



Novel standards and diagnostic solutions

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Media Briefing
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Market Participation



*Roche Diagnostics participate in distinct and unique markets:
Life Science, Professional Diagnostics and Patient Care*

Life Science



Professional Diagnostics



Patient Care



Roche Applied Science



Roche Molecular Diagnostics



Roche Centralized Diagnostics

Roche Near Patient Testing



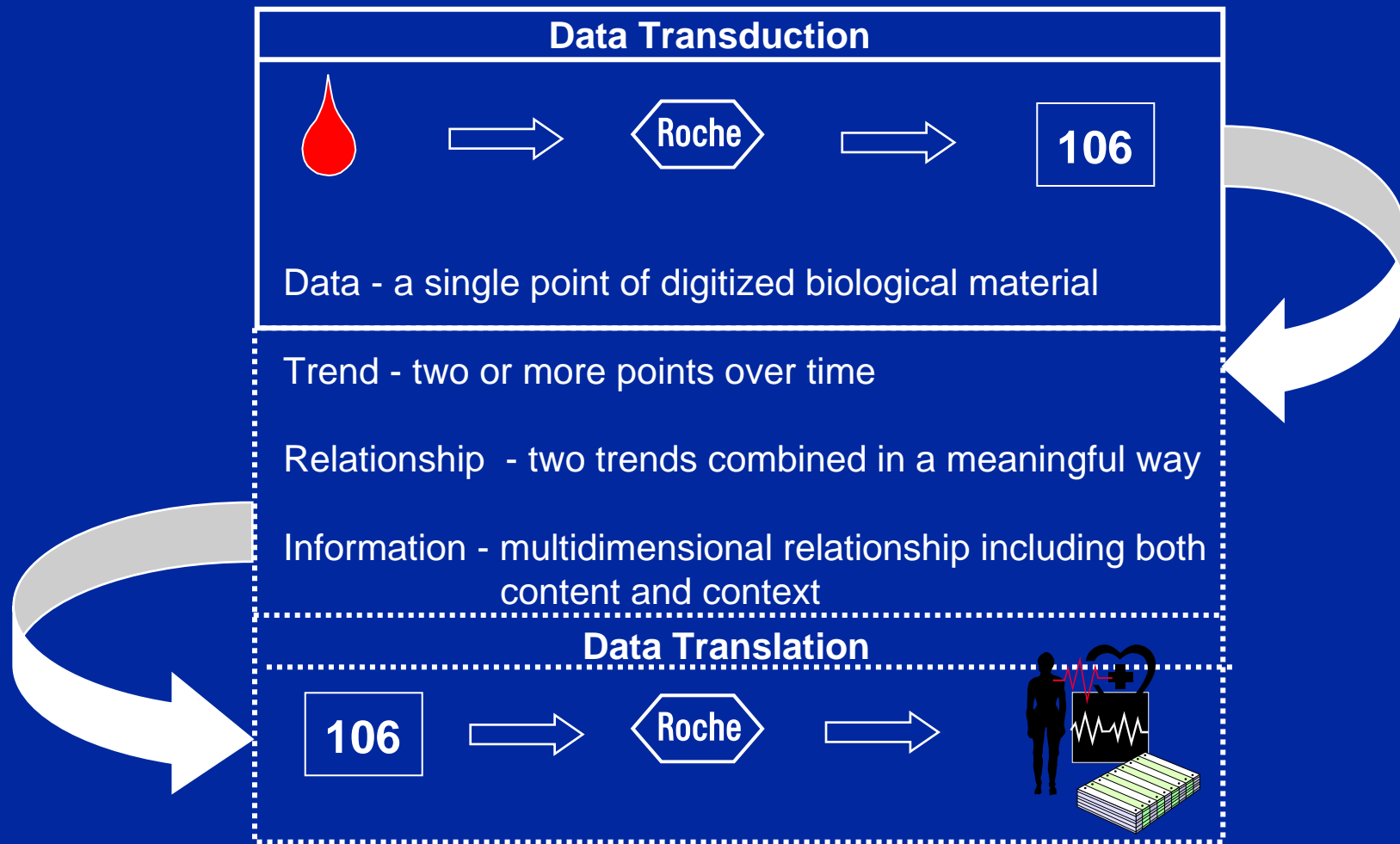
Roche Diabetes Care

Roche Diagnostics

broad portfolio of capabilities



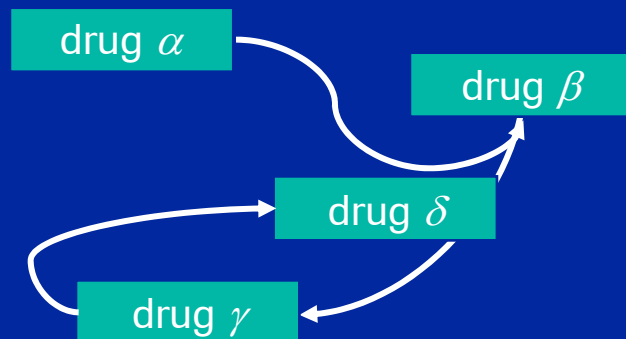
Moving from data production to information provision



Towards more rational therapeutic decisions

Today

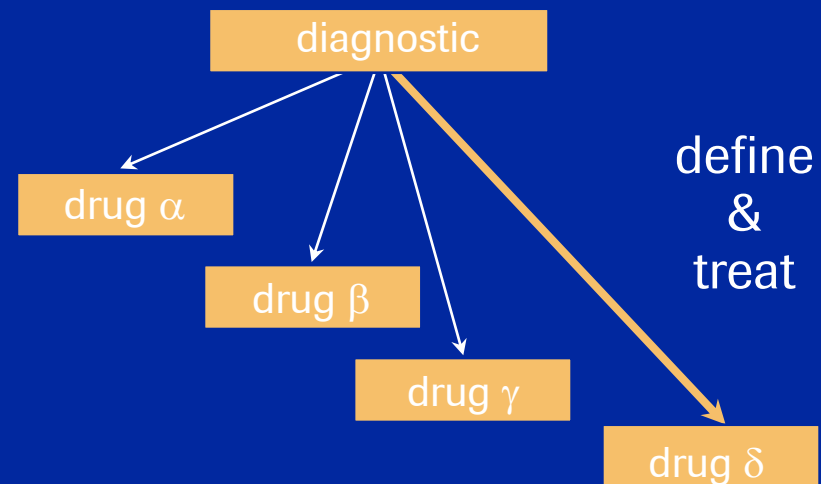
empirical prescription “mass market”



Decision: individual physician experience
Cost: time, money & well-being

Future

rational prescription “targeted”

