**Docket #:** S20-516

# Predicting Ductal Carcinoma in Situ (DCIS) Recurrence and Progression

Researchers at Stanford are developing methods for stratification of ductal carcinoma in situ (DCIS) tumors. By analyzing the tumor microenvironment with Multiplexed Ion Beam Imaging by time of flight (MIBI-TOF), they have identified prognostic features that distinguish primary DCIS tumors with a high probability of recurrence and invasive disease – representing tumor progression – from tumors that will not recur. DCIS accounts for over 60,000 new breast cancer diagnoses each year in the U.S.; however, due to the lack of biomarkers to assess risk of progression to invasive disease, clinical management has trended towards treating all patients presumptively as progressors with surgery, radiation therapy, and pharmacological interventions that carry risks for therapy-related adverse events. Initial tests have shown that the newly identified prognostic features accurately identified DCIS patients that would recur with invasive disease with an AUC of 0.83. This work provides new insight into potential etiologies of DCIS progression that will guide development of future prognostic tools to improve patient management.

**Stage of Development**
Proof of concept. The researchers are in the process of validating the features with a blinded cohort.

## Applications

- Prognostic test development

## Advantages

- No comparable tests are currently available

## Publications

- Strand, Siri H., et al. "DCIS genomic signatures define biology and correlate with clinical outcome: a Human Tumor Atlas Network (HTAN) analysis of TBCRC 038 and RAHBT cohorts." bioRxiv (2021).

## Patents

- Published Application: WO2022125959
- Published Application: 20240044900

## Innovators

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