University of Birmingham

Dr Martyn Chidgey PhD

Contact details

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About

Martyn Chidgey is a lecturer in the School of Cancer Sciences. His main research interest is in the biology of desmosomes, intercellular junctions of epithelial tissues and cardiac muscle. He has published numerous research papers, reviews, book chapters and encyclopaedia entries on the topic. Martyn is heavily involved in teaching and lectures to medical, dental and science undergraduate students.

Qualifications

- PhD Biochemistry 1983
- BSc Biochemistry 1979

Biography

Martyn Chidgey qualified with a BSc and PhD in Biochemistry from Cardiff University. He subsequently worked as a research fellow at a number of UK institutions including St. Mary's Hospital Medical School (now part of Imperial College), Leicester University and the University of Manchester. Martyn developed his research interest in desmosomes whilst in the last of these posts. He joined the University of Birmingham as a lecturer in 1999, and has continued his work on desmosomes and their role in human disease.

Teaching

Module coordinator for:

- Introduction to biomedical sciences (BDS Year 1)
- Clinical sciences: clinical chemistry (MBChB Year 3)

Coordinator for special study modules (student projects):

- Diseases of the skin (MBChB Year 2)
- Skin blistering disease and cancer (MBChB Year 3)

Lecturer and small group teacher for BDS, MBChB and BMedSc students. Personal mentor for MBChB and BMedSc courses.

Postgraduate supervision

Martyn is interested in supervising doctoral research students in the following areas:

- The cell, molecular and structural biology of desmosomes and their proteins

If you are interesting in studying any of these subject areas please contact Martyn on the contact details above, or for any general doctoral research enquiries, please email: dr@contacts.bham.ac.uk (mailto:dr@contacts.bham.ac.uk) or call +44 (0)121 414 5005.

For a full list of available Doctoral Research opportunities, please visit our Doctoral Research programme listings.

Research

The main focus of Martyn's laboratory is to investigate the role of desmosomes in the biology of epithelial tissues and cardiac muscle, both in normal development and disease. Desmosomes are intercellular junctions that are essential for the maintenance of tissue integrity, and are abundant in tissues such as the skin and heart, that are subjected to mechanical stress. Loss of desmosomal adhesion can result in devastating skin blistering diseases such as pemphigus, and unexpected heart failure in arrhythmogenic right ventricular cardiomyopathy (ARVC). Martyn is interested in the role of desmosomes in cell differentiation, wound healing and cancer. He is working on the structural biology of desmosomal proteins such as desmocollin, desmoglein and desmoplakin, and is using techniques such as nuclear magnetic resonance, X-ray crystallography and cryo-electron microscopy to learn about their structure and interactions at the molecular level.

Publications

Al-Jassar, C., Bikker, H., Overduin, M. and Chidgey, M. (2013). Mechanistic basis of desmosome-targeted diseases. J. Mol. Biol. 425, 4006-4022.

Al-Jassar, C., Bernado, P., Chidgey, M. and Overduin, M. (2013). Hinged plakin domains provide specialized degrees of articulation in envoplakin, periplakin and desmoplakin. PLoS ONE 8, e69767.

Chidgey, M. (2012). Plakin proteins, hemidesmosomes and human disease. *Encyclopedia of life sciences* John Wiley and Sons Ltd. http://www.els.net (http://www.els.net/) [DOI: 10.1002/9780470015902.a0024527]

Al-Jassar C, Knowles T, Jeeves M, Kami K, Behr E, Bikker H, Overduin M, Chidgey M. (2011). The non-linear structure of the desmoplakin plakin domain and the effects of cardiomyopathy-linked mutations. J. Mol. Biol. 411, 1049-1061.

Chidgey, M. (2011). Human disease and the desmosome. In *Encyclopedia of life sciences.* John Wiley and Sons Ltd. **http://www.els.net (http://www.els.net/)** [DOI: 10.1002/9780470015902.a0006099]

Kami K, Chidgey M, Dafforn T, Overduin M. (2009). The desmoglein-specific cytoplasmic region is intrinsically disordered in solution and interacts with multiple desmosomal protein partners. J. Mol. Biol. 386, 531-543.