DEPARTMENT OF SURGERY CURRENT RESIDENT RESEARCH

- Evaluating the role of Transforming Growth Factor β1 (TGF-β1) on the cellular evolution of thyroid cancer.
    A. Analyzing if early lymph node metastasis correlates with BRAFV600E expression and TGF-β1 overexpression in papillary thyroid carcinoma.
    B. Determining the number of lymph nodes in the central neck compartment and the number of nodes needed to be excised for an adequate oncological staging operation in papillary thyroid carcinoma.
    C. Determining a long-term cost analysis for treatment of papillary thyroid carcinoma at a single institution

- Researching the development of hepatocellular carcinoma using a hereditary model of tyrosinemia with intent to interrupt a metabolic pathway using gene therapy and RNA technology. This novel approach will further delineate the origins of hepatocellular carcinoma, and, when combined with other technologies developed in out lab, may apply new treatment and diagnostic options for this disease.

- Formalizing lineage relationships of hepatic and biliary stem cells. This project involves hepatocyte isolation and transplantation, FACS sorting, and PCR genotyping; it will potentially lead to an end to the debate as to the origins of hepatocytes and bile duct epithelium.

- Extending the ischemia time in ex-vivo orthotopic liver transplants using an apoptosis inhibitor drug.

- As bleeding is a major concern in trauma, we are using new blood volume analysis technology to rapidly determine accurate blood volumes to potentially reduce unnecessary and potentially harmful tests and interventional procedures, as well as potentially reduce fluid overload and related lung injury in the ICU.

- We are testing a battlefield dressing that has proved to be more effective, more rapid, and simpler to apply that what is currently issued in combat in Iraq and Afghanistan to stop death from massive blood loss, which is the number one preventable cause of death for our soldiers. This dressing is pending FDA approval.

- Reviewing OHSU's results with partial hepatic resections for colorectal cancer. This study involves a comprehensive review of OHSU's experience with hepatic resection for colorectal metastases, outcome data, and analysis of pre-surgical adjuvants.

- Use of thrombelastography to determine if standard dosing regimens of prophylactic enoxaparin can be modified to reduce the incidence of DVT from the currently published rate of 30%.

- Appendicitis is the most common reason for emergency surgery in children. Although currently laparosopic and open appendectomy are both the standard of care, this is the subject of much debate. We have designed and are actively enrolling patients in what will be the largest multicenter randomized trial in the world literature that will study if differences exist between these two procedures in children.

- The effects of sex hormones on the body's response to trauma and critical illness.

- The effects of red blood cell storage on post-transfusion morbidity and mortality in trauma patients.

- Comparing the body's inflammatory response to different resuscitative fluids after traumatic injury in a pig model.

- Looking at changes in clotting function after having the spleen removed for trauma.

- Evaluating the effect of different ratios of blood products on survival after major trauma.

- Evaluating the use of freeze-dried plasma for resuscitation.

- Characterizing the breast cancer stem cell using several approaches including immunohistochemistry, flow cytometry, cytogenetics and an animal model with the aim to develop more effective anticancer agents specifically directed at the breast cancer stem cell.

- Using a novel hormonal therapy to treat breast cancer patients that is directed at the androgen receptor and further clarifying the role of the androgen receptor in breast cancer using tissue culture and animal models.

- Making and characterizing antibodies against pancreatic cancer.

- Investigating differences in diagnosis, treatment, and outcomes for colon and rectal cancer in patients from urban versus rural areas in Oregon.

- Assessing the durability of pancreatic resection for treatment of pancreatitis via chart review and patient questionnaires.

- Making a database of pancreatic cystic masses resected over the last 10 years and assessing for predictors of malignancy.