CandyCollect: A User-friendly Saliva Sampling Device for Respiratory Pathogens

CandyCollect is a lollipop-inspired saliva sampling device aimed at improving both the ease and accuracy of testing children for respiratory conditions such as strep throat. Coupling open fluidic design with a familiar form factor, even young children need minimal instruction on how to use it. This innovation will allow high quality saliva samples to be collected at home, without the need for an uncomfortable throat swab.

Technology ID

BDP 8394

Category

Selection of Available Technologies

Diagnostic

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What is the Problem?

Strep throat, an acute respiratory infection, is a common health concern among children, with each child experiencing it on average 3 to 5 times per year. If not treated promptly, it can lead to serious complications, a risk that is particularly high in developing countries. The primary method for detecting GAS pharyngitis, the bacteria causing strep throat, involves a two-step process: a throat swab followed by a rapid antigen detection test (RADT). If the RADT is negative, a standard culture is performed.

However, this approach has its drawbacks. The throat swab can be uncomfortable, especially for young children, making at-home sample collection challenging. Even in a clinical setting, uncooperative children struggling against the unpleasant sensation can negatively impact the quality of the sample. A promising alternative is the detection of GAS pharyngitis through saliva samples; however, the collection of such samples has room to be optimized. Intuitive collection of high-quality saliva samples would both shorten the time required to diagnose strep throat and allow for at-home sample collection to take place. The collected samples can be used with RADT or sent back to the laboratories for qPCR analysis.

What is the Solution?

CandyCollect is a saliva sampling device, inspired by the familiar shape of a lollipop, that can capture high-quality saliva samples. Its intuitive design is such that even young children can use it effectively to collect a sample. The device's open fluidic channels allow the captured bacteria to permeate into the device’s channels, ensuring a robust sample collection. Importantly, this design prevents the tongue from scraping off the captured bacteria during the collection process, thereby preserving the integrity of the sample.

The device incorporates a flavored candy, which serves a dual purpose. Firstly, it makes the sampling process more appealing, especially to children. Secondly, the candy is engineered to dissolve over a specific period, thereby providing a built-in timer for the sampling process. Once the flavor dissipates, it signals the end of the sampling period.

What is the Competitive Advantage?

Intuitive Design: The lollipop-inspired form of CandyCollect makes it instinctively usable, even by young children. This user-friendly design ensures better compliance during sample collection, leading to more reliable results

Built-in Sampling Timer: The flavored candy on the device dissolves over a specific period, providing a built-in timer for the sampling process. This feature informs the user when the sampling process is complete, making the device more intuitive to use

Capability for Mass Production: The design of the device is within the capability of common manufacturing techniques such as injection molding, potentially driving down the price per unit and allowing for easier access to strep throat testing

At-Home Collection: The CandyCollect's design allows for convenient at-home sample collection. Users can easily collect samples with CandyCollect device and use RADT for rapid test results or ship them back to a lab for PCR analysis, making the process more accessible and flexible

Patent Information:

US20240122582A1

References

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