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Molecular mechanisms and ecological consequences of eating toxic plants

A central focus in the field of foraging ecology is to understand how diet quality influences the behavior, distribution and evolution of animals. For vertebrate herbivores, there is strong evidence that the quality and quantity of "toxins" (i.e. secondary metabolites) in plants can significantly alter the foraging behavior and physiology of captive individuals. However, there remains a general lack of ability to use *in vivo* studies focused on individual herbivores to *a priori* predict how herbivores respond to the heterogeneity of toxins in nature. My aim is to demonstrate how understanding molecular mechanisms of toxins and the development of biomolecular and remote sensing tools can be used to scale up co-evolutionary interactions between plants and herbivores from cells, to individual organisms, to landscapes. Specifically, I use pharmacological assays to investigate dose-responses between naturally consumed toxins and proteins isolated from wild herbivores. In addition, I use biomarkers of toxins and herbivore responses detected in the field to predict dose-dependent consequences of plant-herbivore interactions in natural systems.

Friday, Oct. 24, 2014; Room 307, SERF; 3:30 - 4:30PM. Pre-talk reception: 3:00 PM in Dabney 568