

HORIZON 2020 IN WALES

Fast Assay for Pathogen Identification and Characterisation (FAPIC)

Welsh partner:
Bee Robotics

Lead partner:
**Claude Bernard University,
Lyon, France**

HORIZON 2020 value:
€6 million

European partners in:
**France, Austria, UK, Croatia, Netherlands, Belgium,
Germany**



Caernarfon-based medical equipment manufacturer, Bee Robotics, is taking part in a Horizon 2020 project to develop a new method for fast and cost-effective diagnosis of *life-threatening* diseases.

The €6 million FAPIC project is developing problem-solving systems to identify *disease-causing* agents in a single test which can provide detailed information about infections and potential treatment within hours of sampling.

As part of the project, Bee Robotics has secured over €750,000 to develop robotic instruments to automate the process of DNA extraction and reduce the time to diagnosis.

Bee Robotics Managing Director, Steve Jones, said:

"The funding we've received through Horizon 2020 is enabling the company to develop new technologies through collaborative research and innovation with partners across Europe.

"We are delighted to be part of this project, which will allow antibiotics to be better targeted for patients with deadly infections."

For further details on the project visit:
www.fapic.eu

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HORIZON 2020 IN WALES

Head protection: a European training network for Advanced Designs in Safety

Welsh partner:

Charles Owen & Co (Bow) Ltd

Lead partner:

University College Dublin, Ireland

HORIZON 2020 value:

€3.4 million

European partners in:

Belgium, Ireland, Italy, Sweden, UK



Wrexham-based head safety-wear manufacturer, Charles Owen, has been awarded €273,000 of Horizon 2020 funds to help reduce injuries and fatalities in sport and outdoor recreation.

The €3.4 million Heads project is improving the understanding of head impact injury through technology-based simulations of real-life accidents and developing new safety standards for helmets used in equestrian, cycling, motor and snow sports.

Through the project, Charles Owen, the UK's largest equestrian headgear manufacturer, is applying scientific techniques to develop new equestrian safety standards and manufacture a range of new headforms for testing.

The project is also training a network of engineers and scientists to take forward the advances in head safety technology and maintain Europe as a global leader in its development and commercialisation.

Roy Burek, Managing Director of Charles Owen, said:

"As the manufacturing base of the UK has moved east, inventors of new materials are taking them to these new areas of mass production – creating challenges for longstanding companies like ourselves".

"This EU Horizon 2020 funding helps us in three ways: having access to new technologies before commercialisation, giving us tools to help us fine tune existing technologies, and demonstrating our commitment to making the best possible helmets in the world."

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HORIZON 2020 IN WALES

Strengthening International Research Capacity in Wales (SIRCIW)

Lead:
Welsh Government

HORIZON 2020 value:
€9.6 million

In partnership with:
Welsh Universities



Strengthening International Research Capacity in Wales (SIRCIW) is a Horizon 2020 project that forms part of the Welsh Government's Sêr Cymru II programme to grow scientific research in Wales.

The project is supporting the recruitment of experienced post-doctoral researchers from outside the UK to work within research groups in Welsh Universities.

Up to 90 research fellowships will be created in areas including clinical science, engineering, physics, maths and applied social sciences.

The project is helping to develop research leaders of the future and includes a programme of bespoke training and opportunities for research fellows to spend time in different sectors.

Chief Scientific Adviser for Wales, Professor Julie Williams, said:

"Securing this funding from Horizon 2020 against stiff competition from across Europe is a massive vote of confidence in Welsh scientific research."

"The Research Excellence Framework 2014 proved Wales is delivering truly world class research but we need more of it to deliver lasting economic and social benefits."

"Welsh research is having an impact and our scientists more frequently collaborate internationally than those in other parts of the UK. This funding will ensure that excellent work can grow and deliver even more."

