Olli-P. Kallioniemi

National Human Genome Research Institute, National Institutes of Health, Bethesda, USA

CV

EDUCATION:

1985 M.D., University of Tampere, Finland
1988 Ph.D., University of Tampere, Finland

Post-graduate training and fellowship appointments:

1985-1990 Resident and Research Scientist, Dept. Clinical Chemistry, Tampere University Central Hospital, Tampere, Finland
1990-1991 Visiting Fellow, Dept. Laboratory Medicine, University of California, San Francisco, CA

FACULTY APPOINTMENTS:

1995-1996 Professor of Cancer Biology, Institute of Medical Technology, University of Tampere
1996-2000 Investigator, Section Head, NIH, National Human Genome Research Institute, Cancer Genetics Branch
2000-present Senior Investigator, Head of Translational Genomics, Cancer Genetics Branch, NHGRI, NIH

AWARDS AND HONORS:

1994 Young Scientist Award, European Ass. for Cancer Research
1998 Anders Jahre Young Scientist Award, Oslo, Norway
2000 NIH Director's lecture
2000 Highly Cited Breast Cancer Researcher of the 1990's (ISI, Institute of Scientific Information)

Patents held: 8 issued patents.

EVALUATIVE AND EDITORIAL POSITIONS:

1993 - Cytometry, associate editor
1997 - Genes Chrom Cancer, editorial board
1997 - Cytogenetics Cell Genetics, editor
1999 - Anal Cell Pathol, editorial board
2001- Cancer Biology and Therapeutics, editorial board (new journal)
2001- Molecular Cancer Therapeutics, editorial board (new journal)

SELECTED PUBLICATIONS IN 2001

Kallioniemi OP, Wagner U, Kononen J, Sauter G. Tissue microarray technology for high-throughput molecular profiling of cancer. Hum Mol Genet. 7:657-62, 2001.

Kallioniemi OP. Biochip technologies in cancer research. Ann Med. 33:142-7, 2001.

CONTACT INFORMATION

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Biochip Technologies in Cancer Research: From Genome Screening to Identification of Therapeutic Targets

Development of high-throughput "biochip" technologies has dramatically enhanced our ability to study cancer biology and explore the molecular basis of this disease. This forms a logical basis for development of targeted therapeutics. Biochips enable molecular analyses to be carried out in a miniaturized, massively parallel format with a very high throughput. Many different kinds of biochips are applicable in cancer research, such as: 1) Single nucleotide polymorphism (SNP) microarrays for research on genetic predisposition and pharmacogenomics, 2) cDNA microarrays for analysis of global gene expression patterns, 3) Comparative genomic hybridization (CGH) microarrays for surveys of genetic alterations in cancer cells, 4) proteomics microarrays for the analysis of concentrations, functional activities or interactions of proteins, 4) tissue microarrays for analysis of the clinical significance of candidate molecular targets in cancer, 5) biochip techniques for analyzing gene functions.

We are applying several different biochip technologies to study cancer development and progression. Specifically, we have performed genome-level screening of cancer cell lines using cDNA and CGH microarrays in order to identify amplified and overexpressed genes that may represent primary genetic alterations driving cancer progression. Such genes are also ideal therapeutic targets. Candidate genes are then validated for their involvement in vivo using tissue microarrays and the gene targets are selected for functional evaluation.