

Metabolism and Translational Science Core

The Metabolism and Translational Science Core provides the infrastructure, laboratory space, trained personnel, consultative and collaborative scientific expertise and a wide spectrum of established methodologies of biochemistry and molecular biology (Northern, Western blot and Quantitative-PCR, enzyme-linked immunosorbent assays), genome-wide gene expression analysis using a novel microarray technology, analytical chemistry (liquid chromatography-mass spectrometry-mass spectrometry and gas chromatography mass spectrometry using stable isotope dilution techniques) and selected measures of metabolism (i.e., ATP measures and enzymes of metabolism) that will address a set of genetic and biological themes focused on causes for sarcopenia and disability.

The Metabolism and Translational Science Core utilizes this state-of-the-art technology to determine specific mechanisms of sarcopenia and the cause of reduced physical function present in elderly populations. The Core provides support for numerous independently funded studies, development projects, pilot studies and exploratory studies. Analyses of levels of biomarkers or cell signaling molecules will help to identify specific biological pathways of aging implicated in the development of sarcopenia. If the precise mechanisms underlying age-associated cellular deterioration can be identified, it will explain the loss of muscle mass and function with age and provide us with potential targets for intervention. In this context we will also test if specific rehabilitation, physical activity and dietary interventions can attenuate biological pathways leading to sarcopenia and functional impairment.