



Breast Surgery Research – the Cutting Edge

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Vision

To facilitate collaborative investigation across the continuum of care from prevention to diagnosis, treatment and survivorship to set new standards for the evaluation and treatment of breast disease

Mission

- Identify critical clinical questions to inform research efforts
- Integrate breast surgical oncology research with larger breast program to leverage talent and expertise
- Apply rapidly advancing scientific and technologic knowledge to conduct innovative and impactful research
- Implement findings from research efforts into clinical practice to enhance patient care

Mission

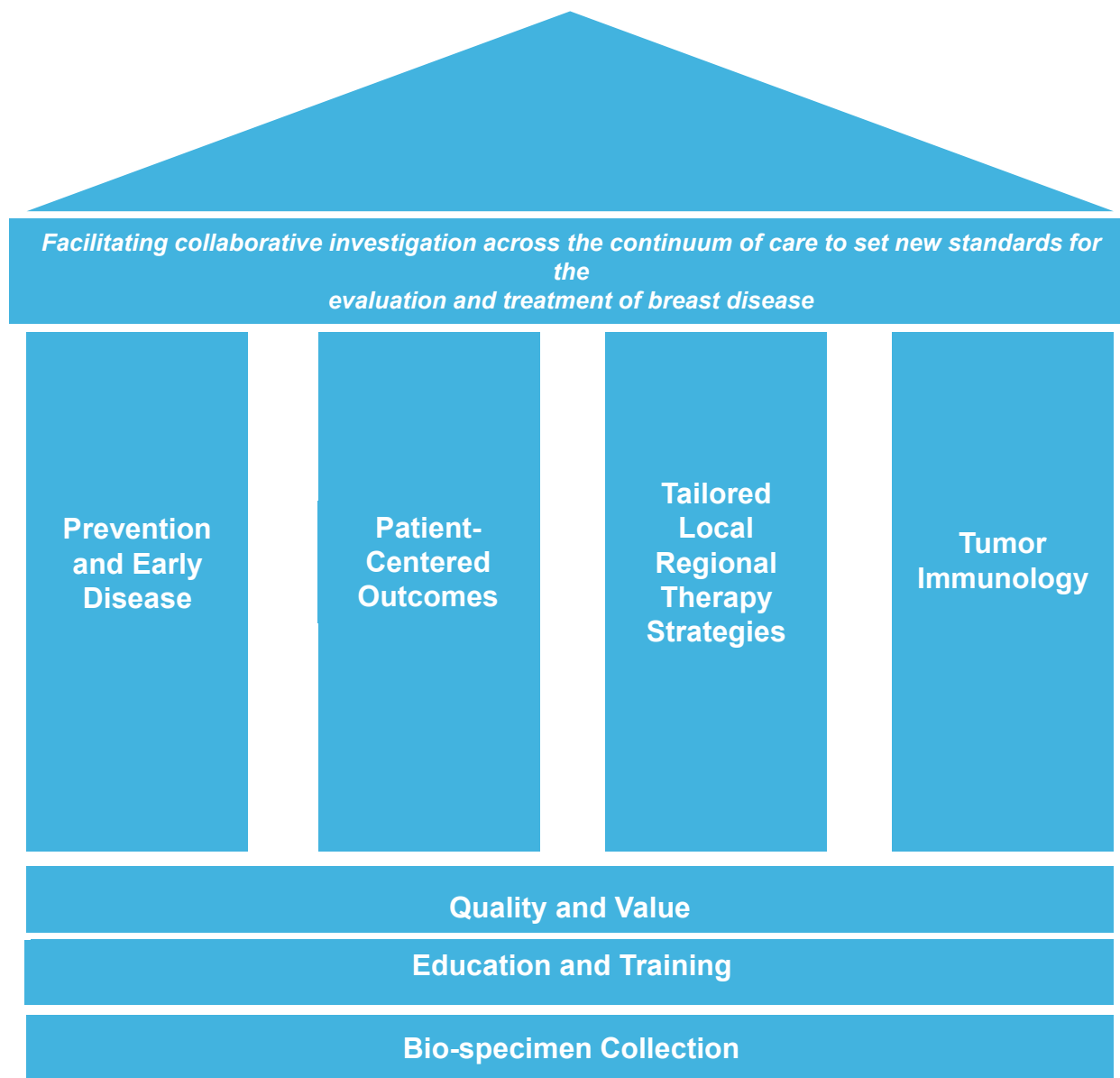
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Prevention and Early Detection

