

**Summary of the Roundtable on  
Industrial Biotechnology in Turkey**

**25 September 2008, Istanbul**



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## Introduction

The roundtable on industrial biotechnology in Turkey took place on the 25<sup>th</sup> of September 2008 in the Technical University of Istanbul. The event was initiated by EuropaBio in the framework of the European Technology Platform on Sustainable Chemistry - "SusChem".

The roundtable has been locally organised by The Scientific and Technological Research Council of Turkey (Tübitak) and more specifically by Didem Çelikkanat Ozan, FP7 Food, Agriculture and Fisheries, and Biotechnology National Contact Point for Turkey.

Participants to the roundtable were representatives from academia, enterprises and ministries/government bodies with an interest in the field of biotechnology (see annexes).

## Roundtable on industrial biotechnology in Turkey

- Didem Çelikkanat Ozan (Tübitak) welcomed participants and presented the general objectives of this first roundtable on industrial biotechnology in Turkey.

The first part of the roundtable was dedicated to presentations.

- Maurice Lex (DG Research, European Commission) presented biotechnology and the Knowledge-Based Bio-Economy (KBBE) in the 7<sup>th</sup> Framework Programme for Research and Development. More specifically, he presented
  - A general picture of FP7 as well as KBBE thematic that are covered by FP7.
  - Some statistics on the first and second calls in the field of biotechnology as well as the way work programmes are prepared and the evaluation processes.
  - On-going FP7 projects in the field of biotechnology.
  - The main lines of the 3<sup>rd</sup> call that had just been published as well as some elements on the joint biorefinery call.
- Camille Burel (EuropaBio) presented the Technology Platform on Sustainable Chemistry (SusChem) and the Strategic Research Agenda for Industrial Biotechnology. The Industrial Biotechnology section ensures a coherent policy framework and the most effective use of R&D resources. It guarantees that biotechnology is properly integrated in the chemical industry. She presented the impact of industrial biotechnology on the knowledge based-bioeconomy and its potential (notably environmental).  
The strategic research agenda that has been developed by SusChem looks into the future impact of Industrial Biotechnology and lays out the major research areas which must be addressed to move from a flourishing set of scientific disciplines to a major contributor to a future knowledge-based economy. It focuses in particular on the research needed to underpin three broad topics: biomass, bio-processes and bio-products, including bio-energy. Finally, she presented the different initiatives that exist in industrial biotech research: ERA-IB and KBBE-NET saying that critical mass and leadership are needed to create a true knowledge based bioeconomy.  
She also presented the Policy Agenda for Industrial Biotechnology developed by EuropaBio and briefly the Lead Market Initiative that was adopted by the European Commission in December 2007. The Policy Agenda developed by SusChem aims to:
  - establish a coherent European Policy Agenda for the Knowledge Based Bioeconomy (KBBE)
  - stimulate and support innovation in plant science and industrial biotechnology
  - promote production and use of bio-based products and processes
  - create awareness amongst all stakeholders
  - improve investment in IB SME'sShe also stressed that cooperation is needed between ALL actors (research, agriculture, enterprises, environment...) and at all levels (local, regional, national, european...) to ensure a coherent, consistent and certain framework supporting bioproducts and industrial biotechnology.
- Arzu Ünal (General Directorate of Agricultural Research) presented a brief summary of biotech related activities in Turkey. She said that biotech research is mainly performed in universities and public organisation as the private sector has a very limited participation. Funding for biotech research comes mainly from three sources: Tübitak, the Research and Science Council of Turkey, the State Planning Organisation and the foundations of universities. The participation of the private sector is very limited.

She also presented the actors taking part in the decision making regarding biotechnology and the 3 last main programmes in the field. Biotech and industrial biotechnology has been underlined as important in the recent “Economical Development Plan”, in the “Vision 2023 Strategies for Science and Technology” and by the Supreme Council for Science and Technology chaired by the Prime Minister.

She then stressed that most of the technologies related to the KBBE are related to the agriculture in Turkey. She pointed out that Turkey is a major agricultural producer and that agri-food industry has been and will be the base for Turkish economic growth.

She concluded by presenting what, from the Directorate General for agricultural research, is needed to ensure that Turkey will benefit from the KBBE and industrial biotechnology, notably increase the number of scientists and improve technology transfer.

- Fazilet Vardar Sukan (Ege University) firstly showed that modern biotechnology has a long history in Turkey (it starts in 1974). She then presented the actors and human resources active in biotechnology research in Turkey as well as the main topics of research. She also introduced the main R&D support actors (Tübitak, the State Planning organisation and the Technology Development Foundation of Turkey).  
She said that the number of publications / citations / graduates in biotechnology, even if it increases still lag behind the US and EU 25.  
She pointed out that the commercialization of R&D biotech is quite low and that the number of patent is very limited.  
Finally, she presented the Ege University, its main field of research and its pilot plant.
- Candan Tamerler, Istanbul Technical University
- Mustafa Türker (Pakmaya) presented the sector of the Turkish economy and industry where biotechnology is involved (food, energy, healthcare and environment). Then he presented his company, Pakmaya, which provides 10% of baker's yeast world production.
- Hüseyin Avni Öktem (Biotechnology Association) presented the Turkish Association of Biotechnology which was established in 1986. The association members' are mainly active in research area but its aim is to ensure the coordination of industry and academia.
- Talat Çiftçi (Biosfer Ltd) presented the current Turkish initiative that aims to establish a national platform for the KBBE.  
He firstly drafted a brief picture of the biotech situation in Turkey: the R&D budget has increased in the last years to reach EU average; several companies are active in healthcare biotech; Turkey is producing 20% of the world baker's yeast; Turkish enterprises are also active in the bioenergy (biogas and biofuels) and on a smaller scale in the chemical industry and the environmental biotech. He also showed the potential of Turkish agriculture which represent a USD 45 billion turnover and USD 20 billion more are expected in coming years with the irrigation of 4 million hectares of land.  
He also presented a SWOT analysis of the Turkish situation (see below SWOT analysis) and some strategic priorities.  
Finally, he explained the aim of the future KBBE platform:
  - to provide a place interaction among the stakeholders of bioeconomy initially in Istanbul, Ankara and Izmir.
  - to focus primarily on the biotechnology applications in agriculture, food, chemicals, energy and environment.
  - develop strategies for rapid growth of Knowledge Based Bioeconomy.