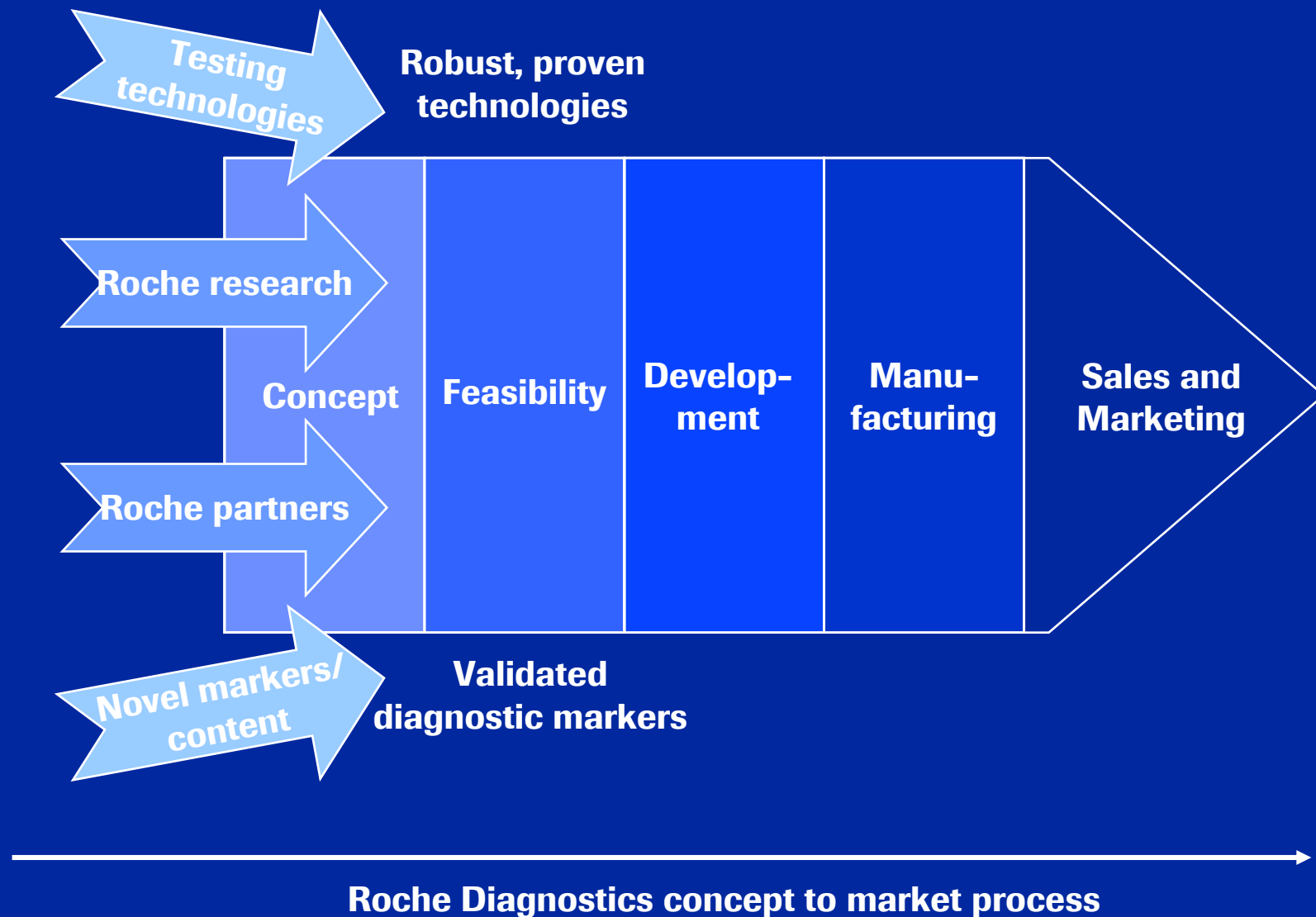


Decision: informed physician diagnosis
Savings: time, money & illness



Roche Diagnostics partnership strategy

Partnerships in testing technology and new markers





Partnering with Roche Diagnostics

What we look for in prospective partners

- Business fit
 - Can we address a unmet need or create a new opportunity by working together?
- Compatibility of business models
 - Is there a high degree of fit between what the Partner wants to achieve and Roche's strategy?
- Differentiation/competitive advantage
 - Would Roche and the Partner be able to develop a differentiated product offering or achieve a sustainable competitive advantage by working together?
- Proprietary position
 - Does the Partner have a strong proprietary position, via patents or know-how?

Roche Diagnostics' recent investments into technology and content



Area of collaboration



2001 deCODE

discovery of markers for complex disease



2001 Partners
Healthcare System

discovery and validation of
markers for complex disease



2002 Epigenomics

discovery of markers for cancer



2002 Quest Diagnostics

discovery and validation
of new markers



2003 Affymetrix

high-density microarray
technology



Developing microarrays for clinical use

Roche & Affymetrix are uniquely qualified to achieve this

Affymetrix

- Gold-standard in high-density microarray technology
- State-of-the-art manufacturing with proven ability to scale-up without compromising quality
- Strong leadership position in the life science research market

Roche

- The world's leading diagnostic company
- Has successfully made PCR the world's leading amplification technology (replicating minute amounts of DNA or RNA to detectable levels)
- Strong world-wide commercial infrastructure

Shared vision of using the best technologies to change and improve the practice of healthcare



Microarray-based diagnostics

Advantages that complement existing technologies

- Scope**
- Many parameters can be examined in a single 8-hour test

- Genomic Reach**
- Microarrays can query longer segments of genetic material

- Reliability**
- High density allows for redundant probes to query the same parameter (should increase accuracy of detection)

- PCR Synergy**
- Microarrays make complex genotyping, resequencing as well as expression analysis possible

- Multi-Functional**
- PCR expertise is critical in developing quality microarray diagnostics for genotyping tests

