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
X 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.

x Training Elective Rotation
x 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):	

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. chondrocyte
2. cartilage
3. osteoarthritis
4. development
5. growth plate
6. microarray
7. knockout mice
8. ACL
9. animal model
10. cell biology

Brief description (up to ½ page)

My lab is interested in both the formation and growth of cartilage during skeletal development and the degradation of cartilage in osteoarthritis. Studies from our and other laboratories demonstrate significant similarities between these processes. We are using microarrays, genetically altered mice, surgical models of osteoarthritis and classical cell/molecular biology approaches to determine the role of specific pathways and genes in both contexts. Intracellular pathways currently under investigation are Rho GTPAses, MAP kinases and PI3Kinase, and extracellular factors of interest include glucocorticoids, C-type natriuretic peptide and transforming growth factor alpha.

Key publications (maximum 5 publications)

1) Appleton, C.T.G., McErlain, D.D., Pitelka, V., Schwartz, N., Bernier, S.M., Henry, J.L., Holdsworth, D.W., and Beier, F. (2007). Forced mobilization accelerates pathogenesis: Characterization of a pre-clinical surgical model of osteoarthritis. *Arthr. Res. Ther*. 9:R13 (designated "highly accessed").

2) Appleton, C.T.G., Pitelka, V., Henry, J., and Beier, F. (2007). Chondrocyte gene expression in a surgical rodent model of Osteoarthritis. *Arthritis & Rheumatism,* in press.

3) Agoston, H., Khan, S., James, C.G., Serra, R., Stanton, L.-A., and Beier, F. (2007). C-type natriuretic peptide regulates endochondral bone growth through p38 MAP kinase-dependent and –independent pathways. *BMC Developmental Biology 7:18.*

4) Wang, G., Woods, A., Agoston, H., Ulici, V., Glogauer, M., and Beier, F. (2007). Genetic Ablation of Rac1 in Cartilage Results in Chondrodysplasia. *Dev. Biol*., in press (Epub April 2, 2007).

5) Woods, A., and Beier, F. (2006). RhoA/ROCK signaling regulates chondrogenesis in a context-dependent manner. *J. Biol. Chem.* 281, 13134-13140.