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# Recent findings on the impact of ErbB receptors status on prognosis and therapy of head and neck squamous cell carcinoma

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Head and neck squamous cell carcinoma (HNSCC) is the sixth most common cancer type, has often an aggressive course and is poorly responsive to current therapeutic approaches, so that 5-year survival rates for patients diagnosed with advanced disease is lower than 50%. The Epidermal Growth Factor Receptor (EGFR) has emerged as an established oncogene in HNSCC. Indeed, although HNSCCs are a heterogeneous group of cancers which differ for histological, molecular and clinical features, EGFR is overexpressed or mutated in a percentage of cases up to about 90%. Moreover, aberrant expression of the other members of the ErbB receptor family, ErbB2, ErbB3 and ErbB4, has also been reported in variable proportions of HNSCCs. Therefore, an increased expression/activity of one or multiple ErbB receptors is found in the vast majority of patients with HNSCC. While aberrant ErbB signaling has long been known to play a critical role in tumor growth, angiogenesis, invasion, metastatization and resistance to therapy, more recent evidence has revealed its impact on other features of cancer cells' biology, such as the ability to evade antitumor immunity. In this paper we will review recent findings on how ErbB receptors expression and activity, including that associated with non-canonical signaling mechanisms, impacts on prognosis and therapy of HNSCC.

## KEYWORDS

head and neck squamous cell carcinoma, EGFR, ErbB receptors, Cetuximab, immune checkpoint inhibitors

## 1. Introduction

Head and neck (HN) cancers include a heterogeneous group of cancers which differ for histological, molecular and clinical features (1–3). More than 90% of HN cancers are squamous cell carcinomas (HNSCCs) arising from the mucosal epithelium of the oral cavity, pharynx and larynx, while much less common HN subtypes originate from the salivary glands, sinuses, muscles or nerves in the head and neck<sup>1</sup> (2–4).

<sup>1</sup> <https://www.cancer.gov/types/head-and-neck/head-neck-fact-sheet#:~:q=hn>

# Receptors Recent Findings

**Lawrence Toll, Kelly M.  
Standifer, Dominique Massotte**

## Receptors Recent Findings:

*Recent Advances in Cellular and Molecular Aspects of Angiotensin Receptors* Mohan K. Raizada, M. Ian Phillips, Colin Sumners, 2013-06-29 Scientific advances over the past two decades have afforded unprecedented opportunities to understand the structure and function of receptors receptor ligand interactions and receptor signaling The extent of progress in this area is underscored by the recent Nobel Prize for Medicine and Physiology to Alfred Gilman and Martin Rodbell both of whose work in understanding receptor/G protein interactions has redefined the way in which we think of how hormones and neurochemicals exert their activity on cellular function This book is replete with examples of current research approaches to help us better understand the cellular roles in which the renin angiotensin system and the angiotensin receptors participate Clearly defining the structure of angiotensin receptor subtypes is an important first step in clarifying the mechanisms by which these receptors take part in cellular function However the chapters within this book range far beyond structural studies and encompass research on tissue specific expression of the angiotensin receptor subtypes the genetic regulation of these receptors and the unique function of various angiotensin subtypes in different organ systems such as the brain the reproductive system adipose tissue the heart and the kidneys

*Recent Advances in Psychiatry from Psycho-Neuro-Immunology Research: Autoimmunencephalitis, Autoimmune-Encephalopathy, Mild Encephalitis* Karl Bechter, David Brown, Souhel Najjar, 2019-08-12 Growing evidence derived from cerebrospinal fluid CSF neuropathological imaging genetic and epidemiological studies link neuroinflammation and immune dysregulation to a subset of individuals with a variety of severe mental disorders SMDs including affective and non affective psychotic disorders Further the recent discoveries of neuronal surface antibodies NSAs in autoimmune encephalitis AE presenting with diverse neuropsychiatric disorders such as psychosis and cognitive decline among many others provides further support to the notion that CNS autoimmunity and neuroinflammation can contribute to the neurobiology of psychiatric disturbances Further these immune mechanisms may contribute to a subset of patients currently diagnosed as having treatment resistant SMDs such as schizophrenia and major depressive disorder Additionally mounting data indicate that various infections can serve as an immunological trigger of aberrant immune responses presumably by causing release of excess neural antigen thereby giving rise to NSAs or aberrant immune cellular responses to give rise to primary or secondary psychiatric disorders such as schizophrenia and those associated with AE respectively Collectively these findings support the mild encephalitis hypothesis of SMD The significant overlap among AE associated psychosis systemic autoimmune disorder associated psychosis and psychotic disorders associated with pathological processes involving inflammation and immune dysregulation has also prompted some authors to adopt the term autoimmune psychosis AP This term reflects that this psychosis subtype is mechanistically linked to complex neuroimmune and inflammatory signalling abnormalities that can be responsive to early immunomodulatory treatment It also suggests that a subset of AP might represent an incomplete or forme fruste subtype of

