

# **The NPC and beyond**

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What is the great unifying concept of biology?

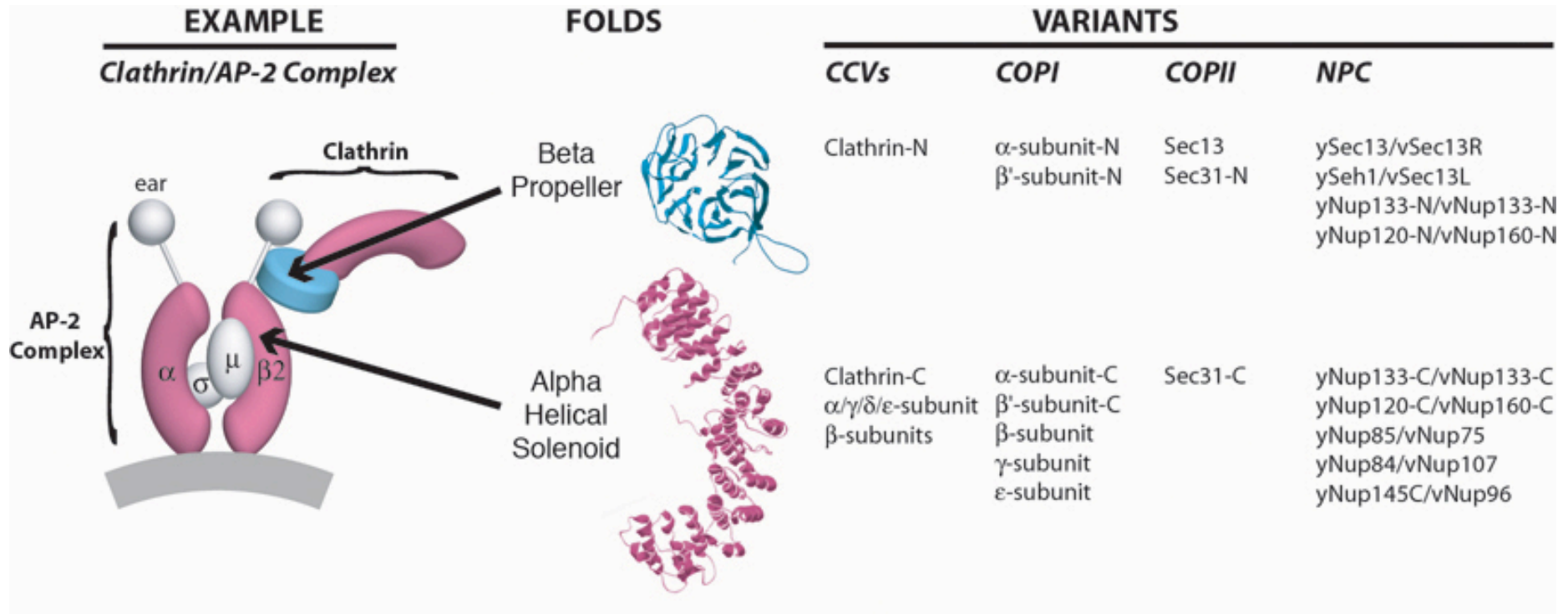
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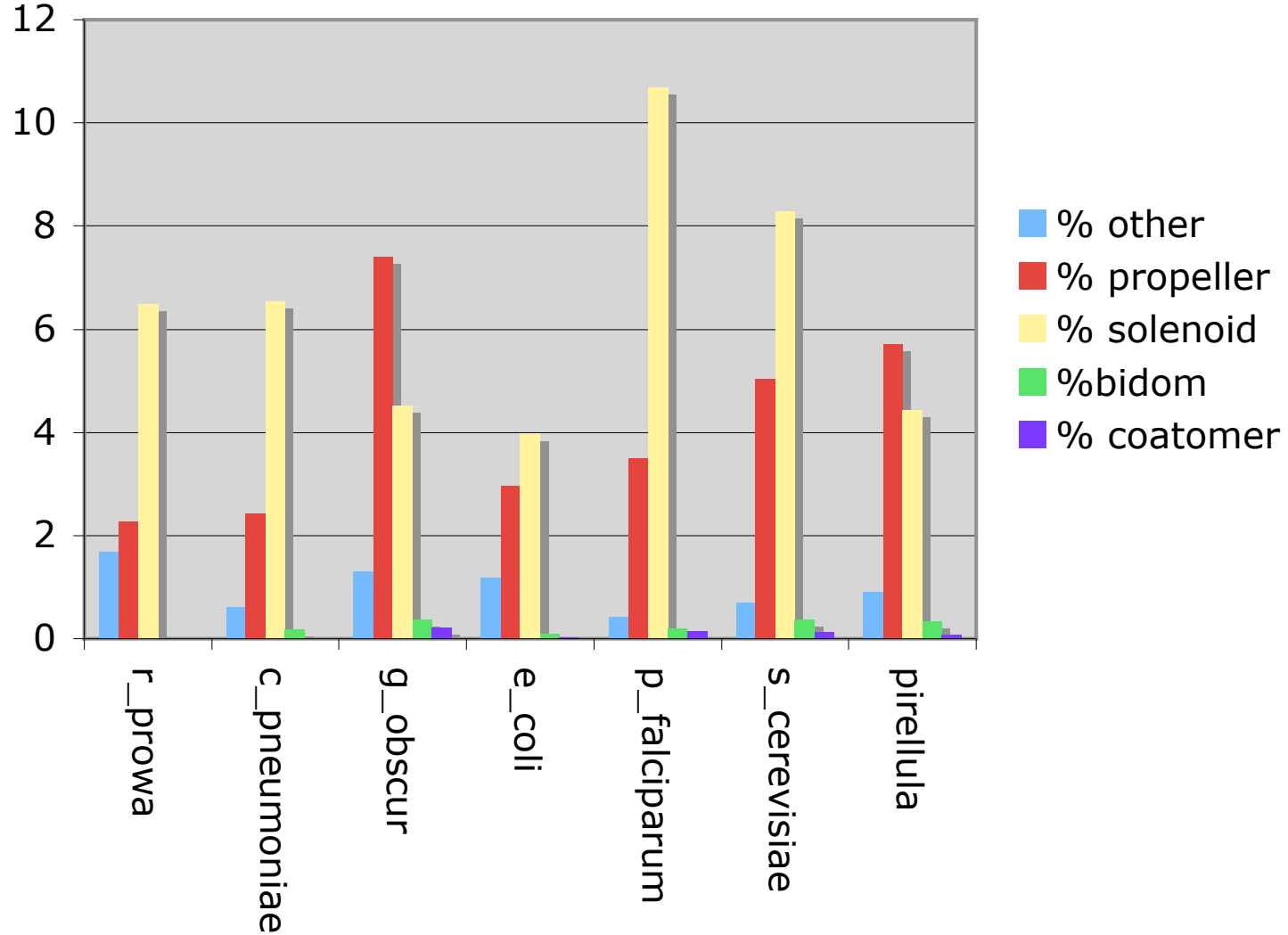
- Homology !

