

K. Okita (Ed.)

# Growth, Proliferation, and Apoptosis in Hepatocytes



Springer

# Growth Proliferation And Apoptosis Of Hepatocytes

**F. Berr,J. Bruix,J. Hauss,Ch.  
Wittekind,J. Wands**



## **Growth Proliferation And Apoptosis Of Hepatocytes:**

Growth, Proliferation, and Apoptosis in Hepatocytes Kiwamu Okita, 2002 To gain a better understanding of the pathology of liver disease the signaling system controlling hepatocyte differentiation proliferation and apoptosis was selected as the theme of the 12th Yamaguchi Symposium on Liver Diseases Ten leading researchers presented their latest experimental results Focusing on apoptosis guest speaker Professor D A Brenner USA spoke on the regulation of tumor necrosis factor alpha and Fas ligand induced hepatic apoptosis by nerve factor kappa B Other researchers covered the molecular basis for clonal deletion therapy in hepatocellular carcinoma hepatitis C virus induction of proliferation signals helix loop helix protein in liver specific gene expression and reconstitution of hepatic tissues using liver stem cells among other topics of current interest These proceedings thus serve as a useful resource for all involved in hepatology research **Growth,**

**Proliferation, and Apoptosis in Hepatocytes** K. Okita, 2012-10-21 Since the 1st Yamaguchi Symposium on Liver Diseases in 1989 this series of symposia has provided opportunities for exchanges of information on the topic between leading Japanese hepatologists and internationally renowned scientists Somewhat unusually for meetings held in Japan the official language of the symposium is English The proceedings of these symposia are published under the title *Frontiers in Hepatology* and distributed worldwide The 12th symposium was held on December 9 and 10 2000 at the ANA Hotel Ube Japan The theme selected by the Organizing Committee was Growth Proliferation and Apoptosis in Hepatocytes each of which is important in the understanding of the pathophysiology of intractable liver disease Nine Japanese hepatologists were invited to give presentations as was leading U.S. researcher Professor D A Brenner recently elected editor in chief of the journal *Gastroenterology* The reports given at the two day meeting were valuable in furthering our understanding of the complicated signaling system involved in hepatocyte differentiation proliferation and apoptosis Progress in this field is rapid and another symposium on the same theme will be held in the near future We believe that these proceedings are useful in summarizing current information on this important topic The Organizing Committee would like to express special thanks to all participants and to the Viral Hepatitis Research Foundation of Japan for its continuing financial support *Growth,*

*Proliferation, and Apoptosis in Hepatocytes* K Okita, 2001-12-01 To gain a better understanding of the pathology of liver disease the signaling system controlling hepatocyte differentiation proliferation and apoptosis was selected as the theme of the 12th Yamaguchi Symposium on Liver Diseases Ten leading researchers presented their latest experimental results Focusing on apoptosis guest speaker Professor D A Brenner USA spoke on the regulation of tumor necrosis factor alpha and Fas ligand induced hepatic apoptosis by nerve factor kappa B Other researchers covered the molecular basis for clonal deletion therapy in hepatocellular carcinoma hepatitis C virus induction of proliferation signals helix loop helix protein in liver specific gene expression and reconstitution of hepatic tissues using liver stem cells among other topics of current interest These proceedings thus serve as a useful resource for all involved in hepatology research *The Hepatocyte Review*

M. N. Berry, Anthony M. Edwards, 2013-06-29 It is thirty years since the technique of high yield preparation of isolated hepatocytes by collagenase perfusion of the liver was published. The original method described by Berry and Friend has undergone many minor modifications by other workers and the two step procedure introduced by Seglen in 1976 has become the most frequent way to prepare hepatocyte suspensions. An important development introduced by Bissell in 1973 was the use of the cells as the first step in monolayer culture. The availability of the isolated hepatocyte preparation as cells in suspension or culture has undoubtedly facilitated research on the liver. This was emphasised in our book published with Dr Greg Barritt in 1990 which described in detail methods of preparation and the properties of the isolated hepatocytes. It also discussed the usefulness of the preparation for the study of intermediary and xenobiotic metabolism, calcium ion transport and the growth and differentiation of hepatocytes in culture. The book also touched briefly on a range of specialised techniques including peri fusion, subcellular fractionation, transplantation, cryopreservation and measurement of intracellular pH. Although standard procedures for the manipulation of hepatocytes have not changed a great deal in ten years, they have undoubtedly been refined. This applies particularly to hepatocyte culture techniques, cryopreservation and even to preparation of hepatocyte suspensions where it is now feasible to use purified enzymes. There is also much more emphasis on the use and study of human hepatocytes particularly in the field of pharmacology and therapeutics. **Malignant Liver**

