

### Bank of America Specialty Pharmaceuticals Conference

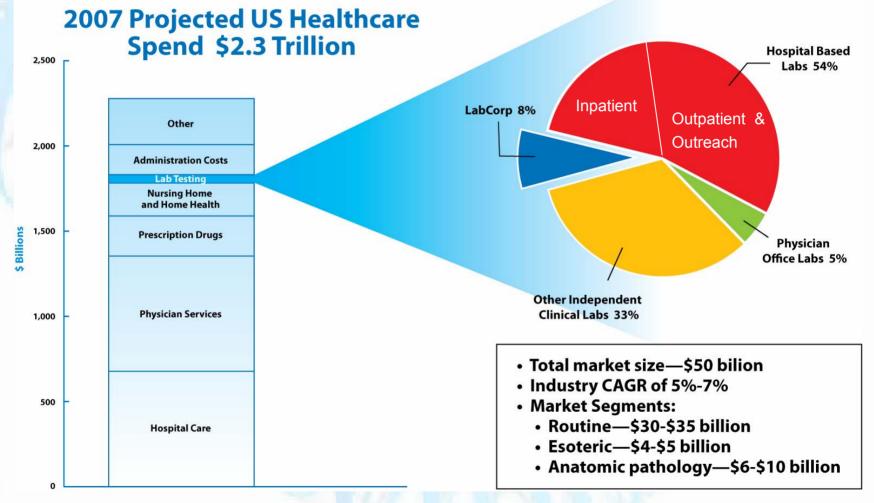
Southampton, NY August 8<sup>th</sup>, 2008

## Introduction

This slide presentation contains forward-looking statements which are subject to change based on various important factors, including without limitation, competitive actions in the marketplace and adverse actions of governmental and other third-party payors.

Actual results could differ materially from those suggested by these forward-looking statements. Further information on potential factors that could affect the Company's financial results is included in the Company's Form 10-K for the year ended December 31, 2007, and subsequent SEC filings.

## The US Healthcare & Clinical Laboratory Testing Market



Source: CMS, Office of the Actuary, G-2, and Company Estimates



## Revenue Growth Drivers

Outcome

#### **Industry Forces**

- Focus on Outcomes and Cost Containment (Medical & Drug)
- Increased emphasis on drug efficacy, proper dosage and adverse effects
- Advances in science and genomics

Margin Potential



Time

## Strategic Focus Areas



### **Scientific Leadership**

- Cancer diagnostics and monitoring
- Advanced cardiovascular disease testing
- Advancement through acquisitions and licensing

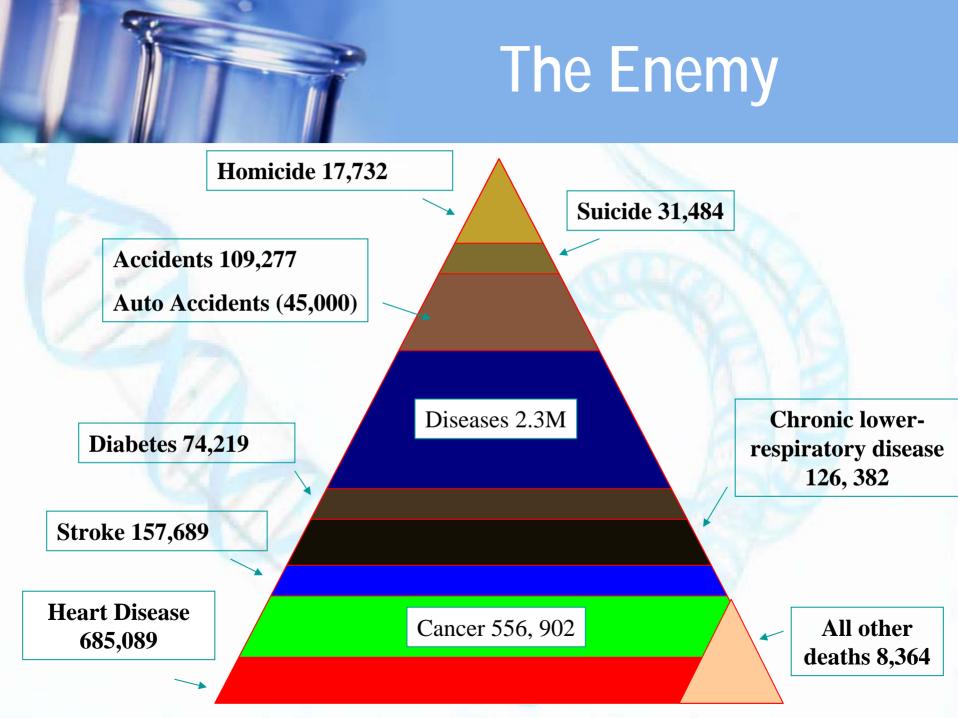
### Managed Care

- Lab data enables better treatment and outcomes
- Partner to control high cost leakage
- Recognize value of lab services through appropriate pricing



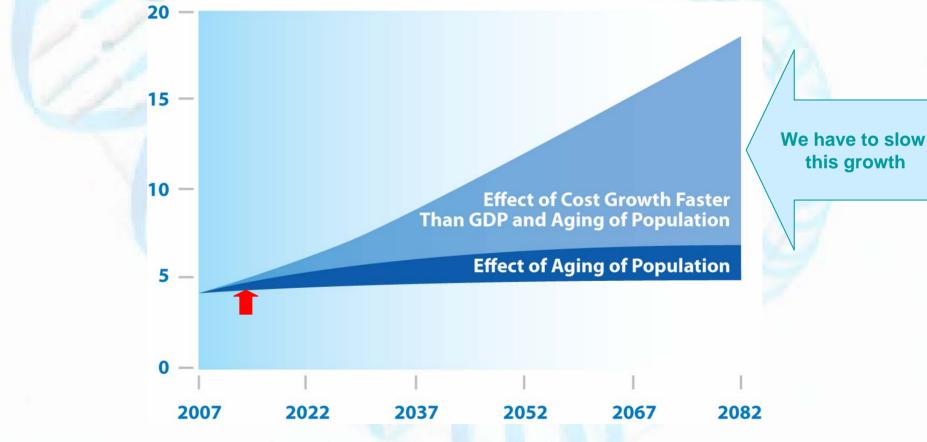
### **Customer Focus**

- Quality and service driven culture
- First-time problem resolution
- Continuous enhancements in customer connectivity



## The Value of Lab Testing

Sources of Growth in Projected Federal Spending on Medicare and Medicaid (Percentage of GDP)



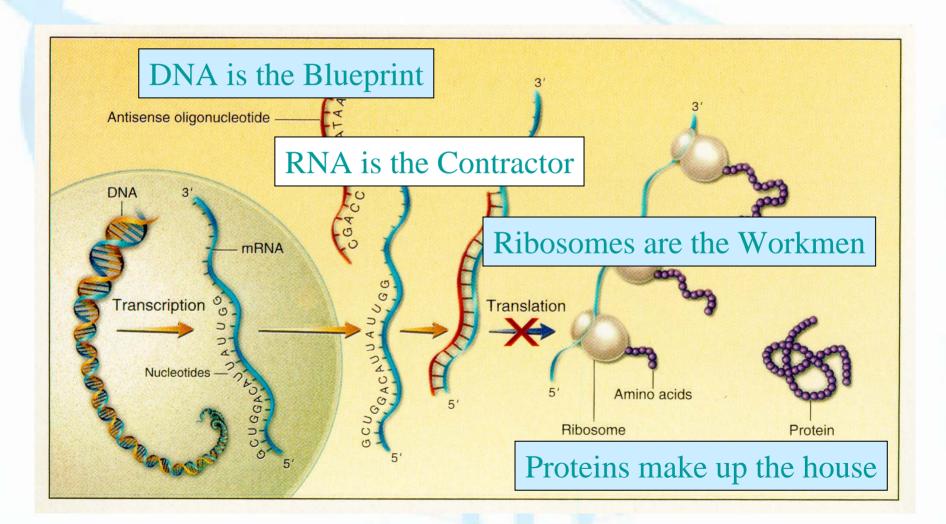
Source: Congressional Budget Office, November 2007



The Healthcare Conundrum

Healthcare cost the United States 2.3 trillion dollars in 2007 Lab tests cost \$50 Billion Imaging is about the same. 90% of the medical decisions are made from information derived at a small % of the cost. We bring the most value!

