2016 ACTION PLAN
Neuroscience Institute, Georgia State University

Status of Action Items from Prior Review  N/A. (This is the first academic program review of the Neuroscience Institute, which was founded in 2008.)

Major Findings in Current Review

1. Research
Neuroscience research at GSU is strong and well-funded. The APR dashboard indicated that external funding totaled $10.7 million during the three-year review period, giving an average of $179,108 per faculty member per year. By far the strongest area is behavioral neuroscience. Faculty in that area are associated with the Center for Behavioral Neuroscience (CBN). An emerging area is neurogenomics, which was boosted by three Second Century Initiative (2CI) senior faculty hires in the past four years. The NI is relatively underrepresented in translational research. NI faculty members are well-cited (average h index 29), publish in first-rate journals, and provide significant service to the field, for example, as officers of national and international societies or as editors and members of funding panels. In FY 2014, the NI had 18 tenure-track faculty members and one lecturer in the core and 52 associate faculty members in other departments. The core faces several demographic challenges with faculty being unbalanced across ranks. Twelve out of eighteen are full Professors (five of whom are older than sixty), five are Associate Professors (all of whom have been in that rank for five years or longer), and one is a new Assistant Professor. Diversity is limited with only one faculty member of native American descent. Compounding the problem is the high administrative load of our faculty including three faculty members who are full time administrators.

2. Undergraduate Program
The NI offers a bachelor of science in Neuroscience, which grew from 31 majors since its inception in FY 2011 to over 320 in FY 2015 with a rate suggesting a doubling of these numbers in the following five years. The number of BS degrees awarded has increased from 8 in FY 2013 to 24 in FY 2015. Our majors are academically strong, with high school GPA, Freshman Index, SAT, and ACT numbers on the high end of University-wide numbers with almost a third in the Honors College. Their ethnic and gender composition reflects the high degree of diversity seen across campus. Data on outcomes are limited. Surveys of alums and current students show a high degree of satisfaction. An exception is the availability and variety of elective courses. Surveys of alums suggest that over half go on to advanced degree programs, often at first-rate institutions.

3. Graduate Program
The NI graduate program started in 2010, with 27 students transferring from existing programs to Neuroscience. The program grew considerably from 2012-2014 from 31 to 52 PhD students. In response to a relatively long time-to-degree (currently 7 years) and to increase the research activities of our students in their first years in the program, the core coursework and qualifying exam were restructured and stricter time lines for milestones were instituted in FY 2015. Our graduate students present at international meetings, publish in strong journals, and have received numerous awards. Upon graduating, most get postdoctoral positions in strong national universities and some already have faculty positions. Although the program is too young to be
included in most national rankings, it was ranked among the top 20 neuroscience graduate programs in the U.S. in 2014 and 2015 by Graduateprograms.com. The original stipend for doctoral students was $22,000 and has increased to $25,000. This remains less than the average of peer institutions, especially since health insurance is not included and mandatory fees must be paid by students, which could weaken recruitment, retention, and graduation.

4. Cities and Globalization
The NI is very active in K-12 educational programs and plays a leadership role in the Atlanta Science Festival. It runs an NIH-funded neuroscience program for high school students and teachers, and organizes professional development workshops for high school science teachers. It maintains the largest lending library in the Southeast US, providing teaching material to K-12 teachers, and it has set up public education exhibits at the Atlanta Zoo. Neuroscience is by nature a globally connected field. Our faculty have given numerous international presentations, taught at international courses, served on international professional societies, organized sessions at, or served on, program committees of international conferences, and hosted international visitors in their labs. We plan to maintain this same level of involvement going forward.

