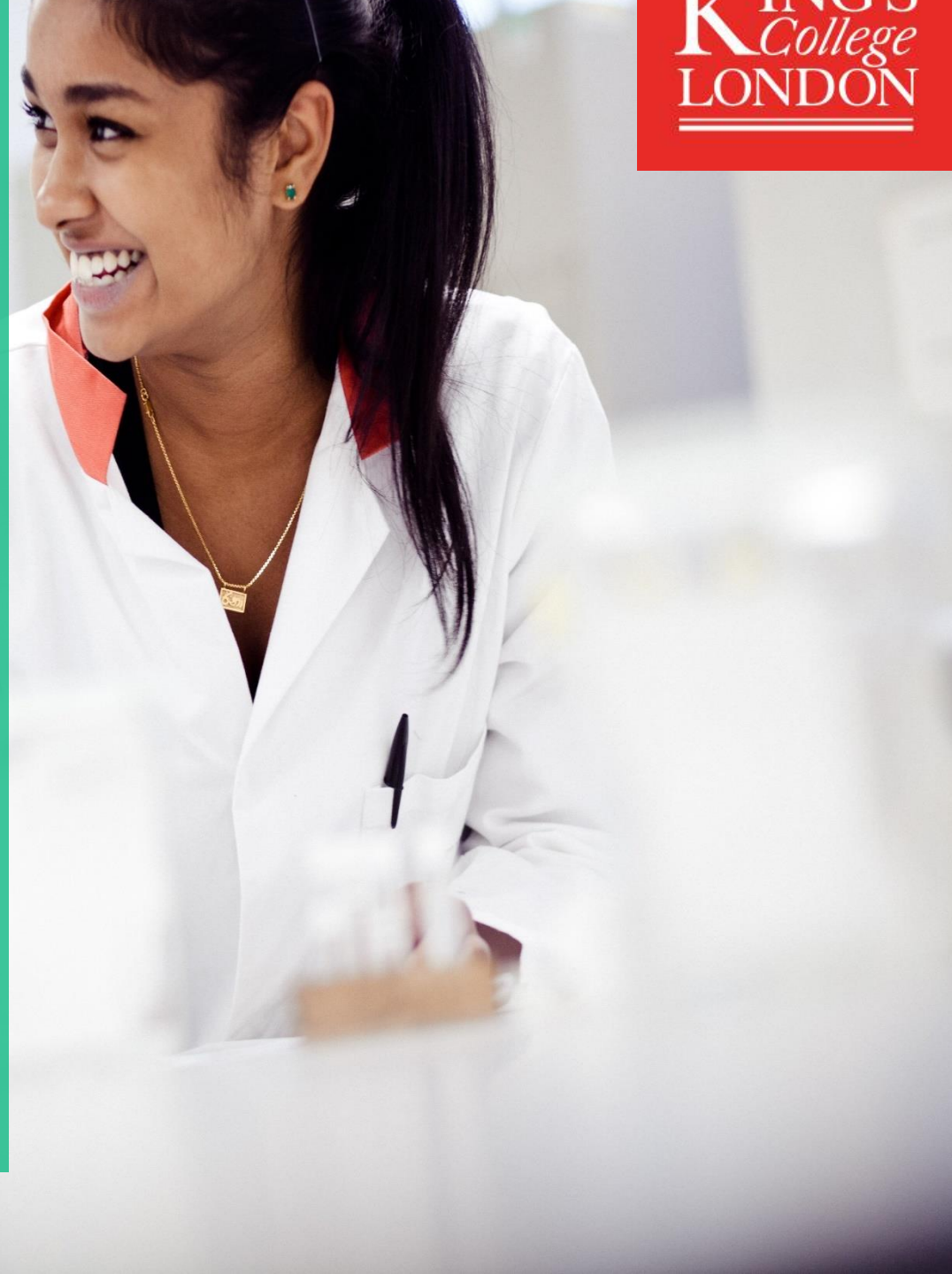


Bench to Bedside

Professor Guy Tear
Head, Department Genetics
School of Bioscience Education





The case of
Mr Zemlinksy



Paramedics
Nurses
Doctors
Radiologist and
Radiographers
Laboratory staff
Healthcare assistants





