



T-Club Xtra

A Degree in Developmental Biology?

Developmental Biology... ... More than just making babies.

Now's the time you get to decide what degree subject to specialise in at Levels 3 and 4. Some of you won't have considered Developmental Biology, so this is your chance. What is Developmental Biology? It *is* partly about making babies of course... the study of human embryology, reproductive biology and anatomy. And with good reason, because the study of so-called birth defects, their causes and the development of new genetic and molecular therapies, is one of the greatest challenges facing medical science today. There is also a worldwide shortage of clinical embryologists that the Developmental Biology degrees are intended to address.



What many people don't realise is how much else we cover in the Dev Biol degrees. Stem Cells for example. We guarantee that you cannot throw a stone at the internet or a newspaper without hitting an article about the development and use of stem cell technology for treatment of human disease and injury. Stem Cell biology falls under the Developmental Biology umbrella and you get to learn about embryonic and adult stem cells, up to and including the most recent research into the production of human stem cells by cloning technology. There are quite a lot of BMS students out there with intentions to go into Medicine, and while Physiology or Anatomy are obvious (and appropriate!) options, Developmental Biology, with its emphasis on embryology, stem cells, regeneration and wound healing is a fantastic foundation for a future medical degree.

For example, most cancers have a stem cell origin and all cancers represent the inappropriate activation of embryological processes in the wrong place at the wrong time - cancer biology is developmental biology, and you can learn all about the causes and mechanisms of cancer. Several Dev Biol graduates are now working in cancer labs. Over the course of the Developmental Biology degree, you can also look at the evolution of the body plan.... Think for example about how humans evolved from a great ape ancestor, with our big brains and wimpy bodies, or more broadly the evolution of legs from fins when vertebrates crawled onto land – these are developmental biology problems and the study of evolution is intertwined with developmental biology.



The developmental biology degrees train you up in everything you need to know to progress to a career in science. If you are looking for a 'proper' science degree that will allow you to learn all the molecular and cell biology, anatomy and genetics you will ever need to work in the top labs and industries worldwide, with direct relevance to understanding human health, fertility and disease, Developmental Biology is a good option for you.

Doing a degree in Developmental Biology.

The degree comes in two flavours – BSc Biomedical Science (Developmental Biology) is open to all BSc BMS students who have done Anatomy A and B at Level 2; BSc Human Embryology and Developmental Biology is open to everyone else. Important to realise that there is NO difference between the degrees at Levels 3 and 4, and whatever option you take, once you graduate you will head out with a BSc degree as good as from any other University in the World. If this is what you want, tell your Advisor of Studies at the start of Level 3 and they will sign you up. The MSci with Industrial Placement is always an option too. As always, if you want to discuss the options, please contact the Degree Programme Coordinator, Martin Collinson (m.collinson@abdn.ac.uk).

The Teaching Team.

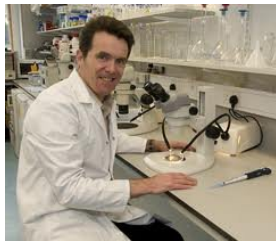
Who teaches Developmental Biology at Levels 3 and 4?

As with other degrees in the School of Medical Sciences, you will do Core Courses shared with other subjects, so to a large extent the people who teach you at levels 1 and 2 will be the same faces you meet at levels 3 and 4. On top of this, for your Dev Biol lectures, you will see these people – all front line research scientists with a passion for developmental biology, stem cells, human health, fertility and disease.

To date, 40% of our graduates have left with 1st class degrees and we are ready for the next batch!



Dr Martin Collinson (Degree Programme Coordinator)
Researches stem cell biology, cell migration, genetics of blindness and limb development, human fertility and birth defects.
Course Coordinator for DB3804 Development of Organ Systems and BM4010 Stem Cells and Regeneration.



Dr Neil Vargesson
Researches the physiology and genetics of limb development. Dr Vargesson was the first to discover how thalidomide causes limb defects by killing blood vessels in the developing limb.
Course Coordinator for DB3005 Principles of Developmental Biology.



Professor Lynda Erskine
Researches axon guidance in the visual system. Eye development.
Course Coordinator for AN3301 Human Embryology.
Council member of the British Society for Developmental Biology.



Dr Ann Rajnicek
Axon guidance, cell migration and spinal cord repair in vertebrates. Stem cell biology of flatworms that can regenerate 250 little worms if you chop an adult into 250 pieces.
Course Coordinator for PY4302 Developmental Neuroscience.

Who teaches Developmental Biology at Levels 3 and 4? Cont.



Professor Stefan Hoppler
Heart development and regeneration. Wnt signalling systems driving early embryogenesis.
Colorectal cancer. Cardiac stem cells.
Course Coordinator for DB3803 Patterning the Embryo.

