cima
CENTER FOR APPLIED MEDICAL RESEARCH
UNIVERSITY OF NAVARRA

Prognosis of lung cancer
Protein-based prognostic signatures for early lung adenocarcinoma (ADC) and for squamous cells carcinoma (SCC)

- Lung cancer is the leading cause of cancer-related death worldwide; a growing number of patients are diagnosed in an early stage.
- Adjuvant chemotherapy is recommended for stage II-III patients; however, chemotherapy for stage I patients is still a matter of debate.
- Early identification of patients with high risk of recurrence after surgery is crucial to reduce lung cancer mortality.
- **New prognostic indexes stratify the patients' risk** (high/low), particularly **in early lung cancer**, with high statistical significance, both for recurrence and mortality.

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Scope of the Problem	· Lung cancer is the leading cause of cancer-related death worldwide. 2 out of 3 patients are diagnosed with an advanced stage, when curative and survival rates are poor.
	· A growing number of patients are diagnosed in an early stage, and will increase within the next years thanks to screening programs based on low dose computed tomography (CT).
	· Surgery is the standard treatment for early non-small cell lung cancer (NSCLC); adjuvant therapy may follow the treatment according to the stage and current guidelines.
	· Adjuvant chemotherapy is recommended for stage II-III patients; however, indication of chemotherapy for stage I patients is still a matter of debate.
	· New genomic tools have enabled identification of RNA-based prognostic models with potential clinical value for lung ADC; however no mRNA signature is clinically available for lung SCC.
Unmet Needs	· A risk stratification method to early identify lung cancer patients with high risk of recurrence after surgery in order to design tailored management strategies to reduce mortality.
	· A better way to predict the benefit of adjuvant therapy for patients with early stage lung cancer.
Standard of care	· Tumor-node-metastasis staging system (TNM) remains the only system for prognosis of lung cancer. However, heterogeneous clinical outcomes with identical TNM staging are commonly observed.
Product Profile	· Two Prognostic Indexes (PI) obtained by combining the coefficient-weighted expression of discrete numbers of marker proteins analyzed by immunodetection-based methods.
	· These PIs provide independent prognostic information for recurrence free survival (DFS) and overall survival (OS) in patients with lung ADC or SCC, and allow discriminating patients of early stages who have higher risk of recurrence or worse survival prospects.
	· Combined Prognostic Indexes (CPI) that combine molecular information provided by the PIs with pathological information provided by TNM staging system, further improve prognostic value.
Proof of Concept	· Prognostic value of the PIs and CPIs to stratify and discriminate ADC and SCC patients, particularly at early stages, has been confirmed and validated in an independent cohort of lung cancer patients.
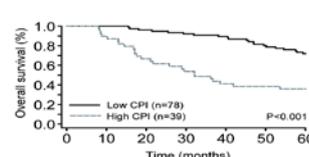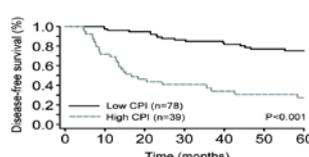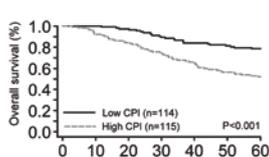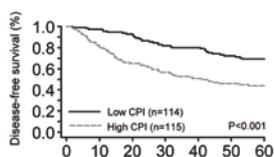
Clinical utility of the prognostic signature in lung ADC patients. Kaplan-Meier survival curves for high and low CPI groups in the patients' cohort for DFS (left panel) and OS (right panel).

Clinical utility of the prognostic signature in lung SCC patients. Kaplan-Meier survival curves for high and low CPI groups in the patients' cohort for DFS (left panel) and OS (right panel).
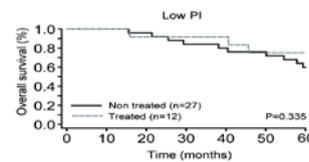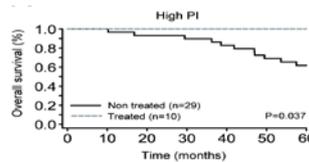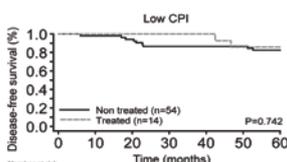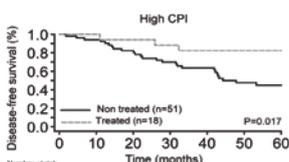
Predictive value of the prognostic signature in lung ADC patients. Kaplan-Meier curves for high and low CPI groups comparing differences between treated or not treated patients for DFS.

Predictive value of the prognostic signature in lung SCC patients. Kaplan-Meier curves for high and low CPI groups comparing differences between treated or not treated patients for OS.

Competitive Advantage	· PIs and CPIs stratify the patients' risk (high/low), particularly in early lung cancer, with high statistical significance, both for recurrence and mortality.
	· Potential to predict the benefit of adjuvant therapy for patients with early stage lung cancer.
Intellectual Property	· Two European patent applications filed

Contact: **Business Development** | Email: bdcima@unav.es | Tel: + 34 948 194 700