



# Meet an MPRINT Scientist



Barry Pittendrigh

After finishing his B.Sc. Honours in Biology at University of Regina (Canada), Barry moved on to complete an M.S. degree in Entomology at Purdue University. Subsequently, at University of Wisconsin-Madison, he obtained his Ph.D. (1999) under the direction of Dr. R. French-Constant. During his tenure as a doctoral student he was a visiting student at the Division of Entomology, CSIRO, Canberra, Australia for seven months. Additionally, he worked with Dr. M. Kreitman in the Department of Ecology and Evolution at the University of Chicago for two years as well as performing collaborations with Dr. D. Hank's group in the Medical School at the same institution. Upon completion of his doctoral degree, Barry was awarded a fellowship from the Max Planck Institute for Chemical Ecology in Jena (Germany).

Barry's primary interest is studying the molecular basis of how insects respond to xenobiotics in their environment, be they pesticides or plant toxins. To understand these systems, Barry is interested in employing genetically tractable organisms, including *Drosophila* and *Arabidopsis*. By using such species, he takes advantage of mutant analysis, QTL mapping, and other genomic strategies to identify genes and pathways in insects and plants that play a role in plant-insect interactions. For example, by using *Drosophila* as a model organism, he is beginning to understand how detoxification systems are regulated in insects, something of key importance to understanding metabolic resistance to pesticides and plant toxins. At the plant end, he will be using *Arabidopsis* to provide key insights into potentially conserved systems of plant response to insect attack. Ultimately, Barry is interested in elucidating genes in both plant and insect systems that play a role in the co-evolution of insects and the plants that they attack.

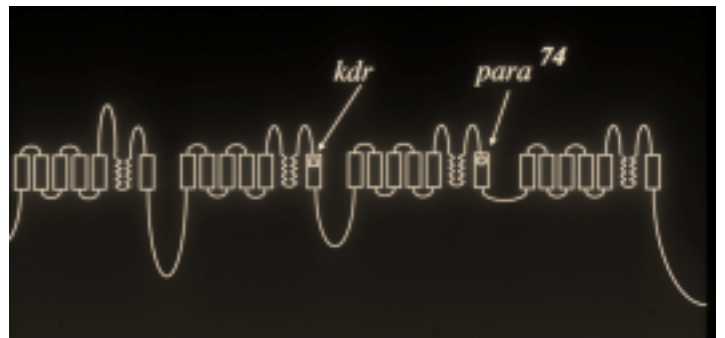
## Some MPRINT Science

Pittendrigh, B., P. Gaffney, and L. Murdock. (2000) Deterministic modeling of negative-cross resistance for use in transgenic host-plant resistance. *Journal of Theoretical Biology*. In press. 204:135-150.

French-Constant, R., B. Pittendrigh, A. Vaughan, and N. Anthony. (1998) Why are there so few resistance-associated mutations in

insecticide target genes? *Phil. Trans. R. Soc. Lond. B.* 353:1-9.

Pittendrigh, B., R. Reenan, R. French-Constant, and B. Ganetsky. (1997) Point mutations in the *Drosophila para* voltage gated sodium channel gene confer resistance to DDT and pyrethroid insecticides. *Mol. Gen. Genetics.* 256:602-610.



Point mutations in the voltage-gated sodium channel that confer resistance to pyrethroids

## Personal MPRINT

Barry plays both squash and racquetball, and enjoys downhill and cross-country skiing.