Full wwPDB EM Validation Report

Apr 29, 2024 – 08:04 am BST

PDB ID	:	2Y9J
EMDB ID	:	EMD-1874
Title	:	THREE-DIMENSIONAL MODEL OF SALMONELLA'S NEEDLE COMPLEX AT SUBNANOMETER RESOLUTION
Authors	:	Schraidt, O.; Marlovits, T.C.
Deposited on	:	2011-02-15
Resolution	:	6.40 Å(reported)
Based on initial model	:	2Y9J

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 (i) 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 (i)) were used in the production of this report:

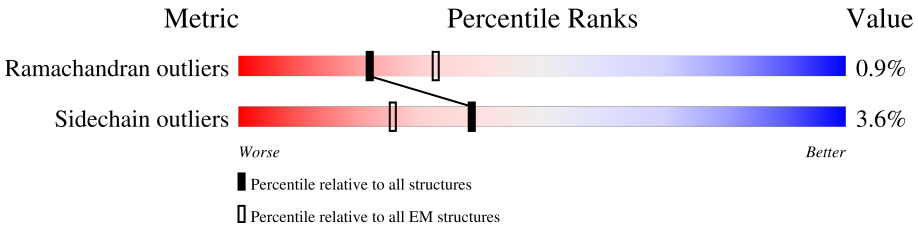
EMDB validation analysis	:	0.0.1.dev92
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 6.40 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 <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	186	18% 95% 5%
1	B	186	18% 95% 5%
1	C	186	18% 95% 5%
1	D	186	18% 95% 5%
1	E	186	18% 95% 5%
1	F	186	18% 95% 5%
1	G	186	18% 95% 5%
1	H	186	18% 95% 5%
1	I	186	18% 95% 5%

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Mol	Chain	Length	Quality of chain
1	J	186	18% 95% 5%
1	K	186	18% 95% 5%
1	L	186	18% 95% 5%
1	M	186	18% 95% 5%
1	N	186	18% 95% 5%
1	O	186	18% 95% 5%
1	P	186	18% 95% 5%
1	Q	186	18% 95% 5%
1	R	186	18% 95% 5%
1	S	186	18% 95% 5%
1	T	186	18% 95% 5%
1	U	186	18% 95% 5%
1	V	186	18% 95% 5%
1	W	186	18% 95% 5%
1	X	186	18% 95% 5%
2	Y	170	64% 94% 5%
2	Z	170	64% 94% 5%
2	a	170	64% 94% 5%
2	b	170	65% 94% 5%
2	c	170	64% 94% 5%
2	d	170	64% 94% 5%
2	e	170	64% 94% 5%
2	f	170	64% 94% 5%
2	g	170	65% 94% 5%
2	h	170	64% 94% 5%

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Mol	Chain	Length	Quality of chain
2	i	170	65% 94% 5%
2	j	170	64% 94% 5%
2	k	170	64% 94% 5%
2	l	170	65% 94% 5%
2	m	170	65% 94% 5%
2	n	170	64% 94% 5%
2	o	170	64% 94% 5%
2	p	170	64% 94% 5%
2	q	170	64% 94% 5%
2	r	170	65% 94% 5%
2	s	170	65% 94% 5%
2	t	170	64% 94% 5%
2	u	170	64% 94% 5%
2	v	170	65% 94% 5%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 70704 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called PROTEIN PRGH.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	B	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	C	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	D	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	E	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	F	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	G	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	H	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	I	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	J	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	K	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	L	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	M	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	N	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	O	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	P	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	Q	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	R	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	S	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	T	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	U	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	V	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	W	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		
1	X	186	Total	C	N	O	S	0	0
			1541	976	280	281	4		

- Molecule 2 is a protein called LIPOPROTEIN PRGK.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	Y	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	Z	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	a	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	b	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	c	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	d	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	e	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	f	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	g	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	h	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	i	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	j	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		

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Mol	Chain	Residues	Atoms					AltConf	Trace
2	k	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	l	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	m	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	n	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	o	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	p	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	q	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	r	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	s	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	t	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	u	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		
2	v	170	Total	C	N	O	S	0	0
			1339	845	233	258	3		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		AltConf
3	A	66	Total	O	0
			66	66	
3	B	66	Total	O	0
			66	66	
3	C	66	Total	O	0
			66	66	
3	D	66	Total	O	0
			66	66	
3	E	66	Total	O	0
			66	66	
3	F	66	Total	O	0
			66	66	
3	G	66	Total	O	0
			66	66	

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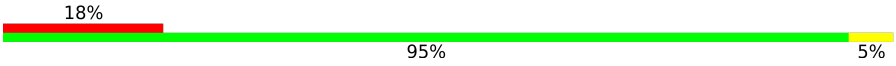
Mol	Chain	Residues	Atoms	AltConf
3	H	66	Total O 66 66	0
3	I	66	Total O 66 66	0
3	J	66	Total O 66 66	0
3	K	66	Total O 66 66	0
3	L	66	Total O 66 66	0
3	M	66	Total O 66 66	0
3	N	66	Total O 66 66	0
3	O	66	Total O 66 66	0
3	P	66	Total O 66 66	0
3	Q	66	Total O 66 66	0
3	R	66	Total O 66 66	0
3	S	66	Total O 66 66	0
3	T	66	Total O 66 66	0
3	U	66	Total O 66 66	0
3	V	66	Total O 66 66	0
3	W	66	Total O 66 66	0
3	X	66	Total O 66 66	0

3 Residue-property plots (i)

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

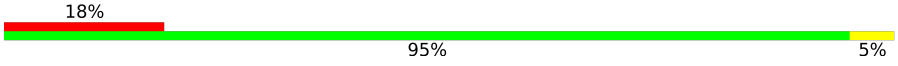
• Molecule 1: PROTEIN PRGH

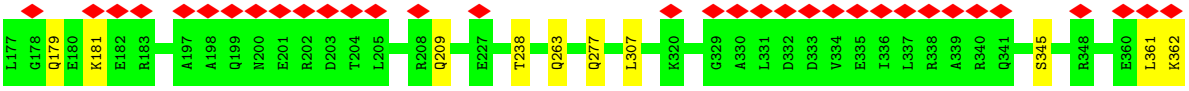
Chain A:



• Molecule 1: PROTEIN PRGH

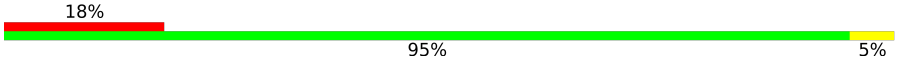
Chain B:





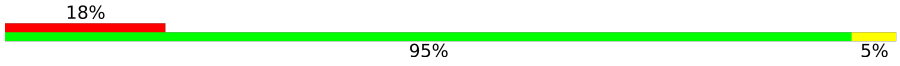
• Molecule 1: PROTEIN PRGH

Chain C:



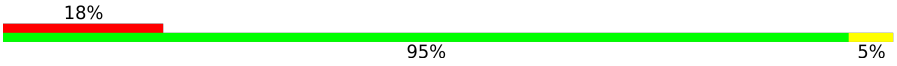
• Molecule 1: PROTEIN PRGH

Chain D:



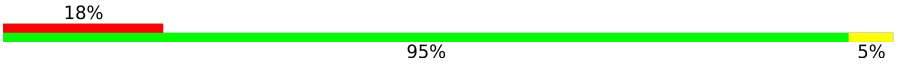
• Molecule 1: PROTEIN PRGH

Chain E:



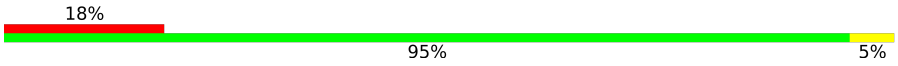
• Molecule 1: PROTEIN PRGH

Chain F:



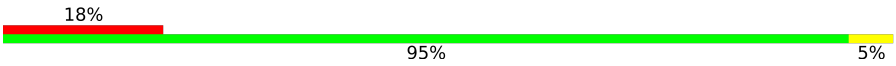
• Molecule 1: PROTEIN PRGH

Chain G:



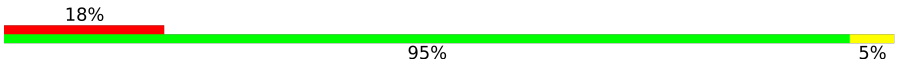
• Molecule 1: PROTEIN PRGH

Chain H:



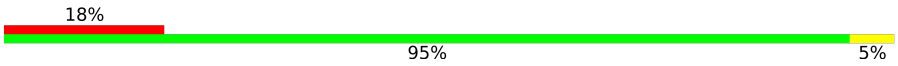
• Molecule 1: PROTEIN PRGH

Chain I:



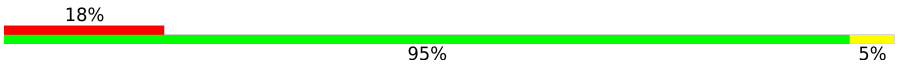
• Molecule 1: PROTEIN PRGH

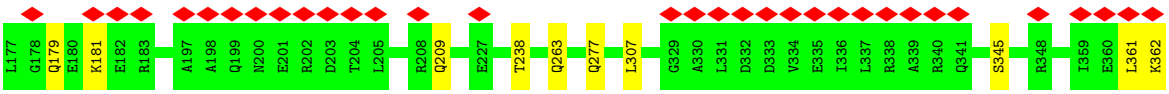
Chain J:



• Molecule 1: PROTEIN PRGH

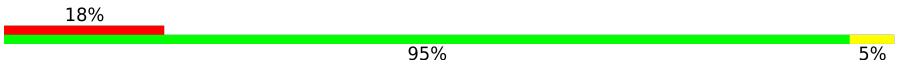
Chain K:





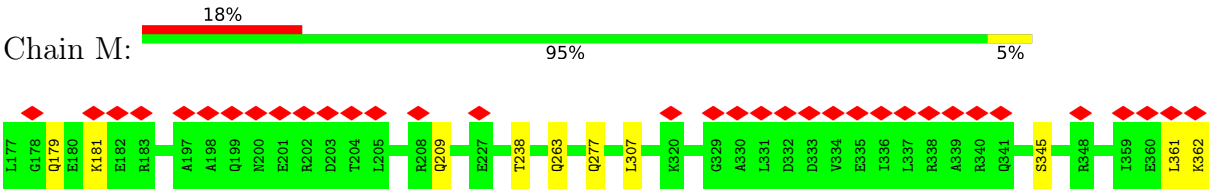
• Molecule 1: PROTEIN PRGH

Chain L:



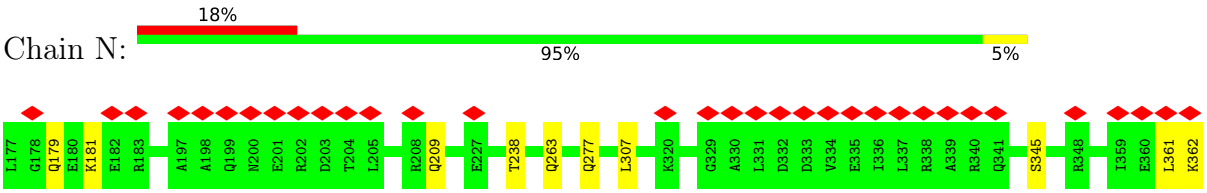
• Molecule 1: PROTEIN PRGH

Chain M:



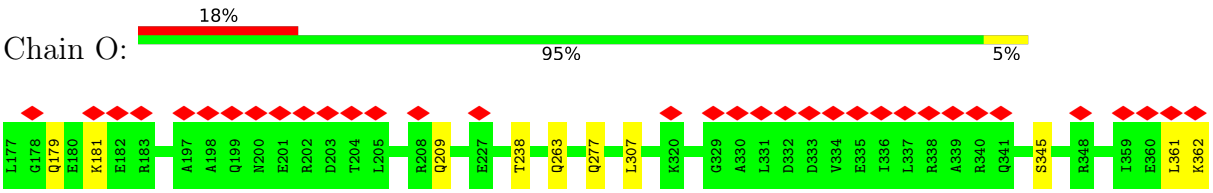
• Molecule 1: PROTEIN PRGH

Chain N:



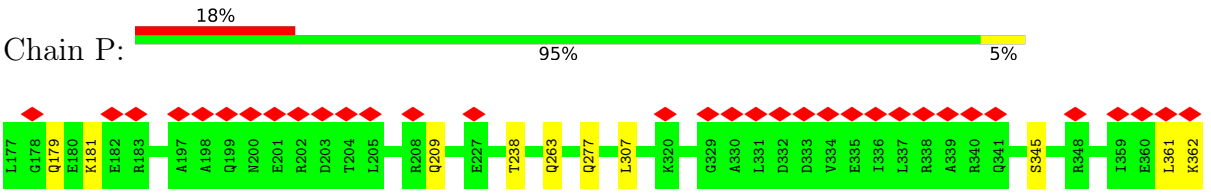
• Molecule 1: PROTEIN PRGH

Chain O:



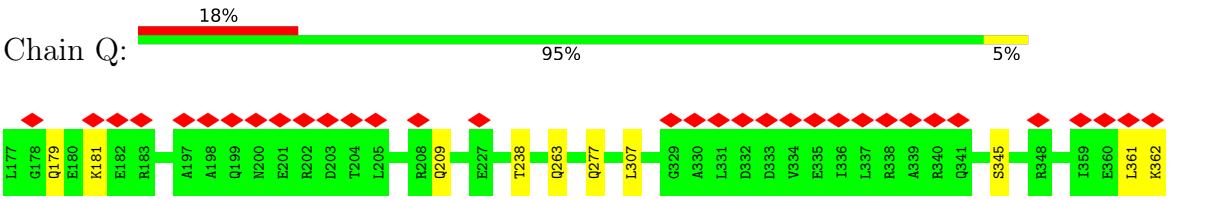
• Molecule 1: PROTEIN PRGH

Chain P:



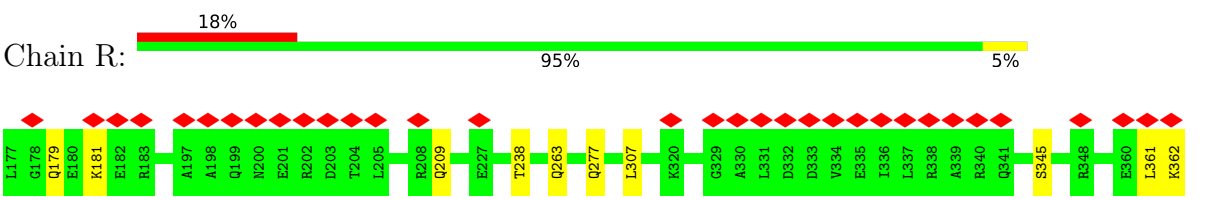
• Molecule 1: PROTEIN PRGH

Chain Q:



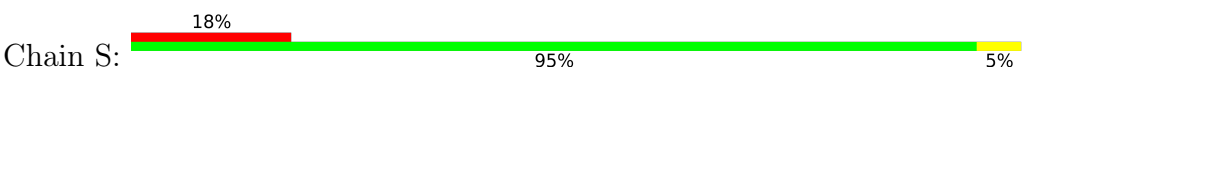
• Molecule 1: PROTEIN PRGH

Chain R:



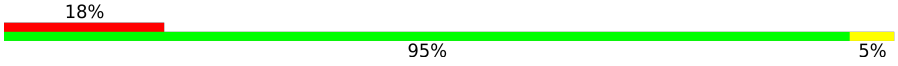
• Molecule 1: PROTEIN PRGH

Chain S:



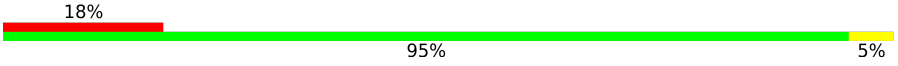
• Molecule 1: PROTEIN PRGH

Chain T:



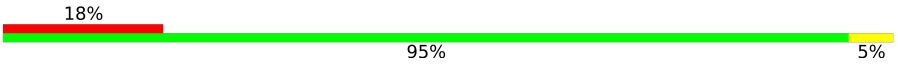
• Molecule 1: PROTEIN PRGH

Chain U:



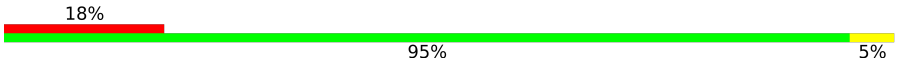
• Molecule 1: PROTEIN PRGH

Chain V:



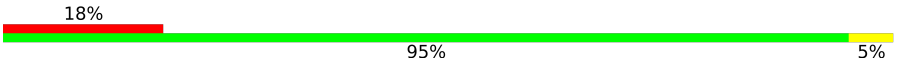
• Molecule 1: PROTEIN PRGH

Chain W:



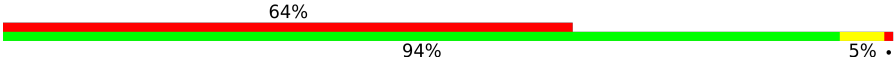
• Molecule 1: PROTEIN PRGH

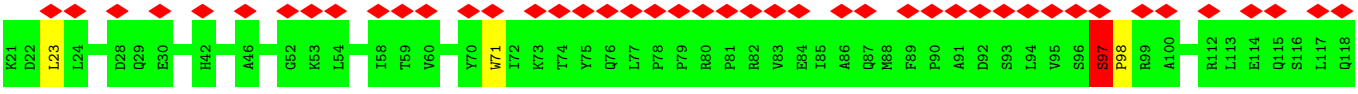
Chain X:

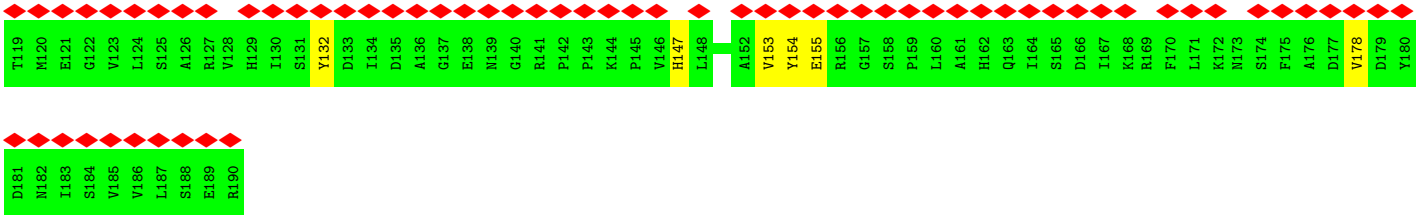


• Molecule 2: LIPOPROTEIN PRGK

Chain Y:

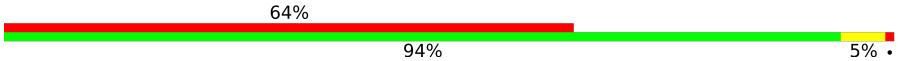


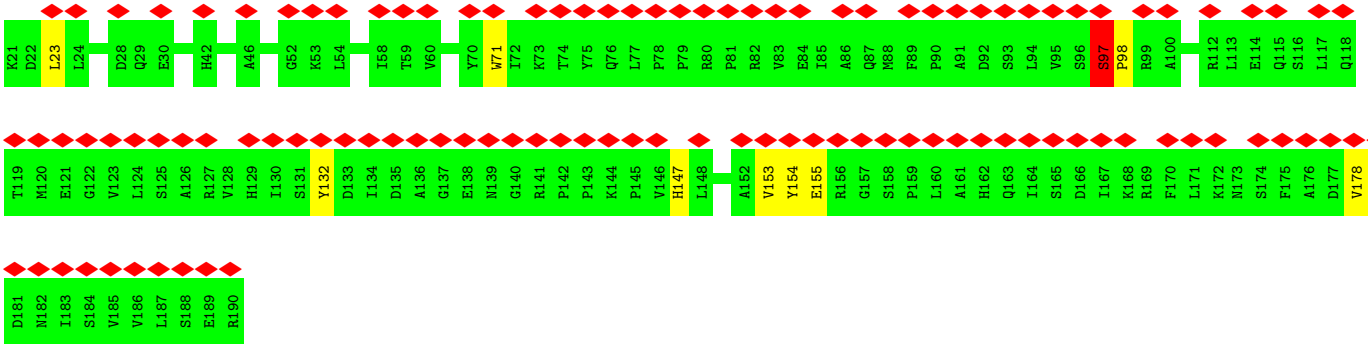




• Molecule 2: LIPOPROTEIN PRGK

Chain Z:





• Molecule 2: LIPOPROTEIN PRGK

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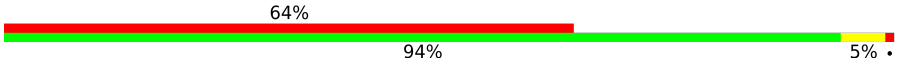

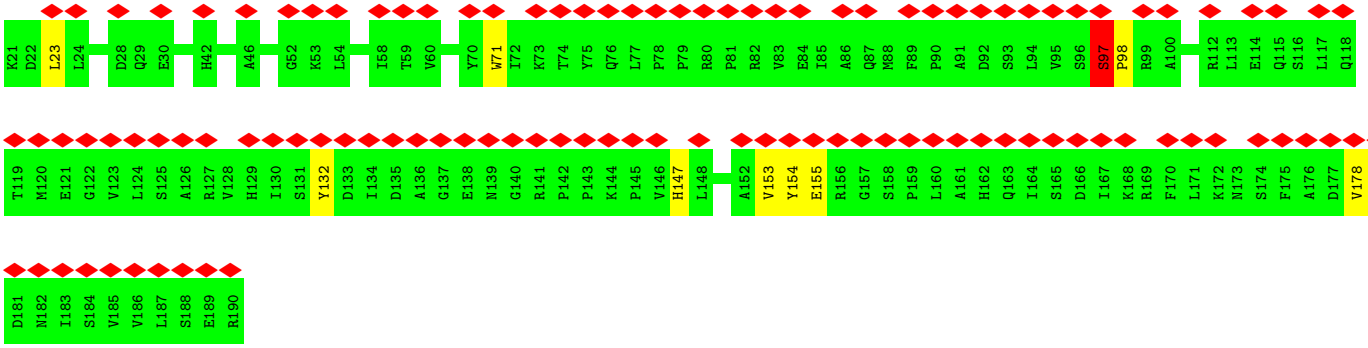

• Molecule 2: LIPOPROTEIN PRGK

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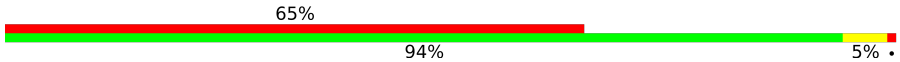

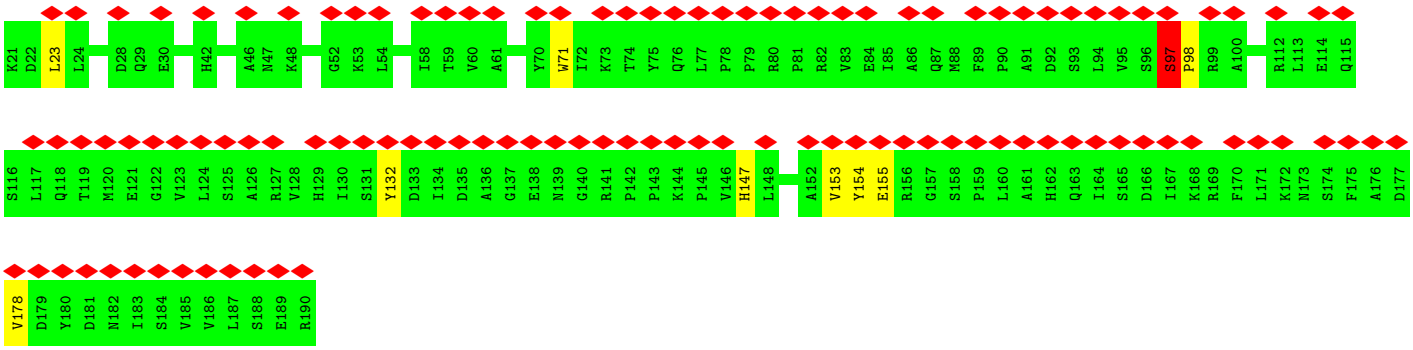

• Molecule 2: LIPOPROTEIN PRGK

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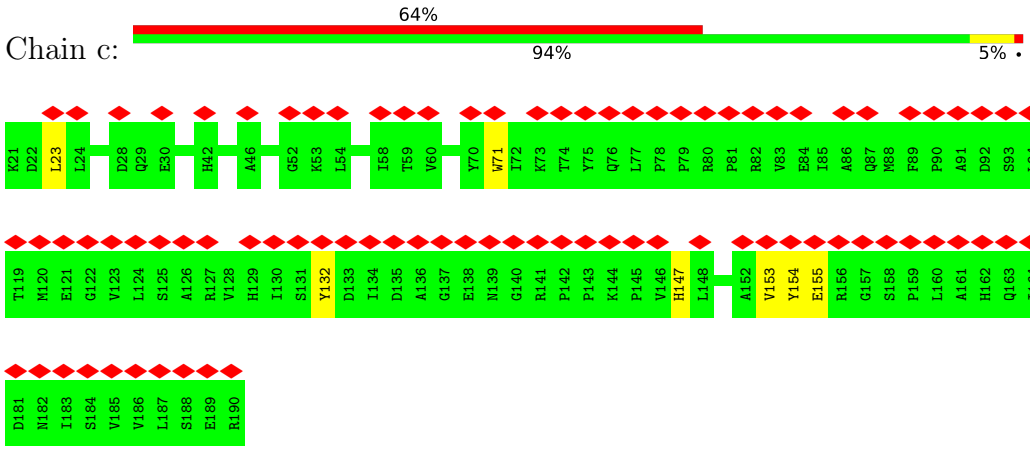

• Molecule 2: LIPOPROTEIN PRGK

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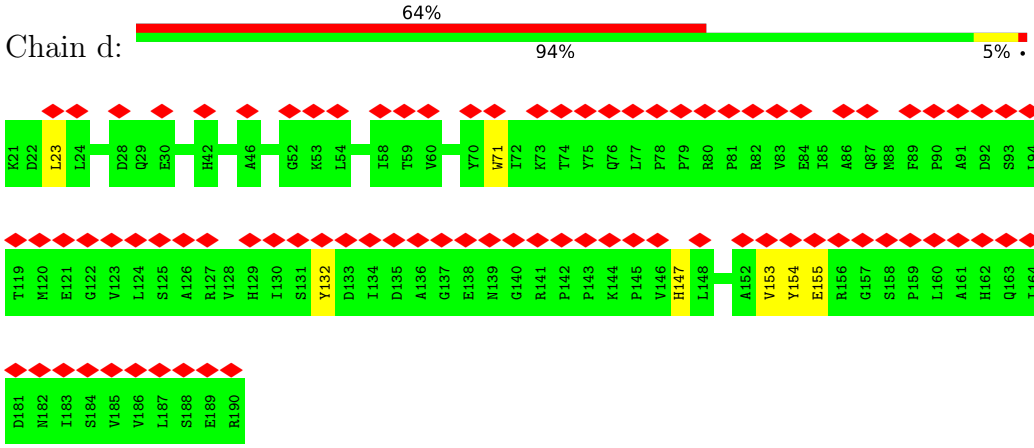

• Molecule 2: LIPOPROTEIN PRGK

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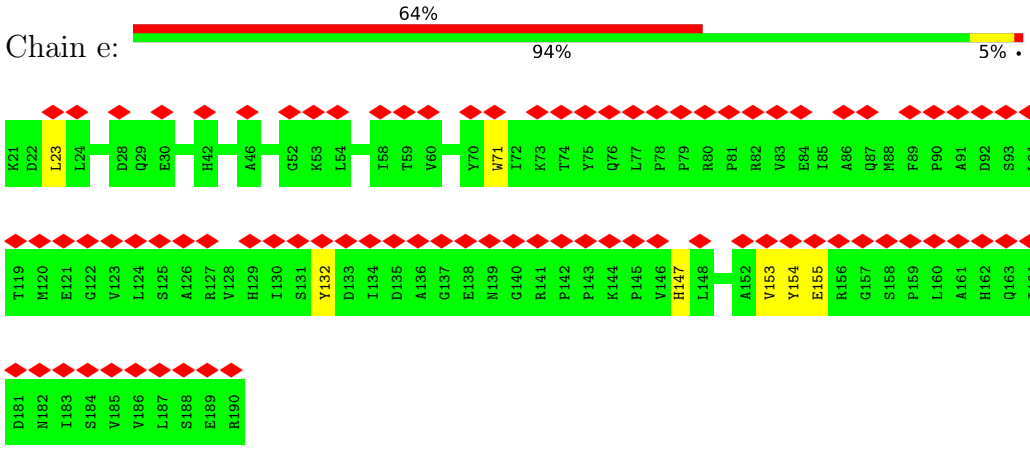

• Molecule 2: LIPOPROTEIN PRGK

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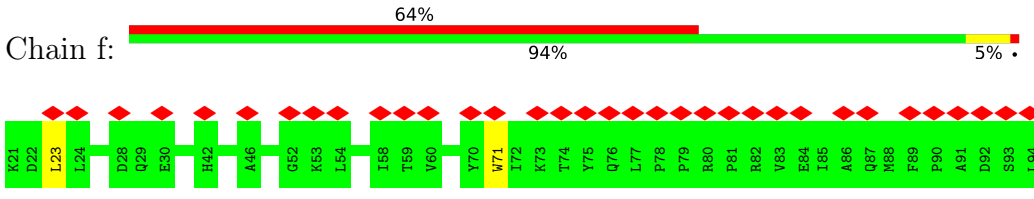

