

Principal Researcher	Masatoshi Makuuchi			Number of Researchers	4	
Research Institution • Department • Title	Professor, Department of Surgery, University of Tokyo			Location of Institution	Bunkyo-ku, Tokyo	
Title of Project	Production of transgenic pigs for the use of bioartificial liver.					
Abstract of Research Project	<p>In research on extracorporeal bioartificial liver perfusion system using xenogeneic liver, the chief purpose of the transgenic technique is to knock out genes of xenogeneic proteins, and transduce genes of human proteins into the animal. As an initial approach, we planned to transduce human albumin cDNA into porcine germ cells to produce porcine liver which can secrete human albumin for the purpose of utilizing it for bioartificial liver support. We produced a gene of human albumin cDNA (hAlb) and EGFP (enhanced green fluorescent protein) gene, pCX-hAlb-EGFP. We transfected it initially into NIH3T3 cells using lipofection method, secondly into mouse germ cells by classic microinjection method, and thirdly into porcine germ cells by intracytoplasmic sperm injection (ICSI) method in order to induce expression of human albumin in the cultured cells and animal liver. As the results, NIH3T3 cells showed ultraviolet lightening and expressed human albumin in Northern hybridization analysis, and a transgenic pig was produced of which the skin showed ultraviolet lightening and integration of human albumin gene in PCR analysis. It was a pity that the pig was born dead, but this was initial epoch-making report of expression of EGFP and human albumin in TG pig produced by ICSI method.</p>					
References	<p>Knack and pitfalls of liver surgery Bunkou-do 1998 Final report of research work, Grant-in-aid for scientific research 2000~2002 No. 12309003 Head investigator: Masatoshi Makuuchi Title: A study in development of transgenic cattles for the use of hybrid bioartificial liver.</p>					
Term of Project	Fiscal years 2003-2005 . (3years)					
Budget Allocation (in thousand of yen)	FY2003	FY2004	FY2005	FY2006	FY2007	TOTAL
	32,100	29,500	29,800			91,400
Homepage Address	None					