

Going Global with Genomics

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Summary of Ocimum

Outsourced solutions for the genomics industry

- Ability to leverage wide suite of products and services to provide customized complete outsourcing solutions in genomics
- Service offerings span Bioinformatics (BioExpress, ToxExpress, data analysis suites, LIMS), Research Consumables (Arrays, Oligos), Genomic Services (Gene Expression, Genotyping, Sequencing) and Biorepository

Excellent track record

- 180% top line CAGR over the last 3 years; profitable from Year 2
- Acquired and successfully integrated strategic assets (Isogen, MWG Biotech and Gene Logic) to build an integrated portfolio
- Innovators in Genomics research with over 65 patents filed, 3 granted in 2008

Differentiated approach to addressing customer needs

- Serving top research and academic labs and two-thirds of the top 25 Pharmaceutical/ Biotech companies
- Global Solution Delivery, leveraging presence in India, Europe and the US
- Providing access to global talent pool and optimal sourcing (cost and expertise)

Strong global team

- Experienced management team and deep bench of global scientific talent
- Backed by blue-chip investors (IFC, Kubera Partners LLC)
- Strong corporate governance with globally respected Board members

Vision: To be the preferred (# 1) global genomics outsourcing partner

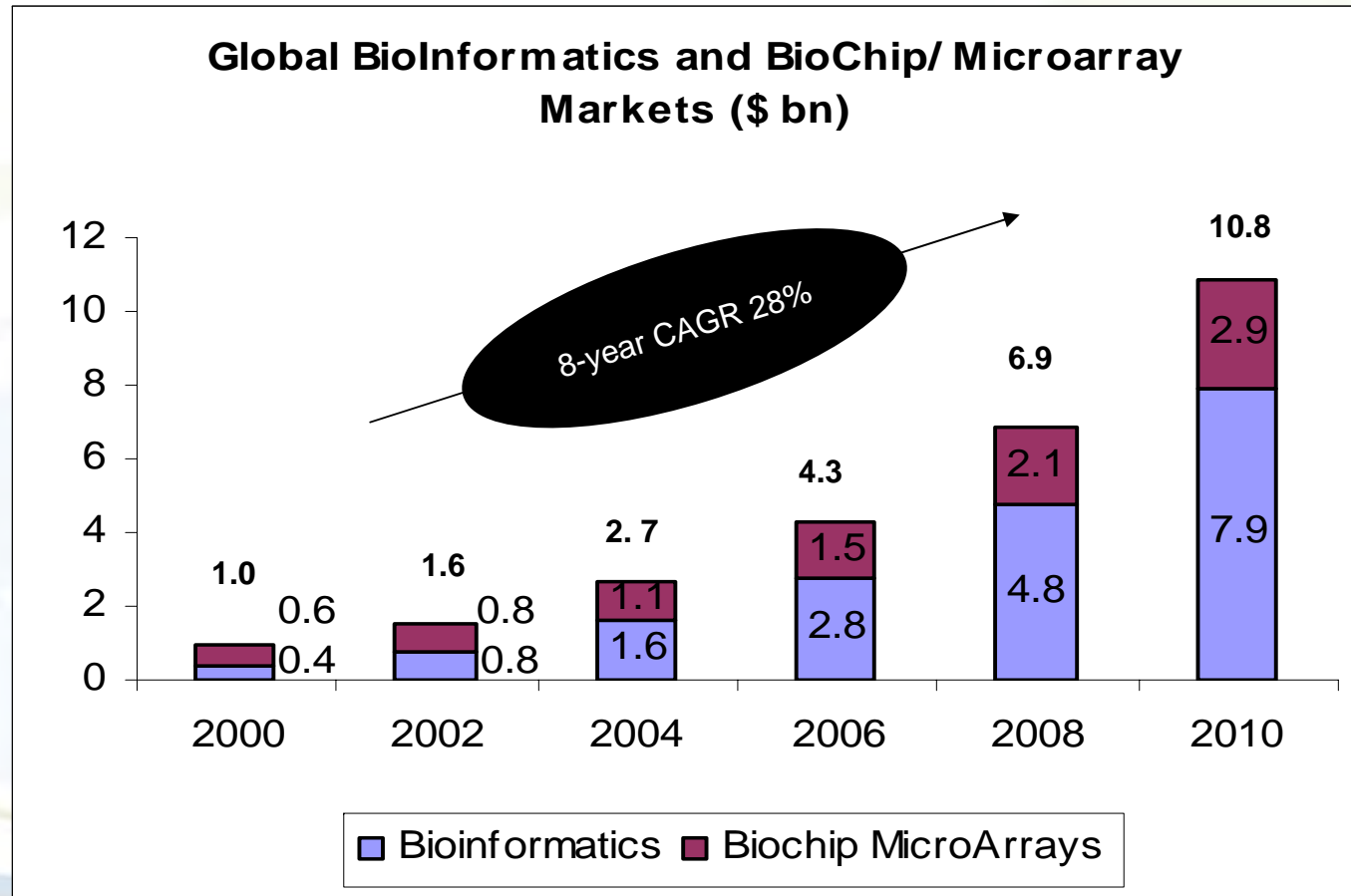
Linkage with Germany

- MWG Biotech's GD division
- Amptec

Key Global Market Trends

- The mapping of the human genome and new technologies like Sequencing, Genotyping and Gene Expression are revolutionizing R&D processes
- Research in areas such as personalized medicine, pharmacogenomics, anti-aging/wellness drugs, theranostics and preventative medicine are boosting demand for genomic data generation and bioinformatic analyses to identify biomarkers
- Increased cost pressures due to competition from generics and longer R&D life-cycles are encouraging pharmaceutical companies to outsource R&D activities to CROs in emerging economies
- Globalization of the R&D value-chain is leading to big pharmaceutical companies creating virtually integrated business models across research, data analysis and management, globally
- Global financial crisis has an interesting impact on the Biotech industry and the way it will impact further growth of outsourcing, partnerships and cuts in R&D

The Global BioSolutions Market



Source: Biotechnology Associates

Key Challenges Faced in Genomics Research

Laboratory, Sample & Data Management

- Silo-ed research hubs drive up costs and prevent true research collaboration
- Sample and data management a logistical and infrastructural nightmare
- Lack of capability in handling diversity of platforms, technologies and data-formats
- Difficulty in linking lab data to enterprise management systems

