

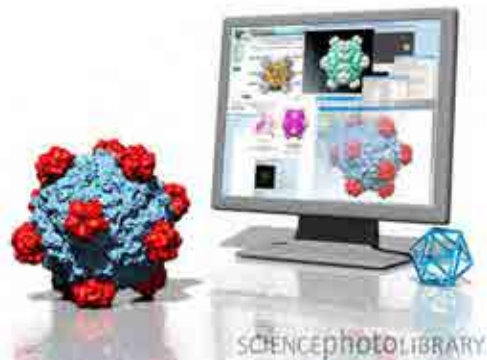


LEADINVENT

*Inventing Leads*

11 Jan, 2013

# Bio-Entrepreneurship



Pankaj Sharma  
CEO & Cofounder

1. Who am I
2. What I do
3. Building biotech business – key learning



Spun out from IIT D 2007  
Incubated on campus 2007 - 2010  
Focus: Drug discovery

# BioSpectrum Asia conference & Annual Industry awards 2011

16th March, Singapore

A distinctive honor...

**Asian Pacific  
upcoming  
company of the  
year 2011**



## LeadInvent molecule to fight latent TB

raising capital) by convincing the government agencies to fund projects with no track record. Secondly, we faced the barrier of interacting with the scientific community who had done drug discovery with intellectual property (IP) strategies. Hence our challenge was, how to place and structure LeadInvent as an IP rich and IP safeguarded company.



Overcoming the challenges, LeadInvent managed to raise little over \$30,000 (\$14 lakh) of seed funding.

**BioSpectrum  
Asia Pacific Emerging  
Company of the Year**

**Pankaj Sharma**  
Chief Executive Officer,  
LeadInvent, India

(L-R) Mr. Shreyas Bhat, CEO/operating officer, Mr. Pankaj Sharma, Chief Executive Officer, LeadInvent India; Mr. Pankaj Sharma, Chief Executive Officer, of LeadInvent

from IIT Delhi. The company fun

Clients

Partners



IIT M



IIT DELHI



AIIMS

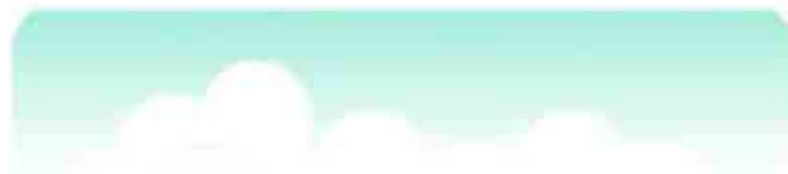
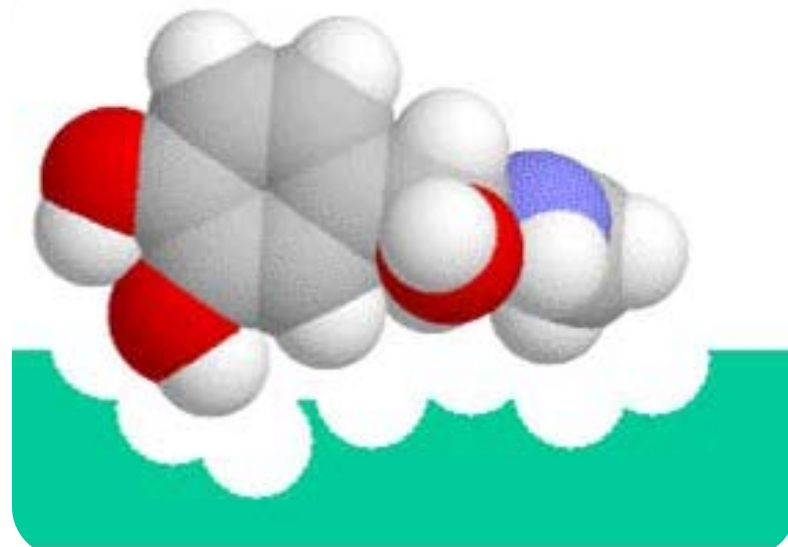
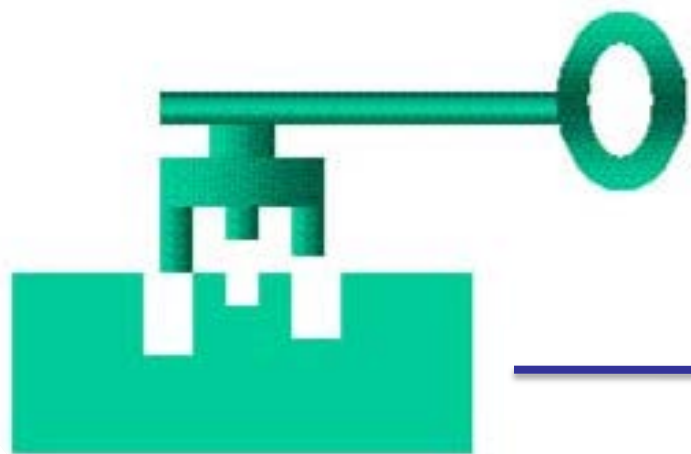