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HORIZON 2020 IN WALES

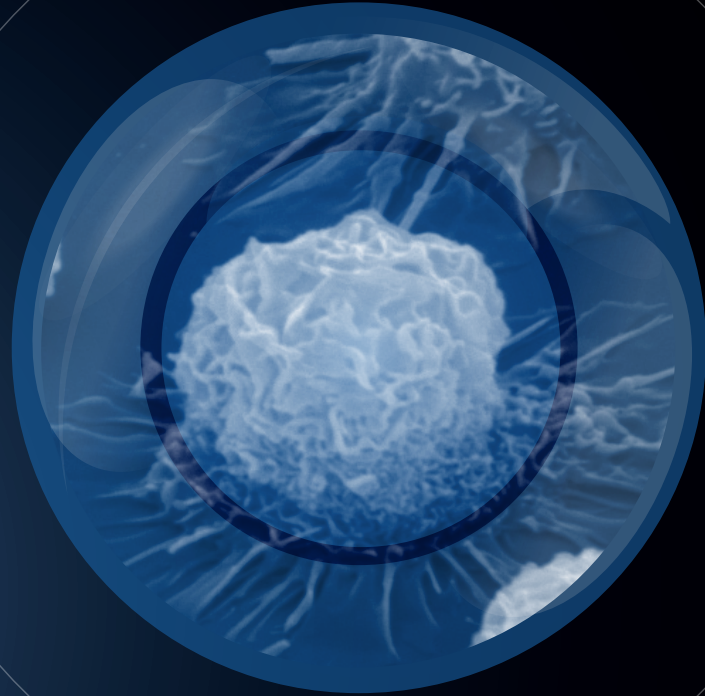
Chimeric Antigen Receptors for Advanced Therapies (CARAT)

Welsh partner:
TrakCel Ltd

Lead partner:
**Miltenyi Biotec GmbH,
Bergisch Gladbach, Germany**

HORIZON 2020 value:
€6 million

European partners in:
France, Germany, Italy, UK



Cardiff-based TrakCel has secured €420,000 to bring its expertise to a Horizon 2020 project to develop technology that could change the way cancer is treated.

The company, which develops software and hardware for complex clinical trials, is partnering with research groups and manufacturers across Europe to develop technology for cell therapy products that are increasingly being used to treat cancer.

The €6 million project aims to make a technological breakthrough by developing software to improve the performance and safety of cellular cancer therapies, and make Europe a global leader in the commercialisation of the technology.

Dr Matthew Lakelin, TrakCel's Vice President of Scientific Affairs, said:

"Participating in this European project gives TrakCel access to some of Europe's leading cell therapy developers and allows the company to integrate with cell therapy processing equipment.

"This is a fantastic opportunity for the company to be at the forefront of innovation in technology for cellular therapies."

HORIZON 2020 IN WALES

The Psychology and Neurobiology of Cognitive Control Training in Humans

Lead:
Cardiff University

HORIZON 2020 value:
€1,998,305



- Professor Chris Chambers from Cardiff University has been successful in an application for research funding from the European Research Council (ERC) under Horizon 2020.

The €2 million funding will support a **five year** project to study the psychology and neurobiology of self-control training in eating behaviour.

The studies will focus particularly on weight loss in individuals with a body mass index in the overweight or obese range, who now make up more than 50% of the European population.

The project will compare seven different forms of self-control training on eating behaviour and cognition. It will be the largest study of its kind, calling for more than 35,000 participants worldwide to take part in a 90-day trial.

Professor Chambers said:

"This study will represent one of the first formal research links between a major UK university and a major media outlet in the advancement of experimental science. We will also be taking full advantage of the very latest brain imaging technology at Cardiff University's EU-backed CUBRIC centre to explore how training changes the brain – including MRI and specialised microstructural scanning."

"The ERC's mission is to encourage the highest quality research in Europe and to support investigator-driven exploration across all fields, awarded on the basis of scientific excellence. It is a flagship component of the Horizon 2020 programme with a total budget of €13 billion available through its funding schemes."