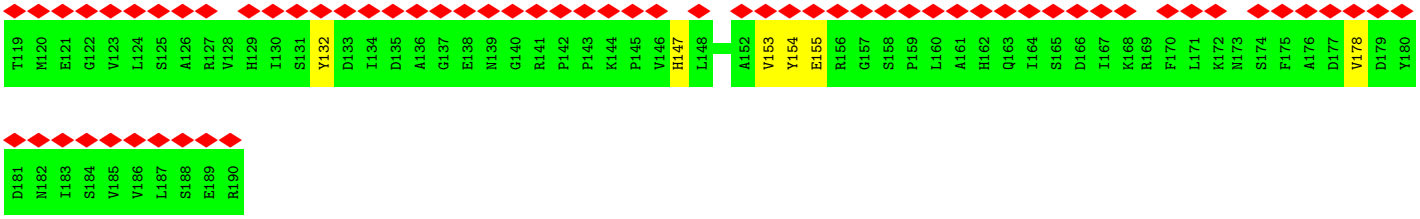

• Molecule 2: LIPOPROTEIN PRGK

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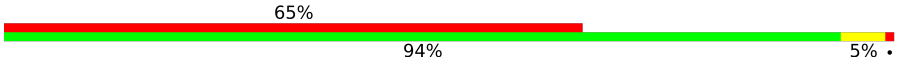
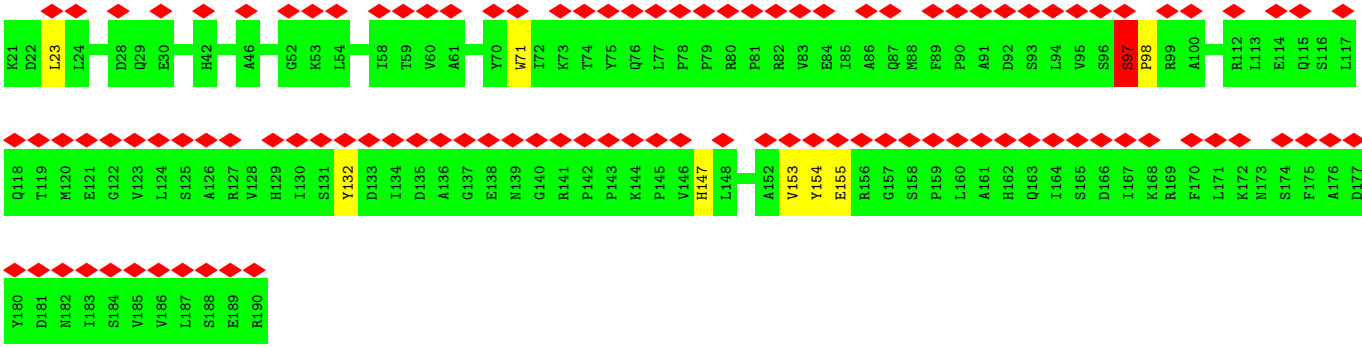
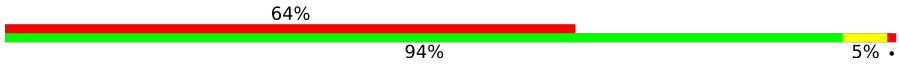
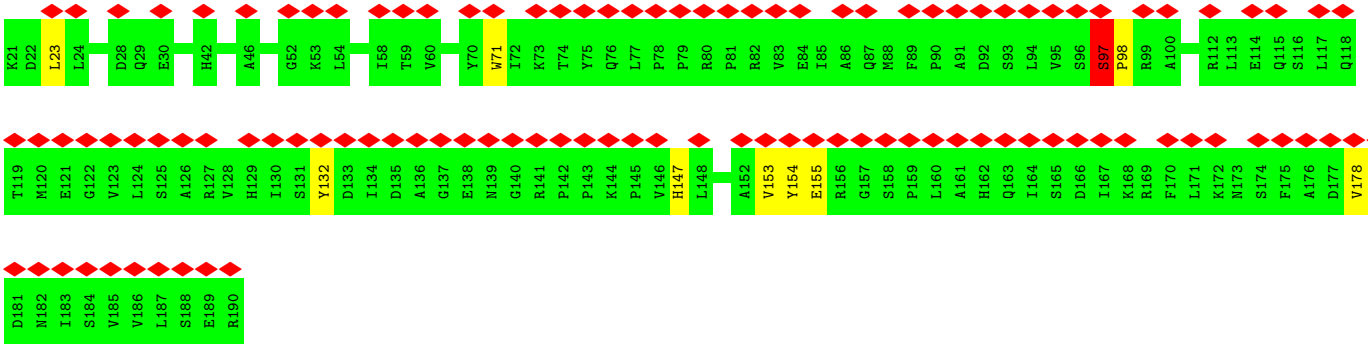




• Molecule 2: LIPOPROTEIN PRGK

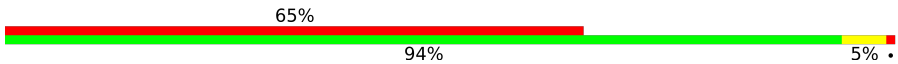
Chain h:

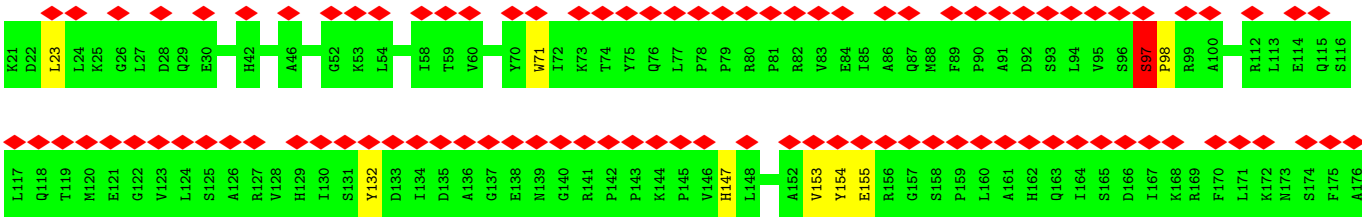


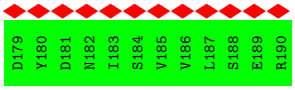


• Molecule 2: LIPOPROTEIN PRGK

Chain i:

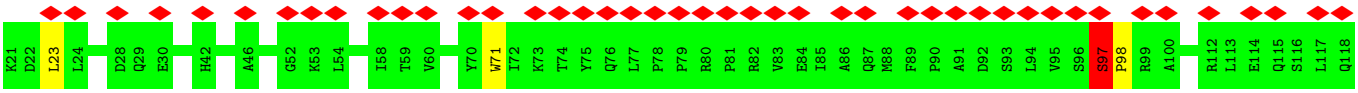


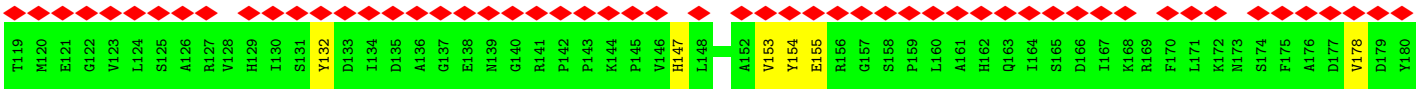


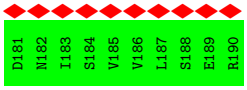


• Molecule 2: LIPOPROTEIN PRGK

Chain j:

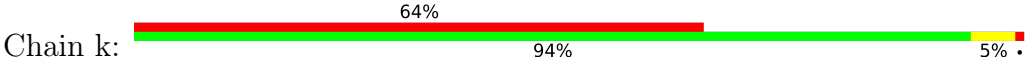


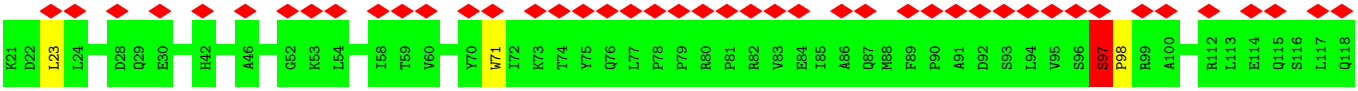


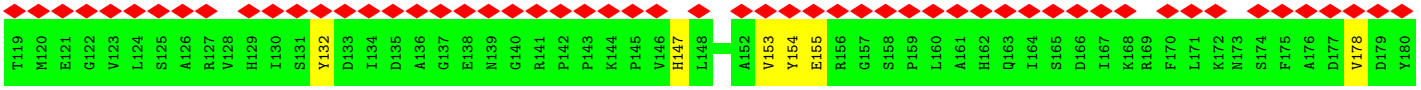


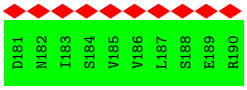
• Molecule 2: LIPOPROTEIN PRGK

Chain k:



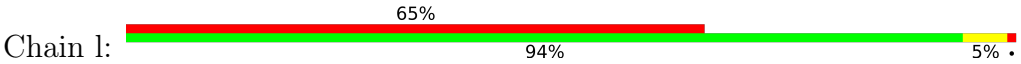


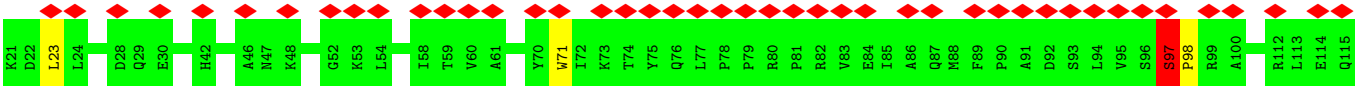


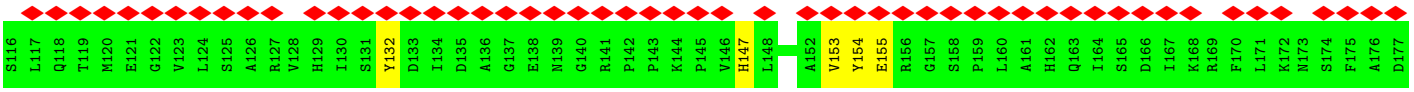


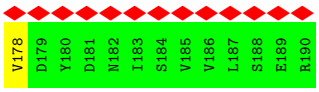
• Molecule 2: LIPOPROTEIN PRGK

Chain l:



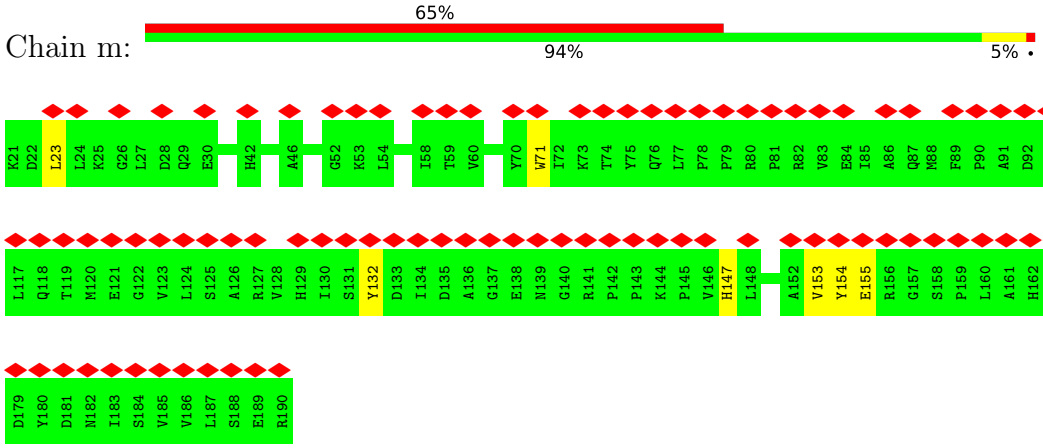






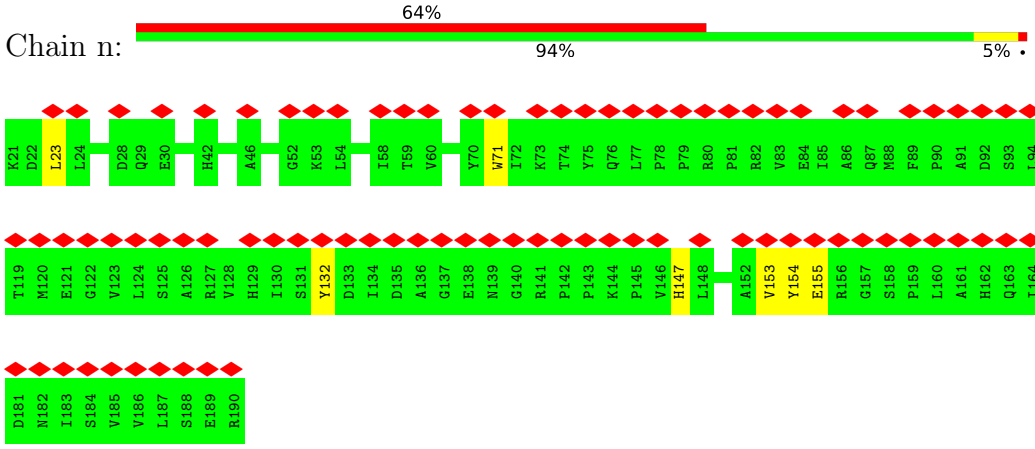
• Molecule 2: LIPOPROTEIN PRGK

Chain m:



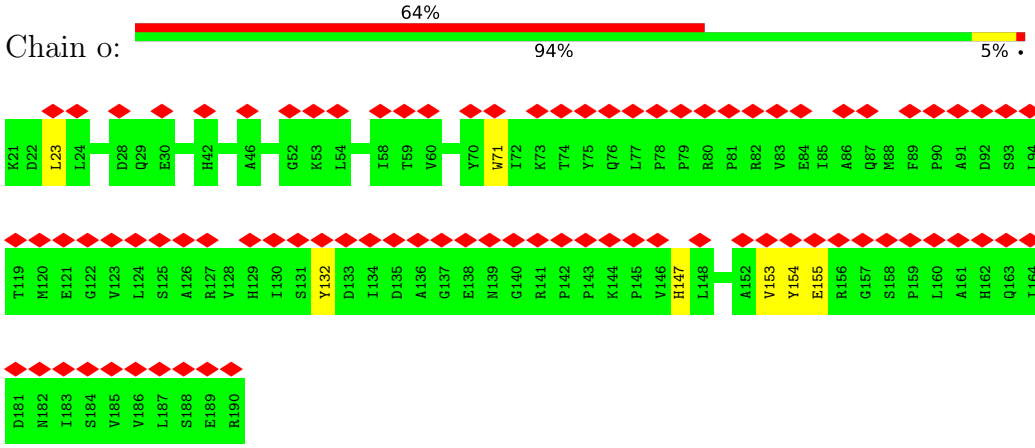
• Molecule 2: LIPOPROTEIN PRGK

Chain n:



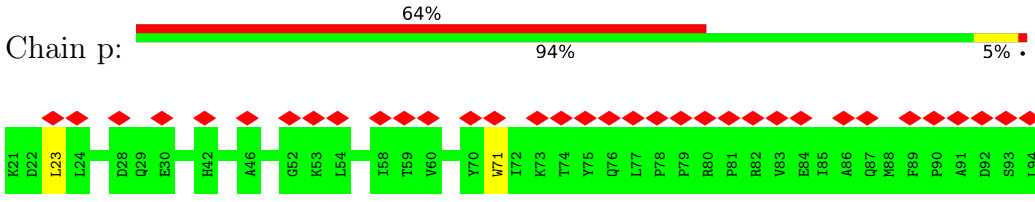
• Molecule 2: LIPOPROTEIN PRGK

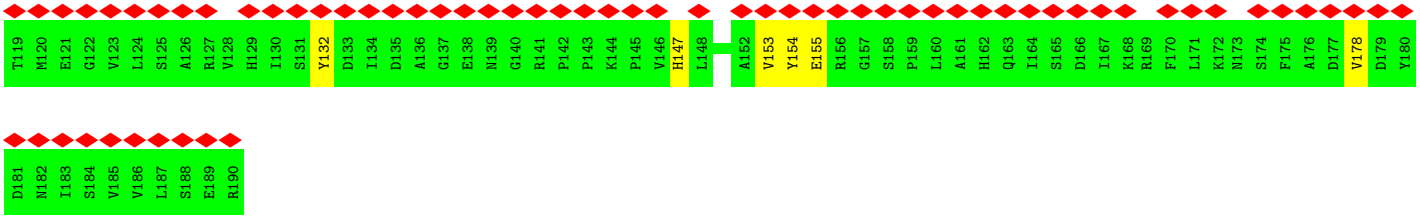
Chain o:



