

# Integrative Structure Validation Report

August 15, 2024 - 01:59 PM PDT

The following software was used in the production of this report:


*Python-IHM Version 1.3*

*Integrative Modeling Validation Version 1.2*

PDB ID	9A8M
PDB-Dev ID	PDBDEV_00000386
Structure Title	Modeling of Yeast NPC basket
Structure Authors	Singh, D.; Soni, N.; Hutchings, J.; Echeverria, I.; Shaikh, F.; Duquette, M.; Suslov, S.; Li, Z.; van Eeuwen, T.; Molloy, K.; Shi, Y.; Wang, J.; Guo, Q.; Chait, B.T.; Fernandez-Martinez, J.; Rout, M.P.; Sali, A.; Villa, E.

*This is a PDB-Dev IM Structure Validation Report for a publicly released PDB-Dev entry.*

*We welcome your comments at [pdb-dev@mail.wwpdb.org](mailto:pdb-dev@mail.wwpdb.org)*

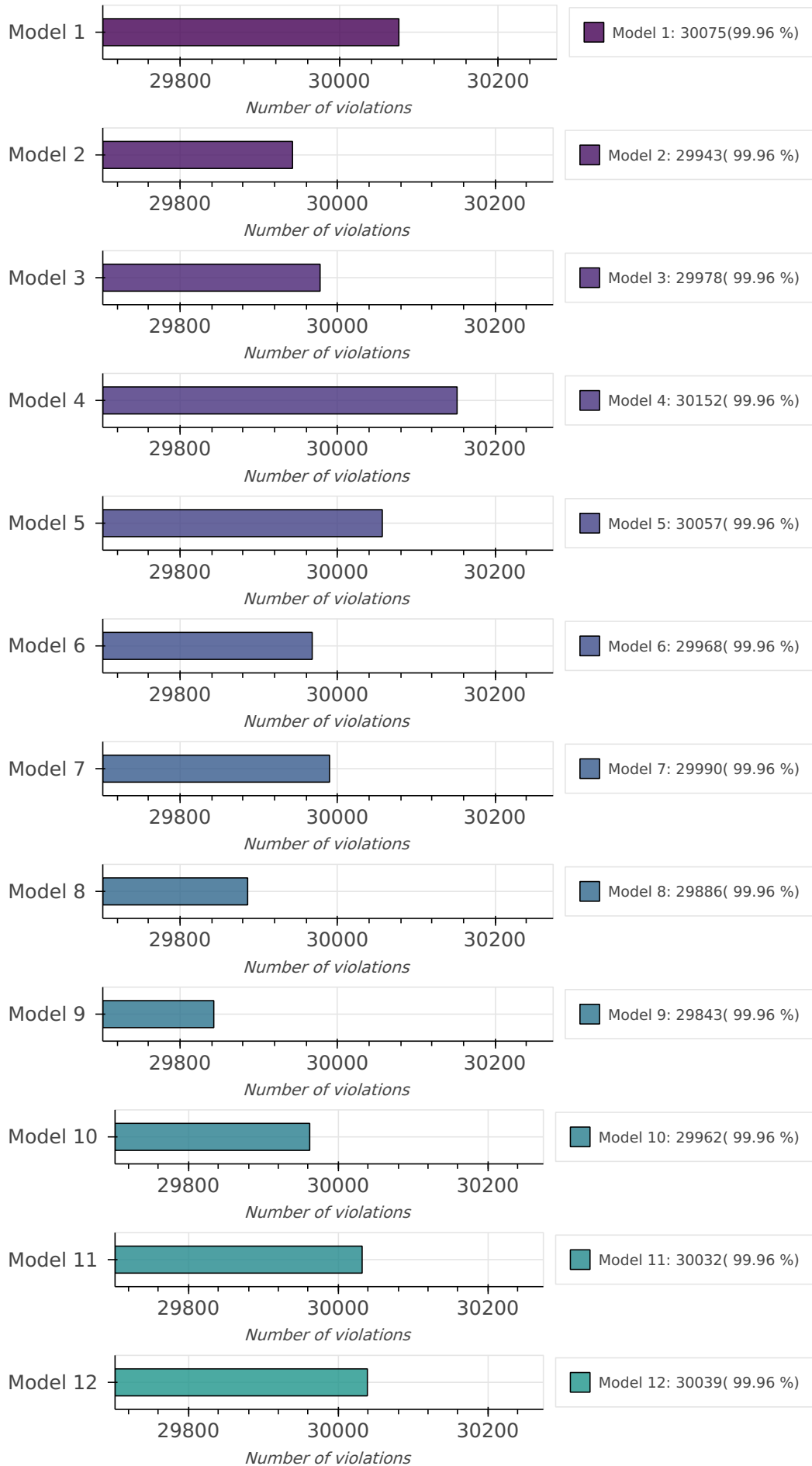
*A user guide is available at [https://pdb-dev.wwpdb.org/validation\\_help.html](https://pdb-dev.wwpdb.org/validation_help.html) with specific help available everywhere you see the  symbol.*