HORIZON 2020 IN WALES

ECOPOTENTIAL: Improving future Ecosystem benefits through Earth Observations

Welsh partner:

Environment Systems Ltd

Lead partner:

CNR (Consiglio Nazionale delle Ricerche) – National Research Council of Italy

HORIZON 2020 value:

€16 million

Partners in:

France, Germany, UK, Italy, Spain, Netherlands, Romania, Israel, Switzerland, Greece, Portugal, Macedonia, Lithuania, Norway, Australia, South Africa plus two international bodies (UNESCO and UNEP)

Environment Systems, an environmental consultancy based in Aberystwyth, has secured €190,000 to bring its expertise to 'ECOPOTENTIAL,' a large European-funded Horizon 2020 project which responds to the EU's call to "make Earth Observation and Monitoring Data usable for ecosystem modelling and services."

The ECOPOTENTIAL consortium comprises 46 European and international partners spanning research institutes, universities, public sector organisations, international bodies and SMEs.

Our terrestrial and marine environment provides essential goods and services to human societies such as food provision, climate regulation and flood prevention; these are known as ecosystem services. However, man-made pressures pose serious threats to ecosystem integrity, functions and processes, potentially leading to the loss of essential ecosystem services.

Ecopotential will use earth observation data to model the current state and future policy impacts on ecosystems and ecosystem services

within protected areas such as National Parks and Natura 2000 sites throughout Europe and beyond. The project will undertake capacity building for policy-makers, scientists and concerned citizens to increase the accessibility and uptake of earth-observation products and ecosystem modelling tools for environmental monitoring.

Dr Gemma Bell, Environmental Consultant at Environment Systems Ltd said:

"This project is an opportunity for Environment Systems to apply its expertise in satellite data analysis, ecosystem service modelling and citizen science on a global stage."

"It will provide us with an excellent opportunity to transfer our methodologies to new Copernicus-era satellite applications, and foster new working partnerships."

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HORIZON 2020 IN WALES

Participatory Engagement with Scientific and Technological Research through Performance

Welsh partner:
Science Made Simple

Lead partner:
University of Barcelona

HORIZON 2020 value:
€1.9 million

European partners in:
Austria, France and Spain

Cardiff-based social enterprise, Science Made Simple, has been awarded €102,000 through a Horizon 2020 project aimed at promoting science, technology, engineering and mathematics (STEM) in schools.

The €1.9m project will bring together nine organisations throughout Europe, including UNESCO and the Autonomous University of Barcelona, to investigate the impact of the performing arts in encouraging young people to study STEM subjects. The aim is to increase the uptake of STEM-related careers.

Welsh partner, Science Made Simple, engages students through interactive shows, blending popular culture, entertainment and education.

Through the project, the organisation will share research with experts to further develop a range of first class artistic activities, including presentations and theatre techniques, to raise interest in STEM subjects amongst young people.

Visiting schools throughout the UK, the organisation interacts with students through live experiments and demonstrations. The shows follow a theme such as the science behind music which enables pupils to interact with instruments and study how sound waves travel.



As part of the Horizon 2020 project, Science made Simple will work closely with four schools in the UK to research how young people engage with science. This study will allow the company to develop their performances to enhance the educational benefits and increase their impact as the enterprise grows.

Founding Director, Wendy Sadler, said:

"We're very excited to be working on this project to learn from other experts in our field and to share our knowledge. It will enable us to build stronger professional links with Europe and understand the impact of our work by having researchers studying what we do. We're hopeful that this data will help us going forward in delivering even better shows to help us achieve our mission."

"Science Made Simple has branches in Manchester, Norwich and Milton Keynes with over 600,000 students so far benefiting from their innovative approaches to translating the complexities of science."

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HORIZON 2020 IN WALES

A universal thin film transistor platform for flexible and curved displays (FlexTrans)

SME Instrument (Phase 2)

Welsh partner:

SmartKem Ltd

HORIZON 2020 funding:
€1.8 million



St Asaph based semiconductor manufacturer, SmartKem Ltd, has been successful in securing €1.8m of Horizon 2020 funds from the highly competitive SME Instrument (Phase 2) to lead a Horizon 2020 project to accelerate flexible semiconductor adoption in Asia.

Organic semiconductors are a key enabling component in the development of flexible matrix displays and allow manufacturers to produce high performance curved, foldable and even rollable OLED and LCD displays.