## DNA, RNA, Protein Path



## Personalized medicine: Pharmacogenetics

### Individual genetic variation effects drug response

Pharmacokinetics – what the body does to the drug

Pharmacodynamics – what the drug does to the body

All patients with same diagnosis

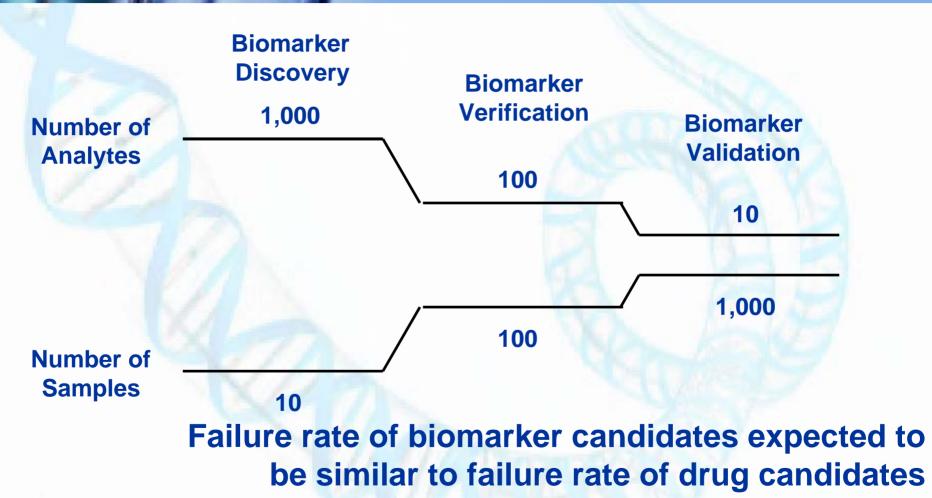
### **Standard therapy**

Responders and Patients Not Predisposed to Toxicity Alternate therapy

and toxic responders



# - Markers of disease state or drug effect



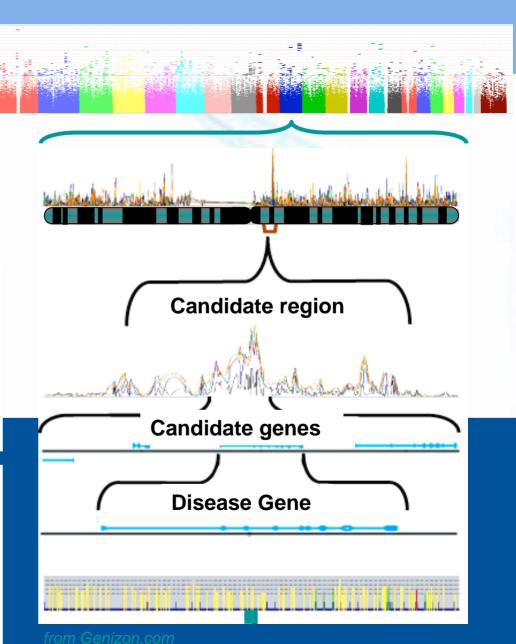
## Genome Wide Association Studies (GWAS)

Unbiased genome wide approach using 1000's of individuals across very high density SNP chip arrays

Illumina 370k 550k/650kY 1 million ~95%

Affymetrix 100k 500k 1 million ~93%



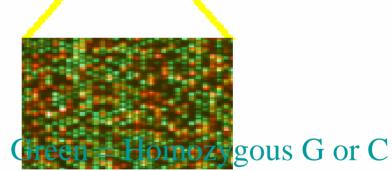


### The SNP Chip

### BEADCHIP







Red = Homozygous A or T Yellow = Heterozygous

## 2007: The year of GWAS

The NEW ENGI	A Common 9p21 Affect Myocardia	genetics
Whole-Genor Amyotrop Travis Dunckley, Ph.D., Matth John V. Pearson, B.Sc., Sz Rebecca F. Halperin, B.Sc., C David Letizia, M.S., Shard Todd Levine, M.D., Tulio Tahseen Mozaffar, M.D., C April McVev, M.D. A	The NEW ENGLAND JOURNAL of MEDICINE ESTABLISHED IN 1812 AUGUST 30, 2007 VOL. 357 NO. 9 Risk Alleles for Multiple Sclerosis Identified by a Genomewide Study The International Multiple Sclerosis Genetics Consortium*	less legs syndrome nomic regions pke <sup>2</sup> , Lan Xiong <sup>4</sup> , tephanie Hauk <sup>1,3</sup> , ng Oertel <sup>7</sup> , Jacques Montplaisir <sup>11,12</sup> , ch Wichmann <sup>14,15</sup> , uzzatto,
Mike Weale Alessandro Simon Mall Josiane Wyr Andrew J. N Miguel Regueiro <sup>12</sup> , 1	rectal rectal pathogenesis umnik J Xavier <sup>3</sup> , Kent D Taylor <sup>4</sup> , Mark S Silverberg <sup>5</sup> , Philippe Goyette <sup>1</sup> , Alan Huett <sup>3</sup> , Kuballa <sup>3</sup> , M Michael Barmada <sup>6</sup> , Lisa Wu Datta <sup>7</sup> , Yin Yao Shugart <sup>8</sup> , Anne M Griffiths <sup>9</sup> , Andrew F Ippoliti <sup>4</sup> , Edmond-Jean Bernard <sup>10</sup> , Ling Mei <sup>4</sup> , Dan L Nicolae <sup>11</sup> , Peter Brod	ortium, Andrew Silver <sup>2</sup> ,

Richard Gray<sup>8</sup>, Huw Thomas<sup>9</sup>, Julian Peto<sup>10,11</sup>, Jean-Baptiste Cazier<sup>12</sup> & Richard Houlston<sup>3</sup>

## Proteomics

# Black Swallowtail - larvae and butterfly same





Same DNA but very different proteome

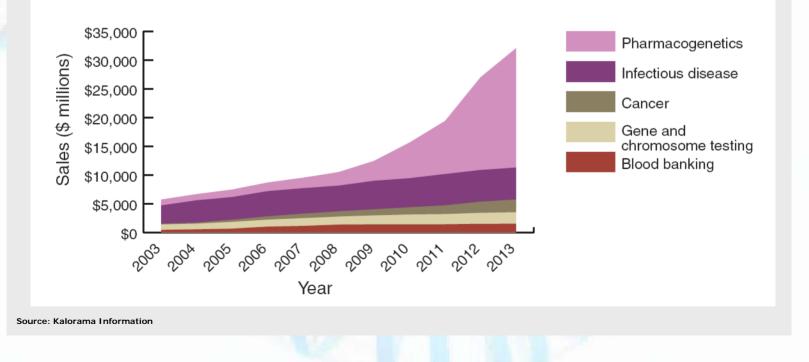
- One cannot understand the biology without understanding the proteome



## Revenue Drivers Molecular Testing

### US molecular diagnostic testing market

Pharmacogenetic tests aren't expected to see aggressive revenue growth until around 2010.