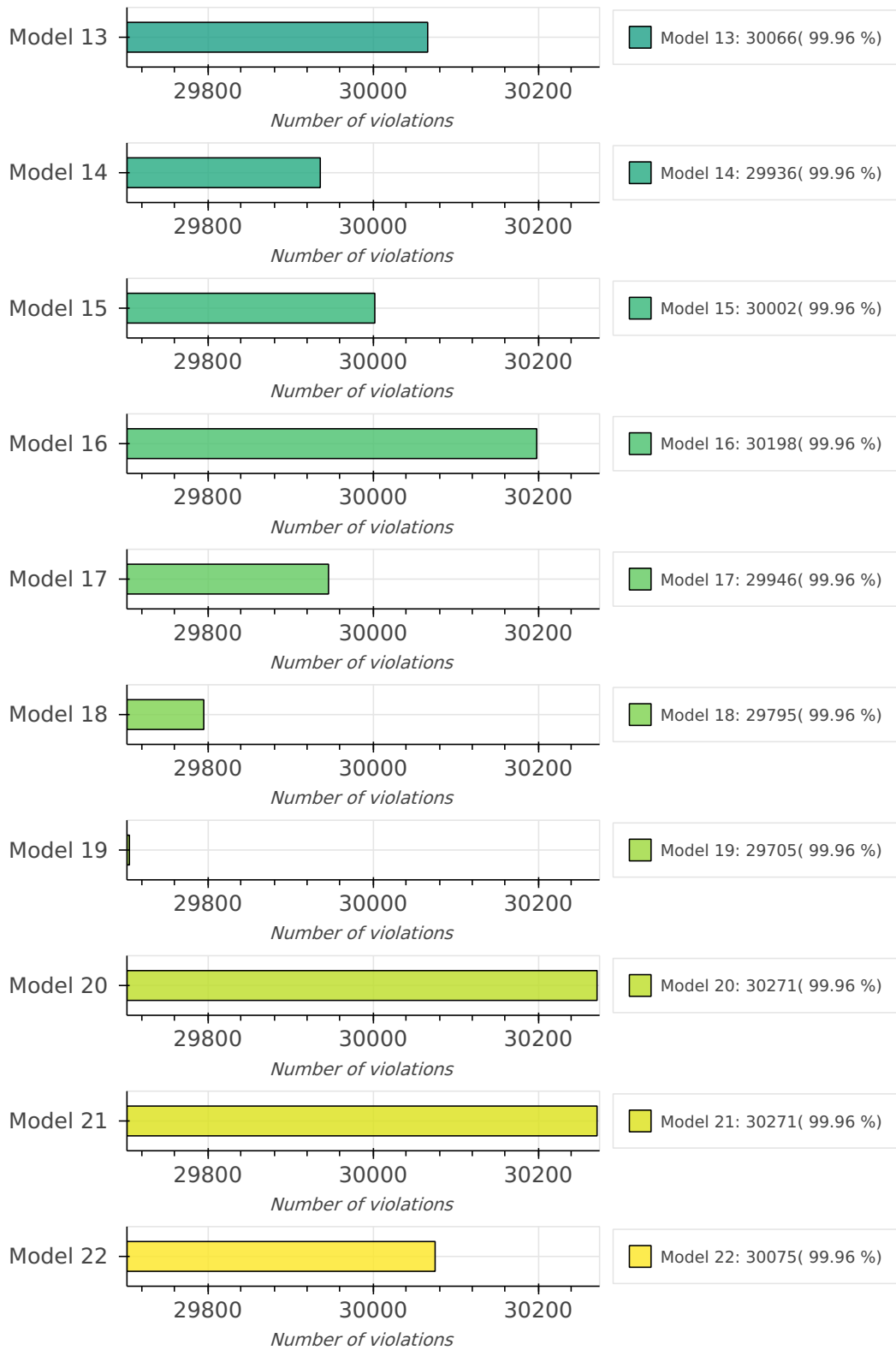
*List of references used to build this report is available [here](#).*

## Overall quality

*This validation report contains model quality assessments for all structures, data quality assessment for SAS datasets and fit to model assessments for SAS datasets. Data quality and fit to model assessments for other datasets and model uncertainty are under development. Number of plots is limited to 256.*

Model Quality: Excluded Volume Analysis





### Ensemble information ?

*This entry consists of 1 distinct ensemble(s).*

## Summary

*This entry consists of 22 unique models, with 22 subunits in each model. A total of 11 datasets or restraints were used to build this entry. Each model is represented by 118 rigid bodies and 128 flexible or non-rigid units.*

## Entry composition

*There are 22 unique types of models in this entry. These models are titled centroid, model\_0000, model\_0001, model\_0002, model\_0003, model\_0004, model\_0005, model\_0006, model\_0007, model\_0008, model\_0009, model\_0010, model\_0011, model\_0012, model\_0013, model\_0014, model\_0015, model\_0016, model\_0017, model\_0018, model\_0019, C1-Bead respectively.*

Model ID	Subunit number	Subunit ID	Subunit name	Chain ID	Chain ID [auth]	Total residues
1	1	1	Unknown MLP Protein	A	A	1875
1	2	1	Unknown MLP Protein	B	B	1875
1	3	2	Nucleoporin NUP1	C	C	1076
1	4	3	Nucleoporin NUP2	D	D	720
1	5	3	Nucleoporin NUP2	E	E	720
1	6	4	Nucleoporin NUP60	F	F	539
1	7	4	Nucleoporin NUP60	G	G	539
1	8	5	Nucleoporin NUP120	H	H	1037
1	9	5	Nucleoporin NUP120	I	I	1037
1	10	6	Nucleoporin NUP85	J	J	744
1	11	6	Nucleoporin NUP85	K	K	744
1	12	6	Nucleoporin NUP85	L	L	744
1	13	7	Nucleoporin NUP145C	M	M	712
1	14	7	Nucleoporin NUP145C	N	N	712
1	15	8	Protein transport protein SEC13	O	O	297

