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Caught by the secretory-trap

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The gene-trap strategy can exploit insertional mutagenesis to allow phenotypic screening. In the July issue of Nature Genetics, Mitchell *et al.* demonstrate the power of gene-trap mutagenesis for genome-wide analysis of the genes involved in mouse development (*Nature Genetics* 2001, **298:**241-24). Their modified 'secretory-trap' vector selects genes that have secretory signal sequences or transmembrane domains. Screening over 500 insertions in mouse embryonic stem (ES) cells identified 187 individual trapped genes, including 43 novel genes. Mitchell *et al.* phenotypically analyzed a set of 60 lines. They report high levels (over 90%) of germ-line transmission, and the generation of null or strong hypomorphic alleles in most cases. The insertions caused recessive phenotypes in 40% of mutant lines, including embryonic lethality (7 lines), neonatal death (8 lines) and severe postnatal phenotypes (7 lines). This report demonstrates the powerful application of gene-trap technology to genome analysis and contributes to a broad effort to create a library of insertional mutations.

References

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