

BIOLOGICAL

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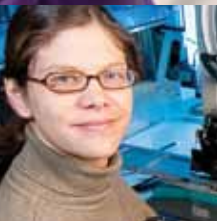
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Sexual Equality for Women!

Spotlight on Teachers: Talent Sparks!, iCON Awards

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2010 Biotech TalentSparks! Teaching Teachers to Inspire Students

By Mary Ann Quivey

Curriculum/Technology Specialist, Monroe-Randolph Regional Office of Education



Dr. Emilio Barbera-Guillem, inventor of the PetakaG3, explains how this new device enables teachers to conduct animal cell culture without special equipment.

arts and special education teachers.

"The program has increased my awareness of how important it is for me to educate my students about what is biotechnology, how it affects all of us and how many career opportunities there are in this field," said Vicki Wormald, a teacher at Whiteside Elementary School in Belleville, Ill. "I want to get them excited about biotechnology."

2010 TalentSparks! activities were held July 14 to 16 at Roosevelt University in downtown Chicago. The university's rich heritage and beautiful surroundings provided

a perfect backdrop for the conference's exciting events. Teachers were divided into groups for laboratory activities based on their background knowledge and the grade level they teach. The novice group experienced laboratory sessions that included investigating the safety of food, ELISA reactions and bacterial transformation. The more advanced group used PCR techniques to explore mitochondrial DNA haplotyping and discovered procedures for culturing animal tissue in the classroom.

The laboratory exercises were led by enthusiastic and knowledgeable presenters, including Dr. Vyjayanti Joshi and RyAnn Nelson-Jaiyesimi (both from Lake View High School in Chicago), Amy Naum (from VWR Education) and Hortense Brice (from Lindblom Math & Science Academy in Chicago).

What do teachers do in the summer? If they were among the more than 50 teachers from across Illinois who participated in iBIO Institute's TalentSparks! Workshop, they were engaged in hands-on activities involving biotechnology tools and related skills. Through a series of scientific exercises and industry-led presentations, the teachers learned new ways to incorporate biotechnology into their respective classrooms, and to share potential career opportunities available in the sciences with their students.

The annual event is open to all Illinois teachers with an interest in biotechnology, and the diversity of the group provides an indication of the breadth of that interest. This year's participants included elementary, middle and high school teachers. While most teach at least some science, the group also included math, social studies, language

**"I WANT TO GET
THEM EXCITED
ABOUT
BIOTECHNOLOGY."**

iBioTech Supports Professional Development in Southern Illinois



This year's TalentSparks! Workshop included several teachers from southern Illinois who are part of the iBioTech program. iBioTech is an Illinois Math Science Partnership (IMSP) Workshop Institute Program funded by a grant through the Illinois State Board of Education. The Monroe-Randolph Regional Office of Education located in Waterloo, Ill. (Dr. Marc Kiehn, Regional Superintendent) directs the program in partnership with the iBIO Institute and Jackson Perry Regional Office of Education (Donna Boros, Regional Superintendent).

The primary objectives of this project are to:

- Increase content knowledge of teachers in the area of biotechnology and the teachers' comprehension of the inter-relationships of the sciences
- Model easy-to-use, hands-on, inquiry-based activities, lessons and labs that can be replicated in the classroom
- Provide southern Illinois teachers the opportunity to experience and become familiar with industrial and economical applications of the sciences, especially those related to biotechnology, and to provide them with an opportunity to network with researchers and experts in the field
- Introduce southern Illinois middle school and high school teachers to an array of resources available locally, nationally and electronically to help them incorporate scientific inquiry, critical thinking, career awareness and application of biotechnology into their classroom

The two-and-a-half year program has provided 35 teachers with new skills and knowledge of concepts

that are not often found in textbooks. By design, IMSP programs provide 10 days of professional development in the summer with follow-up activities throughout the school year. In addition to participating in TalentSparks!, iBioTech teachers returned to southern Illinois for additional lab activities, speakers and tours. With agriculture so prominent in the area, many of this year's activities centered on biofuels and included a trip to the National Corn-to-Ethanol Research Center in Edwardsville, Ill.

In a play on words, iBioTech has fondly become known as "iBioTeach," a tribute to the teachers who will enthusiastically return to their classrooms this fall and motivate their students to embrace learning science. The educators are very appreciative of the opportunities they are provided, and their openness to new ideas is inspiring. There are numerous examples of the program's positive impact, from one teacher who conducted a biotechnology summer camp for students in grades 1-6 to another who said a student was so excited about biotechnology that he held up a micropipette and exclaimed, "Where can I go to get a job doing this?"

