

Differential Display Methods and Protocols

SECOND EDITION

Edited by

Peng Liang*Department of Cancer Biology, The Vanderbilt-Ingram Cancer Center, Nashville, TN***Jonathan D. Meade***GenHunter Corporation, Nashville, TN***Arthur B. Pardee***Dana Farber Cancer Institute, Boston, MA***From Reviews of the First Edition...**

"...really helpful for all geneticists and cellular and molecular biologists...a precious book which should be in all hands!" —**CELLULAR AND MOLECULAR BIOLOGY**

"...For any would-be gene hunter thinking of or already practicing differential display, this book will provide an invaluable and long overdue guide to the technique." —**MOLECULAR MEDICINE**

"...an ideal resource for any research group interested in using DD." —**MICROBIOLOGY TODAY**

"...highly recommend[ed]...for purchase by everyone interested in the comparative gene expression, and especially to newcomers in the field." —**TRENDS IN BIOTECHNOLOGY**

Carrying on the high standards of the first edition of *Differential Display Methods and Protocols*, Peng Liang et al. have based their second edition on a new mathematical model of differential display (DD) that takes advantage of automation, as well as digital data acquisition and analysis. These well-versed authors explain and highlight all the recent methodological refinements, including automated liquid handling of hundreds of DD PCR reaction setups combined with capillary electrophoresis, a prototype computer program to automatically allow positive band identification from a fluorescence differential display image, and restriction fragment-based DD screenings that can link any cDNA fragment directly to a given gene once the sequence information of all transcripts becomes available. Other improvements discussed are combining DD and DNA microarrays by reducing the complexity of cDNA probes while increasing the sensitivity of detection, and a DD approach to detect prokaryotic mRNA expression. The authors also demonstrate the power of DD technology with a collection of outstanding examples of DD applications and detailed experimental procedures. The elegant studies described here have led to the discovery of many important genes involved in viral infection, Prion disease, cancer, ovulation, circadian clock, floral color, transcription repression gene silencing, mRNA polymorphism, and protein-RNA interaction.

State-of-the-art and highly practical, *Differential Display Methods and Protocols, Second Edition* offers gene hunters the possibility of genome-wide comprehensive DD screening, as well as a proven road map for any successful "gene fishing" expedition.

FEATURES

- State-of-the-art review of new differential display technology
- Outstanding examples of recent differential display applications
- Use of automation and digital data acquisition and analysis
- Genome-wide comprehensive differential display screening

ISBN 1-58829-338-6



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Methods in Molecular Biology™ • 317

DIFFERENTIAL DISPLAY METHODS AND PROTOCOLS

SECOND EDITION

ISBN: 1-58829-338-6 E-ISBN: 1-59259-968-0

ISSN: 1064-3745 humanapress.com