

DNA-Based Modular Nanorobotics

Fact Sheet

Project Information

DNA-Robotics

Grant agreement ID: 765703

[Project website](#) 

DOI

[10.3030/765703](https://doi.org/10.3030/765703) 

Project closed

EC signature date

29 August 2017

Start date

1 January 2018

End date

30 June 2022

Funded under

EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions

Total cost

€ 3 979 632,96

EU contribution

€ 3 979 632,96

Coordinated by

AARHUS UNIVERSITET



Denmark

Objective

Robotic systems essentially comprise sensors and actuators connected to and coordinated by an information-processing unit. These principles apply to the human scale robotic systems that currently transform the way we work and live. With DNA-Based Modular Robotics (DNA-Robotics) we will take the first steps to scale advanced robotic behavior to the molecular scale for future medical and technological applications. DNA-Robotics brings together the leading research groups in DNA nanotechnology in Europe to collectively develop an integrated and modular robotic platform and demonstrate applications of the novel technology. DNA-based construction is a natural modular platform, which via the programmability of

sequence design and self-assembly allows different structural and functional motifs to be flexibly combined. DNA modules will be developed with a range of novel functions for sensing, actuation and intra-system communication and computing, implementing all of the typical components required for a robotic system at the molecular level. Our overall goal is the creation of the first “industry standard” for modular robotics by the establishment of a modular “plug-and-play” platform that allows the construction of custom-made nanorobots for advanced applications in research and industry. The ESRs will be trained in and develop functional modules that in close collaboration among the ESRs and Partners will be assembled to advanced molecular robots. The highly interdisciplinary research and training program will exploit the synergy between the different competences of the Partners. The innovative and applied focus is supported by the involvement of the company ATDBio as Beneficiary and five companies as Partner Organization that will also provide complementary skills training and intersectoral exposure of the ESRs. This proposal takes the first steps for future application of nanoscale robots in research and industry and will train future generations of researchers in this field.

Fields of science (EuroSciVoc)

[natural sciences](#) > [biological sciences](#) > [genetics](#) > [DNA](#)

[engineering and technology](#) > [nanotechnology](#)

[engineering and technology](#) > [electrical engineering](#), [electronic engineering](#), [information engineering](#) > [electronic engineering](#) > [sensors](#)

[engineering and technology](#) > [electrical engineering](#), [electronic engineering](#), [information engineering](#) > [electronic engineering](#) > [robotics](#)



Keywords

[DNA Nanotechnology](#)

[Self-assembly](#)

[Nucleic acids](#)

[DNA origami](#)

[Biosensor](#)

[DNA structure](#)

Programme(s)

[H2020-EU.1.3. - EXCELLENT SCIENCE - Marie Skłodowska-Curie Actions](#)

MAIN PROGRAMME

[H2020-EU.1.3.1. - Fostering new skills by means of excellent initial training of researchers](#)

Topic(s)

[MSCA-ITN-2017 - Innovative Training Networks](#)

Call for proposal

[H2020-MSCA-ITN-2017](#)

[See other projects for this call](#)

Funding Scheme

[MSCA-ITN - Marie Skłodowska-Curie Innovative Training Networks \(ITN\)](#)

Coordinator



AARHUS UNIVERSITET

Net EU contribution

€ 870 245,64

Total cost

€ 870 245,64

Address

NORDRE RINGGADE 1

8000 Aarhus C

 **Denmark** 

Region

Danmark > Midtjylland > Østjylland

Activity type

Higher or Secondary Education Establishments

Links

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

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

[HORIZON collaboration network](#) 

Participants (6)



LUDWIG-MAXIMILIANS-UNIVERSITAET MUENCHEN

 Germany

Net EU contribution

€ 498 432,96

Address

**GESCHWISTER SCHOLL PLATZ 1
80539 MUNCHEN** 

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](#) 

Total cost

€ 498 432,96



TECHNISCHE UNIVERSITAET MUENCHEN

 Germany

Net EU contribution

€ 747 649,44

Address

**Arcisstrasse 21
80333 Muenchen** 

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](#) 

Total cost

€ 747 649,44



KAROLINSKA INSTITUTET

 Sweden

Net EU contribution

€ 527 318,64

Address

Nobels Vag 5

17177 Stockholm 

Region

Östra Sverige > Stockholm > Stockholms län

Activity type

Higher or Secondary Education Establishments

Links

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

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

[HORIZON collaboration network](#) 

Total cost

€ 527 318,64



THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

 United Kingdom

Net EU contribution

€ 546 575,76

Address

WELLINGTON SQUARE UNIVERSITY OFFICES

OX1 2JD Oxford 

Region

South East (England) > Berkshire, Buckinghamshire and Oxfordshire > Oxfordshire

Activity type

Higher or Secondary Education Establishments

Links

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

Total cost
€ 546 575,76



UNIVERSITA DEGLI STUDI DI ROMA TOR VERGATA

Italy
Net EU contribution
€ 516 122,64

Address
VIA CRACOVIA 50
00133 Roma

Region
Centro (IT) > Lazio > Roma

Activity type
Higher or Secondary Education Establishments

Links
[Contact the organisation](#) [Website](#)
[Participation in EU R&I programmes](#)
[HORIZON collaboration network](#)

Total cost
€ 516 122,64



ATDBIO LIMITED

United Kingdom
Net EU contribution
€ 273 287,88

Address
THE SQUARE FAWLEY
SO45 1DD Southampton Hampshire

SME
Yes

Region
South East (England) > Hampshire and Isle of Wight > Central Hampshire

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
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[HORIZON collaboration network](#)

Total cost
€ 273 287,88

Partners (5)



PARTNER
LGC Biosearch Technologies

Net EU contribution
€ 0,00

Address

Risskov

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
[Contact the organisation](#)
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[HORIZON collaboration network](#)

Total cost
No data



PARTNER
BASECLICK GMBH

Germany

Net EU contribution
€ 0,00

Address

FLORIANSTOGEN 2-4
82061 Neuried 

Region

Bayern > Oberbayern > München, Landkreis

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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Total cost

No data



PARTNER 

AUTODESK

 France

Net EU contribution

€ 0,00

Address

QUAI PANHARD ET LEVASSOR 89
75013 Paris 

Region

Ile-de-France > Ile-de-France > Paris

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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Total cost

No data



PARTNER 

MICROSOFT RESEARCH LIMITED

 United Kingdom

Net EU contribution

€ 0,00

Address

JJ THOMSON AVENUE 7
CB3 0FB Cambridge 

Region

East of England > East Anglia > Cambridgeshire CC

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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- [HORIZON collaboration network](#) 

Total cost

No data



PARTNER 

AFFIBODY AB

 Sweden

Net EU contribution

€ 0,00

Address

GUNNAR ASPLUNDS ALLE 24
171 63 Solna 

SME 

Yes

Region

Östra Sverige > Stockholm > Stockholms län

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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- [HORIZON collaboration network](#) 

Total cost

No data

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European Union, 2025

