

Plant Immune Responses



Gregory Martin

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CURRENT RESEARCH

Taking a step-by-step approach to understanding bacterial infection in plants

Dr. Greg Martin is studying the interactions between plants and pathogens during attempted infections to gain insight into the plant immune system. Using a two-pronged approach--one focused on the plant's immune responses to invaders and the other centered on the ways a pathogen undermines those responses--he is uncovering both general and specific principles that have implications for plant and human health. From the plant perspective, understanding the details of pathogen infections will lead to the mitigation of crop damage without needing as many pesticides or other disease control methods. Instead, the natural genetic variation of plants can be used to develop plants that are inherently more resistant to diseases. Because the plant's initial immune response is similar in nature to human innate immunity, knowledge of the general aspects of pathogen attack, specifically bacterial infection, can also be applied to studies of the human immune system, potentially leading to better treatments to combat infection.

Dr. Greg Martin, Boyce Schulze Downey Professor at the Boyce Thompson Institute for Plant Research and Professor of Plant Pathology and Plant-Microbe Biology at Cornell University, is studying the interactions between pathogens and the plant immune system to uncover information about how pathogens infect plants. Studying the plant-pathogen system, specifically the genes and proteins involved, leads to new knowledge about how bacteria cause diseases in plants. These observations often apply to pathogens infecting both plants and humans and therefore have implications for the development of strategies that will be useful in targeting pathogens in both agricultural and medical settings. At the same time...

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AFFILIATION



Cornell University

EDUCATION

- Ph.D., in Genetics, 1989 , Michigan State University
- M.Sc., in Plant Breeding, 1984 , Michigan State University
- B.Sc., in Crop & Soil Science, 1979 , Michigan State University

AWARDS

- Noel Keen Award for Excellence in Molecular Plant Pathology, American Phytopathological Society, 2010
- Fellow, American Academy of Microbiology, 2005
- Ad hoc Advisor, MacArthur Foundation Fellows Program, 2005
- An ISI Most Highly Cited Author (Plant and Animal Science), 2004
- 3rd Most Highly Cited Paper in Plant and Animal Science, 2004

RESEARCH AREAS

Environment, Ecology

FUNDING REQUEST

Dr. Martin's research requires special attention from a group of talented scientists. Beyond human resources, your contributions will fund the purchase of supplies, bacteria growth media, enzymes, chemicals, and glassware, as well as external services to support research, including DNA and peptide synthesis and DNA and protein sequencing. Further, Dr. Martin pays a usage fee for greenhouses and growth chambers which include all plant care from a professional staff.