**Tumours: Basic Concepts and Clinical Management** F. Berr, J. Bruix, J. Hauss, Ch. Wittekind, J. Wands, 2002-11-30 Hepatocellular carcinoma (HCC) and cholangiocarcinoma (CC) both increasing in incidence have become a major topic of basic and clinical research as well as clinical practice in hepatology. Experts in the field update the current concepts on the carcinogenesis of HCC and CC such as genetic alterations in the pathways of cell cycle and apoptosis regulation, the hypothesis of dedifferentiation of hepatocytes to the malignant phenotype vs that of activation of hepatic progenitor cells incapable of maturation, maturation arrest hypothesis. In spite of an increasing number of genetic alterations described in human HCC as well as cell regulatory pathways tested in experimental HCC models, the key hits causing progression of the cell cycle in imbalance with apoptosis, tissue invasive growth and metastatic potential of cell clones still remain elusive. Very powerful genomic and proteomic techniques are promising insights into the carcinogenesis of liver malignancies that will allow more efficient therapeutic strategies. The current concepts on risk profiling, surveillance of risk groups and therapeutic strategies are evidence based for HCC and less detailed for CC. Surveillance of risk groups improves detection of liver tumours in curable stages. Best strategies for curative treatment of HCC use neoadjuvant antitumour therapies before liver transplantation and a role is emerging for living donor related liver transplantation. New palliative therapies for HCC are in the experimental stage with biological response modifiers including angiogenesis inhibitors and entering phase II clinical trials with the alpha fetoprotein derived vaccines. **Progress in Cell Cycle Research** Laurent Meijer, Silvana Guidet, Lee Vogel, 2012-12-06 Now in its second year, Progress in Cell Cycle Research was conceived to serve as an up to date

introduction to various aspects of the cell division cycle Although an annual review in any field of scientific investigation can never be as current as desired especially in the cell cycle field we hope that this volume will be helpful to students to recent graduates considering a deliitation in subject and to investigators at the fringe of the cell cycle field wishing to bridge frontiers An instructive approach to many subjects in biology is often to make comparisons between evolutionary distant organisms If one is willing to accept that yeast represent a model primitive eukaryote then it is possible to make some interesting comparisons of cell cycle control mechanisms between mammals and our little unicellular cousins By and large unicellular organisms have no need for intracellular communication With the exception of the mating phenomenon in *S cerevisiae* and perhaps some nutritional sensing mechanisms cellular division of yeast proceeds with complete disregard for neighbourly communication Multicellular organisms on the other hand depend entirely on intracellular communication to maintain structural integrity Consequently elaborate networks have evolved to either prevent or promote appropriate cell division in multicellular organisms Yet as described in chapter two the rudimentary mechanisms for fine tuning the cell division cycle in higher eukaryotes are already apparent in yeast

*Principles of Regenerative Medicine* Anthony Atala,Robert Lanza,James A. Thomson,Robert Nerem,2010-12-16 Virtually any disease that results from malfunctioning damaged or failing tissues may be potentially cured through regenerative medicine therapies by either regenerating the damaged tissues in vivo or by growing the tissues and organs in vitro and implanting them into the patient *Principles of Regenerative Medicine* discusses the latest advances in technology and medicine for replacing tissues and organs damaged by disease and of developing therapies for previously untreatable conditions such as diabetes heart disease liver disease and renal failure Key for all researchers and instituions in Stem Cell Biology Bioengineering and Developmental Biology The first of its kind to offer an advanced understanding of the latest technologies in regenerative medicine New discoveries from leading researchers on restoration of diseased tissues and organs

**Hepatocyte Transplantation** S. Gupta,Peter L.M. Jansen,J. Klempnauer,M.P. Manns,2002-09-30 In recent years there has been an increasing need for transplantation but the number of donor livers available has increased only slightly despite intensive public relations activities New concepts in the field of transplantation for instance the transplantation of living donor organs or the splitting of organs are urgently required to safeguard the treatment of patients with severe liver disease The development and clinical application of cell therapy for patients with liver disease could soon present a significant enhancement of the therapeutic options The aim of such cell therapy is to repair or improve the biological function of the chronically and acutely damaged liver Even though systematic trials are not available individual case reports and small series already show promising clinical results Present concepts of cell therapy for liver diseases based on the use of primary hepatocytes have recently been considerably extended through new data on the biology of stem cells The adult haematopoetic stem cell as a pool for hepatocyte grafts what would be the perspectives for the clinical application This book is the proceedings of the Falk Symposium No 126 on Hepatocyte