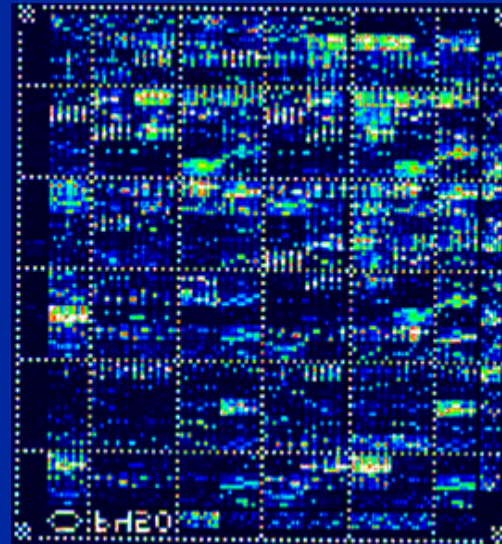
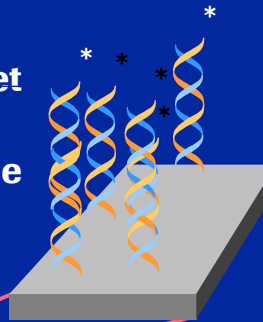


AmpliChip CYP450

Roche's first major Pharmacogenetic test

Labeled DNA Target

Oligonucleotide Probe



CYP450 2D6 & 2C19

*broad allelic coverage
of known variants,
for many ethnic
groups
(CYP2D6 and
CYP2C19)*



Pharmacogenetic testing

Improving efficacy & reducing adverse reactions

- Genetic variations can play a major role in outcome by contributing to differing:
 - rates of efficacy,
 - types of side effects,
 - severity of side effects
 - types of serious adverse reactions
 - severity of adverse reactions (fatal and non-fatal).
- Some less serious side effects are expected and unavoidable, even with appropriate dosing.



Therapeutics Today

“One size fits all” approach to drug dosing often fails

- Examples of the limited response to /efficacy of some drugs currently on the market:

<u>Cardiovascular</u>	<u>Efficacy Rate</u>
