



Full wwPDB EM Validation Report ⓘ

Dec 7, 2022 – 01:30 PM JST

PDB ID : 7EY9
EMDB ID : EMD-31319
Title : tail proteins
Authors : Liu, H.R.; Chen, W.Y.
Deposited on : 2021-05-30
Resolution : 3.40 Å (reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

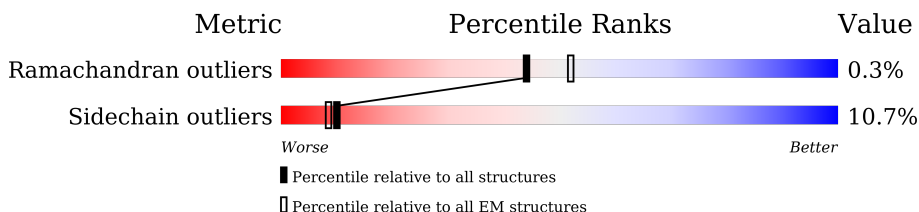
EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

1 Overall quality at a glance

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

The reported resolution of this entry is 3.40 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.





















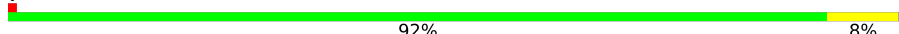






Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	a	553	22% 75%
1	b	553	22% 76%
1	c	553	22% 75%
1	d	553	22% 75%
1	e	553	22% 76%
1	f	553	22% 75%
1	g	553	22% 75%
1	h	553	22% 76%
1	i	553	22% 75%

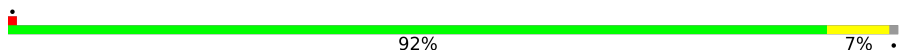
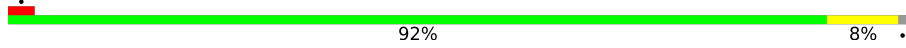
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Mol	Chain	Length	Quality of chain
1	j	553	 22% 75%
1	k	553	 22% 76%
1	l	553	 22% 75%
1	m	553	 22% 75%
1	n	553	 22% 76%
1	o	553	 22% 75%
1	p	553	 22% 75%
1	q	553	 22% 76%
1	r	553	 22% 75%
2	s	794	 90% 10%
2	t	794	 90% 10%
2	u	794	 90% 10%
2	v	794	 90% 10%
2	w	794	 90% 10%
2	x	794	 90% 10%
3	M	196	 92% 8%
3	N	196	 92% 8%
3	O	196	 91% 8%
3	P	196	 92% 8%
3	Q	196	 91% 8%
3	R	196	 92% 8%
3	S	196	 91% 8%
3	T	196	 92% 8%
3	U	196	 91% 8%
3	V	196	 92% 8%

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Mol	Chain	Length	Quality of chain
3	W	196	 92% 7%
3	X	196	 92% 8%

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 76038 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 Tail fiber protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	a	141	1115	698	201	215	1	0	0
1	b	134	1067	668	192	206	1	0	0
1	c	136	1080	675	195	209	1	0	0
1	d	141	1115	698	201	215	1	0	0
1	e	134	1067	668	192	206	1	0	0
1	f	136	1080	675	195	209	1	0	0
1	g	141	1115	698	201	215	1	0	0
1	h	134	1067	668	192	206	1	0	0
1	i	136	1080	675	195	209	1	0	0
1	j	141	1115	698	201	215	1	0	0
1	k	134	1067	668	192	206	1	0	0
1	l	136	1080	675	195	209	1	0	0
1	m	141	1115	698	201	215	1	0	0
1	n	134	1067	668	192	206	1	0	0
1	o	136	1080	675	195	209	1	0	0
1	p	141	1115	698	201	215	1	0	0
1	q	134	1067	668	192	206	1	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	r	136	1080	675	195	209	1	0	0

- Molecule 2 is a protein called Tail tubular protein gp12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	s	792	6308	4000	1086	1207	15	0	0
2	t	792	6308	4000	1086	1207	15	0	0
2	u	792	6308	4000	1086	1207	15	0	0
2	v	792	6308	4000	1086	1207	15	0	0
2	w	792	6308	4000	1086	1207	15	0	0
2	x	792	6308	4000	1086	1207	15	0	0

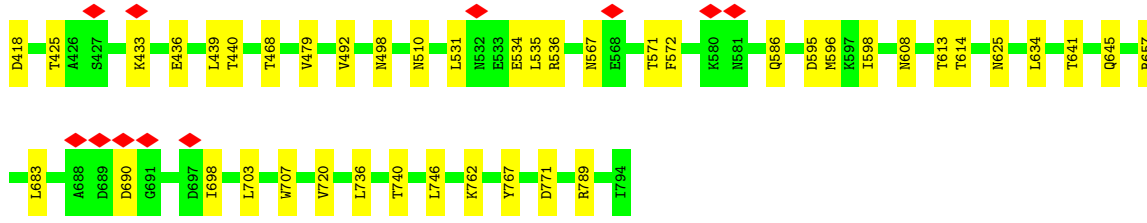
- Molecule 3 is a protein called Tail tubular protein gp11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	M	194	1546	960	262	316	8	0	0
3	N	195	1557	966	266	317	8	0	0
3	O	194	1546	960	262	316	8	0	0
3	P	195	1557	966	266	317	8	0	0
3	Q	194	1546	960	262	316	8	0	0
3	R	195	1557	966	266	317	8	0	0
3	S	194	1546	960	262	316	8	0	0
3	T	195	1557	966	266	317	8	0	0
3	U	194	1546	960	262	316	8	0	0
3	V	195	1557	966	266	317	8	0	0

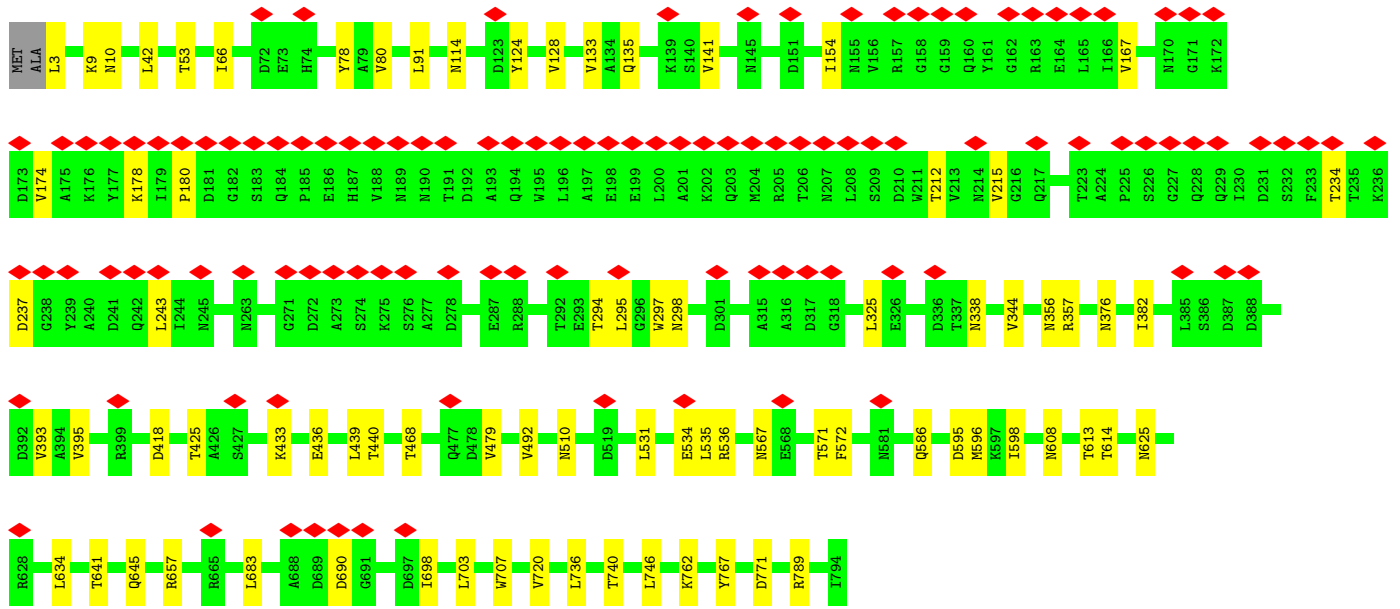
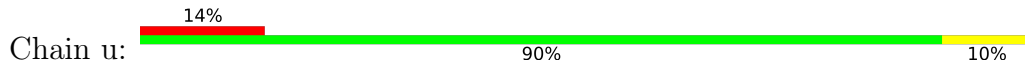
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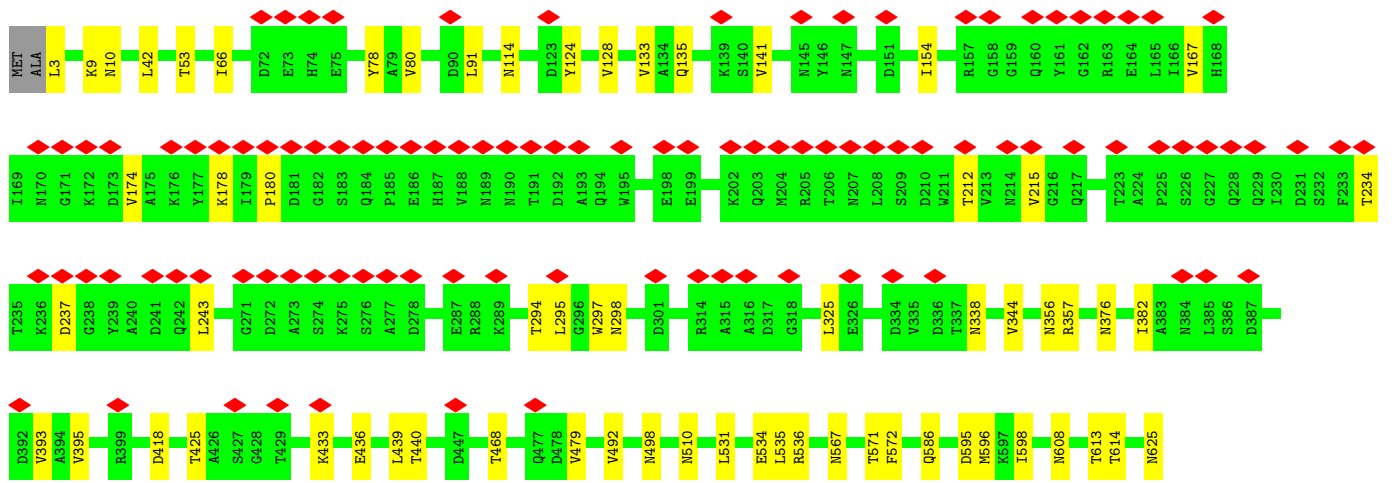
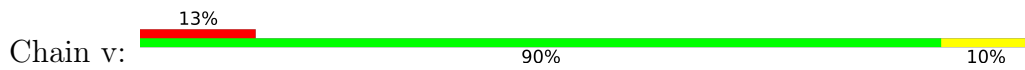
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	W	194	Total	C	N	O	S	0	0
			1546	960	262	316	8		
3	X	195	Total	C	N	O	S	0	0
			1557	966	266	317	8		

