



**Canadian Arthritis Network
International Partnership Initiative**

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

Contact information of the principal investigator

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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.

Visit Length (please indicate start and end dates if known):	August 2007 – August 2008
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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

1. animal models for cartilage repair and biocompatibility
2. chitosan fluorescent labelling
3. in vitro cell assays (bone marrow stromal cell osteogenesis)
4. gene and protein expression (RT-PCR, ELISA, western blotting)
5. histology and immunohistology (cryosection, plastic, paraffin)
6. fluorescence plate reader
7. chitosan hydrogels, cell encapsulation
8. thromboelastography
- 9.
- 10.

Brief description (up to ½ page)

My laboratory in regenerative medicine for cartilage repair develops implants that interface with blood and immune cells to stimulate marrow-based cartilage repair. In vitro assays of biomaterials interacting with blood and cell differentiation assays with human bone marrow stromal cells are used to explore the cell mechanisms that guide repair processes in subchondral bone. Fluorescent biomaterials implanted in subcutaneous sites and articular lesions aid in the understanding of the role and fate of scaffolds in cartilage repair responses.

Key publications (maximum 5 publications)

Hoemann CD, Chenite A, Sun J, Hurtig M, Serreqi A, Lu Z, Rossomacha E, Buschmann MD. Cytocompatible gel formation of chitosan-glycerol phosphate solutions supplemented with hydroxyl ethyl cellulose is due to the presence of glyoxal. J Biomed Mater Res A. 2007 May 14; [Epub ahead of print]

Chevrier A, Hoemann CD, Sun J, Buschmann MD. Chitosan-glycerol phosphate/blood implants increase cell recruitment, transient vascularization and subchondral bone remodeling in drilled cartilage defects. Osteoarthritis Cartilage. 2007 Mar; 15(3):316-27. Epub 2006 Sep 26.



CANADIAN LE RÉSEAU
ARTHRITIS CANADIEN
NETWORK DE L'ARTHRITE

Hoemann CD, Sun J, McKee MD, Chevrier A, Rossomacha E, Rivard GE, Hurtig M, Buschmann MD.

Chitosan-glycerol phosphate/blood implants elicit hyaline cartilage repair integrated with porous subchondral bone in microdrilled rabbit defects.

Osteoarthritis Cartilage. 2007 Jan; 15(1): 78-89. Epub 2006 Aug 8.

Hoemann CD, Hurtig M, Rossomacha E, Sun J, Chevrier A, Shive MS, Buschmann MD. Chitosan-glycerol phosphate/blood implants improve hyaline cartilage repair in ovine microfracture defects.

J Bone Joint Surg Am. 2005 Dec; 87(12): 2671-86.

Hoemann CD, Sun J, Legare A, McKee MD, Buschmann MD.

Tissue engineering of cartilage using an injectable and adhesive chitosan-based cell-delivery vehicle.

Osteoarthritis Cartilage. 2005 Apr; 13(4): 318-29.