

During the “Rome Training Meeting” of the European Horizon2020 Marie Skłodowska Curie project “Blood Biomarker-based Diagnostic Tools for Early Stage Alzheimer’s Disease” held at the Sapienza University of Rome (March 19th-21st, 2018), senior and early stage researchers of several Countries have discussed a new plan for the monitoring of blood biomarkers, cognitive functions, and lifestyle in patients with Alzheimer’s disease by innovative graphene-based devices and information and communication technology services.

Alzheimer’s disease is the most diffuse progressive neurodegenerative disease worldwide, belonging millions and millions of seniors to severe cognitive deficits (dementia) and death in few years. The urgent need for new largely available and cost-effective procedures for continuous monitoring of Alzheimer’s disease over time has been discussed during the “**Rome Training Meeting**” of the European Horizon2020 Marie Skłodowska Curie project “**Blood Biomarker-based Diagnostic Tools for Early Stage Alzheimer’s Disease (BBDiag, 2017-2020)**”, held at the Department of Physiology and Pharmacology “Erspamer” of Sapienza University of Rome few days ago (March 19th-21st, 2018). In the BBDiag project, 13 early stage researchers are involved in an advanced flow of technological and scientific research for three years, aimed at developing innovative **graphene-based devices** and **information and communication technology (ICT)** services to monitor **blood biomarkers** and **real-world information** on cognitive functions and lifestyle habits (e.g. smoking, physical exercise, diet, social interactions, etc.) in seniors at risk of Alzheimer’s disease. The BBDiag Academic Units and Small Medium Enterprises comprise the EUROPEAN UNIVERSITY OF PLYMOUTH (United Kingdom), DANMARKS TEKNISKE UNIVERSITET (Denmark), NORDIC BIOSCIENCE COMPOUND DEVELOPMENT A/S (Denmark), IRCCS MARIO NEGRI INSTITUTE (Italy), PROGONOMICS LTD (United Kingdom), SWANSEA UNIVERSITY (United Kingdom), CENTRO DE INVESTIGACION BIOMEDICA EN RED ENFERMEDADES NEURODEGENERATIVAS (Spain), UNIVERSITY OF ROSTOCK (Germany), ADVANCED MEDICAL PROJECTS SOCIEDAD LIMITADA (Spain), and SAPIENZA UNIVERSITY OF ROME (Italy).

The local organizer, **Prof. Claudio Babiloni** (Department of Physiology and Pharmacology “Erspamer”, Sapienza University of Rome), opened the Meeting introducing the concept of “**Italian Baroque**” as a useful metaphor in the battle against Alzheimer’s disease. In the **Council of Trent (1545–63)**, **Pope Paul III** set up a commission of cardinals to regain people to Roman Catholic Church in response to the Protestant Reformation (earlier 16th Century). This commission practically produced guidelines of Baroque style aimed at making catholic religious buildings very attractive and pleasant to devotees to renovate the faith in the Roman Catholic Church. In consonance with **Italian Baroque**, the BBDiag new ICT services may use the periodic monitoring of blood biomarkers, cognitive functions, and lifestyle in Alzheimer’s disease patients not only to enrich clinical decision making but also to provide a continuous virtual encouraging feedback promoting healthy lifestyle and interest in the social world outside the home. Afterwards, **Prof. Carlo Della Rocca** (Dean of the local Faculty of Pharmacy and Medicine) presented educational, technological, scientific, and human resources that the Sapienza University of Rome and his Faculty offer for the research on personalized Medicine.

External Lecturers of the Meeting dealt with important challenges in the battle against Alzheimer’s disease. Prof. Ferdinando Nicoletti (Sapienza University of Rome) depicted a new provocative scenario where the pathophysiological diagnostic biomarker of Alzheimer’s disease (i.e. amyloid beta 1-42 protein) and its underlying biological substrate may represent a physiological resource

rather than an enemy in the drug discovery pathway. Dr. Fulvio Galeazzi and Dr. Valeria Ardizzone (GARR, Italy) described the significant resource of innovative biomedical services of the GARR platform “DECIDE” for the biomarker-based diagnosis of Alzheimer’s disease. Finally, Prof. Laura Bonanni (University of Chieti, Italy) emphasized the issue of specificity in the discovery of new biomarkers of Alzheimer’s disease, especially at the border with other progressive neurodegenerative disorders such as Parkinson’s and Lewy Body diseases.

