

Feasibility of using hUmbilical Cord Serum as an alternative to Fetal Calf Serum in Culture Systems

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Fetal calf serum (FCS) is conventionally used for animal cell cultures due to its inherent growth promoting activities. However animal welfare issues and stringent requirements for human transplantation studies demand a suitable alternative for FCS. With this view, we have investigated the effects of hUmbilical Cord Serum (hUCBS) and FCS on the viability, proliferation and its differentiation potential to generate islet like cellular aggregates (ICAs) using the human derived Panc-1 cell lines. A comparative analysis of hUCBS and FCS for each parameter demonstrated that hUCBS supplemented media was better for proliferation and differentiation of the Panc-1 cells (stem cells). The ICAs obtained from hUCBS primed cultures showed a higher yield, increased islet size, and showed an increase for insulin staining compared to FCS. A comparative analysis of hBone Marrow cells (hBMCs) maintained in each of these different serum supplements demonstrated that hUCBS supplemented media better supported proliferation of hBMCs and enhanced adipogenic differentiation protocol than FCS. We suggest that hUCBS can be explored as an alternate serum supplement for FCS, making it more feasible in cell systems of human derived origin as this is xenogenic free and can also find its application for the human transplantation programmes.

Biography

Vijayalakshmi Venkatesan is currently working as a Scientist E, HOD of Biochemistry/Stem Cell research/Instrumentation at National Institute of Nutrition. She has done 12 projects till now and has 60 publications to her credit. She is a member of Indian Society of Stem cells and Indian Women's Scientists Association. She has got Young Investigator's Award for best paper & presentation in the Joint Conference between Indian Association for Study of Liver (INASL) and European Association for the Study of the Liver, Best paper & presentation Award by Indian Association For Gastroenterology & Indian Association For Liver Diseases, Poona and ICMR International Fellowship for Senior Biomedical scientists to visit Karolinska Institutet, Sweden, 2010.

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