



Inaugural Fraunhofer – Delaware Technology Summit

## ***Inaugural Fraunhofer – Delaware Technology Summit***

***Energy and Life Sciences – Solutions for Sustainability***

*University of Delaware  
Clayton Hall  
March 5/6, 2013*



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### **SESSION A.1: LIFE SCIENCES SOLUTIONS**

#### **Plenary Talk**

***“Step Ahead Together: Creative Collaborating as an Approach  
to Building and Sustaining a Pharma R&D Pipeline”***

- John Cantello  
Vice President, Worldwide Business  
Development, GlaxoSmithKline





## **Step Ahead Together: Creative Collaborating as an Approach to Building and Sustaining a Pharma R&D Pipeline**

John Cantello, PhD  
VP Business Development

Property of GlaxoSmithKline

### **Presentation Flow:**

1. Snapshot of GlaxoSmithKline and Me
2. Overview of Pharma/GSK challenges
3. GSK's R&D Evolution: Creative collaboration with the external environment to drive innovation
  - Specific Examples

## About GSK

We are a **science-led** global healthcare company that researches and develops a broad range of innovative medicines and brands. We have three primary areas of business in **pharmaceuticals**, **vaccines** and **consumer healthcare**.

With our headquarters in the UK, we have offices in more than 115 countries, major research centers in the UK, US, Spain, Belgium and China and an extensive manufacturing network with around 70 sites globally.

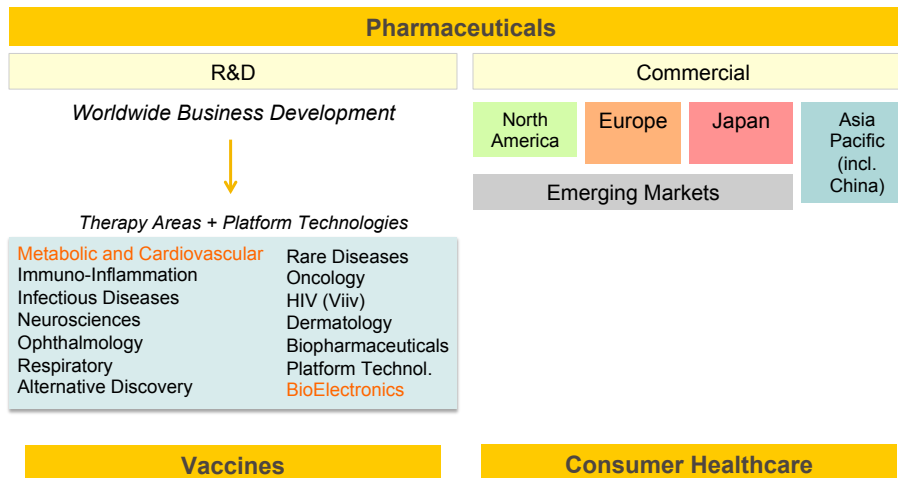


Over \$40B in total sales in 2012

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  1. Specific Examples

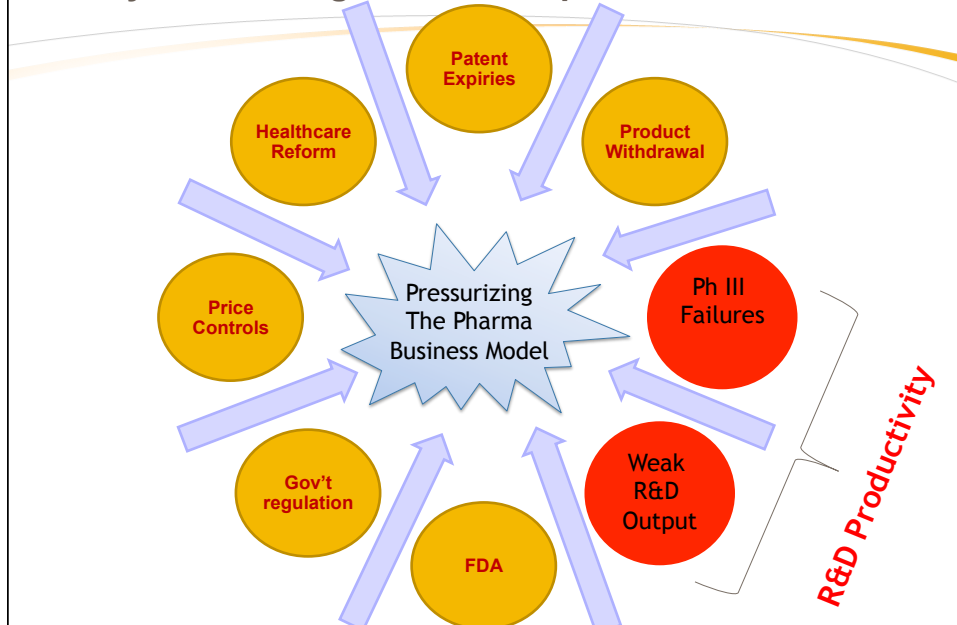
## Worldwide Business Development: Supporting the pipeline and meeting the needs of our evolving business



