



# Inhibition of Zebrafish Gene Expression

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## Gene Inhibition for Discovery of Gene Function

A method using polynucleotide analogues selectively represses the specific genes in the zebrafish, making it possible to ascribe a particular biological function to a known nucleic acid sequence. Similar gene inhibition techniques have proven extremely useful in model systems such as the fruit fly, *D. melanogaster*, and the nematode, *C. elegans*, but have previously not been feasible with the zebrafish. This technology includes both the methods and materials to make the identification of gene function in zebrafish possible.

## Functional Genomics Match Function to Gene

The rapid discovery of genetic sequences has far outpaced the ability of researchers to describe the functions of specific genes. This dilemma has led to the field of "functional genomics," wherein scientists attempt to match specific functions to particular gene groups. To uncover gene function in humans, scientists often conduct research on model organisms and then use genome databases to find homologues in humans. Due to its wide availability and rapid organ development, the zebrafish, *Danio rerio*, has proven to be a particularly useful model system for vertebrate biology. However, current methods to modify gene expression for identification of gene function are not adequate in the zebrafish model.

### BENEFITS OF INHIBITING GENE EXPRESSION AND IDENTIFYING GENE FUNCTION:

- Makes it possible to suppress specific nucleic acid function
- Allows correlation between nucleic acid synthesis and function
- Serves as an excellent model for identifying gene function in humans
- Makes it possible to suppress or increase certain biological processes with clinically relevant functions

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