

## wwPDB EM Validation Summary Report (i)

Feb 26, 2024 – 07:21 PM EST

PDB ID 6VZ4: EMDB ID : EMD-21484 Title : Cryo-EM structure of Sth1-Arp7-Arp9-Rtt102 bound to the nucleosome in ADP Beryllium Fluoride state Leschziner, A.E.; Baker, R.W. Authors : 2020-02-27 Deposited on Resolution 3.90 Å(reported) : Based on initial models 4I6M, 5Z3U, 5TGC :

This is a wwPDB EM Validation Summary 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 (1)) were used in the production of this report:

EMDB validation analysis	:	0.0.1. dev 70
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7(2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

## 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 3.90 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	$egin{array}{llllllllllllllllllllllllllllllllllll$	${ m EM~structures}\ (\#{ m Entries})$		
Clashscore	158937	4297		
Ramachandran outliers	154571	4023		
Sidechain outliers	154315	3826		

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

Mol	Chain	Length	Quality of chain					
1	1-A	136	• 70%	• 28%				
1	1-E	136	67%	• 30%				
1	10-A	136	70%	• 28%				
1	10-E	136	67%	• 30%				
1	2-A	136	70%	• 28%				
1	2-E	136	65% •	30%				
1	3-A	136	70%	• 28%				
1	3-E	136	66%	• 30%				



Mol	Chain	Length	Quality of chain					
1	4-A	136	68%	•	28%			
1	4-E	136	66% ·		30%			
1	5-A	136	70%	•	28%			
1	5-E	136	· 66%		30%			
1	6-A	136	70%	•	28%			
1	6-E	136	· 66%		30%			
1	7-A	136	70%	•	28%			
1	7-E	136	66% •		30%			
1	8-A	136	70%	•	28%			
1	8-E	136	66% •		30%			
1	9-A	136	69%	•	28%			
1	9-E	136	66% .		30%			
2	1-B	103	82%		•• 16%			
2	1-F	103	<b>●</b> 72%	5%	23%			
2	10-B	103	82%		• 16%			
2	10-F	103	72%	5%	23%			
2	2-B	103	82%		• 16%			
2	2-F	103	73%	•	23%			
2	3-B	103	82%		• 16%			
2	3-F	103	74%	•	23%			
2	4-B	103	82%		• 16%			
2	4-F	103	74%	•	23%			
2	5-B	103	82%		• 16%			
2	5-F	103	73%	•	23%			
2	6-B	103	83%		• 16%			



Mol	Chain	Length	Quality of chain	
2	6-F	103	73% •	23%
2	7-B	103	83%	• 16%
2	7-F	103	72% 5%	23%
2	8-B	103	83%	• 16%
2	8-F	103	73% •	23%
2	9-B	103	82%	• 16%
2	9-F	103	73% •	23%
3	1-C	130	79% •	18%
3	1-G	130	75% 7%	18%
3	10-C	130	79% •	18%
3	10-G	130	75% 7%	18%
3	2-C	130	79% •	18%
3	2-G	130	75% 7%	18%
3	3-C	130	78% 5%	18%
3	3-G	130	75% 7%	18%
3	4-C	130	79% •	18%
3	4-G	130	75% 7%	18%
3	5-C	130	79% •	18%
3	5-G	130	75% 7%	18%
3	6-C	130	79% •	18%
3	6-G	130	75% 7%	18%
3	7-C	130	79% •	18%
3	7-G	130	75% 7%	18%
3	8-C	130	79% •	18%
3	8-G	130	75% 7%	18%



Mol	Chain	Length	Quality of chain		
3	9-C	130	79%	·	18%
3	9-G	130	75%	7%	18%
4	1-D	125	74%		26%
4	1-H	125	72%	•	26%
4	10-D	125	74%		26%
4	10-H	125	72%	•	26%
4	2-D	125	74%		26%
4	2-H	125	73%	•	26%
4	3-D	125	73%	•	26%
4	3-H	125	73%	•	26%
4	4-D	125	74%		26%
4	4-H	125	72%		26%
4	5-D	125	74%		26%
4	5-H	125	72%	•	26%
4	6-D	125	74%		26%
4	6-H	125	73%	•	26%
4	7-D	125	74%		26%
4	7-H	125	73%	•	26%
4	8-D	125	74%		26%
4	8-H	125	72%	·	26%
4	9-D	125	74%		26%
4	9-H	125	72%	•	26%
5	1-I	185	67%	12%	21%
5	10-I	185	68%	11%	21%
5	2-I	185	66%	12%	21%



Mol	Chain	Length	Quality of chain	l	
5	3-I	185	67%	12%	21%
5	4-I	185	67%	12%	21%
5	5-I	185	67%	12%	21%
5	6-I	185	67%	12%	21%
5	7-I	185	66%	12%	21%
5	8-I	185	67%	12%	21%
5	9-I	185	68%	11%	21%
6	1-J	185	<b>•</b> 69%	10%	21%
6	10-J	185	68%	11%	21%
6	2-J	185	69%	10%	21%
6	3-J	185	68%	11%	21%
6	4J	185	68%	11%	21%
6	5J	185	60%	10%	21%
6	6-J	185	68%	119/	21%
6	7- I	185	680/	11%	21%
6	81	185	60%	1170	2170
6	0.1	105	69%	10%	21%
- 0	9-J	100	68%	11%	21%
	1-K	813	67%	7% •	24%
- 7	10-K	813	66%	9% •	24%
7	2-K	813	67%	8% •	24%
7	3-K	813	68%	7% •	24%
7	4-K	813	65%	9% •	24%
7	5-K	813	67%	8% •	24%
7	6-K	813	67%	8% •	24%
7	7-K	813	67%	8% •	24%



Mol	Chain	Length	Quality of chain					
7	8-K	813	67%	8% • 24%				
7	9-K	813	66%	8% • 24%				
8	1-L	477	31%	• 18%				
8	10-L	477	79%	• 18%				
8	2-L	477	79%	• 18%				
8	3-L	477	79%	• 18%				
8	4-L	477	79%	. 18%				
8	5-L	477	79%	18%				
8	6-L	477	70%	. 19%				
8	7 L	477	7976	• 10%				
0	0 T	477	/9%	• 18%				
0	0-L	411	79%	• 18%				
8	9-L	477	79%	• 18%				
9	1-M	467	78%	7% • 15%				
9	10-M	467	78%	7% • 15%				
9	2-M	467	78%	7% • 15%				
9	3-M	467	78%	7% • 15%				
9	4-M	467	78%	7% • 15%				
9	5-M	467	78%	7% • 15%				
9	6-M	467	78%	7%• 15%				
9	7-M	467	78%	7% • 15%				
0	8 M	467	730/	70/ 150/				
3	0-1/1	407	// 70	/% • 15%				
9	9-M	467	78%	7% • 15%				
10	1-N	157	31% ••	65%				
10	10-N	157	31% ••	65%				
10	2-N	157	31% ••	65%				



Mol	Chain	Length	Quality of chain					
10	3-N	157	31% ••	65%				
10	4-N	157	31% ••	65%				
10	5-N	157	31% ••	65%				
10	6-N	157	31% ••	65%				
10	7-N	157	31% ••	65%				
10	8-N	157	31% ••	65%				
10	9-N	157	31% ••	65%				

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
13	BEF	3-K	1503	-	-	Х	-
13	BEF	9-K	1503	-	-	Х	-



# 2 Entry composition (i)

There are 14 unique types of molecules in this entry. The entry contains 239500 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.

Mol	Chain	Residues		At	oms			AltConf	Trace									
1	1 Δ	08	Total	С	Ν	Ο	S	0	0									
	1-A	90	809	510	157	139	3	0	0									
1	2.4	08	Total	С	Ν	0	S	0	0									
1	2-A	90	809	510	157	139	3	0	0									
1	3 1	08	Total	С	Ν	0	S	0	0									
1	0-A	98	809	510	157	139	3	0	0									
1	4 Δ	08	Total	С	Ν	0	$\mathbf{S}$	0	0									
1	4-11	30	809	510	157	139	3	0	0									
1	5Δ	08	Total	С	Ν	0	$\mathbf{S}$	0	0									
1	0-11	50	809	510	157	139	3	0	0									
1	6-4	98	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
1	0-11	50	809	510	157	139	3	0	0									
1	$7_{-}\Delta$	98	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
1	1-11	50	809	510	157	139	3	0	0									
1	8-A	8 /	8 4	8-Δ	1 8-A	8- A	8- A	8- A	8-A	8- A	98	Total	С	Ν	Ο	$\mathbf{S}$	0	0
		50	809	510	157	139	3	0	0									
1	Ο_ Δ	98	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
	9-A	5 11	50	809	510	157	139	3	0	0								
1	10-A	98	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
	10 11	50	809	510	157	139	3	0	0									
1	1-E	95	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
	1 L	50	783	493	151	136	3	0	0									
1	2-E	95	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
		50	783	493	151	136	3	0	0									
1	3-E	95	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
	01	50	783	493	151	136	3	0	0									
1	4-E	95	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
	112	50	783	493	151	136	3	0	0									
1	5-E	95	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
			783	493	151	136	3											
1	6-E	95	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
		50	783	493	151	136	3											
1	7-E	95	Total	С	Ν	Ο	$\mathbf{S}$	0	0									
1		55	783	493	151	136	3											

• Molecule 1 is a protein called Histone H3.



Mol	Chain	Residues		At	AltConf	Trace			
1 8-E	٩F	05	Total	С	Ν	Ο	S	0	0
	95	783	493	151	136	3	0	0	
1	ΟF	05	Total	С	Ν	0	S	0	0
1 9-E	90	783	493	151	136	3	0		
1 10-E	10 F	05	Total	С	Ν	0	S	0	0
	10-E	90	783	493	151	136	3	0	0

• Molecule 2 is a protein called Histone H4.

Mol	Chain	Residues		At	oms			AltConf	Trace
2	1-B	87	Total	С	Ν	0	S	0	0
	1.0	01	703	443	142	117	1	0	0
2	2-B	87	Total	$\mathbf{C}$	Ν	Ο	$\mathbf{S}$	0	0
		01	703	443	142	117	1	0	0
2	3-B	87	Total	$\mathbf{C}$	Ν	Ο	$\mathbf{S}$	0	0
2	0-D	01	703	443	142	117	1	0	0
2	4 B	87	Total	С	Ν	0	$\mathbf{S}$	0	0
2	4-D	01	703	443	142	117	1	0	0
2	5 B	87	Total	С	Ν	0	$\mathbf{S}$	0	0
	0-D	01	703	443	142	117	1	0	0
9	6 B	87	Total	С	Ν	0	$\mathbf{S}$	0	0
	0-D	01	703	443	142	117	1	0	0
9	7 B	87	Total	С	Ν	0	$\mathbf{S}$	0	0
	1-D	01	703	443	142	117	1	0	0
9	8 B	87	Total	С	Ν	0	S	0	0
	0-D	01	703	443	142	117	1	0	0
0	0 P	97	Total	С	Ν	0	S	0	0
	9-D	01	703	443	142	117	1	0	0
0	10 D	07	Total	С	Ν	0	S	0	0
	10-D	01	703	443	142	117	1	0	0
0	1 Г	70	Total	С	Ν	0	S	0	0
	1-Г	19	627	395	121	110	1	0	0
0	٩F	70	Total	С	Ν	0	S	0	0
	2-Γ	19	627	395	121	110	1	0	0
0	9 F	70	Total	С	Ν	0	S	0	0
	3-Г	19	627	395	121	110	1	0	0
0	4 F	70	Total	С	Ν	0	S	0	0
	4 <b>-</b> Γ	19	627	395	121	110	1	0	0
0	ΓD	70	Total	С	Ν	0	S	0	0
	<b>1-</b> G	(9	627	395	121	110	1		U
0	бE	70	Total	С	Ν	0	S	0	0
	0-F	19	627	395	121	110	1		0



Mol	Chain	Residues		At	oms		AltConf	Trace		
9	7 5	70	Total	С	Ν	0	$\mathbf{S}$	0	0	
2	1-1	19	627	395	121	110	1	0	0	
9	<b>е</b> Г	70	Total	С	Ν	0	S	0	0	
2	2 8-F	19	627	395	121	110	1	0	0	
9	ΟF	70	Total	С	Ν	0	S	0	0	
2	9 <b>-</b> 1	19	627	395	121	110	1	0	0	
9	10 F	70	Total	С	Ν	0	S	0	0	
2	10-F	10-F'	)-F' 79	627	395	121	110	1	0	0

• Molecule 3 is a protein called Histone H2A.

Mol	Chain	Residues		Ato	ms		AltConf	Trace
2	1.0	107	Total	С	Ν	Ο	0	0
0	1-0	107	823	519	161	143	0	0
9	20	107	Total	С	Ν	Ο	0	0
J	2-0	107	823	519	161	143	0	0
2	2 C	107	Total	С	Ν	Ο	0	0
5	3-0	107	823	519	161	143	0	0
3	4-C	107	Total	С	Ν	Ο	0	0
0	4-0	107	823	519	161	143	0	0
3	5-C	107	Total	С	Ν	Ο	0	0
	00	101	823	519	161	143	0	0
3	6-C	107	Total	С	Ν	Ο	0	0
	00	101	823	519	161	143	0	0
3	7-C	107	Total	С	Ν	Ο	0	0
		101	823	519	161	143	Ŭ	
3	8-C	107	Total	С	Ν	O	0	0
			823	519	161	143		
3	9-C	107	Total	С	N	0	0	0
			823	519	161	143	_	_
3	10-C	107	Total	C	N	0	0	0
			823	519	161	143		
3	1-G	107	Total	C	N	0	0	0
			823	519	161	143		
3	2-G	107	Total	C	N	0	0	0
			823	519	101 	143		
3	3-G	107	Total	C 510	N 1C1	0	0	0
			823	<u>519</u>	101 N	143		
3	4-G	107		E 10	N 161	142	0	0
			823 Tetel	019 019	101 N	143		
3	5-G	107	l Iotal	U 510	IN 161	149	0	0
			023	919	101	145		



Mol	Chain	Residues	Aton	ns	AltConf	Trace
2	6 C	107	Total C	N O	0	0
5	0-G	107	823 519	161 143	0	0
3	7 C	107	Total C	N O	0	0
5	7-G	107	823 519	161  143	0	0
3	80	107	Total C	N O	0	0
5	0-0	107	823 519	161  143	0	0
3	0.0	107	Total C	N O	0	0
5	9-G	107	823 519	161  143	0	0
2	10 C	107	Total C	N O	0	0
5	10-G	107	823 519	161 143	0	0

• Molecule 4 is a protein called Histone H2B.