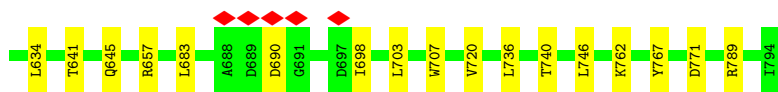


• Molecule 2: Tail tubular protein gp12

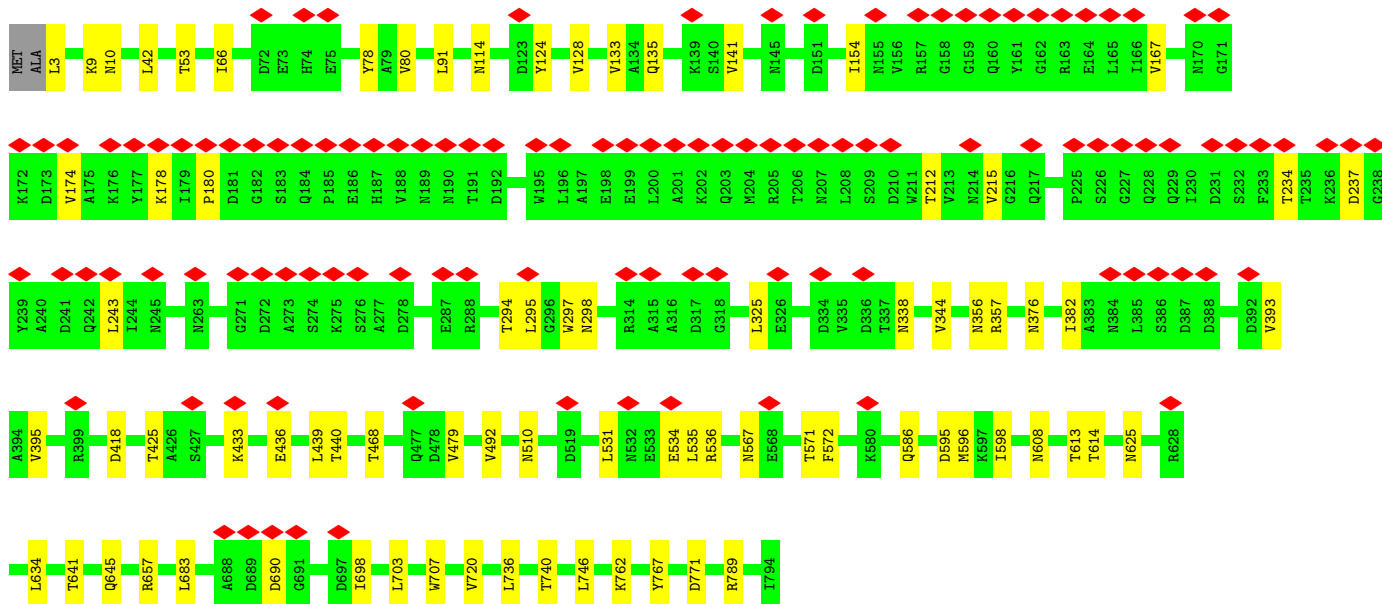
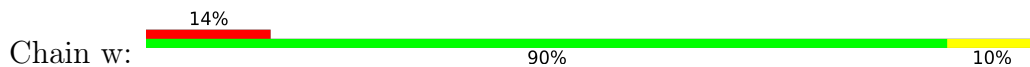


• Molecule 2: Tail tubular protein gp12

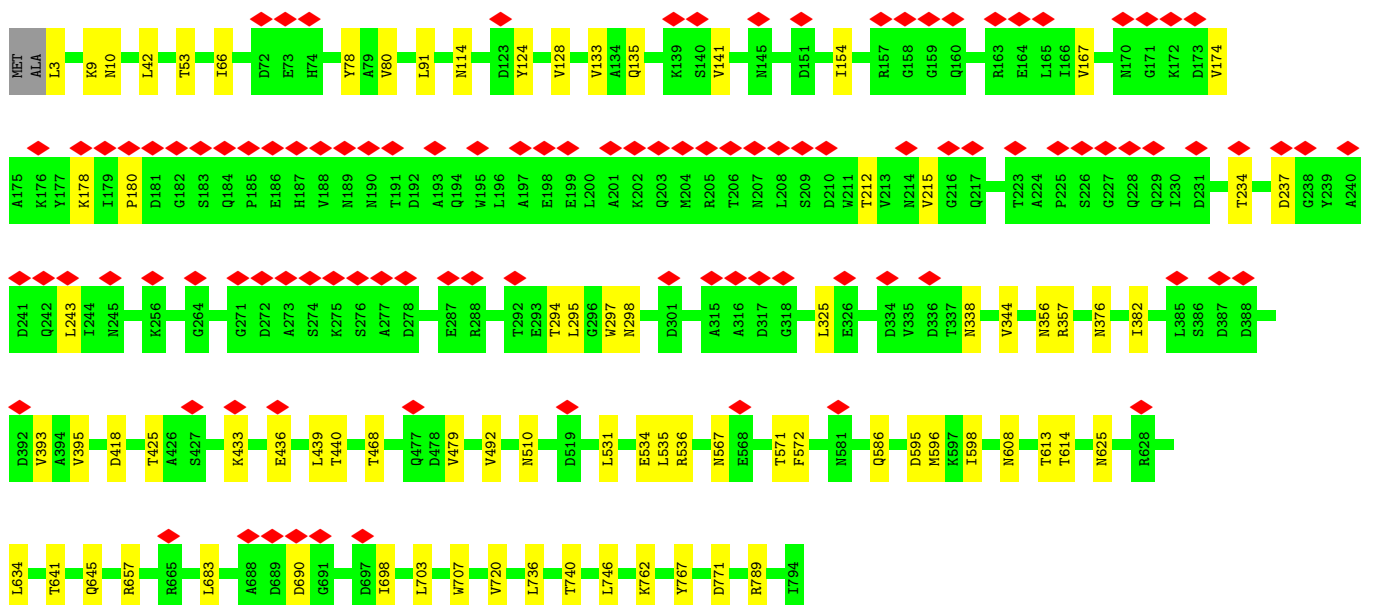
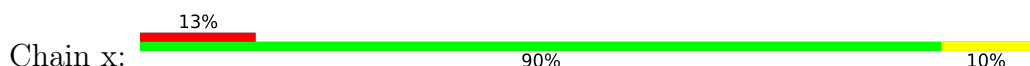




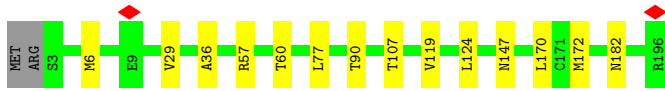
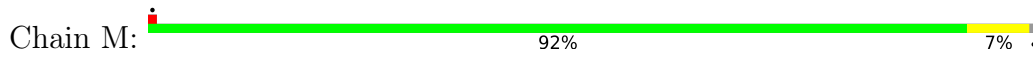
• Molecule 2: Tail tubular protein gp12



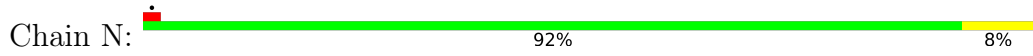
• Molecule 2: Tail tubular protein gp12



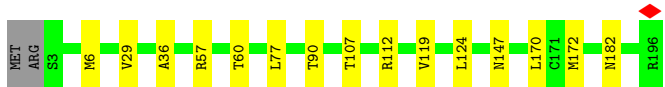
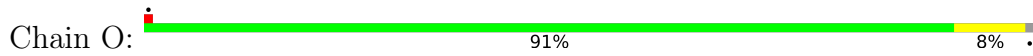
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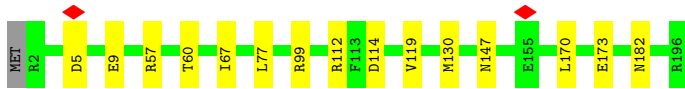
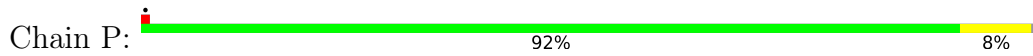
- Molecule 3: Tail tubular protein gp11



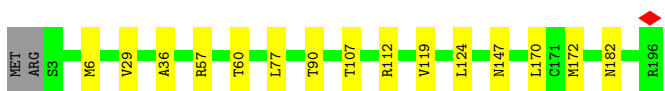
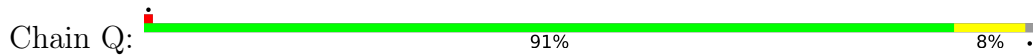
- Molecule 3: Tail tubular protein gp11



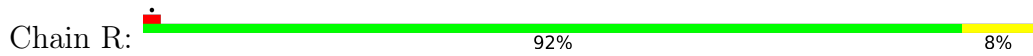
- Molecule 3: Tail tubular protein gp11



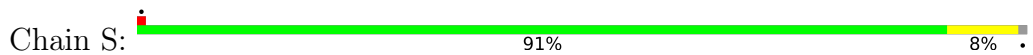
- Molecule 3: Tail tubular protein gp11



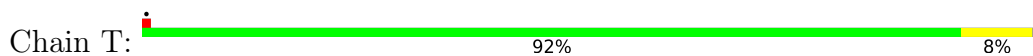
- Molecule 3: Tail tubular protein gp11



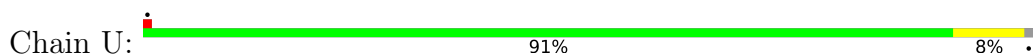
- Molecule 3: Tail tubular protein gp11



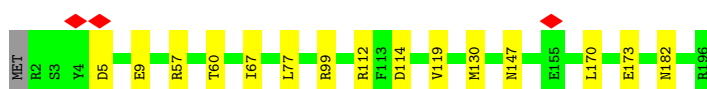
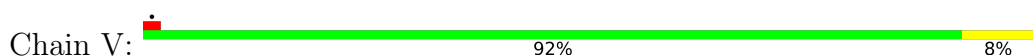
• Molecule 3: Tail tubular protein gp11



