

TREFOIL FACTOR FAMILY PROTEINS IN THE MOUSE EMBRYONIC PITUITARY GLAND

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Introduction

Trefoil factor family (TFF) proteins are predominately secreted at mucous membranes and are involved in mucosal restitution (1,2). They were also detected in pituitary gland in several studies. TFF2 is found in the anterior part of the mouse pituitary, and its role there is still unknown (3). TFF3 is reported as a new neuropeptide of the hypothalamo-pituitary axis, co-localized with oxytocin and transported into the neural lobe of the pituitary (4,5). The aim of this preliminary research was to investigate the presence of TFF proteins in the pituitary gland of the mouse embryos.

Materials & Methods

Mouse embryos at Theiler stages 23, 24 and 25, fixed in 4% paraformaldehyde and embedded into paraffin blocks were used. Sagittal sections 6µm thick were made and processed for immunohistochemistry. The embryos were stained with proprietary, self-made anti-TFF1, anti-TFF2 and anti-TFF3 primary polyclonal rabbit antibodies. Biotinylated secondary anti-rabbit antibody, Streptavidin-HRP and DAB were used to visualize the presence and localization of TFF proteins. Counterstaining was done with Mayer's hematoxylin.

Results

TFF 1, 2 and 3 signal was present in some, but not all cells of the anterior lobe of the pituitary, with TFF 1 and 2 presence being more pronounced. TFF 2 immunostaining was intense on the surface of the epithelium lining the remaining cavity of Rathke's pouch. In the posterior lobe of the pituitary gland, mild TFF1 and more pronounced TFF3 signal was detected. See figures 1-3.

Conclusions

The presence of TFF proteins in the embryonic pituitary gland suggests a role of TFF proteins in the development and function of embryonic endocrine system. Further research might reveal if TFF expression is restricted only to certain types of pituitary cells and if there is a protein-specific pattern of expression regarding different TFF proteins. TFF3 might be secreted into the blood and act on peripheral targets in the mouse embryo.

