

# Population Genetics and Adaptation in Plants

Special Focus: Plant-microbe interactions

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## Main Study Systems: 1. Wild tomatoes and bacterial pathogens



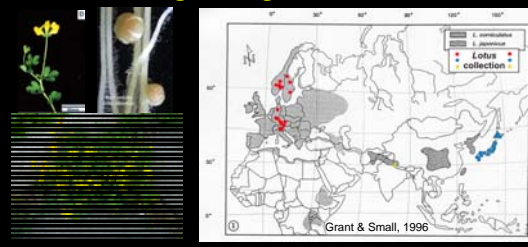
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1. Wild tomatoes and bacterial pathogens
2. Arabidopsis and oomycete pathogens
3. Lotus and nitrogen-fixing bacteria



## Main Questions:

1. Evolution of recognition specificity (on-going molecular dialog between plants and microbes)
  - origin and maintenance of individual components, as well as pathways
  - functional consequences of protein variation
2. Ecological and evolutionary dynamics
  - population dynamics of hosts and microbes
  - natural selection (form and strength)
  - interplay of ecology and evolution

## Approach:

1. Everything starts in the field observations and collections



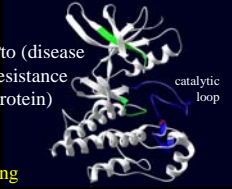
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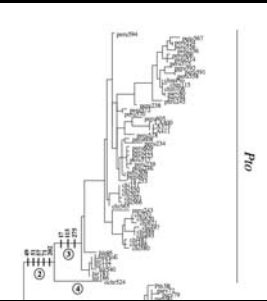


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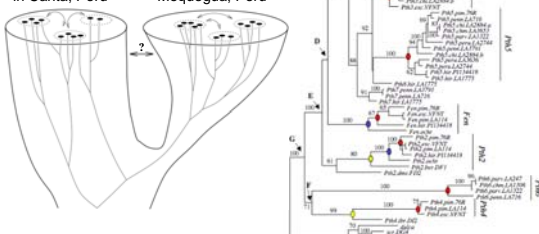


**Capturing natural selection on different times scales**



*S. peruvianum* in Canta, Peru

*S. chilense* in Moquegua, Peru



**Active Collaborations / Sources of Support:**

**Tomato project(s):** Dirk Metzler/Wolfgang Stephan (LMU-Munich), Thomas Städler (Zurich), Thomas Lahaye (Halle)  
 DFG RO 2491/2-3, DFG ME 3134/3-1

**Arabidopsis project(s):** Jim Beynon/Eric Holub (University of Warwick), Murray Grant (University of Exeter), Tony Schaffner (Helmholtz Center-Munich)

**Lotus project:** Martin Parniske (LMU-Munich)  
 DFG RO 2491/4-1