Editorial
Volume 6:4, 2021

Journal of Molecular Histology and Medical Physiology

Open Access

Development, Cancer and Aging: Insulin-Like Growth Factors

Javed Khan[1*]

[1]*Editorial Office, Molecular Histology and Medical Physiology, Belgium*

Introduction

Insulin-like growth factors (IGFs) have piqued researcher's interest in a variety of fields, including endocrinology, paediatrics, growth, metabolism, nutrition, ageing, and cancer, since their discovery in the late 1950s. IGF1, which was first discovered as a modulator of growth hormone activity, is now thought to be involved in a wide range of cellular and organismal activities. Over the last 40 years, the signalling pathways triggered by IGF1 have been thoroughly described in biochemical and molecular terms. However, fundamental issues about the distinctions in IGF1 and the nearly similar insulin molecule's methods of action remain unanswered. This editorial presents a selection of recent publications on IGF1's involvement in cancer biology, ageing, and development. The publications look at both scientific and clinical elements of the IGF1 system, including post-genomic studies and innovative ways to target the IGF1R in cancer treatment.

As previously stated, the IGF1 axis is important in ageing and lifespan. The pharmacological and molecular mechanisms underlying the connection between IGF1 and ageing processes, on the other hand, remain poorly understood. In a prospective cohort of older adults (mean age = 76.1± 6.8 year), scientists assessed age- and sex-adjusted hazards for all-cause mortality and incident age-related diseases as predicted by baseline total serum IGF1, IGFBP-1, IGFBP-3, and IGF1/IGFBP-3 molar ratio in a prospective cohort of older adults (mean age = 76.1±6.8 year). Higher IGF1 levels and bioavailability were found to predict mortality and morbidity risk, bolstering the theory that reduced GH-IGF1 signalling contributes to human lifespan and health.

GRP94 (glucose-regulated protein 94) is a widely expressed chaperone in the endoplasmic reticulum that is necessary for IGF1 folding and secretion. Researchers looked at the consequences of the IGF1–GRP94 relationship in the context of idiopathic short stature and hypothesised that the chaperone mechanism might be manipulated using small drugs. As a result of this molecular intervention, a novel approach to regulate both IGF1 deficiency and circumstances of excessive growth factor production may emerge. Similarly, the connection between IGF1 and GRP94 might be important in cancer.

Differences in the interaction of IGF1/IGF2 with GRP94 can thus be used to target drugs to certain tissues. In eukaryotic cells, mitochondria are important organelles that govern critical activities. The loss of mitochondrial function is recognised as a significant sign of ageing. The evidence that GH and IGF1 affect mitochondrial mass and function and contribute to particular cellular ageing processes was examined by scientists. The role of these hormones in mitochondrial biogenesis, ATP generation, oxidative stress, and senescence is highlighted by the authors, with a specific focus on mitochondrial diseases during ageing.

How to cite this article: Khan Javed. Development, Cancer and Aging: Insulin-Like Growth Factors. *J Mol Hist Med Phys* 6 (2021) 18

***Address for Correspondence:** Javed K, Editorial Office, Molecular Histology and Medical Physiology, Belgium, E-mail: molecularhistologymedical@gmail.com*

Received 05 July 2021; **Accepted** 08 July 2021; **Published** 16 July 2021