OMICS Group Conferences
Accelerating Scientific Discovery

2nd World Congress on
Cell Science & Stem Cell Research

November 12-14, 2012 Hilton San Antonio Airport, USA

Induced expression of arginine decarboxylase genes through retroviral vector enhances neural stem/precursor differentiation potential towards neuronal lineage

Kiran Kumar Bokara, You-Sub Won and Jong Eun Lee
Yonsei University College of Medicine, South Korea

Recently we reported that retrovirus-delivered human ADC genes (vhADC) in NSCs improve cell survival against oxidative insult in vitro but the characterization and cell fate of ADC-NSCs is not yet known. Cortical NSCs after 1-week culture were infected with empty retrovirus (vLXSN) and the vhADC genes. The NSCs infected with vhADC (ADC-NSCs), NSCs infected with vLXSN (LXSN- NSCs), and retrovirus-noninfected control NSCs were used for the experiments. Stemness was determined by checking the expressions of SOX2 and Nestin by western blot and immunostaining in control, LXSN and ADC-NSCs. Immunocytochemial staining and western blot analysis was done in all the experimental groups for determining the cell lineage (MAP-2, GFAP, Olig-2) and the cell adhesion molecules integrins and NCAMs expressions. The western blot results showed increased expression of stem cell markers: Nestin, SOX2 and Oct-4 in ADC NSCs. Neural lineage was checked in all the experimental groups and the results showed increased expression of MAP-2 and oligo-2 and decreased expression of GFAP in ADC-NSCs compared to control NSCs and LXSN NSCs depicting the ADC-NSCs lineage to neuron. Here, we also found that most of the ADC-NSCs were found attached and differentiated to the bottom surface of the culture plate and. these outcomes were investigated by checking the expression profiles of adhesion molecule, integrins and NCAM. The importance of BMPs and ERK1/2 expression in the differentiation of ADC-NSCs is highlighted as critical for neural lineage and consideration of the integrin expression profile should be made while differentiating neural stem cells for use in therapy

Biography

Bokara Kiran Kumar received his Ph.D. in 2007 from Andhra University, India. He is currently a Postdoctoral Research Associate at the Yonsei University College of Medicine, Seoul, South Korea working with Prof. Jong Eun Lee in the stem cell biology, where he is investigating the use of genetically engineered stem cells for treating CNS diseases

bokarakiran@gmail.com