In the modern age of clinical research, the Internet is a powerful tool. It can be used to keep abreast of the latest research results or changes to ethical and regulatory guidance. It can also be used to identify and learn about colleagues and potential collaborators.

Recognizing the importance of having a presence on the Internet, the Pediatric Vision Science Research Group is proud to announce the launch of our own website:

**PVSRG.ORG**

PVSRG.ORG will serve as the online home for the group. The site currently hosts information about the location and organization of the PVSRG. There are also concise biographies of our researchers that provide a quick view of the areas of expertise and interests of our diverse membership.

The website will serve as the point of distribution for our newsletter *An Eye on Research* starting with the current issue. From this point those on our distribution list will be sent a link to the website each time a new issue is posted. We hope this will be a welcome change as it means we will no longer be sending large email attachments. The site will also contain an archive of all past issues of *An Eye on Research*. Another advantage of digital distribution is that the newsletter will be able to contain hyperlinks to web-based content of interest.

Visitors to the website will be able to seek information or provide feedback through dedicated email addresses, including an address for requests to be added to our email distribution list (newsletter@pvsg.org).

We hope that PVSRG.ORG will make it easier for colleagues and collaborators to learn about our research and contact us. We encourage our colleagues and supporters to feel free to add a link to our site on your own.

Please stop by the site some time and send us feedback. We would love to hear your suggestions for improving the site.

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The ultimate goal of health research, whether it be basic science or clinical, is to result in a positive impact on people’s health. This process is not always straightforward and can often take unexpected turns and considerable time. What follows is an example of the way a clinical challenge can become a research project with the goal of ultimately bringing the research discoveries back to the clinic to help the patients.

It all started in 1986 when Dr. François Tremblay, electrophysiologist heading the newly established Electrodiagnostic Lab in the IWK Health Centre Eye Clinic, examined a patient who presented very puzzling test results. They resembled results of patients with Congenital Stationary Night Blindness (CSNB), but differed in some very important ways. The case was presented to visiting specialists who could not find any explanation for the particular characteristics, or phenotype. A clue came about a year later when Dr. Y Miyake described a very similar phenotype in a group of individuals of Japanese origin [1]. With this information to build on, the IWK team (Dr. Tremblay, Dr. Robert LaRoche and Dr. Inge DeBecker) undertook a detailed assessment of affected patients of Caucasian background to describe the retinal phenotype and functional consequences at the brain level. At this point the condition was identified as the incomplete form of Congenital Stationary Night Blindness (iCSNB or CSNB2) and these results were published in 1995 [2]. In 1997 the IWK team was joined by Dr. Johane Robitaille. Dr. Robitaille joined the project from an oculogenetics point of view and secured funding to investigate the pedigree and collect blood samples in an effort to identify the gene responsible for iCSNB. The research in Halifax led to collaboration with Dr. Torben Bech-Hansen of the University of Calgary’s Hotchkiss Brain Institute. Dr. Bech-Hansen added the results of the Halifax patients to those of a Mennonite community he had studied in Alberta. Great dedication to this project resulted in the identification of the gene responsible for iCSNB, published in 2001[3]. The next challenge was to investigate the mechanism that leads from one defective gene to the symptoms the patients experience. Years of study yielded the answer: the defective gene interferes with an ion channel (Ca_v1.4) present at the synapse of photoreceptors. Such channels are crucial in allowing the photoreceptors that detect light in the eye to communicate with other cells in the retina. The exact nature of the defect is difficult to study in humans, so Dr. Bech-Hansen developed a mouse model of the disease by artificially...
introducing a mutation into the mouse version of the gene. With a reliable animal model available, study continued both in Calgary and back in Halifax in the basic science labs of Dr. Tremblay and Dr. Steven Barnes, both members of the Retina and Optic Nerve Research Laboratory at Dalhousie University. A 2005 joint publication [4] summarizes what was learned about how the defective gene affects the function and even the organization of cells in the structure of the mouse retina. Meanwhile, Dr. Tremblay and orthoptist / ophthalmic medical technologist Joan Parkinson of the IWK Eye Clinic continue to investigate the condition in patients at the clinic, leading to another publication in 2008 [5]. By continuing to add to the basic science and clinical literature on iCSNB researchers around the world are improving our understanding of the pathophysiology behind iCSNB that will allow the development of strategies to compensate for that deficit, work that will return the benefits of health research back to the patient. This story demonstrates the necessity of building effective collaborations in order to advance knowledge in modern science.

