

Introducing the Breath Biopsy[®] VOC Atlas:

BREATH
BIOPSY

VOC Atlas

Including a list of microbiome associated VOCs for breath based biomarker discovery

The VOC Atlas provides a comprehensive and growing catalog of VOCs (volatile organic compounds) confirmed to be present in exhaled human breath. This database acts as a resource to support clinical trial design, to speed up the development of breath VOC biomarkers by providing comparison data, and to enable development of new technologies for analyzing key molecules (e.g. home based collection/analysis methods).

New insights into an individual's microbiome metabolic phenotype

Develop a better understanding of an individual's microbiome metabolic phenotype. Follow the fermentation process in real time, and establish an enriched 'microbiome phenotype' of an individual, with quantitative analysis of key microbial metabolites over time courses of minutes to hours.



Non-invasive profiling of microbial metabolites

The Atlas includes many microbial metabolites already assessed in blood and feces, and many more beyond that including those associated with the gut brain axis and the gut-heart axis. Breath analysis provides a non-invasive and patient-friendly way to collect this information. Metabolites in breath have been found to correlate with the presence of species known to produce these metabolites.

A database to enrich study findings

Aids in clinical study design and biological interpretation by providing reference ranges for key microbial metabolites in healthy (and disease) cohorts.

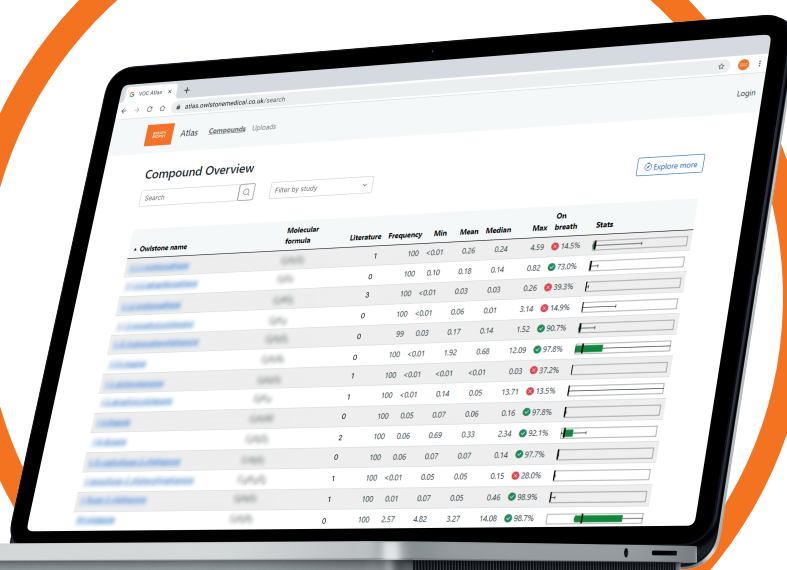


The Breath Biopsy VOC Atlas is being compiled with clinical studies, asking the key question - **“What VOCs are seen genuinely coming from humans?”**

Initial studies on healthy people have populated the VOC Atlas with >180 identified VOCs, with 47 being microbiome-associated, including short-chain fatty acids (SCFAs), indole, trimethylamine (TMA) and isoprene.

Atlas VOCs are optimised for precise analysis in our Breath Biopsy OMNI[®] platform for breath collection and analysis. The absolute levels of VOCs are determined in individual breath samples, allowing comparison of data from the Atlas to any new studies performed using OMNI.

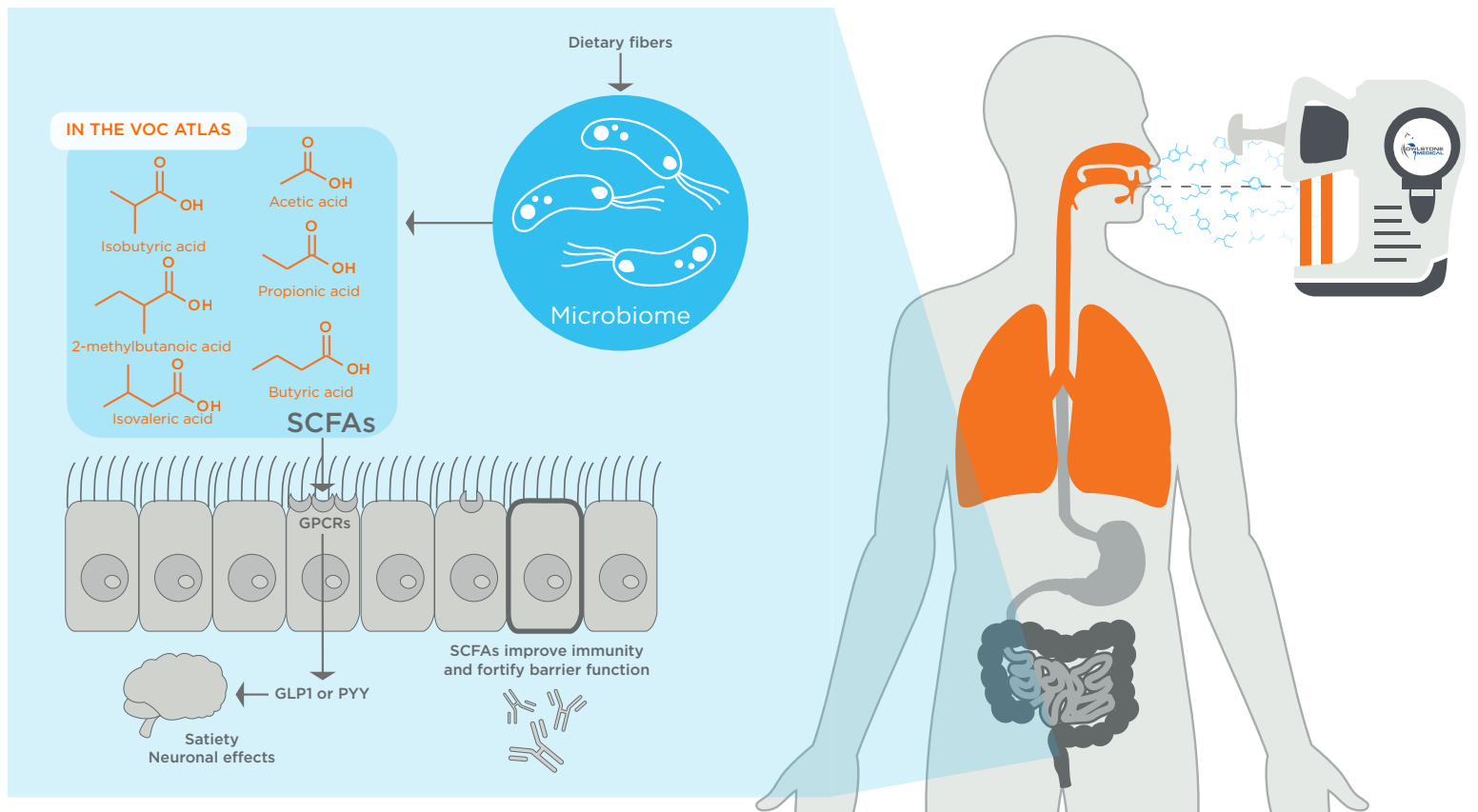
The Breath Biopsy VOC Atlas forms the basis of our future efforts in the development of breath as a useful and reliable matrix, and our future work will expand the breadth of biological pathways and chemical classes included in the Atlas.



