Cancer Diagnostic and Therapeutic Applications of Tumor Suppressor Genes

Principal Inventor: Carlo Croce

Summary and Applications:

The invention is based on the pioneering tumor suppressor gene work and findings of Dr. Carlo Croce’s team at Thomas Jefferson University (TJU).

The patent portfolio comprises diagnostic and therapeutic compositions and methods to measure and restore functional levels of three tumor suppressor genes for which loss of expression has been linked to numerous malignancies:

1. **FHIT** (Fragile Histidine Triad): Deletion of the FHIT gene cluster is associated with lung cancer, bladder and kidney cancers, nasopharyngeal, esophageal and head and neck cancers, pancreatic cancer, gastric cancer, breast and cervical cancers.

2. **FEZ/LZTS1** (Leucine zipper, putative tumor suppressor 1): Aberrant loss of FEZ is associated with breast and prostate cancers, bladder cancer, liver cancer, and esophageal cancer.

3. **ARTS1** (ADP ribosylation factor-like 11): Downregulation of ARTS1 is associated with familial melanoma and chronic lymphocytic leukemia.

Recent studies by Dr. Croce’s group have also shown a correlation between the expression levels of these tumor suppressor genes and effective therapeutic intervention. The development of therapeutic strategies to restore normal tumor suppressor levels is underway. Planned clinical studies for gene restoration to treat head and neck cancer (FHIT) and esophageal cancer (FEZ) are in progress.

Several recent, key publications have been listed below for your reference.


Follow-up:

For more information on TJU’s tumor suppressor gene patent portfolio, please contact Debbie Wang at debbie.wang@jefferson.edu or +1-215-955-6862 in the Office of Technology Transfer and Business Development at TJU.