



Effect of transcription factor ZBTB20 on mouse pituitary development

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ABSTRACT. Pituitary, a critical component in the neuroendocrine system, plays an indispensable role in the regulation of body growth. The transcriptional factor ZBTB20 is widely expressed in brain tissues and participates in hippocampal development; however, the detailed molecular mechanism remains unknown. Therefore, the aim of this study was to investigate the effect of ZBTB20 on mouse pituitary development and related mechanisms in *ZBTB20* gene knockout mice. The expressional profiles of ZBTB20 in various neuroendocrinal cells during the different developmental stages (from E10 to P0) were described by immunofluorescence staining. A *ZBTB20* gene knockout mouse model was then generated. Real-time polymerase chain reaction and western blotting assays were used to detect the levels of five hormones: growth hormone (GH), prolactin (PRL), luteinizing hormone (LH), follicle-stimulating hormone (FSH), and thyroid-stimulating hormone (TSH). ZBTB20 protein expression was identified from E14 until birth. A majority of the pituitary endocrinal cells were ZBTB20-positive. In *ZBTB20* knockout mice, the level of GH decreased by half and PRL expression was eliminated. No significant change was observed in the other three hormones (LH, FSH, and TSH). ZBTB20, an important transcriptional factor in pituitary development, is mainly responsible for the

terminal differentiation of prolactin-secreting cells, thereby regulating the secretion of the pituitary hormones.

Key words: ZBTB20 transcriptional factor; Gene knockout mouse; Pituitary development; Developmental regulation