



wwPDB EM Validation Summary Report ⓘ

Nov 13, 2022 – 05:38 AM EST

PDB ID : 6U8Q
EMDB ID : EMD-20689
Title : CryoEM structure of HIV-1 cleaved synaptic complex (CSC) intasome
Authors : Li, M.; Chen, X.; Craigie, R.
Deposited on : 2019-09-05
Resolution : 4.67 Å(reported)

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

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

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
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 : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

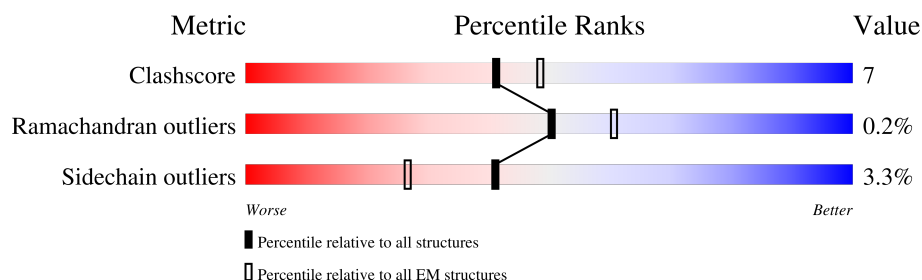
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.67 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)
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 ≥ 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	364	
1	B	364	
1	C	364	
1	D	364	
1	I	364	
1	J	364	
1	K	364	
1	L	364	

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Mol	Chain	Length	Quality of chain
1	M	364	
1	N	364	
1	O	364	
1	P	364	
2	E	27	
2	G	27	
3	F	25	
3	H	25	

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 21129 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 Integrase.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	270	Total	C	N	O	S	0	0
			2129	1354	376	390	9		
1	B	264	Total	C	N	O	S	0	0
			2083	1327	367	381	8		
1	C	270	Total	C	N	O	S	0	0
			2128	1354	375	390	9		
1	D	262	Total	C	N	O	S	0	0
			2067	1315	365	379	8		
1	I	208	Total	C	N	O	S	0	0
			1646	1053	293	294	6		
1	J	208	Total	C	N	O	S	0	0
			1639	1047	293	293	6		
1	K	145	Total	C	N	O	S	0	0
			1110	708	192	205	5		
1	L	145	Total	C	N	O	S	0	0
			1110	708	192	205	5		
1	M	194	Total	C	N	O	S	0	0
			1517	969	270	273	5		
1	N	142	Total	C	N	O	S	0	0
			1089	694	189	201	5		
1	O	142	Total	C	N	O	S	0	0
			1089	694	189	201	5		
1	P	192	Total	C	N	O	S	0	0
			1498	959	265	269	5		

