

Contents

Introduction (D. Rutovitz)	1
----------------------------------	---

Part I	Automatic Chromosome Aberration Scoring
---------------	--

Automated aberration scoring : the requirements of an end-user (D.C. Lloyd)	9
An Automated Chromosome Aberration Scoring System (Th. Lörch, C. Wittler, G. Stephan, J. Bille)	19
Automatic High Resolution Digitisation of Metaphase Cells for Aberration Scoring and Karyotyping (M. Stark, S. Farrow, M. McKie, D. Rutovitz)	31

Part II	Karyotyping Systems: Progress and Evaluation
----------------	---

Athena: A Macintosh-Based Interactive Karyotyping System (L.J. van Vliet, I.T. Young, T.K. ten Kate, B.H. Mayall, F.C.A. Groen, R. Roos)	47
Recent Advances in Chromosome Analysis with the Chromoscan (P. Malet, A. Geneix, P. Bonton, L. Grouche, P. Huygue)	67
Proposal for Evaluation of Cytogenetic Laboratories in Order to Plan the Installation and Determine the Cost Effectiveness of Automated Chromosome Analysis Systems (J.M. Garcia-Sagredo)	81
A Cost Evaluation of Magiscan 2 (M.G. Daker)	93

Part III	Flow Cytogenetics
-----------------	--------------------------

The Flow Cytometry Approach to Automated Chromosome Analysis (J.A. Fantes, D.K. Green)	103
Flow Analysis of Human Chromosomes (A. Cooke)	113

Chromosome Aberration Detection with Hybridized DNA Probes: Digital Image Analysis and Slit Scan Flow Cytometry (C. Cremer, M. Hausmann, E. Diaz, J. Hetzel, J.A. Aten, T. Cremer)	123
---	------------

Part IV Automatic Preparation of Cytogenetic Specimens

An Automated System for the Culturing and Harvesting of Human Chromosome Specimens (J. Vrolijk, G. Korthof, G. Vletter, C.R.G. van der Geest, G.W. Gerrese, P.L. Pearson).....	135
Evaluation and Development of a System for Automated Preparation of Blood Specimens for Cytogenetic Analysis (A.O. Martin, M. Shaunnessey, H. Sabrin, S. Maremont, A. Dyer, M.C. Cimino, A. Rissman, R.D. McKinney, M.M. Cohen, E.C. Jenkins, D. Kowal, J.L. Simpson)	149

Part V Automatic Chromosome Segmentation

Decomposition of Overlapping Chromosomes (L. Ji)	177
Resolution of Composites in Interactive Karyotyping (J. Graham)	191
Separation of Touching Chromosomes (A.M. Vossepoel).....	205
Model-Based Contour Analysis in a Chromosome Segmentation System (Q. Wu, J. Snellings, L. Amory, P. Suetens, A. Oosterlinck).....	217

Part VI Chromosome Classification

On the use of Automatically Inferred Markov Networks for Chromosome Analysis (E. Granum, M.G. Thomason, J. Gregor)	233
Density Profiles in Human Chromosome Analysis (A. Forabosco, P. Battaglia, R. Bolzani)	253
Cytogenetic Analysis by Automatic Multiple Cell Karyotyping (C. Lundsteen, T. Gerdes, J. Maahr)	263
Towards a Knowledge-Based Chromosome Analysis System (J. Piper, R. Baldock, S. Towers, D. Rutovitz).....	275
Bibliography - Cytogenetics Automation 1975-88	295
Subject Index.....	307