Bioengineers develop artificial chip for testing how drugs interact with ion channels

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(Phys.org) -- Ion channels, proteins embedded in cell membranes, are central to many of the human body's physiological processes, including cardiac activity. For this reason, they are also important targets for cardiac drugs. But unanticipated interactions between drugs and ion channels can have catastrophic effects, potentially leading to cardiac arrhythmia and death.

While ion-channel drug discovery and safety screening is very important, the current technology used by the pharmaceutical industry for testing ion-channel drug interactions is slow, labor-intensive and expensive.

Now, bioengineering researchers from the UCLA Henry Samueli School of Engineering and Applied Science have developed a cell-free artificial membrane chip that tests drug potency with ion channels. The researchers designed the artificial chip to be simple to use, inexpensive and capable of being incorporated into automated processes on a large scale.

The simplicity and high-yield of this new platform, along with its compatibility with large-scale automation, show great promise for use in ion-channel drug discovery and safety screening.

More information: The research has been published online in the peer-reviewed journal *Lab on a Chip* (bit.ly/HsrXtn) and will be included in a forthcoming print issue of the journal.

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