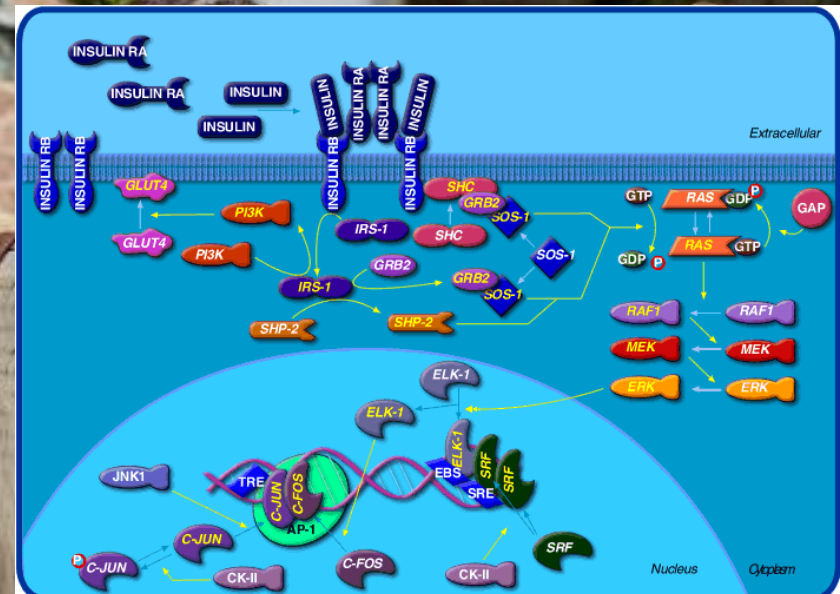
The biomedical scientist

The 'Biomedical Sciences'

- Anatomy, Developmental & Human Biology
- Biochemistry
- Molecular Genetics
- Immunology
- Neuroscience
- Pharmacology
- Physiology

Biochemistry

- Study the molecular basis of life and disease.
- Also known as Biological Chemistry – you will look at the chemical processes within living organisms – what happens in cells.



The insulin signalling pathway

Image: Biocarta.com

Molecular Genetics

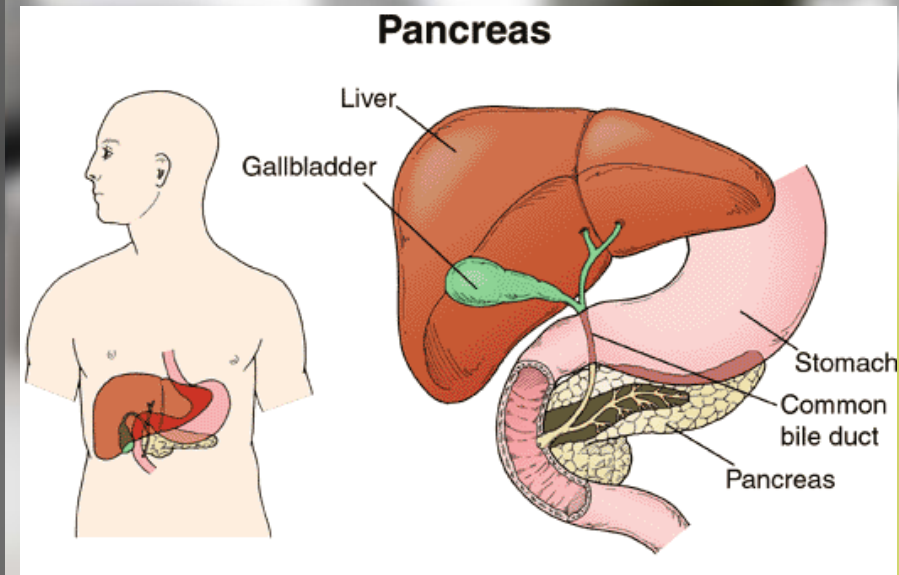
- How are characteristics and disease passed from one generation to the next?
- Some forms of diabetes are inherited due to mutations in critical proteins required for insulin secretion from the pancreas.



