A.V.V.M. Sri Pushpam College (Autonomous)
Poondi– 613 503, Thanjavur-Dt, Tamilnadu
(Affiliated to Bharathidasan University, Tiruchirappalli – 620 024)

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

Collaborating Agency:

Dr. V. BalachandarBharathiyar University, Coimbatore

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Department of Human Genetics and Molecular Biology, Bharathiar University
Coimbatore – 641 046
Tamil Nadu, India.

Date: 02.01.2017

LINKAGE

For the year 2016-2017

Between

1. Dr. S. Ganesan
   Assistant Professor
   PG & Research Department of Zoology
   A.V.V.M Sri Pushpam College
   (Autonomous), Poondi – 613 503.

&

2. Dr. V. Balachandar
   Assistant Professor
   Department of Human Genetics and Molecular Biology,
   Bharathiar University, Coimbatore – 641 046.

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 medical 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, CSIR, DST and TNSCST.

02/01/2017

Dr. S. Ganesan

Dr. V. Balachandar

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EpCAM as a novel therapeutic target for hepatocellular carcinoma

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ABSTRACT

Hepatocellular carcinoma (HCC) is the sixth most common malignant tumor worldwide. Due to the heterogeneity nature, prognosis for patients with HCC remains unsatisfactory. The conventional treatments like chemotherapy and radiotherpay fails to cure the disease most of the time and this may be due to the presence of cancer stem cells (CSCs). Cancer stem cell is a small population of cancer tissues responsible for chemoresistant, radioresistant, and cancer relapse through various mechanism like ATP binding cassete (ABC) effulus and ALDH inhibitor. Numores cancer stem cell markers are identified for the liver cancer, such as Epithelial cell adhesion molecule (EpCAM), CD133, CD90, CD13. EpCAM is one of the first tumor-associated antigen and a marker for most epithelial cancers except renal cell carcinoma, urothelial carcinoma and squamous cell carcinoma. Also it is a marker for liver stem cells/progenitor cells. EpCAM plays a major role in cell-cell migration, cell proliferation, tumorogenisity, metastasis. Also, it acts as a potential target for EpCAM positive carcinomas like breast cancer, colon cancer and liver cancer. This entire review deals about how EpCAM can be used in the near future as a potential therapeutic target for HCC.

1. Introduction

Hepatocellular carcinoma (HCC) is one among the leading cause of cancer death in many countries. The prevalence of HCC has been increasing in Asia-Pacific region, including Australia, New Zealand, and India over the past several decades. Cancer Registries from five Indian urban populations (Mumbai, Bangalore, Chennai, Delhi, and Bhopal) revealed that, liver cancer ranks as the fifth most common cancer among both male and female. As reported by a study cohort of 213 HCC patients from 1999 to 2005, the incidence of HCC is higher in men (83.1%) than in women.[1] In India, HBV infection, HCV infection and alcohol consumption are the main causes of HCC.[2] Major etiologic agents in HCC are chronic viral infections such as hepatitis B & C, factors like chronic alcoholism and metabolic disorders also minimally involved in HCC.[3] Surgery, chemotherapy and radiotherapy are the standard treatment options for HCC. To date, Sorafenib, a Multikinase inhibitor is the only drug approved by FDA for liver cancer.[4] Most of the conventional treatment fails to eradicate the tumor because of the cancer stem cells (CSC).[5] CSC has the tendency to self renew, can differentiate into multiple lineage, resistant to chemotherapy and radiotherapy through various other mechanism like ATP binding cassette efflux, ALDH inhibitor.[6] Eradicating CSC by competent targeting agents may have the potential to cure HCC without any relapse. Epithelial cell adhesion molecule (EpCAM) also known as CD326, C017-1A, GA733-2, TACSTD1, KSA, EGP40, HEA125, MK-1, EGP-2, EGP-34, ESA and KS1/4 was initially identified as a tumour associated antigen for several carcinomas of different origins in 1979,[7] then further reports established that, EpCAM can serve as a novel marker for liver cancer stem cells.[8] It has been shown to express on the basolateral cell surface of most of the epithelial tissues except squamous epithelia, epidermal keratinocytes, gastric parietal cells, myoepithelial cells, thymic cortical epithelium and hepatocytes.[9] EpCAM is over expressed in majority of human epithelial carcinomas including colorectal, breast, prostate, head and neck, and hepatic carcinomas.[10] Mostly, it is actively involved in proliferation and maturation of both normal and neoplastic tissues.[11] In addition, EpCAM is being used as a target for immunotherapy of certain human epithelial cell carcinomas.[12,13] Immunohistochemical analysis of EpCAM will help us to know the progress of cancer development and for the clinicians, to initiate the therapy which is suitable for patients with EpCAM positive liver diseases.[14] This review explains in detail about EPCAM structure, liver disease, cancer stem cell and

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