• Molecule 2: LIPOPROTEIN PRGK

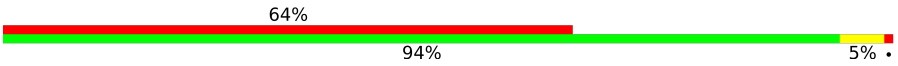
Chain p:

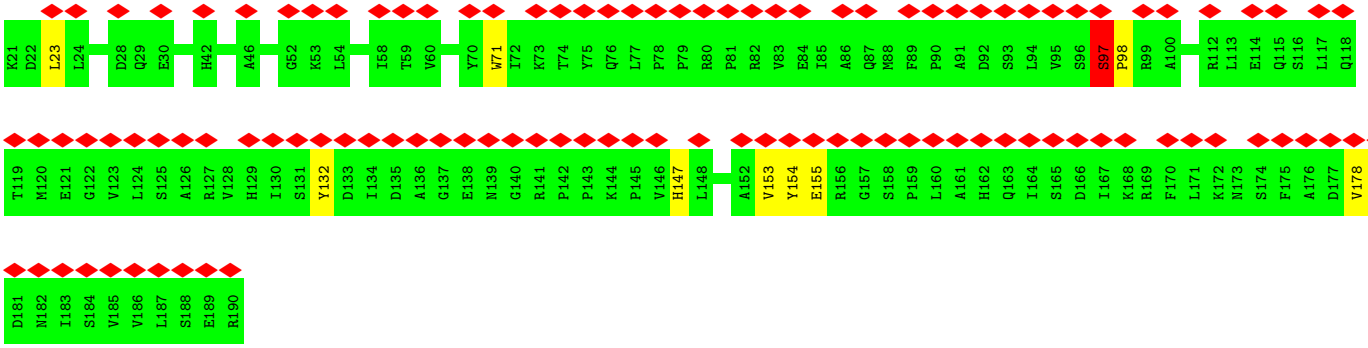




• Molecule 2: LIPOPROTEIN PRGK

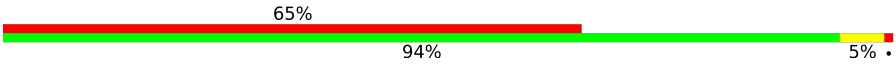
Chain q:

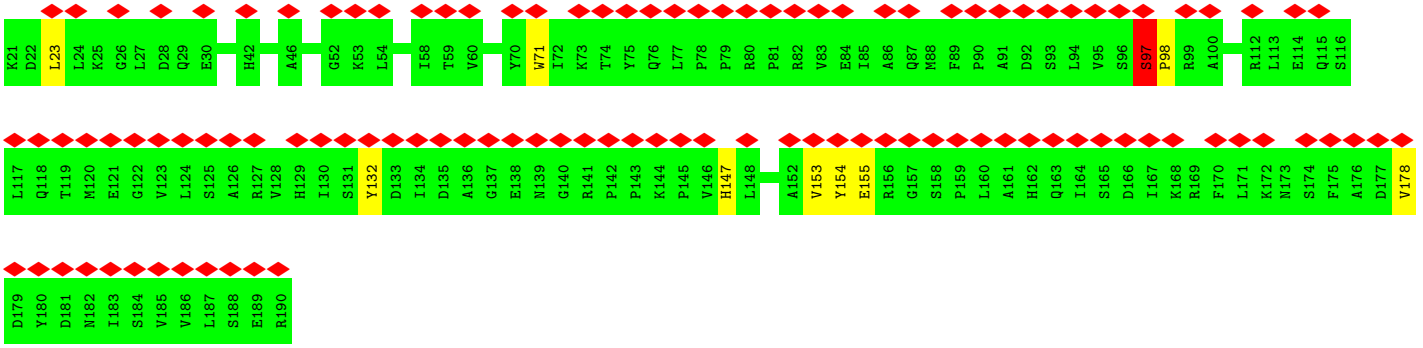




• Molecule 2: LIPOPROTEIN PRGK

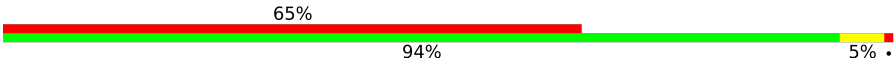
Chain r:

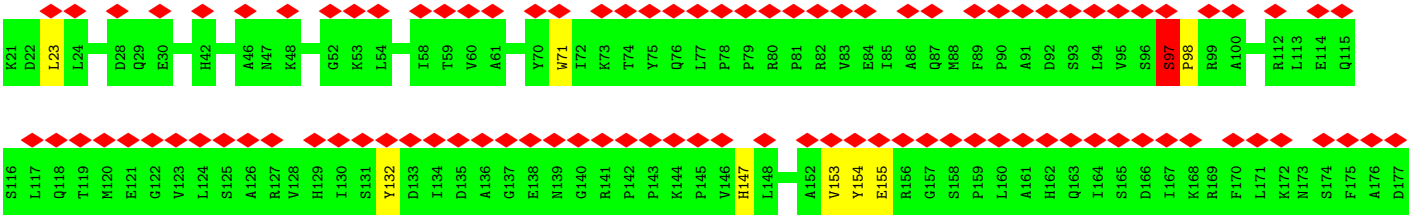


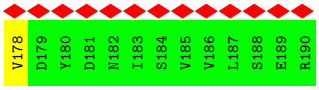


• Molecule 2: LIPOPROTEIN PRGK

Chain s:

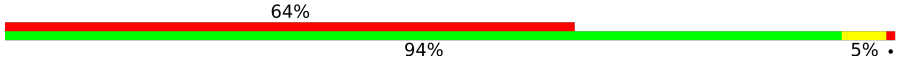


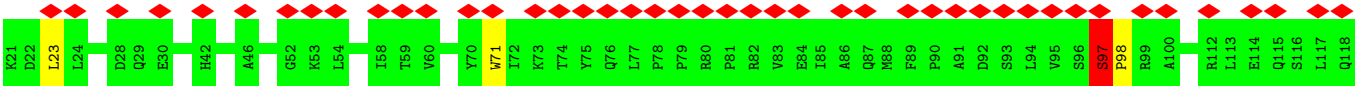


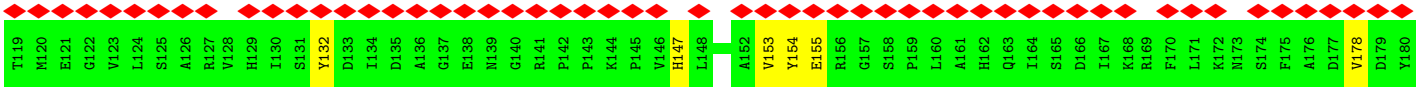


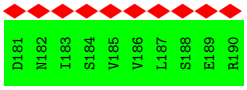
• Molecule 2: LIPOPROTEIN PRGK

Chain t:



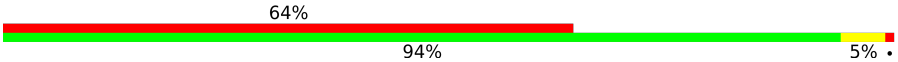


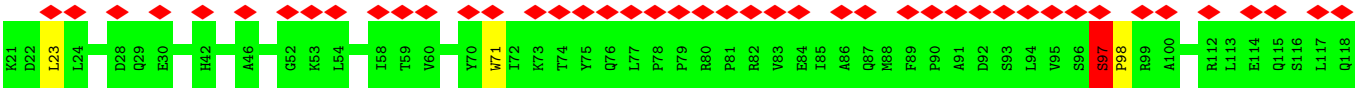


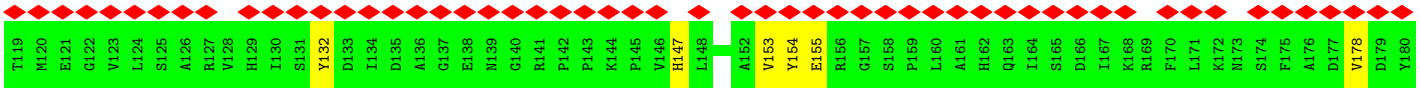


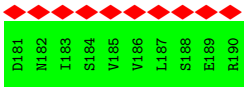
• Molecule 2: LIPOPROTEIN PRGK

Chain u:



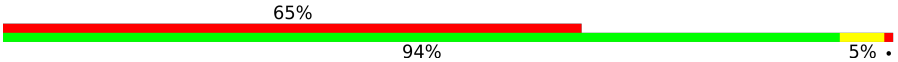


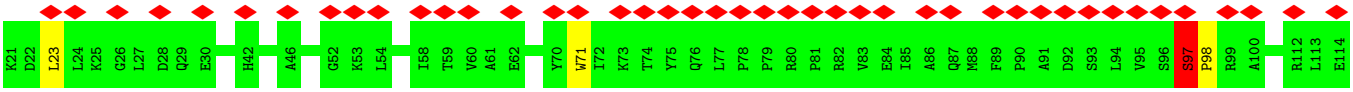


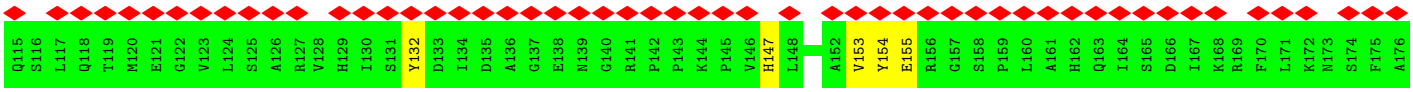


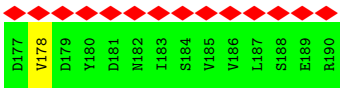
• Molecule 2: LIPOPROTEIN PRGK

Chain v:









4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C24	Depositor
Number of particles used	Not provided	
Resolution determination method	FSC 0.5 CUT-OFF	Depositor
CTF correction method	EACH MICROGRAPH	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	Not provided	
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	93000	Depositor
Image detector	GATAN ULTRASCAN 4000 (4k x 4k)	Depositor
Maximum map value	0.213	Depositor
Minimum map value	-0.187	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.016	Depositor
Recommended contour level	0.076	Depositor
Map size (Å)	399.0, 399.0, 399.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.33, 1.33, 1.33	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.67	0/1573	0.70	0/2122
1	B	0.67	0/1573	0.70	0/2122
1	C	0.67	0/1573	0.70	0/2122
1	D	0.67	0/1573	0.70	0/2122
1	E	0.67	0/1573	0.70	0/2122
1	F	0.67	0/1573	0.70	0/2122
1	G	0.67	0/1573	0.70	0/2122
1	H	0.66	0/1573	0.70	0/2122
1	I	0.66	0/1573	0.70	0/2122
1	J	0.67	0/1573	0.70	0/2122
1	K	0.67	0/1573	0.70	0/2122
1	L	0.67	0/1573	0.70	0/2122
1	M	0.67	0/1573	0.70	0/2122
1	N	0.66	0/1573	0.70	0/2122
1	O	0.67	0/1573	0.70	0/2122
1	P	0.66	0/1573	0.70	0/2122
1	Q	0.67	0/1573	0.70	0/2122
1	R	0.66	0/1573	0.70	0/2122
1	S	0.66	0/1573	0.70	0/2122
1	T	0.66	0/1573	0.70	0/2122
1	U	0.67	0/1573	0.70	0/2122
1	V	0.67	0/1573	0.70	0/2122
1	W	0.67	0/1573	0.70	0/2122
1	X	0.67	0/1573	0.70	0/2122
2	Y	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	Z	0.86	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	a	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	b	0.86	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	c	0.86	3/1365 (0.2%)	1.08	7/1850 (0.4%)
2	d	0.86	3/1365 (0.2%)	1.08	6/1850 (0.3%)
2	e	0.87	3/1365 (0.2%)	1.08	7/1850 (0.4%)
2	f	0.86	3/1365 (0.2%)	1.08	7/1850 (0.4%)
2	g	0.87	3/1365 (0.2%)	1.09	6/1850 (0.3%)
2	h	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
2	i	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	j	0.86	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	k	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	l	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	m	0.87	3/1365 (0.2%)	1.08	7/1850 (0.4%)
2	n	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	o	0.86	3/1365 (0.2%)	1.08	7/1850 (0.4%)
2	p	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	q	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	r	0.86	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	s	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	t	0.87	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	u	0.86	3/1365 (0.2%)	1.09	7/1850 (0.4%)
2	v	0.86	3/1365 (0.2%)	1.08	7/1850 (0.4%)
All	All	0.76	72/70512 (0.1%)	0.90	166/95328 (0.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	Y	0	3
2	Z	0	3
2	a	0	3
2	b	0	3
2	c	0	3
2	d	0	3
2	e	0	3
2	f	0	3
2	g	0	3
2	h	0	3
2	i	0	3
2	j	0	3
2	k	0	3
2	l	0	3
2	m	0	3
2	n	0	3
2	o	0	3
2	p	0	3
2	q	0	3
2	r	0	3

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Mol	Chain	#Chirality outliers	#Planarity outliers
2	s	0	3
2	t	0	3
2	u	0	3
2	v	0	3
All	All	0	72

