



# The Effect of Oocyte-Cumulus Cell Complexes on Maturation Rates and Pronuclear Formation After Parthenogenetic Activation

Bui Thanh Nhan\*, Nguyen Dang Bich Tram\*, Phung Ngoc Minh Doan, Bui Hong Thuy, Nguyen Van Thuan

Cell Reprogramming Laboratory, School of Biotechnology, International University-Vietnam National University – Ho Chi Minh City, Vietnam

\* These authors contributed equally to this work

## Abstract

Cumulus cells are integral in oocyte growth, maturation, pronuclear formation as well as preimplantation development after fertilization. In this study, we investigated the effect of different cumulus morphology on maturation rates and pronuclear formation after parthenogenetic activation. Oocyte-cumulus cell complexes (OCCs) were classified into three grades: (A) over 3 layers, (B) 2–3 layers, (C) less than 1 layer or incomplete. Our results showed that group A and B achieved high maturation rates (84.4% and 82.5%) whereas group C were 45.7%. In a similar pattern, after parthenogenetic activation, the rate of pronuclear formation of group A and B were namely 65.5% and 52%, while that of group C was only 36.4%. Moreover, we also examined the impact of duration of in vitro maturation on the rate of nuclear formation after activation. We found that 25-hour would result in the highest rate (55.5%) while only 4.44% in group of 30-hour, which was possibly caused by the aging of oocytes. In conclusion, this study found that OCCs with more than 2 layers of cumulus cells could reach the high maturation rates, finally oocytes activated at 25 hours resulted in high rate of pronuclear formation in bovine.

## Keywords

OCCs, IVM, oocyte activation, pronuclear formation

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## References

\*For correspondence:

[nvthuan@hcmiu.edu.vn](mailto:nvthuan@hcmiu.edu.vn)

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