Model ID	Subunit number	Subunit ID	Subunit name	Chain ID	Chain ID [auth]	Total residues
1	16	8	Protein transport protein SEC13	P	P	297
1	17	9	Nucleoporin SEH1	Q	Q	349
1	18	9	Nucleoporin SEH1	R	R	349
1	19	10	Nucleoporin NUP84	S	S	726
1	20	10	Nucleoporin NUP84	T	T	726
1	21	11	Nucleoporin NUP133	U	U	1157
1	22	11	Nucleoporin NUP133	V	V	1157
2	1	1	Unknown MLP Protein	A	A	1875
2	2	1	Unknown MLP Protein	B	B	1875
2	3	2	Nucleoporin NUP1	C	C	1076
2	4	3	Nucleoporin NUP2	D	D	720
2	5	3	Nucleoporin NUP2	E	E	720
2	6	4	Nucleoporin NUP60	F	F	539
2	7	4	Nucleoporin NUP60	G	G	539
2	8	5	Nucleoporin NUP120	H	H	1037
2	9	5	Nucleoporin NUP120	I	I	1037
2	10	6	Nucleoporin NUP85	J	J	744
2	11	6	Nucleoporin NUP85	K	K	744
2	12	6	Nucleoporin NUP85	L	L	744
2	13	7	Nucleoporin NUP145C	M	M	712
2	14	7	Nucleoporin NUP145C	N	N	712
2	15	8	Protein transport protein SEC13	O	O	297

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
2	16	8	Protein transport protein SEC13	P	P	297
2	17	9	Nucleoporin SEH1	Q	Q	349
2	18	9	Nucleoporin SEH1	R	R	349
2	19	10	Nucleoporin NUP84	S	S	726
2	20	10	Nucleoporin NUP84	T	T	726
2	21	11	Nucleoporin NUP133	U	U	1157
2	22	11	Nucleoporin NUP133	V	V	1157
3	1	1	Unknown MLP Protein	A	A	1875
3	2	1	Unknown MLP Protein	B	B	1875
3	3	2	Nucleoporin NUP1	C	C	1076
3	4	3	Nucleoporin NUP2	D	D	720
3	5	3	Nucleoporin NUP2	E	E	720
3	6	4	Nucleoporin NUP60	F	F	539
3	7	4	Nucleoporin NUP60	G	G	539
3	8	5	Nucleoporin NUP120	H	H	1037
3	9	5	Nucleoporin NUP120	I	I	1037
3	10	6	Nucleoporin NUP85	J	J	744
3	11	6	Nucleoporin NUP85	K	K	744
3	12	6	Nucleoporin NUP85	L	L	744
3	13	7	Nucleoporin NUP145C	M	M	712
3	14	7	Nucleoporin NUP145C	N	N	712
3	15	8	Protein transport protein SEC13	O	O	297

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3	16	8	Protein transport protein SEC13	P	P	297
3	17	9	Nucleoporin SEH1	Q	Q	349
3	18	9	Nucleoporin SEH1	R	R	349
3	19	10	Nucleoporin NUP84	S	S	726
3	20	10	Nucleoporin NUP84	T	T	726
3	21	11	Nucleoporin NUP133	U	U	1157
3	22	11	Nucleoporin NUP133	V	V	1157
4	1	1	Unknown MLP Protein	A	A	1875
4	2	1	Unknown MLP Protein	B	B	1875
4	3	2	Nucleoporin NUP1	C	C	1076
4	4	3	Nucleoporin NUP2	D	D	720
4	5	3	Nucleoporin NUP2	E	E	720
4	6	4	Nucleoporin NUP60	F	F	539
4	7	4	Nucleoporin NUP60	G	G	539
4	8	5	Nucleoporin NUP120	H	H	1037
4	9	5	Nucleoporin NUP120	I	I	1037
4	10	6	Nucleoporin NUP85	J	J	744
4	11	6	Nucleoporin NUP85	K	K	744
4	12	6	Nucleoporin NUP85	L	L	744
4	13	7	Nucleoporin NUP145C	M	M	712
4	14	7	Nucleoporin NUP145C	N	N	712
4	15	8	Protein transport protein SEC13	O	O	297

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
4	16	8	Protein transport protein SEC13	P	P	297
4	17	9	Nucleoporin SEH1	Q	Q	349
4	18	9	Nucleoporin SEH1	R	R	349
4	19	10	Nucleoporin NUP84	S	S	726
4	20	10	Nucleoporin NUP84	T	T	726
4	21	11	Nucleoporin NUP133	U	U	1157
4	22	11	Nucleoporin NUP133	V	V	1157
5	1	1	Unknown MLP Protein	A	A	1875
5	2	1	Unknown MLP Protein	B	B	1875
5	3	2	Nucleoporin NUP1	C	C	1076
5	4	3	Nucleoporin NUP2	D	D	720
5	5	3	Nucleoporin NUP2	E	E	720
5	6	4	Nucleoporin NUP60	F	F	539
5	7	4	Nucleoporin NUP60	G	G	539
5	8	5	Nucleoporin NUP120	H	H	1037
5	9	5	Nucleoporin NUP120	I	I	1037
5	10	6	Nucleoporin NUP85	J	J	744
5	11	6	Nucleoporin NUP85	K	K	744
5	12	6	Nucleoporin NUP85	L	L	744
5	13	7	Nucleoporin NUP145C	M	M	712
5	14	7	Nucleoporin NUP145C	N	N	712
5	15	8	Protein transport protein SEC13	O	O	297



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5	17	9	Nucleoporin SEH1	Q	Q	349
5	18	9	Nucleoporin SEH1	R	R	349
5	19	10	Nucleoporin NUP84	S	S	726
5	20	10	Nucleoporin NUP84	T	T	726
5	21	11	Nucleoporin NUP133	U	U	1157
5	22	11	Nucleoporin NUP133	V	V	1157
6	1	1	Unknown MLP Protein	A	A	1875
6	2	1	Unknown MLP Protein	B	B	1875
6	3	2	Nucleoporin NUP1	C	C	1076
6	4	3	Nucleoporin NUP2	D	D	720
6	5	3	Nucleoporin NUP2	E	E	720
6	6	4	Nucleoporin NUP60	F	F	539
6	7	4	Nucleoporin NUP60	G	G	539
6	8	5	Nucleoporin NUP120	H	H	1037
6	9	5	Nucleoporin NUP120	I	I	1037
6	10	6	Nucleoporin NUP85	J	J	744
6	11	6	Nucleoporin NUP85	K	K	744
6	12	6	Nucleoporin NUP85	L	L	744
6	13	7	Nucleoporin NUP145C	M	M	712
6	14	7	Nucleoporin NUP145C	N	N	712
6	15	8	Protein transport protein SEC13	O	O	297

