University of BRISTOL

Biomedical Sciences at Bristol

2020

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Programme Director

bristol.ac.uk/ug20-biomedical

BSc Biomedical Sciences

- Introduced in 2017
- The first year will allow you to gain a better understanding of all the biomedical subjects on offer
- Then follow your interests as they develop in the next two years:
  - Cells and Molecules pathway
  - Systems pathway
  - Molecules and Systems pathway

Year 1 BSc Biomedical Sciences

Teaching Block 1	Teaching Block 2
Biochemistry: Cellular Composition	Biochemistry: Cellular Processes
Normal and Tumour Cells	Medical Microbiology and Infectious Diseases
Pharmacology 1A	Fundamentals of Body Function

Teaching methods

Bristol is a research-intensive university and your learning and teaching will be research-led.

- lectures
- workshops and tutorials
- laboratory practicals
- supported by online dynamic laboratory manual

Capture ELISA - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://ebl.soms.bris.ac.uk/ebl2010-11/file.php/28/Immunology_2/expt_info/page_04.htm

Most Visited Getting Started Latest Headlines

Immunology 2

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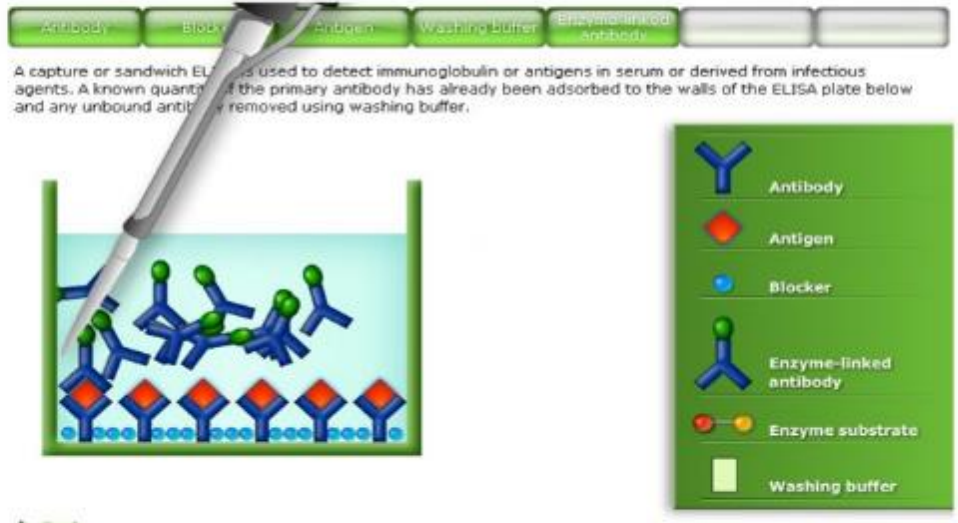
Capture ELISA

During this practical you will be using a capture ELISA to assay the concentration of IgM in a serum sample. The assay process is slightly different to the one demonstrated last week.

A serum sample is a complex mix of antigens and a capture ELISA increases specificity. An animation of the capture process is shown below.



The ELISA plate you will be provided with during this practical has already been coated with anti-IgM antibodies, washed thoroughly and blocked with bovine serum albumin (BSA). BSA is used to cover any remaining surface of the plastic to prevent non-specific binding. For example, if blocker was not

Done

Plating techniques

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Streak plate technique

Streak plate technique

Sterilise the loop
Add loop of culture to plate
Streaking the remaining quadrants

Hold the loop in one hand and the culture bottle in the other. Open the culture, keeping hold of the lid, and pass the lip of the bottle through the flame to sterilise (not shown here). Dip the loop into the culture after it has cooled down and replace the lid. Streak your sample onto your agar plate, replace the lid immediately and resterilise the loop.

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Introduction

When working with bacteria in a laboratory, it is essential that you know or can verify which bacterial species has been isolated. This is extremely important in medical microbiology where misidentification could mean the difference between life and death.

When a patient has a suspected bacterial infection, the doctor will prescribe a broad-spectrum antibiotic in order to cover a range of options. However, once the microbe has been identified the doctor may switch treatment to a more appropriate narrow range drug, especially if the patient is in hospital, to avoid favouring the emergence of broad spectrum resistance. Therefore, the importance of identifying the causative microbe (and its antibiotic resistance as you will see in subsequent practicals) cannot be overemphasized.

Clinical importance of identifying bacteria

Professor Adam Finn
Professor of Paediatrics, School of Cellular and Molecular Medicine, University of Bristol; Professor of Paediatrics, School of Clinical Sciences, University of Bristol; Honorary Consultant Paediatrician, Bristol Royal Hospital for Children, United Bristol Healthcare Trust

Bacterial identification involves tests and observations of various kinds. You may have met some of these in previous practicals both in this unit and in 'Introduction to Microbiology' including colony morphology, microscopic examination with and without staining, biochemical tests and agglutination tests. More recently, DNA tests using hybridization and polymerase chain reaction (PCR) are also being used.