There are 912 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-75	GLY	-	expression tag	UNP Q76353
A	-74	SER	-	expression tag	UNP Q76353
A	-73	HIS	-	expression tag	UNP Q76353
A	-72	MET	-	expression tag	UNP Q76353
A	-71	PRO	-	expression tag	UNP Q76353
A	-70	LYS	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-69	ARG	-	expression tag	UNP Q76353
A	-68	GLY	-	expression tag	UNP Q76353
A	-67	ARG	-	expression tag	UNP Q76353
A	-66	PRO	-	expression tag	UNP Q76353
A	-65	ALA	-	expression tag	UNP Q76353
A	-64	ALA	-	expression tag	UNP Q76353
A	-63	THR	-	expression tag	UNP Q76353
A	-62	GLU	-	expression tag	UNP Q76353
A	-61	VAL	-	expression tag	UNP Q76353
A	-60	LYS	-	expression tag	UNP Q76353
A	-59	ILE	-	expression tag	UNP Q76353
A	-58	PRO	-	expression tag	UNP Q76353
A	-57	LYS	-	expression tag	UNP Q76353
A	-56	PRO	-	expression tag	UNP Q76353
A	-55	ARG	-	expression tag	UNP Q76353
A	-54	GLY	-	expression tag	UNP Q76353
A	-53	ARG	-	expression tag	UNP Q76353
A	-52	PRO	-	expression tag	UNP Q76353
A	-51	PRO	-	expression tag	UNP Q76353
A	-50	LEU	-	expression tag	UNP Q76353
A	-49	PRO	-	expression tag	UNP Q76353
A	-48	ALA	-	expression tag	UNP Q76353
A	-47	GLY	-	expression tag	UNP Q76353
A	-46	THR	-	expression tag	UNP Q76353
A	-45	ASN	-	expression tag	UNP Q76353
A	-44	SER	-	expression tag	UNP Q76353
A	-43	LYS	-	expression tag	UNP Q76353
A	-42	GLY	-	expression tag	UNP Q76353
A	-41	PRO	-	expression tag	UNP Q76353
A	-40	PRO	-	expression tag	UNP Q76353
A	-39	ASP	-	expression tag	UNP Q76353
A	-38	PHE	-	expression tag	UNP Q76353
A	-37	SER	-	expression tag	UNP Q76353
A	-36	SER	-	expression tag	UNP Q76353
A	-35	ASP	-	expression tag	UNP Q76353
A	-34	GLU	-	expression tag	UNP Q76353
A	-33	GLU	-	expression tag	UNP Q76353
A	-32	ARG	-	expression tag	UNP Q76353
A	-31	GLU	-	expression tag	UNP Q76353
A	-30	PRO	-	expression tag	UNP Q76353
A	-29	THR	-	expression tag	UNP Q76353
A	-28	PRO	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-27	VAL	-	expression tag	UNP Q76353
A	-26	LEU	-	expression tag	UNP Q76353
A	-25	GLY	-	expression tag	UNP Q76353
A	-24	SER	-	expression tag	UNP Q76353
A	-23	GLY	-	expression tag	UNP Q76353
A	-22	ALA	-	expression tag	UNP Q76353
A	-21	ALA	-	expression tag	UNP Q76353
A	-20	ALA	-	expression tag	UNP Q76353
A	-19	ALA	-	expression tag	UNP Q76353
A	-18	GLY	-	expression tag	UNP Q76353
A	-17	GLN	-	expression tag	UNP Q76353
A	-16	SER	-	expression tag	UNP Q76353
A	-15	ARG	-	expression tag	UNP Q76353
A	-14	ALA	-	expression tag	UNP Q76353
A	-13	ALA	-	expression tag	UNP Q76353
A	-12	VAL	-	expression tag	UNP Q76353
A	-11	GLY	-	expression tag	UNP Q76353
A	-10	ARG	-	expression tag	UNP Q76353
A	-9	LYS	-	expression tag	UNP Q76353
A	-8	ALA	-	expression tag	UNP Q76353
A	-7	THR	-	expression tag	UNP Q76353
A	-6	LYS	-	expression tag	UNP Q76353
A	-5	LYS	-	expression tag	UNP Q76353
A	-4	THR	-	expression tag	UNP Q76353
A	-3	ASP	-	expression tag	UNP Q76353
A	-2	GLY	-	expression tag	UNP Q76353
A	-1	GLY	-	expression tag	UNP Q76353
A	0	GLY	-	expression tag	UNP Q76353
B	-75	GLY	-	expression tag	UNP Q76353
B	-74	SER	-	expression tag	UNP Q76353
B	-73	HIS	-	expression tag	UNP Q76353
B	-72	MET	-	expression tag	UNP Q76353
B	-71	PRO	-	expression tag	UNP Q76353
B	-70	LYS	-	expression tag	UNP Q76353
B	-69	ARG	-	expression tag	UNP Q76353
B	-68	GLY	-	expression tag	UNP Q76353
B	-67	ARG	-	expression tag	UNP Q76353
B	-66	PRO	-	expression tag	UNP Q76353
B	-65	ALA	-	expression tag	UNP Q76353
B	-64	ALA	-	expression tag	UNP Q76353
B	-63	THR	-	expression tag	UNP Q76353
B	-62	GLU	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-61	VAL	-	expression tag	UNP Q76353
B	-60	LYS	-	expression tag	UNP Q76353
B	-59	ILE	-	expression tag	UNP Q76353
B	-58	PRO	-	expression tag	UNP Q76353
B	-57	LYS	-	expression tag	UNP Q76353
B	-56	PRO	-	expression tag	UNP Q76353
B	-55	ARG	-	expression tag	UNP Q76353
B	-54	GLY	-	expression tag	UNP Q76353
B	-53	ARG	-	expression tag	UNP Q76353
B	-52	PRO	-	expression tag	UNP Q76353
B	-51	PRO	-	expression tag	UNP Q76353
B	-50	LEU	-	expression tag	UNP Q76353
B	-49	PRO	-	expression tag	UNP Q76353
B	-48	ALA	-	expression tag	UNP Q76353
B	-47	GLY	-	expression tag	UNP Q76353
B	-46	THR	-	expression tag	UNP Q76353
B	-45	ASN	-	expression tag	UNP Q76353
B	-44	SER	-	expression tag	UNP Q76353
B	-43	LYS	-	expression tag	UNP Q76353
B	-42	GLY	-	expression tag	UNP Q76353
B	-41	PRO	-	expression tag	UNP Q76353
B	-40	PRO	-	expression tag	UNP Q76353
B	-39	ASP	-	expression tag	UNP Q76353
B	-38	PHE	-	expression tag	UNP Q76353
B	-37	SER	-	expression tag	UNP Q76353
B	-36	SER	-	expression tag	UNP Q76353
B	-35	ASP	-	expression tag	UNP Q76353
B	-34	GLU	-	expression tag	UNP Q76353
B	-33	GLU	-	expression tag	UNP Q76353
B	-32	ARG	-	expression tag	UNP Q76353
B	-31	GLU	-	expression tag	UNP Q76353
B	-30	PRO	-	expression tag	UNP Q76353
B	-29	THR	-	expression tag	UNP Q76353
B	-28	PRO	-	expression tag	UNP Q76353
B	-27	VAL	-	expression tag	UNP Q76353
B	-26	LEU	-	expression tag	UNP Q76353
B	-25	GLY	-	expression tag	UNP Q76353
B	-24	SER	-	expression tag	UNP Q76353
B	-23	GLY	-	expression tag	UNP Q76353
B	-22	ALA	-	expression tag	UNP Q76353
B	-21	ALA	-	expression tag	UNP Q76353
B	-20	ALA	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-19	ALA	-	expression tag	UNP Q76353
B	-18	GLY	-	expression tag	UNP Q76353
B	-17	GLN	-	expression tag	UNP Q76353
B	-16	SER	-	expression tag	UNP Q76353
B	-15	ARG	-	expression tag	UNP Q76353
B	-14	ALA	-	expression tag	UNP Q76353
B	-13	ALA	-	expression tag	UNP Q76353
B	-12	VAL	-	expression tag	UNP Q76353
B	-11	GLY	-	expression tag	UNP Q76353
B	-10	ARG	-	expression tag	UNP Q76353
B	-9	LYS	-	expression tag	UNP Q76353
B	-8	ALA	-	expression tag	UNP Q76353
B	-7	THR	-	expression tag	UNP Q76353
B	-6	LYS	-	expression tag	UNP Q76353
B	-5	LYS	-	expression tag	UNP Q76353
B	-4	THR	-	expression tag	UNP Q76353
B	-3	ASP	-	expression tag	UNP Q76353
B	-2	GLY	-	expression tag	UNP Q76353
B	-1	GLY	-	expression tag	UNP Q76353
B	0	GLY	-	expression tag	UNP Q76353
C	-75	GLY	-	expression tag	UNP Q76353
C	-74	SER	-	expression tag	UNP Q76353
C	-73	HIS	-	expression tag	UNP Q76353
C	-72	MET	-	expression tag	UNP Q76353
C	-71	PRO	-	expression tag	UNP Q76353
C	-70	LYS	-	expression tag	UNP Q76353
C	-69	ARG	-	expression tag	UNP Q76353
C	-68	GLY	-	expression tag	UNP Q76353
C	-67	ARG	-	expression tag	UNP Q76353
C	-66	PRO	-	expression tag	UNP Q76353
C	-65	ALA	-	expression tag	UNP Q76353
C	-64	ALA	-	expression tag	UNP Q76353
C	-63	THR	-	expression tag	UNP Q76353
C	-62	GLU	-	expression tag	UNP Q76353
C	-61	VAL	-	expression tag	UNP Q76353
C	-60	LYS	-	expression tag	UNP Q76353
C	-59	ILE	-	expression tag	UNP Q76353
C	-58	PRO	-	expression tag	UNP Q76353
C	-57	LYS	-	expression tag	UNP Q76353
C	-56	PRO	-	expression tag	UNP Q76353
C	-55	ARG	-	expression tag	UNP Q76353
C	-54	GLY	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-53	ARG	-	expression tag	UNP Q76353
C	-52	PRO	-	expression tag	UNP Q76353
C	-51	PRO	-	expression tag	UNP Q76353
C	-50	LEU	-	expression tag	UNP Q76353
C	-49	PRO	-	expression tag	UNP Q76353
C	-48	ALA	-	expression tag	UNP Q76353
C	-47	GLY	-	expression tag	UNP Q76353
C	-46	THR	-	expression tag	UNP Q76353
C	-45	ASN	-	expression tag	UNP Q76353
C	-44	SER	-	expression tag	UNP Q76353
C	-43	LYS	-	expression tag	UNP Q76353
C	-42	GLY	-	expression tag	UNP Q76353
C	-41	PRO	-	expression tag	UNP Q76353
C	-40	PRO	-	expression tag	UNP Q76353
C	-39	ASP	-	expression tag	UNP Q76353
C	-38	PHE	-	expression tag	UNP Q76353
C	-37	SER	-	expression tag	UNP Q76353
C	-36	SER	-	expression tag	UNP Q76353
C	-35	ASP	-	expression tag	UNP Q76353
C	-34	GLU	-	expression tag	UNP Q76353
C	-33	GLU	-	expression tag	UNP Q76353
C	-32	ARG	-	expression tag	UNP Q76353
C	-31	GLU	-	expression tag	UNP Q76353
C	-30	PRO	-	expression tag	UNP Q76353
C	-29	THR	-	expression tag	UNP Q76353
C	-28	PRO	-	expression tag	UNP Q76353
C	-27	VAL	-	expression tag	UNP Q76353
C	-26	LEU	-	expression tag	UNP Q76353
C	-25	GLY	-	expression tag	UNP Q76353
C	-24	SER	-	expression tag	UNP Q76353
C	-23	GLY	-	expression tag	UNP Q76353
C	-22	ALA	-	expression tag	UNP Q76353
C	-21	ALA	-	expression tag	UNP Q76353
C	-20	ALA	-	expression tag	UNP Q76353
C	-19	ALA	-	expression tag	UNP Q76353
C	-18	GLY	-	expression tag	UNP Q76353
C	-17	GLN	-	expression tag	UNP Q76353
C	-16	SER	-	expression tag	UNP Q76353
C	-15	ARG	-	expression tag	UNP Q76353
C	-14	ALA	-	expression tag	UNP Q76353
C	-13	ALA	-	expression tag	UNP Q76353
C	-12	VAL	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-11	GLY	-	expression tag	UNP Q76353
C	-10	ARG	-	expression tag	UNP Q76353
C	-9	LYS	-	expression tag	UNP Q76353
C	-8	ALA	-	expression tag	UNP Q76353
C	-7	THR	-	expression tag	UNP Q76353
C	-6	LYS	-	expression tag	UNP Q76353
C	-5	LYS	-	expression tag	UNP Q76353
C	-4	THR	-	expression tag	UNP Q76353
C	-3	ASP	-	expression tag	UNP Q76353
C	-2	GLY	-	expression tag	UNP Q76353
C	-1	GLY	-	expression tag	UNP Q76353
C	0	GLY	-	expression tag	UNP Q76353
D	-75	GLY	-	expression tag	UNP Q76353
D	-74	SER	-	expression tag	UNP Q76353
D	-73	HIS	-	expression tag	UNP Q76353
D	-72	MET	-	expression tag	UNP Q76353
D	-71	PRO	-	expression tag	UNP Q76353
D	-70	LYS	-	expression tag	UNP Q76353
D	-69	ARG	-	expression tag	UNP Q76353
D	-68	GLY	-	expression tag	UNP Q76353
D	-67	ARG	-	expression tag	UNP Q76353
D	-66	PRO	-	expression tag	UNP Q76353
D	-65	ALA	-	expression tag	UNP Q76353
D	-64	ALA	-	expression tag	UNP Q76353
D	-63	THR	-	expression tag	UNP Q76353
D	-62	GLU	-	expression tag	UNP Q76353
D	-61	VAL	-	expression tag	UNP Q76353
D	-60	LYS	-	expression tag	UNP Q76353
D	-59	ILE	-	expression tag	UNP Q76353
D	-58	PRO	-	expression tag	UNP Q76353
D	-57	LYS	-	expression tag	UNP Q76353
D	-56	PRO	-	expression tag	UNP Q76353
D	-55	ARG	-	expression tag	UNP Q76353
D	-54	GLY	-	expression tag	UNP Q76353
D	-53	ARG	-	expression tag	UNP Q76353
D	-52	PRO	-	expression tag	UNP Q76353
D	-51	PRO	-	expression tag	UNP Q76353
D	-50	LEU	-	expression tag	UNP Q76353
D	-49	PRO	-	expression tag	UNP Q76353
D	-48	ALA	-	expression tag	UNP Q76353
D	-47	GLY	-	expression tag	UNP Q76353
D	-46	THR	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-45	ASN	-	expression tag	UNP Q76353
D	-44	SER	-	expression tag	UNP Q76353
D	-43	LYS	-	expression tag	UNP Q76353
D	-42	GLY	-	expression tag	UNP Q76353
D	-41	PRO	-	expression tag	UNP Q76353
D	-40	PRO	-	expression tag	UNP Q76353
D	-39	ASP	-	expression tag	UNP Q76353
D	-38	PHE	-	expression tag	UNP Q76353
D	-37	SER	-	expression tag	UNP Q76353
D	-36	SER	-	expression tag	UNP Q76353
D	-35	ASP	-	expression tag	UNP Q76353
D	-34	GLU	-	expression tag	UNP Q76353
D	-33	GLU	-	expression tag	UNP Q76353
D	-32	ARG	-	expression tag	UNP Q76353
D	-31	GLU	-	expression tag	UNP Q76353
D	-30	PRO	-	expression tag	UNP Q76353
D	-29	THR	-	expression tag	UNP Q76353
D	-28	PRO	-	expression tag	UNP Q76353
D	-27	VAL	-	expression tag	UNP Q76353
D	-26	LEU	-	expression tag	UNP Q76353
D	-25	GLY	-	expression tag	UNP Q76353
D	-24	SER	-	expression tag	UNP Q76353
D	-23	GLY	-	expression tag	UNP Q76353
D	-22	ALA	-	expression tag	UNP Q76353
D	-21	ALA	-	expression tag	UNP Q76353
D	-20	ALA	-	expression tag	UNP Q76353
D	-19	ALA	-	expression tag	UNP Q76353
D	-18	GLY	-	expression tag	UNP Q76353
D	-17	GLN	-	expression tag	UNP Q76353
D	-16	SER	-	expression tag	UNP Q76353
D	-15	ARG	-	expression tag	UNP Q76353
D	-14	ALA	-	expression tag	UNP Q76353
D	-13	ALA	-	expression tag	UNP Q76353
D	-12	VAL	-	expression tag	UNP Q76353
D	-11	GLY	-	expression tag	UNP Q76353
D	-10	ARG	-	expression tag	UNP Q76353
D	-9	LYS	-	expression tag	UNP Q76353
D	-8	ALA	-	expression tag	UNP Q76353
D	-7	THR	-	expression tag	UNP Q76353
D	-6	LYS	-	expression tag	UNP Q76353
D	-5	LYS	-	expression tag	UNP Q76353
D	-4	THR	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-3	ASP	-	expression tag	UNP Q76353
D	-2	GLY	-	expression tag	UNP Q76353
D	-1	GLY	-	expression tag	UNP Q76353
D	0	GLY	-	expression tag	UNP Q76353
I	-75	GLY	-	expression tag	UNP Q76353
I	-74	SER	-	expression tag	UNP Q76353
I	-73	HIS	-	expression tag	UNP Q76353
I	-72	MET	-	expression tag	UNP Q76353
I	-71	PRO	-	expression tag	UNP Q76353
I	-70	LYS	-	expression tag	UNP Q76353
I	-69	ARG	-	expression tag	UNP Q76353
I	-68	GLY	-	expression tag	UNP Q76353
I	-67	ARG	-	expression tag	UNP Q76353
I	-66	PRO	-	expression tag	UNP Q76353
I	-65	ALA	-	expression tag	UNP Q76353
I	-64	ALA	-	expression tag	UNP Q76353
I	-63	THR	-	expression tag	UNP Q76353
I	-62	GLU	-	expression tag	UNP Q76353
I	-61	VAL	-	expression tag	UNP Q76353
I	-60	LYS	-	expression tag	UNP Q76353
I	-59	ILE	-	expression tag	UNP Q76353
I	-58	PRO	-	expression tag	UNP Q76353
I	-57	LYS	-	expression tag	UNP Q76353
I	-56	PRO	-	expression tag	UNP Q76353
I	-55	ARG	-	expression tag	UNP Q76353
I	-54	GLY	-	expression tag	UNP Q76353
I	-53	ARG	-	expression tag	UNP Q76353
I	-52	PRO	-	expression tag	UNP Q76353
I	-51	PRO	-	expression tag	UNP Q76353
I	-50	LEU	-	expression tag	UNP Q76353
I	-49	PRO	-	expression tag	UNP Q76353
I	-48	ALA	-	expression tag	UNP Q76353
I	-47	GLY	-	expression tag	UNP Q76353
I	-46	THR	-	expression tag	UNP Q76353
I	-45	ASN	-	expression tag	UNP Q76353
I	-44	SER	-	expression tag	UNP Q76353
I	-43	LYS	-	expression tag	UNP Q76353
I	-42	GLY	-	expression tag	UNP Q76353
I	-41	PRO	-	expression tag	UNP Q76353
I	-40	PRO	-	expression tag	UNP Q76353
I	-39	ASP	-	expression tag	UNP Q76353
I	-38	PHE	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
I	-37	SER	-	expression tag	UNP Q76353
I	-36	SER	-	expression tag	UNP Q76353
I	-35	ASP	-	expression tag	UNP Q76353
I	-34	GLU	-	expression tag	UNP Q76353
I	-33	GLU	-	expression tag	UNP Q76353
I	-32	ARG	-	expression tag	UNP Q76353
I	-31	GLU	-	expression tag	UNP Q76353
I	-30	PRO	-	expression tag	UNP Q76353
I	-29	THR	-	expression tag	UNP Q76353
I	-28	PRO	-	expression tag	UNP Q76353
I	-27	VAL	-	expression tag	UNP Q76353
I	-26	LEU	-	expression tag	UNP Q76353
I	-25	GLY	-	expression tag	UNP Q76353
I	-24	SER	-	expression tag	UNP Q76353
I	-23	GLY	-	expression tag	UNP Q76353
I	-22	ALA	-	expression tag	UNP Q76353
I	-21	ALA	-	expression tag	UNP Q76353
I	-20	ALA	-	expression tag	UNP Q76353
I	-19	ALA	-	expression tag	UNP Q76353
I	-18	GLY	-	expression tag	UNP Q76353
I	-17	GLN	-	expression tag	UNP Q76353
I	-16	SER	-	expression tag	UNP Q76353
I	-15	ARG	-	expression tag	UNP Q76353
I	-14	ALA	-	expression tag	UNP Q76353
I	-13	ALA	-	expression tag	UNP Q76353
I	-12	VAL	-	expression tag	UNP Q76353
I	-11	GLY	-	expression tag	UNP Q76353
I	-10	ARG	-	expression tag	UNP Q76353
I	-9	LYS	-	expression tag	UNP Q76353
I	-8	ALA	-	expression tag	UNP Q76353
I	-7	THR	-	expression tag	UNP Q76353
I	-6	LYS	-	expression tag	UNP Q76353
I	-5	LYS	-	expression tag	UNP Q76353
I	-4	THR	-	expression tag	UNP Q76353
I	-3	ASP	-	expression tag	UNP Q76353
I	-2	GLY	-	expression tag	UNP Q76353
I	-1	GLY	-	expression tag	UNP Q76353
I	0	GLY	-	expression tag	UNP Q76353
J	-75	GLY	-	expression tag	UNP Q76353
J	-74	SER	-	expression tag	UNP Q76353
J	-73	HIS	-	expression tag	UNP Q76353
J	-72	MET	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
J	-71	PRO	-	expression tag	UNP Q76353
J	-70	LYS	-	expression tag	UNP Q76353
J	-69	ARG	-	expression tag	UNP Q76353
J	-68	GLY	-	expression tag	UNP Q76353
J	-67	ARG	-	expression tag	UNP Q76353
J	-66	PRO	-	expression tag	UNP Q76353
J	-65	ALA	-	expression tag	UNP Q76353
J	-64	ALA	-	expression tag	UNP Q76353
J	-63	THR	-	expression tag	UNP Q76353
J	-62	GLU	-	expression tag	UNP Q76353
J	-61	VAL	-	expression tag	UNP Q76353
J	-60	LYS	-	expression tag	UNP Q76353
J	-59	ILE	-	expression tag	UNP Q76353
J	-58	PRO	-	expression tag	UNP Q76353
J	-57	LYS	-	expression tag	UNP Q76353
J	-56	PRO	-	expression tag	UNP Q76353
J	-55	ARG	-	expression tag	UNP Q76353
J	-54	GLY	-	expression tag	UNP Q76353
J	-53	ARG	-	expression tag	UNP Q76353
J	-52	PRO	-	expression tag	UNP Q76353
J	-51	PRO	-	expression tag	UNP Q76353
J	-50	LEU	-	expression tag	UNP Q76353
J	-49	PRO	-	expression tag	UNP Q76353
J	-48	ALA	-	expression tag	UNP Q76353
J	-47	GLY	-	expression tag	UNP Q76353
J	-46	THR	-	expression tag	UNP Q76353
J	-45	ASN	-	expression tag	UNP Q76353
J	-44	SER	-	expression tag	UNP Q76353
J	-43	LYS	-	expression tag	UNP Q76353
J	-42	GLY	-	expression tag	UNP Q76353
J	-41	PRO	-	expression tag	UNP Q76353
J	-40	PRO	-	expression tag	UNP Q76353
J	-39	ASP	-	expression tag	UNP Q76353
J	-38	PHE	-	expression tag	UNP Q76353
J	-37	SER	-	expression tag	UNP Q76353
J	-36	SER	-	expression tag	UNP Q76353
J	-35	ASP	-	expression tag	UNP Q76353
J	-34	GLU	-	expression tag	UNP Q76353
J	-33	GLU	-	expression tag	UNP Q76353
J	-32	ARG	-	expression tag	UNP Q76353
J	-31	GLU	-	expression tag	UNP Q76353
J	-30	PRO	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
J	-29	THR	-	expression tag	UNP Q76353
J	-28	PRO	-	expression tag	UNP Q76353
J	-27	VAL	-	expression tag	UNP Q76353
J	-26	LEU	-	expression tag	UNP Q76353
J	-25	GLY	-	expression tag	UNP Q76353
J	-24	SER	-	expression tag	UNP Q76353
J	-23	GLY	-	expression tag	UNP Q76353
J	-22	ALA	-	expression tag	UNP Q76353
J	-21	ALA	-	expression tag	UNP Q76353
J	-20	ALA	-	expression tag	UNP Q76353
J	-19	ALA	-	expression tag	UNP Q76353
J	-18	GLY	-	expression tag	UNP Q76353
J	-17	GLN	-	expression tag	UNP Q76353
J	-16	SER	-	expression tag	UNP Q76353
J	-15	ARG	-	expression tag	UNP Q76353
J	-14	ALA	-	expression tag	UNP Q76353
J	-13	ALA	-	expression tag	UNP Q76353
J	-12	VAL	-	expression tag	UNP Q76353
J	-11	GLY	-	expression tag	UNP Q76353
J	-10	ARG	-	expression tag	UNP Q76353
J	-9	LYS	-	expression tag	UNP Q76353
J	-8	ALA	-	expression tag	UNP Q76353
J	-7	THR	-	expression tag	UNP Q76353
J	-6	LYS	-	expression tag	UNP Q76353
J	-5	LYS	-	expression tag	UNP Q76353
J	-4	THR	-	expression tag	UNP Q76353
J	-3	ASP	-	expression tag	UNP Q76353
J	-2	GLY	-	expression tag	UNP Q76353
J	-1	GLY	-	expression tag	UNP Q76353
J	0	GLY	-	expression tag	UNP Q76353
K	-75	GLY	-	expression tag	UNP Q76353
K	-74	SER	-	expression tag	UNP Q76353
K	-73	HIS	-	expression tag	UNP Q76353
K	-72	MET	-	expression tag	UNP Q76353
K	-71	PRO	-	expression tag	UNP Q76353
K	-70	LYS	-	expression tag	UNP Q76353
K	-69	ARG	-	expression tag	UNP Q76353
K	-68	GLY	-	expression tag	UNP Q76353
K	-67	ARG	-	expression tag	UNP Q76353
K	-66	PRO	-	expression tag	UNP Q76353
K	-65	ALA	-	expression tag	UNP Q76353
K	-64	ALA	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
K	-63	THR	-	expression tag	UNP Q76353
K	-62	GLU	-	expression tag	UNP Q76353
K	-61	VAL	-	expression tag	UNP Q76353
K	-60	LYS	-	expression tag	UNP Q76353
K	-59	ILE	-	expression tag	UNP Q76353
K	-58	PRO	-	expression tag	UNP Q76353
K	-57	LYS	-	expression tag	UNP Q76353
K	-56	PRO	-	expression tag	UNP Q76353
K	-55	ARG	-	expression tag	UNP Q76353
K	-54	GLY	-	expression tag	UNP Q76353
K	-53	ARG	-	expression tag	UNP Q76353
K	-52	PRO	-	expression tag	UNP Q76353
K	-51	PRO	-	expression tag	UNP Q76353
K	-50	LEU	-	expression tag	UNP Q76353
K	-49	PRO	-	expression tag	UNP Q76353
K	-48	ALA	-	expression tag	UNP Q76353
K	-47	GLY	-	expression tag	UNP Q76353
K	-46	THR	-	expression tag	UNP Q76353
K	-45	ASN	-	expression tag	UNP Q76353
K	-44	SER	-	expression tag	UNP Q76353
K	-43	LYS	-	expression tag	UNP Q76353
K	-42	GLY	-	expression tag	UNP Q76353
K	-41	PRO	-	expression tag	UNP Q76353
K	-40	PRO	-	expression tag	UNP Q76353
K	-39	ASP	-	expression tag	UNP Q76353
K	-38	PHE	-	expression tag	UNP Q76353
K	-37	SER	-	expression tag	UNP Q76353
K	-36	SER	-	expression tag	UNP Q76353
K	-35	ASP	-	expression tag	UNP Q76353
K	-34	GLU	-	expression tag	UNP Q76353
K	-33	GLU	-	expression tag	UNP Q76353
K	-32	ARG	-	expression tag	UNP Q76353
K	-31	GLU	-	expression tag	UNP Q76353
K	-30	PRO	-	expression tag	UNP Q76353
K	-29	THR	-	expression tag	UNP Q76353
K	-28	PRO	-	expression tag	UNP Q76353
K	-27	VAL	-	expression tag	UNP Q76353
K	-26	LEU	-	expression tag	UNP Q76353
K	-25	GLY	-	expression tag	UNP Q76353
K	-24	SER	-	expression tag	UNP Q76353
K	-23	GLY	-	expression tag	UNP Q76353
K	-22	ALA	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
K	-21	ALA	-	expression tag	UNP Q76353
K	-20	ALA	-	expression tag	UNP Q76353
K	-19	ALA	-	expression tag	UNP Q76353
K	-18	GLY	-	expression tag	UNP Q76353
K	-17	GLN	-	expression tag	UNP Q76353
K	-16	SER	-	expression tag	UNP Q76353
K	-15	ARG	-	expression tag	UNP Q76353
K	-14	ALA	-	expression tag	UNP Q76353
K	-13	ALA	-	expression tag	UNP Q76353
K	-12	VAL	-	expression tag	UNP Q76353
K	-11	GLY	-	expression tag	UNP Q76353
K	-10	ARG	-	expression tag	UNP Q76353
K	-9	LYS	-	expression tag	UNP Q76353
K	-8	ALA	-	expression tag	UNP Q76353
K	-7	THR	-	expression tag	UNP Q76353
K	-6	LYS	-	expression tag	UNP Q76353
K	-5	LYS	-	expression tag	UNP Q76353
K	-4	THR	-	expression tag	UNP Q76353
K	-3	ASP	-	expression tag	UNP Q76353
K	-2	GLY	-	expression tag	UNP Q76353
K	-1	GLY	-	expression tag	UNP Q76353
K	0	GLY	-	expression tag	UNP Q76353
L	-75	GLY	-	expression tag	UNP Q76353
L	-74	SER	-	expression tag	UNP Q76353
L	-73	HIS	-	expression tag	UNP Q76353
L	-72	MET	-	expression tag	UNP Q76353
L	-71	PRO	-	expression tag	UNP Q76353
L	-70	LYS	-	expression tag	UNP Q76353
L	-69	ARG	-	expression tag	UNP Q76353
L	-68	GLY	-	expression tag	UNP Q76353
L	-67	ARG	-	expression tag	UNP Q76353
L	-66	PRO	-	expression tag	UNP Q76353
L	-65	ALA	-	expression tag	UNP Q76353
L	-64	ALA	-	expression tag	UNP Q76353
L	-63	THR	-	expression tag	UNP Q76353
L	-62	GLU	-	expression tag	UNP Q76353
L	-61	VAL	-	expression tag	UNP Q76353
L	-60	LYS	-	expression tag	UNP Q76353
L	-59	ILE	-	expression tag	UNP Q76353
L	-58	PRO	-	expression tag	UNP Q76353
L	-57	LYS	-	expression tag	UNP Q76353
L	-56	PRO	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
L	-55	ARG	-	expression tag	UNP Q76353
L	-54	GLY	-	expression tag	UNP Q76353
L	-53	ARG	-	expression tag	UNP Q76353
L	-52	PRO	-	expression tag	UNP Q76353
L	-51	PRO	-	expression tag	UNP Q76353
L	-50	LEU	-	expression tag	UNP Q76353
L	-49	PRO	-	expression tag	UNP Q76353
L	-48	ALA	-	expression tag	UNP Q76353
L	-47	GLY	-	expression tag	UNP Q76353
L	-46	THR	-	expression tag	UNP Q76353
L	-45	ASN	-	expression tag	UNP Q76353
L	-44	SER	-	expression tag	UNP Q76353
L	-43	LYS	-	expression tag	UNP Q76353
L	-42	GLY	-	expression tag	UNP Q76353
L	-41	PRO	-	expression tag	UNP Q76353
L	-40	PRO	-	expression tag	UNP Q76353
L	-39	ASP	-	expression tag	UNP Q76353
L	-38	PHE	-	expression tag	UNP Q76353
L	-37	SER	-	expression tag	UNP Q76353
L	-36	SER	-	expression tag	UNP Q76353
L	-35	ASP	-	expression tag	UNP Q76353
L	-34	GLU	-	expression tag	UNP Q76353
L	-33	GLU	-	expression tag	UNP Q76353
L	-32	ARG	-	expression tag	UNP Q76353
L	-31	GLU	-	expression tag	UNP Q76353
L	-30	PRO	-	expression tag	UNP Q76353
L	-29	THR	-	expression tag	UNP Q76353
L	-28	PRO	-	expression tag	UNP Q76353
L	-27	VAL	-	expression tag	UNP Q76353
L	-26	LEU	-	expression tag	UNP Q76353
L	-25	GLY	-	expression tag	UNP Q76353
L	-24	SER	-	expression tag	UNP Q76353
L	-23	GLY	-	expression tag	UNP Q76353
L	-22	ALA	-	expression tag	UNP Q76353
L	-21	ALA	-	expression tag	UNP Q76353
L	-20	ALA	-	expression tag	UNP Q76353
L	-19	ALA	-	expression tag	UNP Q76353
L	-18	GLY	-	expression tag	UNP Q76353
L	-17	GLN	-	expression tag	UNP Q76353
L	-16	SER	-	expression tag	UNP Q76353
L	-15	ARG	-	expression tag	UNP Q76353
L	-14	ALA	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
L	-13	ALA	-	expression tag	UNP Q76353
L	-12	VAL	-	expression tag	UNP Q76353
L	-11	GLY	-	expression tag	UNP Q76353
L	-10	ARG	-	expression tag	UNP Q76353
L	-9	LYS	-	expression tag	UNP Q76353
L	-8	ALA	-	expression tag	UNP Q76353
L	-7	THR	-	expression tag	UNP Q76353
L	-6	LYS	-	expression tag	UNP Q76353
L	-5	LYS	-	expression tag	UNP Q76353
L	-4	THR	-	expression tag	UNP Q76353
L	-3	ASP	-	expression tag	UNP Q76353
L	-2	GLY	-	expression tag	UNP Q76353
L	-1	GLY	-	expression tag	UNP Q76353
L	0	GLY	-	expression tag	UNP Q76353
M	-75	GLY	-	expression tag	UNP Q76353
M	-74	SER	-	expression tag	UNP Q76353
M	-73	HIS	-	expression tag	UNP Q76353
M	-72	MET	-	expression tag	UNP Q76353
M	-71	PRO	-	expression tag	UNP Q76353
M	-70	LYS	-	expression tag	UNP Q76353
M	-69	ARG	-	expression tag	UNP Q76353
M	-68	GLY	-	expression tag	UNP Q76353
M	-67	ARG	-	expression tag	UNP Q76353
M	-66	PRO	-	expression tag	UNP Q76353
M	-65	ALA	-	expression tag	UNP Q76353
M	-64	ALA	-	expression tag	UNP Q76353
M	-63	THR	-	expression tag	UNP Q76353
M	-62	GLU	-	expression tag	UNP Q76353
M	-61	VAL	-	expression tag	UNP Q76353
M	-60	LYS	-	expression tag	UNP Q76353
M	-59	ILE	-	expression tag	UNP Q76353
M	-58	PRO	-	expression tag	UNP Q76353
M	-57	LYS	-	expression tag	UNP Q76353
M	-56	PRO	-	expression tag	UNP Q76353
M	-55	ARG	-	expression tag	UNP Q76353
M	-54	GLY	-	expression tag	UNP Q76353
M	-53	ARG	-	expression tag	UNP Q76353
M	-52	PRO	-	expression tag	UNP Q76353
M	-51	PRO	-	expression tag	UNP Q76353
M	-50	LEU	-	expression tag	UNP Q76353
M	-49	PRO	-	expression tag	UNP Q76353
M	-48	ALA	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
M	-47	GLY	-	expression tag	UNP Q76353
M	-46	THR	-	expression tag	UNP Q76353
M	-45	ASN	-	expression tag	UNP Q76353
M	-44	SER	-	expression tag	UNP Q76353
M	-43	LYS	-	expression tag	UNP Q76353
M	-42	GLY	-	expression tag	UNP Q76353
M	-41	PRO	-	expression tag	UNP Q76353
M	-40	PRO	-	expression tag	UNP Q76353
M	-39	ASP	-	expression tag	UNP Q76353
M	-38	PHE	-	expression tag	UNP Q76353
M	-37	SER	-	expression tag	UNP Q76353
M	-36	SER	-	expression tag	UNP Q76353
M	-35	ASP	-	expression tag	UNP Q76353
M	-34	GLU	-	expression tag	UNP Q76353
M	-33	GLU	-	expression tag	UNP Q76353
M	-32	ARG	-	expression tag	UNP Q76353
M	-31	GLU	-	expression tag	UNP Q76353
M	-30	PRO	-	expression tag	UNP Q76353
M	-29	THR	-	expression tag	UNP Q76353
M	-28	PRO	-	expression tag	UNP Q76353
M	-27	VAL	-	expression tag	UNP Q76353
M	-26	LEU	-	expression tag	UNP Q76353
M	-25	GLY	-	expression tag	UNP Q76353
M	-24	SER	-	expression tag	UNP Q76353
M	-23	GLY	-	expression tag	UNP Q76353
M	-22	ALA	-	expression tag	UNP Q76353
M	-21	ALA	-	expression tag	UNP Q76353
M	-20	ALA	-	expression tag	UNP Q76353
M	-19	ALA	-	expression tag	UNP Q76353
M	-18	GLY	-	expression tag	UNP Q76353
M	-17	GLN	-	expression tag	UNP Q76353
M	-16	SER	-	expression tag	UNP Q76353
M	-15	ARG	-	expression tag	UNP Q76353
M	-14	ALA	-	expression tag	UNP Q76353
M	-13	ALA	-	expression tag	UNP Q76353
M	-12	VAL	-	expression tag	UNP Q76353
M	-11	GLY	-	expression tag	UNP Q76353
M	-10	ARG	-	expression tag	UNP Q76353
M	-9	LYS	-	expression tag	UNP Q76353
M	-8	ALA	-	expression tag	UNP Q76353
M	-7	THR	-	expression tag	UNP Q76353
M	-6	LYS	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
M	-5	LYS	-	expression tag	UNP Q76353
M	-4	THR	-	expression tag	UNP Q76353
M	-3	ASP	-	expression tag	UNP Q76353
M	-2	GLY	-	expression tag	UNP Q76353
M	-1	GLY	-	expression tag	UNP Q76353
M	0	GLY	-	expression tag	UNP Q76353
N	-75	GLY	-	expression tag	UNP Q76353
N	-74	SER	-	expression tag	UNP Q76353
N	-73	HIS	-	expression tag	UNP Q76353
N	-72	MET	-	expression tag	UNP Q76353
N	-71	PRO	-	expression tag	UNP Q76353
N	-70	LYS	-	expression tag	UNP Q76353
N	-69	ARG	-	expression tag	UNP Q76353
N	-68	GLY	-	expression tag	UNP Q76353
N	-67	ARG	-	expression tag	UNP Q76353
N	-66	PRO	-	expression tag	UNP Q76353
N	-65	ALA	-	expression tag	UNP Q76353
N	-64	ALA	-	expression tag	UNP Q76353
N	-63	THR	-	expression tag	UNP Q76353
N	-62	GLU	-	expression tag	UNP Q76353
N	-61	VAL	-	expression tag	UNP Q76353
N	-60	LYS	-	expression tag	UNP Q76353
N	-59	ILE	-	expression tag	UNP Q76353
N	-58	PRO	-	expression tag	UNP Q76353
N	-57	LYS	-	expression tag	UNP Q76353
N	-56	PRO	-	expression tag	UNP Q76353
N	-55	ARG	-	expression tag	UNP Q76353
N	-54	GLY	-	expression tag	UNP Q76353
N	-53	ARG	-	expression tag	UNP Q76353
N	-52	PRO	-	expression tag	UNP Q76353
N	-51	PRO	-	expression tag	UNP Q76353
N	-50	LEU	-	expression tag	UNP Q76353
N	-49	PRO	-	expression tag	UNP Q76353
N	-48	ALA	-	expression tag	UNP Q76353
N	-47	GLY	-	expression tag	UNP Q76353
N	-46	THR	-	expression tag	UNP Q76353
N	-45	ASN	-	expression tag	UNP Q76353
N	-44	SER	-	expression tag	UNP Q76353
N	-43	LYS	-	expression tag	UNP Q76353
N	-42	GLY	-	expression tag	UNP Q76353
N	-41	PRO	-	expression tag	UNP Q76353
N	-40	PRO	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
N	-39	ASP	-	expression tag	UNP Q76353
N	-38	PHE	-	expression tag	UNP Q76353
N	-37	SER	-	expression tag	UNP Q76353
N	-36	SER	-	expression tag	UNP Q76353
N	-35	ASP	-	expression tag	UNP Q76353
N	-34	GLU	-	expression tag	UNP Q76353
N	-33	GLU	-	expression tag	UNP Q76353
N	-32	ARG	-	expression tag	UNP Q76353
N	-31	GLU	-	expression tag	UNP Q76353
N	-30	PRO	-	expression tag	UNP Q76353
N	-29	THR	-	expression tag	UNP Q76353
N	-28	PRO	-	expression tag	UNP Q76353
N	-27	VAL	-	expression tag	UNP Q76353
N	-26	LEU	-	expression tag	UNP Q76353
N	-25	GLY	-	expression tag	UNP Q76353
N	-24	SER	-	expression tag	UNP Q76353
N	-23	GLY	-	expression tag	UNP Q76353
N	-22	ALA	-	expression tag	UNP Q76353
N	-21	ALA	-	expression tag	UNP Q76353
N	-20	ALA	-	expression tag	UNP Q76353
N	-19	ALA	-	expression tag	UNP Q76353
N	-18	GLY	-	expression tag	UNP Q76353
N	-17	GLN	-	expression tag	UNP Q76353
N	-16	SER	-	expression tag	UNP Q76353
N	-15	ARG	-	expression tag	UNP Q76353
N	-14	ALA	-	expression tag	UNP Q76353
N	-13	ALA	-	expression tag	UNP Q76353
N	-12	VAL	-	expression tag	UNP Q76353
N	-11	GLY	-	expression tag	UNP Q76353
N	-10	ARG	-	expression tag	UNP Q76353
N	-9	LYS	-	expression tag	UNP Q76353
N	-8	ALA	-	expression tag	UNP Q76353
N	-7	THR	-	expression tag	UNP Q76353
N	-6	LYS	-	expression tag	UNP Q76353
N	-5	LYS	-	expression tag	UNP Q76353
N	-4	THR	-	expression tag	UNP Q76353
N	-3	ASP	-	expression tag	UNP Q76353
N	-2	GLY	-	expression tag	UNP Q76353
N	-1	GLY	-	expression tag	UNP Q76353
N	0	GLY	-	expression tag	UNP Q76353
O	-75	GLY	-	expression tag	UNP Q76353
O	-74	SER	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
O	-73	HIS	-	expression tag	UNP Q76353
O	-72	MET	-	expression tag	UNP Q76353
O	-71	PRO	-	expression tag	UNP Q76353
O	-70	LYS	-	expression tag	UNP Q76353
O	-69	ARG	-	expression tag	UNP Q76353
O	-68	GLY	-	expression tag	UNP Q76353
O	-67	ARG	-	expression tag	UNP Q76353
O	-66	PRO	-	expression tag	UNP Q76353
O	-65	ALA	-	expression tag	UNP Q76353
O	-64	ALA	-	expression tag	UNP Q76353
O	-63	THR	-	expression tag	UNP Q76353
O	-62	GLU	-	expression tag	UNP Q76353
O	-61	VAL	-	expression tag	UNP Q76353
O	-60	LYS	-	expression tag	UNP Q76353
O	-59	ILE	-	expression tag	UNP Q76353
O	-58	PRO	-	expression tag	UNP Q76353
O	-57	LYS	-	expression tag	UNP Q76353
O	-56	PRO	-	expression tag	UNP Q76353
O	-55	ARG	-	expression tag	UNP Q76353
O	-54	GLY	-	expression tag	UNP Q76353
O	-53	ARG	-	expression tag	UNP Q76353
O	-52	PRO	-	expression tag	UNP Q76353
O	-51	PRO	-	expression tag	UNP Q76353
O	-50	LEU	-	expression tag	UNP Q76353
O	-49	PRO	-	expression tag	UNP Q76353
O	-48	ALA	-	expression tag	UNP Q76353
O	-47	GLY	-	expression tag	UNP Q76353
O	-46	THR	-	expression tag	UNP Q76353
O	-45	ASN	-	expression tag	UNP Q76353
O	-44	SER	-	expression tag	UNP Q76353
O	-43	LYS	-	expression tag	UNP Q76353
O	-42	GLY	-	expression tag	UNP Q76353
O	-41	PRO	-	expression tag	UNP Q76353
O	-40	PRO	-	expression tag	UNP Q76353
O	-39	ASP	-	expression tag	UNP Q76353
O	-38	PHE	-	expression tag	UNP Q76353
O	-37	SER	-	expression tag	UNP Q76353
O	-36	SER	-	expression tag	UNP Q76353
O	-35	ASP	-	expression tag	UNP Q76353
O	-34	GLU	-	expression tag	UNP Q76353
O	-33	GLU	-	expression tag	UNP Q76353
O	-32	ARG	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
O	-31	GLU	-	expression tag	UNP Q76353
O	-30	PRO	-	expression tag	UNP Q76353
O	-29	THR	-	expression tag	UNP Q76353
O	-28	PRO	-	expression tag	UNP Q76353
O	-27	VAL	-	expression tag	UNP Q76353
O	-26	LEU	-	expression tag	UNP Q76353
O	-25	GLY	-	expression tag	UNP Q76353
O	-24	SER	-	expression tag	UNP Q76353
O	-23	GLY	-	expression tag	UNP Q76353
O	-22	ALA	-	expression tag	UNP Q76353
O	-21	ALA	-	expression tag	UNP Q76353
O	-20	ALA	-	expression tag	UNP Q76353
O	-19	ALA	-	expression tag	UNP Q76353
O	-18	GLY	-	expression tag	UNP Q76353
O	-17	GLN	-	expression tag	UNP Q76353
O	-16	SER	-	expression tag	UNP Q76353
O	-15	ARG	-	expression tag	UNP Q76353
O	-14	ALA	-	expression tag	UNP Q76353
O	-13	ALA	-	expression tag	UNP Q76353
O	-12	VAL	-	expression tag	UNP Q76353
O	-11	GLY	-	expression tag	UNP Q76353
O	-10	ARG	-	expression tag	UNP Q76353
O	-9	LYS	-	expression tag	UNP Q76353
O	-8	ALA	-	expression tag	UNP Q76353
O	-7	THR	-	expression tag	UNP Q76353
O	-6	LYS	-	expression tag	UNP Q76353
O	-5	LYS	-	expression tag	UNP Q76353
O	-4	THR	-	expression tag	UNP Q76353
O	-3	ASP	-	expression tag	UNP Q76353
O	-2	GLY	-	expression tag	UNP Q76353
O	-1	GLY	-	expression tag	UNP Q76353
O	0	GLY	-	expression tag	UNP Q76353
P	-75	GLY	-	expression tag	UNP Q76353
P	-74	SER	-	expression tag	UNP Q76353
P	-73	HIS	-	expression tag	UNP Q76353
P	-72	MET	-	expression tag	UNP Q76353
P	-71	PRO	-	expression tag	UNP Q76353
P	-70	LYS	-	expression tag	UNP Q76353
P	-69	ARG	-	expression tag	UNP Q76353
P	-68	GLY	-	expression tag	UNP Q76353
P	-67	ARG	-	expression tag	UNP Q76353
P	-66	PRO	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
P	-65	ALA	-	expression tag	UNP Q76353
P	-64	ALA	-	expression tag	UNP Q76353
P	-63	THR	-	expression tag	UNP Q76353
P	-62	GLU	-	expression tag	UNP Q76353
P	-61	VAL	-	expression tag	UNP Q76353
P	-60	LYS	-	expression tag	UNP Q76353
P	-59	ILE	-	expression tag	UNP Q76353
P	-58	PRO	-	expression tag	UNP Q76353
P	-57	LYS	-	expression tag	UNP Q76353
P	-56	PRO	-	expression tag	UNP Q76353
P	-55	ARG	-	expression tag	UNP Q76353
P	-54	GLY	-	expression tag	UNP Q76353
P	-53	ARG	-	expression tag	UNP Q76353
P	-52	PRO	-	expression tag	UNP Q76353
P	-51	PRO	-	expression tag	UNP Q76353
P	-50	LEU	-	expression tag	UNP Q76353
P	-49	PRO	-	expression tag	UNP Q76353
P	-48	ALA	-	expression tag	UNP Q76353
P	-47	GLY	-	expression tag	UNP Q76353
P	-46	THR	-	expression tag	UNP Q76353
P	-45	ASN	-	expression tag	UNP Q76353
P	-44	SER	-	expression tag	UNP Q76353
P	-43	LYS	-	expression tag	UNP Q76353
P	-42	GLY	-	expression tag	UNP Q76353
P	-41	PRO	-	expression tag	UNP Q76353
P	-40	PRO	-	expression tag	UNP Q76353
P	-39	ASP	-	expression tag	UNP Q76353
P	-38	PHE	-	expression tag	UNP Q76353
P	-37	SER	-	expression tag	UNP Q76353
P	-36	SER	-	expression tag	UNP Q76353
P	-35	ASP	-	expression tag	UNP Q76353
P	-34	GLU	-	expression tag	UNP Q76353
P	-33	GLU	-	expression tag	UNP Q76353
P	-32	ARG	-	expression tag	UNP Q76353
P	-31	GLU	-	expression tag	UNP Q76353
P	-30	PRO	-	expression tag	UNP Q76353
P	-29	THR	-	expression tag	UNP Q76353
P	-28	PRO	-	expression tag	UNP Q76353
P	-27	VAL	-	expression tag	UNP Q76353
P	-26	LEU	-	expression tag	UNP Q76353
P	-25	GLY	-	expression tag	UNP Q76353
P	-24	SER	-	expression tag	UNP Q76353