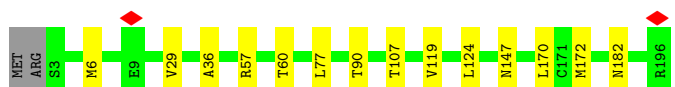
• Molecule 3: Tail tubular protein gp11



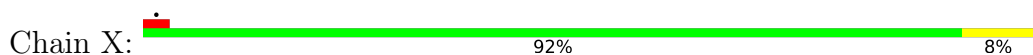
• Molecule 3: Tail tubular protein gp11



• Molecule 3: Tail tubular protein gp11



• Molecule 3: Tail tubular protein gp11



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C6	Depositor
Number of particles used	75068	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TECNAI ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	25	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	64.905	Depositor
Minimum map value	-38.213	Depositor
Average map value	0.014	Depositor
Map value standard deviation	2.892	Depositor
Recommended contour level	9.0	Depositor
Map size (\AA)	406.4, 406.4, 406.4	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.27, 1.27, 1.27	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	a	0.75	0/1130	0.87	1/1538 (0.1%)
1	b	0.59	0/1082	0.75	0/1471
1	c	0.49	0/1095	0.76	2/1489 (0.1%)
1	d	0.75	0/1130	0.87	1/1538 (0.1%)
1	e	0.59	0/1082	0.75	0/1471
1	f	0.49	0/1095	0.76	1/1489 (0.1%)
1	g	0.75	0/1130	0.87	1/1538 (0.1%)
1	h	0.59	0/1082	0.75	0/1471
1	i	0.49	0/1095	0.76	1/1489 (0.1%)
1	j	0.75	0/1130	0.87	1/1538 (0.1%)
1	k	0.59	0/1082	0.75	0/1471
1	l	0.49	0/1095	0.76	1/1489 (0.1%)
1	m	0.75	0/1130	0.87	1/1538 (0.1%)
1	n	0.59	0/1082	0.75	0/1471
1	o	0.49	0/1095	0.76	1/1489 (0.1%)
1	p	0.75	0/1130	0.87	1/1538 (0.1%)
1	q	0.59	0/1082	0.75	0/1471
1	r	0.49	0/1095	0.76	1/1489 (0.1%)
2	s	0.59	0/6468	0.78	0/8797
2	t	0.59	0/6468	0.78	0/8797
2	u	0.59	0/6468	0.78	0/8797
2	v	0.59	0/6468	0.78	0/8797
2	w	0.59	0/6468	0.78	0/8797
2	x	0.59	0/6468	0.78	0/8797
3	M	0.73	0/1573	0.83	0/2129
3	N	0.68	0/1584	0.82	0/2143
3	O	0.73	0/1573	0.83	0/2129
3	P	0.68	0/1584	0.82	0/2143
3	Q	0.73	0/1573	0.82	0/2129
3	R	0.68	0/1584	0.82	0/2143
3	S	0.73	0/1573	0.82	0/2129
3	T	0.68	0/1584	0.82	0/2143
3	U	0.73	0/1573	0.82	0/2129
3	V	0.68	0/1584	0.83	0/2143

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
3	W	0.73	0/1573	0.82	0/2129
3	X	0.68	0/1584	0.82	0/2143
All	All	0.63	0/77592	0.79	13/105402 (0.0%)

There are no bond length outliers.

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	d	69	GLY	N-CA-C	-9.62	89.05	113.10
1	j	69	GLY	N-CA-C	-9.58	89.14	113.10
1	p	69	GLY	N-CA-C	-9.58	89.15	113.10
1	a	69	GLY	N-CA-C	-9.58	89.16	113.10
1	m	69	GLY	N-CA-C	-9.57	89.18	113.10
1	g	69	GLY	N-CA-C	-9.56	89.19	113.10
1	o	54	THR	N-CA-C	-6.93	92.28	111.00
1	c	54	THR	N-CA-C	-6.93	92.29	111.00
1	i	54	THR	N-CA-C	-6.92	92.33	111.00
1	r	54	THR	N-CA-C	-6.92	92.33	111.00
1	f	54	THR	N-CA-C	-6.91	92.35	111.00
1	l	54	THR	N-CA-C	-6.90	92.36	111.00
1	c	14	ASP	N-CA-C	5.00	124.50	111.00

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	a	139/553 (25%)	127 (91%)	11 (8%)	1 (1%)	22	55
1	b	132/553 (24%)	121 (92%)	9 (7%)	2 (2%)	10	36
1	c	134/553 (24%)	126 (94%)	8 (6%)	0	100	100
1	d	139/553 (25%)	127 (91%)	11 (8%)	1 (1%)	22	55
1	e	132/553 (24%)	121 (92%)	9 (7%)	2 (2%)	10	36
1	f	134/553 (24%)	126 (94%)	8 (6%)	0	100	100
1	g	139/553 (25%)	127 (91%)	11 (8%)	1 (1%)	22	55
1	h	132/553 (24%)	121 (92%)	9 (7%)	2 (2%)	10	36
1	i	134/553 (24%)	126 (94%)	8 (6%)	0	100	100
1	j	139/553 (25%)	127 (91%)	11 (8%)	1 (1%)	22	55
1	k	132/553 (24%)	121 (92%)	9 (7%)	2 (2%)	10	36
1	l	134/553 (24%)	126 (94%)	8 (6%)	0	100	100
1	m	139/553 (25%)	127 (91%)	11 (8%)	1 (1%)	22	55
1	n	132/553 (24%)	121 (92%)	9 (7%)	2 (2%)	10	36
1	o	134/553 (24%)	126 (94%)	8 (6%)	0	100	100
1	p	139/553 (25%)	127 (91%)	11 (8%)	1 (1%)	22	55
1	q	132/553 (24%)	121 (92%)	9 (7%)	2 (2%)	10	36
1	r	134/553 (24%)	126 (94%)	8 (6%)	0	100	100
2	s	790/794 (100%)	759 (96%)	30 (4%)	1 (0%)	51	82
2	t	790/794 (100%)	759 (96%)	30 (4%)	1 (0%)	51	82
2	u	790/794 (100%)	759 (96%)	30 (4%)	1 (0%)	51	82
2	v	790/794 (100%)	759 (96%)	30 (4%)	1 (0%)	51	82
2	w	790/794 (100%)	759 (96%)	30 (4%)	1 (0%)	51	82
2	x	790/794 (100%)	759 (96%)	30 (4%)	1 (0%)	51	82
3	M	192/196 (98%)	183 (95%)	8 (4%)	1 (0%)	29	61
3	N	193/196 (98%)	181 (94%)	12 (6%)	0	100	100
3	O	192/196 (98%)	184 (96%)	7 (4%)	1 (0%)	29	61
3	P	193/196 (98%)	182 (94%)	11 (6%)	0	100	100
3	Q	192/196 (98%)	184 (96%)	7 (4%)	1 (0%)	29	61
3	R	193/196 (98%)	182 (94%)	11 (6%)	0	100	100
3	S	192/196 (98%)	184 (96%)	7 (4%)	1 (0%)	29	61
3	T	193/196 (98%)	182 (94%)	11 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	U	192/196 (98%)	184 (96%)	7 (4%)	1 (0%)	29	61
3	V	193/196 (98%)	181 (94%)	12 (6%)	0	100	100
3	W	192/196 (98%)	183 (95%)	8 (4%)	1 (0%)	29	61
3	X	193/196 (98%)	182 (94%)	11 (6%)	0	100	100
All	All	9480/17070 (56%)	8990 (95%)	460 (5%)	30 (0%)	44	72

All (30) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	b	29	ARG
1	b	120	THR
1	e	29	ARG
1	e	120	THR
1	h	29	ARG
1	h	120	THR
1	k	29	ARG
1	k	120	THR
1	n	29	ARG
1	n	120	THR
1	q	29	ARG
1	q	120	THR
3	M	36	ALA
3	O	36	ALA
3	Q	36	ALA
3	S	36	ALA
3	U	36	ALA
3	W	36	ALA
1	a	15	GLY
1	d	15	GLY
1	g	15	GLY
1	j	15	GLY
1	m	15	GLY
1	p	15	GLY
2	s	180	PRO
2	t	180	PRO
2	u	180	PRO
2	v	180	PRO
2	w	180	PRO
2	x	180	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	a	122/451 (27%)	105 (86%)	17 (14%)	3	13
1	b	117/451 (26%)	107 (92%)	10 (8%)	10	35
1	c	118/451 (26%)	106 (90%)	12 (10%)	7	26
1	d	122/451 (27%)	105 (86%)	17 (14%)	3	13
1	e	117/451 (26%)	107 (92%)	10 (8%)	10	35
1	f	118/451 (26%)	106 (90%)	12 (10%)	7	26
1	g	122/451 (27%)	105 (86%)	17 (14%)	3	13
1	h	117/451 (26%)	107 (92%)	10 (8%)	10	35
1	i	118/451 (26%)	106 (90%)	12 (10%)	7	26
1	j	122/451 (27%)	105 (86%)	17 (14%)	3	13
1	k	117/451 (26%)	107 (92%)	10 (8%)	10	35
1	l	118/451 (26%)	106 (90%)	12 (10%)	7	26
1	m	122/451 (27%)	105 (86%)	17 (14%)	3	13
1	n	117/451 (26%)	107 (92%)	10 (8%)	10	35
1	o	118/451 (26%)	106 (90%)	12 (10%)	7	26
1	p	122/451 (27%)	105 (86%)	17 (14%)	3	13
1	q	117/451 (26%)	107 (92%)	10 (8%)	10	35
1	r	118/451 (26%)	106 (90%)	12 (10%)	7	26
2	s	687/688 (100%)	608 (88%)	79 (12%)	5	20
2	t	687/688 (100%)	607 (88%)	80 (12%)	5	20
2	u	687/688 (100%)	608 (88%)	79 (12%)	5	20
2	v	687/688 (100%)	607 (88%)	80 (12%)	5	20
2	w	687/688 (100%)	608 (88%)	79 (12%)	5	20
2	x	687/688 (100%)	608 (88%)	79 (12%)	5	20
3	M	167/169 (99%)	154 (92%)	13 (8%)	12	39
3	N	168/169 (99%)	153 (91%)	15 (9%)	9	33

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	O	167/169 (99%)	153 (92%)	14 (8%)	11	36
3	P	168/169 (99%)	153 (91%)	15 (9%)	9	33
3	Q	167/169 (99%)	153 (92%)	14 (8%)	11	36
3	R	168/169 (99%)	153 (91%)	15 (9%)	9	33
3	S	167/169 (99%)	153 (92%)	14 (8%)	11	36
3	T	168/169 (99%)	153 (91%)	15 (9%)	9	33
3	U	167/169 (99%)	153 (92%)	14 (8%)	11	36
3	V	168/169 (99%)	153 (91%)	15 (9%)	9	33
3	W	167/169 (99%)	154 (92%)	13 (8%)	12	39
3	X	168/169 (99%)	153 (91%)	15 (9%)	9	33
All	All	8274/14274 (58%)	7392 (89%)	882 (11%)	10	24

All (882) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	a	9	LEU
1	a	10	THR
1	a	13	LEU
1	a	14	ASP
1	a	22	ILE
1	a	33	VAL
1	a	35	THR
1	a	71	THR
1	a	90	ASP
1	a	114	ARG
1	a	115	ASP
1	a	116	LEU
1	a	117	THR
1	a	123	VAL
1	a	134	ARG
1	a	139	LEU
1	a	143	VAL
1	b	7	THR
1	b	29	ARG
1	b	49	ASP
1	b	51	ARG
1	b	58	ILE
1	b	76	ARG

