

Supervisor: Dr Ramiro Alberio

Title: Identification of reprogramming molecules to enhance the efficiency and safety of autologous stem cell technologies

An MRC funded PhD studentship is available to study epigenetic reprogramming of somatic cells. Somatic cells can be induced to change identity by a process of cellular reprogramming. Multiple approaches are currently being developed to make this technology safe and efficient. Our group investigates the mechanisms underlying the reprogramming ability of oocytes. Very little is known about which oocyte molecules participate in erasing the "epigenetic signature" of somatic cell DNA. The aim of this project is to establish the dynamic changes taking place during the reprogramming of somatic cells, and to identify the molecules participating in this process. The student will employ multiple protein separation and analysis techniques (mass spectrometry and HPLC) combined with the use of modern tools for studying chromatin interactions and gene regulation. The student will join a vibrant group working in multiple aspects of stem cell and developmental biology.

Funding Notes:

This is a 4-year PhD studentship available from October 2012 and is only available to UK students.

References

- Alberio, R., Campbell, K.H., and Johnson, A.D. (2006). *Reproduction* 132, 709-720.
- Alberio, R., Johnson, A.D., Stick, R., and Campbell, K.H. (2005). *Exp Cell Res* 307, 131-141.
- Allegrucci, C., Rushton, M.D., Dixon, J.E., Sottile, V., Shah, M., Kumari, R., Watson, S., Alberio, R., and Johnson, A.D. (2011). *Mol Cancer* 10, 7.
- Bian, Y., Alberio, R., Allegrucci, C., Campbell, K.H., and Johnson, A.D. (2009). *Epigenetics* 4, 194-202.
- Dixon, J.E., Allegrucci, C., Redwood, C., Kump, K., Bian, Y., Chatfield, J., Chen, Y.H., Sottile, V., Voss, S.R., Alberio, R., *et al.* (2010). *Development* 137, 2973-2980.

Applications should be submitted by CV with the names of 2 referees to Ramiro.Alberio@nottingham.ac.uk