



Living Cells Are Forth Computers

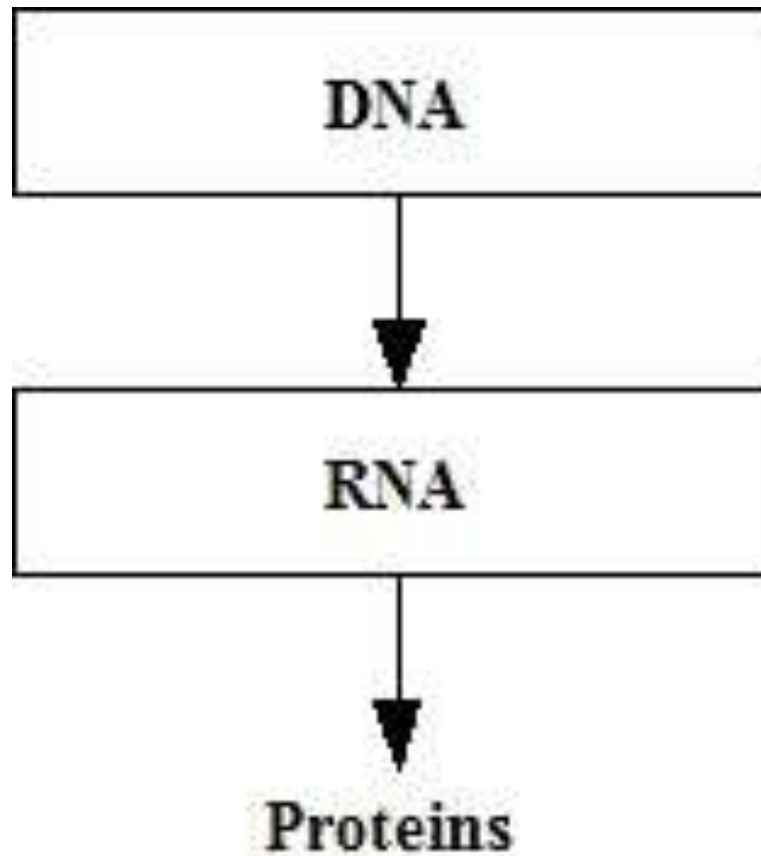
Chen-Hanson Ting
SVFIG

Forth Day

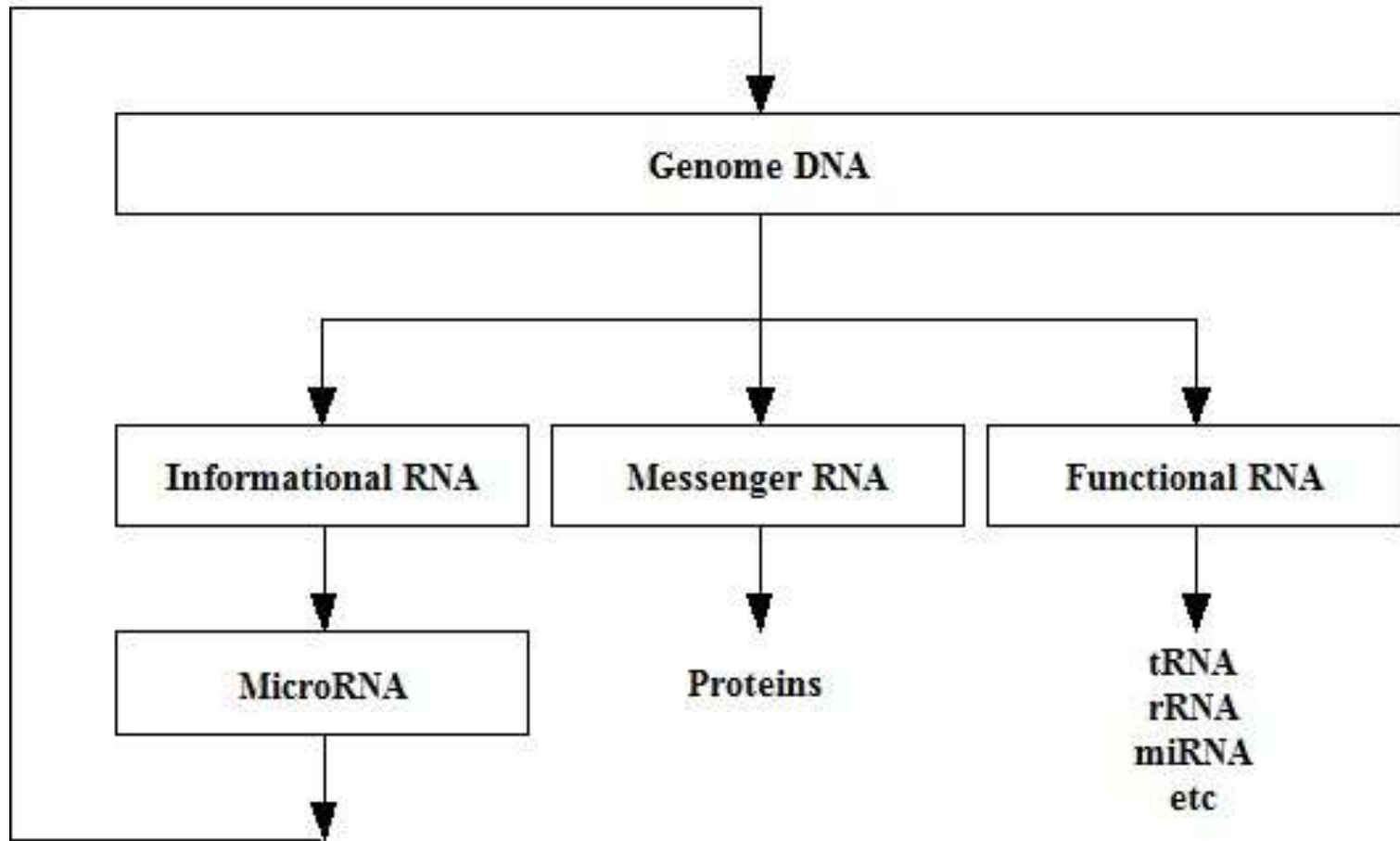
November 16, 2019



The Central Dogma



The RNA Dogma





lncRNA Databases

Database	Fasta File(KB)	Total lncRNA	Trimmed File(KB)	Unique lncRNA
GRCh38_ncrna	77,569	57,624	63,024	54,941
LNCipedia	196,560	127,802	189,767	126,876
NONCODE	284,922	172,216	271,345	170,767
GRCh38_cdna	361,405	189,154	297,453	177,455
lncbook	400,768	268,848	400,505	268,638

Pearls File

pack24_all_index.txt - Microsoft Excel non-commercial use

Home Insert Page Layout Formulas Data Review View Team

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	0	>ENST00000229465.10	1655																	
2	0	528	512	TTTGAGATAAAAAATGACAAAGGAGAACCTCCTGAACAGCATCCAGTTTGCTTTTAGCTTTAGCCATCTCTCTGACCTCAGTGTCTGGACTCAGTTCCAAGATCTAACTGTCAAATGCTTTAGGGGA																
3	528	136	35	CATTGACCAGGCTGGTCTTGAACCTCTGACCTCAG																
4	664	91	90	ACAGCAAAAGAACTACCATCAGAGTGAACAGGCAACCTACAGAATGGGAGAAAATTTTGAATCTACTCATCTGACAAAGGGCTAATA																
5	755	209	203	CCAGAACTACAAAGAACTCAAACAAATTTACAAGAAAAACAAACACCCCATCAAAAAGTGGGCAAAGGATATGAACAGACACTTCTCAAAGAAGACATTTATGCAGCCAACAGACACATGA																
6	964	70	69	TCATTA AAAAGTCAGGAAACAACAGGTGCTGGAGAGGATGTGGAGAAAATAGGAACACTTTTACACTATT																
7	1034	1474	1442	GTGGGACTGTAAACTGGTTCAACCATTGTGGAAGACAGTGTGGCGATTCTCAAGGATCCAGAACTAGAAAATACCATTGTACCAGCCATCCCATTACTGGGTATATACCCAAAGGATTATAAATCAT																
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9	2179	>ENST00000235290.7	1739																	
10	2508	1834	1355	TCTTACCTATTTGATGAAGATGTCTTTTGAAGGTGTACTGCAAGGAACAAAATGTTTGTAATTTCTCTTTTACCAAGGTGGATAATTACTGTACCTCCTCATGGAAAAAGTTTTATTAAAGTGTATT																
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12	4342	101	20	TGACCAAAGTCAAATGCTGG																