B-PREP

Breast Cancer
Personalized
Risk Assessment,
Education and
Prevention Program
at the Comprehensive
Breast Health Center



Pictured: Tari King, MD and Katie Anderson, PA

*Education, prevention and
early(ier) diagnosis for a diverse
population at increased risk*

• Clinical Care

- Better serve and educate women who may be at ↑ risk for breast cancer but are unaware
- Provide clinical resource “home” for patients and providers seeking risk assessment, education and counseling
- Provide ongoing follow-up and risk tailored surveillance strategies for those at risk

• Research Program

- Establish bio-bank of materials from women at risk
- Participate in large scale genomic profiling efforts
- Screening, biomarker risk assessment, and prevention trials

Prevention and Early Detection

- MATCH-UP (MAchine learning to Choose High risk lesions likely to be UPgraded to invasive cancer)
 - $\approx 100,000$ women will have a core bx diagnosis of ADH of which 15-30% will be found to have cancer after excision
 - How can we identify the 80,000 who could be spared an unnecessary operation?
 - Hypothesis: machine learning algorithms applied to digitized mammographic and pathologic images combined with clinical data can provide a novel strategy to identify those women who require surgical excision and those that can be safely observed

MATCH-UP



Collect Data

Inputs:

- Slide images
- Case metadata

Outputs:

- Slides in platform



Extract Features

Inputs:

- Slide images
- Annotation data

Outputs:

- Overlays
- Feature matrix



Predictive Analysis

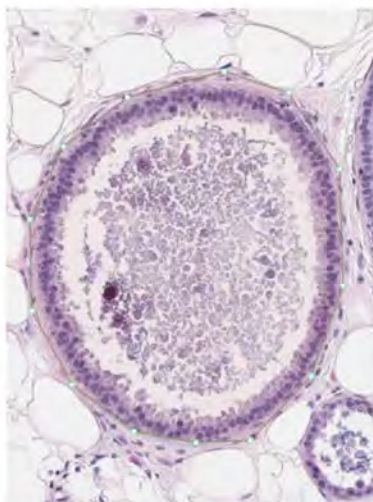
Inputs:

- Feature matrix
- Case metadata

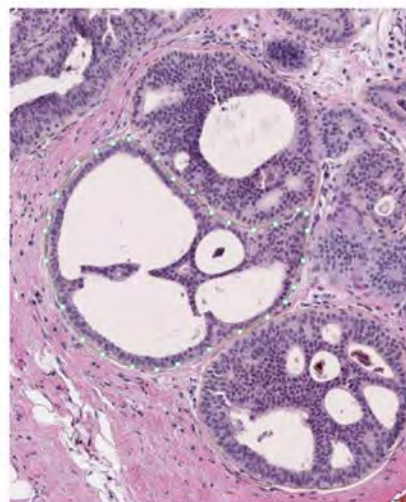
Outputs:

- Variable importance
- Case predictions

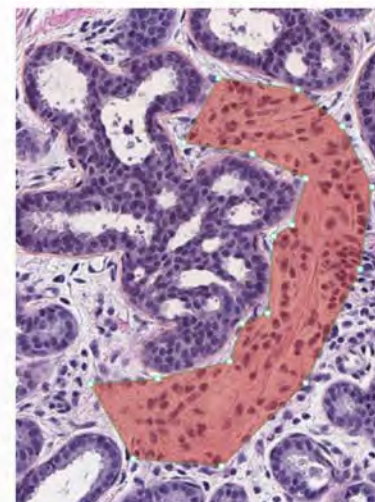
FEA



Cribriform ADH



ADH stroma



Patient Centered Outcomes

- Patient Reported Outcomes, Value and Experience (PROVE) center
 - Mission: use leading-edge technologies to transform the collection, analysis and feedback of patient-reported data
 - Strategy



Develop new measurement tools and techniques.