– statins	10-60 %
– ACE-I	10-30 %
– beta blockers	15-35 %
<u>Anti-depressants</u>	
– SSRIs	10-25 %
– tricyclics	20-50 %

- Significant overall rate of adverse drug reactions in the US
 - fatal 0.3 % ~ 100,000 deaths each year
 - serious 6.7 % > 2 million events each year



Novel diagnostics markers

priority setting

- Major unmet diagnostic need
 - e.g. early detection of colorectal cancer
- Clear health-economic arguments
 - diagnostic test will create significant healthcare value
- Actionable information
 - novel diagnostic will change the way a disease is approached
- Sufficient market potential
 - sufficient incidence/prevalence
- Potential source of competitive advantage
 - How can Roche do this better than others?



Epigenomics Alliance: Novel Diagnostic Tests based on DNA Methylation

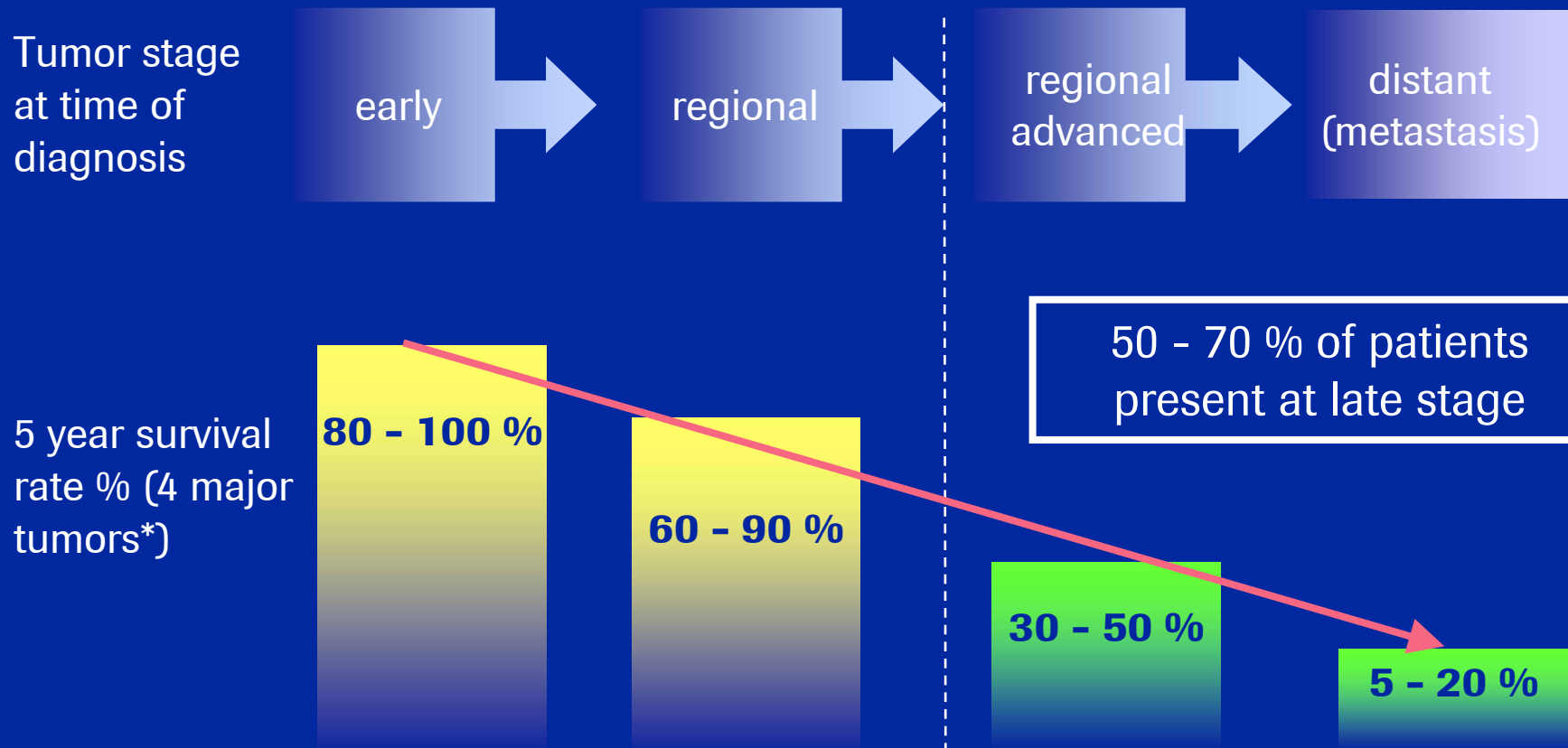
Strengthening Roche's leading position in cancer care

