

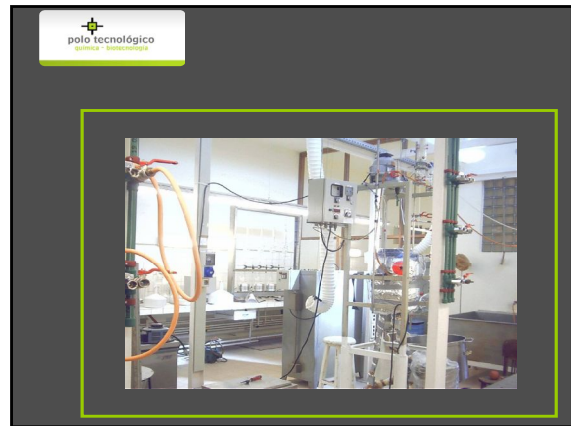



## Pando Technology Pole

*An Innovative Approach involving University to promote Innovation*

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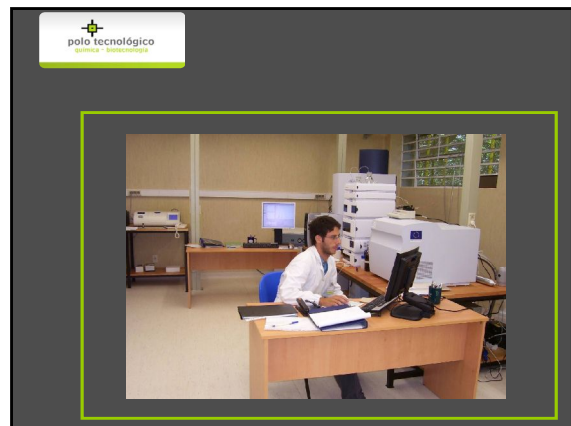
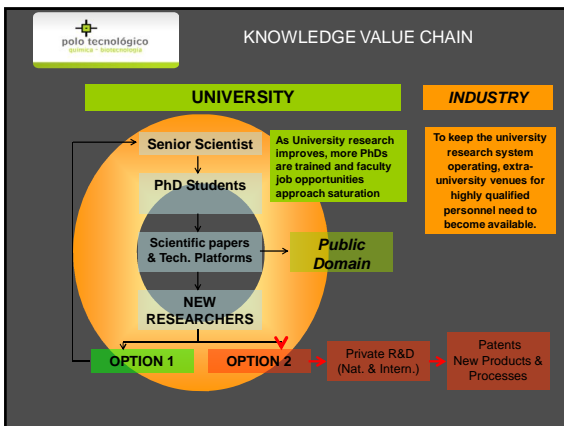



RELEVANT BACKGROUND

IN LATIN AMERICA (L.A.) IN GENERAL AND URUGUAY IN PARTICULAR, SO FAR THE MARKET DID NOT SPONTANEOUSLY PROMOTE SIGNIFICANT PRIVATE INVESTMENT IN R&D TO IMPROVE COMPETITIVENESS

ON TOP OF TAX STIMULI, PROACTIVE POLICIES HAVE TO BE DESIGNED TO INTRODUCE R&D AS PART OF CORE BUSINESS OF PRIVATE AND PUBLIC L.A. LOCATED COMPANIES

GIVEN THE RELEVANCE OF UNIVERSITY INVOLVEMENT IN KNOWLEDGE GENERATION IN L.A., INNOVATIVE TOOLS NEED TO BE DESIGNED TO PROMOTE LINKS AMONG UNIVERSITIES AND COMPANIES, WHICH MUST SHOW TO BE FEASIBLE AND PROFITABLE FOR BOTH OF THEM



## A SISTEMIC PROPOSAL

❖ **Medium and long term approach:** University institutions should strategically focus on promoting entrepreneurship and helping to generate modern and socially responsible businessmen, specially in scientific & technological careers.

❖ **Short term approach:** Universities should proactively become involved in promoting the transformation of knowledge into value, through strategic associations, sharing risks and benefits with companies, thus promoting:

- 1) Better quality of life for citizens
- 2) Sustainability of University R&D as well as of the PhD training associated to it.



## SCHOOL OF CHEMISTRY: MILESTONES OF AN ENTREPRENEURIAL APPROACH

❖ CREATION OF A FOUNDATION (FUNDAQUIM) AS A PRIVATE LEGAL FRAMEWORK TO FACILITATE BUSINESS WITH EXTRAMURAL PARTNERS (1998)

❖ CREATION OF A BUSINESS INCUBATOR (1999)

❖ SET UP A NEW CURRICULA INCLUDING 15% OF TOTAL CREDITS FOR UNDERGRADUATE COURSES RELATED TO BUSINESS & ENTREPRENEURSHIP (2000)

❖ CREATION OF A TECHNOLOGY POLE (2001)

❖ ORGANIZATION OF A COMPETITIVENESS FORUM OF THE PHARMA SECTOR (2003)

❖ RAISING A €2 MILLION GRANT FROM EUROPEAN COMMISSION FOR THE TECHNOLOGY POLE (2004-2007)



## SCHOOL OF CHEMISTRY: EXPECTED IMPACT OF ITS ENTREPRENEURIAL APPROACH

### Teaching

Graduates combining an entrepreneurial & business oriented approach with solid scientific & technological background will be available for innovative chemical and biotech companies.