Mol	Chain	Residues		At	oms		AltConf	Trace				
4	1-D	92	Total 710	C 452	N 120	0	S 2	0	0			
	2-D	92	Total	433 C	129 N	0	S	0	0			
T	20	52	719	453	129	135	2	0	0			
1	3-D	02	Total	С	Ν	Ο	$\mathbf{S}$	0	0			
т	0-D	52	719	453	129	135	2	0	0			
1	4 D	02	Total	С	Ν	Ο	$\mathbf{S}$	0	0			
-1	4 <b>-</b> D	52	719	453	129	135	2	0	0			
4	5 D	02	Total	С	Ν	0	$\mathbf{S}$	0	0			
-1	0-D	52	719	453	129	135	2	0	0			
4	бD	02	Total	С	Ν	Ο	$\mathbf{S}$	0	0			
	0-12	52	719	453	129	135	2	0	0			
4	7 D	02	Total	С	Ν	0	S	0	0			
4	<i>i-D</i>	92	719	453	129	135	2		0			
4	<u>م</u> ۷	02	Total	С	Ν	0	S	Ο	0			
4	0-D	92	719	453	129	135	2	0	0			
4	0 D	02	Total	С	Ν	0	S	0	0			
4	9-D	92	719	453	129	135	2	0	0			
4	10 D	02	Total	С	Ν	Ο	S	0	0			
4	10-D	92	719	453	129	135	2	0	0			
4	1 U	02	Total	С	Ν	0	S	0	0			
4	1-11	92	719	453	129	135	2	0	0			
4	оц	02	Total	С	Ν	0	S	0	0			
4	2-11	92	719	453	129	135	2					
Δ	२ म	02	Total	С	Ν	0	S	0	0			
4	9-11	92	719	453	129	135	2	0	0			
4	1-H	4 U	<u>л н</u>	<u>л</u> н	02	Total	С	Ν	0	S	0	0
4	4-11	92	719	453	129	135	2					



Mol	Chain	Residues		At	oms		AltConf	Trace	
4	БЦ	02	Total	С	Ν	0	S	0	0
4	0-11	92	719	453	129	135	2	0	0
4	бН	02	Total	С	Ν	Ο	$\mathbf{S}$	0	0
4	0-11	92	719	453	129	135	2	0	0
4	7 H	02	Total	С	Ν	Ο	$\mathbf{S}$	0	0
4	(-11	92	719	453	129	135	2	0	0
4	٥u	02	Total	С	Ν	0	S	0	0
4	0-11	92	719	453	129	135	2	0	0
4	<u>о н</u>	02	Total	С	Ν	0	S	0	0
4	9-11	92	719	453	129	135	2	0	0
4	10 H	02	Total	С	Ν	0	S	0	0
4	10-11	92	719	453	129	135	2		0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	33	THR	SER	conflict	UNP Q92130
Н	33	THR	SER	conflict	UNP Q92130

• Molecule 5 is a DNA chain called DNA (185-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
5	1 T	146	Total	С	Ν	0	Р	0	0
5	1-1	140	2975	1413	540	876	146	0	0
5	21	146	Total	С	Ν	Ο	Р	0	0
0	2-1	140	2975	1413	540	876	146	0	0
5	3-I	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	5-1	140	2975	1413	540	876	146	0	0
5	/_T	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	4-1	140	2975	1413	540	876	146	0	0
5	5-I	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	0-1	140	2975	1413	540	876	146	0	V
5	6 1	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	0-1	140	2975	1413	540	876	146	0	0
5	7 I	146	Total	$\mathbf{C}$	Ν	0	Р	0	0
0	1-1	140	2975	1413	540	876	146	0	0
5	8-T	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	0-1	140	2975	1413	540	876	146	0	0
5	0_1	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	5-1	140	2975	1413	540	876	146	0	0
5	10_T	146	Total	C	Ν	0	Р	0	0
	10-1	140	2975	1413	540	876	146	0	



Mol	Chain	Residues		A	toms			AltConf	Trace
6	1 T	146	Total	С	Ν	0	Р	0	0
0	1-0	140	3011	1425	564	876	146	0	
6	2 1	146	Total	С	Ν	Ο	Р	0	0
0	2-5	140	3011	1425	564	876	146	0	0
6	3_ I	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	0-0	140	3011	1425	564	876	146	0	0
6	/_ I	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	4-0	140	3011	1425	564	876	146	0	0
6	5- I	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
	0.0	140	3011	1425	564	876	146	0	0
6	6-1	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	0.5	140	3011	1425	564	876	146	0	0
6	7- I	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	10	140	3011	1425	564	876	146	0	0
6	8- T	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
0	0-0	140	3011	1425	564	876	146	0	0
6	0_ I	146	Total	$\mathbf{C}$	Ν	Ο	Р	0	0
	5-5	140	3011	1425	564	876	146	0	
6	10 <b>-</b> I	146	Total	$\overline{\mathbf{C}}$	Ν	Ō	Р	0	0
0	10-0	140	3011	1425	564	876	146		

• Molecule 6 is a DNA chain called DNA (185-MER).

• Molecule 7 is a protein called Nuclear protein STH1/NPS1.

Mol	Chain	Residues		At	oms			AltConf	Trace
7	1 K	616	Total	С	Ν	0	$\mathbf{S}$	0	0
1	1-17	010	5055	3201	900	934	20	0	0
7	2 K	616	Total	С	Ν	Ο	$\mathbf{S}$	0	0
1	2-11	010	5055	3201	900	934	20	0	0
7	3-K	616	Total	С	Ν	Ο	$\mathbf{S}$	0	0
1	0-11	010	5055	3201	900	934	20	0	0
7	<i>1</i> _K	616	Total	$\mathbf{C}$	Ν	Ο	$\mathbf{S}$	0	0
1	4-17	010	5055	3201	900	934	20	0	
7	5-K	616	Total	$\mathbf{C}$	Ν	Ο	$\mathbf{S}$	0	0
1	0-11	010	5055	3201	900	934	20	0	0
7	6 K	616	Total	С	Ν	Ο	$\mathbf{S}$	0	0
1	0-11	010	5055	3201	900	934	20	0	0
7	7 K	616	Total	$\mathbf{C}$	Ν	0	$\mathbf{S}$	0	0
1	7-11	010	5055	3201	900	934	20	0	0
7	8 K	616	Total	С	Ν	0	$\mathbf{S}$	0	0
_ <b>'</b>	0-11	010	5055	3201	900	934	20	0	U
7	0 K	616	Total	C	N	0	S	0	0
· ·	<i>3</i> -1X	010	5055	3201	900	934	20	0	0



Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
7	10-K	616	Total 5055	C 3201	N 900	0 934	S 20	0	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
K	285	MET	-	initiating methionine	UNP P32597
K	286	GLY	-	expression tag	UNP P32597
K	287	SER	-	expression tag	UNP P32597
K	288	SER	-	expression tag	UNP P32597
K	289	HIS	-	expression tag	UNP P32597
K	290	HIS	-	expression tag	UNP P32597
K	291	HIS	-	expression tag	UNP P32597
K	292	HIS	-	expression tag	UNP P32597
K	293	HIS	-	expression tag	UNP P32597
K	294	HIS	-	expression tag	UNP P32597
K	295	SER	-	expression tag	UNP P32597
K	296	GLN	-	expression tag	UNP P32597
K	297	ASP	-	expression tag	UNP P32597
K	298	PRO	-	expression tag	UNP P32597
K	299	ASN	-	expression tag	UNP P32597
K	300	SER	-	expression tag	UNP P32597

• Molecule 8 is a protein called Actin-related protein 7.

Mol	Chain	Residues		At	oms			AltConf	Trace
<b>Q</b>	1 T	202	Total	С	Ν	0	S	0	0
0	1-12		3154	2035	514	590	15	0	0
Q	9 T	202	Total	С	Ν	0	S	0	0
0	2-11		3154	2035	514	590	15	0	0
8	3 I	303	Total	С	Ν	0	S	0	0
0	J-L	090	3154	2035	514	590	15	0	0
8	4 T	303	Total	С	Ν	0	S	0	0
0	4-17	090	3154	2035	514	590	15	0	
8	5 1	303	Total	С	Ν	0	S	0	0
0	J-L	090	3154	2035	514	590	15	0	
8	6 I	303	Total	С	Ν	0	S	0	0
0	0-11	000	3154	2035	514	590	15	0	0
0	7 1	202	Total	С	Ν	0	S	0	0
0	(-L		3154	2035	514	590	15	0	U
8	81	303	Total	С	Ν	0	S	0	0
0	0-L		3154	2035	514	590	15	0	0



Mol	Chain	Residues	Atoms					AltConf	Trace
0	0.1	202	Total	С	Ν	0	$\mathbf{S}$	0	0
0 9-L	090	3154	2035	514	590	15	0	0	
0	10 I	202	Total	С	Ν	0	S	0	0
0	10-1	IU-L 393	3154	2035	514	590	15	0	

• Molecule 9 is a protein called Actin-like protein ARP9.

Mol	Chain	Residues		At	oms			AltConf	Trace
0	1 M	306	Total	С	Ν	0	S	0	0
9	1-1/1	590	3192	2048	521	616	$\overline{7}$	0	0
0	2 M	306	Total	С	Ν	0	S	0	0
9	Z-1V1	590	3192	2048	521	616	7	0	0
0	2 M	306	Total	С	Ν	0	S	0	0
9	0-111	590	3192	2048	521	616	$\overline{7}$	0	0
0	4 M	206	Total	С	Ν	0	S	0	0
9	4-111	- 390	3192	2048	521	616	7	0	0
0	БМ	206	Total	С	Ν	0	S	0	0
9	0-111	- 390	3192	2048	521	616	7	0	0
0	бМ	206	Total	С	Ν	0	S	0	0
9	0-111	590	3192	2048	521	616	$\overline{7}$	0	0
0	7 M	206	Total	С	Ν	0	S	0	0
9	(-1)1	590	3192	2048	521	616	$\overline{7}$	0	0
0	<u>е</u> м	206	Total	С	Ν	0	S	0	0
9	0-111	590	3192	2048	521	616	$\overline{7}$	0	0
0	0 M	206	Total	С	Ν	0	S	0	0
9	9-111	390	3192	2048	521	616	$\overline{7}$		U
0	10 M	306	Total	С	Ν	0	S	0	0
9	10-11	390	3192	2048	521	616	7		U

• Molecule 10 is a protein called Regulator of Ty1 transposition protein 102.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	1 N	55	Total	С	Ν	0	S	0	0
10	1-11	- 55	494	315	85	92	2	0	0
10	2 N	55	Total	С	Ν	0	S	0	0
10	2-1N	- 55	494	315	85	92	2	0	0
10	2 N	55	Total	С	Ν	0	S	0	0
10	0-IN	- 55	494	315	85	92	2	0	0
10	4 N	55	Total	С	Ν	Ο	S	0	0
10	4 <b>-</b> 1N		494	315	85	92	2	0	0
10	5 N	55	Total	С	Ν	Ο	S	0	0
10	NI-G	55	494	315	85	92	2	0	0



Mol	Chain	Residues		Atc	$\mathbf{ms}$		AltConf	Trace	
10	6 N	55	Total	С	Ν	Ο	S	0	0
10	0-IN		494	315	85	92	2	0	0
10	7 N	55	Total	С	Ν	Ο	$\mathbf{S}$	0	0
10	1-11	- 55	494	315	85	92	2	0	0
10	8 N	55	Total	С	Ν	Ο	$\mathbf{S}$	0	0
10	0-11	- 55	494	315	85	92	2	0	0
10	0 N	55	Total	С	Ν	Ο	$\mathbf{S}$	0	0
10	9-1N	- 55	494	315	85	92	2	0	0
10	10 N	55	Total	С	Ν	Ο	S	0	0
10 10-N	99	494	315	85	92	2	0	0	

• Molecule 11 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
11	1-K	1	Total Mg 1 1	0
11	2-K	1	Total Mg 1 1	0
11	3-K	1	Total Mg 1 1	0
11	4-K	1	Total Mg 1 1	0
11	5-K	1	Total Mg 1 1	0
11	6-K	1	Total Mg 1 1	0
11	7-K	1	Total Mg 1 1	0
11	8-K	1	Total Mg 1 1	0
11	9-K	1	Total Mg 1 1	0
11	10-K	1	Total Mg 1 1	0

• Molecule 12 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula:  $C_{10}H_{15}N_5O_{10}P_2$ ).





Mol	Chain	Residues		Ate	oms			AltConf
19	1 K	1	Total	С	Ν	0	Р	0
12	1-17	L	27	10	5	10	2	0
19	9 K	1	Total	С	Ν	0	Р	0
12	2-11	L	27	10	5	10	2	0
19	3 K	1	Total	С	Ν	Ο	Р	0
12	0-11	I	27	10	5	10	2	0
19	4 K	1	Total	С	Ν	Ο	Р	0
12	4-1	L	27	10	5	10	2	0
19	5 K	1	Total	С	Ν	0	Р	0
12	0-11	Ĩ	27	10	5	10	2	0
12	6-K	1	Total	С	Ν	Ο	Р	0
12	0-11	I	27	10	5	10	2	0
12	7_K	1	Total	С	Ν	Ο	Р	0
12	1-11	I	27	10	5	10	2	0
12	8-K	1	Total	С	Ν	Ο	Р	0
12	0-11	I	27	10	5	10	2	0
12	0_K	1	Total	С	Ν	Ο	Р	0
12	J-11	1	27	10	5	10	2	0
12	10 K	1	Total	С	Ν	0	Р	0
	10-17		27	10	5	10	2	U





Mol	Chain	Residues	Atoms	AltConf
13	1-K	1	Total Be F 4 1 3	0
13	2-K	1	$\begin{array}{c ccc} \hline Total & Be & F \\ \hline 4 & 1 & 3 \end{array}$	0
13	3-K	1	Total Be F 4 1 3	0
13	4-K	1	TotalBeF413	0
13	5-K	1	Total Be F 4 1 3	0
13	6-K	1	Total Be F 4 1 3	0
13	7-K	1	TotalBeF413	0
13	8-K	1	TotalBeF413	0
13	9-K	1	TotalBeF413	0
13	10-K	1	Total Be F 4 1 3	0

• Molecule 14 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula:  $C_{10}H_{16}N_5O_{13}P_3$ ).