## Publicly Announced Relationships

Partner	Clinical Area	
ARCA Discovery	Companion Diagnostics (CVD) (exclusive)	
Celera Diagnostics	Breast Cancer	
Duke University	Lung Cancer (exclusive)	
Exact Sciences	Colon Cancer	
Intema Ltd.	Prenatal Testing	
lpsogen	Molecular Diagnostics	
Medco Health Solutions	Companion Diagnostics (Research)	
OMS	Companion Diagnostics (Oncology) (exclusive)	
Siemens Health Solutions	Companion Diagnostics (Oncology and CVD)	
SmartGene	Bioinformatics Tools	
Third Wave Technologies	Companion Diagnostics (CVD)	
Vanda Pharmaceuticals	Companion Diagnostics (Oncology) (exclusive)	
Veridex	Prostate Cancer	
Yale University	Ovarian Cancer (exclusive)	

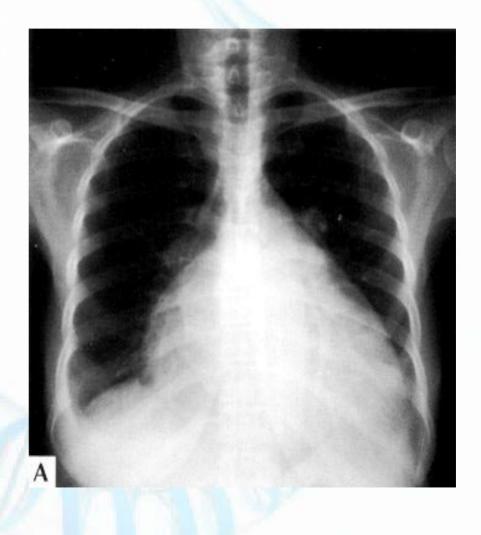
# Congestive Heart Failure Bucindolol and New Thinking

### Pathophysiological Definition:

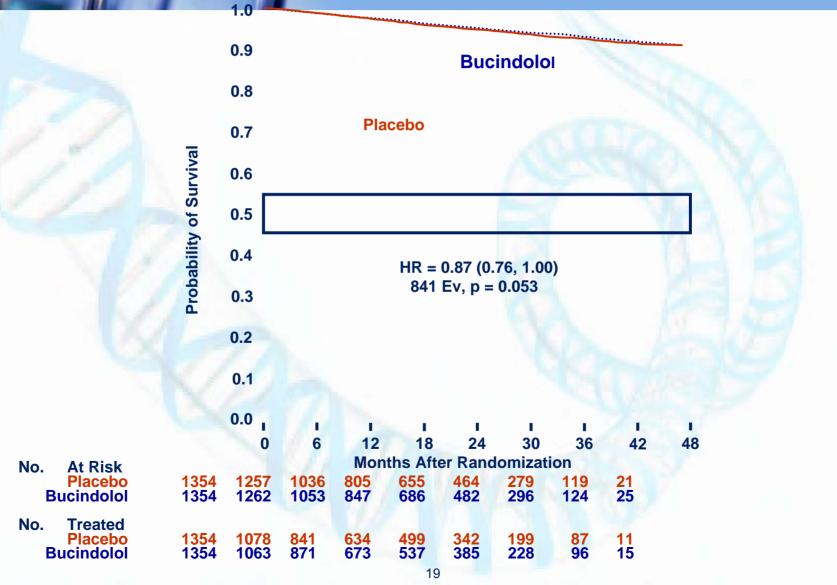
A condition in which the heart is no longer able to pump an adequate supply of blood to meet the metabolic needs of tissues.

### **Clinical Definition:**

A condition in which ventricular dysfunction causes reduced exercise capacity.



# BEST trial, *all-cause mortality* full model (covariate adjusted, transplant censored)





### The New England Journal of Medicine

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NUMBER 15



#### SYNERGISTIC POLYMORPHISMS OF $\beta_1$ - AND $\alpha_{2C}$ -ADRENERGIC RECEPTORS AND THE RISK OF CONGESTIVE HEART FAILURE

KERSTEN M. SMALL, PH.D., LYNNE E. WAGONER, M.D., ALBERT M. LEVIN, M.P.H., SHARON L.R. KARDIA, PH.D., AND STEPHEN B. LIGGETT, M.D.

Small et al, N Engl J Med 347:1135-1142, 2002

## Adrenergic receptor β<sub>1</sub> 389 Arg/Gly and α<sub>2c</sub> Wt/Del genotype combinations

### **Gene Variants**

β<sub>1</sub> 389 Arg/Arg + α<sub>2c</sub> 322-325 Del or Wt (47% of BEST, 51% U.S.)

 $\beta_1$  389 Gly carrier +  $\alpha_{2c}$  322-325 Wt/Wt (40% of BEST, 39% of U.S.)

 $β_1$  389 Gly carrier +  $α_{2c}$  322-325 Del carrier (13% of BEST, 10% of U.S.) Bucindolol Rx interaction Much higher efficacy in β<sub>1</sub> Arg/Arg overcomes α<sub>2c</sub> Del adverse effects

### **Net Effects**

"Very Favorable genotype"

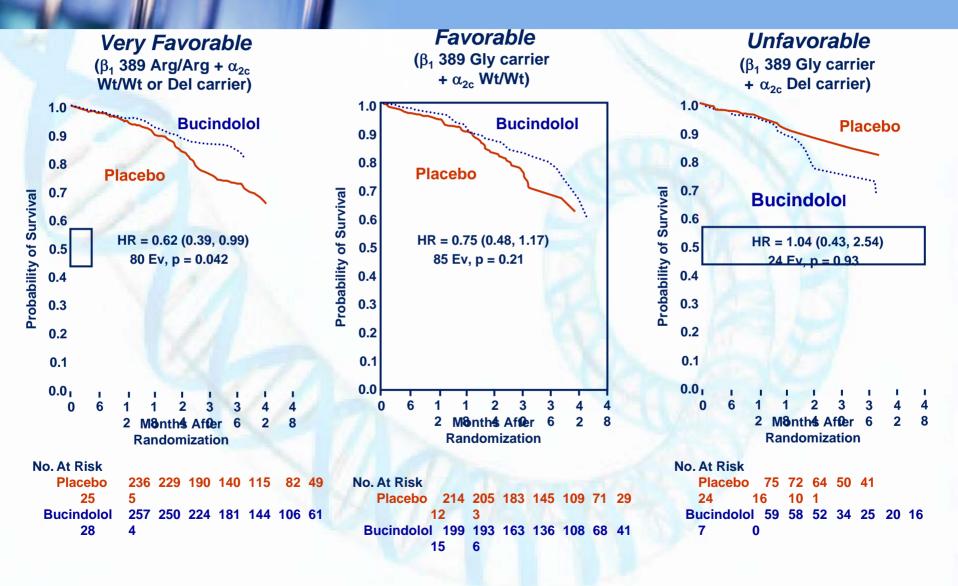
(HF EP effect sizes 34-48%)

Efficacy from mild NE lowering adds to some efficacy in  $\beta_1$  389 Gly "Favorable genotype"

(HF EP effect sizes 19-40%)

Adverse effects of  $\alpha_{2c}$  Del "Unfavorable genotype"neutralizes low efficacy of<br/> $\beta_1$  389 Gly(No efficacy)

### All-cause Mortality by β<sub>1</sub> 389/α<sub>2c</sub> 322-325 genotypes Adjusted Analysis





## *Stroke Warfarin - Safety*

- Over-anticoagulation associated with bleeding
- Bleeding events most likely within the first 90 days of therapy
- One-third of INR values exceed target range in first month of therapy
- 7% of patients suffer a major hemorrhage
- Relative risk of fatal extracranial bleeds 4.8%
- Rate of major bleed within six months range 5.6% to 12%
- Near top in most surveys of adverse events
- Average cost per patient of a bleeding episode \$15,988 with a mean hospital stay of 6 days

Evans et al Annals of Pharmaco 39:1161-1168 2005, Schulman et al NEJM 349:675-683 2003, Eikelboom & Hankey Med J Aust 180:549-551 2004, Schulman Hematology 6<sup>th</sup> Edition 2001:1777-92, Clinical Pharmacology Subcommittee (CPSC) Nov 14-15, 2005 Proceedings, Beyth et al Ann Intern Med 2000 133(9):687-695, Wadelius and Pimohamed J Pharmacogenomics 1-13 2006.

