



Job title	Research Associate/Fellow	Job family and level	Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
School/ Department	Biosciences/ Animal Sciences	Location	Sutton Bonington Campus

Purpose of role

To contribute to the aim of a multi-functional team-driven programme to generate bovine gametes from pluripotent stem cells (PSCs).

The iBreed programme is a collaborative project between research teams led by Prof Bruce Whitelaw and Dr Tom Burdon at University of Edinburgh (Roslin Institute) and Prof Ramiro Alberio at the University of Nottingham. The team's expertise in genetic engineering, stem cell and developmental biology will be applied to characterising bovine gametogenesis *in vivo*, and directing differentiation *in vitro*. The project will focus on using state-of-the art genomic and epigenetic tools, gene editing and stem cell technologies available in the collaborating laboratories, to generate bovine gametes *in vitro*.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	<p>Planning and design of experimental procedures.</p> <ul style="list-style-type: none"> Independently, and collaboratively plan and design experiments to contribute to one or more of the following four programme objectives: <ol style="list-style-type: none"> To undertake molecular characterisation of gonadal microenvironment in cattle; To develop bovine pluripotent stem cells with germ line potential; To develop long-term cultures of bovine primordial germ cell like cells (PGCLCs); To generate of bovine PSC-derived gametes in organ cultures and reconstituted gonads. Keep abreast of relevant current literature in order to apply the most appropriate contemporary methods to address the scientific aims within the programme on gametogenesis in bovines and the derivation of gametes from bovine stem cells. 	10%
2	<p>The generation of bovine gametes from pluripotent stem cells (PSCs).</p> <ul style="list-style-type: none"> Carry out experiments to meet one or more of the four programme objectives: <ol style="list-style-type: none"> To undertake molecular characterisation of gonadal microenvironment in cattle; To develop bovine pluripotent stem cells with germ line potential; 	60%

	<p>(3) To develop long-term cultures of bovine primordial germ cell like cells (PGCLCs);</p> <p>(4) To generate of bovine PSC-derived gametes in organ cultures and reconstituted gonads.</p> <p>(5) To meet one or more of these experimental objectives, the post holder will possess dry and wet lab experimental skills that underpin and contribute to one or more of the following experiments: the generation and analysis of in vivo and in vitro transcriptome and epigenome data sets; the derivation, propagation and molecular characterisation of bovine PSCs; the generation and characterisation of gene edited bovine PSCs; the differentiation of bovine PSCs into PGCLCs and their molecular and functional characterisation; the establishment of PGCLC and reconstituted gonad co-culture systems to generate in vitro derived gametes.</p> <ul style="list-style-type: none"> • Conduct the experiments independently, or in conjunction with team/laboratory colleagues, and repeat and refine these as required. The propagation, manipulation and analysis of livestock stem cells and their derivatives are not routine procedures and therefore require the attention and technical expertise of an experienced experimental researcher. 	
3	<p>Contribute to the smooth running of the research facility.</p> <ul style="list-style-type: none"> • Assist with maintaining essential research capabilities and laboratory facilities when necessary. 	10%
4	<p>Record keeping and data management.</p> <ul style="list-style-type: none"> • Storage and archiving of DNA vectors cell lines, cell line sub-clones and plasmid constructs within agreed best practice defined by UoE/UoN Quality assurance. • Collection of data, maintenance of a current notebook and preparation of data for reporting and publication - in line with agreed best practice defined by UoE/UoN Quality assurance. • Take a lead role in collating the data they generate in a form suitable for publication and be responsible for the writing and preparation of any associated manuscripts. • Prepare reports for update meetings with the iBreed partners and programme organisers and contribute to the final report. 	10%
5	Contribute to weekly laboratory meetings and attend departmental research meetings and seminars	7%
6	Organise and prepare presentations for regular update meetings with relevant collaborators in the iBreed programme.	3%

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> • Strong scientific background in developmental/stem cell biology • Highly motivated, self-driven, and able to work both independently and as part of a team. • Excellent communication (written and spoken) and collaborative skills 	
Knowledge and experience	<ul style="list-style-type: none"> • Good knowledge of embryonic development • Good understanding of general laboratory techniques. • Knowledge of pluripotent stem cell technologies • Good writing skills in preparing reports and manuscripts • Evidence of relevant publication record • Strong scientific background in developmental/stem cell biology 	<ul style="list-style-type: none"> • First-hand experience of stem cell culture and gene targeting/editing technologies. • First-hand experience of bioinformatic analysis of gene expression and epigenetics • Experience in flow cytometry and cell imaging. • Knowledge, skill, and competence in applying molecular tools to analyse cellular phenotypes.
Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> • PhD in cell/developmental biology or related area of biological science (PhD students about to submit their thesis in a relevant area of stem cell biology will be considered). 	



The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

- Valuing people** Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
- Taking ownership** Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
- Forward thinking** Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
- Professional pride** Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
- Always inclusive** Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others

