Science and Technology in Medicine

Research Project Proforma (School of Medicine)

Research Title: **Keywords (up to 5)**	**Stem cell products for the treatment of immunological disorders**
Supervisor: **Job Title:** **Department:** **Email Address:** **Telephone:** **Webpage link:**	Dr Nicholas R Forsyth Reader in Stem Cell Biology/Associate Director ISTM n.r.forsyth@keele.ac.uk 01782674388
Type of projects offered (delete as appropriate)	Both

(1) Outline the broad aims of your research and its medical relevance (150 words):

Bone marrow-derived mesenchymal stem cells have a widely acknowledged capacity for, minimally, differentiation into musculoskeletal lineages. More recently we have begun to acknowledge that hMSC, in addition to differentiation, secrete multiple growth factors/cytokines/chemokines which can act in a paracrine manner to modulate the behaviour of other cell types. This includes cells involved in immunological behaviours such as T cells and pancreatic beta cells. One aspect of our research is focussed on the identification of these stem cell secreted factors and the determination of

the mechanistic roles these factors play in disease state modulation. Following identification we aim to develop cell-free strategies for disease management through interrogation of small molecule libraries, for instance.

(2) Indicate the skills/techniques the student will learn (100 words)

Stem cell isolation and culture, ELISA, FACS, PCR, immunofluorescence, antibody-based blocking.

Please submit this form electronically to Prof Divya Maitreyi Chari on d.chari@keele.ac.uk by 31 July 2015