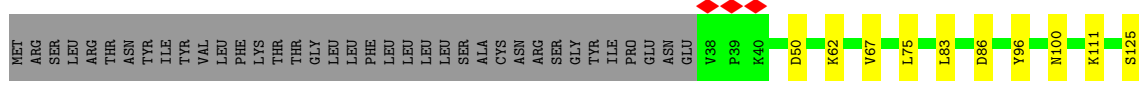
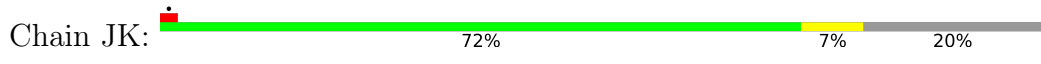


• Molecule 3: Inner membrane lipoprotein YiaD

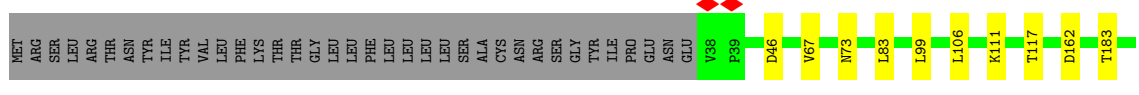
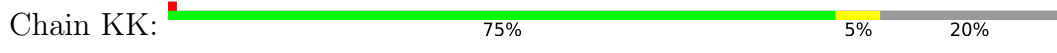


ALA

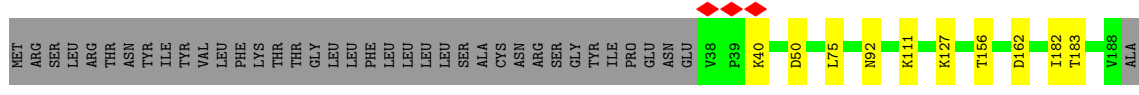
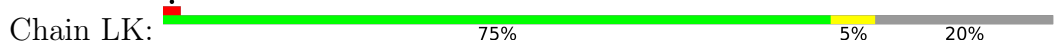
• Molecule 3: Inner membrane lipoprotein YiaD



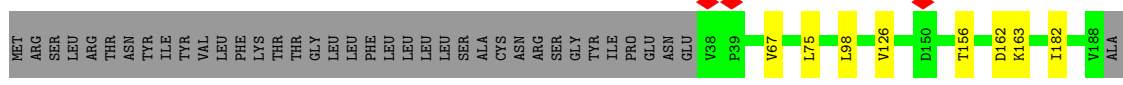
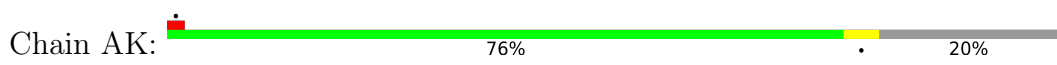
• Molecule 3: Inner membrane lipoprotein YiaD



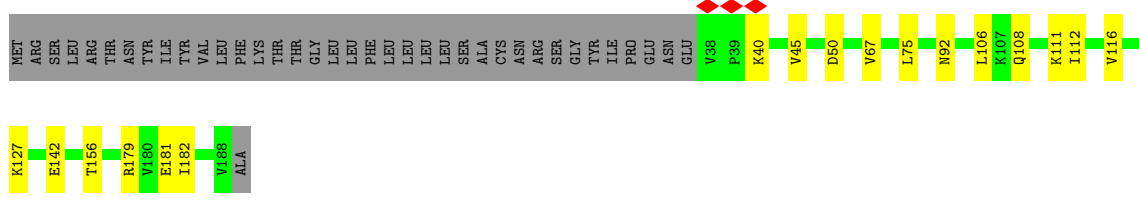
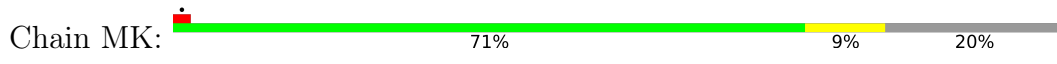
• Molecule 3: Inner membrane lipoprotein YiaD



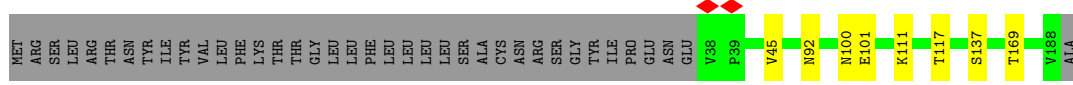
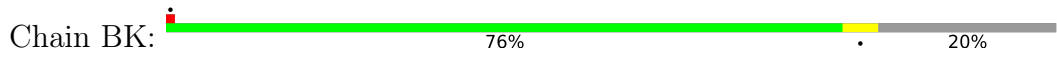
• Molecule 3: Inner membrane lipoprotein YiaD



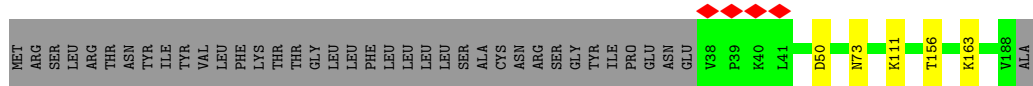
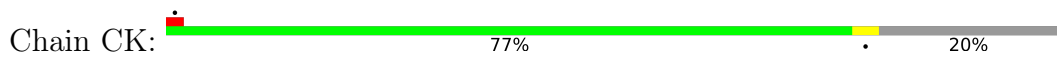
• Molecule 3: Inner membrane lipoprotein YiaD



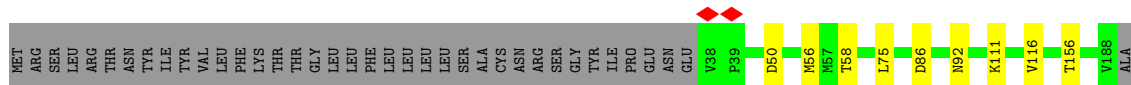
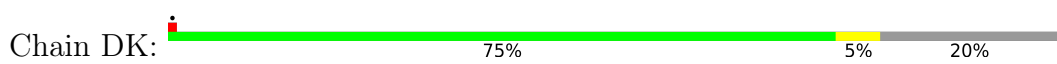
• Molecule 3: Inner membrane lipoprotein YiaD



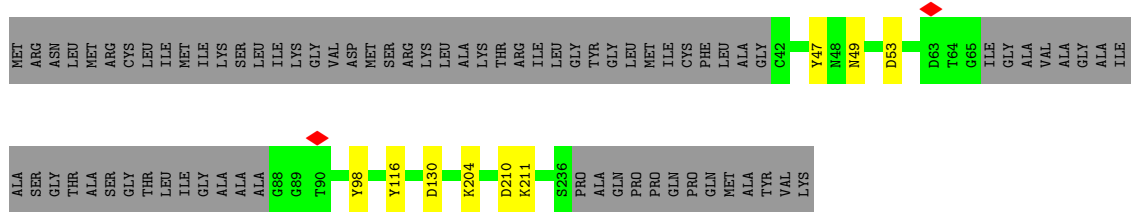
• Molecule 3: Inner membrane lipoprotein YiaD



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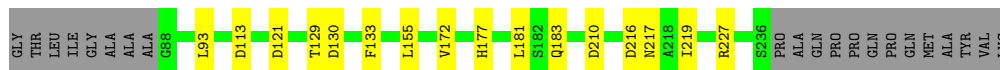
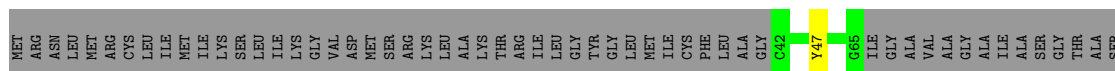


• Molecule 4: Outer membrane protein, OmpA family protein

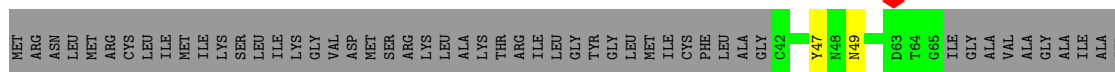




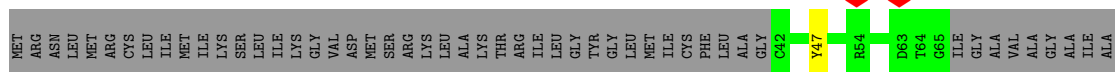
• Molecule 4: Outer membrane protein, OmpA family protein



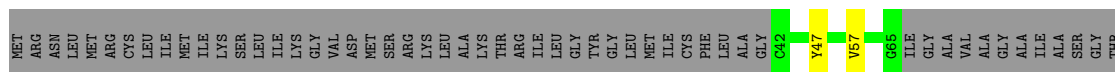
• Molecule 4: Outer membrane protein, OmpA family protein



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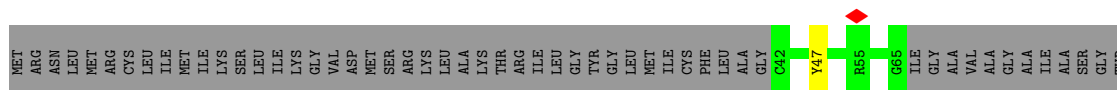


• Molecule 4: Outer membrane protein, OmpA family protein

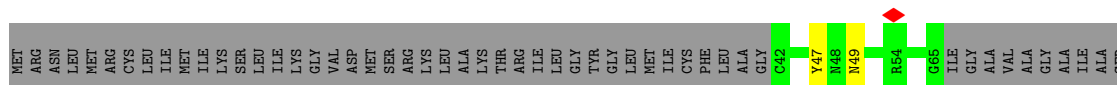


• Molecule 4: Outer membrane protein, OmpA family protein

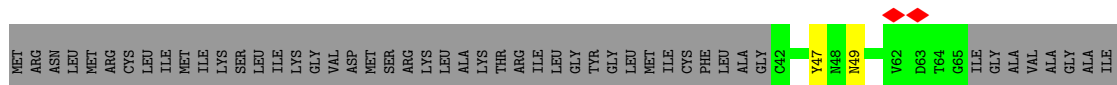




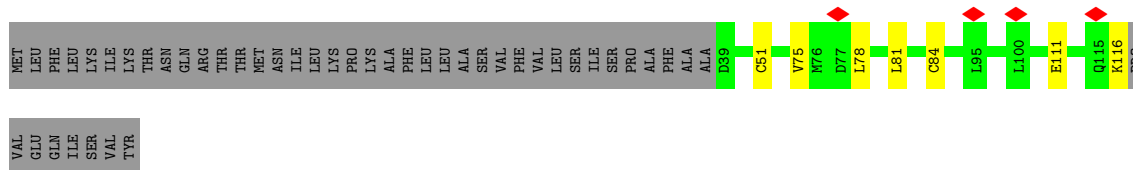
• Molecule 4: Outer membrane protein, OmpA family protein



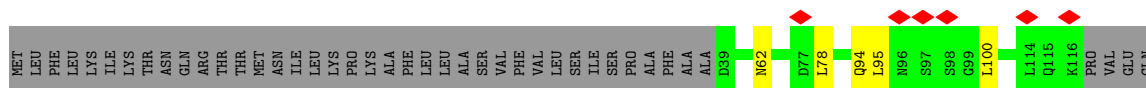
• Molecule 4: Outer membrane protein, OmpA family protein



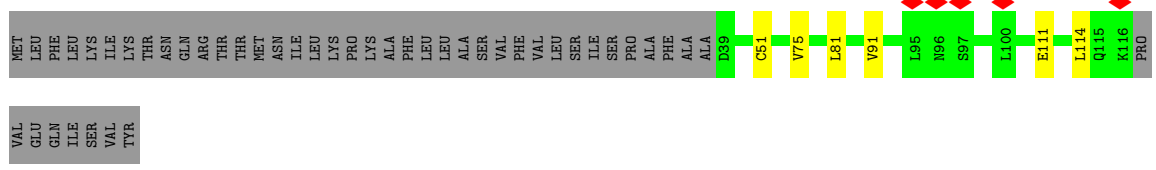
• Molecule 5: Neurogenic locus notch



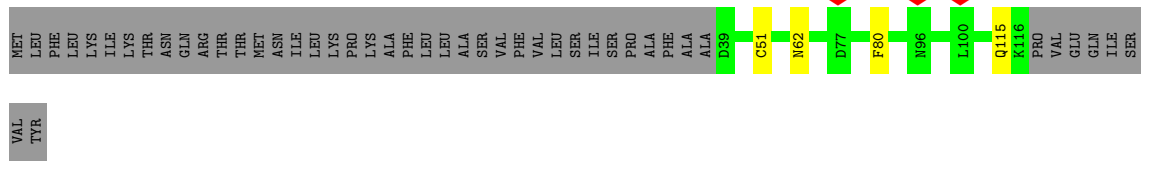
• Molecule 5: Neurogenic locus notch



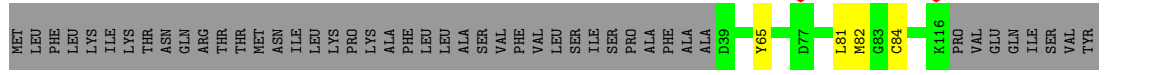
• Molecule 5: Neurogenic locus notch



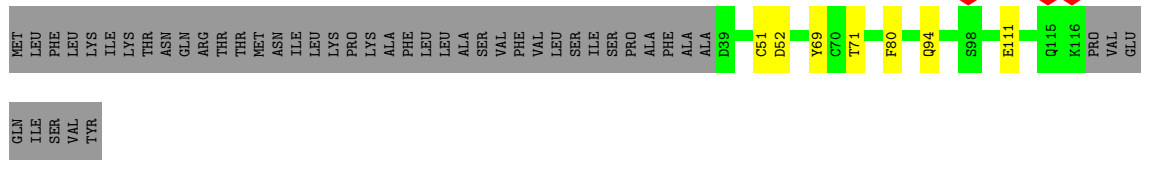
• Molecule 5: Neurogenic locus notch



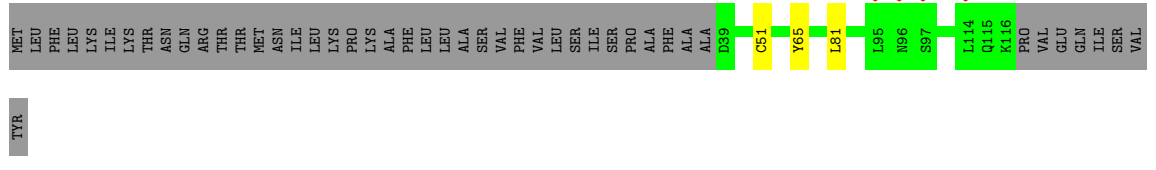
• Molecule 5: Neurogenic locus notch



• Molecule 5: Neurogenic locus notch

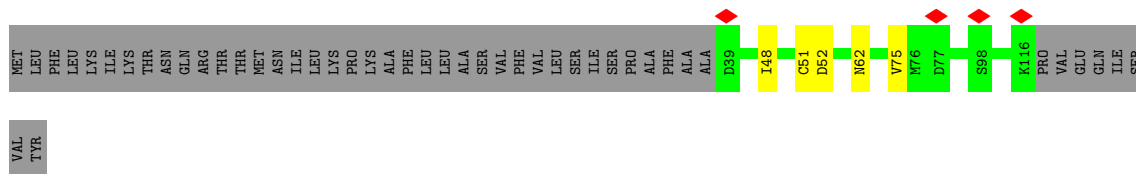


• Molecule 5: Neurogenic locus notch

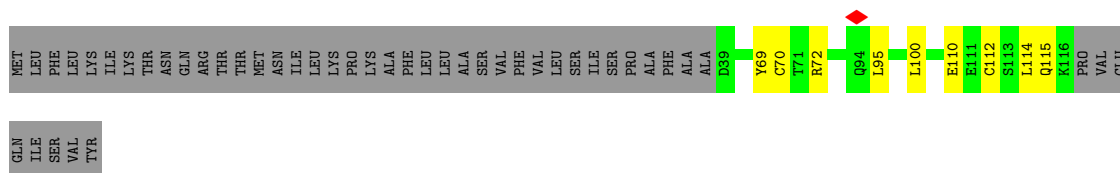


• Molecule 5: Neurogenic locus notch

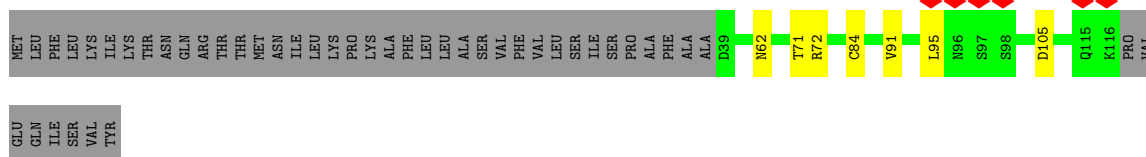




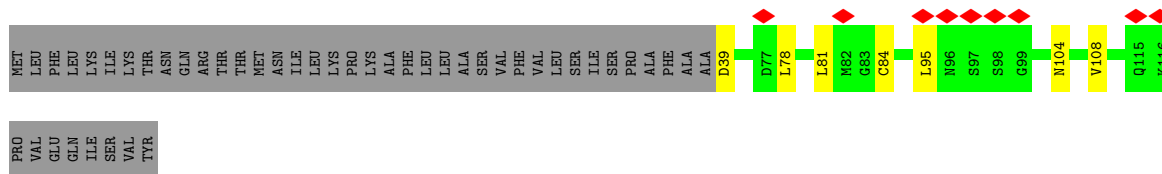
● Molecule 5: Neurogenic locus notch



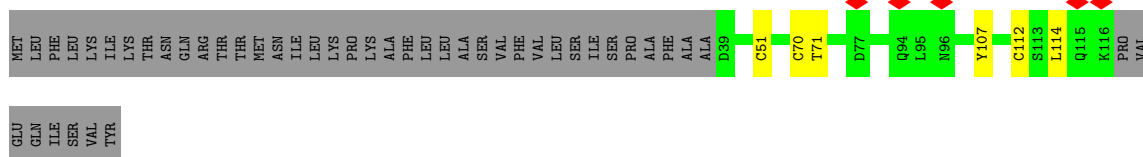
● Molecule 5: Neurogenic locus notch



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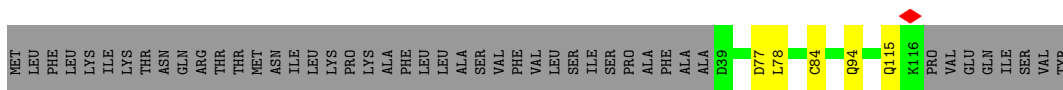


● Molecule 5: Neurogenic locus notch



● Molecule 5: Neurogenic locus notch





- Molecule 6: Unknown protein fragment

Chain EU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain FU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain GU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain HU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain IU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain JU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain KU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain LU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain MU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain AU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain BU:  100%

There are no outlier residues recorded for this chain.

- Molecule 6: Unknown protein fragment

Chain CU:  100%

There are no outlier residues recorded for this chain.

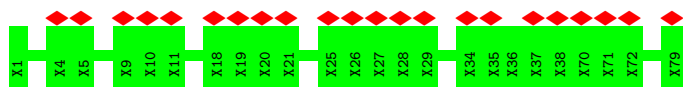
- Molecule 6: Unknown protein fragment

Chain DU:  100%

There are no outlier residues recorded for this chain.

