

Staff Profile

Prof Lois Salamonsen, PhD

Head, Uterine Biology Laboratory

Senior Principal Research Fellow, National Health and Medical Research Council of Australia

Honorary Professor, Dept of Obstetrics and Gynaecology, Monash University

Research Areas: fertility, infertility and contraception, uterine bleeding disorders, endometriosis.

Profile

Lois Salamonsen received her BSc (honours) degree in Biochemistry from Otago University in New Zealand and her PhD from Monash University, Australia. Her thesis examined blastocyst-endometrial interactions in the sheep during early pregnancy, using a proteomic approach. During the 1990's she developed a model for mechanisms underlying normal and abnormal uterine bleeding, which emphasized the roles of matrix metalloproteinases and leukocytes. This has been extended by recent studies on chemokines and their roles in endometrial remodelling and trophoblast invasion. In addition, the laboratory has focused on uterine receptivity for embryo implantation with an emphasis on identifying new targets for contraception: among the important targets under current investigation are pro-protein convertase 6 and interleukin 11. The laboratory was the first to identify and clone a new member of the HtrA family of proteases, HtrA3, and to demonstrate its strong expression pattern during placentation.

The laboratory is currently funded by peer-reviewed grants from NHMRC, NIH, CONRAD/CICCR, Monash IVF and Schering^{AG}. Prof Salamonsen has published >160 papers and review articles. She was a member of the Rockefeller/WHO Initiative on Implantation and Once-a-month Methods for Contraception, is a consultant to the Human Reproductive Program of WHO and a member of the Schering AG Initiative on Implantation. She is a member of a number of editorial boards, including the top ranked journals in the field of Reproductive Biology and Endocrinology, and has served on NHMRC committees, including grant review and career awards panels. She currently serves as President of the Society for Reproductive Biology (Australasia: 2004-2006).

Recent key publications

Zhang J & Salamonsen LA (2002) In vivo evidence for active matrix metalloproteinases in human endometrium supports their role in tissue breakdown at menstruation. *J. Clin. Endocrinol. Metab.* 87(5): 2346-2351.

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 comparison of its tissue distribution with HtrA1 and HtrA2. *Biochemical J.* 371: 39-48.

Brasted M, White CA, Kennedy TG, Salamonsen LA (2003). Mimicking the events of menstruation in the murine uterus. *Biol. Reprod.* 69: 1273-1280.

Salamonsen LA (2003) Tissue injury and repair in the reproductive tract. *Reproduction* 125 (3):301-311.

Salamonsen LA and Jones RL (2003) Endometrial remodelling. In *Encyclopedia of Hormones*, Meyer J (Ed) Academic Press, San Diego USA pp 504-512.

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.

- Jones RL, Hannan NJ, Kaitu'u T, Zhang J, Salamonsen LA (2004) Identification of chemokines important for leukocyte recruitment to the human endometrium at the times of embryo implantation and menstruation. *J. Clin. Endocrinol. Metab.* 89:6155-6167.
- 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.
- Jones RL, Findlay JK, Farnworth PG, Robertson DM, Wallace E, Salamonsen LA. (2006) Activin A and inhibin A differentially regulate human uterine matrix metalloproteinases: potential interactions during decidualization and trophoblast invasion. *Endocrinology* 147:724-732.
- Hickey M, Crewe J, Mahoney LA, Doherty DA, Fraser IS, Salamonsen LA (2006) Mechanisms of irregular bleeding with hormone therapy: The role of matrix metalloproteinases and their tissue inhibitors. *J Clin Endocrinol Metab* 91(8): 3189-3198.