Summary of the Roundtable on Industrial Biotechnology in Slovenia

21 May 2008, Ljubljana

Introduction

Round table was organized on the initiative of EuropaBio and dr. Jožica Friedrich from the Department of Biotechnology of National Institute of Chemistry organized the event and invited the participants.
Participants at the round table consisted, besides guests from EuropaBio and Asebio, of most stakeholders of biotechnology in Slovenia: representatives from academic research institutions from Ljubljana and Maribor, both large pharmaceutical companies, small biotechnological companies, relevant ministries and agencies.
During the event an overview of the state of biotechnology in Slovenia was reviewed both from the view of basic research as well as from the view of industrial application. At the meeting tools that might help to improve the development of industrial biotechnology were reviewed, such as structural funds and university incubator. Participants from EuropaBio presented the possibilities within the 7th Framework program, ERANET in industrial biotechnology and other instruments to support the development of KBBE. Spanish Asebio presented a case of successful growth of industrial biotechnology. During the lively debate and in the questionnaire participants analyzed the current state and discussed the possible mechanisms to improve the weak points.

Status of (Industrial) Biotechnology in Slovenia

- **Presentation of Biotech R&D in Slovenia (Prof. Peter Dovč)**

- The large majority of biotech R&D is funded by public budget. It is mainly supported by the Slovenian Research Agency, which was founded in 2003 to overtake some activities from the Ministry of Higher Education, Science and Technology. Public supports to biotech R&D go to public and private research projects. However, there is a very small number of private research institutes in Slovenia.

- Half of biotech funds (total budget is €12M) in research go to ”Young Researcher” training programme. There is therefore a lack of funds for “true research”.

- Slovenian actors took part in FP6 project but only as “participants” and not as coordinators.

- The number of publication increased slightly in the last 5-10 years. However, Slovenian scientists are still behind the average. The food biotech sector and pharma biotech are the two sectors where publications increased mainly.

- The number of biotech patents has nearly not increased for the last 5-10 years. Slovenian patent system is weak and expensive. Also, there are very few research converted into products.

- The largest industries in biotech are in the healthcare sector.

- There are very few SMEs and event no start-ups. This is notably due to the lack of business angel and funds to support new companies. The problem is also a lack of “long-term” investment (biotech is a long process).

- There is a good support of biotechnology in the political discussion but practically, there is no real support that comes out. If biotech R&D increased in last years, it is due to good quality of research/researchers and a fight to get funds. It is not due to a specific programme.

- **Mapping of National Actors, Research Policies and Activities Contributing to the Development and Implementation of KBBE in Slovenia (Dr. Marija Škerlj & Prof. Peter Raspor)**

- A mapping of biotech actors, R&D and policies has been realised as a first step in process of supporting biotech in Slovenia. There is a need for support from stakeholders for next steps in the strategy.

- There are several actors dealing with financial support to R&D and defining the R&D policy (Ministry for agriculture, for environment, for higher education, for health + agencies, etc.)

- With the development of new universities and programmes, the number of BSc, MSc and PhD in the field of biotech is increasing.

- There are also 3 technological parks but they are supporting very few businesses, which are active in developing or using biotechnology.

- There is a large number of “culture collections” which represent opportunities for the discovering of new enzymes

- Infrastructures centers and centers of excellence (cf. slides)

- All responsible ministries have certain public awareness programmes about biotechnology

- The national R&D plan (objective 2010) aims among other at selecting adequate priorities in the research fields of biotechnology in pharmacy, agriculture, environment, food and non-food

SWOT analysis of (industrial) biotechnology in Slovenia

Strength

- Good basic education
- Strong academical and educational network
- Availability of R&D funding (but no independent organisation for biotech)
- New universities and technology centers

Weakness

- No measuring of efficiency of R&D
- No strong lead at governmental level
- Weak mechanisms to support entrepreneurship and start-ups (funding gap)
- Number of patents/ costs of patenting
- No/little mature industry and SMEs
- Low state support / high level administration
- main institutes still suffer from past orientation to “basic “ sciences
- no success stories
-

Opportunities

- Structural funds
- Some new ventures to support innovation
- New incubation centers

Threats

- Fragmentation of policies
- Human resources/ lack of skills
- Civil society unfavorable to biotech

Recommendations towards Slovenian authorities

- **R&D**

- The evaluation of R&D projects could be improved. There should notably be a better evaluation of the concordance between research and industry needs. However, it seems that currently, industry is not enough strongly implemented and too much "production oriented" to participate to the financing of research and to cooperate closely to the research sector.

