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Assistant Professor

I. General Research Interests

- A. Our research focuses on metabolic studies in the airway epithelium from normal cells to at-risk epithelial cells all the way to cancer cells.

II. Current Research Projects

- A. Validation of neutral amino acid transporters to sustain the metabolic reprogramming in COPD and lung cancer.
- B. Characterizing the intracellular mechanisms mediating the anti-inflammatory effects of tocotrienols in COPD model in vitro and in vivo.
- C. The effects of E-cigarette on pathogenesis of COPD.

III. Research Skills

- A. Metabolites extraction
 - B. Cell culture – immortalized and primary cells
 - 1. Lung cancer cells
 - 2. Endothelial Cells
 - 3. Fibroblast
 - 4. Cardiomyocytes
 - C. Molecular biology - protein expression, RT-PCR
 - D. Cell viability assays
 - E. Colorimetric assays
 - F. Immunoassays – EIA, ELISA
 - G. Histology - immunohistochemistry, immunofluorescence, histochemistry
 - H. Stable isotope resolved metabolomics approach
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- I. Animal studies – hamsters, mice and rats
 - 1. Study design
 - 2. Diet formulation
 - 3. Subcutaneous minipump implantation
 - 4. Metabolic cages for 24-h urine collection

5. Blood pressure measurements using tail-cuff plethysmography
 6. Bronchoalveolar Lavage procedure and cytokines analysis
 7. Small animal lung function analysis-Flexvint
- J. Clinical Studies
1. Study design
 2. Placebo/Supplement formulation
 3. Blood collection
 4. Dietary intake: 24-Hour Dietary Records, Three-Day Food Records, and Food Frequency Questionnaires