DU



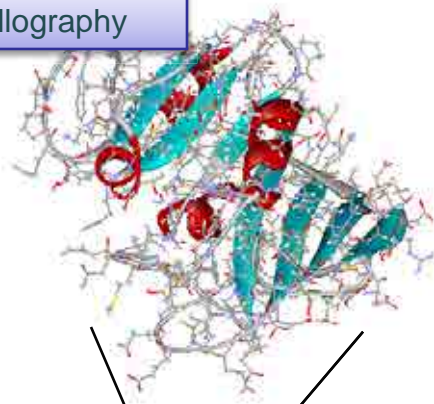
SPHAERA PHARMA

# What we do

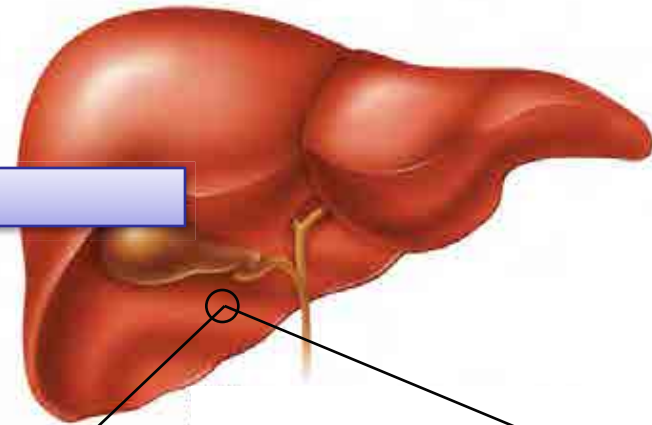


## Visualize

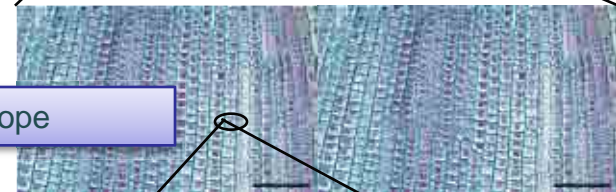
X ray Crystallography



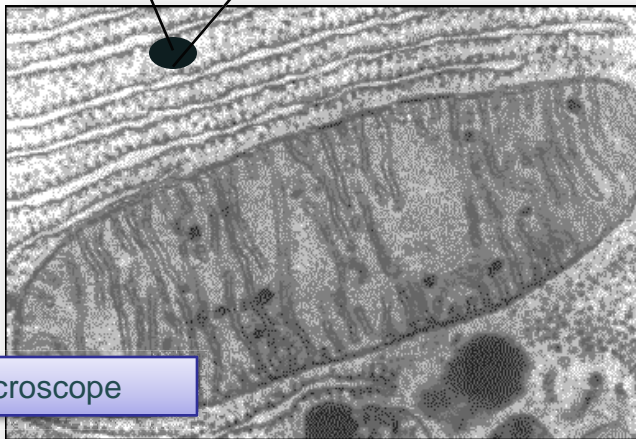
Naked eye



optic microscope



Electron microscope



Electron microscope



# **Building biotech business – key learning**

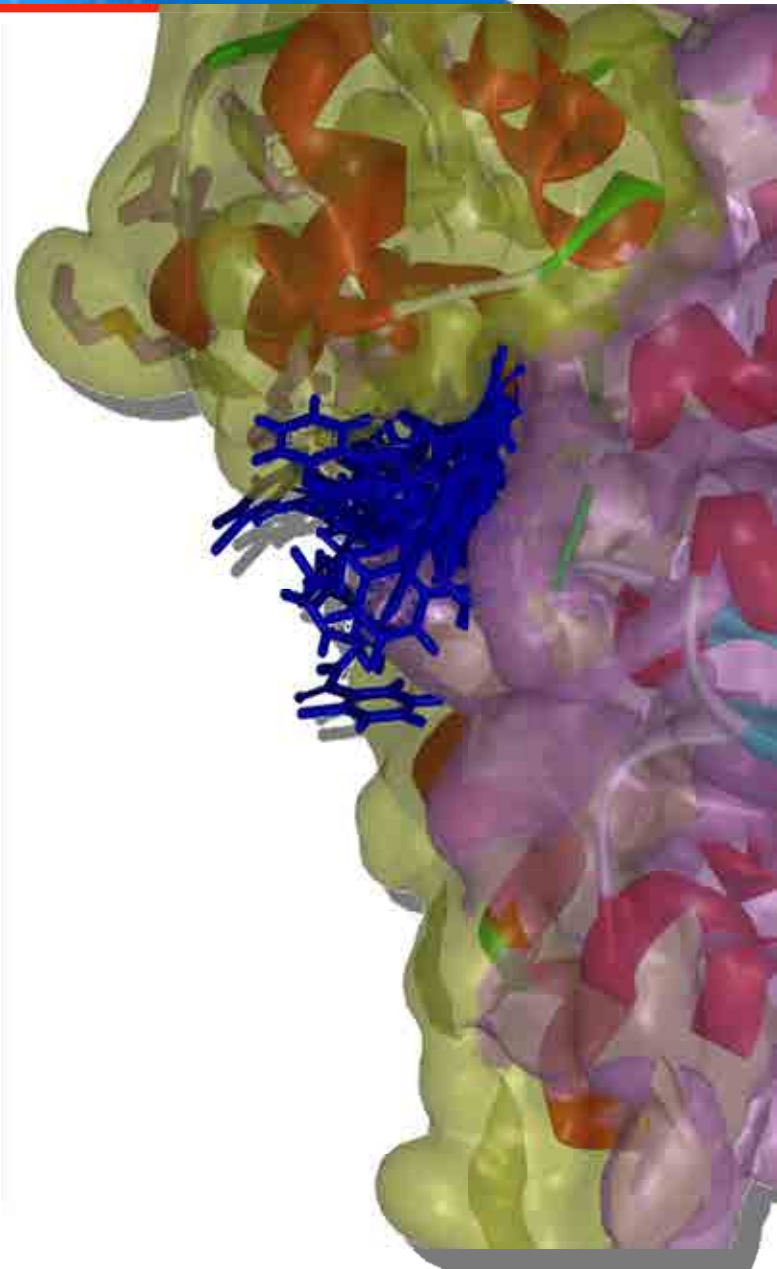


Easy to start  
Challenging to grow

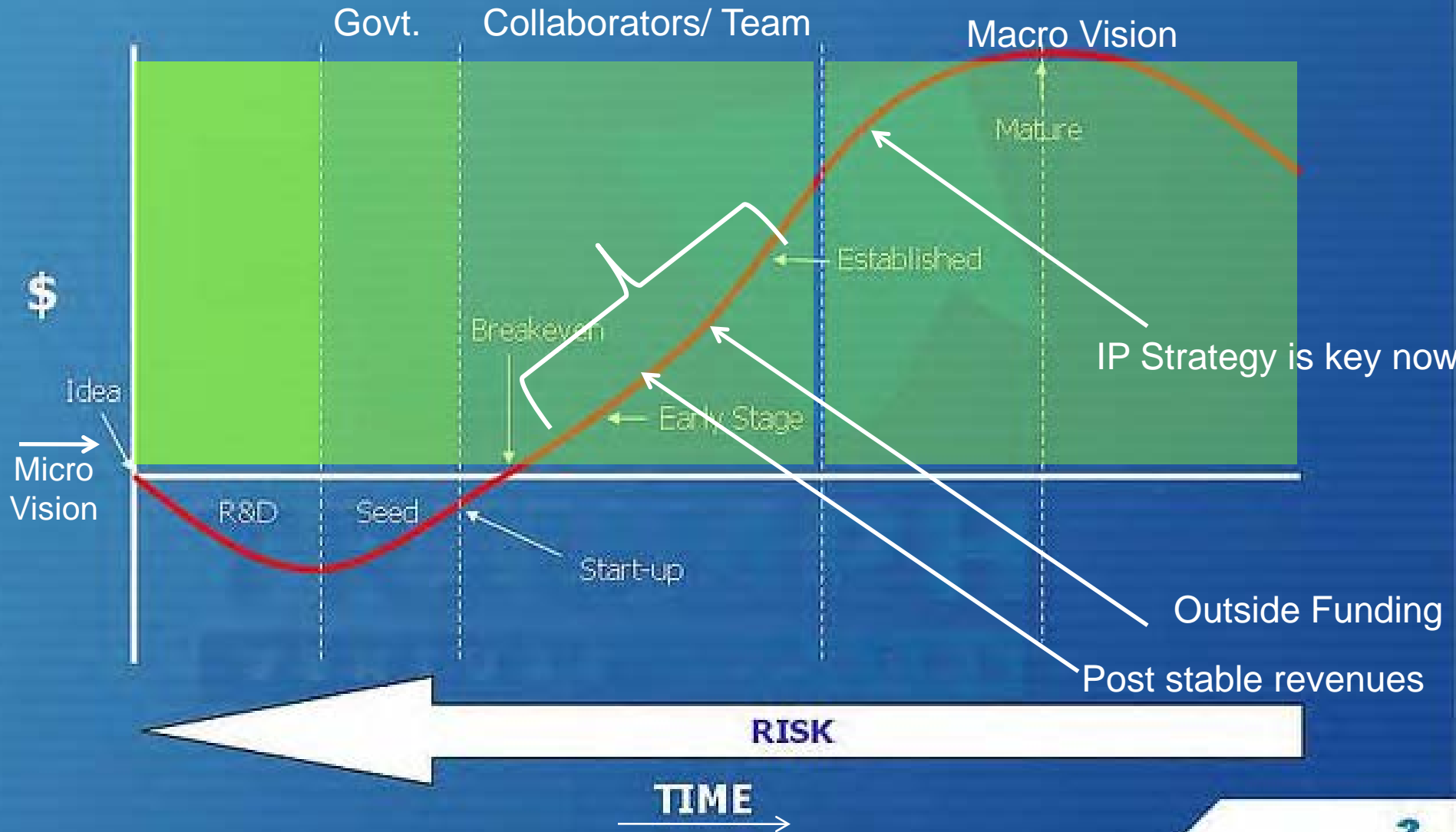
Keep in mind the  
**“Indian context”**



- Identify pain point
- Who's going to pay for it
- Competition & IP landscaping
- Validate technology - Feedback
- Micro Vision  
&  
• Macro Vision
- Funding



# Building up



# Redefine

Remember what JFK did



# Thanks



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Mob: 91-9910122566

Status:

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**SENSITIZATION WORKSHOP ON**

**“INTELLECTUAL PROPERTY,  
TECHNOLOGY MANAGEMENT &  
ENTREPRENEURSHIP”**

**11<sup>th</sup> January, 2013**

Organised by

**Biotechnology Industry Research Assistance Council**

A Government of India Enterprise, New Delhi

([www.birac.nic.in](http://www.birac.nic.in))

at

**Shri Mata Vaishno Devi University,  
Katra, Jammu, J&K**

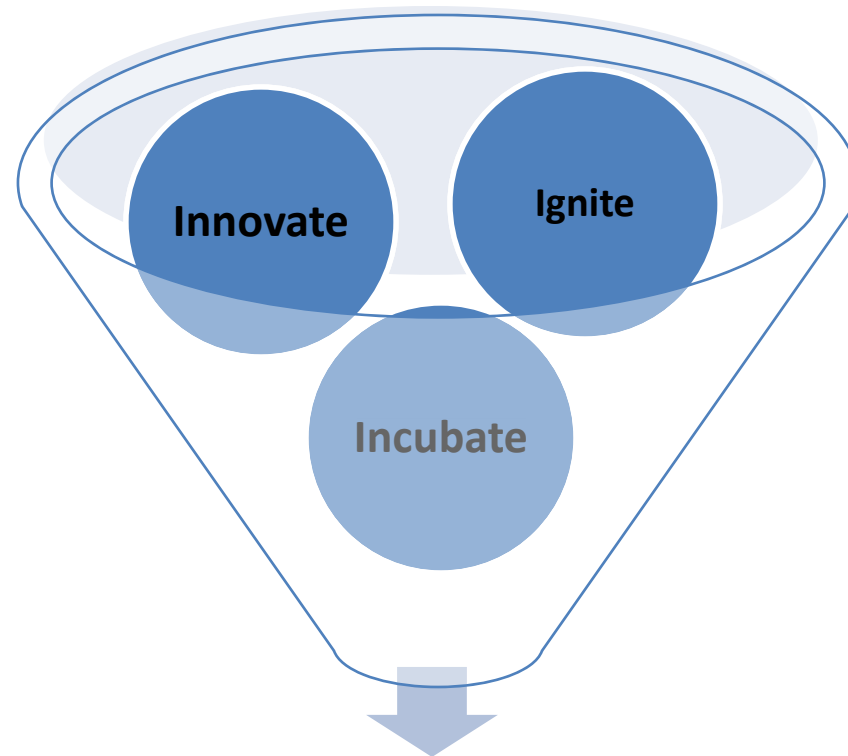
# ***" BIRAC Initiatives for Nurturing Entrepreneurship"***

