VERSION 2

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Frequently sampled Insulin glucose tolerance test V.2

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<https://www.diacomp.org/shared/document.aspx?id=50&docType=Protocol>

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Protocol status: Working

We use this protocol and it's working

Created: Oct 18, 2019

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Summary:

This assay is used by the DiaComp to measure glucose tolerance and insulin sensitivity in pigs.

Keywords: glucose tolerance, insulin sensitivity, cardiovascular, nephropathy, neuropathy, retinopathy, uropathy

Diabetic Complications:

Cardiovascular

Nephropathy

Neuropathy

Retinopathy

Uropathy

Reference:

1. Bergman RN, Finegood DT, Ader M: Assessment of insulin sensitivity in vivo. *Endocr Rev* 1985, 6:45-86.

MATERIALS

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YSI Glucose Analyzer YSI Life Sciences

ICN Insulin RIA kit Contributed by users

Reagents Quantity Required

Reagent/Material	Quantity Required
Intravenous catheter	2
ICN Insulin RIA kit	1 kit
YSI Glucose Analyzer	1

1 FSIGT or Bergman analysis

Pigs are studied after an overnight fast. The food intake of the animals is monitored for 3 days prior to the fast to ensure adequate carbohydrate intake. Two intravenous catheters are placed, one for sampling and one for infusing glucose and insulin. A bolus of glucose (0.3 gm/kg) is administered as a 50% solution over ~5 min. Blood samples are obtained at -15, -10, -5, -1, 0, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, and 19 minutes. At 20 minutes an insulin bolus (0.03U/kg) is injected and frequent blood samples for insulin and glucose measurements are collected up to the 180 minute time point. Insulin is measured by RIA (ICN) and glucose is measured on a YSI instrument (Yellow Springs, Ohio). The data were analyzed by the Bergman method to calculate an insulin sensitivity index (S_I) using MINMOD Millennium version 6.02.¹