How the Breast Environment May Influence Breast Cancer Risk

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Breast - Environment?
Breast Microbiome

Breast Microbiome

“LH” & “CH” group

“LN” group

Abundance of Bacterial Phyla in Breast Tissue
16S RNA Sequencing

Mammary Microbiome and Breast Cancer

• Breast tissue is not sterile but contains diverse population of bacteria
• Mammary microbiome as individual as gut microbiome
• Breast microbiome may modulate risk of breast cancer
Breast Microbiome in Healthy Women vs. Normal Adjacent Tissue

Breast Microbiome

• Bacterial DNA load reduced in tumor vs. normal adjacent and breast augmentation

• Bacterial DNA load inversely correlated with advanced disease

Questions

• Healthy normal tissue
• Prediagnostic tissue => predictive marker
Implications & Future Research

• Manipulate breast microbiome to prevent cancer
• Factors affecting breast microbiome
  – Environmental factors
  – Genetics/Epigenetics
• Microbiome of breast milk
Is Diet Important for Breast Microbiome?

Is Diet Important for Breast Microbiome?

YOU ARE YOUR MICROBES