

Peptide-linked Molecular Beacons for Delivery and Gene Detection In-Vivo

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Technology description

Technical Summary

This invention provides for compositions and methods for detecting, real time imaging and/or quantifying a target nucleic acid with high signal to background ratio. Such compositions can non-invasively detect or quantify a target nucleic acid in a living cell. Nucleic acid reporters, such as molecular beacons, can be modified to translocate across membranes and thereby avoid invasive delivery techniques such as microinjection or poration of membranes. For example, a molecular beacon is modified by operably linking it to a protein transduction domain. In addition, the nucleic acid reporters linked to a protein transduction domain can be further modified to be operably linking to a targeting signal, including for example, a nuclear localization signal.

The peptide-linked molecular construct can quickly and efficiently enter living cells without the need of any other delivery reagent, and enter specific membrane bound organelles or localize to specific intracellular regions.

Application area

Real-time, rapid detection of gene expression in living cells with high sensitivity and high specificity.

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