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Chain	Residue	Modelled	Actual	Comment	Reference
P	-23	GLY	-	expression tag	UNP Q76353
P	-22	ALA	-	expression tag	UNP Q76353
P	-21	ALA	-	expression tag	UNP Q76353
P	-20	ALA	-	expression tag	UNP Q76353
P	-19	ALA	-	expression tag	UNP Q76353
P	-18	GLY	-	expression tag	UNP Q76353
P	-17	GLN	-	expression tag	UNP Q76353
P	-16	SER	-	expression tag	UNP Q76353
P	-15	ARG	-	expression tag	UNP Q76353
P	-14	ALA	-	expression tag	UNP Q76353
P	-13	ALA	-	expression tag	UNP Q76353
P	-12	VAL	-	expression tag	UNP Q76353
P	-11	GLY	-	expression tag	UNP Q76353
P	-10	ARG	-	expression tag	UNP Q76353
P	-9	LYS	-	expression tag	UNP Q76353
P	-8	ALA	-	expression tag	UNP Q76353
P	-7	THR	-	expression tag	UNP Q76353
P	-6	LYS	-	expression tag	UNP Q76353
P	-5	LYS	-	expression tag	UNP Q76353
P	-4	THR	-	expression tag	UNP Q76353
P	-3	ASP	-	expression tag	UNP Q76353
P	-2	GLY	-	expression tag	UNP Q76353
P	-1	GLY	-	expression tag	UNP Q76353
P	0	GLY	-	expression tag	UNP Q76353