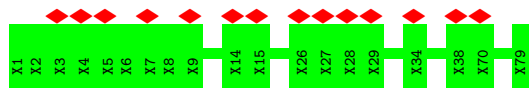
- Molecule 7: Unknown protein fragment

Chain EX:  46% 100%



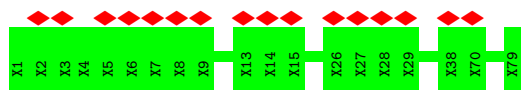
- Molecule 7: Unknown protein fragment

Chain FX:  29% 100%

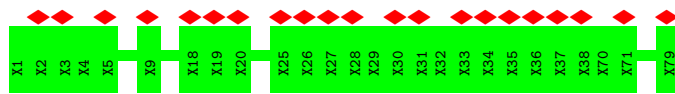


- Molecule 7: Unknown protein fragment

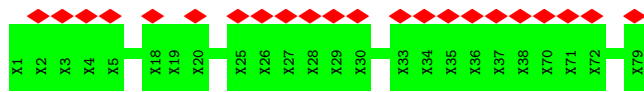
Chain GX:  33% 100%



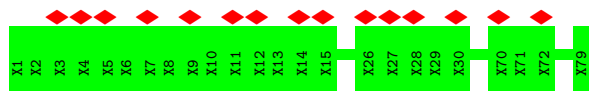
- Molecule 7: Unknown protein fragment



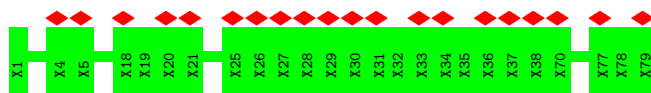
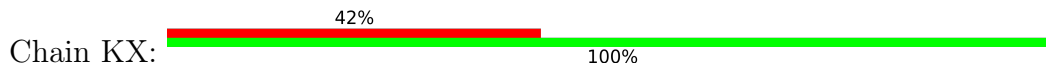
• Molecule 7: Unknown protein fragment



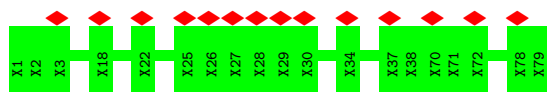
• Molecule 7: Unknown protein fragment



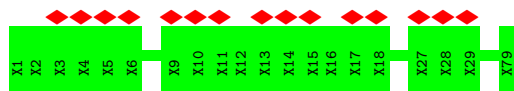
• Molecule 7: Unknown protein fragment



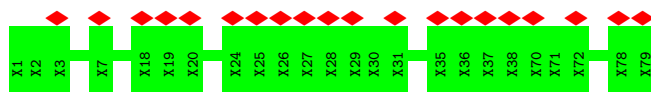
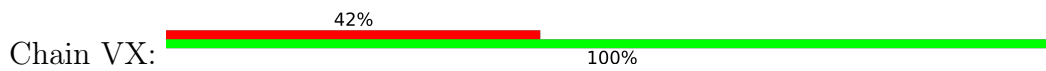
• Molecule 7: Unknown protein fragment



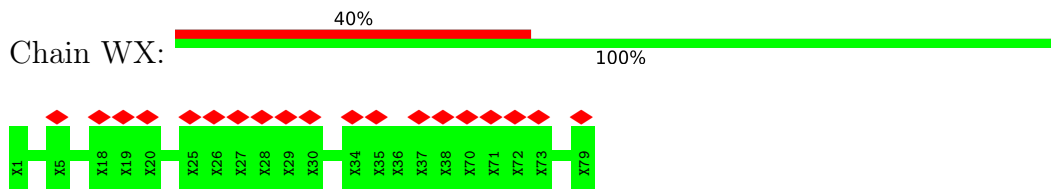
• Molecule 7: Unknown protein fragment



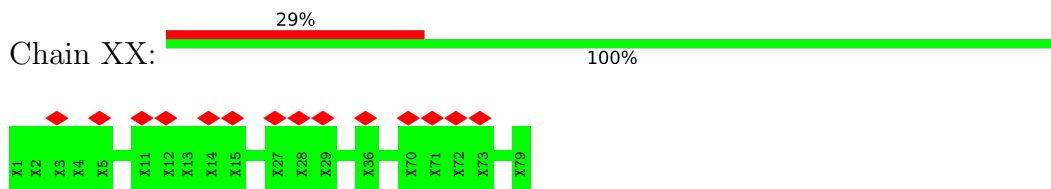
• Molecule 7: Unknown protein fragment



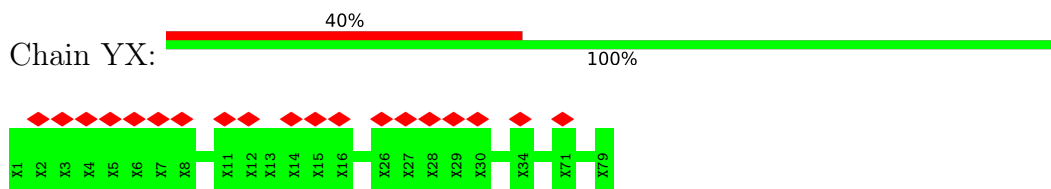
- Molecule 7: Unknown protein fragment



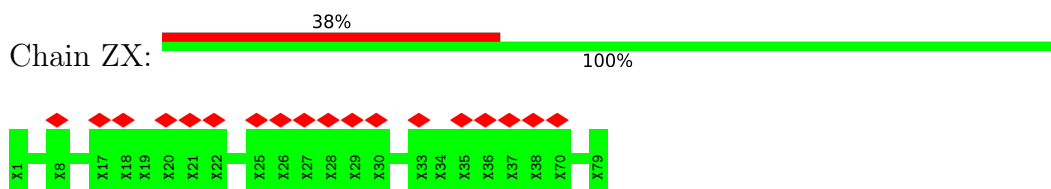
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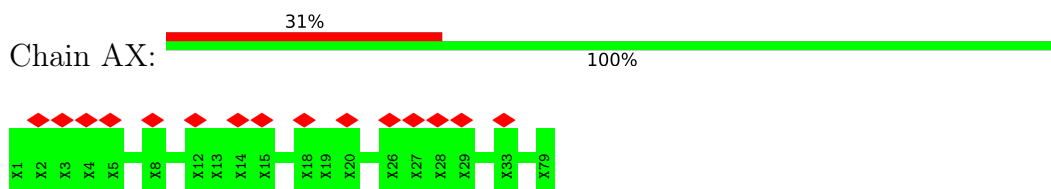
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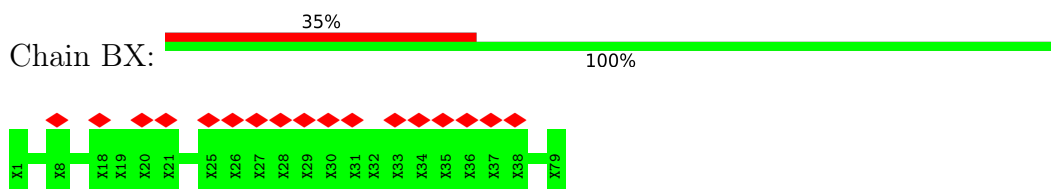
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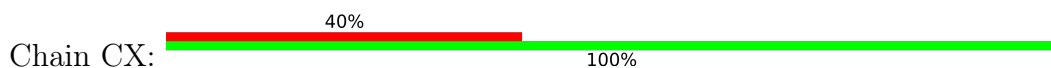
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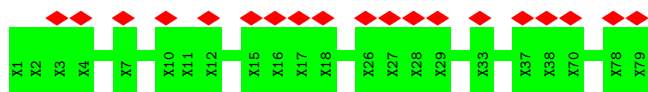


- Molecule 7: Unknown protein fragment

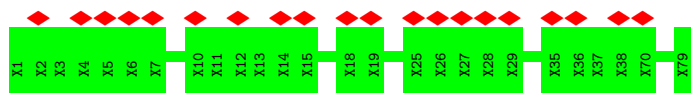
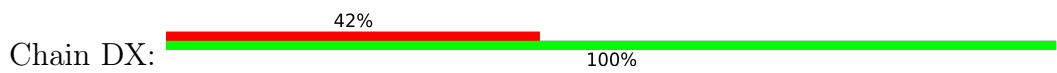


- Molecule 7: Unknown protein fragment





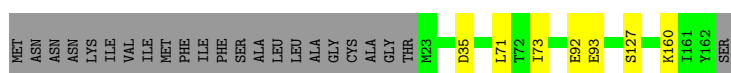
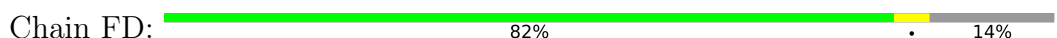
• Molecule 7: Unknown protein fragment



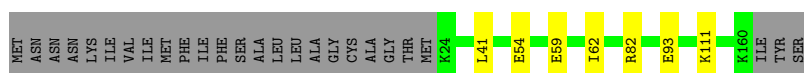
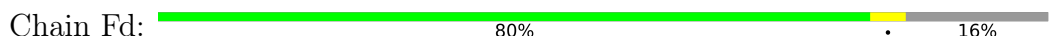
• Molecule 8: DotD



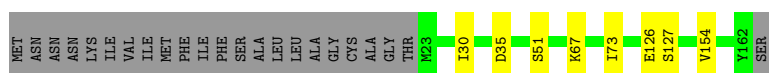
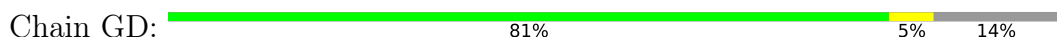
• Molecule 8: DotD



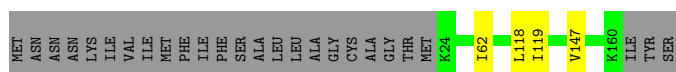
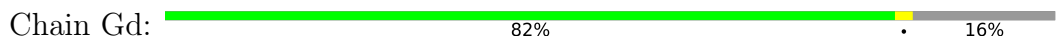
• Molecule 8: DotD



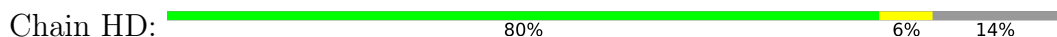
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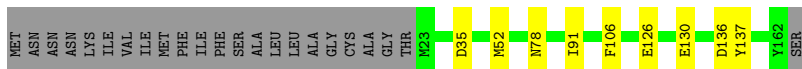


• Molecule 8: DotD

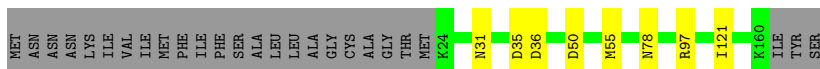
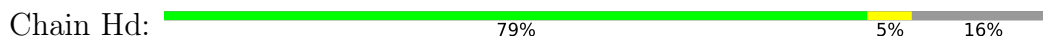


• Molecule 8: DotD

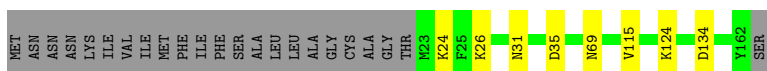
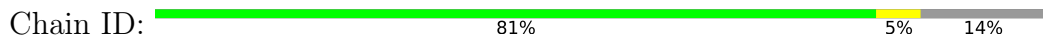




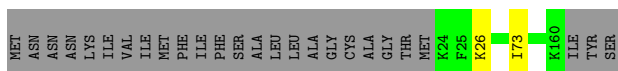
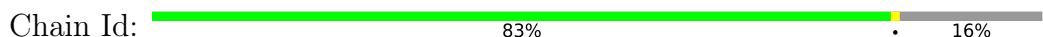
• Molecule 8: DotD



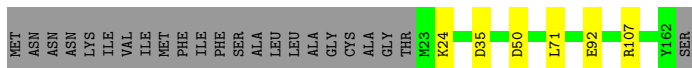
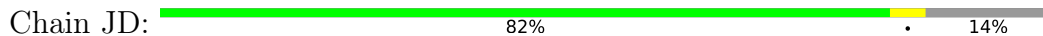
• Molecule 8: DotD



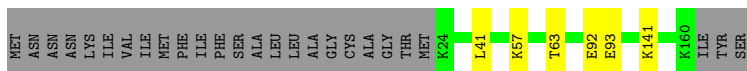
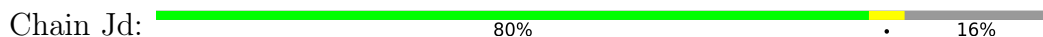
• Molecule 8: DotD



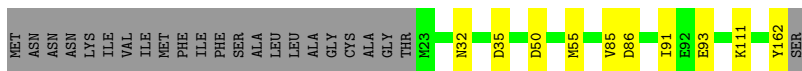
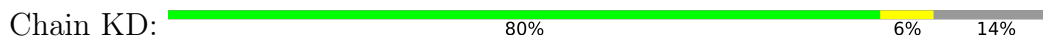
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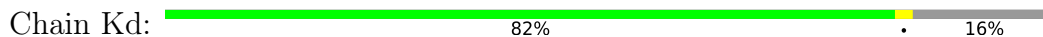
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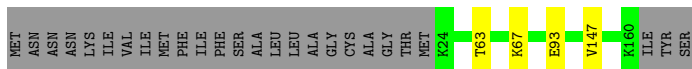


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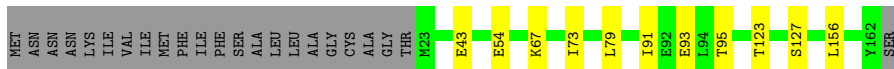
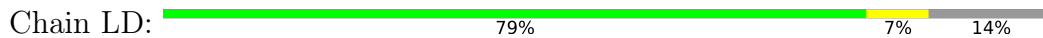


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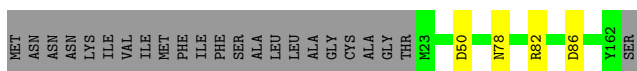
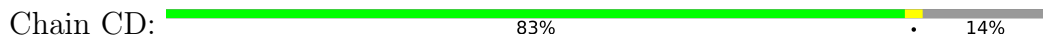




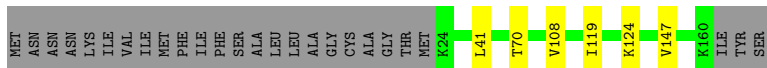
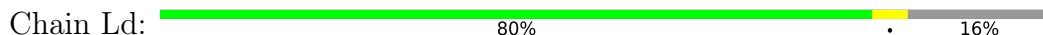
● Molecule 8: DotD



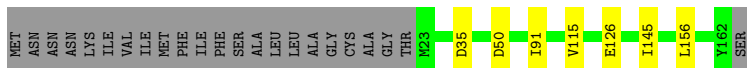
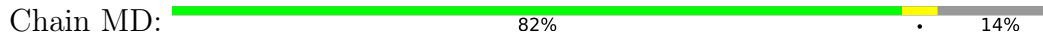
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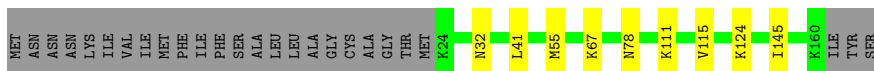
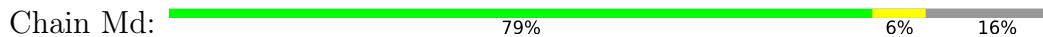
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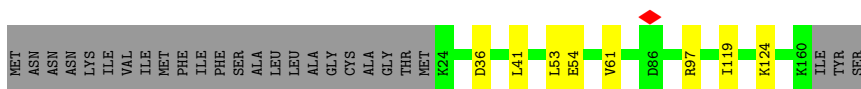
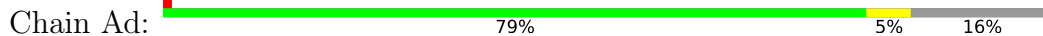
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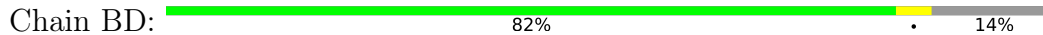
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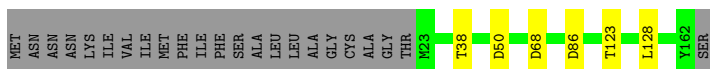


● Molecule 8: DotD

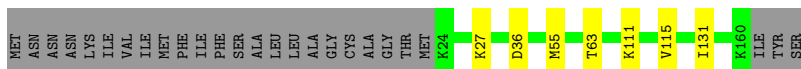
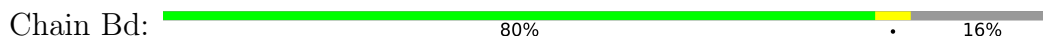


● Molecule 8: DotD

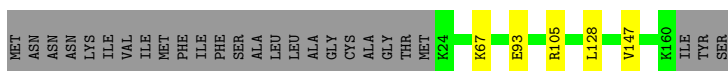
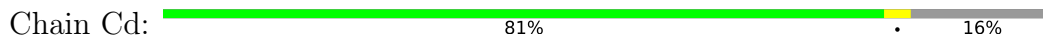




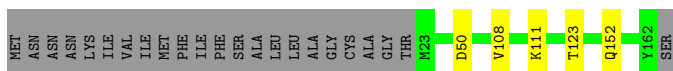
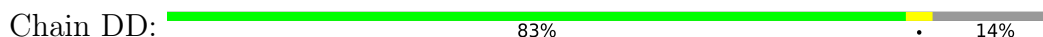
• Molecule 8: DotD



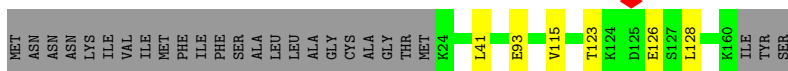
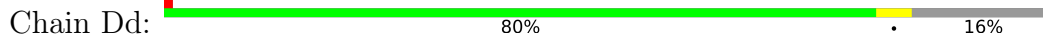
• Molecule 8: DotD



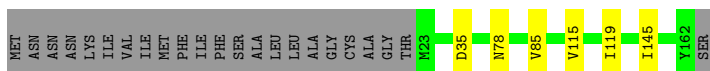
• Molecule 8: DotD



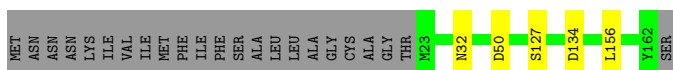
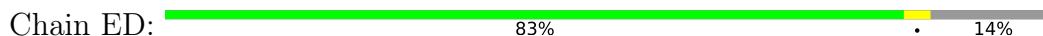
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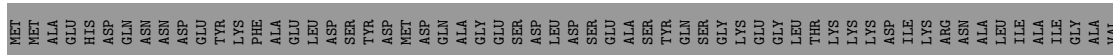
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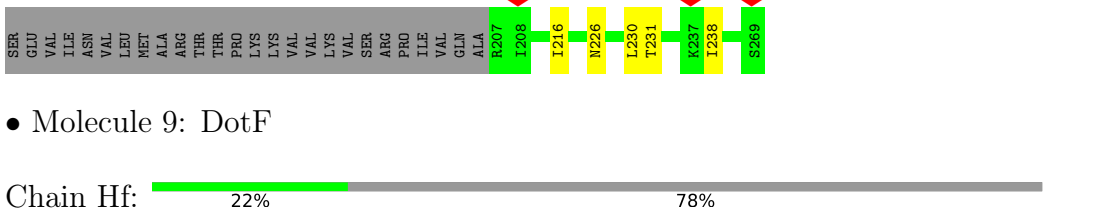
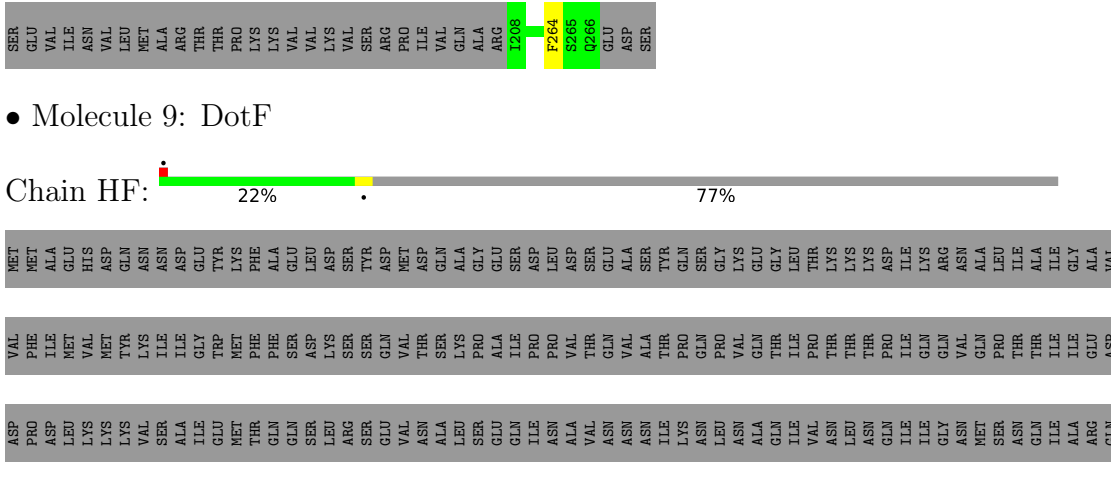
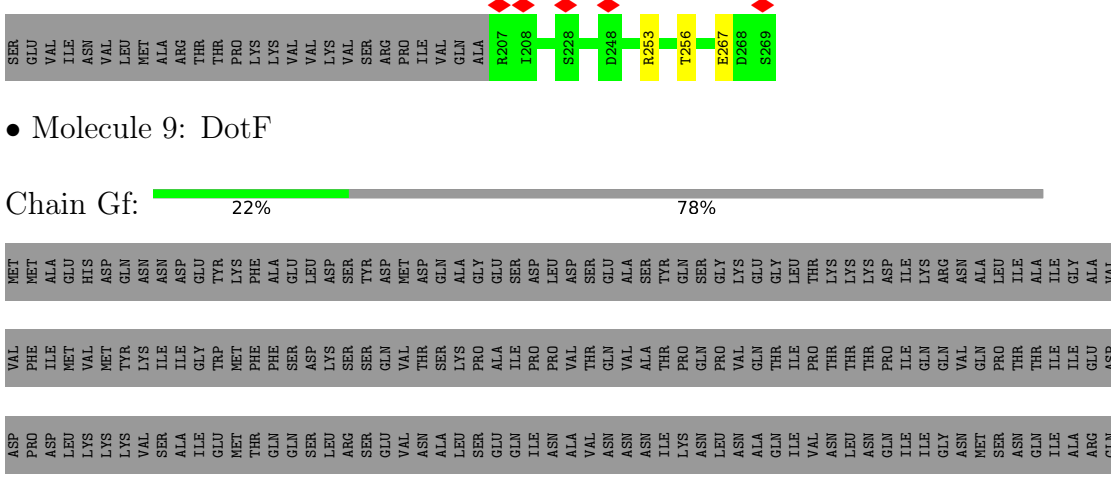
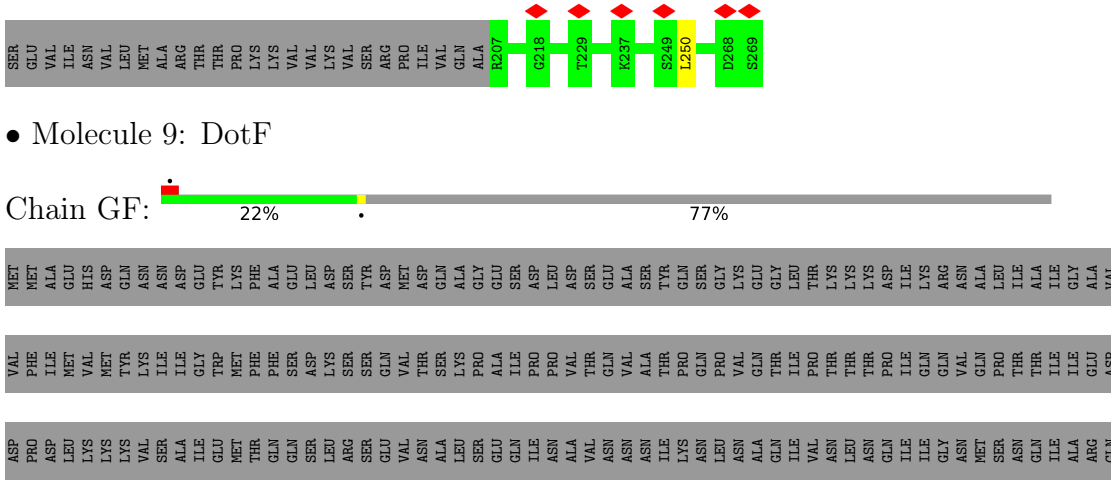