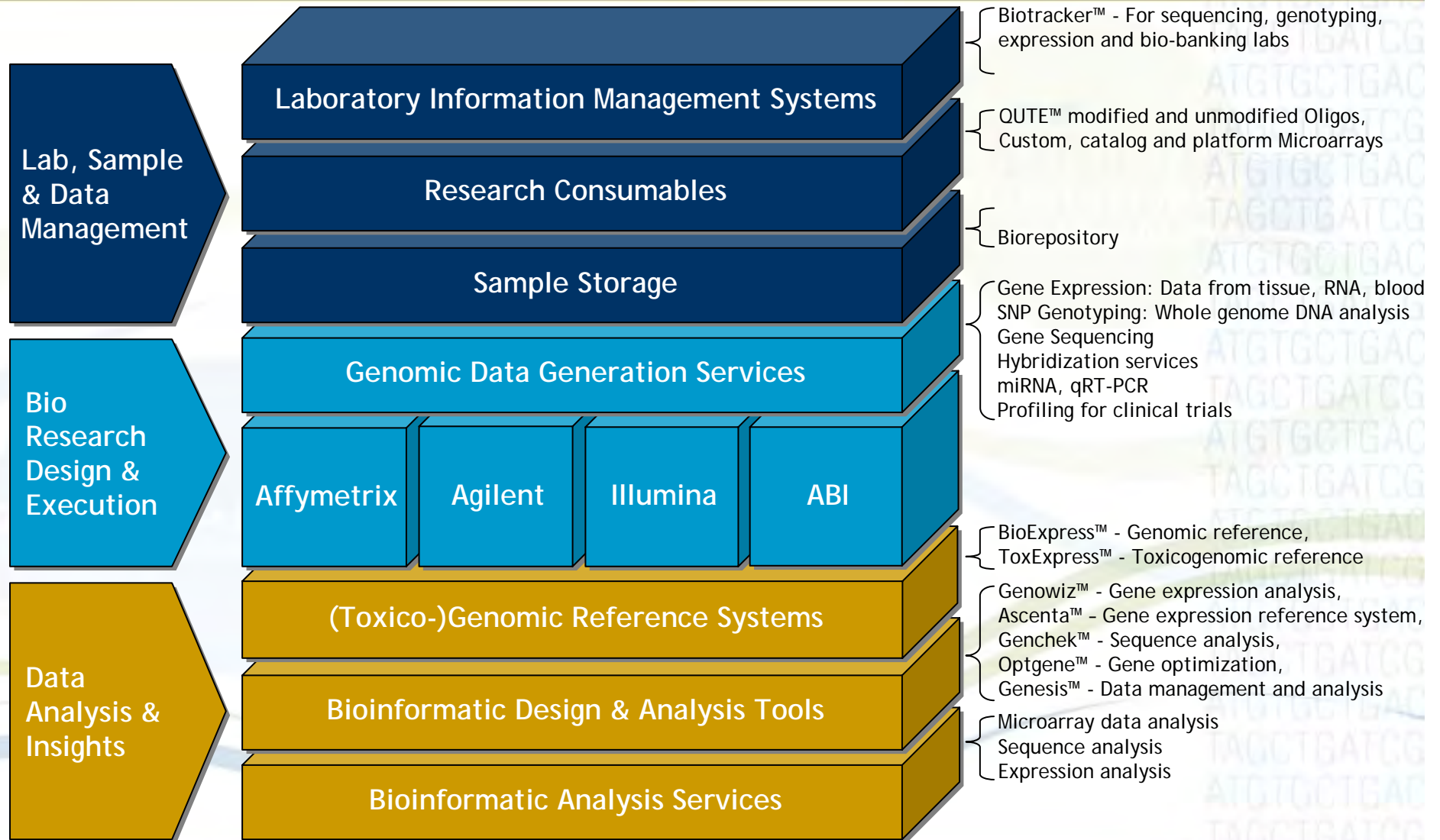
Bio Research Design & Execution

- Shortage of talent in specialized research areas
- Lack of experience in selecting the right platform and technology
- Difficulty in reproducing results consistently due to lack of standard GLP protocols
