BioVisionAlexandria 2010
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**Concept**
*Mohamed El-Faham*

**Scientific Editors**
*Dina Morsy*
*Dina Sheta*
*Eiman Fouad*
*Lara El Malakh*
*Marwa Abdel Rassoul*
*Marwa Elwakil*

**Logistical Support**
*Esraa Ragab*
*Yasmin Maamoun*

**Graphic Design and Layout**
*Cherine Bayoumi*
*Mohamed Gomaa*

**Photos Groups**
*Hassan Mady*
*Mohamed Nafea*
*Mohamed Mounir*

**Language Revision**
*The Bibliotheca Alexandrina Translation and Language Control Unit*



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# Preface

Humanity's formidable challenges need sound solutions and the challenges that affect life itself are the most pressing. People need health; societies need stability and our biosphere needs sustainability. Therefore, solving these challenges requires genuine dialogue followed by committed actions. It is compelling, more than ever, that our leaders engage in purposeful discussions, notably with the broad scientific community and that simultaneously, the scientific community must keep its pulse on society.

After promises made to discover new life sciences solutions and enlighten the necessity of resources exchange within global leaders, the need of sound practice is implicated. Following many debates and discussions on the importance of dynamic biotechnology information exchange, as well as the marshal of knowledge to reach the developing sector of the world, the translation of this existing knowledge into new approaches is indispensable to actively reach their goals.

Following the success of BioVisionAlexandria 2006, the Bibliotheca Alexandrina hosted its third BioVisionAlexandria Conference which took place 12-16 April 2008. It is considered a continuation of "BioVision: World Life Sciences Forum" tradition that started in 1999 in Lyon, France, and has alternated every other year with BioVisionAlexandria Conference starting 2004.

BioVisionAlexandria 2008 Conference entitled "From Promises to Practice" shed light on the issues of why the immense advances that are taking place in science do not adequately translate into noticeable improvements in the lives of the poorest twenty percent of humanity.

The Conference brought together around 150 eminent speakers and Nobel Laureates from the four corners of the globe. Moreover, it included the representatives of the greatest minds in industry, science, policy-makers and civil society fields who shared their expertise and insights with the large conference audience, mostly from the developing world.

BioVisionAlexandria 2008 Conference commenced on 12 April 2008, with a reception attended by the First Lady, HE Mrs. Suzanne Mubarak, where she met with the conference Nobel Laureates, distinguished keynote speakers, eminent scientists and young researchers. It was then followed by a Nobel Day where eminent Nobel Laureates shared their reflections and experience that helped in the advances of science and renovated our world. The Nobel Day is dedicated to honor Nobel Laureates, whose vision and perseverance in the quest for scientific excellence and novelty has changed our lives.

The Conference focused on three major themes: health, food and agriculture, and environment. The health stream was concerned with providing new tools and applications in medicine to cure various diseases, such as hepatitis, tuberculosis. The environment stream addressed global concerns related to water, natural resources, climate change and environmental safety. Moreover, for the first time in BioVisionAlexandria, a complete and separate stream was dedicated to food and agriculture. This stream featured the European Action on Global Life Sciences (EAGLES) Food Symposium which discussed numerous topics related to food supply, as well as food security.

The Conference also featured several plenary sessions tackling different compelling global issues, such as the technology divide, the grand global challenges in health, applications of bioinformatics and computational biology and biofuels. It also included nine tracks which shed light on a variety of topics including Bio-ethics, Intellectual Property Rights, South-to-South Collaboration, and others.

As an exclusive feature of the BioVisionAlexandria 2008 Conference, a special exhibition was held entitled "BioFair@BioVisionAlexandria 2008" where publishers, associations and industrial companies representing different fields of life sciences displayed their resources and materials.

The BioVisionAlexandria 2008 Conference hosted a Poster Session where young researchers and scientists were offered an opportunity to present their scientific work and projects at this unique platform.

This publication aims to present an overview of the BioVisionAlexandria 2008 Conference.

For further information, please visit the BioVisionAlexandria website at: *www.bibalex.org/ biovisionalexandria*

*See you in BioVisionAlexandria 2010*
*11-14 April 2010*
*Save the Date*

# The Colors of BioVisionAlexandria 2008

## From Promises to Practice

*Organized in Partnership*
*with the World Life Sciences Forum BioVision*

12-16 April 2008

Bibliotheca Alexandrina
Alexandria, EGYPT

*Sunday, 13 April 2008*

## Opening Addresses


*Special Inauguration Session where world renowned International Political, Social and Scientific Leaders introduced BioVisionAlexandria 2008 and shared their views on how to translate the best existing knowledge into new approaches.*

**(In order of presentation)**

**Philippe Desmarescaux,** Chairman, The World Life Sciences Forum, BioVision **(France)**

**Koji Omi,** Founder and Chairman, STS forum, Member, House of Representatives and Former Minister of Finance of Japan **(Japan)**

**Janez Potocnik,** European Commissioner for Science and Research, European Commission (**Belgium**) – **Video Presentation**

**Yousry El-Gamal,** Minister of Education **(Egypt)**

**Ismail Serageldin,** Director, Bibliotheca Alexandrina **(Egypt)**

**Philippe Desmarescaux,**"In this magical place, Alexandria, a city with a rich heritage, at the heart of the great Mediterranean civilizations, we cannot help but feel part of this human history in motion. This is the time and place to understand our responsibility to future generations, to give a more universal dimension to our decisions and actions, and to work better together in building a generous and genuinely effective solidarity".

**Koji Omi,** "The progress of biotechnology in recent years has been astounding. Biotechnology can be applied in many areas, such as healthcare, food and agriculture, the environment and energy. Given its impact on daily life, biotechnology should address the problems and improve the quality of life in the developing countries. So how should the benefits of biotechnology spread to society? It is true that while new technologies are developed and applied mainly in developed countries, in the field of science and technology, little progress has been made to narrow the gap between developed and developing countries. To change this situation, Japan and other developed countries should actively promote joint research and cooperate with developing countries in this area".

**Janez Potocnik,** "I remember vividly the impression I felt when entering the building of the Library of Alexandria and the words which spontaneously came to my mind. They were grandeur, humanity, openness and knowledge all of them with capital letters. Why grandeur because the Library of Alexandria is simply magnificent, not only because it is an architectural force with its striking dimensions but first and for most because it revives the brilliance of the earlier center of study and scholarship it represented. Why humanity and openness because the Library of Alexandria is a true international project built up by and for scholars from all over the world".

**Yousry El-Gamal,** "BioVisionAlexandria represents a great and fruitful forum for scientists, experts, and other stakeholders to share thoughts, theories, best practices, scientific progress as well as human knowledge. The main theme of the BioVisionAlexandria 2008 *From Promises to Practice*, focuses on translating the best existing knowledge into new approaches which explain why the immense advances that are taking place in science do not adequately lead to significant and noticeable improvements in the lives of the poorest twenty percent of the human race".

**Ismail Serageldin,**"The theme *From Promises to Practice* is designed to highlight a fundamental problem that we feel in the south, in the developing world. It is that the promises of science are mostly going to add to those who already have so much, and not enough is going to address the problems of the poor. In addition we are alarmed to see that the global environmental problems will impact on everybody equally, and that in many ways the poorest countries are those who are least equipped to cope with the impact of climate change including greater cycles of rain and drought, shorter growing seasons, increases in infectious diseases and other phenomena. We are worried that the world's appetite for fuel and energy is leading to burning the very food that we want and need. The most basic of all human rights, food, is now increasing globally in terms of price and going beyond the reach of the world's poor. Therefore, we ask what can science do to help us, what can wise policies do to help us".

# BioVisionAlexandria 2008, Nobel Laureates Day

## ***Session 1: Science for Innovation***

***Chair:***
**Julia Marton-Lefevre,** Director-General, The World Conservation Union-IUCN **(Switzerland)**
***Rapporteur:***
**Pierre Anhoury,** Senior Vice-President, Business Leader Europe, MattsonJack **(France)**

**Richard R. Ernst,** Chemistry 1991 **(Switzerland)**
*Today's Providence for Tomorrow's Survival*

**Torsten N. Wiesel,** Physiology or Medicine 1981 **(USA)**
*Science for Innovation*

**Richard R. Ernst,**"Indeed, our technological world has become enormously rich, but, at the same time, we became very poor in our minds. We are caught in a deep identity crises, a crises of objectives. Today, we are in great need of novel, farsighted, and fair approaches. However, who will keep our boat afloat: politics, economy, or academic community? Of course, we need the collaboration of all three of them. However, science has to play a major role, standing for honesty, foresight and responsibility".

**Torsten N. Wiesel,** "My absolute dream is to create an international science foundation that would function, and to be open to scientist from all over the world. In my experience, it has been very difficult to find scientific support for basic science. It is always easier to find support for medical diseases such as tuberculosis, malaria and AIDS. I believe that the sum of the money received from big foundations and from the government for such problems should be also used to provide education, to build up an infrastructure and to train people. It is also very important for local governments to take up the torch and see to that these programs and researches receive their support and can be implemented effectively in the local environment".

## Session 2: Science versus Global Challenges

***Chair:***
**Margaret Catley-Carlson,** Chair, Global Water Partnership (**USA**)
***Rapporteur:***
**Pierre Anhoury,** Senior Vice-President, Business Leader Europe, MattsonJack (**France**)

**F. Sherwood Rowland,** Chemistry 1995 **(USA)**
*The Greenhouse Gases and Global Climate Change*

**Erling Norrby,** Secretary-General, the Royal Swedish Academy of Sciences **(Sweden)**
*Nobel Prizes and the Emerging Virus Concept*

**Jeffrey D. Sachs,** Director, Earth Institute **(USA) – Video Presentation**

**F. Sherwood Rowland,** "All the available evidences now gather to indicate that these fourteen molecules are accumulating and it is mainly caused by humans. Carbon dioxide is one of these molecules which is important and its reaction in the atmosphere is important for global warming and concomitant in climate change. The main cause of the increase in the level of carbon dioxide in the atmosphere is driven by burning fossil fuels which are coal gas and oils. So any solution for the problems of global warming and climate change starts with carbon dioxide and what we can do about its continuing increase in the atmosphere".

**Erling Norrby,** "In this Conference we are looking forward, and why should we look fifty years backward. Science is an ongoing process with consequential discoveries, one leads to the other. We can learn somewhat about how do new ideas emerge and this is a particular process. How can we generate new knowledge from all the degrees of the knowledge system? How can we break down the door? How do we start something new? This is what we want to call discovery. Alfred Nobel was very farsighted when he used this term in his will to define for what you can get a Nobel prize. For instance, you can get the Nobel prize in chemistry for discovery or for an improvement, but in physiology or medicine, you can only get it for discovery".

**Jeffrey D. Sachs,** "We now have more glorious science and technology that could have ever been imagined. We have the ability to solve various problems, whether of poverty, of diseases, of food production, of energy systems more than ever before. We have the whole world of biotechnology, nanotechnology, information technology, and their conversions ahead of us, and yet we are not solving some of the most crucial problems on our planet".

## *Roundtable Discussion: Nobel Views and Perceptions*

**From left to right**: Richard R. Ernst, F. Sherwood Rowland, Torsten N. Wiesel and Ismail Serageldin

***Moderator:***
**Ismail Serageldin,** Director, Bibliotheca Alexandrina **(Egypt)**

**Ismail Serageldin,** "Many people consider that these researches must be done in a multidisciplinary fashion and must involve economists, social scientists as well as natural science epidemiologist. So do you believe that people working on the same technical problem, despite their different political opinions can get together over the technical problem? Can people coming from different disciplines and are completely from different backgrounds meet in a really joint endeavor?"

**Richard R. Ernst,** "I do not like to separate science from education since I think that they belong very strongly together. I believe that while you are carrying out your research you are learning by yourself which is probably the best tool for education. As soon as you couple science and education you realize that scientists and educationalists have a societal responsibility because they educate the future of mankind. They educate the next generations who will eventually determine and shape the future. In this sense I am convinced that science and education have many responsibilities and I believe that when societal responsibility is built into yourself, you work differently".

**Torsten N. Wiesel,** "It is clear that there has been times in the history of science where the search for truth has led to the fact that we understood the structure of the atom and its interaction, which in turn has led to the creation of atomic energy, but it also has led to the fact that powerful weapons have been developed, on basis of this scientific truth and finding. So as scientists we have the responsibility of finding the truth, however this truth often falls out of the hand of the scientist into the community and the political arena where the scientists have done a service to some extent but also perhaps have done a disservice".

**F. Sherwood Rowland,** "When we go back to considering the Montreal Protocol as the first regulation of any kind that was put in place by the State of Oregon. One year after our first publication they banned the use of CFCs as insect propellants in 1975. The next year the United States of America announced the ban taking effect in 1978. I would hope that the actions in the past years would raise the hope of people in other countries that the United States would lead the way".


Rafik Nakhla, Mohamed El-Faham and Salah Soliman, Rapporteurs of the Nobel Roundtable

*Monday, 14 April 2008*

## Plenary Session 1
## ***The Developing World's Technology Divide***

*The growing gap in technical evolution and scientific capacity, between developed and developing countries, has been a major concern in the past few decades. Not waiting for technology to trickle down from developed countries, South-South collaboration holds promise of escaping the "low-technology trap". This non-conventional approach holds hopes and challenges with successful models that could give momentum for additional success in the future.*

***Chair:***
**Roelof Rabbinge,** Professor, Wageningen University and Chair, the Science Council of the CGIAR **(The Netherlands)**
***Rapporteur:***
**Gabrielle Persley,** Chair, Doyle Foundation **(UK)**

**Peter Singer,** Sun Life Financial Chair in Bioethics and Director, University of Toronto Joint Centre for Bioethics **(Canada)**
*Accelerating Health Innovation in Africa*

**Ichiro Kitsato,** President, Japan Bioindustry Association, JBA **(Japan)**
*Battle with Pathogenic Microbes-the Origin of Biotechnology*

**John Kilama,** President, Global Bioscience Development Institute **(USA)**
*The Developing World's "Technology Divide": Is there Hope to Close the Gap?*

**Prabuddha Ganguli,** CEO, Vision-IPR **(India)**
*IPR Mediated Bridging of the Technology Divide… Exploring Options*

**Peter Singer,** "The key issue is that it is very difficult for scientific ideas, even in the area of health, to leave laboratories and develop into products and services. What lacks is the ability to move from science into products in developing countries such as Tanzania. It is almost as if science and business in these countries are two parallel tracks of a railway train, with no ties ever connecting them. This definitely means that it is quite difficult to take the facade of knowledge and turn it into good services that are effective to local problems. We not only need scientific infrastructure but we need general infrastructure to bring together science and business communities in order to help commercialize ideas".

**Ichiro Kitsato,** "In the 20th century, we saw remarkable changes in the biosciences along with the development in the field of science and technology which have totally changed people's behavior and lifestyle. The 21st century is referred to as the century of life sciences with great expectation for life. It is expected that recent achievements in human genome sequencing and protein functional analysis will bring unexpectedly great advances in the overall lifehood. Speaking on therapies for infectious diseases in the 21st century, we need to be reminded of Causal Therapy, advocated by Koch's, which consists of Serotherapy and Chemotherapy. Both are indispensible in the treatment of serious infectious diseases and it is now the time to recall causal therapy in pathogenic microbes".

**John Kilama,** "Differences in cultures are very important. So what do we really mean by cultures? We mean the attitude of the community, the values of the community, and the beliefs of the community, which all form the human behavior and properties. Indeed nation's prosperity is determined by productivity; however, why do so many nations have very unproductive cultures? There are many explanations of why some countries are poor and include colonialism, racism and corruption".

**Prabuddha Ganguli,** "I believe that IPR can act as a mediator and a mean for bridging the technology divide. The IPR system is actually moving from the developed world to the least developed and obviously moving across barriers and various issues in the interface. We need to understand how to overcome these barriers to achieve sustainable development. It is important for us to arrive at our own National IPR policy, and therefore integrate into innovation strategy and Project Management, and only then IPR would act as a good bridge between Technology Has and Technology Has Not, and then the great collaboration of working together to obtain a wonderful world".

## Track 1: Diabetes Supercourse for the MENA Region


*Diabetes Supercourse for the Middle East and North Africa Region (MENA) in collaboration with the Bibliotheca Alexandrina (BA) and the WHO Collaborating Centre at the University of Pittsburgh. It is supported by the World Diabetes Foundation (WDF). Its main goal is to raise public awareness on the Prevention and Control of Diabetes. Our main objective is to report on the project's achievement and to discuss diabetes as an ongoing epidemic.*

***Chair:***
**Samir Assaad-Khalil,** Head, Department of Internal Medicine; and Head, Unit of Diabetes and Metabolism, Faculty of Medicine, Alexandria University (**Egypt**)
***Rapporteur:***
**Fayrouz Ashour,** Diabetes Supercourse Project Coordinator, Bibliotheca Alexandrina (**Egypt**)

**Fayrouz Ashour,** Diabetes Supercourse Project Coordinator, Bibliotheca Alexandrina (**Egypt**)
*Diabetes Supercourse for the MENA Region*

**Ronald Laporte,** Professor of Epidemiology, Graduate School of Public Health, University of Pittsburgh (**USA**)
*Diabetes Supercourse and Global Collaboration*

**Morsi Arab,** IDF Regional Chair Diabetes, EMME Region (**Egypt**)
*Failure and Success in Diabetes Education*

**Boerge Diderichsen,** Vice-President, Corporate Research Affairs, Novo Nordisk (**Denmark**)
*Changing Diabetes a Perspective from Industry*

**Samir Assaad-Khalil,** "The bad news about diabetes is that deaths due to diabetes are still unabated in contrast to deaths due to stroke or due to cardiovascular diseases in non-diabetics. While in oncology the deaths are stationary, deaths due to diabetes are still rising. All over the world, we are still spending about 10% of the budget devoted to healthcare on diabetes and another 10% on hypertension. Therefore, one-fifth of the healthcare budget is spent on two risks of cardiovascular diseases. On the other hand, the good news is that people are more aware that the UN has adopted a decision to make diabetes a disease with compelling care for all nations".

**Fayrouz Ashour,** "The aims of the Diabetes Supercourse are to increase the awareness of diabetes among different target groups in the region. More specifically Diabetes Supercourse is built to improve the teaching methods of teachers. In a little more depth, the goals are to establish a network that includes all stakeholders and expertise of diabetes in the region to allow them to make contact, exchange knowledge and provide their best lectures on diabetes epidemiology. Here at the Bibliotheca Alexandrina, we both distribute these lectures and provide them online to universities, diabetes-related organizations and diabetes stakeholders in the region. We would like to broaden the outreach to the public and science teachers. For example, to reach the undergraduate schools whose education is in Arabic, we are taking the initiative to translate some of these lectures into Arabic. Additionally, by the end of this year, we hope to develop a two-week training course for young researchers and health professionals in the region on the epidemiology of diabetes".

**Ronald Laporte,** "The Diabetes Supercourse is a very simple model. You find a group of friends worldwide who are interested in the same topic, as diabetes; you network them together on the Internet so that they can share experiences. Then we develop a system to try to improve the education of the younger people coming up. So the Supercourse is targeting young people, as well as young educators. For most diseases, such as diabetes, much of the prevention arises from sharing information and education. So if we are able to apply the new information technology to improve prevention education, we could potentially continue to increase and improve health. That is why the Supercourse model is important".