All (72) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	q	154	TYR	CE2-CZ	8.95	1.50	1.38
2	l	154	TYR	CE2-CZ	8.91	1.50	1.38
2	k	154	TYR	CE2-CZ	8.90	1.50	1.38
2	i	154	TYR	CE2-CZ	8.90	1.50	1.38
2	Z	154	TYR	CE2-CZ	8.88	1.50	1.38
2	n	154	TYR	CE2-CZ	8.87	1.50	1.38
2	s	154	TYR	CE2-CZ	8.85	1.50	1.38
2	j	154	TYR	CE2-CZ	8.85	1.50	1.38
2	u	154	TYR	CE2-CZ	8.84	1.50	1.38
2	o	154	TYR	CE2-CZ	8.84	1.50	1.38
2	p	154	TYR	CE2-CZ	8.84	1.50	1.38
2	t	154	TYR	CE2-CZ	8.84	1.50	1.38
2	g	154	TYR	CE2-CZ	8.83	1.50	1.38
2	r	154	TYR	CE2-CZ	8.82	1.50	1.38
2	o	154	TYR	CD2-CE2	-8.82	1.26	1.39
2	Y	154	TYR	CE2-CZ	8.81	1.50	1.38
2	t	154	TYR	CD2-CE2	-8.81	1.26	1.39
2	h	154	TYR	CE2-CZ	8.81	1.50	1.38
2	c	154	TYR	CE2-CZ	8.81	1.50	1.38
2	e	154	TYR	CE2-CZ	8.81	1.50	1.38
2	a	154	TYR	CE2-CZ	8.80	1.50	1.38
2	q	154	TYR	CD2-CE2	-8.80	1.26	1.39
2	i	154	TYR	CD2-CE2	-8.80	1.26	1.39
2	b	154	TYR	CE2-CZ	8.79	1.50	1.38
2	b	154	TYR	CD2-CE2	-8.77	1.26	1.39
2	k	154	TYR	CD2-CE2	-8.76	1.26	1.39
2	r	154	TYR	CD2-CE2	-8.76	1.26	1.39
2	Z	154	TYR	CD2-CE2	-8.76	1.26	1.39
2	s	154	TYR	CD2-CE2	-8.76	1.26	1.39
2	d	154	TYR	CE2-CZ	8.76	1.50	1.38
2	e	154	TYR	CD2-CE2	-8.76	1.26	1.39
2	v	154	TYR	CE2-CZ	8.76	1.50	1.38
2	f	154	TYR	CD2-CE2	-8.75	1.26	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	m	154	TYR	CD2-CE2	-8.75	1.26	1.39
2	p	154	TYR	CD2-CE2	-8.75	1.26	1.39
2	f	154	TYR	CE2-CZ	8.74	1.50	1.38
2	d	154	TYR	CD2-CE2	-8.73	1.26	1.39
2	l	154	TYR	CD2-CE2	-8.73	1.26	1.39
2	a	154	TYR	CD2-CE2	-8.73	1.26	1.39
2	m	154	TYR	CE2-CZ	8.73	1.49	1.38
2	h	154	TYR	CD2-CE2	-8.72	1.26	1.39
2	Y	154	TYR	CD2-CE2	-8.72	1.26	1.39
2	u	154	TYR	CD2-CE2	-8.71	1.26	1.39
2	c	154	TYR	CD2-CE2	-8.70	1.26	1.39
2	v	154	TYR	CD2-CE2	-8.69	1.26	1.39
2	j	154	TYR	CD2-CE2	-8.66	1.26	1.39
2	n	154	TYR	CD2-CE2	-8.62	1.26	1.39
2	g	154	TYR	CD2-CE2	-8.62	1.26	1.39
2	l	97	SER	C-N	6.26	1.46	1.34
2	f	97	SER	C-N	6.25	1.46	1.34
2	a	97	SER	C-N	6.24	1.46	1.34
2	h	97	SER	C-N	6.23	1.46	1.34
2	u	97	SER	C-N	6.23	1.46	1.34
2	q	97	SER	C-N	6.23	1.46	1.34
2	c	97	SER	C-N	6.23	1.46	1.34
2	p	97	SER	C-N	6.22	1.46	1.34
2	m	97	SER	C-N	6.22	1.46	1.34
2	Y	97	SER	C-N	6.21	1.46	1.34
2	g	97	SER	C-N	6.21	1.46	1.34
2	j	97	SER	C-N	6.21	1.46	1.34
2	v	97	SER	C-N	6.20	1.46	1.34
2	s	97	SER	C-N	6.20	1.46	1.34
2	o	97	SER	C-N	6.19	1.46	1.34
2	d	97	SER	C-N	6.18	1.46	1.34
2	e	97	SER	C-N	6.18	1.46	1.34
2	i	97	SER	C-N	6.18	1.46	1.34
2	n	97	SER	C-N	6.18	1.46	1.34
2	b	97	SER	C-N	6.16	1.46	1.34
2	r	97	SER	C-N	6.15	1.46	1.34
2	Z	97	SER	C-N	6.14	1.46	1.34
2	k	97	SER	C-N	6.12	1.45	1.34
2	t	97	SER	C-N	6.12	1.45	1.34

All (166) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	Y	132	TYR	CB-CG-CD2	-10.52	114.69	121.00
2	e	132	TYR	CB-CG-CD2	-10.49	114.71	121.00
2	k	132	TYR	CB-CG-CD2	-10.47	114.72	121.00
2	v	132	TYR	CB-CG-CD2	-10.47	114.72	121.00
2	i	132	TYR	CB-CG-CD2	-10.44	114.73	121.00
2	b	132	TYR	CB-CG-CD2	-10.44	114.73	121.00
2	a	132	TYR	CB-CG-CD2	-10.42	114.75	121.00
2	Z	132	TYR	CB-CG-CD2	-10.41	114.75	121.00
2	o	132	TYR	CB-CG-CD2	-10.41	114.75	121.00
2	g	132	TYR	CB-CG-CD2	-10.41	114.75	121.00
2	h	132	TYR	CB-CG-CD2	-10.41	114.76	121.00
2	q	132	TYR	CB-CG-CD2	-10.40	114.76	121.00
2	r	132	TYR	CB-CG-CD2	-10.40	114.76	121.00
2	c	132	TYR	CB-CG-CD2	-10.38	114.77	121.00
2	j	132	TYR	CB-CG-CD2	-10.38	114.77	121.00
2	l	132	TYR	CB-CG-CD2	-10.38	114.78	121.00
2	t	132	TYR	CB-CG-CD2	-10.37	114.78	121.00
2	d	132	TYR	CB-CG-CD2	-10.37	114.78	121.00
2	s	132	TYR	CB-CG-CD2	-10.36	114.78	121.00
2	p	132	TYR	CB-CG-CD2	-10.36	114.79	121.00
2	f	132	TYR	CB-CG-CD2	-10.35	114.79	121.00
2	u	132	TYR	CB-CG-CD2	-10.35	114.79	121.00
2	n	132	TYR	CB-CG-CD2	-10.27	114.84	121.00
2	m	132	TYR	CB-CG-CD2	-10.27	114.84	121.00
2	o	178	VAL	CG1-CB-CG2	-8.58	97.17	110.90
2	p	178	VAL	CG1-CB-CG2	-8.56	97.20	110.90
2	q	178	VAL	CG1-CB-CG2	-8.56	97.21	110.90
2	f	178	VAL	CG1-CB-CG2	-8.55	97.21	110.90
2	k	178	VAL	CG1-CB-CG2	-8.56	97.21	110.90
2	u	178	VAL	CG1-CB-CG2	-8.55	97.22	110.90
2	d	178	VAL	CG1-CB-CG2	-8.55	97.23	110.90
2	v	178	VAL	CG1-CB-CG2	-8.54	97.23	110.90
2	r	178	VAL	CG1-CB-CG2	-8.54	97.24	110.90
2	j	178	VAL	CG1-CB-CG2	-8.53	97.26	110.90
2	i	178	VAL	CG1-CB-CG2	-8.53	97.26	110.90
2	n	178	VAL	CG1-CB-CG2	-8.52	97.26	110.90
2	l	178	VAL	CG1-CB-CG2	-8.52	97.27	110.90
2	t	178	VAL	CG1-CB-CG2	-8.52	97.27	110.90
2	Y	178	VAL	CG1-CB-CG2	-8.52	97.27	110.90
2	Z	178	VAL	CG1-CB-CG2	-8.52	97.27	110.90
2	b	178	VAL	CG1-CB-CG2	-8.52	97.27	110.90
2	g	178	VAL	CG1-CB-CG2	-8.51	97.28	110.90
2	a	178	VAL	CG1-CB-CG2	-8.51	97.29	110.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	m	178	VAL	CG1-CB-CG2	-8.47	97.34	110.90
2	c	178	VAL	CG1-CB-CG2	-8.47	97.35	110.90
2	s	178	VAL	CG1-CB-CG2	-8.47	97.34	110.90
2	h	178	VAL	CG1-CB-CG2	-8.46	97.36	110.90
2	e	178	VAL	CG1-CB-CG2	-8.44	97.39	110.90
2	t	154	TYR	CB-CG-CD2	7.93	125.76	121.00
2	s	154	TYR	CB-CG-CD2	7.91	125.75	121.00
2	e	154	TYR	CB-CG-CD2	7.83	125.70	121.00
2	Z	154	TYR	CB-CG-CD2	7.83	125.69	121.00
2	i	154	TYR	CB-CG-CD2	7.81	125.69	121.00
2	b	154	TYR	CB-CG-CD2	7.78	125.67	121.00
2	m	154	TYR	CB-CG-CD2	7.78	125.67	121.00
2	c	154	TYR	CB-CG-CD2	7.75	125.65	121.00
2	h	154	TYR	CB-CG-CD2	7.74	125.64	121.00
2	a	154	TYR	CB-CG-CD2	7.74	125.64	121.00
2	r	154	TYR	CB-CG-CD2	7.72	125.63	121.00
2	q	154	TYR	CB-CG-CD2	7.71	125.63	121.00
2	l	154	TYR	CB-CG-CD2	7.70	125.62	121.00
2	u	154	TYR	CB-CG-CD2	7.69	125.61	121.00
2	o	154	TYR	CB-CG-CD2	7.69	125.61	121.00
2	k	154	TYR	CB-CG-CD2	7.66	125.59	121.00
2	Y	154	TYR	CB-CG-CD2	7.65	125.59	121.00
2	d	154	TYR	CB-CG-CD2	7.64	125.58	121.00
2	j	154	TYR	CB-CG-CD2	7.63	125.58	121.00
2	n	154	TYR	CB-CG-CD2	7.63	125.58	121.00
2	f	154	TYR	CB-CG-CD2	7.62	125.57	121.00
2	v	154	TYR	CB-CG-CD2	7.61	125.56	121.00
2	p	154	TYR	CB-CG-CD2	7.60	125.56	121.00
2	g	154	TYR	CB-CG-CD2	7.58	125.55	121.00
2	l	154	TYR	CD1-CE1-CZ	6.09	125.28	119.80
2	m	154	TYR	CD1-CE1-CZ	6.07	125.27	119.80
2	i	154	TYR	CD1-CE1-CZ	6.04	125.23	119.80
2	s	154	TYR	CD1-CE1-CZ	6.03	125.23	119.80
2	n	154	TYR	CD1-CE1-CZ	6.01	125.21	119.80
2	Z	154	TYR	CD1-CE1-CZ	6.00	125.20	119.80
2	a	154	TYR	CD1-CE1-CZ	5.99	125.19	119.80
2	j	154	TYR	CD1-CE1-CZ	5.99	125.19	119.80
2	b	154	TYR	CD1-CE1-CZ	5.98	125.18	119.80
2	Y	154	TYR	CD1-CE1-CZ	5.97	125.17	119.80
2	g	154	TYR	CD1-CE1-CZ	5.96	125.17	119.80
2	f	154	TYR	CD1-CE1-CZ	5.96	125.16	119.80
2	k	154	TYR	CD1-CE1-CZ	5.95	125.16	119.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	u	154	TYR	CD1-CE1-CZ	5.94	125.15	119.80
2	p	154	TYR	CD1-CE1-CZ	5.93	125.14	119.80
2	q	154	TYR	CD1-CE1-CZ	5.93	125.13	119.80
2	v	154	TYR	CD1-CE1-CZ	5.92	125.13	119.80
2	r	154	TYR	CD1-CE1-CZ	5.90	125.11	119.80
2	e	154	TYR	CD1-CE1-CZ	5.90	125.11	119.80
2	h	154	TYR	CD1-CE1-CZ	5.89	125.10	119.80
2	o	154	TYR	CD1-CE1-CZ	5.89	125.10	119.80
2	t	154	TYR	CD1-CE1-CZ	5.87	125.08	119.80
2	c	154	TYR	CD1-CE1-CZ	5.87	125.08	119.80
2	d	154	TYR	CD1-CE1-CZ	5.83	125.05	119.80
2	d	132	TYR	CB-CG-CD1	5.56	124.34	121.00
2	h	132	TYR	CB-CG-CD1	5.56	124.34	121.00
2	v	132	TYR	CB-CG-CD1	5.55	124.33	121.00
2	g	132	TYR	CB-CG-CD1	5.53	124.32	121.00
2	i	132	TYR	CB-CG-CD1	5.52	124.31	121.00
2	t	132	TYR	CB-CG-CD1	5.52	124.31	121.00
2	Y	132	TYR	CB-CG-CD1	5.52	124.31	121.00
2	b	132	TYR	CB-CG-CD1	5.51	124.31	121.00
2	r	132	TYR	CB-CG-CD1	5.50	124.30	121.00
2	k	132	TYR	CB-CG-CD1	5.49	124.29	121.00
2	j	132	TYR	CB-CG-CD1	5.47	124.28	121.00
2	c	132	TYR	CB-CG-CD1	5.46	124.27	121.00
2	e	132	TYR	CB-CG-CD1	5.44	124.27	121.00
2	s	132	TYR	CB-CG-CD1	5.42	124.25	121.00
2	q	132	TYR	CB-CG-CD1	5.41	124.25	121.00
2	a	132	TYR	CB-CG-CD1	5.40	124.24	121.00
2	f	132	TYR	CB-CG-CD1	5.40	124.24	121.00
2	n	132	TYR	CB-CG-CD1	5.36	124.22	121.00
2	p	132	TYR	CB-CG-CD1	5.36	124.21	121.00
2	Z	132	TYR	CB-CG-CD1	5.35	124.21	121.00
2	l	132	TYR	CB-CG-CD1	5.34	124.20	121.00
2	o	132	TYR	CB-CG-CD1	5.33	124.20	121.00
2	m	132	TYR	CB-CG-CD1	5.32	124.19	121.00
2	u	132	TYR	CB-CG-CD1	5.29	124.18	121.00
2	j	153	VAL	CG1-CB-CG2	-5.23	102.53	110.90
2	u	154	TYR	CG-CD2-CE2	5.23	125.48	121.30
2	s	154	TYR	CG-CD2-CE2	5.21	125.47	121.30
2	f	153	VAL	CG1-CB-CG2	-5.19	102.59	110.90
2	q	154	TYR	CG-CD2-CE2	5.19	125.45	121.30
2	d	153	VAL	CG1-CB-CG2	-5.19	102.60	110.90
2	v	153	VAL	CG1-CB-CG2	-5.19	102.60	110.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	k	153	VAL	CG1-CB-CG2	-5.18	102.61	110.90
2	t	153	VAL	CG1-CB-CG2	-5.18	102.61	110.90
2	Z	153	VAL	CG1-CB-CG2	-5.17	102.63	110.90
2	g	153	VAL	CG1-CB-CG2	-5.17	102.62	110.90
2	n	153	VAL	CG1-CB-CG2	-5.17	102.64	110.90
2	s	153	VAL	CG1-CB-CG2	-5.17	102.63	110.90
2	i	153	VAL	CG1-CB-CG2	-5.16	102.65	110.90
2	a	153	VAL	CG1-CB-CG2	-5.16	102.65	110.90
2	Y	153	VAL	CG1-CB-CG2	-5.15	102.66	110.90
2	m	153	VAL	CG1-CB-CG2	-5.15	102.66	110.90
2	o	153	VAL	CG1-CB-CG2	-5.15	102.66	110.90
2	r	153	VAL	CG1-CB-CG2	-5.15	102.66	110.90
2	t	154	TYR	CG-CD2-CE2	5.14	125.41	121.30
2	e	153	VAL	CG1-CB-CG2	-5.13	102.69	110.90
2	h	153	VAL	CG1-CB-CG2	-5.13	102.69	110.90
2	l	153	VAL	CG1-CB-CG2	-5.13	102.70	110.90
2	q	153	VAL	CG1-CB-CG2	-5.13	102.70	110.90
2	c	153	VAL	CG1-CB-CG2	-5.12	102.70	110.90
2	b	153	VAL	CG1-CB-CG2	-5.12	102.71	110.90
2	Y	154	TYR	CG-CD2-CE2	5.11	125.39	121.30
2	p	153	VAL	CG1-CB-CG2	-5.11	102.72	110.90
2	r	154	TYR	CG-CD2-CE2	5.11	125.39	121.30
2	e	154	TYR	CG-CD2-CE2	5.11	125.38	121.30
2	u	153	VAL	CG1-CB-CG2	-5.10	102.73	110.90
2	a	154	TYR	CG-CD2-CE2	5.10	125.38	121.30
2	l	154	TYR	CG-CD2-CE2	5.10	125.38	121.30
2	v	154	TYR	CG-CD2-CE2	5.10	125.38	121.30
2	b	154	TYR	CG-CD2-CE2	5.10	125.38	121.30
2	Z	154	TYR	CG-CD2-CE2	5.09	125.37	121.30
2	i	154	TYR	CG-CD2-CE2	5.08	125.37	121.30
2	f	154	TYR	CG-CD2-CE2	5.08	125.36	121.30
2	n	154	TYR	CG-CD2-CE2	5.07	125.36	121.30
2	j	154	TYR	CG-CD2-CE2	5.06	125.35	121.30
2	p	154	TYR	CG-CD2-CE2	5.06	125.35	121.30
2	k	154	TYR	CG-CD2-CE2	5.06	125.34	121.30
2	m	154	TYR	CG-CD2-CE2	5.05	125.34	121.30
2	c	154	TYR	CG-CD2-CE2	5.05	125.34	121.30
2	o	154	TYR	CG-CD2-CE2	5.03	125.33	121.30
2	h	154	TYR	CG-CD2-CE2	5.02	125.31	121.30

There are no chirality outliers.