King's Twin Research and Genetic Epidemiology Unit is a world-leading research team

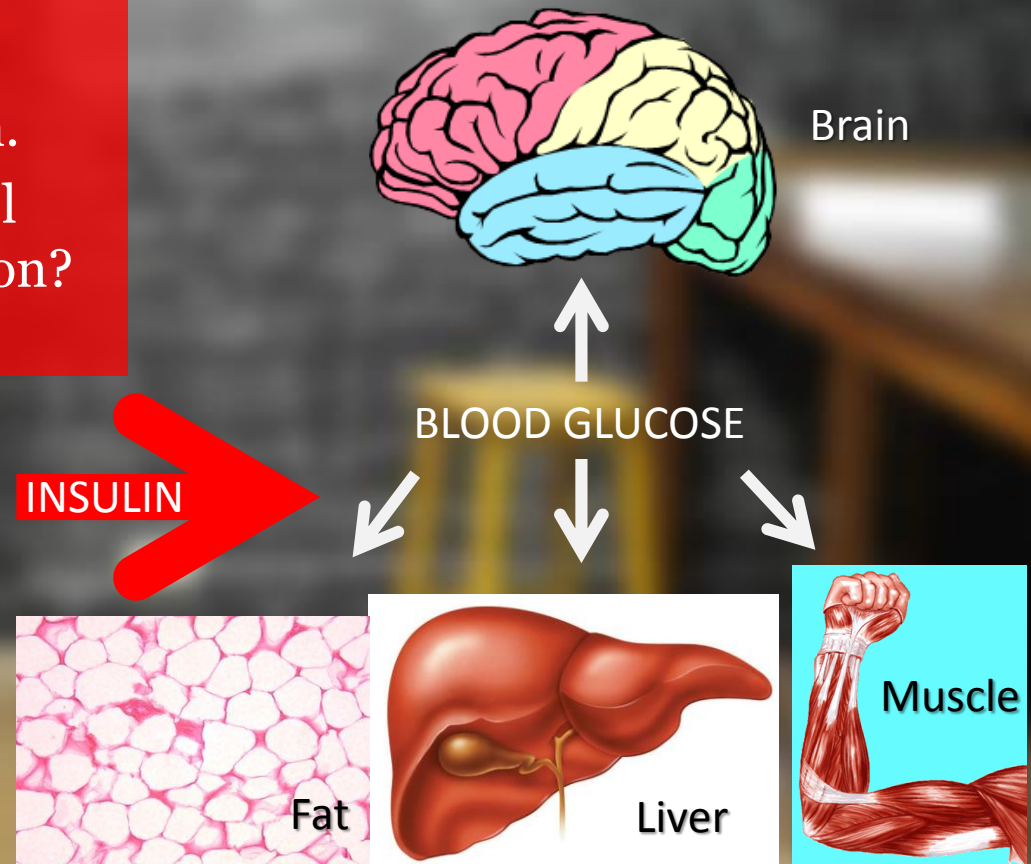
Anatomy, Developmental and Human Biology

- Understanding human evolution, structure, function, development and behaviour.
- Includes biological and behavioural sciences.



Medical Physiology

- How the different body systems function in health.
- How does the body control blood glucose concentration?