**Morsi Arab,** "There is no doubt that education constitutes 50% of the successful management of diabetes, so there is no argument about the importance of education as we always state in IDF. We have been involved in educating people which includes not only educating the patients but also educating the health care professionals. Those educators, in turn, will finally educate the patients. The success of educators is to know that this process of education consists of a triangle that includes three elements: deciding your objective, deciding your methods of teaching or strategies, and then carrying out an evaluation. Without these three elements of the triangle no education can be successful".

**Boerge Diderichsen,** "One of the major reasons for the dramatic increase in the cases of diabetes is the changes in lifestyle, specially since there is a close relationship between obesity and diabetes, and therefore the term "diobesity" has been introduced. The majority of the present cases and new cases of diabetes will be in the developing world. The sad fact is that in about 15 years to 20 years time, one out of seven individuals will either have diabetes or will be in a pre-diabetic state. Diabetes is a more severe problem in the Arab countries and in other developing countries, 10% of 5 year-olds will have diabetes, and 35% of 65 year-olds will develop diabetes as well. Unfortunately, here in Egypt, there is a higher percentage of diabetes incidence than other developing country. There is definitely a need to combat diabetes".

## Keynote Address

**Ismail Serageldin,** Director, Bibliotheca Alexandrina (**Egypt**)

"The Bibliotheca Alexandrina would be proud to contribute through both the Supercourse and through this facility to revive excellence and science in Egypt. It is only to build capacities so that science would fulfill its promise to feed the hunger, to heal the sick, to protect the environment, to bring dignity to work and to create space for joy of self expression. However, sciences on their own are not enough. We need the wisdom to do that, so we need to build that capacity in the south. It is not a luxury, it is an absolute necessity. We have had many past decelerations, but we have to remember that rhetoric and decelerations are not equal to actions. So let us work with nature not against it, let us collaborate for a better future for the next generation and for the whole world".

# Plenary Session 2
## *Grand Global Challenges*

*The Grand Global Challenges for global health can be faced by exploiting the advances in science and technology in order to significantly improve health in the world's poorest countries. Many initiatives have been developed to support groundbreaking research projects to discover and develop scientific breakthroughs for preventing, treating and curing various diseases as well as malnutrition problems that kill millions of people each year in developing countries.*

***Chair:***
**Yehia Zaky,** Head, Academic and Cultural Affairs Sector, Bibliotheca Alexandrina (**Egypt**)
***Rapporteur:***
**Gabrielle Persley,** Chair, Doyle Foundation (**UK**)

**Abdallah Daar,** Professor of Public Health, University of Toronto (**Canada**)
*Grand Challenges in Chronic Non-Communicable Diseases—Priorities for Developing Countries*

**Howarth Bouis,** Director, HarvestPlus (**USA**)
*Biofortification— Using Agriculture to Improve Human Nutrition: Progress under HarvestPlus*

**Marilia Nutti,** Researcher, National Research Center on Food Technology, Embrapa (**Brazil**)
*Institutionalizing the Biofortification Strategy in a Sustainable Way: The Case of Brazil*

**Joel Breman,** Senior Scientific Advisor, Fogarty International Center, National Institutes of Health (**USA**)
*Conquering the Intolerable Burden of Malaria: Promises to Practice...to Scale Up*

**Iain Gillespie,** Head, Biotechnology Division, Science, Technology and Industry, OECD (**France**)
*Neglected and Emerging Infectious Diseases: How can an OECD Innovation Strategy help meet the Global Challenge?*

**Abdallah Daar,** "The problem of chronic non-communicable diseases is surfacing as a major global issue. Unfortunately chronic non-communicable diseases have been neglected in the past, and in particular neglected the most in the developing world. However, recently in the past few years more attention has been given to the issue. For example, there has been a major significant report issued from the World Health Organization, and another one from the great initiative called Disease Control Priority Program (DCPP), all highlighting the importance of paying greater attention to the chronic non-communicable diseases".

**Howarth Bouis,** "I will articulate one of the advantages of biofortification. First of all, it targets the poor to eat high levels of food staples, it is world based, and it starts in many areas of the world by 75% of the manners of their populations. It is cost-effective, and it is sustainable because the investments are front loaded. It also complements the supplementation and fortification strategies because it starts in many areas of the world and makes its way into the European areas, whereas the supplementation and fortification strategies start in European areas and then make their way to other areas of the world where markets become more developed".

**Marilia Nutti,** "Our experience shows that it is very possible to work on biofortification. Brazil was doing this and we are very proud to say that we are going to continue to work on biofortification. We have started in 2002 and we now have a team of more than one-hundred-and-fifty people working on biofortification. Moreover, the farmers are using the first seeds we started to grow, and we believe the children who are going to taste it this year are going to like it".

**Joel Breman,** "There are four known human species of *Plasmodium falciparum*. The most deadly one is *Plasmodium vivax* and a fifth species has been identified recently in Indonesia. Malaria infection in humans include many manifestations, the first is the acute phase which causes febrile disease that has metabolic, respiratory, blood volume and neurological complications that can lead to death and other complications. The second one is the chronic phase that includes repeated infections, resistance to drugs, and anemia due to infestations of the parasite. There are even long- term effects, such as reduced cognition and neurological problems mainly blindness. Pregnancy is another condition that makes women and newborns the most vulnerable category to infection with malaria which leads to low birth weight, abortion and even stillbirth, and to anemia for infected mothers. Malaria is a serious illness leading to sudden complications and many of these complications occur at the same time".

**Iain Gillespie,** "We certainly need new medicines for infectious diseases, specially since there is a huge development of resistance. So we need appropriate mechanisms for delivering these medicines very rapidly into the market. The real problem is that these products are very expensive; there are various estimates of the costs of bringing them to the market ranging from US$ 850 million to US$ 1.6 billion. So how can we collectively, as a global community, try to address this issue? We have seen the emergence of Product Developing Partnerships and Public Private Partnerships that focus on providing products to the market, but what they have to do tended is to pick up lead molecules that are on the shelves, and those which pharmaceutical companies for one reason or another have not decided to invest in and provide to the market. So the question is, how do we create as a global community, a system within which we can innovate in a cooperative way, in a network way, in a way that generates knowledge, exchanges knowledge and allows all participants in that network, to benefit from the knowledge and indeed to generate it".

## Track 2: IPR Serving Innovation


*The impacts of the new Intellectual Property Rights (IPR) environment are perceived mostly through projects linking scientists and teams in high-income countries with their peers in low-income countries, technology transfer, and joint ventures between universities, firms and research labs in these countries. This impact on scientific activities is amplified by the specific manner in which science is carried out in developing countries.*

***Chair:***
**Magdy Madkour,** Professor, Arid Lands Agricultural Research Institute (ALARI), Faculty of Agriculture, Ain Shams University (**Egypt**)
***Rapporteur:***
**Perihan Abu Zeid,** Private Lawyer and Lecturer, the Arab Academy for Science, Technology and Maritime Transport (**Egypt**)

**Anatole Krattiger,** Research Professor, Arizona State University (**USA)**
*Intellectual Property Management Strategies as an Essential Element in Public-Private Partnerships to enable Global Access*

**Prabuddha Ganguli,** CEO, Vision-IPR (**India**)
*IPR Internalise™ A Pathway to Seamless Integration of IPR into Innovation Processes*

**Ahmed Abdel Latif,** Program Manager, IP Programs, ICTSD (**Switzerland**)
*IPRs Serving Innovation*

**Mohamed Raouf Hamed,** Professor of Pharmacology and Toxicology, National Organization for Drug Control and Research (**Egypt**)

**Anatole Krattiger,** "IP is simply a tool to manage the interface between the public and private sectors. Since the private sector is interested in the financial return, the public sector is interested in the impact. However, both need to work together. If the public sector does not manage IP as authoritatively as the private sector, this interface cannot function. For example, in the area of health there is no more debate between the public and private sectors on whether we should patent or not. Certainly some countries use compulsory licensing as a tactic or a strategy, but basically in the health community, with some exceptions, the debate is over. As all the public-private partnerships and the product developing partnerships have learnt to work together with the private sector, it is now just a question of making it work on a much larger scale. All the models from HIV, to malaria drugs, to contraceptives have been made".

**Prabuddha Ganguli,** "What is the process of learning? The process of learning is the new experience. This new experience is converted into knowledge which we retain into ourselves. We then slowly internalize this knowledge, then the internalization becomes a way of living. So can we translate this into the IPR process? The question is really how do we innovatively infuse Intellectual Property Rights into structured innovation processes without negatively impacting creativity and innovatively diffuse into the society. This is where the challenges lie".

**Ahmed Abdel Latif,** "Increasingly developing countries and civil societies are becoming a very important actor in the negotiation of IP rules and discussion of IP rules which was not so much the case before. Traditionally developing countries were more passive in this discussion and were more technical assistance beneficiaries on how to apply the IP system. However, we are witnessing nowadays a new change in this regard which is reflecting the economic reality of the emergence of countries such as Brazil, such as India, and China, which are increasingly paralleling or increasingly applying the IP system, and also want to shape the IP system. They do not want to be just consumers of the system".

**Mohamed Raouf Hamed,** "For an institution to be transformational it should carry out certain universal functions. It should have a clear policy for its function and should have distinct intelligence. It must also have clear, transparent and efficient functions of allocating resources and time. The institution should always work on two major groups. One group is the performance group which includes quality control, productivity, training, and learning. The other group is the opportunity group which is responsible for obtaining information and facing challenges. All such groups and functions, when implemented correctly, could optimize the capability of innovation within the institute".

## Plenary Session 3
## *Bioinformatics and Computational Biology: Widening the Perspective*

*The novel field of Bioinformatics and Computational Biology is making significant contributions to various scientific areas such as disease detection, drug design, forensics, agriculture and environmental sciences. The combination of biological analysis and high performance computing are key utilities in solving today's pressing problems in biology and medicine. Therefore, only the joint efforts of biologists, chemists, statisticians, engineers, and physicists crossing traditional academic boundaries will lead to applicable solutions.*

***Chair:***
**Jane Morris,** Director, African Centre for Gene Technologies (**South Africa**)
***Rapporteur:***
**Gabrielle Persley,** Chair, Doyle Foundation (**UK**)

**Huanming Yang,** Director, Beijing Genomics Institute, Chinese Academy of Sciences (**China**)
*Bioinformatics: Essential Infrastructure and Important Tools for Genomics in Developing Countries*

**Roland Lang,** Director, Micorarray Core Unit, Institute of Medical Microbiology, Immunology and Hygiene, Technical University of Munich (**Germany**)
*Understanding Innate Immune Regulation with help from Functional Genomics*

**Oleg Reva,** National Bioinformatics Network Node Manager, ACGT Bioinformatics and Computational Biology Unit, University of Pretoria (**South Africa**)
*Oligonucleotide Signatures of Pathogenic Microorganisms for Diagnostic Genetic Chips and Metagenomics*

**Carsten Daub,** Team Leader of the Bioinformatics Team, Genome Exploration Research Group, Genomic Science Center, RIKEN Yokohama Institute (**Japan**)
*Challenges in Genomics: Widening the Perspective*

**Huanming Yang,** "Genomics research in the developing countries cannot be carried out single-handedly. We need international collaboration. So in this respect, I would like to introduce four internationally collaborating projects. The first one is the 1000 Genomes Project in which we will sequence at least 1000 individual genomes in three years. During the pilot phase, we will sequence 60 individuals from three populations, Africa, Europe and Asia. To provide extra depth for the two trials from Africa and Europe, we will perform our work on the parents of a single child, and we will also sequence at least 1000 genes of more than 1000 individuals which are believed to play important roles in our health. Additionally, BGI-Shenzhen will be responsible for that Asian part of the project. The second project is the Cancer Genome Project in which we will analyze the cancer genome of at least one-hundred-thousand tissues in four respects; sequence variations, digital Karyotyping, gene expression regulation as well proteomics. I believe that developing countries should participate in these international projects where the core technology of such projects is bioinformatics".

**Roland Lang,** "We mainly rely on the so-called gene chips and oligonucleotide microarrays where millions of identical oligos per feature are synthesized on these informatics chips. Such one gene chip contains millions of different features allowing us to measure the expression of tens to hundreds of thousands of transcripts in one single experiment. This technology can be used for large scale sequencing, and re-sequencing. It could be applied to the study of protein-DNA interactions, for example the so-called chip on chip analysis of transcription factor binding to promoter sequences. We will focus on the transcripts from profiling; and we have used that to identify target genes, to identify cell types specific transcripts and to obtain a complete picture of the activation of specific pathways and effector programs in response to cell stimuli".

**Oleg Reva,** "Bioinformatics is the most democratic field of research. Why is it so? As in bioinformatics competitiveness of the results does not depend extremely on the level of investments. For certain, we need investments and funds to work in bioinformatics; however, in comparison to experimental research in which we need to buy expensive equipments and expensive reagents, we need much less fund to carry out the work. All we need for bioinformatics are computers and the right minds. This is why scientists in advanced countries and in developing countries share the same rank in bioinformatics progress. Bioinformatics is the shortest way to achievement, deployment and delivery of results. However, we always face the challenge of how to prove fund-providing entities and authorities, the relevance of bioinformatics research to everyday needs of countries with struggling economies".

**Carsten Daub,** "There are several large scale projects which are internationally ongoing at the moment, for example the genome sequencing project which is now completed, the HAP-MAP project which is investigating single nucleotide polymorphisms and the variation in the genes among individuals, the genome network project which is a Japanese project in which my Institute is involved in with our FANTOM consortium, the 1000 genome project and also the 100 genomes projects. The aims of such large scale projects are to obtain results of global interests. However, there are many challenges facing these large scale projects which are mainly raising funds for their finance, also managing all the information and data generated within these projects".

## *Track 3: European Commission Funded Programs for Research and Innovation*

***Chair:***
**Elena Sachez,** Science Counselor, Delegation of the European Commission in Egypt (**Belgium**)
***Rapporteur:***
**Hala Abd El Wahab,** Head, Resource Development Unit, Bibliotheca Alexandrina (**Egypt**)

**Abdelhamid El-Zoheiry,** Program Coordinator Research, Development and Innovation Programme (**Egypt**)

**Yasser Elshayeb,** National Contact Point, FP7 (**Egypt**)
*EU-Egypt Cooperation in Scientific Research: the Example of FPs*

**Indridi Benediktsson,** Directorate-General for Research, Directorate F - Health, European Commission (**Belgium**)

**Elisabetta Balzi,** Directorate-General for Research, Directorate E - Food, Agriculture and Biotechnology, European Commission (**Belgium**)
*International co-operation in FP7 Food, Agriculture and Fisheries and Biotechnology: Towards meeting the UN Millennium Development Goals*

**Abdelhamid El-Zoheiry,** "Egypt is now undergoing major structuring of science and technology. We believe that science and technology are vehicles for transferring our economy into a knowledge-based economy. This knowledge is a triangle formed of education, research and innovation. So without innovation, we will not be able to seal this knowledge triangle and produce sustainable development. In order to facilitate this movement towards knowledge-based economy, the Research, Development and Innovation Programme (RDI) must be sustained where our aims are to build human resources and capitalize on innovative ideas that the human resources may possess".

**Yasser Elshayeb,** "There has been an initiative by the Ministry of Scientific Research in Egypt, at the beginning of 2008, to create three networks of experts in specific domains, domains of high priority for Egypt such as biotechnology, nanotechnology, space, remote sensing, and health. These three networks are now being interconnected with each other in which the national experts are participating in defining the priorities for Egypt. These national contact points are also linking Europe with the focal points within universities and research centers in order to promote science and technology in Egypt".

**Indridi Benediktsson,** "Our program in the European Commission is divided into the following main areas: cooperation, ideas, people, and capacities. The biggest portion of money towards cooperation. This is for a very good reason because we started as a program to enforce cooperation between different countries in Europe, and this has now expanded to the whole world. The focus is on cooperation between countries, between different types of institutions, between industries and academia. So cooperation is our focus and will remain so for a while. The thematic priorities within the cooperation part of our program are health, food agriculture, biotechnology, information and communication technology, nanotechnology, energy, environment, transport, socio-economic sciences, security and space. Here I am representing the health theme which has a budget of € 6 billion over the seven years. This health theme is divided into three main innovation areas: biotechnology tools and technologies for human health, translating the basic research into applications in the medical profession and public health".

**Elisabetta Balzi,** "The framework program states whenever possible it will contribute to the Millennium Development Goals and will also address problems that face the developing countries at the global character. Our theme exists in our ten priorities: food, agriculture, fisheries and biotechnology, etc., and is based on the principle that agricultural sciences and biotechnology are the new engines for economics and sustainable development, not only in Europe but in the world and in different countries. The program is also intended to respond to social, economic and global challenges such as the need of high quality of food and sustainable food production to tackle food-related disorders; to tackle infectious animal diseases and to have a sustainable agricultural fishery and forestry, taking into account the challenge of climate change".

# Plenary Session 4
## ***Bioenergy and Biofuels: the New Clean Era***

*Will the production of bio-energy and bio-fuel be the upcoming solution for an existing problem and help prevent the predicted relapse of the world's future back to dark cold ages that could be deprived from usable energy due to consumed resources? Will it require a global awareness of potential impacts on health, food and environment mostly for the deprived ones?*

***Chair:***
**Roelof Rabbinge,** Professor, Wageningen University and Chair, the Science Council of the CGIAR (**The Netherlands**)
***Rapporteur:***
**Gabrielle Persley,** Chair, Doyle Foundation (**UK**)

**Birte Holst Joergensen,** Managing Director, Nordic Energy Research (**Denmark**)
*Nordic Perspectives on Bioenergy*

**João Paes de Carvalho,** Principal, BiznessBrazil (**Brazil**)
*Bioenergy to Illuminate the Dark Age*

**Salah Hassouna,** Professor, High Institute of Graduate Studies and Research, Alexandria University (**Egypt**)
*Biofuels: Where We Stand*

**Roelof Rabbinge,** "There are numerous statements on biofuels, and there are also some opinions about biofuels and its role. There are questions of whether biofuels can be a threat to food security in different areas of the world, especially for the most deprived ones or not. That is why I genuinely believe that it is very important to contextualize these bioenergy-biofuels debates much more than what was in the past. It is very essential to consider why are we using bioenergy and for what reasons".

**Birte Holst Joergensen,** "Bioenergy is one of several renewable resources that are available. This why one should not put all eggs in one basket but instead go for a robust mix of energy, technology and carriers. If second and third generation technologies make it to the market, then pull and push technology measures are needed. Binding targets are effective in combination with local adaptation, but further refinement and additional sustainability and certification systems seem necessary. Harmonized support schemes may be ideal but hardly realistic so we need much stronger and continuous research and development policies, funds, and public and private partnerships, at national and international levels, across sectors and disciplines, and comprising both basic researches and also early market activities".

**João Paes de Carvalho,** "We want to apply biotechnology to ransom people from the "Dark Age", and why do I say "Dark Age", that is because there are about 2 billion people who live without energy, as is known. This means that about one-third of world population does not have enough energy to survive, or meet their needs and will consequently lead to unemployment, low productivity, low aggregation of value, no consumer market because there is lack of money; deforestation because people need to cook; poor sanitation services, illness, hunger and ignorance. So the World Energy Council has established goals for the millennium, which are accessibility to energy, availability of energy and acceptability in social and environmental terms, while the requirements are to be sustainable, to offer a return of investment at affordable prices, to provide diversification of energy sources, and fragmentation of production and distribution. All these criteria lead us to realize the need for a new model of energy production".

