

## Staff Profile

### Dr Guiying Nie, PhD

Senior Research Officer

PHIMR Fellow

Honorary Lecturer, Dept of Biochemistry & Molecular Biology, Monash University

#### Profile:

Dr. Nie completed a PhD in Photosynthesis from Department of Biology, University of Essex, UK in 1991. She then undertook a post-doctoral fellowship on Photosynthesis and global warming in Brookhaven National Laboratory, NY, USA between 1992-1995. Dr. Nie joined Prince Henry's Institute of Medical Research in 1995 and embarked on research in reproduction in the area of embryo implantation. Dr. Nie is particularly interested in the molecular mechanisms of embryo implantation, placental development and function. Her current research focuses on the importance and regulation of genes in the uterus during implantation and placentation in the human, rhesus monkey and mouse. Dr Nie and her team utilize a range of approaches including molecular biology, biochemistry, cell culture proteomics, morpholino antisense technology, siRNA and gene knockout mouse models.

#### Research Interests:

Successful implantation of the embryo and subsequent development of the placenta are absolutely essential for establishing a pregnancy; both processes require highly coordinated interactions between the embryo and the uterus. Dr Nie has a strong interest in how the uterine factors regulate implantation and placentation. She is currently interested in two families of un-related proteases (protein convertases and HtrA3 family proteases) in implantation and placental development.

#### Recent key publications

- Nie G, Li Y, Batten L, Griffiths B, Wang J, Findlay J & Salamonsen LA (2000) Uterine expression of alternatively spliced mRNAs of mouse splicing factor SC35 during early pregnancy. *Mol. Hum. Reprod.* 6: 1131-1139.
- Salamonsen LA, Nie G-Y, Findlay JK (2002) Newly identified endometrial genes of importance for implantation. *J. Reprod. Immunol.* 53: 215-225.
- Nie GY, Li Y, Minoura H, Findlay JK, Salamonsen LA (2003) Specific and transient up-regulation of proprotein convertase 6 (PC6) at the site of embryo implantation and identification of a uterine-specific transcript in mouse uterus during early pregnancy. *Biol. Reprod.* 68: 439-447.
- Nie GY, Hampton A, Li Y, Findlay JK, Salamonsen LA (2003) Identification and cloning of two isoforms of human HtrA3, characterisation of its genomic structure and comparison of its tissue distribution with HtrA1 and HtrA2. *Biochemical J.* 371: 39-48.
- Nie GY, Li Y, Minoura H, Batten L, Ooi GT, Findlay JK, Salamonsen LA (2003) A novel serine protease of the mammalian HtrA family is dramatically up-regulated during placentation in the mouse. *Mol. Hum. Reprod.* 9: 1-11.
- Luu KC, Nie GY and Salamonsen LA (2004) Endometrial calbindins are critical for embryo implantation: evidence from in vivo use of morpholino antisense oligonucleotides. *Proc Natl. Acad. Sci. USA* 101(21): 8028-8033.
- Okada H, Nie G, Salamonsen LA (2005) Requirement for proprotein convertase 5/6 during decidualization of human endometrial stromal cells in vitro. *J. Clin. Endocrinol. Metab.* 90: 1028-1034.
- Nie G, Li Y, Wang M, Liu YX, Findlay JK, Salamonsen LA (2005) Inhibiting uterine proprotein convertase 6 blocks embryo implantation: an obligatory role for a proprotein convertase in fertility. *Biol. Reprod.* 72: 1029-1036.
- Nie G, Li Y, Hale K, Okada H, Manuelpillai U, Wallace E, Salamonsen L. (2006) Serine peptidase HTRA3 is closely associated with human placental development and is elevated in pregnancy serum. *Biol Reprod* 74: 366-374.

Bowden MA, Di Nezza-Cossens LA, Jobling T, Salamonsen LA, Nie G (2006) Serine proteases HtrA1 and HtrA3 are down-regulated during human endometrial cancer progression. *Gynecol Oncol* (in press, Epub ahead of print, April 28)