Mol	Chain	Residues		Ato	oms			AltConf
1.4	1 T	1	Total	С	Ν	0	Р	0
14	1-12	L	31	10	5	13	3	0
14	9 T	1	Total	С	Ν	Ο	Р	0
14	2-L	L	31	10	5	13	3	0
14	3 I	1	Total	С	Ν	Ο	Р	0
14	<u></u> -П	T	31	10	5	13	3	0
14	4 T	1	Total	С	Ν	Ο	Р	0
14	4 <b>-</b> D	T	31	10	5	13	3	0
14	5 L	1	Total	С	Ν	Ο	Р	0
14	0-T	T	31	10	5	13	3	0
1/	6-L	1	Total	$\mathbf{C}$	Ν	Ο	Р	0
14	0-11	I	31	10	5	13	3	0
1/	7-L	1	Total	$\mathbf{C}$	Ν	Ο	Р	0
14	1-17	I	31	10	5	13	3	0
1/	8-T.	1	Total	$\mathbf{C}$	Ν	Ο	Р	0
14	0-11	I	31	10	5	13	3	0
14	0 <b>-</b> 1	1	Total	$\mathbf{C}$	Ν	Ο	Р	0
17	J-11	1	31	10	5	13	3	U
14	10 L	1	Total	С	N	Ō	Р	0
14	10-11		31	10	5	13	3	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: Histone H3

• Molecule 1: Histone H3



Chain 3-E:	66%	•	30%
MET ALA ALA ARG LYS GLN THR THR ALA ARG LYS SFR	THR THR GLY GLY GLY GLY PRO ALA ALA ALA ALA ALA ALA ALA ALA ALA AL	PRU HIS R41 R64 K65 L66	P67 R70 R135 ALA
• Molecule 1:	Histone H3		
Chain 4-A:	68%	·	28%
MET ALA ARG ARG LYS CLN THR ALA ARG LYS SFR	THR. THR. CLY CLY CLY CLY CLY CLY CLY CLY CLY CLY	R43 E60 R64 L66 P67	R135 ALA
• Molecule 1:	Histone H3		
Chain 4-E:	66%	·	30%
MET ALA ARA ARG LYS CLN GLN ALA ARG LYS SFR	THR THR CUT CUT CUT CUT CUT CUT CUT CUT CUT CUT	PRU HIS R41 E60 K65 L66	P67 R70 R135 ALA
• Molecule 1:	Histone H3		
Chain 5-A:	70%	·	28%
MET ALA ARG ARG LYS CLN THR ALA ARG LYS SFR	THR THR CLY CLY CLY CLY CLY CLY CLY CLY CLY CLY	R43 E60 R64 R135 ALA	
• Molecule 1:	Histone H3		
Chain 5-E:	66%	·	30%
MET ALA ALA ARG LYS GLN GLN ALA ARG LYS SFR	THR THR CLYS CLYS CLYS CLYS ALA ALA ALA ALA ALA ALA ALA ALA ALA AL	PRU HIS R41 E60 R64 K65 L66	P67 R70 R135 ALA
• Molecule 1:	Histone H3		
Chain 6-A:	70%	·	28%
MET ALA ARG ARG LYS GLN ALA ARG LYS SFR	THAN THAN GLY CJS CJS CJS CJS CJS CJS CJS CJS CJS CJS	R43 E60 R64 R135 ALA	
• Molecule 1:	Histone H3		
Chain 6-E:	66%	·	30%
MET ALA ALA ARG LYS GLN ALA ARG LYS SFR	THRA THRA GLY CLYS CLYS CLYS ALA ALA ALA ALA ALA ALA ALA ALA ALA AL	PRU HIS R41 E60 K65 L66	P67 R70 R135 ALA
• Molecule 1:	Histone H3		
Chain 7-A:	70%	·	28%
		D E C C C C C C C C C C C C C C C C C C	

MET ALA ARG THR LYS GLN THR ALA ARG LYS	SER GLY GLY GLY CLY CLY CLY CLY CLY CLY CLY CLY CLY C	E60 R64 R135 ALA	
• Molecule 1:	Histone H3		
Chain 7-E:	66%	•	30%
MET ALA ARG LYS LYS GLN ALA ARG LYS LYS	SER CLY CLY CLY CLY CLY CLY CLY PRO CLY CLY CLY CLY CLY CLY CLY CLY CLY CLY	R41 E60 R64 K65 L66 P67	R70 R135 ALA
• Molecule 1:	Histone H3		
Chain 8-A:	70%	·	28%
MET ALA ARG ARG LYS CLN GLN ALA ARG LYS	SER CLY CLY CLY CLY CLY CLYS CLY CLYS SER ALA ALA ALA ALA ALA ALA ALA ALA ALA AL	E60 R64 R135 ALA	
• Molecule 1:	Histone H3		
Chain 8-E:	66%	·	30%
MET ALA ARG THR LYS GLN GLN ALA ARG LYS	SER 11:14 11	R41 E60 R64 L66 P67	R70 R135 ALA
• Molecule 1:	Histone H3		
Chain 9-A:	69%	·	28%
MET ALA ARG ARG LYS CLN GLN ALA ARG LYS	SER THR THR CUY CUY CUY CUY CUY CUY CUY CUY CUY CUY	E60 E60 P67 R135 ALA	
• Molecule 1:	Histone H3		
Chain 9-E:	66%	•	30%
MET ALA ARG THR LYS GLN ALA ARG LYS	SER TTR TTR TTR TTR TTR FIL FIL FIL TTR TTR ALA ALA ALA ALA ALA ALA ALA ALA ALA AL	R41 E60 K65 L66 L66 P67	R70 R135 ALA
• Molecule 1:	Histone H3		
Chain 10-A:	70%	·	28%
MET ALA ARG THR LYS GLN GLN ALA ARG LYS	SER GLY GLY GLY CLYS CLYS CLYS ALA ALA ALA ALA ALA ALA ALA ALA ALA AL	E60 R64 R135 ALA	
• Molecule 1:	Histone H3		



MET ALA ARG ARG LYS CLN CLN ALA ARG LYS	SER SER THR CLY CLY CLY CLY CLN CLN CLN CLN CLN CLN CLN CLN CLN CLN	R135 ALA
• Molecule 2:	Histone H4	
Chain 1-B:	82%	•• 16%
MET SER GLY GLY GLY CLYS GLY CLYS GLY GLY	LEU GLY GLY GLY BL6 E53 G102 GL7 GL7	
• Molecule 2:	Histone H4	
Chain 1-F:	72% 5%	23%
MET SER GLY GLY GLY CLY GLY CLY CLY CLY	CITY CITY CITY CITY CITY CITY CITY CITY	
• Molecule 2:	Histone H4	
Chain 2-B:	82%	• 16%
MET SER GLY GLY GLY LYS GLY CLY GLY GLY		
• Molecule 2:	Histone H4	
Chain 2-F:	73% •	23%
MET SER GLY GLY GLY CLYS GLY CLYS GLY GLY	CIT CITES CI	
• Molecule 2:	Histone H4	
Chain 3-B:	82%	• 16%
MET SER GLY GLY GLY CLYS GLY CLYS GLY GLY		
• Molecule 2:	Histone H4	
Chain 3-F:	74% .	23%
MET SER GLY GLY GLY CLY CLY GLY GLY GLY	CLEU CLYS CLYS CLYS CLYS CLYS ALA ARG CLYS ARG CLYS ARG CLYS ARG CLOS CLYS CLYS CLYS CLU CLU CLYS CLYS CLYS CLYS CLYS CLYS CLYS CLYS	
• Molecule 2:	Histone H4	
Chain 4-B:	82%	• 16%



MET SER OLLY OLLY OLLY ILYS OLLY OLLY OLLY M6 OLLY OLLY OLLY CLN OLN OLLY CLN OL C CLN OL C C	BILY 2010		
• Molecule 2: Histone H4			
Chain 4-F:	74%	•	23%
MET SSR GLY GLY GLY CLY CLY CLY CLY CLY CLY CLY CLY CLY C	LYS VAL ARG P33 P33 P33 P33 P33 P33 P33 P33 P33 P3		
• Molecule 2: Histone H4			
Chain 5-B:	82%		• 16%
MET SEER SEER ARG ARG CLY CLYS CLY CLYS CLY CLYS CLY CLYS CLY CLYS CLY CLYS CLY CLYS CLY CLYS CLY CLYS CLY CLSS CLS CLS CLS CLS CLS CLS CLS CLS CL	799 GLY GLY		
• Molecule 2: Histone H4			
Chain 5-F:	73%	•	23%
MET SER SER SER SER ARC GLY GLY GLY GLY GLY GLY ALA ARC ARC ARC	LYS VAL LEU ARG D26 D26 P33 P33 P33 P33 P33 P33 P33 P33 P33 P3		
• Molecule 2: Histone H4			
Chain 6-B:	83%		• 16%
MET SER CLY ARG CLY ARG CLY CLY CLY CLY CLY CLY CLY CLY CLY CLY	G102		
• Molecule 2: Histone H4			
Chain 6-F:	73%	•	23%
MET SER GLY GLY GLY CLY CLY CLY CLY CLY CLY ARG ARG ARG	LYS VAL ARG ARG P33 F33 F83 F83 F83 F83 F83 F83 F83 F83 F		
• Molecule 2: Histone H4			
Chain 7-B:	83%		• 16%
MET SER CLY ARC CLY ARC CLY CLY CLY CLY CLY CLY CLY CLY CLY CL	G102 G1Y		
• Molecule 2: Histone H4			



MET SER SER ARG CLY CLY CLY CLY CLY CLY CLY CLY CLY CLY	VAL VAL LEU LEU 255 833 853 853 853 853 610 610		
• Molecule 2: Histone H4			
Chain 8-B:	83%		• 16%
MET SER GLY GLY GLY GLY GLY GLY GLY GLY GLY GLY	6102 GLY		
• Molecule 2: Histone H4			
Chain 8-F:	73%	•	23%
MET ARG ARG ARG ARG ARG ARG ARG ARG ARA ARG ARA ARG ARG	LTS VAL ARG ARG C32 F33 F33 F33 F33 F33 F33 F33 F33 F33 F		
• Molecule 2: Histone H4			
Chain 9-B:	82%		• 16%
MET SER GLY GLY ARC OLY CLY CLY CLY CLY CLY CLY CLY CLY CLY C	6102 017		
• Molecule 2: Histone H4			
Chain 9-F:	73%	•	23%
MET SER GLY GLY GLY ARG GLY CLY CLY GLY GLY GLY GLY ALA ALG GLY ALA ARG ARG	LINS VAR ARG ARG ARG P33 P33 P33 P33 P33 P33 P33 P33 P33 P3		
• Molecule 2: Histone H4			
Chain 10-B:	82%		• 16%
MET SER CLY CLY CLY CLY CLY CLY CLY CLY CLY CLY	cury cury		
• Molecule 2: Histone H4			
Chain 10-F:	72%	5%	23%
MET SER SER ARG CLY CLYS CLY CLYS CLY CLYS CLY CLYS CLY CLYS CLY CLYS CLY ALG ALG ALG ALG	LITS LEU LEU LEU R32 P33 P33 P33 P33 P33 P33 P33 P33 P33 P		
• Molecule 3: Histone H2A			
Chain 1-C:	79%	•	18%







MET SER SER ARG ARG CLY CLY CLY CLY ARG A13 A13 A13 A13 A13 A13 A13 A13 A13 A13	177 178 179 180 180 180 180 181 180 181 188 178 178 178 178 178 178 178 178		
• Molecule 3: Histone H2A			
Chain 5-C:	79%	·	18%
MET SER GLY ARG GLY GLY CLYS CLY GLY GLY THR THR THR THR THR THR THR THR THR THR	K119 LYS THR GLU GLU GLU SER LYS SER LYS LYS		
• Molecule 3: Histone H2A			
Chain 5-G:	75%	7%	18%
MET SER CLY CLY CLY CLY CLY CLY CLN CLY CLN CLN CLN CLN CLN CLN CLN CLN CLN CLN	T77 178 180 180 180 180 181 181 181 181 181 18		
• Molecule 3: Histone H2A			
Chain 6-C:	79%	·	18%
MET SER SER SER CLY CLY CLY CLY CLY CLY CLY CLY CLY CLY	K119 LYS THR GLU GLU GLU SER LYS LYS LYS		
• Molecule 3: Histone H2A			
Chain 6-G:	75%	7%	18%
MET SER SER GLY ARG GLN GLN GLN GLN GLY M13 A13 A13 A13 A13 A14 A13 A13 A13 A13 A13 A13 A13 A13 A13 A13	177 179 180 180 180 180 181 180 180 180 181 191 180 181 181 181 181 181 181 181 181 18		
• Molecule 3: Histone H2A			
Chain 7-C:	79%	·	18%
MET SER SER SER CLY CLY GLY GLN GLN GLN GLN GLY T17 T17 T17 P180 P191	K119 LYS THR GLU GLU GLU SER LYS LYS LYS		
• Molecule 3: Histone H2A			
Chain 7-G:	75%	7%	18%
MET SER SER GLY GLY GLY GLY GLY GLY GLY GLY GLY M13 A13 A13 A13 A13 A13 A13 A13 A13 A13 A	177 178 180 180 180 180 181 180 180 180 181 171 180 180 181 182 188 188 188 188 188 188 188 188		
• Molecule 3: Histone H2A			
Chain 8-C:	79%	•	18%



MET SER CLY CLY CLY CLN CLN CLN CLN CLN CLN CLN CLN CLN CLN	K119 LYS THR THR SER SER ALU SER SER LYS SER LYS		
• Molecule 3: Histone H2A			
Chain 8-G:	75%	7%	18%
MET SER GLY GLY CLV CLV CLV CLV CLV CLV CLV CLV CLV CLV	177 R78 R78 199 180 181 181 181 181 181 181 181 181 181		
• Molecule 3: Histone H2A			
Chain 9-C:	79%	•	18%
MET SER ARG CLY CLY CLN CLN CLN CLN CLN CLN CLN CLN CLN CLN	K119 LYS LYS GLU SER SER SER SER SER SER LYS SER LYS		
• Molecule 3: Histone H2A			
Chain 9-G:	75%	7%	18%
MET SER GLY GLY GLY GLY GLY GLY GLY GLA GLA A13 G45 G45 G45 G45	T77 177 177 179 179 179 179 179 179 179 1		
• Molecule 3: Histone H2A			
Chain 10-C:	79%	·	18%
MET SER SER ARG CLY CLY CLN CLN CLN CLN CLN CLN CLN CLN CLN CLN	K119 LYS LYS GLU SER SER SER SER SER SER LYS SER LYS		
• Molecule 3: Histone H2A			
Chain 10-G:	75%	70/	18%
		1%	
MET SER SER ARG ARG OLY CLYS CLYS CLY CLYS CLY ARG A13 A13 A13 A13 A13 A13 A13 A13 A13 A13	177 R77 R78 B19 180 P11 P11 P11 P11 P11 P11 P11 P11 P11 P1	7 %	
• Molecule 4: Histone H2B	T77 177 177 170 180 180 181 181 181 191 191 191 191 191 191 191	/ 70	
토토금물금금금금금금금금금금금금금금금금금금금금금금금금금금금금금금금금금	8110       8110 <td>/ 70</td> <td>26%</td>	/ 70	26%
<ul> <li>Molecule 4: Histone H2B</li> <li>Chain 1-D:</li> </ul>	LYS THR GLM GLV GLV ARG ARG ARG ARG ARG ARG ARG ARG ARG ARG	/ 70	26%
<ul> <li>Molecule 4: Histone H2B</li> <li>Chain 1-D:</li> <li>■ # # # # # # # # # # # # # # # # # # #</li></ul>	LIVE THR CLINE CLINE CLINE ASP ASP ASP ASP ASP ASP ASP ASP	/ 70	26%



