New RESAR Project Proposal:

DevelopmEnt and validaTion of a novEl inflammatoRy bioMarker-based prognostic index for retroperItoNeal sarcomA patieNTS (DETERMINANTS)

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Submitted in June 2025 for approval

Transatlantic Australasian Retroperitoneal Sarcoma Working Group

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BACKGROUND

REGARDING INFLAMMATORY BIOMARKERS IN RPS

- **IBPI developed at INT (pts series 2002-2016):**

Prognostic for OS (p<.0001); increased prediction when added to Sarculator. Predictive for serious infectious complications

[Fiore M, Clin Cancer Res 2023]

- **RBT developed at INT for LUNG CANCER**

Tested also on RPS for OS/DFS

[Avogadro G, submitted]

- **IBPI validated for ESTS (1232 pts INT 2008-2017)**

Good discrimination for OS (log-rank test P < .0001), DM-CCI, and serious complications. IBPI values higher than in RPS.

[Fiore M, poster SSO 2025]

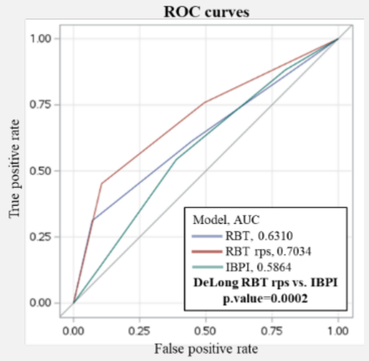
- **IBPI tested in pelvic exent for LRRC (57 pts INT)**

Good correlation with severe postoperative complications

[Scardino A, submitted]

Inflammatory Biomarkers Prognostic Index (IBPI)		
Preoperative Variable	Threshold value	Direction
Hemoglobin (g/dL)	11.3	-1
Monocytes (%)	6.0	1
NLR	3.6	1
PLR	121.5	-1

Routine Blood Tests (RBT)
Hb, NLR, PLR, Monocytes
+ CRP + Glycose

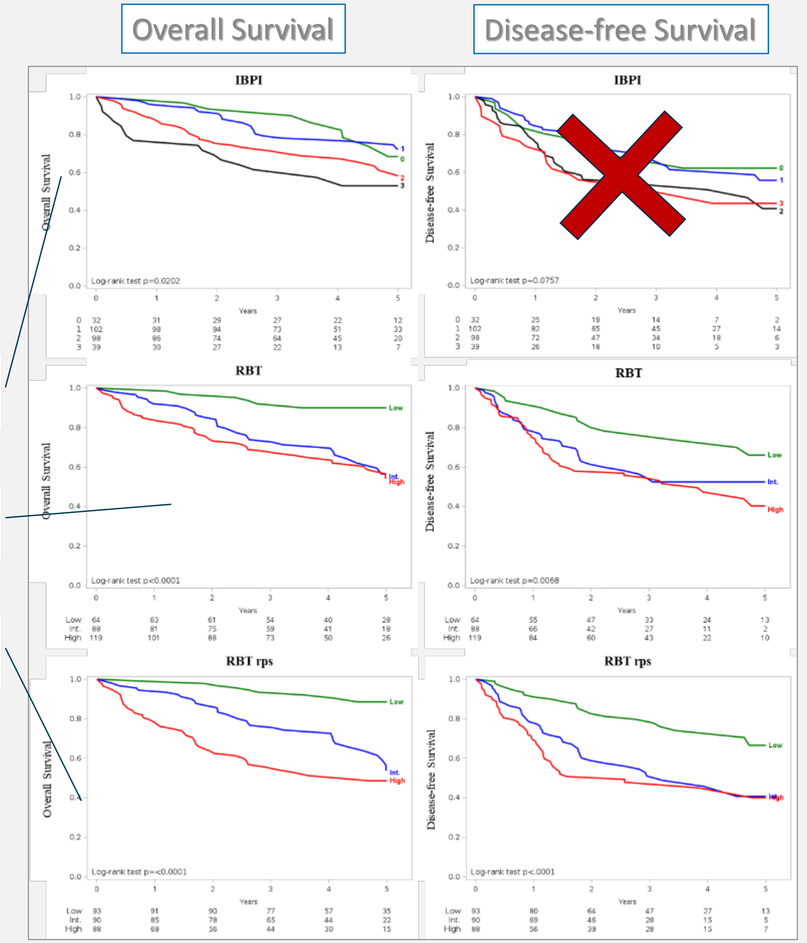


IBPI

RBT

RBTrps

INT 2017-2021



“DETERMINANTS”

Study Aim

- Develop/validate an accurate prognostic index for OS by incorporating preoperative inflammatory biomarkers

- Define unsupervised inflammation index that holds prognostic value across various clinical outcomes

- Inclusion criteria: RESAR pts operated 2017-2023
- Exclusion criteria: missing or incomplete survival data
- **Primary Objective**

To develop a new prognostic index for OS in RPS using both IBPI markers and additional markers such as CRP, albumin, creatinine.

- **Secondary Objectives**

1) Validate IBPI in an external, international cohort (RESAR registry), and compare its predictive performance with that of the new prognostic index.
2) Develop an unsupervised inflammatory score → clusters patients by inflammatory state → assess correlation with OS, DFS, postoperative complications
3) Compare predictive performance of the supervised and unsupervised indices.

Methods

- Retrospective observational analysis using existing data from the RESAR registry.
- No extra data are required
- Sample size: approximately 1,000–1,500 patients will ensure adequate power for model development, validation, and subgroup analyses.
- Patients cohort will be split into training and testing cohorts by:
  - Classifying centers as HVC or LVC (threshold = 13 patients/year)
  - Randomly assigning 75% of both HVC and LVC to the training set; the remaining 25% to the testing set.
- If only a small number of observations of the preoperative laboratory data are missing → imputation of missing data
- If a substantial proportion of observations are missing → exclude those with missing values from the relevant analyses

This simulates external validation across different clinical environments.

DETERMINANTS

Estimate for feasibility

Database inquiry on November 2025

- 2827 patients 2017-2023
- 176 (6.2%) → no blood test available

	Blood cell count	+ CRP	+ CRP + albumin
Blood cell count	2196 (77.6%)	1328 (46.9%)	1300 (45.9%)
CRP	1511 (53.4%)		
Albumin	2434 (86.1%)		

- 1300 evaluable patients: median FU 28,3 mos (IQR 11,8-52,8)

Thanks for your attention!

Q&A

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