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Mol	Chain	Res	Type
1	b	121	ILE
1	b	128	HIS
1	b	132	ARG
1	b	135	ARG
1	c	11	TYR
1	c	22	ILE
1	c	25	GLU
1	c	36	LEU
1	c	39	VAL
1	c	44	LEU
1	c	45	THR
1	c	55	ARG
1	c	57	THR
1	c	60	LEU
1	c	71	THR
1	c	72	THR
1	d	9	LEU
1	d	10	THR
1	d	13	LEU
1	d	14	ASP
1	d	22	ILE
1	d	33	VAL
1	d	35	THR
1	d	71	THR
1	d	90	ASP
1	d	114	ARG
1	d	115	ASP
1	d	116	LEU
1	d	117	THR
1	d	123	VAL
1	d	134	ARG
1	d	139	LEU
1	d	143	VAL
1	e	7	THR
1	e	29	ARG
1	e	49	ASP
1	e	51	ARG
1	e	58	ILE
1	e	76	ARG
1	e	121	ILE
1	e	128	HIS
1	e	132	ARG

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Mol	Chain	Res	Type
1	e	135	ARG
1	f	11	TYR
1	f	22	ILE
1	f	25	GLU
1	f	36	LEU
1	f	39	VAL
1	f	44	LEU
1	f	45	THR
1	f	55	ARG
1	f	57	THR
1	f	60	LEU
1	f	71	THR
1	f	72	THR
1	g	9	LEU
1	g	10	THR
1	g	13	LEU
1	g	14	ASP
1	g	22	ILE
1	g	33	VAL
1	g	35	THR
1	g	71	THR
1	g	90	ASP
1	g	114	ARG
1	g	115	ASP
1	g	116	LEU
1	g	117	THR
1	g	123	VAL
1	g	134	ARG
1	g	139	LEU
1	g	143	VAL
1	h	7	THR
1	h	29	ARG
1	h	49	ASP
1	h	51	ARG
1	h	58	ILE
1	h	76	ARG
1	h	121	ILE
1	h	128	HIS
1	h	132	ARG
1	h	135	ARG
1	i	11	TYR
1	i	22	ILE

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Mol	Chain	Res	Type
1	i	25	GLU
1	i	36	LEU
1	i	39	VAL
1	i	44	LEU
1	i	45	THR
1	i	55	ARG
1	i	57	THR
1	i	60	LEU
1	i	71	THR
1	i	72	THR
1	j	9	LEU
1	j	10	THR
1	j	13	LEU
1	j	14	ASP
1	j	22	ILE
1	j	33	VAL
1	j	35	THR
1	j	71	THR
1	j	90	ASP
1	j	114	ARG
1	j	115	ASP
1	j	116	LEU
1	j	117	THR
1	j	123	VAL
1	j	134	ARG
1	j	139	LEU
1	j	143	VAL
1	k	7	THR
1	k	29	ARG
1	k	49	ASP
1	k	51	ARG
1	k	58	ILE
1	k	76	ARG
1	k	121	ILE
1	k	128	HIS
1	k	132	ARG
1	k	135	ARG
1	l	11	TYR
1	l	22	ILE
1	l	25	GLU
1	l	36	LEU
1	l	39	VAL

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Mol	Chain	Res	Type
1	l	44	LEU
1	l	45	THR
1	l	55	ARG
1	l	57	THR
1	l	60	LEU
1	l	71	THR
1	l	72	THR
1	m	9	LEU
1	m	10	THR
1	m	13	LEU
1	m	14	ASP
1	m	22	ILE
1	m	33	VAL
1	m	35	THR
1	m	71	THR
1	m	90	ASP
1	m	114	ARG
1	m	115	ASP
1	m	116	LEU
1	m	117	THR
1	m	123	VAL
1	m	134	ARG
1	m	139	LEU
1	m	143	VAL
1	n	7	THR
1	n	29	ARG
1	n	49	ASP
1	n	51	ARG
1	n	58	ILE
1	n	76	ARG
1	n	121	ILE
1	n	128	HIS
1	n	132	ARG
1	n	135	ARG
1	o	11	TYR
1	o	22	ILE
1	o	25	GLU
1	o	36	LEU
1	o	39	VAL
1	o	44	LEU
1	o	45	THR
1	o	55	ARG

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Mol	Chain	Res	Type
1	o	57	THR
1	o	60	LEU
1	o	71	THR
1	o	72	THR
1	p	9	LEU
1	p	10	THR
1	p	13	LEU
1	p	14	ASP
1	p	22	ILE
1	p	33	VAL
1	p	35	THR
1	p	71	THR
1	p	90	ASP
1	p	114	ARG
1	p	115	ASP
1	p	116	LEU
1	p	117	THR
1	p	123	VAL
1	p	134	ARG
1	p	139	LEU
1	p	143	VAL
1	q	7	THR
1	q	29	ARG
1	q	49	ASP
1	q	51	ARG
1	q	58	ILE
1	q	76	ARG
1	q	121	ILE
1	q	128	HIS
1	q	132	ARG
1	q	135	ARG
1	r	11	TYR
1	r	22	ILE
1	r	25	GLU
1	r	36	LEU
1	r	39	VAL
1	r	44	LEU
1	r	45	THR
1	r	55	ARG
1	r	57	THR
1	r	60	LEU
1	r	71	THR

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Mol	Chain	Res	Type
1	r	72	THR
2	s	3	LEU
2	s	9	LYS
2	s	10	ASN
2	s	42	LEU
2	s	53	THR
2	s	66	ILE
2	s	78	TYR
2	s	80	VAL
2	s	91	LEU
2	s	114	ASN
2	s	124	TYR
2	s	128	VAL
2	s	133	VAL
2	s	135	GLN
2	s	141	VAL
2	s	154	ILE
2	s	167	VAL
2	s	174	VAL
2	s	178	LYS
2	s	212	THR
2	s	215	VAL
2	s	234	THR
2	s	237	ASP
2	s	243	LEU
2	s	294	THR
2	s	295	LEU
2	s	297	TRP
2	s	298	ASN
2	s	325	LEU
2	s	338	ASN
2	s	344	VAL
2	s	356	ASN
2	s	357	ARG
2	s	376	ASN
2	s	382	ILE
2	s	393	VAL
2	s	395	VAL
2	s	418	ASP
2	s	425	THR
2	s	433	LYS
2	s	436	GLU

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Mol	Chain	Res	Type
2	s	439	LEU
2	s	440	THR
2	s	468	THR
2	s	479	VAL
2	s	492	VAL
2	s	510	ASN
2	s	531	LEU
2	s	534	GLU
2	s	535	LEU
2	s	536	ARG
2	s	567	ASN
2	s	571	THR
2	s	572	PHE
2	s	586	GLN
2	s	595	ASP
2	s	596	MET
2	s	598	ILE
2	s	608	ASN
2	s	613	THR
2	s	614	THR
2	s	625	ASN
2	s	634	LEU
2	s	641	THR
2	s	645	GLN
2	s	657	ARG
2	s	683	LEU
2	s	690	ASP
2	s	698	ILE
2	s	703	LEU
2	s	707	TRP
2	s	720	VAL
2	s	736	LEU
2	s	740	THR
2	s	746	LEU
2	s	762	LYS
2	s	767	TYR
2	s	771	ASP
2	s	789	ARG
2	t	3	LEU
2	t	9	LYS
2	t	10	ASN
2	t	42	LEU

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Mol	Chain	Res	Type
2	t	53	THR
2	t	66	ILE
2	t	78	TYR
2	t	80	VAL
2	t	91	LEU
2	t	114	ASN
2	t	124	TYR
2	t	128	VAL
2	t	133	VAL
2	t	135	GLN
2	t	141	VAL
2	t	154	ILE
2	t	167	VAL
2	t	174	VAL
2	t	178	LYS
2	t	212	THR
2	t	215	VAL
2	t	234	THR
2	t	237	ASP
2	t	243	LEU
2	t	294	THR
2	t	295	LEU
2	t	297	TRP
2	t	298	ASN
2	t	325	LEU
2	t	338	ASN
2	t	344	VAL
2	t	356	ASN
2	t	357	ARG
2	t	376	ASN
2	t	382	ILE
2	t	393	VAL
2	t	395	VAL
2	t	418	ASP
2	t	425	THR
2	t	433	LYS
2	t	436	GLU
2	t	439	LEU
2	t	440	THR
2	t	468	THR
2	t	479	VAL
2	t	492	VAL

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Mol	Chain	Res	Type
2	t	498	ASN
2	t	510	ASN
2	t	531	LEU
2	t	534	GLU
2	t	535	LEU
2	t	536	ARG
2	t	567	ASN
2	t	571	THR
2	t	572	PHE
2	t	586	GLN
2	t	595	ASP
2	t	596	MET
2	t	598	ILE
2	t	608	ASN
2	t	613	THR
2	t	614	THR
2	t	625	ASN
2	t	634	LEU
2	t	641	THR
2	t	645	GLN
2	t	657	ARG
2	t	683	LEU
2	t	690	ASP
2	t	698	ILE
2	t	703	LEU
2	t	707	TRP
2	t	720	VAL
2	t	736	LEU
2	t	740	THR
2	t	746	LEU
2	t	762	LYS
2	t	767	TYR
2	t	771	ASP
2	t	789	ARG
2	u	3	LEU
2	u	9	LYS
2	u	10	ASN
2	u	42	LEU
2	u	53	THR
2	u	66	ILE
2	u	78	TYR
2	u	80	VAL

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Mol	Chain	Res	Type
2	u	91	LEU
2	u	114	ASN
2	u	124	TYR
2	u	128	VAL
2	u	133	VAL
2	u	135	GLN
2	u	141	VAL
2	u	154	ILE
2	u	167	VAL
2	u	174	VAL
2	u	178	LYS
2	u	212	THR
2	u	215	VAL
2	u	234	THR
2	u	237	ASP
2	u	243	LEU
2	u	294	THR
2	u	295	LEU
2	u	297	TRP
2	u	298	ASN
2	u	325	LEU
2	u	338	ASN
2	u	344	VAL
2	u	356	ASN
2	u	357	ARG
2	u	376	ASN
2	u	382	ILE
2	u	393	VAL
2	u	395	VAL
2	u	418	ASP
2	u	425	THR
2	u	433	LYS
2	u	436	GLU
2	u	439	LEU
2	u	440	THR
2	u	468	THR
2	u	479	VAL
2	u	492	VAL
2	u	510	ASN
2	u	531	LEU
2	u	534	GLU
2	u	535	LEU

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Mol	Chain	Res	Type
2	u	536	ARG
2	u	567	ASN
2	u	571	THR
2	u	572	PHE
2	u	586	GLN
2	u	595	ASP
2	u	596	MET
2	u	598	ILE
2	u	608	ASN
2	u	613	THR
2	u	614	THR
2	u	625	ASN
2	u	634	LEU
2	u	641	THR
2	u	645	GLN
2	u	657	ARG
2	u	683	LEU
2	u	690	ASP
2	u	698	ILE
2	u	703	LEU
2	u	707	TRP
2	u	720	VAL
2	u	736	LEU
2	u	740	THR
2	u	746	LEU
2	u	762	LYS
2	u	767	TYR
2	u	771	ASP
2	u	789	ARG
2	v	3	LEU
2	v	9	LYS
2	v	10	ASN
2	v	42	LEU
2	v	53	THR
2	v	66	ILE
2	v	78	TYR
2	v	80	VAL
2	v	91	LEU
2	v	114	ASN
2	v	124	TYR
2	v	128	VAL
2	v	133	VAL

