



Electron Microscopy gene reporters based on bioengineered encapsulin nanocompartments

Fact Sheet

Project Information

EMcapsulins

Grant agreement ID: 865710

[Project website](#)

DOI

[10.3030/865710](https://doi.org/10.3030/865710)

EC signature date

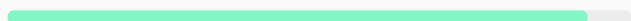
17 July 2020

Start date

1 September 2020

End date

31 August 2025



Funded under

EXCELLENT SCIENCE - European Research Council (ERC)

Total cost

€ 1 997 549,00

EU contribution

€ 1 997 549,00

Coordinated by

TECHNISCHE UNIVERSITÄT
MÜNCHEN



Germany

Project description

Encapsulin nanospheres as novel electron microscopy gene reporters

Encapsulins are small bacterial proteins that automatically assemble into nanospheres where chemical reactions run without toxic effects on cells. Nanospheres of different structure, diameter and functionalisations can be created within living cells via genetic programming. The encapsulation of metal-binding cargo proteins inside the nanospheres creates gene reporters for electron microscopy (EM) with robust and spatially precise contrast for applications in mammalian cells. The

EU-funded EMcapsulins project will create the first set of multiplexed genetic reporters for EM to study structural brain circuit diagrams (connectomes) in order to obtain crucial information on the neuronal type and activation history. These modular encapsulated reporters will deliver the bridging technology between time-resolved light microscopy measurements of neuronal activation dynamics and structural EM connectomics data.

Fields of science (EuroSciVoc)

[humanities](#) > [history and archaeology](#) > [history](#)

[natural sciences](#) > [chemical sciences](#) > [inorganic chemistry](#) > [alkaline earth metals](#)

[natural sciences](#) > [biological sciences](#) > [biochemistry](#) > [biomolecules](#) > [proteins](#)

[natural sciences](#) > [physical sciences](#) > [optics](#) > [microscopy](#)



Keywords

[biological engineering](#)

[synthetic biology](#)

[gene reporters](#)

[protein design](#)

[nanocompartments](#)

[iron biomineralization](#)

[molecular imaging](#)

[calcium imaging](#)

[electron microscopy](#)

[neuronal activity](#)

[connectomics](#)

Programme(s)

[H2020-EU.1.1. - EXCELLENT SCIENCE - European Research Council \(ERC\)](#)

MAIN PROGRAMME

Topic(s)

[ERC-2019-COG - ERC Consolidator Grant](#)

Call for proposal

[ERC-2019-COG](#)

[See other projects for this call](#)

Funding Scheme

[ERC-COG - Consolidator Grant](#)

Host institution



TECHNISCHE UNIVERSITAET MUENCHEN

Net EU contribution

€ 1 772 549,00

Total cost

€ 1 772 549,00

Address

**Arcisstrasse 21
80333 Muenchen**

 **Germany** 

Region

Bayern > Oberbayern > München, Kreisfreie Stadt

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Beneficiaries (2)



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 **Germany**

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Total cost

€ 1 772 549,00



HELMHOLTZ ZENTRUM MUENCHEN DEUTSCHES FORSCHUNGSZENTRUM FUER GESUNDHEIT UND UMWELT GMBH

 Germany

Net EU contribution

€ 225 000,00

Address

INGOLSTADTER LANDSTRASSE 1
85764 Neuherberg 

Region

Bayern > Oberbayern > München, Landkreis

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

€ 225 000,00

Last update: 19 March 2025

Permalink: <https://cordis.europa.eu/project/id/865710>