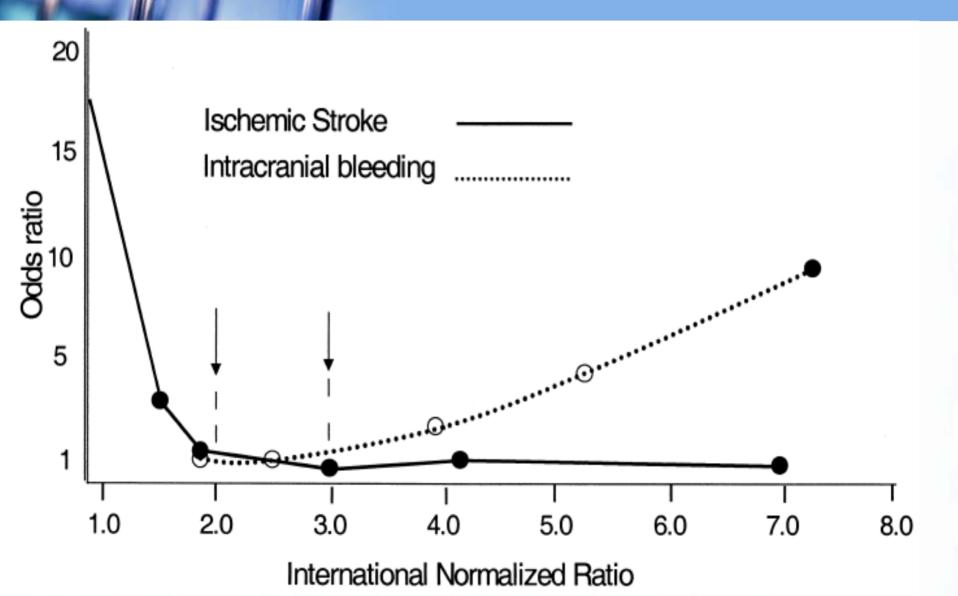
# Warfarin – Black Box

#### WARNING: BLEEDING RISK

Warfarin sodium can cause major or fatal bleeding. Bleeding is more likely to occur during the starting period and with a higher dose (resulting in a higher INR). Risk factors for bleeding include high intensity of anticoagulation (INR >4.0), age  $\geq$ 65, highly variable INRs, history of gastrointestinal bleeding, hypertension, cerebrovascular disease, serious neart disease, anemia, maignancy, trauma, renal insufficiency, concomitant drugs (see **PRECAUTIONS**), and long duration of warfarin therapy. Regular monitoring of INR should be performed on all treated patients. Those at high risk of bleeding may benefit from more frequent INR monitoring, careful dose adjustment to desired INR, and a shorter duration of therapy. Patients should be instructed about prevention measures to minimize risk of bleeding and to report immediately to physicians signs and symptoms of bleeding (see **PRECAUTIONS: Information for Patients**).

Warfarin sodium can cause major or fatal bleeding. Bleeding is more likely to occur during the starting period and with a higher dose (resulting in a higher INR).

## Warfarin: Optimal Dose





## *Genetic Factors and Warfarin Dosing*

February 2005 · Vol. 7 · No. 2

## 2 genes $\rightarrow$ 3 SNPs $\rightarrow$ Reduced Activity

- Two genes play key role in the response to warfarin
- Variants significantly impact the rate of warfarin metabolism and amount of drug target available
- Pharmacokinetics CYP2C9
- Pharmacodynamics VKORC1

#### PHARMACOGE **CYP2C9** gene variants, drug dose, and bleeding risk GENOMICS in warfarin-treated patients: A HuGEnet<sup>™</sup> www.chart.com/doc/systematic review and meta-analysis

VKORC1 and C. Simon Sanderson, DPH<sup>1</sup>, Jon Emery, DPhil<sup>2</sup>, and Julian Higgins, PhD<sup>3</sup>

acenocoumarol antice Interaction between overanticoagulation

### Sensitivity

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response within individuals, the interindividual dose range required to

A Genetic Component to Coumarin

roviow

Combined genetic profiles of components and r A *C1173T* Dimorphism in the *VKORC1* Gene dependent? -carboxylation system affect indivi- Determines Coumarin Sensitivity

Manuela Vecsler 1, 3, Ronen Loebstein 2, Shlomo Almog 2, 3, and Bleeding Risk Hillel Halkin 2, 3, Eva Gak 1, 3

Pieter H. Reissma<sup>1</sup>, Jeroen F. van Heijden<sup>1</sup>, Angelique P. Groot<sup>1</sup>, Frits R. Rosendan<sup>2</sup>, Harry R. Büllen<sup>2</sup> 1 Danek Gertner Institute of Human Genetics and 2 Institute of Literator Experiment Antonick Kundenska Contex, University of Antonick, Antonick Kunde (Jerosenska Contex), Contex of Control (Jerosenska) Contex, Statistica Contex, University of Antonick, Antonick Kunde (Jerosenska) Contex, University of Antonick, A

Summary HEMOSTASIS, THROMBOSIS, AND VASCULAR BIOLOGY

Cytochrome P450 2C9 (*CYP2C9*) and vitamin K epoxide reductase (*VKORC1*) genotypes as determinants of acenocoumarol sensitivity

Laurent Bodin, Céline Verstuyft, David-Alexandre Tregouet, Annie Robert, Liliane Dubert, Christian Funck-Brentano, Patrice Jaillon, Philippe Beaune, Pierre Laurent-Puig, Laurent Becquemont, and Marie-Anne Loriot



# Role of CYP2C9 and VKORC1

### **Pharmacokinetics**

- CYP 2C9 = Sets the rate I terminates the drug activity
- Genetic variations in CYP2C9 alter S-warfarin clearance
- CYP2C9\*2 and CYP2C9\*3 alleles significantly

VKORC1 = Sets the amount
 Significantly associated with lower maintenance

doses

Li et al., 2004 Nature vol 427:541-544; Rost et al., 2004 Nature Vol 427:537-541; Reider et al., 2005 NEJM 352:2285-93; Takahashi & Echizen 2003 Pharmacogenomics 13:20 Significantly associated with increased time to stable dose



# Lung Cancer

- In a large collaborative study 31,567 asymptomatic people were screened for lung cancer using low dose CT.
- 821 suspicious lesions were detected.
- 412 turned out to be stage 1 lung cancer.
- 409 turned out to be benign.
- It takes very dangerous biopsy or PET scan to tell the difference.

NEJM Volume 355:1763-1771

### Duke Lung Cancer Markers

The Duke Lung **Cancer markers** are serum proteins which differentiate between benign lesions and true cancers with a simple serum based test.