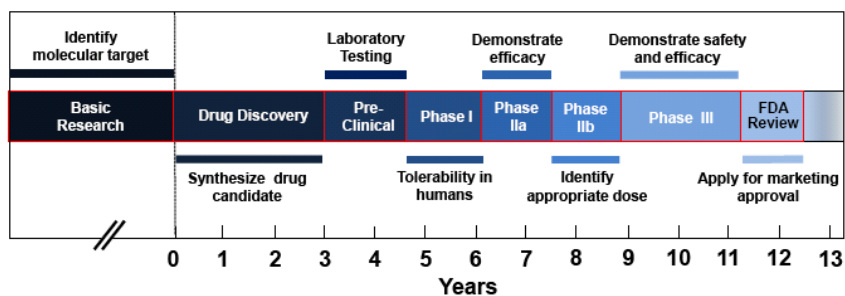
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## Catalysts of change – must adapt & evolve



## Pharma R&D is a long, expensive process.....

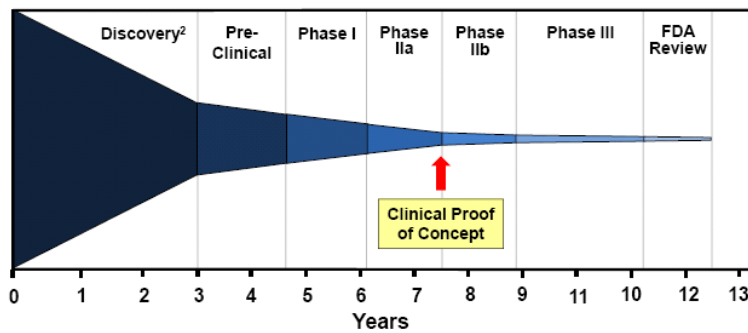


- ❑ Developing a new drug is a lengthy process
  - Product cycle times are extremely long
  - The 20-year limit on patent protection means there is a limited number of years during which a marketed product can generate an attractive ROI
- ❑ The cost of putting a new drug on the market is \$0.8 to \$1.3 bn<sup>1</sup>

<sup>1</sup>Adams C, Brannan V (2004). "Estimating the cost of new drug development, is it really \$802 million dollars?" Health Aff 25 (2): 426-8

.....and very high risk

*Cumulative Risk Profile through Key Stagegates<sup>1</sup>*

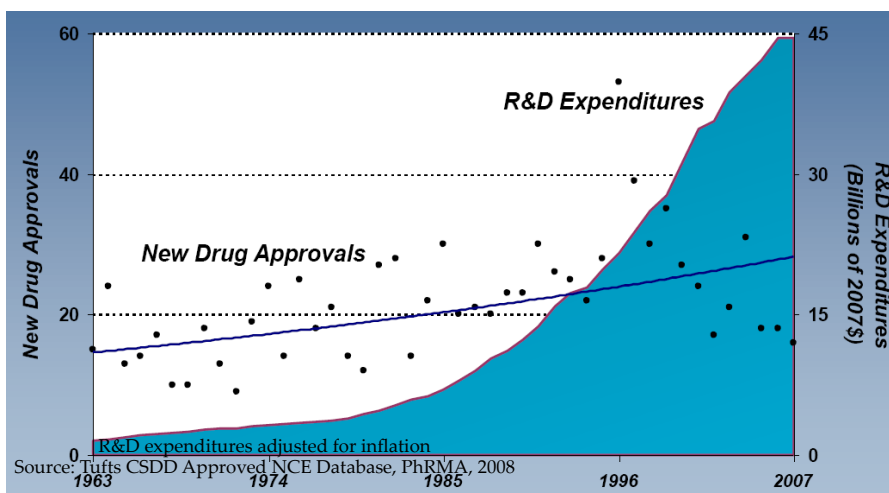


❑ Developing a new drug is a risky process

- When a new drug discovery program is initiated the overall probability of launching a new product is 1.5%
- 10,000 to 30,000 compounds must be synthesized for every one that reaches the market

<sup>1</sup> CMR benchmarks used to calculate risk-adjusted values at various stages  
<sup>2</sup> Internal estimate of 30% PoS

Put the two together and new drug approvals are not keeping pace with rising R&D spending



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## Before you start you need to believe.....

