Welcome from IPN Director Dr. Rebeck

The year 2014 has been an eventful one for the Interdisciplinary Program in Neuroscience. As you’ll see throughout this newsletter, we’ve celebrated births, awards, publications, and fabulous research experiences. But as we reflect upon our 20 years as a program, the event at the forefront of our minds is the passing of Dr. Karen Gale – IPN founder, former director, teacher, mentor, and friend.

Dr. Karen Gale: IPN Founder and Friend

Dr. Karen Gale

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Born in New York City, Karen attended the High School of Music and Art before earning her undergraduate degree in Zoology and Psychology at the University of Michigan, Ann Arbor. She continued her studies in psychology by moving across the country to the University of Washington to conduct her PhD research under the guidance of Drs. Robert Douglas and Akira Horita.

Her career in Washington, DC, began when, as a PRAT fellow, she accepted a postdoctoral position at the NIMH to begin work with Drs. Erminio Costa and Alessandro Guidotti. From there, Karen went on to begin what was to become an illustrious career at Georgetown University.

When Karen joined the faculty in 1977 as assistant professor in the Department of Pharmacology, she began a research program focusing on the neuropharmacology of the basal ganglia. In 1980, her first two R01 grants were funded on this topic, and her rapid rise through the ranks at Georgetown University continued...

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IPN Student Achievements

Births
Scott Miles ('12) welcomed 8 lbs 2 oz Molly Joy Miles on May 31. Vivianne Morrison ('13) also welcomed a little girl, 6 lbs 15 oz Valérie Morrison, on July 18.

Papers

Assorted Excitement
Several students, led by Carrie Leonard ('11), participated in Brain Awareness Week, 2014, promoting excitement for Brain Research to middle school students in the DC area. Valerie Darcey ('11) was selected as one of 19 student researchers from the U.S. chosen to attend the 64th Annual Lindau Nobel Laureate Meeting in Lindau, Germany. Young researchers from around the world were invited to spend a week with close to forty Nobel Laureates. The annual meeting fosters interaction across the generations of scientists, as the laureates pass on their wisdom to the young superstars. Darcey was one of just 19 students chosen to represent the U.S. This is the second time in a row IPN students have been accepted to this prestigious conference; Sonya Dumanis (PhD 2013) and Evan Gordon (PhD 2012) attended the last Physiology/Medicine meeting in 2011. (The meeting rotates between the sciences awarded Nobel Prizes—Chemistry, Physics, and Physiology/Medicine—and an interdisciplinary meeting with all three.) Days at the meeting are spent discussing, and getting to know the other student delegates. Darcey met a few students she keeps in touch with on both casual and scientific fronts—important, she says, because there are not many people in her small research area. Dumanis became such close friends with a fellow delegate that she was invited to their wedding. Social events include a Bavarian dinner, a trip to the nearby island of Mainau, and socializing with Countess Bettina Bernadotte, the president of the meeting’s board. Lindau was a chance to see the laureates as humans. Darcey was surprised at their sense of humor. “When I think of Nobel Laureates, I think of serious scientists, with a furrow on their face, science all the time. But a lot of them were really funny.” Besides cracking jokes, they admitted they didn’t have all the answers, engaged with students and asked for feedback on their current ideas, and even showed off their illegible strokes of genius. Dumanis described Oliver Smithies, winner of the 2007 Nobel Prize, projecting a drawing from an old notebook. “He was like “See that?” and it was just a bunch of squiggles,” Dumanis remembers. “He circled it and said, ‘This is where I figured out homologous recombination.’” Besides saving lab notebooks for fifty years, the laureates offered more practical advice as well. They didn’t suggest certain hot topics to pursue, but advised the young researchers to explore what interests them as scientists. “Harold Kroto [winner of the 1996 prize in Chemistry] gave by far the best advice, which was don’t try to do “important” science, or science that will get you awards,” Gordon recalls. Continued on p. 4
“Do science that interests you and makes you passionate.” Dumanis agrees, “It’s not like they got into science and said I’m going to win the Nobel Prize. They were just doing something because they were really excited about doing it. I think sometimes people forget that.”

“Do science that interests you and makes you passionate.”

In a time when funding is tight, this may mean having multiple projects at once: your grant-worthy, practical project, and another quixotic project on the side. “I think the best advice was to keep a rotation of projects: have your bread and butter but also have exploratory stuff that holds your day-to-day interests,” says Darcey. “You never know, the exploratory stuff might turn into a specific aim on its own.” Or that Nobel Prize you weren’t trying to get.