MET PRO ASP PRO ALA LYS SER ALA ALA PRO	ALA ALA ALA ALA ALA ALA CLYS CLYS CLYS CLYS CLYS CLYS CLYS CLYS		
• Molecule	4: Histone H2B		
Chain 2-D:	74%	26%	-
MET PRO ASP PRO ALA LYS SER ALA ALA	ALA LYS CLYS CLYS CLYS CLYS CLYS CLYS CLYS		
• Molecule	4: Histone H2B		
Chain 2-H:	73%	• 26%	
MET PRO ASP PRO ALA LYS SER ALA ALA	ALA ALA ALA ALA ALA CLY SER CLY THR THR THR THR CLY CLY CLY CLY CLY CLY CLY CLY CLY CLY		
• Molecule	4: Histone H2B		
Chain 3-D:	73%	• 26%	
MET PRO ASP PRO ALA LYS SER ALA PRO	ALA ALA ALA ALA ALA CLYS CLYS CLYS CLYS CLYS CLYS ALA CLYS ARG CLYS ARG CLYS ARG CLYS ARG CLYS ARG CLYS ARG ARG ARG ARG ARG ARG ARG ARG ARA ARG ARA ARA		
• Molecule	4: Histone H2B		
Chain 3-H:	73%	• 26%	-
MET PRO ASP PRO ALA SER ALA	ALA ALA ALA ALA ALA ALA CLY SER CLY CLY CLY CLY ALA ALA ARG CLY CLY ALA ARG CLY ARG CLY ARG CLY ARG ARG ARG ARG ARG ARG ARA ARG ARA ARG ARA ARA		
• Molecule	4: Histone H2B		
Chain 4-D:	74%	26%	-
MET PRO ASP PRO ALA LYS SER ALA PRO	ALM ALM ALM ALM ALM CLYS CLYS CLYS CLYS CLYS CLYS CLYS CLYS		
• Molecule	4: Histone H2B		
Chain 4-H:	72%	• 26%	
MET PRO ASP PRO PRO ALA SER SER SER PRO	ALA ALA ALA ALA ALA ALA ALA CLYS CLYS CLYS CLYS CLYS CLYS ALA ALA ALA ALA ALA ALA ALA ALA ALA AL		
• Molecule	4: Histone H2B		
Chain 5-D:	74%	26%	



MET PRO ASP PRO PRO LYS SER ALA ALA ALA	ALA LYS LYS LYS CLY SER LYS SER LYS CLN LYS LYS LYS LYS LYS LYS LYS LYS LYS LYS	
• Molecule 4:	Histone H2B	
Chain 5-H:	72%	• 26%
MET PRO ASP PRO ALA LYS SER ALA PRO PRO	LYS LYS LYS SER SER SER LYS LYS LYS LYS CYS CYS CYS CYS CYS CYS ASP ASP ASP ASP ASP ASP ASP ASP ASP AS	
• Molecule 4:	Histone H2B	
Chain 6-D:	74%	26%
MET PRO ASP PRO ALA LLYS SER ALA ALA	ALA LYS LYS GLY GLY GLY CLYS LYS LYS LYS CLN CLYS CLYS ARG CLY ARG CLY ARG CLYS ARG CLYS ARG CLYS ARG CLYS ARG CLY ARG ARA ARA ARA ARA ARA ARA ARA ARA ARA	
• Molecule 4:	Histone H2B	
Chain 6-H:	73%	• 26%
MET PRO ASP PRO ALA LYS SER ALA ALA	ALA LYS LYS GLY GLY CYS LYS LYS CLYS CLYS CLYS ARG CLYS ARG CLYS ARG CLYS ARG CLYS ARG CLYS ARG CLYS ARG CLYS ARG CLY ARA	
• Molecule 4:	Histone H2B	
Chain 7-D:	74%	26%
MET PRO ASP PRO ALA LYS SER ALA PRO	ALA LYS CYS SER CYS SER LYS THR THR LYS CLYS CLYS ALA ARG CLY ARG LYS ARG LYS ARG CLY ARG CLY ARG ARG CLY ARG ARG ARG ARA ARA ARA ARA ARA ARA ARA	
• Molecule 4:	Histone H2B	
Chain 7-H:	73%	• 26%
MET PRO ASP PRO ALA LYS SER ALA PRO	ALA LYS CLY GLY GLY CLYS CLYS LYS THR THR ALA CLYS CLYS CLYS CLYS CLYS CLYS CLYS CLYS	
• Molecule 4:	Histone H2B	
Chain 8-D:	74%	26%
MET PRO ASP PRO ALA LYS SER ALA PRO	ALA LYS LYS SER SER SER LYS CLYS LYS LYS CLYS CLYS CLYS CLYS CL	
• Molecule 4:	Histone H2B	
Chain 8-H:	72%	• 26%



MET PRO ASP PRO ALA LYS SER ALA ALA ALA ALA ALA CYS	dLYS CLYS CLYS CLYS CLYS CLYS CLYS CLYS C	R87 A125
• Molecule 4: His	stone H2B	
Chain 9-D:	74%	26%
MET PRO ASP PRO LYS SET ALA ALA LYS LYS	GLY SER LLYS LLYS ALA ALA THR THR THR LLYS LLYS LLYS LLYS CLYS LLYS LLYS LLYS	
• Molecule 4: His	stone H2B	
Chain 9-H:	72%	• 26%
MET PRO PRO PRO ALA LYS SER ALA ALA ALA LYS LYS	GLY CLYS CLYS CLYS CLYS ALA ALA CLYS CLYS CLYS CLYS CLYS CLYS CLYS CLYS	R87 A125
• Molecule 4: His	stone H2B	
Chain 10-D:	74%	26%
MET PRO PRO ASP ASP ALA LVS SER ALA ALA ALA ALA LVS LVS LVS	dir dir dir dir dir dir dir dir	
• Molecule 4: His	stone H2B	
Chain 10-H:	72%	• 26%
MET PRO ASP PRO ALA LYS SER ALA ALA LYS LYS	GLY CLIYS SER ALA ALA ALA ALA THR THR THR THR CLIYS CLIYS CLIYS CLIYS CLIYS CLIYS CLIYS CLIYS CLIYS CLIYS CLIYS CLIYS CLINS CL	887 • 1125
• Molecule 5: DN	JA (185-MER)	
Chain 1-I:	67%	12% 21%
DA DT DC DC DC DC DC DC DC DC DC DC DC	DC DC DC DC DC DC DC DC DC DC DC DC DC D	A91 C95 C95 C95 C99 C99 C104 C104 A103 C104 C104 C104 C123 C123 C123 A124 C123 A147 D147 D147 D17 D17 D17 D17 D17 D17 D17 D17 D17 D1
DC DC DC DC DC DC DC DC DC DC DC DC		
• Molecule 5: DN	IA (185-MER)	
Chain 2-I:	66%	12% 21%
DA DT DC DC DC DC DC DC DC DC DC DC DC	DC DC DC DC DC DC DC DC DC DC DC DC DC D	A91 694 695 695 695 695 695 695 6101 6101 6101 6101 6102 6101 6102 6102
000 000 000 000 000 000 000 000 000 00	DI	
• Molecule 5: DN	JA (185-MER)	

R L D W I D E PDB TEIN DATA BANK

Chain 3-I:	67%	12%	21%
9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	A20 C24 C24 C25 C32 C34 C33 C34 C33 C34 C33 C34 C32 C33 C34 C32 C33 C34 C32 C33 C34 C32 C34 C34 C34 C34 C34 C34 C34 C34 C34 C34	C95 C96 A97 G101 G102 A103 T1 <u>04</u>	C123 C124 C124 C146 C146 A147 DC DC DC DC
00 00 00 00 00 00 00 00 01 01			
• Molecule 5: DNA (185-MER	.)		
Chain 4-I:	67%	12%	21%
8 7 7 8 7 7 7 7 8 8 7 7 7 7 7 7 8 8 7 8 7 7 7 7 7 8 8 7	A20 C24 C24 C25 C24 C33 C34 C33 C34 C33 C34 C33 C34 C33 C34 C33 C34 C33 C34 C32 C34 C34 C32 C34 C34 C34 C34 C34 C34 C34 C35 C34 C35 C34 C35 C36 C36 C36 C36 C36 C36 C36 C36 C36 C36	C95 C99 C101 C101 C102 C102 A103 T104	C123 A124 A145 C146 A147 DC DA DC DA
00 00 00 00 00 00 00 00 00 01 00			
• Molecule 5: DNA (185-MER	.)		
Chain 5-I:	67%	12%	21%
8 4 3 8 3 3 4 8 8 8 8 8 8 8 8 8 8 8 8 8	616 A20 C24 C24 C25 C25 C33 C33 C33 C33 C33 C33 C33 C33 C33 C3	694 695 6101 6102 7104	C123 124 145 0146 0146 DC DC DC DC
DC DG DA DA DA DC DC DC DC DC			
• Molecule 5: DNA (185-MER	.)		
Chain 6-I:	67%	12%	21%
DA D7 D7 D7 D7 D7 D7 D7 D7 D7 D7 D7 D7 D7	A20 C24 C24 C25 C32 C34 C33 C34 C33 C34 C32 C33 C34 C32 C33 C34 C32 C33 C34 C32 C33 C34 C32 C34 C32 C34 C34 C34 C34 C34 C34 C34 C34 C34 C34	C95 A98 G101 G102 A103 T104	C123 A124 A145 G146 A147 DC DC DC DC
DC DG DG DG DC DC DC DC DC DC DC DC DC DC DC DC DC			
• Molecule 5: DNA (185-MER	.)		
Chain 7-I:	66%	12%	21%
D D D D D D D D D D D D D D D D D D D	A20 C24 C24 C25 C34 C34 C40 C40 C70 C70 C33 C34 C40 C70 C34 C40 C70 C33 C34 C40 C40 C40 C40 C40 C40 C40 C40 C34 C34 C34 C34 C34 C34 C34 C34 C34 C34	694 695 696 6101 6102 8103	1104 C123 A124 A124 C123 A145 C124 A147 DC DA
00 00 00 00 00 00 00 00 01 00 01			
• Molecule 5: DNA (185-MER	.)		
Chain 8-I:	67%	12%	21%







### DC DT DG DG DG DT DT DT

• Molecule 6: DNA (185-MER)



• Molecule 6: DNA (185-MER)










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 $\bullet$  Molecule 7: Nuclear protein STH1/NPS1



Chain 9-K:







#### ALA THR ASN ALA THR ASN

• Molecule 8: Actin-related protein 7





#### ALA THR ASN ALA THR ASN

• Molecule 8: Actin-related protein 7







1434 1437 8437 8437 9438 1439 1442 1442 1442 1446 0466 7465

 $\bullet$  Molecule 9: Actin-like protein ARP9

Chain 3-M:	78%		7%	·	15%	-
MET P3 F4 F4 F4 F4 F3 F4 F3 F3 F3 M57 M57 M104 M119 M119 M119 M119 M119 M119 M119 M11	A178 D181	S12 S12 ASP ASP ASP ALA LEU LEU LEU STR STR STR STR STR STR STR STR STR STR	ASN GLU ASN	GLU ASP GLU	ASP GLU GLY THR	LEU ASN VAL ALA
GLU THE THE SER SER SER GLU ARG GLU CLU CLU CLU CLU CLU CLU CLU CLU CLU C	D322 E361 P362	Radia Control	LYS PHE MET	THR ASN SER	THR ALA F394	F416 P417 E418
1434 1442 1488 1442 1442 1442 1442 1446 1446 1466 1466						
• Molecule 9: Actin-like protein AR	RP9					
Chain 4-M:	78%		7%	·	15%	-
MET MALA P3 P4 P3 P3 P4 P4 P3 P4 P3 P4 P4 P1 P3 P1 P3 P1 P3 P1 P3 P1 P3 P1 P3	A178 D181	ASP ASP ASP ASP ALA ALA ALA ALA ALA ALA ALA ASP SSR SSR SSR SSR SSR SSR SSR SSR SSR S	ASN GLU ASN	GLU ASP GLU	ASP GLU GLY THR	LEU ASN VAL ALA
GLU ILE THR SER SER SER ARC GLU ARC GLU CLU CLU CLU CLU CLU CLU CLU CLU CLU C	D322 E361 P362	R365 R365 VAL LEU PRO PRO PRO PLA LVS LVS LVS LVS SER SER	LYS PHE MET	THR ASN SER	THR ALA F394	F416 P417 E418
1434 1437 1437 1438 1438 1442 1442 1442 1446 1446 1446 1446 1446						
• Molecule 9: Actin-like protein AR	RP9					
Chain 5-M:	78%		7%	·	15%	





