Oral Presentation Session

EXTRACELLULAR VESICLES PROFILE IN BRONCHOALVEOLAR LAVAGE FROM IPF, HP AND SARCOIDOSIS PATIENTS: A MULTICENTER STUDY

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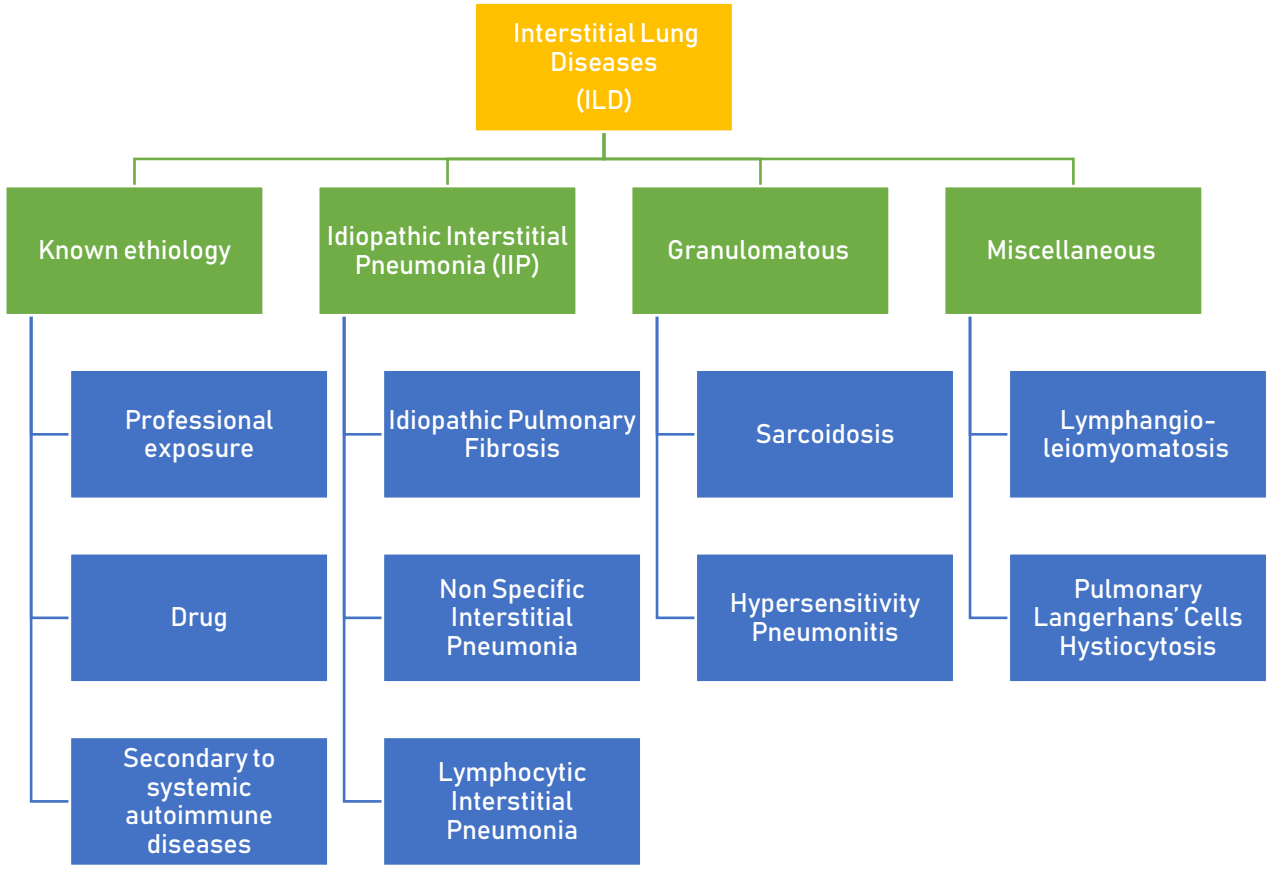
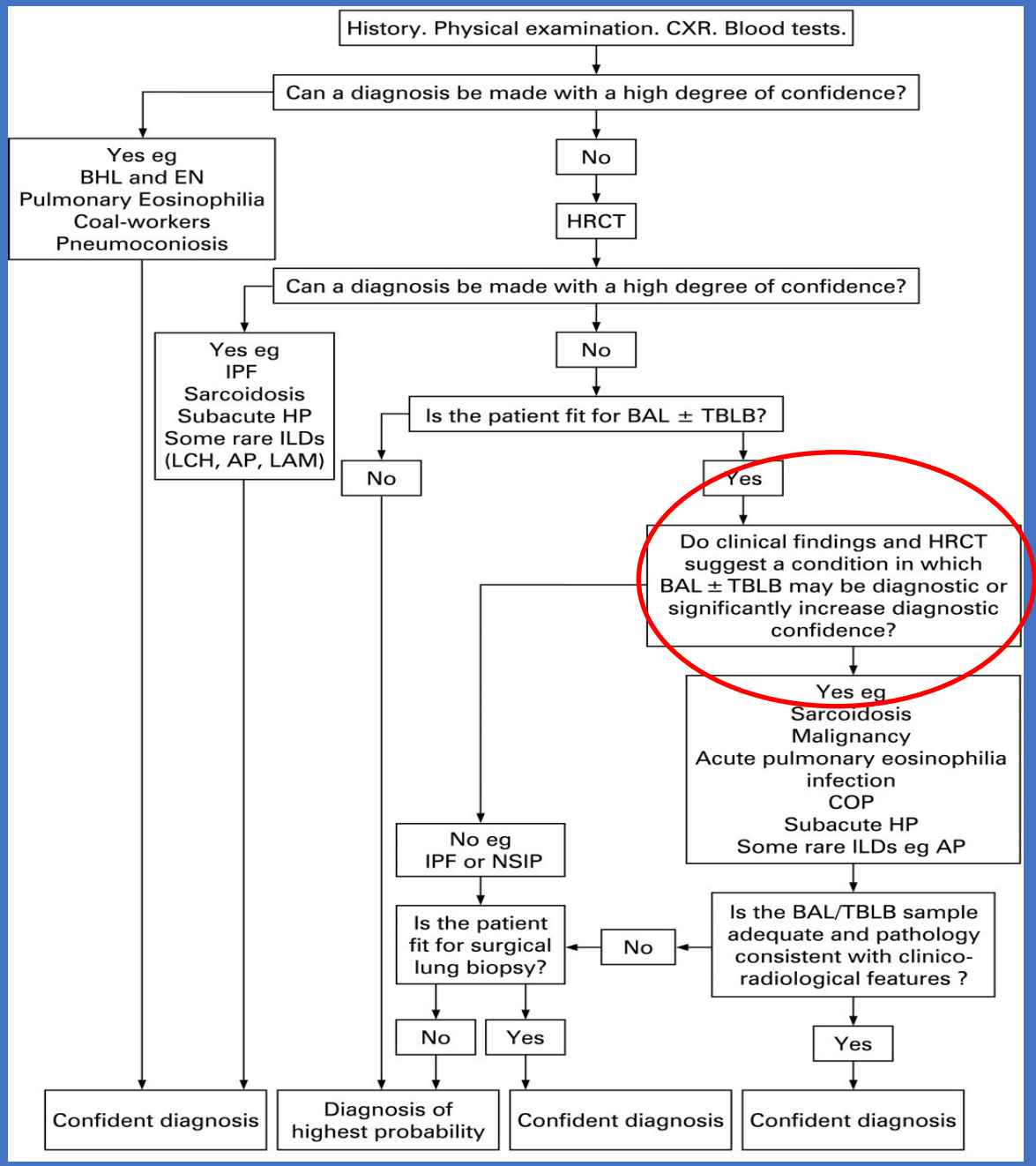
INTERSTITIAL LUNG DISEASES-CLASSIFICATION



