ATS 2026 Highlights

Respiratory Structure and Function Early Career Professionals

Marília Machado, MD, PhD
(she/her)
Pulmonologist | PhD Candidate
Department of Internal Medicine
UNESP – Botucatu Medical School, Brazil

marilia.machado@unesp.br

Get to know members of the RSF Assembly

Is your research clinical, basic science or translational?

Translational research with a strong clinical focus.

Tell us about your research?

My research focuses on identifying metabolic pathways associated with clinical heterogeneity in COPD. Using serum metabolomics integrated with lung function and clinical outcomes, I aim to characterize distinct metabolic phenotypes. This approach seeks to improve risk stratification and support more personalized management strategies in COPD.

Where do you see yourself in 5 years?

In five years, I see myself as a clinician-scientist continuing to develop my research career in chronic respiratory diseases, integrating translational research, clinical practice and education to improve respiratory health in my community.

What do you find is the major benefit of RSF Assembly Membership?

The RSF Assembly provides an outstanding environment for scientific exchange, mentorship and collaboration, particularly in integrating structure, function and advanced methodologies into clinically meaningful respiratory research.

ATS

Please follow us on LinkedIn and Bluesky

If you or someone you know would like to be featured as an ATS RSF ECP please email Carolyn Wang (carolyn.wang@hli.ubc.ca)

ATS 2026 Highlights
Respiratory Structure and Function Early Career Professionals

Marília Machado, MD, PhD
(she/her)
Pulmonologist | PhD Candidate
Department of Internal Medicine
UNESP – Botucatu Medical School, Brazil

Metabolomic Signatures of COPD: Insights from Comparative Analysis with Healthy Controls

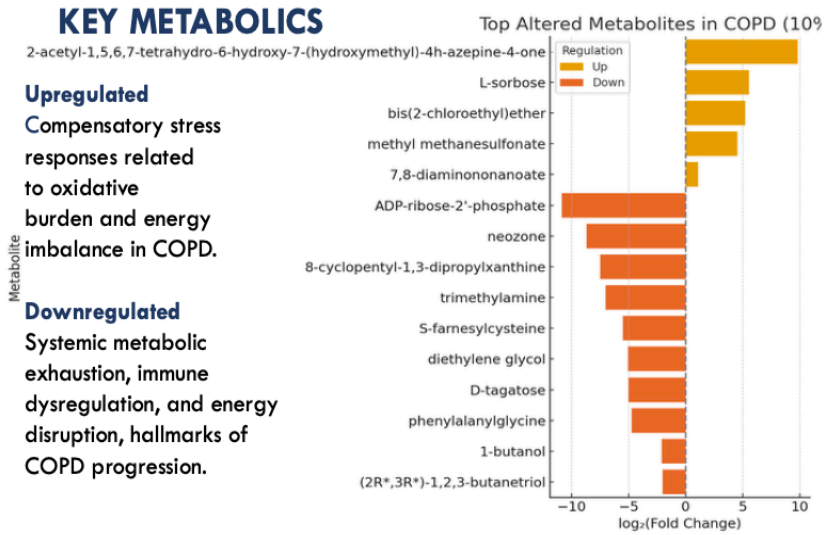

Figure 1: Differentially Expressed Metabolites in COPD vs. Healthy Controls
Bar chart showing top upregulated (↑) and downregulated (↓) metabolites.
Positive log_2FC = higher in COPD; Negative = lower.

Objective: To identify metabolites and metabolic pathways differentially regulated in patients with COPD compared with healthy individuals.

Methods: Multicenter cross-sectional study including COPD patients and healthy controls. Clinical, functional and serum samples were analyzed using mass spectrometry, with metabolomic processing and pathway analysis (FDR <10%).

Results: Twenty-six metabolic pathways were dysregulated in COPD. Key metabolites included L-sorbose, trimethylamine and an azepine derivative, suggesting activation of the pentose phosphate pathway, altered lipid oxidation, mitochondrial dysfunction and oxidative stress–related signaling.

Conclusion: COPD is associated with metabolic reprogramming linked to redox imbalance and energy metabolism. Novel metabolites identified may represent potential biomarkers and therapeutic targets.

ATS

Please follow us on LinkedIn and Bluesky

If you or someone you know would like to be featured as an ATS RSF ECP please email Carolyn Wang (carolyn.wang@hli.ubc.ca)