



# Clusters of tumor associated mast macrophages are associated with poor outcome in prostate cancer

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## Introduction

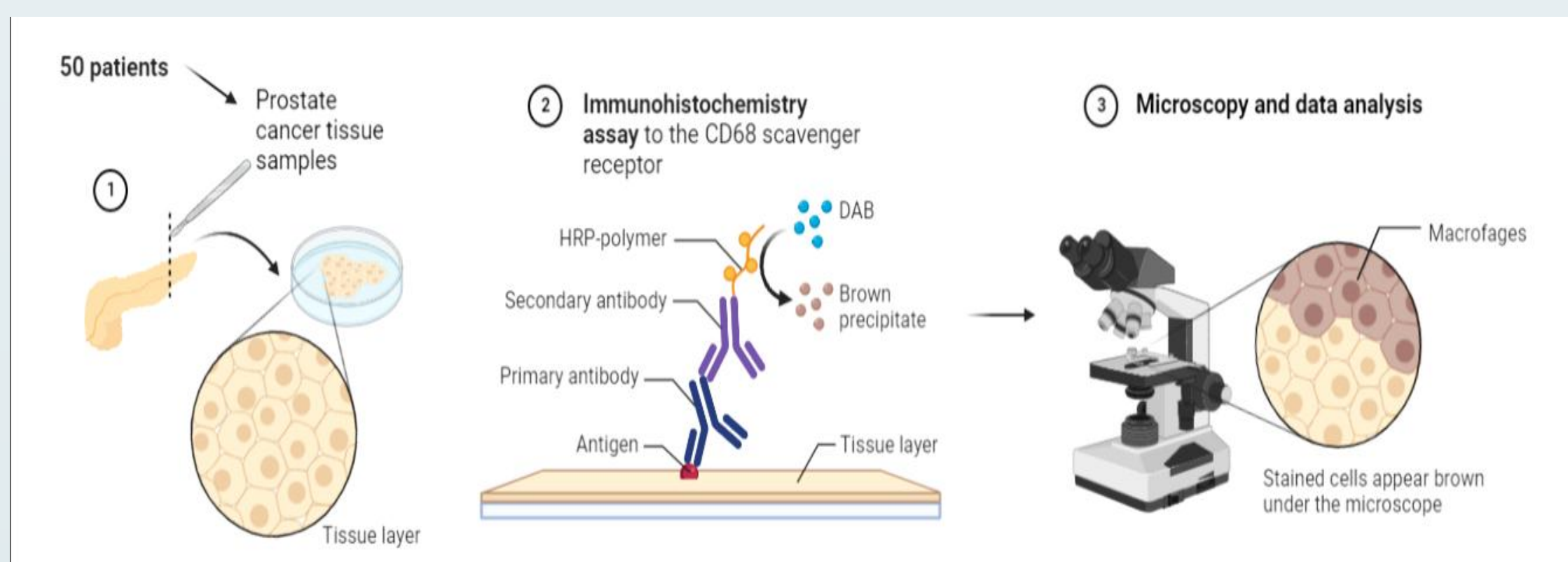
A significant problem of modern immuno-oncology is the lack of specificity and sensitivity of diagnostic methods used for prognostic purposes. Therefore, the relevant task is to search for new immunological criteria indicative for progression and for the therapeutic resistance in prostate cancer (PC). Patients with PC have various immune cellular composition of tumor microenvironment, and the immune biomarkers in tumor tissues can be used for the identification of tumor progression, clinical prognosis and therapy outcome.

## Objectives

We aim to examine the amount and pattern of intratumoral distribution of macrophages with characteristic foamy cell morphology in patients with PC, and to study the correlation of such macrophages with clinical grade of PC.

## Methodology

We carried out a retrospective analysis for patients with a histological diagnosis of pT2a-3bN0M0. The samples came from the Biobank of the Bashkir State Medical University. One block containing more than 80% of tumor tissue was selected from each patient. Immunohistochemical analysis diagram is presented on the Fig. 1