- *Heterogeneous group*
- *Non-neoplastic*
- *Destruction of the lung parenchyma*
- *FIBROSIS*

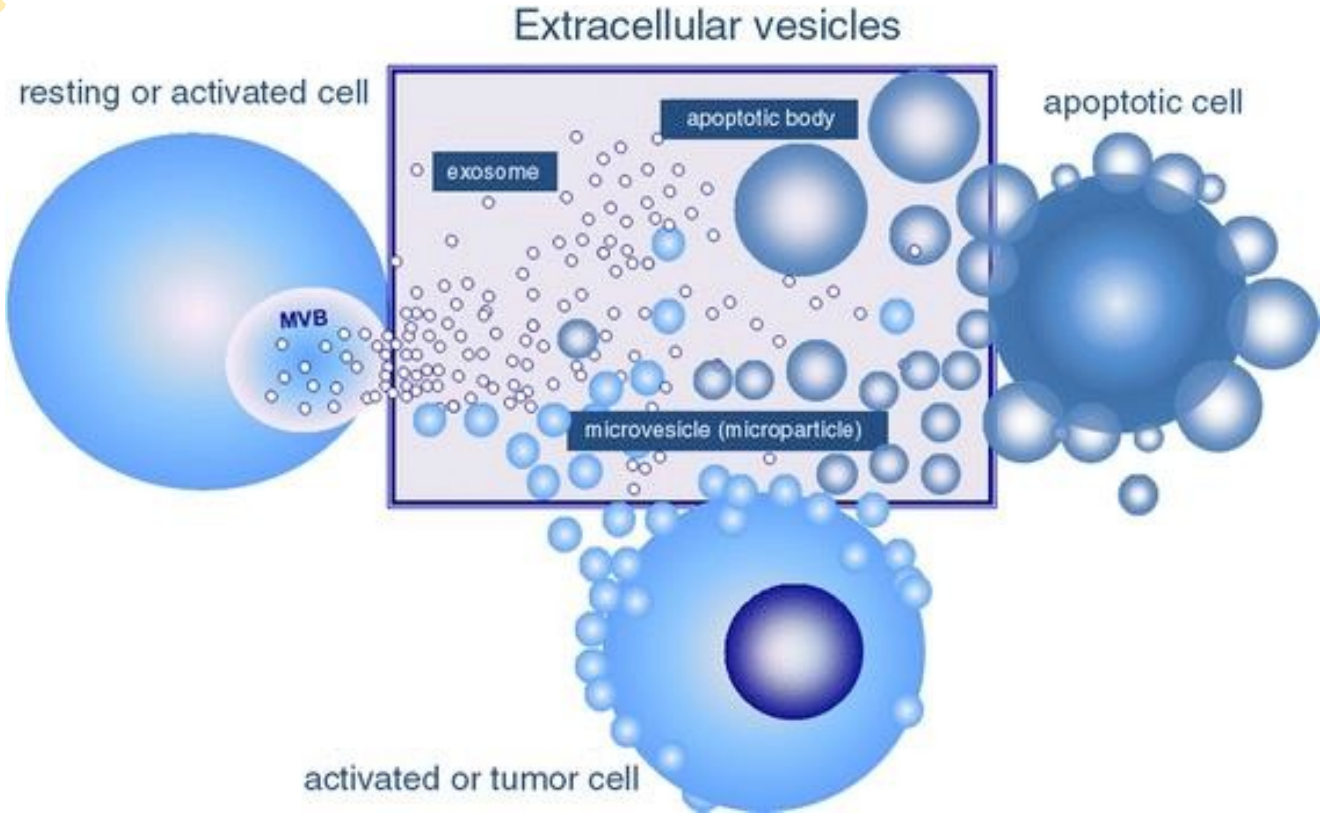
WHEN DOES THE LABORATORY COME INTO PLAY?

- Bronchoalveolar lavage is a biological fluid representative of the alveolar compartment useful for searching inflammatory cellular infiltrates and as a source of biomarkers in interstitial lung diseases



Thorax, 2008

EXTRACELLULAR VESICLES



JOURNAL OF EXTRACELLULAR VESICLES
2018, VOL. 7, 1535750
https://doi.org/10.1080/20013078.2018.1535750

