

13. Developmental study for clinical application and basic study with collectins

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Collectins are C-type lectin family, which have collagen-like domains and carbohydrate recognition domains. We focus on two collectins of MBL and CL-P1. We made the plan to use MBL as anti-viral drugs for some viral infections. We have already established the expression system of MBL and improved it and selected good MBL expression clones for individual virus. Now we are studying on efficacy of each MBL in animal level. CL-P1 expresses on the endothelial cell and has functions as scavenger receptors for oxidized low density lipoprotein (ox-LDL), micro-organisms. To find the *in vivo* important roles of CL-P1, we investigated the role of CL-P1 on zebrafish or rat. After cloned zebrafish CL-P1 (zCL-P1) gene was transfected into the CHO cell, the expressed zCL-P1 bound to the ox-LDL, and microorganism. Immunohistochemistry and *in situ* hybridization studies showed that zCL-P1 expressed in the vasculature (endothelium) and zCL-P1 as well as VEGF mRNA expressed in the early stage of the post fertilization detected by RT-PCR. Gene knockdown (by using morpholino oligonucleotide) study demonstrated the failure of the vascular development which might be followed by the body trunks formation collapse. This phenotype was rescued by the insertion of the zCL-P1 mRNA. These findings indicate the CL-P1 is involved in the vascular and body development during embryogenesis. We have confirmed that ischemia/ reperfusion induces CL-P1 delayed expression in the endothelium on the rat carotid artery while early expression of LOX-1. The studies obtained from both models proposed the novel linkage between angiogenesis and scavenger receptors.