Innovations
UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

Transdermal Biosensor

Product

RXN Wristband

Indication

Alcohol detection

Value Propositions

- Detects alcohol consumption passively in a wearable format
- Biodegradable and low cost of production

Market

- $280 Million—US Alcohol Sensor Device Market (Estimated CAGR of 12.9% through 2027)

Intellectual Property

- US Patent*
- Available for licensing

Background on CU5073H

More than 85,000 deaths a year in the US are directly attributed to alcohol use, with more than a third of traffic accident-related fatalities involving a driver under the influence. Research suggests that social measures have been the most effective means to date of decreasing the number of intoxicated drivers on roads; however, data shows that this effect peaked in the 1980s and has been declining since. New innovation in the non-invasive detection of alcohol may prevent the deaths of tens of thousands of individuals annually

Technical Innovation

Stephen Lewis, Jenny Filipetti, and Andrew Henderson have created the alcohol *sensing RXN Wristband* that glows when a user's blood alcohol content is above the legal limit to drive. The inventors envision that their technology could be given out at bars, music festivals, or concerts to encourage safer drinking environments and a non-biased means of encouraging safe transportation habits. The technology utilizes biological enzymes embedded in a bacterial cellulose nanomaterial to capture alcohol that evaporates off the skin, which causes a light emitting chemical reaction in the wristband. The wristbands are 100% biodegradable, do not use any electronic components (i.e., no batteries required), and can be manufactured at scale for less than $1 per unit. Additionally, the use of biological enzymes means that the technology can be adapted to detect a huge range of other transdermal biomarkers to detect other analytes such as drug levels, glucose, dermal microbiota, along with many others.

Image: Device seen on user's wrist to the right. The biosensor glows after consumption of an alcoholic beverage.

Resources & Documents:

***US Patent: US11154225B2**—" Transdermal biosensor"—Issued October 26th, 2021.*

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