That there is an opportunity to discover valuable new medicines



Unmet need  
Scientific growth  
Value

That we understand what went wrong with pharmaceutical R&D in the last 2 decades



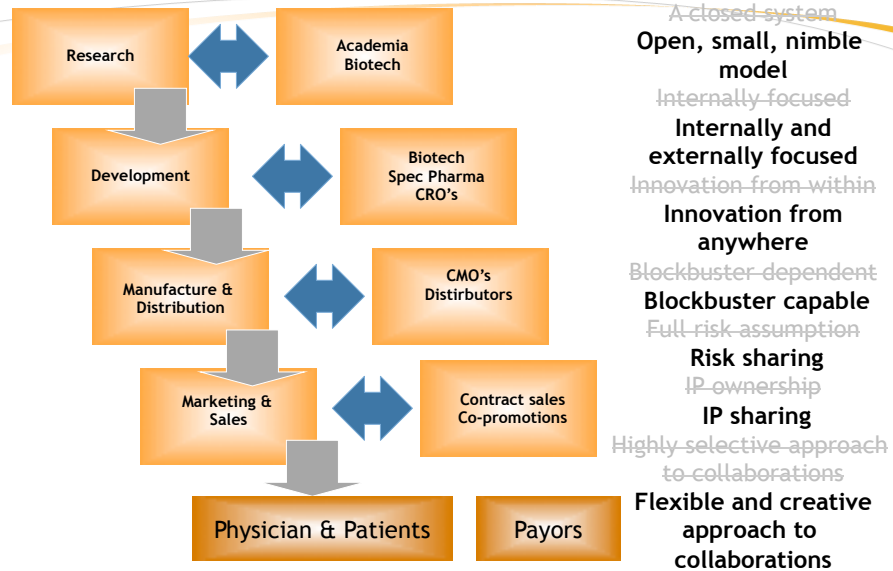
Industrialization  
Infrastructure

That we know what levers to pull to fix it



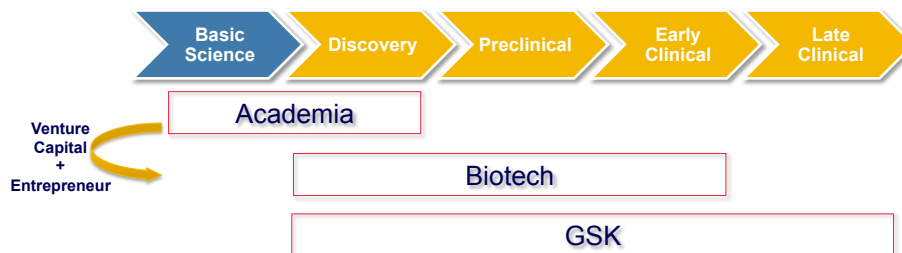
**Selection**  
**Execution**

## Evolution to a collaborative pharma business model



## The Ecosystem for Innovation Development

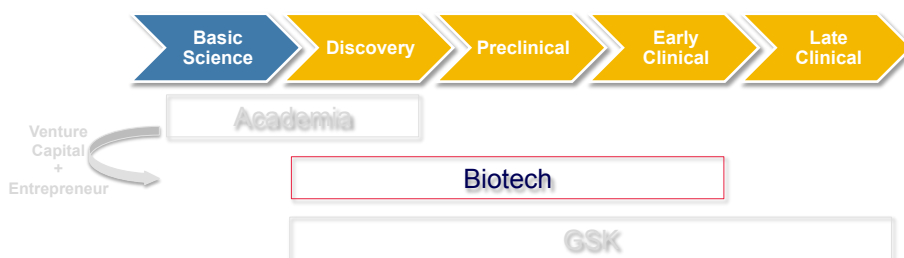
Creative Collaborations with other members of the ecosystem.....





