



# Disc-shaped Point-of-Care platform for infectious disease diagnosis (DiscoGnosis)

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## Research Areas



Tool Development



Product Development  
Device

## At a Glance

- Status: **Active Consortium**
- Year Launched: **2012**
- Initiating Organization: **University of Freiburg**
- Initiator Type: **Academia**
- **Rare** disease
- Location: **Europe**

## Abstract

The Seventh Framework Programme (FP7) research project Disc-shaped Point-of-Care platform for infectious disease diagnosis (DiscoGnosis) was launched in November 2012 in the University of Freiburg Department of Microsystems Engineering (IMTEK). Its core objective is to develop a platform that would allow the detection of malaria and similar pathogenic diseases in a rapid, multiplexed, and noninvasive way.

## Mission

The DiscoGnosis platform will operate similarly to a compact disc (CD) player: a disc-shaped plastic disposable chip will handle the injected blood sample, distributing it among integrated microfluidic chambers and units using centrifugal forces. All necessary (bio)chemical components will be pre-stored on the disc, together with micro/nanocomponents for fully automated analysis in a precise, rapid, sensitive, and multiplexed way with minimum external intervention. The involved technologies will enable diagnosis to be conducted closely to the patient and provide large populations with a



modern diagnostic point-of-care (PoC) tool in regions with low medical infrastructure. The platform will further enhance the “shield” of Europe against potential spread of the examined diseases due to climate change and globalization.

The three-year DiscoGnosis project received €3 million total funding from the European Commission (EC). It is coordinated by IMTEK in close collaboration with partners Rohrer AG, University Hospital Basel, and European Foundation for Clinical Nanomedicine (CLINAM) from Switzerland; University Medical Center Göttingen from Germany; Magnamedics Diagnostics BV from the Netherlands; and MAST Group Ltd. from the United Kingdom. Multidisciplinary teams of biologists, chemists, engineers, and clinicians will cooperate for the realization of this ambitious project of high socioeconomic impact.

## Consortium History

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Nov. 1, 2012: Start date

Oct. 31, 2015: End date

Nov. 12-13, 2012: The DiscoGnosis Kick-off Meeting took place in Freiburg, Germany, organized by IMTEK, University of Freiburg. The participating groups presented their expertise as well as their role and contribution to the project. A tour at the IMTEK facilities took place at the end of the meeting.

April 15-16, 2013: The second DiscoGnosis Project Meeting took place in Göttingen, Germany, organized by the University Medical Center Göttingen. The first project results, emerging challenges, and concepts for development were discussed.

June 23-26, 2013: CLINAM and the European Technology Platform on Nanomedicine (ETPN) organized the European Summit for Clinical Nanomedicine — an annual gathering on clinical nanomedicine and targeted medicine that has become an international landmark. The 2013 focus topic was: “Nanomedicine and Targeted Medicine — the paradigm of precise, highly effective and safe medicine with subtle influence for the benefit of patients and mankind.”

July 9-12, 2013: The 10th International Conference on Nanosciences and Nanotechnologies is an annual event to explore opportunities in the emerging fields of nanotechnologies and organic electronics, which brings together more than 700 presentations from 53 countries, 40 presented running research and development EC projects, and business-to-business Match-making Meetings.



The DiscoGnosis project participated in the conference with an invited oral presentation in a special European Union (EU)-funded projects session. The conference was an excellent opportunity for networking and disseminating the platform to a multidisciplinary audience.

Sept. 24-26, 2013: The seventh Annual Concertation and Consultation Workshop on Micro-Nano-Bio Convergence Systems was organized by Tyndall National Institute on behalf of the EC. The 2013 focus, apart from the technical presentations of EC-funded projects, was on innovation and technology implementation for improving European competitiveness and citizens' life. Among more than 20 project presentations, DiscoGnosis received the Innovation Award for its Innovation Process and Exploitation Strategies.