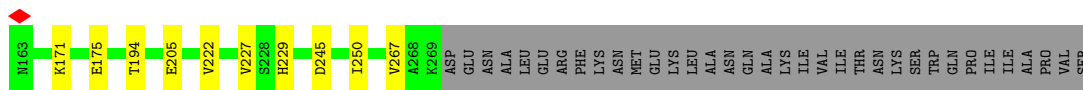
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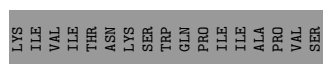
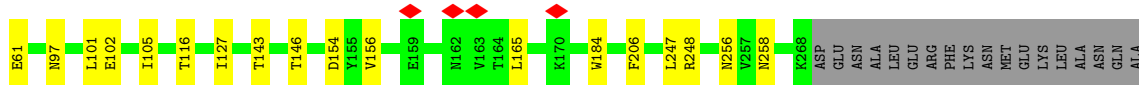
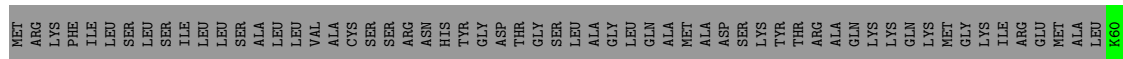
• Molecule 9: DotF



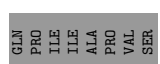
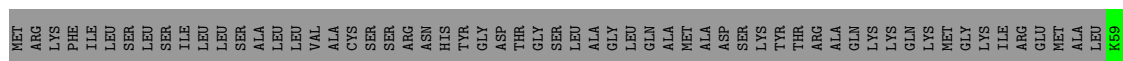




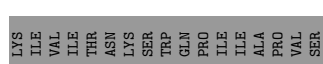
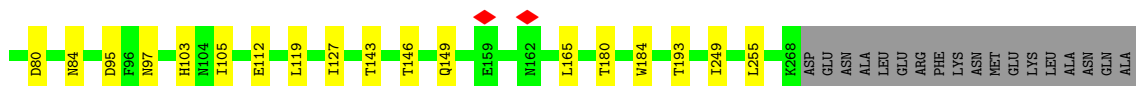
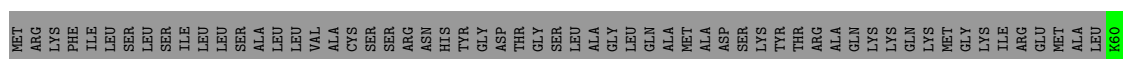
• Molecule 10: DotC



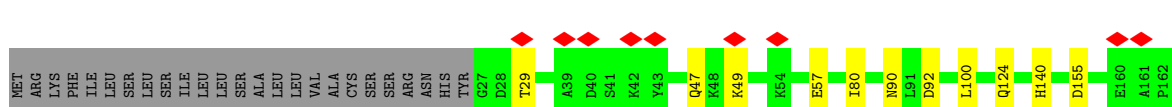
• Molecule 10: DotC



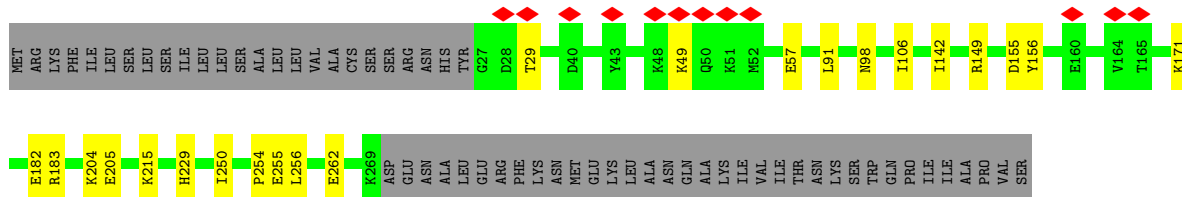
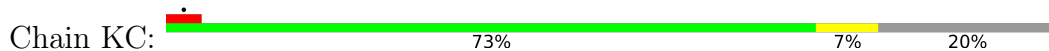
• Molecule 10: DotC



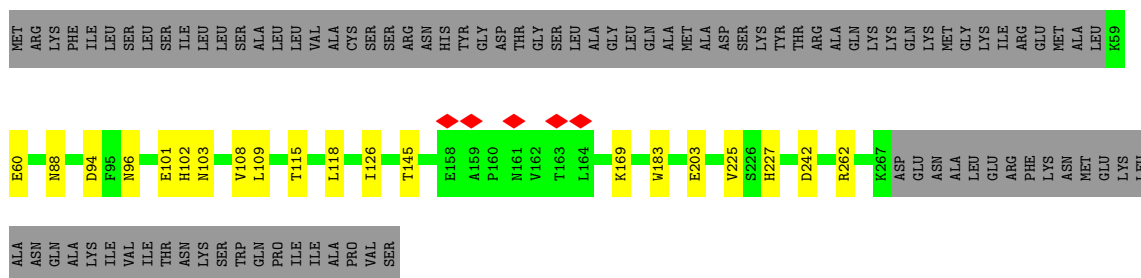
• Molecule 10: DotC



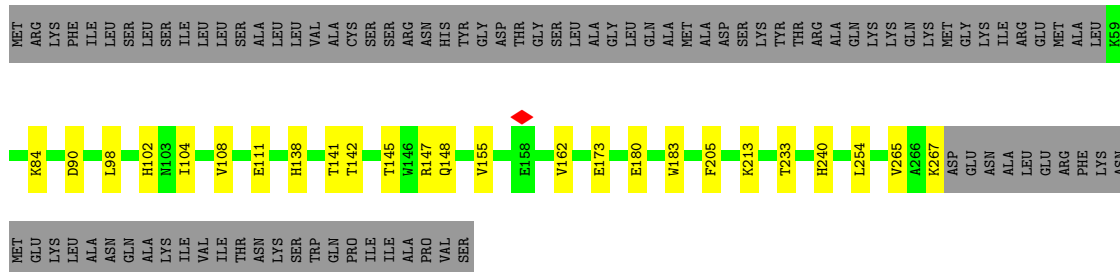
• Molecule 10: DotC



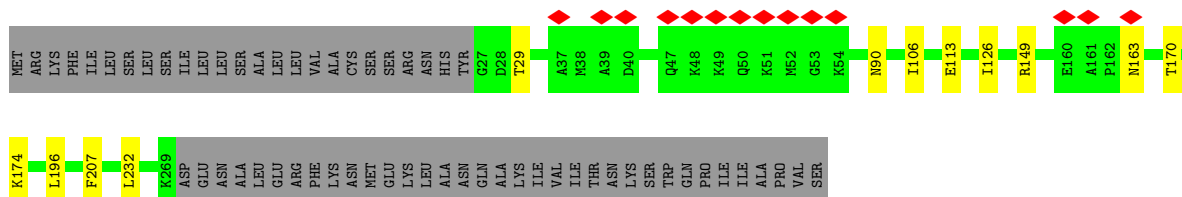
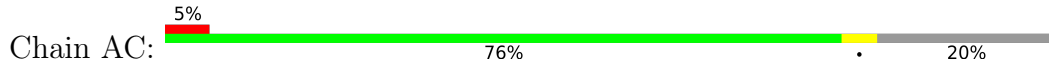
• Molecule 10: DotC



• Molecule 10: DotC



• Molecule 10: DotC

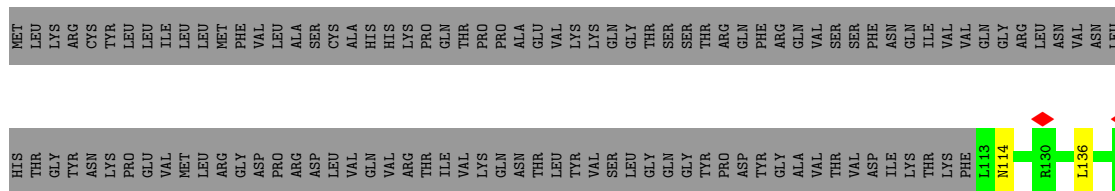


• Molecule 11: DUF2807 domain-containing protein

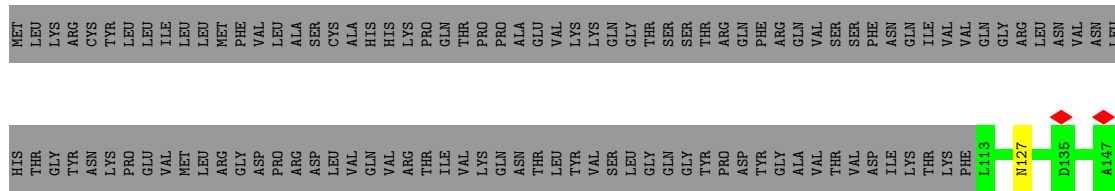




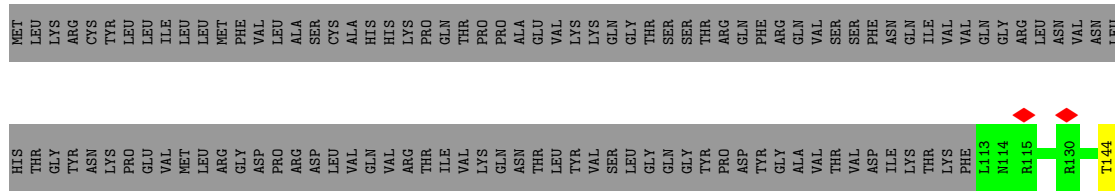
• Molecule 11: DUF2807 domain-containing protein



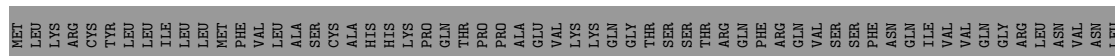
• Molecule 11: DUF2807 domain-containing protein

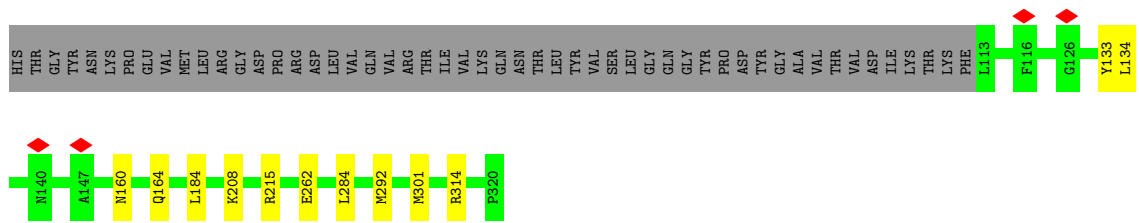


• Molecule 11: DUF2807 domain-containing protein

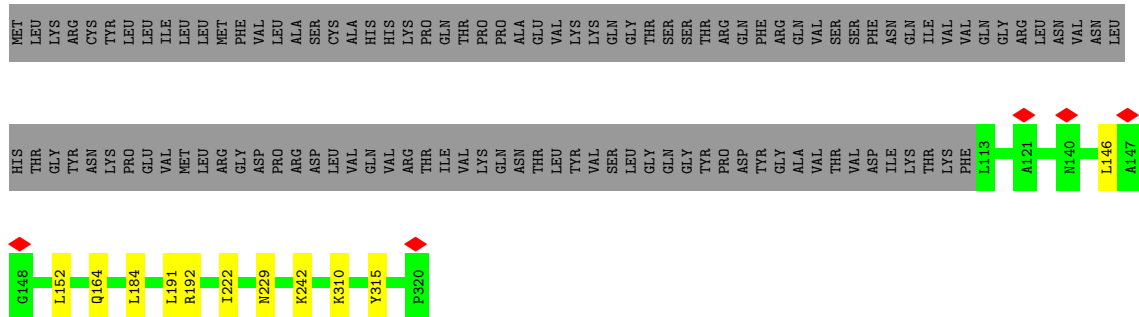


• Molecule 11: DUF2807 domain-containing protein





• Molecule 11: DUF2807 domain-containing protein



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	64698	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	9.229	Depositor
Minimum map value	-3.621	Depositor
Average map value	0.091	Depositor
Map value standard deviation	0.546	Depositor
Recommended contour level	2.25	Depositor
Map size (\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 (\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	0.27	0/1250	0.49	0/1699
1	Ag	0.24	0/278	0.46	0/377
1	BG	0.27	0/1250	0.49	0/1699
1	Bg	0.25	0/278	0.43	0/377
1	CG	0.27	0/1250	0.50	0/1699
1	Cg	0.24	0/278	0.44	0/377
1	DG	0.27	0/1250	0.50	0/1699
1	Dg	0.24	0/278	0.46	0/377
1	EG	0.27	0/1250	0.50	0/1699
1	Eg	0.25	0/278	0.44	0/377
1	FG	0.27	0/1250	0.49	0/1699
1	Fg	0.24	0/278	0.44	0/377
1	GG	0.26	0/1250	0.50	0/1699
1	Gg	0.23	0/278	0.43	0/377
1	HG	0.27	0/1250	0.50	0/1699
1	Hg	0.23	0/278	0.43	0/377
1	IG	0.27	0/1250	0.50	0/1699
1	Ig	0.23	0/278	0.43	0/377
1	JG	0.26	0/1250	0.49	0/1699
1	Jg	0.24	0/278	0.43	0/377
1	KG	0.26	0/1250	0.48	0/1699
1	Kg	0.24	0/278	0.45	0/377
1	LG	0.27	0/1250	0.50	0/1699
1	Lg	0.24	0/278	0.45	0/377
1	MG	0.27	0/1250	0.49	0/1699
1	Mg	0.23	0/278	0.44	0/377
1	NG	0.27	0/1250	0.49	0/1699
1	OG	0.27	0/1250	0.49	0/1699
1	PG	0.27	0/1250	0.49	0/1699
1	VG	0.25	0/278	0.49	0/377
1	WG	0.25	0/278	0.46	0/377
1	XG	0.25	0/278	0.47	0/377
1	YG	0.25	0/278	0.47	0/377
1	ZG	0.24	0/278	0.46	0/377

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
2	AH	0.27	0/2033	0.49	0/2775
2	BH	0.27	0/2033	0.48	0/2775
2	CH	0.27	0/2033	0.48	0/2775
2	DH	0.27	0/2033	0.48	0/2775
2	EH	0.27	0/2033	0.49	0/2775
2	FH	0.27	0/2033	0.48	0/2775
2	GH	0.27	0/2033	0.47	0/2775
2	HH	0.27	0/2033	0.47	0/2775
2	IH	0.27	0/2033	0.48	0/2775
2	JH	0.27	0/2033	0.47	0/2775
2	KH	0.26	0/2033	0.47	0/2775
2	LH	0.27	0/2033	0.49	0/2775
2	MH	0.27	0/2033	0.48	0/2775
2	VH	0.25	0/1921	0.48	0/2620
2	WH	0.25	0/1921	0.48	0/2620
2	XH	0.26	0/1921	0.47	0/2620
2	YH	0.26	0/1921	0.49	0/2620
2	ZH	0.26	0/1921	0.48	0/2620
3	AK	0.28	0/1195	0.50	0/1616
3	BK	0.28	0/1195	0.50	0/1616
3	CK	0.28	0/1195	0.51	0/1616
3	DK	0.27	0/1195	0.50	0/1616
3	EK	0.28	0/1195	0.49	0/1616
3	FK	0.28	0/1195	0.49	0/1616
3	GK	0.27	0/1195	0.50	0/1616
3	HK	0.27	0/1195	0.50	0/1616
3	IK	0.27	0/1195	0.51	0/1616
3	JK	0.28	0/1195	0.50	0/1616
3	KK	0.28	0/1195	0.49	0/1616
3	LK	0.28	0/1195	0.49	0/1616
3	MK	0.28	0/1195	0.50	0/1616
4	AL	0.27	0/1417	0.49	0/1912
4	BL	0.28	0/1417	0.50	0/1912
4	CL	0.27	0/1417	0.50	0/1912
4	DL	0.27	0/1417	0.50	0/1912
4	EL	0.27	0/1417	0.51	0/1912
4	FL	0.27	0/1417	0.50	0/1912
4	GL	0.28	0/1417	0.51	0/1912
4	HL	0.27	0/1417	0.50	0/1912
4	IL	0.27	0/1417	0.50	0/1912
4	JL	0.27	0/1417	0.50	0/1912
4	KL	0.27	0/1417	0.50	0/1912
4	LL	0.27	0/1417	0.49	0/1912

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
4	ML	0.27	0/1417	0.49	0/1912
5	AN	0.29	0/593	0.47	0/799
5	BN	0.29	0/593	0.46	0/799
5	CN	0.28	0/593	0.47	0/799
5	DN	0.29	0/593	0.48	0/799
5	EN	0.29	0/593	0.48	0/799
5	FN	0.29	0/593	0.47	0/799
5	GN	0.29	0/593	0.48	0/799
5	HN	0.28	0/593	0.46	0/799
5	IN	0.29	0/593	0.48	0/799
5	JN	0.28	0/593	0.47	0/799
5	KN	0.28	0/593	0.48	0/799
5	LN	0.29	0/593	0.48	0/799
5	MN	0.29	0/593	0.47	0/799
8	AD	0.28	0/1107	0.46	0/1502
8	Ad	0.27	0/1078	0.47	0/1463
8	BD	0.28	0/1107	0.46	0/1502
8	Bd	0.28	0/1078	0.46	0/1463
8	CD	0.27	0/1107	0.47	0/1502
8	Cd	0.26	0/1078	0.47	0/1463
8	DD	0.27	0/1107	0.47	0/1502
8	Dd	0.27	0/1078	0.47	0/1463
8	ED	0.27	0/1107	0.48	0/1502
8	Ed	0.26	0/1078	0.46	0/1463
8	FD	0.28	0/1107	0.47	0/1502
8	Fd	0.27	0/1078	0.47	0/1463
8	GD	0.27	0/1107	0.47	0/1502
8	Gd	0.27	0/1078	0.46	0/1463
8	HD	0.28	0/1107	0.48	0/1502
8	Hd	0.26	0/1078	0.46	0/1463
8	ID	0.28	0/1107	0.49	0/1502
8	Id	0.27	0/1078	0.45	0/1463
8	JD	0.27	0/1107	0.47	0/1502
8	Jd	0.27	0/1078	0.47	0/1463
8	KD	0.27	0/1107	0.48	0/1502
8	Kd	0.27	0/1078	0.46	0/1463
8	LD	0.27	0/1107	0.47	0/1502
8	Ld	0.27	0/1078	0.46	0/1463
8	MD	0.27	0/1107	0.46	0/1502
8	Md	0.26	0/1078	0.47	0/1463
9	AF	0.25	0/490	0.50	0/660
9	Af	0.25	0/456	0.51	0/615
9	BF	0.25	0/490	0.50	0/660

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
9	Bf	0.26	0/456	0.52	0/615
9	CF	0.25	0/490	0.53	0/660
9	Cf	0.27	0/456	0.48	0/615
9	DF	0.25	0/490	0.50	0/660
9	Df	0.26	0/456	0.49	0/615
9	EF	0.25	0/490	0.49	0/660
9	Ef	0.26	0/456	0.50	0/615
9	FF	0.25	0/490	0.50	0/660
9	Ff	0.26	0/456	0.51	0/615
9	GF	0.25	0/490	0.51	0/660
9	Gf	0.26	0/456	0.50	0/615
9	HF	0.25	0/490	0.51	0/660
9	Hf	0.27	0/456	0.51	0/615
9	IF	0.25	0/490	0.52	0/660
9	If	0.26	0/456	0.50	0/615
9	JF	0.25	0/490	0.52	0/660
9	Jf	0.26	0/456	0.49	0/615
9	KF	0.25	0/490	0.51	0/660
9	Kf	0.26	0/456	0.50	0/615
9	LF	0.25	0/490	0.51	0/660
9	Lf	0.26	0/456	0.49	0/615
9	MF	0.26	0/490	0.51	0/660
9	Mf	0.26	0/456	0.51	0/615
9	VF	0.25	0/490	0.50	0/660
9	WF	0.25	0/490	0.49	0/660
9	XF	0.25	0/490	0.50	0/660
9	YF	0.25	0/490	0.50	0/660
9	ZF	0.25	0/490	0.50	0/660
10	AC	0.27	0/1957	0.49	0/2651
10	BC	0.27	0/1957	0.48	0/2651
10	CC	0.27	0/1702	0.49	0/2315
10	DC	0.28	0/1702	0.47	0/2315
10	EC	0.27	0/1702	0.48	0/2315
10	FC	0.27	0/1957	0.48	0/2651
10	GC	0.28	0/1702	0.48	0/2315
10	HC	0.27	0/1702	0.48	0/2315
10	IC	0.28	0/1702	0.47	0/2315
10	JC	0.28	0/1957	0.49	0/2651
10	KC	0.27	0/1957	0.48	0/2651
10	LC	0.27	0/1702	0.49	0/2315
10	MC	0.28	0/1702	0.48	0/2315
11	AM	0.27	0/1678	0.52	0/2262
11	BM	0.26	0/1678	0.52	0/2262