- Molecule 2 is a DNA chain called DNA (27-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	25	Total	C	N	O	P	0	0
			503	241	89	149	24		
2	G	25	Total	C	N	O	P	0	0
			503	241	89	149	24		

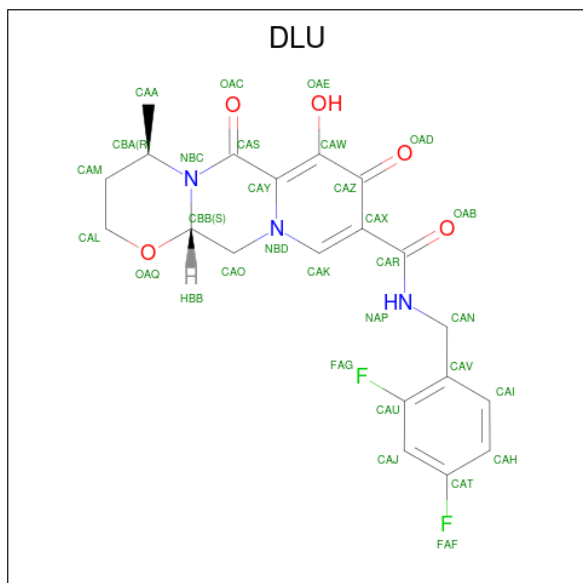
- Molecule 3 is a DNA chain called DNA (25-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
3	F	23	Total	C	N	O	P	0	0
			477	225	93	136	23		
3	H	23	Total	C	N	O	P	0	0
			477	225	93	136	23		

- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
4	A	2	Total	Mg	0
			2	2	
4	C	2	Total	Mg	0
			2	2	

- Molecule 5 is (4R,12aS)-N-(2,4-difluorobenzyl)-7-hydroxy-4-methyl-6,8-dioxo-3,4,6,8,12,12a-hexahydro-2H-pyrido[1',2':4,5]pyrazino[2,1-b][1,3]oxazine-9-carboxamide (three-letter code: DLU) (formula: C₂₀H₁₉F₂N₃O₅).

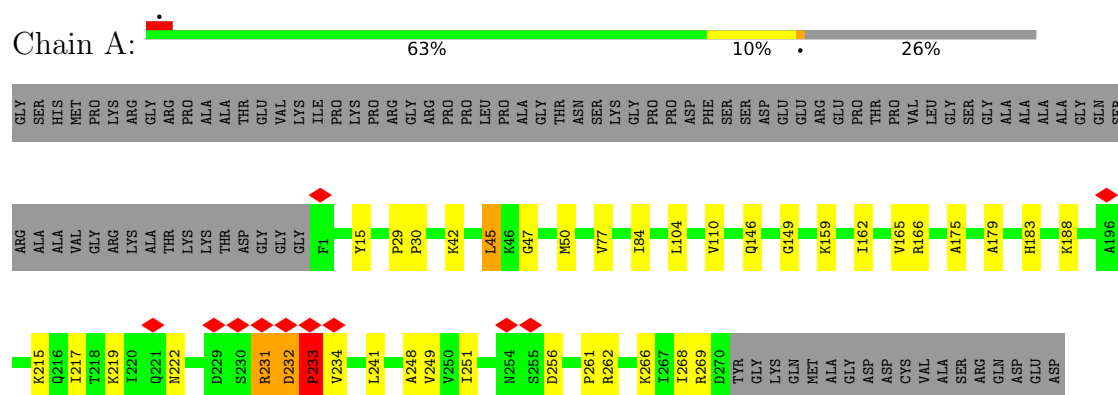


Mol	Chain	Residues	Atoms					AltConf
5	A	1	Total	C	F	N	O	0
			30	20	2	3	5	
5	C	1	Total	C	F	N	O	0
			30	20	2	3	5	

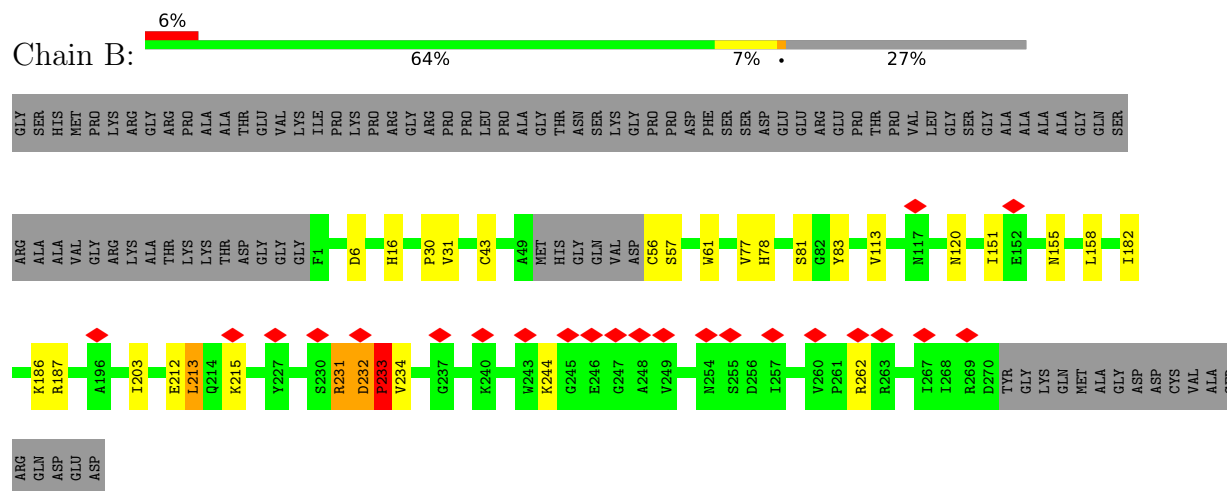
3 Residue-property plots

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.

