

# WOMEN in Cell Biology



## Succeeding in Science at a Liberal Arts College

*I'm dragging because I was up until 2:00 am on ebay. It was worth it, though; I won the used Afga X-ray developer for only \$1,200. I spent the first part of the morning trying to order lab supplies. I just got off the phone with Fisher, trying to order pipette tips and microcentrifuge tubes. I had to scrounge up a P.O. for them and couldn't find the paper with my account number on it. I struggled to figure out whether I have money in my jumbled grant budget to pay for the supplies. I think I've done some math incorrectly and may have found an extra \$200 (or maybe I've done the math correctly and am \$200 short, not sure...) I've now got 15 minutes left of the hour before my biochemistry lecture to set up a restriction digest and load a gel. Alas, it's not to be, for as soon as I step outside my office I spot two students from my immunology class approaching me. Those precious 15 minutes are disappearing...*

Dictionaries define fragmented as broken into pieces. There is no better adjective to describe what it is like to be a scientist at an undergraduate liberal arts college, in my case at Simmons College where the undergraduates are women. On any given day, I am called upon to be a PI, a lab manager, a lab technician, a grants administrator, a teacher, a career advisor, and sometimes a soft place to land for an unhappy 18-year-old. Imagine for a moment, your lab with no technician, no postdocs, and no grad students. Who's available to do the experiments? YOU. You would be making the plates, purifying the plasmids, lysing the cells, running the gels, washing the blots, and so on. Calculate the number of productive hours your postdocs, techs, and graduate students spend at the bench performing experiments. Now imagine that it is only you and maybe a few junior undergraduates. It's a frightening thought.

### Collaboration and Fragmentation

At the moment, my lab is working on three very different projects. I'm collaborating with one

colleague who is characterizing an *E. coli* protein possibly involved in transcriptional silencing. I'm collaborating with another colleague who is exploring the evolution of a murine mutation involved in patterning in the mouse. And finally, my lab's own project is characterizing the functional relevance of a mammalian B cell receptor protein and its downstream protein partner. This means that I'm a molecular, developmental, and cellular biologist, with a dash of biochemistry and immunology thrown in. Talk about "fragmented!" I am truly never bored, but I face a Sisyphean task trying to keep up with all the literature.

By definition, liberal arts colleges, and hence their departments, are small.

Consequently, I am the sole representative of several fields in my department. I am the only biochemist in the chemistry department and the only immunologist in the biology department.

My office sits between those of an inorganic chemist and

a physical chemist. They have become versed at determining if there really is a band on the Western blot I just ran, and I have become an expert at analyzing their MALDI-TOF mass spectra. Hence, collaboration is essential; it is impossible to do research in a vacuum.

### Teacher-Scientist or Scientist-Teacher

I teach three courses in an average semester. I have about 30 advisees each semester, and there are usually two to three students doing independent research in my laboratory each year.

This translates into about 15-20 student contact hours per week. My students have constant access to me, and my door is always open for conversation and a cup of tea. I mentor these students, and counsel them, and, hopefully, serve as a role model so that they will go on to become scientists themselves. But first I have to teach them biochemistry and immunology—without a TA to run the labs, go

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over homework problems, or grade the 10-page take-home exams I'm fond of giving.

So, am I a teacher-scientist or scientist-teacher? Does it matter? Does the fact I'm a teacher-scholar make me less of a "real scientist" in the perception of the larger research community? Will researchers at major research institutions take me seriously?

Will major grant programs consider me "worthy" of receiving funding? If you can imagine funding your entire laboratory on a \$2,000 research grant, you will begin to comprehend my joy at finding used lab equipment for sale on ebay.

Why would I choose this path? I get to dabble in many scientific disciplines daily.

Where else could I apply my training in molecular biology to learning how to run a MALDI-TOF mass spec? Where else could I watch the epiphany of understanding dawn on the face of a junior when she finally appreciates that cell biology and biochemistry are actually related? Where else could I write, be awarded,

and control my own grants, and still manage to wield a pipette? Where else could I collaborate with some great researchers in my field, without the fear of losing my funding and the pressure to churn out publication after publication?

Am I exhausted at the end of the day? Without question, but so is anyone who is passionate about his or her work. I am excited when a manuscript is accepted for publication, but I am equally excited when my students are accepted into graduate school.

My very first student will shortly defend her Ph.D. thesis at MIT. So the next time you have particularly skilled graduate students join your lab, think about where they came from. Think about the scientists who trained them at the undergraduate level and inspired them to continue. I am a scientist and I am a teacher.

It doesn't matter in which order you write the words, because on any given day I am equally both. And I would not have it any other way. ■

—Jennifer Roecklein-Canfield  
for the Women in Cell Biology Committee

## Dinner Meet-Up

At the ASCB Annual Meeting by yourself? Tired of eating alone or grabbing a sandwich at Starbucks? Drop by the Meet-Up poster in the Grand Foyer (lobby) of the Washington, DC, Convention Center at 6:00 pm each evening to find potential dining companions. A list of interesting restaurants will be posted; you figure out with whom and where to go. (Sponsored by the Women in Cell Biology Committee) ■



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