- 3-year (minimum) collaboration to develop a range of molecular diagnostic and pharmacogenomic cancer products signed in March 2003
- Products for use in the early detection of major cancer types and prediction of treatment response to particular therapeutic regimens
- The alliance will help Roche to remain at the forefront of the molecular diagnostics market



Early cancer detection improves survival

p r o g r e s s i o n



* prostate, breast, colon, lung

New diagnostic targets for screening



Roche Diagnostics investing in broad range of technologies

DNA

Human Papilloma Virus
(HPV)

license from Institute
Pasteur

cervical cancer
swab specimens

Methylated DNA

cancer and site specific
methylated sequences

collaboration with
Epigenomics

cancers of prostate, breast, colon, lung
body fluids and excretions

Proteins

cancer and site
specific production

Roche marker
discovery program

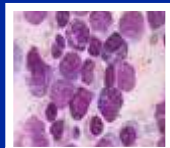


Microarray based leukemia diagnosis

Reducing complexity in labs by chip analysis

today

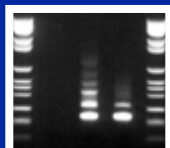
cytology



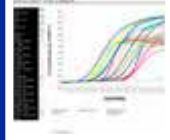
cyto-chemistry



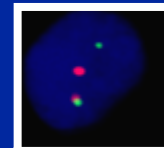
immuno-cytology



molecular genetics



- many sophisticated highly specialized tests for one differential diagnosis
- highly skilled workforce
- up to 5 days for accurate sub-classification
- therapy decisions based on descriptive results
- cost for one diagnosis: > \$1500



cytogenetics



FISH



G-banding
CGH



immuno-phenotyping (FCM)

future

Gene expression analysis on chips

one objective diagnostic result in 2 days
→ new information



Roche will launch chip test in 2006
distinguishing > 20 sub-classes



Personalized Medicine at Roche

What we believe in...

- Biomarker research can lead to a pipeline of novel diagnostics and aid us significantly in pharmaceutical research and development
 - design more informative clinical trials
 - better extrapolate from preclinical studies to humans
 - identify the right individuals for clinical trials
 - better understand disease progression and allow us to identify those most likely to benefit from specific therapy regimens

The Roche logo consists of a white, horizontally-oriented hexagonal shape with a pointed left side and a pointed right side, resembling a stylized arrow or a shield. The word "Roche" is written in a bold, white, sans-serif font, centered within the white outline of the hexagon. The entire logo is set against a solid, dark blue rectangular background.

Roche