



**Canadian Arthritis Network  
International Partnership Initiative**

**International Research & Training Program  
LABORATORY/CLINIC PROFILE**

**Contact information of the principal investigator**

<b>Name:</b>	Jason J. McDougall
<b>Dept and Institution:</b>	Department of Physiology & Biophysics, University of Calgary
<b>Complete mailing address:</b>	3330, Hospital Drive NW, Calgary, Alberta, T2n 4N1
<b>Phone:</b>	(403) 220 4507
<b>Email:</b>	mcdougaj@ucalgary.ca

**Please indicate if you are member or affiliate of one or more of the following International Partnership Initiative organizations:**

- AO Foundation – Biotechnology Advisory Board, Switzerland
- Arthritis Foundation, USA
- Arthritis Research Campaign, UK
- Canadian Arthritis Network, Canada
- Japan Society for the Promotion of Science, Japan
- Nuffield Foundation Oliver Bird Rheumatism Program, UK

**International Research & Training Program Opportunity**

**Please indicate which of the following international opportunities would be available at your laboratory/clinic.**

- Training Elective Rotation
- Research Mini-sabbatical
- Industry Training Rotation



**The International Research & Training Program will be available for trainee elective rotations and investigator mini-sabbaticals that commence on or before March 31, 2009. If you have any preferences regarding the dates when you can host an international trainee or investigator, please indicate this below.**

<b>Visit Length</b> (please indicate start and end dates if known):	Up to 6months
---	---------------

**Please provide ten key words and a brief description of the research currently being conducted in your laboratory/clinic, including descriptions of any specialized equipment, methods or technologies employed at your facility.**

**10 key words**

<ol style="list-style-type: none"><li>1. Pain</li><li>2. Animal Models</li><li>3. Joint Inflammation</li><li>4. Joint Innervation</li><li>5. Electrophysiology</li><li>6. Osteoarthritis</li><li>7. Cannabinoids</li><li>8. Proteinases</li><li>9. Neuropeptides</li><li>10. Drug targets</li></ol>
---

**Brief description** (up to ½ page)

<p>My research focuses on the neural mechanisms responsible for the generation of arthritis pain and inflammation. Electrophysiological and behavioural techniques are used to assess joint pain in animal models of osteoarthritis and rheumatoid arthritis. We also uses state-of-the-art laser Doppler imaging technology to measure joint blood flow, intravital microscopy techniques to assess leukocyte biology, and protein extravasation measurements as parameters of joint inflammation. My research is currently examining the role of various neuropeptides, proteinases, opioids and cannabinoids in arthritis pain and vasomotor tone. We have identified a group of protein activated receptors (PARs) in articular tissue which when activated modulate inflammatory processes and pain generation. My research goal is to identify novel drug targets and discover new treatments which will help alleviate chronic pain and restore joint function.</p>
--

**Key publications** (maximum 5 publications)

<p><b>Mc Dougall, J.J.</b> (2006). Arthritis and pain: Neurogenic origin of joint pain. <i>Arthritis Research and Therapy</i> <b>8</b>: 220-229.</p>
--



CANADIAN LE RÉSEAU  
ARTHRITIS CANADIEN  
NETWORK DE L'ARTHRITE

Schülert, N. and **Mc Dougall, J.J.** (2006). Electrophysiological evidence that the vasoactive intestinal peptide receptor antagonist VIP<sub>6-28</sub> reduces nociception in an animal model of osteoarthritis. *Osteoarthritis & Cartilage* **14**: 1155-1162.

**Mc Dougall, J.J.**, Watson, L. and Li, Z. (2006). Vasoactive intestinal peptide (VIP) is a modulator of joint pain in a rat model of osteoarthritis. *Pain* **123**: 98-105.

Li, Z., Proud, D., Zhang, C., Wiehler, S. and **Mc Dougall, J.J.** (2005). Chronic arthritis downregulates peripheral mu-opioid receptor expression with concomitant loss of endomorphin-1 anti-nociception. *Arthritis & Rheumatism* **52**: 3210-3219.

Baker C.L. and **McDougall, J.J.** (2004). The cannabinomimetic arachidonyl-2-chloroethylamide (ACEA) acts on capsaicin-sensitive TRPV<sub>1</sub> receptors but not cannabinoid receptors in rat joints. *British Journal of Pharmacology* **142**: 1361-1367.