

New knowledge of cannabis paves the way for drug development

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Revolutionary nanotechnology method could help improve the development of new medicine and reduce costs. Researchers from the Nano-Science Center and the Department of Chemistry at the University of Copenhagen have developed a new screening method that makes it possible to study cell membrane proteins that bind drugs, such as cannabis and adrenaline, while reducing the consumption of precious samples by a billion times.

About 40% of all medicines used today work through the so-called "G protein-coupled receptors". These receptors react to changes in the cell environment, for example, to increased amounts of chemicals like [cannabis](#), [adrenaline](#) or the medications we take and are therefore of paramount importance to the pharmaceutical industry.

"There is a lot of attention on research into "G protein-coupled receptors", because they have a key roll in recognizing and binding different substances. Our new method is of interest to the industry because it can contribute to faster and cheaper [drug](#) development", explains Professor Dimitrios Stamou, who heads the Nanomedicine research group at the Nano-Science Center, where the method has been developed. The new method is described in a publication at the esteemed scientific journal *Nature Methods*.

Cheaper to test and develop medicine

The new method will reduce dramatically the use of precious membrane protein samples. Traditionally, you test a medicinal substance by using small drops of a sample containing the protein that the medicine binds to. If you look closely enough however, each drop is composed of thousands of billions of small nano-containers containing the isolated proteins. Until now, it has been assumed that all of these nano-containers are identical. But it turns out this is not the case and that is why researchers can use a billion times smaller samples for testing drug candidates than hitherto.

"We have discovered that each one of the countless nano-containers is unique. Our method allows us to collect information about each individual nano-container. We can use this information to construct high-throughput screens, where you can, for example, test how medicinal drugs bind G protein-coupled receptors", explains Signe Mathiasen, who is first author of the paper describing the screening method in *Nature Methods*. Signe Mathiasen has worked on developing a screening method over the last four years at the University of Copenhagen, where she wrote her PhD thesis research project under the supervision of Professor Stamou.

More information: www.nature.com/nmeth/journal/v...

[full/nmeth.3062.html](https://phys.org/news/2014-09-knowledge-cannabis-paves-drug.html)

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