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Mol	Chain	Res	Type
2	v	135	GLN
2	v	141	VAL
2	v	154	ILE
2	v	167	VAL
2	v	174	VAL
2	v	178	LYS
2	v	212	THR
2	v	215	VAL
2	v	234	THR
2	v	237	ASP
2	v	243	LEU
2	v	294	THR
2	v	295	LEU
2	v	297	TRP
2	v	298	ASN
2	v	325	LEU
2	v	338	ASN
2	v	344	VAL
2	v	356	ASN
2	v	357	ARG
2	v	376	ASN
2	v	382	ILE
2	v	393	VAL
2	v	395	VAL
2	v	418	ASP
2	v	425	THR
2	v	433	LYS
2	v	436	GLU
2	v	439	LEU
2	v	440	THR
2	v	468	THR
2	v	479	VAL
2	v	492	VAL
2	v	498	ASN
2	v	510	ASN
2	v	531	LEU
2	v	534	GLU
2	v	535	LEU
2	v	536	ARG
2	v	567	ASN
2	v	571	THR
2	v	572	PHE

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Mol	Chain	Res	Type
2	v	586	GLN
2	v	595	ASP
2	v	596	MET
2	v	598	ILE
2	v	608	ASN
2	v	613	THR
2	v	614	THR
2	v	625	ASN
2	v	634	LEU
2	v	641	THR
2	v	645	GLN
2	v	657	ARG
2	v	683	LEU
2	v	690	ASP
2	v	698	ILE
2	v	703	LEU
2	v	707	TRP
2	v	720	VAL
2	v	736	LEU
2	v	740	THR
2	v	746	LEU
2	v	762	LYS
2	v	767	TYR
2	v	771	ASP
2	v	789	ARG
2	w	3	LEU
2	w	9	LYS
2	w	10	ASN
2	w	42	LEU
2	w	53	THR
2	w	66	ILE
2	w	78	TYR
2	w	80	VAL
2	w	91	LEU
2	w	114	ASN
2	w	124	TYR
2	w	128	VAL
2	w	133	VAL
2	w	135	GLN
2	w	141	VAL
2	w	154	ILE
2	w	167	VAL

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Mol	Chain	Res	Type
2	w	174	VAL
2	w	178	LYS
2	w	212	THR
2	w	215	VAL
2	w	234	THR
2	w	237	ASP
2	w	243	LEU
2	w	294	THR
2	w	295	LEU
2	w	297	TRP
2	w	298	ASN
2	w	325	LEU
2	w	338	ASN
2	w	344	VAL
2	w	356	ASN
2	w	357	ARG
2	w	376	ASN
2	w	382	ILE
2	w	393	VAL
2	w	395	VAL
2	w	418	ASP
2	w	425	THR
2	w	433	LYS
2	w	436	GLU
2	w	439	LEU
2	w	440	THR
2	w	468	THR
2	w	479	VAL
2	w	492	VAL
2	w	510	ASN
2	w	531	LEU
2	w	534	GLU
2	w	535	LEU
2	w	536	ARG
2	w	567	ASN
2	w	571	THR
2	w	572	PHE
2	w	586	GLN
2	w	595	ASP
2	w	596	MET
2	w	598	ILE
2	w	608	ASN

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Mol	Chain	Res	Type
2	w	613	THR
2	w	614	THR
2	w	625	ASN
2	w	634	LEU
2	w	641	THR
2	w	645	GLN
2	w	657	ARG
2	w	683	LEU
2	w	690	ASP
2	w	698	ILE
2	w	703	LEU
2	w	707	TRP
2	w	720	VAL
2	w	736	LEU
2	w	740	THR
2	w	746	LEU
2	w	762	LYS
2	w	767	TYR
2	w	771	ASP
2	w	789	ARG
2	x	3	LEU
2	x	9	LYS
2	x	10	ASN
2	x	42	LEU
2	x	53	THR
2	x	66	ILE
2	x	78	TYR
2	x	80	VAL
2	x	91	LEU
2	x	114	ASN
2	x	124	TYR
2	x	128	VAL
2	x	133	VAL
2	x	135	GLN
2	x	141	VAL
2	x	154	ILE
2	x	167	VAL
2	x	174	VAL
2	x	178	LYS
2	x	212	THR
2	x	215	VAL
2	x	234	THR

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Mol	Chain	Res	Type
2	x	237	ASP
2	x	243	LEU
2	x	294	THR
2	x	295	LEU
2	x	297	TRP
2	x	298	ASN
2	x	325	LEU
2	x	338	ASN
2	x	344	VAL
2	x	356	ASN
2	x	357	ARG
2	x	376	ASN
2	x	382	ILE
2	x	393	VAL
2	x	395	VAL
2	x	418	ASP
2	x	425	THR
2	x	433	LYS
2	x	436	GLU
2	x	439	LEU
2	x	440	THR
2	x	468	THR
2	x	479	VAL
2	x	492	VAL
2	x	510	ASN
2	x	531	LEU
2	x	534	GLU
2	x	535	LEU
2	x	536	ARG
2	x	567	ASN
2	x	571	THR
2	x	572	PHE
2	x	586	GLN
2	x	595	ASP
2	x	596	MET
2	x	598	ILE
2	x	608	ASN
2	x	613	THR
2	x	614	THR
2	x	625	ASN
2	x	634	LEU
2	x	641	THR

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Mol	Chain	Res	Type
2	x	645	GLN
2	x	657	ARG
2	x	683	LEU
2	x	690	ASP
2	x	698	ILE
2	x	703	LEU
2	x	707	TRP
2	x	720	VAL
2	x	736	LEU
2	x	740	THR
2	x	746	LEU
2	x	762	LYS
2	x	767	TYR
2	x	771	ASP
2	x	789	ARG
3	M	6	MET
3	M	29	VAL
3	M	57	ARG
3	M	60	THR
3	M	77	LEU
3	M	90	THR
3	M	107	THR
3	M	119	VAL
3	M	124	LEU
3	M	147	ASN
3	M	170	LEU
3	M	172	MET
3	M	182	ASN
3	N	5	ASP
3	N	9	GLU
3	N	57	ARG
3	N	60	THR
3	N	67	ILE
3	N	77	LEU
3	N	99	ARG
3	N	112	ARG
3	N	114	ASP
3	N	119	VAL
3	N	130	MET
3	N	147	ASN
3	N	170	LEU
3	N	173	GLU

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Mol	Chain	Res	Type
3	N	182	ASN
3	O	6	MET
3	O	29	VAL
3	O	57	ARG
3	O	60	THR
3	O	77	LEU
3	O	90	THR
3	O	107	THR
3	O	112	ARG
3	O	119	VAL
3	O	124	LEU
3	O	147	ASN
3	O	170	LEU
3	O	172	MET
3	O	182	ASN
3	P	5	ASP
3	P	9	GLU
3	P	57	ARG
3	P	60	THR
3	P	67	ILE
3	P	77	LEU
3	P	99	ARG
3	P	112	ARG
3	P	114	ASP
3	P	119	VAL
3	P	130	MET
3	P	147	ASN
3	P	170	LEU
3	P	173	GLU
3	P	182	ASN
3	Q	6	MET
3	Q	29	VAL
3	Q	57	ARG
3	Q	60	THR
3	Q	77	LEU
3	Q	90	THR
3	Q	107	THR
3	Q	112	ARG
3	Q	119	VAL
3	Q	124	LEU
3	Q	147	ASN
3	Q	170	LEU

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Mol	Chain	Res	Type
3	Q	172	MET
3	Q	182	ASN
3	R	5	ASP
3	R	9	GLU
3	R	57	ARG
3	R	60	THR
3	R	67	ILE
3	R	77	LEU
3	R	99	ARG
3	R	112	ARG
3	R	114	ASP
3	R	119	VAL
3	R	130	MET
3	R	147	ASN
3	R	170	LEU
3	R	173	GLU
3	R	182	ASN
3	S	6	MET
3	S	29	VAL
3	S	57	ARG
3	S	60	THR
3	S	77	LEU
3	S	90	THR
3	S	107	THR
3	S	112	ARG
3	S	119	VAL
3	S	124	LEU
3	S	147	ASN
3	S	170	LEU
3	S	172	MET
3	S	182	ASN
3	T	5	ASP
3	T	9	GLU
3	T	57	ARG
3	T	60	THR
3	T	67	ILE
3	T	77	LEU
3	T	99	ARG
3	T	112	ARG
3	T	114	ASP
3	T	119	VAL
3	T	130	MET

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Mol	Chain	Res	Type
3	T	147	ASN
3	T	170	LEU
3	T	173	GLU
3	T	182	ASN
3	U	6	MET
3	U	29	VAL
3	U	57	ARG
3	U	60	THR
3	U	77	LEU
3	U	90	THR
3	U	107	THR
3	U	112	ARG
3	U	119	VAL
3	U	124	LEU
3	U	147	ASN
3	U	170	LEU
3	U	172	MET
3	U	182	ASN
3	V	5	ASP
3	V	9	GLU
3	V	57	ARG
3	V	60	THR
3	V	67	ILE
3	V	77	LEU
3	V	99	ARG
3	V	112	ARG
3	V	114	ASP
3	V	119	VAL
3	V	130	MET
3	V	147	ASN
3	V	170	LEU
3	V	173	GLU
3	V	182	ASN
3	W	6	MET
3	W	29	VAL
3	W	57	ARG
3	W	60	THR
3	W	77	LEU
3	W	90	THR
3	W	107	THR
3	W	119	VAL
3	W	124	LEU

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Mol	Chain	Res	Type
3	W	147	ASN
3	W	170	LEU
3	W	172	MET
3	W	182	ASN
3	X	5	ASP
3	X	9	GLU
3	X	57	ARG
3	X	60	THR
3	X	67	ILE
3	X	77	LEU
3	X	99	ARG
3	X	112	ARG
3	X	114	ASP
3	X	119	VAL
3	X	130	MET
3	X	147	ASN
3	X	170	LEU
3	X	173	GLU
3	X	182	ASN

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	105	GLN
1	a	138	ASN
1	b	108	HIS
1	c	124	ASN
1	c	138	ASN
1	d	17	ASN
1	d	105	GLN
1	d	138	ASN
1	d	141	ASN
1	e	108	HIS
1	f	124	ASN
1	f	138	ASN
1	g	105	GLN
1	g	138	ASN
1	g	141	ASN
1	h	108	HIS
1	i	124	ASN
1	i	138	ASN
1	j	17	ASN

