



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



Vás pozývajú na 134. prednášku v rámci Kuželových seminárov:

dr. Richard Lee

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GOING BIG AND SMALL TO FIND TREATMENTS FOR CHRONIC INFECTIONS

ktorá sa uskutoční **16. apríla 2025** (streda) o **13:30**
v miestnosti **CH1-222** Prírodovedeckej fakulty UK

<http://www.naturaoz.org/seminare.html>
<http://www.naturaoz.org/KuzeloveSeminare.html>

Richard Lee, PhD.

2009-present Member, St Jude Children's Research Hospital

2000-2009 Assistant to Full Professor, Department of Pharmaceutical Sciences, University of Tennessee Health Science Center

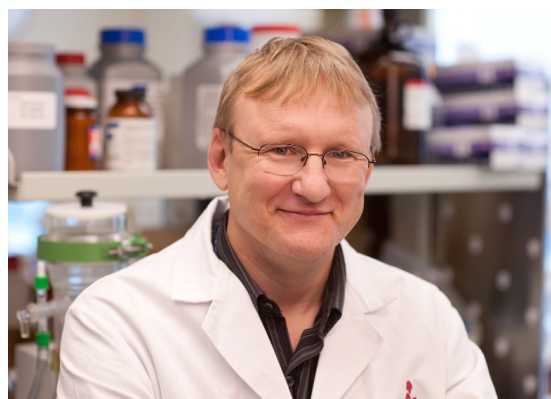
1998-2000 Staff Scientist NIAID, National Institutes of Health, USA

1996-1998 Post doc Dept of Chemistry, Oxford, UK

1993-1996 Post doc Dept of Microbiology, Colorado State University, USA

1989-1993 PhD Organic Chemistry, University of Newcastle-upon-Tyne, UK

1986-1989 BSc. Department of Chemistry, University of Newcastle-upon-Tyne, UK



Synopsis of the talk

Finding new treatments for antibiotic-resistant infections is hard, especially for those who form chronic infections that often require months of therapy and are prone to further resistance development. This talk will discuss the challenges of new antibiotic discovery from a chemical and clinical perspective. Then, using two contrasting examples, I will first discuss our efforts to find treatments for persistent/biofilm *Staphylococcus aureus* infections using hybrid antibiotics; then, secondly, I will discuss our efforts on how to turn intrinsic resistance in *Mycobacterium abscessus* against itself using a prodrug approach. Both these studies use a mechanistic understanding of drug action to advance their respective programs, and unpublished data will be presented in this talk.

Selected publications:

Sophisticated natural products as antibiotics. Lewis K, Lee RE, Brötz-Oesterhelt H, Hiller S, Rodnina MV, Schneider T, Weingarh M, Wohlgemuth I. *Nature*. 2024 Aug;632(8023):39-49. PMID: 39085542

Ureadepsipeptides as ClpP Activators. Griffith EC, Zhao Y, Singh AP, Conlon BP, Tangallapally R, Shadrack WR, Liu J, Wallace MJ, Yang L, Elmore JM, Li Y, Zheng Z, Miller DJ, Cheramie MN, Lee RB, LaFleur MD, Lewis K, Lee RE. *ACS Infect Dis*. 2019 Nov 8;5(11):1915-1925. PMID: 31588734

Development of 2nd generation aminomethyl spectinomycins that overcome native efflux in *Mycobacterium abscessus*. Phelps GA, Cheramie MN, Fernando DM, Selchow P, Meyer CJ, Waidyarachchi SL, Dharuman S, Liu J, Meuli M, Molin MD, Killam BY, Murphy PA, Reeve SM, Wilt LA, Anderson SM, Yang L, Lee RB, Temrikar ZH, Lukka PB, Meibohm B, Polikanov YS, Hobbie SN, Böttger EC, Sander P, Lee RE. *Proc Natl Acad Sci U S A*. 2024 Jan 9;121(2):e2314101120. PMID: 38165935

Development of tetracycline analogues with increased aqueous stability for the treatment of mycobacterial infections. Liu J, Phelps GA, Dunn CM, Murphy PA, Wilt LA, Loudon V, Lee RB, Fernando D, Yang L, Tran KN, Troyer BT, Obregon-Henao A, Lee RE. *Tuberculosis (Edinb)*. 2025 Jan;150:102592 PMID: 3970861