Oct. 27, 2013: DiscoGnosis presented a workshop, organized by IMTEK, University of Freiburg, on "Point-of-Care platforms for clinical diagnostics" to present a number of PoC solutions currently aimed at the development/commercialization level and to familiarize the research community with recent advances in the PoC field from three perspectives: (a) publicly funded projects, (b) industry initiatives, and (c) end-user needs and feedback.

Oct. 28-31, 2013: The 17th International Conference on Miniaturized Systems for Chemistry and Life Sciences, organized by IMTEK, University of Freiburg, continued a series of conferences that were the premier forum for reporting research results in microfluidics, microfabrication, nanotechnology, integration, materials and surfaces, analysis and synthesis, and detection technologies for life science and chemistry. The conference offered plenary talks as well as contributed oral presentations and posters selected from submitted abstracts.

Nov. 19-20, 2013: The third DiscoGnosis Project Meeting took place in Basel, Switzerland, organized by the CLINAM. The partners presented on the project's technical progress and prepared for the forthcoming first-year review.

Nov. 22-24, 2013: The second World Health Organization Global Forum on Medical Devices provided the global public health community with opportunities for information exchange and collaboration to increase access to high-quality, safe, and appropriate priority medical devices. The conference allowed end users and stakeholders from academia, international organizations, industry, and nongovernmental organizations to share their experiences and challenges in providing access to medical devices.

Jan. 20, 2014: The first-year Project Review Meeting took place at the EC in Brussels, where the



project officer and two external independent reviewers evaluated the progress. The project was advised to develop more detailed and quantitative specifications and to be aware of the risks during the integration procedure.

April 1-2, 2014: The Fourth DiscoGnosis Project Meeting took place in Liverpool, UK, organized by Mast Group Ltd. During the meeting, the partners presented on the project's technical progress and made strategic decisions on some critical topics.

June 23-25, 2014: CLINAM and ETPN organized the European Summit for Clinical Nanomedicine—an annual gathering on clinical nanomedicine and targeted medicine that has become an international landmark. The 2014 focus topic was “Paving the Way to Personalized Diagnostics and Therapy.” An entire session was organized as a workshop and was dedicated to neglected diseases, a topic very close to DiscoGnosis' area of focus.

July 9-12, 2014: The DiscoGnosis project participated in the 10th International Conference on Nanosciences and Nanotechnologies with an invited oral presentation in a special EU-funded projects session. The conference, organized on an annual basis, was an excellent opportunity for networking and disseminating the platform to a multidisciplinary audience.

Sept. 18-19, 2014: The fifth DiscoGnosis Project Meeting took place in Rheinfelden, Switzerland, organized by Rohrer AG. During the meeting, the partners presented on the project's technical progress and prepared for a technical demonstration to the EC.

Oct. 21-22, 2014: The eighth Annual Concertation and Consultation Workshop on Micro-Nano-Bio Convergence Systems was organized by LAAS-CNRS in Toulouse, France, on behalf of the EC. The focus, apart from the technical presentations of EC-funded projects, was on end users' needs and innovation. The DiscoGnosis presentation was given by Mast Group Ltd.

## Structure & Governance

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The DiscoGnosis consortium considers the requirements for a PoC diagnostic platform as well as the requirements set by the special, inherent conditions in the areas/countries of need, and has organized the project workload into nine Work Packages (WPs):



1. Project management
2. System specifications and quality control
3. Multiplexed detection
4. DNA assay development
5. Protein assay development
6. Microfluidic platform, components, and system integration
7. Disposable production technology
8. Clinical Validation and data management
9. Dissemination and Exploitation

## Financing

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The total budget is €3.8 million. The EC contribution is €2.9 million. The project is supported by the EC through the Seventh Framework Programme on Research and Technological Development within the Objective FP7 ICT-2011.3.2 and under grant agreement no. 318408.

## Links/Social Media Feed

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Homepage <http://www.discognosis.eu/>

## Points of Contact

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European Foundation for Clinical Nanomedicine

(CLINAM)

Magnamedics Diagnostics BV (MMD)

Mast Group Ltd. (MAST)

Rohrer AG

University Hospital Basel (UHBS)



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Updated: **04/14/2016**