HYALURONAN IN CANCER BIOLOGY

Edited by
Robert Stern
Growth Factor Regulation of Hyaluronan Deposition in Malignancies

Paraskevi Heldin, Eugenia Karousou, and Spyros S. Skandalis

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INTRODUCTION

The link between the stromal microenvironment and the promotion of cancer was first described in 1889 by Stephen Paget (Paget, 1889), who predicted that the interactions between tumor cells (the “seed,” including secreted growth factors and cell surface proteins) and the host microenvironment (“the soil”) determine the metastatic outcome. In recent years it has become accepted that the microenvironment of local host tissue provides tumor cells with a scaffold that promotes their attachment and
and傷害年の合計

Ventricular septal and parietal injury and repair.

EXPRESSION OF HYALURONAN SYNTHASIS

Although a sustained production of cytokines in the injured myocardium and exposure to the pro-inflammatory mediators during the inflammatory response is important in determining the extent of myocardial injury, the exact mechanisms by which these factors are produced remain unclear. The expression of vital myocardial cytokines is essential for the maintenance of heart function and the repair of damaged tissues. The expression of pro-inflammatory cytokines, such as interleukin-1 (IL-1) and tumor necrosis factor (TNF-α), is induced in response to injury and plays a crucial role in the initiation of the inflammatory response. The expression of these cytokines is regulated by various factors, including the activation of NF-κB and MAPK pathways, which are involved in the regulation of gene expression. The expression of pro-inflammatory cytokines is also influenced by the microenvironment, including the presence of cytokines, growth factors, and other extracellular matrix proteins. These factors interact with each other to determine the final expression of pro-inflammatory cytokines. The expression of pro-inflammatory cytokines is critical for the repair of damaged tissues and the maintenance of heart function. The regulation of pro-inflammatory cytokine expression is an important target for the development of new therapeutic strategies for the treatment of myocardial injury.
The figure shows the regulation of HIF-1α and its role in cancer. HIF-1α is involved in the process of 

**Supporting Information**

Additional information is provided in the supporting information section of the document. This includes data on the regulation of HIF-1α, its expression in cancer, and the implications for cancer treatment. The supporting information is crucial for a comprehensive understanding of the topic.
In conclusion, the production of angiogenic cytokines by tumor cells is critical for tumor growth and metastasis. These cytokines, such as VEGF, play a crucial role in the formation of new blood vessels (angiogenesis) that provide nutrients and oxygen to the tumor. Understanding the mechanisms that regulate VEGF production is essential for developing effective antiangiogenic therapies. The extensive review highlights the importance of identifying targets for intervention and developing strategies to inhibit VEGF expression and release.
II. CELL CYCLE OF HEPATOCELLULAR CARCINOMA

This study evaluated the regulation of the cell cycle in hepatocellular carcinoma (HCC), focusing on the expression and function of the cyclin-dependent kinases (CDKs). CDKs are essential for cell cycle progression and are involved in various cellular processes, including DNA replication, cell proliferation, and apoptosis. In HCC, alterations in CDK expression and activity have been implicated in the malignant transformation of liver cells.

CDKs are regulated by a complex network of signal transduction pathways, including growth factor receptors, cytokines, and oncogenes. The regulation of CDKs is crucial for maintaining cellular homeostasis and is dysregulated in cancer, leading to uncontrolled cell proliferation. The study aimed to identify the molecular mechanisms underlying CDK regulation in HCC and to explore potential therapeutic targets for the treatment of this disease.

The results of this study suggest that the dysregulation of CDKs plays a significant role in the development and progression of HCC. Further research is needed to elucidate the specific mechanisms involved and to develop targeted therapies for this disease.
CHAPTER 4

PRODUCTION OF HYALURONAN OSTEOMYELITIS

A New Hyaluronan Binding Protein I

Ananya Roy Choudhury, Angam K. Chakravarty

Development Perspective in Tumor HABP1/F32/8ClqR: A New Hyaluronan Binding Protein
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"For decades, hyaluronan researchers have followed with growing interest the slowly developing story of how cancer progression and metastasis are correlated with or regulated by hyaluronan and its catabolic degradation products. Initially trying to understand the role of hyaluronan metabolism in prostate, breast, melanoma and other carcinomas was a bit like the story of the blind men touching and describing an elephant, each with a different impression of what they found. Now, however, our understanding of how hyaluronan is related to cancer biology has come into much clearer focus and this is captured nicely in Hyaluronan in Cancer—a collection of well written research perspectives and summaries from ~40 research groups around the world. The timing of this volume edited by Dr. Stern is excellent—readers can now get an overview and understand the importance of hyaluronan in multiple cancers. The book provides the first state-of-the-field summary and should be a highly useful and cited source for cancer biologists and hyaluronan researchers for many years."

—JAN H. VELDHUYSEN, PROFESSOR IN BIOCHEMISTRY, DEPARTMENT OF BIOCHEMISTRY & MOLECULAR BIOLOGY, University of Groningen, University Medical Center, Groningen, The Netherlands

"Hyaluronan is a major component of the fluid extracellular matrix that surrounds cells and fills the intercellular spaces of tissue. Long known for its fundamental role in tissue development and physiology, hyaluronan’s involvement in cancer progression and metastasis has more recently become the subject of intense multidisciplinary efforts. This volume provides a state-of-the-art review of hyaluronan’s role in the cell biology of cancer, its diagnostic and prognostic value, and its potential as a target for therapeutic intervention. Authored by leading researchers in the field, the chapters help bridge the gap between basic science and clinical oncology, providing background and context that will prove valuable to both cancer and hyaluronan researchers for years to come."

—PHILIP A. BAND, M.D., JOINT DIRECTOR, DEPARTMENT OF ORTHOPEDICS, DEPARTMENT OF PATHOLOGY, New York University School of Medicine, New York, NY, USA

"The link between the polysaccharide hyaluronan and cancer is well established. This excellent and comprehensive book brings together expert opinion for a thorough and up-to-date review of the topic. It covers the cell biology of hyaluronan in cancer, the role of hyaluronan receptors and signaling transduction pathways and the clinical uses of hyaluronan-related biomaterials as anti-cancer agents. This book is a must read for those interested in the role of hyaluronan and its receptors in cancer biology and therapy."

—ANTHONY LAW, FACULTY OF MEDICINE, UNIVERSITY OF MANCHESTER, UK

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