

Oscillatory Mitochondrial Energy Sensing Via ADP Privation: From Mitochondrial GTP to Beta-Cell Therapy

November 19

Tuesday, 12:30 pm

Weekly Colloquium

Billings Building
Rosedale Conference Room



Speaker: Richard Kibbey, M.D., Ph.D.

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Departments of Internal Medicine/
Endocrinology
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New Haven, CT

Host: Rajiv R. Ratan, M.D., Ph.D.

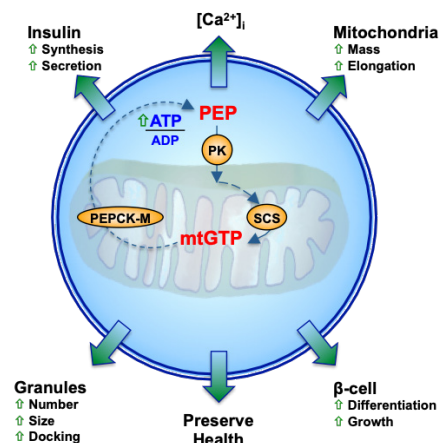
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Abstract

Dr. Kibbey is a clinically-active physician scientist dedicated to the treatment of diabetes and other metabolic diseases. Mitochondria, as the primary sites of consumption and production of metabolites and energy, are central to regulation of insulin secretion and glucose production. Mitochondria, therefore, require mechanisms to 'sense' their own metabolic environment in order to efficiently respond to supply and demand termed 'metabolic equilibration.' He has developed a special expertise in measuring the flow of intermediary metabolism and built the LC/MS/MS method Mass Isotopomeric Multi-Ordinate Spectroscopic Analysis (MIMOSA) as a technique to resolve the complex and interwoven isotopomer patterns generated by mitochondrial metabolism. With this strength he is sought out in academia and industry as co-author or co-investigator in studies of diabetes as well as many other branches of metabolism. As such, he runs a YCC and DRC sponsored MIMOSA/metabolomics core, a spin-off company, and directs a graduate class in bioenergetics and metabolism.



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2. Jesinkey S, Madiraju AM, Alves TC, Yarborough O, Cardone RL, Zhao X, Parsei Y, Nasiri A, Butrico G, Liu X, Molina A, Neal A, Sterpka J, Philbrick W, Sweet I, Shirihai O, *Kibbey RG, (2019) Mitochondrial GTP links nutrient sensing to β -cell health, mitochondrial morphology and insulin secretion independent of OxPhos Cell Reports 28(3):759-772 PMC6713209
3. Gassaway BM, Cardone RL, Padyana AK, Petersen MC, Judd E, Hayes S, Tong S, Barber KW, Apostolidi M, Abulizi A, Sheetz JB, Aerni HR, Kung C, Samuel VT, Shulman GI, Kibbey RG, Rinehart J, Distinct hepatic PKA and CDK signaling pathways control activity-independent pyruvate kinase phosphorylation and hepatic glucose production. (2019) Cell Reports (in press)