During the Meeting, all early stage researchers and their mentors (see the Meeting Agenda in the following) presented main objectives, milestones, and deliverables of investigations planned in the BBDiag project. The discussion was very fruitful paving the plan of *secondments* of the early stage researchers and shared protocols, databases, analysis tools, and other resources (including those for exploitation of the discoveries in the reference market) for successful research along the project. In this context, these researchers will be involved in the development of graphene-based devices for the measurement of new blood biomarkers in mouse models of Alzheimer’s disease and selected seniors with preclinical (before cognitive deficits) or prodromal (mild cognitive deficits) stages of that disease.

The Coordinator of BBDiag project, **Prof. Genhua Pan** (University of Plymouth), chaired the general discussion of the project towards its ambitious objectives.

The Meeting was video recorded and enriched by short interviews to all early stage researchers, mentors, and external lecturers for the dissemination of the core messages through social media in the coming weeks. During the pauses of the Meeting (e.g. coffee breaks), pictures and music of Italian Baroque livened up the environment. Furthermore, a lecture entitled “*Italian Baroque in Music*” was held by M^o Stefano Rotondi (flute) and Mrs. Rebecca Rotondi (cello) before the social dinner of March 20th.



Mentors (first row) as well as early stage and invited researchers (second and third row) participating to the “Rome Training Meeting” of the European Horizon2020 Marie Skłodowska Curie project “*Blood Biomarker-based Diagnostic Tools for Early Stage Alzheimer’s Disease (BBDiag)*”, held at the Department of Physiology and Pharmacology “Erspamer” of the Sapienza University of Rome (March 19th-21st, 2018).

First row from the left. Prof. Paul Davey (University of Plymouth, United Kingdom), Dr. Diego Albani (IRCCS Institute Mario Negri of Milan, Italy), Prof. Claudio Babiloni (local organizer; Sapienza University of Rome, Italy), Prof. Anja Bräuer (University of Rostock, Germany), Dr. Kim Henriksen (Nordic Bioscience, Denmark), Prof. Genhua Pan (Coordinator; University of Plymouth, United Kingdom), Prof. Emmanuel Ifeakor (University of Plymouth, United Kingdom), Prof. Stefan Teipel (University of Rostock, Germany), Prof. Martin Dufva (Danmark Technical University, Denmark), and Prof. Shaofeng Liu (University of Plymouth, United Kingdom).

Second row from the left. Mrs. Jagriti Sethi (Early stage researcher, ESR; University of Plymouth, United Kingdom), Mr. Aronne Bolelli (ESR; Advanced Medical Projects Sociedad Limitada, Spain), Mrs. Silvina Samy (ESR; Prognomics, United Kingdom), Mrs. Ourania Tzara (ESR; Nordic Bioscience, Denmark), Dr. Rocio Diaz (Centro de Investigacion Biomedica En Red Enfermedades Neurodegenerativas, Spain), Mrs. Jie Zheng (ESR; University of Plymouth, United Kingdom), Mrs.

Jessica Janson (ESR; Sapienza University of Rome, Italy), and Mrs. Maria Teresa Pascarelli (PhD fellow, Sapienza University of Rome, Italy).

Third row from the left (standing position). Mrs. Hina Abbasi (ESR; University of Swansea, United Kingdom), Mrs. Arianna Toppi (ESR; Danmark Technical University, Denmark), Mrs. Soraya Moradi (ESR; IRCCS Institute Mario Negri of Milan, Italy), Mr. Michiel Van Bulck (ESR; Centro de Investigacion Biomedica En Red Enfermedades Neurodegenerativas, Spain), Mrs. Fatemah Sakr (ESR; Sapienza University of Rome, Italy), Dr. Roberta Lizio (senior researcher; Sapienza University of Rome, Italy), Dr. Giuseppe Noce (post-doc researcher; Sapienza University of Rome, Italy), Mrs. Marina Selivanova (ESR; Sapienza University of Rome, Italy), Dr. Ivano Antonio Triggiani (senior researcher; Sapienza University of Rome, Italy), and Dr. Claudio Del Percio (senior researcher; Sapienza University of Rome, Italy).

Reference information on the project:

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http://cordis.europa.eu/project/rcn/205430_en.html

<http://bbdiag-itn-etn.eu>