- Value of projects should be better assessed and better controlled at the end. Among other, the output should be commerciable (cf. recommendation below on the clarification of rules regarding start-ups and spiff-off). In this purpose also, research funding authorities shall take into account industrial biotech research specificities: research projects are often long term projects that need more than 3 years to come with results.

- The research is not big enough and funds are spread in many topics. As an example, currently it exists 25 technological platforms. Also, half of R&D supports go to youth programme. There is a need to prioritise platforms and research fields in order to make some of them world competitive and increase the budget allocated to R&D basic research. Industrial biotechnology could for example be included in specific platform dedicated to biotechnology.

- The number of R&D personals is increasing but it is still lacking behind neighbourhood countries such as Austria. There is a very high demand for qualified personnel from business.

- The reform of the university sector should be taken as an occasion to review the way scientists are evaluated. Not only papers and publications should be taken into account for evaluation. The evaluation system should also encourage more intellectual property rights/patent and lead to innovation/creation of new products.

- The number of hours researchers have to teach could be revised to let them more time for R&D. There is a need to go deeper in R&D. Also scientists should teach only the field they are specialised in.

- Education of students should be more practical. Their theoretical education is quite good but they are missing practical skills/problem solving thinking.

- Create opportunity for Slovenians who studied abroad to come back as, even if there has been a steady growth in the scientific biotech output, the highest quality should be further stimulated.

- **Innovation**

- A mechanism of fast transfer from academia to industry could be created in order to respond more quickly to industry demand and to convert technology into new bio-products.

- Establishment of an efficient and appropriate mechanism to support and stimulate the creation of SMEs / spin-offs / start-ups.

- Clarify rules about the creation of spin-offs/SMEs/start-ups by academics, universities, institutes etc.

- The implementation and communication of state aid rules for innovation could help in reducing price of patent system and promote young innovative enterprises.

- Further develop and encourage relations with well established academic and business institutions in Europe / USA that facilitate connections with industrial partners.

- Promote success stories: innovation is risky and difficult. However, it is possible and challenging. Success stories need to be promoted

- **Policy**

- While biotechnology has been always formally mentioned among the national priorities this hasn't been followed by concrete actions (increase R&D funding, special public procurement, communication campaign, etc.).

- Dissemination of benefits of industrial biotechnology should be broader. There is a need to increase citizens and industries awareness of benefits and advantages of industrial biotechnology to stimulate the market.

- Structural funds could be used to address specific biotech problem (infrastructure, education, etc.)

- To create a coherent regulatory and policy framework, the cooperation between actors is needed (cooperation between ministries but also cooperation between decision makers and industry/researchers).

- Review of Slovenian biotech action plan to give a new start to the development and expansion of this technology in Slovenia

- Industrial biotechnology is a young technology and often unknown. Therefore, it is important to educate decision makers on biotech specificities (long term, etc.) and potential.

Main conclusions (from Prof. Roman Jerala)

The main conclusions of the round table were the following:

- There has been a steady growth in the scientific output in biotechnology in the recent 15 years, with Slovenian output approaching 90% per capita in comparison to EU25. There are several examples of top quality research in the area of biotechnology, however highest quality should be further stimulated over the mere number of publications, as only the top research can lead to world competitive innovative products.

- While the biotechnology has been always formally mentioned among the national priorities this hasn't resulted in the increased funding. The area of biotechnology is underfunded as almost half of the funds come for training of young researchers. Government should formulate an active policy to stimulate the growth of biotechnology and Knowledge based bio-economy (KBBE).

