

PERSONAL INFORMATION Professional CV (short) of Prof. Claudio Babiloni



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Sex M | Date of birth March 22nd, 1962 Nationality Italian

OVERVIEW

EDUCATION

Ph.D. in Biomedical Sciences (Aalborg University, Denmark) and master’s degree in Clinical Psychology (Sapienza University of Rome, Italy)

PRESENT JOB POSITION

Associate Professor of Physiology (Sapienza University of Rome, Italy)

TOTAL ITALIAN ACADEMIC LECTURING CREDITS IN 2013-2019 (CFU)

79

GRANTS RECEIVED AS PRINCIPAL INVESTIGATOR OF RESEARCH UNIT BY NATIONAL AND INTERNATIONAL SPONSORS FOR RESEARCH

- 20 projects granted by Italian Sponsors for research for a total financing of 1,078,400 (one million-078,400) Euro
 - 6 projects granted by International Sponsors for research for a total financing of 1,411,448 (one million-411,449)Euro
- Total financing: 2,434,848 (two million-489,848) Euro

TOTAL SCOPUS-PUBMED PAPERS 1994-2019

278 full papers published in international journals registered in PubMed
 Total Impact Factor (Web of Science): **1,102** (one thousand-102)
 Mean Impact Factor (Web of Science): **3.97** (three-97)
 Total Citation Index (Scopus): **10,875** (ten thousand-875)
 Mean Citations for paper: **39.1**
 H index (Scopus, October 24th, 2019): **60**

Total papers last 10 years (2009-2018) **129**
 Total Impact factor (from Web of Science) last 10 years (2009-2018) **528.70**
 Mean Impact factor (from Web of Science) last 10 years (2009-2018) **4.10**
 Total citations (from Scopus) last 10 years (2009-2018) **3,198**
 Mean citations (from Scopus) last 10 years (2009-2018) **24.79**

INVITED TALK AND
CHAIRMANSHIP AT ITALIAN
AND INTERNATIONAL
SCIENTIFIC CONGRESSES

86
113

OFFICIAL MEMBER OF
EDITORIAL BOARDS OF
INTERNATIONAL
NEUROSCIENCE JOURNALS

NeuroImage (2013-2016), Clinical Neurophysiology (2011-2017), Journal of Alzheimer’s Disease (2012 to date), and Current Alzheimer Research (2016 to date)

MAIN INTERNATIONAL
HONORS

- 2 International Awards for Science
- Position of Communications Chair (2017-2019), elected Chair (2019-2021), and past Chair (2021-2023) in Electrophysiology Professional Interest Area (E-PIA) of the “Alzheimer’s Association International Society to Advance Alzheimer’s Research and Treatment (ISTAART) of International Alzheimer Association <https://www.alz.org> <https://action.alz.org/personifyebusiness/default.aspx?tabid=1516>
- Leader of International Federation Clinical Neurophysiology (IFCN) Workgroup for writing Guidelines on EEG analysis in Clinical Neurophysiology (2016)

ORGANIZATION OF
INTERNATIONAL
MEETINGS/CONFERENCES AND
THIRD MISSION (MAIN)

- Electrophysiology Professional Interest Area (E-PIA) Day Scientific Session (London, 2017; Chicago, 2018, Los Angeles, 2019)
- Workshop on IFCN Guidelines on EEG analysis in Clinical Neurophysiology (Chengdu, China, 2018)
- 3-Day “Rome Training Meeting” of H2020 Marie S. Curie ITN-ETN project “BBDiag” (Rome, 2018; <http://bbdiag-itn-etn.eu/>)
- 1-Day Summer School on “Amyloid and Alzheimer Disease: EEG windows of brain hyper-excitability in patients?” of H2020 Twinning project “Synanet” (Rome, 2018; <https://www.synanet2020.com/>)
- Advisory Board of 17th European Congress of Clinical Neurophysiology (ECCN, Warsaw, Poland, 2019)

SAPIENZA UNIVERSITY OF
ROME: THE HOME

Course in Psychology (1982-1986), Permanent Staff as Technician for Research (1988-2007), and Permanent Staff as Associate Professor in Physiology (2012 to date)
In total, 30 years spent in Sapienza University of Rome

