

2nd BRAINSTORMING
RESEARCH ASSEMBLY FOR
YOUNG NEUROSCIENTISTS

NOVEMBER 14th-15th-16th 2019
MILAN - ITALY

Congress Venue:
«Mario Negri» Institute Auditorium
Via Mario Negri 2, Milan, Italy

www.braynconference.com

SCIENTIFIC COMMITTEE

Giovanni Ferrara University of Genoa, IRCCS San Martino Hospital, Genoa (Italy)
Stefano Angiari Trinity College, Dublin (Ireland)
Barbara Bettegazzi San Raffaele Scientific Institute, Milan (Italy)
Enrica Boda Neuroscience Institute «Cavaliere Ottolenghi», Dept. of Neuroscience, University of Turin (Italy)
Giovanna Calabrese University of Catania (Italy)
Giuseppina D'Alessandro «Sapienza» University of Rome (Italy)
Manuela Medelin University of Verona (Italy)
Alessandra Musella IRCCS San Raffaele Pisana, Rome (Italy)
Giovanni Nardo «Mario Negri» Institute, Milan (Italy)
Rosa C. Paolicelli University of Lausanne (Switzerland)
Ilaria Prada Italian National Research Council, Milan (Italy)
Matteo Tamborini Humanitas Research Hospital, Rozzano (Italy)
Elisabetta Volpe Santa Lucia Foundation Scientific Institute, Rome (Italy)

MENTORS

Mariapia Abbraccio University of Milan (Italy)
Michela Matteoli Humanitas Research Hospital, Rozzano (Italy)
Luca Ramenghi IRCCS «Giannina Gaslini» Institute, Genoa (Italy)
Giuseppe Remuzzi «Mario Negri» Institute, Milan (Italy)
Antonio Uccelli IRCCS San Martino Hospital, Genoa (Italy)

INVITED SPEAKERS

Jean-Michel Cioni San Raffaele Scientific Institute, Milan (Italy)
Chiara Gabbi Humanitas Medical Care, Milan (Italy)
Rossella Galli San Raffaele Scientific Institute, Milan (Italy)
Sonia Garel IBENS, Paris (France)
Pierre Gressens INSERM, Paris (France)
Daniel Jaque Garcia Universidad Autónoma de Madrid (UAM), Madrid (Spain)
Marco Prinz University of Freiburg (Germany)
Giacomo Rizzolatti University of Parma (Italy)

SCIENTIFIC SECRETARIAT

Jose Lifante Cañavate Universidad Autónoma de Madrid (UAM), Madrid (Spain)

Valentina Petrosino University of Genoa, IRCCS San Martino Hospital, Genoa (Italy)

Margherita Romeo «Mario Negri» Institute, Milan (Italy)

Maria Chiara Trolese «Mario Negri» Institute, Milan (Italy)

ORGANIZING SECRETARIAT

Symposia Organizzazione Congressi Srl

Piazza Campetto 2/8 - 16123 Genova, Italy

tel. (+39) 010 25 51 46 • fax (+39) 0102770565 • www.symposiacongressi.com

Contact person **Alessandra Crippa** a.crippa@symposiacongressi.com

BRAYNIACS

Stefano Amoretti University of Pisa (Italy)

Alessandra Carta University of Sassari (Italy);

Bambino Gesù Children's Hospital, Rome (Italy)

Giulia D'Arrigo SISSA, Trieste (Italy);

Neuroscience Institute - National Research Council of Italy, Milan (Italy)

Mattia Di Paolo University of l'Aquila (Italy)

Pellegrino Lippiello University of Naples (Italy)

Samuele Negro University of Padova (Italy)

Simona Paglia University of Bologna (Italy)

Elisabetta Stanzani Humanitas Research Hospital, Rozzano (Italy); Fondazione Umberto Veronesi, Milan (Italy)

Eleonora Vannini Neuroscience Institute - National Research Council of Italy, Pisa (Italy); Fondazione Umberto Veronesi, Milan (Italy)

Maria Velasco Trinity College, Dublin (Ireland)

ND36 | Innovative approach to discover new markers of Alzheimer's Disease for state/stage diagnosis by Phage Display technology

Maria Giovanna Rizzo⁽¹⁾ - Laura Maria De Plano⁽¹⁾ - Santina Carnazza⁽¹⁾ - Domenico Franco⁽¹⁾ - Sabrina Conoci⁽²⁾ - Salvatore Petralia⁽²⁾ - Alessandra Nicoletti⁽³⁾ - Mario Zappia⁽⁴⁾ - Salvatore P. P. Guglielmino⁽¹⁾

Università, Università degli Studi di Messina - Dipartimento di Scienze chimiche, biologiche, farmaceutiche ed ambientali, Messina, Italy⁽¹⁾ - *STmicroelectronics, STmicroelectronics, Catania, Italy*⁽²⁾ - *Università, Dipartimento "G.F. Ingrassia" - sezione di Neuroscienze, Catania, Italy*⁽³⁾ - *Università, Dipartimento "G.F. Ingrassia" - sezione di Neuroscienze, Catania, Italy*⁽⁴⁾

Alzheimer's disease (AD) is the most common cause of progressive debilitating neurodegenerative dementia worldwide. The discovery of new diagnostic markers able to identify the several forms of A β -42 is pivotal. Conformation-dependent antibodies (Ab), have been reported able to recognize epitopes specific for several types of amyloid fibrils, regardless of their amino acid sequences. Since, the conformational epitopes are exposed only in peculiar aggregation states of proteins, the detection of Ab correlated with the aggregation states of amyloid fibrils *in vivo* could be useful in diagnosis. At this purpose we investigate the "conformational similarities" among several A β -42 forms and other amyloid-like proteins by bioinformatics tools. Conformation similarity was discovered with Caf1 protein of *Yersinia pestis* and the innovative phage display selection by alternate biopanning cycle "double binding" procedure was carried out in four steps. In the first round, the phage library was screened against YPf19 (monoclonal Ab that recognized Caf1), then eluted phages (restricted Caf1 library), were used in the second selection round against a pool of sera from patients' AD (IgG-AD). A third round was carried out against the YPf19 again, and finally with IgG-AD. The reactivity and specificity of phage clones were evaluated in E.L.I.S.A. assay with YPf19 and IgG-AD. 12III1 phage clone, displaying RWPPHFEWHFDD peptide, was used as mimotope of A β -42 and tested against IgG sera from healthy and AD patients in E.L.I.S.A. and Phage-Immuno-PCR (PI-PCR). Significant IgGs levels, detected by 12III1, allowed to discriminate AD-patients from non-AD subjects. Moreover, IgG-AD levels were significantly correlated with the progression state of the disease. The obtained results may be of significant impact on the development of diagnostic assay for AD stage/state. This approach could be extend to discover new markers for other neurodegenerative diseases.