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
11	CM	0.27	0/1678	0.53	0/2262
11	DM	0.27	0/1678	0.52	0/2262
11	EM	0.26	0/1678	0.53	0/2262
11	FM	0.27	0/1678	0.53	0/2262
11	GM	0.27	0/1678	0.53	0/2262
11	HM	0.27	0/1678	0.53	0/2262
11	IM	0.26	0/1678	0.53	0/2262
11	JM	0.27	0/1678	0.53	0/2262
11	KM	0.27	0/1678	0.52	0/2262
11	LM	0.27	0/1678	0.52	0/2262
11	MM	0.26	0/1678	0.52	0/2262
All	All	0.27	0/191071	0.49	0/258997

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	AG	161/1048 (15%)	149 (92%)	12 (8%)	0	100	100
1	Ag	32/1048 (3%)	30 (94%)	2 (6%)	0	100	100
1	BG	161/1048 (15%)	154 (96%)	7 (4%)	0	100	100
1	Bg	32/1048 (3%)	30 (94%)	2 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	CG	161/1048 (15%)	155 (96%)	6 (4%)	0	100	100
1	Cg	32/1048 (3%)	30 (94%)	2 (6%)	0	100	100
1	DG	161/1048 (15%)	153 (95%)	8 (5%)	0	100	100
1	Dg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	EG	161/1048 (15%)	153 (95%)	8 (5%)	0	100	100
1	Eg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	FG	161/1048 (15%)	151 (94%)	10 (6%)	0	100	100
1	Fg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	GG	161/1048 (15%)	153 (95%)	8 (5%)	0	100	100
1	Gg	32/1048 (3%)	32 (100%)	0	0	100	100
1	HG	161/1048 (15%)	156 (97%)	5 (3%)	0	100	100
1	Hg	32/1048 (3%)	32 (100%)	0	0	100	100
1	IG	161/1048 (15%)	154 (96%)	7 (4%)	0	100	100
1	Ig	32/1048 (3%)	30 (94%)	2 (6%)	0	100	100
1	JG	161/1048 (15%)	154 (96%)	7 (4%)	0	100	100
1	Jg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	KG	161/1048 (15%)	150 (93%)	11 (7%)	0	100	100
1	Kg	32/1048 (3%)	30 (94%)	2 (6%)	0	100	100
1	LG	161/1048 (15%)	151 (94%)	10 (6%)	0	100	100
1	Lg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	MG	161/1048 (15%)	150 (93%)	11 (7%)	0	100	100
1	Mg	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	NG	161/1048 (15%)	153 (95%)	8 (5%)	0	100	100
1	OG	161/1048 (15%)	154 (96%)	7 (4%)	0	100	100
1	PG	161/1048 (15%)	155 (96%)	6 (4%)	0	100	100
1	VG	32/1048 (3%)	32 (100%)	0	0	100	100
1	WG	32/1048 (3%)	32 (100%)	0	0	100	100
1	XG	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	YG	32/1048 (3%)	31 (97%)	1 (3%)	0	100	100
1	ZG	32/1048 (3%)	32 (100%)	0	0	100	100
2	AH	256/361 (71%)	241 (94%)	15 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	BH	256/361 (71%)	242 (94%)	14 (6%)	0	100	100
2	CH	256/361 (71%)	244 (95%)	12 (5%)	0	100	100
2	DH	256/361 (71%)	241 (94%)	15 (6%)	0	100	100
2	EH	256/361 (71%)	239 (93%)	17 (7%)	0	100	100
2	FH	256/361 (71%)	245 (96%)	11 (4%)	0	100	100
2	GH	256/361 (71%)	238 (93%)	18 (7%)	0	100	100
2	HH	256/361 (71%)	246 (96%)	10 (4%)	0	100	100
2	IH	256/361 (71%)	240 (94%)	16 (6%)	0	100	100
2	JH	256/361 (71%)	245 (96%)	11 (4%)	0	100	100
2	KH	256/361 (71%)	242 (94%)	14 (6%)	0	100	100
2	LH	256/361 (71%)	243 (95%)	13 (5%)	0	100	100
2	MH	256/361 (71%)	240 (94%)	16 (6%)	0	100	100
2	VH	239/361 (66%)	227 (95%)	12 (5%)	0	100	100
2	WH	239/361 (66%)	235 (98%)	4 (2%)	0	100	100
2	XH	239/361 (66%)	234 (98%)	5 (2%)	0	100	100
2	YH	239/361 (66%)	229 (96%)	10 (4%)	0	100	100
2	ZH	239/361 (66%)	230 (96%)	9 (4%)	0	100	100
3	AK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
3	BK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
3	CK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
3	DK	149/189 (79%)	142 (95%)	7 (5%)	0	100	100
3	EK	149/189 (79%)	144 (97%)	5 (3%)	0	100	100
3	FK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
3	GK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
3	HK	149/189 (79%)	140 (94%)	9 (6%)	0	100	100
3	IK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
3	JK	149/189 (79%)	144 (97%)	5 (3%)	0	100	100
3	KK	149/189 (79%)	144 (97%)	5 (3%)	0	100	100
3	LK	149/189 (79%)	141 (95%)	8 (5%)	0	100	100
3	MK	149/189 (79%)	143 (96%)	6 (4%)	0	100	100
4	AL	169/249 (68%)	162 (96%)	7 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	BL	169/249 (68%)	165 (98%)	4 (2%)	0	100	100
4	CL	169/249 (68%)	162 (96%)	7 (4%)	0	100	100
4	DL	169/249 (68%)	161 (95%)	8 (5%)	0	100	100
4	EL	169/249 (68%)	161 (95%)	8 (5%)	0	100	100
4	FL	169/249 (68%)	163 (96%)	6 (4%)	0	100	100
4	GL	169/249 (68%)	162 (96%)	7 (4%)	0	100	100
4	HL	169/249 (68%)	162 (96%)	7 (4%)	0	100	100
4	IL	169/249 (68%)	162 (96%)	7 (4%)	0	100	100
4	JL	169/249 (68%)	163 (96%)	6 (4%)	0	100	100
4	KL	169/249 (68%)	165 (98%)	4 (2%)	0	100	100
4	LL	169/249 (68%)	162 (96%)	7 (4%)	0	100	100
4	ML	169/249 (68%)	161 (95%)	8 (5%)	0	100	100
5	AN	76/124 (61%)	72 (95%)	4 (5%)	0	100	100
5	BN	76/124 (61%)	70 (92%)	6 (8%)	0	100	100
5	CN	76/124 (61%)	69 (91%)	7 (9%)	0	100	100
5	DN	76/124 (61%)	69 (91%)	7 (9%)	0	100	100
5	EN	76/124 (61%)	67 (88%)	9 (12%)	0	100	100
5	FN	76/124 (61%)	70 (92%)	6 (8%)	0	100	100
5	GN	76/124 (61%)	72 (95%)	4 (5%)	0	100	100
5	HN	76/124 (61%)	73 (96%)	3 (4%)	0	100	100
5	IN	76/124 (61%)	72 (95%)	4 (5%)	0	100	100
5	JN	76/124 (61%)	70 (92%)	6 (8%)	0	100	100
5	KN	76/124 (61%)	70 (92%)	6 (8%)	0	100	100
5	LN	76/124 (61%)	72 (95%)	4 (5%)	0	100	100
5	MN	76/124 (61%)	71 (93%)	5 (7%)	0	100	100
8	AD	138/163 (85%)	132 (96%)	6 (4%)	0	100	100
8	Ad	135/163 (83%)	128 (95%)	7 (5%)	0	100	100
8	BD	138/163 (85%)	132 (96%)	6 (4%)	0	100	100
8	Bd	135/163 (83%)	128 (95%)	7 (5%)	0	100	100
8	CD	138/163 (85%)	130 (94%)	8 (6%)	0	100	100
8	Cd	135/163 (83%)	129 (96%)	6 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	DD	138/163 (85%)	132 (96%)	6 (4%)	0	100	100
8	Dd	135/163 (83%)	131 (97%)	4 (3%)	0	100	100
8	ED	138/163 (85%)	132 (96%)	6 (4%)	0	100	100
8	Ed	135/163 (83%)	130 (96%)	5 (4%)	0	100	100
8	FD	138/163 (85%)	133 (96%)	5 (4%)	0	100	100
8	Fd	135/163 (83%)	129 (96%)	6 (4%)	0	100	100
8	GD	138/163 (85%)	132 (96%)	6 (4%)	0	100	100
8	Gd	135/163 (83%)	125 (93%)	10 (7%)	0	100	100
8	HD	138/163 (85%)	131 (95%)	7 (5%)	0	100	100
8	Hd	135/163 (83%)	127 (94%)	8 (6%)	0	100	100
8	ID	138/163 (85%)	131 (95%)	7 (5%)	0	100	100
8	Id	135/163 (83%)	131 (97%)	4 (3%)	0	100	100
8	JD	138/163 (85%)	128 (93%)	10 (7%)	0	100	100
8	Jd	135/163 (83%)	128 (95%)	7 (5%)	0	100	100
8	KD	138/163 (85%)	131 (95%)	7 (5%)	0	100	100
8	Kd	135/163 (83%)	125 (93%)	10 (7%)	0	100	100
8	LD	138/163 (85%)	127 (92%)	11 (8%)	0	100	100
8	Ld	135/163 (83%)	129 (96%)	6 (4%)	0	100	100
8	MD	138/163 (85%)	132 (96%)	6 (4%)	0	100	100
8	Md	135/163 (83%)	129 (96%)	6 (4%)	0	100	100
9	AF	61/269 (23%)	59 (97%)	2 (3%)	0	100	100
9	Af	57/269 (21%)	53 (93%)	4 (7%)	0	100	100
9	BF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
9	Bf	57/269 (21%)	54 (95%)	3 (5%)	0	100	100
9	CF	61/269 (23%)	60 (98%)	1 (2%)	0	100	100
9	Cf	57/269 (21%)	55 (96%)	2 (4%)	0	100	100
9	DF	61/269 (23%)	61 (100%)	0	0	100	100
9	Df	57/269 (21%)	54 (95%)	3 (5%)	0	100	100
9	EF	61/269 (23%)	59 (97%)	2 (3%)	0	100	100
9	Ef	57/269 (21%)	53 (93%)	4 (7%)	0	100	100
9	FF	61/269 (23%)	58 (95%)	3 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
9	Ff	57/269 (21%)	53 (93%)	4 (7%)	0	100	100
9	GF	61/269 (23%)	59 (97%)	2 (3%)	0	100	100
9	Gf	57/269 (21%)	53 (93%)	4 (7%)	0	100	100
9	HF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
9	Hf	57/269 (21%)	55 (96%)	2 (4%)	0	100	100
9	IF	61/269 (23%)	53 (87%)	8 (13%)	0	100	100
9	If	57/269 (21%)	54 (95%)	3 (5%)	0	100	100
9	JF	61/269 (23%)	59 (97%)	2 (3%)	0	100	100
9	Jf	57/269 (21%)	55 (96%)	2 (4%)	0	100	100
9	KF	61/269 (23%)	55 (90%)	6 (10%)	0	100	100
9	Kf	57/269 (21%)	51 (90%)	6 (10%)	0	100	100
9	LF	61/269 (23%)	56 (92%)	5 (8%)	0	100	100
9	Lf	57/269 (21%)	53 (93%)	4 (7%)	0	100	100
9	MF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
9	Mf	57/269 (21%)	56 (98%)	1 (2%)	0	100	100
9	VF	61/269 (23%)	56 (92%)	5 (8%)	0	100	100
9	WF	61/269 (23%)	57 (93%)	4 (7%)	0	100	100
9	XF	61/269 (23%)	58 (95%)	3 (5%)	0	100	100
9	YF	61/269 (23%)	60 (98%)	1 (2%)	0	100	100
9	ZF	61/269 (23%)	58 (95%)	3 (5%)	0	100	100
10	AC	241/303 (80%)	225 (93%)	16 (7%)	0	100	100
10	BC	241/303 (80%)	229 (95%)	12 (5%)	0	100	100
10	CC	207/303 (68%)	191 (92%)	16 (8%)	0	100	100
10	DC	207/303 (68%)	188 (91%)	19 (9%)	0	100	100
10	EC	207/303 (68%)	192 (93%)	15 (7%)	0	100	100
10	FC	241/303 (80%)	231 (96%)	10 (4%)	0	100	100
10	GC	207/303 (68%)	194 (94%)	13 (6%)	0	100	100
10	HC	207/303 (68%)	198 (96%)	9 (4%)	0	100	100
10	IC	207/303 (68%)	188 (91%)	19 (9%)	0	100	100
10	JC	241/303 (80%)	227 (94%)	14 (6%)	0	100	100
10	KC	241/303 (80%)	226 (94%)	15 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
10	LC	207/303 (68%)	193 (93%)	14 (7%)	0	100	100
10	MC	207/303 (68%)	193 (93%)	14 (7%)	0	100	100
11	AM	206/320 (64%)	188 (91%)	18 (9%)	0	100	100
11	BM	206/320 (64%)	190 (92%)	16 (8%)	0	100	100
11	CM	206/320 (64%)	194 (94%)	12 (6%)	0	100	100
11	DM	206/320 (64%)	192 (93%)	14 (7%)	0	100	100
11	EM	206/320 (64%)	187 (91%)	19 (9%)	0	100	100
11	FM	206/320 (64%)	192 (93%)	14 (7%)	0	100	100
11	GM	206/320 (64%)	187 (91%)	19 (9%)	0	100	100
11	HM	206/320 (64%)	185 (90%)	21 (10%)	0	100	100
11	IM	206/320 (64%)	188 (91%)	18 (9%)	0	100	100
11	JM	206/320 (64%)	192 (93%)	14 (7%)	0	100	100
11	KM	206/320 (64%)	193 (94%)	13 (6%)	0	100	100
11	LM	206/320 (64%)	193 (94%)	13 (6%)	0	100	100
11	MM	206/320 (64%)	194 (94%)	12 (6%)	0	100	100
All	All	23724/70112 (34%)	22448 (95%)	1276 (5%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	AG	135/765 (18%)	126 (93%)	9 (7%)	16	43
1	Ag	31/765 (4%)	28 (90%)	3 (10%)	8	29
1	BG	135/765 (18%)	124 (92%)	11 (8%)	11	37
1	Bg	31/765 (4%)	28 (90%)	3 (10%)	8	29
1	CG	135/765 (18%)	123 (91%)	12 (9%)	9	33
1	Cg	31/765 (4%)	30 (97%)	1 (3%)	39	62

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	DG	135/765 (18%)	121 (90%)	14 (10%)	7	27
1	Dg	31/765 (4%)	27 (87%)	4 (13%)	4	20
1	EG	135/765 (18%)	124 (92%)	11 (8%)	11	37
1	Eg	31/765 (4%)	29 (94%)	2 (6%)	17	44
1	FG	135/765 (18%)	124 (92%)	11 (8%)	11	37
1	Fg	31/765 (4%)	29 (94%)	2 (6%)	17	44
1	GG	135/765 (18%)	122 (90%)	13 (10%)	8	29
1	Gg	31/765 (4%)	27 (87%)	4 (13%)	4	20
1	HG	135/765 (18%)	123 (91%)	12 (9%)	9	33
1	Hg	31/765 (4%)	27 (87%)	4 (13%)	4	20
1	IG	135/765 (18%)	125 (93%)	10 (7%)	13	40
1	Ig	31/765 (4%)	27 (87%)	4 (13%)	4	20
1	JG	135/765 (18%)	120 (89%)	15 (11%)	6	25
1	Jg	31/765 (4%)	28 (90%)	3 (10%)	8	29
1	KG	135/765 (18%)	123 (91%)	12 (9%)	9	33
1	Kg	31/765 (4%)	27 (87%)	4 (13%)	4	20
1	LG	135/765 (18%)	123 (91%)	12 (9%)	9	33
1	Lg	31/765 (4%)	28 (90%)	3 (10%)	8	29
1	MG	135/765 (18%)	125 (93%)	10 (7%)	13	40
1	Mg	31/765 (4%)	27 (87%)	4 (13%)	4	20
1	NG	135/765 (18%)	126 (93%)	9 (7%)	16	43
1	OG	135/765 (18%)	124 (92%)	11 (8%)	11	37
1	PG	135/765 (18%)	122 (90%)	13 (10%)	8	29
1	VG	31/765 (4%)	29 (94%)	2 (6%)	17	44
1	WG	31/765 (4%)	26 (84%)	5 (16%)	2	15
1	XG	31/765 (4%)	28 (90%)	3 (10%)	8	29
1	YG	31/765 (4%)	27 (87%)	4 (13%)	4	20
1	ZG	31/765 (4%)	27 (87%)	4 (13%)	4	20
2	AH	220/300 (73%)	202 (92%)	18 (8%)	11	36
2	BH	220/300 (73%)	205 (93%)	15 (7%)	16	42
2	CH	220/300 (73%)	207 (94%)	13 (6%)	19	46

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	DH	220/300 (73%)	207 (94%)	13 (6%)	19	46
2	EH	220/300 (73%)	197 (90%)	23 (10%)	7	26
2	FH	220/300 (73%)	206 (94%)	14 (6%)	17	44
2	GH	220/300 (73%)	209 (95%)	11 (5%)	24	51
2	HH	220/300 (73%)	209 (95%)	11 (5%)	24	51
2	IH	220/300 (73%)	211 (96%)	9 (4%)	30	56
2	JH	220/300 (73%)	201 (91%)	19 (9%)	10	35
2	KH	220/300 (73%)	202 (92%)	18 (8%)	11	36
2	LH	220/300 (73%)	203 (92%)	17 (8%)	13	39
2	MH	220/300 (73%)	201 (91%)	19 (9%)	10	35
2	VH	207/300 (69%)	194 (94%)	13 (6%)	18	44
2	WH	207/300 (69%)	184 (89%)	23 (11%)	6	25
2	XH	207/300 (69%)	188 (91%)	19 (9%)	9	31
2	YH	207/300 (69%)	183 (88%)	24 (12%)	5	23
2	ZH	207/300 (69%)	187 (90%)	20 (10%)	8	29
3	AK	129/163 (79%)	121 (94%)	8 (6%)	18	45
3	BK	129/163 (79%)	121 (94%)	8 (6%)	18	45
3	CK	129/163 (79%)	124 (96%)	5 (4%)	32	57
3	DK	129/163 (79%)	120 (93%)	9 (7%)	15	41
3	EK	129/163 (79%)	123 (95%)	6 (5%)	26	52
3	FK	129/163 (79%)	122 (95%)	7 (5%)	22	49
3	GK	129/163 (79%)	120 (93%)	9 (7%)	15	41
3	HK	129/163 (79%)	124 (96%)	5 (4%)	32	57
3	IK	129/163 (79%)	120 (93%)	9 (7%)	15	41
3	JK	129/163 (79%)	115 (89%)	14 (11%)	6	25
3	KK	129/163 (79%)	119 (92%)	10 (8%)	12	38
3	LK	129/163 (79%)	119 (92%)	10 (8%)	12	38
3	MK	129/163 (79%)	112 (87%)	17 (13%)	4	20
4	AL	148/203 (73%)	143 (97%)	5 (3%)	37	60
4	BL	148/203 (73%)	135 (91%)	13 (9%)	10	33
4	CL	148/203 (73%)	138 (93%)	10 (7%)	16	42

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	DL	148/203 (73%)	138 (93%)	10 (7%)	16	42
4	EL	148/203 (73%)	139 (94%)	9 (6%)	18	46
4	FL	148/203 (73%)	134 (90%)	14 (10%)	8	29
4	GL	148/203 (73%)	143 (97%)	5 (3%)	37	60
4	HL	148/203 (73%)	144 (97%)	4 (3%)	44	66
4	IL	148/203 (73%)	143 (97%)	5 (3%)	37	60
4	JL	148/203 (73%)	140 (95%)	8 (5%)	22	49
4	KL	148/203 (73%)	131 (88%)	17 (12%)	5	23
4	LL	148/203 (73%)	138 (93%)	10 (7%)	16	42
4	ML	148/203 (73%)	135 (91%)	13 (9%)	10	33
5	AN	66/107 (62%)	59 (89%)	7 (11%)	6	26
5	BN	66/107 (62%)	59 (89%)	7 (11%)	6	26
5	CN	66/107 (62%)	60 (91%)	6 (9%)	9	31
5	DN	66/107 (62%)	61 (92%)	5 (8%)	13	39
5	EN	66/107 (62%)	59 (89%)	7 (11%)	6	26
5	FN	66/107 (62%)	61 (92%)	5 (8%)	13	39
5	GN	66/107 (62%)	60 (91%)	6 (9%)	9	31
5	HN	66/107 (62%)	62 (94%)	4 (6%)	18	46
5	IN	66/107 (62%)	62 (94%)	4 (6%)	18	46
5	JN	66/107 (62%)	59 (89%)	7 (11%)	6	26
5	KN	66/107 (62%)	63 (96%)	3 (4%)	27	53
5	LN	66/107 (62%)	61 (92%)	5 (8%)	13	39
5	MN	66/107 (62%)	57 (86%)	9 (14%)	3	19
8	AD	121/139 (87%)	115 (95%)	6 (5%)	24	51
8	Ad	118/139 (85%)	110 (93%)	8 (7%)	16	42
8	BD	121/139 (87%)	115 (95%)	6 (5%)	24	51
8	Bd	118/139 (85%)	111 (94%)	7 (6%)	19	46
8	CD	121/139 (87%)	117 (97%)	4 (3%)	38	61
8	Cd	118/139 (85%)	113 (96%)	5 (4%)	30	55
8	DD	121/139 (87%)	116 (96%)	5 (4%)	30	56
8	Dd	118/139 (85%)	112 (95%)	6 (5%)	24	50

