PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

Gene trap

ArticleInfo		
ArticleID	:	4113
ArticleDOI	:	10.1186/gb-spotlight-20010611-02
ArticleCitationID	:	spotlight-20010611-02
ArticleSequenceNumber	:	184
ArticleCategory	:	Research news
ArticleFirstPage	:	1
ArticleLastPage	:	2
ArticleHistory	:	RegistrationDate : 2001–06–11 OnlineDate : 2001–06–11
ArticleCopyright	:	BioMed Central Ltd2001
ArticleGrants	:	
ArticleContext	:	130592211

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The gene trap strategy allows for genome-wide exploration based on the random insertion of a promoterless reporter gene. In the June issue of Nature Biotechnology, Medico *et al.* describe a new gene trap vector that allows for sequential positive and negative selection of trapped clones (*Nature Biotechnology* 2001, **19:**579-582). They made a versatile reporter gene by fusing enhanced green fluorescence protein (EGFP) to bacterial nitroreductase (they call the fusion protein GFNR) and incorporated it into a retroviral vector downstream of a splice acceptor site. To test the gene trap system, Medico *et al.* infected a mouse embryo liver cell line and screened for trapped genes regulated by hepatocyte growth factor (HGF). They performed rounds of positive and negative selection using flow cytometry sorting of fluorescent cells and metranidazole killing of nitroreductase-expressing cells. Between 20% and 40% of clones were HGF-responsive. The GFNR system offers a rapid and efficient screen to trap genes induced or suppressed by a given exogenous stimulus.

References

1. Mouse mutagenesis-systematic studies of mammalian gene function.

2. *Nature Biotechnology* , [http://biotech.nature.com]