Interested in applying? Because the application process for the 2015 Interdisciplinary meeting is now closed, the next chance to attend a Physiology/Medicine meeting will be in 2018, with the application due in the fall of 2017.

Ask Becky!

Q: What are some tips for surviving DC cold weather?

A: Okay you Southern Belles and Bulls… you warm, sunshine Does and Bucks – it never really gets cold in DC. Ask anyone who grew up north of New York, but here goes:

- Psych yourself into thinking that you are in Florida, Southern California or the Caribbean.
- Layer, wear light-weight clothes and layer. Buy alpaca, or other light-weight cloth that is warm.
- Wear long sleeves and you females, for goodness sake, put on hose or socks.
- May sure that your shorts and short skirts are put away for the winter. Wear wool, wear long pants and skirts. Put away the spaghetti strap tops and the sleeveless shirts. Open-toed shoes are not good in winter.
- Remember… rubber boots can be cute and are good in the rain but not in the cold. Wear smart wool socks - two pair in rubber boots.
- Rent a space with a fireplace and use the fireplace.
- Find a warm body to snuggle up to 😊

Q: What’s the best secret spot to hang out on GU campus?

A: Not so secret, they are there in plain sight. The side of Building D near Reservoir Road, the grassy hill in front of Med-Dent, or the quad between the Healy Building and the main chapel…quiet places.
Neural Profile: Gustavo Rodriguez

Gus tells us about his experience at Woods Hole and lessons learned in the IPN

Summer Rozzi

Why did you choose the IPN?

Two reasons come to mind. The first was because it was the only program that scared the sh*t out of me. Georgetown was full of unknowns. It was kind of scary and that excited me. If I were going to make it at Georgetown, I would know that I had made it on my own terms. That’s the main reason why I chose the IPN. The second reason I chose the IPN was that the students were awesome. The people I met during my recruitment session were interesting, helpful, and incredibly smart. They also knew how to have a good time.

You were accepted into Summer Program in Neuroscience, Ethics, and Survival (SPINES) last summer. Tell us about it.

SPINES is held at the Marine Biological Laboratory (MBL) in Woods Hole, MA. It can be likened to an intense, accelerated version of the following IPN staples: Neurofest, Critical Readings, Survey, and Survival Skills & Ethics...[with] weekly labs that covered human neuroanatomy, behavioral pharmacology in zebrafish, and hippocampal place cell analysis using MATLAB...[a]ll bundled into four weeks! To supplement the experience, SPINES fellows have the option to stay for an additional month and work in a lab. I stayed for two weeks on a small project looking at the involvement of nicotinic signaling on chromatophore expansion in squid.

“In order to do good science with any consistency, you must be confident in yourself.”

What was the most influential class/seminar/lecture you attended as a grad student? Why?

The most influential lecture I attended as a grad student was given by Ed Kravitz at the MBL this summer. Ed is a GABA wizard, neuroscience giant, and all around superhero. In the lecture, he discussed his science and activism. I learned about the difficulties he had convincing the US scientific community that GABA functioned as a neurotransmitter, and how difficult it was to sit quietly in a lab while the country was at war in Vietnam and with itself (e.g. Birmingham riots, MLK, Jr. assassination). As a young faculty member, he fought to increase the number of minorities accepted into Harvard Medical School and was an active voice against the war. He did all of this while conducting research and building his career. That lecture inspired me to do something more with my life than sit in a lab all day.

What’s the most important thing you’ve learned as a grad student?

The most important thing that I’ve learned as a grad student is that in order to do good science with any consistency, you must be confident in yourself. That doesn’t mean you should dive head first into a project without caution…expecting things to work out. That isn’t confidence. Self-confidence in science to me means that you trust in your ability to examine problems rationally and that you aren’t afraid to try solving them.
ranks of faculty led to her tenure in 1984 and promotion to full professor in 1988.

Best known for her discovery of “Area Tempestas”, an epileptogenic trigger zone in the piriform cortex, and her pioneering research on specific neurotransmitter networks and their role in neurological disorders, Dr. Gale’s research on the circuitry of the basal ganglia and her discovery of its role in the control of epilepsy was responsible for a major paradigm shift in the field, opening up an entirely new direction in basic epilepsy research. Gifted with a seemingly never-ending supply of energy, Karen’s brilliance and tenacity as a scientist led to the ten million dollars in research and training funding she has received, including an R01 continuously funded and renewed by the NINDS for more than 20 years, 175 papers with over 3,000 citations, and her H-index of 45.