Taylor & Francis
Taylor & Francis Group

OPEN ACCESS Check for updates

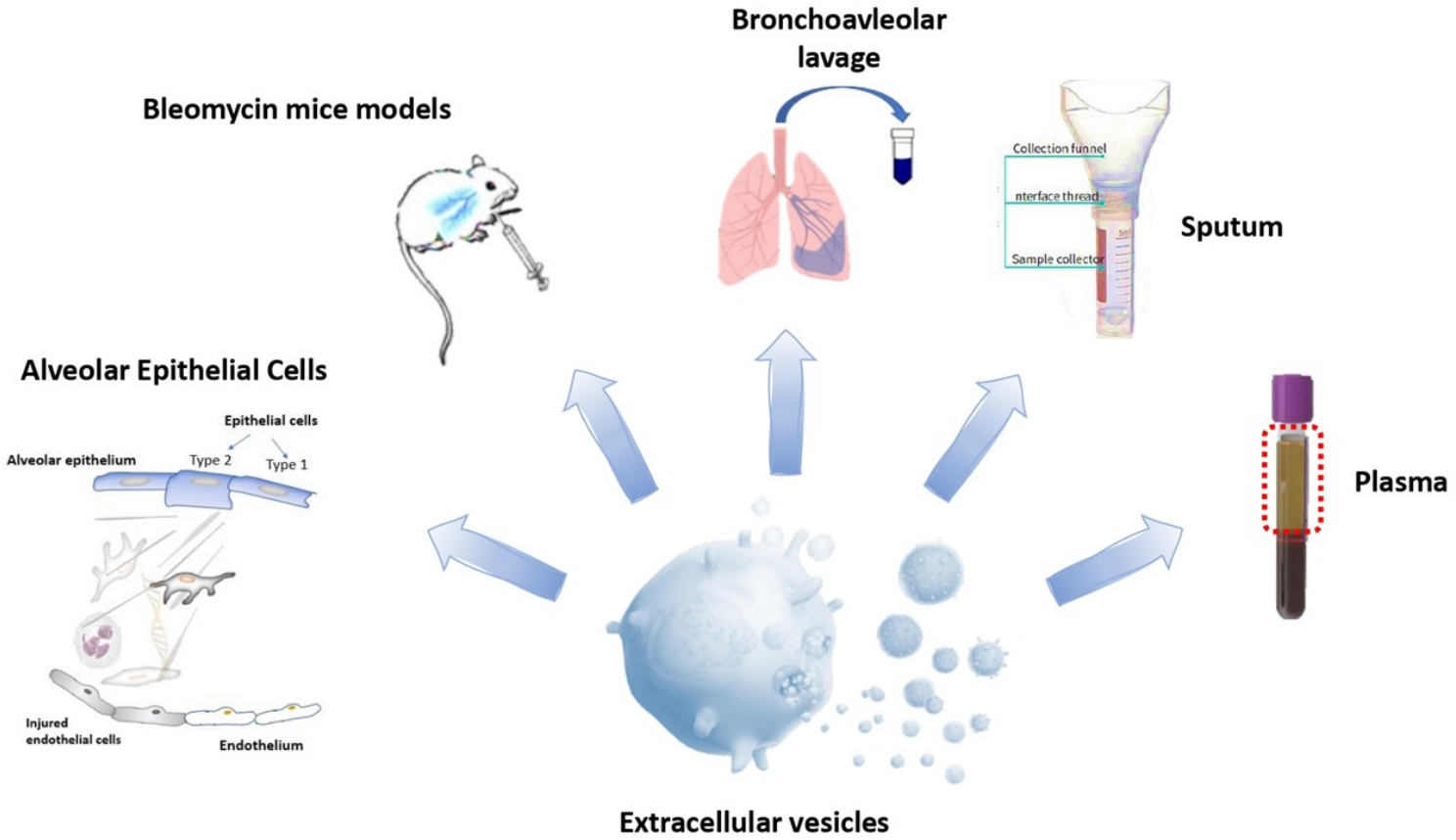
Minimal information for studies of extracellular vesicles 2018 (MISEV2018): a position statement of the International Society for Extracellular Vesicles and update of the MISEV2014 guidelines

Generic term for particles released naturally by cells

Enclosed in a lipid bilayer and cannot replicate

No consensus has yet emerged on specific markers of EV subtypes with particular biogenetic pathways

