

## Personal Information



## E. Aubrey Thompson

**Address:** Mayo Clinic, Jacksonville, Florida

**Country:** Florida, USA

## Curriculum Vitae

The research interests of E. Aubrey Thompson, Ph.D., involve gene structure and function and control of gene expression as it applies to regulation of cell proliferation, differentiation and death.

Dr. Thompson's primary focus is clinical and translational research. His team uses genomic technology and functional genomic tools to elucidate the mechanisms that underlie malignant transformation and may ultimately identify new therapeutic targets or biomarkers of therapeutic response. The team's primary focus is on breast cancer, although the tools and technologies the team has developed are also applied to lung, thyroid, renal and pancreatic cancers.

### Focus areas

- **HER2-positive breast cancer.** Researchers in Dr. Thompson's lab study the genomic properties of HER2-positive breast cancer. Their interests include understanding how HER2 transforms breast epithelial cells and how cells respond to HER2-targeted therapy. The team is involved in genomic analysis of several large clinical trials with a view toward identifying new therapeutic targets and identifying the mechanisms that determine therapeutic outcome of HER2-targeted therapy.
- **Triple negative breast cancer.** Dr. Thompson is involved in identifying potential new therapeutic targets in triple negative breast cancer. Genomic studies are used to identify potential new therapeutic targets, which are then evaluated in the laboratory.
- **Genomic rearrangements in transformation.** Recent studies indicate that breast cancer is largely driven by large structural variations, including gene copy number gain or loss and genomic rearrangements that affect the structure and function of genes that play critical roles in malignant transformation.
- **Fusion transcripts.** Dr. Thompson's team has pioneered the discovery of novel RNAs that arise as a result of genomic translocations. These novel fusion transcripts may serve as potential patient-specific biomarkers and may identify new markers of therapeutic resistance.
- **Benign breast cancer risk.** Collaborative studies are ongoing to identify genes that predict risk of progression from benign breast disease to breast cancer.
- **Biomarker discovery.** Dr. Thompson has a major interest in the use of genomic information to identify genes or genomic processes that predict therapeutic response.

- **Genomic technology.** The lab has a major emphasis on developing new genomics tools to evaluate gene structure and function in malignant cells.
- **Systems biology.** Genomic technology provides an incredible wealth of information about gene structure and function. A major challenge is to integrate this information about diverse genomic features and to use this information to build models that make testable predictions about the mechanisms of malignant transformation or therapeutic response.