

Resource Summary Report

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Case - Glycerol and Glucose Assays by GC-mass spectrometry

DOI:10.17504/protocols.io.ydkfs4w

Type: Protocol

Proper Citation

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Protocol Information

URL: <https://dx.doi.org/10.17504/protocols.io.ydkfs4w>

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Group: Mouse Metabolic Phenotyping Centers, Metabolomics Protocols & Workflows

Summary: Total glycerol is determined by first hydrolyzing glycerides (in plasma or tissues) in 1 N KOH ethanol + heat and then the hydrolysate extracted following acidification ~pH 1.0. A two phase extract is created using chloroform. The aqueous phase contains the total glycerol and the organic phase contains total fatty acids. An aliquot of aqueous phase is dried down by nitrogen gas and the concentration and/or ²H-labelled glycerol is then determined by GC-MS following conversion of glycerol to its triacetate derivative. Glucose assay involves extraction of glucose from blood, plasma or tissues and the concentration and/or ²H/¹³C-labelled glucose is also determined by GC-MS following conversion to its pentaacetate derivative. Since the derivatizing methods are the same for glucose as glycerol, they can be assayed from a single sample preparation under the same GC-MS conditions and single run-time. References: 1. Triglyceride synthesis in epididymal adipose tissue: contribution of glucose and non-glucose carbon sources. Bederman IR, Foy S, Chandramouli V, Alexander JC, Previs SF. J Biol Chem.;284(10):6101-8 (2009)

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