



1st MICRO-CONGRESS i-GEM 2011

Synthetic biology has begun an era of creation and development of new and better biological systems that, through engineering, seek to modify the natural behavior of living microorganisms such as bacteria, fungi and yeasts to make them perform tasks that are designed to create high value-added products with useful applications in industry, improving at the same time the life quality of people.

iGEM (International Genetically Engineered Machine) is a competition based on synthetic biology, presented by the MIT (Massachusetts Institute of Technology), that allows professional students work in the use of biological parts to build systems operated in living cells. This year it is expected the participation of 165 teams and over 1,700 students from America, Africa, Asia and Europe, from prestigious universities such as Imperial College of London, Harvard, Yale, Cambridge, among others.

The number of Mexican universities participating in the contest is increasing each year; for this competition it is expected the participation of 5 teams:

- Tec de Monterrey - *Instituto Tecnológico y de Estudios Superiores de Monterrey*, campus Monterrey, from Monterrey, Nuevo León, México.



- UANL Mty. Mexico - School of Biological Sciences. *Universidad Autónoma de Nuevo León* from Monterrey, Nuevo León, México.



- UNAM, ITESM Mexico City - Institute of Applied Mathematics and Institute of Cellular Physiology at the *Universidad Nacional Autónoma de México* (UNAM) in conjunction with the *ITESM campus Mexico*.
- ITESM_Mexico - *Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Querétaro*.



- UNAM-Genomics_México - Center for Genomic Sciences, *Universidad Nacional Autónoma de México* (UNAM).

In order to meet the other 4 Mexican teams and talk about common problems that have arisen along the competition, we organized the "First Micro Congress iGEM", this June 3 and 4. This event was held at Tec de Monterrey, campus Monterrey.





PhD. Manuel Zertuche, Director of the School of Biotechnology, inaugurated the event, and conveyed the best wishes for the event.



The Master in Science Sergio Garcia, a Biologist from the *Universidad Autónoma de Baja California* delivered the first conference. He did his Masters in Molecular Biology at *the Instituto Potosino de Investigación Científica y Tecnológica*. He is currently a PhD student at *Tec de Monterrey, Campus Monterrey*. He has worked in Molecular Phylogeny; design, production and purification of recombinant proteins and as an instructor for Tec de Monterrey iGEM teams 2010 and 2011. The conference showed the role of instructor in the iGEM team and some tips that will help teams improve their performance. Also presented the paper "Expression and purification of *Deschampsia antarctica* peroxidodismutase *E. coli*".



PhD. Jorge Benavides, Chemical Engineer from the *Universidad Autónoma de Nuevo León*, presented the second conference. He did his Masters in Biotechnology and a Ph.D. in Engineering Science with specialty in Biotechnology at the Tec de Monterrey, campus Monterrey. Member of the Research Chair in Bioprocess of ITESM. He specializes in the development of bioprocesses for the production, recovery and purification of biotechnological compounds of commercial interest, the proteomic characterization of crude extracts through combinatorial strategies and expression of heterologous proteins in recombinant expression systems. The conference was titled "Trends and Applications of Biotechnology", where the means of separation, aqueous phases and some applications such as contact lenses, were discussed.



Manuel Tiscareño presented the conference "Importation of Biological Material to Mexico." He holds a degree in International Relations from the *Universidad Autónoma de Nuevo León*. He has served as Branch Assistant Manager of Kentucky Fried Chicken, and is currently manager of Customs Import and Export of FEDEX. This conference had great teachings on the importation of "BioBricks": standard parts of genetic material with structure and function defined, necessary to make new biological systems.



Mr. Tiscareño taught us that cannot be imported, by courier and parcel companies, products falling within the criteria of "difficult to identify" such as dust, gases and liquids. They should be released through the following ways:

- Commit to a customs agent in the city for the release of the products into various points of entry. This agent classifies the package within the different areas of classification that exist in the Tax Administration System (SAT) and the Mexican customs laws. Depending on the physics characteristics, use and function that are present in the product, the package is classified. For example, the value of a pen with an integrated clock will depend on which is the main component, in order to be classified as office or as a decoration item. In this case it must be proportional to the broker's invoice product as well as having a detailed and formal description of it.
- Register with FedEx Custom Broker. This method of release of packages consists in a small amount of money included in the total cost of shipping a package sent by FedEx. This corresponds to an amount paid to a broker who is in each inner harbor where the parcel is located. It works like a broker customs, however it is possible that the broker can be busy due to the increase of problematic packages.

- Use a trading company. A person who is already expert in the field of importations can lend its name and create a trading company, although there could be problems of packet loss, theft of merchandise, etc.
- Re-route the package to the American side border, to let a broker customs release the packages with the patent and charge conferred discharged by the ITESM.

