

Translating Science into Personalized Health Care

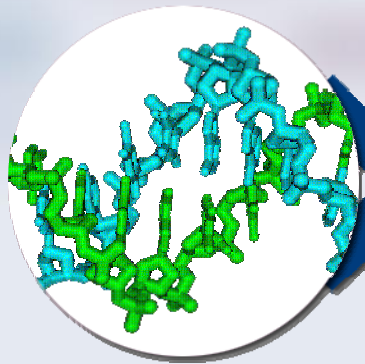
David J. Tweardy, M.D.
Professor and Interim Chair
Department of Medicine
Baylor College of Medicine



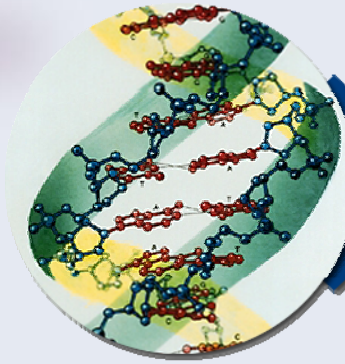


Individualized Care: Providing the right intervention or therapy for the right person at the right time by understanding the individual's biology

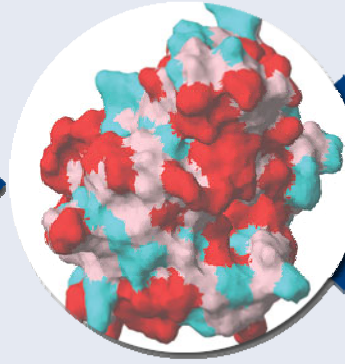
Personal Biology



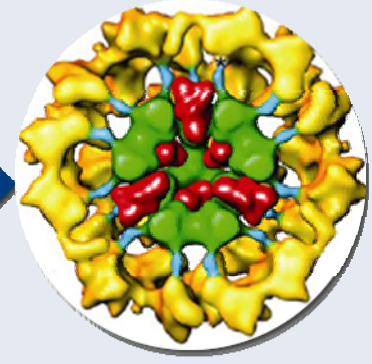
**DNA Sequence
(Genomics)**



**mRNA
(Transcriptomics)**



**Proteins
(Proteomics)**



**Metabolism
(Metabolomics)**

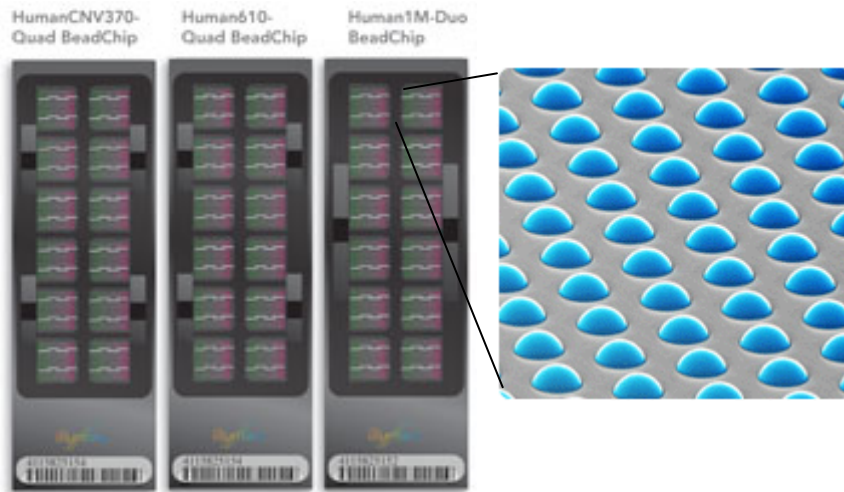
**Individually Tailored Prevention, Diagnostics
And Therapeutics**

Personal Genomic Profile (Baylor Chip): Version 1



- Pharmacogenetics: Detection of variation in 32 genes
- Common Disease Risk: SNPs associated with increased risk of CA, CAD, DM
- HLA transplantation antigens: SNP HCP5 linkage to HLA-B*5701 and abacavir (RTI) sensitivity
- Single Gene Disorders: Detection of mutations in 99 genes predisposing to adult-onset diseases
 - Neurodegenerative diseases (Parkinson's, Alzheimer's)
 - Cancer
 - Cardiovascular disorders

Baylor Chip Implementation



- Equipment installation and training – April 2008
- Clinical validity – ongoing, 100% accuracy so far
- Go live in Women’s Health Clinic – January 2009
- Dynamic versioning based on clinician-laboratory interaction
- Facilitate new research and education programs

BCM Personalized Medicine Alliance



- Provides the organization framework to align the missions of the College and its members into a single vision of individualized patient care in the genomic age.
- Director: Peter G. Traber MD, BCM President
- Co-Directors:
 - David J. Tweardy MD
 - Anthony J Elam, Exec Director for Strategic Initiatives
- Advisory Council: Rotating membership of College thought leaders

Genomic Leadership Residency



- Multi-disciplinary graduate medical education (GME) program that seeks to produce future physician leaders
 - Consummate clinicians in their chosen specialties
 - Added grounding in emerging gene-based (genomic) medicine,
 - Appreciation of the interface between scientific discovery and clinical practice
 - Comfort with multi-disciplinary academic and clinical environments
 - Well-developed set of leadership skills.



Developing an Academic Teaching Hospital for Personalized Medicine: *From the Ground Up*

- Personalized Medicine center of excellence
- Personal service
- Quality benchmarks
- All digital
- Integrated research & education
- Culture of innovation & continual improvement



Goal: Added Healthcare Value