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6	16	8	Protein transport protein SEC13	P	P	297
6	17	9	Nucleoporin SEH1	Q	Q	349
6	18	9	Nucleoporin SEH1	R	R	349
6	19	10	Nucleoporin NUP84	S	S	726
6	20	10	Nucleoporin NUP84	T	T	726
6	21	11	Nucleoporin NUP133	U	U	1157
6	22	11	Nucleoporin NUP133	V	V	1157
7	1	1	Unknown MLP Protein	A	A	1875
7	2	1	Unknown MLP Protein	B	B	1875
7	3	2	Nucleoporin NUP1	C	C	1076
7	4	3	Nucleoporin NUP2	D	D	720
7	5	3	Nucleoporin NUP2	E	E	720
7	6	4	Nucleoporin NUP60	F	F	539
7	7	4	Nucleoporin NUP60	G	G	539
7	8	5	Nucleoporin NUP120	H	H	1037
7	9	5	Nucleoporin NUP120	I	I	1037
7	10	6	Nucleoporin NUP85	J	J	744
7	11	6	Nucleoporin NUP85	K	K	744
7	12	6	Nucleoporin NUP85	L	L	744
7	13	7	Nucleoporin NUP145C	M	M	712
7	14	7	Nucleoporin NUP145C	N	N	712
7	15	8	Protein transport protein SEC13	O	O	297

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7	16	8	Protein transport protein SEC13	P	P	297
7	17	9	Nucleoporin SEH1	Q	Q	349
7	18	9	Nucleoporin SEH1	R	R	349
7	19	10	Nucleoporin NUP84	S	S	726
7	20	10	Nucleoporin NUP84	T	T	726
7	21	11	Nucleoporin NUP133	U	U	1157
7	22	11	Nucleoporin NUP133	V	V	1157
8	1	1	Unknown MLP Protein	A	A	1875
8	2	1	Unknown MLP Protein	B	B	1875
8	3	2	Nucleoporin NUP1	C	C	1076
8	4	3	Nucleoporin NUP2	D	D	720
8	5	3	Nucleoporin NUP2	E	E	720
8	6	4	Nucleoporin NUP60	F	F	539
8	7	4	Nucleoporin NUP60	G	G	539
8	8	5	Nucleoporin NUP120	H	H	1037
8	9	5	Nucleoporin NUP120	I	I	1037
8	10	6	Nucleoporin NUP85	J	J	744
8	11	6	Nucleoporin NUP85	K	K	744
8	12	6	Nucleoporin NUP85	L	L	744
8	13	7	Nucleoporin NUP145C	M	M	712
8	14	7	Nucleoporin NUP145C	N	N	712
8	15	8	Protein transport protein SEC13	O	O	297

Model ID	Subunit number	Subunit ID	Subunit name	Chain ID	Chain ID [auth]	Total residues
8	16	8	Protein transport protein SEC13	P	P	297
8	17	9	Nucleoporin SEH1	Q	Q	349
8	18	9	Nucleoporin SEH1	R	R	349
8	19	10	Nucleoporin NUP84	S	S	726
8	20	10	Nucleoporin NUP84	T	T	726
8	21	11	Nucleoporin NUP133	U	U	1157
8	22	11	Nucleoporin NUP133	V	V	1157
9	1	1	Unknown MLP Protein	A	A	1875
9	2	1	Unknown MLP Protein	B	B	1875
9	3	2	Nucleoporin NUP1	C	C	1076
9	4	3	Nucleoporin NUP2	D	D	720
9	5	3	Nucleoporin NUP2	E	E	720
9	6	4	Nucleoporin NUP60	F	F	539
9	7	4	Nucleoporin NUP60	G	G	539
9	8	5	Nucleoporin NUP120	H	H	1037
9	9	5	Nucleoporin NUP120	I	I	1037
9	10	6	Nucleoporin NUP85	J	J	744
9	11	6	Nucleoporin NUP85	K	K	744
9	12	6	Nucleoporin NUP85	L	L	744
9	13	7	Nucleoporin NUP145C	M	M	712
9	14	7	Nucleoporin NUP145C	N	N	712
9	15	8	Protein transport protein SEC13	O	O	297