### Research

Improved scientific production, both in basic and applied fields.  
Increased number of patents filed by Uruguayan inventors  
Improved and more stable financial support for University R&D


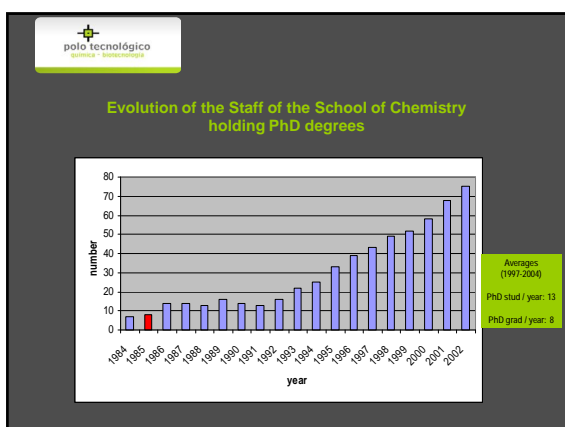
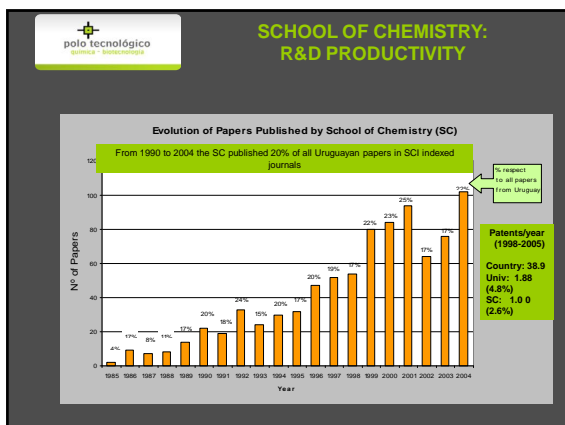
### Industrial links

Generation of indoors R&D groups in pharma & food industries.  
Increased number of innovative chemical & biotech companies.  
Improved and more extensive R&D international connections involving pharma & food industries.  
Competitiveness improvement of Uruguay based companies



**TEACHING**  
**LICENCIADO EN QUÍMICA DEGREE (BSc IN CHEMISTRY)**

- This degree from the School of Chemistry has been recognized by the Royal Society of Chemistry (UK).
- These graduates are accepted for post graduate studies in any UK University as if they were UK graduates.

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## COMPETITIVENESS FORUM OF THE NATIONAL PHARMACEUTICAL SECTOR ORGANIZED BY THE SCHOOL OF CHEMISTRY (2003)

**AIMS**

- IDENTIFICATION OF OPPORTUNITY NICHES IN THE NATIONAL AND REGIONAL MARKETS
- PROMOTE A CLUSTER APPROACH INTEGRATION, INCLUDING THE KNOWLEDGE COMPONENT

**METHODOLOGY**

- ORGANIZE A FORUM INCLUDING ALL ACTORS (Companies, Trade Unions, Pharmacy shops, Health Care Institutions, Government, Parliament, University) TO PROPOSE AND DISCUSS SPECIFIC OPPORTUNITY NICHES
- SWOT ANALYSIS
- PRODUCTION OF A ROADMAP DOCUMENT.

**RESULTS**

EXECUTION THROUGH THE TECHNOLOGY POLE OF JOINT ACTIVITIES (R&D AND MARKET INTELLIGENCE) BETWEEN UNIVERSITY AND COMPANIES TO PROMOTE COMMERCIALIZATION BASED ON INNOVATION, FOCUSED ON THE IDENTIFIED NICHES.



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## OPPORTUNITY NICHES IDENTIED AND TECHNOLOGY SERVICES PROVIDED TO OCCUPY THEM

- **Generic Drugs**  
(development and production of selected pharomochemicals, drug development, training of technical staff, bioavailability and bioequivalence assessing)
- **Phytoterapic Drugs**  
(industrial preparation, characterization and validation of plant extracts, drug & cosmetic products development based on those extracts)
- **Diagnostic Devices**  
(development of technology platforms & applications to design & produce new products for human & animal health as well as for environmental & food safety analysis)
- **Nutraceuticals**  
(development of new products including its active ingredients)



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## R&D APPROACH OF THE POLE FOR THE PHARMACEUTICAL SECTOR IN URUGUAY

**NATIONAL PHARMACEUTICAL SECTOR**

**CHARACTERIZATION:**

- PRIVATE COMPANIES WITH NATIONAL AND REGIONAL INVESTORS.
- FOCUSED BOTH IN THE HOME MARKET AS WELL AS IN THE EXTERNAL ONE (SOUTH AMERICA, CENTRAL AMERICA, CARIBBEAN, VIETNAM)

**PROPOSAL:**

THE POLE OFFERS THEM RESEARCH, DEVELOPMENT, SCALE UP AND PRODUCTION OF PHARMA PRODUCTS, COMPETITIVE IN THOSE MARKETS

**MULTINATIONAL PHARAMACEUTICAL SECTOR**

**CHARACTERIZATION:**

- TREND TOWARDS OPEN INNOVATION: HEADQUARTERS R&D DEPARTMENTS ARE GLOBALLY SCOUTING TO OUTSOURCE PART OF R&D TO SMALL COMPANIES/LABS AROUND THE WORLD.