The project will focus on the industrialisation and transfer of SmartKem's organic semiconductor platform, truFLEX®, and maintaining electrical and physical uniformity and quality of transistor performance for mass production on existing production lines in Asia.

The project will ensure a strong European position in the supply of specialised, high value materials to this new, high growth, display industry sector in Asia.

SmartKem Chief Executive, Steve Kelly said:

"We are delighted to receive this funding boost, which will accelerate the industrialisation of our thin film transistor platform technology for the manufacture of flexible and curved displays in Asia".

"Flexible OLED displays will be integral to a new generation of display based devices for mobile, automotive, industrial and large area applications. The demand we are seeing for our technology emphasises the strength of the EU chemicals industry and the importance of materials innovation in generating growth in new markets such as the flexible display industry."

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HORIZON 2020 IN WALES

Rail inspection by autonomous systems (AutoScan)

Rapid Integrity Assessment of Flexible Risers for Offshore Oil & Gas Installations (RiserSure)

Welsh partner:

TWI Technology Centre

Lead partner:

**I-Moss NV, Belgium
(AutoScan)**

InnoTec, UK (RiserSure)

HORIZON 2020 funding:

€1.5 million (AutoScan)

€2.5 million (RiserSure)

European partners in:

Belgium, Cyprus, Greece, Portugal, Spain, UK



Port Talbot based TWI Technology Centre has secured more than €1m to work on Horizon 2020 projects developing new technology and products to help improve the performance of rail infrastructure and offshore oil and gas production.

Through the **AutoScan** project, the company is collaborating with European partners to develop a robotic evaluation system which will enable more frequent inspection of rail tracks and improved detection of faults and defects.

TWI is also participating in the **RiserSure** project which is developing a unique product for assessing the condition of flexible risers widely used in offshore oil and gas production. The product will improve reliability and reduce the environmental impact of offshore production through a new sub-sea digital radiography detector.

Both schemes aim to deliver ground-breaking products, which will be marketed and sold around the world.

Philip Wallace, TWI regional manager in Wales, said:

“Our aim is to drive business growth and competitiveness for manufacturing and engineering organisations through research into advanced engineering and materials”.

“Our collaboration in the Horizon 2020 schemes is just one example of this. TWI know-how will help fast-track innovation within these schemes and allow pioneering new products to reach commercial readiness and success.”

In addition to TWI's Horizon 2020 projects, over £7m of EU Structural Funds are supporting the development of the company's new Advanced Engineering Materials Research Institute (AEMRI). The facility will support cutting-edge industrial research with partners in sectors including aerospace, automotive, electronics, and nuclear and renewable energy and aims to generate over £12 million of additional R&D investment within the next six years.

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HORIZON 2020 IN WALES

FISSAC

SMART-Plant

GELCLAD

Welsh partner:

Ecodek Ltd

Lead partner:

**ACCIONA CONSTRUCCION SA,
Spain (FISSAC)**

**UNIVERSITY OF VERONA,
Italy (SMART-Plant)**

**INSTITUTO PEDRO NUNES,
Portugal (GELCLAD)**

HORIZON 2020 funding:

€9.1 million (FISSAC)

€7.5 million (SMART-Plant)

€4.8 million (GELCLAD)

European partners in:

**Belgium, Czech Republic, Germany, Greece, Hungary,
Italy, Netherlands, Norway, Portugal, Slovenia, Spain,
Sweden, Switzerland, Turkey, UK**

Wrexham based **Ecodek Ltd** has secured more than €1.5million of EU funds as part of three Horizon 2020 projects aiming to develop new products and markets from recycled building materials and waste from water treatment plants.

Ecodek is a leading manufacturer of eco-friendly composite materials made from wood and plastic for outdoor decking, walkways, furniture, balconies and marinas.

As part of the **FISSAC** project, the company is working with European universities and businesses to test how recycled materials can be integrated into manufacture of existing products to develop new markets and a more cost-efficient and environmentally friendly approach to product development.

Through **SMART-Plant**, Ecodek is part of a pan-European consortium aiming to discover new uses and manufacture innovative products from the filtered waste of water treatment plants.

