

Propositions belonging to the thesis:

**Characterization of the Functional Roles of *Six2* during
Kidney and Stomach Development**

by
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1. The cell-autonomous function of *Six2* is necessary and sufficient to maintain the renal progenitor population in an undifferentiated state by opposing inductive signals emanating from the ureteric bud during kidney development.

This Thesis

2. As a step towards renal therapy, the isolation of the *Six2*-expressing nephron progenitors should be a powerful tool to help us characterize their cellular and molecular features.

This Thesis

3. The view of Hatini et al. that proposes early segregation and maintenance of two separate populations of stromal and nephrogenic progenitors in the developing kidney is further supported by our data; however, lineage tracing of the stromal progenitors and further characterization of descendents from the *Six2*-positive population would conclusively demonstrate this hypothesis.

Hatini et al. (1996) Genes Dev 10:1467-1478

4. During gastrointestinal development, *Six2* activity is required to establish a BMP4-free territory in the posterior stomach that permits normal formation of the pyloric sphincter.

This Thesis

5. Given the data of Guarino et al. and Brodbeck et al., screening pyloric muscle biopsy samples from IHPS patients for changes in the expression levels of *SIX2* should be adequate to evaluate whether *SIX2* plays a role in the etiology of infantile hypertrophic pyloric stenosis (IHPS).

Guarino et al. (2000) J Pediatr Surg 35:835-839

Brodbeck et al. (2004) Mech Dev 121:1211-1222

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6. The cause of Morgellons disease should be comprehensively researched so that the controversy of whether it is a valid pathological condition or a psychological disorder can be put to rest.

Accordino et al. (2008) Dermatologic Therapy 21:8-12

Harvey (2007) J Am Acad Dermatol 56:705-706

Koblenzer (2006) J Am Acad Dermatol 55:920-922

Savely et al. (2006) Am J Clin Dermatol 7:1-5

Marris (2006) Nat Med 12:982

7. Even though the development of induced pluripotent stem (iPS) cells from adult human somatic cells makes great strides in advancing the possibility of a renewable and customized source of stem cells for patient therapy, many hurdles still need to be surmounted for these iPS cells to become a realistic therapeutic option.

Takahashi et al. (2007) Cell 131:861-872

Takahashi and Yamanaka (2006) Cell 126:663-676

8. Although Nguyen et al. provide strong evidence for the “one neuron-one receptor” hypothesis, they fail to address how only one receptor from a family of 1300 genes is selected by each olfactory sensory neuron.

Nguyen et al. (2007) Cell 131:1009-1017

9. The observation of cells inside other cells in human primary breast tumors is not solid proof that these structures are a result of entosis such as that noted in cultures of transformed epithelial cell lines.

Overholtzer et al. (2007) Cell 131:966-979

10. “It is not birth, marriage, or death, but gastrulation which is truly the most important time in your life.”

Lewis Wolpert

11. "The South--where roots, place, family, and tradition are the essence of identity."

Carl N. Degler