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## Seminar 2016

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### Exploring the origin of multicellularity through experimental evolution



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The origin of multicellularity was one of the most significant innovations in the history of life. Our understanding of the evolutionary processes underlying this transition remains limited, however, mainly because extant multicellular lineages are ancient and most transitional forms have been lost to extinction. We bridge this knowledge gap by evolving novel multicellularity *in vivo*, using baker's yeast and *Chlamydomonas reinhardtii* as model systems. In this talk I will cover recent work examining: 1) how cells evolve to form multicellular clusters, 2) how these clusters become 'Darwinian individuals' capable of adaptation, 3) how multicellular life cycles that include single-celled genetic bottlenecks arise in evolution (and why this is important), and 4) how nascent multicellular entities evolve to be more complex. Our approach, which allows for the study of macroevolutionary processes over microevolutionary timescales, demonstrates that multicellularity is less evolutionarily constrained than previously thought. If time permits, I will briefly cover ongoing projects in our lab (examining, for example, the origin of multicellular development and the 'ratcheting hypothesis' for multicellular complexity).

Friday January 20, 2017

2:30 PM

Laufer Center Lecture Hall 101

*Host: Gabor Balazsi*

*Refreshments: Hub 110 after seminar*