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
9	16	8	Protein transport protein SEC13	P	P	297
9	17	9	Nucleoporin SEH1	Q	Q	349
9	18	9	Nucleoporin SEH1	R	R	349
9	19	10	Nucleoporin NUP84	S	S	726
9	20	10	Nucleoporin NUP84	T	T	726
9	21	11	Nucleoporin NUP133	U	U	1157
9	22	11	Nucleoporin NUP133	V	V	1157
10	1	1	Unknown MLP Protein	A	A	1875
10	2	1	Unknown MLP Protein	B	B	1875
10	3	2	Nucleoporin NUP1	C	C	1076
10	4	3	Nucleoporin NUP2	D	D	720
10	5	3	Nucleoporin NUP2	E	E	720
10	6	4	Nucleoporin NUP60	F	F	539
10	7	4	Nucleoporin NUP60	G	G	539
10	8	5	Nucleoporin NUP120	H	H	1037
10	9	5	Nucleoporin NUP120	I	I	1037
10	10	6	Nucleoporin NUP85	J	J	744
10	11	6	Nucleoporin NUP85	K	K	744
10	12	6	Nucleoporin NUP85	L	L	744
10	13	7	Nucleoporin NUP145C	M	M	712
10	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
10	15	8	Protein transport protein SEC13	O	O	297
10	16	8	Protein transport protein SEC13	P	P	297
10	17	9	Nucleoporin SEH1	Q	Q	349
10	18	9	Nucleoporin SEH1	R	R	349
10	19	10	Nucleoporin NUP84	S	S	726
10	20	10	Nucleoporin NUP84	T	T	726
10	21	11	Nucleoporin NUP133	U	U	1157
10	22	11	Nucleoporin NUP133	V	V	1157
11	1	1	Unknown MLP Protein	A	A	1875
11	2	1	Unknown MLP Protein	B	B	1875
11	3	2	Nucleoporin NUP1	C	C	1076
11	4	3	Nucleoporin NUP2	D	D	720
11	5	3	Nucleoporin NUP2	E	E	720
11	6	4	Nucleoporin NUP60	F	F	539
11	7	4	Nucleoporin NUP60	G	G	539
11	8	5	Nucleoporin NUP120	H	H	1037
11	9	5	Nucleoporin NUP120	I	I	1037
11	10	6	Nucleoporin NUP85	J	J	744
11	11	6	Nucleoporin NUP85	K	K	744
11	12	6	Nucleoporin NUP85	L	L	744
11	13	7	Nucleoporin NUP145C	M	M	712
11	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
11	15	8	Protein transport protein SEC13	O	O	297
11	16	8	Protein transport protein SEC13	P	P	297
11	17	9	Nucleoporin SEH1	Q	Q	349
11	18	9	Nucleoporin SEH1	R	R	349
11	19	10	Nucleoporin NUP84	S	S	726
11	20	10	Nucleoporin NUP84	T	T	726
11	21	11	Nucleoporin NUP133	U	U	1157
11	22	11	Nucleoporin NUP133	V	V	1157
12	1	1	Unknown MLP Protein	A	A	1875
12	2	1	Unknown MLP Protein	B	B	1875
12	3	2	Nucleoporin NUP1	C	C	1076
12	4	3	Nucleoporin NUP2	D	D	720
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12	7	4	Nucleoporin NUP60	G	G	539
12	8	5	Nucleoporin NUP120	H	H	1037
12	9	5	Nucleoporin NUP120	I	I	1037
12	10	6	Nucleoporin NUP85	J	J	744
12	11	6	Nucleoporin NUP85	K	K	744
12	12	6	Nucleoporin NUP85	L	L	744
12	13	7	Nucleoporin NUP145C	M	M	712
12	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
12	15	8	Protein transport protein SEC13	O	O	297
12	16	8	Protein transport protein SEC13	P	P	297
12	17	9	Nucleoporin SEH1	Q	Q	349
12	18	9	Nucleoporin SEH1	R	R	349
12	19	10	Nucleoporin NUP84	S	S	726
12	20	10	Nucleoporin NUP84	T	T	726
12	21	11	Nucleoporin NUP133	U	U	1157
12	22	11	Nucleoporin NUP133	V	V	1157
13	1	1	Unknown MLP Protein	A	A	1875
13	2	1	Unknown MLP Protein	B	B	1875
13	3	2	Nucleoporin NUP1	C	C	1076
13	4	3	Nucleoporin NUP2	D	D	720
13	5	3	Nucleoporin NUP2	E	E	720
13	6	4	Nucleoporin NUP60	F	F	539
13	7	4	Nucleoporin NUP60	G	G	539
13	8	5	Nucleoporin NUP120	H	H	1037
13	9	5	Nucleoporin NUP120	I	I	1037
13	10	6	Nucleoporin NUP85	J	J	744
13	11	6	Nucleoporin NUP85	K	K	744
13	12	6	Nucleoporin NUP85	L	L	744
13	13	7	Nucleoporin NUP145C	M	M	712
13	14	7	Nucleoporin NUP145C	N	N	712



