

Jenny Ito, Vespucci Fellow

Jenny Ito is an undergraduate at Tulelake University. She recently won a Vespucci Fellowship to join the bioengineering lab of Dr. Chris Holzer. Ito will be working directly with Joe Gilmarin, a graduate student who has been overseeing an experiment that Holzer designed to determine whether a special antibacterial coating can reduce the incidence of infection associated with the use of steel surgical pins. The research team has inserted a two-inch pin into the right tibia of 30 rabbits; 15 of the pins are standard surgical pins, and 15 have the antibacterial coating. In Jenny's Vespucci Fellowship, she proposed to examine how white blood cell counts of the rabbits change over the course of the experiment. In her proposal, she explained that the team would inoculate all of the rabbits with a 1×10^8 *Staphylococcus aureus* and routinely administer morphine at 5mg/kg to alleviate any discomfort the rabbits may experience.

They start the project. For almost a month, Jenny and Joe care for the rabbits and record their observations, watching for any sign of distress or infection, and periodically drawing blood to do the white blood cell count. Then they have a meeting with Dr. Holzer, where they report that none of the rabbits seem uncomfortable, none show any sign of distress or infection, and none have an elevated white blood cell count.

Holzer is impatient. "If we don't get an infection, we won't learn anything. Here's what we'll do. Since it would be a shame to have put these rabbits through this, not to mention wasting all your time, without getting some results, I want you to help things along a bit. Inoculate all of the rabbits with 1×10^9 *Pseudomonas aeruginosa*. We'll see what happens then."

Joe hesitates. "But the protocol specifies *Staphylococcus*, Dr. Holzer." Jenny is silent.

Holzer brushes this off. "Yes, hmmm... Well, it's a minor change. We're approved to run the risk of infecting the rabbits; all we're going to do is give the process a boost." And with that, Holzer walks away.

Joe looks at Jenny. "I guess we need to get some *Pseudomonas*, but man, I hate those things."

Jenny asks, "Aren't *Pseudomonas* really nasty? I'm not sure I want to expose myself to that."

Joe responds, "They are. We'll just have to be extra careful. I guess you can quit the project if you want, but maybe there's something else we can do."

That night, Jenny talks with her roommate, Ruth, who is majoring in Environmental Studies. Ruth snorts. "Why are you so squeamish now? Go ahead and do it. In fact, if you and Joe really want the project to work, just put the new bacteria on the untreated pins. Less risk to you, Human."

Jenny responds. "Thanks for the sarcasm. You know we can't do that; it would be bad science."

"The whole thing is bad science," Ruth retorts. "Torturing bunny wabbits like that."

Jenny throws up her hands in exasperation. "You're not helping at all, Ruth! I know you don't approve of animal experimentation, but sometimes it's necessary. Would you rather us start with experimenting on people? Besides, I've got to have something to show for this in my med school interviews. Still, *Pseudomonas* is really hard to treat, and it is a really tough infection. The rabbits are sort of cute, and I've really gotten to like Flopsie, the big one with the lopey ear. But if we change then what will I say at Explorer's Day if we do something different from what I said we were going to do?" Jenny moans and throws herself down on the couch, opening a tub of butter pecan ice cream.

Ruth takes a deep breath. "Well, your Prof has already told you it falls within the realm of reasonable interpretation of the protocol. You've always got to interpret everything, you know. Besides, you always planned on some of the bunnies developing infections. What does it matter if they're infected by one versus the other? If it makes you feel better, look at it this way: if you don't get results, they'll just have to rip the pins out of these bunnies, and torture a whole new batch. And they'll do it with or without you. In the end, it would reduce the suffering if you just brew up the new bugs and pour them on."

Should Jenny stay with the project? Should she and Joe go ahead with changing to the *Pseudomonas*? Why or why not?

Research Ethics Resources for Undergraduates at the University of South Carolina

Office of Research Compliance

<http://orc.research.sc.edu>

Human Subjects FAQ, Training

Responsible Conduct of Research (RCR) focus areas

“Avoiding Research Misconduct” video

Collaborative Institutional Training Initiative (CITI)

Official Policies [http://www.sc.edu/policies/ppm/\(fill in blank from below\).html](http://www.sc.edu/policies/ppm/(fill%20in%20blank%20from%20below).html)

Misconduct in Research and Scholarship [RSCH100](#)

Care and Use of Laboratory Animals [ACAF503](#)

Protocol for Reporting Misuse of Animals [ACAF504](#)

Data Access [ACAF702](#)

Data Access and Retention [RSCH105](#)

Research and Human Subjects [RSCH103](#)

Where to go for help if you run into problems or are in over your head:

1. Your professor
2. Staff of the Office of Undergraduate Research
3. Dr. Thomas Coggins, Director, Office of Research Compliance (tcoggins@mailbox.sc.edu)
4. Dr. Jeff Dudycha, Professor, USC Columbia Biology Department (dudycha@biol.sc.edu)