Molecular Core Swings Into Action

Two recent articles in the Atlanta Business Chronicle highlighted the importance of the Molecular Core to the burgeoning bioinformatics industry. With support from the Georgia Research Alliance and leadership from Dr. Scott Hemby, the core has obtained 37,000 verified cDNA clone sets from humans and an additional 10,000 sets from mice to make custom microarrays.

The core continues to build its infrastructure, having recently acquired robotics for printing microarrays, the readers for analyzing these arrays, a DNA sequencer, and several PCR machines. On the personnel front, the arrival of molecular biologist Yu-Hua Li from Dr. Michael Kuhar’s lab provides the necessary expertise to validate the clones and to develop the final arrays for CBN faculty. Li will use the DNA sequencer to verify the clones and establish standard quantity procedures and protocols. He also will be involved in microarray production.

CBN Scientists Plumb Brain’s Mysteries

CONTINUED FROM PAGE 1

Department of Psychology at Georgia State University from the University of Alberta in Edmonton, Canada. Previously supported by the Natural Science and Engineering Research Council of Canada and the Canadian Diabetes Association, her research program investigates neurochemical processes involved in learning and memory, including the role of the amygdala.

Parent received her graduate training in the Department of Neurobiology and Behavior at the University of California, Irvine, under the mentorship of Dr. James McGaugh, a pioneer in the field of emotion and memory.

Parent later became a postdoctoral fellow with Paul Gold at the University of Virginia, where she expanded her research program to include an examination of emotional memory in people. In the CBN, she hopes to expand her collaborations with investigators. She recently received notice that her NINDS grant will be funded.

Gray Seeks to Build Minority Representation

As the deputy director for the integration of research and education, Danielle Gray is charged with the development of programs to increase representation by minorities and women in doctoral studies.

Before joining the CBN in March, Gray completed a post-doc in Alzheimer’s disease in the laboratory of Ashley Bush of Harvard University, where she gained expertise in the engineering of transgenic animal models. Her work focused on the impact of metal ions and chelation therapy on the solubility of beta amyloid, the key constituents of amyloid plaques in Alzheimer’s disease. She furthered her post-doctorate training at the Baylor College of Medicine.

For her graduate studies, Gray conducted research at Tulane University on the visual system, specifically the subcortical connections of the primary visual cortex. She helped define two new compartments in the inferior pulvinar, a part of the thalamus thought responsible for visual attention.

First Collaboratory Working Group Plumbs the Amygdala

The first collaboratory working group has been meeting Thursday mornings to develop projects related to the amygdala and social behavior. The first three meetings, led by Don Rainnie, Chang-Jun Shi, and Lorin Freedman, focused on detailed discussions of the organization of the extended amygdala.

Organizer Michael Davis enthusiastically noted the seminar’s growing popularity and the fact that almost all the CBN schools are represented.

Wallen Inducted As SBN President

Several CBN investigators attended the annual meeting of the Society for Behavioral Neuroscience Aug. 5-10 in Madrid, Spain. Larry Young gave one of the plenary talks titled Molecular and Cellular Basis of Monogamy. Kim Wallen also delivered a plenary talk titled Experience and Sexual Behavior and was inducted as the SBN’s president.
Rising Stars
Cadre of world-class investigators joins the CBN

In the first year of the CBN, one of the most important goals was to recruit new faculty to broaden our approach to behavioral neuroscience. The following profiles four of these recruits—Don “Tig” Rainnie, Chris Muly, Marise Parent, and Danielle Gray—who recently have arrived.

“Tig” Tackles the Amygdala

Before joining the CBN via the Emory Department of Psychiatry, Don “Tig” Rainnie conducted research at Harvard Medical School in the lab of Robert McCarley. Originally from Leeds, Tig trained at Edinburgh University, with a post-doc at the University of Texas at Galveston where he developed the techniques for neurophysiologic recording of amygdala slices. In more than 20 papers over the past 10 years, Tig has provided much of what is currently known about the microcircuitry of the amygdala.

When Michael Davis arrived at Emory last year to establish an interdisciplinary group on the amygdala, one of his first projects was to try to recruit Tig from Harvard. For his part, Tig was attracted by the opportunity to study amygdala slices in monkeys at Yerkes and collaborate with colleagues with behavioral, anatomic, and molecular expertise. When he is not recording, he avidly follows the English Premier Football league. His home team, Leeds United, recently suffered an ignominious defeat. Tig’s research is funded by grants from the Whitehall Foundation, NARSAD, and NIMH. He is also a CBN venture grant recipient.

Muly Maps the Prefrontal Cortex

Defining the intricate wiring of the brain and how it orchestrates complex behaviors is the goal of Chris Muly, who joined the CBN last December. Muly, an M.D. and Ph.D. neuroanatomist, is focused on the brain region most fully evolved in human and nonhuman primates, the prefrontal cortex, which is responsible for working memory.

