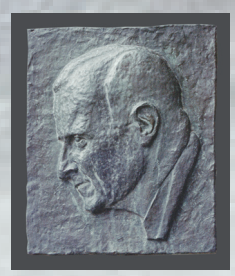
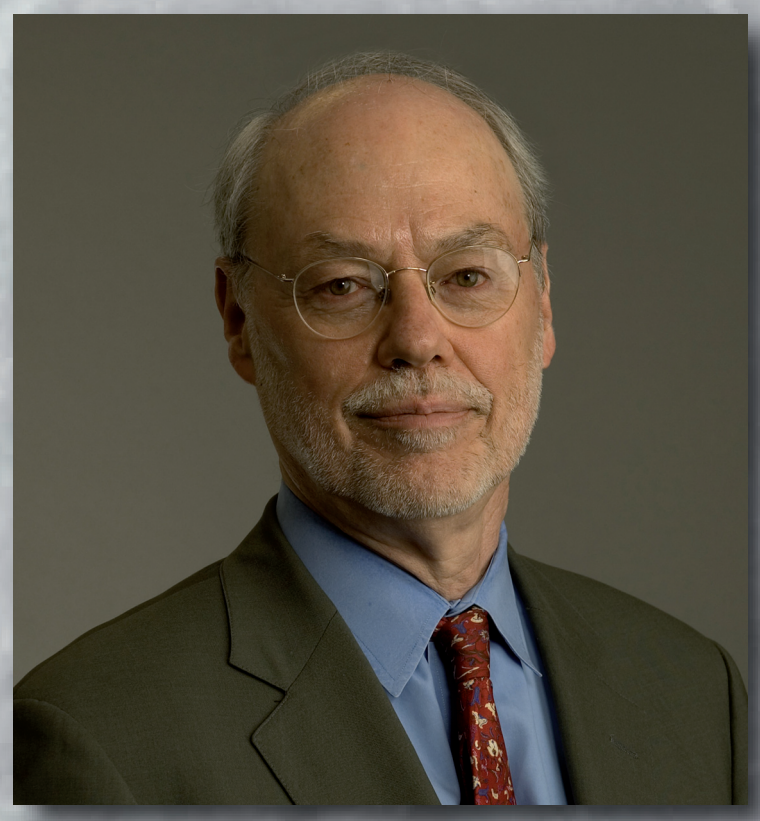


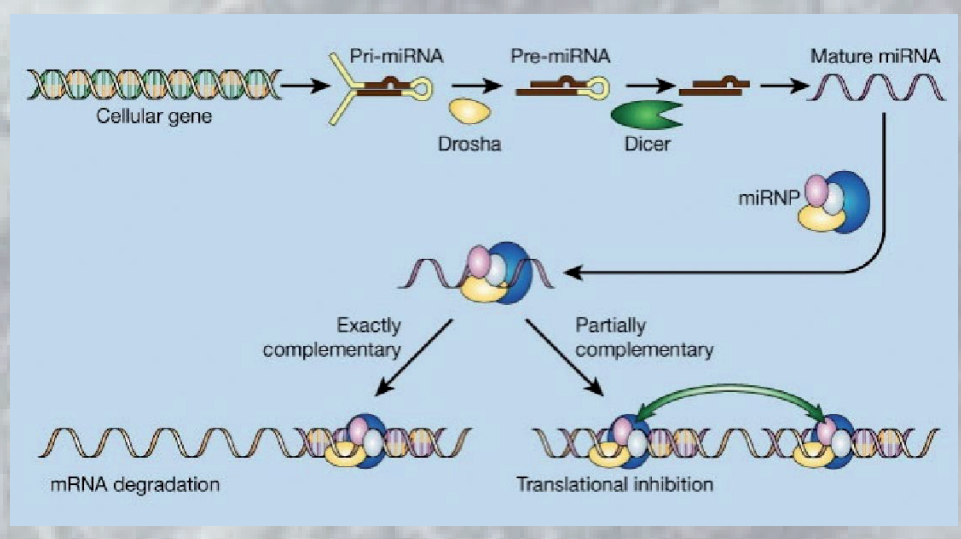
Karl Friedrich Bonhoeffer Lecture

Mittwoch, den 23.05.2007 - 17:00 Uhr
Manfred-Eigen-Hörsaal
Max-Planck-Institut
für biophysikalische Chemie
Am Fassberg 11, 37077 Göttingen



Prof. Dr. Phillip A. Sharp
Massachusetts Institute of Technology,
Center for Cancer Research,
Cambridge, MA, USA
Nobel Prize in Physiology or Medicine 1993 "for the discovery of split genes"

"RNA regulation of gene expression"



MicroRNAs are thought to regulate over a quarter of all genes in vertebrate cells. They mediate their gene control through interactions with partially complementary sequences in the 3' UTRs of target messages and suppress their translation and/or stability. We have analyzed the microRNA population during differentiation of T cells in the murine thymus. There are indications that each developmental stage is marked by specific changes in levels of individual microRNAs and that this correlates with changes in the population of target mRNAs. Embryonic stem cells are multi-potent and can be induced to undergo differentiation into many cell types characterized by the expression of subsets of genes. To explore the possible roles of short RNAs in these processes, these cells have been examined by deep sequencing for the expression of short RNAs. In parallel, the population of short RNAs in dicer-negative cells has been compared to that in its parental dicer-positive ES cell line. Two new insights have emerged from these results. A population of Dicer-dependent microRNAs overlap repetitive elements and could be signals for their silencing. Further, the analysis of promoter-specific short RNAs suggests that most promoters in these cells have an initiated and paused RNA polymerase.

Gastgeber: Prof. Dr. Reinhard Lührmann