

## Comparative study of GATA3 and CD147 overexpression in urinary bladder carcinoma: Diagnostic and prognostic implications

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**Introduction:** Urinary bladder carcinoma is an international health problem and the most common urologic malignancy, particularly in males. Many efforts were made to investigate the role of GATA3 and smoothelin as diagnostic markers for bladder carcinoma and CD147 (EMMPRIN) as a prognostic and potentially therapeutic one.

**Aim of the work:** This study aimed to study the immunohistochemical expression of GATA3, smoothelin and CD147 (EMMPRIN) in urinary bladder carcinoma and its available morphological variants and to correlate the immunohistochemical results of these markers with the available clinicopathological parameters.

**Materials and methods:** Paraffin blocks from 85 cases of urinary bladder carcinoma patients including: 69 cases of urothelial carcinoma (UC), 10 cases of squamous cell carcinoma (SCC), 5 cases of adenocarcinoma and one case of neuroendocrine small cell carcinoma were stained by GATA3, smoothelin and CD147 immunohistochemical markers.

**Results:** GATA3 exhibited high sensitivity (87%) and specificity (100%) as a diagnostic marker for urothelial carcinoma. Strong nuclear GATA3 expression (+3) had been found in all cases of low grade urothelial carcinoma, plasmacytoid, microcystic, micro-papillary and clear cell urothelial carcinoma while showed a range of sensitivity as a marker for urothelial carcinomas with variant morphologic features as squamous and sarcomatoid differentiation.

A statistically significant relations was found between GATA3 expression and tumor grade and stage, so that reduction in


GATA3 expression was associated with high-grade and muscle invasive bladder carcinoma. Smoothelin proved an important diagnostic utility, allowing distinction of the muscularis propria MP (positive smoothelin expression) from the muscularis mucosa MM (negative smoothelin expression). The sensitivity and specificity of smoothelin in detecting MP invasion in the current study was 100%. Regarding CD147 expression, positive CD147 staining was significantly associated with high tumor grade and muscle invasion.

**Conclusion:** GATA3 acts as a valuable tool for confirming the urothelial origin of microcystic, micropapillary, plasmacytoid and clear cell variants of urothelial carcinoma. Also, decreased GATA3 expression is associated with high tumor grade and MP invasion. It is important to use smoothelin immunohistochemistry as a routine in all cases of TURBT specimens for accurate staging and subsequent optimal patient management. CD147 positive expression is significantly related to high grade and advanced stage of bladder carcinoma.

### Speaker Biography

Nehal Abd El-Ghaffar Heabah has completed her Master from Tanta University. She works as an assistant lecturer: Faculty of Medicine, Tanta University, Egypt from 2015-till present. She performed Master thesis entitled: "An immunohistochemical and image analysis study of fragile histidine triad (FHIT) protein expression in colorectal adenoma and carcinoma", January 2015 and Medical Doctoral thesis entitled: "Immunohistochemical Study of GATA3, Smoothelin and CD147 Expression in Urinary Bladder Carcinoma", March 2019.

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