



## **Non-Confidential Technology Disclosure**

- Title:** RNA silencing through oligonucleotide tethers that recruit endogenous miRNAs
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- Description:** Oligonucleotide tethers are novel RNA silencing agents that recruit endogenous micro-RNAs to messenger RNAs not normally regulated by miRNAs. The oligonucleotide tether contains two functional ends—one end binds to any desired target mRNA and the other end binds to the miRNA to be recruited. Thus, a target mRNA is functionally tethered to a miRNA resulting in the recruitment of RISC and silencing of the target gene. The tethers are designed to harness the spatial and temporal specificity of miRNAs, so that they trigger target mRNA repression only in cells where a specific miRNA species is expressed. For example, the tethers can be used to block viral gene expression in infected cells, which, unlike uninfected cells, express viral miRNAs.
- Application:** The oligonucleotide tether recruits miRNA to any desired genes of interest, such as ones that actively contribute to a disease process, thereby generating numerous therapeutic applications. Additionally, the tethers can be used as a research and drug discovery tool to study and validate gene function.
- Advantage:** Unlike other RNA silencing agents, oligonucleotide tethers have the advantage of recruiting endogenous miRNA molecules for translational repression. In addition, the mRNA is left intact such that endogenous cell machinery can be used to block protein synthesis in short pulses, which offers a highly regulatable approach to RNA silencing. Oligonucleotides used in these applications are stable and resistant to nuclease activity. They are also highly flexible because they can be designed to conform to any mRNA sites and any miRNAs. Importantly, by targeting miRNA expressed in a restricted set of cells, the oligonucleotide can be delivered to all cells, but function only in a predetermined subset of cells that contain the specific miRNA recruited. Thus, the tethers may be more specific and hence less prone to induce ‘off-target’ effects than other RNA silencing agents such as siRNAs.
- Patent Status:** Patent pending
- Licensing Status:** Available to License
- Docket:** UMMC 04-63 and UMMC 05-41
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