Integrate new systems to simplify data collection.



Transform raw patient-reported data into actionable insight.



Demonstrate the value of PROMs and train a new generation of clinical and research leaders in patient-reported data.

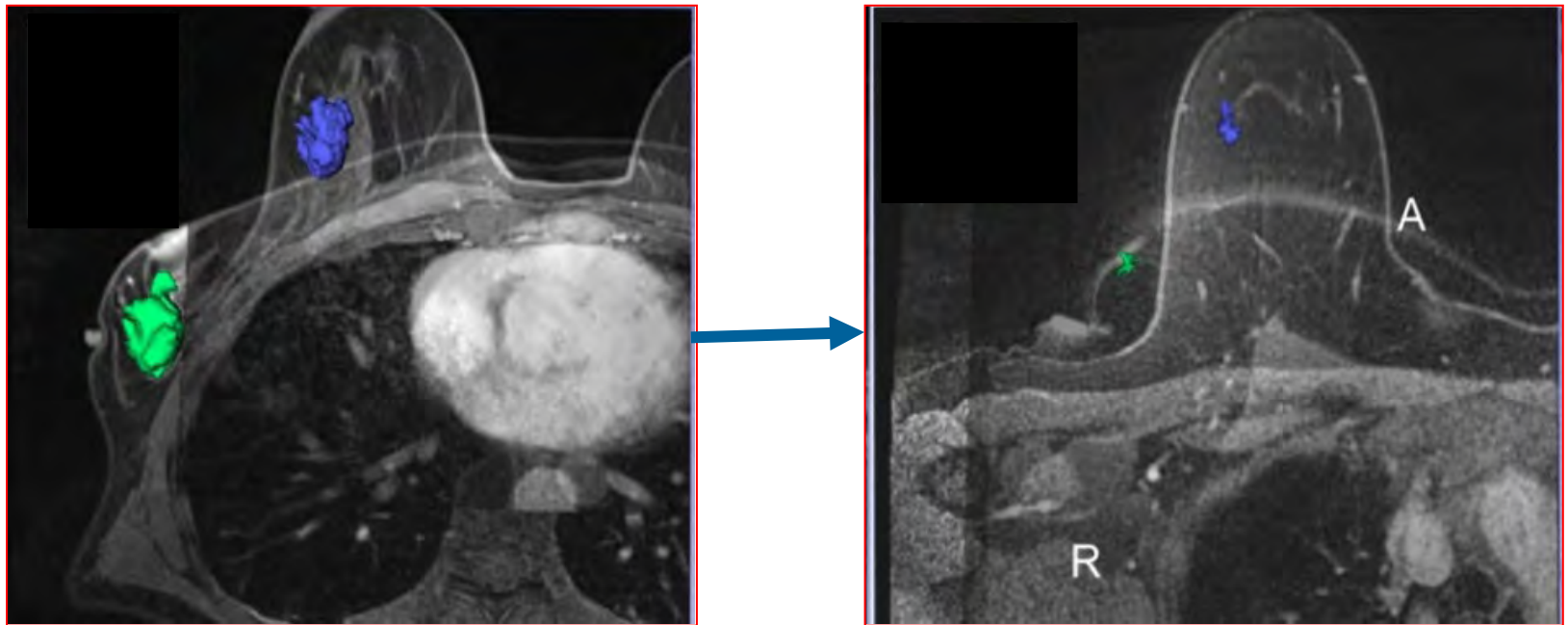
PROs

- Goal: To capture baseline and longitudinal information from every woman that receives breast cancer surgery in our program



