

Leblanc and his coauthors published the results of their research in the *Journal of Clinical Endocrinology and Metabolism* (Plasma lipoprotein profile in the male cynomolgus monkey under normal, hypogonadal, and combined androgen blockade conditions. *J Clin Endocrinol Metab*, 2004;89(4):1849-1857).

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Lipid Studies

New class of lipid absorption inhibitor from sage discovered

2004 JUN 25 - (NewsRx.com) -- Carnosic acid represents a new class of lipid absorption inhibitor from sage.

According to a study from Japan, "The methanolic extract from the leaves of *Salvia officinalis* (sage) showed significant inhibitory effect on serum triglyceride elevation in olive oil-loaded mice (500 and 1,000 mg/kg, p.o.) and inhibitory activity (IC₅₀: 94 mcg/mL) against pancreatic lipase, which is participated in digestion of lipids."

"Through bioassay-guided separation using the inhibitory activity against pancreatic lipase activity, 4 abietan-type diterpenes (carnosic acid, carnosol, royleanonic acid, 7-methoxyrosmanol), and a triterpene (oleanolic acid) were isolated from the active fraction," said Kiyofumi Ninomiya and colleagues at Kyoto Pharmaceutical University and Morishita Jintan Company, Ltd. "Among these compounds, carnosic acid and carnosol substantially inhibited pancreatic lipase activity with IC₅₀ values of 12 mcg/mL (36 micromolar) and 4.4 mcg/mL (13 micromolar), respectively."

"Carnosic acid significantly inhibited triglyceride elevation in olive oil-loaded mice at doses of 5-20 mg/kg (p.o.)," reported the investigators. "However, other constituents (carnosol, royleanonic acid, oleanolic acid) did not show any effects at a dose of 200 mg/kg (p.o.). Furthermore, carnosic acid (20 mg/kg/day, p.o.) reduced the gain of body weight and the accumulation of epididymal fat weight in high fat diet-fed mice after 14 days."

Ninomiya and associates published the results of their research in *Bioorganic and Medicinal Chemistry Letters* (Carnosic acid, a new class of lipid absorption inhibitor from sage. *Bioorg Medicinal Chem Letter*, 2004;14(8):1943-1946).

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Lipogenesis

IL-1 and LPS downregulate PPAR-gamma in brown adipocytes

2004 JUN 25 - (NewsRx.com) -- IL-1 and LPS but not IL-6 inhibit differentiation and downregulate PPAR-gamma in brown adipocytes.

"Brown adipose tissue (BAT) is well recognized as a heat-producing organ of rodents and generally all young mammals. There is good experimental evidence that its thermogenic activity plays a role also during development of fever and that this activation is mediated exclusively via an adrenergic pathway. However, we have shown that brown adipocytes highly express receptors for pyrogenic factors (IL-1, LPS) and that after their activation, brown adipocytes are capable of responding by production of IL-6 and IL-1alpha," researchers in the Czech Republic and Sweden report.

"In this study we examined the effect of chronic treatment of mouse brown adipocytes in primary culture with pyrogens (IL-1beta, IL-6, and LPS) on their ability to differentiate into mature adipocytes," said Tomas Mracek and collaborators at the Academy of Sciences of the Czech Republic and the Wenner-Gren Institute in Sweden. "We found that treatment with IL-1beta or LPS, but not with IL-6, inhibited the differentiation of brown adipocytes, which was accompanied by a 2.5-10-fold decrease in PPAR-gamma mRNA. The anti-adipogenic effect of IL-1beta and LPS could thus be mediated via downregulation of PPAR-gamma levels, similar to the anti-adipogenic action of another pyrogenic cytokine-TNF-alpha."

"We also found that pretreatment of brown adipocytes with IL-1 or LPS led to a more pronounced (two- to four-fold) induction of IL-6 transcripts upon whole 24-hour time course of adrenergic stimulation," reported the scientists. "These results support the view that BAT functions not only as an effector but also as a mediator of the febrile response; while the thermogenic activity is associated with terminally differentiated cells, earlier developmental states of brown adipocytes seem to be able to play a mediatory role."

Mracek and colleagues published their study in *Cytokine* (IL-1 and LPS but not IL-6 inhibit differentiation and downregulate PPAR-gamma in brown adipocytes. *Cytokine*, 2004;26 (1):9-15).

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