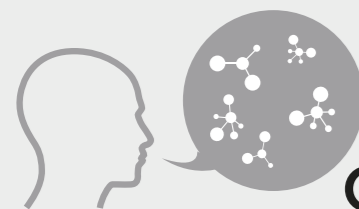


## WHAT

• • • AN RUO PANEL OF • • •  
BIOLOGICALLY RELEVANT  
**VOLATILE ORGANIC COMPOUNDS**  
THAT HAVE BEEN LINKED TO  
**CHRONIC INFLAMMATORY AIRWAY DISEASE**



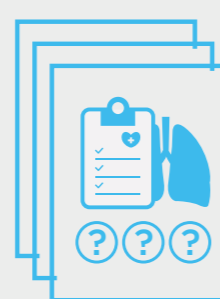
## WHY

THERE IS AN **URGENT AND GROWING NEED** TO FACILITATE BETTER



**THERAPEUTIC DECISION MAKING AND MONITORING**

IN **RESPIRATORY DISEASE**



THERE ARE CURRENTLY **NO COST-EFFECTIVE AND PATIENT-FRIENDLY** WAYS TO CHARACTERISE **AIRWAY INFLAMMATION**

## Background:

Chronic inflammatory airway diseases are caused by a wide range of biological processes that result in significant loss of pulmonary function and quality of life.

Despite having substantial differences in underlying causes, these diseases are similar in clinical presentation, making them difficult to diagnose and deliver effective treatments. Unfortunately, there are currently no cost-effective and patient-friendly ways to characterize airway inflammation. This problem is underscored by an increasing number of drugs being developed that target specific molecular mechanisms, and so are effective for a subset of patients but have limited or no impact for others.

## Breath Biopsy Panel for Respiratory Disease:

The Breath Biopsy RUO Panel for Respiratory Diseases is intended to support research to distinguish underlying phenotypes of chronic inflammatory airway diseases such as Asthma, Chronic Obstructive Pulmonary Disease (COPD), and Idiopathic Pulmonary Fibrosis (IPF), and to facilitate better therapeutic decision making and monitoring.

The Panel consists of a set of biologically relevant volatile organic compounds (VOCs) that have demonstrable associations to inflammatory respiratory diseases, and can be collected on breath to enable direct characterization of disease biology in the lungs by non-invasive breath sampling.

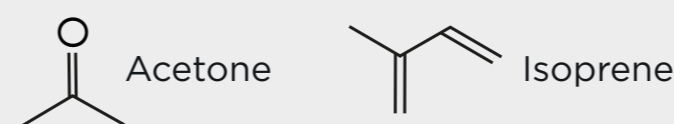
Published Literature

Established Biological Evidence

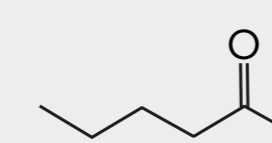
Breath Biopsy® Studies

## RUO Panel Compounds:

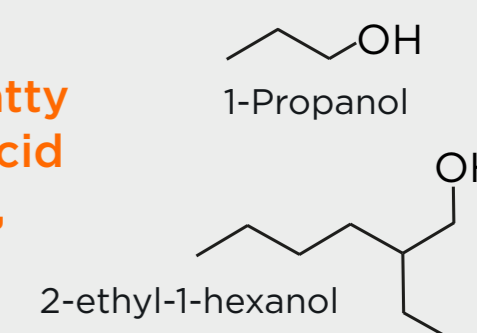
Bio relevant, non-specific, general health indicator in respiratory disease



2-Hexanone



Oxidation of fatty acids, amino acid metabolism, ketosis



## WHO

CHRONIC INFLAMMATORY AIRWAY DISEASE PATIENTS WORLDWIDE

Diseases Include

**ASTHMA**  
AFFECTING ~  
**339 MILLION**  
PEOPLE  
OF WHICH **ONLY 18%**  
ARE **FULLY CONTROLLED**  
(USING GINA CRITERIA)

**IPF** AFFECTING AROUND  
**3 MILLION**  
PEOPLE  
THE MEDIAN **SURVIVAL**  
AFTER DIAGNOSIS  
IS **2-3 YEARS**

**COPD**  
THE **3<sup>RD</sup> BIGGEST CAUSE**  
OF **DEATH** WORLDWIDE  
WITH AN ESTIMATED  
**251 MILLION CASES**

**LUNG CANCER**  
WITH OVER  
**2M NEW CASES**  
& **1.76M DEATHS**  
REPORTED PER YEAR

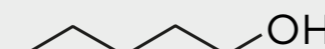
## HOW MUCH

**LUNG DISEASE**  
COSTS THE  
**NHS**  
**£11 Billion**  
PER YEAR

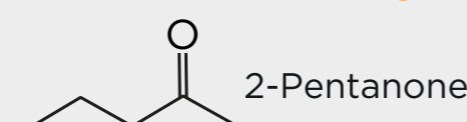
IN THE USA,  
THE TOTAL ANNUAL  
**ASTHMA**  
COSTS ARE  
ESTIMATED  
TO BE **\$56 Billion**

THE **ECONOMIC IMPACT** OF  
**.. COPD ..**  
AMONG LOWER INCOME  
COUNTRIES IS EXPECTED  
TO INCREASE TO  
**£1.7 Trillion** BY 2030

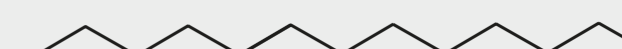
1-Pentanol



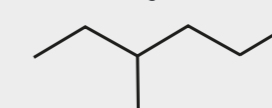
Lung Cancer



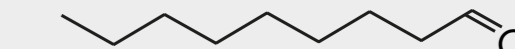
Tridecane



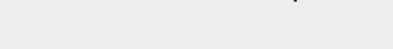
3-Methylhexane



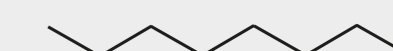
Nonanal



Heptane

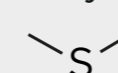


Octane

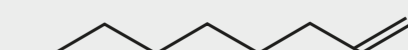
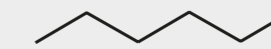


Produced by bacterial activity, enhanced in oral and airway infections

Dimethylsulfide

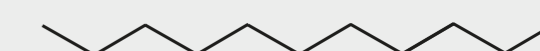


Hexane



1-Pentadecene

Oxidative stress, lipid peroxidation, inflammation



Undecane

Nonane

