

# Researchers create new device to detect antibiotic allergies

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The detection of allergies to antibiotics is currently conducted with a series of in vivo skin tests that are invasive and therefore entail inconveniences. Although in vitro methods do exist, they are not sufficiently sensitive, and can lead to an inaccurate diagnosis. Furthermore, only a small number of allergens are analysed, and tests are

slow and expensive.

To combat these deficiencies, European researchers headed by Valencia's Polytechnic University (UPV) have developed a low cost, highly sensitive biophotonic system to detect allergies to [antibiotics](#) such as amoxicillin or penicillin in less than an hour in a non-invasive way and with a very small sample of blood. It is the result of European project Cobiophad.

The device includes a microfluid disc into which the samples to be analysed are injected, a disc drive and software that processes the trial and provides results for the [medical experts](#).

The prototype is able to detect up to 10 allergies to beta-lactam antibiotics, including amoxicillin, penicillin and clavulanic acid with one sample. It can simultaneously analyse up to six samples.

"The analysis is very simple. Once the sample is loaded onto the disc, it is placed in the drive. From the interaction between the sample and the reactive agents, the result that will help doctors diagnose whether the patient is allergic or not is obtained. All in less than an hour," says Ángel Maquieira, researcher for the Inter-university Institute of Molecular Recognition and Technological Development (IDM) of the UPV.

## **First tests in the UPV**

This new antibiotic [allergy test](#) is being validated in the UPV installations. The partners of the Cobiophad project have convened at the UPV to verify the capabilities of the device with real trials, with [medical staff](#) from Valencia's Hospital Universitari i Politècnic La Fe and from the Centre Hospitalier Universitaire of Montpellier, France. Both are international benchmarks in regards to allergies, and their participation in the project has consisted on providing cases, developing

bioreactive substances and, now, conducting the clinical validation of this diagnostic technique.

Ethel Ibáñez, allergist at the Valencian hospital and member of the Cobiophad team, believes that this device can facilitate and significantly cheapen the diagnosis of antibiotic allergies, while also decreasing the inconveniences and risks for patients.

"At the moment, the diagnosis starts with the patient's medical history and then, depending on the risk they may have, the skin tests are carried out. They are invasive tests that can entail a series of risks; furthermore, we do analytic and exposure tests to the medicine, supplying it to the patient orally, which entails a greater risk than the skin tests. All these tests also require the corresponding commutes. The device that has been developed in this project is much safer, faster and generates far fewer costs. At the moment, when the patient comes to the practice with a very small blood [sample](#) – 25 microlitres – we can learn whether they are allergic or not," explains Ethel Ibáñez.

Provided by Asociacion RUVID

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