

# Functional Readouts in Preclinical Inflammation Research

Bridging preclinical models and clinical outcomes for skin and lung diseases.

## Key webinar takeaways

- Biomarker efficacy does not always translate into functional benefit.**  
Improvements in cytokines, histology or immune cell infiltration may not be accompanied by meaningful improvements in organ function or symptoms.
- Functional readouts can strengthen translational confidence.**  
Incorporating clinically relevant endpoints can provide additional evidence that preclinical efficacy may translate into outcomes that matter to patients.
- Endpoint selection should reflect the disease and therapeutic mechanism.**  
Functional assessments should focus on clinically relevant outcomes, such as lung function or itch, and align with the questions the study needs to answer.
- Complementary endpoints provide a more complete picture of efficacy.**  
Combining biomarkers, histopathology and functional or behavioral assessments can reveal different dimensions of therapeutic response.
- In pulmonary fibrosis, histology cannot reliably predict lung function.**  
Correlations between fibrosis scores and respiratory parameters were incomplete, demonstrating the additional value of directly assessing lung mechanics.
- Different lung function parameters provide different information.**  
Inspiratory capacity, static compliance and work of breathing capture distinct aspects of respiratory impairment, with static compliance showing particular sensitivity to pulmonary fibrosis.
- In atopic dermatitis, scratching behaviour can reveal efficacy gaps that biomarkers miss.**  
Clobetasol substantially improved inflammatory endpoints but produced only modest reductions in scratching, more closely reflecting its clinical effect on pruritus.
- Reliable functional data depend on rigorous experimental design.**  
Model selection, stress, habituation, environmental conditions, treatment timing and group size can all influence functional and behavioral measurements.



If you would like to learn more about conducting functional studies for preclinical inflammatory disease research, please contact our team:

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