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Selective inhibition of mammalian gene expression by endogenous production of designed micro RNAs (miRNAs)

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This patent pending technology uses artificial miRNAs, transcribed from a plasmid or viral vector, to specifically and stably eliminate protein expression for individual gene targets both in vitro and in vivo. The unique temporal and/or cell specific expression of these miRNAs allows the user to perform screens and experiments that are not feasible using other RNAi technologies. The present innovation improves upon the two principal gene knockout technologies: short interfering RNA (siRNA) and short hairpin RNA (shRNA). siRNA is disadvantaged by the fact that it is an expensive process and is highly transient. shRNA on the other hand, is stable but cannot be regulated. Our innovation presents a novel type of artificial microRNA, which relies on in vivo mechanisms to induce its production and consequently can be regulated in an efficient, and lasting manner. Additional information regarding this technology may be found in United States Patent Application published under # 20040053411.