Beyond the bench, Karen was an indomitable mentor and champion of women in science. Before, during, and after her tenure as president of Georgetown Women in Medicine and the Georgetown Society for Medical Women Faculty, Karen went out of her way to promote the career development and visibility of women faculty at Georgetown. Her efforts resulted in equal pay for minority and female faculty members, as well as marked increases of women faculty in positions of leadership at Georgetown.

In addition to all this, Karen made one of her most important contributions to Georgetown in 1994 when she founded the Interdisciplinary Program in Neuroscience, now nationally ranked as the 14th best neuroscience doctoral program.

Dr. Barry Wolfe touchingly recalls Karen’s reaction to being elected as the first director of the IPN, “She hugged me and started crying, saying ‘This is my life’s ambition, to do this’.”

Today, more than 50 faculty members, drawn from 11 departments across both the main campus and medical center at GU, are a part of the IPN. As of 2014, the program has 41 current students and has graduated more than 100, all of whom have benefited enormously from the dedication of Dr. Gale and her uncanny ability to identify and recruit talented predoctoral trainees.

During her more than 35 years on the faculty at Georgetown, Dr. Gale excelled, somehow finding time to maintain a vibrant research program, train doctoral students, and teach with excellence.

Karen imbued the IPN with her spirit, one of passion and brilliance, and for that we are so lucky.

Thank you, Karen, for giving us so much.

### IPN Faculty Achievements (cont.)

**Foundation and Federal Grants**

Dr. Abigail Marsh and Dr. Adam Green both received John Templeton Foundation Grants for research on the neural and cognitive correlates of extraordinary altruism in adults (Marsh), and a study titled “Relational Causality Cognition as a Mechanism of Belief in God in the U.S. and Afghanistan” (Green). Dr. Jeffrey Huang received a one year Pilot Grant and three year Research Grant from the National Multiple Sclerosis Society to study the signals and mechanism associated with CNS remyelination. Drs. Adam Green, Michael Ullman, and Max Riesenhuber received two year grants from the National Science Foundation with a project titled “Collaborative Research: Cognitive and Neural Indicators of School-based Improvements in Spatial Problem Solving” (Green), a project for research into second language acquisition and long-term retention in a mini-language (Ullman), and a project titled “Collaborative Research: Using Somatosensory Speech And Non-Speech Categories To Test The Brain’s General Principles Of Perceptual Learning” (Riesenhuber).

Dr. Michelle Harris-Love received an American Heart Association Grant-in-Aid to examine affected and unaffected premotor cortices in arm impairment after stroke. Dr. Nady Golestaneh received a grant from BrightFocus Foundation for research into age-related macular degeneration.
**Announcing: IPN Career Development Initiative**

Valerie Darcey

Here’s a riddle: what do IPN students do when they want to attend a workshop to learn a technique but there is no funding available from their mentor or the graduate school (since it’s not travel related to a first author abstract)? They create a Training Award!

Newly launched in fall 2014, the purpose of this student-driven initiative is to provide funding for career development activities including an **IPN Training Award** and activities to promote **Alumni Engagement**.

As an interdisciplinary program, we realize that the IPN cannot feasibly provide individualized, thesis-relevant training to every one of its students and a student’s lab may not be able to support training opportunities outside of those provided at conferences. Thus students will have the opportunity to apply for career development funds via the **IPN Training Award**, made possible through generous contributions to the Career Development Initiative fund, filling a gap in currently available funding mechanisms to support graduate education/training. The Training Award would be emblematic of our graduate education/training. The T

To enhance the impact of these funds on our professional development, a portion of the contributions to the Career Development Initiative will be devoted to hosting informal Career Seminars where invited IPN alumni can speak with current students in spring 2015. Applications will be accepted from thesis students and will additionally require justification for travel and how the travel will be of benefit to both short- and long-term career plans. A faculty committee will review applications and allocate funding for travel as appropriate.

Are you an alumnus who is interested in visiting Georgetown and chatting with students about your career? Please email Dr. Kathy Maguire-Zeiss at km445@georgetown.edu. Interested in supporting professional development activities of IPN students to keep our program competitive? Consider making a tax-deductible gift to support the IPN Career Development Initiative. Visit [http://giving.georgetown.edu/how-to-give](http://giving.georgetown.edu/how-to-give) and click on the link to the secure form under “Online”. In the “special instructions” field, please type “IPN Career Development Fund”. **Many thanks to our generous donors who have already contributed!**
Welcome: Continued

This last year, for the first time, an IPN student, Sonya Dumanis, received the Glassman Dissertation Award for the Sciences from Georgetown University. Our student Val Darcey received an invitation to the Lindau Meeting in Germany; pictures flaunting her interactions with Nobel Laureates are here in the newsletter.

