

Finnish Bioindustries



 Independent, non-profit, association of biotech companies in Finland













- About 50 members from small start-ups to big established companies
- The member of the following international associations: EuropaBio, BIO and AusBiotec
- BioFinland Catalogue :
- Website : <u>www.finbio.net</u>



A Proud Member of Blo INDUSTRY ORGANIZATION



CATALOGUE



Biotechnology Industry



Bioindustry is based on biotechnology

OECD definition for biotechnology:



•







- In EU appr. 3 600 biotech companies, in US appr. 6500-7000

"The application of science and technology to living organisms as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services"

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In Finland appr. 150-200 Life Science Companies •





Biotechnology in colours







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Red Biotech - Healthcare Biotech

Healthcare biotechnology refers to a medicinal or diagnostic product or a vaccine that consists of, or has been produced in, living organisms and may be manufactured via recombinant technology (recombinant DNA is a form of DNA that does not exist naturally. It is created by combining DNA sequences that would not normally occur together).

Green Biotechnology – Agricultural Biotech

Green biotech covers a range of technologies used to breed improved crops in a more targeted and efficient way. The best known technique in this category is genetic modification (GM, more properly called recombinant DNA or r-DNA technology) which involves the modification of existing genes or the inclusion of new ones (often from unrelated species) to give plant varieties with particularly desirable characteristics.

White Biotechnology- Industrial Biotech

Industrial or white biotechnology uses enzymes and micro-organisms to make biobased products in sectors such as chemicals, food and feed, detergents, paper and pulp, textiles and bioenergy (such as biofuels or biogas).



Bioindustry in Finland



Finnish Life Science companies

• 150-200 companies

business





 40 - 50 are supporting companies, in subcontracting or consulting

120 companies are in the core biotechnology







- 5 business and science parks that are focused on biotechnology
- BioFinland Catalogue, updated in March 2014:

www.biofinland.fi

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Bioindustry in Finland













- Foundation of Finnish bioindustry is in industrial biotechnology Alko, Finnish Sugar (Cultor/Danisco/Dupont), Valio, Sinebrychoff etc.
- The growth of the *new bioindustry* in the late *1990s was dramatic*, especially in drug discovery
- The development was significantly boosted by improved risk financing for companies
- Since year 2003 *weak funding* has been a major obstacle to the expansion of companies
- Low exit opportunities for investors have kept them from feeding follow-on funds and seed funds alike
- Narrow domestic financial base and too little foreign investments - only 10% from abroad.



Bioindustry in Finland



Typical Finnish Life Science company

• **Start-up company** focusing on research and development, (Oncos Therapeutics, Hermo Pharma)





 In Drug Discovery, Diagnostics or Services (Biotie Therapies, Faron Pharmaceuticals, Forendo Pharma, Hytest Ltd, Medix Biochemica, Innomedica, Biocomputing Platforms)



- Closely connected to *universities*, biocenters and science parks (Kuopio Innovation, BusinessOulu, HBSP)
- In the *health care sector* (drug discovery, diagnostics, clinical trials)
- In international /global business



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Bioindustry in Finland



Finnish biotech expertise











40% of the Finnish biotech companies are located in the Helsinki area 30% in Turku, < 10% in Kuopio, < 10% in Tampere, < 10% in Oulu





Bioindustry in Finland





Number of companies by year of foundation

- 11% Before 1990
- 1990 1994 17% •
- 1995 199931%
- 2000 2004 29% •
- 2005 -12% •









Number of companies in different biotechnology sectors













Sector	2004	2010
Drug development, oncolytic therapies	27 %	32 %
Diagnostics	20 %	19 %
Biomaterial	13 %	12 %
Bioinformatics	8 %	7 %
Argobiotechnology	2 %	2 %
Equipment/manufacturing	9 %	9 %
Environment	2 %	3 %
Enzymes	5 %	3 %
Food and feed	16 %	14 %
Total	100 %	100 %

Source: Nikulainen & Tahvanainen & Kulvik, ETLA



Bioindustry in Finland



Strengths in Finnish biotech

- High level of research and know-how in life sciences
- Strong investments in biotechnology research since the 1980s
- Public financing: Ministries, Academy of Finland, Tekes and Sitra (till the beginning of 2000)
- High level of education
- Collaboration between public and private researchers is encouraged



• Companies are involved in biotech research policy (technology programs etc.)





Current Topics in Life Sciences in Finland



 Biobank law was implemented in September 2013 in Finland – Finland has good sample collections and good patient registersbusiness and research opportunities in personalized medicine

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Growth strategy for health sector research, development and innovation activities (RDI), Ministries, Finnish Academy, Tekes -Finland has internationally competitive competence and development opportunities in such fields as health technology, medical research, personalized health promotion and treatment of illnesses as well as health sector service innovations – out in May 2014



- Bioeconomy strategy for Finland 3 Ministries, out on May 8, 2014
- National Genomic Strategy for Finland, Sitra + STM, in 2014?





