



PROTEUS INGESTIBLE MICROCHIP HITS CLINICAL TRIALS

June 8, 2009

About a year ago, we brought to light a brilliant company that could be described as a predecessor to body 2.0. Proteus Biomedical specializes in creating a digestible, ingestible microchip called the Raisin that can be put into medicines. The chip is activated by stomach acids and can transmit to an external receiver from within the body. Now, the Proteus system is about to be tested in two clinical trials in the UK, a big leap that, if successful, could bring this technology to consumers in a mere matter of years. Edible underwear, yes, but edible microchips? Now that is cool.



Proteus Ingestible Sensors

In the ongoing onslaught of body 2.0 (the constant monitoring of the body to ensure that health problems are caught and treated early) here at Singularity Hub, we have brought you the SmartPill, a digestive system tracker that has many similarities with the Raisin chip. Although both are meant to be eaten and both can transmit information back out to a portable data receiver, the Proteus system is designed to be packaged along with another medication inside of a pill, giving doctors a different dataset than the SmartPill.

Raisin can be a great help to doctors who are trying to closely monitor their patients. Firstly, it can tell the doctor which medication was taken and if the medication was taken at all. This could prove quite useful for patients who would resist taking the medication or those patients that do not take dosages in the correct amount or at the right time. The benefits do not stop after the medication is in the body, as the microchip is able to transmit the patient's vital signs (heart rate and such) in real-time. Doctors will then be able to tell exactly what physiological changes occurred with medication and change dosages as needed for an optimal patient response.

The clinical trials are set to begin within the next year, with participating patients receiving medication for birth control, post-op management, psychiatric help and elderly care. The tracking that the Raisin system is capable of performing gives patients similar feedback as the care that they would receive in the hospital, but keeps beds free and costs down. This new type of commonplace monitoring technology is beneficial to both doctors and patients, allowing for detailed care while the patient is free to go about normal activities.

There is no word yet as to how long the microchip lasts within the body. It is created from fully digestible food products and is powered by stomach acid, so it is likely that it would only last slightly longer than the medication with which it is packaged. That is the key difference between today's technology and that of body 2.0. With body 2.0, there would be no need to continually ingest the microchip. It would be permanently implanted, allowing for constant monitoring for years, not hours.

They are also in the process of creating an implantable microchip that does not disintegrate when exposed to bodily fluids. They call it ChipSkin, and it protects active electronics in implantable devices such as pacemakers, allowing for the longevity of implantable devices that would be a cornerstone of the body 2.0 revolution. Although much may be left to be desired in the actual implanting process, ChipSkin gives hope that humanity is heading in the right direction.



***Partners in
Health Care
Innovation***

While this technology may be a ways away, we have Proteus' back in this fight. They already have nearly \$100 million in funding but with our blessing, success is practically guaranteed. The path to body 2.0 is long and probably fairly arduous but, with companies like Proteus laying the foundation, it will certainly make its way into the everyday home in the future. The Raisin is just the beginning of smart medications that can tell when the patient does not react positively even before the patient does. This technology combined with the strength of the ChipSkin could eventually allow the implantation of a constantly monitoring device, ushering in the era of body 2.0.

About Kaiser Permanente Ventures:

Kaiser Permanente Ventures, the corporate venture capital arm of Kaiser Permanente, makes investments in medical devices, healthcare services and information technology companies. Kaiser Permanente Ventures is dedicated to partnering with entrepreneurial companies to build innovative and enduring businesses that advance the quality and affordability of health care. Since its inception in 1997, Kaiser Permanente Ventures has invested in more than 25 venture-capital backed companies at all stages of development, and contributed organizational expertise, time and resources to the success of these companies. For additional information please visit www.kpventures.com.