In his research with macaque monkeys, Muly hopes to discover the key neural circuits involved in memory and cognition. He is also examining the interface among inputs to the prefrontal cortex and the various dopamine receptors found there. His research is funded by NARSAD and NIMH.

An affiliate researcher at Yerkes, with a dual appointment in the psychiatry department, Muly brings a blend of clinical and basic research interests. Muly’s clinical duties at Emory include supervising care at an outpatient psychopharmacology clinic of Grady Memorial Hospital.

Parent Is Full of Emotion

Dr. Marise Parent joined the

CONTINUED ON PAGE 4
Teaching Neuroscience in Middle School: No, We’re Not Kidding

Bucking popular misconceptions, Dr. Melissa Demetrikopoulos of Georgia State University demonstrated this summer that you can teach neuroscience to middle school students.

As part of the Summer 2000 Workshop Series, Demetrikopoulos led the Neuroscience Teacher Workshop: Diversity and Adaptation in the Brain for middle school teachers from the Atlanta area. The workshop focused on brain diversity as a way to expand upon the external characteristics that are used typically to study the comparative biology and classification areas of the state-mandated Quality Core Curriculum.

The series featured lectures, demonstrations, World Wide Web explorations, sheep-brain dissection, and a tour of Georgia State University’s BioBus, which brings science educational opportunities to schools in a travelling 30-foot, state-of-the-art laboratory supplementing the regular science curriculum in Georgia elementary schools. The teachers developed innovative and hands-on neuroscience modules, including game shows and cut-color-and-wear brain hats, that they will use in their own classrooms this year.

Workshop pictures and links to these and other resources can be found on the CBN website at http://www.cbn-atl.org/education/outreach.htm.

New Classes Introduce Students to Neurosciences

Four new opportunities this fall are introducing freshmen and sophomores to the study of behavior and neuroscience. At Morehouse College Melissa Harrington and Marge Weber Levene are the course organizers for “Mind and Brain: An Introduction to the Neurosciences.” The course introduces the breadth and diversity of neuroscience from an interdisciplinary perspective. This course is part of a new minor in neuroscience.

Danielle Gray is leading the new Introduction to Behavioral Neuroscience Seminar. The seminar will explore careers in behavior and neuroscience and research ethics, and highlight the current research of CBN members to 20 freshmen and sophomores. The final project will be an application for summer research in Center labs.

The neural basis of behavior is the focus of a new psychology course at Spelman College titled “Brain and Behavior.” Pamela Scott Johnson will lead the class.

The Center for Behavioral Neuroscience Undergraduate Fellows (CBNUF) program will welcome its first candidates this fall. Coupled with courses in behavior and neuroscience, the students will pursue an internship in research or another area such as science journalism or education. Information and application materials are available at http://www.cbn-atl.org/education/cbnuf/index.htm.

Next spring, CBN will co-sponsor a course called “Science and Health Writing,” taught by Nick Tate of The Atlanta Journal-Constitution.

Advisory Board Floats Suggestions

The CBN’s first External Advisory Board meeting was held Sept. 7-8, with 10 of the 13 board members in attendance.

The Board was enthusiastic about the scientific, educational, and knowledge transfer initiatives of the Center and lauded the rapid accomplishments of the CBN’s educational initiatives, including outreach programs.

Members offered several suggestions, including holding more retreats, enhancing scientific projects at the AUC schools, recruiting a behavioral ecologist, and developing a research program focusing on birdsong.

The report and charter of the EAB will be posted on LearnLink and the CBN website.
Wonder why hermaphroditic lizards have sex? Welcome to the world of David Crews. For the past 25 years, the Ashbel Smith Professor of Zoology at the University of Texas at Austin has been exploring the evolution of mating behavior, particularly in reptiles that do not require sex to reproduce. In a CBN evening seminar on Sept. 21, Crews described the evolution of mechanisms controlling mating behavior. The next speaker in the series is Andy Bass on Oct. 16 at 7 p.m.


Zoologist Explores Vagaries of Reptilian Sex

---

Two Grad Students Join CBN

The CBN recently welcomed to its ranks two graduate students, Matia Banks and Michelle Foster.

An Atlanta native, Banks earned her undergraduate psychology degree in 1999 from Georgia State University, where she studied conditioned defeat in hamsters. Her research interests include examining sex differences and the influence of hormones on conditioned defeat, and the relationship between gonadal hormones and the immune system in female hamsters.

Beyond her research, Banks hopes to be a role model for African-American women pursuing careers in the sciences. “The only way that we can attract more minorities in this area is to have someone in the field who they can relate to,” said Banks. “I hope to be that person for others coming into this field.”

As an undergraduate chemistry major at Spelman College, Michelle Foster spent a summer internship at Case Western studying ethanol uptake on adipocyte physiology. At the CBN, Foster will be working with Dr. Timothy Bartness of the Department of Psychology at Georgia State University to study how the brain controls energy balancing, including food intake and body fat storage. These studies will include using viruses as tract tracers to label the neurons that are part of the brain-to-fat circuit.