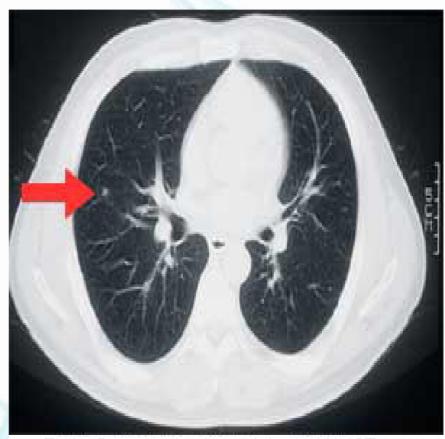


Fig1 : 5mm lung cancer detected by CT scan

## Treatment Algorithm

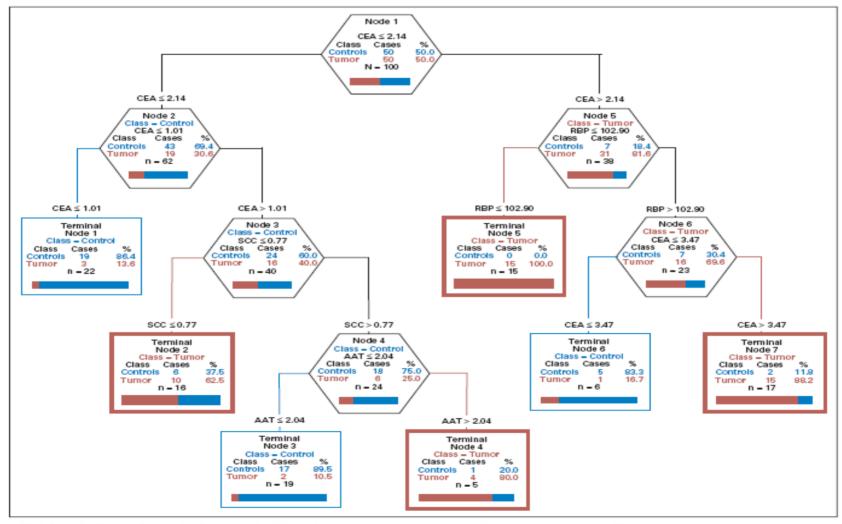


Fig 1. Classification and Regression Tree analysis of the training set selected four proteins with seven terminal nodes. The three terminal cancer nodes have a bold outline. CEA, carcinoembryonic antigen; RBP, retinol binding protein; SCC, squamous cell carcinoma antigen; AAT, α1-antitrypsin.

# Serum Protein Markers for Early Detection of Ovarian Cancer

5-year survival rates
70-80% among the
25-30% of patients
diagnosed with stage I or II

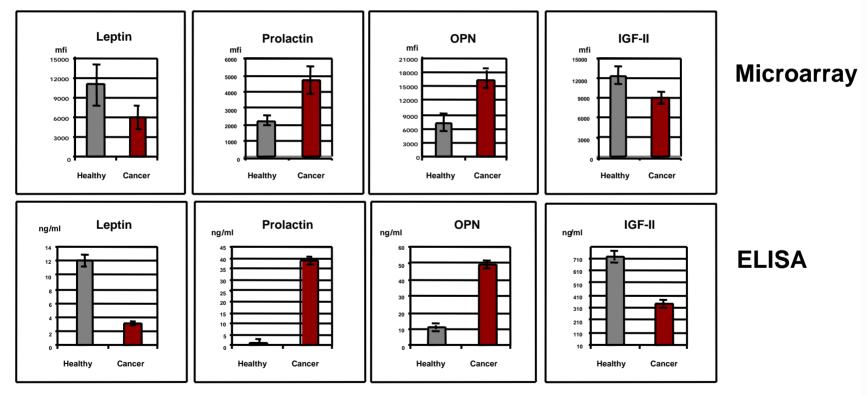
20-30% survival among the>70% of patients diagnosed with stage III or IV

- Averette, H. E. *et al.* Cancer 1995;76(6):1096-1103.
- Meyer, T. & Rustin, G.J.S. British Journal of Cancer 2000;82(9):1535-1538.
- Peters-Engl, C. et al. British Journal of Cancer 1999;81(4):662-666.





# VALIDATION



Leptin



Osteopontin

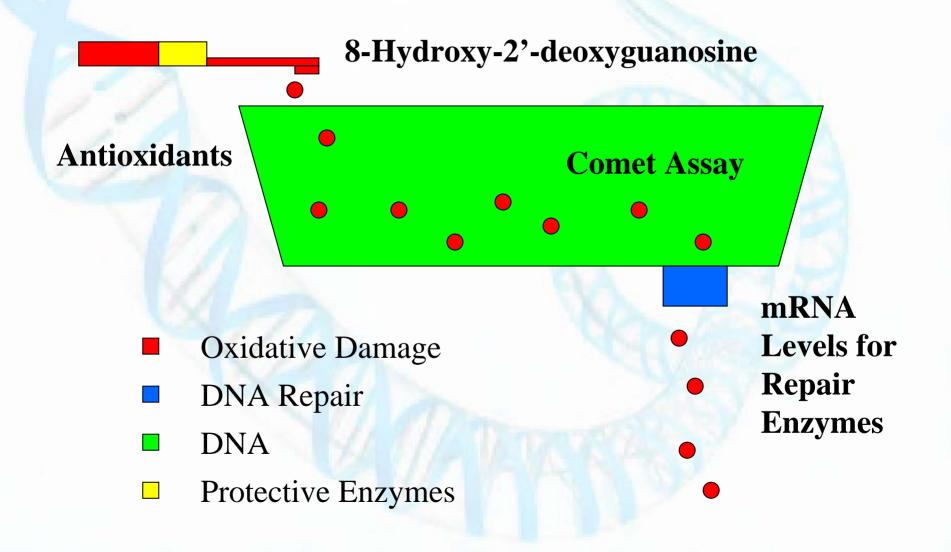
Insulin-like GrowthFactor-ll

# What About Prevention?

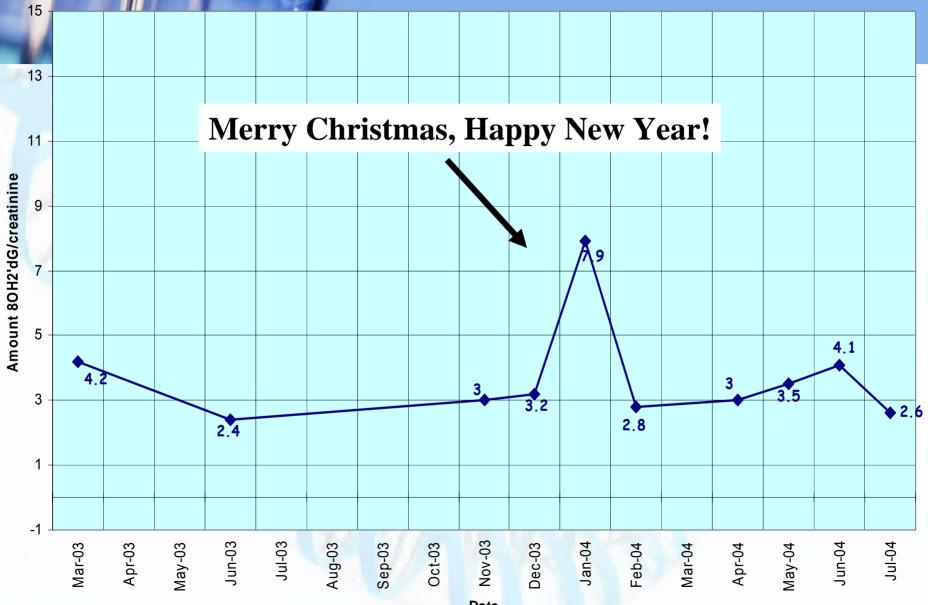
"The time to repair the roof is when the sun is shining." -- John F. Kennedy

Difficult job because you need to influence individual behavior.