SCIENTIFIC INTERESTS AND MAIN RESEARCH LINES

<i>Keywords</i>	<i>Brief description</i>
Neurophysiology of cerebral cortex underpinning vigilance, sensorimotor, and cognitive functions in humans	Our EEG studies globally aimed at understanding neurophysiological mechanisms of cortical neural synchronization of cerebral cortex activity underpinning vigilance, sensorimotor, and cognitive functions in humans. Most of them focused on the spatial and frequency features of oscillatory activity of large cortical neural populations during those physiological conditions in both healthy subjects and patients with motor and cognitive deficits. That oscillatory activity opens and closes thalamocortical and cortico-thalamic neural gates with excitatory or inhibitory effects in the related information processing. The study of that EEG activity in patients with Alzheimer’s disease, Parkinson disease, Dementia with Lewy Body, Multiple

	<p>sclerosis and HIV has been primarily carried out with neurophysiological intents. That study aimed at understanding (1) the role of ascending cholinergic and dopaminergic systems, and the structural integrity of the brain, on those neurophysiological mechanisms and, then, the related higher functions. In other words, our studies of Clinical Neurophysiology represented an opportunity to investigate the functions of those brain functional connection systems in humans with non-invasive techniques by the “mirror” images observed in patients with brain disorders.</p>
Cortical EEG rhythms and Alzheimer’s disease	<p>Our EEG studies in Alzheimers’ disease (AD) have been focused on resting state EEG rhythms as markers of cortical arousal in quiet vigilance in normal elderly (Nold), amnesic mild cognitive impairment (ADMCI), and dementia (ADD) subjects. Results showed that cortical sources of delta (<4 Hz) and low-frequency alpha (8-10.5 Hz) rhythms were abnormal in ADD and ADMCI patients compared to Nold subjects. Furthermore, the activity of these sources showed higher abnormality over time in both ADD and ADMCI patients. Moreover, this activity was related to the following markers used for the assessment of ADMCI and ADD patients: global cognitive status as revealed by the mini-mental state evaluation score, immediate memory, genetic factor risks, and structural magnetic resonance imaging of the hippocampus and cerebral cortex. Finally, the activity of these sources showed different abnormalities in ADD patients compared with those with Parkinson’s disease and disease with Lewy bodies (DLB). These results led support to a model about the different effects of cholinergic and dopaminergic ascending systems on thalamus-cortical neural synchronization mechanisms underpinning quiet vigilance, explaining in part cognitive deficits in those patients.</p>
Clinical neurophysiology	<p>As a secondary byproduct, our EEG studies in patients with Alzheimer’s disease, Parkinson disease, Dementia with Lewy Body, Multiple sclerosis and HIV have been contributing to the development and validation of EEG markers for diagnostic, prognostic or monitoring purposes in patients with the mentioned pathological conditions. The impact of those studies has generated the condition allowing my election as “Chair” of the Electrophysiology Professional Interest Area (E-PIA) of the international Alzheimer’s Association (ISTAART) https://action.alz.org/personifyebusiness/Membership/ISTAART/PIA/Electrophysiology.aspx</p>
Brain activity and cognition in subjects with body weight disorders	<p>Our EEG studies have been focused on brain activity related to cognitive functions in people with weight disorders to test the hypothesis of brain neural inefficiency in the processing of food and body image stimuli in obese and underweight subjects. Results showed some abnormal EEG activity of obese and underweight subjects during attention task using food or body image visual stimuli, thus suggesting that body weight homeostasis may depend on attention to food and body image information contents.</p>
Neurophysiology of pain and sensorimotor interactions	<p>Our EEG studies on nociception have been focused on anticipatory alpha (8-12 Hz) rhythms preceding warned pain stimuli at rest and during voluntary movements of the ipsilateral or contralateral hand. Results showed a gating of anticipatory cortical activity (i.e. desynchronization of alpha rhythms) over primary sensorimotor area ipsilateral to both pain stimuli and voluntary hand movements when compared to anticipatory cortical activity related to resting condition or the event of ipsilateral pain stimulus associated with contralateral voluntary movement. In addition, the perception of the pain was reduced in the case of simultaneous pain and voluntary movements at the same side.</p>
Neuroplasticity in athletes (sport medicine)	<p>Our EEG studies in elite athletes have been focused on cortical arousal during resting state and cognitive-motor tasks to test the hypothesis of neural brain efficiency in experts, as revealed by ample resting state alpha (8-12 Hz) rhythms and selected event-related cortical activity. Results showed that in elite athletes (i.e. karate, fencing, golf, shooters), cortical neural synchronization mechanisms at alpha frequency indice a brain efficiency in controlling the general arousal in several experimental conditions (i.e. voluntary movement, movement observation, focused attention) but not all (i.e. balance, complex sensorimotor and visual information processing). These results suggest that expert brain follows neurophysiological principles of neural “flexibility” of the activation rather than always that of neural efficiency.</p>

Rome __November 22nd, 2019_____ Claudio Babiloni