"TalentSparks! and iBioTech revitalized me in many ways. As a special education teacher, sometimes subject matter gets lost in classroom management, and this grant was invaluable to me in refreshing my own learning skills and excitement about science," said Virginia Wojtkowski, who teaches science classes within the special education program at Freeburg Community High School. "It also provided me with lab experiences that gave me both confidence and inspiration to bring lab experiences to my classroom, which is not ordinarily equipped for science."

"Biotechnology is catching fire in southern Illinois schools due in large part to Mary Ann Quivey and Superintendent of Monroe and Randolph County Schools, Dr. Marc Kiehn," said iBIO Institute Senior Director Ann Reed. "iBioTech is a wonderful example of biotechnology motivating students to pursue science and math education."



“TalentSparks! is an outstanding biotechnology professional development program for Illinois teachers,” said Ms. Brice, a former iBIO Institute iCON Award recipient and a veteran TalentSparks! leader. “Each year the program’s new lab experiences provide connections to real-world concepts and practices so that teachers can engage their students in 21st century science problems and lab explorations in areas such as food, health/medical, environmental and agricultural biotechnology.”

Of special note was the presentation from Dr. Emilio Barbera-Guillem and Bill Van Huffel of the Magnus Company. Dr. Barbera-Guillem is the inventor of the PetakaG3 animal tissue culture technology. Not only were the teachers excited about the possibilities for using the devices in the classroom, but also they were enthralled by Dr. Barbera-Guillem’s enthusiasm and description of the PetakaG3 invention process.

In other breakout sessions, Karen DeBoer and Shannon Colton of the Milwaukee School of Engineering introduced molecular modeling and bioinformatics to the teachers, who had the opportunity to use detailed yet simple models that are available for classroom use. Many teachers commented that the models would be

an excellent teaching resource for their students, and the activities helped to fill their own content knowledge gaps.

“According to the National Academies of Sciences, teacher development provides powerful leverage for improving math and science education,” commented iBIO Institute President & CEO David Miller. “Thanks to the participation of leaders in academia and industry, TalentSparks! provides high-quality teacher training in biotechnology and shows teachers the practical application of those skills in the workforce. TalentSparks! thereby empowers teachers to inspire students with real-world science.”

Central to the conference’s mission, the teachers were also given the opportunity to hear from industry leaders and representatives. The presentations not only let teachers hear about current research and products, but also gave them a chance to connect what they teach to real-life experiences and careers. Speakers included Doina Roman, MD, Senior Medical Director in Translational Medicine Sciences at Takeda Global Research & Development Center, Inc., who presented “Translational Medicine: Therapeutics from Bench to Bedside.” Warren Shafer, PhD, Senior Director, Global Development

**TalentSparks!
teachers build
molecular models
during a lesson
by the Center for
BioMolecular
Modeling at the
Milwaukee School
of Engineering.**

Enhancing Education and Training



Jim Gibson prepares for a bacterial transformation experiment.

RyAnn Nelson-Jaiyesimi guides teachers through an ELISA to detect peanut allergies.



& Regulatory Affairs, Valent BioSciences, spoke about "Biorationals: Environmentally Friendly Agricultural Products."

Dr. Kelly Wentz-Hunter of Roosevelt University described her research with "Real-time PCR" and "Changing Medicine Through Tissue

Regeneration" presented by Keracure, Inc. President & CEO Gretchen Johnson provided teachers with a glimpse of new products.

"I was honored to participate in this magnificent opportunity to inspire teachers from all over the state," Ms. Johnson said. "Having been a former



**2010 TalentSparks!
teachers at FermiLab
in Batavia, Ill.**

teacher myself, I recognize the importance of reaching out to those responsible for educating and influencing our children and providing them with greater opportunities. I was particularly inspired by the enthusiasm of the teachers and depth of questions regarding tissue regeneration and promising therapies for the future.”

Participants networked with industry professionals during an evening reception sponsored by the iBIO Institute. Conversations, sparked by a fun icebreaker activity involving biotech terms, resulted in many new relationships that will help to bridge the industry-to-education connection.

“I teach chemistry, and this conference helped me to see the biology aspect of my classes. I especially enjoyed the talks by the industry representatives. They allowed me to learn about the career options available for interested science students,” said Susan Krystof, who teaches at St. Rita High School in Chicago.

Another highlight was a field trip to Fermilab in Batavia, Ill., one of the U.S. Department of Energy’s national research laboratories. A tour of the center included a visit to the Neutron Therapy facility, which uses neutron beams to treat certain types of cancer. The trip was a welcome element of the final day’s events.

TalentSparks! was a great success. Although exhausted, teachers left with smiles on their faces, new knowledge, a better understanding of Illinois biotechnology industry and armed with new ideas to take back to their classrooms. **BO**