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Assistant Professor

I. General Research Interests

- A. The role of functional foods, bioactive compounds and dietary supplements on hypertension and cardiovascular diseases, obesity, diabetes, osteoporosis and gut microbiota.

II. Current Research Projects

- A. Berries prevent hypertension and cardiac damage by modulating the gut microbiota and attenuating oxidative stress and inflammation.
- B. Impact of berry consumption on gut microbiota, inflammation and insulin resistance.
- C. Effects of berry polyphenol extracts on pro-inflammatory markers in LPS-treated RAW264.7 macrophages.
- D. The protective role of blueberries in endothelial cells.
- E. The effects of berry polyphenol extracts on osteoclast differentiation and activity.

III. Research Skills

- A. Polyphenol extraction
- B. Cell culture – immortalized and primary cells
 - 1. Macrophages
 - 2. Endothelial Cells
 - 3. Vascular smooth muscle cells
 - 4. Cardiomyocytes
 - 5. Kidney cells
 - 6. Osteoblasts
 - 7. Osteoclasts
- C. Molecular biology - protein expression, RT-PCR
- D. Cell viability assays
- E. Colorimetric assays
- F. Immunoassays – EIA, ELISA
- G. Histology - immunohistochemistry, immunofluorescence, histochemistry

- H. 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. Body composition – DEXA and MRI
 - 7. Tissue excision
 - 8. Feces and colon collection for microbiota analyses
- I. Clinical Studies
 - 1. Study design
 - 2. Placebo/Supplement formulation
 - 3. Blood collection
 - 4. Arterial stiffness measurements – Pulse Wave Velocity
 - 5. Flow-mediated dilation – EndoPat
 - 6. Blood pressure measurements
 - 7. Body composition – DEXA, BIA, skin calipers
 - 8. Medical History Questionnaire
 - 9. Physical Activity Questionnaire
 - 10. Dietary intake: 24-Hour Dietary Records, Three-Day Food Records, and Food Frequency Questionnaires
 - 11. Food analyses software
- J. Inferential Statistics