



Targeted inhibition of the Epithelial-to-Mesenchymal Transition by flavinoids via Estrogen Receptor β

Keywords: Cancer, Metastasis, EMT, ER β , flavinoids, ER agonist

Applications

Cancer Progression and Metastasis Treatment and Prevention in ER β -responsive Tumors.

Background

One of the hallmarks of malignant cancer progression is the ability of solid tumors to metastasize and spread beyond the tumor and tissue of origin. Metastasis is the leading cause of cancer-related deaths. However the underlying mechanisms and potential targets for prevention and treatment remain largely unknown. Studies of metastatic cancer cells demonstrate that these cells undergo a change from an epithelial cell type to a cell type with mesenchymal characteristics. This transition is referred to as the Epithelial-to-Mesenchymal Transition (EMT), and the study of this process is likely to lead to the discovery of novel targets for metastasis prevention and treatment.

Apigenin, a phytoestrogen and flavinoid, has been known to inhibit cancer cell proliferation in many solid tumors, including prostate and breast cancer. One of the suspected primary ligands for apigenin is Estrogen Receptor- β , which is known to be involved in proliferation and differentiation signaling in a number of cancers, including breast and prostate.

Technology

UMass Medical School investigators Dr. Arthur Mercurio and Dr. Paul Mak have identified a novel link between the anti-cancer properties of argenin and inhibition of the EMT. The underlying mechanism appears to involve upregulation of Estrogen Receptor- β signaling. Their work indicates that molecules acting on this pathway as ER β agonists could be developed as targeted therapies to treat or prevent EMT and metastasis. Current efforts are focused on the identification of the key players involved in this process, and screening ER β agonists.

Salient Features and Competitive Advantages

- ✚ **Novel Targets for Drug Identification and Development:** The novel connection between ER β and EMT could lead to the identification of novel targets for cancer therapy.
- ✚ **Natural Products:** This technology could identify new therapeutic uses for phytoestrogens and validate the previously observed anti-cancer effects of such compounds.
- ✚ **Broad applicability:** The proposed mechanism is broadly relevant to a number of human cancer types that undergo EMT in cancer progression and express ER β .

Business Opportunity

UMass OTM is seeking statements of interest from parties interested in collaborating and/or sponsoring collaborative research to further develop, evaluate, or commercialize this technology using ER β agonists.

Contact:

Anita L. Ballesteros, PhD
Licensing Officer
Phone: (508) 856-6611; Fax: (508) 856-1482
E-mail: Anita.Ballesteros@umassmed.edu