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3. GSK's R&D Evolution: Creative collaboration with the external environment to drive innovation
  1. Specific Examples – **Center of Excellence for External Drug Discovery**

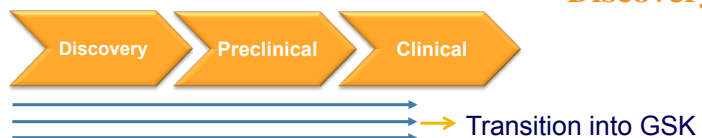


### •Virtual drug discovery team:

- Share risk with biotech
- Access innovation
- Perturb the GSK way of thinking

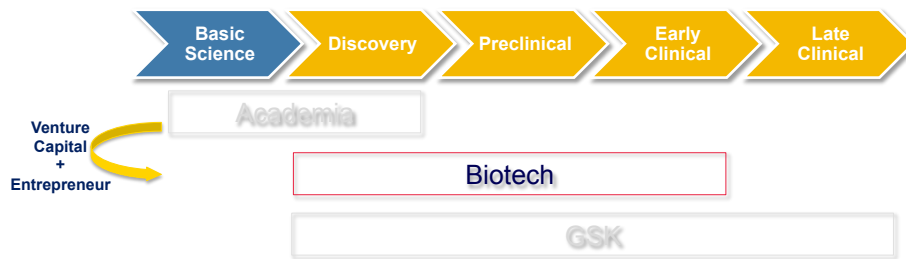


Introduction to the  
**Centre of  
Excellence for  
External Drug  
Discovery (ceedd)**



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  3. GSK's R&D Evolution: Creative collaboration with the external environment to drive innovation
2. Specific Examples – **BioScience Catalyst**



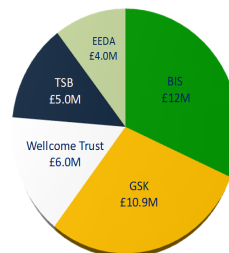
STEVENAGE BIOSCIENCE  
**CATALYST**  
*Open Innovation Campus*



**Stevenage Bioscience Catalyst**

**UK's first Biomedical Open Innovation Campus**

- Unique tenant offering based around vibrant science, access to drug development expertise and funding
- Proximity to expertise in London, Cambridge and Oxford



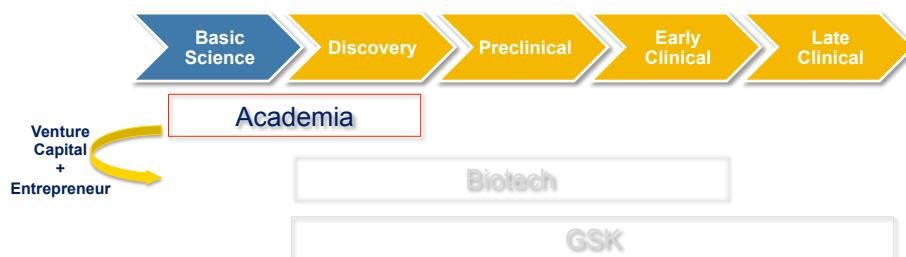
## SBC Tenant Offering

- Compelling location
- Access to Scinovo
- Access to SR One funding
- Access to GSK e-journals
- Access to therapeutic expertise at GSK and other stakeholders
- Access to regular seminar series (open access)
- Access to SBC Experts Panel
- Access to a funding network
- Access to an SBC associate network (services in areas such as IP, legal, marketing)
- Access to technical shared services
- Development of a web-based open innovation SBC community portal (in collaboration with TSB)



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3. Specific Examples – **Academia NewCo**



## Getting creative with academia and early research: Tempero Pharmaceuticals

A fully **external Discovery Unit and an independent company** with a biotech model nested in the biotech hub of Boston. Focus is on regulatory T-cells for treatments in auto-immune disease and inflammation. **Very exciting, and very risky, science.**

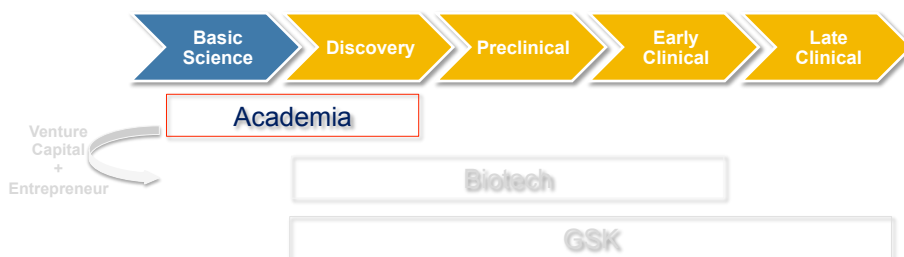
Currently, GSK is the majority shareholder.



- Scientific founders are Harvard professors regarded as top minds in immunology. Two independent directors from Boston biotech community.
- Board of Directors with GSK, Tempero, and Independent Directors
- Innovative funding structure to leverage entrepreneurial spirit as well as depth and breadth of knowledge from established company.

