

Principal Researcher	Tatsuo Kakimoto			Number of Reserchers	1	
Research Institution • Department • Title	Associate Professor, Graduate School of Science, Osaka University			Location of Institution	Toyonaka	
Title of Project	Regulation of plant development by known and unknown inter-cellular signaling molecules					
Abstract of Research Project	<p>Multi-cellular systems have evolved independently in animals and plants, and different mechanisms that control development were established. In both kingdoms, inter-cellular communication plays a central role in their development, with similar and dissimilar signaling mechanisms being used. This project is aimed at understanding how inter-cellular signaling molecules regulate plant development. First we will examine the role of cytokinins and auxins in plant development, with special emphasis on the role of cytokinins. We will analyze the phenotypes of knockouts for genes involved in cytokinin-biosynthesis and perception. We will also examine the regulation of these genes by environmental and internal cues. Cross-talk of the signaling initiated by cytokinins and other signals will also be analyzed. We will also develop systems by which we can artificially switch on or off hormone-signals in a particular tissue. Secondly, we will hunt for novel signaling molecules using genetic techniques. Once such molecules are discovered, we will try to find their perception-mechanisms and figure out the roles of the molecules in plant-development.</p>					
References	<p>Inoue, T., Higuchi, M., Hashimoto, Y., Seki, M., Kobayashi, M., Kato, T., Tabata, S., Shinozaki, K. and <u>Kakimoto, T.</u> Identification of CRE1 as a cytokinin receptor from Arabidopsis. Nature 409, 1060 - 1063 (2001)</p> <p><u>Kakimoto, T.</u> Identification of Plant Cytokinin Biosynthetic Enzymes as Dimethylallyldiphosphate:ATP/ADP Isopentenyltransferases. Plant Cell Physiol., 42, 677-685 (2001)</p>					
Term of Project	Fiscal years 2003-2007 . (5years)					
Budget Allocation (in thousand of yen)	FY2003	FY2004	FY2005	FY2006	FY2007	TOTAL
	17,900	12,800	17,000	17,000	17,000	81,700
Homepage Address	http://www.bio.sci.osaka-u.ac.jp/bio_web/lab_page/cell_physiol/					