- Lack of experience in designing biomarkers or clinical genomics

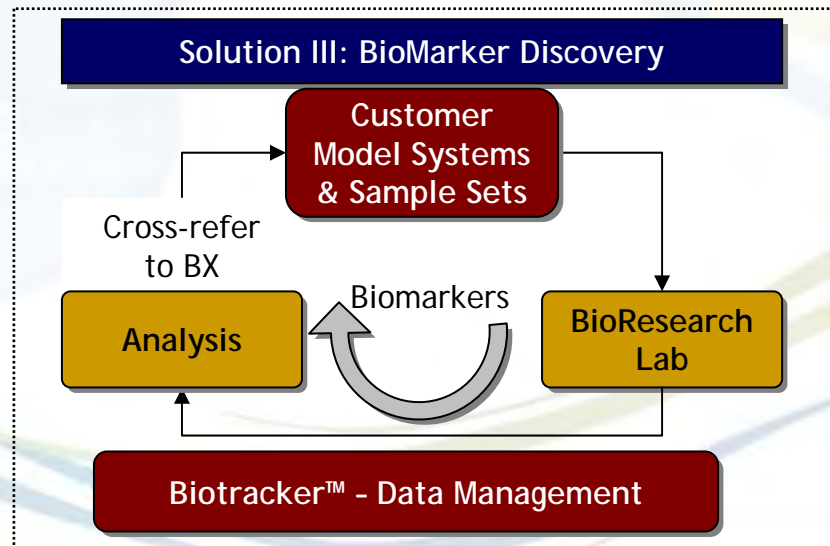
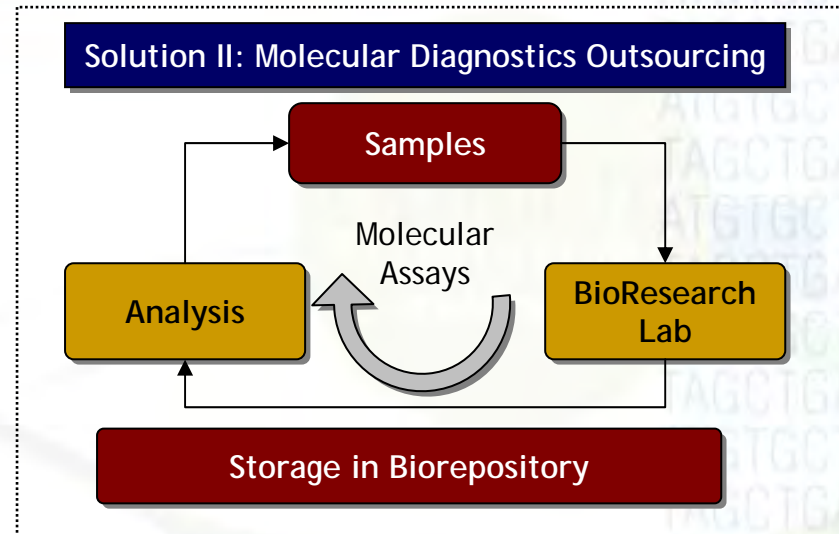
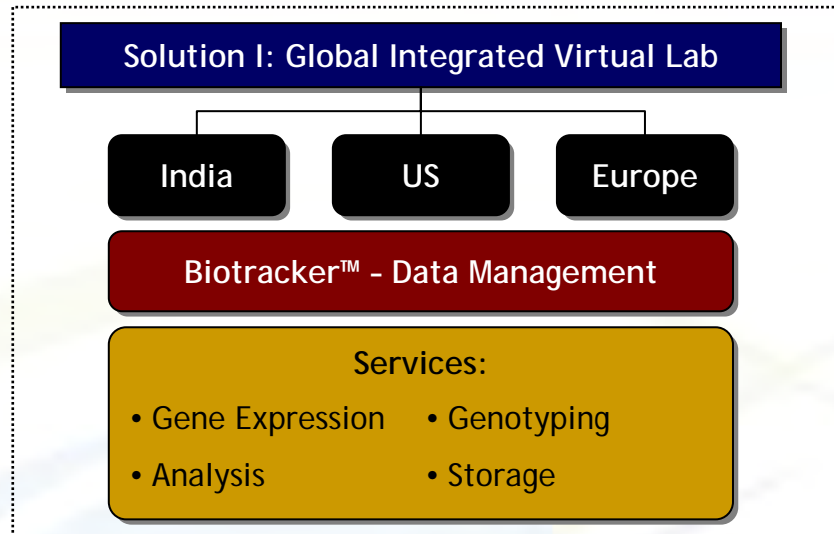
Data Analysis & Insights