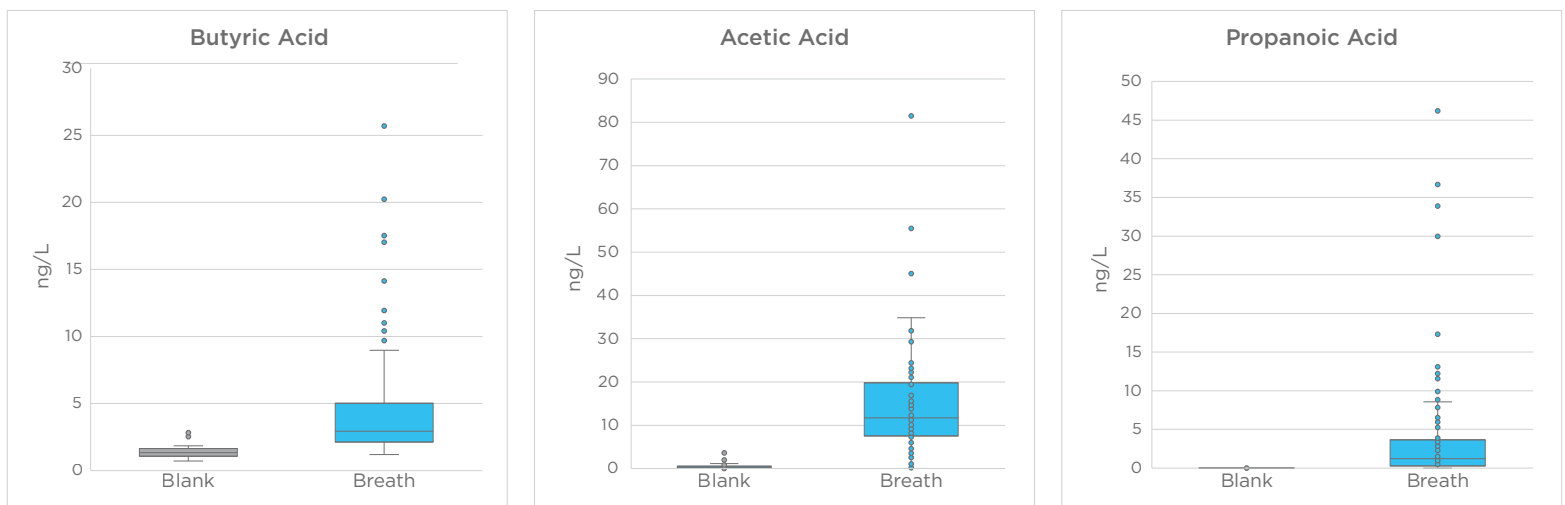
Watch our talk: 'The ATLAS Project: Mapping Volatile Metabolites in Breath for Non-Invasive Biomarker Discovery' by Dr. Elizabeth Crone.



SCFAs: A Closer Look



Dietary fibers, which cannot be processed by humans, are fermented by microbes in the intestines, resulting in the production of VOCs such as SCFAs. These VOCs have roles in several signaling contexts including the central nervous system, immunity, and inflammation.



Butyric, acetic, and propanoic acids are SCFAs that are present in the Breath Biopsy VOC Atlas. They can be detected at levels significantly above background signals in exhaled breath using Owlstone's technology. These SCFAs are notable products of microbiome metabolism that could inform on microbiome activity and could potentially be developed into breath biomarkers.

Contact us to find out more about collaborating with Owlstone Medical and incorporating Breath Biopsy into your microbiome research.

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