**Salah Hassouna,** "Oil prices are increasing, they have already reached over US$ 100 per barrel in April 2008, and the price now is US$ 112 for a barrel. World energy is on their rise from 1978 to 2001. The world cost of petroleum increased by about 70%, from 2001 to 2006, which means that it has increased by 150%. Global energy consumption is projected to be 681 trillion Mega Joule in the year 2025. Global petroleum demand is going to be 111 million barrels per day in 2025. That is why we are talking about Biofuels as an alternative to petroleum".

## *Track 4: Problems hindering Biotechnology Research in the Arab Region: Lessons Learned and Possible Solutions*

*Plenum 1*


***Chair:***
**Mohamed El-Dawy,** Professor, Faculty of Pharmacy, Tanta University (**Egypt**)
***Rapporteur:***
**Mariam Moussa,** Research Specialist, Center for Special Studies and Programs, Bibliotheca Alexandrina (**Egypt**)

**Abdallah Daar,** Professor of Public Health Sciences, University of Toronto (**Canada**)
*Biotechnology Lessons from Health Biotechnology Innovation Systems of Emerging Economies*

**John Hillman,** Former Director, Scottish Crop Research Institute, SCRI (**UK**)-

**Elias Baydoun,** Professor of Biology, American University of Beirut (**Lebanon**)
*Opportunities for Biotechnology Research and Development in the Arab Region*

**Mona K. Marei,** Professor of Prosthetic Dentistry; and Head, Tissue Engineering Laboratories, Faculty of Dentistry, Alexandria University (**Egypt**)
*Visions for Regenerative Medicine: Addressing the Challenges of Health Burden for Future Development*

**Abdallah Daar,** "Close linkages and active knowledge initially flow from the educational system, the research and development system, government policy and business. Unless there is knowledge flow among those five sectors we will not have people translating knowledge rapidly from laboratories to products that eventually diffuse out to the public. So we do not need to compete with MIT or Harvard in sequencing, we basically need to find a condition or an enriched resource in one of the Arab countries and focus on it instead. We also need to possess strong and sustained political will in these countries. We will never develop a truly organic integrated biotechnology industry unless we continue to provide political leadership. We also cannot develop a successful biotechnology industry unless we are willing to take risks; and for us to take risks, we essentially need leaders who are willing to take these risks".

**John Hillman,** "As for the Arab situation, there are some points we have to bear in mind, first of all, the decline in the global economic position and the influence of the Arab world. Secondly, we have high birth rates and therefore we lose young people and young minds, who are extremely intelligent and bright in the Arab world. These intelligent and bright young people who are disaffected with their lives deserve better opportunities and should have better political stability, and better solutions for their health and literacy problems. There exists unequal distribution of wealth in the Arab world, some of the richest people on earth are Arabs, but also some of the poorest are Arabs as well".

**Mona K. Marei,** "Although science and technology on their own cannot resolve the complex health challenges faced by developing countries, yet they are important components of the comprehensive strategy and individual health that governs the economic and the social status. Considering for instance the revolution in regenerative medicine and how it started. People isolated cells which was a miracle, a dream 30 years ago. Now they can isolate stem cells and divide them and create a structure as well. So the human life expectancy is higher today, but this is not the root of the problem. As aging reduces health and vitality, so eventually no amount of health care nor medicine can reverse or stop aging, so most of the society will age at the end. In the past few years, scientists developed a technology to find out what occurs at the level of genomics, genes and cells, which in turn needs all our support to be developed in the way that helps humanity".

# Plenary Session 5
## *EAGLES Food Symposium*

*This EAGLES Food Symposium, funded by the European Commission, is being held under the guidance of Dr. Ismail Serageldin, Director, Bibliotheca Alexandrina, Egypt. The objective is to consider how European programs on major food, agriculture and biotechnology are meeting the challenges of food sufficiency, security, quality and safety in Developing and Emerging Countries (DECs). The Symposium drew on reports and recommendations from previous EAGLES meetings, other international forums and provide recommendations on how European programs and policies related to food in DECs can be improved. The Symposium brought together previous opinions from the life sciences and other disciplines from Europe and the developing world. Members and staff of the European Commission, members of the European Parliament and national parliaments, civil servants, editors and journalists, writers, humanitarians and leaders of public interest organizations were invited to attend.*

***Keynote Address:***
**Ismail Serageldin,** Director, Bibliotheca Alexandrina **(Egypt)**
***Chair:***
**Patrick Cunningham,** Professor of Animal Genetics, Trinity College, Dublin and Chair, IdentiGEN Ltd (**Ireland**)
***Rapporteur:***
**Jim Flanagan,** President, European Association for Animal Production (**Ireland**)

**Marc van Montagu,** Elected and Acting President, the European Federation of Biotechnology (**Belgium**)
*Balancing the Global Demand for Food, Feed, Fibers and Fuels: The GM Approach*

**Eduardo Trigo,** Director, Grupo CEO and Scientific Adviser, the International Directorate of the Secretariat for Science, Technology and Innovation of the Argentine Government (**Argentina**)
*The Argentinean Experience with Agriculture Biotechnology: Lessons for the Future*

**Ismail Serageldin,** "We are richer for being able to overcome obstacles that try to stop this free flow of information. We are even richer if we collaborate together to build new knowledge that is available to the world, to solve the problems of those who are less fortunate than ourselves, and to tackle the problems that challenge our concept of common humanity. That is the challenge that we have today and that is the challenge of bridge building institutions, such as EAGLES. The challenge is that we need in the North also to recognize the achievements that are going on in the developing world, the achievements that come with collaboration, cooperation and openness and also recognize the talents and ability of local people in particular of those in the developing countries".

**Marc van Montagu,** "I am convinced that during the 21st century GM plants will exist all over the world. It is the solution. It is the best of molecular biology, and the best of agronomy and agriculture combined together. It is not only for production of agriculture for plants, industry of food, but for the environment as well. We have to explain to colleagues in all the branches of environment that we are not their enemies and that we do want to save the plants. Only this could be achieved through science and we have to see that it is science that has the upper hand".

**Eduardo Trigo,** "The most striking element is that these processes, over the ten-year period, created around 1 million jobs, 36% of the total jobs generated in the Argentinean economy during that period. For those who do not remember the ten-year period that I am talking about includes the year 2001 where the Argentinean economy collapsed, we stopped paying the external debts and open unemployment reached in the country something like 27%, over 25% anyway. During that period this technology generated 1 million jobs. However, we have not been investing enough in agricultural research in the developing world and that is a reality and something that has to concern us as we look at the future. Therefore, biotechnology innovations should be accompanied by broader policies to create a sustainability environment".

## *Track 4: Problems hindering Biotechnology Research in the Arab Region: Lessons Learned and Possible Solutions*

*Plenum 2*

***Chair:***
**Mohamed El-Dawy,** Professor, Faculty of Pharmacy, Tanta University (**Egypt**)
***Rapporteur:***
**Mariam Moussa,** Research Specialist, Center for Special Studies and Programs, Bibliotheca Alexandrina (**Egypt**)

**Dianna Derhak,** Director, Business Development, EPOS USA (**USA**)
*Profile of Ukraine: Healthcare System Challenges Times of Rapid Change*

**Brian Clark,** Vice-President, European Federation of Biotechnology (**Denmark**)

**Aida Al Aqeel,** Senior Consultant Pediatric Medical Geneticist and Endocrinologist, Department of Pediatrics, Riyadh Military Hospital (**Saudi Arabia**)
*Science and Technology in the Muslim World: From Promise to Practice, the Challenges*

**Riad Bayoumi,** Professor and Head of Clinical Biochemistry, the College of Medicine, Sultan Qaboos University (**Oman**)
*Did the Arab World cover the Gaps between Research Ambitions and Current Realities?*

**Dianna Derhak,** "Research units need a place to grow and develop. So research universities, with the assistance of government-funding, have set up these types of organizations within the university to offer a place to groups such as small companies that need to grow for a number of years. Such organizations provide access to faculty, mentors, computers and even laboratories as well as people who are experts in promoting development. They also offer an opportunity to meet with colleagues and other organizations in order that these companies develop their structure. I believe that this one model could perhaps be translated more easily into the Arab world to provide those who promise an opportunity to develop".

**Brian Clark,** "The European Federation of Biotechnology is an organization from the sixties. It was not functioning well until we decided that it is such an important topic that needed a revamp. Consequently, we now have the new European Federation of Biotechnology (EFB) serving biotechnology not only throughout Europe but throughout the whole world. Furthermore, it promotes the sustainable and beneficial application of biotechnology for the better use of nature's resources. It works to expand collaborations between academic and industrial researchers throughout Europe, and it increases competences, strengthens education, promotes innovation and raises the benefits of biotechnological research for the society at large".

**Aida Al Aqeel,** "Single gene disorders are not that difficult to deal with because it is easy to find these genes in our community due to the high degree of consanguinity which ranges between 40% and 70%. Additionally, treating these disorders is not that difficult especially when dealing with biochemical genetics or metabolic disorders; however, dealing with complex disorders, such as diabetes, obesity, hypertension is quite difficult. For instance, we have been working on Diabetes Type 1 and Diabetes Type 2 patients, including even families of five or six infected patients and up to now we cannot locate the gene accounting for their condition".

**Riad Bayoumi,** "Are we really ready for Biotechnology in the Arab world? I believe that it is clear that we are not ready yet. If we consider research for instance, it is the base of knowledge that is needed to develop biotechnology. Therefore, there is no point of moving towards biotechnology if we do not possess basic research. If we are unable to generate knowledge then we will not achieve any progress in biotechnology. It will be similar to flying before walking. Unfortunately, the Arab world spends little on research and development; therefore the researchers do not perceive the region to be a conducive place for research. Scientists suffer from the fact that they occupy a very small part of the strata in the structure of society in the Arab world. We cannot achieve our objectives while we still have a poor system of education".

*Tuesday, 15 April 2008*

## Health Stream: Panel A-1
## ***Nanotechnology: Smaller Technology… Bigger Impact***

*The emerging science of nanotechnology raises high expectations for millions of patients for better, more efficient and affordable health care and has the potential of delivering promising solutions to many illnesses such as cancer, cardiovascular diseases and others. The promising possibilities that nanomedicine might offer in the future have to be counterweighted against potential hazards of this new technology to human beings as well as to the environment and the ethical concerns arising from nanoapplications.*

***Chair:***
**Ahmed Massoud,** Professor, Faculty of Dentistry, Alexandria University (**Egypt**)
***Rapporteur:***
**Rafik Nakhla,** Bibliotheca Alexandrina (**Egypt**)

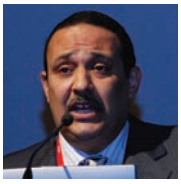
**Dennis E. Discher,** Professor of Chemical and Biomolecular, Mechanical, and Bio-Engineering, University of Pennsylvania (**USA**)
*NanoBiology—Natural or Engineered Particles of Diverse Shape and Their Interactions with Cells*

**Hassan Azzazy,** Chairman and Associate Professor, Department of Chemistry, the American University in Cairo (**Egypt**)
*Nanoparticles: Emerging Diagnostic and Therapeutic Applications*

**Gilbert Rios,** Coordinator, NanoMemPro Network of Excellence (**France**)
*Nanoscale-Designed Membrane Materials for Health Applications*

**Takaaki Kurasaki,** Director, Division of Advanced Medical and Radiological Science, Research Promotion Bureau, Ministry of Education, Culture, Sports, Science and Technology-MEXT (**Japan**)
*Japan's Research and Development Policy in Life Science*

**Dennis E. Discher,** "All of the first generation nano delivery systems were just small spheres, however there are advantages to use cylinder systems. These delivery systems were polymer-based vesicles and cylinders that are assembled from polymer-based amphiphilis. These amphiphiles are hydrophilic-hydrophobic molecules which we were able to tune to get different shapes, that in many ways we considered idealized viro-capsids, physically mimicking shapes. These systems allowed us to test circulation ideas, test biocompatibility in the circulation, cell polymer interactions, and cell-particle interactions particularly shape effects in delivery and I believe that they are leading into more effective nano therapeutics".



**Hassan Azzazy,** "Nanotechnology is an important technology because we can manipulate matter, for instance, we can understand matter at the atomic level since one nanometer is almost five atoms, and we can understand the physical and chemical properties of materials at a very small scale as well. Then we could probably be able to manipulate these properties. So why are we interested in nano-particles in particular? It is because the sizes of nano-devices, nano-tools including nano-tubes, and nano-particles like quantum dots, range between ten nanometers and one-hundred nanometers and therefore we could use quantum dots, which are essentially semiconductor nano-crytstals of a typical size range 2-8 nanometer and a core of cadmium-selenium, for both diagnostic as well as therapeutic applications".

**Gilbert Rios,** "Health is a global positive concern…. The World Health Organization indicated that healthcare is prevention, treatment and management of illness, as well as preservation of well-being through various services. It appears today that more and more sciences and technologies are present in our scale, not only for medicine and pharmacy but also for water and effluent treatment, for higher food quality, and for improved energy use; and the main objective of all of these advances is to fully guarantee health at a reduced social cost for all countries".

**Takaaki Kurasaki,** "The Coordination, Support and Training Program for Translational Research was launched in 2007. This program provides funds to central organizations, such as universities and national hospitals, which are involved in the supporting of translational research. These resources can be used on three levels; first, to upgrade the infrastructure and equipment of research entities involved in translational research. Secondly, to train and hire qualified personnel; and thirdly, to implement and support translational research itself. Under this program, some researchers are being conducted on drug-delivery systems applying nanotechnology. Such programs and funds indicate that Japan will continue to promote various research and development in the life-sciences field according to the Research Science and Technology plan. We wish to appropriately contribute to the improvement of life for people all over the world".

## Environment Stream: Panel B-1
## ***Natural Resource Management: Building Public Resilience, Rebuilding Lives***

*National initiatives addressing issues related to managing and using sustainable resources, as well as building community level resilience are urgently needed for natural resource management. Expanding global research collaboration will not only have a significant impact on NRM but will highly encourage adoption of sustainable natural resource management practices.*

***Chair:***
**Eric Huttner,** General Manager, Diversity Arrays Technology Pty Limited (**Australia**)
***Rapporteur:***
**Salah Soliman,** Professor, Faculty of Agriculture, Alexandria University (**Egypt**)

**Adel El-Beltagy,** Chair, Global Forum on Agricultural Research- GFAR (**Egypt**)

**Ewald Schnug,** Head, Institute for Plant Nutrition and Soil Science (**Germany**)
*Agriculture's Contribution to Natural Resource Management—The Promise of Sustainability*

**Hani El-Nokraschy,** CEO Nokrashi Engineering GmbH **(Germany)**
*The Desert of Egypt as Everlasting Power House*

**Pat Mooney,** Executive Director, ETC Group (**Canada**)

**Adel El-Beltagy,** "One can ask many questions, such as who are the managers implementing and managing integrated natural resource? What is the scale at which the various natural resources can be managed? To what degree can the objectives of the farm household and other local regional, national or international stakeholders be met by integrated land use pattern as alternative to spatial segregated way of addressing multiple function of land? How can the various stakeholders overcome the prevailing sense of conflict? How can research play a role, by providing negotiation support to various stakeholders in natural resource management? This concept respects the people who are really the owner of the natural resources, the dwellers of the natural resource. They have to possess total ownership and take management in their hands. We governments, NGOs, are only around to help, but at the end of the day farmers should be the managers, the responsible, the custodians and the guardians of their natural resource".

**Ewald Schnug,** "Life needs phosphorous, but for what? 1% of us are phosphorous. We need it for our skeleton, for energy processes in our body and all the genetics depends on phosphorous. For example, DNA Phosphorous is unique and cannot be replaced in the living organism. We can replace different energy sources and clean up water, but we can never replace phosphorous. That is why phosphorous is considered one of our immortal values. The real problem we are facing is that the world thinks that phosphorous is unlimited, not many people are aware that we only have optimistically 100 years or 150 years of phosphorous left and pessimistically only 50 years left. This will strike us much earlier than any other depletion of resources in the world and unfortunately we cannot replace it or even compensate it with something different".

**Hani El-Nokraschy,** "Egypt has excellent renewable resources. For example, hydropower from the Nile, wind energy as well as solar energy. However, renewable energies are fluctuating mostly and the demand has its special curve. At night we have little demand, during the day we need more, and about one hour after sunset we have peak demand. So the energy which is produced should follow this curve otherwise it cannot be used correctly. So, if we imagine in the year 2050 we have the same curve at a higher level, we will then have to use all the wind power generated and put it into action. Since this wind is assumed to be fluctuating, it will not cover Egypt's demand, however the solar power is enough to cover this demand several times".

**Pat Mooney,** "In order for us to survive the climate change, we need to make sure that nothing impedes the ability of farmer's organizations and their communities to have an access to germplasm, they should have access to anything that gene banks have. They should have priority access to carry out their own experiments and do their plant breeding in as many places as possible. Secondly, there should be no constraints whatsoever on farmers in being able to save and exchange their seeds including any type of seeds no matter where they originate from. Any impediment on that ability through intellectual property rights, or any other kinds of licensing arrangements could be destructive of all of our resiliencies, in a potential future food security. Thirdly, any rules or regulations that denies or prevents farming communities from being able to market their products, getting about into the community should be suspended".

# Food and Agriculture Stream: Panel C-1
## *Global Convergence in Food Supply 1 (EAGLES)*

***Chair:***
**Jim Flanagan,** President, European Association for Animal Production (**Ireland**)
***Rapporteur:***
**Norman Casey,** Professor and Head, Department of Animal and Wildlife Sciences, Faculty of Natural and Agricultural Sciences, the University of Pretoria (**South Africa**)

**Roger Beachy,** President, Donald Danforth Plant Science Center (**USA**)

**Malcolm Elliot,** Executive Director, the Norman Borlaug Institute for Crop Improvement (**UK**)

**Roger Beachy,** "I believe that the changes that occured in the movement of science and technology in India and China are remarkable. These countries are making decisions that are different than our decisions in the West. They are making them based on their local experiences and their local needs. Therefore, my hope is that these experiences will inform Africans and other Asian countries about policies related to biotechnologies. There is an opportunity to learn from India and China of what to do right in this regard because I think the West has not made the right changes, I even think it has done it in a highly restricted manner. We really need our scientists to know more about markets and more about opportunities and how to align basic research with those needs while giving scientists the opportunity to maintain excellence in their experiments".

**Malcolm Elliot,** "Will biotechnology be allowed to deliver its benefits to global agriculture? Unfortunately, we face many challenges that manifest in the form of environmentalists exploiting this new frontline issue, impact of media, erosion of trust and confidence between science, government and industry, public perceiving no benefits for themselves, and finally the misunderstanding of the process and perception of risk".

## *Track 5: Science Supercourse*

***Chair:***
**Ismail Serageldin,** Director, Bibliotheca Alexandrina (**Egypt**)
***Co-Chair:***
**Ronald Laporte,** Professor of Epidemiology, Graduate School of Public Health, University of Pittsburgh (**USA**)
*Scientific Supercourse, Whisking Science to Classroom*

**Francois Sauer,** CEO, Trans-Am Group (**USA**)
*Solidarity and Subsidiarity between Academic Sciences and Business to Improve Prosperity and Health "From Coexistence to Conviviality"*

**Eugene Shubnikov,** Research Scientist, Institute of Internal Medicine, Novosibirsk (**Russia**)
*The Bibliotheca Alexandrina Supercourse: From Promises to Practice*

**Faina Linkov,** Research Assistant Professor of Medicine, University of Pittsburgh Cancer Institute (**USA**)
*A Multilayered Approach to Web Quality Control: The Scientific Supercourse*

**Ronald Laporte,** "If we are to focus on developing prevention and sharing knowledge, we need to be in the area of chronic diseases. We thought that it would be best to try to improve the training in prevention worldwide, so we developed a system of sharing of knowledge from individuals. For example, Eugene Shubnikov is from Russia and he is an expert in Diabetes, while I am an expert in physical activity. If he provided me with his lectures on diabetes I can teach from them, and if I provided him with my lectures on physical activity, he can also teach from them".