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Mol	Chain	Res	Type
1	j	105	GLN
1	j	138	ASN
1	j	141	ASN
1	k	108	HIS
1	l	124	ASN
1	l	138	ASN
1	m	105	GLN
1	m	138	ASN
1	m	141	ASN
1	n	108	HIS
1	o	124	ASN
1	o	138	ASN
1	p	17	ASN
1	p	105	GLN
1	p	138	ASN
1	p	141	ASN
1	q	108	HIS
1	r	124	ASN
1	r	138	ASN
2	s	10	ASN
2	s	43	GLN
2	s	114	ASN
2	s	170	ASN
2	s	187	HIS
2	s	207	ASN
2	s	217	GLN
2	s	228	GLN
2	s	260	ASN
2	s	298	ASN
2	s	338	ASN
2	s	349	ASN
2	s	356	ASN
2	s	376	ASN
2	s	494	ASN
2	s	510	ASN
2	s	567	ASN
2	s	581	ASN
2	s	586	GLN
2	s	645	GLN
2	s	709	ASN
2	s	722	ASN
2	s	777	ASN

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Mol	Chain	Res	Type
2	t	10	ASN
2	t	43	GLN
2	t	114	ASN
2	t	170	ASN
2	t	187	HIS
2	t	190	ASN
2	t	217	GLN
2	t	228	GLN
2	t	260	ASN
2	t	298	ASN
2	t	338	ASN
2	t	349	ASN
2	t	356	ASN
2	t	376	ASN
2	t	494	ASN
2	t	510	ASN
2	t	567	ASN
2	t	581	ASN
2	t	586	GLN
2	t	645	GLN
2	t	709	ASN
2	t	722	ASN
2	t	777	ASN
2	u	10	ASN
2	u	43	GLN
2	u	114	ASN
2	u	170	ASN
2	u	187	HIS
2	u	190	ASN
2	u	207	ASN
2	u	217	GLN
2	u	228	GLN
2	u	260	ASN
2	u	298	ASN
2	u	338	ASN
2	u	349	ASN
2	u	356	ASN
2	u	376	ASN
2	u	494	ASN
2	u	510	ASN
2	u	567	ASN
2	u	581	ASN

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Mol	Chain	Res	Type
2	u	586	GLN
2	u	645	GLN
2	u	709	ASN
2	u	722	ASN
2	u	777	ASN
2	v	10	ASN
2	v	43	GLN
2	v	114	ASN
2	v	170	ASN
2	v	187	HIS
2	v	190	ASN
2	v	217	GLN
2	v	228	GLN
2	v	260	ASN
2	v	298	ASN
2	v	338	ASN
2	v	349	ASN
2	v	356	ASN
2	v	376	ASN
2	v	494	ASN
2	v	510	ASN
2	v	567	ASN
2	v	581	ASN
2	v	586	GLN
2	v	645	GLN
2	v	709	ASN
2	v	722	ASN
2	v	777	ASN
2	w	10	ASN
2	w	43	GLN
2	w	114	ASN
2	w	170	ASN
2	w	187	HIS
2	w	190	ASN
2	w	217	GLN
2	w	228	GLN
2	w	260	ASN
2	w	298	ASN
2	w	338	ASN
2	w	349	ASN
2	w	356	ASN
2	w	376	ASN

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Mol	Chain	Res	Type
2	w	494	ASN
2	w	510	ASN
2	w	567	ASN
2	w	581	ASN
2	w	586	GLN
2	w	645	GLN
2	w	709	ASN
2	w	722	ASN
2	w	777	ASN
2	x	10	ASN
2	x	43	GLN
2	x	114	ASN
2	x	170	ASN
2	x	187	HIS
2	x	190	ASN
2	x	217	GLN
2	x	228	GLN
2	x	260	ASN
2	x	298	ASN
2	x	338	ASN
2	x	349	ASN
2	x	356	ASN
2	x	376	ASN
2	x	494	ASN
2	x	510	ASN
2	x	567	ASN
2	x	581	ASN
2	x	586	GLN
2	x	645	GLN
2	x	709	ASN
2	x	722	ASN
2	x	777	ASN
3	M	18	ASN
3	M	98	ASN
3	M	148	ASN
3	M	182	ASN
3	N	53	GLN
3	N	109	GLN
3	N	148	ASN
3	N	161	GLN
3	N	182	ASN
3	O	18	ASN

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Mol	Chain	Res	Type
3	O	98	ASN
3	O	148	ASN
3	O	182	ASN
3	P	18	ASN
3	P	53	GLN
3	P	109	GLN
3	P	148	ASN
3	P	161	GLN
3	P	182	ASN
3	Q	18	ASN
3	Q	98	ASN
3	Q	148	ASN
3	Q	182	ASN
3	R	18	ASN
3	R	53	GLN
3	R	109	GLN
3	R	148	ASN
3	R	161	GLN
3	R	182	ASN
3	S	18	ASN
3	S	98	ASN
3	S	148	ASN
3	S	182	ASN
3	T	18	ASN
3	T	53	GLN
3	T	109	GLN
3	T	148	ASN
3	T	161	GLN
3	T	182	ASN
3	U	18	ASN
3	U	98	ASN
3	U	148	ASN
3	U	182	ASN
3	V	18	ASN
3	V	53	GLN
3	V	109	GLN
3	V	148	ASN
3	V	161	GLN
3	V	182	ASN
3	W	18	ASN
3	W	98	ASN
3	W	148	ASN

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Mol	Chain	Res	Type
3	W	182	ASN
3	X	18	ASN
3	X	53	GLN
3	X	109	GLN
3	X	148	ASN
3	X	161	GLN
3	X	182	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.

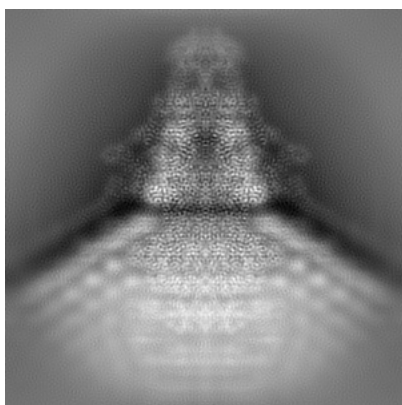
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-31319. These allow visual inspection of the internal detail of the map and identification of artifacts.

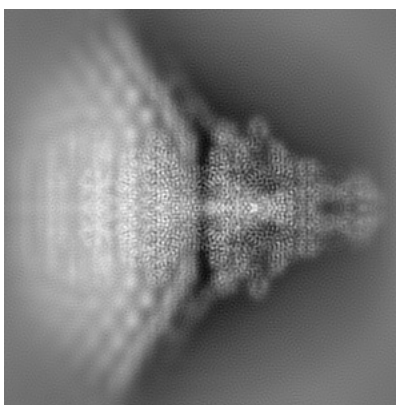
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

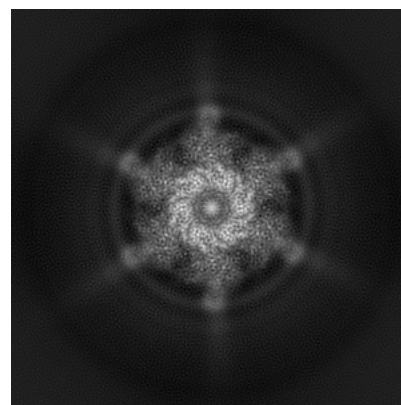
6.1.1 Primary map



X



Y

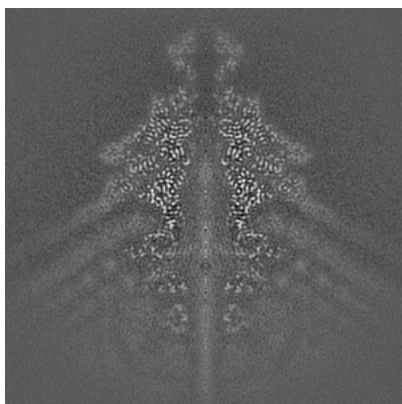


Z

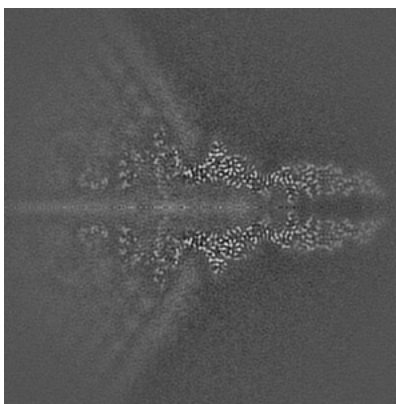
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

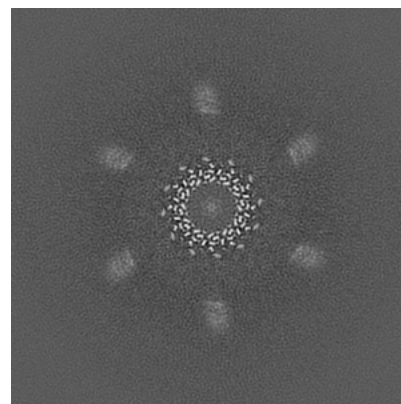
6.2.1 Primary map



X Index: 160



Y Index: 160

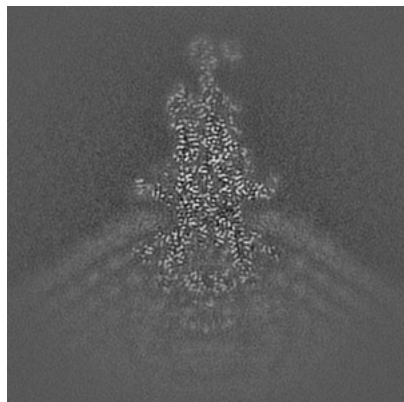


Z Index: 160

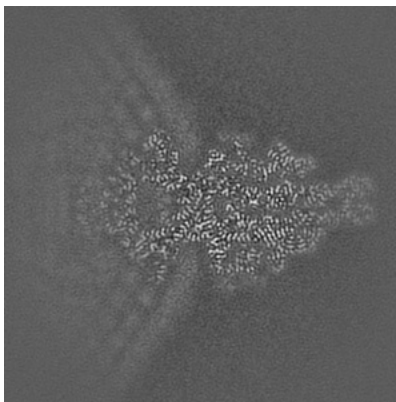
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

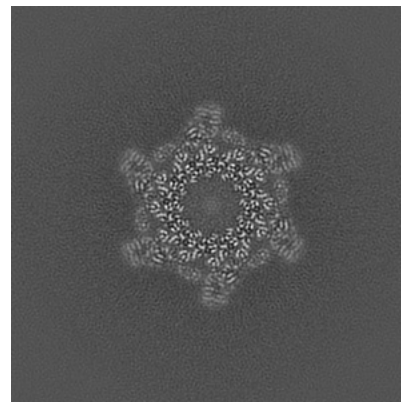
6.3.1 Primary map



X Index: 183



Y Index: 181



Z Index: 174

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

6.4 Orthogonal surface views [i](#)

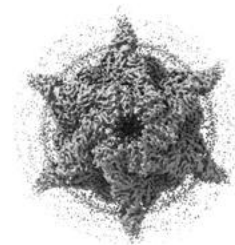
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 9.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

