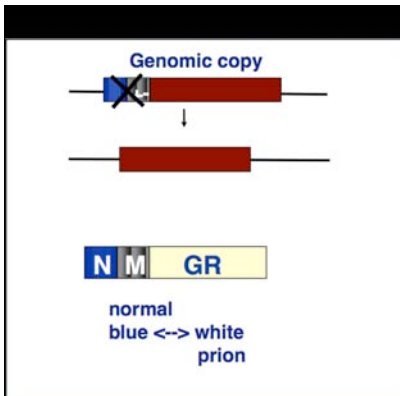
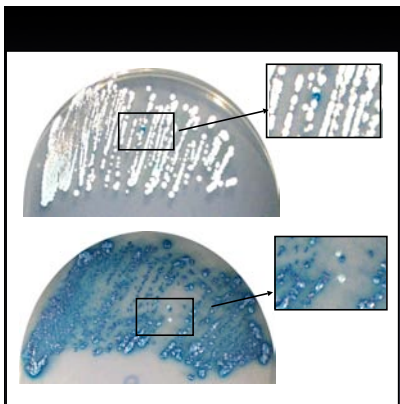


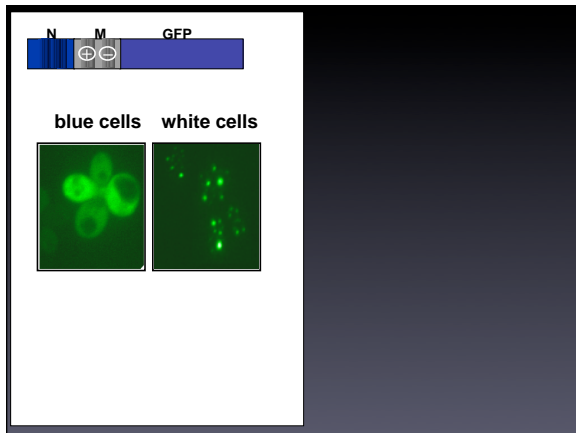


Liming Li







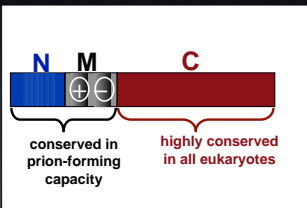


Creating New Prions

- New type of genetic engineering
- Confirms protein folding mechanism
- Modular & Transferable nature
 - > evolution



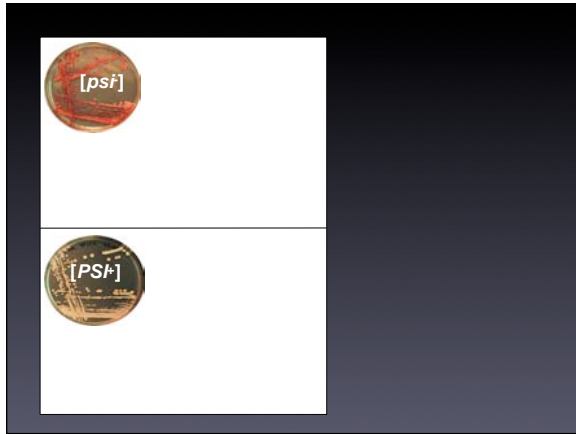
Sup35:

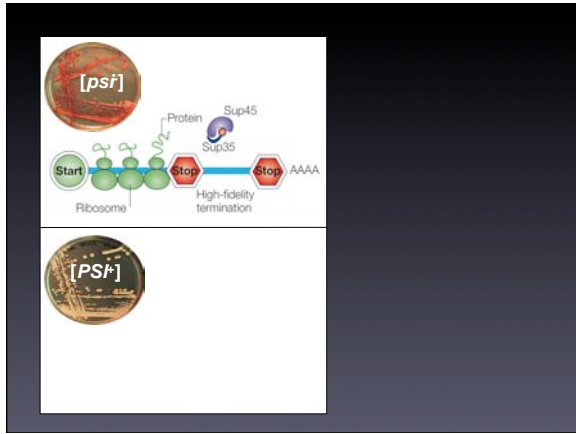


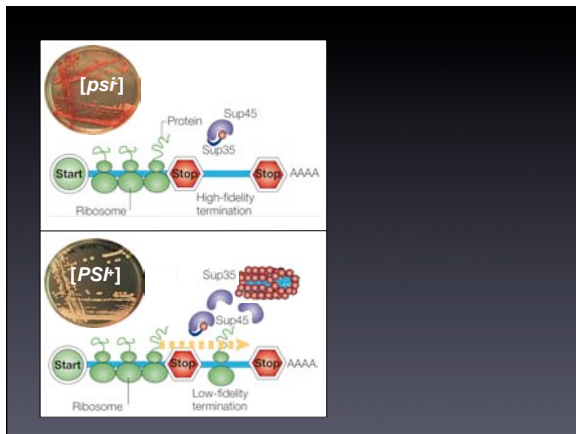
Ter-Avanesyan, Chernoff,
Weissman, Nakamura et al.

Prion inheritance is regulated in response to stress.

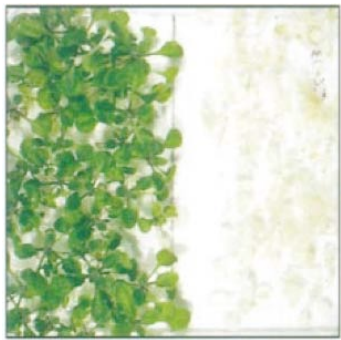
Why?



