

Materials and Methods: Twenty five ducks had died at 5:30 A.M on January 3rd, 2016 and for the next 9 hours another 25 ducks died. The provincial veterinarian suspected as avian influenza.

Five, 32 weeks old duck were necropsied. Organ samples were fixed in 10% neutral buffered formalin, embedded in paraffin wax, stained with hematoxylin and eosin for histopathology. Bacterial isolation was performed from liver. And virus isolation using trachea and cecal tonsil was performed.

Results: Grossly, the duck showed multifocal hepatic necrosis and fibrinous perihepatitis. Ecchymotic hemorrhages in epicardium and fibrinous transudate in pericardium were found. Histologically, multifocal hepatic necrosis and heterophil infiltration in necrotic area were found. And bacteria colonies were seen in sinusoid. Moderate congestion was seen in serosa of intestine. Avian influenza virus was not isolated. *Pasteurella multocida* was isolated from livers and identified by Vitek2, PCR and Maldi-Tof.

Conclusions: Based on pathological lesions, bacterial culture and virus isolation, the case was diagnosed as FC infection. FC is not a transovarially transmitted disease, so infection occur after ducks are introduced into farm. To prevent another FC infection, biosecurity in the flock will be needed. And the further study how *Pasteurella multocida* was introduced into the farm will be needed.

References:

- [1] Fowl cholera. PP 807-822, Diseases of poultry, 13th ed, 2013.
- [2] Fowl cholera. PP 105-107, Collection of Diagnostic Cases on the Avian Diseases, 2007.

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Establishment and characterization of induced myogenic stem cell

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Introduction: The needs for applying stem cells in veterinary medicine is getting increasing. There has been many reports to apply stem cells in dogs, cats and horses. Most of them has therapeutic effects after stem cell apply. However, the supply of stem cells is one of the hindrances of stem cell therapy. The essential points of stem cells for stem cell therapy are 1) proliferation capacity which can help to get enough number of cells ; 2) differentiation capacity into desired cells ; 3) no tumorigenicity. To get the stem cells for stem cell therapy, we established and revealed the characterization of induced myogenic stem cells (iMSC).

Materials and Methods: Four transcriptional factors were transduced to mouse embryonic fibroblasts with lentivirus. Single cell sorting was performed using cell surface marker

CD90.2 to obtain homogeneous cells. For proliferation of iMSC, H-DMEM with 10% FBS, 10% horse serum, 5ng/ml basic FGF was used. For myogenic differentiation, L-DMEM with 2% horse serum was used. MDX mice were used for in vivo myogenic differentiation test.

Results: Four transcriptional factors were transduced to mouse embryonic fibroblasts with lentivirus. Single cell sorting was performed using cell surface marker CD90.2 to obtain homogeneous cells. For proliferation of iMSC, H-DMEM with 10% FBS, 10% horse serum, 5ng/ml basic FGF was used. For myogenic differentiation, L-DMEM with 2% horse serum was used. MDX mice were used for in vivo myogenic differentiation test.

Conclusions: With four transcription factors, we can generate myogenic stem cells which have high proliferation and myogenic differentiation capacity.

References:

- [1] Thomas Vierbunchen et al. Direct conversion of fibroblasts to functional neurons by defined factors. Nature. 2009; 463: 1135-1041.

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Cigarettesmoke impaired maturation of ovarian follicle and abnormal growth of uterus innerwall via changed expression of estrogen receptors and cell cycle arrest proteinp21 in female rats

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Introduction: Cigarette smoke (CS) has been known to have harmful effects on women's body functions such as fertility, reproduction, and fetal development. To elucidate the effect of CS associated with women's fertility and endocrine function more definitely, female rats were exposed to cigarette smoke for 28 days.

Materials and Methods: Tissue samples of uterus and ovary of female rats exposed to CS were provided by Korean Conformity Laboratories (KCL). Sprague-Dawley female rats were reported to be exposed to the different concentrations (low, medium, and high) of CS of the standard cigarette (3R4F) for 4h/day and 5 days/week for 28 days according to the OECD guidelines. We manufactured tissue slides from uterus and ovary samples and conducted histological analysis via H&E staining and immunohistochemistry (IHC) for proliferating cell nuclear antigen (PCNA),estrogen receptor (ER) α and β and cell cycle arrest protein p21.

Results: The expression of ER β in the CS-exposed ovaries was decreased compared to the control in a CS concentration-responsive manner and the expression of ER α in the CS-exposed ovaries was increased, but the expression of ER β was decreased in the uterus exposed to CS compared