



NIF-1 is a Novel Co-transducer that Interacts with and regulates the Activity of the Nuclear Hormone Receptor Co-activator, NRC.

Principal Investigator

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Background

Aberrant regulation of transcription can lead to changes in cell growth, differentiation, development and proliferation that may contribute to cancer and other related pathologies of the living organisms. Transcription initiation is tightly regulated by transcription factors (TF), trans-acting proteins that bind to *cis*-acting regulatory DNA sequences. Identification of new and detailed characterization of the known TF (importantly, identification of the critical protein partners and downstream targets of TF) is essential to elucidate the molecular basis of transcriptional regulation.

Description of the Project

Dr. Samuels and his coworkers have cloned and characterized a novel TF, co-transducer NF-1, which regulates the activity nuclear hormone receptors, receptor c-regulators and other transcription factors such as c-fos, c-jun and etc. Specifically, the authors have shown that NF-1 indirectly enhances the ligand-dependent transcriptional activity of nuclear hormone receptors via interaction with nuclear hormone receptor co-activator, NRC, a potent co-activator for nuclear hormone receptors and other transcription factors. Studies further suggest that NF-1 may be an essential part of a large *in vivo* complex involved in regulation of transcriptional effects of nuclear hormone receptors and other TFs.

Applications

NF-1, co-regulator of transcription with broad tissue distribution may prove to be a powerful therapeutic target for diseases related to hormone signaling pathways.

Publications

1. Mahajan MA, Murray A, Samuels HH.
NRC-interacting factor 1 is a novel cotransducer that interacts with and regulates the activity of the nuclear hormone receptor coactivator NRC.
Mol Cell Biol. 2002 Oct;22(19):6883-94.
2. Mahajan MA, Samuels HH.
A new family of nuclear receptor coregulators that integrate nuclear receptor signaling through CREB-binding protein.
Mol Cell Biol. 2000 Jul;20(14):5048-63.

Patent Status:

A patent has been filed.

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