Today the IWK Electrodiagnostic Lab provides assessment techniques at the fore of visual diagnostics and evaluates about 350 pediatric and adult patients per year. Dr. Tremblay and Ms. Parkinson continue to generate interesting research questions based on the patients that come to see them. Current research topics include the influence of anaesthetics on neuronal communication, the neuroprotective effects of anthocyanins (abundant in blueberries) and the development of vision tests for patients not compatible with current methods, such as Downs Syndrome and ADHD patients. It is hoped that these projects will follow in the footsteps of the iCSNB story and bring the benefits of research full circle, back to the patients who started it all.


The PVSRG would like to extend a warm welcome to Dr. Naeem Nabi who has recently joined the IWK Health Centre Division of Ophthalmology. Dr Nabi pursued his post-secondary training in Multan, Pakistan as well as Edinburgh and London, UK. He completed a Fellowship in Pediatric Ophthalmology at the Hospital for Sick Children in Toronto. Dr. Nabi comes to Halifax from his previous appointments in the UK at Royal Glamorgan Hospital, Llantrisant, Mid Glamorgan; University Hospital of Wales, Cardiff and ABM NHS Trust, Singleton Hospital, Swansea.

In addition to his clinical practice, Dr. Nabi has been very involved in the education and training of undergraduate students, medical students and residents.
We warmly welcome Dr. Nabi and look forward to years of fruitful collaboration.

Celebrating Success

Publications

Funding
Dr. François Tremblay is a member of a recently successful funding application entitled “Developing Innovative Wild Blueberry Food Products, Processes and Information for Human Health” The project was submitted to the Developing Innovative Agri-Products Initiative of the Industry Ministry of Canada. Led by Dr. Wilhelmina Kalt, team members are from industry and academia with contributors from BioAtlanticTech, Wild Blueberry Association of North America, Atlantic Food and Horticulture Research Centre, Dalhousie University / IWK Health Centre, Université de Montréal and University of Ottawa. Dr. Tremblay’s portion of the project will include two animal studies that will take place in the...
Retina and Optic Nerve Research Laboratory and a clinical trial that will be run from the PVSRG Lab at the IWK and investigate the potential beneficial effects of dietary supplementation with blueberry juice in individuals with macular degeneration.

**Thesis Defences**

Congratulations to Shannon MacDonald on the successful defence of her Masters thesis in Clinical Vision Science. Shannon’s thesis was entitled “An evaluation of prehension in individuals with absent stereacuity: Is there a binocular advantage?” and was conducted under the supervision of Dr. David Westwood, Associate Professor in the Dalhousie University School of Health & Human Performance and Scientific Staff at the IWK Health Centre. The defence took place June 17th, 2009 at the IWK. Shannon’s research was funded by an IWK Category B Operating Grant to Dr. Westwood, Dr. G. Robert LaRoche and Ms. Karen McMain, as well as a Student Research Award in Shannon’s name from the Nova Scotia Health Research Foundation.

Since defending and graduating from the Clinical Vision Science program Shannon has begun a degree in Medicine at Dalhousie.

Congratulations also go out to Lesley MacSween who successfully defended her Clinical Vision Science MSc thesis on August 17th, 2009. Lesley’s thesis title was “Form-from-motion processing in the intact dorsal cortex” and she was supervised by Dr. Patricia McMullen, a Professor in Dalhousie University’s Department of Psychology. Lesley’s work has led to a publication in *Journal of Vision* entitled “Behavioral effects of visual field location on processing motion- and luminance-defined form.” (see citation under publications)

Lesley is currently working as a full time orthoptist at Hotel Dieu Hospital in Kingston, Ontario.

