



PRESENTED AT

**RSNA 2010**

PERSONALIZED MEDICINE:  
In Pursuit of Excellence

## Imaging Biomarkers for Clinical Care and Research: Introduction and Overview

Daniel C. Sullivan, M.D.  
Science Advisor, RSNA  
Duke University Medical Center



PERSONALIZED MEDICINE:  
In Pursuit of Excellence

## Biomarker

A characteristic that is objectively measured and evaluated as an indicator of normal biologic or pathogenic processes, or pharmacological responses to a therapeutic intervention.

## Biomarker

A characteristic that is **objectively measured** and evaluated as an indicator of normal biologic or pathogenic processes, or pharmacological responses to a therapeutic intervention.

## Premises:

A biomarker is:

- (Ideally) a measurement;
- (less ideally) a qualitative observation.

Biomarkers can be categorized as:

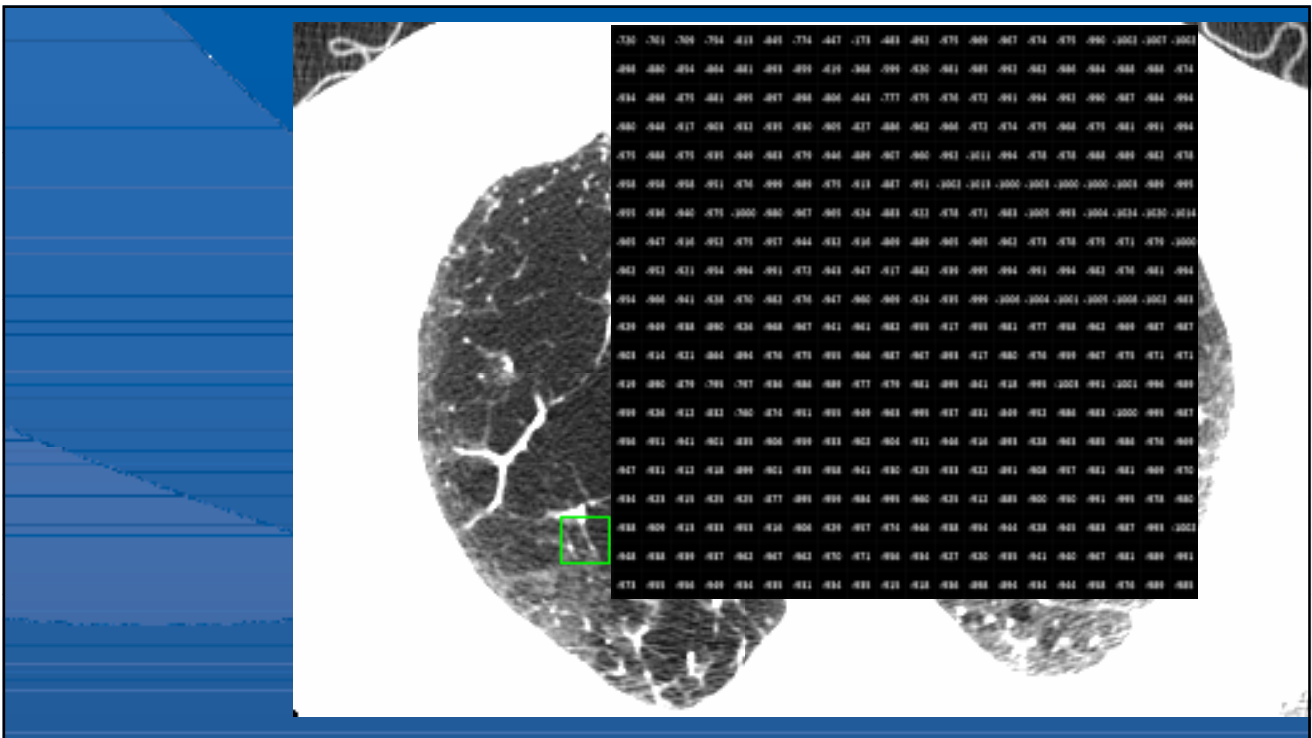
- Specimen biomarkers
- Physiologic biomarkers
- Imaging biomarkers

Biomarkers are useful in:

- Therapeutics development
- Clinical practice

# Premise:

Images are inherently quantitative.



## RSNA Strategic Plan:

Goal 1: Shape and advance the future of radiology.

**1.3 Prepare professionals in radiologic sciences for an increasingly quantitative future.**

Facilitating *imaging as a biomarker in clinical trials* helps RSNA move forward its agenda on quantitative imaging in clinical care.



## To advance QI, RSNA supports a group of related activities:

Educate its membership about QI

*(Toward Quantitative Imaging)*

Improve the radiology research infrastructure

*(CTSA-Imaging Working Group)*

Promote inter-organizational communication about imaging biomarker activities

*(Imaging Biomarkers Roundtable)*

Support efforts to improve the accuracy and precision of imaging biomarkers

*(Quantitative Imaging Biomarkers Alliance -QIBA)*



## Agenda:

4:40 PM Clinical Needs/Value of Imaging Biomarkers

Walter Stadler, MD, (U Chicago Cancer Center)

4:50 PM Performance Evaluation of Imaging Biomarkers

Constantine Gatsonis, PhD, Brown University

5:00 PM Research Needs/Value of Imaging Biomarkers

Gudrun Zahlmann, PhD, Roche Pharmaceuticals

5:10 PM Status of Activities to Meet the Needs

QIBA/Roundtable

Andrew Buckler, MS

NIST

William Ott, PhD

5:30 PM Leveraging the CTSA Program to Support Biomarker Development

Gary Dorfman, MD, Weill Cornell Medical College

5:40 PM Panel Discussion