**Francois Sauer,** "We look at science, especially academic science, as a question about the value that the academic science adds to the community. Unfortunately, we have disconnected between academic science and business. We have disconnected between business and the community, and between science and the community. From a scientific perspective, what we are proposing to solve this problem is to bring the community to the forefront as a minimal to integrate science and business. We want to explore new frontiers and to create new options. We need resources to be able to do that and we need funding to be able to share our findings".

**Eugene Shubnikov,** "Our model of scientific Supercourse in Russia is a network of scientists involved in different areas of science in which we use lectures as material for constructing a library of lectures in health and prevention. We have created some special projects such as health profile lectures, and we have a special health educator for each country. We are now working with the Bibliotheca Alexandrina Information and Communication Technology Department to construct our network. We are also discussing quality control of the future Supercourse, as well as constructing a website with very good and advanced search options".

**Faina Linkov,** "Why is it important to have quality control on the Internet? Basically with millions and millions of PowerPoint lectures in all kinds of educational modules on the Internet, it is important to control their quality because those lectures may be of great interest and of great use to faculty members and scientists who would like to teach their students using the best possible materials. Out of all those millions of lectures in PowerPoint form that exist on the Internet, we would like to argue and may be biased that only our lectures go through quality control. Several articles were published in the area of PowerPoint quality control on the web and we are proud that most of those materials were published by us. Unfortunately, there is little information about PowerPoint quality control online and there is great need to establish a quality control system especially with the migration of over than 7 million lectures this year".

**Ismail Serageldin,** "The Supercourse takes a very unusual approach where it does not mention that we will show you the best professor in the world lecturing and delivering a model, but it does say that if you, the teacher of science, and you the student want to be your own teacher, you can then find material that has been prepared and classified by subject. In this manner we are empowering the teachers to upgrade without waiting for somebody to tell them that the curriculum is going to be upgraded; we are empowering the student that if they want to go beyond the classrooms and what the teacher provides them with in the classroom, could find still materials presented with visuals and slides easily. In this process we hope that those who are in less privileged institutions will be capable of learning enormously at the same pace of that in the West. The second part that is totally revolutionary regarding the Supercourse is that all the information and lectures are available for free since I think all of us believe that knowledge should be for free, science should be for free".

# Health Stream: Panel A-2
## *Viral Hepatitis: Promise Awaits the Stealth Epidemic*

*Despite our ability to diagnose many viral causes of hepatitis and to offer preventive regimens, the number of newly-diagnosed cases of hepatitis infection continues to increase. The morbidity and mortality that result from acute and chronic hepatic illnesses are significant. Even though significant progress has been made, many patients still do not respond to the treatments that are currently available. However, with further research, it may be possible to develop new affordable and available therapies especially to those who are suffering in hepatitis endemic areas.*

***Chair:***
**Yehia Zaky,** Head, Academic and Cultural Affairs Sector, Bibliotheca Alexandrina (**Egypt**)
***Rapporteur:***
**Rafik Nakhla,** Bibliotheca Alexandrina (**Egypt**)

**Wahid Doss,** Head, the National Liver Institute, Cairo (**Egypt**)
*The Challenge of Hepatitis C in Egypt*

**Farha Abd El-Aziz,** Professor of Clinical Immunology and Pathology, Faculty of Medicine, Mansoura University (**Egypt**)
*Immune Response to Viral Hepatitis*

**Kazuhiro Araki,** Director, Research and Development Division Health Policy Bureau, Ministry of Health, Welfare and Labour (**Japan**)
*The Japan's Strategy for Innovation and Pharmaceutical Industry*

**Abdel Rahman El-Zayadi,** Professor, Tropical Medicine Department, Faculty of Medicine, Ain Shams University; and Director, Cairo Liver Center (**Egypt**)
*Hepatitis B and Hepatitis C: Face to Face*

**Wahid Doss,** "We have a huge problem in Egypt with chronic Hepatitis C, and many people consider it to be our major health problem. Hepatitis C is certainly a serious health problem worldwide, not just in Egypt. WHO has estimated that about 3% of the world's population, about 200 million people, has been infected with Hepatitis C. Thus, what are we are doing about this problem in Egypt? The Ministry of Health and Population has formulated the National Committee for Control of Viral Hepatitis, in which our duties are to perform a national survey which has already started already and to determine by the end of this year what the exact percentage of Hepatitis C incidence in Egypt is. We have also started a treatment program one year ago. We are organizing prevention campaigns for infection control, as well as surveillance and awareness campaigns".

**Farha Abd El-Aziz,** "The development of a vaccine for HCV faces a series of alarming obstacles. HCV is highly heterogeneous, and for production of an effective vaccine it may need to be multivalent in a way to be analogous to polio virus vaccine, in order to be protective against multiple serotypes. Encouraging results have been obtained using recombinant envelope protein E1 and E2 expressed in mammalian cells as immunogens. This method induces a short-lived specific anti-E1 and anti-E2 response in immunized chimpanzees, and a partially protective effect when challenged with low titers of the homologous virus. If the vaccine can be manufactured, on a large scale and at a low economic cost, there is clearly a future scope for large scale prevention of HCV-induced liver disease on a worldwide scale".

**Kazuhiro Araki,** "The number of Hepatitis B and Hepatitis C patients is 600,000 and the total number of infected persons including healthy or asymptomatic carriers is estimated to be 3 million to 4 million that is 3% to 4% of the total Japanese population. The Japanese Government is now promoting five anti-hepatitis measures: first is the promotion of Interferon treatment covered by social insurance. Second is the promotion of Hepatitis virus testing done by local government free-of-charge. Third is to expand the coverage of medical treatment under examination by social insurance system. Fourth is public education about Hepatitis. Fifth is to promote research and development of new medical technology for Hepatitis".

**Abdel Rahman El-Zayadi,** "HBV and HCV represent the most common causes of liver disease worldwide. HBV affects 350 millions of world population considered as chronic carriers with nearly 25% of these develop chronic hepatitis, cirrhosis, and HCC. In Egypt, HBsAg carrier rate is estimated at approximately 4% of the population. Worldwide, 170 million people are infected with HCV, nearly 20% of chronic hepatitis patients develop cirrhosis and about 5%-10% of cirrhotic patients develop HCC. In Egypt, it is estimated that approximately 12%-15% of the population are infected with HCV".

# Environment Stream: Panel B-2
## *Water Resources: The Global Concern*

*As the human population increases dramatically and the demands of industry and agriculture govern many societies, the strain on the available water resources becomes more and more difficult to accommodate. Efficient use of water to meet these demands is a vexed problem that involves not just appreciation of the physical quantity and quality of water resources but also the interaction with ecological, economic, social and political factors. So the incorporated management of water resources is a key issue for the sustainability of human society in many parts of the world.*

***Chair:***
**Ewald Schnug,** Head, Institute for Plant Nutrition and Soil Science (**Germany**)
***Rapporteur:***
**Salah Soliman,** Professor, Faculty of Agriculture, Alexandria University (**Egypt**)

**Daniel Zimmer,** Executive Director, World Water Council (**France**)
*Water Resources: The Need for Increased Hydrosolidarity*

**Hani El-Nokraschy,** CEO, Nokrashi Engineering GmbH (**Germany**)
*Solar Power Overcomes Water Deficit in the Middle East- North Africa*

**Dia El Quosy,** Professor Emeritus, the National Water Research Center (**Egypt**)
*Future Challenges for Water Management in Egypt*

**Abdel Ghani El-Gendy,** Professor of Agri-engineering, Faculty of Agriculture, Ain Shams University (**Egypt**)
*Irrigation Technologies and Management for Sustainable Agriculture in Egypt*

**Daniel Zimmer,** "In order to meet the water requirements and the food requirements all over the planet a lot of water is exchanged in the form of virtual water inside or embedded in the food trade. According to FAO the exchanges in food trade will be very high in the coming years. On the global level, there is enough water but it is unevenly distributed. Food production is the major water consumer, food diets are changing especially with urbanization which induces extra pressures on water resources. Up to the year 2050, the doubling of water resources used for agriculture will be required; and as a result, water scarcity is bound to increase and several countries need, and will need, to import greater and greater share of their food to compensate the lack of water resources in their countries. So, the conclusion is that hydro-solidarity is very much required and it is parallel to food solidarity".

**Hani El- Nokraschy,** "Water management is a very important issue. In areas full of deserts and sun, it can be extended to seawater desalination as the sun has enough energy to support such process. The criteria is to have sustainable desalted seawater through methods that are inexpensive, secure and compatible with the environment. Nearly everyone thinks that seawater desalination is a very expensive process, but we can get desalinated water for free which is our vision. It could be done by concentrating solar thermal power applying new techniques, in which one square kilometer of desert land can produce up to 250 million KWh per year of electricity, and 60 million cubic meter per year of desalted seawater. The principle of concentrating solar thermal power plant is to have fuel introduced in a thermal cycle where it produces electricity. For example, instead of burning fuel to give heat in thermal power cycle, we can use concentrating Solar Collector with mirrors giving solar heat to the process".

**Dia El Quosy,** "We have here in Egypt three separate systems of water supply. One of them is Lake Nasser. It is a reservoir upstream to Aswan High Dam. This huge water body, around 500 km long, 10-15 km wide, 350 km of it is inside Egypt, and 150 km are in the Sudanese territory. Unfortunately we have tremendous evaporation from the lake, around 10 billion $m^3$ per year along with huge sedimentation. We have a supply management system from Lake Nasser, so that water is delivered everyday according to the requirements of the country. This delivery is about 70-80 million $m^3$ per day in winter, and might reach 250-270 million $m^3$ per day in summer depending on demand. We have upstream control to maintain the upstream water level at certain elevation which allows water to be distributed all over the country".

**Abdel Ghani El-Gendy,** "In Egypt, water resources are the critical factor for production. Agriculture, of both food and fibers, is the main activity related to water resources in the Egyptian economy. In order to assure sustainability of the future planned agricultural development projects, the following components should be included; first, is semi-arid agro-forestry for nitrogen fixation and fertility enhancement to produce biomass and other products. The second component is the organic farming systems for clean food and fibers, for both local and export markets. The last one is clean farms and clean villages for the agro-tourism and health care centers".

# Food and Agriculture: Panel C-2
## *Global Convergence in Food Supply 2 (EAGLES)*

***Chair:***
**Malcolm Elliot,** Executive Director, the Norman Borlaug Institute for Crop Improvement (**UK**)
***Rapporteur:***
**Jim Flanagan,** President, European Association for Animal Production (**Ireland***)*

**Chengcai Chu,** Principle Investigator and Laboratory Head, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences-CAS (**China**)
*Agrobiotechnology: The Driving Force for the Next Green Revolution*

**Clive James,** Chairman and Founder, ISAAA (**USA**)
*Global Status, Impact and Future Prospects of Commercialized Biotech Crops*

**Chengcai Chu,** "The Chinese Government promotes biotechnology as one of the national priorities to secure the sustainable development of China's agriculture since 1980. Agro-biotech plays and will play a crucial role in the sustainable agriculture in China and the Government has a key role in food supply. China's Agro-biotech R&D experience can be shared by other developing countries, especially Africa. Great achievements have been made in China's agro-biotech, several products are available and many are in the pipeline. More concern will be for food crops based on careful evaluation; and last but not least, the developed and the developing countries must work together and further dialogue is urgently needed".

**Clive James,** "What is the risk of applying biotechnology? We now have a body of evidence that supports biotechnology. The question that Europe and the world must ask now is what is the cost of not applying biotechnology. The cost for the developing countries is purely humanitarian and could not be more important. We need to allow the developing world to decide what in fact this technology has to offer, and to allow Europe to decide whether it can continue to be innovative. We need to build a global knowledge network on crop biotechnology to be based in the Philippines were our center exists. We have to share this information freely with the world, respecting the rights of others to make decisions based on that knowledge. We have about 21 current modes and this is an initiative of sharing knowledge and experience. We now have the opportunity of sharing the experience of 50 million farmers, in 23 countries, or 12 year period with the globe".

## *Track 6: Project on South-to-South Collaboration for Genomics Innovation*

*Plenum 1*

*The project has both mapped research and entrepreneurial collaboration between developing countries and carried out case study research in a wide set of developing countries. The case study research examined the factors and conditions that have shaped research and entrepreneurial collaboration and their impact on health biotechnology innovation in developing countries.*

***Chair:***
**Peter Singer,** Sun Life Financial Chair in Bioethics; and Director, University of Toronto Joint Centre for Bioethics (**Canada**)
***Rapporteur:***
**Nefertiti Adly,** Bibliotheca Alexandrina (**Egypt**)

**Halla Thorsteinsdottir,** Professor, McLaughlin -Rotman Center for Global Health, University of Toronto (**Canada**)
*South-South Collaboration For Genomics Innovation*

**Christina Melon,** University of Toronto, (**Canada**)
*South-South Collaboration For Genomics Innovation*

**Monali Ray,** University of Toronto (**Canada**)
*South-South Collaboration For Genomics Innovation*

**Wen Ke,** Institute of Policy and Management, Chinese Academy of Sciences (**China**)
*South-to-South Collaboration in Biotechnology—Case Study of China*

**Tirso Saenz,** Professor, Centre for Sustainable Development, University of Brasilia (**Brazil**)
*Health Biotechnology Cooperation In Latin America: Characteristics, Drivers, Trends and Perceptions*

**Halla Thorsteinsdottir,** "The purpose of the whole project is to try to understand what factors and conditions contribute to the success of South-to-South collaboration in the field of health biotechnology. South-to-South collaboration can be a tool to build capacity, and there are few developing countries that have been successful in building capacity in health biotechnology. However, many countries do not have a capacity in this field, and not all the countries are likely to have any capacity in the future. So that is why this collaboration can be a tool to extend the capacity in developing countries in this field. South-to-South collaboration is very relevant because developing countries have common problems and by compiling their resources and expertise together, they can leverage on each other strings. They can also have better success in terms of solving their problems".

**Christina Melon,** "The two main purposes of the work we have been doing are: first, to examine the levels, the characteristics and the impacts of international collaboration in health biotechnology. Although, there has been a strong emphasis on South-to-South collaboration there has been little response in terms of gathering a sort of empirical data on what is going on right now. We hope that this work could be a base for future studies to try to identify whether collaboration is increasing or decreasing. The second main purpose is to better understand the factors that influence these collaborations in health biotechnology".

**Monali Ray,** "We found that geopolitical factors shaped North-to-South inter collaboration in health biotechnology. The influence of colonial legacies can also be observed. We also detected a regional influence; for example; the Chinese firms we surveyed showed collaboration with Japan, South Korea, Australia, indicating an East-Asia specific network. 26% of the Canadian firms that responded to the report indicated having collaborations with developing countries and this is a significant number. The majority of partners in the developing countries were firms and over 90% of this collaboration has been initiated by the firms themselves. The collaboration seems to have originated without much resistance from the government and agencies neither in Canada or in the developing countries".

**Wen Ke,** "Our Case study focused on the collaborations between China and India, and China and Thailand. The Philippines, India and Thailand were the top three collaborating countries with China, and China was also the number one country collaborating with India. About one to four collaborations of Chinese firms were conducted with Indians. Therefore India is the first choice for us to focus on within this project. There has been some successful collaboration between the Chinese Academy of Sciences and Thailand. Since we didn't have any details on collaboration with the Philippines in biotechnology we chose Thailand as our case study. Until today we have contacted 41 experts and conducted 14 interviews. In many cases, the researchers in developing countries have worked together with researchers in developed countries and in other cases researchers knew each other through international conferences where they shared common interests and therefore decided to set up collaboration".

**Tirso Saenz,** "Argentina and Brazil had a history of cooperation in research; the main characteristic of this cooperation is that no innovative objectives were proposed. It was an active collaboration in health but neither the officials in Argentina nor the Ministry of Science and Technology in Brazil were very pleased with this cooperation. That is because the researchers were more interested in writing and publishing papers than in producing products. Unfortunately, the main reason for this was that researchers are evaluated according to the papers they publish in mainstream magazines and not according to the number of products they develop. Another interesting finding was that some projects between Brazil and Argentina appeared as a single project, where they were in fact two different projects, the Brazilian project and the Argentinean project. They were not connected but they only got common funds. In this respect we can indicate that their impact on technological development was limited".

# Health Stream: Panel A-3
## *Tuberculosis: Comprehensive Overview and Challenges*

*Tuberculosis among other infectious diseases poses severe risks to the entire world and serious challenges to the achievement of development goals. TB and other emerging diseases require a concerted international response to ensure the presence of resources needed for prevention, treatment, care and support, as well as to provide enhanced access to affordable medicines, to reduce the vulnerability of affected persons, particularly orphaned children and old people.*

***Chair:***
**Joel Breman,** Senior Scientific Advisor, Fogarty International Center, National Institutes of Health **(USA)**
***Rapporteur:***
**Rafik Nakhla,** Bibliotheca Alexandrina **(Egypt)**

**Stefan Kaufmann,** Founding Director and Member, Max-Planck-Institute for Infection Biology **(Germany)**
*Development of a Vaccine Against Tuberculosis: From Promises to Practice*

**Soumya Swaminathan,** Deputy Director, Tuberculosis Research Centre **(India)**
*Tuberculosis: Comprehensive Overview and Challenges*

**Graham Rook,** Professor, Centre for Infectious Diseases and International Health, Windeyer Institute of Medical Sciences **(UK)**
*Differences between Immune Systems in Rich and Developing Countries: Implications for the Design of Tuberculosis Vaccines that will Work in the Countries that Need Them*

**Werner Christie,** Science and Technology Counselor, Royal Norwegian Embassy, Beijing **(Norway)**
*The Global Tuberculosis Challenge: From Promises to Practice*

**Rodney Finalle,** Founder and Director, Children's Hospital of Philadelphia's Alliance for International Medicine **(USA)**
*Risk Factors for Intrathoracic Tuberculosis in the Economic Migrant Population of Two Dominican Republic Bateyes*

**Stefan Kaufmann,** "TB is one of the three major killers together with HIV-AIDS and malaria. It kills about two million people annually and every year 9 million new cases are recorded. The problem of TB is becoming worse for two reasons, first is the HIV-AIDS crisis in sub-Saharan Africa which has caused the re-emergence of TB there. Today TB is the number one killer of HIV infected individuals and vise versa. Secondly are the increasing incidences of multi-drug resistant strains of Mycobacterium tuberculosis (MDR- TB) and perhaps even more worrying is the increasing incidences of extensively resistant strains of tuberculosis (XDR- TB) which have been recorded in more than 40 states all over the world. The XDR-TB means that there is no real treatment for the pathogen for many people which consequently means a death sentence".

**Soumya Swaminathan,** "Some of the modern problems that have prevented us from controlling this disease include HIV infection in many parts of the world particularly in sub-Saharan Africa and some parts of Asia which lead to an increased incidence of TB, a higher mortality in co-infected patients, along with an increase in recurrence and relapse rates. Poor health systems and poor healthcare delivery, have no doubt contributed to the growing epidemic of tuberculosis. We have not paid much attention to the social, cultural and economic factors that go along with TB as a disease of poverty. It's a disease that is associated with malnutrition and there are often compelling demands on the patient which prevent them from completing a full course of treatment".

