

25<sup>th</sup> Global Meet on  
CANCER RESEARCH & ONCOLOGY  
&  
World Congress on  
PRIMARY HEALTHCARE AND MEDICARE SUMMIT

May 20-21, 2019 | Rome, Italy

## Prognostic value of CD8 Immunogradient indicators in tumour-stroma interface zone of colorectal cancer

**Ausrine Nestarenkaite**

Vilnius University Hospital Santaros Clinics, Lithuania

**Statement of the Problem:** The immune response within the tumour microenvironment assessment methods were proposed to predict patient survival and therapy outcomes in colorectal (CRC) and other cancers; nevertheless, automated operator-independent approaches are lacking. We present a new image analysis method to automatically extract Immunogradient indicators and their prognostic value in CRC patients.

**Methodology & Theoretical Orientation:** Surgically excised CRC samples from 101 patients were stained for CD8, scanned, and analyzed by Indica labs HALOTM software. The image analysis data was then subsampled by a hexagonal grid which was used to extract and rank the tumour interface zone (IZ) according to distance to the tumour edge. Lastly, a set of novel Immunogradient indicators representing CD8 cell density profiles across the IZ were computed. The prognostic value of the indicators was tested by univariate and multiple survival statistics. Findings: The Immunogradient indicators ImmunoDrop (ID) and Centre of Mass (CM) for the CD8 cells, as well as CD8 cell densities within tumour and stroma aspects of the IZ and their factor scores provided significant stratifications of CRC patients into prognostic groups ( $p < 0.05$ ). Multiple Cox regression analyses of extracted indicators along with conventional clinicopathologic characteristics revealed ID and the Aggregated IZ CD8 cell response factor as strong independent predictors of worse (HR: 2.41,  $p = 0.0126$ ) and better (HR: 0.41,  $p = 0.0196$ ) 5-year overall survival, respectively.

**Conclusion & Significance:** The proposed automated, data-driven digital image analysis method for the IZ immune infiltrate assessment provides strong independent prognostic biomarkers is operator-independent and is based on single CD8 immunohistochemistry slides.

### Biography

Ausrine Nestarenkaite works as a medical geneticist at the National Center of Pathology and is a doctoral student at Vilnius University, Institute of Biosciences, in Lithuania. She focuses on the multiparametric and spatial analysis of tumour microenvironment components in digital microscopy slides. Main scientific interests: Molecular genetics of colorectal cancer, cancer immunology, and digital pathology applications.

[ausrine.nestarenkaite@vpc.lt](mailto:ausrine.nestarenkaite@vpc.lt)