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Prion-driven evolution

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William Wells

Email: wells@biotext.com

The yeast protein Sup35 is essential for translation termination, but its prion [PSI+] form reduces the fidelity of the termination process. Conversion of Sup35 into the prion form could therefore alter the sequence of multiple proteins at the same time, perhaps providing an engine for evolutionary change. In the 28 September *Nature*, True and Lindquist find that in nearly half of a long list of culture conditions tested, the presence of [PSI+] exerted a substantial effect on strain growth (*Nature* 2000, **407**:477-483). In more than 25% of the tests the effect was positive. True and Lindquist suggest that [PSI+] can facilitate the evolution of new traits by converting previously neutral genetic variation to a non-neutral state. In an accompanying News and Views (*Nature* 2000, **407**:457-458), Partridge and Barton do not dispute the data, but do disagree with its interpretation. They propose that the variability is a side-effect of disrupted gene expression, not an adaptation to facilitate evolution.

References

1. Support for the prion hypothesis for inheritance of a phenotypic trait in yeast.
2. *Nature*, [<http://www.nature.com/nature/>]