- Lack of capability and/or capacity in handling high throughput data
- Limited availability of tools
- Lack of experience in choosing the right tool and methodology for analysis
- Difficult to translate statistical results to biological relevance

Our Product Portfolio to address key challenges



We have Leveraged our Offerings to Provide Integrated Outsourcing Solutions



Solution I: Global Integrated Virtual Lab





Customer
Example

Customer Objective:

- To expedite their research for a blockbuster drug in 7 rare genetic diseases
- Be first to market

Customer Requirement:

- Well annotated and adequate number of samples
- Collection, analysis and reuse (if necessary)

Issue	Challenges faced by the customer...	...successfully addressed by Ocimum
 Geographical spread	<ul style="list-style-type: none"> • Logistics and infrastructure complexities • Sub-scale and costly operations 	<ul style="list-style-type: none"> • Standard web-based interface simplifies patient enrollment, consent, data upload and shipment • Services on demand using Biotracker for project management
 Data Quality	<ul style="list-style-type: none"> • Difficult to consistently reproduce curated and well-annotated data useful for research 	<ul style="list-style-type: none"> • GLP-driven laboratory with SOPs ensure consistent results
 Lack of standardization	<ul style="list-style-type: none"> • Disparate systems make cross-analysis virtually impossible 	<ul style="list-style-type: none"> • Real-time information retrieval • Standardized format usable by third-party systems
 Inadequate data	<ul style="list-style-type: none"> • Inadequate bio-samples and data due to limited subjects and variable disease phenotyping 	<ul style="list-style-type: none"> • 140,000 samples in Gene Logic's Biorepository can be leveraged • Samples cover major disease areas

Key Benefit - A highly secure, scalable, validated, web-based infrastructure that integrates consent, clinical and genomic data and sample banking

Solution II: Molecular Diagnostics Outsourcing





Customer
Example

Customer Objective:

- Improve diagnosis
- Determine effective therapeutics

Customer Requirement:

- Identification of new biomarkers for development of a better diagnostic assay

Issue	Challenges faced by the customer...	...successfully addressed by Ocimum
 Geographical spread	<ul style="list-style-type: none"> • Data-exchange and management complexities 	<ul style="list-style-type: none"> • Standard web-based interface simplifies patient enrolment, consent, data upload and shipment
 Expertise	<ul style="list-style-type: none"> • Expert in-house scientists required • Low sensitivity of traditional testing 	<ul style="list-style-type: none"> • Analysis and reporting simplified by proprietary tools and data-sets • Molecular assays offer significant sensitivity improvements
 Cost and Management	<ul style="list-style-type: none"> • Labor intensive, expensive process • Scale disadvantages due to insufficient testing volumes • Very slow turnarounds (e.g., up to 7 days for viral cultures) 	<ul style="list-style-type: none"> • Sample management and storage through Gene Logic resources • Over 7,000 samples assayed/year • Integration of BioTracker with customer LIMS and real-time PCR reduces time to less than 1 day
 Patient experience	<ul style="list-style-type: none"> • Traumatic patient experience (e.g., brain biopsy for testing herpes) 	<ul style="list-style-type: none"> • Less invasive sample collection (e.g., cerebral spinal fluid vs. brain biopsy)

Key Benefit - A robust, scalable & multi-platform back-end infrastructure for customers' to outsource all their molecular diagnostic needs

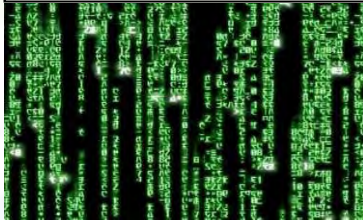
Solution III: Biomarker Discovery (GENOMICS framework)

Customer
Example

Enablers

G ENERATE

genomic data at one of the world's largest commercial facilities, by...



E XECUTE

tests on samples in a GLP compliant lab, which are then...



A N ALYZE

generated data using proprietary algorithms, models and tools, and...



C RO SS REFER

with BioExpress™ - the largest commercial Gene Expression DB



Benefits

M ANAGE

samples and data using our Biotracker™ LIMS



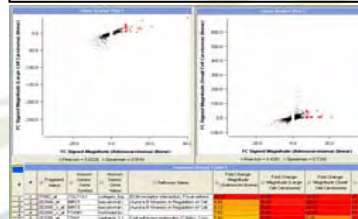
I DENTIFY

disease relevant biomarker sets



C ORRELATE

with animal model systems or clinical response



S TORE

samples in our BioRepository



Our Global Client Base

Clients of varied research interests - clinical genomics, plant genomics, proteomics, personalized genomics, toxicogenomics etc

Pharmaceuticals

- Two-thirds of top 25 global pharmaceuticals from US, Japan, India and European countries

Biotech

- 50% of the top 25 global biotech companies from US, Japan, India and European countries

Academic

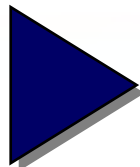
- Major global research institutes

Names not disclosed to honor client-confidentiality; Reference customer contacts on request

Served from our Global Delivery Centers

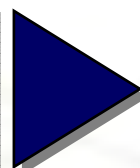


**India
(Hyderabad)**



- R&D consumables - Oligonucleotides and microarrays; data analysis services
- Reference databases and other IT products

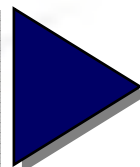
**Japan
(Tokyo)**



- Sales Office - initiates customer contact, understands customer need
- Reference databases and other IT products



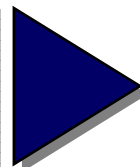
**USA
(Gaithersburg/
Indianapolis)**



- Sample processing/ Data Generation, data analysis and sample storage
- Reference databases and other IT products

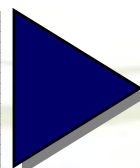


**Europe
(NL)**



- R&D consumables - Oligonucleotides and microarrays; data analysis services
- Reference databases and other IT products

**Europe
(UK)**



- Sales Office - initiates customer contact, understands customer need
- Reference databases and other IT products

Strong Technical and Regulatory Alliances

Technical Alliances:



Regulatory Alliances:



2006

- Gene Logic data and software to be used by the FDA in evaluating Voluntary Genomic Data Submissions (VGDS)



2007

- Explore genomic data quality metrics related to drug candidate safety and effectiveness



2008

- Gene Logic to provide data and software to the EPA and the National Center for Computational Toxicology (NCCT)