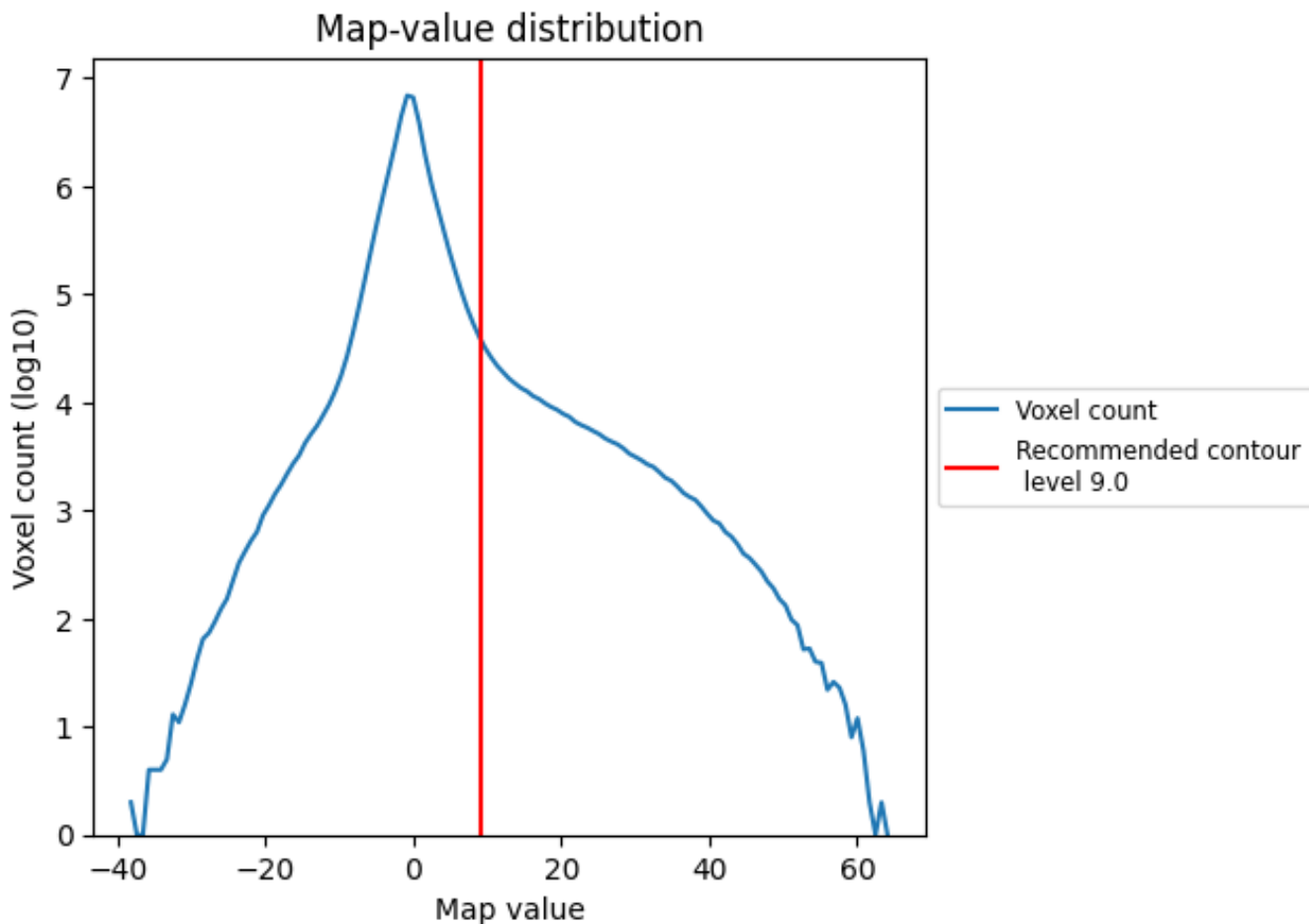
6.5 Mask visualisation

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

7 Map analysis [i](#)

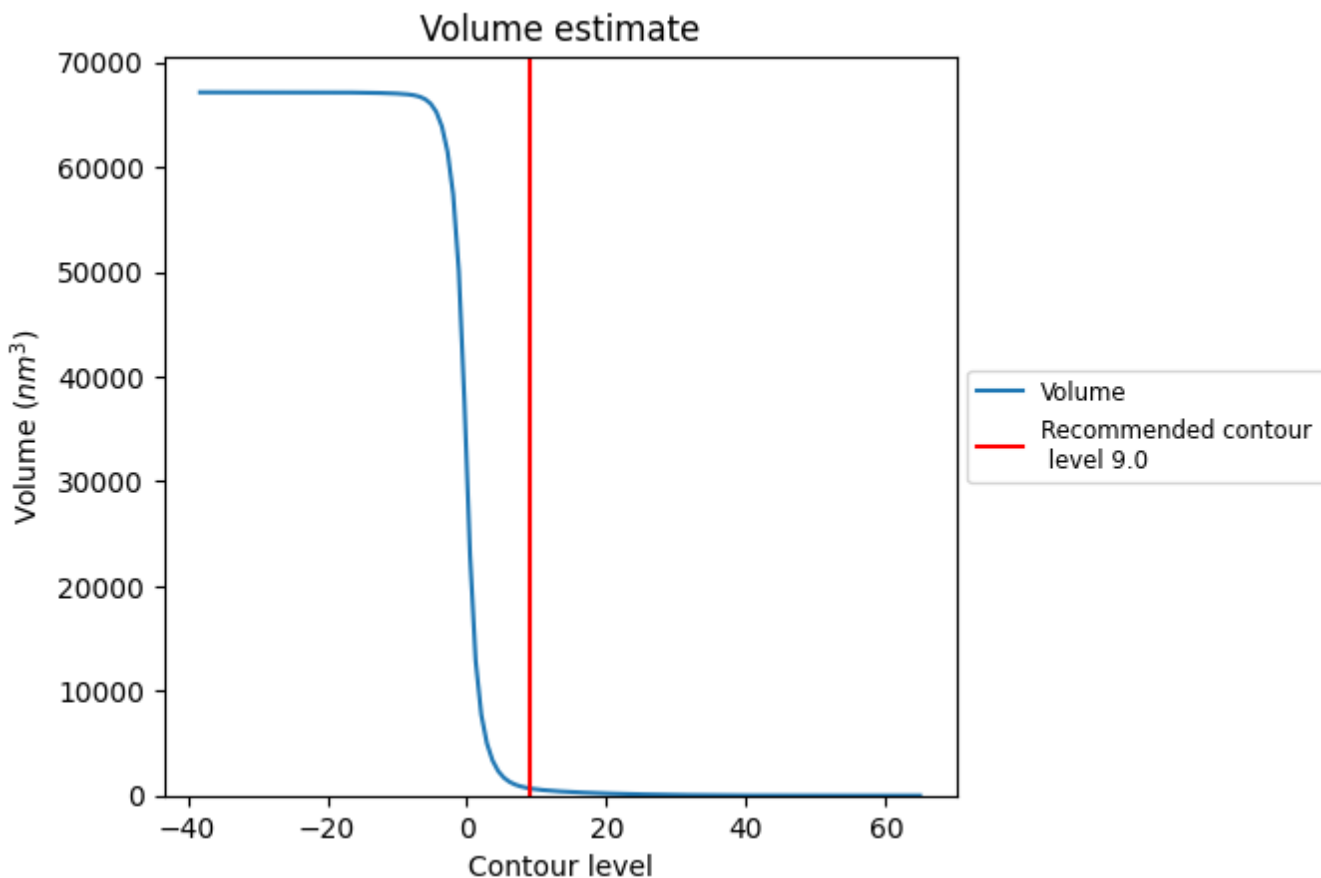
This section contains the results of statistical analysis of the map.

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.

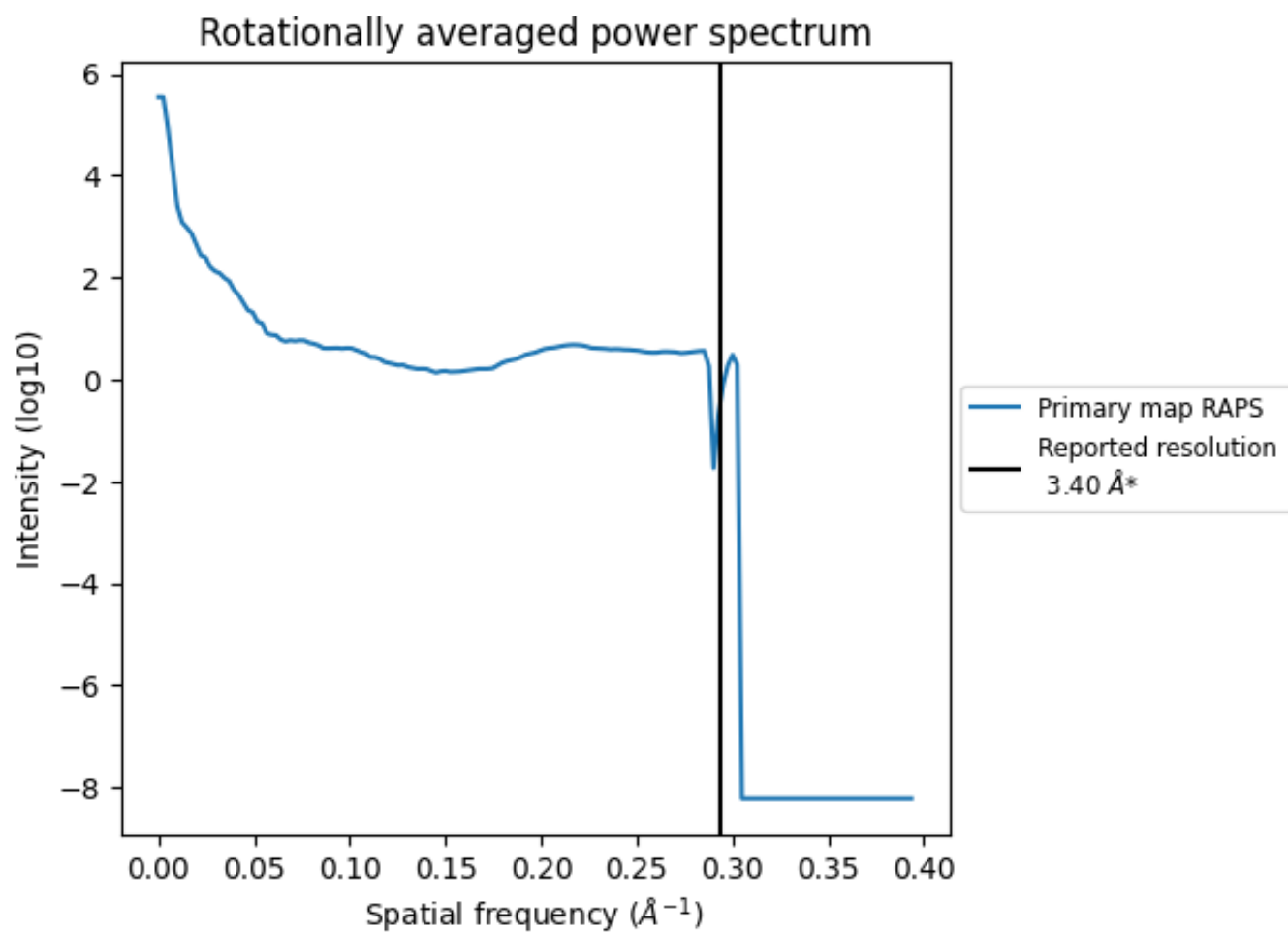
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 690 nm³; this corresponds to an approximate mass of 624 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 0.294 Å⁻¹