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	ED	121/139 (87%)	116 (96%)	5 (4%)	30	56
8	Ed	118/139 (85%)	104 (88%)	14 (12%)	5	22
8	FD	121/139 (87%)	114 (94%)	7 (6%)	20	47
8	Fd	118/139 (85%)	111 (94%)	7 (6%)	19	46
8	GD	121/139 (87%)	113 (93%)	8 (7%)	16	43
8	Gd	118/139 (85%)	114 (97%)	4 (3%)	37	60
8	HD	121/139 (87%)	112 (93%)	9 (7%)	13	40
8	Hd	118/139 (85%)	110 (93%)	8 (7%)	16	42
8	ID	121/139 (87%)	113 (93%)	8 (7%)	16	43
8	Id	118/139 (85%)	116 (98%)	2 (2%)	60	78
8	JD	121/139 (87%)	115 (95%)	6 (5%)	24	51
8	Jd	118/139 (85%)	112 (95%)	6 (5%)	24	50
8	KD	121/139 (87%)	111 (92%)	10 (8%)	11	36
8	Kd	118/139 (85%)	114 (97%)	4 (3%)	37	60
8	LD	121/139 (87%)	110 (91%)	11 (9%)	9	31
8	Ld	118/139 (85%)	112 (95%)	6 (5%)	24	50
8	MD	121/139 (87%)	114 (94%)	7 (6%)	20	47
8	Md	118/139 (85%)	109 (92%)	9 (8%)	13	39
9	AF	53/237 (22%)	52 (98%)	1 (2%)	57	75
9	Af	49/237 (21%)	48 (98%)	1 (2%)	55	73
9	BF	53/237 (22%)	51 (96%)	2 (4%)	33	58
9	Bf	49/237 (21%)	46 (94%)	3 (6%)	18	46
9	CF	53/237 (22%)	50 (94%)	3 (6%)	20	47
9	Cf	49/237 (21%)	45 (92%)	4 (8%)	11	36
9	DF	53/237 (22%)	51 (96%)	2 (4%)	33	58
9	Df	49/237 (21%)	46 (94%)	3 (6%)	18	46
9	EF	53/237 (22%)	51 (96%)	2 (4%)	33	58
9	Ef	49/237 (21%)	46 (94%)	3 (6%)	18	46
9	FF	53/237 (22%)	53 (100%)	0	100	100
9	Ff	49/237 (21%)	47 (96%)	2 (4%)	30	56
9	GF	53/237 (22%)	50 (94%)	3 (6%)	20	47

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
9	Gf	49/237 (21%)	48 (98%)	1 (2%)	55	73
9	HF	53/237 (22%)	48 (91%)	5 (9%)	8	30
9	Hf	49/237 (21%)	48 (98%)	1 (2%)	55	73
9	IF	53/237 (22%)	49 (92%)	4 (8%)	13	40
9	If	49/237 (21%)	45 (92%)	4 (8%)	11	36
9	JF	53/237 (22%)	48 (91%)	5 (9%)	8	30
9	Jf	49/237 (21%)	48 (98%)	1 (2%)	55	73
9	KF	53/237 (22%)	49 (92%)	4 (8%)	13	40
9	Kf	49/237 (21%)	47 (96%)	2 (4%)	30	56
9	LF	53/237 (22%)	48 (91%)	5 (9%)	8	30
9	Lf	49/237 (21%)	45 (92%)	4 (8%)	11	36
9	MF	53/237 (22%)	50 (94%)	3 (6%)	20	47
9	Mf	49/237 (21%)	48 (98%)	1 (2%)	55	73
9	VF	53/237 (22%)	52 (98%)	1 (2%)	57	75
9	WF	53/237 (22%)	52 (98%)	1 (2%)	57	75
9	XF	53/237 (22%)	53 (100%)	0	100	100
9	YF	53/237 (22%)	50 (94%)	3 (6%)	20	47
9	ZF	53/237 (22%)	49 (92%)	4 (8%)	13	40
10	AC	203/257 (79%)	191 (94%)	12 (6%)	19	46
10	BC	203/257 (79%)	181 (89%)	22 (11%)	6	26
10	CC	178/257 (69%)	160 (90%)	18 (10%)	7	27
10	DC	178/257 (69%)	164 (92%)	14 (8%)	12	38
10	EC	178/257 (69%)	160 (90%)	18 (10%)	7	27
10	FC	203/257 (79%)	187 (92%)	16 (8%)	12	38
10	GC	178/257 (69%)	157 (88%)	21 (12%)	5	23
10	HC	178/257 (69%)	161 (90%)	17 (10%)	8	29
10	IC	178/257 (69%)	157 (88%)	21 (12%)	5	23
10	JC	203/257 (79%)	189 (93%)	14 (7%)	15	42
10	KC	203/257 (79%)	181 (89%)	22 (11%)	6	26
10	LC	178/257 (69%)	158 (89%)	20 (11%)	6	24
10	MC	178/257 (69%)	153 (86%)	25 (14%)	3	19

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
11	AM	175/276 (63%)	162 (93%)	13 (7%)	13	40
11	BM	175/276 (63%)	163 (93%)	12 (7%)	15	42
11	CM	175/276 (63%)	163 (93%)	12 (7%)	15	42
11	DM	175/276 (63%)	164 (94%)	11 (6%)	18	44
11	EM	175/276 (63%)	159 (91%)	16 (9%)	9	31
11	FM	175/276 (63%)	158 (90%)	17 (10%)	8	29
11	GM	175/276 (63%)	162 (93%)	13 (7%)	13	40
11	HM	175/276 (63%)	166 (95%)	9 (5%)	24	50
11	IM	175/276 (63%)	158 (90%)	17 (10%)	8	29
11	JM	175/276 (63%)	157 (90%)	18 (10%)	7	27
11	KM	175/276 (63%)	164 (94%)	11 (6%)	18	44
11	LM	175/276 (63%)	160 (91%)	15 (9%)	10	35
11	MM	175/276 (63%)	159 (91%)	16 (9%)	9	31
All	All	20484/55449 (37%)	18950 (92%)	1534 (8%)	17	40

All (1534) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	AG	886	LEU
1	AG	898	LYS
1	AG	911	LYS
1	AG	930	ILE
1	AG	944	LEU
1	AG	968	PHE
1	AG	972	PHE
1	AG	1010	THR
1	AG	1028	THR
2	EH	105	GLU
2	EH	113	LYS
2	EH	134	TYR
2	EH	147	THR
2	EH	170	ARG
2	EH	202	PHE
2	EH	219	LYS
2	EH	225	ASN
2	EH	238	MET
2	EH	239	LEU

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Mol	Chain	Res	Type
2	EH	241	LEU
2	EH	249	ASP
2	EH	253	ASP
2	EH	257	GLN
2	EH	262	ASN
2	EH	266	MET
2	EH	287	VAL
2	EH	294	ARG
2	EH	296	VAL
2	EH	309	GLU
2	EH	321	SER
2	EH	334	THR
2	EH	346	LEU
3	EK	40	LYS
3	EK	107	LYS
3	EK	111	LYS
3	EK	156	THR
3	EK	162	ASP
3	EK	183	THR
4	EL	47	TYR
4	EL	49	ASN
4	EL	53	ASP
4	EL	98	TYR
4	EL	116	TYR
4	EL	130	ASP
4	EL	204	LYS
4	EL	210	ASP
4	EL	211	LYS
5	EN	51	CYS
5	EN	75	VAL
5	EN	78	LEU
5	EN	81	LEU
5	EN	84	CYS
5	EN	111	GLU
5	EN	116	LYS
8	Ed	41	LEU
8	Ed	53	LEU
8	Ed	70	THR
8	Ed	78	ASN
8	Ed	105	ARG
8	Ed	107	ARG
8	Ed	111	LYS

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Mol	Chain	Res	Type
8	Ed	115	VAL
8	Ed	126	GLU
8	Ed	131	ILE
8	Ed	142	LYS
8	Ed	145	ILE
8	Ed	147	VAL
8	Ed	152	GLN
9	Ef	223	ILE
9	Ef	245	LYS
9	Ef	250	LEU
8	FD	35	ASP
8	FD	71	LEU
8	FD	73	ILE
8	FD	92	GLU
8	FD	93	GLU
8	FD	127	SER
8	FD	160	LYS
1	Fg	793	GLU
1	Fg	820	TYR
2	FH	105	GLU
2	FH	108	ASP
2	FH	109	LYS
2	FH	129	LYS
2	FH	134	TYR
2	FH	152	THR
2	FH	208	LYS
2	FH	221	TYR
2	FH	239	LEU
2	FH	241	LEU
2	FH	249	ASP
2	FH	296	VAL
2	FH	334	THR
2	FH	352	LYS
3	FK	75	LEU
3	FK	83	LEU
3	FK	100	ASN
3	FK	111	LYS
3	FK	150	ASP
3	FK	180	VAL
3	FK	183	THR
4	FL	44	HIS
4	FL	47	TYR

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Mol	Chain	Res	Type
4	FL	58	LYS
4	FL	109	LEU
4	FL	129	THR
4	FL	130	ASP
4	FL	140	LEU
4	FL	155	LEU
4	FL	170	ASP
4	FL	172	VAL
4	FL	174	SER
4	FL	177	HIS
4	FL	190	MET
4	FL	228	ARG
5	FN	62	ASN
5	FN	78	LEU
5	FN	94	GLN
5	FN	95	LEU
5	FN	100	LEU
8	Fd	41	LEU
8	Fd	54	GLU
8	Fd	59	GLU
8	Fd	62	ILE
8	Fd	82	ARG
8	Fd	93	GLU
8	Fd	111	LYS
9	Ff	216	ILE
9	Ff	243	MET
10	BC	29	THR
10	BC	42	LYS
10	BC	49	LYS
10	BC	55	ILE
10	BC	83	GLN
10	BC	84	LEU
10	BC	86	LYS
10	BC	90	ASN
10	BC	91	LEU
10	BC	92	ASP
10	BC	100	LEU
10	BC	147	THR
10	BC	171	LYS
10	BC	175	GLU
10	BC	194	THR
10	BC	205	GLU

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Mol	Chain	Res	Type
10	BC	222	VAL
10	BC	227	VAL
10	BC	229	HIS
10	BC	245	ASP
10	BC	250	ILE
10	BC	267	VAL
9	AF	250	LEU
8	GD	30	ILE
8	GD	35	ASP
8	GD	51	SER
8	GD	67	LYS
8	GD	73	ILE
8	GD	126	GLU
8	GD	127	SER
8	GD	154	VAL
9	GF	253	ARG
9	GF	256	THR
9	GF	267	GLU
1	Gg	801	MET
1	Gg	802	LEU
1	Gg	808	LEU
1	Gg	814	GLN
2	GH	108	ASP
2	GH	205	GLN
2	GH	221	TYR
2	GH	233	LEU
2	GH	241	LEU
2	GH	248	VAL
2	GH	250	TYR
2	GH	264	LYS
2	GH	285	GLU
2	GH	301	ASP
2	GH	321	SER
3	GK	50	ASP
3	GK	60	LEU
3	GK	67	VAL
3	GK	72	GLN
3	GK	83	LEU
3	GK	93	TRP
3	GK	100	ASN
3	GK	111	LYS
3	GK	156	THR

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Mol	Chain	Res	Type
1	BG	869	MET
1	BG	893	LYS
1	BG	898	LYS
1	BG	910	ASP
1	BG	913	VAL
1	BG	930	ILE
1	BG	944	LEU
1	BG	968	PHE
1	BG	972	PHE
1	BG	1010	THR
1	BG	1028	THR
4	GL	47	TYR
4	GL	130	ASP
4	GL	177	HIS
4	GL	221	HIS
4	GL	233	TRP
5	GN	51	CYS
5	GN	75	VAL
5	GN	81	LEU
5	GN	91	VAL
5	GN	111	GLU
5	GN	114	LEU
8	Gd	62	ILE
8	Gd	118	LEU
8	Gd	119	ILE
8	Gd	147	VAL
9	Gf	264	PHE
8	HD	35	ASP
8	HD	52	MET
8	HD	78	ASN
8	HD	91	ILE
8	HD	106	PHE
8	HD	126	GLU
8	HD	130	GLU
8	HD	136	ASP
8	HD	137	TYR
9	HF	216	ILE
9	HF	226	ASN
9	HF	230	LEU
9	HF	231	THR
9	HF	238	ILE
1	Hg	793	GLU

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Mol	Chain	Res	Type
1	Hg	808	LEU
1	Hg	814	GLN
1	Hg	819	VAL
2	HH	113	LYS
2	HH	138	GLU
2	HH	170	ARG
2	HH	195	ASP
2	HH	238	MET
2	HH	240	THR
2	HH	250	TYR
2	HH	253	ASP
2	HH	269	GLU
2	HH	284	LEU
2	HH	321	SER
3	HK	58	THR
3	HK	67	VAL
3	HK	75	LEU
3	HK	149	VAL
3	HK	156	THR
4	HL	105	ILE
4	HL	125	LEU
4	HL	133	PHE
4	HL	225	GLN
11	HM	131	THR
11	HM	134	LEU
11	HM	152	LEU
11	HM	199	LYS
11	HM	212	LEU
11	HM	222	ILE
11	HM	237	ASP
11	HM	259	SER
11	HM	300	ASP
5	HN	51	CYS
5	HN	62	ASN
5	HN	80	PHE
5	HN	115	GLN
8	Hd	31	ASN
8	Hd	35	ASP
8	Hd	36	ASP
8	Hd	50	ASP
8	Hd	55	MET
8	Hd	78	ASN

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Mol	Chain	Res	Type
8	Hd	97	ARG
8	Hd	121	ILE
9	Hf	244	VAL
1	Bg	792	GLN
1	Bg	802	LEU
1	Bg	819	VAL
8	ID	24	LYS
8	ID	26	LYS
8	ID	31	ASN
8	ID	35	ASP
8	ID	69	ASN
8	ID	115	VAL
8	ID	124	LYS
8	ID	134	ASP
9	IF	210	TYR
9	IF	231	THR
9	IF	233	ARG
9	IF	256	THR
1	Ig	793	GLU
1	Ig	795	GLN
1	Ig	808	LEU
1	Ig	814	GLN
2	IH	109	LYS
2	IH	122	LEU
2	IH	134	TYR
2	IH	171	LEU
2	IH	245	GLN
2	IH	248	VAL
2	IH	250	TYR
2	IH	253	ASP
2	IH	350	HIS
3	IK	57	MET
3	IK	72	GLN
3	IK	78	ILE
3	IK	98	LEU
3	IK	109	PHE
3	IK	111	LYS
3	IK	117	THR
3	IK	142	GLU
3	IK	156	THR
4	IL	47	TYR
4	IL	130	ASP

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Mol	Chain	Res	Type
4	IL	162	THR
4	IL	177	HIS
4	IL	210	ASP
11	IM	134	LEU
11	IM	146	LEU
11	IM	149	ASN
11	IM	173	LEU
11	IM	176	VAL
11	IM	178	LYS
11	IM	205	TYR
11	IM	208	LYS
11	IM	212	LEU
11	IM	215	ARG
11	IM	221	LYS
11	IM	229	ASN
11	IM	231	LEU
11	IM	301	MET
11	IM	312	PHE
11	IM	315	TYR
11	IM	316	ASN
1	CG	869	MET
1	CG	873	LEU
1	CG	898	LYS
1	CG	911	LYS
1	CG	930	ILE
1	CG	944	LEU
1	CG	962	SER
1	CG	963	SER
1	CG	965	LEU
1	CG	972	PHE
1	CG	1010	THR
1	CG	1032	TYR
5	IN	65	TYR
5	IN	81	LEU
5	IN	82	MET
5	IN	84	CYS
8	Id	26	LYS
8	Id	73	ILE
9	If	211	TYR
9	If	215	VAL
9	If	244	VAL
9	If	260	GLN

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Mol	Chain	Res	Type
8	JD	24	LYS
8	JD	35	ASP
8	JD	50	ASP
8	JD	71	LEU
8	JD	92	GLU
8	JD	107	ARG
9	JF	216	ILE
9	JF	222	LEU
9	JF	264	PHE
9	JF	266	GLN
9	JF	267	GLU
1	Jg	802	LEU
1	Jg	814	GLN
1	Jg	816	GLU
2	JH	107	ILE
2	JH	108	ASP
2	JH	109	LYS
2	JH	157	PHE
2	JH	159	ASN
2	JH	170	ARG
2	JH	203	ASN
2	JH	204	ILE
2	JH	233	LEU
2	JH	240	THR
2	JH	241	LEU
2	JH	249	ASP
2	JH	270	GLU
2	JH	284	LEU
2	JH	294	ARG
2	JH	321	SER
2	JH	339	MET
2	JH	340	GLN
2	JH	361	LEU
3	JK	50	ASP
3	JK	62	LYS
3	JK	67	VAL
3	JK	75	LEU
3	JK	83	LEU
3	JK	86	ASP
3	JK	96	TYR
3	JK	100	ASN
3	JK	111	LYS

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Mol	Chain	Res	Type
3	JK	125	SER
3	JK	126	VAL
3	JK	156	THR
3	JK	157	GLN
3	JK	162	ASP
4	JL	47	TYR
4	JL	113	ASP
4	JL	130	ASP
4	JL	133	PHE
4	JL	177	HIS
4	JL	181	LEU
4	JL	212	ASN
4	JL	217	ASN
5	JN	51	CYS
5	JN	52	ASP
5	JN	69	TYR
5	JN	71	THR
5	JN	80	PHE
5	JN	94	GLN
5	JN	111	GLU
8	Jd	41	LEU
8	Jd	57	LYS
8	Jd	63	THR
8	Jd	92	GLU
8	Jd	93	GLU
8	Jd	141	LYS
9	Jf	263	LYS
2	AH	109	LYS
2	AH	114	ASP
2	AH	115	MET
2	AH	134	TYR
2	AH	204	ILE
2	AH	205	GLN
2	AH	211	ASN
2	AH	216	GLN
2	AH	233	LEU
2	AH	240	THR
2	AH	253	ASP
2	AH	280	LEU
2	AH	297	VAL
2	AH	316	ASN
2	AH	321	SER

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Mol	Chain	Res	Type
2	AH	332	ASP
2	AH	344	VAL
2	AH	346	LEU
8	KD	32	ASN
8	KD	35	ASP
8	KD	50	ASP
8	KD	55	MET
8	KD	85	VAL
8	KD	86	ASP
8	KD	91	ILE
8	KD	93	GLU
8	KD	111	LYS
8	KD	162	TYR
10	CC	61	GLU
10	CC	97	ASN
10	CC	101	LEU
10	CC	102	GLU
10	CC	105	ILE
10	CC	116	THR
10	CC	127	ILE
10	CC	143	THR
10	CC	146	THR
10	CC	154	ASP
10	CC	156	VAL
10	CC	165	LEU
10	CC	184	TRP
10	CC	206	PHE
10	CC	247	LEU
10	CC	248	ARG
10	CC	256	ASN
10	CC	258	ASN
9	KF	211	TYR
9	KF	223	ILE
9	KF	230	LEU
9	KF	250	LEU
1	Kg	801	MET
1	Kg	802	LEU
1	Kg	814	GLN
1	Kg	820	TYR
2	KH	108	ASP
2	KH	134	TYR
2	KH	141	LYS

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Mol	Chain	Res	Type
2	KH	171	LEU
2	KH	183	ASP
2	KH	203	ASN
2	KH	211	ASN
2	KH	218	THR
2	KH	238	MET
2	KH	239	LEU
2	KH	240	THR
2	KH	241	LEU
2	KH	242	ILE
2	KH	250	TYR
2	KH	257	GLN
2	KH	264	LYS
2	KH	287	VAL
2	KH	309	GLU
3	KK	46	ASP
3	KK	67	VAL
3	KK	73	ASN
3	KK	83	LEU
3	KK	99	LEU
3	KK	106	LEU
3	KK	111	LYS
3	KK	117	THR
3	KK	162	ASP
3	KK	183	THR
4	KL	47	TYR
4	KL	93	LEU
4	KL	113	ASP
4	KL	121	ASP
4	KL	129	THR
4	KL	130	ASP
4	KL	133	PHE
4	KL	155	LEU
4	KL	172	VAL
4	KL	177	HIS
4	KL	181	LEU
4	KL	183	GLN
4	KL	210	ASP
4	KL	216	ASP
4	KL	217	ASN
4	KL	219	ILE
4	KL	227	ARG

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Mol	Chain	Res	Type
11	KM	146	LEU
11	KM	192	ARG
11	KM	221	LYS
11	KM	222	ILE
11	KM	242	LYS
11	KM	259	SER
11	KM	271	SER
11	KM	279	ILE
11	KM	292	MET
11	KM	300	ASP
11	KM	313	ASP
5	KN	51	CYS
5	KN	65	TYR
5	KN	81	LEU
1	DG	869	MET
1	DG	873	LEU
1	DG	911	LYS
1	DG	912	MET
1	DG	916	PHE
1	DG	930	ILE
1	DG	944	LEU
1	DG	962	SER
1	DG	963	SER
1	DG	1010	THR
1	DG	1021	GLN
1	DG	1024	ASN
1	DG	1028	THR
1	DG	1044	ASP
8	Kd	63	THR
8	Kd	67	LYS
8	Kd	93	GLU
8	Kd	147	VAL
9	Kf	222	LEU
9	Kf	244	VAL
8	LD	43	GLU
8	LD	54	GLU
8	LD	67	LYS
8	LD	73	ILE
8	LD	79	LEU
8	LD	91	ILE
8	LD	93	GLU
8	LD	95	THR

