

P-78

## Tetracycline-mediated control of EGFP transgene expression in transgenic chicken.

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One of the critical problems to be solved in transgenic animal production is non-controllable constitutive expression of the foreign gene, which usually results in unwanted physiological or toxic effects in the transgenic animal. To circumvent these problems, we constructed and tested two different retrovirus vectors designed to express the enhanced green fluorescent protein (EGFP) gene under the control of the tetracycline-inducible promoter.

Transformed fibroblast cells derived from the chicken embryo were cultured in the medium supplemented with or without doxycycline (tetracycline derivative) for 48 hours, and induction efficiency was measured by comparing the EGFP gene expression level with epifluorescence microscope. Finally, the tested recombinant retroviruses were injected beneath the blastoderm of non-incubated chicken embryos (stage X) to produce transgenic chickens which can allow evaluating the tetracycline-controllable gene expression system in the whole living organism. Green fluorescent signals, indicative of the EGFP gene expression, were detected from the transgenic chickens after feeding with doxycycline for two weeks. These results suggest that application of tetracycline-controllable expression system in transgenic animals might be a promising solution of the physiological disturbance problems due to constitutive expression of the transgene.

Keywords: *Retrovirus vector, Doxycycline, EGFP, Tetracycline-inducible promoter*