D117 The Developmental Regulation of Serine Proteinase Activity during Earthworm Tail Regeneration

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Although the earthworm is an important animal species capable of regenerating missing body part, earthworm regeneration is not well understood at the tissue, cell and molecular levels. In order to understand the developmental significance of proteinase activity during earthworm tail regeneration, the expression and characteristics of proteinases induced during the regeneration was investigated by zymographic and densitometric analysis. Zymographic analysis of proteinase revealed that at least four types of proteinases were induced during tail regeneration, which had molecular weight of 25, 28, 38, and 44 kDa, respectively. Proteinase activities were begun to increase within 24 hrs after amputation. Densitometric analysis showed that proteinase activities were maximal around 7 and 30 days postamputation. These results support the view that proteinase activities would be associated with blastema formation and redifferentiation. All types of proteinase activities induced during tail regeneration were strongly inhibited by treatment of PMSF and aprotinin but not by pepstatin A, E-64, iodoacetamide or metal ion free-medium, indicating that they are serine proteinase. In addition, it has been revealed that activity of tissue serine proteinase inhibitor (Serpin) was downregulated at the early stage of tail regeneration. Based on thease result, we are trying to find out the relationships among proteinase activities, extracellular matrix remodeling, and dedifferentiation, which are believed to be essential processes during regeneration.

D118 **Isolation of *Xenopus* receptor for the activated protein kinase C and its expression pattern**

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Protein kinase C (PKC) plays important roles in the regulation of early development. When PKC isozymes are activated they are translocated from cell soluble fraction to distinct intracellular structure. This process is mediated by a set of proteins termed RACKs (receptor for activated C-kinase). RACK1 is PKCβ specific RACK and PKC-RACK1 complex may be the active form of the enzyme *in vivo*. We cloned *Xenopus RACK1* that contained a single open reading frame of 951 nucleotides and seven WD motifs. Its amino acid sequence showed significant similarity with other vertebrate RACK1. *Xenopus RACK1* was a maternally expressed and its zygotic expression began at gastrula stage. Whole mount *in situ* hybridization showed that it was expressed at anterior-dorsal region during late neurula stage and at branchial arch and somites during tailbud stages. At later stages, its expression was detached from somites and was moring ventrally with migrating abdominal muscle anlagen. These data suggest that *Xenopus* RACK1 may be involved in cell migration or muscle differentiation.