**11<sup>th</sup> January 2013, Jaipur**

**Mr. RUTURAJ PATIL MSc(Biotech),MIBM(London)**

**Manager- Business Development & Corporate Affairs, BIRAC**

# The Need- Innovation to Commercialization



**Entrepreneurship Development**

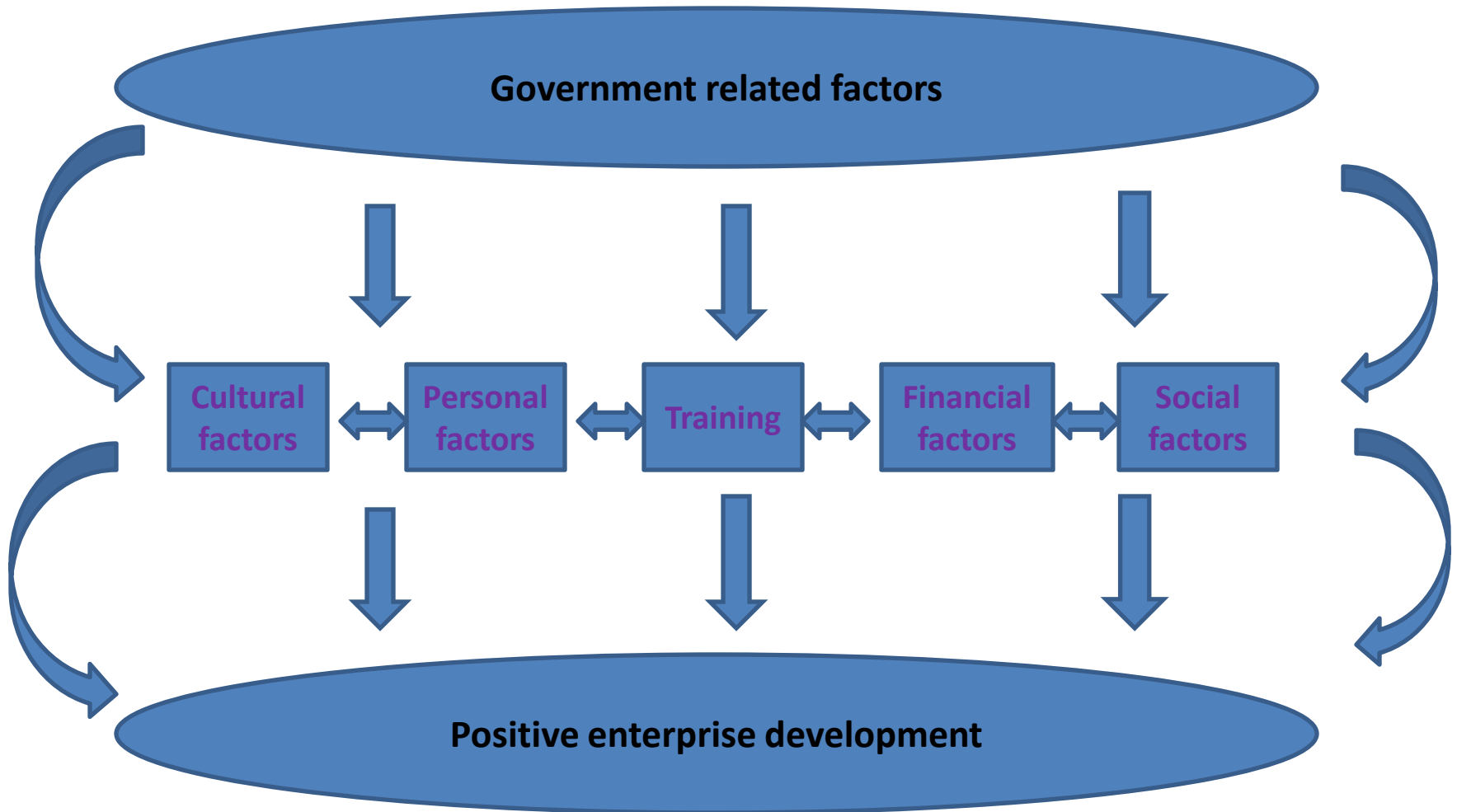
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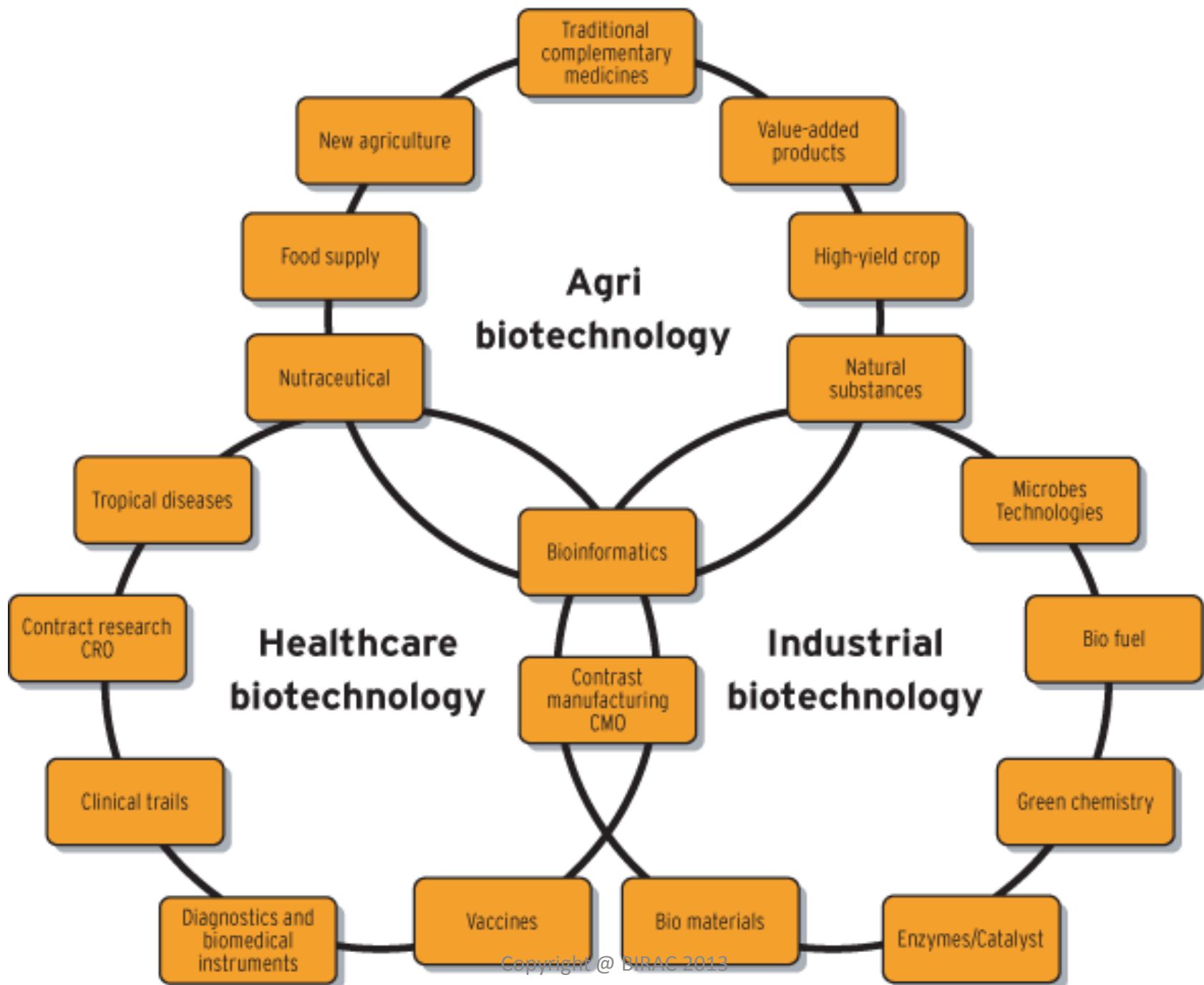


# Nurturing Entrepreneurship

1. **Entrepreneurial motivation:** the social and economic importance of commercialising science and technology; the innovative aspects of it; education & training, role models, examples and discussions.
2. **Opportunity recognition:** this is a very important aspect of entrepreneurship, one needs to “identify” an opportunity that motivates them to pursue it. Opportunities at research and commercial levels.
3. **Commercialisation:** through a variety of methods of technology transfer to different levels of product development. Lectures from practitioners; business plan competitions; short pieces of course work; small group supervisions etc.

# Framework For Necessary Factors For Enterprise Development





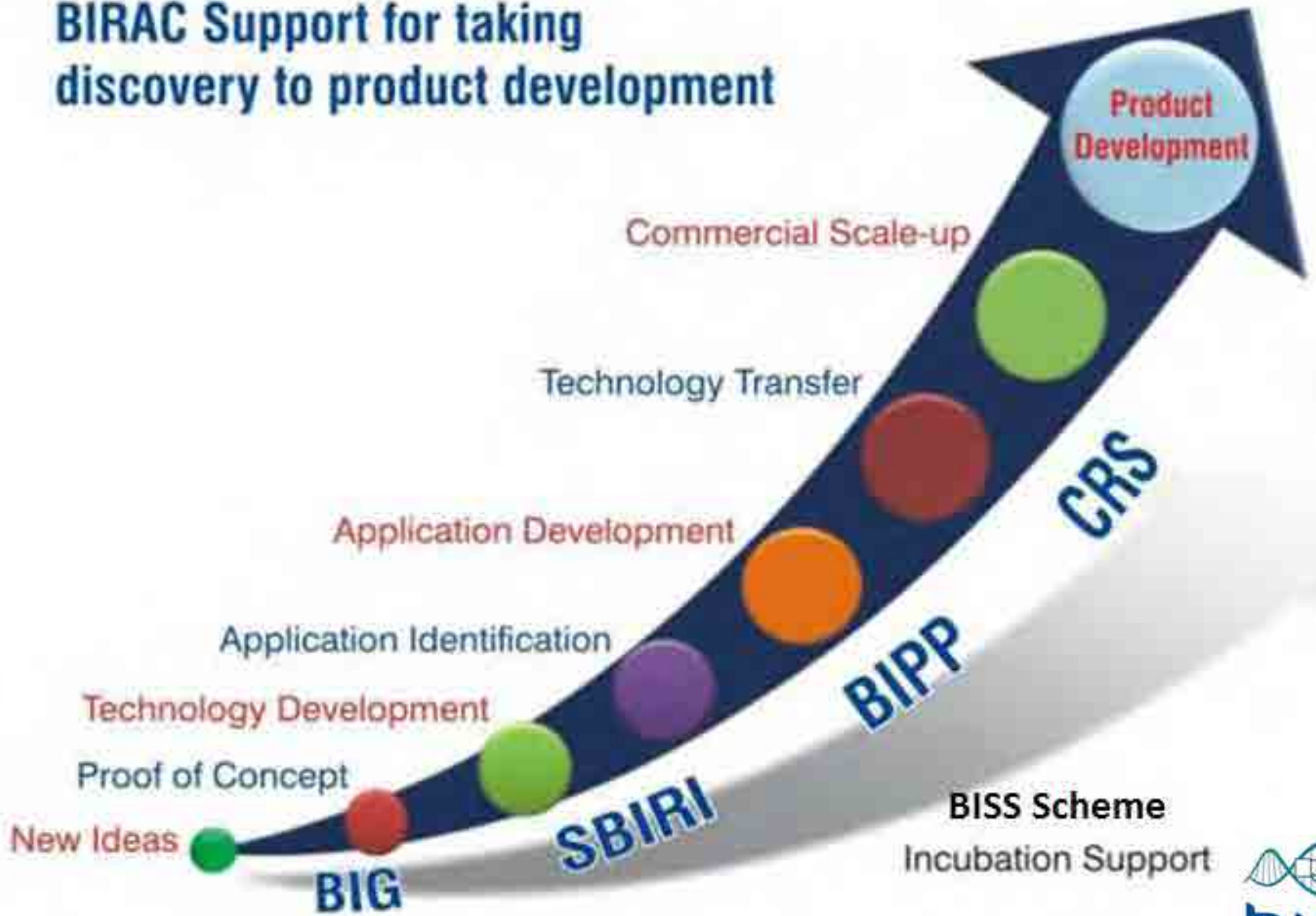
# Government: DBT-BIRAC's Role

- **Linking Education, Innovation and Entrepreneurship – ‘Connector and Catalyser’**
- **Biotech Incubation for Entrepreneurship (BISS Scheme)**
- **Education and Training Support activities to Start-ups & SME's in Biotech**
- **Fostering Innovation and Enterprises Building**
- **Awareness and Capacity Building for new budding Entrepreneurs**
- **Fellowship/Internship programmes**
- **Mentorship and Networking Events**

# BIRAC Initiative:

- Supporting Public Private Partnership in Biotechnology research
- Fostering Innovation & Research in Biotechnology
- Promoting Entrepreneur Education & Learning
- Empowering & Mentoring SME's
- Innovators Awards for successful entrepreneurs
- Growth through Regional Partnerships
- International Collaborations

# BIRAC Support for taking discovery to product development



**BISS Scheme**  
Incubation Support

# Biotechnology Ignition Grant (BIG) Scheme

## Purpose:

Establish and validate of Proof of Concept

Encourage researchers to take technology closer to market through a Start Up

## Target Groups:

Entrepreneurs from Academia or an Incubatee

(PhDs, Medical degree holders or M.Tech, Engg. Graduates)

## Support:

Grant-in-Aid limited up-to INR 50 Lakh

Mentoring and hand-holding

Supports up-to Proof-of-Concept stage

# Small Business Innovation Research Initiative- SBIRI

## Purpose:

- Govt. partnership with Industries
- For path-breaking research in frontier futuristic technology areas having major economic potential.
- Focused on IP creation
- IP ownership retained by Indian industry/collaborating scientists.

