



European Research Council
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Press release

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Bringing research to the market: ERC funds 59 innovative projects

A simple blood test to diagnose breast cancer, a forensic device to trace the origin of tropical timber, and artificial veins inspired by marine sponges; these are some of the inventions to be developed by 59 outstanding researchers selected in the latest round of 'Proof of Concept' Grants from the European Research Council (ERC). (See [projects](#))

Worth up to €150,000 per grant, 'Proof of Concept' funding helps ERC grant holders to bridge the gap between their existing frontier research and its commercial applications. This top-up funding will enable the scientists to cover costs of technical validation, create a start-up to explore business opportunities, or establish intellectual property rights, for example.

EU Commissioner for Research, Innovation and Science Carlos Moedas said: "*Europe has plenty of world-class research, but not enough of it reaches the marketable product stage as commercialised, pioneering goods and services. The Proof of Concept grants will enable some of our top research to compete with the best innovations out there. This will help improve our ability to bring innovations to market, boost competitiveness and create the jobs and growth needed in Europe.*"

ERC President Prof. Jean-Pierre Bourguignon commented: "*Since its launch three years ago, the ERC Proof of Concept funding scheme has helped almost 300 researchers find a way to get their ERC-funded research results to market and to tackle societal challenges. The demand for this funding is on the rise, showing that the scientific community is open to such an entrepreneurial mind-set. A growing number of ERC grantees are unleashing the potential of their most creative scientific ideas in a broader environment*".

In the latest ERC 'Proof of Concept' competition, a total of 120 researchers are being funded; the last 59 were announced today. The budget for the whole call is €18 million. In total, 442 applications were submitted in this call; a 51% increase compared to the previous call.

In this second round of the call, grants go to researchers in 15 countries across the European Research Area: the Netherlands (11), the United Kingdom (9), Spain (8), France (6), Israel (6), Germany (4), Italy (4), Switzerland (3), Ireland (2), Belgium (1), Finland (1), Greece (1), Norway (1), Sweden (1) and Turkey (1).

- [List \(second round\) of the 59 winners \(by country of host institution\)](#)



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EXAMPLES of 'Proof of Concept' (PoC) grant projects in this round

The simple blood test for detecting breast cancer

Breast cancer is the most common cancer in women, with 1.4 million diagnoses worldwide every year. Prof. Eiliv Lund has been awarded an ERC 'Proof of Concept' Grant to commercialise a cheap blood test that can be used to diagnose breast cancer.

The project draws on Prof. Lund's ERC research into gene expression in the peripheral blood and tumour tissue of breast cancer patients. This inventive new blood test can be used to detect the disease either alone or in combination with traditional diagnostic tools, and will help reduce the rate of false positive tests and overdiagnosis. As the test is simple to use, the blood samples can be transported without refrigeration, and a centralised lab with standard equipment is sufficient for testing, it also presents a particularly advantageous option in low income countries. The results of this blood test will also allow clinicians to distinguish between different stages of breast cancer. Prof. Lund will use the grant to establish the test's suitability in different scenarios and health care systems, verify its safety, organise events for industry experts and investors, and prepare for the product's out-licensing. This is the first time an ERC grantee based in Norway will receive a 'Proof of Concept' Grant.

ERC grantee: **Prof. Eiliv Lund**

Host institution: University of Tromsø, Norway

ERC projects: A Gene Expression Test in Blood for Breast Cancer (BLOBREC); Transcriptomics in Cancer Epidemiology (TICE)

ERC funding: Proof of Concept 2014, €150,000 for one year (BLOBREC); Advanced Grant 2008, €2.3 million for five years (TICE)

3D photography with your smartphone

Almost everyone has a camera on their smartphone nowadays. But imagine if we could use our mobile devices to take photographs in 3D. With an ERC 'Proof of Concept' Grant, Prof. Marc Pollefeys plans to give anyone the ability to capture the world in 3D with their existing smartphone or tablet, anywhere, anytime.

During his ERC-funded research, Prof. Pollefeys studied how to extract 3D measurements from camera recordings. Building on the findings, he will now commercialise a technology that will allow anybody with a regular consumer smartphone to save 3D images of anything they want, without need for any additional hardware or the internet. The technology could pave the way not only for 3D event re-living and greater opportunities for 3D printing, but also opens the door to full-scale crime scene reconstructions in courtrooms and the possibility to send a 3D image of a rash or swelling to your doctor for diagnosis. The project will focus in particular on developing the tool for use in capturing 3D human measurements, including 3D faces. This means we could soon visit an art gallery, hold a smartphone camera to our favourite sculpture, and return home with a 3D representation of it to show friends and family. The image could also be uploaded to a cloud service, which would merge it with others of the same object to form an even more comprehensive representation.

ERC grantee: **Prof. Marc Pollefeys**

Host institution: ETH Zurich, Switzerland

ERC projects: Mobile 3D Modeling (M3M); 4DVideo: 4D spatio-temporal modeling of real-world events from video streams (4DVideo)

ERC funding: Proof of Concept 2014, €150,000 for one year (M3M); Starting Grant 2007, €1.8 million for five years (4DVideo)

Watch a video about the project here: <http://cvg.ethz.ch/mobile/>



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Artificial blood vessels inspired by marine sponges

Prosthetic vascular grafts are the tiny synthetic channels used to redirect blood flow during surgery. In the course of his ERC-funded research into potential new biomaterials, Prof. Werner E.G. Müller unexpectedly found that certain polymers have potential to make a new generation of narrow vascular grafts based on the minute biosilica structures found in marine sponges.