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Cells and Molecules Pathway

Molecules and Systems Pathway

Systems Pathway

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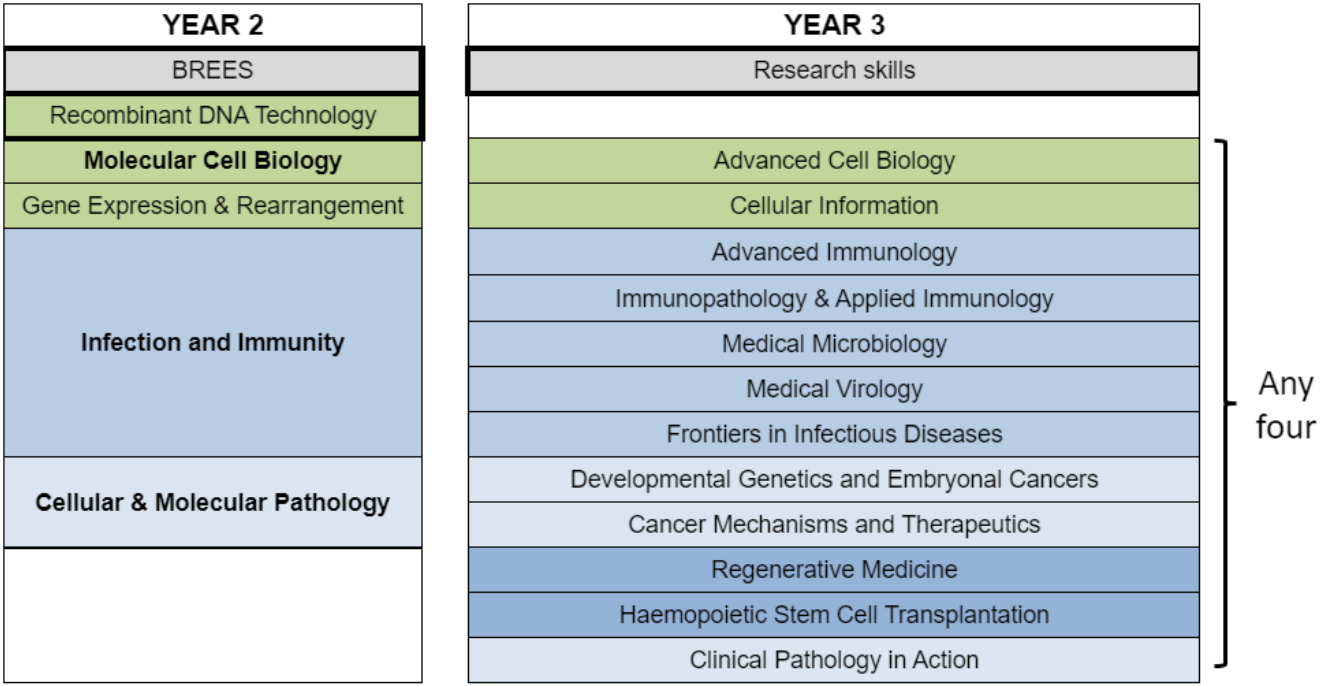
Cells and Molecules Pathway

Years 2 and 3: Cells and Molecules Pathway



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Systems Pathway

Years 2 and 3: Systems Pathway

YEAR 2	YEAR 3		
BREES	Research skills		
Recombinant DNA Technology			
	Concepts and Skills		
Integrative Physiology	The Heart in Health and Disease	Block 1	Any three
	Physiology of the Urinary Tract	Block 2	
	Cardiovascular System in Health and Disease	Block 3	
Neurophysiology	Synaptic Plasticity	Block 1	
	The Rhythms of Life	Block 1	
	New Horizons in Medicine	Block 2	
	Neuroscience of Pain	Block 2	
	Synaptic Cell Biology	Block 2	
	Brain and Behaviour	Block 3	
	Neurological and Psychiatric Disorders	Block 3	
Principles of Pharmacology 2A: Pharmacology of the Nervous System Principles of Pharmacology 2B: Pharmacology of Body Systems	Pharmacology of Ion Channels and Synaptic Transmission	Block 1	
	Receptor Signalling and non-drug Therapy	Block 2	
	Pharmacology of the Nervous System	Block 3	