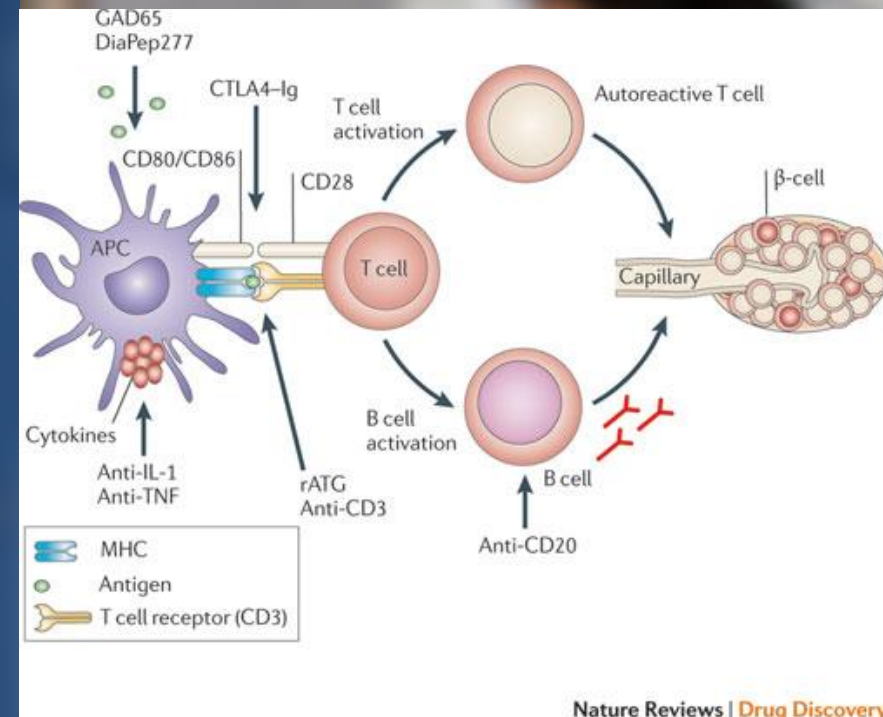


Immunology

- How the immune system functions to protect us from disease

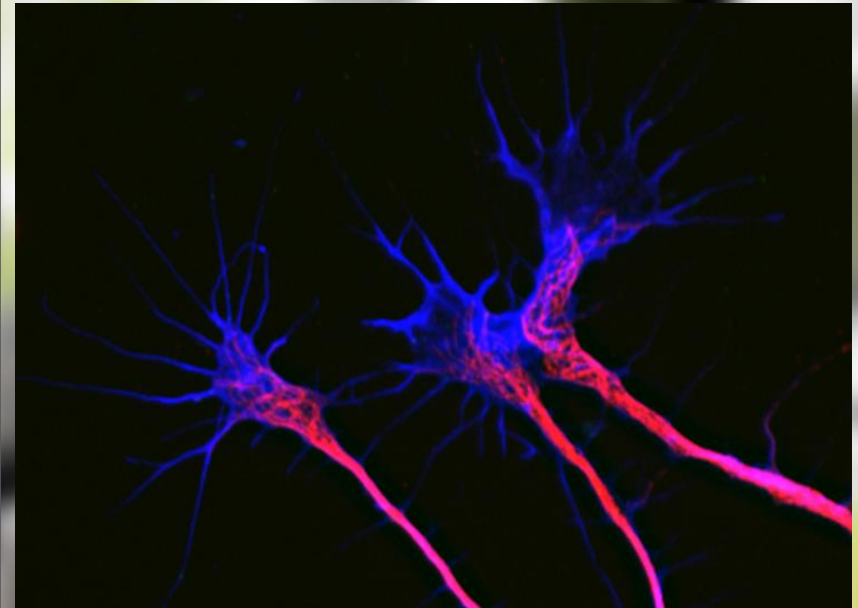
BUT.....

