

Fully Funded PhD Research Studentship between the University of Kent and LGC Limited

Towards a well-characterised, scalable and stable lentiviral vector construct

Applications are invited for a fully funded 3 year PhD research studentship between the University of Kent and the National Measurement Laboratory (NML) at LGC Limited to investigate characterisation of gene therapy lentiviral vectors (LVVs) (co-funded by Kent and The Community for Analytical Measurement Science (CAMS)). The successful applicant will be expected to start in late September 2021.

Gene therapy holds great promise for transforming medical intervention and viral vectors are one of the most effective ways of delivering gene therapies. Challenges facing the industry include: low process yields, highly variable analytical assays, sub-optimal unit operations & lack of clinical grade supply. The high degree of complexity of viral vector manufacture means accurate & reproducible analytical tools are essential to defining, monitoring & maintaining their critical quality attributes (CQAs). This project will investigate and develop such tools for application into lentivirus (LV) characterisation.

This is a rare opportunity to undertake basic biological and measurement research and then apply the findings into industrial processes. The studentship carries a standard Research Council stipend. As a focus of the work is analytical method development, the majority of the work will be undertaken at NML in Teddington, whilst the candidate will be expected to work closely with the academic collaborators and spend time at the academic site. Particularly, at the University of Kent, the candidate will be trained in developing and undertaking mammalian cell bioprocesses and systems for the expression and purification of LV vectors. At LGC the candidate will be trained in analytical methods including liquid chromatography mass spectrometry, next generation sequencing and dPCR and apply those technologies to develop methods for quantification and characterisation of protein capsid and host cell proteins and quantification and characterisation of the viral gene cargo (and delivery in to cells). The ultimate aim will be applying, for the first time, metrological concepts to the characterisation workflow of viral vectors and exploring the requirements for certified reference materials and reference measurement procedures.

The successful candidate will have a BSC degree (or expect to) at 2(i) or higher in Biochemistry, Biology, Biotechnology, Biochemical Engineering or a related subject, or an appropriate MSc. The School of Biosciences is a part of the Division of Natural Sciences and has dedicated Molecular Biology, Protein Characterisation and Bioprocessing laboratories (www.kent.ac.uk/biosciences). The NML at LGC Ltd is the UK's designated institute for chemical and bio-measurement and delivers world-leading measurement science to solve complex global challenges. The NML has a broad range of capabilities & expertise in protein characterisation (primary to quaternary structure) & quantification, & nucleic acid analysis and quantitation, traceable to the International System of Units (SI) (www.lgcgroup.com). CAMS is an industry-led initiative aimed at promoting world-class analytical measurement science training, research and innovation by bringing together a network of industrial and academic partners with interests in these fields ([CAMS website](#)).

Applications should be made online at <https://www.kent.ac.uk/courses/postgraduate/apply> where the project title above should be entered as the proposed area of research and Prof Mark Smales as supervisor. Please attach/include a cv and a cover letter stating why you are suitable for the position. Applications must be received by 10-09-2021. Interviews will be held virtually the following week.

Informal enquiries can be addressed to Prof Mark Smales in the School of Biosciences; email c.m.smales@kent.ac.uk.