Other recent successes and awards are detailed in this newsletter. It is another of our student-led initiatives that adds to our work to keep our alumni and supporters engaged. For example, we have had seminars from a number of our graduates on the various kinds of work they have done after the IPN. This past year, we even convened a panel of graduates to talk about careers beyond academia. We are keeping our newly renovated website (neuroscience.georgetown.edu) up-to-date, so please drop in every now and then to see how our program is doing.

I'm so happy to have been able to direct the IPN. I don't think it is an overstatement to say that it has a lasting effect on all of us. We are challenged by it, we are rewarded by it, we are proud of it, we are responsible for making it better. So I guess we don't have to think about the IPN without Karen; we just have to make sure her spirit remains in it.

Potent Potables

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<td>2014 Thesis Defenses -</td>
<td>Interested in showing some IPN pride?</td>
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<td>Mar 28 – Teal Burrell</td>
<td>We have 20th Anniversary IPN T-shirts ($20) and IPN Hoodies ($29; described as “the mother of all hoodies,” by one satisfied customer). For purchasing details, contact Caitlin Taylor at <a href="mailto:ct323@georgetown.edu">ct323@georgetown.edu</a>.</td>
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<td>Apr 22 – Lauren Ullrich</td>
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<td>Jul 6 – Bridget Queenan</td>
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<td>Jul 8 – Jessica Ihne</td>
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<td>Aug 8 – Nancy Cowdin</td>
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<td>Aug 22 – Ghazaul Dezfuli</td>
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<td>Sept 26 – Rachel Wurzman</td>
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<td>Oct 23 – Gustavo Rodriguez</td>
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<td>Dec 18 – Misha Smirnov</td>
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SfN DC Chapter Events -
- Nov 19, 4:30 p @ RFD – DC Neuroscientist happy hour
- Spring, 2015 @ TBD – Non-academic career panel (feat. science writers, patent offers, STP advisors, and more)
- For more information about SfN DC Chapter events: sites.google.com/site/sfndcma/home

IPN Alumni – give us your info!
To keep our student-alumni network up-to-date and active, please provide us with your current information here: www.tinyurl.com/n38ah2r

Would you pass the comprehensive exam?

Question:
Hypnosis and the Stroop effect. A paper in the literature (Raz A, Shapiro T, Fan J, Posner MI, “Hypnotic suggestion and the modulation of Stroop interference,” Arch Gen Psychiatry, 2002) reported that “whereas posthypnotic suggestion [in which participants received the post-hypnotic instruction that they would be unable to read] eliminated Stroop interference for highly suggestible subjects, less suggestible control subjects showed no significant reduction in the interference effect.” Assuming this is a solid finding (and that this effect is not due to a visual strategy such as de-focusing the eyes or looking at a different location), speculate on what this could imply for how cognitive control and attention might be affected by hypnosis and how cognitive control and attention might differ between individuals highly susceptible to hypnosis and those not-so-susceptible. To provide a framework for your speculations, start with a review of the Stroop effect (including how the stimuli are processed by the visual system), how conflict arises and how it might be controlled at the neural level (covering sensory areas, ACC, and PFC).

Scanner Somas

Brittany Aguilar (’13)
Teal Burrell (alumna)
Valerie Darcey (’11)
Rachael Harrington (’12)
Summer Rozzi (’11)
Caitlin Taylor (’10)
Would you like to speak at Georgetown?

Are you interested in sharing your latest findings or career experiences with the IPN? We’d love to hear from you!

To reserve a spot in our seminar series or to schedule an informal talk with IPN students, please contact Dr. Kathy Maguire-Zeiss at km445@georgetown.edu.

Students and faculty at this year’s IPN retreat in Prince William Forest, VA

See you next time in our 2015 Spring/Summer issue!

Things to Know

• Subscription and Archives

To be added to the IPN Scanner mailing list, or to discontinue your subscription to this newsletter, please send your request to Caitlin at ct323@georgetown.edu. For online access to issues of the IPN Scanner, archived copies of our bi-annual newsletter are available online. http://neuroscience.georgetown.edu/newsletter.html