Differential expression of Toll-like receptors in goat dominant and nondominant follicles

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ABSTRACT. The mechanism of dominant follicle selection is unclear because of its physiological complexity. However, some studies have reported that the immune system plays an important role in reproductive physiology. The objective of the current study was to investigate the differential expression of Toll-like receptors (*TLRs*) in the dominant (DFs) and nondominant follicles (NFs), and to determine the correlation between the expression of *TLRs* and the related genes, such as *WNT4* and *FOXL2*. In this comparative study, the expression

levels of *TLR*s, *WNT4*, and *FOXL2* genes of DFs and NFs were obtained from three Dazu black goats were estimated using the real-time PCR. Our results showed no significant difference in the expression of seven *TLRs* (excluding *TLR2*, *TLR5*, and *TLR8*), *WNT4*, and *FOXL2* between the DFs and NFs. In addition, the mRNA expression levels of *WNT4* significantly correlated with the relative expression of *TLR6* (r = 0.949739, $P < 0.01$); however, no significant expression of the *TLR* genes was found to be associated with *FOXL2* mRNA expression. Our results support the fact that *TLRs* are not involved in the process of dominant follicle selection; however, *TLR6* might play a role in the development of follicles by interacting with *WNT4*.

Key words: Toll-like receptors; Goat; Fecundity; *WNT4*; *FOXL2*; Dominant follicle selection