The State University of New York (SUNY) Eye Institute (SEI) celebrated its fifth anniversary this past year, and this bold adventure in a wall-less institute spread across the geographic diversity of the State of New York remains fundamentally healthy. Since its inception as a cross-campus collaboration between the two stand-alone medical centers in the SUNY system, the SEI has grown to an impressive state-wide consortium. Our principle scientists, originally drawn from the founding health science centers: the College of Optometry, Downstate Medical Center, Stony Brook University, University at Buffalo, and Upstate Medical University have now grown to include faculty from a wide-variety of other campuses including the College of Nanoscale Science and Engineering at SUNY Albany, SUNY Geneseo, and SUNY Institute of Technology. Thus, our reach extends the full breadth of New York State. Since the inception of the SEI, our 45 principle investigators have received over 52 R01 research grants, 4 training grants, and 5 K awards from the National Institutes of Health among a variety of other awards. The total awarded funds exceed 46 million dollars in federal funding for vision research. Were the SEI in a single building on one campus, it would indeed be one of the largest vision centered research institutes in the United States.

However, the power of the institute lies precisely in its ability to join forces across New York State and uniting the strengths of our component campuses. Simply put, the whole is greater than the sum of its parts and similar to the nervous system that many of us study, the complementary properties and combinatorial power of our group far exceeds what any one institution could achieve. During the frequent air raids over England in the 1940’s, the great English Universities protected their intellectual capital by mixing faculty and scientists into different shelters. Thus, if one bunker were hit, a whole discipline would not be lost. The resultant admixture of scientific expertise had a profound and lasting effect on one of the great pioneers of neuroscience, A.L Hodgkin, who helped unlock the basic mechanisms of the action potential.

None of our campuses could afford the concentration of faculty and expertise that is enabled by the cross-campus collaboration the SEI represents. One tangible result of our consortium is the creation of the only pharmacology research center devoted to the development of agents to treat retinopathy of prematurity. This effort is headed up by Professor Jacob Aranda, director of neonatology at SUNY Downstate along with Assistant Professor Kay Beharry, Director of the Perinatal-Neonatal Pharmacology Translational Lab at SUNY Downstate and involves informatics and pharmacology faculty at the University at Buffalo as well as clinical faculty at Stony Brook University. This is ground-breaking work that involves neonatologists, pharmacologists and bioinformatics all focused on preventing a blinding disorder in children.

The future direction for the SEI is indeed bright. Plans are now taking shape for our groups to share in graduate and post-graduate basic science education and training, undergraduate and graduate medical education, and mentoring of junior faculty. Collectively, we have a very large training program with over 100 graduate and post-graduate basic members-in-training.
and nearly 70 ophthalmology and optometry residents. The Downstate Medical Center program is indeed one of the largest and most successful urban residency programs in the country. The hallmark of our training is the ability to effectively train across the barrier between basic and clinical sciences.

Moreover, our clinical sites provide over 300,000 patient visits per year, the vast majority of whom reside in the New York City metropolitan area with its great ethnic and social diversity, and as a result, there exists great potential for clinical research. We have begun the process of sharing clinical research resources and one site, the College of Optometry in Manhattan, taking a leadership position in the development of a dedicated clinical vision research facility; another site, Stony Brook University is an acknowledged leader in the epidemiology of visual disease. Indeed, the SUNY system has undertaken an effort to rationalize its IRB processes for human research and cross-recognize each other’s protocols. Developing multi-center research efforts are no longer a regulatory nightmare for investigators, even while preserving the highest level of participant safety and privacy. Based on its past successes, and its future potential, the SEI has become a model for integration of research efforts across the 64 campuses of the SUNY system.