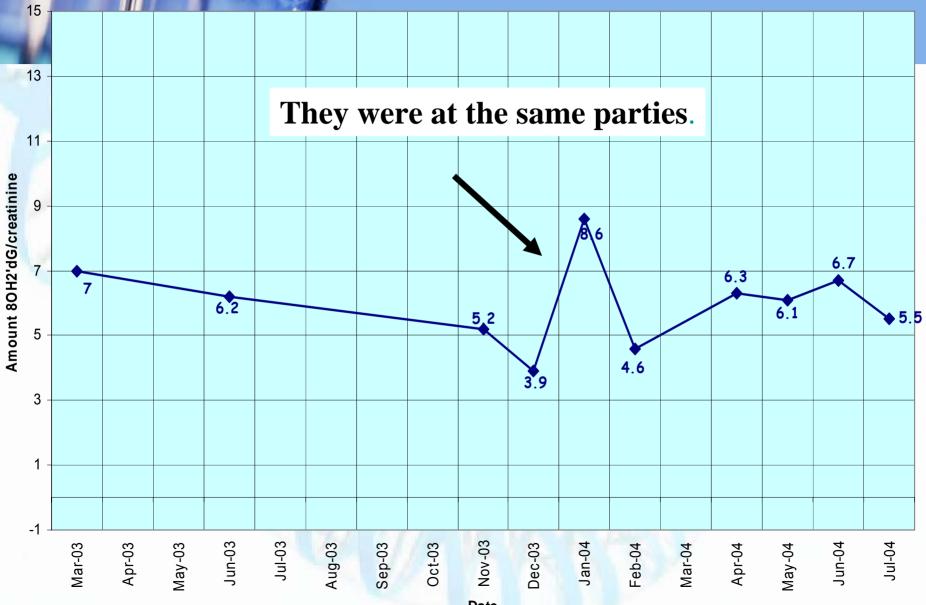
Measuring The Balance of DNA Damage and Repair In order to find out which way to go you have to know where you are.



ReiCa, 80H2'dG profile

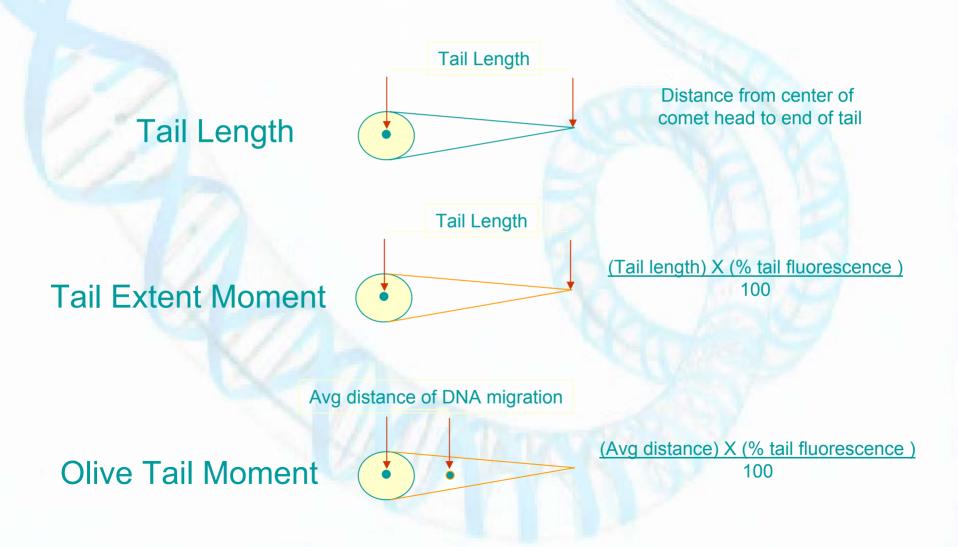


ReiEs, 80H2'dG profile

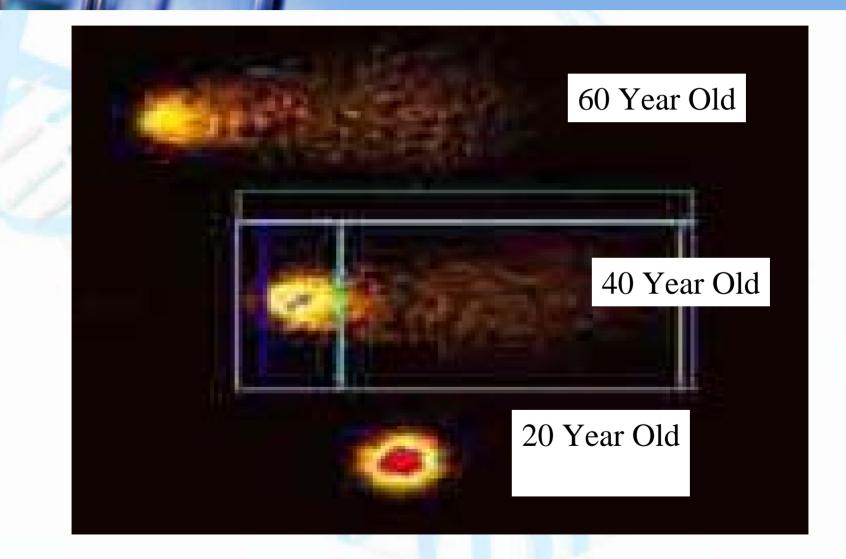


Date

## DNA damage may be calculated using different measurements



# Color Enhanced Comet Assay Photo We can tell you your Real DNA Age





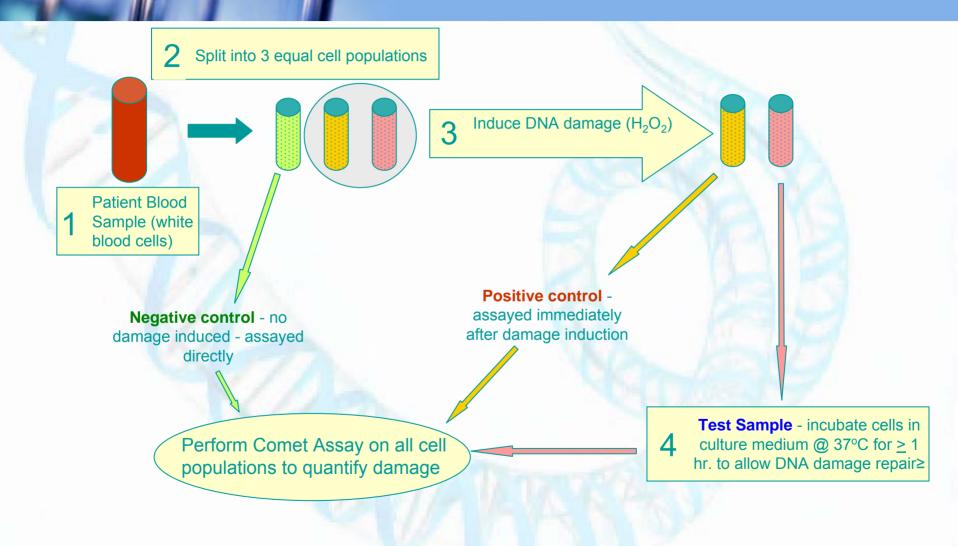
# Titrating H<sub>2</sub>O<sub>2</sub> to induce DNA damage

