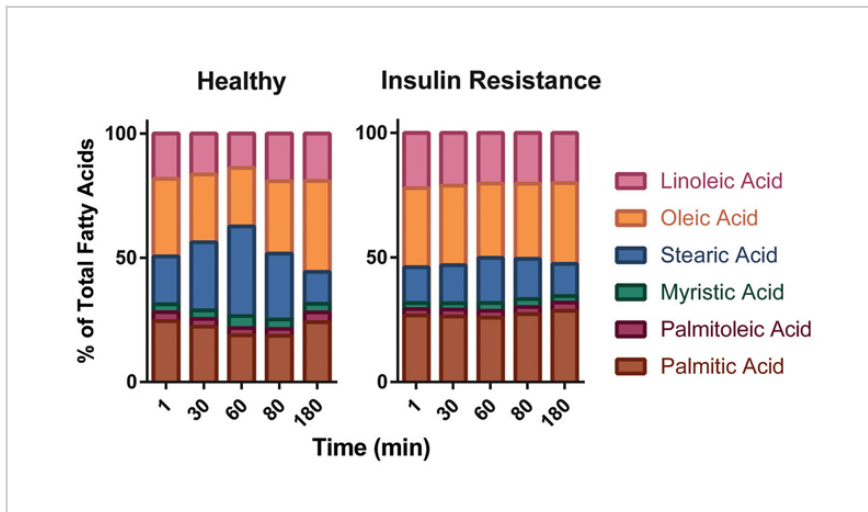


Insulin Resistance of Adipocytes-Diagnostic Test

ID# 2016-4490



PennState



Fatty Acid Levels after Dose of Glucose

Technology Summary

This invention relates in certain aspects to the metabolism of non-esterified fatty acids (NEFAs), specifically as they apply to the adipose tissue response to changes in circulating insulin. As known, insulin suppresses intracellular lipolysis in adipocytes, and poor suppression of NEFA release is directly related to adipocyte insulin resistance (IR). Until now, it was not known whether the insulin-mediated suppression is uniform for all fatty acids (FAs). We show time that NEFAs are differently trafficked by adipocytes in insulin resistant subjects, relative to NEFA trafficking in healthy control individuals. Thus, providing methods for IR diagnosis by analysis of NEFA trafficking at several time points, or even at a single time point, to identify IR individuals earlier than currently available tests.

Application & Market Utility

Current tests for determining insulin resistant glycemic indicators of insulin resistance primarily rely on analysis of glucose metabolism alone. Furthermore, diagnosis of IR does not occur until an individual is already experiencing symptoms and pathology (e.g. obesity and/or diabetes). Thus, there is an ongoing and unmet need for an improved test that could identify IR before symptoms emerge and that does not rely on glucose metabolism alone. This invention is pertinent to these as well as other needs.

Next Steps

Seeking research collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL

1-3

Seeking

Investment | Licensing | Research

Keywords

- Insulin
- Diabetes
- non-esterified fatty acids
- glucose metabolism

Researchers

Greg Shearer
Lead Researcher

Rachel Walker
Research Partner

Jennifer Ford
Research Partner

Other Researchers
Michael Green

Originating College
College of Medicine

Office of Technology Management Contact
Martinez, Alison



Invent Penn State is a Commonwealth-wide initiative to spur economic development, job creation, and student career success. Invent Penn State blends entrepreneurship-focused academic programs, business startup training and incubation, funding for commercialization, and university-community collaborations to facilitate the challenging process of turning research discoveries into valuable products and services that can benefit Pennsylvanians and humankind. Learn more at invent.psu.edu.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.