MET ALA

• Molecule 9: Actin-like protein ARP9



ASP ASP ALA LYS LYS LYS LEU SER 

Chain 6-M:	78%		7%	·	15%	_
MET ALA ALA PALA PALA E-28 E-28 R46 S50 S50 A104 M119 W119 W119 W119 W119 W119 W119 W119	A178 D181 L213	S223 ASP ASP ASP LYS LYS LEU LEU LEU SER SER PHE PHE PHE CLY	ASN GLU ASN	GLU ASP GLU	ASP GLU GLY	THR LEU ASN VAL ALA
GLU TLE TLE THR SER SER GLY ARC ARC GLU CLU CLU CLU GLU GLU GLU GLU CLU CLU CLU CLU CLU CLU CLU CLU CLU C	D322 E361 P362 E363	R369 S375 S375 LEU PRO PRO PRO THR LYS LYS SER	LYS PHE MET	THR ASN SER	THR ALA F394	F416 F417 E418
1434 8437 1439 1439 1442 1444 1444 1444 1444 1446 1446 1466 146						
• Molecule 9: Actin-like protein AR	P9					
Chain 7-M:	78%		7%	•	15%	_
MET ALA P3 P4 P4 E28 F4 E28 F46 N466 N67 N109 N109 N109 N109 N109 N109 N109 N109	A178 D181 L213	S223 ASP ASP ASP LYS LYS LEU LEU SER SER PHE PHE CY	ASN GLU ASN	GLU ASP GLU	ASP GLU GLY	THR LEU ASN VAL ALA
GLU 11LE 11LE 11LE 11LE 11HR 6LLY 4RP 6LU 6LU 6LU 6LU 6LU 6LU 6LU 6LU 6LU 6LU	D322 E361 P362 E363	R369 8375 VAL VAL LEU LEU LEU LYS LYS LYS LYS LYS LYS	LYS PHE MET	THR ASN SER	THR ALA F394	F416 P417 E418
(434) (433) (433) (433) (447) (447) (466) (466) (466) (466) (466) (466) (466) (466) (466) (466) (466) (467) (47) (47) (47) (47) (47) (47) (47) (4						
Molecule 9: Actin-like protein AR	.P9					
• Molecule 9: Actin-like protein AR Chain 8-M:	P9 77%		7%		15%	_
Molecule 9: Actin-like protein AR Chain 8-M:	P9 77% <sup>821</sup> <sup>181</sup> <sup>181</sup> <sup>181</sup> <sup>181</sup>	S223 ASP ASP ASP ASP LYS LVS LEU SER SER PHE PHE PHE CIV	den	GLU • GLU GLU	15% Ard dra dra	THR LEU ASN VAL ALA
Molecule 9: Actin-like protein AR Chain 8-M:	P9 77% 8 1810 1811 1923 1923 1923 1923 1923 1923 1923 19	R369 S23 S375 ASP VAL ALA VAL LLA LEU LYS PRO LYS ALA SER ALA SER THR SER LYS PHE LYS PHE LYS PHE LYS PHE LYS OLY SER QLY	PHE GLU ASN MET ASN	THR GLU • ASN ASP SER GLU	THR ASP ALA SLU GLU ALA ASP ASP ASP ASP ASP ASP ASP ASP ASP ASP	THR F416 LEU P417 ASN E418 VAL E418 VAL
Molecule 9: Actin-like protein AR     Chain 8-M:     Were a way of the second sec	P9 77% 82 82 82 82 82 82 82 82 82 82 82 82 82	R369         \$223           8375         ASP           ASP         ASP           VAL         ALA           VAL         ALA           LEU         LYS           PRO         LEU           ALA         SER           THR         SER           LYS         PHE           LYS         PHE	7% NSY LIN HI INSY LIN	THR GLU ASN ASP SER GLU	115% MTY ATY ATY ATY ATY ATY ATY ATY ATY ATY A	THR F416 LEU P417 ASN E418 VAL W419 ALA
<ul> <li>Molecule 9: Actin-like protein AR</li> <li>Chain 8-M:</li> <li>W 8 2 2 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9</li></ul>	P9 777% <sup>841</sup> <sup>181</sup> <sup>181</sup> <sup>181</sup> <sup>181</sup> <sup>192</sup> <sup>200</sup> <sup>192</sup> <sup>200</sup> <sup>200</sup> <sup>200</sup> <sup>200</sup> <sup>200</sup> <sup>200</sup> <sup>200</sup> <sup>200</sup> <sup>200</sup> <sup>200</sup> <sup>200</sup>	R369 S23 S375 ASP S375 ASP VAL ALA LEU LYS RRO LYS ALA LEU LYS SER LYS SER LYS ASP LYS ASP LYS PHE LYS ASP LYS PHE LYS CLYS	HIE GLU MET ASN MET ASN	THR GLU • ASN ASP SER GLU	THR ASP ALA GLU 7394 GLY GLY	THR F416 LEU P417 ASN E418 VAL W419 ALA
<ul> <li>Molecule 9: Actin-like protein AR</li> <li>Chain 8-M:</li> <li>Y 8 2 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9</li></ul>	.P9 77% 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	R363 S375 S375 ASP S375 ASP ASP ASP ASP TAL LEU LVS ALA SER LVS PHE LVS PHE LVS SER CLV	7% NTE BHL ST ST ST ST ST ST ST ST ST ST ST ST ST	ASN ASP SER GLU	15% dsp TTP 45%	THR F416 LEU P417 ASN E418 VAL M419 ALA
<ul> <li>Molecule 9: Actin-like protein AR</li> <li>Chain 8-M:</li> <li>W 8 2 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9</li></ul>	P9 777% 84 84 84 84 84 84 84 84 84 84 84 84 84	S223R369S233ASPASPASPASPASPASPASPASPASPALALIYSASPLIYSLUULYSLEULYSLUSLEULYSLEULEULYSLEULEULYSLEULEULYSASPALALEULYSRRLASERSERLYSASPASPLYSASPASPLYSASPASPLYSASPASPCYSCYSASPCYSCYSASPCYSCYSASPCYSCYS	Asim Asim Asim Asim Asim Asim Asim Asim	GLU	15% ASP GLV CLV ALA CLV ALA CLV CLV CLV CLV CLV CLV CLV CLV CLV CLV	THR         THR           LEU         F416         LEU           ASN         F416         ASN           VAL         F417         ASN           VAL         E418         VAL           ALA         V419         ALA





• Molecule 9: Actin-like protein ARP9





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#### MET ASN

• Molecule 10: Regulator of Ty1 transposition protein 102

Chain 4-N:	31% ••	65%
M1 M11 K12 VAL SER TYR GLY CLY R22 SER SER	K34 VAL SER SER SER SER SER SER GLN GLN GLN GLN GLN GLN GLN GLN GLN GLN	ASP ASP ASP ASP ASP ASP ASP ASP ASP ASP
LEU MET THR SER HIS HIS HIS CVS GLY GLY ASP THR SER ALA ALA ALA CVS GLY	ALA PRO PRO PRO ALA ALA ALA ALA ALA ALA ALA ALA ALA AL	TILE PRO PRO PRO PRO PRO PRO PRO PRO PRO PRO
ASN		
• Molecule 10: Regu	ulator of Ty1 transposition protein	n 102
Chain 5-N:	31% ••	65%
M1 M11 K12 VAL VAL TYR TYR ASN ASN CLY ASN FRO THR THR	K34 VAL SER SER ASN VAL ASN QLN QLN QLN QLN QLN CLN CLN CLN CLN CLN CLN CLN CLN CLN C	ASP ASP CLU CLU CLU CLN ASP ASP ASP ASP ASP ASP ASP ASP ASP ASP
LEU MET THR SER HIS HIS CVS GLY GLY SER LVS SER ALA THR CVS CVS CVS CVS CVS CVS CVS CVS CVS CVS	ALA ALA ALA ALA ASN ASP ASP ASP ALU ALU ALA ALA ALA ALA ASP ASP ALA ASN ALA ASN ASN ASN ASN ASN ASN ASN ASN ASN AS	TLA TLA GLY GLY GLY GLY CLY CLEU ASN ASN ASN ASN ASN CLY SSC CLY SSC CLY SSC CLY SC CLY SC CLY SC CLY CLY CLY CLY CLY CLY CLY CLY CLY CL
ASN		
• Molecule 10: Regu	ulator of Ty1 transposition protein	n 102
• Molecule 10: Regu Chain 6-N:	ulator of Ty1 transposition protein	n 102 65%
• Molecule 10: Regu Chain 6-N: 로 클로북행동동강 및 문행 <mark>및</mark>	alator of Ty1 transposition protein	65%
Molecule 10: Regu Chain 6-N:	alator of Ty1 transposition protein	a 102 65% 888 arguint for the formation of the formation
Molecule 10: Regu Chain 6-N:     The set of the s	alator of Ty1 transposition protein	a 102 65% 811 828 811 811 812 814 814 814 814 814 814 814 814 814 814
<ul> <li>Molecule 10: Regulation</li> <li>Chain 6-N:</li> <li>E E E E E E E E E E E E E E E E E E E</li></ul>	alator of Ty1 transposition protein	a 102 65% 888 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
<ul> <li>Molecule 10: Regulation</li> <li>Chain 6-N:</li> <li>E E E E E E E E E E E E E E E E E E E</li></ul>	alator of Ty1 transposition protein	102 65% 8 5 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2
Molecule 10: Regu Chain 6-N:     E E E E E E E E E E E E E E E E E	alator of Ty1 transposition protein         31%         **	65%         8 4 102         65%         8 4 103       8 10         102         65%         8 4 103       8 10         102         65%         8 4 103       8 10         102         65%



#### MET ASN

• Molecule 10: Regulator of Ty1 transposition protein 102

Chain 8-N:	31%	••	65%
M1 N11 VAL VAL VAL T7R T7R GLY ASN T1R ASN T1R ASN T1R ASN	K34 VAL SER SER ASN VAL GLN GLN	PRU GLN GLN GLN GLN GLN GLN GLY ASP ASP ASN ASN ASN ASN ASN ASN ASN ASN ASN ASN	868 868 ALU ALV ALV ALV ALV ALU LLV 1.15 1.16 1.16 1.16 1.16 1.17 1.15 1.17 1.15 1.17 1.15 1.17 1.15 1.15
LEU MET THR SER HIS HIS LYS GLY GLY ALA SER LYS SER LYS SET VIA	ALA PRO SER ALA ALA ASN GLN GLY	GLU LEU SER VAL SER VAL ASP ASP ASP ASP ASP ASP ASP ALA ALA ALA ALA ALU ALU SER GLU	LLA PRO CLY LEU SER SER ALA ALA ALA ASN ASN ASN ASN ASN ASN ASN ASN ASN AS
MET ASN			
• Molecule 10: Regu	ulator of Ty	1 transposition protein	n 102
Chain 9-N:	31%		65%
M1 N11 X12 X12 X12 X12 X12 X12 X12 X12 X12 X	K34 VAL SER SER ASN VAL GLN GLN	P.KU GLN GLN GLN GLN GLN GLN GLN ASP ASP ASN ASN ASN ASN ASN ASN ASN ASN ASN ASN	AB68 ASP GLU CLV ASP ASN ASN ASN ASN ASP ASP CLV CLV CLV CLV CLV CLV SER SER SER
LEU MET THR THR SER HIS CHR CYS GLY ALR SER LYS SER LYS SER CY V	ALA PRO SER ALA ALA ASN GLN GLY	dLU LEU SER VAL ASP ASP ASP ALA ALA ALA ALA ALA ALA ALA SER SER SER SER SER	ALA ALA PRO LEU LEU SER SER ALA ASN ASN ASN ASN ASN ASN ASN ASN ASN AS
MET ASN			
• Molecule 10: Regu	ulator of Ty	1 transposition protein	n 102
Chain 10-N:	31%	••	65%
M1 M11 K12 K12 X4L X4L X42 ASR ASR S5R S5R S5R S5R	K34 VA3 SER SER ASN VAL GLN GLN	P.K.U. G.L.N. G.L.N. G.L.N. G.L.N. A.S.N. A.	ASP ASP ASP ALYS ALYS ALSU LEU LEU LEU LEU LEU LEU LEU LEU LYS SER SER
LEU MET THR SER SER HIS HIS CVS GLY CVS ALA SER LYS SER LYS SER LYS	ALA PRO SER ALA ALA ASN GLN GLY	GLU GLU SER VAL SER VAL ASP ASP ASP ASP GLV GLV GLV GLU	11. 11. 11. 11. 11. 11. 11. 11.
ASN			



# 4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	293940	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE	Depositor
	CORRECTION	
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose $(e^-/\text{\AA}^2)$	53	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	36000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.055	Depositor
Minimum map value	-0.014	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.01	Depositor
Map size (Å)	348.0, 348.0, 348.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.16, 1.16, 1.16	Depositor



# 5 Model quality (i)

## 5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: MG, BEF, ATP, ADP

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).

Mal	Chain	B	ond lengths	E	Bond angles
	Chain	RMSZ	# Z  > 5	RMSZ	# Z  > 5
1	1-A	0.88	0/821	0.68	0/1100
1	1-E	0.91	0/793	0.69	0/1062
1	2-A	0.88	0/821	0.67	0/1100
1	2-E	0.91	0/793	0.69	0/1062
1	3-A	0.88	0/821	0.67	0/1100
1	3-E	0.91	0/793	0.69	0/1062
1	4-A	0.88	0/821	0.67	0/1100
1	4-E	0.91	0/793	0.69	0/1062
1	5-A	0.88	0/821	0.67	0/1100
1	5-E	0.91	0/793	0.68	0/1062
1	6-A	0.88	0/821	0.68	0/1100
1	6-E	0.91	0/793	0.69	0/1062
1	7-A	0.88	0/821	0.67	0/1100
1	7-E	0.91	0/793	0.68	0/1062
1	8-A	0.88	0/821	0.68	0/1100
1	8-E	0.91	0/793	0.68	0/1062
1	9-A	0.88	0/821	0.68	0/1100
1	9-E	0.91	0/793	0.69	0/1062
1	10-A	0.88	0/821	0.68	0/1100
1	10-E	0.91	0/793	0.68	0/1062
2	1-B	0.82	0/711	0.76	2/950~(0.2%)
2	1-F	0.83	0/634	0.79	2/848~(0.2%)
2	2-B	0.82	0/711	0.76	1/950~(0.1%)
2	2-F	0.83	0/634	0.79	2/848~(0.2%)
2	3-B	0.82	0/711	0.78	1/950~(0.1%)
2	3-F	0.82	0/634	0.75	1/848~(0.1%)
2	4-B	0.82	0/711	0.76	1/950~(0.1%)
2	4-F	0.84	0/634	0.76	1/848~(0.1%)
2	5-B	0.82	0/711	0.75	1/950~(0.1%)
2	5-F	0.83	0/634	0.76	1/848~(0.1%)
2	6-B	0.82	0/711	0.75	1/950~(0.1%)
2	6-F	0.83	0/634	0.77	1/848~(0.1%)