## Target:

- Indian Biotech companies registered under Indian Company Act 1956

## Support:

- To nurture high risk, highly innovative accelerated technologies/entrepreneurs
- Support early stage, proof-of-concept research

Over 100 projects from SME's supported

SBIRI deployed \$36million of which US\$5million was in grant & US\$31million as soft loan



# Biotechnology Industry Partnership Programme- BIPP

## Purpose:

- Govt. partnership with Industries
- *Cost sharing basis*
- For path-breaking research in frontier futuristic technology areas having major economic potential.
- Focused on IP creation
- IP ownership retained by Indian industry/collaborating scientists.

## Support:

- For high risk, highly innovative accelerated technology
- For nationally and socially relevant areas, with no assured market.
- Supporting research project for novel IP generation.

## Target:

- Indian Biotech companies registered under Indian Company Act 1956
- 51% Indian shareholding (including NRI's)
- DSIR recognized R&D
- Apply independently or in collaboration with companies, not for Profit organisation or academics partners

Nearly 100 agreements have been signed with 85 companies with approx. 50 SME's

Investment of US \$153million has been committed with US\$55 million by Govt. of India with contribution of US\$98 million coming in from private sector.

# Contract Research Scheme- CRS

## Purpose:

Academia-industry interaction  
Industry to validate process or partner for specific research

Leads should be at a level which provides sufficient data for Scale up/Validation:

- Exploratory validation of technology
- Small scale contract research resulting in generating several batches of process or multiple prototypes
- Large scale validation of prototype to commercial design

## Target Groups-

Research institutes,  
Universities,  
Public funded research  
Laboratories,  
Governmental  
organizations,  
Research foundations  
AND  
Companies / industries

Company partner  
should have DSIR  
recognized  
R&D/Service unit(s)

## Support:

- Funds for validation of PoC
- IP Services and Management
- Legal support: MTA, NDA, IP protection contracts, Licensing agreements

# Bio-incubator Support Scheme- BISS

## Purpose:

Strengthening and Up-gradation of the existing Bio-incubators and also to establish New World Class Bio-incubators in certain strategic locations.

## Target Groups:

- Existing Bio-incubators across the country
- New Bioincubators

## Support:

- Provide incubator space to Start-ups and Entrepreneurs.
- Provide access to a pool of special equipments in the Central Equipment Facility.
- Connect and facilitate Industry – Academia Interaction
- Provide enabling services and required mentorship for IP and Technology Management, Legal and Contract, resource mobilization and networking platform.
- Governance models would be cooperative or autonomous.
- 12 existing Bio-incubator across India has been supported approx. 70,000 sq.ft Bio-Incubator has been created.

# Identifying Key Gaps

- Entrepreneurship Development is complex process need to find proper mechanism as per local resources availability
- Enabling Capacity building and Handholding services
- Fostering and encouraging techno- Entrepreneurship in all places research.
- Provide Mentorship & Faculty development programmes.

# Strategic Partners

- **Global Partners-** Centre for Entrepreneurship Education at Cambridge University, WHO, Gates Foundation, PATH, etc
- Launching **IGNITE** Programme in July 2013.
- **National Partners-** DBT & Allied Institutes, ICMR, IIT's, Leading Medical & Technological University & Institutions, DBT-BIRAC Supported Bio-Incubators, ISBA, ABLE, BCII

# THANK YOU

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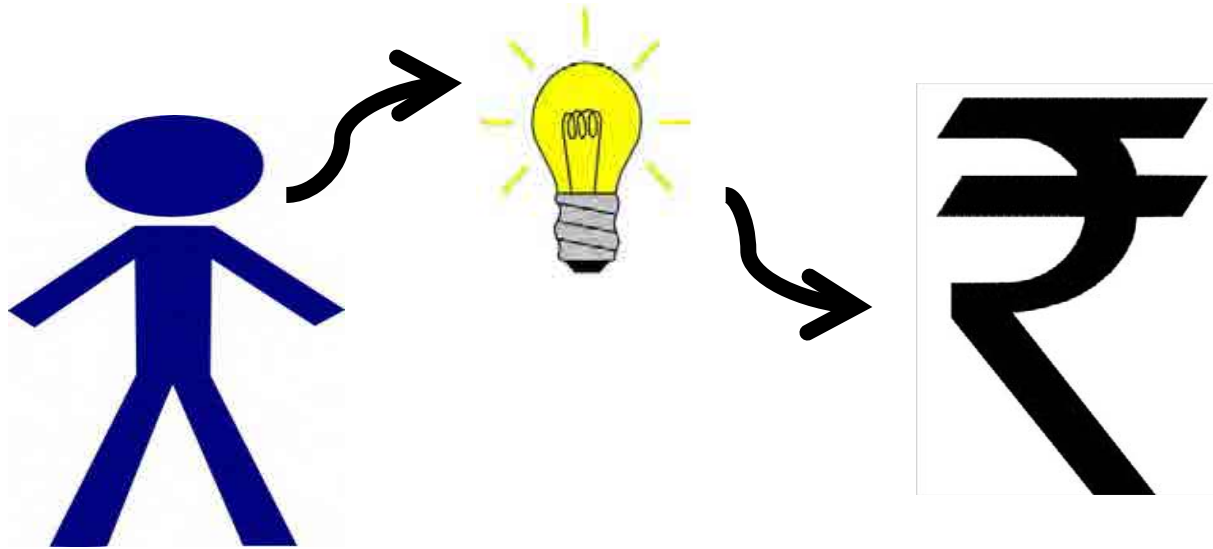




**Website- [www.birac.nic.in](http://www.birac.nic.in)**

**Email- [rpatil.birac@nic.in](mailto:rpatil.birac@nic.in)**

# “Technology Licensing in Drugs and Bio-Pharmaceuticals”



*at*

**SHRI MATA VAISHNO DEVI UNIVERSITY, JAMMU**

*by*

*Dr. Goutam Bhattacharyya*

*© K&S Partners, Gurgaon*



# TECHNOLOGY

- Complete set of Industrially applicable knowledge
  - ❖ Intellectual Asset
  - ❖ Intellectual Property

# What is Licensing

The granting of permission to use a bunch of RIGHTS/ ASSETS under defined conditions.

# Underlying principle of Licensing

- is basically about getting the fear and greed levels balanced between both parties.....
- Licensor's fear: cannot off-load the technology.
- Licensee fears: competitor will buy it and blow them out of the water.



**as much as possible**

**vs.**

**as little as possible**

**all these sorted out = licence agreement**

# SYNC OF TWO MINDS

- Under estimation vs. Over estimation
- What industry (licencee) wants?
- Techno-economical viability of research?
- Most importantly mutual trust.

# WHAT IS TECHNOLOGY LICENSING AND TRANSFER

Is a process by which a developer of technology makes its technology available to a commercial partner that will exploit the technology with defined conditions.

# Reasons of licensing and transfer:

- Forming alliances with partners that can progress the development of the technology
  - Limitations of developer (up to animal studies not up to clinical and commercial phase).
- Forming alliances with partners with manufacturing capability (start up companies/Universities).
- No commercial capability.

# PRINCIPLES OF TECHNOLOGY LICENSING AND TRANSFER

*Legal agreements are entered into by which:*

- the right to exploit the technology is granted
- Compensation against those rights, and
- Setting out respective rights and duties



# KINDS OF AGREEMENTS

- Agreement for showing interest
- Confidentiality Agreement
- Material transfer agreement
- Deed of Assignment
- License Agreement
- Strategic alliance or joint venture
  - Co-development agreement
  - Co-marketing agreement

# CONFIDENTIAL AGREEMENT

legally binding agreement between a discloser of confidential information, and a recipient of confidential information on a defined terms and condition.

- Not known to others but have unique value,
- patentable/ trade-secret,
- for evaluation or testing purposes

# MATERIAL TRANSFER AGREEMENT

- The material (vector, proteins) that embodies intellectual property, and that intellectual property needs to be protected.
  - recipient will not part with possession of the material, nor any progeny or derivatives, without the prior written consent of the provider of the material,
  - Defined use,
  - Safety,
  - Ethical issues.

# ASSIGNMENT VS. LICENSING IN PHARMA SECTOR

incidence of assignment is significantly smaller than licensing.

- reduced financial upside
- inefficient financial terms
- no performance obligations

# SUBJECT MATTER OF LICENCE

- granted patents
- PCT and provisional patent applications
- inventions, discoveries and other technical information that are not yet the subject of a patent application
- trade secrets and confidential information that are intended to remain as such.

# TANGIBLE THINGS TO BE PROVIDED

- the original patent grants
- the original patent applications/ specifications
- laboratory notebooks
- biological materials: cell lines, vectors, compounds..
- the documents that demonstrate the chain of title of the intellectual property, for example, from employee to employer, from independent contractor to customer, from collaborator to joint owner, etc.

# WARRANTY

- owner owns the IP
- that the commercialization of the IP will not infringe the rights of a third party to the best of the owner's knowledge
- that the intellectual property is not already licensed, nor subject to any agreement or option entered into by the owner
- that the intellectual property has not been encumbered by the owner in any way.

