

**DEPARTMENT OF BIOTECHNOLOGY  
MINISTRY OF SCIENCE AND TECHNOLOGY  
BLOCK-2, CGO COMPLEX, LODHI ROAD, NEW DELHI 110 003**

**3RD CALL FOR CONCEPT PAPER ON DEVELOPMENT OF  
RNAi TECHNOLOGY FOR APPLICATION IN AGRICULTURE AND MEDICINE**

RNAi interference (RNAi), a mechanism that regulates gene expression at the stage of translation or transcription of specific genes, is recognized as the most significant discovery of this decade in the field of biological sciences. Moreover, spectacular impact of RNAi technology in basic biology and clinical practice was recognized by the award of Nobel Prize in RNAi in 2006 as well as the Lasker Prize in microRNA field in 2008. An increasing number of small non-coding RNAs, including siRNA, miRNA and piRNA have shown to play essential roles in many life forms encompassing protozoa to plants and mammals. These regulatory RNAs are involved in a variety of phenomena including epigenetic regulation, genome control and stability, development, metabolic engineering, innate immunity and adaptive responses to biotic and abiotic stresses.

Although RNA-mediated silencing of genes was initially observed in plants, the real breakthrough of mechanistic understanding came via introduction of double stranded RNA in *C. elegans*. Since then, the phenomenology of silencing and components of RNAi machinery have been identified at breakneck pace although the mechanistic picture is still not complete. The sorting of small RNAs in various pathways of silencing in a given cell, the biogenesis of piRNAs, etc. are the matters that are being hotly investigated. Despite several longstanding unanswered questions on the basic biochemistry of gene silencing, RNAi's ascent from 'bench to bedside' has really been startling. The siRNA based medicines for age related macular degeneration and respiratory syncytial virus infection, miRNA based cancer diagnosis, identification of human factors for sensitivity towards viral pathogens like HIV, Influenza, and West Nile using the genome-wide RNAi screening etc., are some of the landmark events that usher us in an era of excitement and promise. Innumerable applications of RNAi technology are being reported in Agriculture and medicine. Many laboratories are exploring for suitability of siRNA delivery, dose selection, design of siRNA and artificial-microRNA to combat various diseases in plants and animals. DBT wishes to consolidate, guide all such activities in the nation and invite the participant to submit a concept proposal which they would like to be considered under 'DEVELOPMENT OF RNAi TECHNOLOGY FOR APPLICATION IN AGRICULTURE AND MEDICINE'. The concept proposal (15 copies) including a brief bio-data, stating experience and expertise in the area, list of publications of 5 years, expected cost of the project in given duration (maximum length of the document should not be more 5 to 7 pages) may be submitted by **15 April 2009** by post to: **Dr R. R. Sinha**, Adviser, Department of Biotechnology, Ministry of Science & Technology, Block-2, CGO Complex, Lodhi Road, New Delhi 110 003. Concepts received after last date will not be considered.