- Number of patents per capita in Slovenia reaches only 45% of the EU25 and about 25% of the USA. High added value products represent only 5% of the Slovenian export. Government should consider implementing the EU initiatives on subsidizing the cost of patenting for young innovative enterprises (YIE) as the patents are crucial for their establishment and growth.

- In addition to increasing the number of patents we should strive to their marketing either through the partnerships with well established academic or business institutions in Europe or USA that have connections to industrial partners or through further development by spin offs.

- YIE in the area of biotechnology could represent the engine to stimulate the growth of industrial biotechnology and its implementation into larger companies.

- Number of small innovative companies in Slovenia is extremely low in the area of biotechnology. This could be significantly improved by formulating the legal framework to stimulate formation of spin offs originating from academic institutions and companies that would function in tight connection with academic institutions. Government should implement the EU guidelines allowing subsidizing YIE with tax breaks or subsidies to stimulate their growth.

- There is a high interest among best students to study life sciences as well as the presence of the entrepreneurial spirit. This represents a powerful base of founders of new biotech companies and for jobs with high added value. With appropriate stimulating instruments to create more friendly business environment and availability of funds (venture capital, structural funds, subsidies for YIE, patent subsidies) Slovenia could achieve a significant increase of biotech YIE in the near future.

- Much of the biotechnology research in Slovenia is centered around two big pharmaceutical companies, while most of the other industry that could benefit from "white biotechnology" is not aware or interested in its implementation, which could be remedied by the active engagement of the researchers active in this area.

- More active participation of Slovenian researchers in initiatives such as ERA IB could provide connections to more advanced industrial companies that could result in start-ups of Slovenian biotech companies.

- Participants agreed that further joint efforts and organization of all stakeholders in biotechnology are necessary to implement the suggested proposals.

Follow-up

Participants agreed that further joint efforts and organization of all stakeholders in biotechnology are necessary to implement the suggested proposals.

Annexes

Programme

Time	Activity	People
9:00-9:30	Arrival, registration and refreshment	All
9:30-9:45	Welcome and opening / presentation of the National Institute of Chemistry and EuropaBio / presentation of objectives	Prof. Roman Jerala (NIC), Dr. Dirk Carrez (EuropaBio)
9:45-10:00	Introduction of participants	All
10:00-10:15	Presentation of SusChem and Strategic Research Agenda	Camille Burel (EuropaBio)
10:15-10:35	Presentation of biotechnology in FP7	Camille Burel (EuropaBio)
10:35-10:55	IB Biotech RTD in Spain	Isabel Garcia (Asebio)
10:55-11:15	Presentation of Biotech R&D in Slovenia	Prof. Peter Dovč (BF Uni Lj)
	Coffee break	
11:45-12:05	Presentation of Structural Funds	Josip Mihalic (Off. Local Self-Gov. and Regional Policy)
12:05-12:25	Presentation of policy agenda	Dr. Dirk Carrez (EuropaBio)
12:25-12:50	Presentation of policy in the field of biotechnology in Slovenia	Dr. Marija Škerlj (MHEST) & Prof. Peter Raspor (BF Uni-Lj)
12:50-13:00	Results from Technology Foresight Study	Dr. Peter Stanovnik (IER)
	Lunch break	
14:00-14:10	Presentation of University Incubator of Ljubljana	Dr. Lidija Honzak (LUI)
14:10-14:20	Slovenian Pharma: Expectations and Role of Biotech	Dr. Simona Jevševar (Lek-Sandoz)
14:20-14:30	Personal View on Slovenian Biotech Entrepreneurship	Dr. Miomir Kneževič (NIB)
14:30-15:30	General discussion and agreement on conclusions/recommendations (RTD)	All
	Coffee break	
16:00-17:00 / 17:30	Discussion on Slovenian strategy and means to support IB and bio-products development General discussion on coordination of activities at European and national level Conclusion	All