# Та Jurkat E6-1 cell line Negative Control **200** μM $H_2O_2$ **600** μM $H_2O_2$ **1000** μM $H_2O_2$

ail Extent Moment	Olive Tail Moment	Tail Length		
8.4	2.2	28.7		
51.8	17.7	75.7		
58.6	21.4	79.8		
64.8	23.8	85.2		

9/20/05

### DNA Repair Capacity Analysis Assay





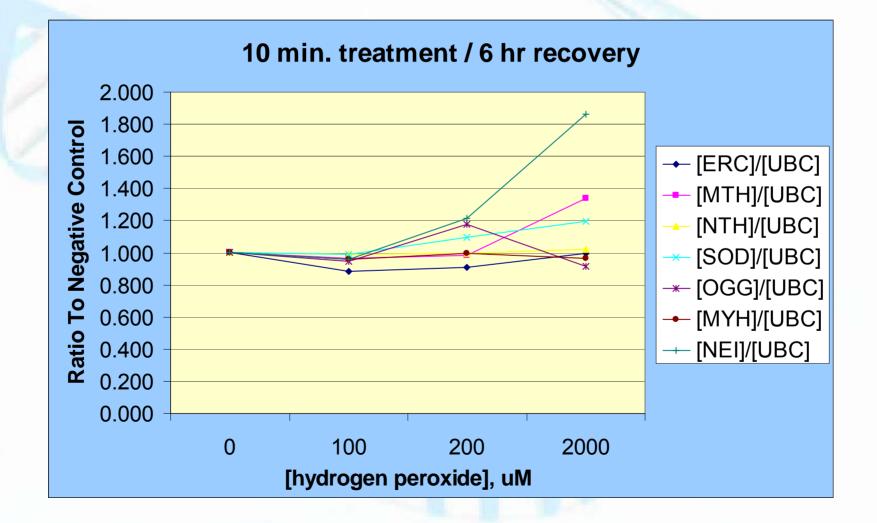
**OGG1** 8-oxoG DNA Glycosylase MTH1 MutT Homologue-1 NEIL1 nei endonuclease VIII-like 1 protein **ERCC1** Excision Repair Cross-Complementing gene **MYH** MutY Homologue HOX 1 Heme Oxygenase I NTH1 Nth Homolog 1 **APE 1** AP Endonuclease 1 Antioxidant Enzyme **SOD-1** Super Oxide Dismutase Housekeeping Gene

**UBC** Ubiquitin C

Housekeeping gene is quantified alongside enzymes via multiplex PCR

- Enzyme concentrations are reported as a ratio relative to UBC
- Resulting ratios are compared between test samples and controls to indicate degree of up-regulation, if any

#### Rapid, short exposure to H<sub>2</sub>O<sub>2</sub> followed by 6 hour recovery incubation induces some enzyme up-regulation



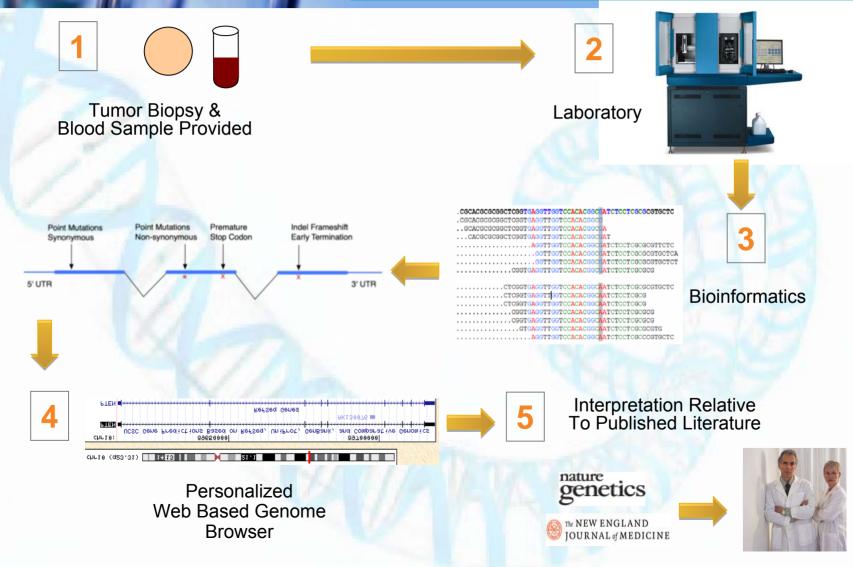
# A Really Cool Thing

Cancer is linked to changes in the genome in a more direct way than the other major diseases.

This gives an opportunity to try something really special.

• We could sequence the cancer genome.

# **Process to Determine Cancer Genome**



# Next Generation Sequencing

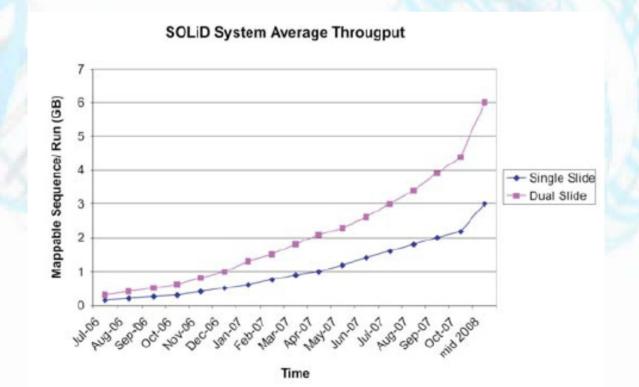
#### 2001

- First human genome assembled (85% complete) for about \$200 million, huge teams, and years of work from about 24 billion bases of raw sequence.
- 2006
  - 454 introduces massively parallel sequencer: 40 million bases of raw sequence in 1 day for \$10,000: Declare sequencing of Jim Watson (~4-5x coverage though) for about \$1million. Genome sequence would cost about \$6 million at 20x and require 1500 days of machine time.
- 2007
  - Illumina introduces 'sequencing by synthesis' generates about 1 billion based of raw sequence in 4 days for \$4000. Genome sequence possible at \$240,000 in about 240 days of machine time.
- 2008
  - ABI Solid introduces sequencing by ligation generates about 4 billion bases of raw sequence in 5 days for \$7000. Sequences Yoruban individual at 10x coverage for \$60,000 in reagent costs (\$120,000 to generate sufficient sequence for complete genome) and requires 75 days of machine time
- 2008
  - release of Helicos will probably not change pricing much
- 2009-2011



# ABI Solid Systems

- ABI Solid Sequencer can generate 5 billion bases every 5 days, and is advancing rapidly.
- 12 runs of a single machine (60 days) generates sufficient sequence to Cover the whole genome.





# Collaborators

- We have forded relationships with:
   Duke
  - Harvard/MIT
  - UCLA
  - We will do this in the next two years!

# Five-Year Revenue and EPS Trend

#### Revenue CAGR of 8.5% – Diluted EPS CAGR of 18.6%



# Five-Year OCF and EBIDTA Margin Trend

#### OCF CAGR of 6% – EBITDA Margin Growth of 210 bps



Includes approximately \$50 million of benefit from one-time tax credits recorded in 2003.

Excluding the impact in 2005 of restructuring and other special charges and a nonrecurring investment loss.

Excluding the impact in 2006 and 2007 of restructuring and other special charges

As a result of adopting FASB 123(R) in 2006, the Company recorded incremental stock compensation expense of \$23.3 and \$26.7 in 2006 and 2007, respectively.

