



# CDB SEMINAR

## Tom Becker

The Brain and Mind Research Institute  
Sydney Medical School, University of Sydney

Wednesday, October 14, 2009

16:45~17:30 A7F Seminar Room

## Using Zebrafish genomics to elucidate human disease

### Summary

Many genes with multiple regulatory roles during development are surrounded by extended chromosomal domains termed genomic regulatory blocks (GRBs), often encompassing unrelated genes. In many cases, these unrelated genes, termed bystanders, contain conserved non-coding sequences which likely act as enhancers of a neighboring target (developmental) gene. We have tested the GRB concept through insertion of cis-regulatory sequences within a GRB, and through the testing of individual enhancers from within bystander genes in transgenic zebrafish. Furthermore, we have used GRBs to re-analyze human mapping data and find that there are prominent cases of "mistaken identity", where a bystander gene is indicted in a human disease while the phenotype is likely a defect resulting from the mutation or deletion of regulatory sequence within this gene affecting a neighboring transcriptional unit. I will discuss the implications of the GRB concept for vertebrate evolution and human disease.

**Host:**

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