# LICENCE AGREEMENT

- Underlying principle of licensing is “**EXCLUSIVITY**”
- Based on the exclusivity, Licences are of:
  - exclusive licences,
  - Sole licences,
  - Non-exclusive licences,
  - Patent pooling: *collection of patents, owned by different entities, required to offer a product or service.*



# Types of licence agreements

- Unilateral licensing - typically upfront payment and royalties from sales of product
- Cross-licensing involve an exchange between two or more patent portfolio and used for mutual use of patents by multiple patent holders.

# COMPULSORY LICENCE

Compulsory licence in a patent system in an involuntary contract between willing buyer and unwilling seller.

# COMPULSORY LICENCE (CL)

## Section 84:

*At any time after the expiration of three years from the date of the [grant] of a patent, any person interested may make an application to the Controller for grant of compulsory licence on patent on any of the following grounds,*

**Namely: to be continued**

# GROUND FOR CL

- (a) that the reasonable requirements of the public with respect to the patented invention have not been satisfied, or
- (b) that the patented invention is not available to the public at a reasonably affordable price, or
- (c) that the patented invention is not worked in the territory of India.”

# APPLICATION FOR CL

- Negotiate with the patent holder
- If negotiation fails, approach Controller
- Controller will hear both the parties
  - May or may not grant CL
  - On a reasonable terms and conditions

**BAYER CORPORATION**

**VS.**

**NATCO PHARMA**

# CONTROLLER GENERAL'S ORDER

CG found that all the 3 criteria above were satisfied in this case, namely:

a.that since Bayer supplied the drug to only **2% of the patient population**, the reasonable requirements of the public with respect to the patented drug (Nexavar) were not met.

b.that Bayer's pricing of the drug (**2.8 lakhs for a months' supply of the drug**) was excessive and did not constitute a "reasonably affordable" price.

c.that Bayer did not sufficiently **"work"** the patent in India.

# MAXIMIZING THE BENEFITS: FIELD

- Licenses can be limited to a particular area of application,
  - human applications
    - diagnostic
    - therapeutic vaccines
    - prophylactic vaccines.
  - plant applications
  - veterinary applications.



# MAXIMIZING THE BENEFITS: TERITOREAL

- **Global licensing,**
- **Limited geographical area,**
  - exclusive license for North America
  - yet grant an exclusive license of the same intellectual property to another licensee for the territory of Europe,
  - and yet another for the territory of Asia.

# MAXIMIZING THE VALUE

- Part licensing
- License remaining parts to other companies.
- While licensing one should aim at long term relationship with the licensee
- There would always be conflict of interests but that has to be managed.

# IMMENSE POTENTIAL

- USA- Patent licensing revenue
  - \$ 15 billion in 1990
  - \$ 100 billion in 1998.
  - Expected to grow to half trillion by the middle of next decade.
- Japan- earned JPY 340 billion in 2002
  - spent JPY 210 billion on obtaining license.
- France- earned EUR 330 million (1990) to EUR 2.4 billion (2003).

# DUE DILIGENCE IN LICENSING

- Identify IPR at issue
- Look at company's IP files
- Search IP held by the company in databases
- Review corporate files
- Review key products

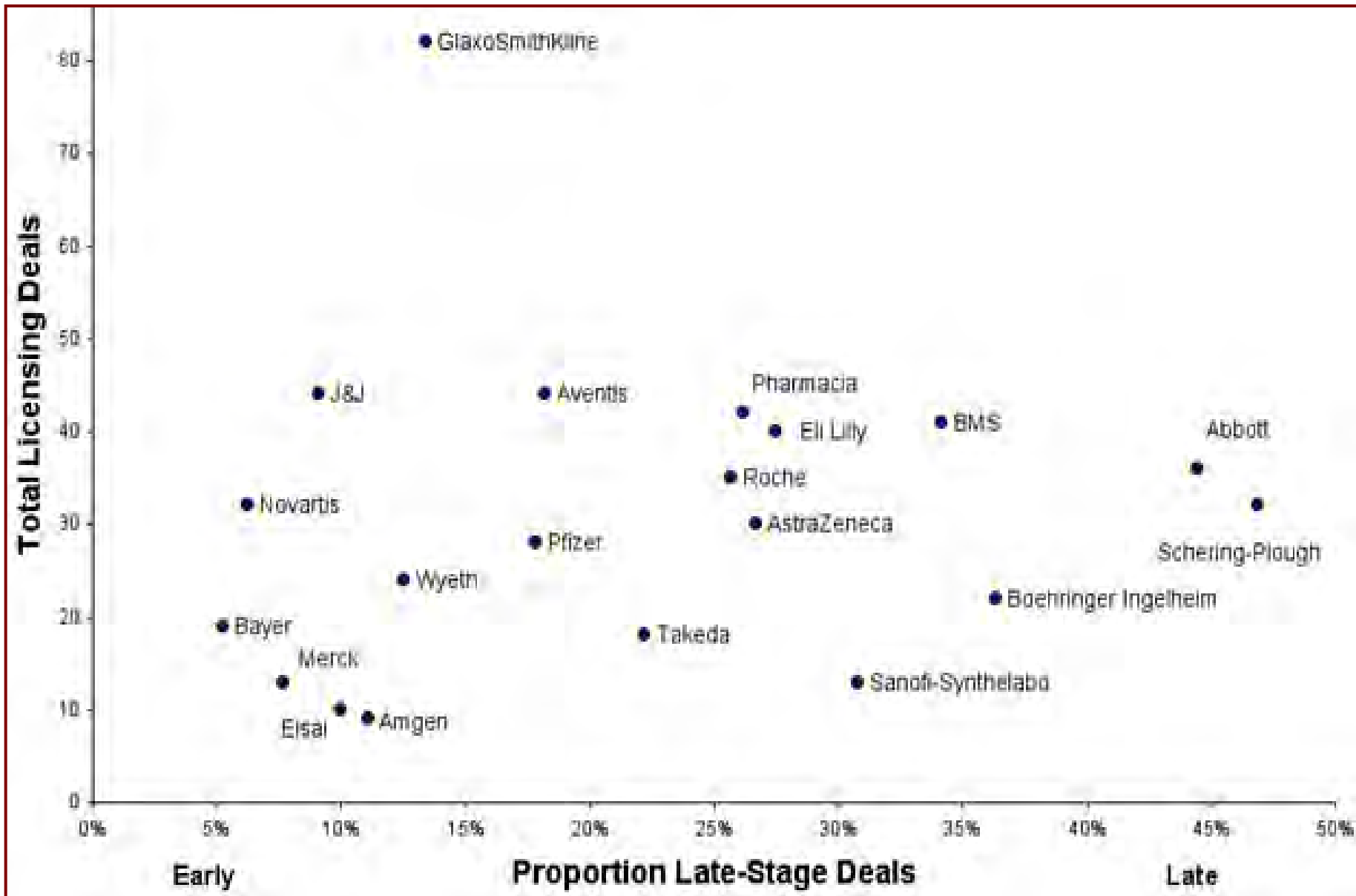
# DUE DILIGENCE IN LICENSING

- Review business records
- Interview persons familiar with development to identify trade secrets, unregistered trade marks
- Determine ownership of IP

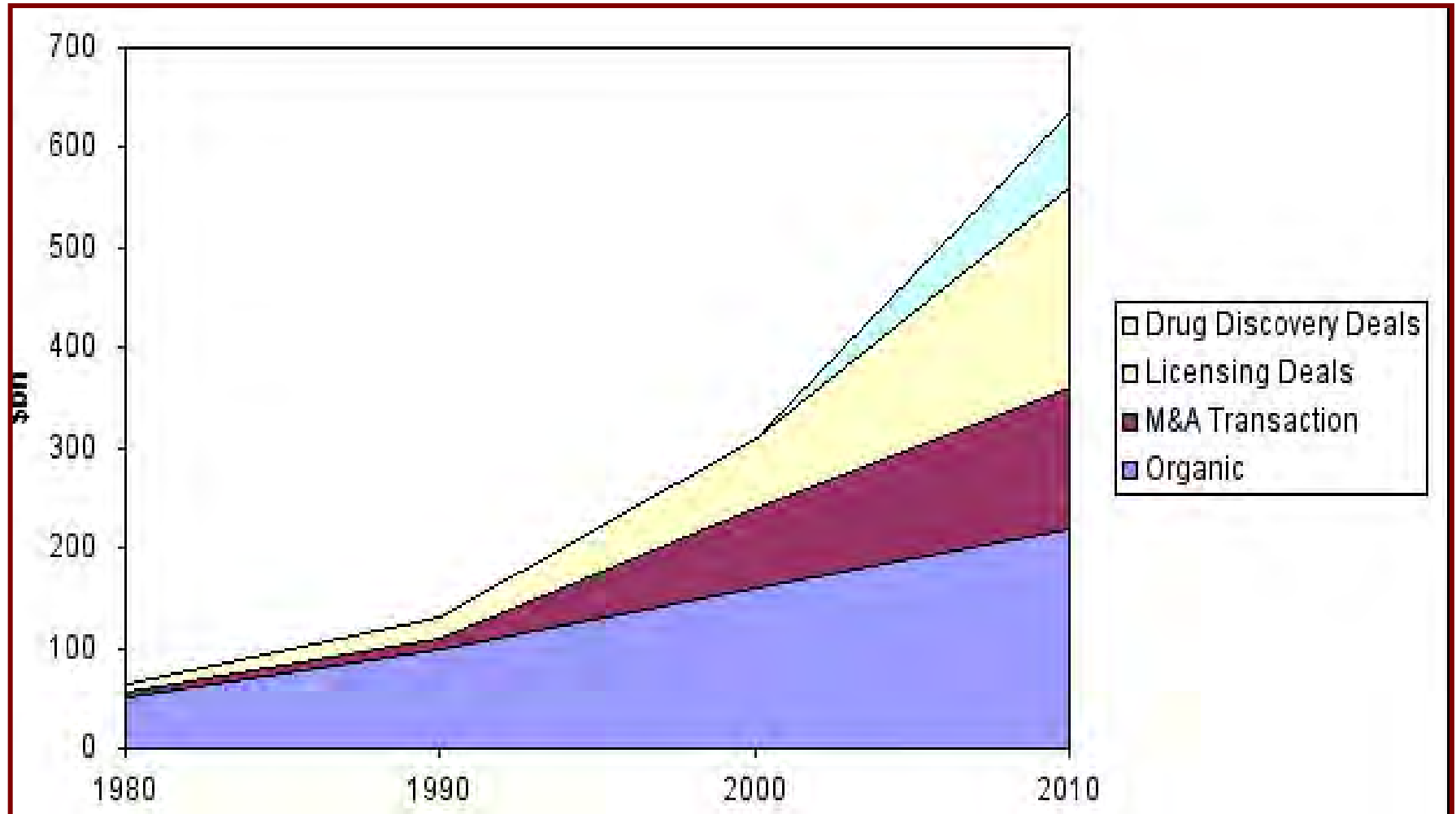
# Some anti-competitive practices

- Grant-back licensing - licensee must license back to licensor any improvement patent
- Tie-in-clause - licensee is forced to purchase un-patented material ( e.g., raw materials)
- Package licensing- licensor forcibly licenses undesired IPR along with patents (trademark)
- Condition prohibiting a licensee from challenging the validity of licensor's IPR