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Mol	Chain	Res	Type
8	LD	123	THR
8	LD	127	SER
8	LD	156	LEU
9	LF	211	TYR
9	LF	231	THR
9	LF	234	GLU
9	LF	238	ILE
9	LF	250	LEU
1	Lg	808	LEU
1	Lg	814	GLN
1	Lg	815	VAL
8	CD	50	ASP
8	CD	78	ASN
8	CD	82	ARG
8	CD	86	ASP
2	LH	108	ASP
2	LH	134	TYR
2	LH	138	GLU
2	LH	147	THR
2	LH	170	ARG
2	LH	202	PHE
2	LH	218	THR
2	LH	226	LEU
2	LH	231	ARG
2	LH	233	LEU
2	LH	241	LEU
2	LH	249	ASP
2	LH	253	ASP
2	LH	278	ASP
2	LH	280	LEU
2	LH	281	LEU
2	LH	321	SER
3	LK	40	LYS
3	LK	50	ASP
3	LK	75	LEU
3	LK	92	ASN
3	LK	111	LYS
3	LK	127	LYS
3	LK	156	THR
3	LK	162	ASP
3	LK	182	ILE
3	LK	183	THR

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Mol	Chain	Res	Type
4	LL	47	TYR
4	LL	49	ASN
4	LL	98	TYR
4	LL	100	ASP
4	LL	109	LEU
4	LL	133	PHE
4	LL	172	VAL
4	LL	189	MET
4	LL	210	ASP
4	LL	234	PHE
11	LM	133	TYR
11	LM	134	LEU
11	LM	171	ARG
11	LM	173	LEU
11	LM	180	ASP
11	LM	184	LEU
11	LM	188	PHE
11	LM	191	LEU
11	LM	192	ARG
11	LM	205	TYR
11	LM	210	ASP
11	LM	221	LYS
11	LM	285	SER
11	LM	292	MET
11	LM	308	ASP
5	LN	48	ILE
5	LN	51	CYS
5	LN	52	ASP
5	LN	62	ASN
5	LN	75	VAL
8	Ld	41	LEU
8	Ld	70	THR
8	Ld	108	VAL
8	Ld	119	ILE
8	Ld	124	LYS
8	Ld	147	VAL
9	Lf	237	LYS
9	Lf	245	LYS
9	Lf	255	LEU
9	Lf	262	ILE
3	AK	67	VAL
3	AK	75	LEU

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Mol	Chain	Res	Type
3	AK	98	LEU
3	AK	126	VAL
3	AK	156	THR
3	AK	162	ASP
3	AK	163	LYS
3	AK	182	ILE
8	MD	35	ASP
8	MD	50	ASP
8	MD	91	ILE
8	MD	115	VAL
8	MD	126	GLU
8	MD	145	ILE
8	MD	156	LEU
9	MF	222	LEU
9	MF	231	THR
9	MF	233	ARG
1	Mg	802	LEU
1	Mg	814	GLN
1	Mg	815	VAL
1	Mg	816	GLU
2	MH	108	ASP
2	MH	130	LEU
2	MH	147	THR
2	MH	152	THR
2	MH	158	VAL
2	MH	170	ARG
2	MH	171	LEU
2	MH	180	VAL
2	MH	238	MET
2	MH	248	VAL
2	MH	250	TYR
2	MH	254	LEU
2	MH	255	ARG
2	MH	264	LYS
2	MH	268	THR
2	MH	278	ASP
2	MH	287	VAL
2	MH	308	ASN
2	MH	316	ASN
3	MK	40	LYS
3	MK	45	VAL
3	MK	50	ASP

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Mol	Chain	Res	Type
3	MK	67	VAL
3	MK	75	LEU
3	MK	92	ASN
3	MK	106	LEU
3	MK	108	GLN
3	MK	111	LYS
3	MK	112	ILE
3	MK	116	VAL
3	MK	127	LYS
3	MK	142	GLU
3	MK	156	THR
3	MK	179	ARG
3	MK	181	GLU
3	MK	182	ILE
4	ML	47	TYR
4	ML	100	ASP
4	ML	112	GLN
4	ML	113	ASP
4	ML	123	ARG
4	ML	130	ASP
4	ML	131	LYS
4	ML	139	ARG
4	ML	140	LEU
4	ML	172	VAL
4	ML	189	MET
4	ML	193	LEU
4	ML	219	ILE
11	MM	134	LEU
11	MM	152	LEU
11	MM	180	ASP
11	MM	181	PRO
11	MM	184	LEU
11	MM	205	TYR
11	MM	221	LYS
11	MM	232	ASP
11	MM	245	TYR
11	MM	257	ASP
11	MM	262	GLU
11	MM	277	SER
11	MM	292	MET
11	MM	301	MET
11	MM	312	PHE

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Mol	Chain	Res	Type
11	MM	318	GLN
5	MN	69	TYR
5	MN	70	CYS
5	MN	72	ARG
5	MN	95	LEU
5	MN	100	LEU
5	MN	110	GLU
5	MN	112	CYS
5	MN	114	LEU
5	MN	115	GLN
1	EG	885	ILE
1	EG	886	LEU
1	EG	895	LYS
1	EG	911	LYS
1	EG	930	ILE
1	EG	944	LEU
1	EG	962	SER
1	EG	965	LEU
1	EG	972	PHE
1	EG	1010	THR
1	EG	1021	GLN
8	Md	32	ASN
8	Md	41	LEU
8	Md	55	MET
8	Md	67	LYS
8	Md	78	ASN
8	Md	111	LYS
8	Md	115	VAL
8	Md	124	LYS
8	Md	145	ILE
9	Mf	255	LEU
9	VF	230	LEU
1	VG	793	GLU
1	VG	814	GLN
2	VH	105	GLU
2	VH	113	LYS
2	VH	134	TYR
2	VH	171	LEU
2	VH	203	ASN
2	VH	219	LYS
2	VH	233	LEU
2	VH	238	MET

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Mol	Chain	Res	Type
2	VH	240	THR
2	VH	241	LEU
2	VH	249	ASP
2	VH	306	LEU
2	VH	321	SER
9	CF	211	TYR
9	CF	245	LYS
9	CF	256	THR
9	WF	231	THR
1	WG	795	GLN
1	WG	797	ARG
1	WG	801	MET
1	WG	808	LEU
1	WG	817	THR
2	WH	108	ASP
2	WH	115	MET
2	WH	134	TYR
2	WH	136	THR
2	WH	144	THR
2	WH	171	LEU
2	WH	215	ILE
2	WH	225	ASN
2	WH	231	ARG
2	WH	239	LEU
2	WH	241	LEU
2	WH	249	ASP
2	WH	253	ASP
2	WH	262	ASN
2	WH	313	VAL
2	WH	315	THR
2	WH	325	LEU
2	WH	332	ASP
2	WH	337	TYR
2	WH	345	LEU
2	WH	350	HIS
2	WH	354	MET
2	WH	355	GLN
1	XG	795	GLN
1	XG	810	GLN
1	XG	818	GLN
2	XH	105	GLU
2	XH	108	ASP

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Mol	Chain	Res	Type
2	XH	113	LYS
2	XH	154	THR
2	XH	203	ASN
2	XH	211	ASN
2	XH	220	LEU
2	XH	233	LEU
2	XH	239	LEU
2	XH	241	LEU
2	XH	248	VAL
2	XH	249	ASP
2	XH	253	ASP
2	XH	262	ASN
2	XH	303	ARG
2	XH	308	ASN
2	XH	329	THR
2	XH	338	GLU
2	XH	354	MET
9	YF	231	THR
9	YF	256	THR
9	YF	263	LYS
4	AL	47	TYR
4	AL	57	VAL
4	AL	133	PHE
4	AL	174	SER
4	AL	210	ASP
1	YG	795	GLN
1	YG	815	VAL
1	YG	816	GLU
1	YG	817	THR
2	YH	115	MET
2	YH	118	ASN
2	YH	147	THR
2	YH	170	ARG
2	YH	171	LEU
2	YH	176	VAL
2	YH	180	VAL
2	YH	204	ILE
2	YH	205	GLN
2	YH	214	MET
2	YH	220	LEU
2	YH	233	LEU
2	YH	239	LEU

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Mol	Chain	Res	Type
2	YH	241	LEU
2	YH	248	VAL
2	YH	250	TYR
2	YH	253	ASP
2	YH	294	ARG
2	YH	306	LEU
2	YH	308	ASN
2	YH	314	ARG
2	YH	316	ASN
2	YH	345	LEU
2	YH	356	LEU
10	DC	68	GLN
10	DC	85	GLN
10	DC	104	ILE
10	DC	115	THR
10	DC	122	GLN
10	DC	126	ILE
10	DC	145	THR
10	DC	153	ASP
10	DC	173	GLU
10	DC	183	TRP
10	DC	197	ASN
10	DC	203	GLU
10	DC	227	HIS
10	DC	243	ASP
9	ZF	212	ILE
9	ZF	230	LEU
9	ZF	231	THR
9	ZF	264	PHE
1	ZG	794	ILE
1	ZG	796	GLN
1	ZG	802	LEU
1	ZG	810	GLN
2	ZH	105	GLU
2	ZH	109	LYS
2	ZH	115	MET
2	ZH	130	LEU
2	ZH	134	TYR
2	ZH	207	ASP
2	ZH	213	LEU
2	ZH	221	TYR
2	ZH	233	LEU

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Mol	Chain	Res	Type
2	ZH	239	LEU
2	ZH	241	LEU
2	ZH	242	ILE
2	ZH	253	ASP
2	ZH	285	GLU
2	ZH	320	LEU
2	ZH	321	SER
2	ZH	329	THR
2	ZH	338	GLU
2	ZH	340	GLN
2	ZH	352	LYS
1	FG	898	LYS
1	FG	911	LYS
1	FG	916	PHE
1	FG	930	ILE
1	FG	944	LEU
1	FG	962	SER
1	FG	968	PHE
1	FG	972	PHE
1	FG	1010	THR
1	FG	1028	THR
1	FG	1044	ASP
11	AM	136	LEU
11	AM	146	LEU
11	AM	175	ILE
11	AM	184	LEU
11	AM	192	ARG
11	AM	203	SER
11	AM	204	LEU
11	AM	205	TYR
11	AM	222	ILE
11	AM	263	ILE
11	AM	292	MET
11	AM	301	MET
11	AM	313	ASP
11	BM	134	LEU
11	BM	184	LEU
11	BM	204	LEU
11	BM	205	TYR
11	BM	215	ARG
11	BM	221	LYS
11	BM	229	ASN

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Mol	Chain	Res	Type
11	BM	287	THR
11	BM	292	MET
11	BM	301	MET
11	BM	303	GLU
11	BM	304	TRP
11	EM	136	LEU
11	EM	144	THR
11	EM	153	GLN
11	EM	175	ILE
11	EM	184	LEU
11	EM	193	GLN
11	EM	204	LEU
11	EM	205	TYR
11	EM	210	ASP
11	EM	212	LEU
11	EM	221	LYS
11	EM	240	GLN
11	EM	262	GLU
11	EM	292	MET
11	EM	301	MET
11	EM	303	GLU
11	FM	114	ASN
11	FM	136	LEU
11	FM	152	LEU
11	FM	171	ARG
11	FM	173	LEU
11	FM	182	LYS
11	FM	184	LEU
11	FM	192	ARG
11	FM	194	LEU
11	FM	204	LEU
11	FM	205	TYR
11	FM	222	ILE
11	FM	263	ILE
11	FM	269	GLN
11	FM	292	MET
11	FM	301	MET
11	FM	304	TRP
11	GM	127	ASN
11	GM	152	LEU
11	GM	175	ILE
11	GM	191	LEU

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Mol	Chain	Res	Type
11	GM	201	THR
11	GM	204	LEU
11	GM	221	LYS
11	GM	222	ILE
11	GM	275	ASP
11	GM	292	MET
11	GM	301	MET
11	GM	304	TRP
11	GM	312	PHE
11	JM	144	THR
11	JM	152	LEU
11	JM	175	ILE
11	JM	184	LEU
11	JM	191	LEU
11	JM	192	ARG
11	JM	204	LEU
11	JM	205	TYR
11	JM	221	LYS
11	JM	229	ASN
11	JM	263	ILE
11	JM	269	GLN
11	JM	279	ILE
11	JM	287	THR
11	JM	292	MET
11	JM	301	MET
11	JM	303	GLU
11	JM	304	TRP
5	AN	62	ASN
5	AN	71	THR
5	AN	72	ARG
5	AN	84	CYS
5	AN	91	VAL
5	AN	95	LEU
5	AN	105	ASP
1	Cg	813	LYS
8	Ad	36	ASP
8	Ad	41	LEU
8	Ad	53	LEU
8	Ad	54	GLU
8	Ad	61	VAL
8	Ad	97	ARG
8	Ad	119	ILE

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Mol	Chain	Res	Type
8	Ad	124	LYS
9	Af	260	GLN
8	BD	38	THR
8	BD	50	ASP
8	BD	68	ASP
8	BD	86	ASP
8	BD	123	THR
8	BD	128	LEU
9	BF	230	LEU
9	BF	250	LEU
2	BH	108	ASP
2	BH	160	LEU
2	BH	170	ARG
2	BH	203	ASN
2	BH	233	LEU
2	BH	238	MET
2	BH	241	LEU
2	BH	242	ILE
2	BH	248	VAL
2	BH	250	TYR
2	BH	253	ASP
2	BH	294	ARG
2	BH	324	TRP
2	BH	345	LEU
2	BH	356	LEU
3	BK	45	VAL
3	BK	92	ASN
3	BK	100	ASN
3	BK	101	GLU
3	BK	111	LYS
3	BK	117	THR
3	BK	137	SER
3	BK	169	THR
4	BL	47	TYR
4	BL	109	LEU
4	BL	112	GLN
4	BL	113	ASP
4	BL	129	THR
4	BL	133	PHE
4	BL	134	MET
4	BL	163	ILE
4	BL	203	LEU

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Mol	Chain	Res	Type
4	BL	206	GLU
4	BL	211	LYS
4	BL	212	ASN
4	BL	225	GLN
5	BN	39	ASP
5	BN	78	LEU
5	BN	81	LEU
5	BN	84	CYS
5	BN	95	LEU
5	BN	104	ASN
5	BN	108	VAL
8	Bd	27	LYS
8	Bd	36	ASP
8	Bd	55	MET
8	Bd	63	THR
8	Bd	111	LYS
8	Bd	115	VAL
8	Bd	131	ILE
9	Bf	221	TRP
9	Bf	245	LYS
9	Bf	260	GLN
10	EC	80	ASP
10	EC	84	ASN
10	EC	95	ASP
10	EC	97	ASN
10	EC	103	HIS
10	EC	105	ILE
10	EC	112	GLU
10	EC	119	LEU
10	EC	127	ILE
10	EC	143	THR
10	EC	146	THR
10	EC	149	GLN
10	EC	165	LEU
10	EC	180	THR
10	EC	184	TRP
10	EC	193	THR
10	EC	249	ILE
10	EC	255	LEU
10	FC	29	THR
10	FC	47	GLN
10	FC	49	LYS

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Mol	Chain	Res	Type
10	FC	57	GLU
10	FC	80	ILE
10	FC	90	ASN
10	FC	92	ASP
10	FC	100	LEU
10	FC	124	GLN
10	FC	140	HIS
10	FC	155	ASP
10	FC	163	ASN
10	FC	164	VAL
10	FC	166	LEU
10	FC	175	GLU
10	FC	227	VAL
10	GC	60	LYS
10	GC	91	ASP
10	GC	96	PHE
10	GC	105	ILE
10	GC	116	THR
10	GC	127	ILE
10	GC	140	PHE
10	GC	143	THR
10	GC	146	THR
10	GC	153	MET
10	GC	154	ASP
10	GC	156	VAL
10	GC	165	LEU
10	GC	180	THR
10	GC	184	TRP
10	GC	195	LEU
10	GC	228	HIS
10	GC	241	HIS
10	GC	256	ASN
10	GC	259	SER
10	GC	268	LYS
1	GG	886	LEU
1	GG	895	LYS
1	GG	900	ILE
1	GG	930	ILE
1	GG	944	LEU
1	GG	947	ARG
1	GG	962	SER
1	GG	963	SER

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Mol	Chain	Res	Type
1	GG	968	PHE
1	GG	972	PHE
1	GG	1010	THR
1	GG	1024	ASN
1	GG	1044	ASP
10	HC	84	LYS
10	HC	90	ASP
10	HC	96	ASN
10	HC	104	ILE
10	HC	108	VAL
10	HC	117	ASN
10	HC	118	LEU
10	HC	122	GLN
10	HC	126	ILE
10	HC	138	HIS
10	HC	142	THR
10	HC	145	THR
10	HC	147	ARG
10	HC	168	THR
10	HC	183	TRP
10	HC	243	ASP
10	HC	265	VAL
10	IC	79	ASP
10	IC	80	GLU
10	IC	88	ASN
10	IC	89	LEU
10	IC	104	ILE
10	IC	124	ILE
10	IC	126	ILE
10	IC	128	ASP
10	IC	140	ILE
10	IC	142	THR
10	IC	167	LYS
10	IC	168	THR
10	IC	169	LYS
10	IC	172	LYS
10	IC	180	GLU
10	IC	203	GLU
10	IC	210	LEU
10	IC	213	LYS
10	IC	225	VAL
10	IC	244	ARG

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Mol	Chain	Res	Type
10	IC	254	LEU
10	JC	29	THR
10	JC	49	LYS
10	JC	56	ARG
10	JC	61	LYS
10	JC	98	ASN
10	JC	118	LEU
10	JC	124	GLN
10	JC	147	THR
10	JC	174	LYS
10	JC	194	THR
10	JC	205	GLU
10	JC	222	VAL
10	JC	257	ASN
10	JC	259	ASN
10	KC	29	THR
10	KC	49	LYS
10	KC	57	GLU
10	KC	91	LEU
10	KC	98	ASN
10	KC	106	ILE
10	KC	142	ILE
10	KC	149	ARG
10	KC	155	ASP
10	KC	156	TYR
10	KC	171	LYS
10	KC	182	GLU
10	KC	183	ARG
10	KC	204	LYS
10	KC	205	GLU
10	KC	215	LYS
10	KC	229	HIS
10	KC	250	ILE
10	KC	254	PRO
10	KC	255	GLU
10	KC	256	LEU
10	KC	262	GLU
10	LC	60	GLU
10	LC	88	ASN
10	LC	94	ASP
10	LC	96	ASN
10	LC	101	GLU

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Mol	Chain	Res	Type
10	LC	102	HIS
10	LC	103	ASN
10	LC	108	VAL
10	LC	109	LEU
10	LC	115	THR
10	LC	118	LEU
10	LC	126	ILE
10	LC	145	THR
10	LC	169	LYS
10	LC	183	TRP
10	LC	203	GLU
10	LC	225	VAL
10	LC	227	HIS
10	LC	242	ASP
10	LC	262	ARG
10	MC	84	LYS
10	MC	90	ASP
10	MC	98	LEU
10	MC	102	HIS
10	MC	104	ILE
10	MC	108	VAL
10	MC	111	GLU
10	MC	138	HIS
10	MC	141	THR
10	MC	142	THR
10	MC	145	THR
10	MC	147	ARG
10	MC	148	GLN
10	MC	155	VAL
10	MC	162	VAL
10	MC	173	GLU
10	MC	180	GLU
10	MC	183	TRP
10	MC	205	PHE
10	MC	213	LYS
10	MC	233	THR
10	MC	240	HIS
10	MC	254	LEU
10	MC	265	VAL
10	MC	267	LYS
2	CH	108	ASP
2	CH	130	LEU

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Mol	Chain	Res	Type
2	CH	134	TYR
2	CH	182	LEU
2	CH	211	ASN
2	CH	233	LEU
2	CH	248	VAL
2	CH	264	LYS
2	CH	287	VAL
2	CH	313	VAL
2	CH	321	SER
2	CH	340	GLN
2	CH	361	LEU
3	CK	50	ASP
3	CK	73	ASN
3	CK	111	LYS
3	CK	156	THR
3	CK	163	LYS
4	CL	47	TYR
4	CL	49	ASN
4	CL	112	GLN
4	CL	121	ASP
4	CL	129	THR
4	CL	133	PHE
4	CL	140	LEU
4	CL	155	LEU
4	CL	175	ARG
4	CL	225	GLN
11	CM	133	TYR
11	CM	134	LEU
11	CM	160	ASN
11	CM	164	GLN
11	CM	184	LEU
11	CM	208	LYS
11	CM	215	ARG
11	CM	262	GLU
11	CM	284	LEU
11	CM	292	MET
11	CM	301	MET
11	CM	314	ARG
5	CN	51	CYS
5	CN	70	CYS
5	CN	71	THR
5	CN	107	TYR

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Mol	Chain	Res	Type
5	CN	112	CYS
5	CN	114	LEU
8	Cd	67	LYS
8	Cd	93	GLU
8	Cd	105	ARG
8	Cd	128	LEU
8	Cd	147	VAL
9	Cf	233	ARG
9	Cf	236	SER
9	Cf	243	MET
9	Cf	253	ARG
8	DD	50	ASP
8	DD	108	VAL
8	DD	111	LYS
8	DD	123	THR
8	DD	152	GLN
9	DF	230	LEU
9	DF	268	ASP
1	Dg	794	ILE
1	Dg	797	ARG
1	Dg	800	ASP
1	Dg	811	ASP
2	DH	109	LYS
2	DH	123	ASN
2	DH	134	TYR
2	DH	138	GLU
2	DH	180	VAL
2	DH	208	LYS
2	DH	231	ARG
2	DH	241	LEU
2	DH	278	ASP
2	DH	321	SER
2	DH	342	SER
2	DH	354	MET
2	DH	361	LEU
3	DK	50	ASP
3	DK	56	MET
3	DK	58	THR
3	DK	75	LEU
3	DK	86	ASP
3	DK	92	ASN
3	DK	111	LYS

