

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.
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NAME Joanne Keene Kelleher		POSITION TITLE Associate Physiologist Massachusetts General Hospital, Boston Research Scientist, MIT Department of Chemical Engineering	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
St. Louis University	B.S.	1969	Chemistry
Boston University	MA	1972	Biology
Boston University	Ph.D.	1976	Biology
Boston Biomedical Research Institute/ Harvard U	postdoctoral	1975-1978	Biochemistry

A. Positions and Honors. List in chronological order previous positions, concluding with your present position. List any honors. Include present membership on any Federal Government public advisory committee.

EMPLOYMENT:

Massachusetts General Hospital, Associate Physiologist, 2004-

MIT Visiting Professor of Chemical Engineering 2003-2004.

George Washington U. Medical Center

Assistant Professor of Physiology 1979-1985

Associate Research Professor of Physiology 1985- 1996

Research Professor 1996 – 2003

Professor Emeritus 2005-

HONORS:

Phi Beta Kappa, Beta Beta Beta, Biological Science Honor Society.

B.S. degree cum laude, honors program, Sigma Xi, NIH Predoctoral Trainee

NIH Postdoctoral Fellowship

NIH Special Emphasis Research Career Award - NIA, 1988-1993.

(Mathematical Modeling of Intermediary Metabolism in Aging).

NSF POWRE Award, 1999-2000 (Metabolic Engineering To Understand Metabolic Control)

Fellow, American Institute of Medical and Biological Engineers.

PROFESSIONAL ACTIVITIES

Editorial Board, American J. Physiology, Modeling in Physiology 1985 - present

Editorial Board, American J. Physiology, Endocrinology and Metabolism 1995 - present

Editorial Board, Journal of Biological Chemistry, 1998 - 2004

Associate Editor for Physiology, Metabolic Engineering, 2003-

B. Selected peer-reviewed publications

1. Murphy, A.N., J.K. Kelleher and G. Fiskum. 1990. Submicromolar Ca⁺² Regulates Respiration by Normal Rat Liver and AS-30D Hepatoma Mitochondria by Different Mechanisms. J. Biol. Chem., **265**: 10527-34.
2. Kelleher, J.K. and T.M. Masterson. 1992. Model Equations For Condensation Biosynthesis Using Stable Isotopes and Radioisotopes. Am. J. Physiol. **262**: E118-E125
3. Kharroubi, A.T., T.M. Masterson, T.A. Aldaghlis, K.A. Kennedy, and J.K. Kelleher. Isotopomer Spectral analysis estimates of triglyceride fatty acids Synthesis in 3T3-L1 cells. 1992. Am. J. Physiol. **263**: E667-E675.
4. Briscoe, D. A., Fiskum, G. Holleran, A.L. and J. K. Kelleher. 1994. Acetoacetate Metabolism in AS-30D Hepatoma Cells. Mol. Cell. Biochemistry **136**: 131-137.