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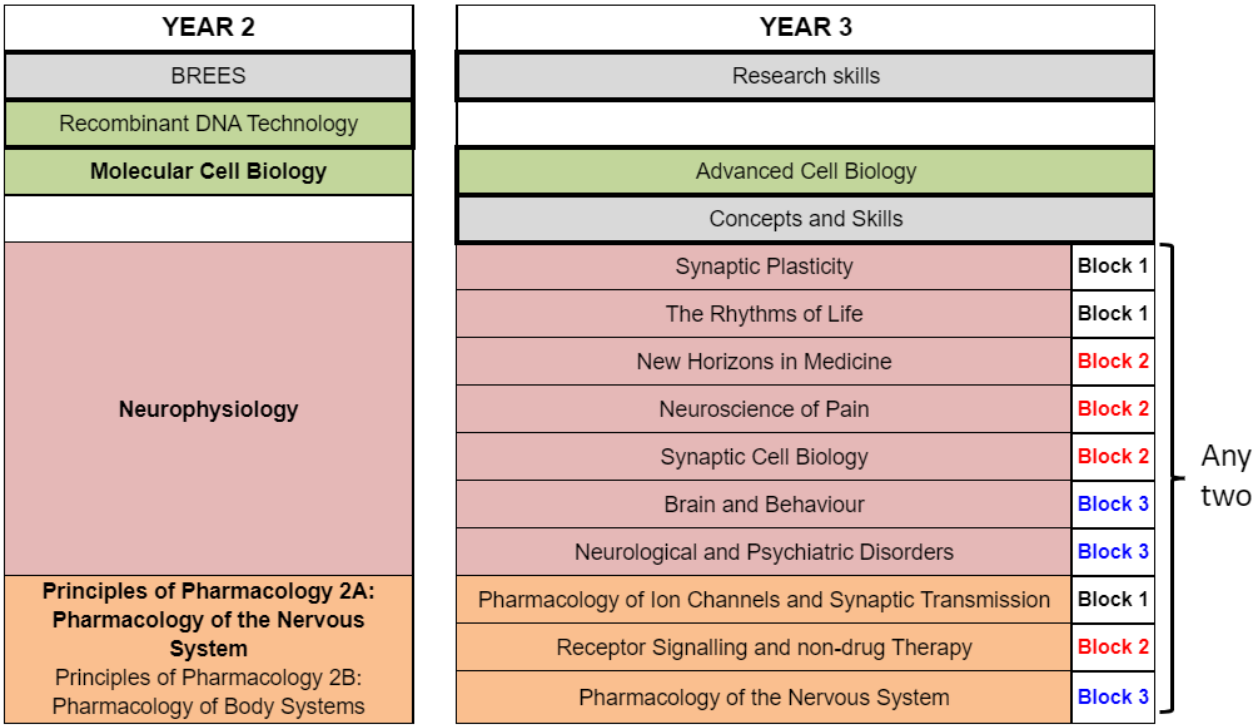
Molecules and Systems Pathway

Years 2 and 3: Molecules and Systems



Biomedical sciences pathways

Year 1

- All students do the same units

Year 2

- Three pathways to choose from:

  Cells and Molecules, Systems, Molecules and Systems

- *Recombinant DNA technology* and *Biomedical Research*, *Employability and Enterprise Skills* (BREES) are compulsory units

- "Gateway" units are essential for each pathway

- Recommend optional units give the best preparation for the final year

  - Can be replaced with other units e.g. Modern Language

Year 3

- All students do a research project (in "Research Skills")

- Four lecture units are taken from a wide choice

Year 3 research projects

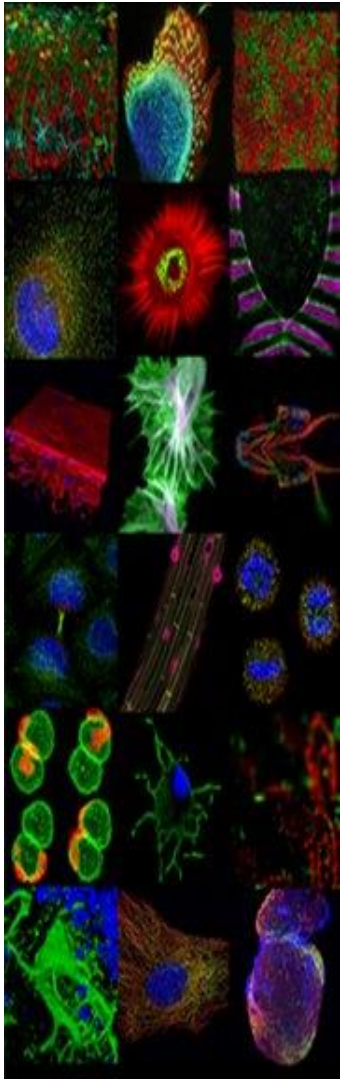
A wide variety of projects types will be available:

- laboratory
- bioinformatics
- literature-based
- school-based education projects

Research-led teaching

Benefit from excellent facilities:

- high fidelity human patient simulator
- virtual microscope
- flow cytometry
- imaging



Students gaining experience

UK Summer internships

Wellcome Trust vacation studentship

- Kainate receptors and hippocampal epileptogenesis

Physiological Society summer vacation studentships

- Effect of intracellular acidosis on hERG channels incorporating the 1b isoform
- Cerebellar - periaqueductal grey interactions during fear conditioning

Students gaining experience

- Singapore Agency of Science, Technology and Research A*
- Summer scholarship for two months
- Stem cell differentiation

Tom Sharrock

Agency for Science, Technology and Research

SINGAPORE

Students gaining experience

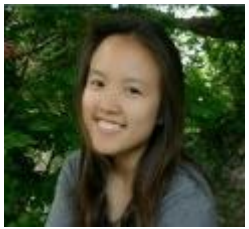
- Okinawa Institute of Science and Technology, Japan
- Summer internship for two months
- Autoimmune disease biology

OIST

"The course has opened more doors than I could have ever imagined"
Emma Adams

Students gaining experience

- Chinese University of Hong Kong
- Summer Undergraduate Research Programme
- Mechanism of anticancer action of epigallocatechin gallate (EGCG) found in green tea



"The employability strand of BREES has provided me endless support on how to make my applications stand out and has also given me the confidence I need during interviews."
Rachel Wang

Students gaining experience

- Norwegian University of Science and Technology
- Trondheim, Norway
- Summer Intern / Lab Assistant
- Dept. of Cancer Research and Molecular Medicine

“I gained valuable laboratory experience including Western blotting for biomarker identification, FACS analysis, maintaining cell cultures and assisted with a mouse model of metastatic lung cancer.” Sophie Rovers

Students gaining experience

- Cancer Research UK
- Summer Internship for 8 weeks
- CRUK Project Management Office
- Responsibile for communications

“I had a great time working for CRUK and have now applied for one of the Grad schemes at CRUK.” Katie Issott

Career prospects

Biomedical Sciences QAA Subject Benchmark Statement 2019

"The employment market for graduates in the biomedical sciences is buoyant. A biomedical sciences degree is considered as an excellent basis for a wide variety of future graduate-entry career paths"

Career prospects

High Fliers report 2020

The University of Bristol is in the top five universities targeted by top employers for the fifth year in a row

Career prospects

- Some graduates from biomedical sciences go on to PhD studentships as a first step in a research career

- Some go into other postgraduate degrees:
  - MSc degrees in a wide range of subjects
  - Cancer biology, clinical neuroscience, exercise physiology, immunology, virology, science communication, management
  - Postgraduate Certificate in Education (PGCE)
  - Medicine or dentistry

Recent alumni careers evening – fields of work

Going into Industry	Senior Site Intelligence and Activation Team Manager, PPD Pharmaceutical Product Development
	Management Consultant, Adventis Consulting
Outreach & Communications	Freelance TV presenter and wildlife film maker
	Project Manager, The National Coordinating Centre for Public Engagement (NCCPE)
Teaching & Research	Senior Lecturer, University of Bristol
	PhD Student, Nottingham Trent University
Teaching & Research	Professor in Psychopharmacology, University of Bristol
	PhD in Clinical Neuroscience - Brain Tumour Research Group, University of Bristol

Recent alumni careers evening – fields of work

Biotechnology	CEO, Cytox Ltd.
Medicine	Medical Student, University of Bristol
	Medical Student, University of Bristol
	Medical Student, University of Bristol
Business & Communications	Director, NetworkPharma Ltd
	Consultant Analyst, Adventis Consulting
Data Analysis	Technical Manager, Onescientfic
	Epidemiologist, University of Oxford
Enterprise & Self-Employment	Enterprise Adviser, University of Bristol
	CEO, Hire Window

Recent alumni careers evening – fields of work

Sales & Marketing	Sales Associate, Orthofix
	Marketing Executive, IOP Publishing
Science Communication	Digital Content Creator, Learning Science Ltd.
	Senior Medical Writer, ApotheCom
Science Communication	Head of Professional Development and Engagement, Physiological Society
	Blogger, Film Maker and News Reporter, CRUK
Teaching & Research	Teaching Fellow, University of Bristol
	PhD student, University of Cambridge

Academic personal tutor

Throughout the degree course you will have a personal tutor who will help guide you through:

– transition to university

– becoming an independent learner

– unit choice

– personal development planning

– career planning

– provide a reference.

Come and join us!

bristol.ac.uk

University of BRISTOL

Contact details

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