Cap analogs with a photo-cleavable group as a general reagent to produce light-activatable mRNAs as tool for fundamental and medical research

Fact Sheet

Project Information

FlashCaps

Grant agreement ID: 101068618

DOI
10.3030/101068618

Project closed

EC signature date
11 April 2022

Start date
1 May 2022

End date
31 October 2023

Funded under
European Research Council (ERC)

Total cost
No data

EU contribution
€ 150 000,00

Investment in EU policy priorities

Digital agenda	○	Clean air	○
Artificial Intelligence	○	Climate action	◐
Biodiversity	○		

Coordinated by
UNIVERSITAET MUENSTER
Germany

Objective

Messenger RNAs (mRNAs) have recently entered the stage as therapeutic modality. Examples are the mRNA-based vaccines against infection by SARS-Cov2. Hundreds of research groups in academia and industry aim to better understand the multiplicity of the mRNA technology and its possible applications.

However, at present researchers are unable to control when and where the mRNA is translated into proteins – which then have a pharmacological effect. This is a bottleneck that severely limits the research needed to further develop mRNA as a therapeutic modality.

We present FlashCaps, the first applicable solution that allows mRNA studies to be driven by light without altering the structure or sequence of the natural mRNA. Light is an excellent external control element that can be applied with high precision in space and time and without interfering with cellular processes. FlashCaps prevent the translation of the mRNA until activated by light. FlashCaps are compatible with all standard mRNA production and application procedures and thus of interest to all research groups and companies working on mRNA to date.

In this proof of concept, we will determine the innovation potential of FlashCaps with a team of highly qualified scientists and innovation managers. Technological research to ensure reproducibility, stability, scalability, and quality of FlashCaps will be performed. User-friendly applicability of FlashCaps is achieved through the involvement of beta-testers. Innovation management research, including market analyses, data analytics and consumer interviews, is conducted to define the potential customers and their needs, to analyse the market potential and to investigate our competitors.

Based on the research results and the agile exchange between the technological and innovation management research, we will decide on the best way of knowledge transfer to make FlashCaps available to the growing number of mRNA researchers.

Fields of science (EuroSciVoc)

social sciences > economics and business > business and management > **innovation management**

natural sciences > biological sciences > biochemistry > biomolecules > **proteins**

medical and health sciences > health sciences > infectious diseases > RNA viruses > **coronaviruses**

medical and health sciences > basic medicine > pharmacology and pharmacy > pharmaceutical drugs > **vaccines**

natural sciences > biological sciences > genetics > **RNA**

Programme(s)

HORIZON.1.1 - European Research Council (ERC) MAIN PROGRAMME

Topic(s)

ERC-2022-POC1 - ERC PROOF OF CONCEPT GRANTS1

Call for proposal

ERC-2022-POC1

See other projects for this call

Funding Scheme

HORIZON-ERC-POC - HORIZON ERC Proof of Concept Grants

Host institution

UNIVERSITAET MUENSTER

Net EU contribution

€ 150 000,00

Total cost

No data

Address

SCHLOSSPLATZ 2
48149 MUENSTER
Germany

Region

Nordrhein-Westfalen > Münster > Münster, Kreisfreie Stadt

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Beneficiaries (1)

UNIVERSITAET MUENSTER

Germany

Net EU contribution

€ 150 000,00

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Last update: 5 August 2022

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