Professor Cosimo De Bari

Stem Cells of the musculoskeletal system. Skeletal development and repair. Osteoarthritis. <http://www.abdn.ac.uk/news/details-13883.php>



Dr Jonathan Pettitt
Molecular and cell biology of epithelia, organogenesis and control of gene activity in nematode worms.
Course Coordinator for DB3501 Developmental Genetics and DB4002 Evolution and Development.

Professor Iain Gibson

Development of biomaterials to support regeneration of the skeletal system and CNS.



Professor Kevin Docherty
Stem cells of the pancreas. Pancreatic cell reprogramming for treatment of diabetes.

Professor Paul Fowler

Molecular biology of human fertility and infertility. Human reproduction.
Course Coordinator for DB3502 Reproductive Biology.



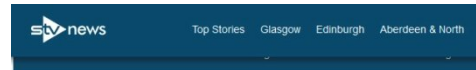
Professor Peter McCaffery
Role of Vitamin A / retinoids in brain development and behaviour.
Includes the study of brain stem cells and the role of retinoid drugs in depressive illness.

For more details of the Molecular Biology degrees, see T-Club 5 which can be accessed at <http://www.abdn.ac.uk/staffpages/uploads/bms230/TClubDec12.pdf>

ABERDEEN DEVELOPMENTAL BIOLOGISTS IN THE NEWS



Natalie Gibb (Stefan Hoppler's lab) is the new face of the British Heart Foundation's 'We hate heart disease' campaign on tv.



Aberdeen & North Scientists make thalidomide breakthrough


STV 11 May 2009 21:45 BST Tweet 0 Like 0



Neil Vargesson explains his latest thalidomide research to STV



Ann Rajnicek and her students won a prize for Public Engagement with their fluffy Planaria at the British Science Festival



"Infertility is an under-researched condition that can destroy people's lives. It needs to be recognised as a public health issue in the developing world."

Dr Siladitya Bhattacharya, Aberdeen

Prof. Bhattacharya explains the work of the Aberdeen Fertility Clinic in India Today



Arthritis news Press releases

Aberdeen researchers in new stem cell research into osteoarthritis

Published on 24 May 2013
Medical research charity Arthritis Research UK has awarded £184,000 to a team of researchers at the University of Aberdeen to study stem cells found naturally present in people's joints in order to develop new treatments for joint problems such as osteoarthritis.

The research team at the University of Aberdeen, consisting of Professor Cosimo De Bari, Dr Arnie Poole and Dr Andrea Angelini, will use their three year grant to study the role of adult stem cells in preventing or repairing joint damage.

One of the key questions that the researchers hope to answer is where stem cells in the joint originate from. The team hope their findings will lead to the development of new treatments that can prevent or halt osteoarthritis at its early stages.



Lead researcher Professor De Bari heads up in Aberdeen the charity's ground-breaking tissue engineering centre launched at the University last year by former Aberdeen footballing star Willie Miller. This new research will build on existing work into stem cells and osteoarthritis.

One in six people are affected by osteoarthritis in the UK, a painful and debilitating disease that causes irreversible damage to people's cartilage and bones. The disease occurs when the cartilage, 'cushion' between the bones of the joint gradually erodes, leading to rubbing of bone on bone. The most commonly affected joints are knees, hips, spine and hands.

Cosimo De Bari gets another grant for stem cell research - osteoarthritis this time.

Thursday, October 19, 2006

Could this be start of miracle cure for cancer?

Breakthrough in battle with illness

By Lynn Korman

AN Aberdeen scientist is a step closer to finding a possible breakthrough in the treatment of cancer. Ground breaking research by Dr Martin Collinson, along with an international team, could help with the development of drugs for the disease.

The discovery was made while Dr Collinson and his colleagues were researching eye function.

"They found a molecule in the eye which stops blood vessels from growing. And the research could now be applied to cancerous tumours."

Cancer Research UK information officer Joanne Quirk said: "Cancers need oxygen and nutrients to grow and they do this by attracting their own supply of blood vessels."

"This discovery research adds to our understanding of the molecules involved in this process."

"It will be interesting to see if this discovery may one day help scientists to develop new treatments that stop blood vessels from growing."

Dr Collinson said: "We are now working in a lab and develop a drug to stop the growth of blood vessels. Drugs may also be produced to increase the growth of blood vessels to treat another big killer heart disease."

Dr Collinson, a senior lecturer at Aberdeen University, said: "This knowledge will help to treat diseases like cancer, heart disease, rheumatoid arthritis and stroke as well as eye disorders. The cornea is our window on the world - if it contained blood vessels it would not be transparent and we would not be able to see. If you could see normal eyes you will see blood vessels on the whites of the eye but these stop at the cornea."

"Cancers need oxygen to grow"

Breakthrough: Dr Martin Collinson and colleagues have found a link between eye research and blood vessel growth.

Next time you see Martin Collinson, ask him how his miracle cure for cancer is coming along.