

Postdoc: Experimental evolution and phylodynamics of plant virus emergence

A postdoctoral research position is available in the phylodynamics research group led by David Rasmussen at NC State University in the Bioinformatics Research Centre and the Department of Entomology and Plant Pathology. The main aim of the project is to understand how vector-borne plant viruses adapt to new host environments and expand their host range. Viral adaptation to new hosts will be studied in the lab, where we can experimentally manipulate transmission between different host species and regularly re-sequence viral populations. To reveal the genetic basis of host adaptation, experimental evolution studies will be combined with newly developed phylodynamic methods for tracking the population dynamics of individual viral lineages and quantifying their fitness.

Questions of interest include:

- Do fitness tradeoffs between hosts limit adaptation to multiple hosts?
- How do the fitness effects of individual mutations vary across hosts?
- Can selection resolve fitness tradeoffs (i.e. antagonistic pleiotropy) and, if so, how?
- Is the evolution of generalists constrained more by genetic or by ecological factors like vector dynamics?

Applicants must hold a PhD in plant pathology or related field of biology. Previous lab experience handling plant viruses or other pathogens is highly desired. Additional knowledge of data analysis in Python, R or Matlab is also desired. Candidates with both wet lab and bioinformatics skills will be given the highest consideration, but is not essential. Most importantly, the candidate must possess strong problem-solving skills and a record of self-directed, innovative research.

Initial appointment is for one year, but renewable for up to 3 years. Start date would ideally be Summer 2018.

To apply, please send a CV, a 1-2 page cover letter describing previous experience and research interests, and the contact info for two references to drasmus@ncsu.edu. Application deadline: April 6th, 2018.

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