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Deep sequencing plant defense responses

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Abstract

The capability of identifying plant gene activity that relates to pathogen infection is an important resource for understanding the biology of the interaction and engineering defense when natural resistance does not exist. However, the study of gene activity occurring in plant cells interacting with pathogens is often complicated by their intimate association. Although progress has been made using model systems, the information learned in those model systems does not always translate well to non-model, but agriculturally-relevant plants. Recent advances in gene expression data-capturing technology is allowing for single cell-type gene expression studies that determine the activity of genes as they relate to infection in non-model systems. Using gene expression as a resource, genetic engineering is being used to recapitulate the expression found in the single cell-type gene expression studies, resulting in engineered defense. Furthermore, gene expression of the engineered tissue undergoing defense demonstrates how the engineered genes drive the defense response.

Biography

Vincent Klink completed his Ph.D. degree in the Department of Cell Biology and Molecular Genetics at the University of Maryland with postdoctoral studies at the Howard Hughes Medical Institute at the Carnegie Institution of Washington, Department of Embryology and the United States Department of Agriculture. He is also a faculty of the Center for Computational Sciences at Mississippi State University and has published over 35 articles.