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## A Quantitative and Comprehensive Atlas of Gene Expression in Mouse Development

<b>Status</b>	Past
<b>Competition</b>	Competition II
<b>Sector</b>	Health
<b>Genome Centre</b>	Genome British Columbia
<b>Project Leaders</b>	Marco Marra & Pamela Hoodless

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### Project Description

Normal development requires the carefully controlled expression of genes. Many disorders, such as cancer, result from abnormal gene regulation. As the mouse can be studied throughout all stages of development, from the single cell zygote to the adult, it has emerged as the premier model in biomedical research for studying normal mammalian development and human disease.

Our goal was to create an atlas of mouse genes expressed throughout development in numerous stages and tissues. To meet the aims of the Mouse Atlas project, we developed techniques for SAGE library construction and sequencing that exist nowhere else in the world. Achieving a rapid rate of sequencing, while maintaining the highest possible quality of data, has been a notable feat.

The Mouse Atlas of Gene Expression project built a large-scale collaborative resource – a collection of important data that most labs could not generate independently. This resource is proving highly valuable to scientists within the research community, who will analyze the data for many years to come.

Potential benefits resulting from this project will include improved mouse models for cancer research, behavioural research and research into metabolic disorders, and, ultimately, improved diagnostics and drug targets for development by pharmaceutical companies. In turn, this will result in new therapies to treat cancer, metabolic disorders and inherited genetic diseases.

## **Fast Facts**

### ***Highlighted outcome:***

an atlas of genes expressed throughout the development of mouse embryonic, fetal and adult tissues, which is an essential model system used in health research and available to scientists worldwide

### ***Number of research personnel employed by the project:***

35

### ***Number of peer reviewed research papers published:***

5 papers, 32 abstracts, and 37 invited presentations

### ***Resources generated:***

204 SAGE libraries constructed from a variety of mouse tissues available on two websites: the project website ([www.mousealtas.org](http://www.mousealtas.org)) and the National Cancer Institute/National Institutes of Health (USA) website ([cgap.nci.nih.gov/SAGE](http://cgap.nci.nih.gov/SAGE))

### ***Co-funders:***

Province of BC, National Institutes of Health, John Hopkins, BC Cancer Agency