

## **Metabolic Profiling in Peripheral Blood and Skeletal Muscle Identifies Genetic Networks Mediating Exercise Training Responses**

William E. Kraus, Duke University Medical Center, USA

Metabolic profiling offers insight into the underlying metabolic networks mediating adaptations in energy metabolism during acute exercise and chronic exercise training. Small molecule metabolites in peripheral blood provide information regarding whole body adaptations, whereas those in skeletal muscle provide information about responses localized to skeletal muscle and information about the contribution of skeletal muscle to whole body metabolic adaptations to chronic exercise. Coordinating information derived from skeletal muscle adaptations in the domains of metabolism, gene expression and epigenetics can provide clues to genetic mediators of exercise training adaptations. The discussion will concentrate on the integrative molecular physiology of exercise training, focusing on the metabolome and how such information can be used to identify genetic mediators of exercise training.