A second part of the roundtable was dedicated to discussions between participants of the roundtable. Discussions mainly analyses the key problems (cf. SWOT analysis) of (industrial) biotechnology in Turkey and the way to overcome them. Participants agreed that more coordination and critical mass was needed to further support the KBBE and to more easily interact with the Government.

3 visits took place in the afternoon:

- Istanbul Technical University Molecular Biology and Genetics Research Center (<http://www.mobgam.itu.edu.tr/index.htm>)
- ONKIM, a SME specialized in stem cells (<http://www.onkim.com.tr>)
- IONTEK, a SME producing diagnosis kits (<http://www.iontek.com.tr>)

## SWOT analysis of (industrial) biotechnology in Turkey

### Strengths

- Strong conventional biotechnology (fermentation) sector
- Biodiversity
- Agricultural Land
- Numerous Academic Institutions
- Human Resources
- SANTEZ programme (to fund graduate by industry)
- Expatriate professionals
- Innovative KBBE companies

### Weaknesses

- Lack of a Clear National KBBE Strategy,
- Limited Collaboration between Academia and Industry
- Limited Commercialization of Innovation
- Limited Seed and Venture Capital
- Limited Role Models and Success Stories
- Fragmented research / lack of collaboration between researchers

### Opportunities

- Large arable lands
- Creation of market and new job opportunities in the field of biotech but also in agriculture
- Increasing Value of Agricultural Products and Food
- Large Domestic and Regional Demand
- Bio-Nanotechnology
- Marine Biotechnology
- FP7
- New R&D Incentives and Funds

### Threats

- Lack of funding for research
- Global Competition
- Biosafety
- Loss of Biodiversity
- Political instability

## Recommendations

- Biotechnology research, development and commercialisation is a long term process that need predictability and vision. Therefore, more political predictability and stability is needed to further develop this sector in Turkey.  
Participants to the roundtable notably pointed out that due to the political instability, seeds capital and venture capitalists were not backed to invest in the Turkish industrial biotech sector which is a “risky business”.
- From collaboration comes success. During the roundtable, it has been stressed that more collaboration and team working was needed between universities; between enterprises and between universities and enterprises.
- Participants also underlined that very few Turkish actors were taking part in EU research projects. They agreed that Turkish researchers shall be encouraged to take part in EU projects.  
This could notably done by facilitating the mobility of scientists which are still facing problem in getting visa to travel in Europe.  
Participants also said that more support from the Governmentto for more collaboration shall encourage researchers to take part in collaborative projects.
- Finally, participants agreed on the necessity to be organised and coordinated. They welcomed the initiative of the establishment of national platform for the KBBE pointing out that this could be the right mean to create critical mass. Via a platform/group, they could more easily and with more legitimacy interact with the Governement and propose national action plans etc.



## Follow-up

Turkish biotech actors are currently in the process of establishing a national platform for the Knowledge based bio-economy.

## Annexes

<b>Thursday 25 September 2008 – Roundtable on industrial biotechnology</b>		
<i>Istanbul Technical University, Istanbul, Turkey</i>		
10:00 – 10:15	Opening speech	<i>Didem Çelikkanat Ozan, The Scientific and Technological Research Council of Turkey</i>
10:15 – 10:30	Biotechnology in FP7	<i>Maurice Lex, DG Research – Biotechnology, European Commission</i>
10:30 – 11:00	SusChem TP – Industrial Biotechnology Pillar	<i>Camille Burel, Sustainable Chemistry Technology Platform</i>
11:00 – 11:15	Industrial Biotechnology in Turkey - Policy Aspects	<i>Arzu Unal, General Directorate of Agricultural Research</i>
11:15 – 12:15	Industrial Biotechnology Research in Turkey	<i>Academy Fazilet Vardar Sukan, Ege University Candan Tamerler, Istanbul Technical University Industry Mustafa Türker, Pakmaya Associations Hüseyin Avni Öktem, Biotechnology Association</i>
<b>Coffee Break</b>		
12:30 – 12:45	KBBE NTP Initiative	<i>Talat Çiftçi, Biosfer Ltd</i>
12:45 – 13:30	Discussion • Ways to strengthen the collaboration with EU • Ways to integrate KBBE NTP with SusChem • Biorefinery Pilot Plant Project	<i>all</i>
<b>Lunch</b>		
14:30 – 17:00	<b>Industry and Research Visits</b>	<i>Istanbul Technical University Molecular Biology and Genetics Research Center, ONKIM, IONTEK</i>
<b>Dinner</b>		

## Participants

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