**Elevated Sall4 Expression Correlates with Prostate Cancer Gleason Score and Metastasis**

Dhafer A. Alghezi1,\* andAli Harb 2

1. Department of Microbiology, College of Medicine, University of Thi-Qar, Thi-Qar, 64001,Iraq.
2. Department of Community Health Technologies, College of Health and Medical Technologies, National University of Science and Technology, Thi-Qar, Iraq.

**\*** Corresponding author: +9647825347701; Dr.daf79@utq.edu.iq; Dhafer.a.f.alghezi@bath.edu, ORCID ID: <https://orcid.org/0000-0002-5450-6360>

Abstract:

Prostate cancer has substantial diagnostic and prognostic challenges, as there are limited reliable biomarkers available to differentiate between indolent and aggressive forms of the disease effectively. The study aims to evaluate Sall4, protein, and mRNA levels in malignant and normal tissues and look into how these levels link to prostate cancer clinical data. Sall4 is predominantly found in embryonic stem cells and during embryonic development, with its expression markedly absent or reduced in the majority of healthy adult human tissues. However, it has been reactivated in various cancers. Despite these observations, the function of Sall4 in prostate cancer is still poorly understood. Sall4 protein and mRNA expression levels were evaluated in forty normal tissues and one hundred ninety-four malignant prostate tissues using immunohistochemistry and RNAscope®. This study showed a considerable increase in nuclear and mRNA Sall4 levels in prostate cancer than normal prostate tissues. This elevation was significantly linked to a higher Gleason score and metastasis. It appears that Sall4 may play a critical role in prostate tumorigenesis and aggressiveness. Further investigation is essential to clarify its specific role and evaluate its viability to be a prognostic prostate cancer biomarker.