Postgraduate research (PhD) position in Equine Functional Genomics

Start date: September 2022
Duration: Four years full time
Location: University College Dublin, Ireland
Background: Science degree with Genetics, Bioinformatics, Data Analytics, or related discipline
Scholarship: €18,000 per annum (stipend) plus fees

A fully funded four-year post-graduate (PhD) position is available for a research student to join a Science Foundation Ireland funded research programme in Equine Genomics. The University College Dublin (UCD) based programme stems from the >15-year development of an academic research programme dedicated to understanding genetic contributions to exercise related traits in Thoroughbred racehorses. The team has a strong focus on the translational applications of research for real-world impact, which has led to the introduction of genomics-based tests in the Thoroughbred industry.

The PhD student will map epigenetic regulatory elements in equine skeletal muscle and produce a systematic analysis of transcriptional regulation in exercise, disease and behaviour. We are looking for a highly motivated team-player who enjoys genetics and bioinformatics and is willing to work in a collaborative, dynamic environment.

PhD research project: Exercise benefits health and well-being, positively influencing clinical presentation and resolution of a variety of neurological, musculoskeletal, and metabolic diseases. The Thoroughbred horse is highly adapted for exercise and provides a unique animal model to investigate the relationship between exercise and behaviour/disease traits. Stressful early life events have long-lasting effects into adulthood in humans while exercise is known to have a beneficial influence on stress. This project will attempt to distinguish the influence of the genome, the maternal environment and exercise on the adaptation to stress in the racehorse by analysing a time-course series of biological samples taken from neonatal foals and during key milestone events in the horses first 24 months (weaning, early training etc.).

The project will investigate the influence of the early life environment of the horse on the genetic potential of an individual, employing an epigenetics approach. The epigenome is dynamic and responsive to external inputs and influences the expression of genes. This project will investigate genetic and epigenetic contributions to exercise, disease, and behaviour traits in racehorses using genomics and functional genomics assays including – whole genome bisulphite sequencing (WGBS), RNA-seq, miRNA-seq, histone configuration (ChIP-seq), and whole genome sequence variation. The project will contribute to the equine FAANG (Functional Annotation of Animal Genomes) initiative.

Additional notes: The PhD student will enter a four-year UCD Structured PhD Programme. They will be provided with formal mentoring and additional supervision through Doctoral Studies Panels (DSPs) and a Stage Transfer Assessment (STA) process.

The successful candidate will have a background in genetics, bioinformatics, computer science, data science or a related discipline. The student will be required to develop a strong competency in bioinformatics and large-scale data analytics.

An appreciation and understanding of the equine industry will be beneficial, but not required. There will be opportunities for involvement in field work with horses, depending on the competency of the student.

The project team will include two PIs, two PhD students, a postdoctoral researcher and a research assistant.

The student will benefit from a wide-ranging network of international research collaborations in functional genomics, equine genomics, and equine exercise physiology.

UCD is committed to equality, diversity, and inclusion.

Requirements
*First or upper second class Bachelors degree in science, animal / equine science or related discipline
*Major in genetics, molecular biology, biochemistry, bioinformatics, computational science or similar
*Motivated for research
*Fluent spoken and written English
*Excellent communication skills

Desirable
*Advanced computational skills (including competency in programming languages such as R, Python etc)
*Knowledge of the Thoroughbred / horse industry beneficial but not necessary
*Ability to work effectively as a team member
*Above-average academic achievement
*Prior research experience

To apply for this position please send by email:

1. *Curriculum vitae* (max 3 pages)
2. Letter of interest outlining your motivation and suitability for the position
3. Names and contact details for three referees
4. Unofficial undergraduate / postgraduate transcripts

Email: Emmeline.Hill@ucd.ie
Email Subject Header: PhD Equine Functional Genomics Application
Closing Date for Applications: Wednesday July 6th 2022

Short-listed candidates will be required to interview for the position (virtual video meeting)