"Strategies for accelerating molecular evolution"

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Evolution is the ultimate driving force behind the emergence of bio-complexity. Laboratory-scale evolution provides a powerful setting for study of molecular evolution because of its well controlled environment and well characterized components. I will focus on the modeling of evolution of DNA sequences that control gene expressions by the binding of regulatory proteins. This system has the molecular and biophysical underpinning often absent in classical study of evolution. I will introduce several models that capture the essential features of the in vitro and in vivo evolution. By characterizing the evolutionary dynamics and equilibrium distribution, I will illustrate how various factors, including mutation, recombination and choice of selection scheme, can be used to facilitate the evolutionary processes.

REFRESHMENTS AT 4:15 P.M.

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