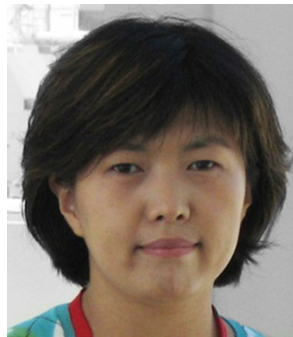


## Ingenuity<sup>®</sup> Science Spotlight:

Articles featured in the Ingenuity Science Spotlight represent some of the best and most diverse examples of how IPA<sup>®</sup> has contributed to research across multiple platforms, research areas, and research goals.



*“To understand better the features of cumulus cell gene expression that underlie good oocyte quality, and to identify novel markers of oocyte quality, we performed a transcriptome analysis of rhesus monkey cumulus cells from two conditions representing high and low quality (in vivo and in vitro maturation, respectively). IPA made it possible for us to explore the biological significance of large gene lists uncovered as differentially regulated. IPA guided us in uncovering important cellular processes affected in cumulus cells by conditions that alter oocyte quality, such as DNA replication and repair, cellular growth and proliferation, cell death, cell signaling, lipid metabolism, and small molecule biochemistry. Also, IPA’s Path Designer tool helped us visualize key interactions among the genes identified in our microarray analyses.”*



Young Lee, Graduate Student  
Temple University



Dr. Keith E. Latham, Ph.D.,  
Temple University

Keith E. Latham, Ph.D., Professor Associate Chair and Young Lee, Graduate Student  
The Fels Institute for Cancer Research & Molecular Biology, Department of Biochemistry  
Temple University School of Medicine, Philadelphia, PA

## Extensive effects of in vitro oocyte maturation on rhesus monkey cumulus cell transcriptome

American Journal of Physiology, Endocrinology and Metabolism. 2011 July. Y.S. Lee, C.A. Vandervoort, J.P. Gaughan, U. Midic, Z. Obradovic, K.E. Latham

This month, we feature research from Temple University’s Fels Institute for Cancer Research and Molecular Biology in Pennsylvania. Dr. Keith Latham, Young Lee, and their team used IPA to understand the importance of cumulus cell phenotype in regards to oocyte maturation with in vitro maturation. The team utilized an Affymetrix gene array to determine the changes in gene expression in rhesus monkey cumulus cells during the final day prior of oocyte maturation. IPA helped to identify a panel of 24 marker genes that are important for oocyte quality and could provide a foundation for how IVM can be improved. Specifically, IPA showed that the IVM-unique and VVM-unique genes were over-represented in molecular functions such as cellular growth and proliferation, cellular development and cell-to-cell signaling. IPA’s networks and pathways helped to visualize these expressed marker genes that are important for diagnosing oocyte quality. Their results were published in the July 2011 issue of the American Journal of Physiology, Endocrinology and Metabolism.

To read the full article, go to <http://www.ncbi.nlm.nih.gov/pubmed/21487073>