# Licensing Strategies



# Projected Pharmaceutical Industry Growth by Strategic Activity





# TOP INTERNATIONAL LICENSING DEAL IN 2012



DEAL SIZE:  
US\$ 3.5 billion



AMYLIN - DIABETES  
DRUGS PORTFOLIO



# Bristol-Myers Squibb - AstraZeneca

**Licensors:** Bristol-Myers Squibb      **Licensee:** AstraZeneca

**Deal size:** \$3.5 billion

More than five years ago BMS and AZ tie knot over their R&D and commercialization collaboration focused on Type 2 diabetes drugs:

- *Onglyza (saxagliptin; DPP-4 inhibitor);*
- *Kombiglyze (saxagliptin and metformin HCl extended-release)*
- *Forxiga (dapagliflozin; SGLT2 inhibitor).*

BMS's purchases [Amylin](#) for **\$7 billion**

BMS licenses its diabetes portfolio to Astra for **\$3.5 billion**

# Astra and BMS Contd...

- Amylin's portfolio for diabetes, includes:
  - The GLP-1 agonists,
    - Byetta (exenatide) injection and
    - Bydureon (exenatide extended-release)
    - delivery devices and formulation improvements;
  - Metreleptin, a leptin analog currently under review by FDA to treat diabetes and/or hypertriglyceridemia in patients with lipodystrophy;
  - Symlin (pramlintide acetate) injection an amylin analog, FDA approved

# **TOP 20 LICENSING DEALS OF 2012**

S.NO.	LICENSOR	LICENSEE	SIZE OF THE DEAL (\$)	AREA OF TECHNOLOGY
1.	<a href="#">Bristol-Myers Squibb</a>	AstraZeneca	3.5 bn	Diabetes
2.	<a href="#">Galapagos NV</a>	Abbott Laboratories	1.35 bn	Autoimmune diseases
3.	<a href="#">Endocyte</a>	Merck	1.0 bn	Late stage ovarian cancer
4.	<a href="#">Forma Therapeutics</a>	Boehringer Ingelheim	815 m	Multiple oncology targets
5.	<a href="#">Forma Therapeutics</a>	Janssen (Johnson & Johnson)	700 m	Tumour metabolism
6.	<a href="#">Xenon</a>	Genentech	646 m	Pain medication
7.	<a href="#">Threshold Pharmaceuticals</a>	Merck KGaA	550 m	Cancer
8.	<a href="#">Celgene</a>	Inhibrx	500 m	Antibody
9.	<a href="#">Thrombogenics</a>	Merck KGaA	490 m	Symptomatic vitreomacular adhesion (eyes)
10.	<a href="#">Enanta</a>	Novartis	440 m	Hepatitis C
11.	<a href="#">AC Immune</a>	Genentech	418 m	Alzheimers
12.	Bionomics	Ironwood <a href="#">Pharmaceuticals</a>	345 m	Anxiety disorders
13.	<a href="#">Virobay</a>	Leo Pharma	307 m	Dermatology
14.	<a href="#">Angiochem</a>	GlaxoSmithKline	300 m	CNS disorders
15.	<a href="#">Isis Pharmaceuticals</a>	Biogen Idec	299 m	Spinal muscular atrophy
16.	<a href="#">Isis Pharmaceuticals</a>	Biogen Idec	271 m	Myotonic dystrophy
17.	<a href="#">FivePrime Therapeutics</a>	GlaxoSmithKline	223.5 m	Asthma and chronic obstructive pulmonary disease
18.	<a href="#">BioDelivery Sciences</a>	Endo Pharmaceuticals	180 m	Pain medication
19.	<a href="#">Genmab</a>	Novartis	175 m	Antibodies
20.	<a href="#">Mannkind Corp.</a>	Tolero Pharmaceuticals	130 m	Hemtomological malignancies and inflammatory diseases

# PFIZER

- In terms of overall commercial success of licensed products, Pfizer is by far the leader with total revenues of \$15.1bn in 2002 from licensed products.

# OUR OWN CSIR

Natural Streptokinase by CSIR-IMTECH licensed to Cadila and is already available in the Indian market under the STpase brand name.

Recombinant STpase roughly ten times as efficient as a natural SK.

This technological package was licensed to M/S Shasun Chemicals & Drug Ltd., Chennai, from 2002-2003.

This product was launched in the Indian markets in July 2009 under the brand names “Lupiflo” and “Klotbuster”.

# IN A NUTSHELL.....

- Identify the need (e.g.)
- Proper due diligence of the partners
- Avoid being demanding
- Mutual trust is the key



# THANK YOU

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# PATENT SEARCH



**Sensitization Workshop on Intellectual Property Technology  
Management and Entrepreneurship**

**on 11<sup>th</sup> January 2013**

**at Shri Mata Vaishno Devi University**

**Sibi Sagar** [ssagar.birac@nic.in](mailto:ssagar.birac@nic.in)

# Importance of Patent Search

2

- Learning more about a new field
- For market information
- Competitor tracking
- Technology tracking
- Inventive thinking by challenging the inventors with the novelty of the idea
- Critical step before filing a patent application

11 Jan 2013



# Patent Search Types

3

- State-of-the-art Searches
- Novelty/Patentability Searches
- FTO/Infringement/Clearance Searches
- Validity/Invalidity Searches

11 Jan 2013



# State-of-the-art Searches

4

- To find out what technology already exists and then build on it.
- Provides up-to-date information about progress in a specific technical field
- Results can identify new areas for investment, research and development, or acquisition
- Search Patent as well as Non-Patent Literature

11 Jan 2013



# Novelty/ Patentability Searches

5

- An inventor has an invention which he is interested in patenting
- To determine if anyone has previously invented anything similar or identical
- Determine Whether to Pursue Patent Protection
- To better define the inventive contribution of the new product over the prior art
- Use Search Results to Strengthen Patent Application
- Pre-empt the Examiner's Prior Art Rejections

11 Jan 2013



# Novelty/ Patentability Searches (contd..)

6

- Patentability Search is NOT an Infringement Search
- Prior Art to be Searched
  - ▣ Patent Published, Application and Non-Patent Literature
  - ▣ Published anywhere in the world
  - ▣ No Date constraints
  - ▣ Evidence of past public use or sale
- Search not a legal requirement

Anything disclosed to public, in any manner, at any time,  
cannot be patented.

# FTO/Infringement/Clearance Searches

7

- To demonstrate that a proposed product does not infringe any in-force patents
- If infringement exists, take appropriate business decision
- Search Scope
  - ▣ exclude expired patents, Limit date range to the last 20 years
  - ▣ exclude Non-patent literature
  - ▣ Is Jurisdiction specific
  - ▣ Claims
- It is the Claims which determine what it would take to infringe that patent
- In-force claims may be very broad and not include all features of the proposed product or invention.

*E.g. the new product may include A + B + C + D This combination will infringe an earlier and broader claim that only recites A + B.*



# Validity/Invalidity Searches

8

Patent Office may have issued the patent in error.

A company has made a product that infringes upon another company's patent and are being sued.

- Exhaustive Prior Art Search conducted after patent issuance
- To validate the enforceability of a patent's claims or to invalidate one or more claims of a patent
- A successful Validity search finds references that the Patent Office missed.

# Validity/Invalidity Searches (contd..)

9

- The grounds to invalidate a patent differ according to the national patent laws of different countries
  - ▣ Publication of the invention prior to the priority date of the application for patent,
  - ▣ Sales of the invention,
  - ▣ Prior public knowledge, or prior public use.
- Search
  - ▣ Prior art patents or non-patent publications
  - ▣ Date prior to filing date of invention of the target patent.

# Patent Databases

10

## □ Free Patent Databases

- United States Patent Trademark Office (USPTO)

<http://patft.uspto.gov/>

- EPO-espacenet

- Patent Lens [www.patentlens.net](http://www.patentlens.net)

- WIPO Patentscope

<http://patentscope.wipo.int/search/en/search.jsf>

- Google Patents

- Free Patent Online [www.freepatentsonline.com](http://www.freepatentsonline.com)

- Indian Patent Office <http://ipindiaservices.gov.in>

*and many more....*

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# United States Patent Trademark Office (USPTO)

11



**United States Patent and Trademark Office**  
An Agency of the Department of Commerce

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*The databases are operating normally.*

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# Espacenet



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## Help

Search

## Number searches

If you have found a number (for example in an article or magazine) but you do not know what it represents (application, publication, priority or NPL reference number, for example) or which country it comes from, you can use the **Number search** or **Smart search** options to find the relevant document.

All you have to do is enter the number in one of the search masks. Depending on availability, the result of your search may contain [bibliographic data](#), a [description](#), [claims](#), [mosaics](#), the [original document](#) (in facsimile mode), the [INPADOC legal status](#) and the [INPADOC patent family](#).

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# Patent Lens

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Patent Lens



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- Patent Landscapes on [Influenza Genes](#), [Rice Genome](#) and [Adjuvants](#) now online.
- [Protein & DNA Sequence searching](#) of over 80 million sequences from worldwide patent collections.