- Underlying structural principle from sequence information
- We are restricted to what has been seen before.
- How to expand from that?

- Fold assignments in the context of assembly
- 3 groups, clues to organization
- Repeats, clues to evolution
- Protoatomer, clues to origin

# NPC and Coated Vesicle





proteins	832	1117	2742	4146	5280	6299	7297
other	14	7	36	49	22	44	66
propeller	19	27	203	123	185	317	417
solenoid	54	73	124	165	565	522	324
bidomain	0	2	10	4	10	23	25
coatomer	0	0	6	1	7	8	5

# Archea

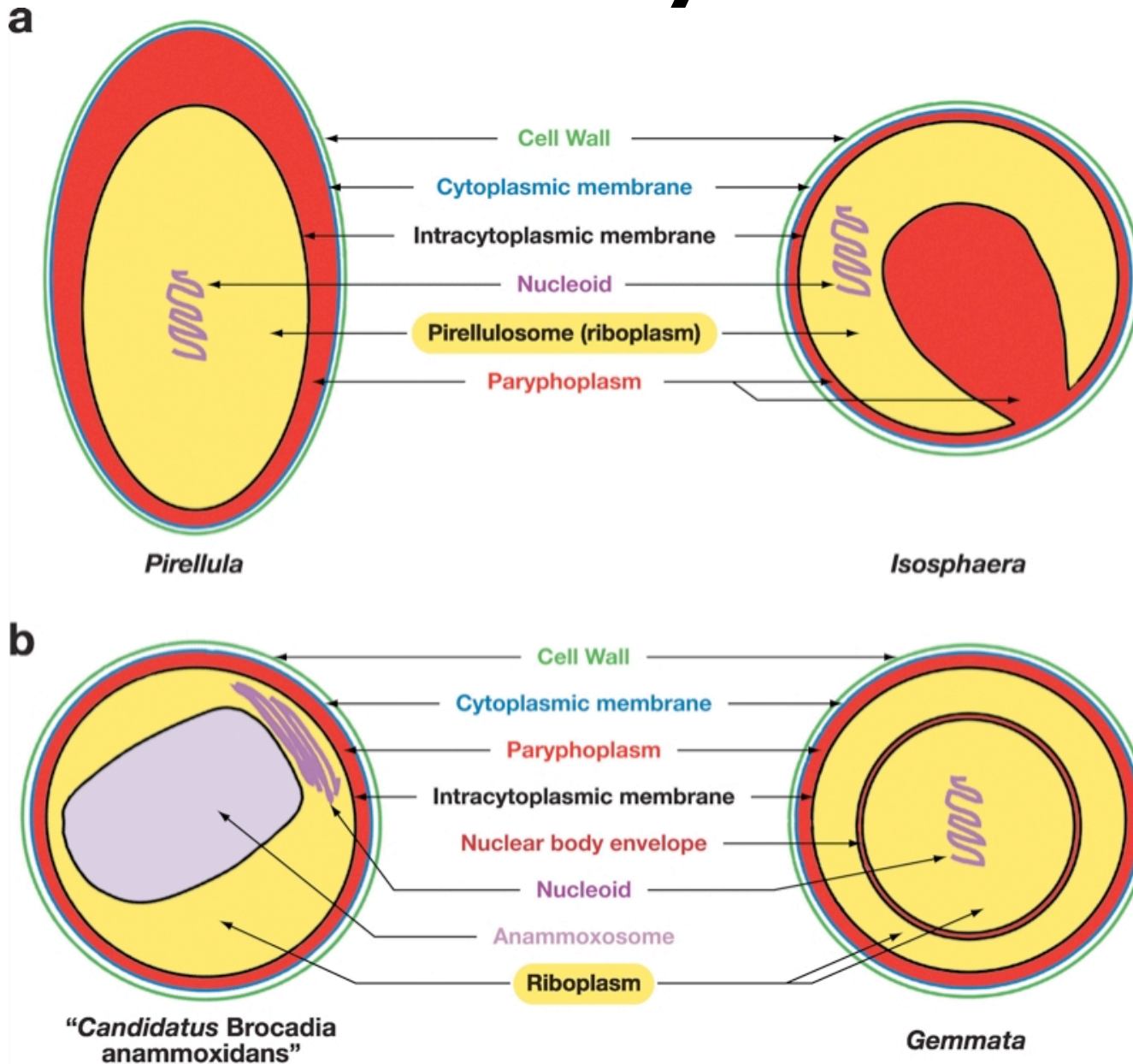
Specy	# proteins	# kinase	# propeller	# solenoid	# bidomain	# order	# protocoatomer
APER	2696	12	40	32	0	0	0
AFUL	2411	28	28	51	2	1	1
HALO	2607	29	34	25	0	0	0
MJAN	1775	8	11	75	1	0	0
MTHE	1873	9	16	35	0	0	0
PHOR	2063	16	29	56	2	1	1
TVOL	1528	14	20	32	0	0	0
PABY	1767	16	37	47	2	0	0
TACI	1480	17	17	24	0	0	0
SSOL	2997	30	41	92	1	0	0
STOK	2828	23	39	82	0	0	0
PAER	2607	20	36	48	1	0	0
MKAN	1689	10	23	25	0	0	0
MACE	4530	24	119	112	2	0	0
MMAZ	3373	20	63	82	3	1	1
NEQU	565	2	6	15	0	0	0
PTOR	1537	16	20	38	0	0	0
PFUR	2067	19	25	58	0	0	0
MMAR	1724	11	10	52	0	0	0
HMAR	4242	43	67	40	0	0	0
TKOD	2308	25	34	55	1	0	0
SACI	2225	24	32	62	1	0	0
Total	50892						