5. Holleran, A.L., Briscoe, D. A., Fiskum, G. and J. K. Kelleher. 1995 Glutamine Metabolism in AS-30D Hepatoma Cells: Evidence for its Conversion into Lipid via Reductive Carboxylation. Mol. Cell. Biochemistry **152**: 95-101.
6. Masterson, T. M. and J. K. Kelleher. 1996. Spreadsheet Monte Carlo Modeling Of Stable Isotope Biosynthesis. Comput. Biology Med. **26**: 429-437.
7. Holleran, A.L., Fiskum, G. and J.K. Kelleher. 1997. Quantitative Analysis of Acetoacetate Metabolism in AS-30D Hepatoma Cells Using ¹³C and ¹⁴C Isotopic Techniques. Am. J. Physiol. **272**: E945-E951.
8. Lligona-Trulla L., A. Arduini, T. A. Aldaghlis, M. Calvani, and J. K. Kelleher. 1997. Acetyl-L-carnitine Flux To Lipids In Cells Estimated Using Isotopomer Spectral Analysis. J. Lipid Res. **38**: 1454-1462 .
9. Brunengraber, H., Kelleher, J.K. and C.R. DesRosiers. 1997. Applications of Mass Isotopomer Analysis to Nutrition Research. In press in Annual Review of Nutrition, Annual Reviews, Inc., Palo Alto CA. **37**: 559-596.
10. Holleran, A.L., B. Lindenthal, T. A. Aldaghlis . and J.K. Kelleher. 1998. Effect of Tamoxifen on Cholesterol synthesis in HepG2 and Cultured Rat Hepatocytes. Metabolism, **47**: 1504-1513.
11. Ricciolini, R., M. Scalibastri, J. K. Kelleher, M. Calvani, and A. Arduini. 1998. The Potential Role of Acetyl-L-Carnitine in Rat Brain Lipogenesis. An in vivo Study J. Neurochem. **171**: 2510-2517.
12. Kelleher, J.K. 1999. Estimating Gluconeogenesis with [U-¹³C]Glucose: Molecular Condensation Requires a Molecular Approach. Am. J. Physiol. **277**: E395-E400.
13. Lindenthal, B., Aldaghlis, T. A., Holleran, A. L., Ruan, B., Schroepfer, G. J. Jr, Wilson, W. K., and Kelleher, J. K. 2001 Progestins effect cholesterol synthesis to produce meiosis-activating sterols. FASEB J. **15**: 775-784.
14. Kelleher, J.K. 2001. Flux estimation using isotopic tracers: common ground for metabolic physiology and metabolic engineering. Metabolic Engineering: **3**: 100-110.
15. Lindenthal B., Aldaghlis T.A., Kelleher J.K., Henkel, S.M. Tolba, R. Haidl, G. and von Bergmann, K. 2001 Neutral sterols of rat epididymis: high concentrations of dehydrocholesterols in rat caput epididymidis. J. Lipid Res. **2001** **42**: 1089-1095.
16. Lindenthal B., Aldaghlis T.A., Holleran A.L., von Bergman K., Sudhop T., Berthold H.K., and Kelleher J.K. 2002. Isotopomer spectral analysis of cholesterol precursors in HepG2 cells and in Human Subjects. Am. J. Physiology. Endocrinol. Metab **282**: E1222-E1230
17. Poirier, M., G. Vincent, A. E. Reszko, B. Bouchard, J. K. Kelleher, H. Brunengraber, and R. C. Des. 2002. Probing the link between citrate and malonyl-CoA in perfused rat hearts. Am. J. Physiol Heart Circ. Physiol **283**: H1379-H1386.
18. Kelleher, J. K. 2004. Probing metabolic pathways with isotopic tracers: insights from mammalian metabolic physiology. Metab Eng **6**: 1-5.
19. Wong, M. S., R. M. Raab, I. Rigoutsos, G. N. Stephanopoulos, and J. K. Kelleher. 2004. Metabolic and transcriptional patterns accompanying glutamine depletion and repletion in mouse hepatoma cells: a model for physiological regulatory networks. Physiol Genomics **16**: 247-255.
20. Yoo, H., G. Stephanopoulos, and J. K. Kelleher. 2004. Quantifying carbon sources for de novo lipogenesis in wild-type and IRS-1 knockout brown adipocytes. J. Lipid Res. **45**: 1324-1332.
21. Bederman, I. R., A. E. Reszko, T. Kasumov, F. David, D. H. Wasserman, J. K. Kelleher, and H. Brunengraber. 2004. Zonation of labeling of lipogenic acetyl-CoA across the liver: Implications for studies of lipogenesis by mass isotopomer analysis. J Biol. Chem. **279**: 43207-43216
22. Bederman, I. R., T. Kasumov, A. E. Reszko, F. David, H. Brunengraber, and J. K. Kelleher. 2004. In vitro modeling of fatty acid synthesis under conditions simulating the zonation of lipogenic [¹³C]acetyl-CoA enrichment in the liver. J Biol. Chem. **279**: 43217-43226
23. Clarenbach, J.J., Lindenthal, B. Dotti, M.T., Federico, A., Kelleher, J.K. von Bergmann, K. 2005. Isotopomer Spectral Analysis of intermediates of Cholesterol Synthesis in Patients with Cerebrotendinous Xanthomatosis. Metabolism **54**: 335-344.

Current Research Projects

Amino acid Interrelationships and Metabolism in Burn Injury.
New Mass spectrometry methods for quantifying metabolic pathways.
Dynamic Metabolomics via Isotopomer Analysis