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13	15	8	Protein transport protein SEC13	O	O	297
13	16	8	Protein transport protein SEC13	P	P	297
13	17	9	Nucleoporin SEH1	Q	Q	349
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13	19	10	Nucleoporin NUP84	S	S	726
13	20	10	Nucleoporin NUP84	T	T	726
13	21	11	Nucleoporin NUP133	U	U	1157
13	22	11	Nucleoporin NUP133	V	V	1157
14	1	1	Unknown MLP Protein	A	A	1875
14	2	1	Unknown MLP Protein	B	B	1875
14	3	2	Nucleoporin NUP1	C	C	1076
14	4	3	Nucleoporin NUP2	D	D	720
14	5	3	Nucleoporin NUP2	E	E	720
14	6	4	Nucleoporin NUP60	F	F	539
14	7	4	Nucleoporin NUP60	G	G	539
14	8	5	Nucleoporin NUP120	H	H	1037
14	9	5	Nucleoporin NUP120	I	I	1037
14	10	6	Nucleoporin NUP85	J	J	744
14	11	6	Nucleoporin NUP85	K	K	744
14	12	6	Nucleoporin NUP85	L	L	744
14	13	7	Nucleoporin NUP145C	M	M	712
14	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
14	15	8	Protein transport protein SEC13	O	O	297
14	16	8	Protein transport protein SEC13	P	P	297
14	17	9	Nucleoporin SEH1	Q	Q	349
14	18	9	Nucleoporin SEH1	R	R	349
14	19	10	Nucleoporin NUP84	S	S	726
14	20	10	Nucleoporin NUP84	T	T	726
14	21	11	Nucleoporin NUP133	U	U	1157
14	22	11	Nucleoporin NUP133	V	V	1157
15	1	1	Unknown MLP Protein	A	A	1875
15	2	1	Unknown MLP Protein	B	B	1875
15	3	2	Nucleoporin NUP1	C	C	1076
15	4	3	Nucleoporin NUP2	D	D	720
15	5	3	Nucleoporin NUP2	E	E	720
15	6	4	Nucleoporin NUP60	F	F	539
15	7	4	Nucleoporin NUP60	G	G	539
15	8	5	Nucleoporin NUP120	H	H	1037
15	9	5	Nucleoporin NUP120	I	I	1037
15	10	6	Nucleoporin NUP85	J	J	744
15	11	6	Nucleoporin NUP85	K	K	744
15	12	6	Nucleoporin NUP85	L	L	744
15	13	7	Nucleoporin NUP145C	M	M	712
15	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
15	15	8	Protein transport protein SEC13	O	O	297
15	16	8	Protein transport protein SEC13	P	P	297
15	17	9	Nucleoporin SEH1	Q	Q	349
15	18	9	Nucleoporin SEH1	R	R	349
15	19	10	Nucleoporin NUP84	S	S	726
15	20	10	Nucleoporin NUP84	T	T	726
15	21	11	Nucleoporin NUP133	U	U	1157
15	22	11	Nucleoporin NUP133	V	V	1157
16	1	1	Unknown MLP Protein	A	A	1875
16	2	1	Unknown MLP Protein	B	B	1875
16	3	2	Nucleoporin NUP1	C	C	1076
16	4	3	Nucleoporin NUP2	D	D	720
16	5	3	Nucleoporin NUP2	E	E	720
16	6	4	Nucleoporin NUP60	F	F	539
16	7	4	Nucleoporin NUP60	G	G	539
16	8	5	Nucleoporin NUP120	H	H	1037
16	9	5	Nucleoporin NUP120	I	I	1037
16	10	6	Nucleoporin NUP85	J	J	744
16	11	6	Nucleoporin NUP85	K	K	744
16	12	6	Nucleoporin NUP85	L	L	744
16	13	7	Nucleoporin NUP145C	M	M	712
16	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
16	15	8	Protein transport protein SEC13	O	O	297
16	16	8	Protein transport protein SEC13	P	P	297
16	17	9	Nucleoporin SEH1	Q	Q	349
16	18	9	Nucleoporin SEH1	R	R	349
16	19	10	Nucleoporin NUP84	S	S	726
16	20	10	Nucleoporin NUP84	T	T	726
16	21	11	Nucleoporin NUP133	U	U	1157
16	22	11	Nucleoporin NUP133	V	V	1157
17	1	1	Unknown MLP Protein	A	A	1875
17	2	1	Unknown MLP Protein	B	B	1875
17	3	2	Nucleoporin NUP1	C	C	1076
17	4	3	Nucleoporin NUP2	D	D	720
17	5	3	Nucleoporin NUP2	E	E	720
17	6	4	Nucleoporin NUP60	F	F	539
17	7	4	Nucleoporin NUP60	G	G	539
17	8	5	Nucleoporin NUP120	H	H	1037
17	9	5	Nucleoporin NUP120	I	I	1037
17	10	6	Nucleoporin NUP85	J	J	744
17	11	6	Nucleoporin NUP85	K	K	744
17	12	6	Nucleoporin NUP85	L	L	744
17	13	7	Nucleoporin NUP145C	M	M	712
17	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
17	15	8	Protein transport protein SEC13	O	O	297
17	16	8	Protein transport protein SEC13	P	P	297
17	17	9	Nucleoporin SEH1	Q	Q	349
17	18	9	Nucleoporin SEH1	R	R	349
17	19	10	Nucleoporin NUP84	S	S	726
17	20	10	Nucleoporin NUP84	T	T	726
17	21	11	Nucleoporin NUP133	U	U	1157
17	22	11	Nucleoporin NUP133	V	V	1157
18	1	1	Unknown MLP Protein	A	A	1875
18	2	1	Unknown MLP Protein	B	B	1875
18	3	2	Nucleoporin NUP1	C	C	1076
18	4	3	Nucleoporin NUP2	D	D	720
18	5	3	Nucleoporin NUP2	E	E	720
18	6	4	Nucleoporin NUP60	F	F	539
18	7	4	Nucleoporin NUP60	G	G	539
18	8	5	Nucleoporin NUP120	H	H	1037
18	9	5	Nucleoporin NUP120	I	I	1037
18	10	6	Nucleoporin NUP85	J	J	744
18	11	6	Nucleoporin NUP85	K	K	744
18	12	6	Nucleoporin NUP85	L	L	744
18	13	7	Nucleoporin NUP145C	M	M	712
18	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
18	15	8	Protein transport protein SEC13	O	O	297
18	16	8	Protein transport protein SEC13	P	P	297
18	17	9	Nucleoporin SEH1	Q	Q	349
18	18	9	Nucleoporin SEH1	R	R	349
18	19	10	Nucleoporin NUP84	S	S	726
18	20	10	Nucleoporin NUP84	T	T	726
18	21	11	Nucleoporin NUP133	U	U	1157
18	22	11	Nucleoporin NUP133	V	V	1157
19	1	1	Unknown MLP Protein	A	A	1875
19	2	1	Unknown MLP Protein	B	B	1875
19	3	2	Nucleoporin NUP1	C	C	1076
19	4	3	Nucleoporin NUP2	D	D	720
19	5	3	Nucleoporin NUP2	E	E	720
19	6	4	Nucleoporin NUP60	F	F	539
19	7	4	Nucleoporin NUP60	G	G	539
19	8	5	Nucleoporin NUP120	H	H	1037
19	9	5	Nucleoporin NUP120	I	I	1037
19	10	6	Nucleoporin NUP85	J	J	744
19	11	6	Nucleoporin NUP85	K	K	744
19	12	6	Nucleoporin NUP85	L	L	744
19	13	7	Nucleoporin NUP145C	M	M	712
19	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
19	15	8	Protein transport protein SEC13	O	O	297
19	16	8	Protein transport protein SEC13	P	P	297
19	17	9	Nucleoporin SEH1	Q	Q	349
19	18	9	Nucleoporin SEH1	R	R	349
19	19	10	Nucleoporin NUP84	S	S	726
19	20	10	Nucleoporin NUP84	T	T	726
19	21	11	Nucleoporin NUP133	U	U	1157
19	22	11	Nucleoporin NUP133	V	V	1157
20	1	1	Unknown MLP Protein	A	A	1875
20	2	1	Unknown MLP Protein	B	B	1875
20	3	2	Nucleoporin NUP1	C	C	1076
20	4	3	Nucleoporin NUP2	D	D	720
20	5	3	Nucleoporin NUP2	E	E	720
20	6	4	Nucleoporin NUP60	F	F	539
20	7	4	Nucleoporin NUP60	G	G	539
20	8	5	Nucleoporin NUP120	H	H	1037
20	9	5	Nucleoporin NUP120	I	I	1037
20	10	6	Nucleoporin NUP85	J	J	744
20	11	6	Nucleoporin NUP85	K	K	744
20	12	6	Nucleoporin NUP85	L	L	744
20	13	7	Nucleoporin NUP145C	M	M	712
20	14	7	Nucleoporin NUP145C	N	N	712

