

## Aaron M. Zorn, MD

Assistant Professor

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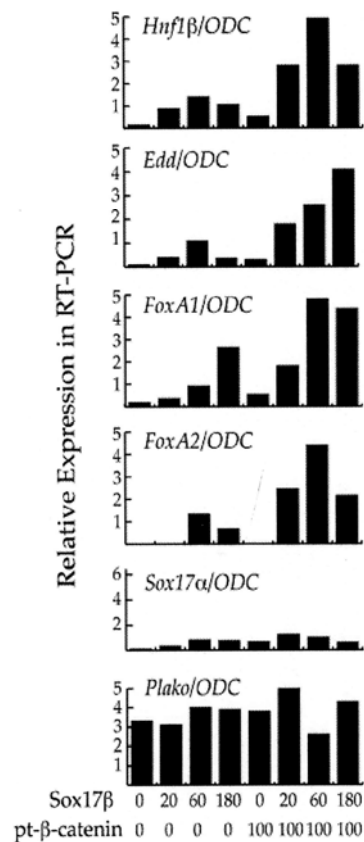
### Description of Research:

Dr. Zorn's long-term research goal is to understand the molecular mechanisms controlling the development of the liver, pancreas and gastrointestinal tract, which are derived from the embryonic endoderm. He uses frog embryos as a model system to investigate the genetic pathways underlying this poorly understood process of organogenesis. He is applying a combination of molecular and embryological techniques, including microarray technology and transgenics, to uncover the molecular and cellular events responsible for early liver development. Current investigations examine how transcription factors integrate signals from different growth factors to specify endoderm and embryonic liver. Dr. Zorn is also conducting a number of screens to find novel genes involved in liver development. This research will help uncover the molecular basis of congenital diseases in these organ systems, organ failure, and the ability to direct the development of stem cells to make therapeutically useful tissue.

### Collaborations:

Dr. Zorn has used the **Bioinformatics, Microarray, and Integrative Morphology Cores** in collaboration with Dr. Wells investigating the conserved molecular pathways controlling embryonic endoderm formation in xenopus and mouse.

### Representative Figure



Sox17 and  $\beta$ -catenin co-operate to transcribe endodermal genes. Embryos were injected at the 2-cell stage with Sox17 $\beta$  mRNA (20 pg, 60 pg, 180 pg) either with or without co-injection of RNA encoding a stabilized  $\beta$ -catenin (pt- $\beta$ -catenin, 100 pg) (Yost et al., 1996). At blastula stage, animal cap tissue was explanted and cultured for 3-4 hours until gastrula stage when it was assayed by real-time RT-PCR for the expression of Sox17 target genes. The histograms show the relative expression levels normalized to the loading control ODC. Plakoglobin (Plako) is control gene that is neither a target of Sox17 nor  $\beta$ -catenin. Fig. 6 from Development, 2004; 131:3069-3080.