Gorgan University of Agricultural Sciences and Natural Resources

J. of Utilization and Cultivation of Aquatics, Vol. 7(4), 2019
http://japu.gau.ac.ir
DOI: 10.22069/japu.2019.6859.1221

Neural stem cells from Persian sturgeon (*Acipenser persicus*): Determining optimum temperature, long-term culture and immunocytochemistry

***H. Kashiri[1], A. Shabani[2], K. Heidari[3], M.R. Imanpour[2] and M. Saeidi[3]**

[1]Assistant Prof., Dept., of Fisheries, Gorgan University of Agricultural Sciences and Natural Resources,
[2]Associate Prof., Dept., of Fisheries, Gorgan University of Agricultural Sciences and Natural Resources,
[3]Assistant Prof., Dept., of Medicine, Gorgan University of Medical Sciences

Received: 06/11/2014; Accepted: 07/20/2014

Abstract

Cell culture from fish brain have high potential in investigation of different responses to toxins, nutrients and growth factors. In the present study, to investigate the possibility of preparing long-term culture from Persian surgeon brain, characterization of neural stem cells and determining optimum temperature for the growth of cells, the front (olfactory lobe), middle (optic lobe) and rear (cerebellum) regions of Persian sturgeon brain were placed separately in the medium of DMEM/F12 with 15% FBS, penicillin-streptomycin and amphotrisin in incubator (25^0C, 5%Co2). The obtained cells were mostly fusiform. Cells from rear part of the brain are still alive after more than 8 months and 9 passages. To determine optimum temperature for the growth of Persian sturgeon brain cells, the cells were exposed to temperatures 20, 22, 25 and 28^0C and the number of cells in each temperature treatment was investigated for surveying growth condition. The highest growth and cells were observed at 25^0C. To maintain cell stocks, the cultures were cryopreserved in liquid nitrogen. To characterize neural stem cells, reactivity of cells from rear part of the brain with anti-nestin marker was investigated, that 11% of cells were immunopositive. According to the high stability of cultures from rear part of the brain, it can be used in different research areas such as virus characterization, ecotoxicology and gene expression.

Keywords: Amphotrisin, Passage, Optimum temperature, Persian sturgeon

*Correspondent author: hadiskashiri@gau.ac.ir