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Transcription profiling of wild type and PGC-1alpha KO liver and skeletal muscle - Study GBCO2380

Genomics Study Specifications

| | |
|----------------------------|---|
| Study Name | Transcription profiling of wild type and PGC-1alpha KO liver and skeletal muscle |
| Contact Name | Bruce Spiegelman (Dana-Farber Cancer Institute) |
| Publication | http://www.ncbi.nlm.nih.gov/pubmed/15454086 |
| My Strategies | Return to My Strategies page |
| Classification | Targets and roles of transcriptional regulators |
| Links |  Biomaterials Graph  ArrayExpress |
| BCBC Release Date | April 13, 2009 |
| Public Release Date | April 13, 2009 |
| Citation | Lin J, Wu PH, Tarr PT, Lindenberg KS, St-Pierre J, Zhang CY, Mootha VK, Jäger S, Vianna CR, Reznick RM, Cui L, Manieri M, Donovan MX, Wu Z, Cooper MP, Fan MC, Rohas LM, Zavacki AM, Cinti S, Shulman GI, Lowell BB, Krainc D, Spiegelman BM. Defects in adaptive energy metabolism with CNS-linked hyperactivity in PGC-1alpha null mice. Cell. 2004. 119:121-35 |

Synopsis

| | | |
|--------------------------|---------|-------------|
| Study Description | Goals | |
| Approaches | Results | Conclusions |
| Related Studies | | |

PGC-1alpha; is a coactivator of nuclear receptors and other transcription factors that regulates several metabolic processes, including mitochondrial biogenesis and respiration, hepatic gluconeogenesis, and muscle fiber-type switching. We show here that, while hepatocytes lacking PGC-1alpha; are defective in the program of hormone-stimulated gluconeogenesis, the mice have constitutively activated gluconeogenic gene expression that is completely insensitive to normal feeding controls. C/EBPbeta; is elevated in the livers of these mice and activates the gluconeogenic genes in a PGC-1alpha-independent manner. Despite having reduced mitochondrial function, PGC-1alpha; null mice are paradoxically lean and resistant to diet-induced obesity. This is largely due to a profound hyperactivity displayed by the null animals and is associated with lesions in the striatal region of the brain that controls movement. These data illustrate a central role for PGC-1alpha; in the control of energy metabolism but also reveal novel systemic compensatory mechanisms and pathogenic effects of impaired energy homeostasis.

Platform types Expression, Expression microarray


Platforms [Show platform Affymetrix MG_U74A](#)

Study Design Type


- genetic_modification_design
- growth_condition_design
- organism_part_comparison_design
- stimulus_or_stress_design

Study Factors [Show study factors](#)

Access Status

 This resource is publicly viewable.


Request this Resource

 Request from a repository

Primary contributor: [Stoekert Lab](#)

Resource Tags

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Resource History & Actions

Approved on Apr 13, 2009
Last modified on Jan 17, 2012

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No matching resources

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No matching resources

Data courtesy of [dkCOIN](#). Only public resources are displayed.

Study Assays

Show study assays

Access to Study Data

This Study Data is publicly available to all users.

Gene List(s)

There are no gene lists currently available for this study.

Genome Browser


There are no genome browser tracks currently available for this study.

Lists of Locations

There are no genomic location datasets currently available for this study.

Repositories


Stoeckert Lab

 Request this resource

Stock #: *Not provided*
Availability Notes: *Not provided*

Comments

There are no comments for this entry.

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