#### Second Quarter Results (In millions, except per share data)

	6	30/2007	6/	30/2008	+/(-)
Revenue	\$	1,043.1	\$	1,147.8	10.0%
EBITDA <sup>(1)</sup>	\$	279.6	\$	301.1	7.7%
<b>EBITDA Margin</b>		26.8%		26.2%	(60) bp
Diluted EPS <sup>(2)</sup>	\$	1.09	\$	1.24	13.8%

(1) Excludes restructuring and other special charges of \$4.1 and \$61.0 million recorded by the Company in the second quarter of 2007 and 2008, respectively.

(2) Excludes the \$0.04 and \$0.32 per diluted share impact of the restructuring and other special charges recorded in the second quarter of 2007 and 2008, respectively.

### YTD Second Quarter Results (In millions, except per share data)

	6/	/30/2007	6/	/30/2008	+/(-)
Revenue	\$	2,041.8	\$	2,251.0	10.2%
EBITDA <sup>(1)</sup>	\$	540.1	\$	586.6	8.6%
<b>EBITDA Margin</b>		26.5%		26.1%	(40) bp
Diluted EPS <sup>(2)</sup>	\$	2.06	\$	2.38	15.5%

(1) Excludes restructuring and other special charges of \$4.1 and \$61.0 million recorded by the Company through the second quarter of 2007 and 2008, respectively.

(2) Excludes the \$0.03 and \$0.32 per diluted share impact of the restructuring and other special charges recorded through the second quarter of 2007 and 2008, respectively.

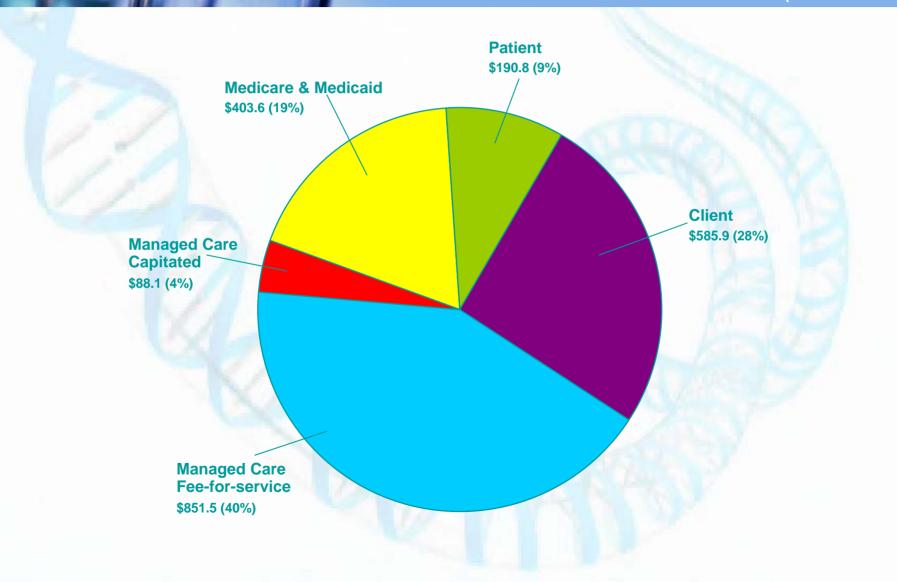
# 2008 Second Quarter Financial Achievements

- Diluted EPS of \$1.24<sup>(1)</sup>
- EBITDA margin of 26.2% of net sales <sup>(2)</sup>
- **Operating cash flow of \$194.7 million**
- Increased revenues
  - 10.0% (9.0% volume; 1.0% price)
    - Excl. Canada 3.6% (1.3% volume, 2.3% price)
- Repurchased approximately \$10.8 million of LabCorp stock
- (1) Excludes the \$0.32 per diluted share impact of the restructuring and other special charges recorded in the second quarter of 2008.
- (2) Excludes the restructuring and other special charges of \$61 million recorded by the company in the second quarter of 2008.

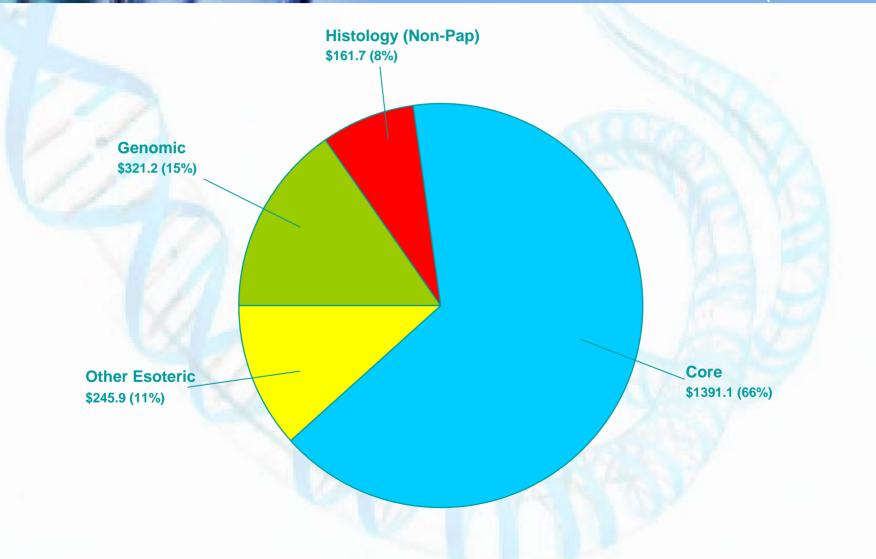
# 2008 YTD Second Quarter Financial Achievements

- Diluted EPS of \$2.38<sup>(1)</sup>
- EBITDA margin of 26.1% of net sales<sup>(2)</sup>
- **Operating cash flow of \$371.2 million**
- Increased revenues
  - 10.2% (8.8% volume; 1.4% price)
    - Excl. Canada 3.8% (1.4% volume, 2.4% price)
- Repurchased approximately \$66.5 million of LabCorp stock
- (1) Excludes the \$0.32 per diluted share impact of the restructuring and other special charges recorded through the second quarter of 2008.
- (2) Excludes the restructuring and other special charges of \$61 million recorded by the company through the second quarter of 2008.

# Revenue by Payer- US YTD Q2 2008 (In millions)



## Revenue by Business Area - US YTD Q2 2008 (In millions)



## Reconciliation of Non-GAAP Financial Measures (In millions)

1) EBITDA represents earnings before interest, income taxes, depreciation and amortization, and includes the Company's proportional share of the underlying EBITDA of the income from joint venture partnerships. The Company uses EBITDA extensively as an internal management performance measure and believes it is a useful, and commonly used measure of financial performance in addition to earnings before taxes and other profitability measurements under generally accepted accounting principles ("GAAP"). EBITDA is not a measure of financial performance under GAAP. It should not be considered as an alternative to earnings before income taxes (or any other performance measure under GAAP) as a measure of performance or to cash flows from operating, investing or financing activities as an indicator of cash flows or as a measure of liquidity. The following table reconciles earnings before income taxes, representing the most comparable measure under GAAP, to EBITDA for the three-month period ended March 31, 2008 and 2007:

			Ľ
	Three	Three Months Ended March 31,	
	Ended M		
	2008	2007	
Earnings before income taxes	\$ 221.9	\$ 208.9	
Add (subtract):			
Interest expense	19.9	12.6	
Investment income	(0.5)	(2.1)	
Other (income) expense, net	0.6	0.4	
Depreciation	29.2	26.3	
Amortization	13.8	13.3	
Joint venture partnerships' depreciation			
and amortization	0.6	1.1	
EBITDA	\$ 285.5	\$ 260.5	

