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Stephen Friend is currently President and Chief Scientific Officer of Rosetta Inpharmatics in Kirkland, Washington and Director of the Molecular Pharmacology Program at the Fred Hutchinson Cancer Research Center in Seattle, Washington. His major areas of interest and expertise are in the genomic approaches to drug discovery and diagnostics.

His early training included a degree in philosophy from Indiana University followed by a Ph.D. in Chemistry and an M.D. at Indiana University School of Medicine. From there, he went on to do his internship and residency in pediatrics at the Children's Hospital of Philadelphia before moving on to do his post-doctoral training at Harvard including the Children's Hospital and Dana Farber Cancer Institute in Boston, Massachusetts. It was during his post-doctoral fellowship at Massachusetts Institute of Technology that he helped discover the first cancer susceptibility gene in 1986 while working as a visiting scientist in Dr. Robert Weinberg's lab. The identification of the retinoblastoma gene represented the first cloning of a tumour suppressor gene, a class of genes now known to determine cancer susceptibility, and represents key targets for cancer therapy. In 1988, he was appointed Assistant Professor in Pediatrics at Harvard Medical School and Children's Hospital. He became an Associate Professor of Medicine at Massachusetts General Hospital in 1993. In 1994, he linked with Dr. Leland Hartwell, currently the Director of the Fred Hutchinson Cancer Research Center in Seattle, Washington, to found an incubator for drug discovery at the Fred Hutchinson Cancer Research Center called "The Seattle Project." Here in Seattle, he has pioneered genomic efforts in cancer drug discovery using yeast as a model system. In 1995, he was appointed Professor in the De–partment of Pathology at the University of Washington and was chosen to head the program in Molecular Pharmacology at the Fred Hutchinson Cancer Research Center. In 1997, he and Lee Hartwell joined efforts with Dr. Lee Hood at the University of Washington to found Rosetta Inpharmatics with its mission to develop inkjet array technologies and apply them to drug discovery. Within the past two years, many initiatives at Rosetta Inpharmatics have been completed, including novel uses of expression arrays to monitor protein activity, strategies for identifying the off-target of drugs, the profiling of drug effects in patients and new applications for surrogate markers in clinical trials.

Honors include:

Lucille P. Markey Trust Scholar Award

Merck Foundation Research Award

General Motors Visiting Professorship at the NCI

American Cancer Society Faculty Research Award

J.W. Meakin Prize in Oncology

Strengths and weaknesses in the current applications of expression profiling

Drug discovery rests on an ability to identify effects of compounds on their intended targets, but it also requires an ability to monitor other activities of compounds that are unintended. Over the past several years, individuals have recognized that it is possible to use transcript arrays to follow the levels of expression for many of the genes in cells. The emphasis has been placed on monitoring transcriptional units to understand the transcriptome. This is quite helpful in understanding biology, but does not provide information regarding the activity or function of various proteins in the cell. This lecture will focus on the ability of expression profiling to follow protein function. The emphasis here is on using matrix approaches and pattern recognition to move beyond the analysis of transcript levels to being able to follow the function of intended and unintended targets in the cell. The strategy that we have employed involves building up large, coherent sets of data and developing algorithms and other tools by which to successfully compare new profiles with those existing in libraries of profiles.