



European Research Council

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Highlight:

Injectable and biodegradable nanodrugs to relieve chronic pain says 4000th ERC grantee
26 March 2014

The research of Spanish grantee Manuel Arruebo may one day put an end to the use of conventional analgesics for patients with chronic pain. Dr Arruebo who is today awarded the 4000th ERC grant, is looking at a new drug delivery system to improve the daily lives of patients. A new device would inject nano-capsules capable of releasing drugs on-demand and remotely: removing, in many cases, the need for surgery. He will conduct his research at the University of Zaragoza (Spain) with the support of an ERC Consolidator Grant worth over €1.5 million - a grant awarded to scientists who wish to strengthen their own research team and their professional career in Europe.

On the occasion of the announcement, Dr Arruebo who is leading the NANOHEDONISM project stated: *“I am proud to be the 4000th ERC grantee, especially at times when competition for research funding is intensifying and is making it harder for scientists to pursue their careers in Europe. With my ERC Consolidator Grant, I hope to develop a new technology that will administer drugs in a minimally invasive manner – just with an injection and in many cases without surgery – and only when patients actually need it”.*

Chronic pain affects millions of people worldwide and the current treatments are often inadequate; they do not allow precise control of the drug’s release. They don’t adapt either to the patients’ changing day-to-day physical activities or to the level of pain relief they require. In addition, the conventional systems do not allow the patients or their doctors to switch them off or administer therapeutic doses only for the length of time which is necessary.

The NANOHEDONISM project is an attempt to overcome these limitations by developing a pioneering method of drug delivery – one which is reversible, and which releases drugs only where and when they are needed. The drugs take the form of injectable and biodegradable nano-capsules released in response to a specific biochemical stimulus - such as heat, light or electrical or magnetic fields. The new technology will offer a better care for the many patients who need an on-demand release of their prescribed medication: sufferers from diabetes, hormonal disorders, sciatica, or patients receiving localised chemotherapy treatments for example.

“The benefits of this implantable system are extraordinary; patients will be able to better control and relieve their pain and this will considerably improve their quality of life. In the course of the project, we aim to also test the biocompatibility and efficacy of these nano-capsules in vitro and in vivo” concluded Dr Arruebo.



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Biography

Dr Manuel Arruebo is an Associate Professor in Chemical Engineering at Zaragoza University in Spain. He is one of the 312 researchers selected out of 3,673 applicants in the latest ERC competition for Consolidator Grants 2013. Previously, he was awarded one of the coveted "*Ramon y Cajal*" contracts from the Spanish Government. He has an international profile and has worked as a postdoctoral researcher at the Massachusetts Institute of Technology (MIT), the University of Colorado at Boulder and the Hong-Kong University of Science and Technology. He is now the leader of a team composed of five researchers at Zaragoza University.

Note to the editors

The European Research Council

Set up in 2007 by the EU, the **European Research Council** (ERC) is the first pan-European funding organisation for frontier research. It aims to stimulate scientific excellence in Europe by encouraging competition for funding between the very best, creative researchers of any nationality and age. The ERC also strives to attract top researchers from anywhere in the world to come to Europe.

From 2007 to 2013 under the seventh EU Research Framework Programme (FP7), the ERC's budget was €7.5 billion. Under the new EU research programme (2014-2020), *Horizon 2020*, the ERC has a substantially increased budget of over €13 billion. Since its launch, the ERC has funded over 4,000 researchers.

The ERC consists of an independent Scientific Council and an Executive Agency. The Scientific Council, the ERC's governing body, is composed of 22 distinguished scientists and scholars, including the ERC President. They define the scientific funding strategy and methodologies, and act on behalf of the scientific community in Europe to promote creativity and innovative research. Prof. Jean-Pierre Bourguignon has been the ERC President since 1 January 2014. The ERC Executive Agency implements the ERC component of *Horizon 2020* and is led by Director Pablo Amor.

Links

ERC website

<http://erc.europa.eu>

Watch the [video clip](#) produced by the University of Zaragoza on the 4000th ERC grantee and other ERC grant holders (for Spanish subtitles, click [here](#)).

ERC [video clip](#) on other ERC grantees based in Spain (June 2013)

1000th ERC grantee press [highlight](#)

2000th ERC grantee press [highlight](#)

3000th ERC grantee press [highlight](#)



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