## Selected Media

[Cambia is named to the list of World's Top 100 NGOs by The Global Journal](#)

The Global Journal, USA  
January 12, 2012

*From the hundreds of thousands of Non-governmental organizations in the world, the Global Journal has selected the Top 100 based on impact, innovation, transparency, accountability and efficiency.*

[Q&A with Richard Jefferson - Stanford Social Innovation Review](#)

Stanford Social Innovation Review, USA  
February 14, 2011

*Richard Jefferson believes that biotechnology can be used to benefit the poor and disenfranchised, but only if the R&D process is democratized so that everyone has access to critical scientific tools and technologies.*

[USPTO makes US Patent Data 2013 available](#)


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# WIPO Patentscope

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Simple Search

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↓ "electric car"~50  
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↓ elect?icit?  
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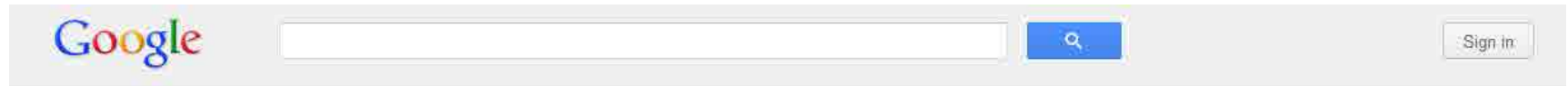
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Patents

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## CHRISTIANSEN

Godtfred Kirk Christiansen et al



- Overview
- Abstract
- Drawings
- Description
- Claims

Patent number: 3005282

Filing date: Jul 28, 1958

Issue date: Oct 24, 1961

Inventors: [Godtfred Kirk Christiansen](#), [Godtfred Kirk Christiansen](#)

Current U.S. Classification: [446/128](#); [52/592.3](#)

[View patent at USPTO](#)

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## Referenced by

Citing Patent	Filing date	Issue date	Original Assignee	Title
<a href="#">US3999761</a>	Nov 6, 1975	Dec 28, 1976	Western Publishing Company, Inc.	Activity block and method of making same
<a href="#">US4095366</a>	Oct 8, 1976	Jun 20, 1978		Block puzzle toy
<a href="#">US4176493</a>	Nov 11, 1977	Dec 4, 1979	Interlego A.G.	Rotatable element for toy building sets
<a href="#">US4205482</a>	Aug 22, 1978	Jun 3, 1980	Interlego A.G.	Toy figure
<a href="#">US4552541</a>	Feb 9, 1984	Nov 12, 1985		Toy building block with electrical contacting portions
<a href="#">US4556393</a>	Feb 8, 1984	Dec 3, 1985	Interlego AG	Toy building block with electrical contacts
<a href="#">US4606732</a>	Jun 15, 1984	Aug 19, 1986		Interlocking toy building blocks with interconnecting, releasable hinges
<a href="#">US4740189</a>	Mar 10, 1986	Apr 26, 1988	The Ritvik Group, Inc.	Construction toy assembly
<a href="#">US4744780</a>	Feb 6, 1986	May 17, 1988	Tyco Industries, Inc.	Adapter block

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# Free Patent Online

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The screenshot shows the FPO IP Research & Communities search interface. At the top left is the FPO logo with the text 'IP RESEARCH & COMMUNITIES'. To the right are input fields for 'Email' and 'Password', and buttons for 'Login' and 'Sign up'. Below this is a large search box with the placeholder text 'Enter your search here' and a 'Search' button. To the right of the search box are two rows of checkboxes: the first row has 'Patents/Apps' (checked) and 'Non-Patent Literature' (unchecked); the second row has 'Blogs/Groups' (unchecked), 'MPEP' (unchecked), and 'Case Law' (unchecked). A navigation bar below the search box contains links for 'SEARCH', 'BLOGS', 'MPEP 2.0', 'TOOLS & RESOURCES', 'PRODUCT & SERVICES', and 'HELP'. Under the 'SEARCH' link, there are sub-links for 'Expert Search' and 'Quick Search'. Below the navigation bar, there is a text box with links for 'syntax instructions', 'field abbreviations', and 'character map'. To the left of the search options is a large empty text box. To the right of this box is a list of search options with checkboxes: 'US Patents' (checked), 'US Patent Applications' (checked), 'EP documents' (checked), 'Abstracts of Japan' (unchecked), 'WIPO (PCT)' (checked), 'German Patents (Beta)' (checked), and 'Non-patent Literature' (unchecked). To the right of this list is a 'Date Range\*' section with radio buttons for 'All years' (selected) and 'Last 20 years' (unselected). Below that is a 'Word Stemming' section with radio buttons for 'On' (selected) and 'Off' (unselected). Below that is a 'Sort Order' section with radio buttons for 'Chronological' (unselected) and 'Relevancy' (selected). A note below the sort order section states: '\* Entering date parameters in the box will override the 'date range' buttons.' At the bottom of the search options are 'Search' and 'Reset' buttons.

**Coverage Details:** Coverage details for the patent database can be found [here](#)

Note that most fields support Phrase (ABST/"cardboard box"), Proximity (ABST/"cardboard box"-5), Wildcard (ABST/card\*), and Leading Wildcard (ABST/\*ectomy) queries. Some fields support range queries and math operations. Only basic examples are provided below. See the [syntax guide](#) for advanced syntax details

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# Indian Patent Office



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<input type="text" value="NOT SELECTED"/>	<input type="text" value="Containing"/>	<input type="text"/>	<input type="text" value="AND"/>	<input type="button" value="⏏"/>
<input type="text" value="NOT SELECTED"/>	<input type="text" value="Containing"/>	<input type="text"/>	<input type="text" value="AND"/>	<input type="button" value="⏏"/>
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<input type="text" value="NOT SELECTED"/>	<input type="text" value="Containing"/>	<input type="text"/>	<input type="text" value="AND"/>	<input type="button" value="⏏"/>
<input type="text" value="NOT SELECTED"/>	<input type="text" value="Containing"/>	<input type="text"/>	<input type="text" value="AND"/>	<input type="button" value="⏏"/>

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# Patent Databases

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- Paid Patent Databases
    - Thomson Innovation [www.thomsoninnovation.com](http://www.thomsoninnovation.com)
    - Delphion [www.delphion.com](http://www.delphion.com)
    - Derwent World Patent Index
    - STN [stnweb.cas.org](http://stnweb.cas.org)
    - QPAT [www.qpat.com](http://www.qpat.com)
- and many more..*

*Advantages: value added, better indexing, better search engine*

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# Thomson Innovation

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The screenshot displays the Thomson Innovation Patent Search interface. At the top, there is a navigation bar with 'Patent Search' and language options. Below this, a search bar contains 'Patents' and a 'Go' button. The main area is titled 'Patent Search' and includes tabs for 'Fielded Search', 'Publication Number', and 'Expert Search'. A sidebar on the left contains navigation links such as 'Search', 'Patent Search', 'Search History', 'Marked List', 'Saved Searches & Alerts', 'Saved Work', 'Administration', 'My Account', 'Preferences', and 'Support'. The central search area features a 'Text Fields' dropdown menu with options like 'Title/Abstract', 'Title/Abstract/Claims', and various language-specific fields. Search criteria are entered in text boxes, including a date range from '2008-01-01' to 'YYYY-MM-DD'. A 'Search' button is visible. Below the search area, a 'Collections to Search' section is expanded, showing a grid of checkboxes for different patent collections. The 'Full Text' section includes options for US, European, and Japanese applications. The 'Asian Translated' section includes options for Japanese, Korean, and Chinese utility models and granted patents. The 'Bibliographic' section includes 'Other Authorities'. At the bottom of the collection selection area, there are 'Select All' and 'Clear All' buttons, and a checkbox for 'Also search DWPI fields for selected collections'. The date '11 Jan 2013' is displayed at the bottom right of the interface.



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General search

Keywords

Title, Abstract, Key Content

E.g.:Telecom+ OR phone

Classifications

Names

Assignee (Original or Currer) Corporate Tree E.g.:Siemens Nixdorf

Inventor: E.g.:Fleming Alexander, Moyer Andrew

Representative: E.g.:Baker Botts

Numbers, Dates & Country

Publ. number E.g.:EP0980063

Date No restriction

Patents published in (Patent authorities): E.g.:US, EP

Legal status

More fields

Abstracts

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# STN



## Transcript Highlights

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=> FILE CAPLUS
=> S CHOCOLATE
L2 10189 CHOCOLATE
(CHOCOLATE OR CHOCOLATES)
=> D 1, 10189
```

Display record 1 to see the newest reference and record 10189 for the oldest reference in the answer set. Records in the answer set are in reverse chronological order.

```
L2 ANSWER 1 OF 10189 CAPLUS COPYRIGHT 2010 ACS on STN
AN 2010:638019 CAPLUS Full-text
TI Detection of psilocybin mushroom analogs in chocolate: incorporating
current events into the undergraduate teaching laboratory
AU Huskins, Brandon; Dockery, Christopher R.
CS Department of Chemistry and Biochemistry, Kennesaw State University,
Kennesaw, GA, 30144, USA
SO Chemical Educator (2009), 14(6), 236-238
CODEN: CHEDF5; ISSN: 1430-4171
PB Chemical Educator
DT Journal; (online computer file)
LA English
```

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Author	Author names	/AU	AU
Corporate Source	Company or organization name for author affiliation	/CS	CS
Publication Year	Publication year of the original publication	/PY	PY
Language	Language of the original publication	/LA	LA
Document Type	Type of document, e.g., journal, patent	/DT	DT