With a 'Proof of Concept' Grant, he plans to build on these findings to introduce innovative, extra narrow vascular grafts on the market. The materials currently used work well for grafting large-diameter vessels but are inappropriate for small-diameter vessels required for coronary artery bypass grafting, for example. The new artificial vessels, designed by Prof. Müller, improve existing options because they can be better adapted to the needs of individual patients, are able to prevent thrombosis, have adjustable degradation rates, and can be easily fabricated. The 'Proof of Concept' Grant will support the team in safety standardisation, market analysis, preparation of a business plan, and in their efforts to scale-up the production process prior to clinical studies. This is the second 'Proof of Concept' Grant awarded to Prof. Werner E.G. Müller following his research into biomaterials, the first being obtained in 2012 to support production of biosilica-based scaffolds for bone regeneration.

ERC grantee: **Prof. Werner E.G. Müller**

Host institution: Mainz University, Germany

ERC projects: Morphogenetically active blood vessels (MorphoVes-PoC); From gene to biomineral: Biosynthesis and application of sponge biosilica (BIOSILICA)

ERC funding: Proof of Concept 2014, €150,000 for one year (MorphoVes-PoC); Proof of Concept 2012, €150,000 for one year (SI-BONE-POC); Advanced Grant 2010, €2.2 million for five years (BIOSILICA)

Ethical sourcing of tropical timber

Many of us have mahogany or teak furniture in our homes, but can we be sure of its origin? An estimated 50% of the tropical timber that enters the European market is illegally harvested. It may have been taken from a protected area or species, extracted without permission or with corrupt means of access. Dr Pieter Zuidema intends to create an efficient forensic tool for tracing the origin of tropical timber.

Awarded an ERC Starting Grant in 2009, Dr Zuidema conducted research into the long-term climate change effects on tropical tree dynamics. In the course of the project, his team established a database of 300,000 timber tree-ring measurements and 4,000 isotope measurements from more than 20 tropical timber species across three continents. With a 'Proof of Concept' Grant he will now use this data to develop a tool, *Timtrace*, to verify the claimed origin of tropical timbers, thus helping to minimise the illegal trading of this wood. The 'Proof of Concept' Grant will also enable Dr Zuidema to evaluate the tool's commercial potential. *Timtrace* could benefit customs and inspection authorities, furniture manufacturers whose customers are increasingly conscious of ethical sourcing, and organisations that certify sustainable forest management.

ERC grantee: **Dr Pieter Zuidema**

Host institution: Wageningen University and Research Centre, Netherlands

ERC projects: Tracing tropical timber (TIMTRACE); Tropical forests and climate change: understanding links to predict future responses (TROFOCLIM)

ERC funding: Proof of Concept 2014, €150,000 for one year (TIMTRACE); Starting Grant 2009, €1.7 million for five years (TROFOCLIM)

Optimised *in vitro* alternatives to animal testing

A new tool developed by ERC grantee Dr Roisin Owens could provide a fascinatingly clear insight into events occurring in cells as they happen. The more accurately we can observe cells *in vitro*, the less drug discovery and diagnostics are dependent on *in vivo* methods such as animal testing.

Dr Roisin Owens has been awarded a 'Proof of Concept' Grant to commercialise a device which monitors human cells *in vitro* with unprecedented sensitivity. Whereas current test tube experiments are often found to be expensive oversimplifications of the real-life systems they try to mimic, the device developed by Dr Owens is low-cost, more sensitive than other technologies, and can monitor sub-second variations in tissue more dynamically. This tool is a result of Dr Owens' ERC-funded



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research, which led to creating a new way of detecting minute changes in observed cells. By commercialising the device, this project will facilitate earlier disease diagnosis, provide a vehicle for fundamental research in life sciences, and develop new *in vitro* cell models for use in toxicology and drug screening.

ERC grantee: **Dr Roisin Owens**

Host institution: ARMINES – Association pour la recherche et le développement des méthodes et processus industriels, France

ERC projects: Exploitation of Organic Electrochemical Transistors for Biological Sensing – Proof of Concept (IONOSENSE-POC); Exploitation of Organic Electrochemical Transistors for Biological Sensing (IONOSENSE)

ERC funding: Proof of Concept 2014, €150,000 for one year (IONOSENSE-POC); Starting Grant 2010, €1.5 million for five years (IONOSENSE)

Background

Set up in 2007 by the EU, the European Research Council is the first European funding organisation for excellent frontier research. Every year, it selects and funds the very best, creative researchers of any nationality and age, to run five-year-projects based in Europe. The ERC also strives to attract top researchers from anywhere in the world to come to Europe. To date, the ERC has funded more than 4,500 top researchers at various stages of their careers. Under the new EU research and innovation programme *Horizon 2020*, the ERC has a budget of over €13 billion.

The ERC funds young, early-career top researchers ('ERC Starting grants'), already independent excellent scientists ('ERC Consolidator Grants'), and senior research leaders ('ERC Advanced Grants'). The substantial funding is awarded based on peer review evaluation and can be up to €2 million for a Starting Grant, €2.75 million for a Consolidator Grant and €3.5 million for an Advanced Grant.

The funding scheme 'Proof of Concept' was introduced in 2011 as top-up funding for ERC grantees to contribute to stimulating innovation. A single grant can be worth up to €150,000. The call is reserved to all researchers benefitting from an on-going ERC grant or recently completed. The funding is for up to 18 months per project. The next call for proposals – 'Proof of Concept' 2015 – is currently open with rounds of funding closing today, on 28 May and on 1 October 2015. According to the new rules, ERC grantees can apply only for one of the three rounds in this call.

The ERC consists of an independent governing body, the Scientific Council, and an implementing body, the Executive Agency. The ERC President is Prof. Jean-Pierre Bourguignon who took office in January 2014.

Links

[List of all 120 winners in entire 2014 call](#)

[ERC website](#)

[ERC Press Release on the 2013 Proof of Concept call](#)

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