Katedry genetiky a biochémie PriF UK
a občianske združenie *NATURA*

Vás pozývajú na 113. prednášku v rámci Kuželových seminárov:

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A NEW LINK BETWEEN AZOLE RESISTANCE PATHWAYS IN *CANDIDA GLABRATA*

ktorá sa uskutoční **17. septembra 2019** (utorok) o **11:00**

v miestnosti CH1-222 Prírodovedeckej fakulty UK

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W. Scott Moye-Rowley is a Professor of Molecular Physiology and Biophysics at the University of Iowa Carver College of Medicine.

For nearly 30 years, my laboratory has been studying the molecular circuitry underlying drug resistance in eukaryotic microbes. This application focuses on the molecular basis of azole drug resistance by Candida glabrata. My group has carried out detailed structure and function mapping of the key drug resistance determinant Pdr1 which is responsible for transcriptional activation of most of the genes involved in azole resistance, including the ABC transporter-encoding CDR1 gene. We have also examined the roles of a second type of membrane transporter protein called the major facilitator superfamily for their roles in drug resistance. More recently, we have used biochemical approaches to identify a novel regulator of Pdr1 function called Bre5 and determined this is a negative regulatory input for drug resistance. We also made the surprising discovery that genetically depleting Erg11 (encodes target enzyme of azole drugs) was sufficient to activate Pdr1 even in the absence of azole drugs. This argues that, while azole drugs can induce Pdr1, this actual inducer may be the lowered flux through the ergosterol pathway. Induction of Pdr1 occurs in large part via elevation of transcription of the PDR1 gene by the ergosterol-repressible transcription factor Upc2A. Upc2A has been shown to be involved in expression of genes like ERG11 that encode steps in the ergosterol biosynthetic pathway. In preliminary ChIP-seq data, we have found that a large number of Pdr1-regulated genes are also targets of Upc2A, consistent with the notion that these pathways are physiologically linked.

Selected Recent Publications

1. Vu BG, Thomas GH, Moye-Rowley WS. Evidence that Ergosterol Biosynthesis Modulates Activity of the Pdr1 Transcription Factor in *Candida glabrata*. MBio. 2019 Jun 11;10(3). pii: e00934-19. doi: 10.1128/mBio.00934-19. PubMed PMID: 31186322; PubMed Central PMCID: PMC6561024.
2. Paul S, McDonald WH, Moye-Rowley WS. Negative regulation of *Candida glabrata* Pdr1 by the deubiquitinase subunit Bre5 occurs in a ubiquitin independent manner. Mol Microbiol. 2018 Oct;110(2):309-323. doi: 10.1111/mmi.14109. Epub 2018 Sep 30. PubMed PMID: 30137659; PubMed Central PMCID: PMC6348483.
3. Vu BG, Moye-Rowley WS. Construction and Use of a Recyclable Marker To Examine the Role of Major Facilitator Superfamily Protein Members in *Candida glabrata* Drug Resistance Phenotypes. mSphere. 2018 Mar 28;3(2). pii: e00099-18. doi: 10.1128/mSphere.00099-18. eCollection 2018 Mar-Apr. PubMed PMID: 29600281; PubMed Central PMCID: PMC5874441.
4. Khakhina S, Simonicova L, Moye-Rowley WS. Positive autoregulation and repression of transactivation are key regulatory features of the *Candida glabrata* Pdr1 transcription factor. Mol Microbiol. 2018 Mar;107(6):747-764. doi: 10.1111/mmi.13913. Epub 2018 Feb 12. PubMed PMID: 29363861; PubMed Central PMCID: PMC5842128.

Complete List of Published Work in MyBibliography: http://www.ncbi.nlm.nih.gov/sites/myncbi/w.moye-rowley.1/bibliography/40326859/public/?sort=date&direction= descending

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Illinois, Champaign, IL	BS	05/1981	Biochemistry
Purdue University, West Lafayette, IN	PhD	12/1986	Biochemistry
California Institute of Technology, Pasadena, CA	Postdoc	09/1989	Molecular Analysis of Transcription Factors

Positions and Honors

Positions and Employment

1981 - 1986	Graduate Research Assistant, Purdue University, West Lafayette, IN
1986 - 1989	Postdoctoral Fellow, California Institute of Technology, Pasadena, CA
1989 - 1995	Assistant Professor, University of Iowa, Iowa City, IA
1995 - 2002	Associate Professor, University of Iowa, Iowa City, IA
2002 -	Professor, University of Iowa, Iowa City, IA
2005 -	Executive Associate Chair, Dept. Mol. Physiol. & Biophys., University of Iowa, Iowa City, IA

Other Experience and Professional Memberships

1985 -	Member, American Society for Microbiology
1986 -	Member, American Society for Biochemistry and Molecular Biology
1991 -	Member, Genetics Society of America
2010 -	Member, American Society for Cell Biology
2012 - 2018	Permanent Member, Pathogenic Eukaryotes Study Section, NIH
2014 - 2015	Chair-Division X, American Society for Microbiology
2015 - 2016	Councilor-Division X, American Society for Microbiology

Honors

1986	A.K. Balls Award for Graduate Research, Purdue University
1986	Postdoctoral Fellow of the American Cancer Society, American Cancer Society
1995	Established Investigator Award, American Heart Association
1998	Fellowship, Japan Society for the Promotion of Science
2017	2017 First Tennessee Chair Distinguished Visiting Professor