Mal	Chain	B	Bond lengths		Bond angles
	Unain	RMSZ	# Z  > 5	RMSZ	# Z  > 5
2	7-B	0.81	0/711	0.75	0/950
2	7-F	0.82	0/634	0.76	1/848~(0.1%)
2	8-B	0.82	0/711	0.75	0/950
2	8-F	0.82	0/634	0.76	1/848~(0.1%)
2	9-B	0.82	0/711	0.76	1/950~(0.1%)
2	9-F	0.84	0/634	0.76	1/848~(0.1%)
2	10-B	0.82	0/711	0.75	1/950~(0.1%)
2	10-F	0.83	0/634	0.77	1/848~(0.1%)
3	1-C	0.82	0/833	0.62	0/1124
3	1-G	0.83	0/833	0.69	1/1124~(0.1%)
3	2-C	0.82	0/833	0.62	0/1124
3	2-G	0.83	0/833	0.70	1/1124~(0.1%)
3	3-C	0.82	0/833	0.62	0/1124
3	3-G	0.83	0/833	0.68	1/1124~(0.1%)
3	4-C	0.82	0/833	0.62	0/1124
3	4-G	0.83	0/833	0.69	1/1124~(0.1%)
3	5-C	0.82	0/833	0.63	0/1124
3	5-G	0.83	0/833	0.69	1/1124~(0.1%)
3	6-C	0.82	0/833	0.63	0/1124
3	6-G	0.83	0/833	0.69	1/1124~(0.1%)
3	7-C	0.82	0/833	0.62	0/1124
3	7-G	0.82	0/833	0.69	1/1124~(0.1%)
3	8-C	0.82	0/833	0.62	0/1124
3	8-G	0.83	0/833	0.69	1/1124~(0.1%)
3	9-C	0.82	0/833	0.62	0/1124
3	9-G	0.82	0/833	0.69	1/1124~(0.1%)
3	10-C	0.82	0/833	0.62	0/1124
3	10-G	0.83	0/833	0.69	1/1124~(0.1%)
4	1-D	0.88	0/730	0.68	0/983
4	1-H	0.87	0/730	0.69	0/983
4	2-D	0.88	0/730	0.68	0/983
4	2-H	0.88	0/730	0.69	0/983
4	3-D	0.88	0/730	0.69	0/983
4	3-H	0.88	0/730	0.69	0/983
4	4-D	0.88	0/730	0.68	0/983
4	4-H	0.88	0/730	0.68	0/983
4	5-D	0.88	0/730	0.67	0/983
4	5-H	0.88	0/730	0.70	0/983
4	6-D	0.88	0/730	0.68	0/983
4	6-H	0.87	0/730	0.67	0/983
4	7-D	0.88	0/730	0.67	0/983
4	7-H	0.87	0/730	0.69	0/983
4	8-D	0.88	0/730	0.68	0/983



Mal	Chain	B	ond lengths	I	Bond angles
	Chain	RMSZ	# Z  > 5	RMSZ	# Z  > 5
4	8-H	0.87	0/730	0.70	0/983
4	9-D	0.88	0/730	0.68	0/983
4	9-H	0.88	0/730	0.68	0/983
4	10-D	0.88	0/730	0.68	0/983
4	10-H	0.87	0/730	0.69	0/983
5	1-I	0.92	0/3333	0.98	0/5137
5	2-I	0.92	0/3333	0.98	0/5137
5	3-I	0.92	0/3333	0.98	0/5137
5	4-I	0.92	0/3333	0.98	0/5137
5	5-I	0.92	0/3333	0.98	0/5137
5	6-I	0.92	0/3333	0.98	0/5137
5	7-I	0.92	0/3333	0.98	0/5137
5	8-I	0.92	0/3333	0.98	0/5137
5	9-I	0.92	0/3333	0.98	0/5137
5	10-I	0.92	0/3333	0.98	0/5137
6	1-J	0.94	0/3381	0.97	0/5221
6	2-J	0.94	0/3381	0.97	0/5221
6	3-J	0.94	0/3381	0.97	0/5221
6	4-J	0.94	0/3381	0.97	0/5221
6	5-J	0.94	0/3381	0.97	0/5221
6	6-J	0.94	0/3381	0.97	0/5221
6	7-J	0.94	0/3381	0.97	0/5221
6	8-J	0.94	0/3381	0.97	0/5221
6	9-J	0.94	0/3381	0.97	0/5221
6	10-J	0.94	0/3381	0.97	0/5221
7	1-K	0.82	1/5138~(0.0%)	0.77	7/6910~(0.1%)
7	2-K	0.81	1/5138~(0.0%)	0.76	7/6910~(0.1%)
7	3-K	0.82	1/5138~(0.0%)	0.76	6/6910~(0.1%)
7	4-K	0.82	1/5138~(0.0%)	0.75	9/6910~(0.1%)
7	5-K	0.82	2/5138~(0.0%)	0.77	9/6910~(0.1%)
7	6-K	0.81	1/5138~(0.0%)	0.78	9/6910~(0.1%)
7	7-K	0.81	1/5138~(0.0%)	0.77	10/6910~(0.1%)
7	8-K	0.81	1/5138~(0.0%)	0.75	7/6910~(0.1%)
7	9-K	0.83	3/5138~(0.1%)	0.77	9/6910~(0.1%)
7	10-K	0.82	1/5138~(0.0%)	0.76	7/6910~(0.1%)
8	1-L	0.85	0/3220	0.70	0/4355
8	2-L	0.85	0/3220	0.70	0/4355
8	3-L	0.85	0/3220	0.70	0/4355
8	4-L	0.85	0/3220	0.70	0/4355
8	5-L	0.85	0/3220	0.70	0/4355
8	6-L	0.85	$0/322\overline{0}$	$0.7\overline{0}$	0/4355
8	7-L	0.85	0/3220	0.70	0/4355
8	8-L	0.85	$0/3\overline{220}$	0.70	$0/4\overline{355}$



Mal	Chain B		Bond lengths		Bond angles		
	Unain	RMSZ	# Z  > 5	RMSZ	# Z  > 5		
8	9-L	0.85	0/3220	0.70	0/4355		
8	10-L	0.85	0/3220	0.70	0/4355		
9	1-M	0.85	0/3259	0.70	0/4417		
9	2-M	0.85	0/3259	0.70	0/4417		
9	3-M	0.85	0/3259	0.70	0/4417		
9	4-M	0.85	0/3259	0.70	0/4417		
9	5-M	0.85	0/3259	0.70	0/4417		
9	6-M	0.85	0/3259	0.70	0/4417		
9	7-M	0.85	0/3259	0.70	0/4417		
9	8-M	0.85	0/3259	0.70	0/4417		
9	9-M	0.85	0/3259	0.70	0/4417		
9	10-M	0.85	0/3259	0.70	0/4417		
10	1-N	0.89	0/505	0.70	0/674		
10	2-N	0.89	0/505	0.70	0/674		
10	3-N	0.89	0/505	0.70	0/674		
10	4-N	0.89	0/505	0.70	0/674		
10	5-N	0.89	0/505	0.70	0/674		
10	6-N	0.89	0/505	0.70	0/674		
10	7-N	0.89	0/505	0.70	0/674		
10	8-N	0.89	0/505	0.70	0/674		
10	9-N	0.89	0/505	0.70	0/674		
10	10-N	0.89	0/505	0.70	0/674		
All	All	0.87	13/249210~(0.0%)	0.80	$111/348880 \ (0.0\%)$		

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

Mol	Chain	#Chirality outliers	#Planarity outliers
7	6-K	0	2
9	1-M	0	2
9	2-M	0	2
9	3-M	0	2
9	4-M	0	2
9	5-M	0	2
9	6-M	0	2
9	7-M	0	2
9	8-M	0	2
9	9-M	0	2
9	10-M	0	2
All	All	0	22



Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	1-K	342	TRP	C-N	8.43	1.53	1.34
7	2-K	342	TRP	C-N	8.43	1.53	1.34
7	3-K	342	TRP	C-N	8.43	1.53	1.34
7	4-K	342	TRP	C-N	8.43	1.53	1.34
7	5-K	342	TRP	C-N	8.43	1.53	1.34

The worst 5 of 13 bond length outliers are listed below:

The worst 5 of 111 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$Observed(^{o})$	$Ideal(^{o})$
7	1-K	342	TRP	C-N-CA	13.52	155.50	121.70
7	2-K	342	TRP	C-N-CA	13.52	155.50	121.70
7	3-K	342	TRP	C-N-CA	13.52	155.50	121.70
7	4-K	342	TRP	C-N-CA	13.52	155.50	121.70
7	5-K	342	TRP	C-N-CA	13.52	155.50	121.70

There are no chirality outliers.

5 of 22 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
9	1-M	3	PRO	Peptide,Mainchain
9	2-M	3	PRO	Peptide,Mainchain
9	3-M	3	PRO	Peptide,Mainchain
9	4-M	3	PRO	Peptide,Mainchain
9	5-M	3	PRO	Mainchain

## 5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1-A	809	0	849	3	0
1	1-E	783	0	822	3	0
1	2-A	809	0	849	3	0
1	2-E	783	0	822	5	0
1	3-A	809	0	849	3	0
1	3-E	783	0	822	4	0
1	4-A	809	0	849	4	0



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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	4-E	783	0	822	4	0
1	5-A	809	0	849	3	0
1	5-E	783	0	822	4	0
1	6-A	809	0	849	3	0
1	6-E	783	0	822	4	0
1	7-A	809	0	849	4	0
1	7-E	783	0	822	4	0
1	8-A	809	0	849	3	0
1	8-E	783	0	822	4	0
1	9-A	809	0	849	3	0
1	9-E	783	0	822	4	0
1	10-A	809	0	849	3	0
1	10-E	783	0	822	3	0
2	1-B	703	0	757	3	0
2	1-F	627	0	663	2	0
2	2-B	703	0	757	2	0
2	2-F	627	0	663	1	0
2	3-B	703	0	757	2	0
2	3-F	627	0	663	1	0
2	4-B	703	0	757	3	0
2	4-F	627	0	663	1	0
2	5-B	703	0	757	3	0
2	5-F	627	0	663	2	0
2	6-B	703	0	757	2	0
2	6-F	627	0	663	2	0
2	7-B	703	0	757	3	0
2	7-F	627	0	663	3	0
2	8-B	703	0	757	2	0
2	8-F	627	0	663	2	0
2	9-B	703	0	757	2	0
2	9-F	627	0	663	2	0
2	10-B	703	0	757	2	0
2	10-F	627	0	663	3	0
3	1-C	823	0	882	3	0
3	1-G	823	0	882	8	0
3	2-C	823	0	882	3	0
3	2-G	823	0	882	8	0
3	3-C	823	0	882	4	0
3	3-G	823	0	882	8	0
3	4-C	823	0	882	3	0
3	4-G	823	0	882	8	0
3	5-C	823	0	882	3	0



		<i>i previous</i>		<b>TT</b> (111)		a al i
Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	5-G	823	0	882	8	0
3	6-C	823	0	882	3	0
3	6-G	823	0	882	8	0
3	7-C	823	0	882	3	0
3	7-G	823	0	882	8	0
3	8-C	823	0	882	3	0
3	8-G	823	0	882	8	0
3	9-C	823	0	882	3	0
3	9-G	823	0	882	8	0
3	10-C	823	0	882	3	0
3	10-G	823	0	882	8	0
4	1-D	719	0	740	0	0
4	1-H	719	0	740	2	0
4	2-D	719	0	740	0	0
4	2-H	719	0	740	2	0
4	3-D	719	0	740	0	0
4	3-H	719	0	740	2	0
4	4-D	719	0	740	0	0
4	4-H	719	0	740	2	0
4	5-D	719	0	740	0	0
4	5-H	719	0	740	2	0
4	6-D	719	0	740	0	0
4	6-H	719	0	740	2	0
4	7-D	719	0	740	0	0
4	7-H	719	0	740	2	0
4	8-D	719	0	740	0	0
4	8-H	719	0	740	2	0
4	9-D	719	0	740	0	0
4	9-H	719	0	740	2	0
4	10-D	719	0	740	0	0
4	10-H	719	0	740	2	0
5	1-I	2975	0	1639	20	0
5	2-I	2975	0	1639	18	0
5	3-I	2975	0	1639	28	0
5	4-I	2975	0	1639	23	0
5	5-I	2975	0	1639	22	0
5	6-I	2975	0	1639	26	0
5	7-T	2975	0	1639	29	0
5	8-I	2975	0	1639	34	0
5	9-T	2975	0	1639	22	0
5	10-T	2975	0	1639	30	0
6	1I	3011	0	1639	17	0
		0011		1000	· · ·	



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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes		
6	2-J	3011	0	1639	18	0		
6	3-J	3011	0	1639	18	0		
6	4-J	3011	0	1639	27	0		
6	5-J	3011	0	1639	19	0		
6	6-J	3011	0	1639	20	0		
6	7-J	3011	0	1639	21	0		
6	8-J	3011	0	1639	19	0		
6	9-J	3011	0	1639	23	0		
6	10-J	3011	0	1639	20	0		
7	1-K	5055	0	5102	167	0		
7	2-K	5055	0	5102	172	0		
7	3-K	5055	0	5102	167	0		
7	4-K	5055	0	5102	184	0		
7	5-K	5055	0	5102	169	0		
7	6-K	5055	0	5102	184	0		
7	7-K	5055	0	5102	179	0		
7	8-K	5055	0	5102	196	0		
7	9-K	5055	0	5102	183	0		
7	10-K	5055	0	5102	185	0		
8	1-L	3154	0	3173	11	0		
8	2-L	3154	0	3173	11	0		
8	3-L	3154	0	3173	11	0		
8	4-L	3154	0	3173	11	0		
8	5-L	3154	0	3173	11	0		
8	6-L	3154	0	3173	11	0		
8	7-L	3154	0	3173	11	0		
8	8-L	3154	0	3173	11	0		
8	9-L	3154	0	3173	11	0		
8	10-L	3154	0	3173	11	0		
9	1-M	3192	0	3180	124	0		
9	2-M	3192	0	3180	124	0		
9	3-M	3192	0	3180	124	0		
9	4-M	3192	0	3180	124	0		
9	5-M	3192	0	3180	124	0		
9	6-M	3192	0	3180	124	0		
9	7-M	3192	0	3180	124	0		
9	8-M	3192	0	3180	132	0		
9	9-M	3192	0	3180	124	0		
9	10-M	3192	0	3180	124	0		
10	1-N	494	0	473	6	0		
10	2-N	494	0	473	6	0		
10	3-N	494	0	473	6	0		



Conti	Continuea from previous page							
Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes		
10	4-N	494	0	473	6	0		
10	5-N	494	0	473	6	0		
10	6-N	494	0	473	6	0		
10	7-N	494	0	473	6	0		
10	8-N	494	0	473	6	0		
10	9-N	494	0	473	6	0		
10	10-N	494	0	473	6	0		
11	1-K	1	0	0	0	0		
11	2-K	1	0	0	0	0		
11	3-K	1	0	0	0	0		
11	4-K	1	0	0	0	0		
11	5-K	1	0	0	0	0		
11	6-K	1	0	0	0	0		
11	7-K	1	0	0	0	0		
11	8-K	1	0	0	0	0		
11	9-K	1	0	0	0	0		
11	10-K	1	0	0	0	0		
12	1-K	27	0	12	3	0		
12	2-K	27	0	12	1	0		
12	3-K	27	0	12	5	0		
12	4-K	27	0	12	3	0		
12	5-K	27	0	12	2	0		
12	6-K	27	0	12	2	0		
12	7-K	27	0	12	1	0		
12	8-K	27	0	12	2	0		
12	9-K	27	0	12	3	0		
12	10-K	27	0	12	4	0		
13	1-K	4	0	0	0	0		
13	2-K	4	0	0	0	0		
13	3-K	4	0	0	3	0		
13	4-K	4	0	0	0	0		
13	5-K	4	0	0	0	0		
13	6-K	4	0	0	1	0		
13	7-K	4	0	0	0	0		
13	8-K	4	0	0	0	0		
13	9-K	4	0	0	2	0		
13	10-K	4	0	0	0	0		
14	1-L	31	0	12	1	0		
14	2-L	31	0	12	1	0		
14	3-L	31	0	12	1	0		
14	4-L	31	0	12	1	0		
14	5-L	31	0	12	1	0		



Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes		
14	6-L	31	0	12	1	0		
14	7-L	31	0	12	1	0		
14	8-L	31	0	12	1	0		
14	9-L	31	0	12	1	0		
14	10-L	31	0	12	1	0		
All	All	239500	0	215650	2477	0		

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

The worst 5 of 2477 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:K:351:PHE:CE1	9:M:467:PHE:CE2	1.78	1.70
7:K:351:PHE:CE1	9:M:467:PHE:CE2	1.78	1.70
7:K:351:PHE:CE1	9:M:467:PHE:CE2	1.78	1.70
7:K:351:PHE:CE1	9:M:467:PHE:CE2	1.78	1.70
7:K:351:PHE:CE1	9:M:467:PHE:CE2	1.78	1.70

There are no symmetry-related clashes.

