論文の内容の要旨

論文題目　The novel role of the preotic neural crest in coronary artery development

（冠動脈発生における前耳胞神経堤細胞の役割）

**氏名　有馬勇一郎**

**Abstract**

Neural crest cells constitute a multipotent cell population that gives rise to many types of tissues. The neural crest arising from the postotic hindbrain is known as the ‘cardiac’ neural crest and contributes to the great vessels and outflow tract endocardial cushions, however the neural crest contribution to structures within the heart remains largely controversial. Here I demonstrate that neural crest cells from the preotic region migrate into the heart and differentiate into coronary artery smooth muscle cells by using Cre-loxP recombination and quail-chick chimera techniques. Preotic neural crest cells preferentially distribute to the conotruncal region and interventricular septum. Ablation of the preotic neural crest causes abnormalities in coronary septal branch and orifice

formation. Mice and chicks lacking endothelin signaling show similar abnormalities in the coronary artery, indicating its involvement in neural crest-dependent coronary artery formation. This is the first report that reveals the preotic neural crest contribution to heart development and smooth muscle heterogeneity within a coronary artery.