ROLE OF HOMEOBOX GENE *HLX* EXPRESSION IN NORMAL PLACENTAL DEVELOPMEMT

***P. Murthi*[1], *M. D. Bates*[2], *G. Sankaran*[1], *S. P. Brennecke*[1], *B. Kalionis*[1]**

[1]Obstetrics and Gynaecology and Pregnancy Research Centre, University of Melbourne and Royal Women's Hospital, Carlton, VIC, Australia; [2]Division of Pediatric Gastroenterology and Nutrition, Children's Hospital Medical Centre, Cincinnati, USA

In a screen for homeobox genes in the human placenta, we cloned and characterised *HLX1* (also known as *HB24*) (1). Furthermore, we provided evidence that *HLX1* may be a regulator of human placental develolpment (2). We have since shown that the mouse homologue of *HLX1*, called *Hlx*, is expressed in the murine placenta. *In situ* mRNA hybridisation studies and antibody localisation of *Hlx* revealed expression in the labyrinth layer (LL), secondary giant cells (GC) and in the spongiotrophoblast layer (STL) (3). The STL is required for structural support of the placenta. Targeted gene mutation of *Hlx* resulted in embryonic defects in the developing gut and the liver (4) but the effects on placental development were not investigated. Histological preparations of placental tissues collected from Days 10.5, 13.5 and 19.5 from *Hlx* mutant mice were investigated for morphological changes. Our preliminary observations reveal that by haematoxylin and eosin staining the STL of the mutant murine placenta is severely disrupted but the overlying GC layer appears to be unaffected. Endogenous alkaline phosphatase staining of the LL further confirmed that the highly vascularised LL where fetal- maternal exchange occurs, is disorganised and expands into the region normally occupied by the STL. These observations indicate that *Hlx* is essential for normal placental development.

(1) Quinn LM, Kalionis B. (1997) *Gene* **187**, 55–61. (2) Quinn LM, Kalionis B. (1997) *Repro. Dev.* **9**, 617–623. (3) Johnson B (1999) PhD Thesis, University of Adelaide. (4) Hentsch B, Harvey RP (1996) *Gene Dev.* **10**, 70–79.

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