All (72) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	Y	155	GLU	Mainchain
2	Y	71	TRP	Mainchain
2	Y	97	SER	Peptide
2	Z	155	GLU	Mainchain
2	Z	71	TRP	Mainchain
2	Z	97	SER	Peptide
2	a	155	GLU	Mainchain
2	a	71	TRP	Mainchain
2	a	97	SER	Peptide
2	b	155	GLU	Mainchain
2	b	71	TRP	Mainchain
2	b	97	SER	Peptide
2	c	155	GLU	Mainchain
2	c	71	TRP	Mainchain
2	c	97	SER	Peptide
2	d	155	GLU	Mainchain
2	d	71	TRP	Mainchain
2	d	97	SER	Peptide
2	e	155	GLU	Mainchain
2	e	71	TRP	Mainchain
2	e	97	SER	Peptide
2	f	155	GLU	Mainchain
2	f	71	TRP	Mainchain
2	f	97	SER	Peptide
2	g	155	GLU	Mainchain
2	g	71	TRP	Mainchain
2	g	97	SER	Peptide
2	h	155	GLU	Mainchain
2	h	71	TRP	Mainchain
2	h	97	SER	Peptide
2	i	155	GLU	Mainchain
2	i	71	TRP	Mainchain
2	i	97	SER	Peptide
2	j	155	GLU	Mainchain
2	j	71	TRP	Mainchain
2	j	97	SER	Peptide
2	k	155	GLU	Mainchain
2	k	71	TRP	Mainchain
2	k	97	SER	Peptide
2	l	155	GLU	Mainchain
2	l	71	TRP	Mainchain
2	l	97	SER	Peptide
2	m	155	GLU	Mainchain

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Mol	Chain	Res	Type	Group
2	m	71	TRP	Mainchain
2	m	97	SER	Peptide
2	n	155	GLU	Mainchain
2	n	71	TRP	Mainchain
2	n	97	SER	Peptide
2	o	155	GLU	Mainchain
2	o	71	TRP	Mainchain
2	o	97	SER	Peptide
2	p	155	GLU	Mainchain
2	p	71	TRP	Mainchain
2	p	97	SER	Peptide
2	q	155	GLU	Mainchain
2	q	71	TRP	Mainchain
2	q	97	SER	Peptide
2	r	155	GLU	Mainchain
2	r	71	TRP	Mainchain
2	r	97	SER	Peptide
2	s	155	GLU	Mainchain
2	s	71	TRP	Mainchain
2	s	97	SER	Peptide
2	t	155	GLU	Mainchain
2	t	71	TRP	Mainchain
2	t	97	SER	Peptide
2	u	155	GLU	Mainchain
2	u	71	TRP	Mainchain
2	u	97	SER	Peptide
2	v	155	GLU	Mainchain
2	v	71	TRP	Mainchain
2	v	97	SER	Peptide

5.2 Too-close contacts (i)

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

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	B	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	C	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	D	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	E	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	F	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	G	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	H	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	I	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	J	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	K	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	L	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	M	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	N	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	O	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	P	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	Q	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	R	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	S	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	T	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	U	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	V	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	W	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
1	X	184/186 (99%)	180 (98%)	4 (2%)	0	100	100
2	Y	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	Z	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	a	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	b	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	c	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	d	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	e	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	f	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	g	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	h	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	i	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	j	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	k	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	l	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	m	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	n	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	o	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	p	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	q	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	r	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	s	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	t	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	u	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
2	v	168/170 (99%)	157 (94%)	8 (5%)	3 (2%)	8	40
All	All	8448/8544 (99%)	8088 (96%)	288 (3%)	72 (1%)	21	57

All (72) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	Y	97	SER
2	Z	97	SER
2	a	97	SER
2	b	97	SER
2	c	97	SER
2	d	97	SER
2	e	97	SER
2	f	97	SER
2	g	97	SER
2	h	97	SER
2	i	97	SER
2	j	97	SER
2	k	97	SER

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Mol	Chain	Res	Type
2	l	97	SER
2	m	97	SER
2	n	97	SER
2	o	97	SER
2	p	97	SER
2	q	97	SER
2	r	97	SER
2	s	97	SER
2	t	97	SER
2	u	97	SER
2	v	97	SER
2	Y	98	PRO
2	Z	98	PRO
2	a	98	PRO
2	b	98	PRO
2	c	98	PRO
2	d	98	PRO
2	e	98	PRO
2	f	98	PRO
2	g	98	PRO
2	h	98	PRO
2	i	98	PRO
2	j	98	PRO
2	k	98	PRO
2	l	98	PRO
2	m	98	PRO
2	n	98	PRO
2	o	98	PRO
2	p	98	PRO
2	q	98	PRO
2	r	98	PRO
2	s	98	PRO
2	t	98	PRO
2	u	98	PRO
2	v	98	PRO
2	Y	147	HIS
2	Z	147	HIS
2	a	147	HIS
2	b	147	HIS
2	c	147	HIS
2	d	147	HIS
2	e	147	HIS

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Mol	Chain	Res	Type
2	f	147	HIS
2	g	147	HIS
2	h	147	HIS
2	i	147	HIS
2	j	147	HIS
2	k	147	HIS
2	l	147	HIS
2	m	147	HIS
2	n	147	HIS
2	o	147	HIS
2	p	147	HIS
2	q	147	HIS
2	r	147	HIS
2	s	147	HIS
2	t	147	HIS
2	u	147	HIS
2	v	147	HIS

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	B	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	C	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	D	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	E	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	F	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	G	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	H	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	I	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	J	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	K	160/160 (100%)	150 (94%)	10 (6%)	18	43

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	L	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	M	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	N	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	O	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	P	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	Q	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	R	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	S	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	T	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	U	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	V	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	W	160/160 (100%)	150 (94%)	10 (6%)	18	43
1	X	160/160 (100%)	150 (94%)	10 (6%)	18	43
2	Y	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	Z	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	a	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	b	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	c	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	d	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	e	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	f	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	g	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	h	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	i	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	j	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	k	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	l	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	m	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	n	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	o	146/146 (100%)	145 (99%)	1 (1%)	84	90
2	p	146/146 (100%)	145 (99%)	1 (1%)	84	90

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	q	146/146 (100%)	145 (99%)	1 (1%)	84 90
2	r	146/146 (100%)	145 (99%)	1 (1%)	84 90
2	s	146/146 (100%)	145 (99%)	1 (1%)	84 90
2	t	146/146 (100%)	145 (99%)	1 (1%)	84 90
2	u	146/146 (100%)	145 (99%)	1 (1%)	84 90
2	v	146/146 (100%)	145 (99%)	1 (1%)	84 90
All	All	7344/7344 (100%)	7080 (96%)	264 (4%)	38 59

All (264) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	179	GLN
1	A	181	LYS
1	A	209	GLN
1	A	238	THR
1	A	263	GLN
1	A	277	GLN
1	A	307	LEU
1	A	345	SER
1	A	361	LEU
1	A	362	LYS
1	B	179	GLN
1	B	181	LYS
1	B	209	GLN
1	B	238	THR
1	B	263	GLN
1	B	277	GLN
1	B	307	LEU
1	B	345	SER
1	B	361	LEU
1	B	362	LYS
1	C	179	GLN
1	C	181	LYS
1	C	209	GLN
1	C	238	THR
1	C	263	GLN
1	C	277	GLN
1	C	307	LEU
1	C	345	SER
1	C	361	LEU

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Mol	Chain	Res	Type
1	C	362	LYS
1	D	179	GLN
1	D	181	LYS
1	D	209	GLN
1	D	238	THR
1	D	263	GLN
1	D	277	GLN
1	D	307	LEU
1	D	345	SER
1	D	361	LEU
1	D	362	LYS
1	E	179	GLN
1	E	181	LYS
1	E	209	GLN
1	E	238	THR
1	E	263	GLN
1	E	277	GLN
1	E	307	LEU
1	E	345	SER
1	E	361	LEU
1	E	362	LYS
1	F	179	GLN
1	F	181	LYS
1	F	209	GLN
1	F	238	THR
1	F	263	GLN
1	F	277	GLN
1	F	307	LEU
1	F	345	SER
1	F	361	LEU
1	F	362	LYS
1	G	179	GLN
1	G	181	LYS
1	G	209	GLN
1	G	238	THR
1	G	263	GLN
1	G	277	GLN
1	G	307	LEU
1	G	345	SER
1	G	361	LEU
1	G	362	LYS
1	H	179	GLN

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Mol	Chain	Res	Type
1	H	181	LYS
1	H	209	GLN
1	H	238	THR
1	H	263	GLN
1	H	277	GLN
1	H	307	LEU
1	H	345	SER
1	H	361	LEU
1	H	362	LYS
1	I	179	GLN
1	I	181	LYS
1	I	209	GLN
1	I	238	THR
1	I	263	GLN
1	I	277	GLN
1	I	307	LEU
1	I	345	SER
1	I	361	LEU
1	I	362	LYS
1	J	179	GLN
1	J	181	LYS
1	J	209	GLN
1	J	238	THR
1	J	263	GLN
1	J	277	GLN
1	J	307	LEU
1	J	345	SER
1	J	361	LEU
1	J	362	LYS
1	K	179	GLN
1	K	181	LYS
1	K	209	GLN
1	K	238	THR
1	K	263	GLN
1	K	277	GLN
1	K	307	LEU
1	K	345	SER
1	K	361	LEU
1	K	362	LYS
1	L	179	GLN
1	L	181	LYS
1	L	209	GLN

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Mol	Chain	Res	Type
1	L	238	THR
1	L	263	GLN
1	L	277	GLN
1	L	307	LEU
1	L	345	SER
1	L	361	LEU
1	L	362	LYS
1	M	179	GLN
1	M	181	LYS
1	M	209	GLN
1	M	238	THR
1	M	263	GLN
1	M	277	GLN
1	M	307	LEU
1	M	345	SER
1	M	361	LEU
1	M	362	LYS
1	N	179	GLN
1	N	181	LYS
1	N	209	GLN
1	N	238	THR
1	N	263	GLN
1	N	277	GLN
1	N	307	LEU
1	N	345	SER
1	N	361	LEU
1	N	362	LYS
1	O	179	GLN
1	O	181	LYS
1	O	209	GLN
1	O	238	THR
1	O	263	GLN
1	O	277	GLN
1	O	307	LEU
1	O	345	SER
1	O	361	LEU
1	O	362	LYS
1	P	179	GLN
1	P	181	LYS
1	P	209	GLN
1	P	238	THR
1	P	263	GLN

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Mol	Chain	Res	Type
1	P	277	GLN
1	P	307	LEU
1	P	345	SER
1	P	361	LEU
1	P	362	LYS
1	Q	179	GLN
1	Q	181	LYS
1	Q	209	GLN
1	Q	238	THR
1	Q	263	GLN
1	Q	277	GLN
1	Q	307	LEU
1	Q	345	SER
1	Q	361	LEU
1	Q	362	LYS
1	R	179	GLN
1	R	181	LYS
1	R	209	GLN
1	R	238	THR
1	R	263	GLN
1	R	277	GLN
1	R	307	LEU
1	R	345	SER
1	R	361	LEU
1	R	362	LYS
1	S	179	GLN
1	S	181	LYS
1	S	209	GLN
1	S	238	THR
1	S	263	GLN
1	S	277	GLN
1	S	307	LEU
1	S	345	SER
1	S	361	LEU
1	S	362	LYS
1	T	179	GLN
1	T	181	LYS
1	T	209	GLN
1	T	238	THR
1	T	263	GLN
1	T	277	GLN
1	T	307	LEU

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Mol	Chain	Res	Type
1	T	345	SER
1	T	361	LEU
1	T	362	LYS
1	U	179	GLN
1	U	181	LYS
1	U	209	GLN
1	U	238	THR
1	U	263	GLN
1	U	277	GLN
1	U	307	LEU
1	U	345	SER
1	U	361	LEU
1	U	362	LYS
1	V	179	GLN
1	V	181	LYS
1	V	209	GLN
1	V	238	THR
1	V	263	GLN
1	V	277	GLN
1	V	307	LEU
1	V	345	SER
1	V	361	LEU
1	V	362	LYS
1	W	179	GLN
1	W	181	LYS
1	W	209	GLN
1	W	238	THR
1	W	263	GLN
1	W	277	GLN
1	W	307	LEU
1	W	345	SER
1	W	361	LEU
1	W	362	LYS
1	X	179	GLN
1	X	181	LYS
1	X	209	GLN
1	X	238	THR
1	X	263	GLN
1	X	277	GLN
1	X	307	LEU
1	X	345	SER
1	X	361	LEU

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Mol	Chain	Res	Type
1	X	362	LYS
2	Y	23	LEU
2	Z	23	LEU
2	a	23	LEU
2	b	23	LEU
2	c	23	LEU
2	d	23	LEU
2	e	23	LEU
2	f	23	LEU
2	g	23	LEU
2	h	23	LEU
2	i	23	LEU
2	j	23	LEU
2	k	23	LEU
2	l	23	LEU
2	m	23	LEU
2	n	23	LEU
2	o	23	LEU
2	p	23	LEU
2	q	23	LEU
2	r	23	LEU
2	s	23	LEU
2	t	23	LEU
2	u	23	LEU
2	v	23	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (236) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	226	ASN
1	A	263	GLN
1	A	328	GLN
1	A	341	GLN
1	B	226	ASN
1	B	263	GLN
1	B	328	GLN
1	B	341	GLN
1	C	226	ASN
1	C	263	GLN
1	C	328	GLN
1	C	341	GLN
1	D	226	ASN

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Mol	Chain	Res	Type
1	D	263	GLN
1	D	328	GLN
1	D	341	GLN
1	E	226	ASN
1	E	263	GLN
1	E	328	GLN
1	E	341	GLN
1	F	226	ASN
1	F	263	GLN
1	F	328	GLN
1	F	341	GLN
1	G	226	ASN
1	G	263	GLN
1	G	328	GLN
1	G	341	GLN
1	H	226	ASN
1	H	263	GLN
1	H	328	GLN
1	H	341	GLN
1	I	226	ASN
1	I	263	GLN
1	I	328	GLN
1	I	341	GLN
1	J	226	ASN
1	J	263	GLN
1	J	328	GLN
1	J	341	GLN
1	K	226	ASN
1	K	263	GLN
1	K	328	GLN
1	K	341	GLN
1	L	226	ASN
1	L	263	GLN
1	L	328	GLN
1	L	341	GLN
1	M	226	ASN
1	M	263	GLN
1	M	328	GLN
1	M	341	GLN
1	N	226	ASN
1	N	263	GLN
1	N	328	GLN

