CENTER FOR CANCER RESEARCH

Connecting the Cancer Community

Innovative Science

Breakthrough Therapies

Clinical Advances

Assay to Predict Resistance to Doxorubicin in Breast Cancer

TEDCO/NIH/NCI Technology Showcase
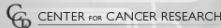
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Technology

- **Method to predict response to therapy**

  (Patent Appln. No. PCT/US2007/068588)

  Low-cost genotyping assay
  - Robust, high-throughput application
  - Taqman allelic discrimination assay, mass spectrometry
  - DNA from blood sample, exfoliated cells (mouthwash)

  Germline *SOD2* polymorphism
  - Single nucleotide polymorphism (rs4880); Val16Ala
  - Variant allele is common
    - Val/Val (20% to 30%); Val/Ala (50% to 60%); Ala/Ala (~20%)

- **Prediction of intrinsic response to doxorubicin therapy in breast cancer**

  Genotyping of DNA samples predicts response
  - Val/Val = Good
  - Val/Ala = Average
  - Ala/Ala = Poor

- **Genotype-guided cancer therapy**
  - Patient stratification by genotype
    - Predicted non-responders (Ala/Ala) will receive an alternative therapy (instead of anthracyclines)
    - Higher overall response rates, improved survival
      - Breast cancer
      - Other anthracycline-sensitive cancers

Collaboration Opportunities

- # Licensing
  - Method to predict response to therapy
- # CRADA
  - Marker validation
    - Neoadjuvant and adjuvant therapy
    - Breast cancer
      - Prediction of therapy response
        (early markers, DFS, OS, side effects)
    - Other anthracycline-sensitive cancers
      - Prediction of therapy response

Contact Information

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