EXTRACELLULAR VESICLES IN PULMONARY FIBROSIS MODELS AND BIOLOGICAL FLUIDS



pivotal role as mediators of cell-cell communication

cooperator role in the development of lung diseases such as IPF

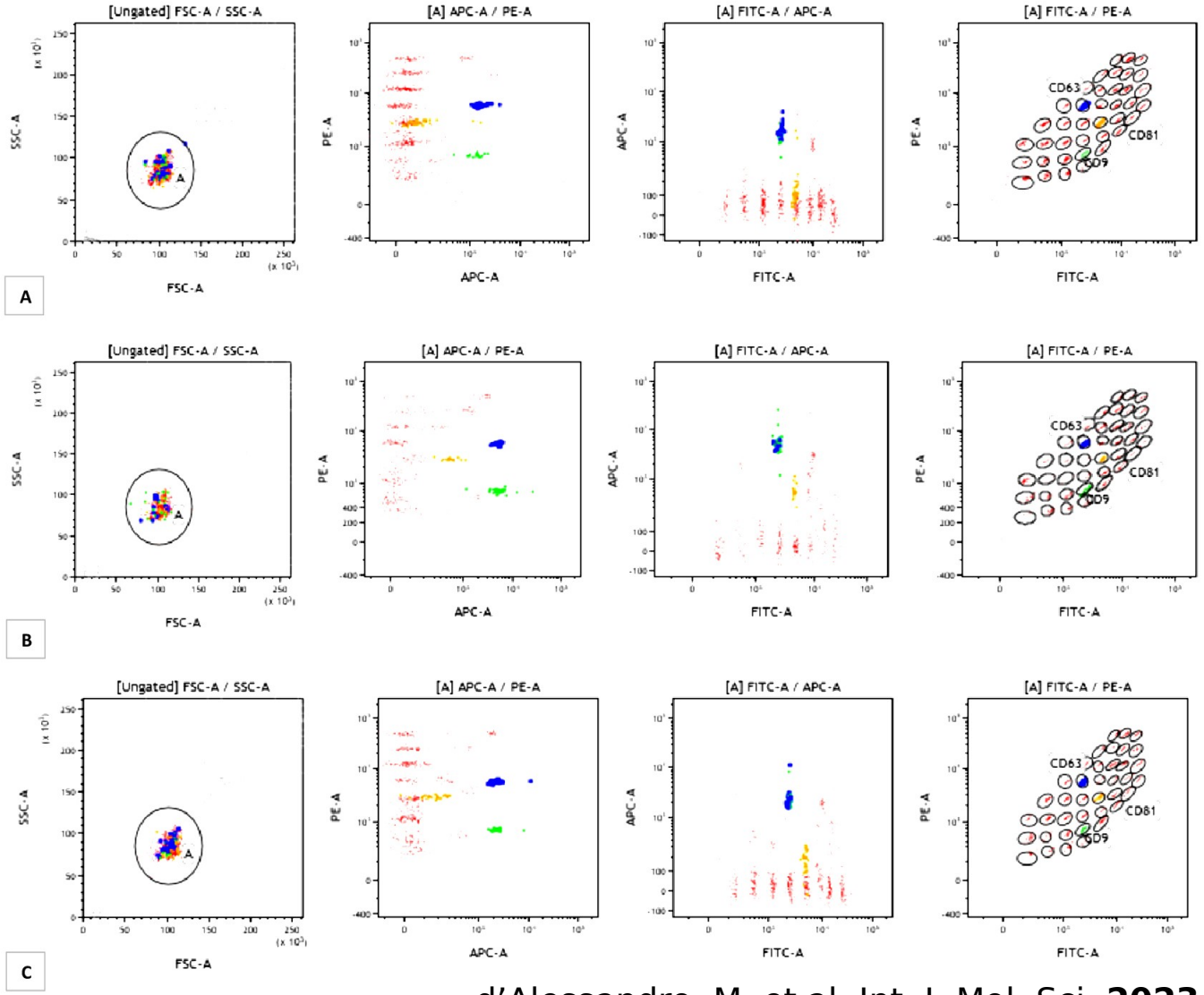
d'Alessandro M, Life, 2021

AIM AND METHODS

- To compare 37 exosomal surface markers through flow cytometry in BAL from patients affected by IPF, sarcoidosis and hypersensitivity pneumonitis (HP), enrolled at Siena Referral Centre for rare lung diseases.
- To corroborate these findings, a validation cohort was enrolled from two referral centers for ILDs (Barcelona and Foggia).

Parameters	Study Cohort			Validation Cohort		
	IPF (n = 17)	HP (n = 24)	Sarcoidosis (n = 42)	IPF (n = 44)	HP (n = 11)	Sarcoidosis (n = 10)
Age (years)	64.7 ± 23.8	68.23 ± 11.9	52.2 ± 21.2	62.6 ± 19.8	67.11 ± 9.2	50.2 ± 20.5
	13/4	14/10	16/36	31/13	6/5	3/7
Smoking habit (never/former)	6/11	6/18	15/27	15/28	4/7	4/6