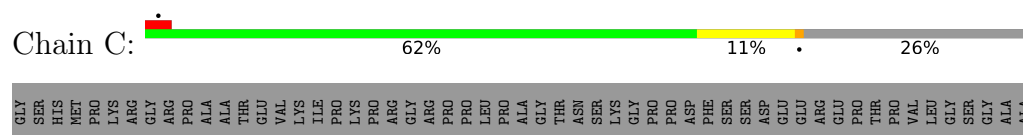
• Molecule 1: Integrase

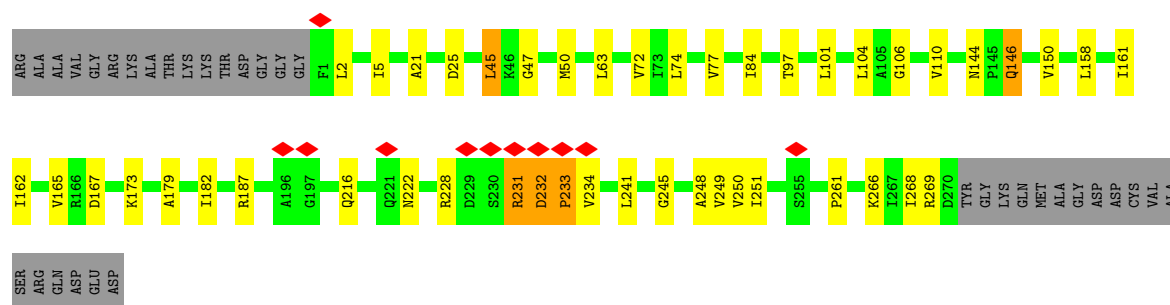


• Molecule 1: Integrase

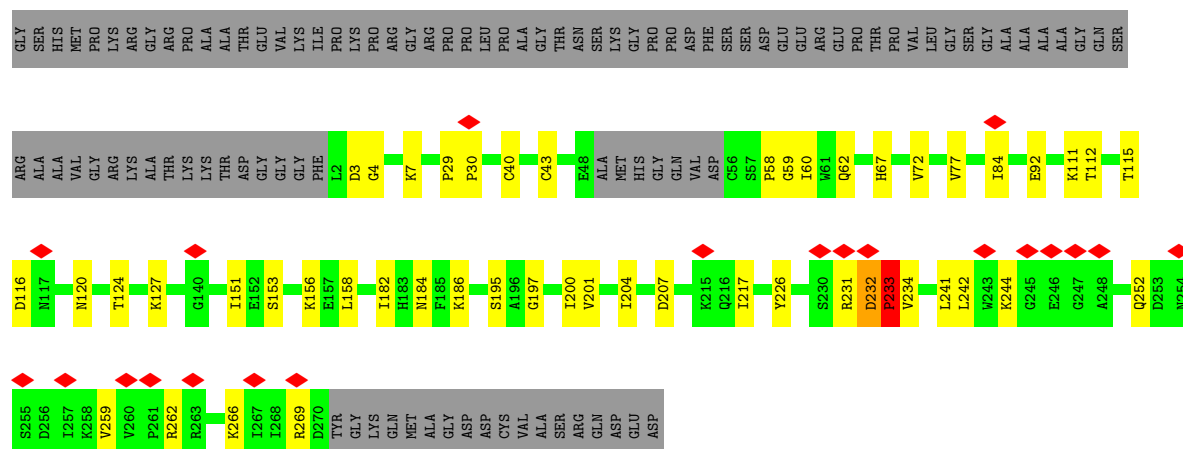


• Molecule 1: Integrase

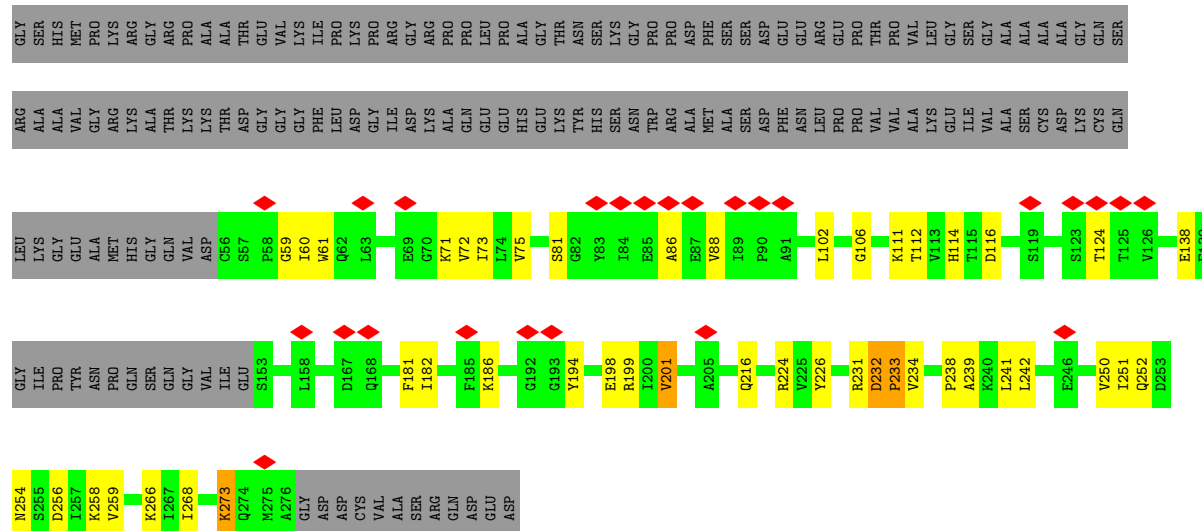
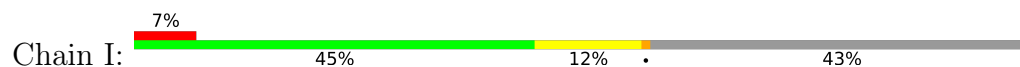




- Molecule 1: Integrase

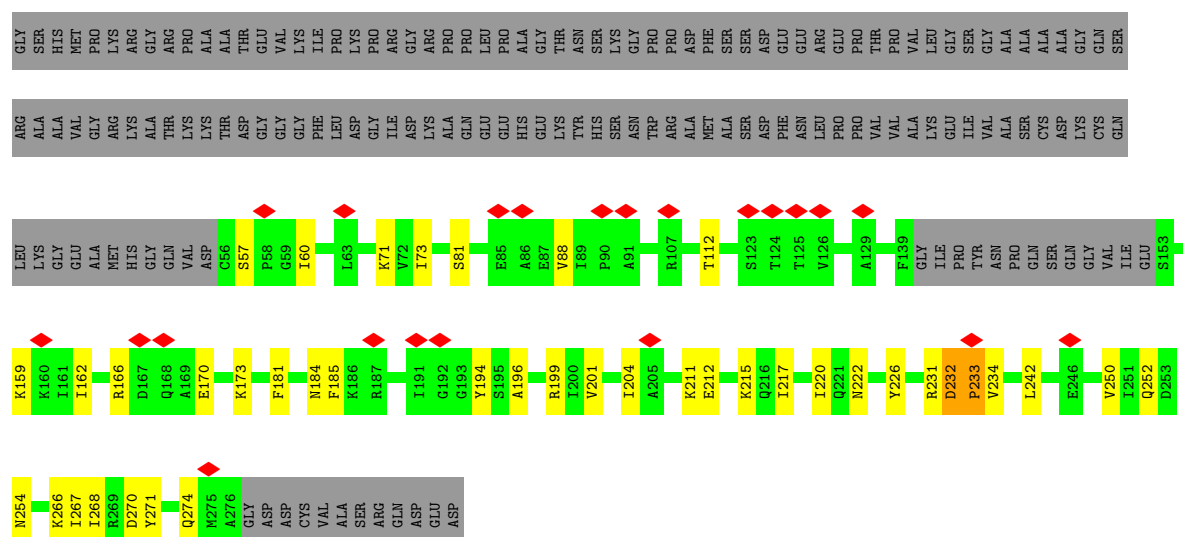


- Molecule 1: Integrase

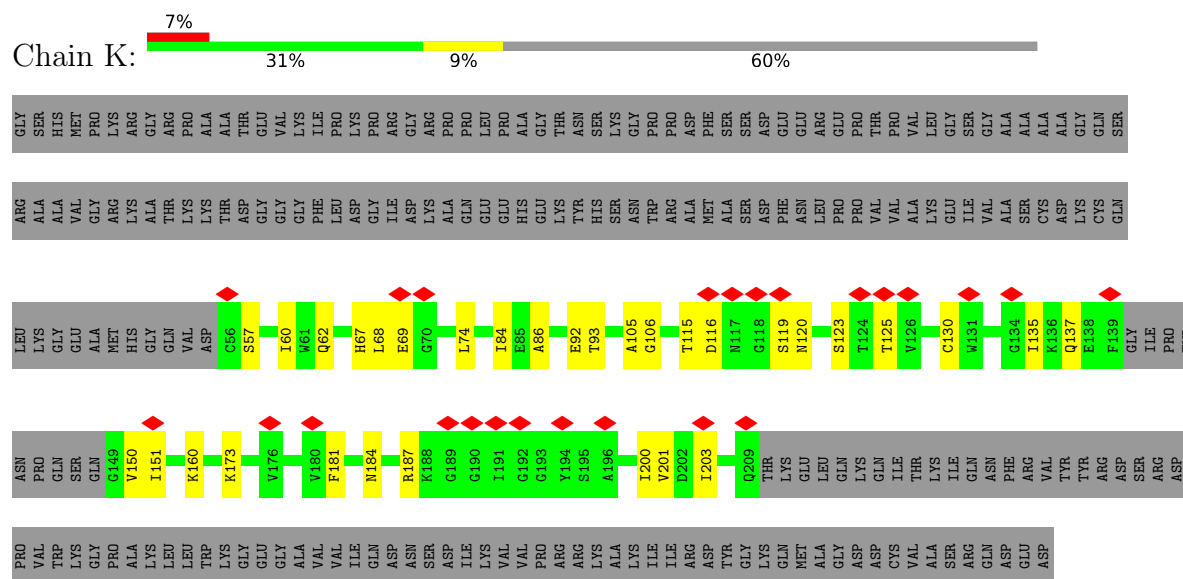


- Molecule 1: Integrase

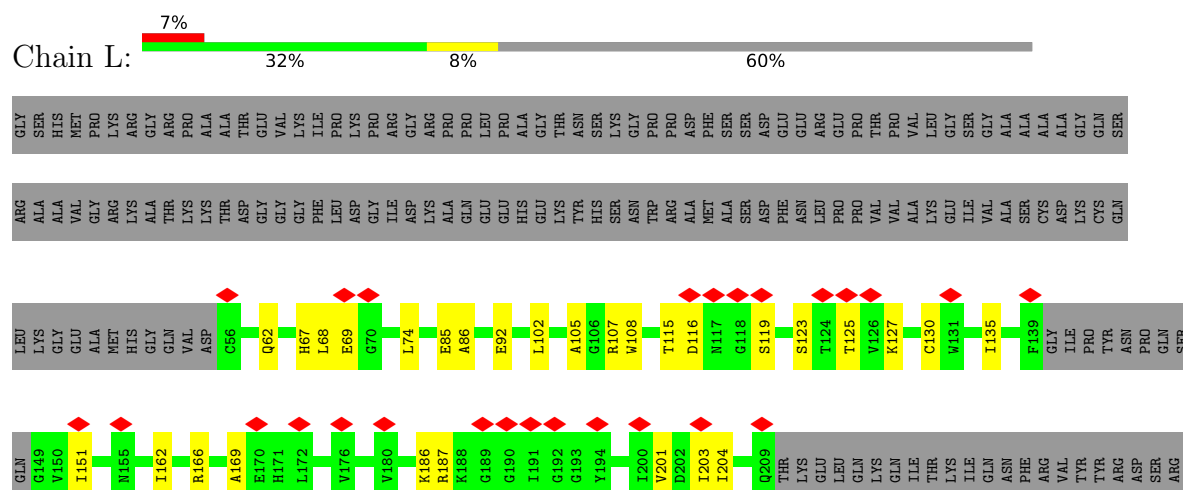




• Molecule 1: Integrase

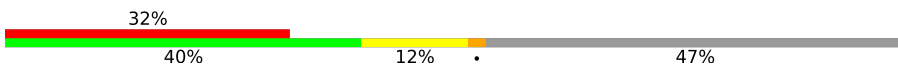


• Molecule 1: Integrase



PRO VAL TRP GLY PRO PRO LYS LYS LEU LEU TRP LYS GLY GLU GLY ALA VAL VAL ILE GLN ASP ASN SER ASP ILE LYS VAL VAL PRO GLY ARG ARG LYS ALA ILE PRO ILE ARG ASP TYR LYS LYS LYS LYS LYS MET ALA GLY ASP ASP CYS VAL ALA SER ARG GLN ASP ASP GLU ASP

• Molecule 1: Integrase

Chain M: 

GLY SER HIS MET PRO LYS ARG GLY ARG PRO LYS ALA THR ASP THR GLU VAL LYS ILE VAL PRO LYS ASP GLY THR GLY PHE G59 ILE LEU PRO LYS ASP GLY ILE ARG GLY ASP SER ASP ALA PRO LEU LEU PRO VAL HIS GLY THR LYS ASN SER LYS GLY ASP TRP PRO ILE ARG MET PHE SER SER ASP PHE GLU MET ASN LEU PRO PRO VAL THR VAL VAL LYS GLU ILE VAL VAL SER ALA ALA ASP GLN SER

