

A Research Tool: conditional gene knock-down system using RNAi

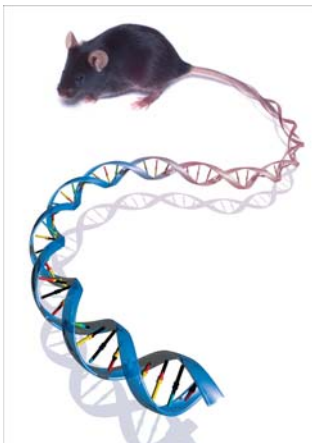


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Professor Didier Trono, a leading researcher in the lentiviral vector field developed with Dr. Maciej Wiznerowicz a conditional gene knock-down system that delivers shRNA via a lentiviral vector with an epigenetic switch (KRAB fused to tetR DNA binding domain) for controllable and reversible expression of shRNA.

Advantages include:

- Very little leakiness
- High amplitude of induction
- Full reversibility
- Ability to monitor conditional knockdown status
- Tissue-specific conditional knock-down
- No toxicity of inducer
- High versatility

Applications:

- Studying gene function in any cell type
- Modelling oncogenic pathways in cancer cells
- Manipulating fate of adult or embryonic stem cells
- Generating cellular models of human disease
- Generating conditional siRNA libraries for basic research and drug screens
- Probing tumor phenotypes
- Modelling neurodegenerative disorders

Summary patent application

The present invention provides compositions and methods of modulating or regulating eukaryotic gene expression through the controlled or regulated expression of polynucleotide constructs that encode siRNA or other desired exogenous nucleic acids or proteins. Such constructs, and additional elements of the system may be transfected into the cells of interest and the expression of the siRNA, and hence the expression of the target gene of the siRNA, may be controlled through the administration of a compound to the cell, such as a small molecule or drug. Lentivirus vectors are employed in some embodiments of the invention including the generation of conditional knockdown animals.

References

- United States Patent Application Publication 2007/0196922 and related cases
- Wiznerowicz and Trono, J Virol. 2003 Aug;77(16):8957-61

Available for licensing or partnering

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