Tissues, Pathology, and Diagnostic Microscopy

LS.2.P053 Trefoil factor family proteins 1, 2 and 3 in the developing kidney of mouse embryo

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Trefoil factor family (TFF) comprises three small peptides, TFF 1, 2 and 3, which have an important role in protection of various epithelial tissues by promoting restitution through various mechanisms [1,2]. All three members of this peptide family were found in the urinary system, and in the urine. Various roles in the urinary system are proposed for them, from epithelial protection to correlation with pathological conditions [3-5]. The aim of this research was to determine if TFF proteins are present in the developing embryonic kidney.

Mouse embryos, at developmental stages E15 to E17 were isolated, fixed in 4% paraformaldehyde, embedded in paraffin blocks, cut into 6 µm sections, and processed for immunohistochemical staining. Primary polyclonal rabbit anti-TFF1, anti TFF2, and anti TFF3 antibodies were used, and PBS as a negative control. Secondary biotinylated antibody, streptavidin-HRP and DAB were used to create and visualize immunocomplexes.

All three TFF proteins were found in the embryonic kidney at all monitored stages of embryonic development. TFF1 and 3 were predominantly found in ducts morphologically and topographically corresponding to collecting ducts [Figure 1 and 2]. TFF2 was found in the glomerular podocytes, with some mild signal in the ducts as well [Figure 3].

Various effects exerted by TFF proteins in different epithelia might reflect their role in embryonic development of the urogenital system. This preliminary data show that there are some similarities between adult and embryonic kidney. Further research may elucidate the relationship between TFFs and urinary system of developing embryo.

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Figure 1. Presence of TFF1 in the collecting ducts, 16-day old embryo.



Figure 2. Collecting ducts positive for TFF3, 17-day old embryo.



Figure 3. Pronounced TFF2 signal in the glomerular podocytes of 15-day old mouse embryo.