**Graham Rook,** "TB actually consists of a number of different lineages which are really turning out to be strikingly different from one another. More than 80% of the world's tuberculosis is caused by organisms other than the Euro-American strain. So we have different lineages of the organism and we have different lineages of people and there is no reason at the moment to suppose that the pathogenesis of tuberculosis, none the less the mechanism by which the organism overcomes the many immune response mechanisms that can attack it, is actually identical in each combination of lineage and ethnic group. However, there is another variable which is the one that we should concentrate on most and that is the issue of environment. Now the importance of environment for tuberculosis has really been known for quite a long time".

**Werner Christie,** "To make things happen in practice we must understand the systemic connections between science, healthcare and the environment especially in terms of economics and politics. TB can be effectively controlled. Many people are cured by even the fairly archaic methodology we still use, but the progress in these cures is too slow. Tools are available but they definitely must be improved. Science is necessary but not enough. Needs are not only biological—as indicated through the relationship to poverty and the environment. Science must meet needs but that also requires that the economic systems and incentives be changed. That is probably where health politicians can contribute to the development of science and technology which is actually what causes improvement in health care".

**Rodney Finalle,** "Tuberculosis is currently a global epidemiological problem. It is a leading cause of infectious diseases and certainly a major cause of death in children but it is not widely discussed in terms of pediatric deaths worldwide. It is important to keep in mind that many of the children infected with tuberculosis may not die from it at a young age but they rather become late carriers of tuberculosis in young adulthood. Sometimes the infection is either reactivated or they acquire a different infection that leads to the activation of their tuberculosis or they may spread it to other community members. In 2005, the WHO declared economic migrants a high risk population. Unfortunately there is not much epidemiological evidence that research is done on tuberculosis in the developing world".

# Environment Stream: Panel B-3
## *Climate Change: Impacts and Responses*

*There is an international concern over the speed and magnitude of global climate change and its potential economic, social and environmental impacts. There is now little doubt that climate change represents one of the greatest and most urgent challenges facing the world community that requires concrete collaborations between all concerned groups.*

***Chair:***
**Adel El- Beltagy,** Chair, Global Forum on Agricultural Research- GFAR (**Egypt**)
***Rapporteur:***
**Salah Soliman,** Professor, Faculty of Agriculture, Alexandria University **(Egypt)**

**Robert J. Berg,** Senior Advisor, World Federation of United Nations Associations (**USA**)
*Governing in a World of Climate Change*

**Samia Madkour,** Professor, Faculty of Agriculture, Alexandria University, Damanhour (**Egypt**)
*Rising Surface Ozone: Its Impact on Plant Growth and Global Warming*

**Robert J. Berg,** "The key point is that since climate change is defined as a scientific challenge, scientists will have more authority than ever before to hold the actions of society to yardsticks of adequacy and appropriateness. Indeed, if governments and foundations are far-sighted, they will help assure that national scientific academies are strengthened in a great number of countries so that they can become responsible partners in forming public policies in response to climate change. While there may be common themes across countries, each ecological setting will need specific responses calling for national academies and academic centers to partner with national policy makers. The Open Society Institute and others are working to strengthen scientific communities, but it is not yet clear that such work aims at helping scientific communities take on such leading roles as is indicated here".

**Samia Madkour,** "Ozone is a greenhouse gas and it contributes to global warming. So what is ozone as an air pollutant? Ozone is a secondary pollutant which means it is a pollutant that is not emitted as is. It is made in the atmosphere from precursors under the effect of heat, the sun and the ultra violet radiation. Ozone is made from precursors which are nitrogen oxide, carbon monoxide, VOC, which is volatile organic compounds and xylene. The ozone affects the climate and the climate affects ozone. As a matter of fact, global warming can enhance ozone formation in the atmosphere thus increasing the pollution and the damage caused by ozone".

# Food and Agriculture Stream: Panel C-3
## *European Research Policy and Global Food Security (EAGLES)*

***Chair:***
**Huanming Yang,** Co-Vice Chairman, EAGLES (**China**)
***Rapporteur:***
**Jim Flanagan,** President, European Association for Animal Production (**Ireland**)

**Christian Hoste,** Coordinator, French Agricultural Research Centre for International Development –CIRAD (**France**)
*European Contribution to Agricultural Research*

**Gurdev Khush,** Adjunct Professor, University of California (**USA**)
*Improving the Nutritional Status of Food Crops*

**Stephen Jarrett,** Principal Adviser, UNICEF Supply Division (**USA**)
*Making Ready-To-Use Therapeutic Foods Readily Available to Treat Children with Severe Acute Malnutrition*

**Huanming Yang,** "EAGLES mission is to raise the banner of life sciences and humanity for the whole world for this present day and for the future. One of the commitments of EAGLES members would be to allow Europe to hear the voices from the whole world specially from developing world".

**Christian Hoste,** "The main message I want to convey today is a message of optimism. I think in Europe, we are basically building a very favorable environment supporting agricultural research for development. We are making significant progress in improving cooperation and coordination between all the initiatives made by these 27 members of state and by the European commission. This will offer opportunities for new partnerships and support increasing efficiency and efficacy of European contribution to agricultural research for development".

**Gurdev Khush,** "Anemia affects 2 billion people worldwide which is a huge number while iron deficiency affects 3.7 billion people. 40% of the people have clinical iron deficiency, 58% of pregnant women in developing countries are anemic and 31% of the children are anemic, all these numbers show the serious magnitude of the problem. The World Bank publication estimates that deficiencies of iron, zinc, and vitamin A at the level of malnutrition are presently causing economic losses equal to 5% of the GDP each year due to sickness, poor work performance, missing out education and other factors. Improving the nutrition status of children and adults is the highly effective to increase economic productivity in agricultures and in other sectors. So what are the possible solutions, the solutions are mainly dietary diversification, food fortification, supplementation and bio-fortification".

**Stephen Jarrett,** "The problem today is that 20 million children under five suffer from severe malnutrition and that is a prevalence figure. People consider that this is probably the number of patients undergoing treatment while the number of children who actually fall into malnutrition every year is probably double the estimated number. Nutrition is a desperately neglected component of maternal, newborn and child health and there is a significant proportion of deaths in young children worldwide that is attributable to low weight. So the efforts to reduce malnutrition should be a worldwide priority".

## *Track 6: Project on South-to-South Collaboration for Genomics Innovation*

*Plenum 2*

***Chair:***
**Peter Singer,** Sun Life Financial Chair in Bioethics and Director, University of Toronto Joint Centre for Bioethics (**Canada**)
***Rapporteur:***
**Nefertiti Adly,** Bibliotheca Alexandrina (**Egypt**)

**Nefertiti Adly,** Bibliotheca Alexandrina (**Egypt**)
*South-South Collaboration in Genomics Innovation-Egypt*

**Sachin Chaturvedi,** Fellow, Research and Information System for Developing Countries (**India**)
*Emerging Trends in Indo-Brazil Linkages in Genomics*

**Victor Konde,** Economic Affairs Officer, UNCTAD' Enterprise Policies and Capacity Building Section, DITE (**Zambia**)
*Characteristics and Drivers of International Health Biotechnology Collaborations in Africa*

**Nefertiti Adly,** "There is generally a new trend worldwide to shift from chemical drugs to more biotechnological applications but developing countries are still at the beginning of this change and the developed world is far ahead. So there is a large gap between the South and the North while the gap is smaller between the South and the South. This raises the question; why collaborate and why collaborate with the South? In the past few decades, we have mainly been working alone but there was a need for collaboration to bridge this large gap to the North. Since they are moving at a very fast pace and we are still at the beginning, we need to exchange knowledge and experience as other countries have done, to tackle our own neglected health issues that the North is not tackling and finally to share this joint funding available for South- South collaboration projects".

**Sachin Chaturvedi,** "Looking closely at HIV diagnostic kits, we will discover that Brazil is marketing them at one fourth of the price that is in southern Asia, not just in India, but even in Pakistan, Bangladesh and Sri Lanka, where we will find these kits greatly expensive. Hence, this area was identified by the Indian government as an area to collaborate in with Brazil. If we look at the broad trends in collaboration, we will find that India and Brazil have strengthened their ties in the field of genomics and biotechnology at both bilateral and trilateral levels meaning India, Brazil and South Africa. The Indo-Brazil Science Council (IBSC) was established in 2005 in which the proposed area of collaboration was Genomics".

**Victor Konde,** "What are the expected drivers? We thought at the beginning that pharmaceutical trade partnerships may be important in terms of collaboration, contract research could be a significant indicator of collaboration and that regional scientific groups can promote science and collaboration among its members. Additionally, having common health challenges such as problems of malaria, tuberculosis and HIV could be a motive for collaboration. Also donor funding which plays a bigger role in terms of conducting researches together and having national interest in health biotechnology should be able to push this collaboration forward. For instance, if the country has a national strategy for biotechnology; then we expect it to be able to identify potential collaborators. On the other hand, what are the common challenges that most people that we interviewed faced in collaboration? One of the biggest problems to donor funding is that contract research is actually what is called "Take it or leave it". Another major challenge is the presence of different consumer profiles".

# Health Stream: Panel A-4
## *New tools in Medicine: A World of Possibilities*

*Several advancements and novel tools in medicine have evolved offering solutions to combat infectious diseases and improve human health in both the developed and developing countries over the last decade. Advances in diagnostic medicine have come through the application of science and technology as a result of a coordinated effort among academia, industry, government, and private institutions. A need for private-sector alliances and venture capital remains a conditional aspect in developing countries for them to succeed in bringing forth the newest and most powerful science and technology available for the modern-day practice of diagnostic laboratory medicine in this era.*

***Chair:***
**Dianna Derhak,** Director, Business Development, EPOS USA and Co-Chair Oxford University Conferences on Innovation and Technology Transfer for Global Health (**USA**)
***Rapporteur:***
**Rafik Nakhla,** Bibliotheca Alexandrina (**Egypt**)

**Joel Nobel,** Founder and Professor Emeritus, Emergency Care Research Institute-ECRI (**USA**)
*The Tools of Medicine*

**Pierre Anhoury,** Senior Vice President, Business Leader Europe, MattsonJack (**France**)
*Cancer in Developing Countries: Epidemiology, Dynamics of R&D, and Challenges for Developing Countries*

**Rafael Rangel-Aldao,** Director, Project Digital Molecular Medicine and Professor of Biotechnology, Simon Bolivar University (**Venezuela**)
*Development of Digital Molecular Medicine in Venezuela*

**Heba Kassem,** Director, Clinical Genomics Center, Faculty of Medicine, Alexandria University (**Egypt**)
*Clinical and Molecular Characterization of Hypertrophic Cardiomyopathy in Egypt: Early Results of the National BA HCM Project*

**Joel Nobel,** "The development process for new medical products varies among the basic categories of products, drugs, devices, etc. But development shares a common general sequence; concept to prototyping, laboratory testing, clinical testing, reduction to practice, overcoming regulatory hurdles, achieving clinical acceptance, production, quality control, marketing and wide diffusion. A product refinement takes place in all of these phases. Governmental agencies such as the US FDA and the EU's competent authorities and equivalent agencies in other nations usually employ a triad of regulatory tools. First pre-market clearance of new products based on conformity of the standards or clinical safety and efficacy data presented by the manufacturers. There are GMPs, factory inspection for Good Manufacturing Practices and finally post-market surveillance of marketed products".

**Pierre Anhoury,** "Cancer in 2008 is exactly similar to infectious diseases in 1908. It has taken 60 years between the discoveries of Pasteur of the first bacteria, to Fleming's discovery of the first antibiotic. One of the main discoveries which changed everything was Dr. Folkman's, description of angiogenesis indicating that all tumor growth is angiogenesis-dependant, needing special vessels to feed the tumor. Then only thirty years later we received the first anti-angiogenic therapies. We are still lost on how to target the cell. We don't know why anti-angiogenic works for some patients and they don't work for others. We expect targeted therapies with biomarkers able to detect on the surface of the cell or in the cell itself, the cancer cell".

**Rafael Rangel-Aldao,** "The biological information is organized at the molecular level into small-world and scale-free networks where genes and proteins become hubs dominating the entire network. We have seen before what is called cyotosol or cytoplasm in which there are a whole bunch of molecules. It turns out that they are all organized into complex networks and the good news is that we only need a few of those nodes that dominate the network to understand the whole. The second hypothesis I want to put forward is that this knowledge which is just emerging from system biology could be translated into the so-called 4p medicine that is molecular medicine that can be predictive, preventative, personalized and participatory. Last but not least 4p medicine can be managed in a digital and scalable form to develop innovative health systems in developing countries".

**Heba Kassem,** "What are our future perspectives? First is screening, our target is to screen 100 patients with the three genes while in the future, we hope to diagnose patients with HCM mainly for pre-symptomatic diagnosis, because this is a disease that is controllable and hence early detection, even before symptoms develop, would be a great gain for the individual. There is the ethical question, of whether we should perform this test and screening on children as well or wait until they become adults. We genuinely hope that we will be able to do so through performing Phenotype and Genotype correlations and there is always the option of prenatal or even pre-implantation genetic diagnosis. Finally, what are the challenges we face? Unfortunately, this kind of research is very money and time consuming and we are always facing the problem of the need for financial and technical support. The international collaboration will certainly help in this perspective but the problem still exists".

# Environment Stream: Panel B-4
## *Environmental Safety and Biotechnology: Trusting Biotechnology*

*Although in principle most people with a certain knowledge of the potential of biotechnology agree with the role biotechnology now plays in meeting the millennium challenges, most of the people living in either the industrial or developing countries have not yet seen any product derived from this new technology that benefits them. Therefore many environmental groups have found unjustified any possible risk to the environment posed by the introduction of these biotechnological products.*

***Chair:***
**João Paes de Carvalho,** Principal, BiznessBrazil (**Brazil**)
***Rapporteur:***
**Salah Soliman,** Professor, Faculty of Agriculture, Alexandria University (**Egypt**)

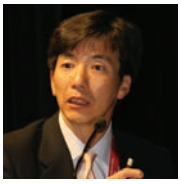
**Eric Huttner,** General Manager, Diversity Arrays Technology Pty Limited (**Australia**)
*Environmental Safety of Biotechnological Innovations in Crops*

**Kenji Kurata,** Director, Bio-industry Division, Ministry of Economy, Trade and Industry (**Japan**)
*Japan's Policy on Promoting Biotechnology*

**Effat Badr,** Professor Emeritus, Department of Genetics, Faculty of Agriculture, Alexandria University (**Egypt**)
*Saving the Planet through Biotechnology*

**Hans-Joerg Jacobsen,** Professor**,** Institute for Plant Genetics, Hanover University (**Germany**)
*Is "Natural" Always "Safe" and "Synthetic" Always "Hazardous"?*

**Eric Huttner,** "Human impact – including agricultural impact – on the environment is becoming a major issue, affecting the life of all humans on the planet, with wide ranging effects, raising doubts about the sustainability of some current agricultural practices. Changes to the people's lifestyle in the developed countries are probably inevitable. Preserving a future world worth living in requires improving the life of people in developing countries while increasing sustainability overall. Agricultural innovations have a role to play in addressing these challenges. These innovations have to be evaluated according to their contribution to the improvement of people's lives and their impact on the overall sustainability".



**Kenji Kurata,** "Japan has started legal framework concerning the use of GM organisms. In Japan we have a law concerning the conservation and sustainable use of biological diversity through regulations and the use of living methods. Obviously the aim of the law is the conservation and sustainable use of biodiversity and this law has been introduced in correspondence with ratification of Cartagena protocol. Therefore in Japan the law is called Cartagena Law. The law is focused only on the use of GMOs in Japan and anyone who uses GMOs in Japan must obtain permissions from the government prior to their use. No crops are grown commercially up to this moment in Japan even though many approvals have been given. Why so? There are so many reasons but typically, the local government tends to have an opposing opinion against GM crops because of a fear that the consumer can still have a negative image on the products".

**Effat Badr,** "Biotechnology is becoming very powerful and it promises or threatens to present efficient approaches to some of our problems. However, this depends on scientists; on their responsibility towards society, and on their ability to make wise decisions. The big question is not whether science can help decrease pollution and preserve the environment or not. It is rather whether the scientific evidence can successfully overcome social, economic and political resistance in which public awareness; finance and political will are also needed. In this perspective, I have to recall Mahatma Gandhi when he said that earth can meet our need but not our greed, which I believe is so true".

**Hans-Joerg Jacobsen,** "It is far too simple to reduce sustainability to organic farming. I believe that each of the different farming systems should have the same sustainability criteria and these criteria should be applied to them. Most of us agree that sustainability is the balance between three major stones: ecology, economy and social acceptability. However when we a look at Europe and some other parts of the world we find what we call the green European sustainability which means that sustainability is reduced to ecology and economy and that social acceptability doesn't play a natural role and has nothing to do with sustainability. In this view organic farming can be seen as good and sustainable while GM plants are considered bad and unsustainable, thus totally ignoring the ecological benefits that GM plants have".

# Food and Agriculture Stream: Panel C-4
## *EAGLES Food Symposium Conclusions and Recommendations*

***Chair:***
**David McConnell,** Co-Vice Chairman, EAGLES (**Ireland**)
***Rapporteur:***
**Jim Flanagan,** President, European Association for Animal Production (**Ireland**)

***Discussion Leaders:***
**Huanming Yang,** Co-Vice Chairman, EAGLES (**China**)

**Tom Arnold,** Chairperson, the European Food Security Group **(Ireland)**

**Adel El-Beltagy,** Chair, Global Forum on Agricultural Research-GFAR (**Egypt**)

**John McDermott,** Deputy Director-General of Research, International Livestock Research Institute- ILRI (**Canada**)

**David McConnell,** "European Action on Global Life Sciences (EAGLES) is a group of people who have gathered simply because they sensed that there was a serious problem and that this serious problem has become even more serious. We made a joint commitment to work for the benefit of humanity, we pledged to motivate the people, the institutions, and the government of Europe to focus and apply scientific resources to overcome the global challenges of disease, hunger and the environment. Our idea was to make heard, in Europe, the voices of authoritative scientists, humanist and policy-makers from the developing countries. In other words, we wanted to act as a vehicle to bring the opinions of the developing countries to the policy-makers and opinion-makers in Europe".

**Huanming Yang,** "We cannot avoid talking about GM when we talk about food security and research related to food. If GM is not allowed, I cannot see the life of genome research on crops. We have been discussing and debating for more than a decade now, we are suffering from the European debate. I would accept GM rice but I am scared from all the criticism from Europe. I am afraid that the discussion on GM is not purely science, nor security and safety issues but economic issues, disciplines and international affairs. Scientifically, I strongly support GM, so what are we waiting for? "

**Tom Arnold,** "Biotechnology has a significant role but in this regard we still have major debates and dilemmas within the developed country. There are issues about regulations and whether they are too many in a way that they are blocking our prosperity. So I think we need a shift in the political and public opinion about the role of biotechnology. I genuinely believe that this could only arise if there is a degree of dialogue going on in a sort of a spirit. We certainly do have major political choices to make here but we need to look over the next three years because it could present a huge breakthrough only if we decide to continue our work. In this respect we have major political and economic issues we have to face".