- Now known that diabetes is a form of “autoimmune disease”



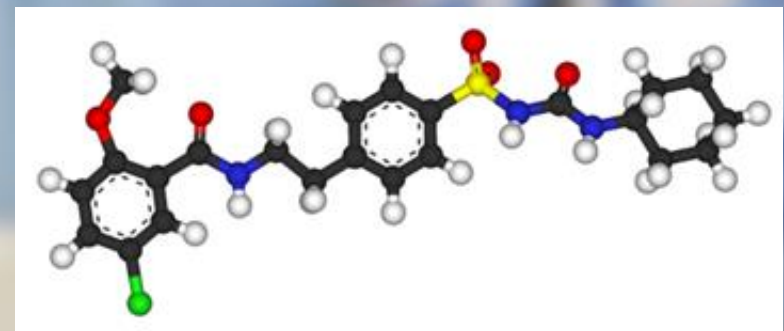
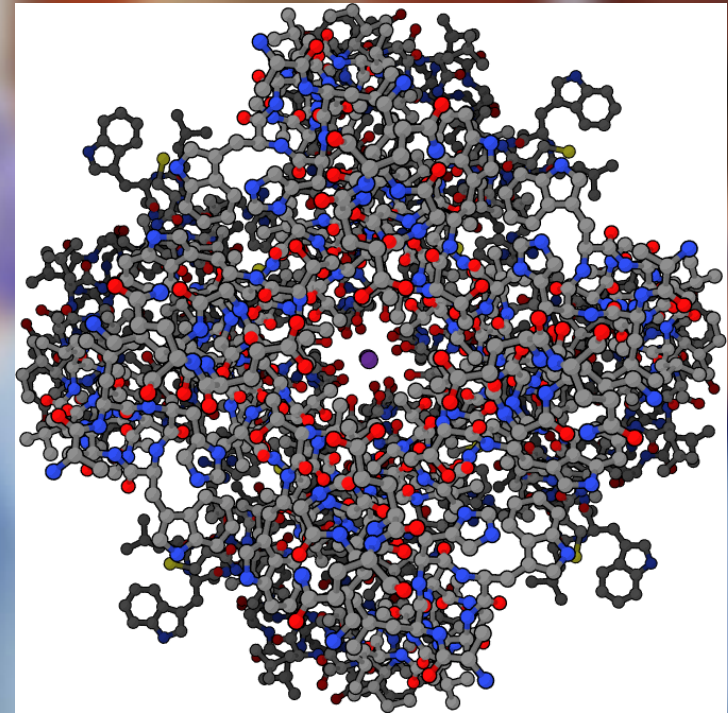
Neuroscience

- The nervous system under normal conditions and in relation to disease.
- Understanding schizophrenia and how diabetes causes nerve cell damage.



Pharmacology

- The study of drugs and how they work to combat disease; the effects of drugs on the body and the body on drugs.



Bioscience portfolio

- Anatomy, Developmental & Human Biology BSc
- Biochemistry BSc/MSci
- Biomedical Science BSc
- Medical Physiology BSc
- Molecular Genetics BSc
- Neuroscience BSc/MSci
- Pharmacology BSc
- Pharmacology & Molecular Genetics BSc

Biomedical Sciences

- Flexible interdisciplinary degree programmes
- Taught in one of Europe's largest centres for medical and professional healthcare education
- Exceptional history of success, including our part in finding the structure of DNA
- Research-informed teaching
- Excellent graduate employment rates



Bioscience programmes...

- Follow a Common Year One curriculum.
- Allow you to change your degree at the start of your second year.
- Have a strong emphasis on gaining lab skills, including experiment design, data analysis and presentation skills.
- Offer a wide choice of optional modules in Years 2 and 3.

MSci degree programmes

- Four-year degree programmes.
- Perfect foundation for research careers.
- Includes extended research project.



Also..