ARG ALA VAL ARG LYS THR LYS ASP THR GLY PHE G59 ILE LEU PRO LYS ASP GLY ILE ARG GLY ASP SER ASP ALA PRO LEU LEU PRO VAL HIS GLY THR LYS ASN SER LYS GLY ASP TRP PRO ILE ARG MET PHE SER SER ASP PHE GLU MET ASN LEU PRO PRO VAL THR VAL VAL LYS GLU ILE VAL VAL SER ALA ALA ASP GLN SER

LEU LYS GLY ALA MET HIS GLY VAL ASP C56 S57 P58 G59 I60 W61 Q62 L63 D64 C65 T66 H67 L68 K71 L74 V75 A76 V77 H76 V79 A80 S81 G82 Y83 I84 E85 A86 E87 V88 I89 A91 E92 T93 G94 Q95 E96 T97 A98 Y99 F100 L101 L102 K103 L104 A105 G106

R107 W108 P109 V110 K111 T112 V113 H114 T115 D116 N117 G118 S119 N120 F121 S123 T124 T125 K126 A127 A128 A129 C130 W131 W132 A133 G134 I135 K136 Q137 E138 F139 GLY ILE PRO TYR ASN VAL PRO GLN GLN G149 V150 I151 E152 S153 M154 L158 K159 K160 I161 I162 G163 Q164 V165 R166 D167

E170 H171 L172 K173 V176 Q177 M178 A179 V180 I182 H183 N184 F185 K186 R187 K188 G189 S195 A196 G197 E198 I199 I200 V201 D202 D203 I204 A205 T206 D207 I208 Q209 THR LYS GLU LEU GLN LYS ILE LYS GLN N222 F223 V224 V225 Y226 Y227 R228 R231 D232 P233 V234 W235

P238 L242 V250 I251 Q252 N254 R262 K263 K264 A265 D270 TYR GLY LYS GLN MET ALA GLY ASP A196 G197 E198 I199 I200 V201 D202 D203 I204 A205 T206 D207 I208 Q209 THR LYS GLU LEU GLN LYS ILE LYS GLN N222 F223 V224 V225 Y226 Y227 R228 R231 D232 P233 V234 W235

• Molecule 1: Integrase

Chain N: 

GLY SER MET PRO LYS ARG GLY ARG PRO LYS ALA THR ASP THR GLU VAL LYS ILE VAL PRO LYS ASP GLY THR GLY PHE G59 ILE LEU PRO LYS ASP GLY ILE ARG GLY ASP SER ASP ALA PRO LEU LEU PRO VAL HIS GLY THR LYS ASN SER LYS GLY ASP TRP PRO ILE ARG MET PHE SER SER ASP PHE GLU MET ASN LEU PRO PRO VAL THR VAL VAL LYS GLU ILE VAL VAL SER ALA ALA ASP GLN SER

ARG ALA VAL ARG LYS THR LYS ASP THR GLY PHE G59 ILE LEU PRO LYS ASP GLY ILE ARG GLY ASP SER ASP ALA PRO LEU LEU PRO VAL HIS GLY THR LYS ASN SER LYS GLY ASP TRP PRO ILE ARG MET PHE SER SER ASP PHE GLU MET ASN LEU PRO PRO VAL THR VAL VAL LYS GLU ILE VAL VAL SER ALA ALA ASP GLN SER

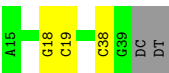
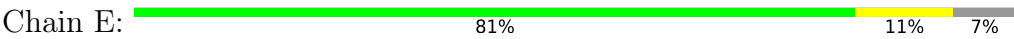
LEU LYS GLY ALA MET HIS GLY VAL ASP C56 S57 P58 G59 I60 W61 Q62 L63 D64 C65 T66 H67 L68 E69 G70 K71 W72 I73 L74 V75 A76 V77 H78 V79 A80 S81 G82 Y83 I84 E85 A86 E87 V88 I89 A91 E92 T93 G94 T97 A98 Y99 F100 L101 L102 K103 L104 A105

G106 R107 W108 P109 V110 K111 T112 V113 H114 T115 D116 N117 G118 S119 N120 F121 S123 T124 T125 K126 A127 A128 A129 C130 W131 W132 A133 G134 I135 K136 Q137 E138 F139 GLY ILE PRO TYR ASN VAL PRO GLN GLN G149 V150 I151 E152 S153 M154 L158 K159 K160 I161 I162 G163 Q164 V165

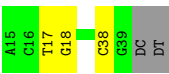
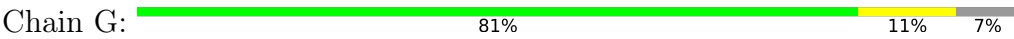
R166 D167 Q168 A169 E170 H171 L172 K173 T174 A175 V176 Q177 M178 V180 F181 I182 H183 N184 F185 K186 R187 K188 G189 G190 I191 V192 G193 Y194 S195 A196 G197 E198 I199 I200 V201 D202 I203 I204 A205 T206 D207 I208 Q209 T210 LYS GLU LEU LYS GLN LYS ILE THR LYS ILE GLN ASN PHE ARG VAL

TYR TYR ARG ASP SER ARG ASP PRO TRP LYS GLY PRO PRO LYS LYS LEU LEU TRP TRP LYS ASP GLY THR GLY PHE G59 ILE LEU PRO LYS ASP GLY ILE ARG GLY ASP SER ASP ALA PRO LEU LEU PRO VAL HIS GLY THR LYS ASN SER LYS GLY ASP TRP PRO ILE ARG MET PHE SER SER ASP PHE GLU MET ASN LEU PRO PRO VAL THR VAL VAL LYS GLU ILE VAL VAL SER ALA ALA ASP GLN SER

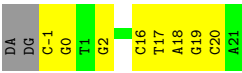
ASP GLU ASP



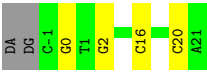
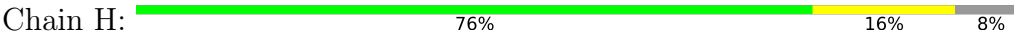
● Molecule 2: DNA (27-MER)



● Molecule 3: DNA (25-MER)



● Molecule 3: DNA (25-MER)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	134763	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	75	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.042	Depositor
Minimum map value	-0.014	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.009	Depositor
Map size (Å)	388.80002, 388.80002, 388.80002	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	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, DLU

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	0.27	0/2175	0.50	2/2940 (0.1%)
1	B	0.26	0/2127	0.48	2/2874 (0.1%)
1	C	0.27	0/2174	0.51	2/2938 (0.1%)
1	D	0.26	0/2110	0.47	2/2851 (0.1%)
1	I	0.27	0/1679	0.52	2/2265 (0.1%)
1	J	0.26	0/1671	0.51	2/2254 (0.1%)
1	K	0.25	0/1130	0.44	0/1527
1	L	0.25	0/1130	0.47	0/1527
1	M	0.28	0/1546	0.55	2/2087 (0.1%)
1	N	0.29	0/1109	0.50	0/1499
1	O	0.26	0/1109	0.48	0/1499
1	P	0.29	0/1527	0.54	1/2062 (0.0%)
2	E	0.62	0/562	1.19	2/864 (0.2%)
2	G	0.60	0/562	1.16	2/864 (0.2%)
3	F	0.69	0/536	1.27	4/826 (0.5%)
3	H	0.67	0/536	1.23	3/826 (0.4%)
All	All	0.33	0/21683	0.62	26/29703 (0.1%)

There are no bond length outliers.

The worst 5 of 26 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	P	233	PRO	CA-N-CD	-8.93	99.00	111.50
1	C	233	PRO	CA-N-CD	-8.80	99.19	111.50
1	A	233	PRO	CA-N-CD	-8.78	99.21	111.50
1	J	233	PRO	CA-N-CD	-8.78	99.20	111.50
1	M	233	PRO	CA-N-CD	-8.78	99.21	111.50

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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	A	2129	0	2142	29	0
1	B	2083	0	2101	19	0
1	C	2128	0	2138	33	0
1	D	2067	0	2084	31	0
1	I	1646	0	1683	29	0
1	J	1639	0	1676	31	0
1	K	1110	0	1117	20	0
1	L	1110	0	1117	18	0
1	M	1517	0	1540	36	0
1	N	1089	0	1095	21	0
1	O	1089	0	1095	27	0
1	P	1498	0	1523	45	0
2	E	503	0	283	2	0
2	G	503	0	283	2	0
3	F	477	0	258	3	0
3	H	477	0	258	1	0
4	A	2	0	0	0	0
4	C	2	0	0	0	0
5	A	30	0	18	2	0
5	C	30	0	18	2	0
All	All	21129	0	20429	308	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 7.

The worst 5 of 308 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)
1:I:182:ILE:CD1	1:I:186:LYS:HD2	1.96	0.95
1:M:182:ILE:CD1	1:M:186:LYS:HD2	1.97	0.94
1:M:182:ILE:HD12	1:M:186:LYS:HD2	1.54	0.89
1:P:233:PRO:HD2	1:P:234:VAL:H	1.39	0.88
1:I:182:ILE:HD13	1:I:186:LYS:HD2	1.61	0.82

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	268/364 (74%)	254 (95%)	13 (5%)	1 (0%)	34	72
1	B	260/364 (71%)	248 (95%)	11 (4%)	1 (0%)	34	72
1	C	268/364 (74%)	257 (96%)	11 (4%)	0	100	100
1	D	258/364 (71%)	247 (96%)	10 (4%)	1 (0%)	34	72
1	I	204/364 (56%)	198 (97%)	6 (3%)	0	100	100
1	J	204/364 (56%)	195 (96%)	9 (4%)	0	100	100
1	K	141/364 (39%)	140 (99%)	1 (1%)	0	100	100
1	L	141/364 (39%)	140 (99%)	1 (1%)	0	100	100
1	M	188/364 (52%)	178 (95%)	10 (5%)	0	100	100
1	N	138/364 (38%)	133 (96%)	5 (4%)	0	100	100
1	O	138/364 (38%)	132 (96%)	6 (4%)	0	100	100
1	P	186/364 (51%)	178 (96%)	7 (4%)	1 (0%)	29	68
All	All	2394/4368 (55%)	2300 (96%)	90 (4%)	4 (0%)	50	81

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	233	PRO
1	B	233	PRO
1	A	233	PRO
1	P	233	PRO

5.3.2 Protein sidechains

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	226/294 (77%)	224 (99%)	2 (1%)	78	88
1	B	221/294 (75%)	216 (98%)	5 (2%)	50	70
1	C	225/294 (76%)	219 (97%)	6 (3%)	44	66
1	D	220/294 (75%)	218 (99%)	2 (1%)	78	88
1	I	173/294 (59%)	166 (96%)	7 (4%)	31	56
1	J	172/294 (58%)	169 (98%)	3 (2%)	60	78
1	K	116/294 (40%)	114 (98%)	2 (2%)	60	78
1	L	116/294 (40%)	114 (98%)	2 (2%)	60	78
1	M	159/294 (54%)	147 (92%)	12 (8%)	13	40
1	N	114/294 (39%)	109 (96%)	5 (4%)	28	54
1	O	114/294 (39%)	107 (94%)	7 (6%)	18	46
1	P	157/294 (53%)	143 (91%)	14 (9%)	9	33
All	All	2013/3528 (57%)	1946 (97%)	67 (3%)	41	61

5 of 67 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	P	88	VAL
1	P	102	LEU
1	P	224	ARG
1	J	268	ILE
1	J	267	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 17 such sidechains are listed below:

Mol	Chain	Res	Type
1	K	137	GLN
1	N	78	HIS
1	I	120	ASN
1	I	216	GLN
1	J	120	ASN

5.3.3 RNA ⓘ

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 6 ligands modelled in this entry, 4 are monoatomic - leaving 2 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	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
5	DLU	C	303	4	31,33,33	4.72	12 (38%)	34,49,49	1.67	9 (26%)
5	DLU	A	303	4	31,33,33	4.72	12 (38%)	34,49,49	1.68	8 (23%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	DLU	C	303	4	-	0/9/35/35	1/4/4/4
5	DLU	A	303	4	-	0/9/35/35	1/4/4/4

The worst 5 of 24 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	C	303	DLU	CAO-NBD	16.35	1.62	1.46
5	A	303	DLU	CAO-NBD	16.35	1.62	1.46
5	A	303	DLU	CAY-CAW	14.68	1.55	1.36
5	C	303	DLU	CAY-CAW	14.67	1.55	1.36
5	A	303	DLU	CAK-NBD	7.09	1.50	1.37

The worst 5 of 17 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	303	DLU	CAU-CAJ-CAT	3.21	120.00	116.62
5	C	303	DLU	CAU-CAJ-CAT	3.20	119.98	116.62
5	A	303	DLU	OAC-CAS-CAY	-3.06	119.89	126.39
5	C	303	DLU	OAC-CAS-CAY	-3.04	119.92	126.39
5	A	303	DLU	CAJ-CAU-CAV	-3.04	120.00	123.98

There are no chirality outliers.

There are no torsion outliers.

