

## SEMINAR ANNOUNCEMENT

31 January 2011, Monday  
11am to 12pm, Aspiration theatre @ Matrix Level 2M

---

### Translational Challenges with Fetal Mesenchymal Stem Cell Therapy

#### Abstract:

Cell-based regenerative medicine is of major interest in biomedical research with stem cells under intense scrutiny to define principles of organ regeneration and develop innovative therapeutics for organ failure. Stem/progenitor cells for organ replacement have been employed for many years in hematopoietic stem cell transplantation, while recent work has explored non-hematopoietic stem/progenitor cell populations including those identified within umbilical cord blood and other perinatal and fetal tissues. Mesenchymal stromal cells (MSCs) subsume a variety of capacities: they differentiate into various mesodermal lineages, they secrete trophic factors suitable for recruiting endogenous repair processes and they are immunomodulatory.



*Professor Nicholas M Fisk  
MBA PhD FRCOG  
University of Queensland*

Early human fetal mesenchymal stem cells (fMSC) have properties intermediate between adult & embryonic stem cells, being more primitive than adult MSC and expressing pluripotency markers, yet do not form tumours. They cross into the maternal circulation to engraft during every pregnancy, where they persist lifelong and contribute to tissue repair. hfMSC are promising candidates to treat early onset genetic disease in utero to obviate the morbidity of postnatal approaches, and have a default osteogenic predisposition, of relevance to postnatal bone repair. Engraftment requires tissue injury, as illustrated in fetal-fetal transplantation paradigms, including an osteogenic imperfecta model with marked therapeutic effects despite modest engraftment. This talk will discuss the mechanisms for therapeutic fetal tissue repair, and evaluate methods for increasing homing and engraftment after systemic MSC transplantation. Finally the optimal source of MSC will be addressed, including the generation of MSC from a range of pluripotent cell types.

---

#### Biography

*Nicholas Fisk was the inaugural Director of University of Queensland's new state of the art \$70M Centre for Clinical Research on the Herston campus, before becoming Executive Dean of Health Sciences in 2010. He practices as a maternal-fetal medicine specialist / high risk obstetrician at the Royal Brisbane and Women's Hospital, and maintains a research group within the UQCCR.*

*Between 1992-2007 was Professor of Obstetrics and Fetal Medicine at Imperial College and Queen Charlotte's Hospital, London. where his laboratory and clinical research program achieved an international reputation in fetal diagnosis and treatment. His main research interests have been in human fetal mesenchymal stem cell biology and monochorionic multiple pregnancy. He has authored around 400 publications, has a Hirsch index of 47, reviews for numerous international grant bodies, and is a member of several editorial boards including PLoS Medicine. He is a past President of the International Fetal Medicine and Surgery Society.*

*He is passionate about the opportunities offered in UQCCR and in the Faculty, to drive clinical research in a "bench to bedside" and "bedside to bench" environment, to link wet and dry laboratories with patients, and basic with clinical scientists, and to foster the training of tomorrow's cadre of translational researchers.*

---

*Hosted by Dr Victor Nurcombe,  
Singapore Stem Cell Consortium and Stem Cell Society Singapore*