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BioMAP® Fibrosis Panel

In Vivo Insights with the Speed and Ease of an In Vitro Assay

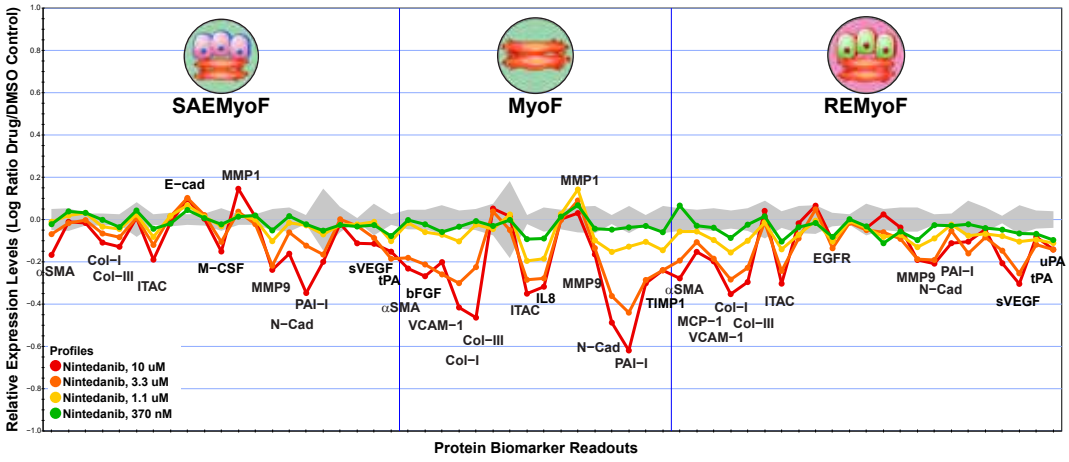
Fibrosis can occur in almost any tissue, with disease severity ranging from relatively innocuous scarring to more severe and life threatening conditions in the lung, liver, or kidneys. The complexity of the cellular and molecular mechanisms implicated in the establishment and progression of fibrosis make it difficult to find assays to identify potential therapeutics. As focus moves away from single cell assays and animal models that do not accurately predict drug effects in patients, more innovative and clinically relevant in vitro screening methods are needed. The BioMAP Fibrosis Panel can evaluate the anti-fibrotic potential of early pipeline compounds using more physiologically relevant in vitro human disease models and accelerate compounds along the drug discovery pipeline towards clinical success.

Pathophysiology of Fibrosis Is Complex – Your Phenotypic Profiling Should Be Too

The BioMAP Fibrosis Panel is a complex co-culture of early passage human primary cell types, stimulated with known fibrosis disease drivers. The assay end-points can serve as clinical response biomarkers with results that can be clinically predictive. The BioMAP Fibrosis Panel is used by leaders in drug development to:

- Prioritize candidates on efficacy, potency, and mechanism-of-action
- Increase the likelihood of success in clinical trials with results that better translate to patient responses
- Perform competitive benchmarking against relevant clinical and tool compounds and current standards of care

Demonstrating Pirfenidone Decreases Biomarkers of Tissue Remodeling and Inflammation



BioMAP profile for the anti-fibrotic standard-of-care drug, Pirfenidone, is shown in the three human tissue myofibroblast models in the Fibrosis Panel. The change in protein biomarker expression in response to Pirfenidone over vehicle control (grey horizontal band) is shown (y-axis) for the translational biomarkers listed (x-axis). The polypharmacologic nature of the compound translates into both anti-fibrotic and anti-inflammatory activities in three different *in vitro* models of fibrosis. Inhibition of ECM-related molecules, such as type I and III collagens, matrix metalloproteases, and PAI-1 are observed, as well as inhibition of VCAM-1 expression and decreased IL-6 and IL-8 expression. It has been previously demonstrated that increased circulating MMPs, VCAM-1, and IL-8 expression correlate to poor outcome for idiopathic pulmonary fibrosis patients (Richards TJ *et al*, *AJRCCM*, 2012).

What Can Testing Your Compounds in the Fibrosis Panel Do for You?

One of the many benefits of the BioMAP® Fibrosis Panel is the utility it has in testing the impact of potential drugs on key but complex fibrosis related disease biology in a target agnostic manner. The Fibrosis Panel has been used successfully to evaluate the impact of compounds on biomarkers implicated in:

- Fibrosis – Including idiopathic pulmonary fibrosis, nonalcoholic steatohepatitis, renal fibrosis, and more
- Wound healing and matrix remodeling
- Inflammation
- Kidney and lung biology

A few examples of the reference compounds that have been run through the BioMAP Fibrosis Panel include: Nintedanib, Pirfenidone, Remicade, Galunisertib, Rosiglitizone, Roflumilast, Vismodegib, and more clinical agents as well as development and tool candidates.

BioMAP Fibrosis Panel Service

Service	Compound profiling (chemicals or biologics) in 3 systems of fibrosis at 4 concentrations.
Examples of analysis Performed	Identification and biological interpretation of relevant biomarker activities that are increased or decreased in comparison to vehicle control. Benchmarking (optional). A direct comparison of test compound to a specified Fibrosis Panel Reference Benchmark from the BioMAP Database.
Report Details	Eurofins DiscoverX provides a study report that includes: Annotation of biomarker activities with respect to biological significance, profile plots, graphical overlays of test and reference compound profiles, and expert data interpretation and analysis.

Human Biology Modeled by the Systems within the Fibrosis Panel

System			Description
SAEMyoF		Pulmonary Fibrosis	The Pulmonary Fibrosis (SAEMyoF) system models the biology of fibrotic lung diseases such as idiopathic pulmonary fibrosis. This co-culture of pulmonary epithelial cells and myofibroblasts is relevant for evaluating wound healing and inflammation related responses in the lung.
MyoF		Fibrosis	The Fibrosis (MyoF) system models the development of pulmonary myofibroblasts, and is relevant to respiratory disease settings as well as other chronic inflammatory settings where fibrosis occurs, such as rheumatoid arthritis.
REMyoF		Renal Fibrosis	The Renal Fibrosis (REMyoF) system models the development of kidney fibrosis. This system is relevant for inflammatory kidney diseases, nephritis, and fibrosis.

To learn more about how to better characterize molecules in the context of tissue remodeling, visit discoverx.com/fibrosis

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