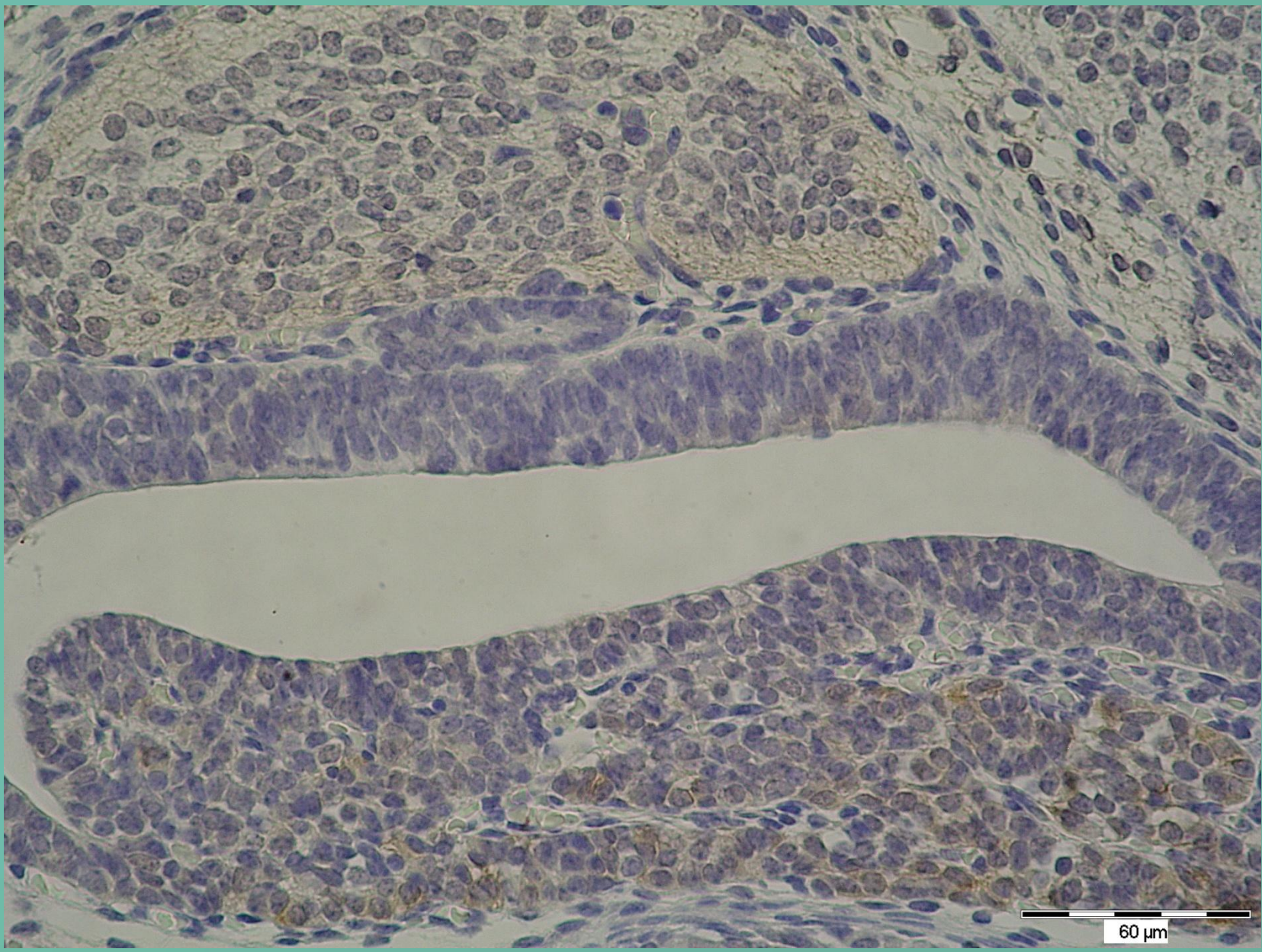


Fig. 1. TFF1 signal in anterior and posterior lobe of the pituitary gland, 16-day old embryo, 400x.