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Mol	Chain	Res	Type
3	DK	116	VAL
3	DK	156	THR
4	DL	47	TYR
4	DL	49	ASN
4	DL	109	LEU
4	DL	116	TYR
4	DL	130	ASP
4	DL	135	PHE
4	DL	177	HIS
4	DL	193	LEU
4	DL	210	ASP
4	DL	212	ASN
11	DM	146	LEU
11	DM	152	LEU
11	DM	164	GLN
11	DM	184	LEU
11	DM	191	LEU
11	DM	192	ARG
11	DM	222	ILE
11	DM	229	ASN
11	DM	242	LYS
11	DM	310	LYS
11	DM	315	TYR
5	DN	77	ASP
5	DN	78	LEU
5	DN	84	CYS
5	DN	94	GLN
5	DN	115	GLN
1	HG	885	ILE
1	HG	900	ILE
1	HG	911	LYS
1	HG	913	VAL
1	HG	930	ILE
1	HG	944	LEU
1	HG	956	TYR
1	HG	962	SER
1	HG	963	SER
1	HG	965	LEU
1	HG	972	PHE
1	HG	1024	ASN
1	IG	869	MET
1	IG	911	LYS

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Mol	Chain	Res	Type
1	IG	916	PHE
1	IG	930	ILE
1	IG	944	LEU
1	IG	956	TYR
1	IG	962	SER
1	IG	963	SER
1	IG	972	PHE
1	IG	1010	THR
1	JG	869	MET
1	JG	895	LYS
1	JG	898	LYS
1	JG	900	ILE
1	JG	911	LYS
1	JG	913	VAL
1	JG	916	PHE
1	JG	926	LYS
1	JG	930	ILE
1	JG	950	HIS
1	JG	962	SER
1	JG	965	LEU
1	JG	968	PHE
1	JG	972	PHE
1	JG	1010	THR
1	KG	874	ASP
1	KG	886	LEU
1	KG	898	LYS
1	KG	916	PHE
1	KG	930	ILE
1	KG	944	LEU
1	KG	962	SER
1	KG	968	PHE
1	KG	972	PHE
1	KG	1010	THR
1	KG	1024	ASN
1	KG	1028	THR
1	LG	869	MET
1	LG	873	LEU
1	LG	886	LEU
1	LG	895	LYS
1	LG	898	LYS
1	LG	916	PHE
1	LG	930	ILE

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Mol	Chain	Res	Type
1	LG	939	THR
1	LG	944	LEU
1	LG	962	SER
1	LG	1010	THR
1	LG	1037	LEU
1	MG	869	MET
1	MG	898	LYS
1	MG	930	ILE
1	MG	944	LEU
1	MG	956	TYR
1	MG	968	PHE
1	MG	1010	THR
1	MG	1017	GLN
1	MG	1028	THR
1	MG	1037	LEU
1	NG	885	ILE
1	NG	898	LYS
1	NG	910	ASP
1	NG	930	ILE
1	NG	944	LEU
1	NG	962	SER
1	NG	972	PHE
1	NG	1010	THR
1	NG	1028	THR
1	OG	865	THR
1	OG	874	ASP
1	OG	910	ASP
1	OG	930	ILE
1	OG	947	ARG
1	OG	962	SER
1	OG	972	PHE
1	OG	1010	THR
1	OG	1020	GLN
1	OG	1028	THR
1	OG	1037	LEU
1	PG	869	MET
1	PG	898	LYS
1	PG	910	ASP
1	PG	911	LYS
1	PG	912	MET
1	PG	913	VAL
1	PG	930	ILE

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Mol	Chain	Res	Type
1	PG	944	LEU
1	PG	965	LEU
1	PG	968	PHE
1	PG	972	PHE
1	PG	1010	THR
1	PG	1037	LEU
10	AC	29	THR
10	AC	90	ASN
10	AC	106	ILE
10	AC	113	GLU
10	AC	126	ILE
10	AC	149	ARG
10	AC	163	ASN
10	AC	170	THR
10	AC	174	LYS
10	AC	196	LEU
10	AC	207	PHE
10	AC	232	LEU
8	Dd	41	LEU
8	Dd	93	GLU
8	Dd	115	VAL
8	Dd	123	THR
8	Dd	126	GLU
8	Dd	128	LEU
1	Ag	796	GLN
1	Ag	814	GLN
1	Ag	819	VAL
9	Df	216	ILE
9	Df	222	LEU
9	Df	245	LYS
8	AD	35	ASP
8	AD	78	ASN
8	AD	85	VAL
8	AD	115	VAL
8	AD	119	ILE
8	AD	145	ILE
8	ED	32	ASN
8	ED	50	ASP
8	ED	127	SER
8	ED	134	ASP
8	ED	156	LEU
9	EF	222	LEU

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Mol	Chain	Res	Type
9	EF	230	LEU
1	Eg	810	GLN
1	Eg	814	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (92) such sidechains are listed below:

Mol	Chain	Res	Type
4	EL	196	ASN
4	EL	221	HIS
8	Ed	32	ASN
8	Ed	138	GLN
9	Ff	251	GLN
10	BC	36	GLN
1	Gg	796	GLN
1	Gg	807	GLN
1	BG	938	ASN
1	BG	976	ASN
1	BG	1020	GLN
4	GL	196	ASN
5	GN	79	GLN
8	Gd	32	ASN
1	Hg	818	GLN
2	HH	205	GLN
4	HL	48	ASN
4	HL	49	ASN
4	HL	217	ASN
1	Bg	796	GLN
1	Bg	810	GLN
1	Ig	818	GLN
2	IH	203	ASN
2	IH	205	GLN
4	IL	196	ASN
1	CG	1017	GLN
9	If	251	GLN
9	If	260	GLN
2	JH	173	GLN
8	KD	32	ASN
11	KM	269	GLN
1	DG	1017	GLN
8	Kd	32	ASN
2	LH	257	GLN
3	LK	72	GLN

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Mol	Chain	Res	Type
2	MH	205	GLN
2	MH	225	ASN
11	MM	249	GLN
11	MM	267	ASN
11	MM	316	ASN
1	VG	818	GLN
2	VH	205	GLN
1	XG	818	GLN
2	YH	156	GLN
2	YH	355	GLN
1	ZG	807	GLN
1	ZG	810	GLN
1	ZG	818	GLN
2	ZH	203	ASN
2	ZH	205	GLN
11	EM	174	GLN
11	EM	249	GLN
11	EM	267	ASN
11	FM	249	GLN
11	FM	267	ASN
11	FM	306	GLN
11	JM	306	GLN
1	Cg	810	GLN
8	Ad	32	ASN
2	BH	225	ASN
5	BN	79	GLN
10	EC	192	ASN
10	FC	70	GLN
10	FC	104	HIS
1	GG	1017	GLN
1	GG	1020	GLN
10	JC	36	GLN
10	JC	70	GLN
10	LC	96	ASN
2	CH	257	GLN
3	CK	61	ASN
11	CM	164	GLN
11	CM	174	GLN
1	Dg	796	GLN
2	DH	225	ASN
4	DL	115	GLN
4	DL	185	GLN

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Mol	Chain	Res	Type
4	DL	225	GLN
5	DN	79	GLN
1	HG	1017	GLN
1	HG	1020	GLN
1	IG	1017	GLN
1	IG	1020	GLN
1	JG	1017	GLN
1	JG	1020	GLN
1	LG	1017	GLN
1	MG	1017	GLN
1	MG	1020	GLN
1	NG	1017	GLN
1	NG	1020	GLN
1	OG	1017	GLN
1	Eg	810	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides 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

The following chains have linkage breaks:

Mol	Chain	Number of breaks
7	EX	1
7	GX	1
7	YX	1
7	VX	1
7	CX	1
7	AX	1
7	FX	1
7	JX	1
7	KX	1
7	MX	1
7	WX	1
7	XX	1
7	LX	1
7	BX	1
7	HX	1
7	ZX	1
7	IX	1
7	DX	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	EX	38:UNK	C	70:UNK	N	24.84
1	GX	38:UNK	C	70:UNK	N	24.65
1	YX	38:UNK	C	70:UNK	N	24.61
1	VX	38:UNK	C	70:UNK	N	24.52
1	CX	38:UNK	C	70:UNK	N	24.52
1	AX	38:UNK	C	70:UNK	N	23.98
1	FX	38:UNK	C	70:UNK	N	23.93
1	JX	38:UNK	C	70:UNK	N	23.86
1	KX	38:UNK	C	70:UNK	N	23.86
1	MX	38:UNK	C	70:UNK	N	23.79
1	WX	38:UNK	C	70:UNK	N	23.46
1	XX	38:UNK	C	70:UNK	N	23.39
1	LX	38:UNK	C	70:UNK	N	23.18
1	BX	38:UNK	C	70:UNK	N	23.14
1	HX	38:UNK	C	70:UNK	N	22.95
1	ZX	38:UNK	C	70:UNK	N	22.81
1	IX	38:UNK	C	70:UNK	N	22.08
1	DX	38:UNK	C	70:UNK	N	21.48

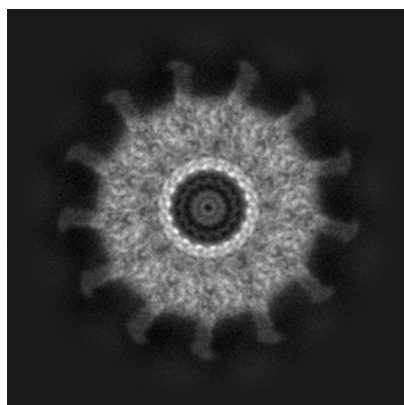
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-24023. These allow visual inspection of the internal detail of the map and identification of artifacts.

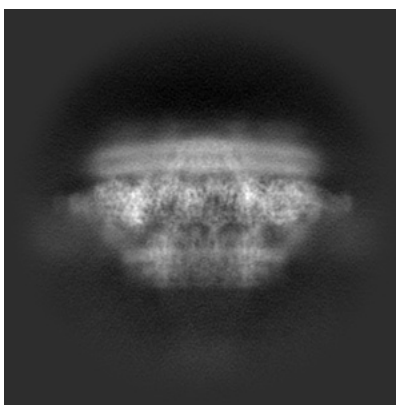
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

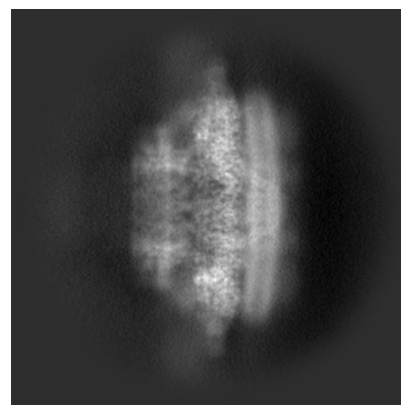
6.1.1 Primary map



X



Y

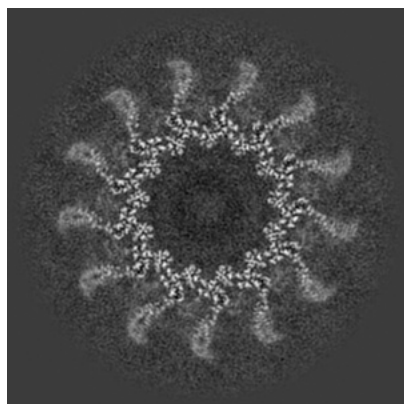


Z

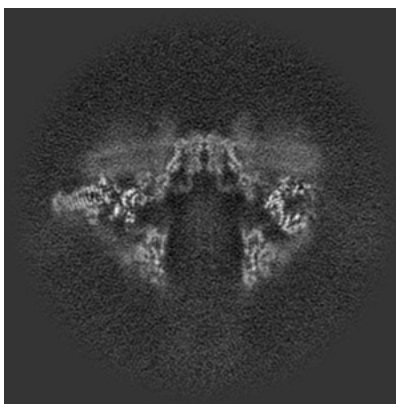
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

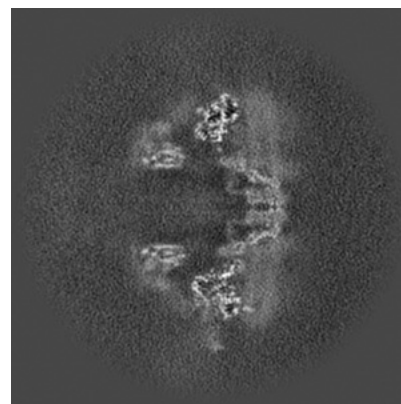
6.2.1 Primary map



X Index: 125



Y Index: 125

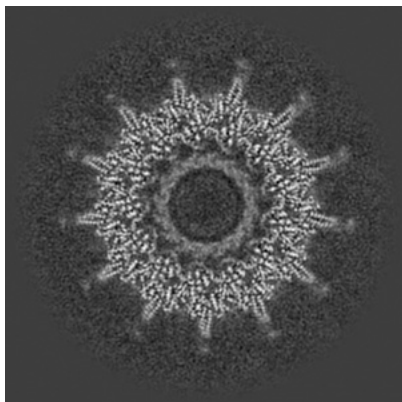


Z Index: 125

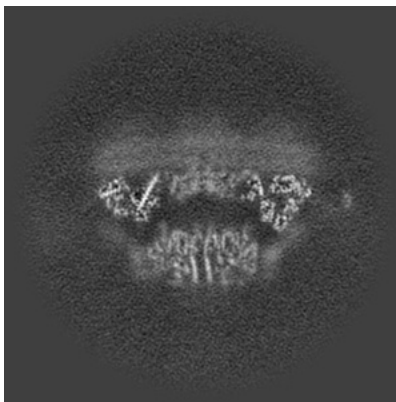
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

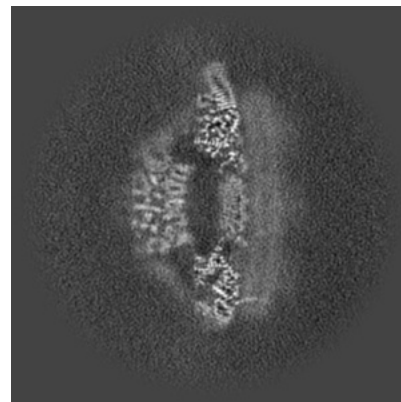
6.3.1 Primary map



X Index: 134



Y Index: 101

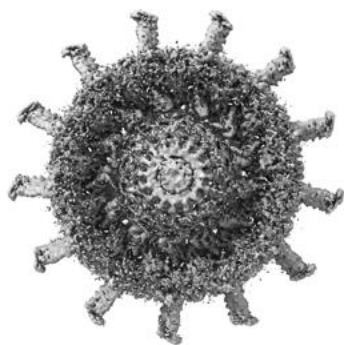


Z Index: 151

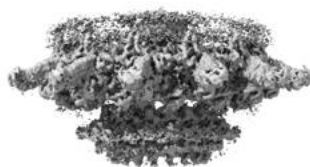
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



Z

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.

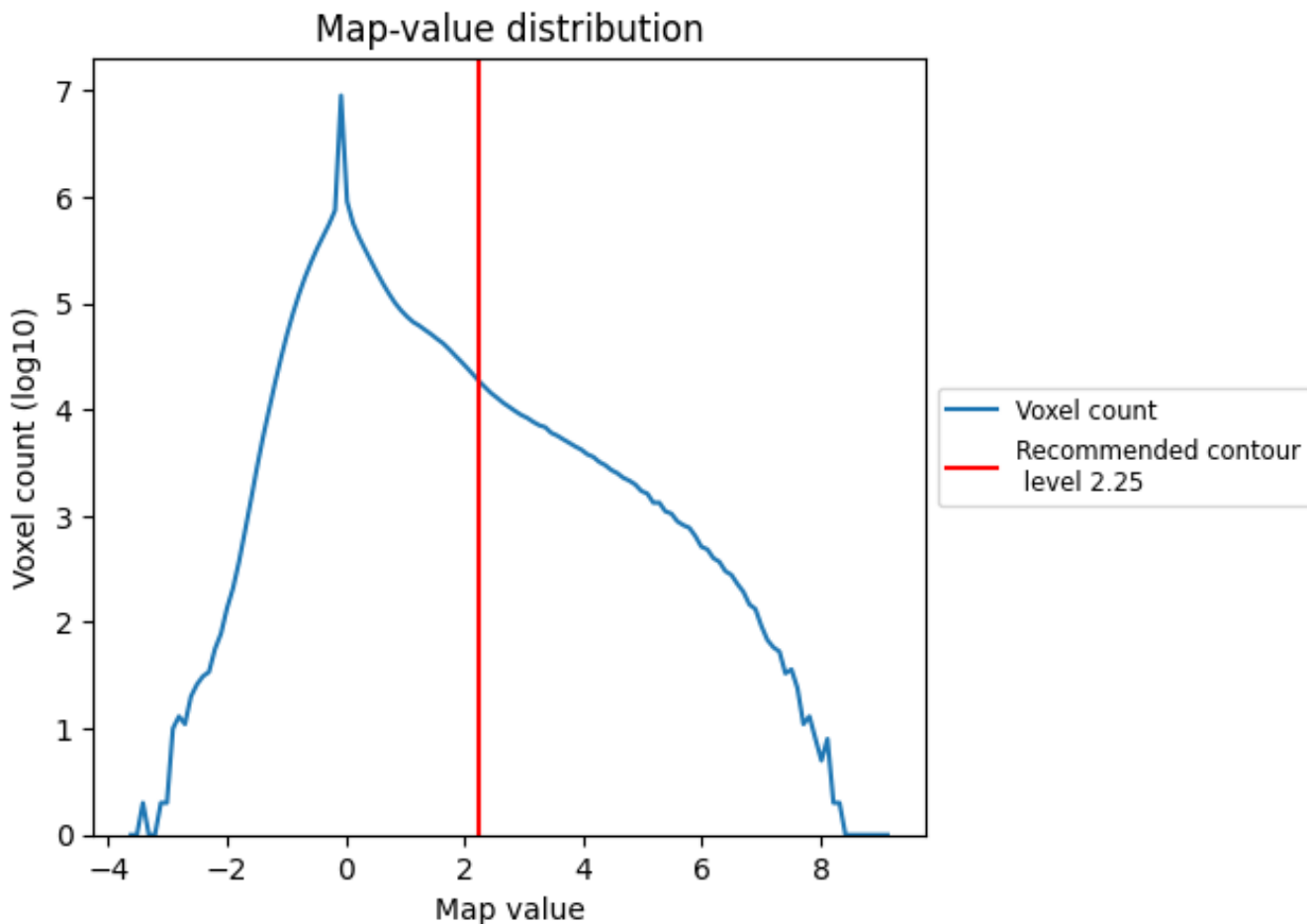
6.5 Mask visualisation

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

7 Map analysis [i](#)

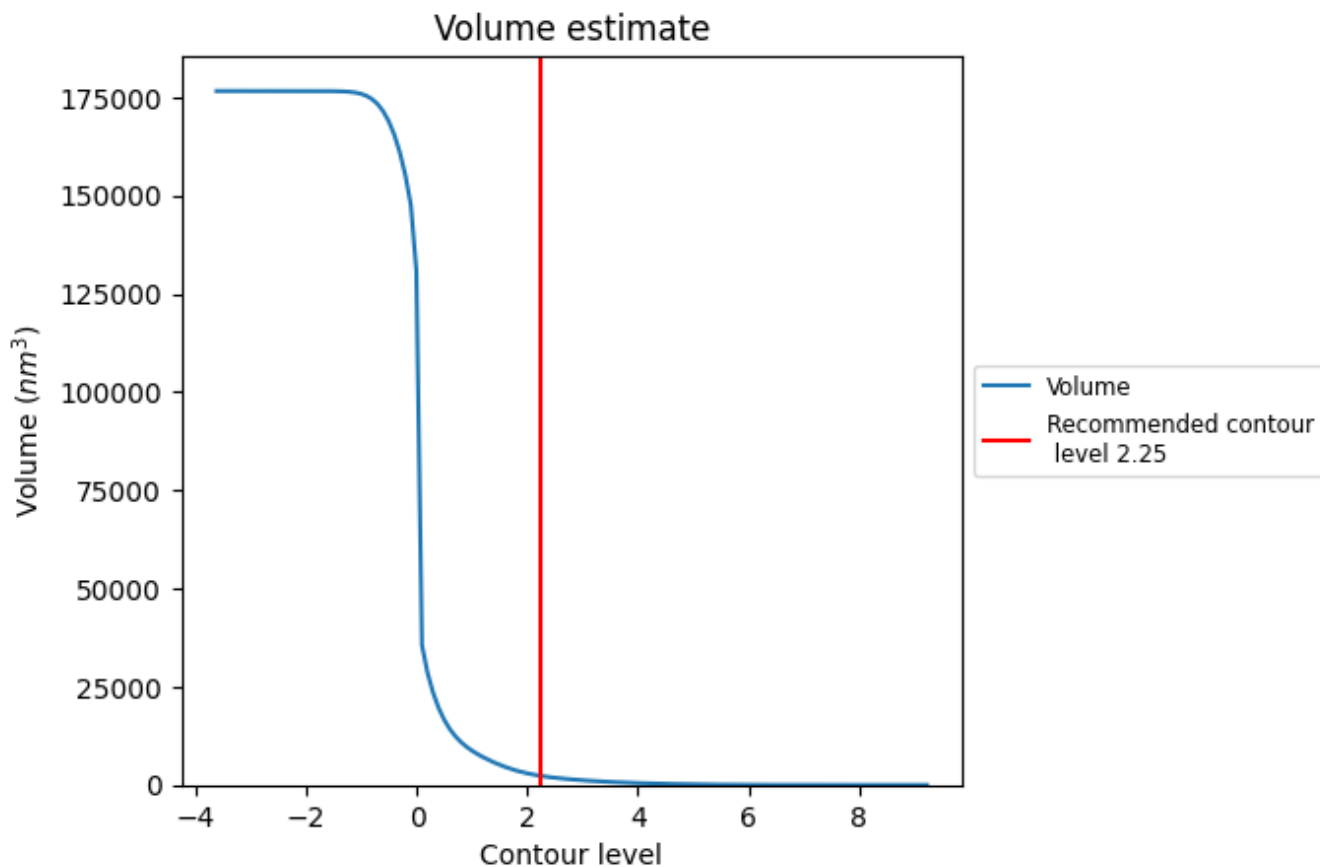
This section contains the results of statistical analysis of the map.