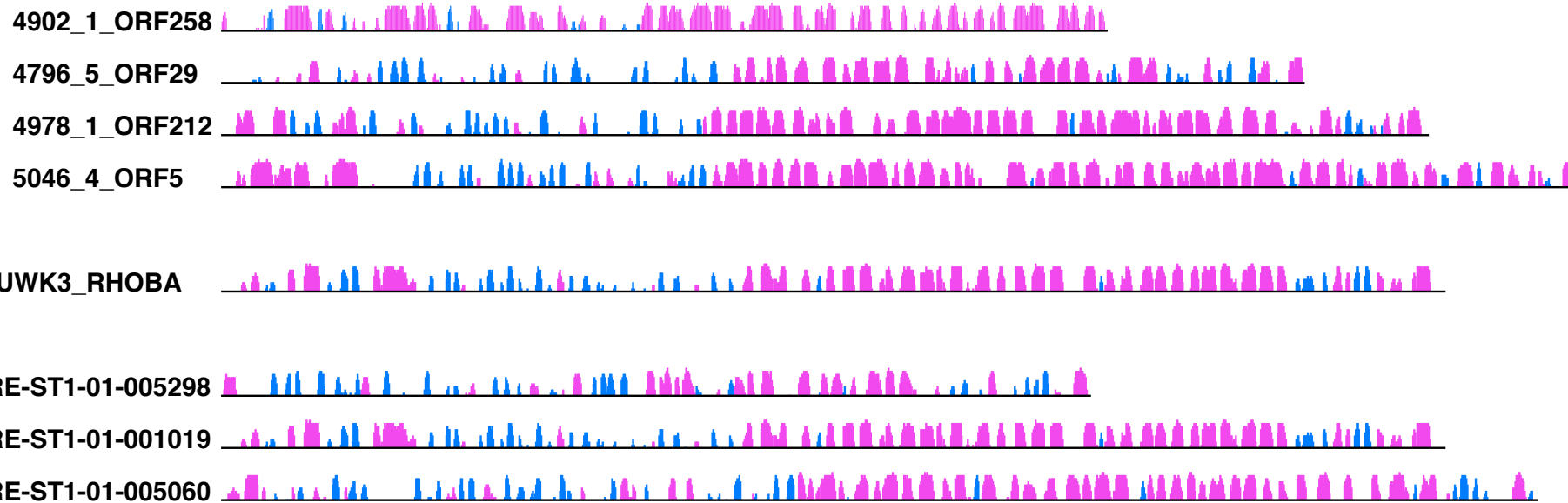


# Bacteria (I)

Specy	# proteins	# kinase	# propeller	# solenoid	# bidomain	# order	# protoatomer
BBRO	4995	58	68	71	0	0	0
AAEO	1555	20	16	57	0	0	0
CJEI	2139	21	33	26	0	0	0
MGEN	481	7	5	19	0	0	0
SCOE	7812	92	166	105	0	0	0
ACIN	3327	46	42	73	0	0	0
CJEJ	3473	10	44	119	2	0	0
MHYO	693	8	8	30	2	0	0
SENT	22404	117	322	429	1	0	0
AMAR	951	7	9	12	0	0	0
CPER	2725	21	26	86	2	0	0
MLEP	1607	18	18	7	0	0	0
SEPI	2528	24	17	57	1	0	0
ATUM	5301	65	66	66	0	0	0
CPNE	3243	15	33	105	3	0	0
Total	63234						

# Planctomycetes





- General underlying principle of biology
- Archipelago