Transplantation Progress in Gastroenterology and Hepatology Part III held in Hannover Germany October 2 3 2001 and is a forum for basic research but also for questions concerning clinical applications in the field of hepatocyte transplantation

**Acute Liver Failure** William M. Lee, Roger Williams, 1997 This 1997 text is a guide to acute liver failure aetiology pathology and treatment

**T Cell Metabolism and Cancer Immunotherapy** Jianxun Song, 2024-11-27 T Cell Metabolism and Cancer Immunotherapy investigates the cellular regulation of T cell immunity and tolerance Most effort is being expended to develop and optimize strategies for utilizing highly reactive T lymphocytes for cell based therapies Because of the plasticity and potentially unlimited capacity for self renewal stem cell derived T lymphocytes have great potential in the treatment of diseases including cancer Despite great advancement in immunotherapy such as adoptive T cell transfer based regimen the clinical outcomes remain less satisfactory due to a variety of factors that lessen its therapeutic efficacy By determining the role and importance of T cell metabolism in the regulation of T lymphocytes that are related to the development and managements of aberrant immunity T Cell Metabolism and Cancer Immunotherapy designs and develops novel and more effective strategies for improving regimens for patients with aberrant immunity Within ten chapters the content not only reveals targets of T cell metabolism as critical determinants of immune regulation but also uncovers unique therapeutic opportunities to improve immunotherapy through targeting T cell metabolism This fills a significant gap in the knowledge of scientists working in the field of onco immunology immunotherapy and students learning about T cells metabolism immunomodulation and immunotherapy Provides a summary of the current state of the art creating a valuable foundation for both established researchers and newcomers students in the field in cancer immunotherapies Focuses on the investigation of cellular regulation of T cell immunity and tolerance Defines the precise role and mechanism of T cell metabolism in modulating T cells and T cell mediated immunity

**Cancer Risk Assessment** Ching-Hung Hsu, Todd Stedford, 2010-12-08 With a weight of the evidence approach cancer risk assessment indentifies hazards determines dose response relationships and assesses exposure to characterize the true risk This book focuses on the quantitative methods for conducting chemical cancer risk assessments for solvents metals mixtures and nanoparticles It links these to the basic toxicology and biology of cancer along with the impacts on regulatory guidelines and standards By providing insightful perspective Cancer Risk Assessment helps researchers develop a discriminate eye when it comes to interpreting data accurately and separating relevant information from erroneous

**Liver Cirrhosis and Its Development** J.L. Boyer, 2001-03-31 Liver cirrhosis is a major clinical problem worldwide and is associated with significant morbidity and mortality from its complications such as liver cell insufficiency with coagulopathy and hepatic encephalopathy portal hypertension with ascites and gastrointestinal bleeding hepatorenal syndrome HCC development and others This volume the proceedings of Falk Symposium 115 held in Basel Switzerland October 22 24 1999 Part II of the Basel Liver Week 1999 XI International Congress of Liver Diseases covers our present knowledge of the aetiologies and early stages of liver cirrhosis

development Based on this information strategies are discussed that are aimed at the prevention early diagnosis and therapy of chronic liver diseases thus preventing their progression to cirrhosis and its complications including HCC development The main topics mentioned above are complemented by three state of the art chapters on modern aspects of medicine in general and hepatology in particular as well as their perspectives beyond the year 2000 Molecular Medicine New Hepatitis Viruses and Genetic Liver Diseases Diagnosis and Therapy Introductory chapters focusing on the more basic aspects of the biology of live cells as well as on the mechanisms underlying fibrogenesis cholestasis and inflammation will be followed by a detailed discussion of the clinically most important causes of liver cirrhosis worldwide hepatitis viruses B C and D toxins alcohol drugs and others as well as metabolic liver diseases haemochromatosis Wilson disease alpha 1 antitrypsin deficiency porphyria cutanea tarda and protoporphyria This book therefore will interest clinically oriented basic scientists as well as those in clinical practice giving an update on many aspects of modern hepatology and its perspectives in the next millennium