Action Steps for the Coming Cycle

1. Maintain and Expand Strength in Research
   a) The Director will request, from the College, lines to replace faculty that leave or retire and, from the Research Office, resources for Next Generation hires, to maintain strength in Behavioral Neuroscience, expand strength in Computational Neuroscience and Neurogenomics, and develop strength in Translational Neuroscience. We aim for hiring faculty with an extraordinary potential to establish new well-funded, independent research programs and contribute to the diversity of our program.
   b) The Director will promote developing a Center for Neuroinflammation to complement strength already present at GSU in inflammation, immunity, and medicinal chemistry.
   c) The Director will appoint a faculty member to oversee the development of a new Animal Behavior Phenotyping Core Facility, using existing space and managed by NI core faculty. Equipment will be purchased with funds from the Institute and the CBN. Funds will also be requested from the Research Office, in association with future hires.
   d) The Director and NI faculty will aim to double the number of postdoctoral researchers in the next review period, by requesting lines via multi-PI and institutional training grants as well as via a University’s Next Generation program led by Dr. Walter Wilczynski.
   e) Dr. Walter Wilczynski will oversee the development of a formal post-doctoral training program aided by Dr. Lisa Armistead, the Associate Provost for Graduate Education. The Program will develop individual training plans and a clearinghouse of GSU networking activities available to postdoctoral fellows. It will also provide Responsible Conduct of Research (RCR) training and workshops in applying for grants and academic positions.

2. Maintain and Enhance Undergraduate Program
   a) The DUS and UPC will assess learning outcomes and adjust curriculum as necessary.
   b) The Director of Undergraduate Studies (DUS), Dr. Aras Petrulis, together with the Undergraduate Program Committee (UPC), will develop and implement a plan to increase diversity and quantity of elective offerings.
c) The DUS and UPC will identify and remove course requirements that unnecessarily impede progress in the major in coordination with directors from associated programs. This will also allow majors to start taking neuroscience courses at an earlier stage.
d) The DUS and UPC will propose Freshmen Learning Communities (FLCs) and Perspectives (PERS) courses that increase the visibility of our program. The Director will identify faculty to teach these courses.
e) Dr. Manfred Schmidt and Dr. Gennady Cymbalyuk, in coordination with the DUS, will develop alternatives to the NEUR 3010 laboratory core course to avoid future bottlenecks caused by the limited space and resources available for the course.
f) The DUS will monitor levels of student research and retention and progression rates to make sure they remain high.

3. Maintain and Enhance Graduate Program
   a) The DGS and GPC will assess learning outcomes and adjust curriculum as necessary.
   b) The Graduate Program Director (DGS), Dr. Charles Derby, together with the Graduate Program Committee (GPC), will implement newly adopted curriculum changes that will make the program more efficient and reduce time-to-degree from 7 years to 5 years.
   c) The DGS and GPC will identify new course subjects that align with research and training priorities. If not covered by current GSU courses, new courses will be developed.
   d) The DGS together with Assistant Dean for Graduate Programs, Amber Amari, and in collaboration with other graduate programs in the Natural and Computational Sciences, will set up internships with clinical, industrial, and educational partners. We will also place a stronger emphasis on career preparation, including preparation for career paths beyond academia. Finally, we will formalize and enhance training in teaching.
   e) The Associate Director of Graduate Studies (AGS), Dr. Nancy Forger, will increase the scope and size of the MS by broader advertisement and better definition of our 4+1 option, and by development of new professional degree tracks in the MS program.
   f) If we are successful in increasing the number of research faculty and finding new ways to encourage associate faculty to mentor graduate students, we will grow the PhD program.

**Time line**

**FY 2017:** Recruitment of Next Gen faculty (1a). Development behavior core (1c). Diversifying undergraduate curriculum (2b). Modification course requirements (2c). Development FLCs and PERS courses (2d). Promotion 4+1 program (3e). Implementation of adopted changes in grad curriculum (3b). Diversifying Masters and developing postdoctoral program (3e and 1e).

**FY 2018:** Development of Center for Neuroinflammation (1b). Continued development of behavior core (1c). Continued diversification undergraduate curriculum (2b). Development of additional undergraduate laboratory courses (2e) Alignment of graduate curriculum with research interests (3c). Provide more options in training in non-academic subjects in graduate program (3d). Continued modification of Masters and postdoctoral programs (3e and 1e).

**FY 2019:** Launch of new Masters and postdoctoral program (3e and 1e) and new lab courses (2e). Implementation of curricular changes in undergraduate and graduate programs (2b and 3c).

**FY 2017- FY 2023** Maintaining current strength by appropriate hires (1a), encouraging scholarship and submission of research and training grant proposals (1d), efforts to increase the number of postdocs (1d), and assessment of learning outcomes (2a and 3a) will be ongoing.
4. Signature and Date Lines

Geert J. de Vries, Director, Neuroscience

Date 10/31/2016

Sara T. Rosen, Dean, Arts and Sciences

Date 10/31/2016

Risa Palm, Provost and Senior Vice President

Date 11/01/2016