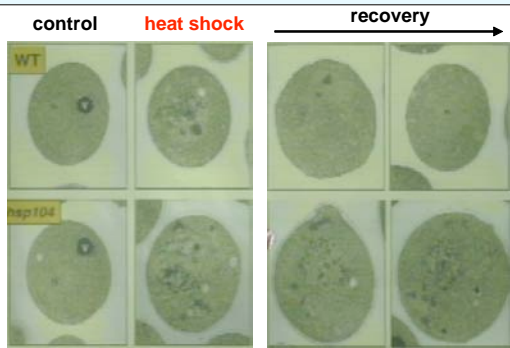




Add sequences at C-termini?



Control ↓ hsp101



Add sequences at C-termini?

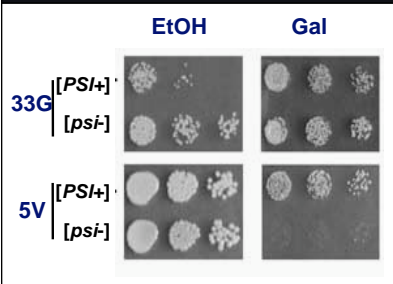
Reactivate pseudogenes?

Add sequences at C-termini?

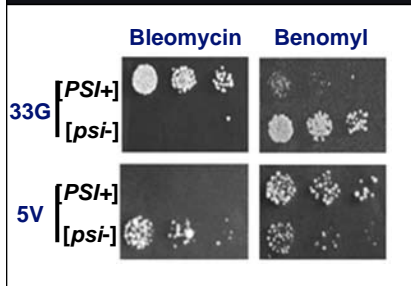
Reactivate pseudogenes?

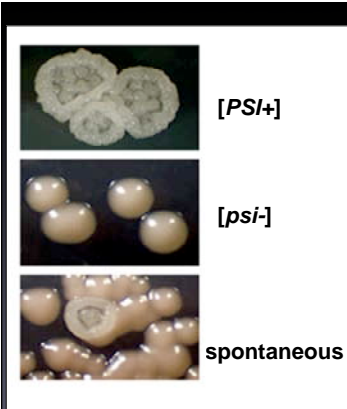
Change stability of mRNAs?

Carbon Sources

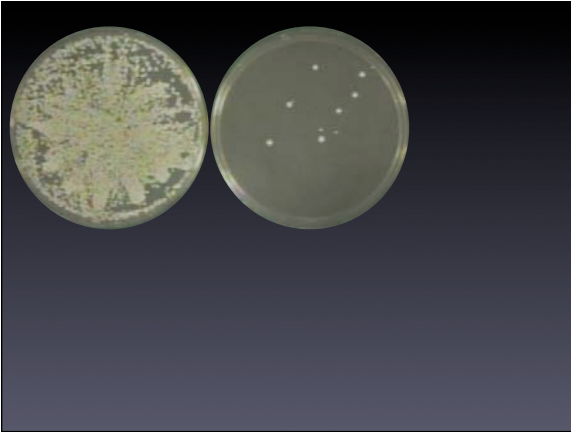


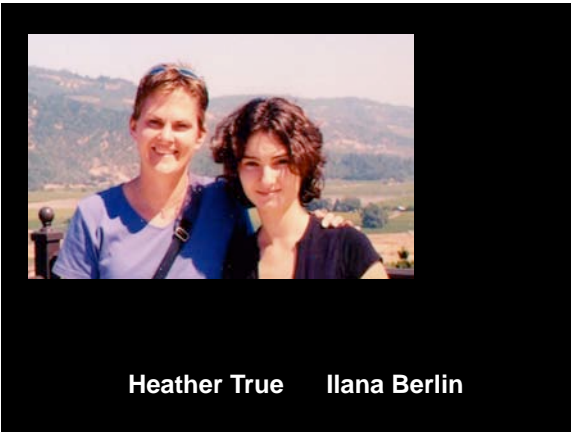
Antibiotic Sensitivity



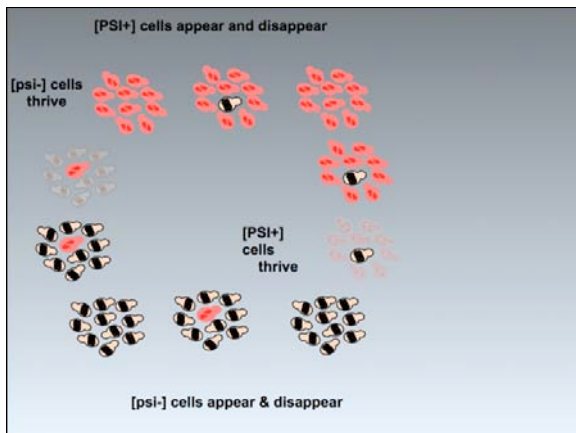


- not due to protein aggregation, but to read through
- multigenic in character
- readily assimilated (fixed)





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New type of phenotypic plasticity

Stepwise acquisition of complex traits



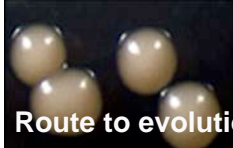
Sample variation on global genome-wide scale & combinatorial fashion

Profoundly different heritable phenotypes same genome.

Switchable



Survive fluctuating environments?

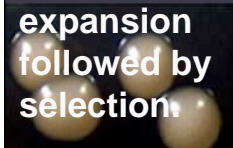


Route to evolution of new traits?

How might this have happened?



Most likely by random glutamine expansion followed by selection.





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