**Adel El- Beltagy,** "Our mission in GFAR is to serve as a multi-stakeholder platform for dialogue, action, and learning through collaborative partnership on strategic issues-related to agriculture for development, to facilitate and promote cost-effective partnerships and strategic alliances among R&D stakeholders of the world. The Global forum is a link between science and society, a voice for the poor, a partnership for change, a catalyst for action, a platform for sharing and learning. We at the Global Forum on Agriculture Research strongly believe that agriculture research for development needs to be enriched, strengthened and valued by policy-makers around the world. The principles of the forum are sustainability, complementarity, partnership and involvement of all stakeholders".

**John McDermott,** "From my perspective as a researcher, I believe that there are two or three issues that are critical; the main one is focusing on what are the vast gaps, where research can contribute to development, and in that focus there has to be a kind of greater efficiency of the system which requires, in some ways, clarity for what the comparative advantages of different partners in this game. Those partners are not just CGIAR researchers; there are a number of other researchers who can play a pivotal role but we need to link up with the social development partners, the environment partners and the health partners as well. I think there are real opportunities for partnerships between researchers and development to move forward. I think these partnerships are some of the main ways that can help CGIAR to be more effective in playing its role in this large development challenge".

## Track 7: Scientific Egyptian Partnerships

***Chair:***
**Tarek Hussein,** President, Academy of Scientific Research and Technology (**Egypt**)

**Christian Huelshoerster,** Director, DAAD Office in Cairo (**Germany**)
*German Egyptian Year of Science and Technology 2007*

**Mahmoud Bahgat,** Assistant Professor, the National Research Center and DAAD Alumnus (**Egypt**)
*German Egyptian Scientific Collaboration: A Personal Insight of Where We Are and How We Proceed*

**Eiman Abdel Aleem,** Assistant Chairman for International Cooperation, MuCSAT and Assistant Professor, Molecular Biology, Alexandria University (**Egypt)**
*Mubarak City for Scientific Research and Technology Applications (MuCSAT): International Partnerships with China, Japan, Korea and Spain*

**Tarek Hussein,** "The partnership aims at enhancing our level in several disciplines, such as informatics, biotechnology, nanotechnology and space sciences. We need to cooperate within the same or common fields of interest and scientific themes. The DAAD office in Cairo plays an important role in implementing this type of cooperation; also having the year of science and technology with Japan will act as a platform for increasing scientific cooperation between Egypt and Japan. In general, the science year will act as an umbrella for all joint scientific activities and will integrate Arab and African scientific activities as well. We are not only focusing on our interests of having a cooperation between Japan and Egypt but we are also keen on having a cooperation between Japan and all regional countries, Arab countries, African countries and the Middle East".

**Christian Huelshoerster,** "The German-Egyptian Year of Science and Technology generally aimed at providing information about the latest trends in research and technological development in both countries. However, our main intention is to connect or perhaps reconnect researchers in Egypt and Germany in fields of mutual interest in order to form networks. We aimed at enabling joint researchers, from both countries, to apply successfully for funding from international donor agencies such as the European Union, and to give Egyptian researchers access to laboratories and research equipment available only in Germany. However, it was also important for us to provide German researchers with access to Egypt's huge potential which resides in its young scientists".

**Mahmoud Bahgat,** "I have to demonstrate the impact of the German-Egyptian Year of Science on the ongoing collaboration and future collaboration. Certainly there were already existing networks between Egypt and Germany; however, the Year of Science was an opportunity to gather again and to prolong and extend our dialogue. Numerous emerging and new networks are a result of the Year of Science. For example, the biotechnology network that emerged recently in which DAAD hosted its first meeting, and there is also a recent network in material sciences. So building science together, understanding the different cultures, having dialogue, and bridging the two countries is very essential too. I believe that this would be the rate-limiting steps to start successful collaboration, and I merely believe that the Year of Science has provided this opportunity".

**Eiman Abdel Aleem,** "The goal of building a science park is to develop a knowledge-based economy. The current situation in Egypt is that we have a demand from the industry, and the industry demands knowledge from us. As higher education institutions, whether universities or research institutes, we need to supply this knowledge or technology to the industry; however, there is no cross-talk between these two entities. That is why the new direction in the Ministry of Higher Education and Research, in Egypt, is to build bridges and networks between these two goals. This definitely necessitates networking between the Government, the Higher Education, and research systems and business".

# Evening Event
## *CEO Panel*

***Chair:***
**Ismail Serageldin,** Director, Bibliotheca Alexandrina (**Egypt**)

**Yves Champey,** Chairman, Drug for Neglected Diseases initiative-DNDi; and CEO, Genopole (**France**)

**Jacques-François Martin,** President and CEO, Parteurop (**France**)

**Boerge Diderichsen,** Vice-President, Corporate Research Affairs, Novo Nordisk (**Denmark**)

**Francois Sauer,** CEO, Trans-Am Group (**USA**)

**Yves Champey,** "The current apparent production of drugs, within the drug innovation system, whether it is academic or industrial, arises in my view from the inability to cope with the extreme production of new knowledge. If we look at what has happened in the past ten years, we will find new knowledge on genetics, on new targets, on cell imaging and on biomarkers. We have more and more tools to show that the question is difficult, and bringing a suitable answer into a tablet once a day is an extremely challenging and difficult situation. I am sure, in a few years from now, we will overcome this situation through academic people and through training of individuals".

**Jacques-François Martin,** "To a great extent the question is not should we have patents but also how should one use the patent in a reasonable way. If you are excessive in your behavior, in what you are asking for, you become destructive. Unfortunately, in this field as in many other respects, our society today is facing a situation in which pushing its logic to the extreme becomes destructive. We all agree that industry has to have a return on investment, but if the behavior of industries is becoming excessive in generating only profit without taking into account the common good, the interest of society, and the values, then it raises serious issues. For patents, it is exactly the same situation".

**Boerge Diderichsen,** "So what is the problem with patenting then? Apart from regulating how much and how little can you patent, is certainly the applications of these patents and it will be most unfortunate for society if Golden Rice or whatever you name it cannot benefit society and the developing countries, only because a group of people are not able to agree on how to exchange patent rights. So my personal opinion is that in this case, we have to have an international body which can force some licensing upon those parties who have the rights but do not want to use the rights for the benefit of humanity".

**Francois Sauer,** "We are looking at the criteria from an economic perspective. We have also to consider the fact that there should be recognition of the society to its social responsibility. Eventually, when we can balance between those two elements, we will be able to create new dynamics and new interests in the research domain. Even more, we need to have a dialogue between the industry, and the community; mainly the leaders of the community and the research group because unless we reach an agreement together about that level of risk and on the other hand the return for that effort. We will remain basically at the level of monologues instead of a dialogue".

**Ismail Serageldin,** "Globally, the private sector is extremely important in science, in research, and in the biotechnology industry. We have today a global industry exceeding US$ 70 billion a year and it is becoming a very huge business. The private sector is funding today about two-thirds of the global research, and in some industrial countries the percentage is even higher. No one wants to reduce the role of the private sector which requires strong intellectual property rights. Who would want to deprive science of two-thirds of the funding it is now receiving; but on the other hand we must balance between the needs of the private sector and the needs of the human society. We need to find more flexible ways in dealing with the issue".

## Track 8: PRRI–Participation of Public Researchers in Cartagena Protocol and the Biodiversity Convention

*In 2004, the Public Research and Regulation Initiative (PRRI) was established with the objective of offering public researchers, involved in modern biotechnology, a forum through which they become informed about, and involved in, relevant international discussions.*

***Chair:***
**Marc van Montagu,** Elected and Acting President, the European Federation of Technology (**Belgium**)

**Clive James,** Chairman and Founder, ISAAA (**USA**)
*The Role of Biotechnology in Sustainable Production of Food, Feed and Fiber in Developing Countries*

**Piet van der Meer,** Executive Secretary, Public Research and Regulation Initiative-PRRI (**Belgium**)
*Participation of Public Researchers in the Cartagena Protocol and the Biodiversity Convention*

**Marc van Montagu,** "We can make a difference if we explain to the decision-makers the responsibility of the different governments who are there and only hear the voice of opposition and never hear the voice of science. Those in the public sector, we bring them the voice of science, explain to them what it is actually all about, and show them why it is so easy to say we do not see products which are very important for the developing countries. They have to realize how responsible they are that these products are not out there. It is now that we are especially confronted with the urgency to see how we could play this role and how we can explain to each one in their own group and in their own community, how to proceed within these lines".

**Clive James,** "What are the links between ISAAA and the initiative on public and regulatory issues? It is very simple, our partners are in the public sector of the developing countries and we have national programs in three continents of the South, so that is the working relationship we have. We are very cognizant to the fact that regulations are inappropriate in the developing countries and are the major impediment. We believe it is an issue that needs attention. When we look at the main countries in the South that are applying this technology today, to give you a sense of the political will in these countries to invest in biotechnology; I believe they will become major players in terms of development of products in the short-term".

**Piet van der Meer,** "Why should public research be involved in negotiations? For a number of facts, one of them is that the escalating global challenges we see cannot be solved by conventional technology alone and this has been recognized by governments and international organizations worldwide. Consequently, we have tenth-of-thousands of researches from all over the world, developed and developing, working on modern biotechnology, whether of sustainable food production, or feed production, or health care or environmental protection. So this means that there is a wealth of scientists out there working on biotechnology".

*Wednesday, 16 April 2008*

## Health Stream: Panel A-5
## *Gene Modifications and Advances in Recombinant Technologies*

*Applying biotechnology in terms of genetic modifications and DNA-recombinant technologies to alter specificities for individual diseases provides great hope for our current health challenges. The distinct advantages of biotechnology include fewer side effects and more effective antibiotics, insulin, interferon, and human growth hormones. More is yet to come, but with a need for more cost-effective studies of these technologies in both developed and developing countries.*

***Chair:***
**Riad Bayoumi,** Professor and Head of Clinical Biochemistry, the College of Medicine, Sultan Qaboos University **(Oman)**
***Rapporteur:***
**Nefertiti Adly,** Bibliotheca Alexandrina **(Egypt)**

**Jane Morris,** Director, African Centre for Gene Technologies **(South Africa)**
*Functional Genomics and Heterologous Expression of Plasmodial Proteins as Tools Towards New Drugs Against Malaria*

**Sergei Varfolomeev,** Director, Institute of Biochemical Physics, Russian Academy of Sciences **(Russia)**
*Human Genetic Variation as Structural and Functional Diversity of Biomacromolecules. The Pathway to Individual Medicine*

**Alastair Kent,** Director, Genetic Interest Group **(UK)**
*A Patient-Friendly Framework for Introducing Novel Interventions into Clinical Practice*

**Michael Kirschfink,** Professor of Immunology, Medical Faculty, University of Heidelberg **(Germany)**
*Immune Escape of Tumor Cells: Molecular Mechanisms of Complement Resistance and Strategies for Therapeutical Intervention*

**Jane Morris,** "There are 107 endemic countries with 3.2 billion people at risk of malaria, which is 40% of the world's population that is quite a large number around the world. Malaria still leads to around 3 million deaths annually around the world, of which at least one-third of those are in Africa. So we need new drug targets in order to develop new drugs. We need new drugs that are going to be aligned with those new drug targets, and in particular we believe that we need to engage scientists from malaria endemic countries in the process of finding those new drugs and new drug targets. It is according to the wealth of the developed countries to be doing the work, and since we are the part of the world that has the problem, therefore we need to be involved in this process".

**Alastair Kent,** "In recent years, we have observed huge opportunities for progress in intervention, these exist in a number of different areas of clinical practice and the first of these is diagnosis. Diagnosis is absolutely fundamental. We need to decide, we need to identify rather the necessity of doing things rather than the possibility of doing things. We have seen the technology to diagnose move from the possibility of basic diagnosis, based simply on clinical observation of the observable symptoms, to the observation of chromosomal changes linked with biochemical analysis. So with this increasing range of opportunities, we need to identify the role of the necessity of doing things rather than the possibility of doing things".

**Michael Kirschfink,** "One part of the immune system is called complement. It is essential for the defense of infectious pathogens, and it also plays a role in the response to tumors. There are certain barriers that prevent the complement from being effective in dealing with tumors. There are numerous strategies on how tumors may escape our immune system and interestingly these are very intelligent strategies which the tumor cells share with infectious pathogens. For example, the low immunogency due to lack of special recognition molecules, known as stimulatory molecules or adhesion molecules, the ability of tumors to degrade antigens so that they cannot be recognized any longer and their ability to actively act on the immune system by releasing suppressing cytokines. This complement resistance impairs antibody-based immunotherapy of cancer and therefore we have to try to inhibit these complement regulators either by tumor targeting by specific antibodies, or the targeted knockdown of these regulators and this may promote antibody-based immunotherapy".

**Sergei Varfolomeev,** "One of the most interesting programs of modern chemistry, biology and medicine is the individualization of the genomic and proteomic diversity of human biomacromolecules. During the genome project, it is clear that in human genome there are numerous relations as well as several types of relations, but the most probable—because it reflexes on the structure of protein—is more than 4 million single nucleotide polymorphism discriminating one person from another were identified in the human genome. There is extensive work in the field of identification, of structural and biochemical consequence of amino acids displacements in proteins and correlations with the risks of pathogenicity. There is an essential point that molecular polymorphism connected with genetic predisposition to different diseases demonstrated that all kinds of chronic diseases, including cardiovascular diseases, oncology, respiratory diseases and diabetes and even infections are connected to the genetic structure and genome features".

# Environment Stream: Panel B-5
## *Homegrown Biotech Firms*

*India's leading model in the field of biotechnology and innovation has demonstrated that any developing country can be successful in emerging high technology fields, such as information technology and biotechnology. The important components for this success are government policies and support, and the expertise and efficiencies of the private sector. Such models provide valuable lessons for South-South collaborations and promote for more North-South partnerships.*

***Chair:***
**Gabrielle Persley,** Chair, Doyle Foundation **(UK)**

**Frank Shotkoski,** Director, Agricultural Biotechnology Support Project (ABSP) II, Cornell University **(USA)**
*Agriculture Biotechnology: A Road Map to Commercialization*

**Daniel Pagliano,** President, Latin American Federation of National Biotechnology Companies Association, FELAEB **(Uruguay)**
*Private-Government-Academia: Triangle Leadership in a Bio-Intelligent Agriculture*

**Christian Suojanen,** Secretary General, European Federation of Biotechnology **(Spain)**

**Villoo Patell,** Founder and CMD, Avesthagen Limited **(India) – Video presentation**
*Avesthagen-Indian Biotech Success*

**Frank Shotkoski,** "The Agricultural Biotechnology Support Project (ABSPII), a Cornell University-led and USAID-funded consortium of public and private sector institutions, provides support for scientists, regulators, extension workers, farmers and the general public in developing countries to make educated decisions about agricultural biotechnology. Where demand exists, ABSPII works with local institutions to establish safe and cost-effective programs for the development and commercialization of genetically-engineered crops that otherwise would not be developed. Whenever possible, ABSPII creates public-private partnerships to help leverage both public and private funding sources to help absorb development costs and provide broader distribution channels. ABSPII currently is working in India, Bangladesh, the Philippines and Uganda to develop products with the intention of reducing poverty and alleviating hunger".

**Daniel Pagliano,** "We need to strengthen opportunities for local Biotech companies, because these companies possess qualified human resources, and not only for this but also to give the public more confidence to trust biotechnology. We need to initiate dialogue with different individuals; with the academic sector and the government regarding the intense opportunities that biotechnology is offering to society. We need to show the public that we as biotech companies are having success with biotechnology. We must reflect on the future since we have the appropriate resources and trained personnel. We have all the components on our side that drive us to be more ambitious about biotech, and we have to challenge to improve local biotech companies".

**Christian Suojanen,** "There is a global movement that has started in North America, in Europe, in Asia and is moving to other areas in which there is a real interest in having bioregions, and it is becoming a public policy priority. Unfortunately, not all regions are having success, even some regions in Europe have started off very well, but then several mistakes occurred. There is much potential for biotech commercial initiatives. We can have great marketing schemes; we can have great international communication schemes, but still the basics are clear and regions that neglect those tend to waste money or tend to fall through their plans. We must start with science in any region that wants to be a Bio region".

**Villoo Patell,** "Innovation is the single most driver of all these companies and the fruits of these companies will be seen in many regions in nanotechnology, biotechnology, and in agricultural sciences. So when I started AVESTHAGEN it was a dream actually to build a system biology company, to put together multiple technologies and to drive out risky multiple products that are in various sectors of life sciences. The focus of this company is convergence between food, pharma and population genetics and developing products for predictive, preventive and personalized health care. The company also focuses on four basic forms: Bio-Nutritionals, Bio-Pharmaceuticals, Bio-Agriculture, Science and Innovation".

# Food and Agriculture Stream: Panel C-5
## *Agricultural Biotechnology: Food for a Better World*

*Agricultural biotechnology has enormously contributed to the production of healthier foods, better animal feeds and more fiber, while also preserving the environment through reduction in pesticide applications and soil erosion. Research has been dedicated to the growing role of plant biotechnology in the poorest developing countries, as well as the global crop economy. Biotech food can possibly provide various means of increasing food production and alleviating hunger and malnutrition.*

***Chair:***
**Klaus Ammann,** Guest Professor, Delft University of Technology **(Switzerland)**

**Mpoko Bokanga,** Executive Director, African Agricultural Technology Foundation (**Kenya**)
*Comparative Effect of Regulations on the Dissemination of Bioscience-based Application to African Agriculture*

**Gnissa Konaté,** Director, Agricultural and Environmental Institute –INERA **(Burkina Faso)**
*Socio-Economic and Environmental Impacts of Bt Cotton Varieties Under Burkina Faso Cropping Conditions*

**Natalie Dinicola,** Director, International Partnerships, Monsanto (**USA**)
*Public-Private Partnerships to Enable Agricultural Technology Access*

**Magdy Abdelzaher,** Professor, Faculty of Agriculture, Saba Basha, Alexandria University (**Egypt**)
*Effect of Bt-corn Hybrids on the Infestation of the Corn Borers: Sesamia Cretica Led, Chilo Agamemnon Bles. and Ostrinia Nubilalis Hbn. in Egypt*

**Klaus Ammann,** "For a sustainable world, agriculture has to be in a system for renewable natural resources, for knowledge-based agriculture, and for organic precision biotechnology".

**Mpoko Bokanga,** "The future of African agriculture is under serious threats. Only 4% of the cropped land has irrigation, and on average may be 30% of the cropped land suffers moderate drought, and 25% is subject to severe drought. Therefore we need to rely more than ever, especially for complex threats such as drought tolerance, on the collaboration between the public sector and the private sector. We have to draw away from the situation where we say that the private sector is always greedy and the public sector is always good….. African countries need to be very careful and exercise good judgment, minimize the cost of regulations, and have sensible regulations that make scientific sense in order to maximize the benefits of technology".

**Gnissa Konaté,** "What are the competitive challenges of the cotton sector in Burkina Faso? Low yields, cost of production continues to grow in Burkina Faso while the cost of production is decreasing in other areas of the world, subsiding of producers and exporters in USA, China, Europe. Thus what are the measures that can improve competitiveness of Burkina Faso's cotton sector? They are improving productivity, reducing input costs mainly fertilizers and pesticides, adopting regulatory framework, establishing regulatory agencies, implementing approval process and scientific protocols for evaluating Bt cotton, sharing and extending results with stakeholders, mainly scientific and farming communities".

