

Laboratory Research Methods in Immunology

Laboratory Research Methods in Immunology (10 credits)

Students will receive introductory lectures and course work books on specific methodologies including molecular biology, cell culture and biochemical approaches as tools for immunobiological research. In particular, techniques such as PCR amplification, gene cloning, protein expression in cultured cells, the study of antigen antibody interactions, tissue culture and cell differentiation assays will be covered. Analytical techniques will include gel electrophoresis, Western blotting, ELISA, and real time PCR analysis of RNA expression. Analysis of cellular differentiation in vivo by flow cytometry or immunohistological analysis of tissues will also be covered.

In addition students will receive practical demonstrations in a variety of techniques and platform technologies. Students will be taught about current state-of the art technology available within the College. This will include sessions on animal models of human processes and diseases, NMR and mass spectroscopy, next-generation sequencing and microarray, multicolour flow cytometry and cell sorting, and confocal microscopy. These sessions will be taught by lecture and demonstration. Hands-on training in a range of basic laboratory skills will also be provided.

Module attendance required: Two weeks of lectures, small group tutorials, demonstrations and practical sessions.

Module dates: TBC

Assessment:

- Practical examination
Performance in key laboratory techniques will be a competence test.
- Written examination (100%):
MCQ (15) and SAQ questions (3) (1h exam).

Academics involved in the delivery of this module:

[Dr Kai Toellner \(/staff/profiles/iandi/toellner-kai.aspx\)](#) (Institute for Biomedical Research) and a number of other researchers from across the College of Medical and Dental Sciences.

[Study here and find out why the University of Birmingham was awarded The Times and The Sunday Times University of the Year 2013-14 \(http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx\)](http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx)

Course fact file

Type of Course: Module