Plasma circulating FAS is a biomarker for peripheral arterial disease in setting of diabetes

Background Technology Description:
Diabetes is a chronic metabolic disorder characterized by hyperglycemia. Tissue fatty acid and phospholipid synthesis (phospholipogenesis) are significantly altered in diabetic patients leading to differential expression of lipid species in various tissue beds (e.g. heart, liver, adipose tissue). Plasma lipid abnormalities associated with diabetes are thought to contribute to atherogenesis and overall cardiovascular morbidity. Central to this is the enzyme Fatty Acid Synthase (FAS) that catalyzes synthesis of long chain fatty acids from acetyl-CoA and malonyl-CoA. It was recently found to circulate in the plasma (cFAS). FAS is essential for the lipogenic functions of the liver and adipose tissue, and its tissue expression is altered in the setting of diabetes, which overall indicated cFAS as a biomarker for arterial occlusive disease in diabetic patients.

Clinical validation of the test (over 100 patients) showed that cFAS activity is altered in diabetic patients with carotid artery stenosis, and correlation with specific plasma lipid profiles is suggestive of overall cardiovascular morbidity.

Key Advantages:
- Provides the opportunity for early therapeutic intervention
- Biomarker measurements from bloodstream means minimal invasiveness
- Potential for combining with other diabetic blood tests, or support currently used physical examination
- Clinically validated to stratify severity of arterosclerotic disease
- First blood test to determine severity of arterosclerotic disease
- Versatility through measurement of cFAS protein amount and enzymatic activity of cFAS enzyme.

Applications: Biomarkers, arterial disease, diabetes

Patent Status: Provisional application

Innovator(s):
- Mohamed A. Zayed

Licensing Contact: Lidia Sobkow, Ph.D   E: lidia@wustl.edu   P: 314.362.2304