

PD-L1 Expression is Associated with Poor Prognosis in Renal Cell Carcinoma

Sabina Davidsson^{1*}, Pernilla Sundqvist¹, Vezira Kosuta¹, Anna Fält^{1,2}, Francesca Giunchi³, Michelangelo Fiorentino³ and Jessica Carlsson¹

¹Department of Urology, Faculty of Medicine and Health, Örebro University, Sweden

²Clinical Epidemiology and Biostatistics, School of Medical Sciences; Örebro University, Sweden

³Molecular Pathology Laboratory, Addarii Institute of Oncology, Department of Hematology-Oncology, University of Bologna, Italy

Programmed death ligand 1 (PD-L1) is an immunosuppressive membrane protein which, when interacting with its receptor programmed death 1 (PD-1), acts as a negative regulator of the anti-tumor T cell-mediated immune response. Overexpression of PD-L1 in different malignancies such as melanoma and gastric cancer is associated with poor clinical outcomes. The prognostic value of PD-L1 expression in renal cell carcinoma (RCC) has been controversial to some extent. In this study, the prognostic value of PD-L1 expression in RCC was evaluated by analyzing PD-L1 immunoreactivity in tumor cells and tumor infiltrating immune cells (TIICs) in 358 RCC patients with long term follow-up. Since the discrepancy between previous studies may be due to the lack of standardized methodology for evaluating PD-L1 expression by immunohistochemistry, the agreement between two anti-PD-L1 antibody clones, 28.8 and SP142, was also compared.

PD-L1 positivity in tumor cells was associated with higher Fuhrman nuclear grade ($p < 0.001$), recurrence ($p = 0.006$), and death due to RCC ($p = 0.05$). PD-L1 positivity in TIICs was associated with higher Fuhrman grade ($p < 0.001$), higher AJCC-stage ($p = 0.019$), and death due to RCC ($p = 0.001$). A multivariate regression analysis revealed a significant positive association of time to cancer-specific death with both PD-L1 positive tumor cells and TIICs ($p = 0.014$ and $p = 0.004$, respectively). To conclude, RCC patients with PD-L1 positive tumor cells and TIICs are at significant risk for cancer progression, and the expression of PD-L1 on those cell types may be used as a complementary prognostic factor in the management of RCC patients.

Biography:

Sabina Davidsson work as a researcher at the department of Urology at the University Hospital of Örebro, Sweden. She defended her thesis "Infection induced chronic inflammation and its association with prostate cancer" 2013. The current focus of her research concerns which role different immune/inflammatory cells plays in the development of a number of urological cancer types, including renal cancer, penile cancer, bladder cancer, and prostate cancer.