**Awards**

Second year students in the Clinical Vision Science program wrote their certification exams during the Canadian Ophthalmological Society (COS) Annual Meeting at the end of June. Congratulations to the five students who received their certification: Allison Allain, Kari Smith, Meagan Beazley, Sarah Farrag and Zuzana Ecerova.

Very special congratulations go out to Zuzana Ecerova who received The Canadian Orthoptic Society award for achieving the highest score of all students on the certification exam. In addition, Zuzana received the Canadian Ophthalmological Society Merit Award for having scored better than 90% on each exam component. This prestigious award is rarely conferred due to the difficulty in attaining this level of success. Well done, Zuzana!

Clinical Vision Science student Leah Wood was awarded Honourable Mention for her presentation at the Dalhousie University Department of Ophthalmology & Visual Sciences Research Day 2010. Leah’s project...
"Isoflurane anesthetic has dose-dependent selective impact on on- and off-responses of retinal ganglion cells" is being conducted at the Retina and Optic Nerve Research Laboratory and supervised by Dr. François Tremblay.

Leah also received a Travel Award from the IWK Health Centre to present her research findings at the International Society for Eye Research (ISER) Biennial Meeting in Montréal, QC this July.

Hadil Eshtayah, a senior Clinical Vision Science MSc student, received travel support from HAAG-STREIT International to present the findings of her thesis research at the recent ARVO meeting in Fort Lauderdale, Florida. Hadil is investigating potential visual field deficits in migraine sufferers using automated kinetic perimetry.

Certification

Congratulations to Steve Van Iderstine, Research Associate to the PVSRG, on attaining the designation of Certified Clinical Research Professional (CCRP). This internationally recognized designation is conferred by the Society of Clinical Research Associates (SoCRA; www.socra.org) and requires two years of full-time experience in the field before an applicant is permitted to sit the certification exam. Steve passed the exam in April, after attending the Clinical Site Manager / Coordinator Workshop, hosted by the Halifax Chapter of SoCRA.

Posters & Presentations
10 Kalt W, SAE Filmore, J McDonald, & F Tremblay. Research on Blueberry Anthocyanins and Vision. Berry Health Benefits Symposium, Monterey California,
2009.


Toronto ON, 2009.


CONFERENCES & MEETINGS

PVSRG members regularly present their research at various meetings & conferences. Below are some recent and upcoming events.

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Event (PVSRG presenters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 26</td>
<td>Lord Nelson Hotel, Halifax</td>
<td>Dalhousie University Department of Ophthalmology &amp; Visual Sciences Research Day (Presentations by Leah Wood, Lori Bramwell, Bo-Ram Hong &amp; Mishari Dahrab)</td>
</tr>
<tr>
<td>May 2 - 6</td>
<td>Fort Lauderdale, FL</td>
<td>The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting (Posters by Paul Artes, Hadil Eshtayah, Leah Wood &amp; François Tremblay)</td>
</tr>
<tr>
<td>June 26 - 29</td>
<td>Québec City, QC</td>
<td>Canadian Ophthalmological Society (COS) Annual Meeting (Presentation by Johane Robitaille. Posters by Johane Robitaille &amp; Bo-Ram Hong)</td>
</tr>
<tr>
<td>July 18 – 23</td>
<td>Montréal, QC</td>
<td>International Society for Eye Research (ISER) Biennial Meeting (Posters by Leah Wood &amp; Bo-Ram Hong)</td>
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PROJECTS UPDATE