<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
20	15	8	Protein transport protein SEC13	O	O	297
20	16	8	Protein transport protein SEC13	P	P	297
20	17	9	Nucleoporin SEH1	Q	Q	349
20	18	9	Nucleoporin SEH1	R	R	349
20	19	10	Nucleoporin NUP84	S	S	726
20	20	10	Nucleoporin NUP84	T	T	726
20	21	11	Nucleoporin NUP133	U	U	1157
20	22	11	Nucleoporin NUP133	V	V	1157
21	1	1	Unknown MLP Protein	A	A	1875
21	2	1	Unknown MLP Protein	B	B	1875
21	3	2	Nucleoporin NUP1	C	C	1076
21	4	3	Nucleoporin NUP2	D	D	720
21	5	3	Nucleoporin NUP2	E	E	720
21	6	4	Nucleoporin NUP60	F	F	539
21	7	4	Nucleoporin NUP60	G	G	539
21	8	5	Nucleoporin NUP120	H	H	1037
21	9	5	Nucleoporin NUP120	I	I	1037
21	10	6	Nucleoporin NUP85	J	J	744
21	11	6	Nucleoporin NUP85	K	K	744
21	12	6	Nucleoporin NUP85	L	L	744
21	13	7	Nucleoporin NUP145C	M	M	712
21	14	7	Nucleoporin NUP145C	N	N	712



<b>Model ID</b>	<b>Subunit number</b>	<b>Subunit ID</b>	<b>Subunit name</b>	<b>Chain ID</b>	<b>Chain ID [auth]</b>	<b>Total residues</b>
21	15	8	Protein transport protein SEC13	O	O	297
21	16	8	Protein transport protein SEC13	P	P	297
21	17	9	Nucleoporin SEH1	Q	Q	349
21	18	9	Nucleoporin SEH1	R	R	349
21	19	10	Nucleoporin NUP84	S	S	726
21	20	10	Nucleoporin NUP84	T	T	726
21	21	11	Nucleoporin NUP133	U	U	1157
21	22	11	Nucleoporin NUP133	V	V	1157
22	1	1	Unknown MLP Protein	A	A	1875
22	2	1	Unknown MLP Protein	B	B	1875
22	3	2	Nucleoporin NUP1	C	C	1076
22	4	3	Nucleoporin NUP2	D	D	720
22	5	3	Nucleoporin NUP2	E	E	720
22	6	4	Nucleoporin NUP60	F	F	539
22	7	4	Nucleoporin NUP60	G	G	539
22	8	5	Nucleoporin NUP120	H	H	1037
22	9	5	Nucleoporin NUP120	I	I	1037
22	10	6	Nucleoporin NUP85	J	J	744
22	11	6	Nucleoporin NUP85	K	K	744
22	12	6	Nucleoporin NUP85	L	L	744
22	13	7	Nucleoporin NUP145C	M	M	712

Model ID	Subunit number	Subunit ID	Subunit name	Chain ID	Chain ID [auth]	Total residues
22	14	7	Nucleoporin NUP145C	N	N	712
22	15	8	Protein transport protein SEC13	O	O	297
22	16	8	Protein transport protein SEC13	P	P	297
22	17	9	Nucleoporin SEH1	Q	Q	349
22	18	9	Nucleoporin SEH1	R	R	349
22	19	10	Nucleoporin NUP84	S	S	726
22	20	10	Nucleoporin NUP84	T	T	726
22	21	11	Nucleoporin NUP133	U	U	1157
22	22	11	Nucleoporin NUP133	V	V	1157

### Datasets used for modeling

*There are 11 unique datasets used to build the models in this entry.*

ID	Dataset type	Database name	Data access code
11	3DEM volume	File	10.5281/zenodo.13131753
7	Crosslinking-MS data	File	10.5281/zenodo.13131753
8	Crosslinking-MS data	File	10.5281/zenodo.13131753
1	De Novo model	File	10.5281/zenodo.13131753
2	De Novo model	File	10.5281/zenodo.13131753
3	De Novo model	File	10.5281/zenodo.13131753
4	De Novo model	File	10.5281/zenodo.13131753
6	Experimental model	File	10.5281/zenodo.13131753
10	3DEM volume	File	10.5281/zenodo.13131753

ID	Dataset type	Database name	Data access code
5	Experimental model	PDB	7N84
9	3DEM volume	EMDB	EMD-44377

## Representation ?

*This entry has only one representation and includes 118 rigid bodies and 128 flexible units.*

