

Single Molecule Activation and Computing

Fact Sheet

Project Information



FOCUS

Grant agreement ID: 270483

[Project website](#) 

Status
Closed project


Start date
1 January 2011

End date
31 March 2014

Funded under
FP7-ICT

Overall budget
€ 4 322 845

EU contribution
€ 3 174 259

Coordinated by
SCUOLA INTERNAZIONALE
SUPERIORE DI STUDI AVANZATI
DI TRIESTE
 Italy

Project description

Molecular Scale Devices and Systems

The present project, FOCUS, will build a novel generation of biologically inspired molecular devices (MDs) based on the developments of new photonic tools. These photonic tools will use Plasmon Polariton and two-photon technology, enabling focused light spots with a diameter around 10 nm. FOCUS will also develop new light sensitive molecules that will be selectively activated by our new photonic tools. These new technological innovations will provide a way to control activation of single light sensitive molecules and will allow the investigation of molecular computation in a biological environment and with an unprecedented resolution. On the basis of these investigations and by using the developed new tools, FOCUS will design and test new MDs for amplification and information processing. FOCUS will: i - provide new

photonic devices to control single molecules; ii – lay out the basis for understanding molecular computation in biological systems; iii - provide proofs of concept and suggestions for designing new molecular artificial computing systems; iv- build prototypes of these new MDs. FOCUS has formed a highly interdisciplinary consortium composed of nanotechnologists able to fabricate the new photonic devices - i.e. Enzo Di Fabrizio (IIT), Alpan Bek (METU) and Marco Lazzarino (CBM), chemists able to develop the photoswitches and assemble the MDs – i.e. Pau Gorostiza (IBEC) and Ljiljana Fruk (KIT) and biologists able to understand molecular mechanisms – i.e. Vincent Torre (SISSA) and Fabio Benfenati (IIT). The two companies RappOptoElectronic and NT-MDT Europe BV will transform the new tools and devices into marketable products.

Field of science

/natural sciences/computer and information sciences/data science/data processing

Programme(s)

Topic(s)

Call for proposal

FP7-ICT-2009-6

Funding Scheme

CP - Collaborative project (generic)

Coordinator



SCUOLA INTERNAZIONALE SUPERIORE DI STUDI AVANZATI DI TRIESTE

Address

Via Bonomea 265

34136 Trieste

 **Italy**

[Website](#) 

Administrative Contact

Gabriele RIZZETTO (Mr.)

Activity type

Higher or Secondary

Education Establishments

[Contact the organisation](#) 

EU contribution

€ 580 888

Participants (7)



RAPP OPTOELECTRONIC GMBH

 Germany

EU contribution

€ 197 415

Address

**Gehlenkamp 9 A
22559 Hamburg**

Activity type

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

[Contact the organisation](#) 

Administrative Contact

Gert Rapp (Dr.)



KARLSRUHER INSTITUT FUER TECHNOLOGIE

 Germany

EU contribution

€ 478 000

Address

**Kaiserstrasse 12
76131 Karlsruhe**

Activity type

**Higher or Secondary
Education Establishments**

[Website](#) 

[Contact the organisation](#) 

Administrative Contact

Christian Röthig (Dr.)



FUNDACIO INSTITUT DE BIOENGINYERIA DE CATALUNYA

 Spain

EU contribution

€ 521 600

Address

**Carrer Baldiri Reixac Planta
2A 10-12
08028 Barcelona**

Activity type

Research Organisations

[Website](#) 

[Contact the organisation](#) 

Administrative Contact

Pau Gorostiza (Dr.)



CONSORZIO PER IL CENTRO DI BIOMEDICINA MOLECOLARE SCARL



 Italy

EU contribution

€ 300 552

Address

**Strada Statale 14 Km 163 5
Basovizza
34149 Trieste**

Activity type

Research Organisations

[Website](#) 

[Contact the organisation](#) 

Administrative Contact

Nicola Dorigo Salamon (Mr.)



FONDAZIONE ISTITUTO ITALIANO DI TECNOLOGIA

 Italy

EU contribution

€ 680 088

Address

**Via Morego 30
16163 Genova**

Activity type

Research Organisations

[Website](#) 

[Contact the organisation](#) 

Administrative Contact

Claudia Schiaffino (Ms.)



NT-MDT Europe BV

 Netherlands

EU contribution

€ 246 036

Address

**High Tech Campus 83
5656AG Eindhoven**

Activity type

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

[Website](#) 

[Contact the organisation](#) 

Administrative Contact

Sergey Lemeshko (Dr.)



MIDDLE EAST TECHNICAL UNIVERSITY

 Turkey

EU contribution

€ 169 680

Address

**Dumlupinar Bulvari 1
06800 Ankara**

[Website](#) 

Administrative Contact

ALPAN BEK (Dr.)

Activity type

**Higher or Secondary
Education Establishments**

[Contact the organisation](#) 

Last update: 1 August 2019

Record number: 97574

Permalink: <https://cordis.europa.eu/project/id/270483/>

© European Union, 2020