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A MATHEMATICAL MODEL OF CHANGES IN MICRORNA-MESSENGER RNA INTERACTIONS AFTER γ-IRRADIATION OF CELLS

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ABSTRACT

MicroRNAs (miRNAs) are small noncoding RNA molecules that are involved in the regulation of cell proliferation, differentiation, apoptosis, stress response, and immune response [1–3]. MiRNAs tune gene expression by negative regulation of translation of messenger RNAs (mRNAs). They have important roles in cells and their mis-expression is associated with many diseases including cancer [4–6]. It is therefore essential to understand the mechanisms which regulate miRNA activity and how different factors may affect them. Here we present a model to predict changes of mRNA levels in cells after γ-irradiation on the basis of the initial levels of miRNAs in the cells.

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