

# Student's Research Adventure - 2011

## Allena Goren's BRAVO! Trip to France



This summer, I had the amazing opportunity of working under [Dr. Anabella Ivancich](#) <sup>[1]</sup> in Saclay, France on nitrophorin 2, a protein found in the kissing bug. Under the BRAVO! program and thanks to the help of my mentor, [Dr. F. Ann Walker](#) <sup>[2]</sup>, I was able to live in Paris, fully funded, for two and a half months while doing research at the Atomic Energy Commission, a large, government run research institute. The research and cultural experiences that I gained while in France have been invaluable to me.



Nitrophorins are heme proteins found in the saliva of the kissing bug. They bind and stabilize nitric oxide in the saliva of the *Rhodnius prolixus*, or kissing bug, and release the nitric oxide when transferred in to the tissue of the victim. The pH dependent mechanism also includes binding histamine. This process dilates the blood vessels and capillaries of the victim while simultaneously decreasing the reaction of the victim, giving the bug time to obtain its blood meal. Recently, this protein has also been identified to have peroxidase activity. Using molecules

like hydrogen peroxide or peroxyacetic acid, the protein can deactivate different substrates, such as norepinephrine, a molecule that constricts the blood vessels, preventing the bug from feeding. *R. prolixus* is one of approximately 15,000 species of blood-sucking insects. Two of these species, *Rhodnius prolixus* and *Cimex lectularius*, have been found to have very sophisticated small molecule transport proteins. The study of these transport systems can better help us understand how these bugs are able to feed on the blood of their victims. My project focused on the novel peroxidase function of the nitrophorin protein with different substrates.



I was very lucky to spend my summer in France. I got to experience French culture, travel and learn about the European lifestyle. The laboratory I was working in was very international, with people from France, England, Germany, Argentina and many other places. I had the opportunity to stay in international housing where I met people from Italy, Germany and Columbia. It was great to get a perspective about the world from people who were raised in different environments. Their perspectives differed greatly depending on the type of culture they were raised in and it was eye opening to see the difference in opinion that can form solely from the way a person grew up.



American culture and opinions were very well known by most of the people I worked and lived with. I was surprised at how much American culture actually made it over to France, including the Rebecca Black song "Friday," which I heard someone singing in the lunchroom. Knowing that that is the media that gets transported to Europe, I was hesitant to make any indication that I was American. I had also been told that it would be hard for me to get around because there was some animosity toward Americans. Even though I had minimal French language skills, though, I found that almost everyone was very nice about my lack of language skills because I tried. The French appreciated the fact that I put in the effort to learn the

language of the country I was traveling to and I was actually able to have conversations with my broken French!



I feel fortunate to have had this opportunity and I would like to thank everyone who contributed to my successful trip: Dr. Carol Bender, Dr. F. Ann Walker, Dr. Anabella Ivancich and my parents. Without all of your support, I would not have had this wonderful opportunity!

[Undergraduate](#)<sup>[3]</sup>

Department of Chemistry and Biochemistry at The University of Arizona  
P.O. Box 210041, 1306 East University Blvd., Tucson, AZ 85721-0041  
Phone: 520.621.6354 Fax: 520.621.8407

[UA NetID Login](#)

---

**Source URL (retrieved on 01/12/2013 - 5:58am):** <http://www.chem.arizona.edu/undergraduate/goren2011>

**Links:**

- [1] <http://www-dsv.cea.fr/en/institutes/institute-of-biology-and-technology-saclay-ibitec-s/units/structural-biology-bioenergetics-and-biological-mechanisms-sb2sm/high-field-electronic-paramagnetic-resonance-lmess/metalloproteins-and-protein-radicals-a.-ivancich>
- [2] [http://www.cbc.arizona.edu/facultyprofile?fid\\_call=Walk](http://www.cbc.arizona.edu/facultyprofile?fid_call=Walk)
- [3] <http://www.chem.arizona.edu/taxonomy/term/11>