#### 5.3 Torsion angles (i)

#### 5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	ntiles
1	1-A	96/136~(71%)	95~(99%)	1 (1%)	0	100	100
1	1-E	93/136~(68%)	92~(99%)	1 (1%)	0	100	100
1	2-A	96/136~(71%)	95~(99%)	1 (1%)	0	100	100
1	2-E	93/136~(68%)	92~(99%)	1 (1%)	0	100	100
1	3-A	96/136~(71%)	95~(99%)	1 (1%)	0	100	100



Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	ntiles
1	3-E	93/136~(68%)	92 (99%)	1 (1%)	0	100	100
1	4-A	96/136~(71%)	95 (99%)	1 (1%)	0	100	100
1	4-E	93/136~(68%)	92 (99%)	1 (1%)	0	100	100
1	5-A	96/136~(71%)	95 (99%)	1 (1%)	0	100	100
1	5-E	93/136~(68%)	92 (99%)	1 (1%)	0	100	100
1	6-A	96/136~(71%)	95 (99%)	1 (1%)	0	100	100
1	6-E	93/136~(68%)	93 (100%)	0	0	100	100
1	7-A	96/136~(71%)	95 (99%)	1 (1%)	0	100	100
1	7-E	93/136~(68%)	92 (99%)	1 (1%)	0	100	100
1	8-A	96/136~(71%)	95 (99%)	1 (1%)	0	100	100
1	8-E	93/136~(68%)	91 (98%)	2 (2%)	0	100	100
1	9-A	96/136~(71%)	95 (99%)	1 (1%)	0	100	100
1	9-E	93/136~(68%)	92 (99%)	1 (1%)	0	100	100
1	10-A	96/136~(71%)	95 (99%)	1 (1%)	0	100	100
1	10-E	93/136~(68%)	92 (99%)	1 (1%)	0	100	100
2	1-B	85/103~(82%)	83 (98%)	2 (2%)	0	100	100
2	1-F	77/103~(75%)	76 (99%)	1 (1%)	0	100	100
2	2-B	85/103~(82%)	83 (98%)	2 (2%)	0	100	100
2	2-F	77/103~(75%)	76 (99%)	1 (1%)	0	100	100
2	3-B	85/103~(82%)	83 (98%)	2 (2%)	0	100	100
2	3-F	77/103~(75%)	76 (99%)	1 (1%)	0	100	100
2	4-B	85/103~(82%)	83 (98%)	2 (2%)	0	100	100
2	4-F	77/103~(75%)	76 (99%)	1 (1%)	0	100	100
2	5-B	85/103~(82%)	83 (98%)	2 (2%)	0	100	100
2	5-F	77/103~(75%)	76 (99%)	1 (1%)	0	100	100
2	6-B	85/103~(82%)	82 (96%)	3 (4%)	0	100	100
2	6-F	77/103~(75%)	76 (99%)	1 (1%)	0	100	100
2	7-B	85/103 (82%)	82 (96%)	3 (4%)	0	100	100
2	7-F	77/103~(75%)	76 (99%)	1 (1%)	0	100	100
2	8-B	85/103 (82%)	83 (98%)	2 (2%)	0	100	100
2	8-F	77/103~(75%)	76 (99%)	1 (1%)	0	100	100



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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	ntiles
2	9-B	85/103~(82%)	83~(98%)	2 (2%)	0	100	100
2	9-F	77/103~(75%)	76 (99%)	1 (1%)	0	100	100
2	10-B	85/103~(82%)	83~(98%)	2 (2%)	0	100	100
2	10-F	77/103~(75%)	75 (97%)	2 (3%)	0	100	100
3	1-C	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	1-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	2-C	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	2-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	3-C	105/130~(81%)	103 (98%)	2 (2%)	0	100	100
3	3-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	4-C	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	4-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	5-C	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	5-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	6-C	105/130~(81%)	103 (98%)	2 (2%)	0	100	100
3	6-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	7-C	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	7-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	8-C	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	8-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	9-C	105/130~(81%)	103 (98%)	2 (2%)	0	100	100
3	9-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	10-C	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
3	10-G	105/130~(81%)	102 (97%)	3 (3%)	0	100	100
4	1-D	90/125~(72%)	85 (94%)	5 (6%)	0	100	100
4	1-H	90/125~(72%)	88 (98%)	1 (1%)	1 (1%)	14	51
4	2-D	90/125~(72%)	86 (96%)	4 (4%)	0	100	100
4	2-H	90/125~(72%)	89 (99%)	1 (1%)	0	100	100
4	3-D	90/125~(72%)	86 (96%)	3 (3%)	1 (1%)	14	51
4	3-H	90/125~(72%)	88 (98%)	2 (2%)	0	100	100
4	4-D	90/125~(72%)	85 (94%)	5 (6%)	0	100	100



Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	entiles
4	4-H	90/125~(72%)	89 (99%)	0	1 (1%)	14	51
4	5-D	90/125~(72%)	85 (94%)	5 (6%)	0	100	100
4	5-H	90/125~(72%)	88 (98%)	1 (1%)	1 (1%)	14	51
4	6-D	90/125~(72%)	86 (96%)	4 (4%)	0	100	100
4	6-H	90/125~(72%)	89 (99%)	1 (1%)	0	100	100
4	7-D	90/125~(72%)	85 (94%)	5 (6%)	0	100	100
4	7-H	90/125~(72%)	89 (99%)	1 (1%)	0	100	100
4	8-D	90/125~(72%)	85 (94%)	5 (6%)	0	100	100
4	8-H	90/125~(72%)	89 (99%)	0	1 (1%)	14	51
4	9-D	90/125~(72%)	87 (97%)	3 (3%)	0	100	100
4	9-H	90/125~(72%)	89 (99%)	0	1 (1%)	14	51
4	10-D	90/125~(72%)	85 (94%)	5 (6%)	0	100	100
4	10-H	90/125~(72%)	88 (98%)	1 (1%)	1 (1%)	14	51
7	1-K	602/813~(74%)	566 (94%)	24 (4%)	12 (2%)	7	40
7	2-K	602/813~(74%)	564 (94%)	25~(4%)	13~(2%)	6	38
7	3-K	602/813~(74%)	560 (93%)	30 (5%)	12 (2%)	7	40
7	4-K	602/813~(74%)	566 (94%)	24 (4%)	12 (2%)	7	40
7	5-K	602/813~(74%)	560 (93%)	30 (5%)	12 (2%)	7	40
7	6-K	602/813~(74%)	558~(93%)	32~(5%)	12 (2%)	7	40
7	7-K	602/813~(74%)	560~(93%)	31 (5%)	11 (2%)	8	42
7	8-K	602/813~(74%)	558~(93%)	36~(6%)	8 (1%)	12	48
7	9-K	602/813~(74%)	559~(93%)	32 (5%)	11 (2%)	8	42
7	10-K	602/813~(74%)	561 (93%)	29 (5%)	12 (2%)	7	40
8	1-L	383/477~(80%)	371 (97%)	11 (3%)	1 (0%)	41	75
8	2-L	383/477~(80%)	371 (97%)	11 (3%)	1 (0%)	41	75
8	3-L	383/477~(80%)	371 (97%)	11 (3%)	1 (0%)	41	75
8	4-L	383/477~(80%)	371 (97%)	11 (3%)	1 (0%)	41	75
8	5-L	383/477~(80%)	371 (97%)	11 (3%)	1 (0%)	41	75
8	6-L	383/477~(80%)	371 (97%)	11 (3%)	1 (0%)	41	75
8	7-L	$\overline{383/477}~(80\%)$	371 (97%)	11 (3%)	1 (0%)	41	75
8	8-L	383/477~(80%)	371 (97%)	11 (3%)	1 (0%)	41	75



Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	entiles
8	9-L	383/477~(80%)	371 (97%)	11 (3%)	1 (0%)	41	75
8	10-L	383/477~(80%)	371 (97%)	11 (3%)	1 (0%)	41	75
9	1-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
9	2-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
9	3-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
9	4-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
9	5-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
9	6-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
9	7-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
9	8-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
9	9-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
9	10-M	390/467~(84%)	371 (95%)	13 (3%)	6 (2%)	10	45
10	1-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
10	2-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
10	3-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
10	4-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
10	5-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
10	6-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
10	7-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
10	8-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
10	9-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
10	10-N	47/157~(30%)	44 (94%)	2 (4%)	1 (2%)	7	39
All	All	21630/29020~(74%)	20713 (96%)	715 (3%)	202 (1%)	21	54

5 of 202 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	1-K	343	SER
7	1-K	496	GLU
7	1-K	634	LEU
8	1-L	202	LYS
9	1-M	155	SER



#### 5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent side chain 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 side chain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Perce	ntiles
1	1-A	86/111~(78%)	86 (100%)	0	100	100
1	1-E	83/111~(75%)	83 (100%)	0	100	100
1	2-A	86/111 (78%)	86 (100%)	0	100	100
1	2-E	83/111 (75%)	83 (100%)	0	100	100
1	3-A	86/111 (78%)	86 (100%)	0	100	100
1	3-E	83/111 (75%)	83 (100%)	0	100	100
1	4-A	86/111 (78%)	86 (100%)	0	100	100
1	4-E	83/111 (75%)	83 (100%)	0	100	100
1	5-A	86/111 (78%)	86 (100%)	0	100	100
1	5-E	83/111 (75%)	83 (100%)	0	100	100
1	6-A	86/111 (78%)	86 (100%)	0	100	100
1	6-E	83/111 (75%)	83 (100%)	0	100	100
1	7-A	86/111 (78%)	86 (100%)	0	100	100
1	7-E	83/111 (75%)	83 (100%)	0	100	100
1	8-A	86/111 (78%)	86 (100%)	0	100	100
1	8-E	83/111 (75%)	83 (100%)	0	100	100
1	9-A	86/111 (78%)	86 (100%)	0	100	100
1	9-E	83/111 (75%)	83 (100%)	0	100	100
1	10-A	86/111 (78%)	86 (100%)	0	100	100
1	10-E	83/111 (75%)	83 (100%)	0	100	100
2	1-B	72/79~(91%)	72 (100%)	0	100	100
2	1-F	64/79~(81%)	64 (100%)	0	100	100
2	2-B	72/79~(91%)	72 (100%)	0	100	100
2	2-F	64/79~(81%)	64 (100%)	0	100	100
2	3-B	72/79~(91%)	72 (100%)	0	100	100
2	3-F	64/79~(81%)	64 (100%)	0	100	100



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Mol	Chain	Analysed	Rotameric	Outliers	Perce	ntiles	;
2	4-B	72/79~(91%)	72 (100%)	0	100	100	
2	4-F	64/79~(81%)	64 (100%)	0	100	100	
2	5-B	72/79~(91%)	72 (100%)	0	100	100	
2	5-F	64/79~(81%)	64 (100%)	0	100	100	
2	6-B	72/79~(91%)	72~(100%)	0	100	100	
2	6-F	64/79~(81%)	64 (100%)	0	100	100	
2	7-B	72/79~(91%)	72~(100%)	0	100	100	
2	7-F	64/79~(81%)	64 (100%)	0	100	100	
2	8-B	72/79~(91%)	72 (100%)	0	100	100	
2	8-F	64/79~(81%)	64 (100%)	0	100	100	
2	9-B	72/79~(91%)	72 (100%)	0	100	100	
2	9-F	64/79~(81%)	64 (100%)	0	100	100	
2	10-B	72/79~(91%)	72 (100%)	0	100	100	
2	10-F	64/79~(81%)	64 (100%)	0	100	100	
3	1-C	84/102 (82%)	84 (100%)	0	100	100	
3	1-G	84/102 (82%)	84 (100%)	0	100	100	
3	2-C	84/102 (82%)	84 (100%)	0	100	100	
3	2-G	84/102 (82%)	84 (100%)	0	100	100	
3	3-C	84/102~(82%)	84 (100%)	0	100	100	
3	3-G	84/102~(82%)	84 (100%)	0	100	100	
3	4-C	84/102~(82%)	84 (100%)	0	100	100	
3	4-G	84/102~(82%)	84 (100%)	0	100	100	
3	5-C	84/102 (82%)	84 (100%)	0	100	100	
3	5-G	84/102 (82%)	84 (100%)	0	100	100	
3	6-C	84/102 (82%)	84 (100%)	0	100	100	
3	6-G	84/102 (82%)	84 (100%)	0	100	100	
3	7-C	84/102 (82%)	84 (100%)	0	100	100	
3	7-G	84/102~(82%)	84 (100%)	0	100	100	ſ
3	8-C	84/102 (82%)	84 (100%)	0	100	100	ſ
3	8-G	84/102 (82%)	84 (100%)	0	100	100	ſ
3	9-C	84/102 (82%)	84 (100%)	0	100	100	ľ

