

**C109** Inductive trends of organs by combined-dose of activin A and HGF in *Xenopus* presumptive ectoderm

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The induction of organs from *Xenopus* presumptive ectoderm (animal cap) was studied by combined-dose of activin A and HGF. Hepatocyte growth factor (HGF) is a potent mitogen for renal tubular cells, and for mature hepatocytes in primary culture. In present study, we used HGF as well as activin A as a combined growth factor. The concentration ranges of growth factors were activin A 0-100 ng/ml and HGF 0-1000ng/ml. In general, when the explant was cultured in high concentration (100ng/ml) of activin A, the tissue was destroyed, however, various organs were differentiated by adding HGF. In addition, pronephric induction by adding HGF to activin A 1-10ng/ml solution was studied. The optimum concentrations of combined growth factor for pronephric induction were HGF 1-500ng/ml and activin A 10ng/ml. We observed various neural tissues at high frequency in this study, and the differentiations of cement gland, brain, eye, and otic vesicle were suggested that HGF attributes to the development of arterial structures as noted in reference. However, the induction of organs by adding HGF also depends on the concentration of activin A.

**C110** Ultrastructure of the Fertilized Egg Envelope in Three-spine Stickleback, Gasterosteidae, Teleostei

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The structure of the fertilized egg envelope in three-spine stickleback (*Gasterosteus aculeatus aculeatus*) was examined by mean of light, scanning and transmission electron microscopies.

The fertilized egg of three-spine stickleback was of the demersal with oil droplets, non-transparent, spherical, and highly adhesive to each other but not to substrates. The egg envelope has a single micropyle, pathway of sperm for fertilization, in the area of the animal pole. The outer surface of egg envelope was distributed by mushroom-like structures and arranged by pore canals regularly. The fertilized egg envelope consisted of three layers; an adhesive outer electron-dense layer, a middle layer and inner layer, consisting of 16~20 horizontal low electron-dense lamellae alternating with the middle electron dense interlamellae.