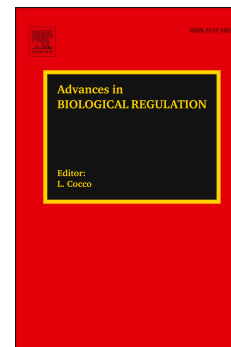


Accepted Manuscript

Nonessential Amino Acid Metabolism in Breast Cancer

Renee C. Geck, Alex Toker



PII: S2212-4926(15)30042-7

DOI: [10.1016/j.jbior.2016.01.001](https://doi.org/10.1016/j.jbior.2016.01.001)

Reference: JBIOR 146

To appear in: *Advances in Biological Regulation*

Received Date: 19 November 2015

Revised Date: 4 January 2016

Accepted Date: 17 January 2016

Please cite this article as: Geck RC, Toker A, Nonessential Amino Acid Metabolism in Breast Cancer, *Advances in Biological Regulation* (2016), doi: 10.1016/j.jbior.2016.01.001.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Nonessential Amino Acid Metabolism in Breast Cancer

Renee C. Geck and Alex Toker

Department of Pathology and Cancer Center

Beth Israel Deaconess Medical Center, Harvard Medical School

Correspondence: Alex Toker

330 Brookline Avenue, EC/CLS-633A, Boston MA 02215, USA

Office: (617) 735-2482, Fax: (617) 735-2480; E-Mail: atoker@bidmc.harvard.edu

Key words: breast cancer, amino acid, tumor metabolism, cancer therapy.

Abstract

Interest in studying cancer metabolism has risen in recent years, as it has become evident that the relationship between cancer and metabolic pathways could reveal novel biomarkers and therapeutic targets. Metabolic starvation therapy is particularly promising due to its low toxicity. Nonessential amino acids are promising metabolites for such therapy because they become essential in many tumor cells, including breast cancer cells. This review will focus on four nonessential amino acid metabolism pathways: glutamine-glutamate, serine-glycine, cysteine, and arginine-proline metabolism. Recent studies of these amino acids have revealed metabolic enzymes that have the potential to be effective as cancer therapy targets or biomarkers for response to metabolic starvation therapy. The review will also discuss features of nonessential amino acid metabolism that merit further investigation to determine their relevancy to breast cancer treatment.

Introduction

Breast cancer is the most frequently occurring cancer in women, and despite the development of new therapies there has been little decline in the mortality rate over the past decade (Siegel et al., 2015). This is partly due to the genetic diversity of breast cancers, such that there is no single therapy that is effective against all breast cancer

Download English Version:

<https://daneshyari.com/en/article/5504227>

Download Persian Version:

<https://daneshyari.com/article/5504227>

[Daneshyari.com](https://daneshyari.com)