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Mol	Chain	Analysed	Rotameric	Outliers	Perce	entiles
3	9-G	84/102~(82%)	84 (100%)	0	100	100
3	10-C	84/102~(82%)	84 (100%)	0	100	100
3	10-G	84/102~(82%)	84 (100%)	0	100	100
4	1-D	78/104~(75%)	78 (100%)	0	100	100
4	1-H	78/104~(75%)	78 (100%)	0	100	100
4	2-D	78/104~(75%)	78 (100%)	0	100	100
4	2-H	78/104 (75%)	78 (100%)	0	100	100
4	3-D	78/104 (75%)	78 (100%)	0	100	100
4	3-H	78/104 (75%)	78 (100%)	0	100	100
4	4-D	78/104 (75%)	78 (100%)	0	100	100
4	4-H	78/104 (75%)	78 (100%)	0	100	100
4	5-D	78/104 (75%)	78 (100%)	0	100	100
4	5-H	78/104 (75%)	78 (100%)	0	100	100
4	6-D	78/104 (75%)	78 (100%)	0	100	100
4	6-H	78/104 (75%)	78 (100%)	0	100	100
4	7-D	78/104 (75%)	78 (100%)	0	100	100
4	7-H	78/104 (75%)	78 (100%)	0	100	100
4	8-D	78/104~(75%)	78 (100%)	0	100	100
4	8-H	78/104~(75%)	78 (100%)	0	100	100
4	9-D	78/104~(75%)	78 (100%)	0	100	100
4	9-H	78/104~(75%)	78 (100%)	0	100	100
4	10-D	78/104~(75%)	78 (100%)	0	100	100
4	10-H	78/104~(75%)	78 (100%)	0	100	100
7	1-K	558/735~(76%)	554 (99%)	4 (1%)	84	90
7	2-K	558/735~(76%)	554 (99%)	4 (1%)	84	90
7	3-K	$\overline{558/735}\ (76\%)$	554 (99%)	4 (1%)	84	90
7	4-K	558/735~(76%)	552 (99%)	6 (1%)	73	84
7	5-K	$\overline{558/735}\ (76\%)$	554 (99%)	4 (1%)	84	90
7	6-K	558/735~(76%)	552 (99%)	6 (1%)	73	84
7	7-K	558/735~(76%)	554 (99%)	4 (1%)	84	90
7	8-K	558/735~(76%)	553 (99%)	5 (1%)	78	87



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Mol	Chain	Analysed	Rotameric	Outliers	Perce	ntiles
7	9-K	558/735~(76%)	552~(99%)	6 (1%)	73	84
7	10 <b>-</b> K	558/735~(76%)	555 (100%)	3~(0%)	88	93
8	1-L	349/420~(83%)	349 (100%)	0	100	100
8	2-L	349/420~(83%)	349 (100%)	0	100	100
8	3-L	349/420~(83%)	349 (100%)	0	100	100
8	4-L	349/420~(83%)	349 (100%)	0	100	100
8	5-L	349/420~(83%)	349 (100%)	0	100	100
8	6-L	349/420~(83%)	349 (100%)	0	100	100
8	7-L	349/420~(83%)	349 (100%)	0	100	100
8	8-L	349/420~(83%)	349 (100%)	0	100	100
8	9-L	349/420~(83%)	349 (100%)	0	100	100
8	10-L	349/420~(83%)	349 (100%)	0	100	100
9	1-M	362/423~(86%)	362 (100%)	0	100	100
9	2-M	362/423~(86%)	362 (100%)	0	100	100
9	3-M	362/423~(86%)	362 (100%)	0	100	100
9	4-M	362/423~(86%)	362 (100%)	0	100	100
9	5-M	362/423~(86%)	362 (100%)	0	100	100
9	6-M	362/423~(86%)	362 (100%)	0	100	100
9	7-M	362/423~(86%)	362 (100%)	0	100	100
9	8-M	362/423~(86%)	362 (100%)	0	100	100
9	9-M	362/423~(86%)	362 (100%)	0	100	100
9	10-M	362/423~(86%)	362 (100%)	0	100	100
10	1-N	54/140~(39%)	54 (100%)	0	100	100
10	2-N	54/140~(39%)	54 (100%)	0	100	100
10	3-N	54/140~(39%)	54 (100%)	0	100	100
10	4-N	54/140~(39%)	54 (100%)	0	100	100
10	5-N	54/140~(39%)	54 (100%)	0	100	100
10	6-N	54/140~(39%)	54 (100%)	0	100	100
10	7-N	54/140~(39%)	54 (100%)	0	100	100
10	8-N	54/140~(39%)	54 (100%)	0	100	100
10	9-N	54/140 (39%)	54 (100%)	0	100	100



Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Perce	entiles
10	10-N	54/140~(39%)	54 (100%)	0	100	100
All	All	19520/25100~(78%)	19474 (100%)	46 (0%)	93	96

 $5~{\rm of}~46$  residues with a non-rotameric side chain are listed below:

Mol	Chain	Res	Type
7	7-K	351	PHE
7	8-K	836	ARG
7	7-K	362	MET
7	8-K	351	PHE
7	9-K	351	PHE

Sometimes side chains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 33 such side chains are listed below:

Mol	Chain	Res	Type
7	9-K	361	GLN
8	9-L	11	HIS
8	10-L	11	HIS
8	4-L	11	HIS
7	4-K	361	GLN

#### 5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry (i)

Of 40 ligands modelled in this entry, 10 are monoatomic - leaving 30 for Mogul analysis.

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



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

Mol	Type	Chain	Bog	Link	Bo	Bond lengths		Bond angles		
WIOI	Type	Ullalli	nes		Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
12	ADP	8-K	1502	13	24,29,29	1.01	0	29,45,45	1.80	4 (13%)
14	ATP	8-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
12	ADP	6-K	1502	13	24,29,29	1.03	2 (8%)	29,45,45	1.59	4 (13%)
14	ATP	3-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
12	ADP	10-K	1502	13	24,29,29	1.08	2 (8%)	29,45,45	1.57	3 (10%)
13	BEF	4-K	1503	12	0,3,3	-	-	-		
14	ATP	5-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
13	BEF	10-K	1503	12	0,3,3	-	-	-		
13	BEF	6-K	1503	12	0,3,3	-	-	-		
14	ATP	9-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
12	ADP	7-K	1502	13	24,29,29	1.03	2 (8%)	29,45,45	1.49	3 (10%)
14	ATP	10-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
14	ATP	6-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
13	BEF	8-K	1503	12	0,3,3	-	-	_		
12	ADP	5-K	1502	13	24,29,29	1.10	2 (8%)	29,45,45	1.64	4 (13%)
13	BEF	3-K	1503	12	0,3,3	-	-	-		
13	BEF	7-K	1503	12	0,3,3	-	-	-		
12	ADP	9-K	1502	13	24,29,29	0.98	2 (8%)	29,45,45	1.64	4 (13%)
13	BEF	9-K	1503	12	0,3,3	-	-	-		
13	BEF	5-K	1503	12	0,3,3	-	-	-		
12	ADP	1-K	1502	13	24,29,29	1.03	1 (4%)	29,45,45	1.67	4 (13%)
13	BEF	1-K	1503	12	0,3,3	-	-	-		
14	ATP	1-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
14	ATP	7-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
12	ADP	3-K	1502	13	24,29,29	1.03	2 (8%)	29,45,45	1.54	4 (13%)
14	ATP	2-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
12	ADP	4-K	1502	13	24,29,29	0.99	1 (4%)	29,45,45	1.55	5 (17%)
14	ATP	4-L	501	-	26,33,33	1.00	0	31,52,52	2.15	6 (19%)
13	BEF	2-K	1503	12	0,3,3	-	-	-		
12	ADP	2-K	1502	13	24,29,29	0.99	1 (4%)	29,45,45	1.73	6 (20%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the



Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
12	ADP	8-K	1502	13	-	3/12/32/32	0/3/3/3
14	ATP	8-L	501	-	-	1/18/38/38	0/3/3/3
12	ADP	6-K	1502	13	-	4/12/32/32	0/3/3/3
14	ATP	3-L	501	-	-	1/18/38/38	0/3/3/3
12	ADP	10-K	1502	13	-	5/12/32/32	0/3/3/3
14	ATP	5-L	501	-	-	1/18/38/38	0/3/3/3
14	ATP	9-L	501	-	-	1/18/38/38	0/3/3/3
12	ADP	7-K	1502	13	-	3/12/32/32	0/3/3/3
14	ATP	10-L	501	-	-	1/18/38/38	0/3/3/3
14	ATP	6-L	501	-	-	1/18/38/38	0/3/3/3
12	ADP	5-K	1502	13	-	3/12/32/32	0/3/3/3
12	ADP	9-K	1502	13	-	4/12/32/32	0/3/3/3
12	ADP	1-K	1502	13	-	3/12/32/32	0/3/3/3
14	ATP	1-L	501	-	-	1/18/38/38	0/3/3/3
14	ATP	7-L	501	-	-	1/18/38/38	0/3/3/3
12	ADP	3-K	1502	13	-	7/12/32/32	0/3/3/3
14	ATP	2-L	501	-	-	1/18/38/38	0/3/3/3
12	ADP	4-K	1502	13	-	3/12/32/32	0/3/3/3
14	ATP	4-L	501	-	-	1/18/38/38	0/3/3/3
12	ADP	2-K	1502	13	-	2/12/32/32	0/3/3/3

Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

The worst 5 of 15 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	10-K	1502	ADP	C2'-C1'	-2.42	1.50	1.53
12	4-K	1502	ADP	C2'-C1'	-2.36	1.50	1.53
12	6-K	1502	ADP	C2'-C1'	-2.33	1.50	1.53
12	7-K	1502	ADP	C2'-C1'	-2.28	1.50	1.53
12	5-K	1502	ADP	C2'-C1'	-2.26	1.50	1.53

The worst 5 of 101 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$Observed(^{o})$	$Ideal(^{o})$
14	1-L	501	ATP	PA-O3A-PB	-6.87	109.25	132.83
14	2-L	501	ATP	PA-O3A-PB	-6.87	109.25	132.83
14	3-L	501	ATP	PA-O3A-PB	-6.87	109.25	132.83
14	4-L	501	ATP	PA-O3A-PB	-6.87	109.25	132.83
14	5-L	501	ATP	PA-O3A-PB	-6.87	109.25	132.83



There are no chirality outliers.

Mol	Chain	Res	Type	Atoms
12	1-K	1502	ADP	C5'-O5'-PA-O1A
12	1-K	1502	ADP	C4'-C5'-O5'-PA
12	2-K	1502	ADP	C5'-O5'-PA-O1A
12	3-K	1502	ADP	PA-O3A-PB-O2B
12	3-K	1502	ADP	PA-O3A-PB-O3B

5 of 47 torsion outliers are listed below:

There are no ring outliers.

23 monomers are involved in 36 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
12	8-K	1502	ADP	2	0
14	8-L	501	ATP	1	0
12	6-K	1502	ADP	2	0
14	3-L	501	ATP	1	0
12	10-K	1502	ADP	4	0
14	5-L	501	ATP	1	0
13	6-K	1503	BEF	1	0
14	9-L	501	ATP	1	0
12	7-K	1502	ADP	1	0
14	10-L	501	ATP	1	0
14	6-L	501	ATP	1	0
12	5-K	1502	ADP	2	0
13	3-K	1503	BEF	3	0
12	9-K	1502	ADP	3	0
13	9-K	1503	BEF	2	0
12	1-K	1502	ADP	3	0
14	1-L	501	ATP	1	0
14	7-L	501	ATP	1	0
12	3-K	1502	ADP	5	0
14	2-L	501	ATP	1	0
12	4-K	1502	ADP	3	0
14	4-L	501	ATP	1	0
12	2-K	1502	ADP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be



highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.






# 5.7 Other polymers (i)

There are no such residues in this entry.

# 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.



# 6 Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-21484. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

# 6.1 Orthogonal projections (i)

#### 6.1.1 Primary map



Х



Ζ

6.1.2 Raw map



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



### 6.2 Central slices (i)

#### 6.2.1 Primary map



X Index: 150



Y Index: 150



Z Index: 150

#### 6.2.2 Raw 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: 154



Y Index: 163



Z Index: 174

#### 6.3.2 Raw map



X Index: 154

Y Index: 163

Z Index: 174

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



6.4.2 Raw map



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



### 6.5 Orthogonal surface views (i)

#### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.01. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

#### 6.5.2 Raw map



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

### 6.6 Mask visualisation (i)

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



# 7 Map analysis (i)

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

# 7.1 Map-value distribution (i)



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



## 7.2 Volume estimate (i)



The volume at the recommended contour level is  $505 \text{ nm}^3$ ; this corresponds to an approximate mass of 456 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 0.256  ${\rm \AA^{-1}}$ 



# 8 Fourier-Shell correlation (i)

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

#### 8.1 FSC (i)



\*Reported resolution corresponds to spatial frequency of 0.256  $\mathrm{\AA^{-1}}$ 



## 8.2 Resolution estimates (i)

$\mathbf{Bosolution} \text{ ostimato } (\mathbf{\hat{\lambda}})$	Estimation criterion (FSC cut-off)			
Resolution estimate (A)	0.143	0.5	Half-bit	
Reported by author	3.90	-	-	
Author-provided FSC curve	3.85	4.29	3.89	
Unmasked-calculated*	4.35	6.67	4.43	

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.35 differs from the reported value 3.9 by more than 10 %



# 9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-21484 and PDB model 6VZ4. Per-residue inclusion information can be found in section 3 on page 21.

# 9.1 Map-model overlay (i)



The images above show the 3D surface view of the map at the recommended contour level 0.01 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)

This section was not generated.

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.01).



### 9.4 Atom inclusion (i)



At the recommended contour level, 89% of all backbone atoms, 86% of all non-hydrogen atoms, are inside the map.



1.0

0.0 <0.0

## 9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.01) and Q-score for the entire model and for each chain.

Chain	Atom inclusion		
All	0.8580		
А	0.9150		
В	0.9170		
С	0.8930		
D	0.9330		
Е	0.9120		
F	0.9140		
G	0.9100		
Н	0.9300		
Ι	0.9930		
J	0.9910		
K	0.9210		
L	0.5700		
М	0.7540		
N	0.4050		