```
9 CAPLUS COPYRIGHT
ull-text
storage, and ice-ma
& Son, London). $4.50 net.
Chem. Soc. 24(8) 781-783, 1902
```

# Paid Vs Free databases

Derwent record	esp@cenet® record
<p>TI - Protective screen for VDU, with positioning frame to restrict viewing Angle e.g. for <b>confidentiality</b> - Includes transparent plate, with Louvred film to define viewing angle, fixed in frame attached Separably to VDU</p> <p>PN ---EPO599451--- A1 19940601 DW199421 H01J29/89 Eng 009pp - CA2099428 A 19940411 DW199426 G02B27/02 000pp - JP6194506 A 19940715 DW199433 G025B5/004pp</p> <p>DC - P81 T04 DS - BE CH DE ES FR GB LI NL SE AB - EP-599451 The VDU protective screen includes a transparent plate (13), and a support frame for the plate which is fixed to the VDU. The plate is a louvred film (18) which defines parallel micro-windows (22) to limit viewing angle. The frame fixing mechanism is in two separating parts, one which fixes to the frame and the other fixed to the display. The fixing mechanism uses two tabs of adhesive Velcro (RTM). - Pref. the viewing angle varies as a function of the film thickness e.g. about 60deg. for a 1mm film. The frame may have front and rear half shells with corresp. Toothed projections and housings on two lateral edges, at the <b>screen</b> upper edge and opposite a seat, in the front half shell, which holds the transparent plate. - USE/ADVANTAGE - Portable <b>computer</b>; prevents viewing by person outside defined limited angle. Does not form interference fringes on screen edges. - (Dwg.3/4)</p>	<p>N ---EP0599451--- A 19940601 PR-IT1992TO00238U 19921001 AP -EP19930306970 19930903 EC -H01J29/89 IC -H01J29.89 IN -SOLERO GIORGIO (IT) PA -BALTEA SPA (IT) TI -Viewing angle restrictor for a visual display unit.</p> <p>AB -A protective <b>screen</b> for a <b>visual display unit</b> (11) has a plate (13) which prevents viewing by persons other than those directly in front of the visual display unit. The plate (13) is fixed in a frame (12) to be positioned in front of the visual display unit (11) by means of tabs of adhesive velcro (27) having a first part (28) which can be fixed to the frame (12) and the second part (29) which can be fixed to the visual display unit (11). The plate (13) comprises a louvre-type film (18) which defines parallel microwindows (22) in order to define a limited viewing angle (23).</p> <p>11 Jan 2013</p>

# Non-Patent/Literature Databases

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- Scirus [www.scirus.com](http://www.scirus.com)
- Science Direct [www.sciencedirect.com](http://www.sciencedirect.com)
- Delcon
- Google Scholar <http://scholar.google.co.in>
- STN [stnweb.cas.org](http://stnweb.cas.org)

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# Scirus

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- Scientific research tool on the web. With over 545 million scientific items indexed at last count, it allows researchers to search for journal content and also scientists' homepages, courseware, patents and institutional repository and website information.

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AND

All of the words  in The complete document

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<b>File formats</b>	Only show results that are: <input checked="" type="checkbox"/> Any format <input type="checkbox"/> PDF <input type="checkbox"/> HTML <input type="checkbox"/> Word <input type="button" value="List more file types"/>				
<b>Content sources</b>	Only show results from: <table border="1"><tr><td><b>Journal sources</b></td><td><input checked="" type="checkbox"/> All <input type="checkbox"/> American Physical Society <input type="checkbox"/> BioMed Central <input type="checkbox"/> BMJ Group <input type="checkbox"/> Crystallography Journals Online <input type="checkbox"/> Hindawi Publishing Corporation</td><td><b>Preferred Web sources</b></td><td><input checked="" type="checkbox"/> All <input type="checkbox"/> E-Print ArXiv <input type="checkbox"/> Caltech <input type="checkbox"/> CogPrints <input type="checkbox"/> Curator <input type="checkbox"/> Department of Energy</td></tr></table>	<b>Journal sources</b>	<input checked="" type="checkbox"/> All <input type="checkbox"/> American Physical Society <input type="checkbox"/> BioMed Central <input type="checkbox"/> BMJ Group <input type="checkbox"/> Crystallography Journals Online <input type="checkbox"/> Hindawi Publishing Corporation	<b>Preferred Web sources</b>	<input checked="" type="checkbox"/> All <input type="checkbox"/> E-Print ArXiv <input type="checkbox"/> Caltech <input type="checkbox"/> CogPrints <input type="checkbox"/> Curator <input type="checkbox"/> Department of Energy
<b>Journal sources</b>	<input checked="" type="checkbox"/> All <input type="checkbox"/> American Physical Society <input type="checkbox"/> BioMed Central <input type="checkbox"/> BMJ Group <input type="checkbox"/> Crystallography Journals Online <input type="checkbox"/> Hindawi Publishing Corporation	<b>Preferred Web sources</b>	<input checked="" type="checkbox"/> All <input type="checkbox"/> E-Print ArXiv <input type="checkbox"/> Caltech <input type="checkbox"/> CogPrints <input type="checkbox"/> Curator <input type="checkbox"/> Department of Energy		

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# Methodology of Search

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- Keyword Search
- Patent Classification Code Search
- Chemical Structure Search
- Sequence Search

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# Simple Patent Search Tips

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Operator	Patents
<b>AND</b>	Both terms must be present
<b>OR</b>	One term or the other must be present
<b>NOT</b>	Term must be excluded
<b>ADJ</b>	Terms should be next to each other, in the order specified
<b>ADJn</b>	Terms should be within <i>n</i> words of each other, in the order specified
<b>NEAR</b>	Terms should be next to each other, in any order
<b>NEARn</b>	Terms should be within <i>n</i> words of each other, in any order
<b>SAME</b>	Terms must be in the same paragraph, in any order
=	Equal to (use with text as well as dates and amounts)
<>	Not equal to
>	Greater than
>=	Greater than or equal to
<	Less than
<=	Less than or equal to
( )	Create nests to define order of operation
?	Stands for one character, can use multiples, can use within a term
*	Stands for zero to many characters, can use within a term

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# Keyword Searching

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- Identify keywords that relate to the fundamentals of the invention
- Use alternate terminology
- Use Generic and Specific keywords
- Use Combinations of Keywords
- Text Search in Abstract/Full Text/Claims

<b>Invention Feature</b>	<b>Generic</b>	<b>Specific</b>
Shape	Tube	Catheter
Material	Polymer	Polyurethane
Target Organ	Nervous Tissue	Spinal Cord
Medical Action	Heat Exchange	Cooling

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# Keyword Searching (contd..)

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## □ Best Searchable Field

<b>Use Often</b>	<b>Abstract</b> Often contains a collection of keyword of inventions	<b>Assignee/ Inventor Name</b> Active inventors, companies, continue to enrich the field	<b>Full Text</b> Good option for identifying IP related to your idea
<b>Use Less Often</b>	<b>Title</b> For competing IP. (advanced stage)	<b>Claims</b> Patent claims have to be specific.	<b>Assignee/ Inventor Address</b> Inventions may follow geographical pattern

## □ Pitfalls in Keyword Searches

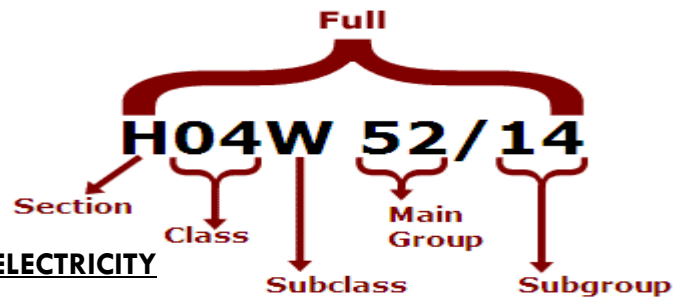
- English Language
- Too many Synonyms
- No Spelling Standards
- Bad Titles and Abstracts
- Innovative Lexicography
- Errors and Omissions

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# International Patent Classification

31

- IPCs are a comprehensive subject classification system applied to all patents by the patent-issuing authorities.



## SECTION H

**H 04**

H 04 B

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**ELECTRIC COMMUNICATION TECHNIQUE**

TRANSMISSION

**Radio transmission systems, i.e. using radiation field**

...Space-based or airborne stations

....Earth-synchronous stations

....Non-synchronous stations

...Multiple access

....Frequency-division multiple access

....Time-division multiple access

....Code-division or speed-spectrum multiple access

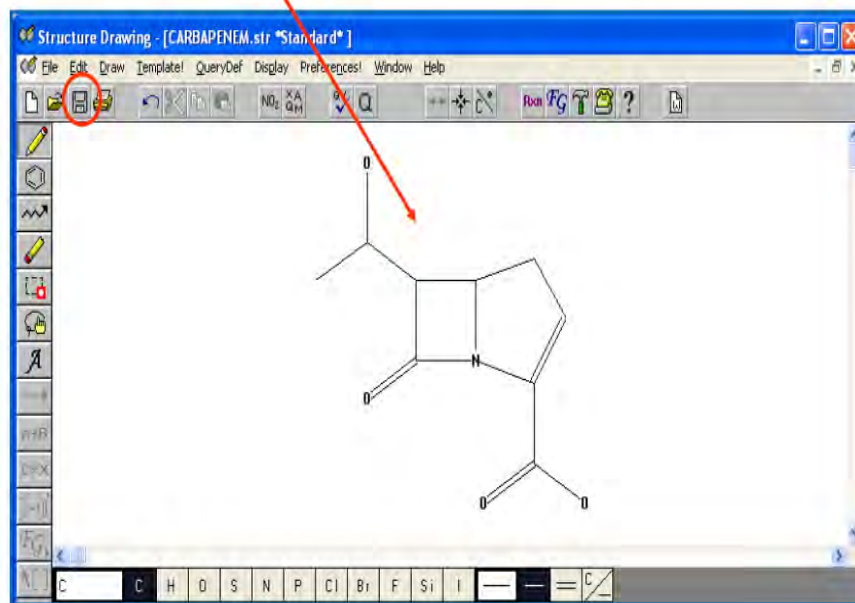
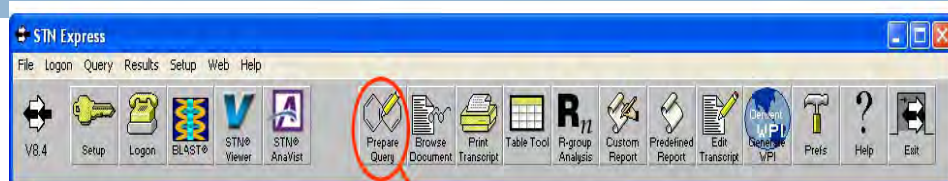
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# Chemical Structure Search

32

- NCBI Pub Chem
- Chemspider
- STN



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# Sequence Search

33

- NCBI BLAST
- PatentLens
- STN
  - ▣ GENESEQ (DGENE)
  - ▣ USGENE
  - ▣ PCT GEN
  - ▣ CAS Registry



The screenshot shows the 'Program, Database & Sequence' section of the NCBI BLAST web interface. It includes a dropdown menu for 'Program' set to 'blastn', a checkbox for 'Use MegaBlast', a dropdown menu for 'Database' set to 'US Applications nt', and a radio button selected for 'Enter sequence below in FASTA format'. Below this is a large text input area for the sequence. At the bottom, there are buttons for 'Search', '+ More Options', and 'Reset', along with a 'Browse...' button for loading a sequence from a disk.

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# Thank You

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