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Mol	Chain	Res	Type
1	N	341	GLN
1	O	226	ASN
1	O	263	GLN
1	O	328	GLN
1	O	341	GLN
1	P	226	ASN
1	P	263	GLN
1	P	328	GLN
1	P	341	GLN
1	Q	226	ASN
1	Q	263	GLN
1	Q	328	GLN
1	Q	341	GLN
1	R	226	ASN
1	R	263	GLN
1	R	328	GLN
1	R	341	GLN
1	S	226	ASN
1	S	263	GLN
1	S	328	GLN
1	S	341	GLN
1	T	226	ASN
1	T	263	GLN
1	T	328	GLN
1	T	341	GLN
1	U	226	ASN
1	U	263	GLN
1	U	328	GLN
1	U	341	GLN
1	V	226	ASN
1	V	263	GLN
1	V	328	GLN
1	V	341	GLN
1	W	226	ASN
1	W	263	GLN
1	W	328	GLN
1	W	341	GLN
1	X	226	ASN
1	X	263	GLN
1	X	328	GLN
1	X	341	GLN
2	Y	31	GLN

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Mol	Chain	Res	Type
2	Y	76	GLN
2	Y	111	GLN
2	Y	118	GLN
2	Y	147	HIS
2	Y	173	ASN
2	Z	31	GLN
2	Z	76	GLN
2	Z	111	GLN
2	Z	118	GLN
2	Z	147	HIS
2	Z	173	ASN
2	a	31	GLN
2	a	76	GLN
2	a	111	GLN
2	a	118	GLN
2	a	147	HIS
2	a	173	ASN
2	b	31	GLN
2	b	76	GLN
2	b	111	GLN
2	b	118	GLN
2	b	147	HIS
2	b	173	ASN
2	c	31	GLN
2	c	76	GLN
2	c	111	GLN
2	c	118	GLN
2	c	147	HIS
2	c	173	ASN
2	d	31	GLN
2	d	76	GLN
2	d	111	GLN
2	d	118	GLN
2	d	147	HIS
2	d	173	ASN
2	e	31	GLN
2	e	76	GLN
2	e	111	GLN
2	e	118	GLN
2	e	147	HIS
2	e	173	ASN
2	f	31	GLN

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Mol	Chain	Res	Type
2	f	76	GLN
2	f	111	GLN
2	f	118	GLN
2	f	147	HIS
2	f	173	ASN
2	g	31	GLN
2	g	76	GLN
2	g	111	GLN
2	g	118	GLN
2	g	147	HIS
2	g	173	ASN
2	h	31	GLN
2	h	76	GLN
2	h	111	GLN
2	h	118	GLN
2	h	147	HIS
2	h	173	ASN
2	i	31	GLN
2	i	76	GLN
2	i	111	GLN
2	i	118	GLN
2	i	147	HIS
2	i	173	ASN
2	j	31	GLN
2	j	76	GLN
2	j	111	GLN
2	j	118	GLN
2	j	147	HIS
2	k	31	GLN
2	k	76	GLN
2	k	111	GLN
2	k	118	GLN
2	k	147	HIS
2	k	173	ASN
2	l	31	GLN
2	l	76	GLN
2	l	111	GLN
2	l	118	GLN
2	l	147	HIS
2	l	173	ASN
2	m	31	GLN
2	m	76	GLN

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Mol	Chain	Res	Type
2	m	111	GLN
2	m	118	GLN
2	m	147	HIS
2	n	31	GLN
2	n	76	GLN
2	n	111	GLN
2	n	118	GLN
2	n	147	HIS
2	n	173	ASN
2	o	31	GLN
2	o	76	GLN
2	o	111	GLN
2	o	118	GLN
2	o	147	HIS
2	o	173	ASN
2	p	31	GLN
2	p	76	GLN
2	p	111	GLN
2	p	118	GLN
2	p	147	HIS
2	q	31	GLN
2	q	76	GLN
2	q	111	GLN
2	q	118	GLN
2	q	147	HIS
2	q	173	ASN
2	r	31	GLN
2	r	76	GLN
2	r	111	GLN
2	r	118	GLN
2	r	147	HIS
2	r	173	ASN
2	s	31	GLN
2	s	76	GLN
2	s	111	GLN
2	s	118	GLN
2	s	147	HIS
2	s	173	ASN
2	t	31	GLN
2	t	76	GLN
2	t	111	GLN
2	t	118	GLN

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Mol	Chain	Res	Type
2	t	147	HIS
2	t	173	ASN
2	u	31	GLN
2	u	76	GLN
2	u	111	GLN
2	u	118	GLN
2	u	147	HIS
2	u	173	ASN
2	v	31	GLN
2	v	76	GLN
2	v	111	GLN
2	v	118	GLN
2	v	173	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no 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 (i)

There are no chain breaks in this entry.

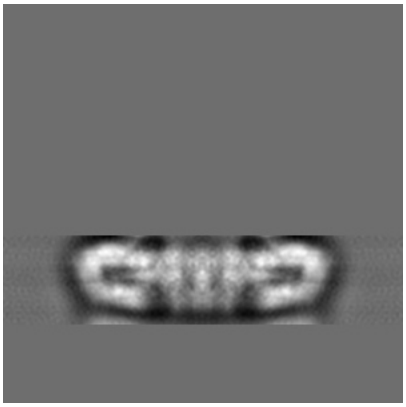
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-1874. These allow visual inspection of the internal detail of the map and identification of artifacts.

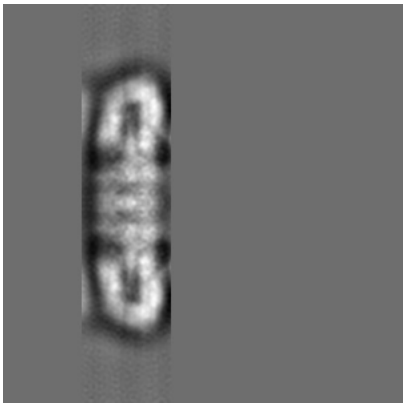
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

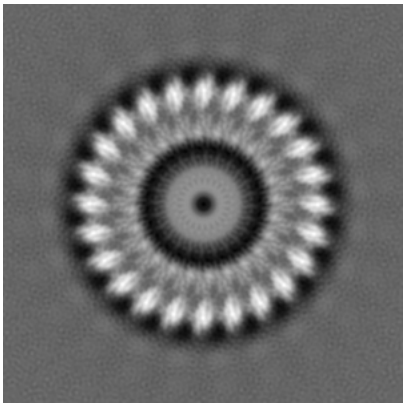
6.1.1 Primary map



X



Y

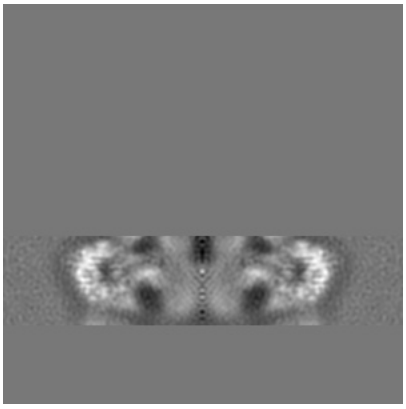


Z

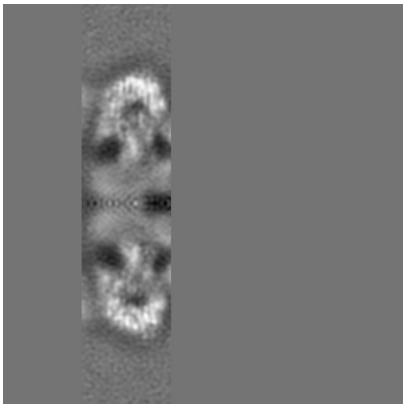
The images above show the map projected in three orthogonal directions.

6.2 Central slices

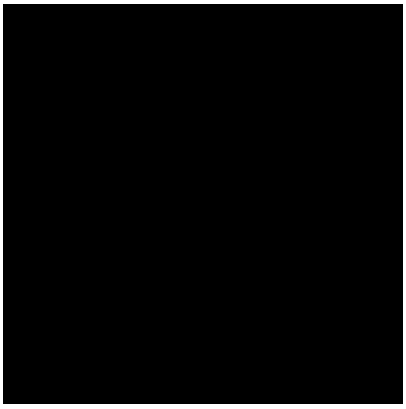
6.2.1 Primary map



X Index: 150



Y Index: 150

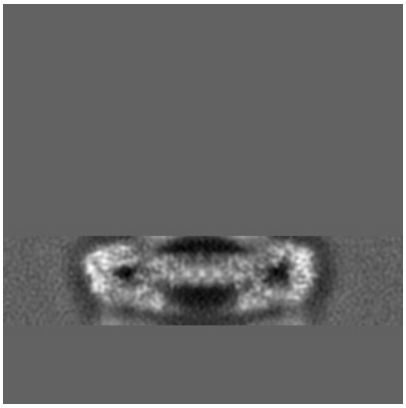


Z Index: 150

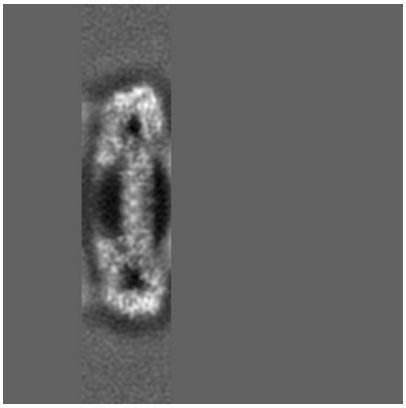
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

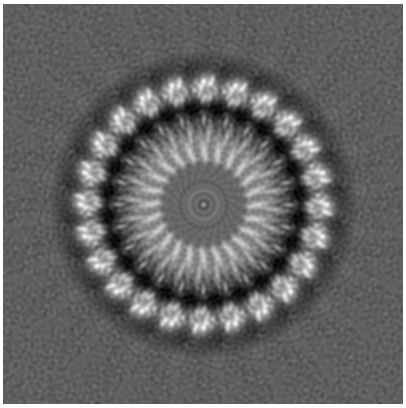
6.3.1 Primary map



X Index: 192



Y Index: 191

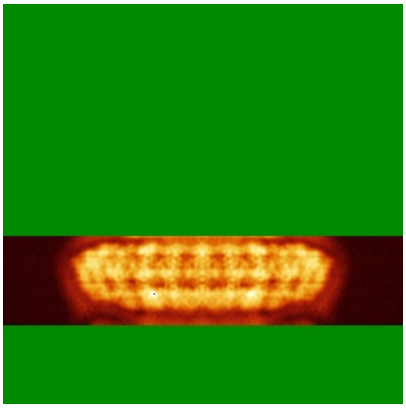


Z Index: 98

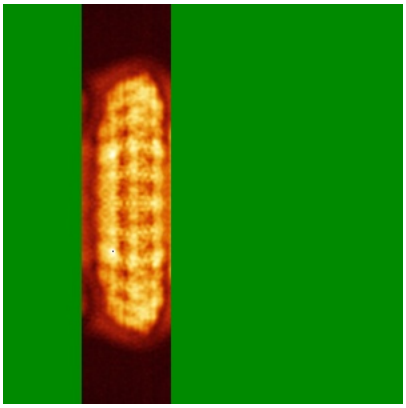
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



X



Y

Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.076. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

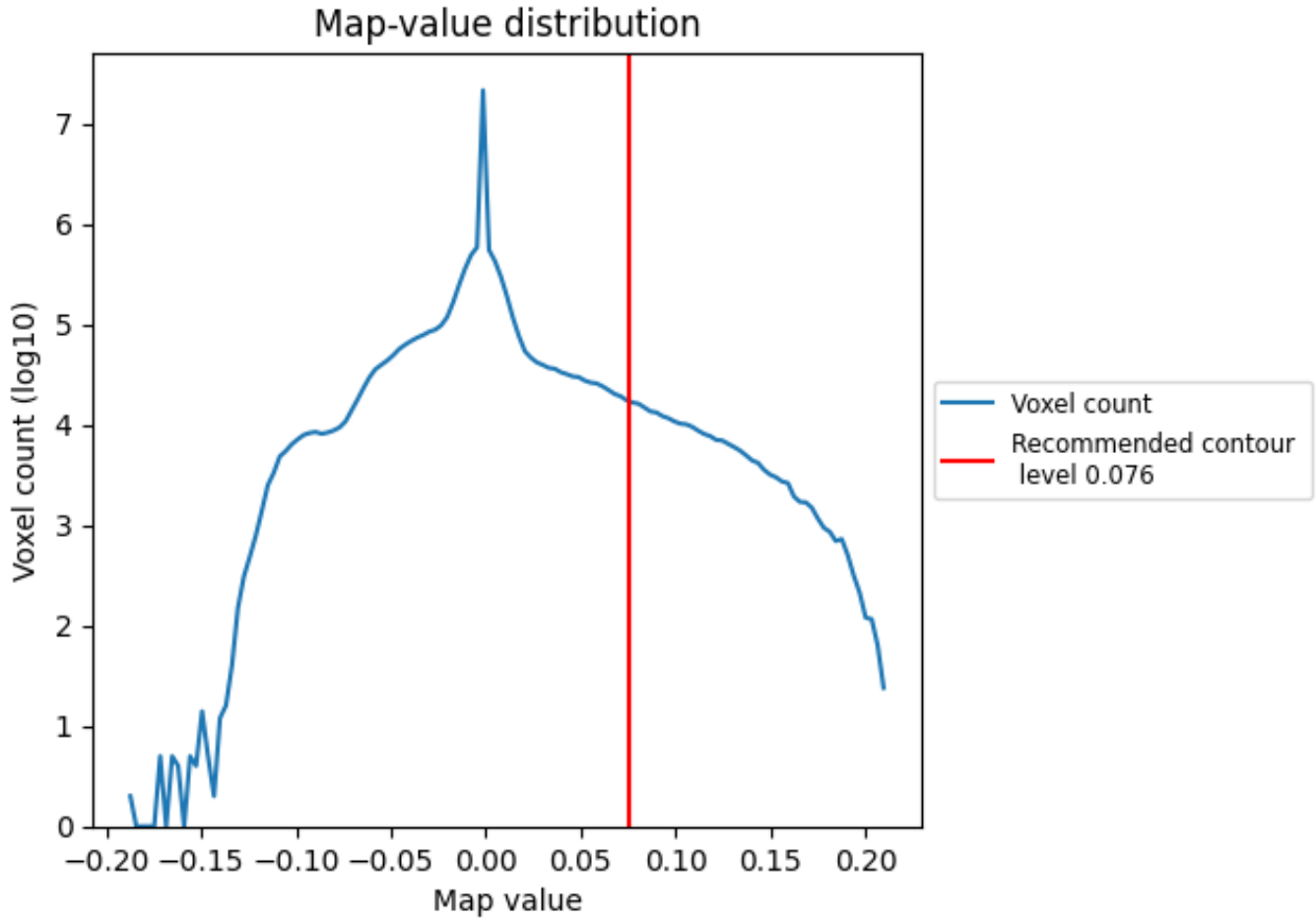
6.6 Mask visualisation (i)

