

PROSIBLAD PRecision Oncology Signature for Invasive BLADder Cancer

Introduction

Bladder cancer (BCa) ranks among the **most common neoplasms** in industrialized countries, and it comprises non-muscle invasive BCa (NMIBC, ~75%) and muscle-invasive BCa (MIBC, ~25%) which differ greatly in terms of prognosis and clinical management. In particular, MIBC has poor prognosis, with a 5-year overall survival of 50%, despite the use of aggressive treatments, namely cystectomy followed by adjuvant chemotherapy. In contrast, **NMIBC display an overall good prognosis**, although ~20-30% of the cases faces a **progression to MIBC** with an even worse prognosis than patients with primary MIBC.

Medical Need

Current BCa staging based on standard clinicopathological parameters is often ineffective in predicting NMIBC-to-MIBC progression, leading to disease **understaging** and a **one-size-fits-all treatment approach**. NMIBC patients often undergo **costly surveillance and treatments**, including intravesical instillations and perfusion chemotherapy, making NMIBC one of the most expensive cancers to manage. Therefore, there is an urgent need for **accurate predictive biomarkers** of recurrence and progression of the NMIBC disease

Solution

PROSIBLAD is an **innovative multigene signature** designed to identify NMIBC patients at high risk of **progression** and **recurrence**, providing a powerful tool for precise clinical decision-making, thanks to a prognostic model able to stratify bladder cancer patients at risk of progression from non-muscle-invasive to muscle-invasive disease. Compelling data demonstrate that PROSIBLAD **effectively stratifies patients progressing to MIBC** and outperforms other signatures in a retrospective analysis of over 500 NMIBC patients. PROSIBLAD also represents a **signature of invasiveness** in NMIBC associated with hyperactivation of a RHOA/ROCK/YAP pathway and might predict response to targeted therapies (anti-ROCK and -YAP drugs already available in the clinic for other diseases). In conclusion, PROSIBLAD is a unique **powerful predictive tool** for personalized NMIBC patients' management, beyond currently available standard clinical parameters.

Advantages

- **Game-changer** in NMIBC management predicting NMIBC progression and recurrence
- Development of **novel combination therapies** in NMIBC based on RHOA/ROCK/YAP pathways
- Clinical tool leveraging rapid global transcriptomic profiling and **in situ multiplexed imaging-based phenotyping of formalin-fixed paraffin-embedded biopsy samples from the routine** to identify NMIBC tumors with intrinsic invasiveness and progression features

Opportunity

Istituto Europeo di Oncologia is seeking **investors** interested in supporting the development of PROSIBLAD signature for clinical applications

Main Inventors



Prof. Salvatore Pece, MD, PhD

Group Leader and Director of the Molecular Pathology Unit at European Institute of Oncology; Full Professor of General Pathology and Vice-Director of the Department of Oncology and Hemato-Oncology at the University of Milan

Expert in molecular mechanisms of **tumor metastasis and therapy resistance**

Pioneer in studies on **cancer stem cell biology** and molecular carcinogenesis

Co-author of over 100 high-impact publications

Inventor of patents covering biomarkers and prognostic methods



Prof. Gianluca Vago, MD

Full Professor of Pathology and former Dean of the University of Milan; Director of the Department of Oncology and Hemato-Oncology at the University of Milan

Pioneer of studies on the pathology and diagnostics of infectious diseases.

Expert of experimental models of immunologically active molecules.

Co-author of over 150 high-impact publications

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Relevant publications: Tucci FA et al., *Nature Communications* 2024