



Sample and reagent loading of SLIPS-Lab

Technology Summary

Penn State researchers have developed a Slippery Liquid-Infused Porous Surface based Lab (SLIPS-Lab), which is a hand-held biochemical analysis platform designed for point-of-care diagnosis of diseases, health monitoring, and treatment efficiency evaluation. The SLIPS-Lab allows for the loading of biological fluid samples without the need for external devices, such as pipettes or pumps, by containing an open-ended channel that can be dipped into samples. The SLIPS-Lab is designed to perform self-propelled sample transportation. By allowing for different moving speeds, the samples can be loaded to reaction sites at specified times. Thereby, the SLIPS-Lab is designed to facilitate multistep biochemical reactions. The figure above illustrates an embodiment of the SLIPS-Lab scheme.

Application & Market Utility

This technology can facilitate routine and on-demand biochemical analysis of major health risks for individuals who do not have access to quick and easy health care devices. For example, the invention may be particularly useful for space crew members or those who are physically isolated from medical care for a long duration. The invention may provide an analysis of major health risks including bone loss, vision loss, confused immune systems, and dust/radiation/gravity-induced health responses.

Next Steps

The basic operating principle of this technology has been demonstrated, and several prototypes have proven the functionality of the invention. The SLIPS-LAB has been demonstrated for kidney stone diagnosis.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Investment | Licensing | Research

Keywords

- SLIPS-Lab
- self-propelled liquid transport
- point-of-care diagnosis
- multistep biochemical reactions
- health monitoring

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