Docket #: S21-049

Wearable Collector for Noninvasive Sampling of Exhaled Breath Pathogens

Stanford inventors have developed a wearable breath-based non-invasive sampler capable of collecting large quantities of exhaled viruses & pathogens over prolonged periods of time. This device is attached to the inner surface of face covering using a detachable medical adhesive. The included porous membrane traps and concentrates the pathogens, which can be extracted later for analysis.

This new wearable sampler reduces patient discomfort, is cheaper, avoids the need for trained professionals, and simplifies the sampling process. Furthermore, this device is compatible with any mask or protective equipment and is resistant to mechanical deformation.

Stage of Development
Prototype

Applications

- Virus & pathogen sampling
    - Stand-alone collection for personal use
    - Service based on processing collectors
- Diagnosis of SARS-CoV-2 and other airborne diseases

Advantages

- Non-invasive
- Low cost
- Scalable fabrication

- Adaptable to protective masks/equipment

Publications

- Soto, F et al. "Wearable Collector for Noninvasive Sampling of SARS-CoV-2 from Exhaled Breath for Rapid Detection." *ACS applied materials & interfaces (2021)*

Patents

- Published Application: WO2022231848
- Published Application: 20240306936

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