

Principal Researcher	Hiroshi Takeshima			Number of Reserchers	4	
Research Institution • Department • Title	Professor, Deptment of Medical Chemistry, Graduate School of Medicine, Tohoku University			Location of Institution	Sendai, Miyagi	
Title of Project	A study on the molecular basis of intracellular Ca ²⁺ stores					
Abstract of Research Project	<p>Intracellular Ca²⁺ signals regulate many biological functions including muscle contraction, hormone and transmitter release, immuno-responses and cell proliferation/death.</p> <p>In excitable cells, the depolarization signal is converted into the intracellular Ca²⁺ signal by activation of Ca²⁺ influx and Ca²⁺ release mechanisms. Recent studies have identified major Ca²⁺-handling molecules including channels, transporters and pumps. However, their physiological regulations and molecular components of intracellular Ca²⁺ stores are not fully understood yet. In this project, our research group is planning to analyze 1) Ca²⁺ channel regulations in ryanodine receptor subtypes, 2) physiological functions of junctophilin subtypes, and 3) novel components of intracellular Ca²⁺ stores. Our results will contribute to understanding the molecular basis of Ca²⁺ signalings in muscle and neural cells.</p>					
References	<p><u>Takeshima, H.</u>, Iino, M., Takekura, H., Nishi, M., Kuno, J., Minowa, O., Takano, H. & Noda, T. Excitation-contraction uncoupling and muscular degeneration in mice lacking functional skeletal muscle ryanodine-receptor gene. <i>Nature</i> 369, 556-559, 1994.</p> <p><u>Takeshima, H.</u>, Komazaki, S., Hirose, K., Nishi, M., Noda, T. & Iino, M. Embryonic lethality and abnormal cardiac myocytes in mice lacking ryanodine receptor type 2. <i>EMBO J.</i> 17, 3309-3316, 1998.</p> <p><u>Takeshima, H.</u>, Komazaki, S., Nishi, M., Iino, M. & Kangawa, K. Junctophilins: a novel family of junctional membrane complex proteins. <i>Mol. Cell</i> 6, 11-22, 2000.</p>					
Term of Project	Fiscal years 2003-2007 . (5years)					
Budget Allocation (in thousand of yen)	FY2003	FY2004	FY2005	FY2006	FY2007	TOTAL
	36,200	12,800	12,800	12,800	12,800	87,400
Homepage Address	http://www.med.tohoku.ac.jp					