My laboratory is studying the mechanisms by which extracellular factors influence normal and malignant development of the breast and female reproductive tissues. Our current emphasis focuses on the function of a novel G-protein coupled receptor for estrogen, GPR30. GPR30 expression in breast and female reproductive tissues is developmentally regulated, and expression is often upregulated in malignancies of estrogen-responsive tissues. Our working hypothesis is that GPR30 mediates estrogen-dependent signals independent of classical estrogen receptors, and that GPR30 mediates cellular behavior(s) that promote malignant progression. Using in vitro and in vivo models, we are exploring a role for GPR30 in cell proliferation, migration/invasion, and differentiation in both normal development and in neoplastic progression.