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Research Activities

The research in Dr. Ding's laboratory is aiming to elucidate the molecular basis of congenital diseases through understanding the molecular pathways and genetic programs that control fundamental embryonic processes such as axis formation, cardiac development, neural induction and placenta formation. On going studies address TGF- β s and Nodal signaling pathways during holoprosencephaly (HPE) and other craniofacial malformation such as cleft palate using genetically manipulated mouse models. We have also addressed the formation of the first and second heart fields and dynamic relationship between the two heart fields during mouse cardiac morphogenesis. In addition to the mouse genetic approach, we have also established the Zebrafish model system in the laboratory aiming to dissect the details of the pathways controlling the above developmental processes.

Grants Funded

Role: Principal Investigator

Title: Regulation of Nodal signaling in holoprosencephaly

Funding Agency: National Institutes of Health

Direct Costs Funded: \$1,125,000

Role: Principal Investigator

Title: Regulation of Nodal signaling in holoprosencephaly

Funding Agency: National Institutes of Health

Direct Costs Funded: \$482,958

Peer-reviewed Publications

Jin JZ, Li Q, Higashi Y, Darling DS, **Ding J.** Analysis of Zfhx1a mutant mice reveals palatal shelf contact-independent medial edge epithelial differentiation during palate fusion. *Cell Tissue Res.* 33: 29-38 (2008)



Double in situ hybridization
Mlc2a gene (red) and
Cripto gene (brown) in wild
type embryo showing that Cripto
expression is located within the
developing heart region