

# Douglas Wendell

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## Investigations in genetics



Douglas Wendell has focused on three different research projects over the past few years with the common theme of genetics – a topic that has always been of interest to Wendell since he first learned about science.

The main project in the Wendell lab is the isolation of genes that regulate tumor growth. Wendell and his co-workers have been genetically mapping genes that regulate susceptibility to hormone-induced tumor growth in a rat model. In past work they determined that these tumor growth genes regulate different components of tumor growth. They are now getting close to identifying the specific coding region responsible for a difference in tumor susceptibility between strains. The Wendell researchers are currently focused on rat chromosome 5 where they have narrowed down the position to a single candidate gene and are now in the process of isolating this gene to determine what it encodes. They will then proceed to determine how this gene differs between tumor-susceptible and tumor-resistant rat strains and how this gene's product regulates tumor growth.

Another project that grew out of Wendell's teaching work in Biology is to develop new materials for teaching genetics. He collaborates in this work with Dawn Pickard, associate professor and associate dean of the Oakland University School of Education and Human Services. They have been working to develop molecular genetics tools for use with an organism called Wisconsin Fast Plants. Fast Plants are an extremely popular model organism for science education, but suffer from an almost complete lack of molecular tools. Therefore they are developing molecular genetic markers for these plants and instructional lab modules for their use. Pickard and Wendell were recently awarded a grant from the National Institutes of Health (NIH) to support this project.

Finally, a new project that Wendell is working on is in collaboration with Craig Hartrick of Beaumont Hospitals in which they are exploring the possibility of genetic variation being a risk factor in susceptibility to chronic pain in people after injury or surgery. This is an area where Hartrick has been working for many years. They are working together to involve Oakland undergraduates in a "bedside to bench" project where students work under Hartrick to assist with the clinical data collection from patients and then work in Wendell's lab to determine the genotypes of patients in the study.



## Representative Recent Publications

1. Burdinski C, Wendell DL. 2007. Mapping the anthocyaninless (anl) locus in rapid-cycling Brassica rapa (RBr) to linkage group R9. *BMC Genetics* 8:64.
2. Wendell DL, Pickard D. 2007. Teaching human genetics with mustard: Rapid cycling Brassica rapa (Fast Plants type) as a model for human genetics in the classroom laboratory. *CBE Life Sci Educ* 6:179-185.
3. Wendell DL, Platts A, Land S. 2006. Global analysis of gene expression in the estrogen induced pituitary tumor of the F344 rat. *J Steroid Biochem Mol Biol* 101:188-196.
4. Pandey J, Wendell DL. 2006. Angiogenesis and capillary maturation phenotypes associated with the Edpm3 locus on rat Chromosome 3. *Mamm Genome* 17:49-57.
5. Pandey J, Bannout A, Wendell DL. 2004. The Edpm5 locus prevents the "angiogenic switch" in estrogen-induced pituitary tumors. *Carcinogenesis* 25:1829-1838.