Participants

	Title	Name	Organisation	Email
1	Dr.	Batič Martin	Min. Environ. & Spatial Planning (Sector Biotech.)	martin.batic[at]gov.si
2	Ms.	Burel Camille	EuropaBio	c.burel[at]europabio.org
3	Dr.	Carrez Dirk	EuropaBio	d.carrez[at]Europabio.org
4	Prof.	Čurin - Šerbec Vladka	Blood Transfusion Centre	vladka.curin[at]ztm.si
5	Prof.	Dovč Peter	Biotechnical Fac., Uni. Ljubljana (Dpt. Animal Sci.) Slovenian Research Agency (ARRS)	peter.dovc[at]bfro.uni-lj.si
6	Dr.	Friedrich Jožica	Natl. Inst. Chemistry	jozica.friedrich[at]ki.si
7	Dr.	Gaberc - Porekar Vladka	Natl. Inst. Chemistry	vladka.gaberc.porekar[at]ki.si
8	Ms.	García Carneros Isabel	Asebio, Spanish Association of Bioenterprises	igarcia[at]asebio.co
9	Prof.	Goršek Andreja	Fac. Chem. & Chem. Eng., Uni. Maribor	andreja.gorsek[at]uni-mb.si
10	Dr.	Honzak Lidija	University Incubator of Ljubljana	lidija.honzak[at]lui.uni-lj.si
11	Ms.	Humar Barbara	Central Wastewater Treatment Plant Domžale	barbara[at]ccn-domzale.si
12	Dr.	Hvala Aleš	KRKA, d.d., Novo mesto	ales.hvala[at]krka.biz
13	Prof.	Jerala Roman	Natl. Inst. Chemistry	roman.jerala[at]ki.si
14	Dr.	Jevševar Simona	Lek – a Sandoz Company	simona.jevsevar[at]sandoz.com
15	Dr.	Kneževič Miomir	Natl. Inst. Biology & Blood Transfusion Centre	miomir.knezevic[at]nib.si
16	Prof.	Komel Radovan	Medical Fac., Uni. Ljubljana & Natl. Inst. Chem.	radovan.komel[at]mf.uni-lj.si
17	Prof.	Kos Janko	Fac. of Pharmacy & Institute “Jožef Stefan”	janko.kos[at]ffa.uni-lj.si
18	Prof.	Lah - Turnšek Tamara	Natl. Inst. Biology	Tamara.Lah[at]nib.si
19	Dr.	Langerholc Tomaž	Uni. Maribor	tomaz.langerholc[at]ijs.si
20	Mag.	Levstek Metka	Central Wastewater Treatment Plant Domžale	levstek[at]ccn-domzale.si
21	Ms.	Mazgan Nina	META Group d.o.o.	n.mazgan[at]meta-group.com
22	Mr.	Mihalic Josip	Gov. Office Local Self-Gov. & Regional Policy	Josip.Mihalic[at]gov.si
23	Mr.	Milek Igor	TIA (Slovenian Technology Agency)	igor.milek[at]tia.si

24	Prof.	Pavko Aleksander	Fac. Chem. & Chem. Technol., Uni. Ljubljana	saso.pavko[at]fkkt.uni-lj.si
25	Mr.	Peeters Antoine	EuropaBio	a.peeters[at]europabio.org
26	Prof.	Petkovič Hrvoje	AciesBio & Biotechnical Faculty, Uni-Ljubljana	hrvoje.petkovic[at]aciesbio.com
27	Ms.	Puc Renata	Min. Agric., Forest. & Food (Direct. Food Safety)	Renata.Puc[at]gov.si
28	Prof.	Raspor Peter	Biotechnical Fac., Uni. Ljubljana	Peter.raspor[at]bf.uni-lj.si
29	Dr.	Škerlj Marija	Min. Higher Education, Science and Technol.	Marija.Skerlj[at]gov.si
30	Prof.	Stanovnik Peter	Institute for Economic Research	stanovnikp[at]ier.si
31	Dr.	Zrimec Alexis	Institute of Physical Biology (IFB)	alexis[at]ifb.si
32	Dr.	Zupančič Alenka	Min. Agric., Forest. & Food (Direct. Food Safety)	A.Zupancic[at]gov.si