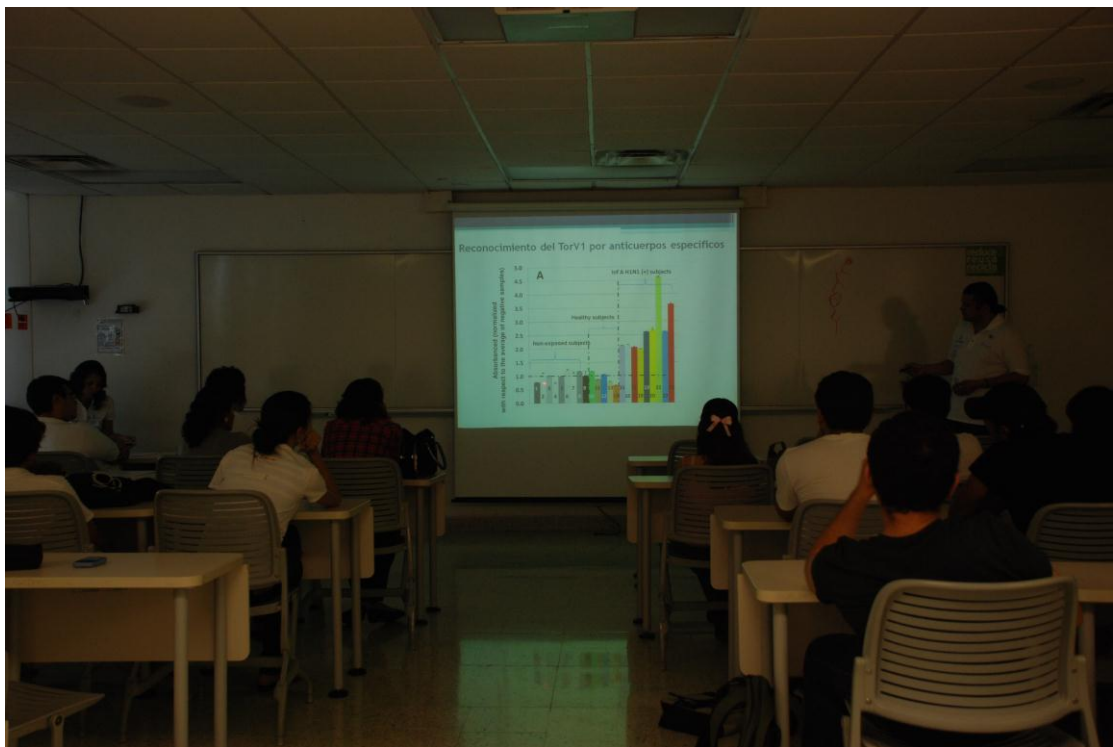
Regarding the visit to the FEMSA Biotechnology Center, Tec-Monterrey team was able to show to the attending teams the FEMSA Biotechnology Center, which is dedicated to generating research, transfer knowledge and design business models in biotechnology and food areas. It has the most innovative infrastructure equipment in laboratories, pilot plants and business incubators in the related areas.



That night, the teams visited the restaurant Sierra Madre Brewing Co.. This restaurant specializes in brewing within the same establishment and the menu caters to all tastes.



The next day began with a talk by PhD. Jose Manuel Aguilar, who showed us the work: "Design of recombinant antigens of A/H1N1/2009 influenza virus." PhD. José Manuel Aguilar is a biologist specialized in molecular biology and professor of Genetic Engineering and Proteins Engineering courses.



Adán López commissioned the second conference, to deliver the lecture "Project Management". This one will serve us greatly in the future because the recommendations Dr. López gave us about creating a Gantt diagram of an array of responsibilities and lifecycle of projects. He taught us that planning a project arises obvious time and material problems, which can be solved before reaching a big mess.



Finally, we performed a bioethical PANEL aimed to discuss the bioethical implications involved in synthetic biology. This panel presented the following expositors:

- PhD Guy Cardineau, Plant Molecular Biology Specialist.
- PhD Elsy Molina, who has taught courses in Plant Physiology, General Genetics, Biology, Science, Ecology and Sustainable Development, Biostatistics and Experimental Design.
- PhD Francisco Serrano, a PhD in Philosophy from the *Universidad Complutense de Madrid*. His doctoral thesis was based on the subject: "Science, reality and method in the work of Linus Pauling." He is currently professor at ITESM and coordinator of scientific-technological perspective Campus Monterrey. He is the author of many studies on ethics and history of science among them includes the book: *Molecular Biology. Philosophical issues and implications*.
- The Panel moderator served the MC. Johari Salgado Gallegos, professor of Laboratory of Genetic Engineering.



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