Laboratory Skills

A course for those wishing to gain hands-on practical experience of vital and fundamental laboratory techniques

18 - 29 June 2018

Course director: Dr Jose Gutierrez-Marcos

For further details and an application form please see overleaf or go to
Many young science graduates and qualified professionals need practical experience of fundamental molecular and biochemical laboratory techniques. Over a two week period this intensive hands-on laboratory course will allow you to PCR amplify a gene, clone it into a suitable *Escherichia coli* expression vector, express, purify and analyse the resulting protein. In addition, you will perform site directed mutagenesis and a number of other important related techniques.

The course is suitable for any one seeking a hands-on introduction to some of the fundamental laboratory skills needed in molecular biology and biochemistry. It is aimed at those with no/little laboratory experience, but you are required to have a background in Biological Science. The course is informal but intensive with a high level of staffing to encourage interaction, questions and discussion. Teaching is carried out in modern laboratory facilities and a comprehensive course manual is provided.

### Course Programme

#### Week 1. Molecular Techniques - recombinant DNA manipulation & Microscopy Analysis

- Fundamentals of laboratory work (safety, weights & measures, buffers, using a pH meter)
- Purification and analysis of plasmid DNA (mini-preps, agarose gel electrophoresis, restriction digests, making plates)
- Polymerase chain reaction (preparation of DNA for sequencing, amplification, primer design, sequence analysis)
- Cloning and *E. coli* expression (gene cloning, sequencing and sequence analysis)
- Targeted mutagenesis (sequence design, mutagenesis and sequence analysis)
- Laser confocal & electron microscopy (sample preparation, imaging and image analysis)

#### Week 2. Biochemical Techniques - protein expression & purification

- Protein expression in *E. coli* (culture induction, buffer preparation and protein expression)
- Protein purification (sonication & chemical cell lysis, affinity chromatography, SDS gel electrophoresis)
- Protein analysis and quantification (SDS gel interpretation, Western blotting, mass spectrometry analysis)

### Application Form

(Closing date for applications: 4 June 2018)

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Name: ..............................................................................................................................................................

Address: ..............................................................................................................................................................

Telephone: ..........................................................E-mail: .......................................................................

Organisation: ..........................................................Position: ...............................................................

The fee of £1260 includes all laboratory materials and course manual. To register, return the completed form with the full fee or a deposit of £250 (cheques made payable to ‘University of Warwick’, or an order number with invoicing details. Details for bank transfers can be provided on request).

Application form and enquiries to:
Denny Croft/Therese Lepicard, School of Life Sciences, The University of Warwick, Coventry CV4 7AL
Tel +44 (0)24 765 74995  Email slspgt@warwick.ac.uk

The University of Warwick ranks in the top ten of the country’s one hundred universities. More than 80% of research in the School was rated as ‘World Leading or Internationally Excellent’ in REF2014.