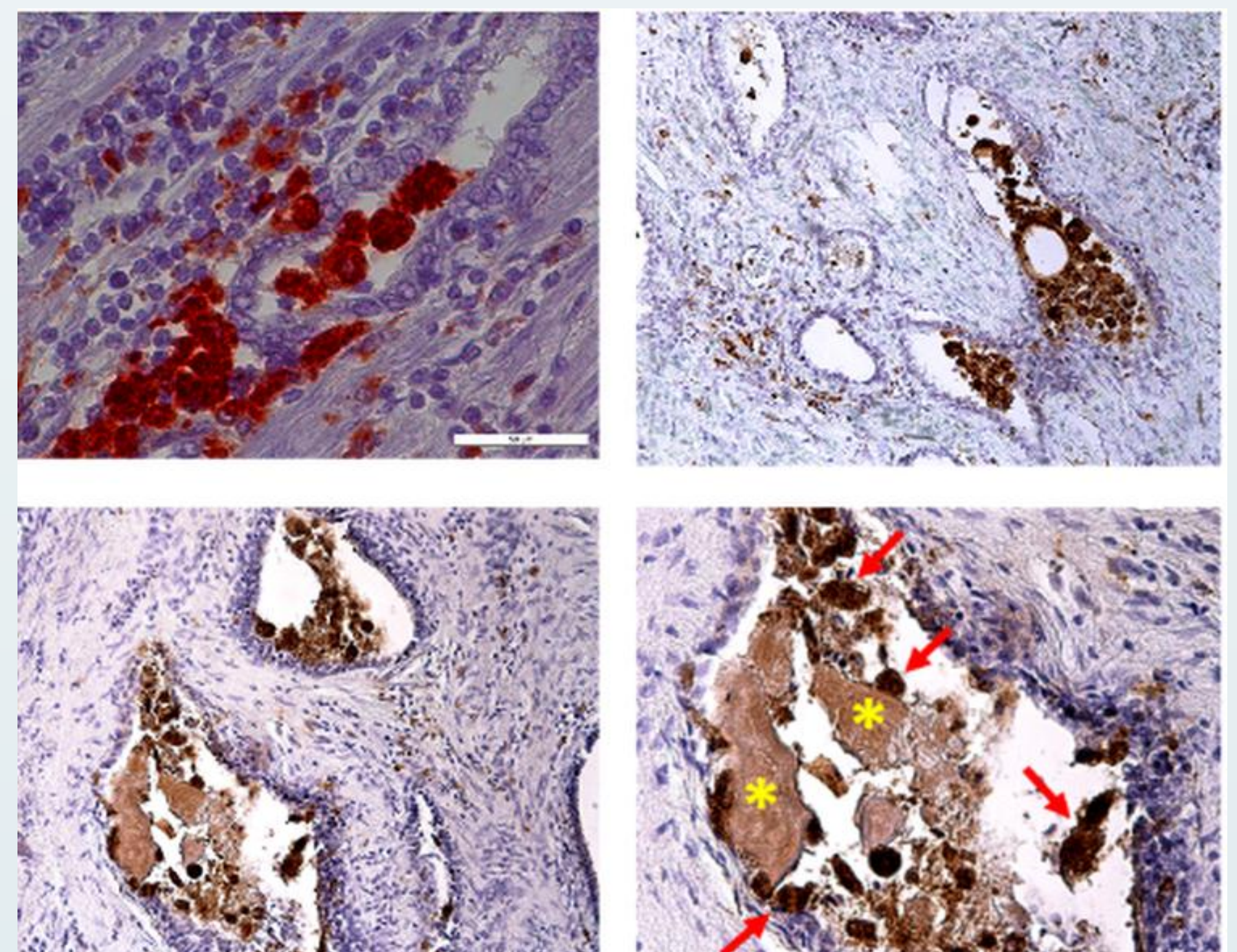
**Fig.1** Immunohistochemical analysis diagram

## Conclusion

Clusters of foamy macrophages in prostate tumor tissue are associated with an aggressive phenotype in prostate cancer and call for further studies in the context of individual therapy resistance.

## Results

Single macrophages with normal morphology were found in 39 patients; solitary foamy macrophages were detected in 9 patients. Amounts of CD68+ macrophages, characteristic accumulations of massive macrophages were detected in 28 patients. Their typical localization is the lumen of the ducts of the prostate gland with accumulation of secretions (Fig. 2). The presence of such clusters of CD68+ macrophages in tumor tissue samples of the study group of patients was associated with higher Gleason scores of 8-10 points for 13 patients.



**Fig.2** Immunohistochemical study of CD68+ expression (DAB). The arrow indicates CD68+ positive macrophages, the asterisk indicates the secret area in the prostate duct