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Opinion

Metformin can be the new key to fight against the Metastatic Cancers?

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Abbreviation

Mr: Average Mass of Protein

Galectins, an ancient lectin family, are characterized by specific binding of β-galactosides through evolutionary conserved sequence elements [1]. A structurally unique member of the family is galectin-3 which is a Mr ~ 30,000 protein composed of three distinct structural domains: a) a short NH2 terminus of 12 amino acids that controls its cellular targeting; b) a repetitive collagen-like sequence rich in glycine, tyrosine, and proline, which serves as a substrate for matrix metalloproteinases; and c) the COOH- terminal domain, a globular structure encompassing the carbohydrate-binding site [2]. Galectin-3 has been caught the attention of the scientific communities over the last few decades because of its role in metastatic cancers. Reports have been found that galectin-3 is responsible for metastasis in colon carcinoma, steroid-sensitive breast carcinoma and so on [2]. Still there is no FDA approved drug is found which targets the galectin-3 protein in metastatic cancers. Metformin has long been using as an anti-diabetic drug. However, Metformin has been approved for use in the treatment of hyperglycemia, polycystic ovarian syndrome (PCOS) and metabolic syndrome [3]. Recent studies have showed that Metformin shows anticancer effects as well. Metformin Suppresses Ovarian Cancer Growth and Metastasis with Enhancement of Cisplatin Cytotoxicity *in vivo* [4]. Research findings represent better outcomes for breast cancer cell line MCF-7 incubated in low glucose medium treated with metformin in terms of viability, receptor expression and metastatic activity, and highlight the potential benefit of metformin especially in restraining the cancer cell's ability to cope energetic stress in low glucose conditions [5]. There is so many articles have been generated which show that Galectin 3 is responsible for cancer metastasis. However, no research is done on the effect of Metformin in metastatic cancers by targeting Galectin 3. The purpose of the current manuscript is to introduce the hypotheses that Metformin can be the potential compound against metastatic cancers targeting Galectin 3.

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