37 ALVEOLAR EVS SURFACE MARKERS THROUGH FLOWCYTOMETRY



SIENA

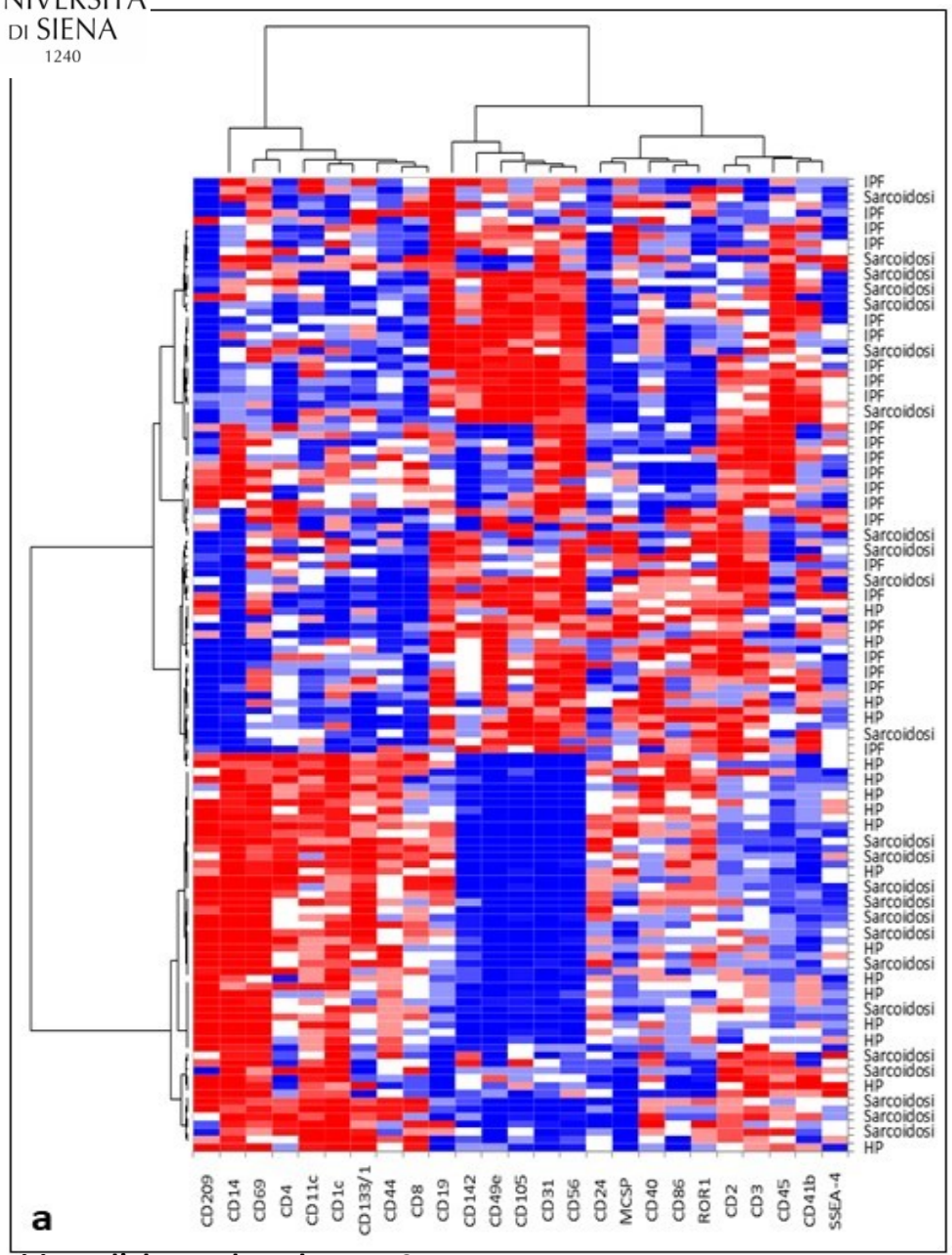
Study cohort

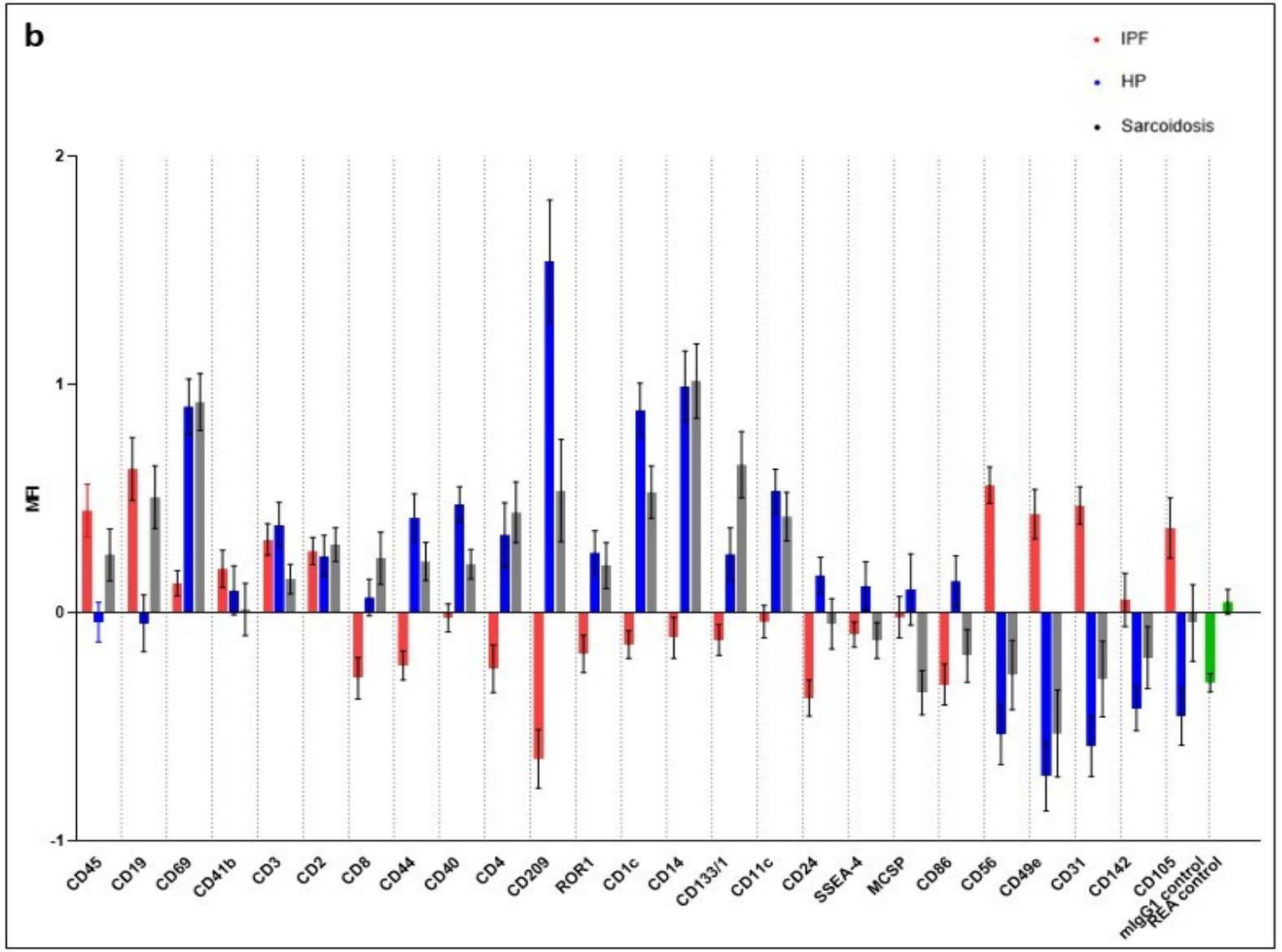
FOGGIA

BARCELLONA