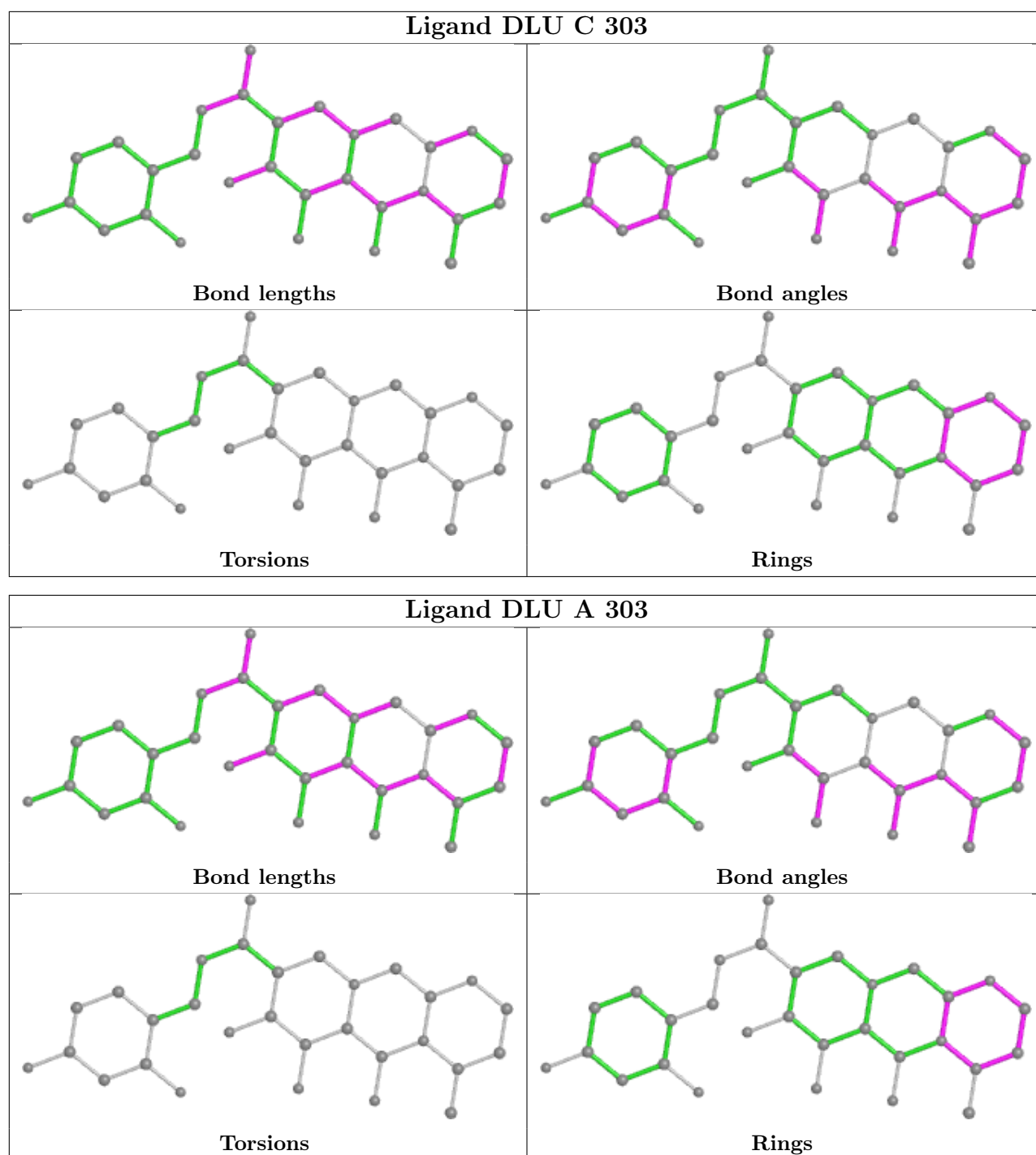
All (2) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	303	DLU	CAL-CAM-CBA-CBB-NBC-OAQ
5	C	303	DLU	CAL-CAM-CBA-CBB-NBC-OAQ

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	C	303	DLU	2	0
5	A	303	DLU	2	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 than 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.

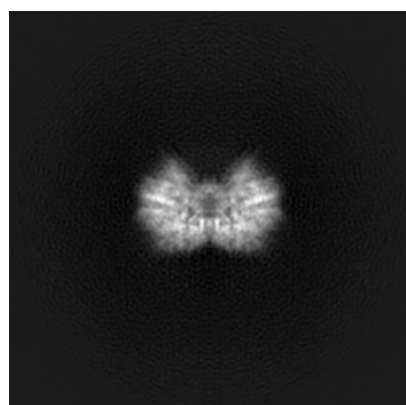
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-20689. These allow visual inspection of the internal detail of the map and identification of artifacts.

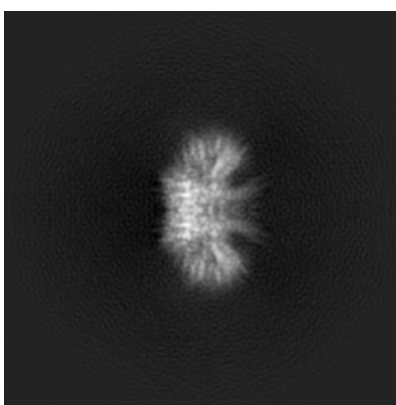
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

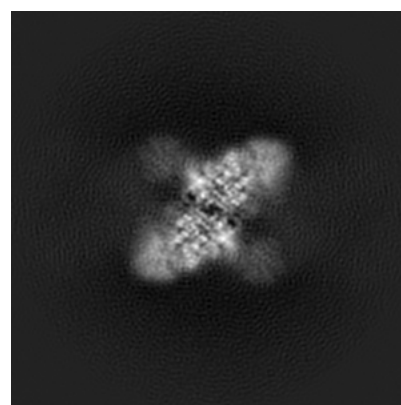
6.1.1 Primary map



X



Y

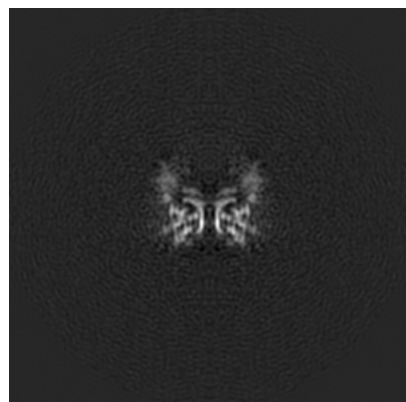


Z

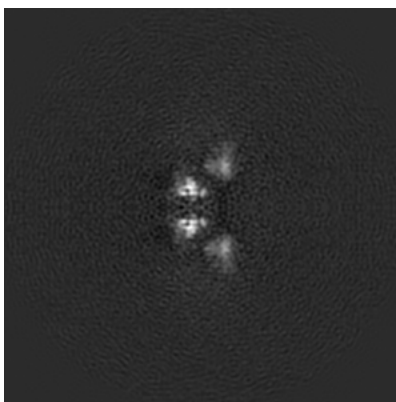
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

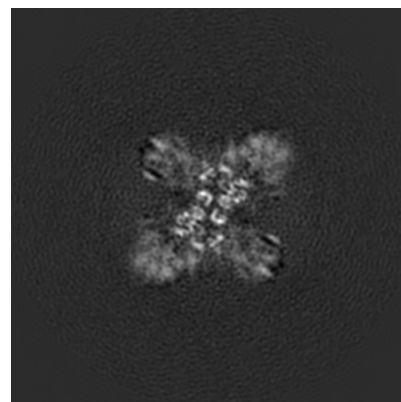
6.2.1 Primary map



X Index: 180



Y Index: 180

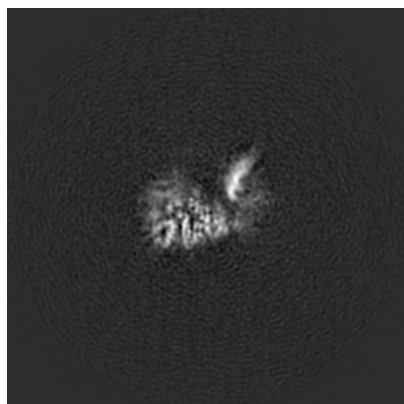


Z Index: 180

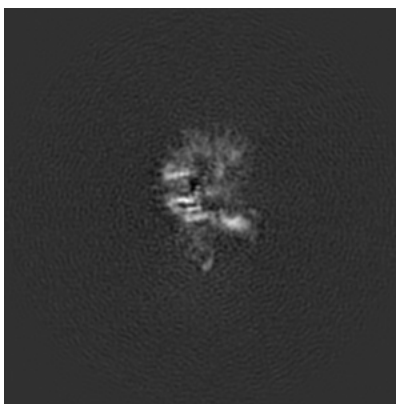
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

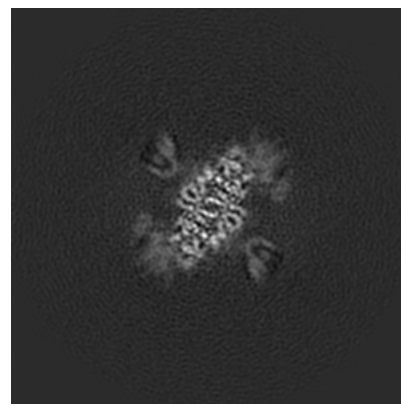
6.3.1 Primary map



X Index: 167



Y Index: 206

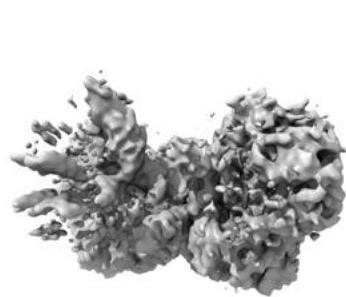


Z Index: 165

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 0.009. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

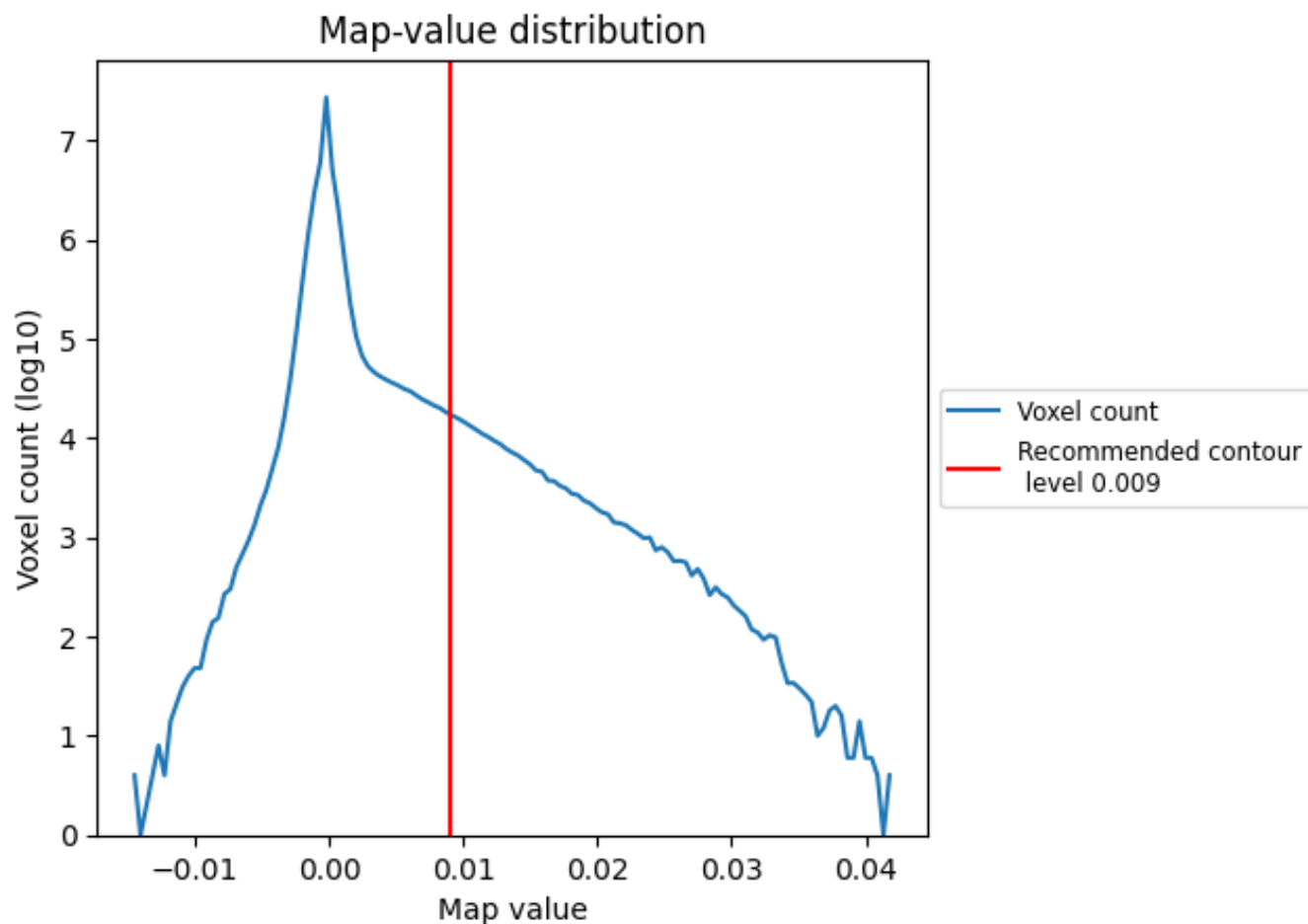
6.5 Mask visualisation

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

7 Map analysis [i](#)

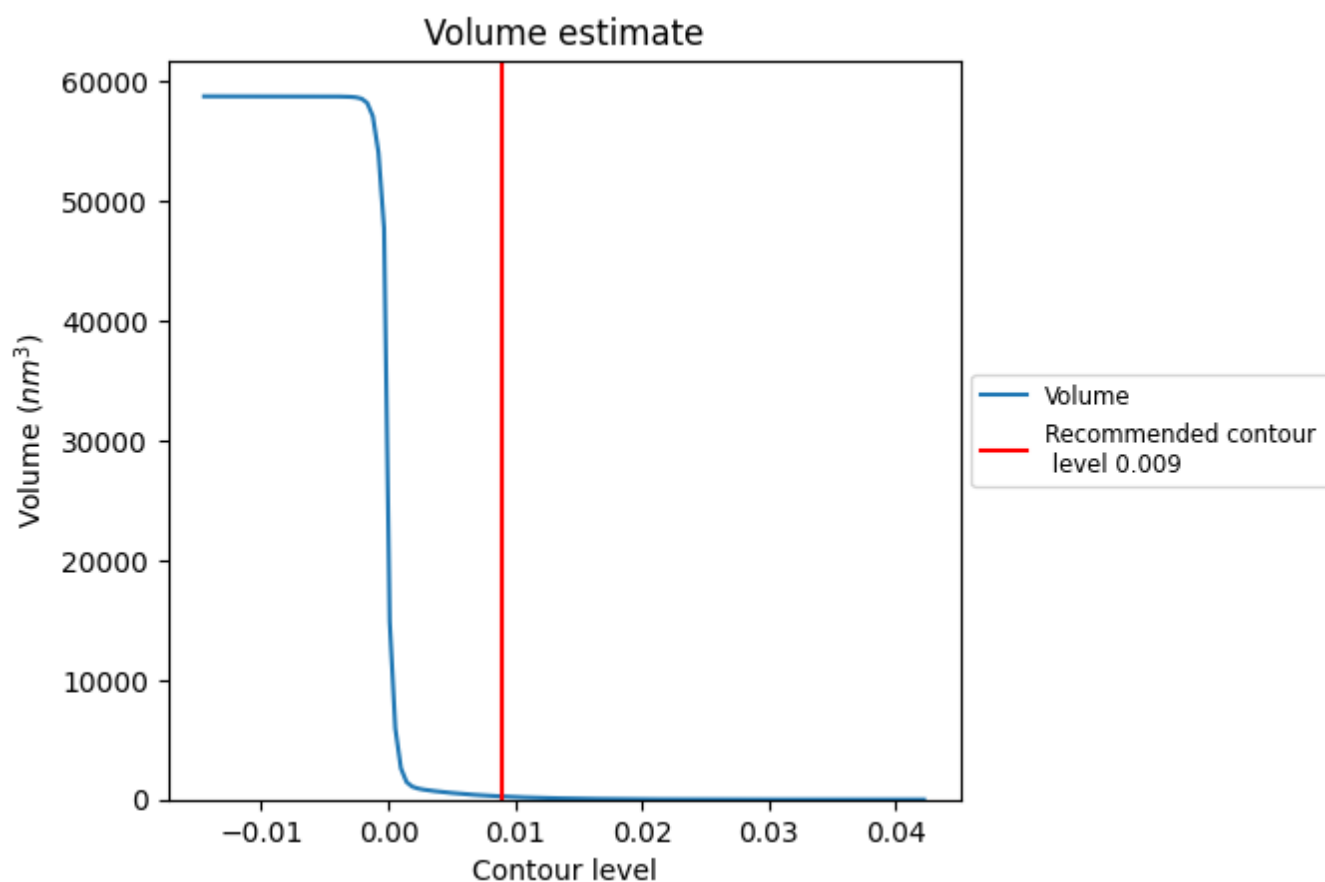
This section contains the results of statistical analysis of the map.