**Natalie Dinicola,** "How do we reach different farmers? There are actually three primary routes that we apply simultaneously, the first one is traditional commercial market which we believe is by far the most appropriate, the most sustainable and the most enabling choice for farmers. It is the most effective one in our view. The second route is humanitarian partnership in which farmers are essentially being given something to plant; they do not have a choice on what they are planting. This route depends on the donations and the donors. It is not very sustainable. In the middle, there is a third route which we call cooperative market development".

**Magdy Abdelzaher,** "The challenge is to increase yields, to decrease losses during the production and to harvest without harming the environment. However challenges are what makes life interesting and overcoming them is what makes life meaningful. In this context we could find many benefits for cultivating Bt corn in Egypt. For instance, Bt corn could play an important role in the corn Insect Pest Management (IPM). Additionally Bt plants will likely reduce the amount of handling and application of synthetic insecticides, such a reduction will result in higher densities of natural opponents thus minimizing the outbreaks of the second pest, reducing farmer's input costs and improvement of their returns. Also Bt corn provides possibility to cultivate maize earlier in the season and allow the cultivation of second maize or another crop during the season. It will reduce mycotoxins and can increase the grain yield up to 41%".

## Track 9: Bio-ethics: Racing up the Road to Research

*The critical bioethical case in point strikes a raw nerve in every conscientious biomedical researcher. Clinical research involving human subjects—testing either medicinal products or other treatments—and biomedical research involving the processing of human biological samples or personal data must meet certain ethical norms on the protection of participants. The guidelines related mainly to ethical justification and scientific validity of research; ethical review; informed consent; vulnerability of individuals, groups, communities and populations. Therefore, establishing ethical principals and developing worldwide policies for scientific research has become an essential step for the advancement of science and technology.*

***Chair:***
**Rafik Nakhla,** Bibliotheca Alexandrina **(Egypt)**

**Harald Schmidt,** Assistant Director, Nuffield Council on Bioethics **(UK)**
*Public Health: Ethical Issues*

**Eberhard Schockenhoff,** Professor, Albert-Ludwigs-Universität Freiburg **(Germany)**
*First Sheep, then Human Beings? Theological and Ethical Reflections on the Use of Gene Technology*

**Aida Al Aqeel,** Senior Consultant Pediatric Medical Geneticist and Endocrinologist, Department of Pediatrics, Riyadh Military Hospital **(Saudi Arabia)**
*Ethics and Genetic: An Islamic Perspective*

**Cynthia P. Schneider,** Executive Director, Perspectives in the Future of Science and Technology and Former Ambassador, the United States to the Kingdom of the Netherlands (**USA**)
*Ethics Meets the Marketplace: the Virtual Incubator Model for Building Knowledge-Based Economic Development*

**Harald Schmidt,** "The first question concerning the public health issue is whose job exactly is it to ensure that we will lead a healthy life. Public health constitutes the science and the art of preventing disease, of prolonging life and promoting health through the organized efforts of society. Public health is about prevention unlike other issues in the bioethics that are more to do with clinical medicine which is about treating people".

**Cynthia P. Schneider,** "What are the benefits of translating research into products? For instance, we have various products for farmers that improve yield and add value to their production. These products not only allow sustainable agriculture but also provide the potential revenue of agricultural production. So if we develop commercialization mechanisms so that scientists are able to transform their researches into products for people to sell, then scientists themselves will realize that they can earn money from their own ideas and concepts and that they can be valued in their own countries".

**Aida Al Aqeel,** We are at a time of unprecedented increase in science and technology. So upon applying these novel applications to patients, one has to think of bioethical, social and legal aspects of these applications which includes counseling these patients or whether to apply genetic tests on them or to apply a new drug discovery. I would like to stress the importance of genetic disorder in our society, actually genetic disorders are very common because of the very high degree of consanguinity. The ethical principles in any genetic program are three important points; one is derived from an individual ability to access appropriate information, the second is the avoidance of social stigmatization, and finally avoidance of misusing patients' information and results".

**Eberhard Schockenhoff,** "Critical reflection is needed in the conditions and consequences of human action which investigates what technology is capable of at any time on the basis of what is reasonable for human beings. Thus scientific self control and ethical reflection are called for to define afresh the limits within which is in science and research, medicine and gene technology, and serves human wellbeing. The criterion of human dignity, respect for the life of the others, and the prohibition against killing, give us important criteria for forming ethical judgments which make it possible to define the first limit in situations of conflict in bioethics".

# Plenary Session 7
## *Reporting and Closing Session*

***Reporting:***

**Plenary Sessions: Gabrielle Persley,** Chair, Doyle Foundation (**UK**)
**Environment Stream: Gabrielle Persley,** Chair, Doyle Foundation (**UK**), and
**Salah Soliman,** Professor, Faculty of Agriculture, Alexandria University (**Egypt**)
**Health Stream: Rafik Nakhla,** Bibliotheca Alexandrina (**Egypt**), and
**Nefertiti Adly,** Bibliotheca Alexandrina (**Egypt**)
**Food and Agriculture Stream: Jim Flanagan,** President, European Association for Animal Production (**Ireland**)

***Closing Speech:***

**Richard R. Ernst,** Chemistry 1991 **(Switzerland)**
**Ismail Serageldin,** Director, Bibliotheca Alexandrina **(Egypt)**

**Gabrielle Persley,** "Communication is the key which seems to be an appropriate message attained from this conference. Such a conference provides a unique opportunity to communicate across countries, across disciplines and across different ages. It has been particularly pleasing to see the young scientists and young generation during this week whom we wish them every success, and wish them to continue to follow the spirit of the Library of Alexandria".

**Rafik Nakhla,** "Cancer kills in the developing world more than TB, HIV and malaria collectively. Cancer burden has now shifted to medium and low resource countries while it was a disease of the rich. It has now moved to become the disease of the poor. Another issue that has been brought to our minds during this conference's health stream is that while speaking about TB one has to bear in mind that children's death are not mainly from TB but in fact nine million to ten million children under the age of five die of respiratory tract infections and diarrhea. These two conditions can be prevented by available measures which bring us to a number of 30,000 children dying of preventable causes every day in contrast to 250,000 children dying every year from TB. Consequently, this should drive us to consider administering the good healthcare to treat these preventable causes".

**Nefertiti Adly,** "Starting with malaria and application of functional genomics, malaria actually represents a true challenge for our world being endemic in 107 countries representing 40% of the population with about one million death cases reported every year. That is the reason south Africa took the initiative to work on malaria using functional genomics to identify new drug targets and develop new drugs. This was through an integrated approach using genes, applying bio-informatics on these genes, examining the developed drugs on different hosts and finally optimizing all the developed techniques. This approach took us from promises to real practices. Another example of new practices was the development of strategies for tumor management techniques and development of strategies for decreasing tumor drug resistance through decreasing complement resistance applying antisense techniques and genes silencing".

**Jim Flanagan,** "Without physics and engineering we could not have put man on the moon, similarly without plant sciences we will not be able to save Earth. The future of Europe and its participation in global food projects is now threatened because European plant sciences are weakened. There is a crisis in plant science in Europe. It has been downgraded in many countries, mainly because of a decline in public interest and a failure of intellectual and political leadership. Europe led the world in plant sciences. Plant Bio-technology grew out of inventions made in Europe by Marc Van Montagu and Jeff Schell, and European plant breeders were experts in producing the new varieties that created food surpluses in Europe. However, students and researchers are now deserting the plant sciences this is derived by the collapse of public support and over-regulation. Meanwhile, abroad, there is a revolution in plant sciences sweeping through the Americas, Asia, and Australia. New plant varieties are being developed by brilliant scientists applying a combination of biotechnology and classical plant breeding, including Golden Rice which is being developed to increase food productivity for small farmers and to improve the diets of people in the developing countries."

**Richard R. Ernst,** "I certainly hope that BioVisionAlexandria 2008 has inspired you all not to take everything that has been said during this conference for granted. So my advice for the young generations is to maintain a skeptical mind and to be creative. What do young people have to do to preserve and develop their creativity? I believe that the first and most important key point is to remain curious. Ask questions over questions and always search for answers. Seek knowledge in several fields and never become narrow-minded. I think BioVisionAlexandria Conference is an ideal environment to gain this kind of knowledge in order to develop into a multidisciplinary thinking which is very vital for solving actual problems. Also maintain steadiness to reach your goal, otherwise you will not reach it, nevertheless, be flexible to find other side-roads when your goal reaches a dead end. Along this road you will need partners for inspiration; you will need an open dialogue with other individuals and you will need openness to accept criticism from others….. "

**Ismail Serageldin,** "Why promises of scientific breakthroughs are not being translated into the practices that alleviate poverty and alleviate misery of millions and save the environment for future generations. We recognized the need for change and the action based on common purpose, the action that recognizes the past and current successes and build upon them. We need actions by all actors, on all stages, to address the priorities of our times and to bring the blessings of peace and the blanket of security to all the members of the human family. We specifically focus on actions on the domains of food and hunger, on public health, on the environment and the economy. We recognize the needs for public-private partnerships. We recognize also that actions must be guided by polices that are granted in a broad political consensus that involves all stakeholders locally, nationally, regionally and internationally".

**BioVisionAlexandria 2008 Group Photo**


BioVision
Alexandria
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New Life Scien
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to
12-16 April 2008
www.bibalex.org/biovision


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## BioVisionAlexandria 2008 Conference BioFair

Within the framework of the BioVisionAlexandria 2008 Conference, the Bibliotheca Alexandrina organized an exhibition entitled BioFair@BioVisionAlexandria 2008. The BioFair offered a unique platform for top biotechnology, agricultural, environmental, pharmaceutical and publishing companies to meet with key research and business development executives. The Biofair featured twenty-four exhibitors from different disciplines who displayed their books and publications. These exhibitors are Pearson Education, Nature Publishing Group, Scynexis, Novo Nordisk, Monsanto, Fine Seed International, German DAAD, World Bank, UNESCO, WHO, FAO, RDI, Elsevier, ACML, ICOM, EAGLES, Taylor and Francis Group, Springer-Verlag Gmbh, Senghor University, Kasha, the Academic Bookshop, BA YESBU/LYM, BA Library Resources and BA Bookshop.



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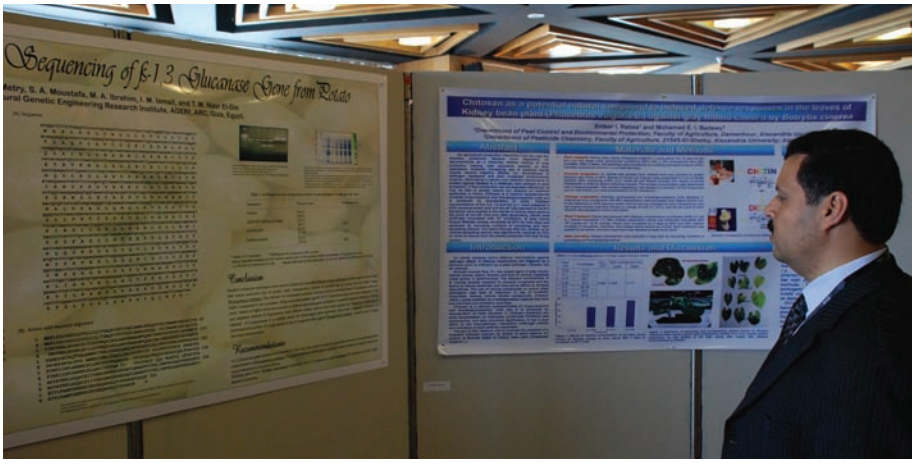
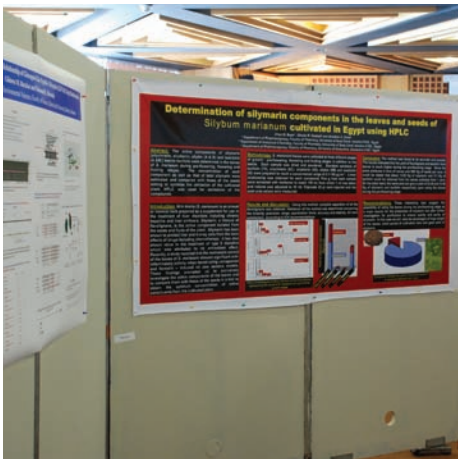
هيئة الألمانية للتبادل العلمي

## BioVisionAlexandria 2008 Conference Poster Session

In an age when technology advancement is increasing and the scientific world is continuously changing, interaction between worldwide scientific communities is vital. For this purpose, the BioVisionAlexandria 2008 Conference held a Poster Session during all days of the Conference which aimed at providing opportunities for scientists, especially young ones, to meet with life sciences professionals, and present their work in a professional atmosphere of discussion and interchange. Forty-nine posters were displayed representing the Conference's three main themes: Health, Food and Agriculture, and Environment.




# TWAS/BioVisionAlexandria.Nxt 2008

*Organized in Partnership*
*with The Academy of Sciences for the Developing World*

11-12 April 2008

at

Bibliotheca Alexandrina

Alexandria, EGYPT

For the first time in BioVisionAlexandria, the Bibliotheca Alexandrina (BA) organized, in collaboration with The Academy of Sciences for the Developing World (TWAS), the interactive event TWAS/BioVisionAlexandria.Nxt 2008. The event took place during the two days preceding the BioVisionAlexandria 2008 Conference, 11-12 April 2008, titled the "Funding Research in the Developing World".

The BA hosted 99 young scientists, from 27 developing countries, covering 5 regions of TWAS (TWAS-ROLAC, TWAS-ROESEAP, TWAS-ROCASA, TWAS-ROSSA and TWAS-ARO). During these two days, the young scientists shared their ideas and experiences, and met with mentors and eminent scientists who enlightened their knowledge in the fields of research and development. These eminent speakers represented various prestigious funding organizations from both the developed and developing countries, such as The Fogarty International Center, National Institutes of Health (USA); the International Development Research Centre, IDRC (Canada); European Commission (Belgium); German Academic Exchange Office in Cairo, DAAD (Germany); Research, Development and Innovation Programme, RDI (Egypt); EPOS Health Consultancy (USA); Maharashtra Academy of Sciences (India); National Natural Science Foundation of China (China); WHO/Eastern Mediterranean Regional Office in Cairo (Egypt); Arab Regional Unit at World Academy of Young Scientists, WAYS (Egypt); and the Academy of Scientific Research and Technology (Egypt).

The event also included various discussions focusing on the difficulties encountered by these young researchers in their respective countries. These discussions aimed at finding ways and means of overcoming some of those difficulties.

The young scientists were invited to attend and actively participate in the BioVisionAlexandria 2008 Conference. They were also offered the opportunity to showcase their projects and research in a poster session that was held during the Conference, 13-16 April 2008.

TWAS and the BA were the two main contributors of the event; however, there were other supporting organizations, such as the International Development Research Centre (IDRC), the Arab Fund for Social and Economic Development and TWAS-ROCASA.

## Event Highlights

**Joel Breman,** Senior Scientific Advisor, Fogarty International Center, National Institutes of Health (USA)

- NIH invests 80% of its $29 billion for research outside the USA
- Fogarty Foundation invests in capacity building and in research
- There are over a billion people around the world living on less than a dollar a day and they are mostly in Africa and Central Asia
- The principles of the Fogarty International Center are long-term mentoring, institutional partnerships, discovery of new drugs for infectious diseases and cancer and scientific and economic development

**Adel El Zaïm,** Senior Program Specialist, International Development Research Centre, IDRC (Canada)

- IDRC funded research must be participatory, multidisciplinary and with regional or global scope
- IDRC funds research only in the developing countries along with providing expert advice
- Young scientists need to start research, learn, disseminate findings, communicate and think about the future

**Alaa El-Sadek,** President, the Arab Regional Unit, WAYS (Egypt)

- The goals and objectives of WAYS are to improve communication, encourage international mobility, increase the understanding of science within the general public, scientific networking
- We aim at narrowing the gap between the North and the South, and the transfer of the know-how between different countries

**Indridi Benediktsson,** Director-General for Research, Directorate F-Health, European Commission (Belgium)

- The European Commission is a funding agency; it also prepares and implements policies
- The European Commission desires to link scientific and political interests
- The FP7 offers over a 53 billion Euros for funding research and most of it is dedicated to collaborative work
- The European Union countries invest about 2% of their GDP in research

**Mona Ayoub,** Deputy Director, German Academic Exchange Service, DAAD, Cairo (Egypt)

- The DAAD offers many programs such as study scholarships, internships at the IAESTE programme, and individual doctoral projects at Max Planck Institutes
- Alumni networks help next generations to obtain support and locate hosts
- DAAD funds mobility but not infrastructure; instead we have capacity-building programs and courses

**Abdelhamid El-Zoheiry,** Programme Coordinator Research, Development and Innovation Programme-RDI (Egypt)

- The RDI programme aims at strengthening the link between R&D and Industry
- The first scheme of the programme funds only applied research and innovations whether an innovation of a product, a service or a process. Applicants could be from different disciplines such as Industry, Research and Development sector or even private sector but partnership is mandatory for receiving the funds
- The challenges are the different cultures of the industrial and R&D communities, the lack of trust between industry and academia, the fierce international competition, and the funding

**Prabuddha Ganguli,** Elected Fellow, the Maharashtra Academy of Sciences (India)

- We need a national science and technology policy, capacity building, employing local experts, conviction and commitment towards science and technology by scientists and governments
- We have to build formidable infrastructures and human resources and establish a strong IPR regime. We also need technology development and to encourage both science and industry
- I recommend massive revitalization of science, creation of new institutes; encourage directed basic research according to each country's needs and to have cross disciplinary technology areas for research

**Erdan Dong,** Deputy Director-General, Bureau of Planning, National Natural Science Foundation of China (China)

- We have to emphasize on young scientists and to support international cooperation
- Our mission in the National Natural Science Foundation of China is to support basic research (comprehensive, coordinated and sustainable development of various research disciplines); to identify and foster talented researchers, and to promote the socioeconomic development in China by appropriate management of the national natural science fund from the central government

**Mohammad Afzal,** Regional Advisor, Research Policy and Cooperation, Regional Office for Eastern Mediterranean, World Health Organization (Egypt)

- Health is a factor of development and not only a consequence of development
- Investment in health is much more than investment in health research which is considered a luxury
- The WHO EMRO offers many grants for research in health. These grants promote collaboration by only accepting collaborative proposals

**Dianna Derhak,** Director, Business Development, EPOS USA and Co-Chair Oxford University Conferences on Innovation and Technology Transfer for Global Health (USA)

- To capture grant opportunities you need to have good networking, to consider the donor as your customer**,** to know the donor, to conduct entry point survey, to identify strategic organizations, and to demonstrate you should win the grant


