

# DOCTORAL CANDIDATE JOB POSTING



## Recruiting organisation:

Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. for its Fraunhofer-Institut für Biomedizinische Technik IBMT

**Subproject title:** CombiDiag

**Starting date:** 01.06.2023 or 01.09.2023

## Salary:

The Doctoral Network “CombiDiag” is financed by the European Union under the framework of the program HORIZON Europe, Marie Skłodowska-Curie Actions. The candidate will be hired for 36 months under contract by Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. (in its Fraunhofer-Institut für Biomedizinische Technik IBMT, Sulzbach), with a monthly gross salary of approx. 4,500 € (including mobility allowance, but excluding other allowances that depend on eligibility, e.g. family allowance, special needs allowance).

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## Background information

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Marie Skłodowska-Curie Doctoral Networks are joint research and training projects funded by the European Union. Funding is provided for doctoral candidates from both inside and outside Europe to carry out individual project work in a European country other than their own. The training network “CombiDiag” is made up of 17 partners, coordinated by Prof. Stefan Teipel from Universitätsmedizin Rostock (Germany). The network will recruit a total of 10 doctoral candidates for project work lasting for 36 months.

CombiDiag is a Doctoral Network (MSCA-DN) funded under the Horizon Europe Marie Skłodowska-Curie Actions to train ten Doctoral Candidates (DC) for the field of multimodal peripheral markers and their combinatorial use for diagnosis

of early-stage Alzheimer’s disease (AD). It brings together leading academic and industrial experts from six countries in Europe and uses their synergies to build a triple-i (interdisciplinary, inter-sectoral and international) research & training platform with the required multidisciplinary expertise and cutting-edge technologies. CombiDiag fellows will be trained under the Vitae Researcher Development Framework innovatively combined with the CombiDiag research platform for gaining interdisciplinary scientific and transferable skills as well as personal quality, creative thinking, and business mind-set. The MSCA-DN has a highly innovative research programme for the discovery of AD peripheral markers, including body fluids, digital biomarkers, and brain activity, preclinical and clinical validation, development of novel biosensing techniques and point of care tools for clinical research and care delivery and technological exploitation of the diagnostics. The advances of the CombiDiag project will strongly support improved care provision and development of disease-modifying treatments and preventive strategies for dementia patients, and most importantly produce a new generation of fellows who will take leading roles in future developments in this and related areas.

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## Job description

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The advertised subproject is fully funded by the Marie Skłodowska-Curie European Training Network „CombiDiag”. It will be carried out by one doctoral candidate at the Fraunhofer-Institut für Biomedizinische Technik IBMT in Sulzbach (Germany) with PhD supervision at Saarland University, Saarbrücken (Germany) over a period of 36 months.

The primary objective of the Early Stage Researcher (ESR) project is to develop multiplexed biosensors comprising graphene electrodes, to realize them by using printing technology and to optimize and characterize Lab-on-chip (LoC) devices for the detection of a panel of AD biomarkers from blood and other body fluids.

Relevant issues will include

- 1) Development of graphene inks based on existing functionalized graphene nano-platelets,
- 2) Development of pre-treatment, printing and post-treatment processes to fabricate highly sensitive biosensors for the reliable and reproducible detection of biomarkers,
- 3) Characterization of electrochemical sensors, e.g. in terms of reduction-oxidation peak current density, reduction-oxidation peak separation and surface charge transfer resistance,
- 4) Development of methods for integrating microfluidic structures with the biosensor to define an exact sample volume and to provide a feed channel for the samples.

During the ESR project, a total time of 10 months is planned for secondments to other partners. These secondments will focus on

- 1) Experience with assay development (University of Plymouth, United Kingdom),
- 2) Detection of body fluid biomarkers (University of Plymouth, United Kingdom),
- 3) Blood biomarkers (Nordic Bioscience A/S, Denmark)
- 4) Urine biomarkers (Instituto de salud Carlos III, Spain).

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## Benefits

The recruited researcher will have the opportunity to work as part of an international, interdisciplinary team of 10 doctoral candidates, based at universities and industrial firms throughout Europe. She / he will be supported by mentors within the CombiDiag project and will have multiple opportunities to participate in professional and personal development training.

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## Requirements

### Qualifications / experience

- In accordance with the European Union's funding rules for doctoral networks, applicants must NOT yet have a PhD,
- Master degree or equivalent in physics, microtechnology, mechanical engineering, printing technology, biomedical engineering,
- Candidates must be in the first 4 years (full-time equivalent) of their research career and have not been awarded a doctoral degree. Research experience is calculated from the date they obtained a qualification (Masters or

equivalent) allowing them to embark on a doctorate.

### Mobility

The applicant must not have resided or carried out her/his main activity (work, studies etc.) in Germany for more than 12 months in the past 3 years.

### Languages

- English: fluent in speaking, reading and writing, for applicants whose native language is not English, a minimum of IELTS 6.5 is required,
- German: basis knowledge in speaking, reading and writing, for applicants whose native language is not German, a minimum of A2 equivalent is desired.

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### How to apply

Please send your CV by e-mail (preferred) or by post, quoting the reference "CombiDiag":

Dr. Sylvia Wagner  
Department of Bioprocessing & Bioanalytics  
Fraunhofer-Institut für Biomedizinische Technik  
IBMT  
Joseph-von-Fraunhofer-Weg 1  
66280 Sulzbach, Germany  
Tel.: 0049 (0)6897 9071-274  
E-mail: [sylvia.wagner@ibmt.fraunhofer.de](mailto:sylvia.wagner@ibmt.fraunhofer.de)

**Application deadline:** 15.04.2023

CombiDiag fellows are required to apply to and be admitted by their host institutions or academic partners for their PhD degrees. Fellows are exempt from tuition fees for their PhD studies.

Links for information relating to the PhD programmes and the admission procedure:

<https://www.uni-saarland.de/en/administration/phd/fac-hw-m-nt-p-r.html>

<https://www.uni-saarland.de/en/faculty/nt/research/doctoral-procedure.html>