IN VITRO CULTURE AND CHARACTERISATION OF DUCK PRIMORDIAL GERM CELLS

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Introduction

The aim of the study is to isolate, cultivate *in vitro* and characterise duck primordial germ cells (PGCs).

Materials and Methods

Firstly, we derived both Muscovy duck circulated PGCs (MDcPGCs) and gonadal PGCs (MDgPGCs) using a modified condition for chicken PGC culture. Using this method, gonadal PGCs (gPGCs) were also isolated from other duck breeds, Pekin duck and a hybrid mule duck. For all three duck breeds, cultured gPGCs were characterised by periodic acid-Schiff (PAS), by immunostaining and by analysing the expression of germline- and pluripotent-associated genes. In addition, the functional assay with transplantation was also conducted.

Results and Discussion

MDgPGCs were found to exhibit proliferative performances in FAot, an aseric chemically-defined medium. A significant increase in cell proliferation was obtained by the third day of primary culture. Moreover, these cultured gPGCs were characterised by typical markers and able to colonise gonads after transgenic labelling and injection into recipient embryos. Altogether, the results demonstrate that duck PGCs can be isolated, expanded and still retain their developmental potential. However, additional factors appear to be required and identified in order to establish long-term culture.