



**Canadian Arthritis Network  
International Partnership Initiative**

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

**Contact information of the principal investigators**

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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.

<b>Visit Length</b> (please indicate start and end dates if known):	Variable depending on the project.
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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. Osteoarthritis
2. Cartilage
3. Proteoglycans
4. Proteases
5. Cytokines
6. Organ culture
7. Immunoblotting/anti-neoepitope antibodies
8. Gene expression analysis
9. Mouse models of arthritis
10. Gene mutation analysis

#### Brief description (up to ½ page)

Work focuses on identification of the mechanisms underlying cartilage degeneration in osteoarthritis. Both proteolytic and glycolytic processes are under investigation. Proteolytic mechanisms focus on the role of the MMP (matrix metalloproteinase) and ADAMTS (a disintegrin and metalloproteinase with thrombospondin motifs) families and their inhibitors, while the study of glycolytic mechanisms concentrates on the hyaluronidases. Studies are carried out either in *ex vivo* cartilage organ culture or in mouse models. Cartilage degeneration is investigated using a variety of electrophoretic and histological techniques. Anti-neoepitope antibodies are generated and used to identify specific degradation products of proteoglycans and collagen within the extracellular matrix. Changes in gene expression are studied by real time RT-PCR.

#### Key publications (maximum 5 publications)

- 1 Durigova, M., Roughley, P.J. and Mort, J.S. (2007) Mechanism of proteoglycan aggregate degradation in cartilage stimulated with oncostatin M. Osteoarthritis Cartilage **In Press, Corrected Proof**
- 2 Sahebjam, S., Khokha, R. and Mort, J.S. (2007) Increased collagen and aggrecan degradation with age in the joints of *Timp3*<sup>-/-</sup> null mice. Arthritis Rheum. **56**, 905-909



- 3 Grover, J. and Roughley, P.J. (2006) Generation of a transgenic mouse in which Cre recombinase is expressed under control of the type II collagen promoter and doxycycline administration. *Matrix Biol.* **25**, 158-165
- 4 Roughley, P.J., Barnett, J., Zuo, F. and Mort, J.S. (2003) Variations in aggrecan structure modulate its susceptibility to aggrecanases. *Biochem. J.* **375**, 183-189
- 5 Sztrolovics, R., White, R.J., Roughley, P.J. and Mort, J.S. (2002) The mechanism of aggrecan release from cartilage differs with tissue origin and the agent used to stimulate catabolism. *Biochem. J.* **362**, 465-472