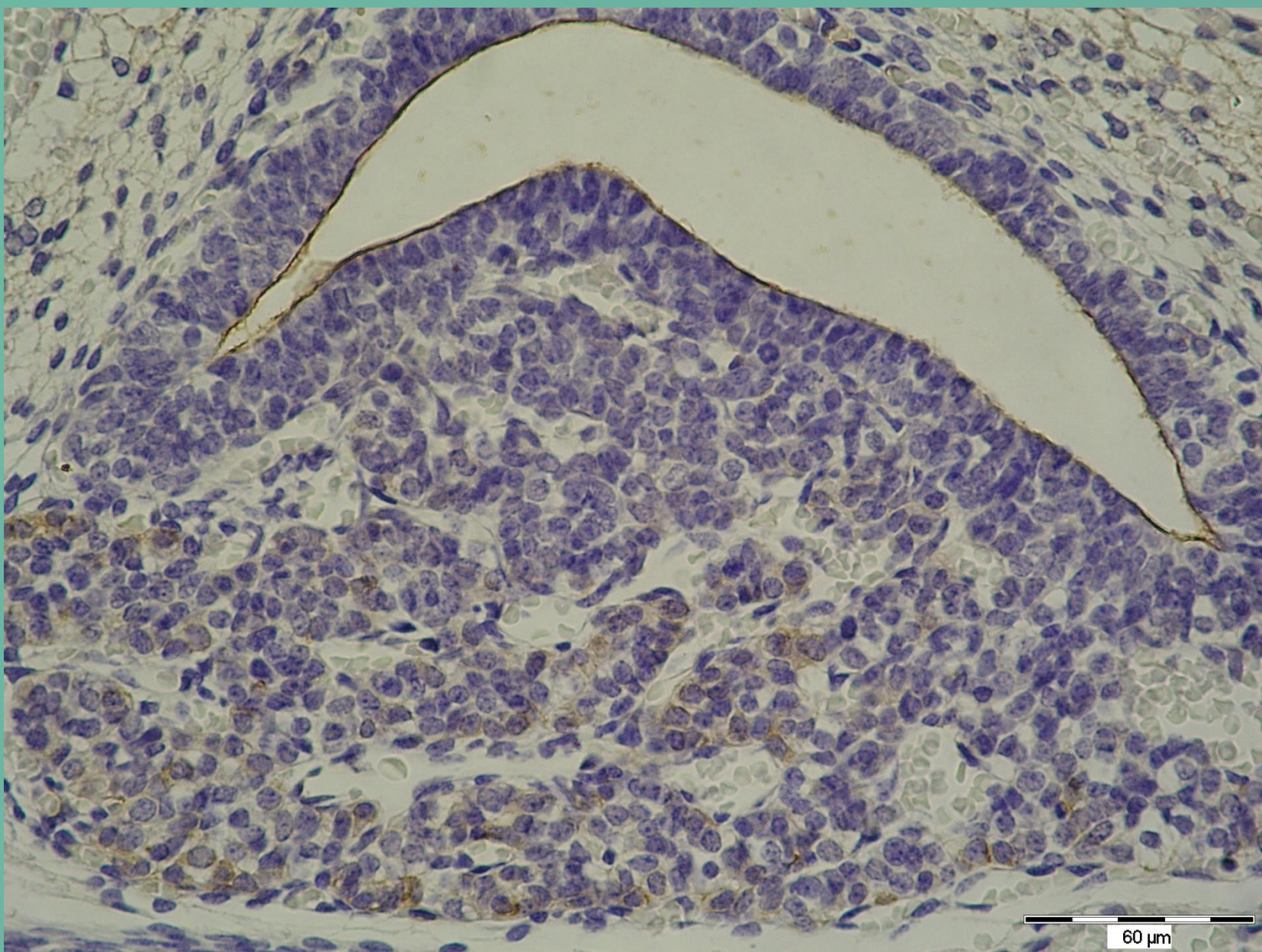


Fig. 2. TFF2 signal in the anterior lobe of the pituitary gland, 16-day old embryo, 400x.

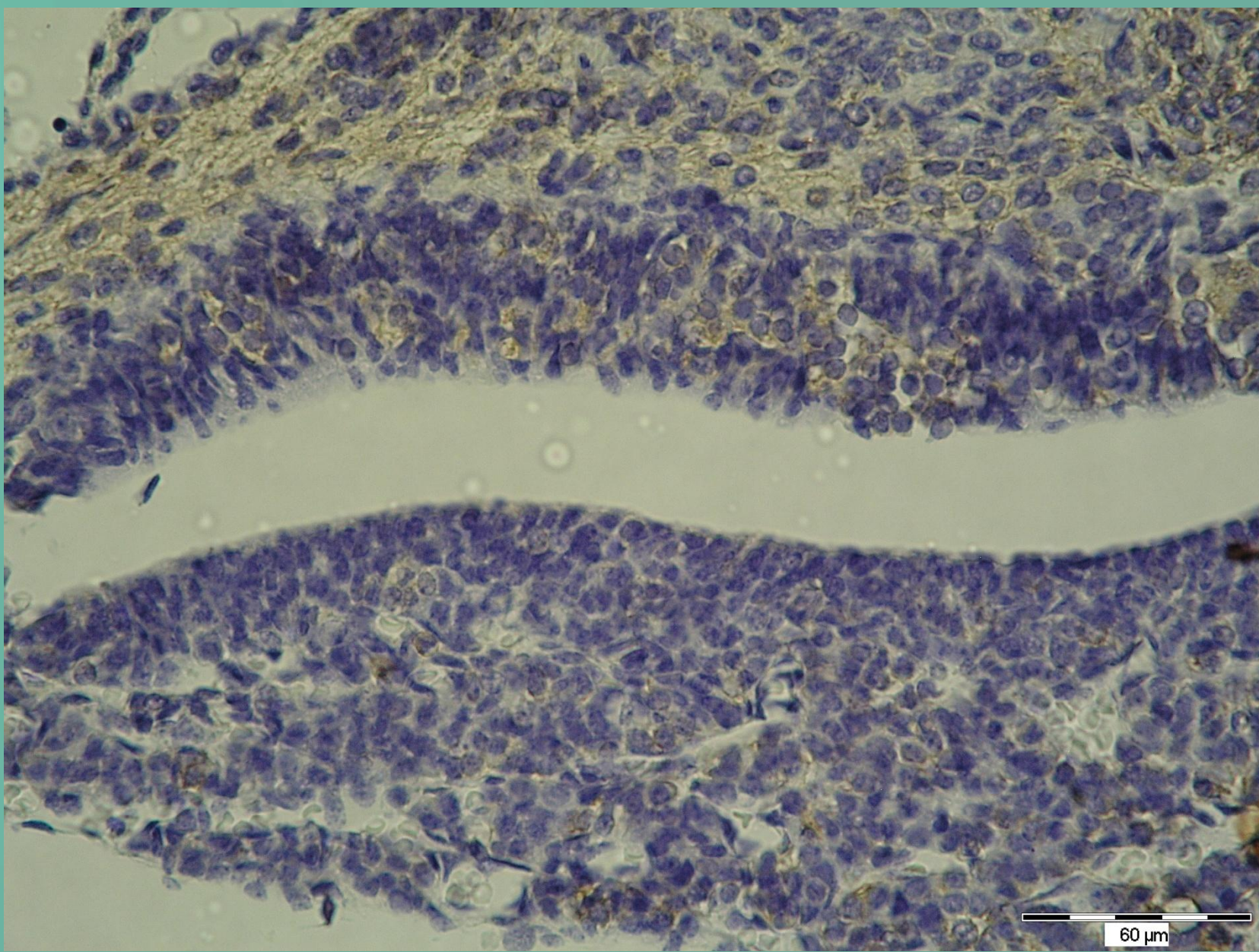


Fig. 3. TFF3 signal in anterior and posterior lobe of the pituitary gland, 17-day old embryo, 400x.

References

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