<table>
<thead>
<tr>
<th>Investigator(s)</th>
<th>Study</th>
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<tbody>
<tr>
<td>Lina Alkamous†, Ahmed Alsaleh &amp; Arif Khan</td>
<td>Does antisuppression therapy improve control in non-diplopic patients with Intermittent Exotropia?</td>
</tr>
<tr>
<td>Meggie Beazley§ &amp; Melanie Kelly</td>
<td>Effect of atypical and classical cannabinoids on intraocular pressure in normotensive CB1R knock-out mice</td>
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<tr>
<td>Michael Betts§, Paul Artes &amp; Karen McMain</td>
<td>The Manchester Radial Deformation Acuity Chart: A New Clinical Test for Amblyopia?</td>
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<tr>
<td>Lori Bramwell§§ &amp; Robert LaRoche</td>
<td>Ocular Abnormalities in Autism</td>
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<tr>
<td>Mishari Dahrab§§§ &amp; Robert LaRoche</td>
<td>Error of calibrations in ophthalmic calipers</td>
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<tr>
<td>Hadil Eshtaya§ &amp; Lesya Shuba</td>
<td>Visual field effects in long term migraine patients</td>
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<tr>
<td>Investigator(s)</td>
<td>Study</td>
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<tr>
<td>Leila Fahim^{5} &amp; Robert LaRoche</td>
<td>Is motion stereopsis a separate visual function?</td>
</tr>
<tr>
<td>Bo-Ram Hong^{6}, Johane Robitaille &amp; Paul Artes</td>
<td>Visual function in school-age children with a history of prematurity</td>
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<tr>
<td>Robert LaRoche &amp; David Gaskin</td>
<td>Microscopy of the inferior oblique structure</td>
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<tr>
<td>Robert LaRoche &amp; Leah Walsh</td>
<td>Chart review on results of inferior oblique myectomy in patients with superior oblique palsy</td>
</tr>
<tr>
<td>Sarah Mackinnon^{5} &amp; David Hunter</td>
<td>Accuracy of self-reported history of strabismus</td>
</tr>
<tr>
<td>Roxana Rivera^{666} &amp; Robert LaRoche</td>
<td>Effect of Sevofluorane on the intraocular pressure</td>
</tr>
<tr>
<td>Johane Robitaille</td>
<td>Genetic analysis of Frizzled-4 (FZD4) and its influence on familial exudative vitreoretinopathy (ROP) and other associated retinal disorders</td>
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<tr>
<td>Johane Robitaille</td>
<td>National Retinoblastoma Strategy</td>
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<tr>
<td>Johane Robitaille</td>
<td>Genetic analysis and mutation effect on the variation of phenotype of autosomal dominant optic atrophy (ADOA)</td>
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<tr>
<td>Johane Robitaille</td>
<td>Genetic analysis and mutation effect on the variation of phenotype of Leber's Congenital Amaurosis</td>
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<tr>
<td>Johane Robitaille &amp; François Tremblay</td>
<td>Clinical and genetic analysis of Presumed Pericentral Retinal Degeneration</td>
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<tr>
<td>Andrea Skeet^{6} &amp; François Tremblay</td>
<td>An investigation of central vs. peripheral visual evoked potentials in amblyopia</td>
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<tr>
<td>Kari Smith^{5} &amp; François Tremblay</td>
<td>Characterization of Inhibitory Binocular Interactions and Clinical Significance</td>
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<tr>
<td>Meghan Tice^{5}, Karen McMain, Mary Lou McGregor &amp; Angela Serna</td>
<td>The Frequency of Association between Fourth Cranial Nerve Palsies and Convergence Insufficiency: An Observational Cohort Study</td>
</tr>
<tr>
<td>François Tremblay</td>
<td>Anthocyanins in the light-induced retinopathy rat</td>
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<tr>
<td>François Tremblay</td>
<td>Modeling of the ON and OFF interactions of the photopic ERG oscillatory potentials</td>
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<tr>
<td>François Tremblay &amp; Joan Parkinson</td>
<td>The effect of stimulus masking on pattern visual evoked potential and pattern electroretinogram</td>
</tr>
<tr>
<td>Leah Wood^{6} &amp; François Tremblay</td>
<td>The impact of anaesthesia on neuronal activity: an ex vivo retinal model looking at isoflurane, propofol and nitrous oxide</td>
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^{5} Clinical Vision Science MSc candidate  
^{666} Ophthalmology Resident  
^{666} Ophthalmology Fellow
PVSRG MEMBERSHIP COMPOSITION

PVSRG

IWK Division of Ophthalmology
IWK/Dalhousie Clinical Vision Science Graduate Program
IWK Eye Care Team
Dalhousie Department of Ophthalmology & Visual Sciences
External Collaborators

CONTACT US
If you have comments on this newsletter, or if you would like more information about the PVSRG, please visit our website at www.PVSRG.org or contact:

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