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.

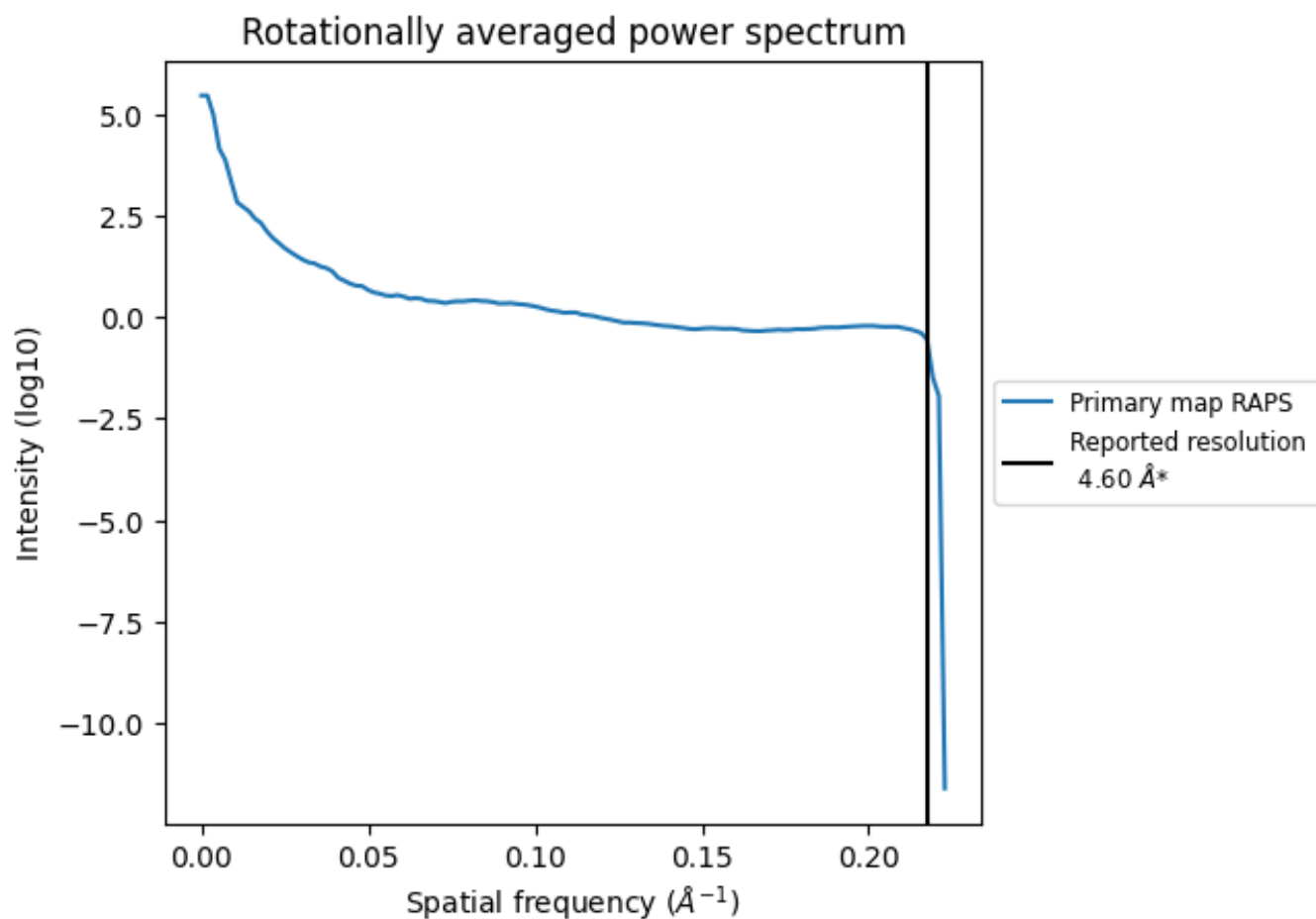
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2290 nm^3 ; this corresponds to an approximate mass of 2069 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⁻¹

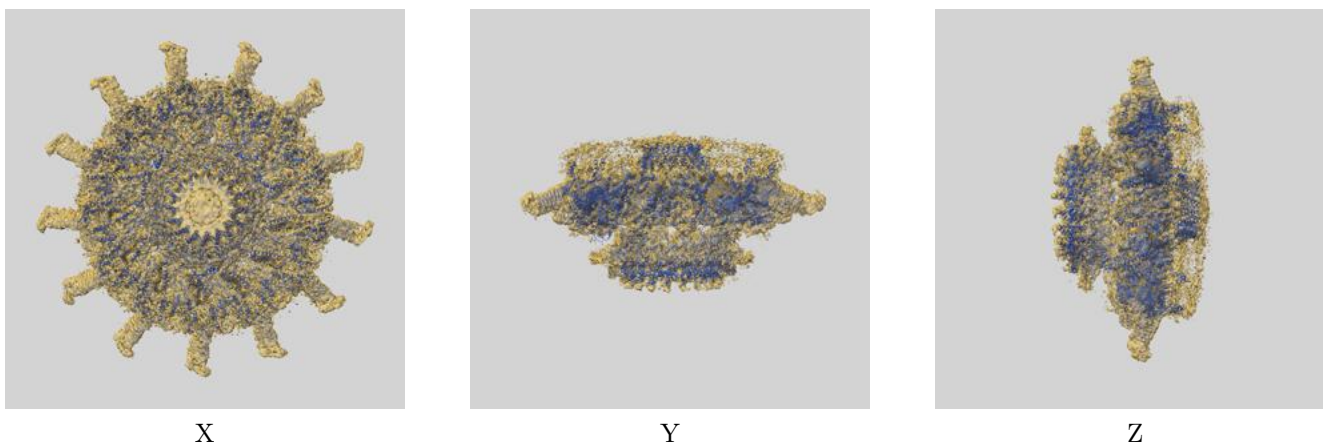
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

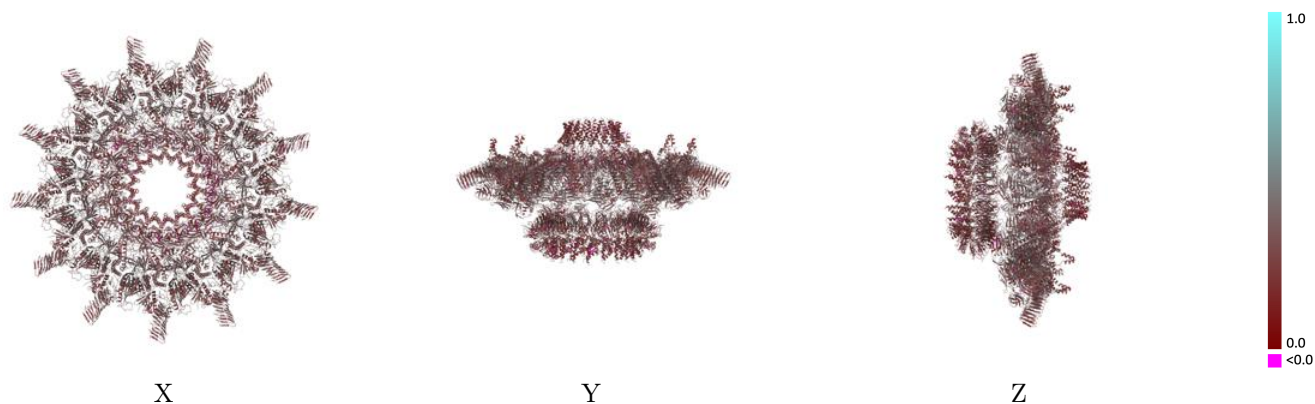
This section contains information regarding the fit between EMDB map EMD-24023 and PDB model 7MUV. Per-residue inclusion information can be found in section [3](#) on page [22](#).

9.1 Map-model overlay [i](#)



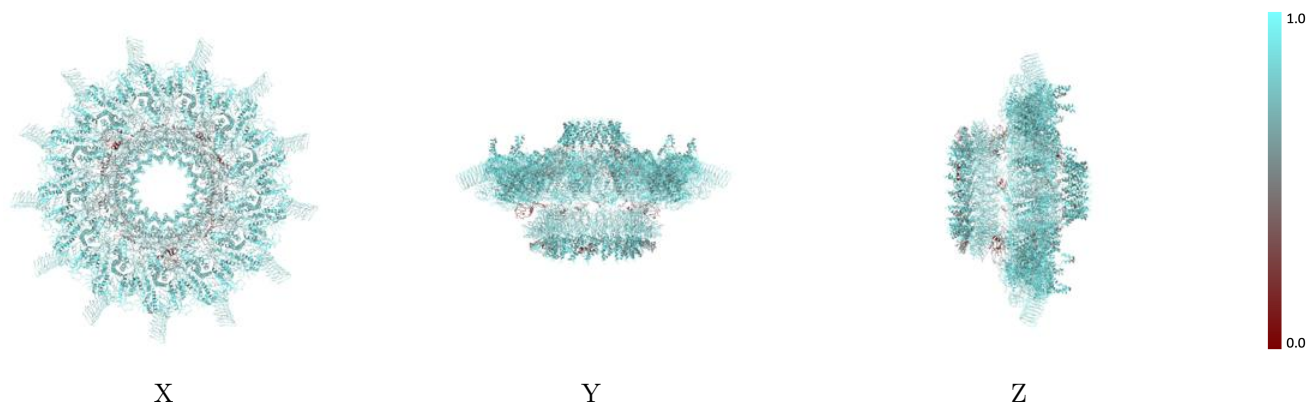
The images above show the 3D surface view of the map at the recommended contour level 2.25 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



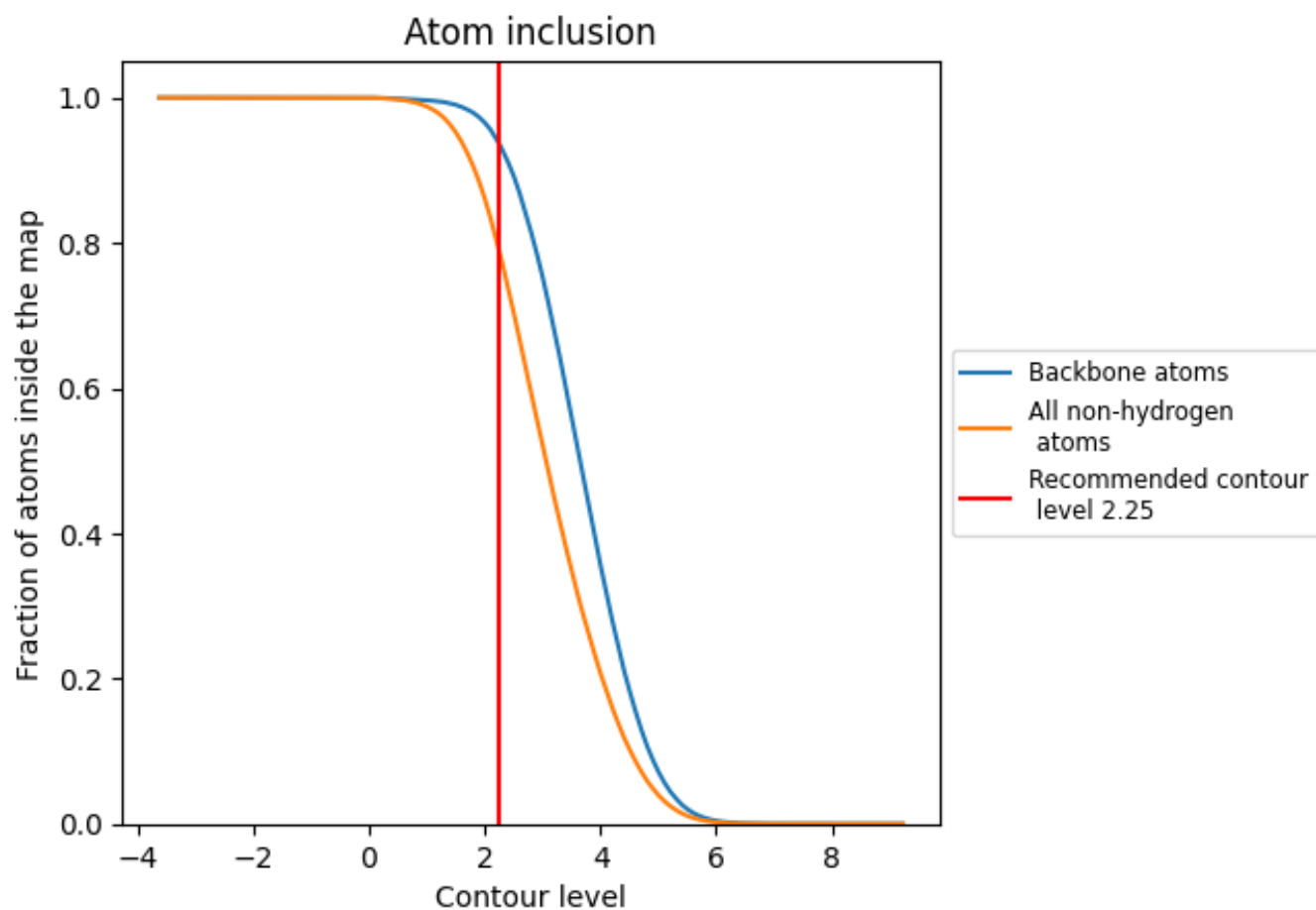
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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, 94% of all backbone atoms, 79% 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	 0.7899	 0.3160
AC	 0.7908	 0.3300
AD	 0.8174	 0.3540
AF	 0.7813	 0.2420
AG	 0.6544	 0.2680
AH	 0.8060	 0.3150
AK	 0.8390	 0.3520
AL	 0.8399	 0.3280
AM	 0.8125	 0.3270
AN	 0.7920	 0.3730
AU	 0.9778	 0.4790
AX	 0.6208	 0.2160
Ad	 0.8367	 0.3450
Af	 0.7950	 0.3120
Ag	 0.8309	 0.2930
BC	 0.7892	 0.3280
BD	 0.8165	 0.3630
BF	 0.7877	 0.2480
BG	 0.6470	 0.2540
BH	 0.7947	 0.3180
BK	 0.8320	 0.3460
BL	 0.8354	 0.3320
BM	 0.8187	 0.3220
BN	 0.7675	 0.3530
BU	 1.0000	 0.4510
BX	 0.5708	 0.2670
Bd	 0.8309	 0.3400
Bf	 0.8178	 0.3170
Bg	 0.8309	 0.2720
CC	 0.8245	 0.3270
CD	 0.8240	 0.3540
CF	 0.7219	 0.2560
CG	 0.6560	 0.2470
CH	 0.8152	 0.3260
CK	 0.8346	 0.3520























































































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Chain	Atom inclusion	Q-score
CL	 0.8488	 0.3310
CM	 0.8063	 0.3270
CN	 0.7710	 0.3610
CU	 1.0000	 0.4840
CX	 0.6333	 0.3280
Cd	 0.8367	 0.3330
Cf	 0.7859	 0.3050
Cg	 0.8051	 0.2830
DC	 0.8528	 0.3310
DD	 0.8333	 0.3500
DF	 0.7898	 0.2560
DG	 0.6650	 0.2520
DH	 0.8024	 0.3090
DK	 0.8521	 0.3550
DL	 0.8428	 0.3320
DM	 0.8001	 0.3230
DN	 0.8094	 0.3700
DU	 0.9556	 0.4600
DX	 0.6000	 0.2440
Dd	 0.8242	 0.3380
Df	 0.7904	 0.3130
Dg	 0.8493	 0.2700
EC	 0.8362	 0.3380
ED	 0.8118	 0.3470
EF	 0.7919	 0.2660
EG	 0.6560	 0.2530
EH	 0.8157	 0.3140
EK	 0.8390	 0.3450
EL	 0.8473	 0.3380
EM	 0.8231	 0.3300
EN	 0.8042	 0.3600
EU	 1.0000	 0.4750
EX	 0.5333	 0.2410
Ed	 0.8377	 0.3450
Ef	 0.7927	 0.3120
Eg	 0.8713	 0.2920
FC	 0.7935	 0.3300
FD	 0.8315	 0.3460
FF	 0.7622	 0.2750
FG	 0.6913	 0.2440
FH	 0.7921	 0.3080
FK	 0.8276	 0.3490





















































































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Chain	Atom inclusion	Q-score
FL	 0.8577	 0.3350
FM	 0.8187	 0.3170
FN	 0.7850	 0.3610
FU	 0.9333	 0.4430
FX	 0.6625	 0.2630
Fd	 0.8396	 0.3330
Ff	 0.7813	 0.3070
Fg	 0.8640	 0.2760
GC	 0.8313	 0.3350
GD	 0.8193	 0.3590
GF	 0.7665	 0.2370
GG	 0.6691	 0.2290
GH	 0.8106	 0.3180
GK	 0.8408	 0.3520
GL	 0.8436	 0.3350
GM	 0.8423	 0.3320
GN	 0.7710	 0.3580
GU	 1.0000	 0.4310
GX	 0.6208	 0.2760
Gd	 0.8338	 0.3420
Gf	 0.7494	 0.3190
Gg	 0.8272	 0.2770
HC	 0.8491	 0.3370
HD	 0.8240	 0.3560
HF	 0.7919	 0.2750
HG	 0.6470	 0.2210
HH	 0.8060	 0.3160
HK	 0.8486	 0.3450
HL	 0.8488	 0.3290
HM	 0.8399	 0.3310
HN	 0.8252	 0.3720
HU	 0.9556	 0.4730
HX	 0.5333	 0.2320
Hd	 0.8473	 0.3440
Hf	 0.8428	 0.3040
Hg	 0.8088	 0.2740
IC	 0.8405	 0.3450
ID	 0.8390	 0.3520
IF	 0.8025	 0.2490
IG	 0.6125	 0.2190
IH	 0.8024	 0.3150
IK	 0.8495	 0.3530





















































































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Chain	Atom inclusion	Q-score
IL	 0.8362	 0.3350
IM	 0.8138	 0.3230
IN	 0.8252	 0.3640
IU	 0.9778	 0.4440
IX	 0.5458	 0.2540
Id	 0.8415	 0.3400
If	 0.8132	 0.2930
Ig	 0.8456	 0.2780
JC	 0.7807	 0.3290
JD	 0.8287	 0.3430
JF	 0.7749	 0.2470
JG	 0.6051	 0.2030
JH	 0.8208	 0.3100
JK	 0.8495	 0.3450
JL	 0.8510	 0.3270
JM	 0.8305	 0.3370
JN	 0.7972	 0.3470
JU	 1.0000	 0.4940
JX	 0.6542	 0.2890
Jd	 0.8309	 0.3310
Jf	 0.7927	 0.3150
Jg	 0.8382	 0.2510
KC	 0.7797	 0.3320
KD	 0.8287	 0.3440
KF	 0.7622	 0.2430
KG	 0.6026	 0.1930
KH	 0.8142	 0.3070
KK	 0.8530	 0.3620
KL	 0.8503	 0.3270
KM	 0.8349	 0.3340
KN	 0.7762	 0.3630
KU	 0.9556	 0.4680
KX	 0.5667	 0.2750
Kd	 0.8521	 0.3390
Kf	 0.8018	 0.3060
Kg	 0.8346	 0.2850
LC	 0.8374	 0.3450
LD	 0.8399	 0.3450
LF	 0.7643	 0.2590
LG	 0.6215	 0.1990
LH	 0.8193	 0.3190
LK	 0.8513	 0.3500



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Chain	Atom inclusion	Q-score
LL	 0.8414	 0.3350
LM	 0.8200	 0.3280
LN	 0.7885	 0.3650
LU	 0.9778	 0.4910
LX	 0.6708	 0.2650
Ld	 0.8213	 0.3420
Lf	 0.8064	 0.3300
Lg	 0.8603	 0.2730
MC	 0.8442	 0.3440
MD	 0.8249	 0.3510
MF	 0.7601	 0.2660
MG	 0.6782	 0.2680
MH	 0.8183	 0.3190
MK	 0.8434	 0.3510
ML	 0.8406	 0.3290
MM	 0.8132	 0.3190
MN	 0.8514	 0.3560
MU	 1.0000	 0.4940
MX	 0.6250	 0.2650
Md	 0.8444	 0.3390
Mf	 0.8132	 0.3070
Mg	 0.8309	 0.2970
NG	 0.6617	 0.2630
OG	 0.7307	 0.2650
PG	 0.6856	 0.2770
VF	 0.8132	 0.2690
VG	 0.8419	 0.2760
VH	 0.6685	 0.2990
VX	 0.5208	 0.2560
WF	 0.7643	 0.2630
WG	 0.8162	 0.2840
WH	 0.5418	 0.2340
WX	 0.5875	 0.2760
XF	 0.7877	 0.2710
XG	 0.7904	 0.2520
XH	 0.6957	 0.2910
XX	 0.6417	 0.2460
YF	 0.7749	 0.2460
YG	 0.8456	 0.2770
YH	 0.5511	 0.2760
YX	 0.6375	 0.2940
ZF	 0.7962	 0.2710

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Chain	Atom inclusion	Q-score
ZG	 0.8125	 0.2820
ZH	 0.6647	 0.3070
ZX	 0.5500	 0.2810