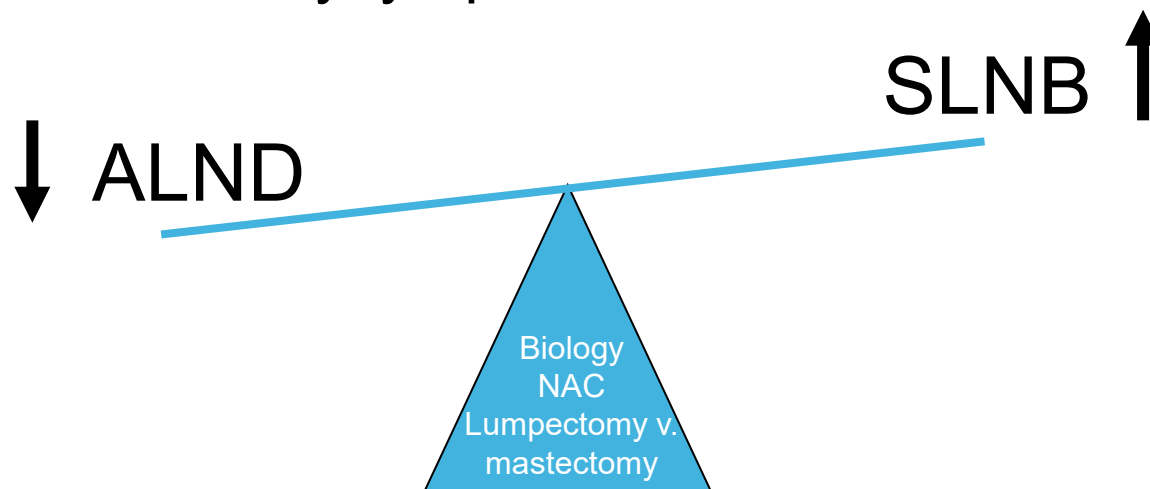
www.BREAST-Q.org

Tailored Local Regional Therapy Strategies – Supine MRI



Tailored Local Regional Therapy Strategies

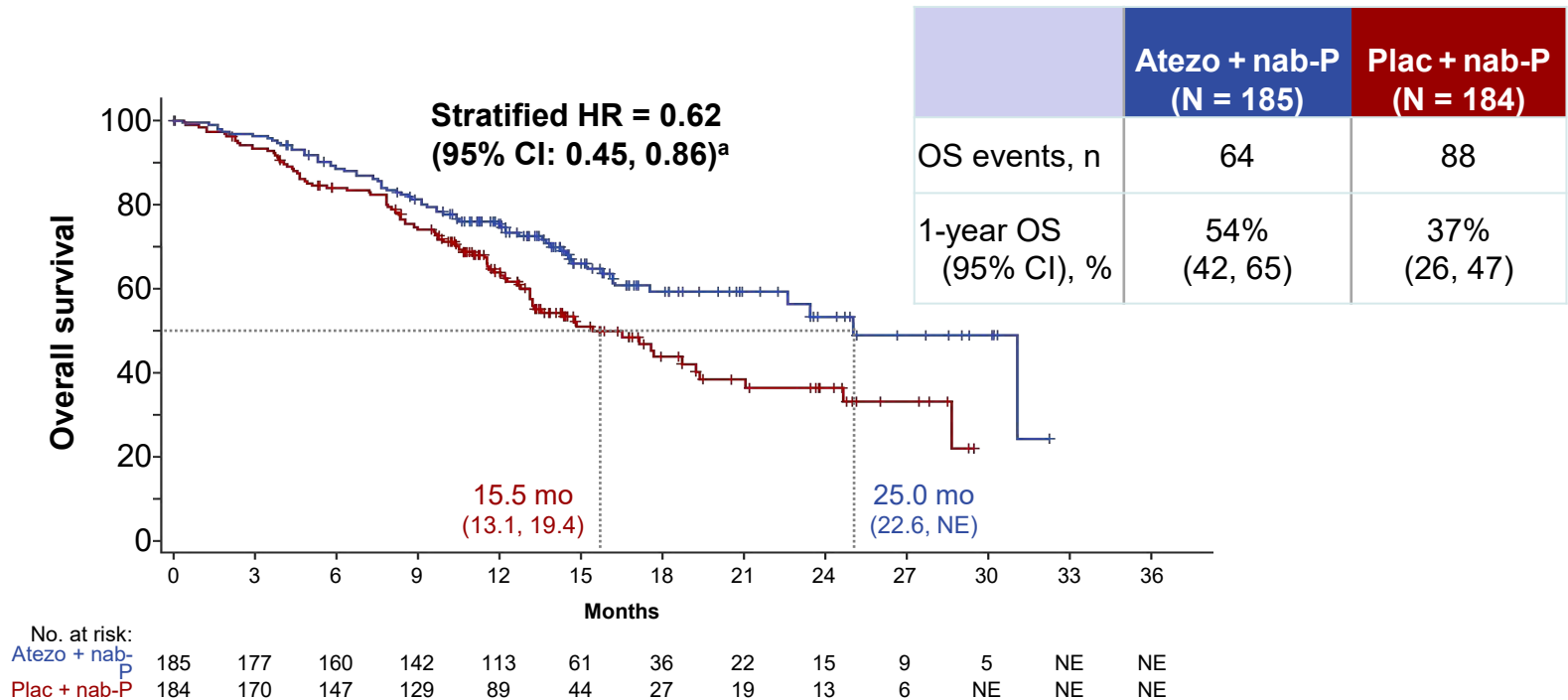
Optimize strategies which minimize need for
axillary lymph node dissection



