

# 学位論文の要旨

所 属	三重大学大学院医学系研究科 甲 生命医科学専攻 ゲノム再生医学講座 薬理ゲノミクス分野	氏 名	梅 本 紀 子
主論文の題名 Fluorescent-Based Methods for Gene Knockdown and Functional Cardiac Imaging in Zebrafish			
主論文の要旨 <p>A notable advantage of zebrafish as a model organism is the ease of gene knockdown using morpholino antisense oligonucleotide (MO). However, zebrafish morphants injected with MO for a target protein often show heterogeneous phenotypes, despite controlling the injection volume of the MO solution in all embryos. We developed a method for estimating the quantity of MO injected into each living morphant, based on the co-injection of a control MO labeled with the fluorophore lissamine. By applying this method for knockdown of cardiac troponin T (<i>tnnt2a</i>) in zebrafish, we could efficiently select the partial <i>tnnt2a</i>-depleted zebrafish with a decreased heart rate and impairment of cardiac contraction. To investigate cardiac impairment of the <i>tnnt2a</i> morphant, we performed fluorescent cardiac imaging using Bodipy-ceramide. Cardiac image analysis showed moderate reduction of <i>tnnt2a</i> impaired diastolic distensibility and decreased contraction and relaxation velocities. To the best of our knowledge, this is the first report to analyze the role of <i>tnnt2a</i> in cardiac function in <i>tnnt2a</i>-depleted living animals. Our combinatorial approach can be applied for analyzing the molecular function of any protein associated with human cardiac diseases.</p>			

(注) 2, 000字以内にまとめて記入すること。