

Undergraduate Research Center Newsletter

June 9, 2007

The URC has a special announcement for you!
Next Friday, June 15th, President Prager will host a dinner for the participants in Summer Research 2007 and their mentors. The dinner, the details of which are still being clarified, will be held at Annenberg House, President Prager's on-campus home. Expect more information on the event!

Our hike in San Gabriel with Professor Chris Craney will take place on Saturday, June 16. A day of healthy activity in the beautiful mountains is a wonderful opportunity to appreciate nature in the company of fellow research students. Lunch will be provided. Please stop by the URC to sign up or e-mail igeorgieva@oxy.edu.

Please note that next week's luncheon has been **cancelled**.

Calendar June 2- June 9

June 9, 2007

9:00 am-12:00 noon



Book Sale Central Library

Pasadena Central Library east patio

285 E Walnut St

Pasadena CA 91101

<http://pasadenapubliclibrary.net>

June 9, 2007

7:30 pm

Cinespia: Harold and Maude

Hollywood Forever Cemetery

<http://www.cinespia.org/>

June 13, 2007

12:00 noon

Diana Akiyama, Religious and Spiritual

Life Dept. **CANCELLED**

June 15, 2007

President Prager's Social

Dinner at Annenberg President House

June 16, 2007

8:15 am-late afternoon



San Gabriel Mountains Hike with Prof.

Chris Craney

Meet at 8:15 at parking lot between

Biology and Chemistry buildings

Lunch provided

!!! On Saturday, June 30th, the URC is sponsoring a trip to Melrose and its famous Groundlings theatre, widely acclaimed as Los Angeles' best improvisation comedy theatre. URC will pay for vans (designated drivers needed) and for tickets. **Space is limited, so sign up soon.**



From L.A. Weekly: L.A.'s most famous sketch-comedy institution is in top form with some wonderful cameo performances, living cartoons that are like exercises for plays (or TV shows) in development. Insane family rituals, MySpace, interactive video games and the NSA form the sharpest barbs of the social satire, parodies on the familiar — twisted into comedic contortions — that explode with small bursts of recognition. High school sophomores try to have an innocuous phone

conversation when they discover a pair of NSA wiretappers on the line, engaging the teens in casual repartee that's motivated by a blend of the Feds' benign curiosity and ennui, though the kid's remark, "the party's going to be the bomb" sets off an alarm. Which party? Sunni? Shiite? Steven Pierce serves up an insanely intense rendition of an offstage then onstage dad goading his son (Day) through an aggressively mediocre musical-theater performance at a Boy Scout talent show. Later, Dorf's portrayal of a demented dad is a marvel of muted grotesqueness, constantly pulling his emotionally pummeled son into secret yet overheard lectures during a dinner in which the old man tries to impress his new girlfriend on the heels of his divorce.

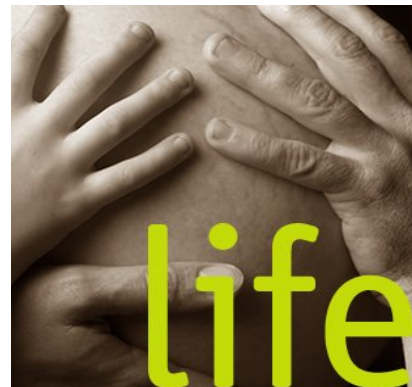
Students' Corner

Ashley Bennett

Calcium Waves in Pregnant Uterine Contractions

1. What made you willing to engage in research?

My two favorite areas of study are mathematics and biology and after taking a class on Mathematical Modeling of Biological Functions, I was impassioned to further investigate this field. I was interested in using the theoretical knowledge I gained in school and applying it to something real and practical. Also, I heard from friends who participated in summer research in the past that it was a valuable experience.



2. Explain the topic and nature of your project in a few sentences. How much of your topic's formulation was a product of your mentor's advising, and how much- of your personal interest? What made you pick up this exact topic?

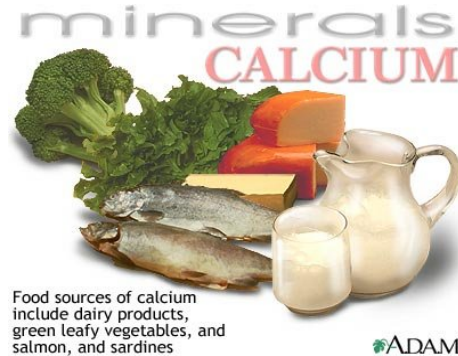
My mentor, Professor Gallegos, gave a presentation on her research on the structural aspects of pregnant uterine contractions early first semester. After her talk we

discussed my interest in her research and the principle of advancing women's health. She suggested that I investigate a hypothesis that the release of calcium is responsible for uterine contractions during childbirth. While health care has advanced greatly, much more can still be done to improve the care for mothers and the delivery of newborns. A better understanding of uterine contractions during labor can achieve this improvement, and even prevent prenatal deaths.

3. What are the answers you are looking for in your research?

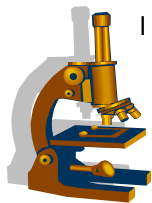
Unfortunately, there is very little information explicitly from human females due to the sensitive nature of a woman in labor. Information has been collected from animal biopsies and there is data on timing of human contractions from medical professionals. By using this data and mathematical modeling, I hope to make an advancement on whether or not the hypothesis that calcium release is responsible for uterine contractions is viable, and if more funding and research in this area should be pursued.

4. As slightly informed as I am on this topic, I know that women must take additional amounts of calcium during their pregnancy. Could you please provide us with a brief practical explanation of the mechanics, functions, and importance of calcium and calcium waves for pregnancy and uterine contractions?



Women must take extra calcium during pregnancy to aid their own health and the skeletal development of their child. On a molecular level, calcium passes through certain types of channels across a membrane potential. There exists a chain of proteins and receptors that take up calcium so that myocin, a protein, is released and causes a contraction. What is so fascinating about contractions in uterine muscles is that when calcium is released, where it travels is independent of where it originally came from. New cells are touched by calcium and are then induced to release calcium as well. This means that each cell is its own pacemaker and that there is no central "brain" in uterine muscles that starts contractions. The process is much more random. If you think about it, when an epidural is placed in the spine to block the nerves from the lower body, the uterus still contracts, which is an involuntary function. Calcium release is a very complex process!

(Ivelina Georgieva)



Interested in courses offered by the Biology department? **VISIT**

<http://departments.oxy.edu/registrar/catalog/bio.html>