The company is also a partner in the **GELCLAD** project by supporting the manufacturing process involved in the development of a new cladding system to improve the insulation of buildings.

Dr Luis Enriquez, Technical Manager at Ecodek, said:

"Ecodek has always been at the forefront of R&D and are very proud to have been given the opportunity to work with Horizon 2020, the biggest EU Research and Innovation programme. We welcome the ability to enhance our network of alliances with strategic partners, including institutions, cutting edge manufacturers and technical centres."

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HORIZON 2020 IN WALES

Enhanced substrates and GaN pilot lines enabling compact power applications (PowerBase)

An integrated pilot line for micro-fabricated medical devices (InForMed)

Welsh partner:

SPTS Technologies

Lead partner:

Infineon Tech.

Austria AG (PowerBase)

Phillips Electronics Netherlands (InForMed)

HORIZON 2020 funding:

€19.1 million (PowerBase)

€11.3 million (InForMed)

European partners in:

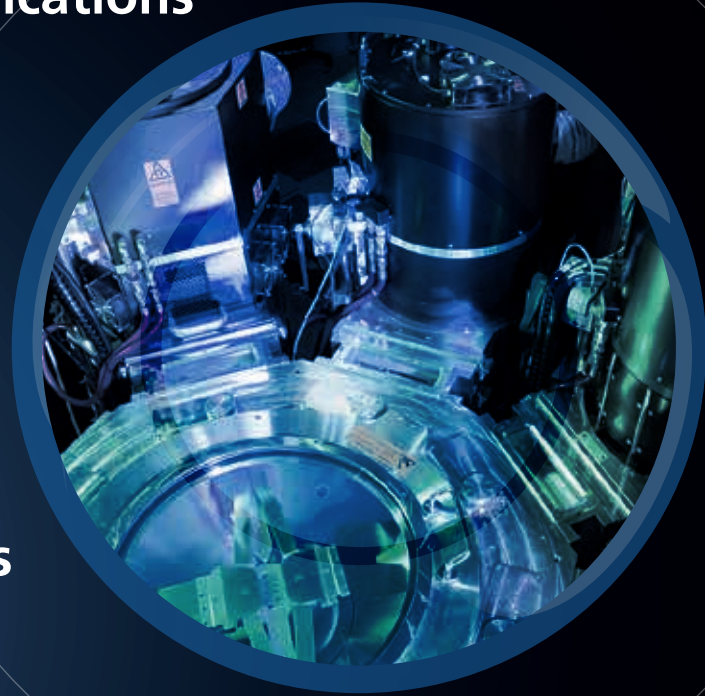
Austria, Belgium, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Slovakia, Spain, Sweden, Switzerland, UK

Newport based SPTS Technologies, a Welsh anchor company, has secured over €130,000 to work on two Horizon 2020 projects aiming to break new ground in semiconductor technologies and pilot innovative new medical devices.

Through the **PowerBase** project, the company is working with partners across Europe to develop next generation compound semiconductor devices using enhanced substrates and gallium nitride for 'Smart Energy' applications.

The project will improve the ability of European industry to provide more efficient products for energy generation, and provide early availability of enhanced power devices in Europe.

SPTS is also developing dry etch processes as part of the **InForMed** project by helping to create innovative membranes that can provide a better environment than silicon or glass for testing conditions like heart cell response to stimuli.



The project aims to strengthen Europe's position in traditional medical diagnostic equipment and create brand new markets by providing an industrial micro-fabrication and assembly facility where new materials can be processed and assembled.

Paul Rich, Executive Vice President Technology & Operations, said:

"The funding we receive through Horizon 2020 enables us to extend our capabilities to adjacent markets and develop new applications which can benefit other industry sectors as well as identify potential new growth markets for us".

"Working collectively with key industrial and academic players in the manufacturing ecosystem also enables optimal use of European technologies and competencies."