Validation cohort

d'Alessandro, M. et al. Int. J. Mol. Sci. **2023**, 24, 4071.





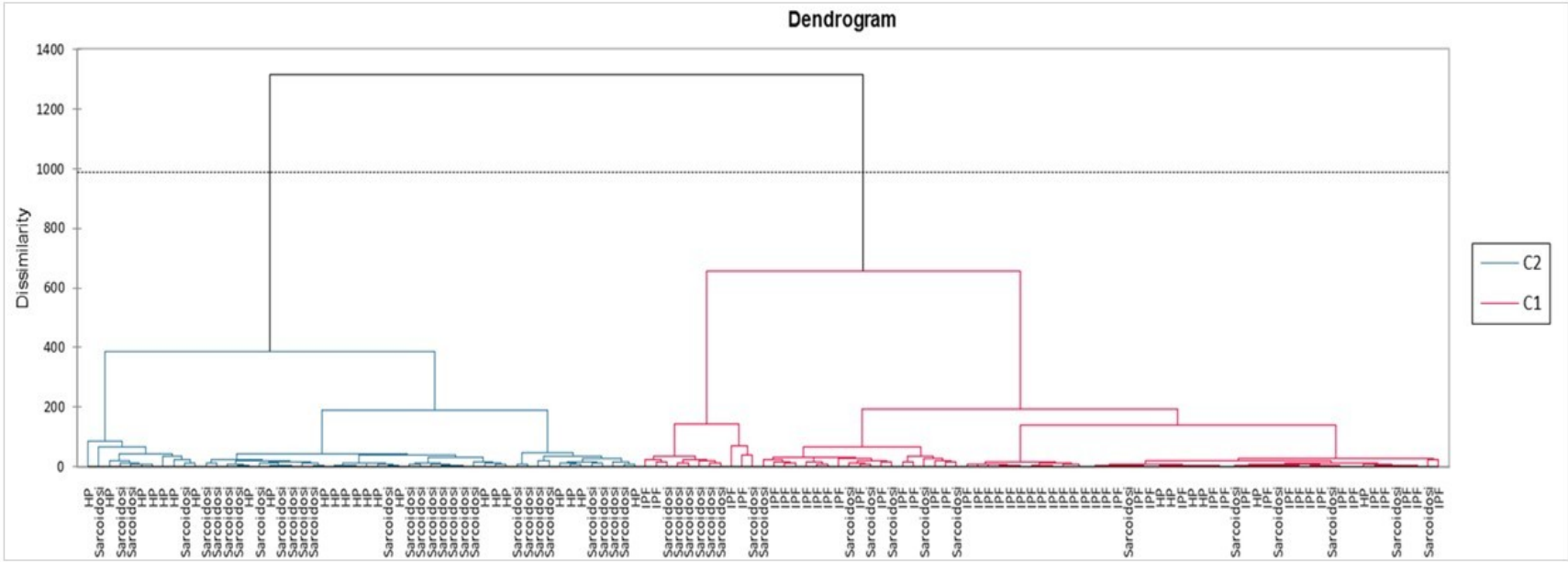
d'Alessandro, M. et al. Int. J. Mol. Sci. **2023**,

