

Principal Researcher	Tomonori, SHIRAISHI			Number of Reserchers	4	
Research Institution • Department • Title	Professor, Faculty of Agriculture, Okayama University			Location of Institution	Okayama	
Title of Project	Molecular mechanism on organella interactions in model plant cells during defense responses					
Abstract of Research Project	<p>Our previous findings indicate that plant cell wall (apoplast) is the primary organelle to recognize and respond to extracellular microbes. Such a signal is transmitted to plasma membranes via integrin-like molecules, resulting in activation of polyphosphoinositide metabolism on plasma membrane. One of the most important 2nd messenger for defense response is DAG. Then, the 2nd signals may be transferred to nucleus via actin stress fiber that also regulates translational activation of defense gene and transport of expressed defense-related proteins. That is, the expression of defense related genes is controlled by interactions between respective organelles in plant cells. In this project, we attempt to clarify;</p> <p>a) ion traffic, cross-talk and signal molecules between respective organelles such as cell wall, plasma membrane, vacuole and so on, b) regulatory mechanism in gene expression via signal exchange between organelles and nucleus, c) role of energy-generating organelles in plant defense responses.</p>					
References	<p>1) Shiraishi, T., Yamada, T., Ichinose, Y., Kiba, A. and Toyoda, K., The role of suppressors in determining host-parasite specificities in plant cells., <i>International Review of Cytology</i> 172, 55-93 (1997) .</p> <p>2) Kiba, A., Sugimoto, M., Toyoda, K., Ichinose, Y., Yamada, T. and Shiraishi, T., Interaction between cell wall and plasma membrane via RGD motif is implicated in plant defense responses., <i>Plant Cell Physiol.</i> 39, 1245-1249 (1998).</p>					
Term of Project	Fiscal years 2003-2007 . (5years)					
Budget Allocation (in thousand of yen)	FY2003	FY2004	FY2005	FY2006	FY2007	TOTAL
	36,800	20,300	9,500	9,300	8,500	84,400
Homepage Address	http://www.okayama-u.ac.jp/user/agr/bunya/2/23.html					