**Molecular Aspects of Hepatocellular Carcinoma** Liang Qiao,Yumin Li,Xiang Yan,Jacob George,2012 Therapeutic options for late stage liver cancer are very limited and the prognosis is often poor A better understanding of the molecular mechanisms involved in the initiation progression and metastasis of hepatocellular carcinoma is critical for developing more rational diagnostic and therapeutic approaches This e book covers current developments on clinically relevant research on the molecular biology of hepatocellular carcinoma This e book should be a valuable reference for professional gastroenterologists hepatologists and oncologists as well as medical students and researchers The Eicosanoids Peter Curtis-Prior,2004-07-16 This comprehensive reference work updated from the first edition brings together the knowledge and expertise of contributors from around the world It includes new topics such as prostaglandin synthetase enzyme new synthetic eicosanoids innovative analytical methods the influence of cytokines in the regulation of synthesis and actions newer eicosanoids that influence the cardiovascular system and newly discovered roles in reproduction and interactions with nitric oxide This book satisfies a surge of interest in prostaglandins NSAIDS e g aspirin are the biggest selling drugs of all time and the field has been refreshed by the advent of new types selective COX 2 inhibitors anti leukotiene drugs

**Environmental Health Perspectives** ,1993 *Molecular Biology of the Toxic Response* Alvaro Puga,Kendall Wallace,1998-10-14 Encouraging the incorporation of molecular biology techniques into the experimental approach to various toxicological problems the format of the book is two staged Each chapter first introduces how various molecular techniques can be successfully applied to solving a specific toxicology question and proceeds to describe the techniques themselves Also included is a discussion of the benefits and limitations of these techniques This book will prove of value to practising researchers but also to graduate students dealing with conceptual issues relating to molecular toxicology

Programmed Cell Death in Cancer Progression and Therapy Roya Khosravi-Far,Eileen White,2007-12-29 Programmed cell death PCD plays pivotal roles in tumor progression cancer therapeutics and resistance of tumor cells to therapy This

book examines the mechanisms involved in mediating and regulating PCD in cancer It also provides a detailed indication of the utility of PCD in cancer therapy The book features chapters on the current and future of RNA interference in therapeutics and Pathways involved in Stem Cell Survival and Death Acute-on-chronic Liver Failure: Systemic Inflammation and Immunosuppression, 2nd edition Yu Shi,Yu-Chen Fan,Jonel Trebicka,Olaf Tyc,Xiaogang Xiang,2023-08-29 Acute on chronic liver failure ACLF is a fatal disease that develops in the basis of chronic liver diseases due to acute precipitating events The lack of definite therapies for ACLF other than liver transplantation urges us to investigate its pathophysiological mechanism It has been recognized that systemic inflammation is a major driver of ACLF Although the link between systemic inflammation and organ failure has been established less is known about how systemic inflammation forms and how it impacts on the organ functions On the other hand immunosuppression is another facet of immune derangement of ACLF which leads to secondary bacterial infections and worsens the situation However so far we know very little on the development of immunosuppression during ACLF and its molecular mechanisms Thus this disease is still a big challenge to both clinicians and researchers The immune derangement of ACLF is characterized by systemic inflammation and immunosuppression Therefore one aspect of this Research Topics is to define the concept of systemic inflammation in the context of ACLF We should clarify the anatomy of systemic inflammation including the inducers DAMP and PAMP immune cells cytokines and other elements and their specific roles We should also investigate how systemic inflammation impacts on organ function and thereby precipitates the development of organ failure The other aspect of this Research Topic is to delineate immunosuppression in ACLF Likewise we need to define immunosuppression by elucidating its causative mechanisms and uncover the specific stage of ACLF at which immunosuppression occurs Besides it is essential to further evaluate the impact of immunosuppression on the progression of ACLF The investigation at these two facets of immune derangement of ACLF will lead to the discovery of biomarkers and potential therapeutic targets OECD Series on Testing and Assessment Report of the Workshop on a Framework for the Development and Use Of Integrated Approaches to Testing and Assessment OECD,2017-04-13 This document is a report of the Workshop on a framework for the development and use of integrated approaches to testing and assessment which was held on 17 19 November 2014 in Crystal City VA USA This framework should provide guiding principles and technical guidance on how results from *Textbook of Hepatology* Juan Rodés,Jean-Pierre Benhamou,Andres Blei,Juerg Reichen,Mario Rizzetto,Jean-Francois Dufour,Scott L. Friedman,Pere Ginès,Dominique-Charles Valla,Fabien Zoulim,2008-04-15 THE encyclopedic guide to hepatology for consultation by clinicians and basic scientists Previously the Oxford Textbook of Clinical Hepatology this two volume textbook is now with Blackwell Publishing It covers basic clinical and translational science converting basic science discoveries into the practical applications to benefit people Edited by ten leading experts in the liver and biliary tract and their diseases along with outstanding contributions from over 200 international clinicians this text has global references evidence and extensive



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