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.

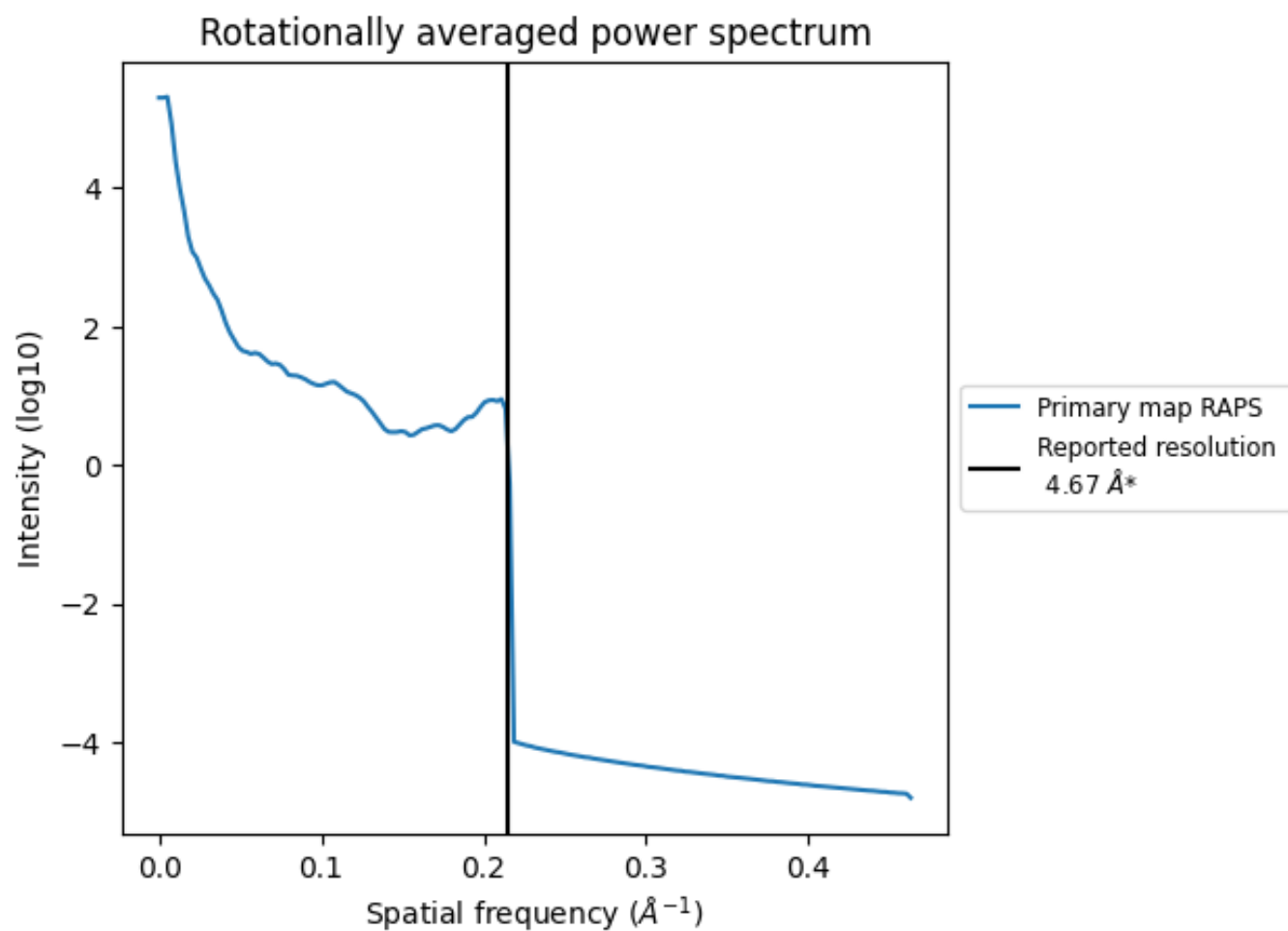
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 261 nm³; this corresponds to an approximate mass of 235 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 ⓘ



*Reported resolution corresponds to spatial frequency of 0.214 Å⁻¹

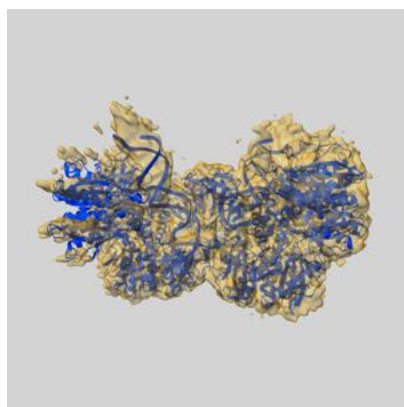
8 Fourier-Shell correlation

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

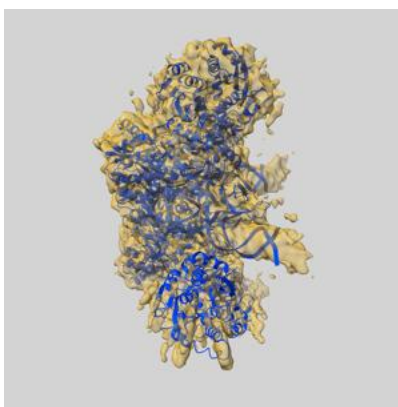
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-20689 and PDB model 6U8Q. Per-residue inclusion information can be found in section 3 on page 28.

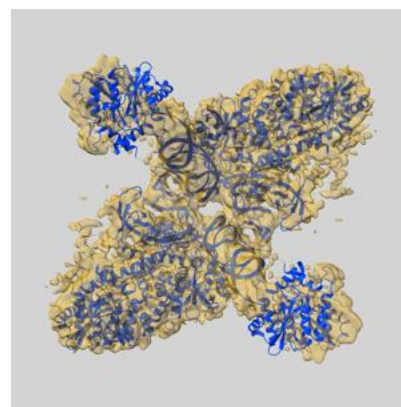
9.1 Map-model overlay [i](#)



X



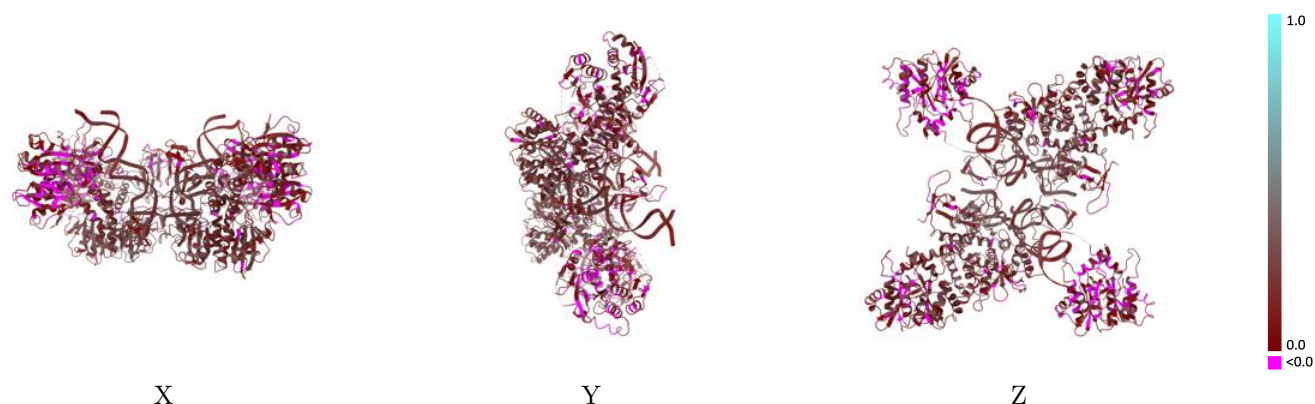
Y



Z

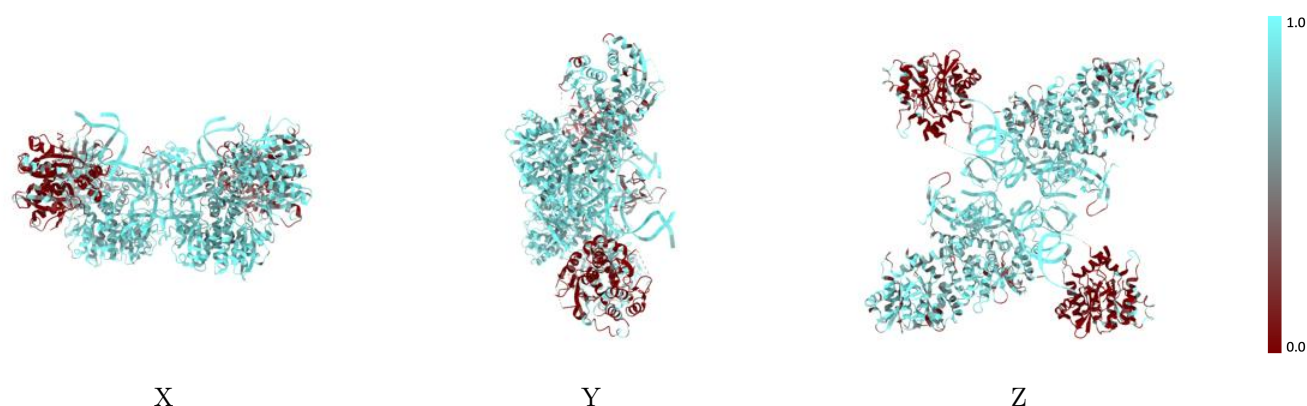
The images above show the 3D surface view of the map at the recommended contour level 0.009 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



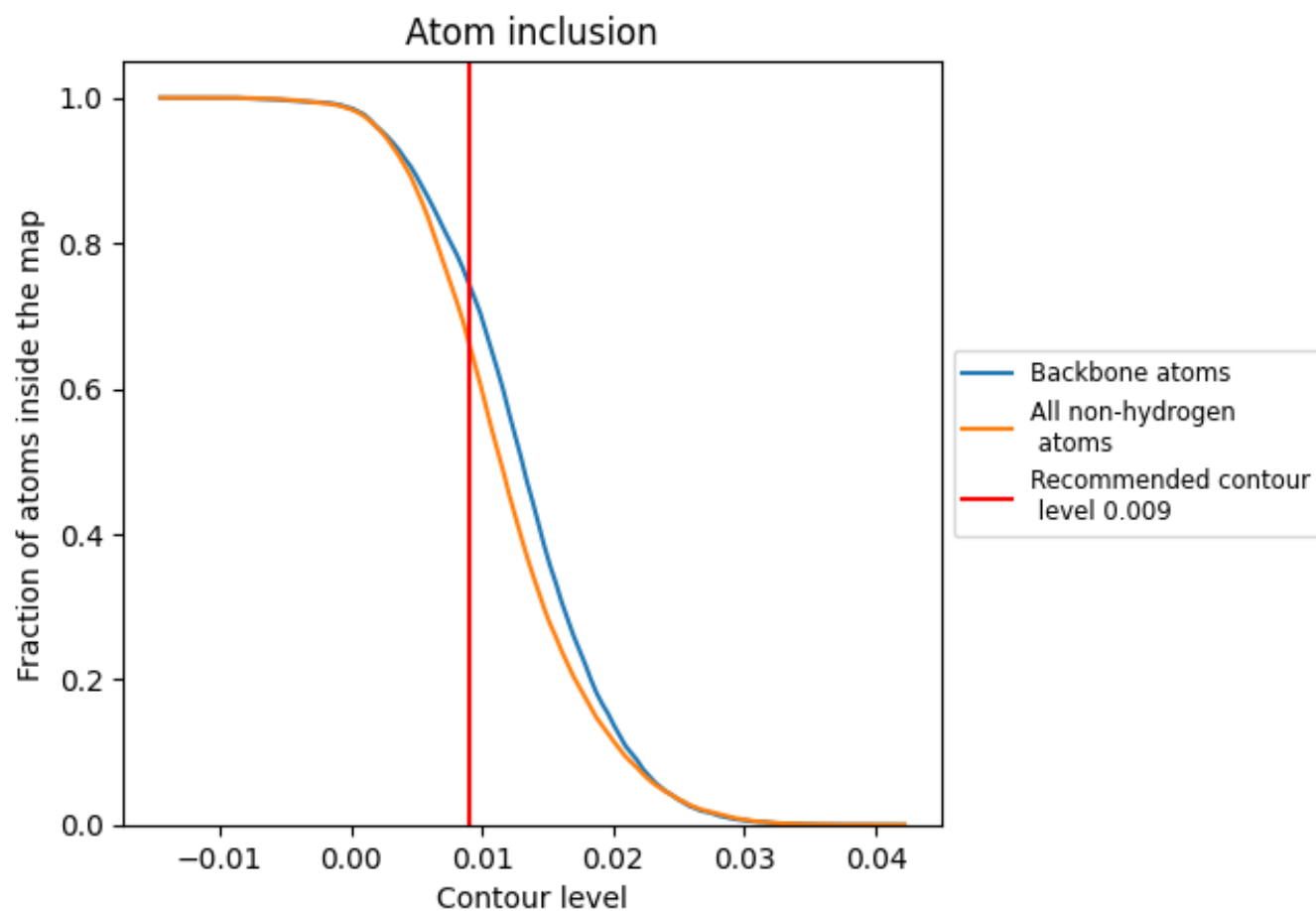
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.009).



































9.4 Atom inclusion [i](#)



At the recommended contour level, 75% of all backbone atoms, 66% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.009) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6641	 0.1760
A	 0.8291	 0.2190
B	 0.7851	 0.1990
C	 0.8323	 0.2220
D	 0.7843	 0.2010
E	 0.9245	 0.2310
F	 0.9140	 0.2060
G	 0.9364	 0.2390
H	 0.9182	 0.2140
I	 0.7497	 0.1700
J	 0.7525	 0.1710
K	 0.6971	 0.1630
L	 0.7117	 0.1540
M	 0.3793	 0.1220
N	 0.0819	 0.1000
O	 0.0930	 0.0900
P	 0.3837	 0.1280