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HORIZON 2020 IN WALES

INMARE: Innovative screening and expression platforms to discover and use the functional protein diversity from the sea

Lead partner:

**Dr Olga Golyshina and
Prof Peter Golyshin
(Bangor University)**

HORIZON 2020 funding:
€6 million

Partners in:

**Denmark, Germany, Greece, Ireland, Italy, Lithuania,
Norway, Portugal, Spain, Switzerland, UK, Canada**

Bangor University has secured over €730,000 of Horizon 2020 funds to lead a €6m project to create safer, cleaner and cheaper pharmaceutical and agricultural products.

The project will involve a consortium of 24 European and North American organisations, including arrange of academic and industrial partners with research expertise in metagenomics and enzyme discovery, as well as market leaders in enzyme production and biocatalysis.

Utilising pan-European expertise, facilities and advanced technologies, the aim is to speed up the discovery of new marine enzymes and bioproducts that can support new products, processes and industrial prototypes.



Courtesy of
PharmaMar
S.A. (Spain)

Dr Olga Golyshina from Bangor University said:

"The funding and collaboration through Horizon 2020 has been vital to creating these opportunities in Europe and we're delighted to be leading such a strong consortium of global partners through the INMARE project."

HORIZON 2020 IN WALES

Life Integrated Process for the Enzymatic Splitting of triglycerides (LIPES)

Welsh partner:

Biocatalysts Ltd

Lead partner:

Oleon NV, Belgium

HORIZON 2020 funding:
€4.3m

European partners in:

Belgium, Germany, Netherlands

Nantgarw based Biocatalysts Ltd has secured over €300,000 of EU funds to participate in a Horizon 2020 project aiming to develop a more cost efficient and environmentally friendly process for producing fatty acids and glycerol.

Through the LIPES project, the company, which manufactures speciality and customized enzymes for global companies in the food, fragrance, diagnostics and pharmaceutical industries, is working with European universities and science and technology companies.

The project is aiming to create a new enzymatic process for generating commercially important fatty acids with higher purity and at an overall lower variable cost than the current chemical processes used. The project aims to achieve a 45% saving on water consumption and an 80% saving on energy consumption.

The project aims to strengthen the competitiveness of the European oleo-chemicals industry by leading to the development of new high performance products that could be used in a wide range of sectors including food, cosmetics, lubricants and specialty polymer applications.



This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 720743.

Dr Andrew Ellis, Technical Director at Biocatalysts Ltd, said:

"Securing this EU funding from Horizon 2020 has allowed us to participate in this innovative project and play our part in reaching the European Commission goals on waste reduction."

"It has given Biocatalysts the opportunity to apply its wealth of enzyme knowledge to this application and to develop new working relationships with both academic and commercial partners."

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HORIZON 2020 IN WALES

Valorisation of mushroom agrowastes to obtain high value products (FUNGUSCHAIN)

Welsh partner:

Neem Biotech Ltd

Lead partner:

**BioDetection Systems B.V.,
Netherlands**

HORIZON 2020 funding:
€5.7m

European partners in:

**Belgium, Croatia, Germany, Ireland, Italy, Netherlands,
Portugal, Spain, Sweden**

Abertillery-based SME Neem Biotech has secured over €100,000 of EU funds to participate in a Horizon 2020 project that will scientifically extract high value additives from mushroom residue.

Neem Biotech is an R&D biotechnology company with 18 years of experience in extracting small molecule bioactives and using them to create new solutions that bring health and economic prosperity, and encourage smarter ways of using natural resources.

The company is working with research institutes and leading businesses from ten European countries as part of the FUNGUSCHAIN project, which is aiming to convert more than 65% of mushroom waste into valuable compounds including antioxidants, proteins and sugars.

Using innovative extraction processes, the project will generate additives that will be industrially validated and incorporated into products including food supplements, industrial packaging, and cleaning products.



The project aims to develop a new and more sustainable approach for the treatment of mushroom by-products and create new business opportunities for industries operating within the European biotechnology economy.

This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme.

Dr. Michael Graz of Neem Biotech Ltd. said:

"Neem is very pleased to be involved in this high calibre consortium. This is a great opportunity for the consortium partners to be able to build capacity together and to develop innovative technology that can both contribute to better stewardship of natural resources by society and build the pipelines of our respective companies".

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