Chain ID	Rigid bodies	Non-rigid segments
A	71-183, 197-221, 239-281, 285-324, 340-371, 435-463, 535-570, 575-617, 622-668, 689-717, 745-773, 791-840, 844-893, 930-986, 990-1088, 1092-1127, 1143-1199, 1212-1251, 1254-1286, 1290-1339, 1343-1385, 1408-1457	1-70, 184-196, 222-238, 282-284, 325-339, 372-434, 464-534, 571-574, 618-621, 669-688, 718-744, 774-790, 841-843, 894-929, 987-989, 1089-1091, 1128-1142, 1200-1211, 1252-1253, 1287-1289, 1340-1342, 1386-1407, 1458-1875
B	71-183, 197-221, 239-281, 285-324, 340-371, 435-463, 535-570, 575-617, 622-668, 689-717, 745-773, 791-840, 844-893, 930-986, 990-1088, 1092-1127, 1143-1199, 1212-1251, 1254-1286, 1290-1339, 1343-1385, 1408-1457	1-70, 184-196, 222-238, 282-284, 325-339, 372-434, 464-534, 571-574, 618-621, 669-688, 718-744, 774-790, 841-843, 894-929, 987-989, 1089-1091, 1128-1142, 1200-1211, 1252-1253, 1287-1289, 1340-1342, 1386-1407, 1458-1875
C	1-32, 85-104, 106-123	33-84, 105-105, 124-335
H	1-29, 53-305, 311-711, 714-1036	30-52, 306-310, 712-713, 1037-1037
I	1-29, 53-305, 311-711, 714-1036	30-52, 306-310, 712-713, 1037-1037
F	27-47, 91-104, 106-119, 121-140, 142-162	1-26, 48-90, 105-105, 120-120, 141-141, 163-398, 505-539
G	27-47, 91-104, 106-119, 121-140, 142-162	1-26, 48-90, 105-105, 120-120, 141-141, 163-398, 505-539
D	83-136, 602-720	51-82
E	83-136, 602-720	51-82
Q	1-248, 288-346	249-287, 347-349
R	1-248, 288-346	249-287, 347-349

Chain ID	Rigid bodies	Non-rigid segments
M	119-712	1-118
N	119-712	1-118
S	7-20, 27-80, 96-126, 136-364, 372-483, 506-562, 575-726	1-6, 21-26, 81-95, 127-135, 365-371, 484-505, 563-574
T	7-20, 27-80, 96-126, 136-364, 372-483, 506-562, 575-726	1-6, 21-26, 81-95, 127-135, 365-371, 484-505, 563-574
J	47-126, 132-230, 235-436, 451-744	1-46, 127-131, 231-234, 437-450
L	47-126, 132-230, 235-436, 451-739	1-46, 127-131, 231-234, 437-450, 740-744
K	47-126, 132-230, 235-436, 451-739	1-46, 127-131, 231-234, 437-450, 740-744
U	63-183, 198-480, 490-763, 772-1155	1-62, 184-197, 481-489, 764-771, 1156-1157
V	56-77, 86-125, 133-144, 162-184, 193-200, 206-249, 258-480, 490-763, 772-1155	1-55, 78-85, 126-132, 145-161, 185-192, 201-205, 250-257, 481-489, 764-771, 1156-1157
O	8-157, 170-293	1-7, 158-169, 294-297
P	8-157, 170-293	1-7, 158-169, 294-297

## Methodology and software

*This entry is a result of 1 distinct protocol(s).*

Step number	Protocol ID	Method name	Method type	Method description	Number of computed models	Multi state modeling	Multi scale modeling
1	1	Replica exchange monte carlo	Sampling	None	1000	False	True

Step number	Protocol ID	Method name	Method type	Method description	Number of computed models	Multi state modeling	Multi scale modeling
2	1	Replica exchange monte carlo	Sampling	None	15467933	False	True

*There are 3 software packages reported in this entry.*

ID	Software name	Software version	Software classification	Software location
1	<a href="#">IMP PMI module</a>	2.19.0	integrative model building	<a href="https://integrativemodeling.org">https://integrativemodeling.org</a>
3	<a href="#">COCONUT</a>	1.0.0	Coiled-coil model building	<a href="https://github.com/neeleshsoni21/COCONUT">https://github.com/neeleshsoni21/COCONUT</a>
2	<a href="#">Integrative Modeling Platform (IMP)</a>	2.19.0	integrative model building	<a href="https://integrativemodeling.org">https://integrativemodeling.org</a>

### Data quality ?

#### 3DEM volume

Validation for this section is under development.

#### Crosslinking-MS

Validation for this section is under development.

### Model quality ?

For models with atomic structures, molprobtity analysis is performed. For models with coarse-grained or multi-scale structures, excluded volume analysis is performed.

#### Excluded volume satisfaction ?

*Excluded volume satisfaction for the models in the entry are listed below.*

Models	Excluded Volume Satisfaction (%)	Number of violations
1	99.96	30075.0

<b>Models</b>	<b>Excluded Volume Satisfaction (%)</b>	<b>Number of violations</b>
2	99.96	29943.0
3	99.96	29978.0
4	99.96	30152.0
5	99.96	30057.0
6	99.96	29968.0
7	99.96	29990.0
8	99.96	29886.0
9	99.96	29843.0
10	99.96	29962.0
11	99.96	30032.0
12	99.96	30039.0
13	99.96	30066.0
14	99.96	29936.0
15	99.96	30002.0
16	99.96	30198.0
17	99.96	29946.0
18	99.96	29795.0
19	99.96	29705.0
20	99.96	30271.0
21	99.96	30271.0
22	99.96	30075.0

Fit of model to data used for modeling 

### 3DEM volume

Validation for this section is under development.

### Crosslinking-MS

Validation for this section is under development.

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## Fit of model to data used for validation ?

Validation for this section is under development.

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### *Acknowledgements*

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