AGGLOMERATIVE HIERARCHICAL CLUSTERING (AHC) ANALYSIS

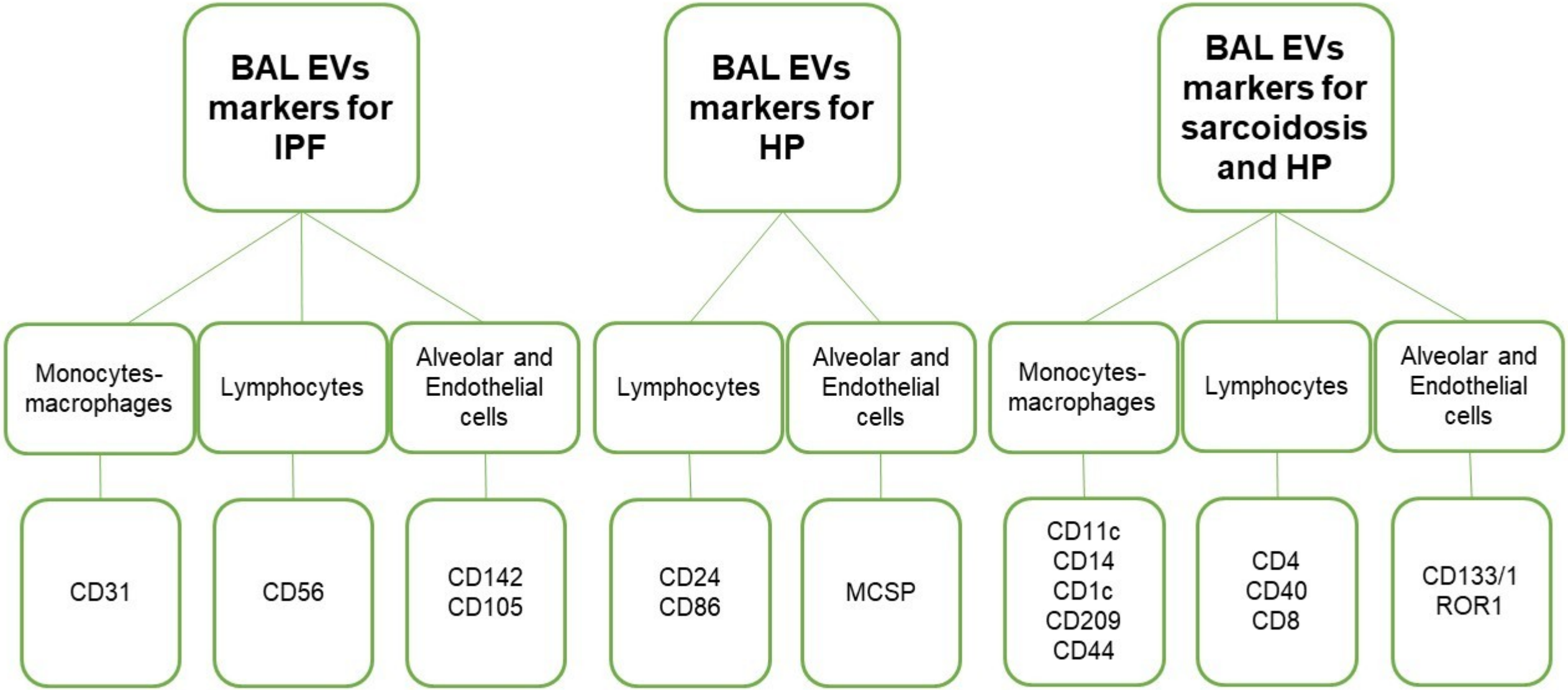
Evolution of indices:

Number of clusters	2	3	4	5
Silhouette index	0.276	0.275	0.296	0.231
Hartigan index (H)	**28.861**	19.192	9.649	9.906
H(k-1) - H(k)	18.815	9.669	9.543	-0.257
Calinski & Harabasz index	47.676	43.582	39.714	34.292

Dendogram plot clustered IPF, HP, sarcoidosis based on dissimilarities between values of 37 EV surface markers



EV MARKERS DIVIDED ACCORDING TO THE DISEASES

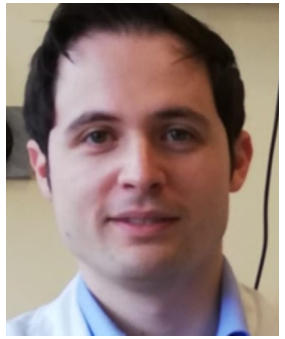


d'Alessandro, M. et al. Int. J. Mol. Sci. **2023**

TAKE-HOME MESSAGE

- validity of the flow cytometric method to phenotype and characterize EV surface markers
- viability of the alveolar compartment to identify lung-specific markers for IPF and HP
- fibrotic HP: post-inflammatory cell-regulated ILD
- IPF: related to tissue remodeling and repair







Thank you for the attention