

# 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. 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

**IP asset:** patent application EP24191940.6; co-owned by IEO and University of Milan

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