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4. Specific Examples – **Discovery Partnerships with Academia**



## Discovery Partnerships in Academia (DPaC)

### A new approach to early drug discovery

- Launched in 2011
- Bring together the insight and creativity of the academic world with the drug discovery expertise of GSK.
- Each project operates as a joint team, with both partners working towards shared goals with open sharing of information.



Develop new treatments for Recessive Dystrophic Epidermolysis Bullosa (RDEB), a rare condition



Develop therapeutics to treat an inherited form of muscular dystrophy.



Discovery  
Partnerships  
with Academia



Discover and develop new medicines to treat liver disease

For more information visit [www.dpac.gsk.com](http://www.dpac.gsk.com)

**8 June 2011**

#### **GSK and University of Dundee begin collaboration to develop therapies for rare genetic skin disorders**

GlaxoSmithKline (GSK) and the University of Dundee have entered into an agreement to combine the pharmaceutical company's expertise in discovering and developing new medicines with the researcher's expertise in **rare and debilitating skin disorders** under GSK's Discovery Partnerships with Academia initiative.....

.....The success of the project is dependent on contributions from both parties, with **GSK undertaking screening, medicinal chemistry, preclinical work and clinical development**, and Professor McLean's team, in conjunction with the Drug Discovery Unit, characterising arising compounds in a range of specialised biological assays to facilitate translation into the clinic.....

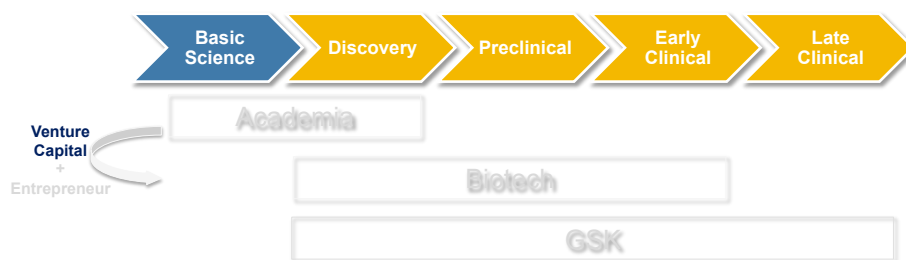
#### **Fred Hutchinson Cancer Research Center partners with GlaxoSmithKline to develop muscular dystrophy therapeutics**

SEATTLE – Dec, 10, 2012 - Fred Hutchinson Cancer Research Center and GlaxoSmithKline PLC (GSK) today announced a partnership to develop therapeutics to treat an inherited form of muscular dystrophy.....

.....Unlike traditional licensing agreements in which the licensee is given full control to develop a discovery, the collaboration will involve **GSK and Fred Hutch scientists working together** to develop, test and hopefully bring to market a clinical treatment.....

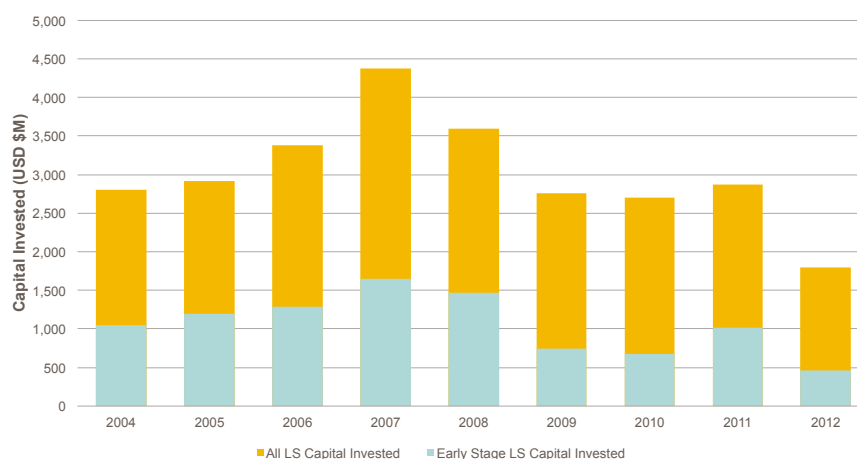
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5. Specific Examples – **Limited Partnerships with Venture Capitalists**



## LS VC investing, especially early stage, continues to struggle

US Life Science VC Investments - 2004-2012



Source: Venturesource Dow Jones Private Markets, 2012 data through 27 November  
Early stage includes Angel, Seed, First round investments only

Why do we care? Because we are increasingly  
reliant on the ecosystem and need it to be healthy