Goal: Minimize morbidity of local regional
management without compromising outcomes

Tumor Immunology

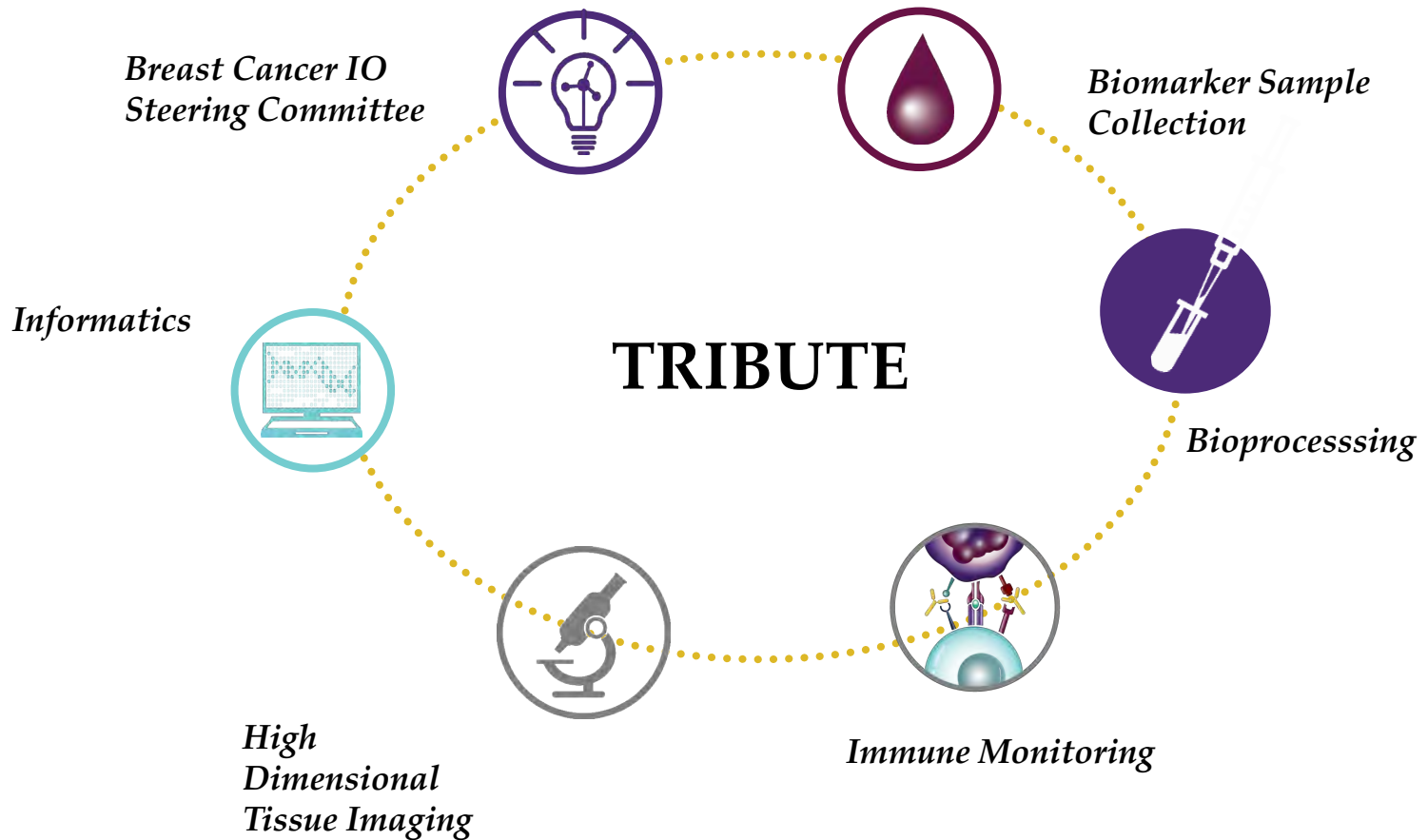
IMpassion 130 Trial: Overall Survival Analysis



