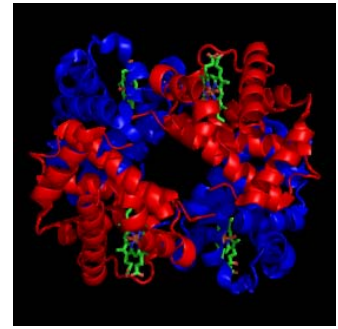


## The Science paper: Epistasis among adaptive mutations in deer mouse hemoglobin



Angela Fago  
Zoophysiology, Bioscience, AU



Epistatic interactions between mutant sites in the same protein can exert a strong influence on pathways of molecular evolution. We performed protein engineering experiments that revealed pervasive epistasis among segregating amino acid variants that contribute to adaptive functional variation in deer mouse hemoglobin (Hb). Amino acid mutations increased or decreased Hb-O<sub>2</sub> affinity depending on the allelic state of other sites. Structural analysis revealed that epistasis for Hb-O<sub>2</sub> affinity and allosteric regulatory control is attributable to indirect interactions between structurally remote sites. The prevalence of sign epistasis for fitness-related biochemical phenotypes has important implications for the evolutionary dynamics of protein polymorphism in natural populations.

Friday June 28th at 11.15  
Seminar room (Room 127 building 1131)