AE presenting with dominant or pure psychiatric symptoms mimicking primary psychiatric illnesses Because data indicate that delayed diagnosis and treatment may lead to permanent sequelae early recognition of AP utilizing neurodiagnostic workup e g CSF analysis neuroimaging and EEG and its early treatment with appropriate immunotherapy are paramount to a meaningful recovery This eBook will provide an overview of the current knowledge and research areas from epidemiology risk factors and diagnosis to the management of these conditions in this rapidly emerging field helping to bridge the gaps in knowledge that currently exist in the disciplines of Psychiatry Neurology and Neuroimmunology Peptide Receptors—Advances in Research and Application: 2013 Edition ,2013-06-21 Peptide Receptors Advances in Research and Application 2013 Edition is a ScholarlyEditions book that delivers timely authoritative and comprehensive information about Formyl Peptide Receptors The editors have built Peptide Receptors Advances in Research and Application 2013 Edition on the vast information databases of ScholarlyNews You can expect the information about Formyl Peptide Receptors in this book to be deeper than what you can access anywhere else as well as consistently reliable authoritative informed and relevant The content of Peptide Receptors Advances in Research and Application 2013 Edition has been produced by the world s leading scientists engineers analysts research institutions and companies All of the content is from peer reviewed sources and all of it is written assembled and edited by the editors at ScholarlyEditions and available exclusively from us You now have a source you can cite with authority confidence and credibility More information is available at <http://www.ScholarlyEditions.com>

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**New Developments in Lipid-Protein Interactions and Receptor Function** K.W.A. Wirtz,Lester Packer,J.Å. Gustafsson,A.E. Evangelopoulos,J.P. Changeux,2012-12-06 A NATO Advanced Study Institute on New Developments in Lipid Protein Interactions and Receptor Function was held on the Island of Spetsai Greece from August 16 27 1992 This Institute was organized to bring together researchers in the field of membrane organization and dynamics with those actively involved in studies on receptor function signal transduction mechanisms and gene regulation 2 Presentations and discussions focussed on the regulation of intracellular Ca levels on the second

messengers derived from inositol lipids and on the specific phospholipase C isozymes involved in these processes A major focus was on G proteins and the effect of lipid anchors on their function These principles of regulation were further discussed in the context of receptors for acetylcholine lysophosphatidic acid and low density lipoproteins In addition various aspects of the genomic regulation of cell growth and differentiation by transcription factors were presented These topics were put into perspective by discussing the most recent developments in lipid protein interactions protein insertion into membranes membrane lipid organization and lipid dynamics as mediated by phospholipid transfer proteins This book presents the content of the major lectures and a selection of the most relevant of the most important topics posters These proceedings offer a comprehensive account presented during the course of the Institute The book is intended to make these proceedings accessible to a large audience

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## **Receptors Recent Findings** Book Review: Unveiling the Power of Words

In a global driven by information and connectivity, the energy of words has become more evident than ever. They have the ability to inspire, provoke, and ignite change. Such may be the essence of the book **Receptors Recent Findings**, a literary masterpiece that delves deep to the significance of words and their effect on our lives. Published by a renowned author, this captivating work takes readers on a transformative journey, unraveling the secrets and potential behind every word. In this review, we will explore the book's key themes, examine its writing style, and analyze its overall impact on readers.

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