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

7 Map analysis

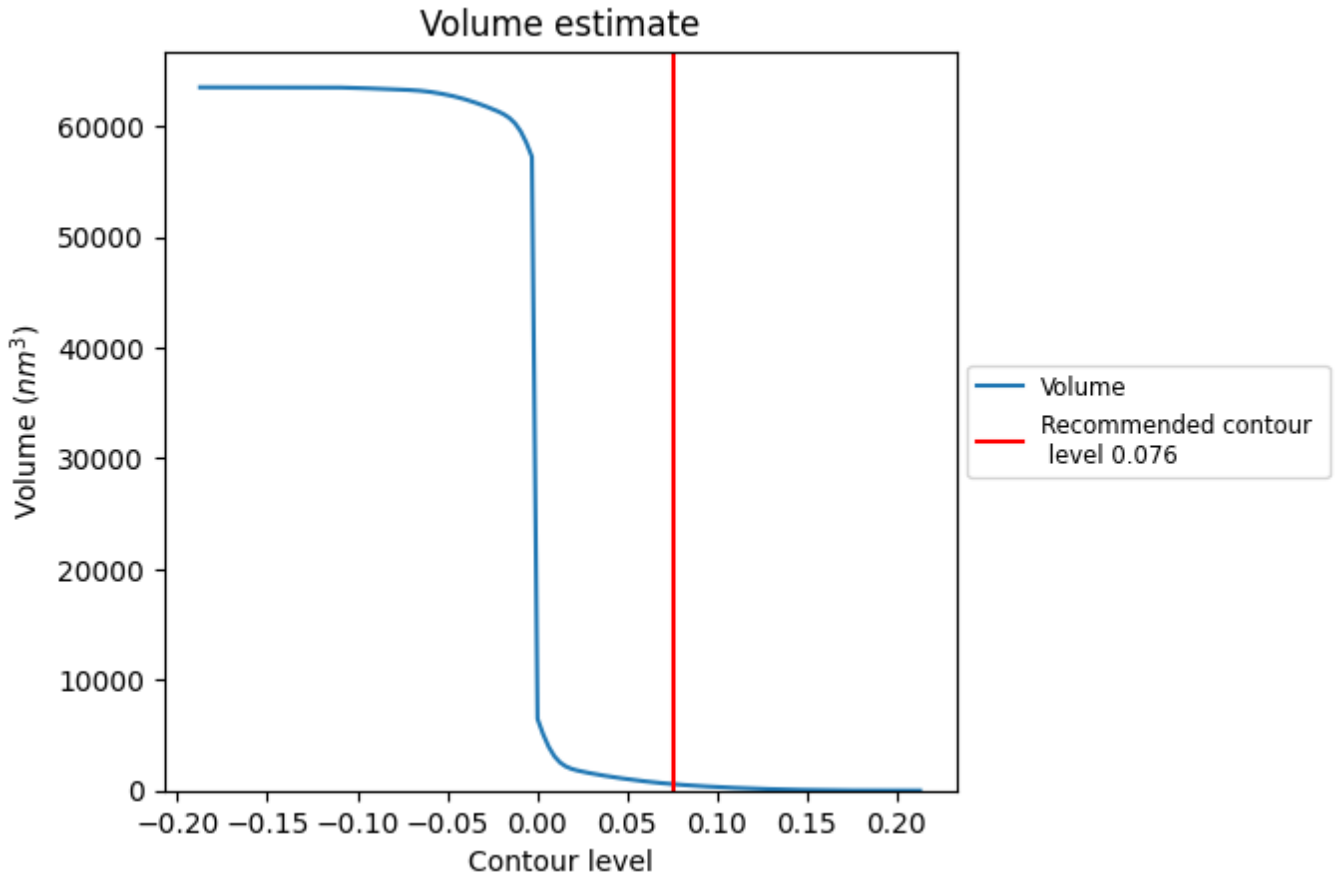
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

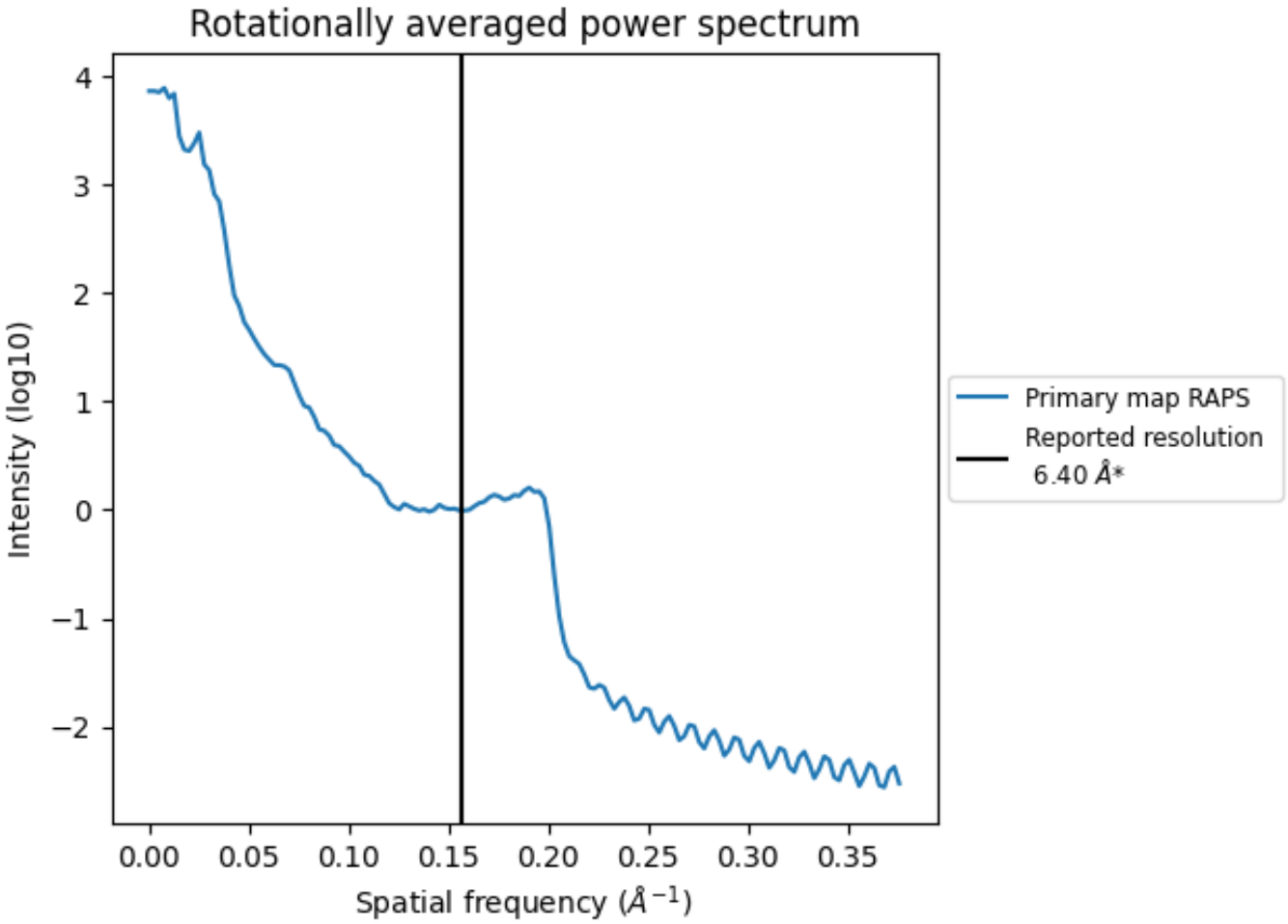
7.2 Volume estimate



The volume at the recommended contour level is 576 nm^3; this corresponds to an approximate mass of 520 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 0.156 Å^{-1}

8 Fourier-Shell correlation

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

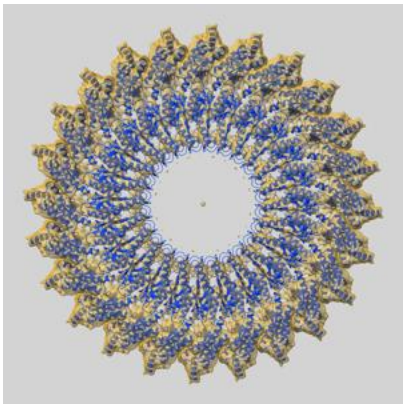
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-1874 and PDB model 2Y9J. Per-residue inclusion information can be found in section 3 on page 9.

9.1 Map-model overlay

X

Y



Z

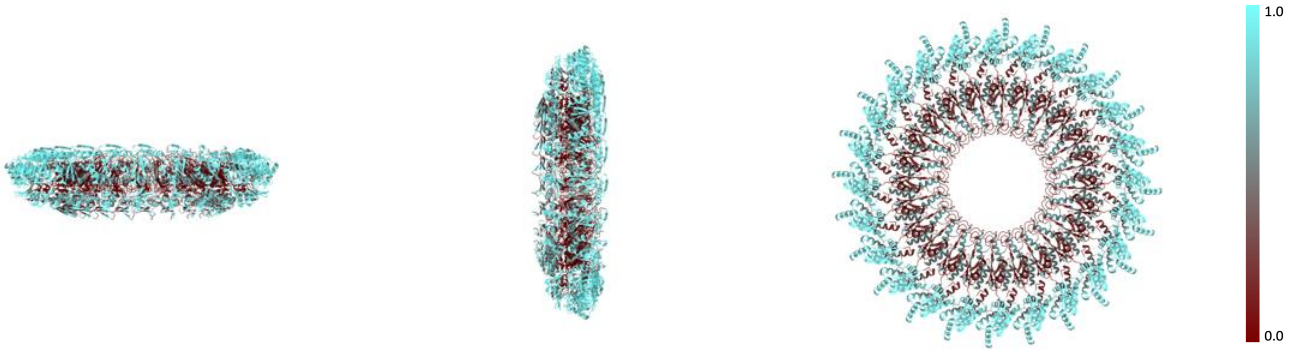
The images above show the 3D surface view of the map at the recommended contour level 0.076 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model (i)

X Y Z

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

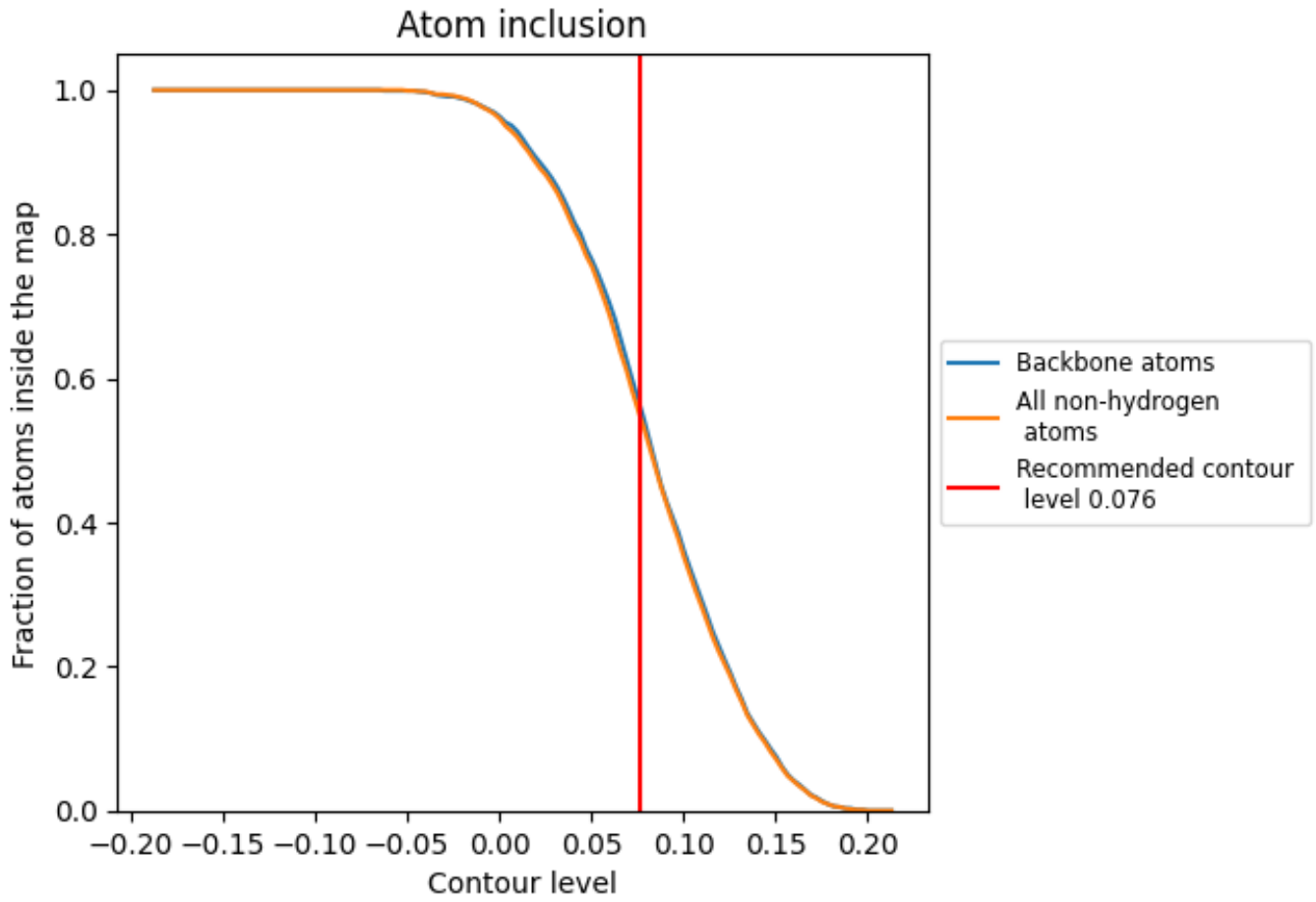
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.076).

9.4 Atom inclusion (i)



At the recommended contour level, 56% of all backbone atoms, 55% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.076) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5500	0.2670
A	0.7620	0.2780
B	0.7620	0.2790
C	0.7620	0.2800
D	0.7600	0.2810
E	0.7600	0.2790
F	0.7610	0.2830
G	0.7620	0.2820
H	0.7600	0.2800
I	0.7610	0.2820
J	0.7630	0.2800
K	0.7620	0.2810
L	0.7600	0.2830
M	0.7610	0.2790
N	0.7620	0.2810
O	0.7610	0.2790
P	0.7620	0.2790
Q	0.7620	0.2820
R	0.7620	0.2800
S	0.7610	0.2800
T	0.7600	0.2810
U	0.7600	0.2820
V	0.7600	0.2800
W	0.7620	0.2770
X	0.7600	0.2820
Y	0.3220	0.2510
Z	0.3220	0.2520
a	0.3220	0.2510
b	0.3200	0.2510
c	0.3250	0.2540
d	0.3220	0.2520
e	0.3260	0.2520
f	0.3230	0.2510
g	0.3200	0.2510
h	0.3220	0.2530

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Chain	Atom inclusion	Q-score
i	0.3230	0.2530
j	0.3220	0.2530
k	0.3230	0.2510
l	0.3200	0.2500
m	0.3230	0.2520
n	0.3250	0.2530
o	0.3220	0.2520
p	0.3200	0.2510
q	0.3230	0.2540
r	0.3230	0.2520
s	0.3180	0.2510
t	0.3250	0.2530
u	0.3200	0.2520
v	0.3160	0.2490