TWAS/BioVisionAlexandria.Nxt 2008 participants during conference sessions

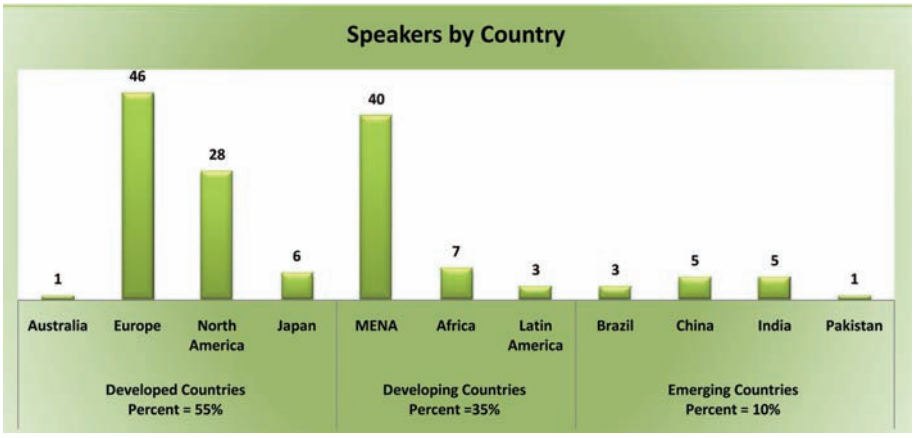

TWAS/BioVisionAlexandria.Nxt 2008 poster session

TWAS/BioVisionAlexandria.Nxt 2008 round table discussions

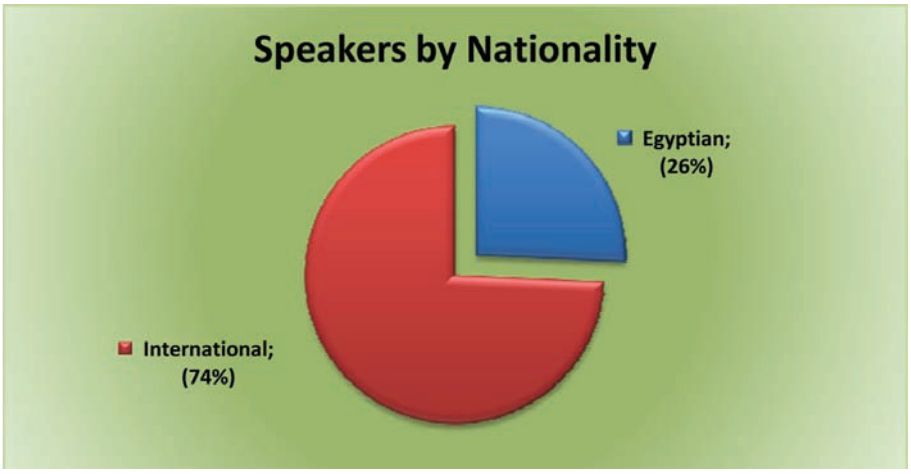
# Statistical Data of BioVisionAlexandria 2008 and TWAS/BioVisionAlexandria.Nxt 2008

## 1. Speakers Demographics

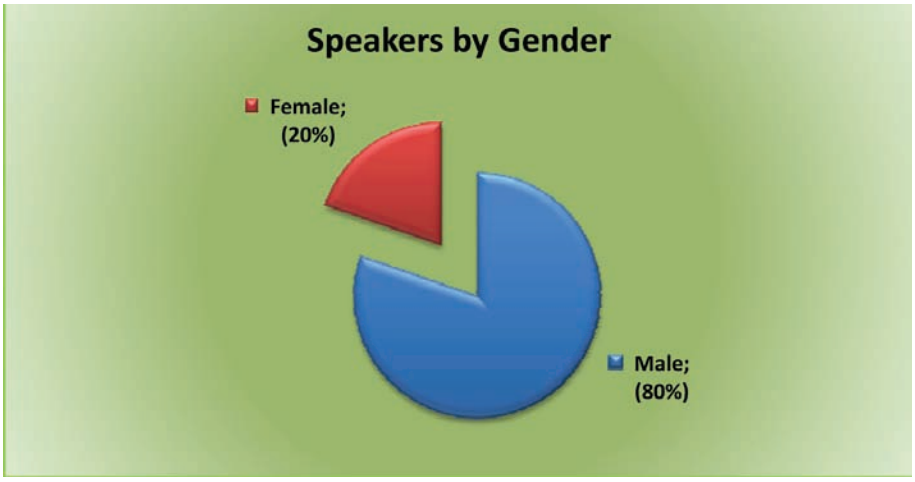
| Number of | Total |
|---|---|
| Nobel Laureates | 3 |
| Speakers | 142 |



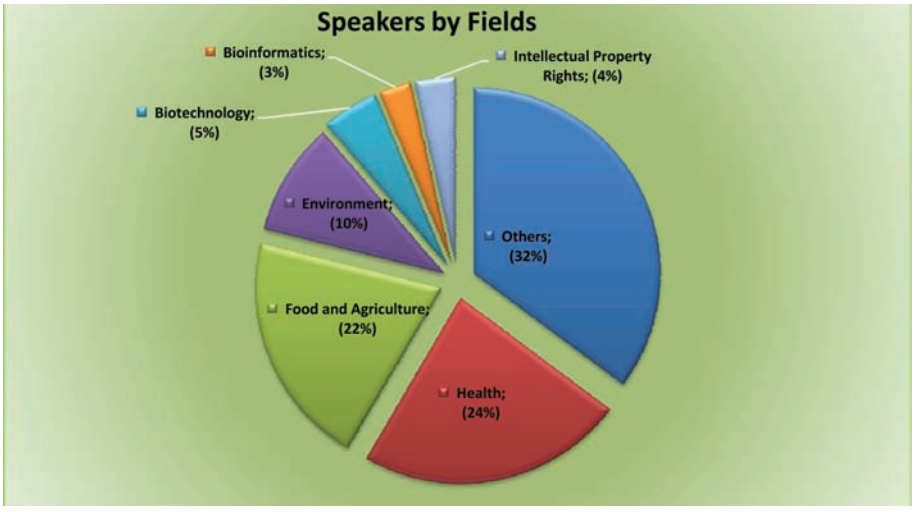

A total number of 3 Nobel Laureates and 142 Distinguished Speakers attended the Conference. Almost half of them were from developed countries and the other half were from developing and emerging countries.




It is worth mentioning that almost 75% of the speakers were non-Egyptians and that was to serve the main objective of the Conference, which is to transfer the advancements in science and technology from all regions of the world to Egypt.



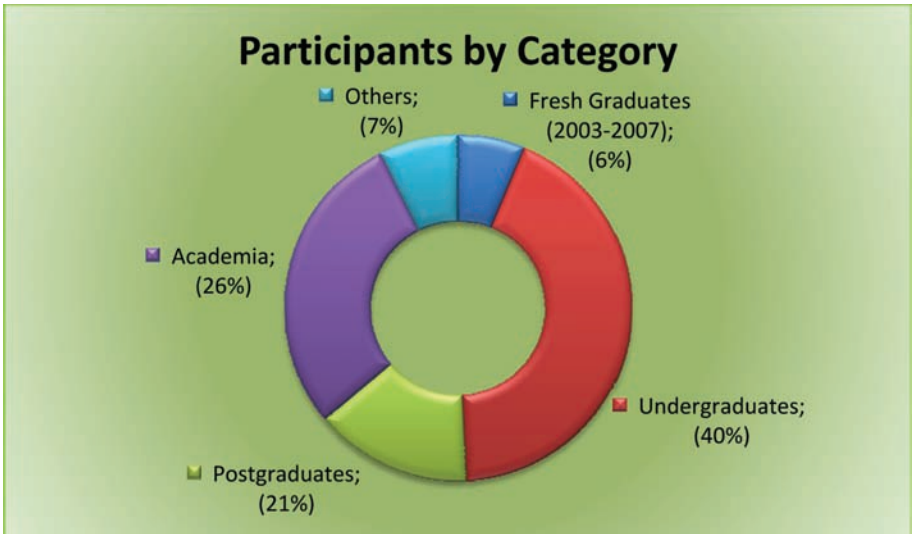

Eighty percent of the Speakers were men and 20% were women.



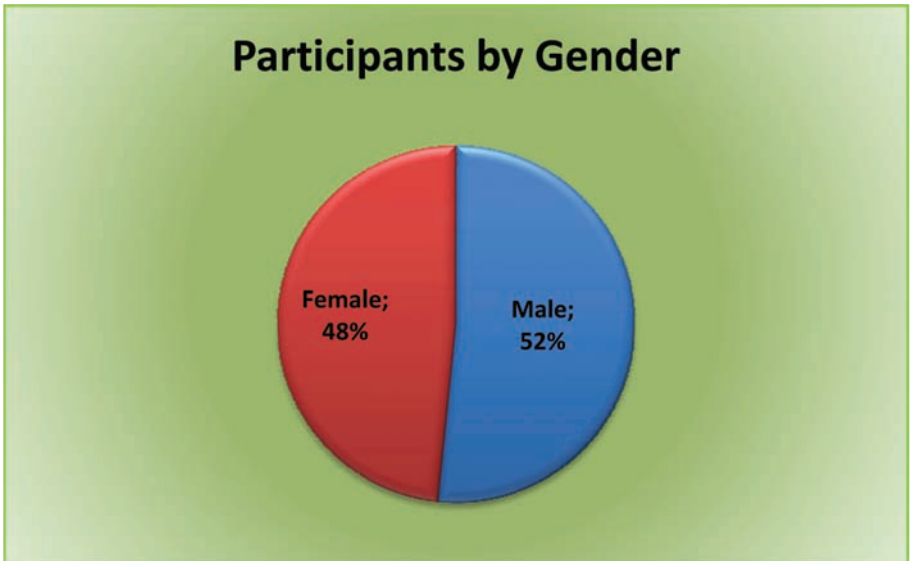

With reference to BioVisionAlexandria 2008 three main themes: Health, Food and Agriculture, and Environment, 24% of the speakers were involved in the health track; while 22% and 10% attended the Food and Agriculture, and Environment tracks, respectively. Other distinguished speakers comprising around 45%, were invited to discuss the latest advancements in Biotechnology, Bioinformatics, Intellectual Property Rights, and topics regarding Fund-Raising, Scientific Research, South-to-South Collaboration and many others; all with the aim of translating the best existing knowledge into new approaches.

## 2. Participants Demographics

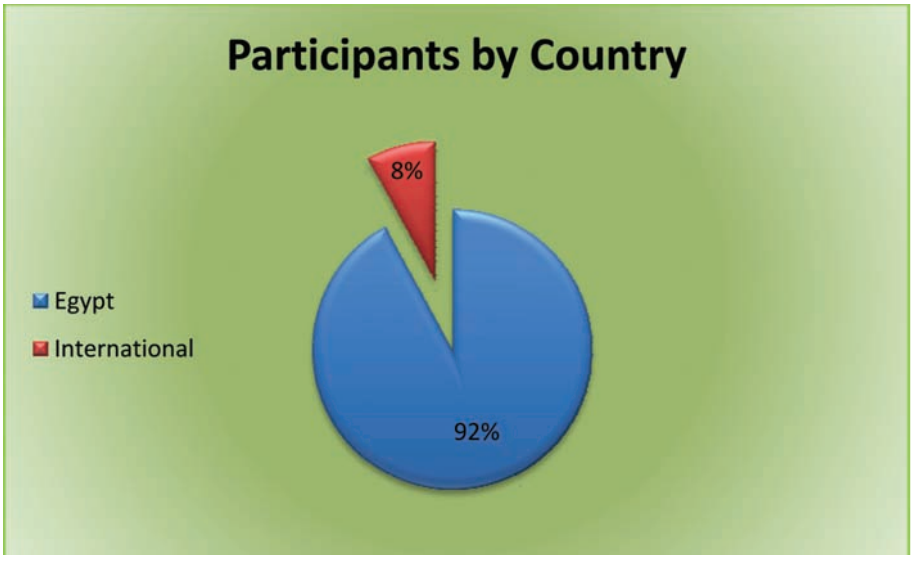
### Total number of participants = 1350




A total number of 1350 participants attended the Conference; half of them were undergraduates and fresh graduate students. Twenty-one percent were postgraduate researchers, while 26% of the participants were Postdoctoral researchers and university staff, and others formed around 7%.

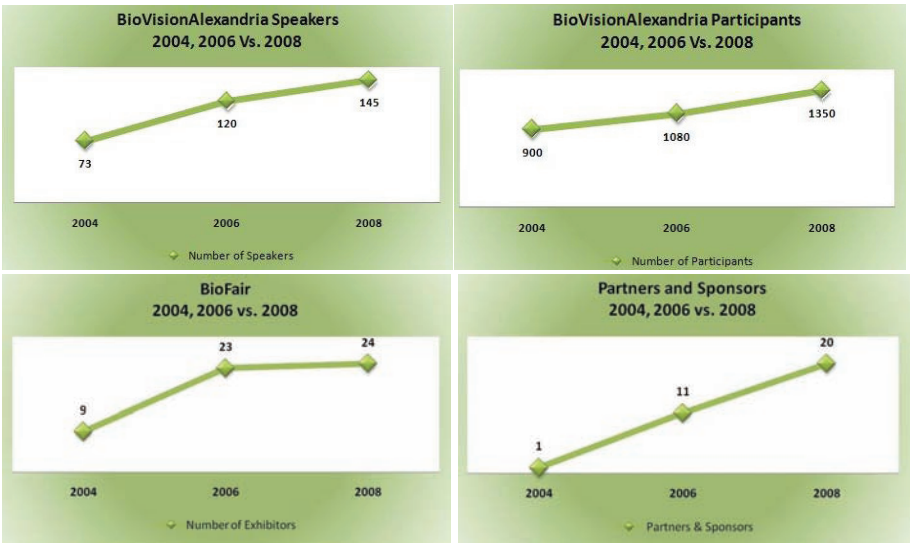



It is worth mentioning that the Conference attendees were equally distributed between males and females.




Ninety-two percent of the Conference participants were Egyptians, while 8% were foreigners; counting for 105 participants.

## 3. Comparison between BioVisionAlexandria 2004, 2006 and 2008 Conferences




Comparing BioVisionAlexandria (BVA) 2008 Conference with 2006 and 2004 Conferences, it is noticeable the remarkable progress in all aspects of the Conference.

Number of speakers in BVA 2006 = 120 versus number of speakers in BVA 2008 = 145
Number of participants in BVA 2006 = 1080 participants versus number of participants in BVA 2008 = 1350

The number of exhibitors for 2008 = 24, and 67% of them were international organizations.

Sponsors and Partners almost doubled from 2006 to 2008 conference; 14 of them were international and 6 were national organizations.

# BioVisionAlexandria 2008 Sayings

## 1. BioVisionAlexandria 2008 Speakers

*"Thank you for the absolutely superb event which the BA organized. It has certainly been one of the most professionally, most profitable and interesting events I have attended in a long, long time, and overall the culturally most important event. So a warm thank you for the staff who have made this event such a success",* **Anatole Krattiger, Research Professor, Arizona State University (USA)**

*"It was a privilege and pleasure to participate in BioVisionAlexandria 2008 Conference",* **Francois Sauer, CEO, Trans Am Group (USA)**

*"I was highly impressed by BioVisionAlexandria 2008. I was struck by the objectives and scope of the Conference and I would be delighted to participate in 2010",* **Graham Rook, Professor, Centre for Infectious Diseases and International Health, Windeyer Institute of Medical Sciences (UK)**

*"It was my pleasure and honor to participate in BioVisionAlexandria 2008. I greatly enjoyed listening to outstanding speakers of diverse backgrounds. It was inspiring experience to listen to and interact with the Nobel Laureates. Please accept my congratulations for the great success of BioVisionAlexandria 2008 and convey my heartfelt thanks to your team who worked so hard to make the event such a great success",* **Gurdev Khush, Adjunct Professor, University of California (USA)**

*"I wish to tell you how happy we were with the opportunity to be in the Bibliotheca Alexandrina. It is always a pleasure to be among interesting and mind-opening people. The BioVision2008 was very interesting and the subject, From Promises to Practice, was a good choice. The problem of technologies benefiting the populations is far from being resolved. The opportunity to put that in the open will certainly make people think in a more pragmatic form",* **João Paes de Carvalho, Principal, BiznessBrazil (Brazil)**

*"I am very pleased to have been able to contribute to BioVisionAlexandria 2008. I have been fascinated by the Bibliotheca Alexandrina, which is certainly very well positioned to move innovative projects of our international community",* **Jacques-François Martin, President and CEO, Parteurop (France)**

*"Thank you for all your efforts in BioVisionAlexandria 2008 Conference. Both, I and Elias Baydoun, were especially grateful for your kindness, diplomacy, and patience. In all respects, we thought the Conference was a great success. Numerous new contacts were made and new insights were given on various scientific and technological themes. The venue is remarkable, and the participants in the Conference will have gone away as ambassadors for the Bibliotheca Alexandrina",* **John Hillman, Former Director, Scottish Crop Research Institute - SCRI (UK)**

*"I would like to thank you for the perfect organization of the Conference and your great hospitality I experienced in Alexandria",* **Michael Kirschfink, Professor of Immunology, Medical Faculty, University of Heidelberg (Germany)**

*"I wish to congratulate you for the high level of BioVisionAlexandria 2008 and for its organization",* **Philippe Desmarescaux, Chairman, The World Life Sciences Forum, BioVision (France)**

*"I would like to thank you very much for your hospitality and for the excellent assistance you provided. Congratulations for this very professional meeting",* **Pierre Anhoury, Senior Vice-President, Business Leader Europe, MattsonJack (France)**

*"Thank you for the excellent BioVisionAlexandria 2008 Conference. I am one of your many voluntary ambassadors in informing many people what an outstanding Center you have, and what exceptional colleagues who wonderfully enhance the Library's good work",* **Robert J. Berg, Senior Advisor, World Federation of United Nations Associations (USA)**

## 2. TWAS/BioVisionAlexandria.Nxt 2008 Participants

*"It was a nice opportunity to learn about the problems that we are facing, and to interact with the scientists and the other participants",* **Aftab Chatha, University of the Punjab, Life Sciences, School of Biological Sciences (Pakistan)**

*"All the sessions of the Conference were very informative. The Conference provided a framework and a platform to understand the scientific issues in developed and developing countries and how to solve them. It was a platform to know how to obtain the funds needed to improve our research work",* **Samreen, University of Karachi, HE Research Institute (Pakistan)**

*"Thank you for a well-organized and joyful event. The BA infrastructure makes me confused whether we are in a developing country or in an advanced world country. I believe that this kind of high quality event will be very helpful to the region",* **Syed Farhan, Institute of Structural Biology (France)**

*"You have organized a wonderful forum which was very informative and interactive. It was diversified in a way that one can obtain much knowledge in a few days. Overall it was a great effort to bring up all this knowledge at one single platform",* **Talat Makhmoor, International Center for Chemical and Biological Sciences, Dr. Panjwani Center for Molecular Medicine and Drug Research, University of Karachi (Pakistan)**

## 3. BioVisionAlexandria 2008 Participants

*"It is such an impressive and a world class conference that provides enormous knowledge and opportunities",* **Asmaa Abd El-Mohsen, Research Scholarship Student, National Research Center (Egypt)**

*"Overall the Conference was very inspiring, informative and well organized",* **Heba Bahgat, Community Pharmacist (Egypt)**

*"The Conference was very well organized. It covered all targets and the closing session was very good. BioVisionAlexandria 2008 was a full success",* **Khaled Bassiouny, University Professor (Egypt)**

*"It was a great opportunity to be part of this Conference",* **Mohamed Embabi, Student, Faculty of Pharmacy (Egypt)**

*"Je remercie infiniment le comité d'organisation de cette conférence aussi bien que ceux de toutes les autres conférences tenues à la BA pour leurs efforts déployés et leur professionnalisme. Je tiens également à exprimer ma ferme volonté à participer à la prochaine édition de BioVision Alexandria qui aura lieu en 2010"*

*(Congratulations to the organizing committee and for the different conferences you have. I would really wish to participate in the next BioVisionAlexandria 2010),* **Victor Allandiguibaye, Student, University of Senghor (France)**


2010
New Life Sciences: From Promises to Practice


BioVisionAlexandria