

# LRBA as a Biomarker and Therapeutic Target in Cancer

**R**esearchers at the University of South Florida have developed a siRNA therapy to suppress tumor growth by inhibition of the *Irba* gene highly expressed in some cancer cells.

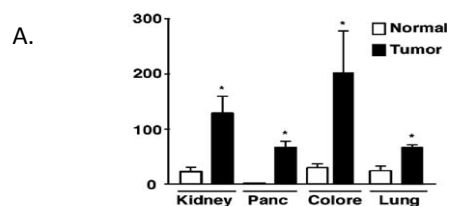
In normal cells, the *Irba* (LPS-responsive and Beige-like Anchor) gene encodes proteins associated with transport of molecules within the cell and to the cell surface, a function important in cell signaling and survival and tightly regulated. In some cancer cells, however, expression of this gene is dysregulated, which leads to the high proliferative and survival capacities of tumor cells.

Our investigators have cloned the mouse and human *Irba* genes and shown in in vitro experiments that administration of siRNA targeted to *Irba* inhibits tumor cell growth (see Figure). siRNA would therefore serve as an effective therapy for treatment of a variety of cancers with high *Irba* expression. This includes, but is not limited to, breast and prostate cancers, melanoma, chronic myelogenous leukemia, cervical cancer, and small-cell lung carcinoma. Some studies also suggest that repression of LRBA expression by RNAi also sensitizes cancer cells to chemotherapeutic agents.

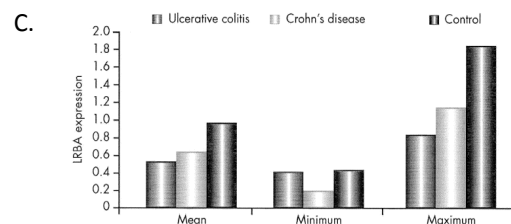
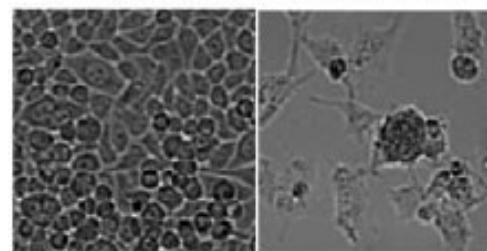
Furthermore, USF investigators discovered that LRBA was under-expressed in Crohn's and ulcerative colitis diseases when compared to control healthy groups indicating the diagnostic value of the LRBA gene in identifying inflammatory bowel diseases. This is a potential breakthrough for Crohn's and ulcerative colitis therapy especially because patients with these diseases have been known to be at risk of developing colon cancer.

### ADVANTAGES:

- Nucleic acid therapeutics targeting LRBA
- LRBA as a biomarker of disease, including cancer and Crohn's



B. Control siRNA      LRBA siRNA



A. Microarray analysis shows that LRBA is upregulated in certain cancers.

B. LRBA siRNA duplex inhibits the growth of cancer cells (HeLa).

C. LRBA in Crohn's disease patients.