The annual workshop and conference of the SEI is the highlight of our collective activity. This year our meeting was held on the urban campus of Downstate Medical Center in Flatbush Brooklyn. Attendance at the two-day meeting was the highest in our history with 80 attendees (Figure 1). The event started off with welcoming remarks by the Honorable Martin Golden, New York State Senator and Chair of the New York State Senate Select Committee on Science, Technology, Incubation and Entrepreneurship. Senator Golden’s remarks highlighted the interest and role of the state government in spurring the economic diversification of the New York economy beyond the financial sector and outlined a series of state sponsored initiatives designed to enhance academic-industrial partnerships in science and technology. He noted with great clarity that the urban areas in the United States that weathered the recent economic turmoil were those with the most vibrant academic communities. His presentation was followed by remarks from Dr. Mark Stewart, Dean of the School of Graduate Studies and Vice Dean for Research at Downstate. Dr. Stewart highlighted several of the SUNY programs to establish Networks of Excellence in four decisive areas including SUNY Health Now and Brain. This was followed by the annual Robert Barlow Memorial Keynote lecture, delivered this year by Martin Friedlander MD, PhD, entitled “Stemming Vision Loss with Stem Cells.”

Dr. Friedlander, Professor of Cell and Molecular Biology at the Scripps Research Institute and a Downstate medical graduate spoke about his work using stem cells to regulate both retinal neovascular disease as well as retinal degeneration. Scientific presentations were made by SEI faculty including: Michael Zuber, Ophthalmology from Upstate Medical University; Sarah Zhang, Ophthalmology from University at Buffalo; Youping Xiao, Ophthalmology Downstate Medical University; and Miduturu Srinivas, from the College of Optometry. Short monographs by these presenters follow this introduction.

This year we had two platform sessions (Figure 2) devoted to presentations by SEI members-in-training (MIT), the complete listing of these presentations follows:

Figure 1. Group photograph of SUNY Eye Institute members at the fifth annual workshop. Eighty faculty, residents, post-doctoral fellows and students attended the meeting held on the SUNY Downstate campus, Oct 18-19, 2013.
SESSION I

1. Reyna Martinez-DeLuna, PhD – Upstate Medical University, post-doctoral fellow; “Maturin is a Novel Gene Regulated During Eye Formation and Required for Normal Neural Differentiation”.

2. Romain Bachy – College of Optometry; graduate research assistant; “Factors Governing the Speed of Color Adaptation in Foveal Versus Peripheral Vision”.

3. Trevor Griffen – Stony Brook University; graduate research assistant; “Rapid, Experience-Dependent Changes in Visual Responses”.

4. Ghulam Dastgir, MD – Downstate Medical Center; resident in ophthalmology; “Impact of Intravitreal Bevacizumab on Intraocular Pressure”.

SESSION II

1. Jeremiah Martino – Downstate Medical Center; graduate research assistant; “Laminins and Netrin-4 in Corneal Development and Innervation”.

2. Darshan Sapkota – University at Buffalo; graduate research assistant; “Redundant Roles for Oc1 and Oc2 in Mouse Retinal Development”.

3. Michael Dattilo, MD, PhD – Downstate Medical Center; resident in ophthalmology; “Dominant Optic Atrophy – Issues for the Research Community”.

4. Han Yen Tan, PhD – Upstate Medical University; post-doctoral fellow; “Are G Protein Coupled Receptors Transported by IFT in Sensory Cilia?”. 

The wide variety of these MIT talks reflects the diversity and the power of the SEI. Particularly, noteworthy in our program is the mixture of clinical and basic discovery sciences indicating the breadth of training programs and mentoring potential.

Another noteworthy event was a panel discussion (Figure 3) entitled “NEI Audacious Goals: Towards a New Collaborative Mechanism” with Matthew McMahon, PhD, Mark Stewart MD, PhD, and Martin Friedlander, MD, PhD as discussants and William J. Brunken, PhD and Steven J. Fliesler, PhD as moderators. This panel discussion focused on the evolving nature of scientific funding for academic science. The consensus of the panel and the participants was that diversifying research portfolios is now de rigueur; this includes funding from federal, state and private sources. More importantly, the development of interdisciplinary teams approaching scientific discovery or translational problems is likely to be an increasing successful model for the future of vision research and biomedical science in general. Thus, the collaborative teams setup by the SEI are positioning our faculty and members-in-training well for the future.

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Conflicts of Interest

None.

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