University of Birmingham

Dr Vivek Dhir PhD

Lecturer in Molecular Endocrinology
MPharm Admissions Tutor - Endocrinology, Diabetes and Metabolism

Endocrinology, Diabetes and Metabolism

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About

Vivek Dhir is a Lecturer in Molecular Endocrinology and has published a number of high impact research papers in scientific journals as well as reviews in the fields of endocrinology, metabolism and genetics. He has received major grants from the Welcome trust and The MRC.

Vivek is keen to talk about his science and gives frequent seminars to various groups at the local, national and international level, and is active in both undergraduate and postgraduate studies development

Qualifications

- PGCert LTHE
- PhD Biochemistry/Cell Biology
- MRes Biological Sciences
- BSc (Hons) Genetics

Biography

Vivek Dhir qualified with a BSc (Hons) in Genetics and a MRes in biological sciences from the University of Manchester. He went on to study for a PhD in Biochemistry and Cellular Biology at Imperial College, University of London.

Subsequently Dr Dhir joined the Centre for Endocrinology, Diabetes and Metabolism at the University of Birmingham in 2004 and was appointed as Lecturer in Molecular Endocrinology 2011.

Dr Dhir is an active member of the Society for Endocrinology and locally sits on the School of Clinical and Experimental Medicine Postgraduate studies annual review Committee and acts as a personal mentor to PhD students. Dr Dhir is also the Admissions Tutor for the MPharm (Pharmacy) programme.

Teaching

Teaching Programmes

- **Pharmacy MPharm (4 year)** (/undergraduate/courses/med/pharmacy-4-year.aspx)
  - Module Coordinator “Health,Disease and Therapeutics 1-2”
- **Medical Science BMedSc** (/undergraduate/courses/med/medical-sci.aspx)
  - Module Coordinator “Molecular Medicine”
  - Module Coordinator“Endocrinology and Reproduction”
- **Clinical Science BMedSc - Intercalated Degree** (/undergraduate/courses/med/ClinicalScienceBMedSc-IntercalatedDegree.aspx)
  - Module Coordinator “Endocrinology”
- **Medicine and Surgery MBChB** (/undergraduate/courses/med/medicine.aspx)
- MRes

Postgraduate supervision

Dr Dhir is interested in supervising doctoral research students in the following areas:

- The role of sulphation in disorders of the adrenal and liver
- Intracellular trafficking of steroids

If you are interesting in studying any of these subject areas please contact Dr Dhir 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.** (http://www.bham.findaphd.com/?es=y&apl=y&aplt=&show) .

Research

RESEARCH THEMES

Pre receptor steroid metabolism, Sulphation and steroid hormone metabolism, translational steroid physiology, healthy aging, intracellular trafficking.

RESEARCH BACKGROUND

The conjugation of a sulphate group (sulphation) to small molecules has an integral and essential role in living organisms. In mammalian physiology, the sulphation system is important for detoxifying drugs, food additives, and toxins from intestinal bacteria or the environment. In humans, defects to the sulphation pathway result in a broad range of clinical phenotypes ranging from neurological disorders, severe bone phenotypes and disorders of androgen synthesis. Critically, sulphation is dependent upon provision of the universal sulphate donor 3'-phosphoadenosine 5'-phosphosulfate (PAPS) by PAPS synthase (PAPSS).

RESEARCH FOCUS

Sulphation

Dr Dhir's research focuses primarily on the involvement of the sulphation pathway in regulating sex steroids such as Dehydroepiandrosterone (DHEA) synthesised in the adrenal gland. Vivek has a major interest in the molecular mechanisms by which PAPSS regulates sulphation and to examine underlying cellular events that control conversion of DHEA to its sulphate ester DHEAS. The aim is to establish a link between these mechanisms and the clinical manifestations observed in patients with disorders related to deficiencies in sulphation. This work will be extended to study the links between these deficiencies and drug detoxification in the liver in which sulphation plays an important role.

Steroid Trafficking

Intracellular movement of steroids is of great interest since defects in such processes can be linked to clinical manifestation of hormone disease. Dr Dhir is interested in studying the intracellular movement of steroid hormones with the aim to identify the important components of the cellular trafficking machinery that are required for hormone function. In particular, Vivek works alongside physicists to develop powerful microscopy based tools for such studies.

Other activities

Member of the Society for Endocrinology

Publications

Idkowiak J, Lavery GG, **Dhir V**, Barrett TG, Stewart PM, Krone N and Arlt W (2011) Premature adrenarche: novel lessons from early onset androgen excess. *Eur J Endocrinol* 165(2):189-207

Idkowiak J, Malunowicz EM, **Dhir V**, Reisch N, Szarras-Czapnik M, Holmes DM, Shackleton CHL, Davies JD, Hughes IA, Krone N and Arlt W (2010) Concomitant mutations in the P450 oxidoreductase and androgen receptor 2 genes presenting with 46,XY disordered sex development and androgenization at adrenarche.*J Clin Endocrinol Metab* 95(7):3418-27

Parajes S, Loidi L, Reisch N, **Dhir V**, Rose IT, Hampel R, Quinkler M, Conway GS, Castro-Feijóo L, Araujo-Vilar D, Pombo M, Dominguez F, Cole TR, Kirk JM, Kaminsky E, Rumsby G, Arlt W and Krone N (2010) Functional Consequences of Seven Novel Mutations in the *CYP11B1* Gene - Four Mutations Associated with Non-Classic and Three Mutations Causing Classic 11β-Hydroxylase Deficiency. *J Clin Endocrinol Metab 95(2):779-88*

Dhir V, Noordam C, McNelis JC, Schlereth F, Hanley NA, Krone N, Smeitink JA, Smeets R, Sweep FC, Claahsen-van der Grinten HL and Arlt W (2009) Inactivating PAPSS2 Mutations in a Patient with Premature Pubarche. *N Engl J Med* 360(22):2310-8

Dhir V, Reisch N, Bleicken CM, Lebl J, Kamrath C, Schwarz H, Grotzinger J, Sippell WG, Riepe FG, Arlt W and Krone N (2009) Steroid 17α Hydroxylase deficiency: Functional Characterization of four mutants (A174E, V178D, R440C, L465P) in the *CYP17A1* gene. *J Clin Endocrinol Metab* 94(8):3058-64

Bleicken C, Loidi L, **Dhir V**, Parajes S, Quinteiro C, Dominguez F, Grötzinger J, Sippell GW, Riepe FG, Arlt W and Krone N (2009) Functional characterization of three CYP21A2 sequence variants (p.A265V, p.W302S, p.D322G) employing a yeast co-expression system. *Hum Mutat* 30(2):E443-50

Dhir V, Ivison HE, Krone N, Shackleton CH, Doherty AJ, Stewart PM and Arlt W. Differential inhibition of CYP17A1 and CYP21A2 activities by the P450 oxidoreductase mutant A287P. *Mol Endocrinol* 21(8):1958-68

Plumb DA, **Dhir V**, Mironov A, Ferrara L, Poulsom R, Kadler KE, Thornton DJ, Briggs MD and Boot-Handford RP (2007) Collagen XXVII is developmentally regulated and forms thin fibrillar structures distinct from those of classical vertebrate fibrillar collagens. *J Biol Chem* 282(17):12791-5