



# MOSAICS

*Hearing Matters*

## MOSAICS

European Industrial Doctorate (EID) to train experts in auditory implants for minimised outcome spread and maximized participation in society

### Background

Hearing loss is one of the most challenging health and social issues in Europe. It undermines the ability to communicate fluently - with profound social, emotional and economic consequences. According to the World Health Organization (WHO), around 6.1% of the world's population suffers from disabling hearing loss. Approximately one-third of people over 65 years of age are currently affected and the disability is expected to rank 7th on the list of global health issues by 2030.

For 10% of the affected people, hearing aids cannot provide useful hearing. In this case, cochlear implants (CIs) are used with significant improvements in speech understanding, hearing performance, and quality of life. However, large individual differences and unexplained variability are observed with regard to CI outcomes after the implantation. The reasons for these differences are generally unclear. Consequently, this fundamental gap of knowledge prevents the prediction of CI performance, the identification of reasons why the full potential of CIs are not fulfilled after implantation, as well as the development of personalised rehabilitation programs which target specific weaknesses.

### Objectives

MOSAICS is a European Industrial Doctorate programme that brings together the largest global manufacturer of hearing implants and Europe's leading academic groups in hearing-related research. The unique collaboration will provide the synergistic research and clinical industry expertise necessary to train four Early Stage Researchers (ESRs) to make a difference in the field of adult cochlear implantation. The primary objective is to understand, identify, and intervene on the variability in outcomes among adult CI users by adopting a novel multidisciplinary approach of the WHO. The specific objectives of MOSAICS are:

- The investigation of "body functions" by evaluating the neuronal activity following sound and speech stimuli with objective measures
- The exploration of "environmental factors" by obtaining insight into the fitting issues related to outcome spread
- To address cognition effects on process-related outcome measures
- To study societal benefits related to CI-specific rehabilitation programs and recipients' social support.

#### Funding Programme:

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 860718.



#### Project Duration:

01/10/2019-30/09/2023

#### Project Budget:

1.05 million euro

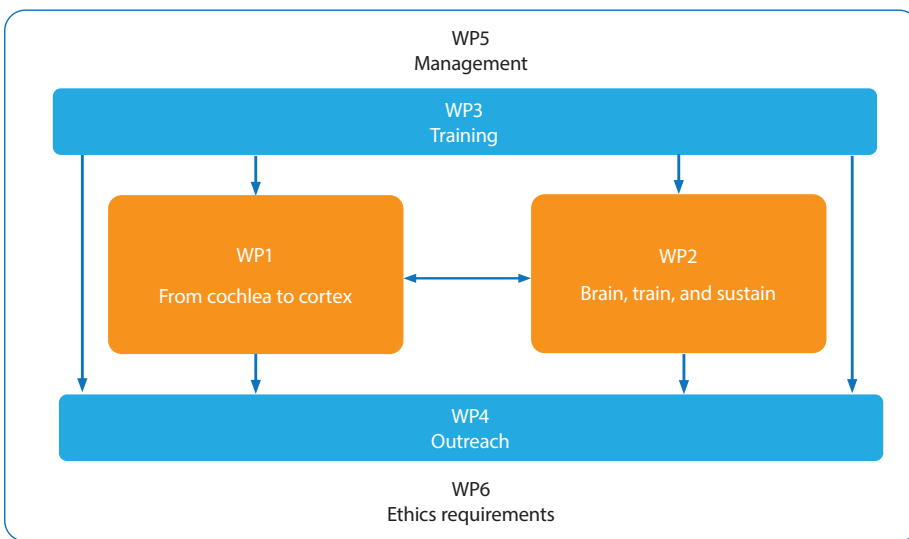
#### Project Website:

[www.mosaics-eid.eu](http://www.mosaics-eid.eu)



## Activities

The MOSAICS project is based on two scientific work packages (WPs) with supporting WPs on Industry and Academic Training, Dissemination and Exploitation as well as Management and Organisation.



Additionally, the consortium has set up 4 individual research projects based on the core objectives, covering the fields of biophysics, neuroscience, engineering, and psychology. Each of the 4 Early Stage Researchers (ESRs) will focus on one of these areas while gaining insight into the other areas as part of the network-wide scientific training workshops.

## Impact

MOSAICS supports the development and the improvement of innovative medical technology. The latest hearing technologies have been shown to ameliorate the impact of hearing loss and to be cost effective. Furthermore, the use of hearing aids and cochlear implants has proven to increase employability and earning power.

The resulting demand has been leading to a shortage of qualified medical staff in the hearing field. However, a workforce trained across multiple disciplines, with experience covering academic research, the clinical environment, and the healthcare industry is a mandatory asset to accelerate the delivery of innovative solutions to the hearing implant market. MOSAICS fosters such innovation by training early stage researchers to create the next generation of hearing experts for a growing industry.

### Project Coordinator:

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### Project Participants:

- Cochlear Benelux NV, BE
- Stichting Katholieke Universiteit, NL
- accelopment Schweiz AG, CH
- Artinis Medical Systems BV, NL
- European Association of Cochlear Implant Users a.s.b.l, LU
- Ida institute, DK
- Maastricht University, NL
- Hannover Medical School, DE
- Trinity College Dublin, IE
- Amsterdam UMC, NL