- International Exchange Programme
- Extramural Year
- Summer Research Project
- Associateship of King's College



Other Health programmes

Biomedical Engineering

Dentistry

Nutrition & Dietetics

Nursing

Medicine

Midwifery

Pharmacy

Psychology

Physiotherapy



From labs to law:
diverse career
opportunities

Your future

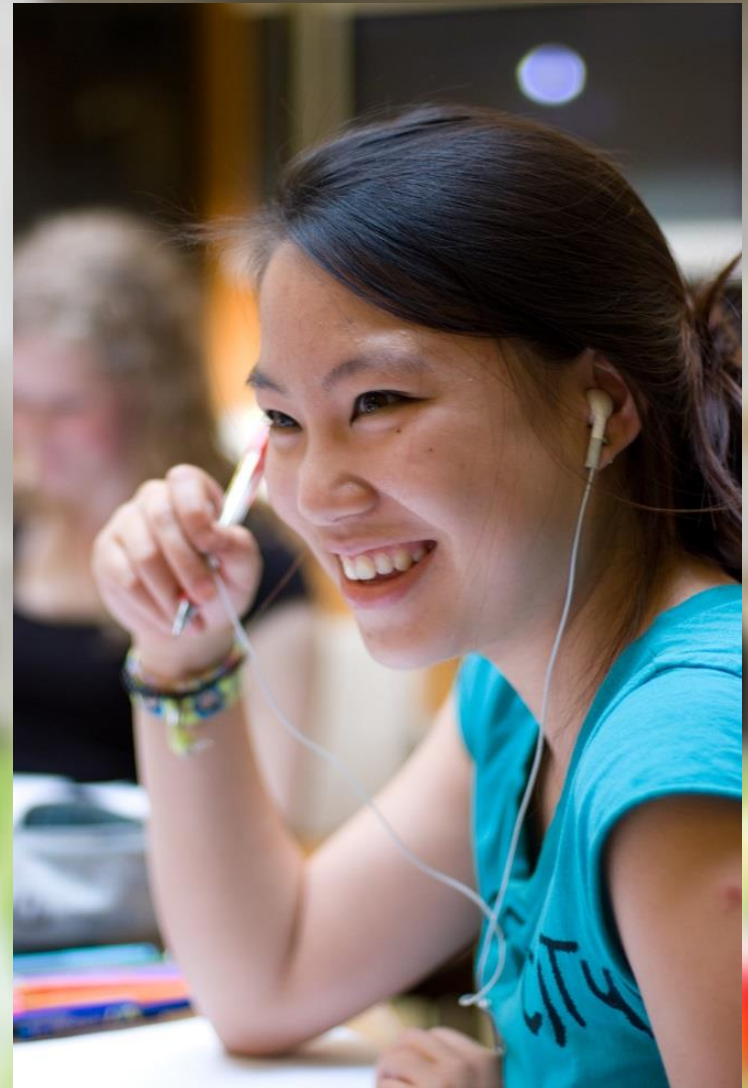
Lab-based careers

- **Pharmaceutical industry**
 - Regulatory Affairs Researcher, Proctor & Gamble
 - Pharmaceutical Developer, Merck
 - Pharmacologist, Novartis
- **Biotechnology sector**
 - Clinical Research Associate Trainee, Parexel
- **NHS**
 - Pathology Lab Worker
- **Academia**
 - Drug Trials Researcher, Institute of Neurology



Careers away from the bench

- Science communications, including journalism, publishing or medical writing
- Science policy
- Regulatory affairs
- Commercial/support functions in pharmaceutical and biotech industries
- Government



Non-science careers

- **Business, management and consultancy**
 - Management Consultant, Ernst & Young
 - Sales Trader, Morgan Stanley
 - Strategy Analyst, JP Morgan Chase
- **Legal and accounting**
 - Trainee Accountant, PWC
- **Marketing**
 - Marketing Assistant, software consultancy



Further study: at King's or beyond...

- One-year MSc or MRes programmes.
- Three or four-year PhD programmes.



STOP PRESS

Sports & Exercise Medical Sciences BSc NEW

-Focus on *science* that underpins our understanding of human performance and what affects and enhances the performance of elite athletes

-*Clinical strand* focusing on understanding of the effect of exercise on health improvement.

-*Application of science* including nutrition, psychology and physiology

Few institutions carry out research on human physiology which encompasses such a diverse range.