**PROPOSAL:**

THE POLE OFFERS THEM R&D JOINT VENTURES FOCUSED IN R&D NICHES IN WHICH IT IS STRONG AND WHICH ARE OF INTEREST FOR THE GLOBAL R&D STRATEGY OF THE COMPANIES.

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## PANDO TECHNOLOGY POLE Incubating R&D inside companies: a joint venture approach

- **Aim:** Facilitate the introduction of R&D in Pharma & Food companies
- **Mechanism:** Create consortia between each company and the Pole.
- **Pole assets:** Senior researchers, facilities and state of the art equipment made available for the consortium.
- **Company assets:** Professional staff and running expenses made available for the consortium.
- **Consortium's activities:**
  - Joint definition of R&D strategy and Business Plan
  - Joint management and follow-up of R&D activities
  - Joint funds raising for consortium's R&D.
  - Shared appropriation of R&D results.



## PTP: TECHNOLOGICAL PLATFORMS

- **ANALYTICAL/STRUCTURAL CHEMISTRY** (ESI Q ToF-MS;HPLC-MS/MS;GC-MS;NMR;Atomic Absorption;High Resolution Polarimetry;X-Ray crystallography)
- **PHYSICOCHEMICAL ANALYSIS** (Particle size and surface charge of colloidal materials; drug dissolution analysis; drug thermal stability analysis)
- **DRUG & COSMETIC PRODUCTS DEVELOPMENT**
- **FOOD PRODUCTS DEVELOPMENT**
- **DIAGNOSTIC KITS DEVELOPMENT** (ELISA, latex agglutination, dipstick)
- **BIOPHARMACEUTICAL ASSESSMENT** (Bioavailability & Bioequivalence assesment)
- **PROTEIN PURIFICATION & CHARACTERIZATION**
- **PEPTIDE SYNTHESIS & CHARACTERIZATION**
- **MONOCLONAL & POLYCLONAL ANTIBODIES PRODUCTION & CHARACTERIZATION**
- **SUPERCRITICAL FLUID EXTRACTION**
- **ORGANIC SYNTHESIS** (25 L, 100 L & 400 L Reactors)



## PTP: TECHNOLOGICAL SERVICES

- Joint and/or contracted R&D activities
- High Tech analytical services
- Fine chemicals synthesis
- Training of company's technical staff
- Intellectual Property assessment
- Competitive intelligence assessment (technology & market surveillance)



## A CURIOSITY IN THE WEB


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[www.wipo.int/export/sites/www/sme/en/activities/meetings/taix\\_05/university\\_incubators\\_jaiya.ppt](http://www.wipo.int/export/sites/www/sme/en/activities/meetings/taix_05/university_incubators_jaiya.ppt)




**Role of IP in Benefiting from University-Industry Partnerships: Incubators and IP: International Perspective**  
*Istanbul, Turkey, January 10 and 11, 2005*

*Guriqbal Singh Jaiya*  
 Director, SMEs Division  
 World Intellectual Property Organization  
[www.wipo.int/sme](http://www.wipo.int/sme)




**Examples:IP Management Unit**

- **Example 1: Stanford University**
  - Office of Technology Licensing
  - Started as pilot program with one staff and three technologies
  - Today: 20 staff, 1100 patents currently licensed to companies
  - Birth of biotechnology (**Cohen Boyer patent**)
  - Strategy of non-exclusive licensing




**Examples:IP Management Unit**

- **Example 2: Technion Israel Institute of Technology**
  - Technion R&D Foundation for exploitation of university R&D
  - Dimotech Ltd. (for university spin-offs)
  - Technion Entrepreneurial Incubator Co. Ltd.



**Examples:IP Management Unit**

- **Example 3:** By 2000, Brazil had over **180 business incubators**
  - Some 84% of incubators linked to universities
  - Usually strong interaction between incubated businesses and the host universities
  - Some **15%** of firms that graduated from an incubator have **at least one patent**. **This figure is considerably higher than the average for Brazilian firms.**



**Examples:IP Management Unit**

- **Example 4:** Faculty of Chemistry, Universidad de la Republic of Uruguay
  - Since 1998 courses on “Development of entrepreneurial capacities” and “Intellectual Property and patents” delivered within the university
  - Establishment of an **incubator**
  - Establishment of a **“technology pole”** for the joint development of R&D projects.



**THANK YOU VERY MUCH FOR YOUR ATTENTION**



## PandoTechnology Pole

