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# Effect of *BMPRIB* gene silencing by siRNA on apoptosis and steroidogenesis of porcine granulosa cells

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**ABSTRACT.** Bone morphogenetic proteins (BMPs) are the key factors in maintaining cell growth and differentiation in ovaries. BMPs initiate signaling by assembling BMP receptors and activating Smads, which in turn alter the expression of target genes. However, little is known about the effect of the deletion of the Bone morphogenetic protein receptor type IB (BMPRIB) on porcine granulosa cell (GCs). The objective of this study was to determine the effects of *BMPRIB* gene silencing, by small interfering RNA (siRNA), on the apoptosis and steroidogenesis of porcine GCs, and the expression of cell cycle-related and apoptosis-related genes. Results indicate that the *BMPRIB* siRNA caused specific inhibition of *BMPRIB* mRNA expression after transfection. Knockdown of the *BMPRIB* gene significantly inhibited porcine GCs proliferation and estradiol production, while inducing apoptosis of porcine GCs. Additionally, the declined expression of the *BMPRIB* gene changed the expressions of *CylinD2*, *Cdk2*, *Bcl-2*, and *Cyp19a1*. These

 

findings provide an important role of BMPRIB in the regulation of apoptosis and steroidogenesis of porcine GCs.

**Key words:** *BMPRIB*; Porcine granulosa cells; siRNA; Apoptosis; Steroidogenesis

 