The Rose F. Kennedy IDDRC and CERC

2nd Annual Isabelle Rapin Conference on Communication Disorders

DYSLEXIA WORKSHOP AND ROUNDTABLE

Monday, October 21, 2013
9:00 am to 3:00 pm
Price Center/LeFrak Auditorium
# Second Annual Isabelle Rapin Conference on Communication Disorders

**DYSLEXIA WORKSHOP AND ROUNDTABLE**  
**Monday, October 21, 2013**  
**9:00am to 3:00pm**  
**Venue: Price Center-LeFrak Auditorium**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.30 – 9.00 am</td>
<td>Continental Breakfast (available in Lower Lobby)</td>
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<tr>
<td>9.00 – 9.10 am</td>
<td><strong>Welcome and opening remarks by John Foxe, Ph.D.</strong> (Director of Research of the Children’s Evaluation and Rehabilitation Center (CERC), Associate Director, Rose F. Kennedy Intellectual &amp; Developmental Disabilities Research Center (IDDRC))</td>
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<tr>
<td>9.10 – 10.00 am</td>
<td>“Neuroimaging studies of reading and development and reading disability: An update on recent findings” by Ken Pugh, Ph.D. (President and Director of Research, Haskins Laboratories, Director, Yale Reading Center)</td>
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<tr>
<td>10.00 – 10.15 am</td>
<td>“What a noisy environment tells us about multisensory speech processing in Dyslexia” by Noemi Hahn</td>
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<td>10.15 – 10.30 am</td>
<td>“Neuroimaging the cortical network for multisensory speech integration in Dyslexia” by Jung-Kyong Kim</td>
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<td>10.30 – 10.50 am</td>
<td>Coffee break (available in Lower Lobby)</td>
</tr>
<tr>
<td>10.50 – 11.40 am</td>
<td>“Dyslexia and ADHD: The genetic relationship” by Cathy L. Barr, Ph.D. (Division of Genetics and Development, Toronto Western Research Institute, Professor, Department of Psychiatry, University of Toronto)</td>
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<tr>
<td>11.40 – 11.55 am</td>
<td>“Learning from errors: Altered visuomotor integration in Dyslexia as revealed by Saccade adaptation” by Michael Gray</td>
</tr>
<tr>
<td>12.00 – 12.45 pm</td>
<td>Lunch (available in Lower Lobby)</td>
</tr>
<tr>
<td>12:45 – 1.35 pm</td>
<td>“How might neuroimaging research translate into help for children with Dyslexia?” by John D.E. Gabrieli, Ph.D. (Grover Hermann Professor of Health Sciences and Technology and Cognitive Neuroscience, Harvard-MIT Division of Health Sciences and Technology (HST) and Department of Brain and Cognitive Sciences, MIT)</td>
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<tr>
<td>1.35 – 2.00 pm</td>
<td>Coffee break/Conclusion (available in Lower Lobby)</td>
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<tr>
<td>2.00 – 3.00 pm</td>
<td>Roundtable moderated by John Foxe, Ph.D. and Sophie Molholm, Ph.D. Rm. 451</td>
</tr>
</tbody>
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Title: Neuroimaging studies of reading and development and reading disability: An update on recent findings.

Abstract: Reading disability (RD) has been characterized as a brain-based difficulty in acquiring fluent decoding skill, associated (in alphabetic languages at least) with problems in operating on the phonological structures of language. We present findings from ongoing studies in our lab which indicate that RD children and adolescents fail to develop a coherent left hemisphere reading circuitry, consisting of distributed cortical and subcortical networks, that in typically developing (TD) readers comes online to support fluent word reading. With regard to neuroplasticity and remediation, treatment studies from our group and others have examined the influence of intensive reading remediation in at-risk children and adolescents, revealing substantial gains in both reading scores and corresponding development of key LH reading networks for readers afforded this treatment. Moreover, recent extensions of learning studies with older RD readers continue to suggest a high degree of plasticity in this age-range. Finally, we present new findings from an ongoing longitudinal study that reveals important gene-brain-behavior relations in very young children at risk for RD. We will also discuss new methodological developments for gene-brain-behavior research, and new directions in research on reading including recent studies of learning and consolidation, and second language literacy acquisition.

Title: Dyslexia and ADHD: The genetic relationship

Abstract: Developmental dyslexia commonly co-occurs with attention-deficit/hyperactivity disorder (ADHD). The basis for this overlap is not completely understood but twin studies provide support for common genetic influences, particularly for inattention symptoms. Further, genetic linkage studies have found overlapping linkage signals on some chromosomes. The objective of our studies is to identify and understand the role of genes contributing to dyslexia and ADHD symptoms. We examined evidence for the involvement of specific genes in shared chromosomal regions between ADHD and dyslexia using independent samples of families ascertained for dyslexia and ADHD. Our studies of the chromosome 6p region indicate that dyslexia and reading skills are more strongly associated with the gene KIAA0319 and ADHD symptoms are more strongly associated with the gene DCDC2. Both associated genes are implicated in neuronal migration. This data supports a long held hypothesis based on postmortem findings, that genetic risks for RD would affect neuronal migration and would disrupt neuronal circuits involved in language function. For both of these genes, the genetic findings indicate that the genetic risk is related to the expression of the genes. To identify and study the regions controlling gene expression, we co-opted high throughput methods to simultaneously identify and test function for DNA variants within gene regulatory regions. While the studies identifying shared association findings for dyslexia and ADHD are preliminary, they are promising in that they will ultimately help to disentangle the causal relationship.
Abstracts

Speaker: John Gabrieli, Ph.D., The Grover Hermann Professor of Health Sciences and Technology and Cognitive Neuroscience, (MIT), with appointments in the Department of Brain and Cognitive Sciences, the Institute for Medical Engineering & Science, and the McGovern Institute for Brain Research, where he directs the Martinos Imaging Center

Title: How might neuroimaging research translate into help for children with Dyslexia?
Abstract: Over the past decade, neuroimaging studies have revealed differences in brain structure and function between individuals who do (dyslexia) or do not have difficulty in reading, and also structural and functional plasticity associated with effective intervention programs. Now, a key question is whether such neuroscience knowledge can be used to help individuals with dyslexia. I will discuss some research directions that may address this question, including the use of brain measures to predict the trajectory of reading difficulty (successful compensation versus persistent difficulty), to support appropriate diagnostic criteria (such as the use or misuse of discrepancy criteria for diagnosis), and to identify children at risk for reading failure prior to reading instruction (and thus justify early intervention).

Speaker: Noemi Hahn, Ph.D.
Postdoctoral Fellow, Cognitive Neurophysiology Laboratory, the Albert Einstein College of Medicine

Title: What a noisy environment tells us about multisensory speech processing in Dyslexia

Speaker: Jung-Kyong Kim, Ph.D.
Postdoctoral Fellow, Cognitive Neurophysiology Laboratory, the Albert Einstein College of Medicine

Title: Neuroimaging the cortical network for multisensory speech integration in Dyslexia
Title: Learning from errors: Altered visuomotor integration in Dyslexia as revealed by Saccade adaptation

Roundtable Facilitators

John J. Foxe, Ph.D.
Professor, Department of Pediatrics
Professor, Dominick P. Purpura Department of Neuroscience
Director of Research of the Children's Evaluation and Rehabilitation Center, Department of Pediatrics

Sophie Molholm, Ph.D.
Associate Professor, Department of Pediatrics
Associate Professor, Dominick P. Purpura Department of Neuroscience
Muriel and Harold Block Faculty Scholar in Mental Illness, Department of Pediatrics

Sponsors

The Nathan Gantcher Foundation

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