Current Topics In Bioindustry

in Finland



Financing of Start –up companies in Finland

• Lack of private funding is the most crtical problem for the biotech companies in Finland

Lack of private seed funding for start-up companies



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 There is a *need for 2-3 lead investors* (VC funding) which are focused on health care business



• Finnish funds would bring foreign investments efficiently to Finland



15 New Start-ups Created



Since Autumn 2012

Pääkaupunkiseutu:

TILT Biotherapeutics Synoste Oy Netmedi Oy Optomeditech Oncolytic Therapies Orthopedic devices Health IT New Canule technology

Turku:

Ocuspecto Oy *L* Modern diagnostics Forendo Pharma *Oy* Refocal Oy Pobi Concept Oy

Device for vision examination Genetic diagnostics Drug development Spectrophotometry Biomaterials **Kuopio:** Northern Radiotherapeutics *radiotherap*

Tampere:

Medieta OyDiagnostic systemsMovendos OyHealth coaching ITFluence TherapeuticsPET/CT devices

Oulu: Goodwiller Eagle vision

Rapid diagnostics Medtech

Tekesin rahoitus 2000-2013 Life Sciences -yrityksille



Source: Tekes



Success stories 09/12 - 08/13



Groundbraking Milestones

Bayer Skyla/Jadelle received marketing authorization from FDA.

Hormos Medical Ophena received marketing authorization from FDA.

Biotie Selincro has received European marketing authorization.

Orion - has submitted a marketing authorisation application for combined budesonide-formoterol formulation of the Easyhaler® product family in Europe.

- is planning new packaging and logistics centre in Salo. When ready, the centre would provide jobs approximately for over 100 people.

- is building 2500 m2 more production capacity in its Turku plant for the mass production of testosterone gel (Axiron/Eli Lilly).

Bayer Participates in large international family planning project. The Turku site will manufacture the contraception capsules for the project. Bayer will hire 50 new employees in Turku.

Finnish Health Technology 2006-2012





Source: FIHTA



CEFIC Skills for Innovation - study

FINNISH BIOINDUSTRIES







CEFIC = European Chemical Industry Council is the Brussels-based organisation of the chemical industry in Europe, representing 29,000 large, medium-sized and small companies that employ 1.2 million people and account for one third of the worlds' chemicals production.





• Additionally, suggestions for changes in higher educational curricula and life long learning programmes were formulated.





• All the results of this study were obtained by use of structured telephone interviews with **16 high-level industry representatives involved in the long***term strategy of their company*. These interviewees represented **12 chemical** *companies with a total workforce of more than 300 000 employees in Europe.*



Skills for Innovation in the European Chemical Industry

http://www.cefic.be/Files/Publications/Skills-for-Innovation-in-the-European-Chemical-Industry.pdf



Business skills for scientists



1. Since innovative ideas must be protected by patents or other intellectual property rights in order to lead to competitive advantage, Intellectual Property law skills will remain the most important business skills for future scientists.



2. Innovation management from research to sales is complex but will be crucial to generate new business based on innovative ideas.



3. Strategic & visionary management skills will be critical to create new innovations and to define long-term focus areas.







Most important business skills for future scientists





Business skills for engineers



 1.Well structured project management abilities will be essential for engineers who have to turn innovative ideas into profitable and cost-effective business.



• **2.Innovation management** will be key to generate new business and remain competitive.





• **3. Understanding suppliers and customers** will be essential todevelop the right products for society



Most important business skills for future engineers





Personal skills for scientists



 1.Creative thinking will remain the most important skill for scientists who will have to generate new ideas contributing to new business.











 3.With projects getting more complex and the involvement of a wide spectrum of different disciplines to develop solutions, team work skills will be key to foster successful innovation.

Most important personal skills for future scientists





Personal skills for engineers



• **1.Communication** skills will be crucial for engineers who will have to promote ideas both internally and externally towards customers and business partners.



• 2. As interaction with different disciplines will be required, team work will be critical to support innovation.



 3.Problem solving skills entailing analytical and reasoning skills, will remain essential for future engineers.



Most important personal skills for future engineers



Most important scientific and technical skills for future scientists



The right workforce for tomorrow's innovation

In order to speed up the delivery of solutions to societal challenges and to remain competitive, the European chemical industry needs the right workforce, prepared to push innovation forward.

To be further developed in higher curricula



1. ensure multidisciplinary and broad skill set base : acquire understanding of different scientific and technical skills, and also business personal skills for efficient interdisciplinary work, easy adaptation to new tasks

2. better address financial and business skills in scientific higher educational curricula.

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Useful links













- Webpages
- Jobslifescience: <u>http://www.jobsinlifesciences.com/</u>
- BioFinland Catalogue: <u>http://www.finbio.net/fi/biofinland</u>
- Finnish Bioindustries : <u>http://www.finbio.net/</u>
- EuropaBio : <u>http://www.europabio.org/</u>
- LinkedIn –groups:
- Finnish Bioindustries:
- <u>https://www.linkedin.com/groups?mostRecent=&gid=2849601&trk=my_groups-tile-flipgrp</u>
- Experts in Finnish Pharma Industry
- https://www.linkedin.com/groups?home=&gid=1678437&trk=my_groups-tile-grp
- LAL luonnontieteilijät:
- <u>https://www.linkedin.com/groups?home=&gid=4458874</u>

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Useful links













- Työelämäopinnot luonnontieteissä:
- https://www.linkedin.com/groups?home=&gid=6593941
- Life Science Opportunities in EU:
- <u>https://www.linkedin.com/groups?mostRecent=&gid=1440937&trk=my_groups-tile-flipgrp</u>
- Bio and Pharma Jobs in Finland
- https://www.linkedin.com/groups?home=&gid=7436290
- Life Science Professionals:
- <u>https://www.linkedin.com/groups?mostRecent=&gid=92965&trk=my_groups-tile-flipgrp</u>
- Professionals in Pharma and Life Science Industry
- <u>https://www.linkedin.com/groups?mostRecent=&gid=61852&trk=my_groups-tile-flipgrp</u>
- Talent pool Finland:
- <u>https://www.linkedin.com/groups?mostRecent=&gid=2399608&trk=my_groups-tile-flipgrp</u>