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3.7.1 Number of Collaborative activities per year for research/ faculty exchange/ student exchange/ internship/ on –the-job training/ project work

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LINKAGE

For the year 2017-2018

Between

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&

2. Dr. G. Nadanamurugaraj
   Senior Lecturer
   Faculty of industrial sciences and technology
   University Malaysia Pahang
   Lebuhraya Tun Razak, 26300 Gambang
   Kuantan, Pahang.

Considering the significance of the noble cause for the student community, we have come forward to collaborate with each other to exchange research knowledge, expertise, laboratory and library facilities to the process of scientific research and education in the field of materials science. The parties (mentioned above as 1. & 2.) have had preliminary discussion in this matter and have ascertained areas of broad consensus. The parties now therefore agreed to enter in writing these avenues of consensus, under a flexible linkage, and this project aims to fill the gap between knowledge demand and subject expertise related to the mentioned field.

Joint Responsibilities

- Sharing of laboratory facilities, library resources, database etc.,
- Joint Publication of research articles, books, magazines, bulletins etc.,
- Jointly organizing conferences, seminars, symposia and workshops.
- Submitting joint proposals for research funding from agencies like UGC, SERB, DBT and TNSCST.

S. Vijayakumar

Dr. S. Vijayakumar

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Biomedicine & Pharmacotherapy 92 (2017) 528–535

Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com/en

Original article

Homology modeling and molecular docking studies on Type II diabetes complications reduced PPARγ receptor with various ligand molecules

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ARTICLE INFO

Article history:
Received 6 December 2016
Received in revised form 13 May 2017
Accepted 17 May 2017

Keywords:
Type II diabetes
PPARγ
Homology modeling
Molecular docking
Ligand molecules

ABSTRACT

Peroxisome proliferator-activated receptor gamma (PPARγ), a type II nuclear receptor present in adipose tissue, colon and macrophages. It reduces the hyperglycemia associated metabolic syndromes. Particularly, type II diabetes-related cardiovascular system risk in human beings. The fatty acid storage and glucose metabolism are regulated by PPARγ activation in human body. According to recent reports commercially available PPARγ activating drugs have been causing severe side effects. At the same time, natural products have been proved to be a promising area of drug discovery. Recently, many studies have been attempted to screen and identify a potential drug candidate to activate PPARγ. Hence, in this study we have selected some of the bio-active molecules from traditional medicinal plants. Molecular docking studies have been carried out against the target, PPARγ. We Results suggested that Punigluconin has a efficient docking score and it is found to have good binding affinities than other ligands. Hence, we concluded that Punigluconin is a better drug candidate for activation of PPARγ gene expression. Further studies are necessary to confirm their efficacy and possibly it can develop as a potential drug in future.

1. Introduction

Peroxisome proliferator-activated receptors (PPARs), a group of nuclear proteins playing a vital role in the regulation of cellular differentiation and development and it has been involving metabolic process likes carbohydrate, lipid, protein [2] and protect tumorigenesis [3] in human [1]. PPARs are having 48 nuclear hormone genomes [2]. These have been playing a major role in the following; illnesses heftiness, hypertension, dyslipidemia (expanded blood serum triglycerides; low high-density lipoprotein (HDL) and high low-density lipoprotein (LDL) cholesterol levels), insulin resistance with raised fasting blood glucose level and glucose tolerance. Additionally, the foundations of prothrombotic and proinflammatory state of diseases are notably caused by the metabolic syndrome in human [3]. The metabolic syndrome is creating more serious and dangerous cardiovascular problems in type II diabetic patients. Under this scenario, lots of research works have been demonstrated on this metabolic syndrome and its related disorders and diseases, specifically greasy liver, rest aggravations, cholesterol gallstones, polycystic ovary disorder, asthma and a quantity of malignancy [4].

Extraordinary efforts have been taken to examine the capability of PPARγ modulators which intensifies and enhance glucose homeostasis. Not surprisingly, remarkable studies were undertaken to explore the PPARγ activating potential of the extensive range of natural sources occurring from medicinal plants. PPARγ is a master controller of adipocyte separation and it seems to be a key player in lipid digestion system and glucose homeostasis, tweak digestion system and aggravation in resistant cells and also controls cell expansion [5–7]. It is actuated amid the separation of preadipocytes and adipocytes [8–10].

Medicinal plants have been used for the treatment of various types of human and animal disorders and diseases for many years. Over the years, numerous bioactive molecules have been isolated from the plants and their parts for the treatment of human as well as animal disease. These bioactive constituents used as an effective medication to lead a healthy life [11]. It is reported that 119 clinically used plant-derived drugs were examined and it was found that 74% of them were indeed used for disease indications

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http://dx.doi.org/10.1016/j.biopha.2017.05.077
0753-3322/