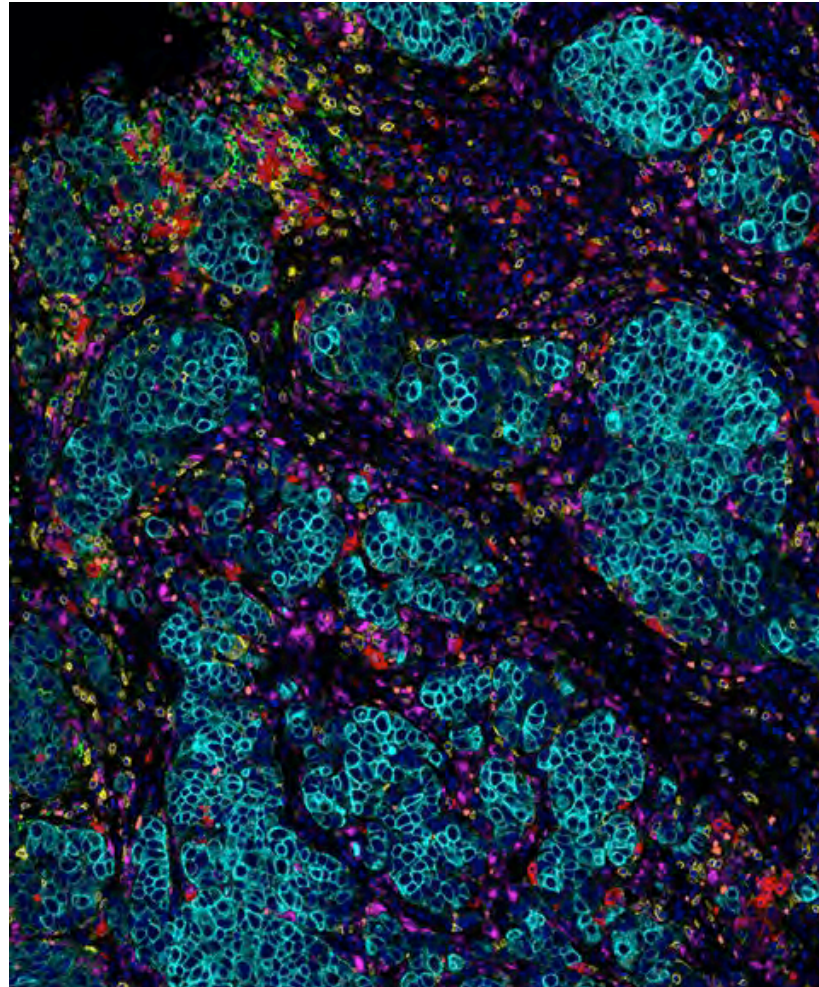
Tumor Immunology



- Unknowns
 - Biomarkers of response
 - Biomarkers of early progression
 - Biomarkers of toxicity
 - Impact of treatment on tumor microenvironment
 - Optimal treatment on progression
- TRIBUTE: Translational Resource for Immuno-Biology to understand Therapeutic Efficacy

TRIBUTE



TRIBUTE



-  CD4
-  CD8
-  CD20
-  CD68
-  FOXP3
-  CK
-  DAPI

Thank You