13	4443	262	20	AATTTGGCCACATCCCTGCC																
14	4705	364	20	TTAACCTCTCTGAACCTCAG																
15	5069	982	20	ACACACACACAAACACACAC																
16	6051	645	24	TTTTTGCTTTGTTTTGTTTTGTTT																
17	6696	158	157	GACTAGTTTTTTTTTTTTTAAATGGAGTCTCATTCTGTCAACCCAGGCTGGAGTGCAGTGGCGTGATCTCGTTTCACTGCAACCTCTGCCACCCATGTTCAAGCGATTCTCTGCCTCAGCCCCCTGAGTA																
18	6854	1882	131	CGTCTGGCTAATTTTTGTATTTTTAGTAGAGATGGGGTTTACCATCTTGGCCAGGCTGGTCTTGAACCTCTGACCTGTGGTCCACCCGCTCGGCTCCAAAAATCCTGGGATTACATGCATGAGCCA																
19	8201	>ENST00000244820.2	2231																	
20	8736	56	21	TGAAGATATGGGAATTCAGAA																
21	8792	418	34	AACAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCA																
22	9210	705	40	ACATGTACACACACACACACACACACACACACCACT																
23	9915	177	21	AAAAGCCAGACTCAAAGGAT																
24	10092	346	21	TAGGAAGATGTGAAGAAAATT																
25	10432	>ENST00000244906.6	927																	
26	10438	920	504	AGGTGGGGCGGGCCCCACTGGATGTGCCAGGGACCAGGACCCAGGCTGGGCGCAGAGCTGTCATGGTTTCAGGCCTTGACACAGAAACCACAGAACATGCTCAACAAGCCCCCTAAGCTTAGGG																
27	11358	1047	1044	AGGGAGTTTCTGGTTTTGCATGAAGCAGCAGAACATGATGAAGCATTTTTCCCCCATCTAAAGATCCAGTCTGTCTCCAGTTTGCAGAGGGCAAGGGGCTGGTTGCAGGTGGTCTGGGAGGATGGA																
28	11359	>ENST00000248980.9	1043																	
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30	12405	253	20	CTGTCAGAGCTGTCAAGCTG																

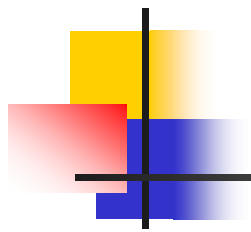
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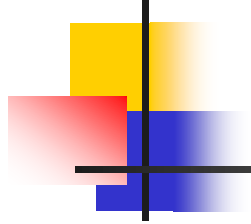


Cells Are Forth Computers

- **Pearls are repeated patterns.**
- **Necklaces are clusters of Pearls.**
- **Pearls are instructions in a cell computer.**
- **Necklaces are lists in a cell computer.**
- **Cells are Forth computers.**
- **God is a Forth programmer.**



Questions?



Thank You!