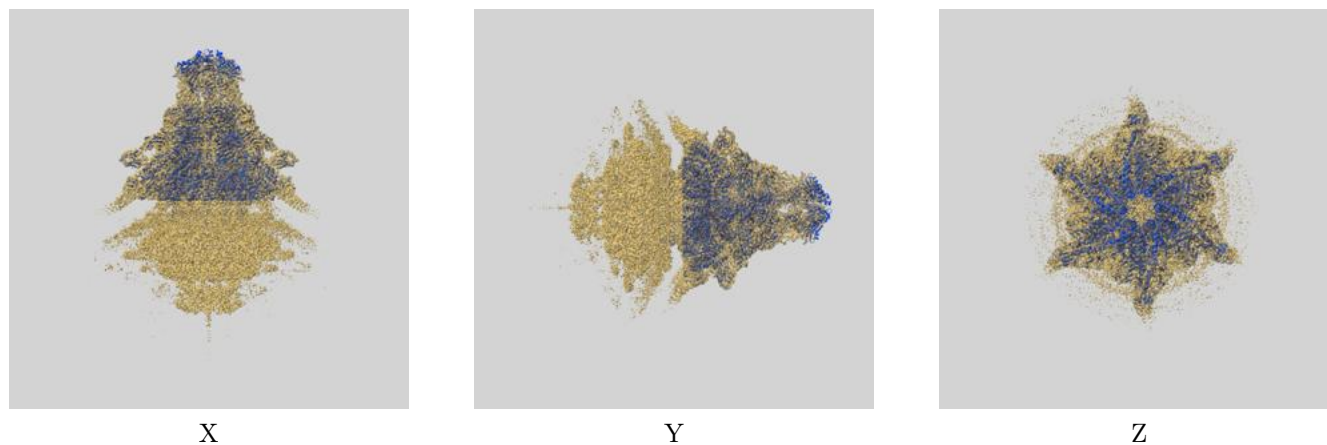
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

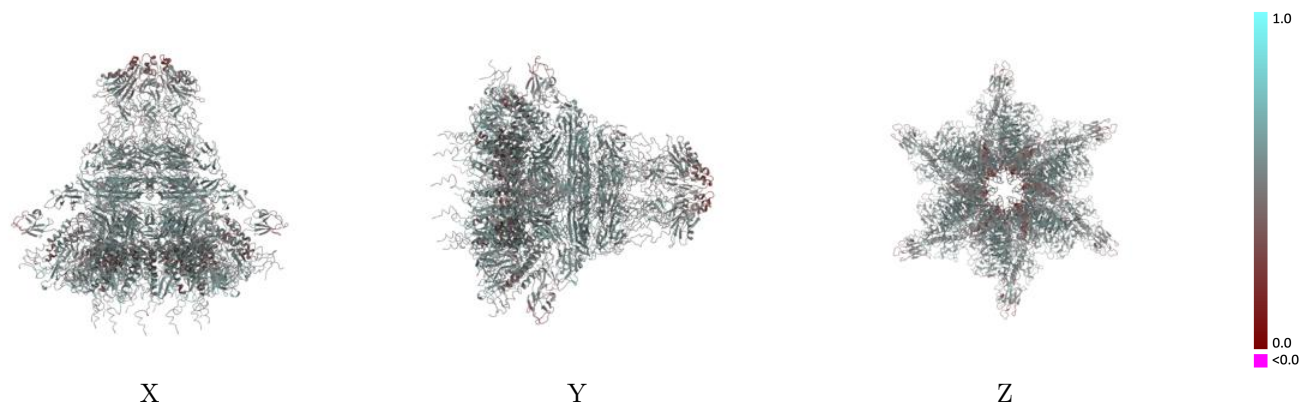
This section contains information regarding the fit between EMDB map EMD-31319 and PDB model 7EY9. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay [i](#)



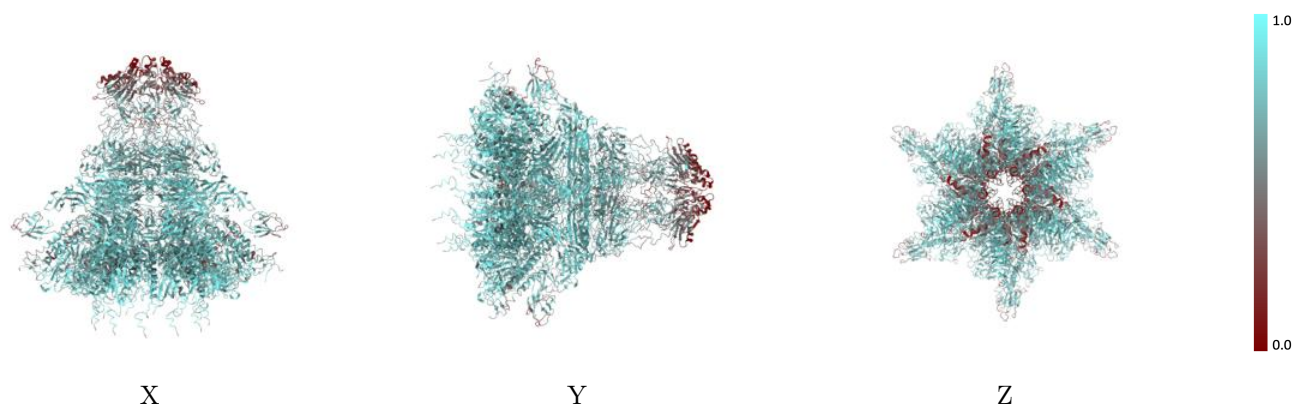
The images above show the 3D surface view of the map at the recommended contour level 9.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



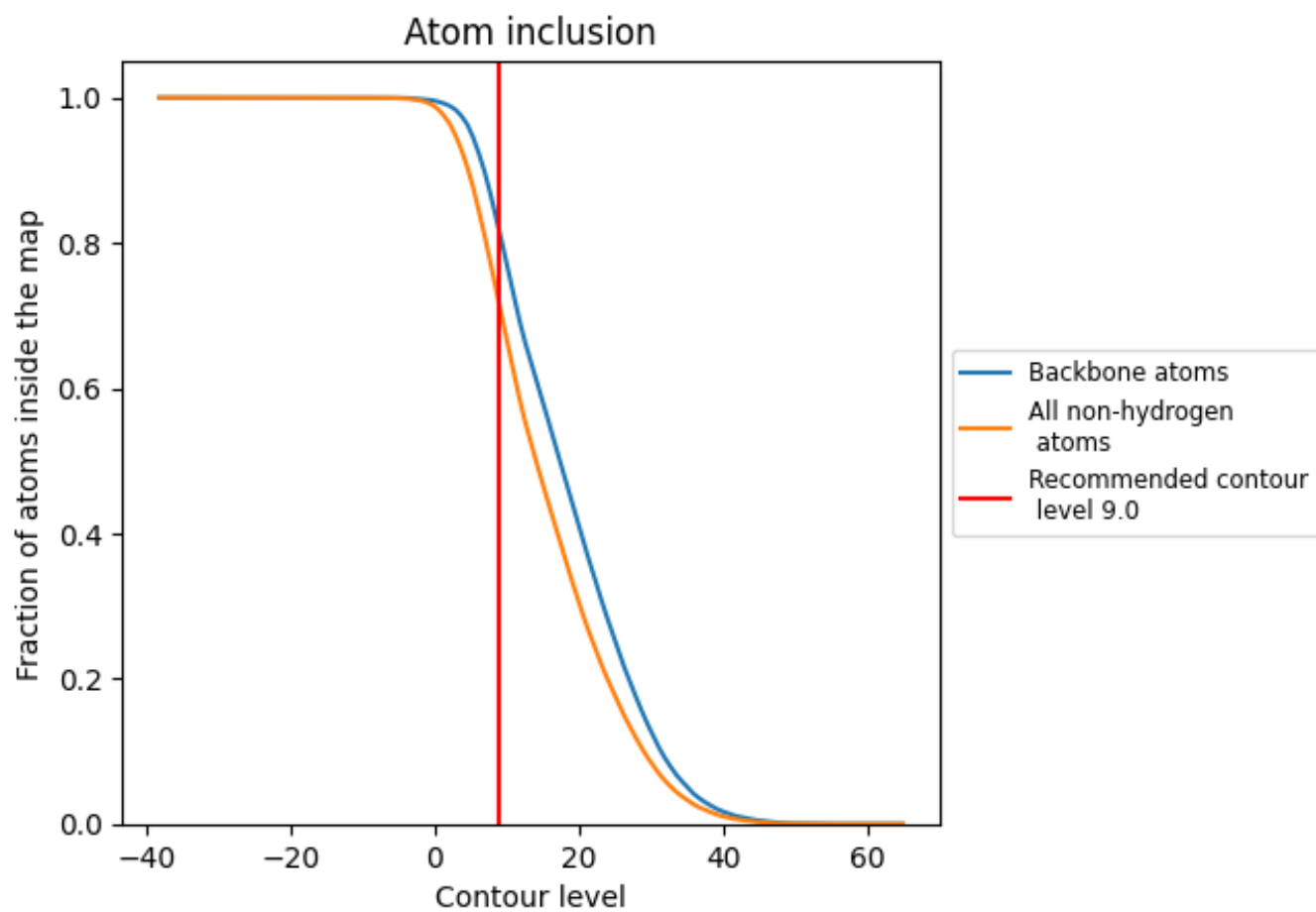
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (9.0).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 81% of all backbone atoms, 71% 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 (9.0) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7111	 0.5060
M	 0.7969	 0.5080
N	 0.7710	 0.5080
O	 0.7956	 0.5080
P	 0.7684	 0.5050
Q	 0.7989	 0.5040
R	 0.7723	 0.5060
S	 0.7989	 0.5070
T	 0.7730	 0.5070
U	 0.7949	 0.5060
V	 0.7704	 0.5070
W	 0.7963	 0.5060
X	 0.7697	 0.5060
a	 0.7765	 0.5280
b	 0.7256	 0.5080
c	 0.6298	 0.4610
d	 0.7682	 0.5180
e	 0.7237	 0.5020
f	 0.6059	 0.4490
g	 0.7729	 0.5200
h	 0.7343	 0.5010
i	 0.6135	 0.4520
j	 0.7655	 0.5260
k	 0.7227	 0.5050
l	 0.6326	 0.4610
m	 0.7553	 0.5210
n	 0.7237	 0.5030
o	 0.6202	 0.4510
p	 0.7682	 0.5210
q	 0.7362	 0.5010
r	 0.6145	 0.4460
s	 0.6838	 0.5190
t	 0.6778	 0.5100
u	 0.6748	 0.5080
v	 0.6840	 0.5150



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Chain	Atom inclusion	Q-score
w	 0.6756	 0.5090
x	 0.6748	 0.5090