

CURRICULUM DIDATTICO-SCIENTIFICO DELLA PROF.SSA SILVIA BIOCCA

Silvia Biocca

Roma, 03/03/1953

Prof.ssa associata di Biochimica Clinica

Dipartimento di Medicina dei Sistemi

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Orario ricevimento: lunedì e mercoledì, ore 12-13

Settore scientifico-disciplinare: Bio12



Titoli accademici e di studio:

- 1975 Laurea in Scienze Biologiche (magna cum laude), Università La Sapienza, Roma
- 1976 Assistente Incaricato di Biochimica Applicata Università "La Sapienza" di Roma.
- 1978-79 "Research Associate" Washington University, St. Louis, Missouri, USA.
- 1980-81 Borsista CNR, Istituto di Neurobiologia, CNR, Roma.
- 1981-92 Ricercatore Confermato, Università "La Sapienza" di Roma.
- 1992-2003 Ricercatore Confermato, Università "Tor Vergata" di Roma.
- 1999-2001 Professore di Fisiologia, Facoltà di Ingegneria, Università "Tor Vergata" di Roma.
- 2004-ad oggi Professore Associato di Biochimica Clinica, Università di Roma "Tor Vergata".
- 1995-ad oggi Leader di un laboratorio di ricerca, Università di Roma "Tor Vergata".

Finanziamenti per attività di ricerca

- 1998-2000 CEE Biotechnology grant (BIO CT 972285) "Intracellular Antibodies"
- 1999-2000 CEE Biotechnology grant (BIO4-98-0203) "A mouse model for regulatable, site specific integration and expression of introduced genes."
- 2001-2003 CEE Biotech. grant (QLRT-1999-30345) "Development of novel gene expression and genome modification strategies"
- 2002-2003 MURST Project from the Istituto Superiore della Sanità
- 2004-2006 FIRB Project "Neurodegenerative diseases as a consequence of altered processing of neuronal proteins: animal and cellular models."
- 2007-2010 PRIN Ruolo del gene LOX-1 e delle sue isoforme
- 2018 Grant "Mission: Sustainability" (D. R. n. 2817 del 22/12/2016)

Brevetti e premi

- 1991 International Patent (ENEA-CNR) N° 91A000474 titled: "Plasmidic vectors for the expression of immunoglobulins in plants"
- 1997 Honoured with the "Steven Newburgh Prize" for Medicine.

Member of the FISV, Italian Association of Science of Life.

Attività di Referee per Riviste scientifiche e Fondazioni:

FEBS Letter-Analytical Biochemistry-European J of Biochemistry-Biochimica and Biophysica Acta-The American J of Pathology -The Wellcome Trust (Grant Application)-Israel Science Foundation-United States-Israel Binational Science Foundation-Science-EMBO J-Biochem. J-J. Biol. Chem.-Immunotherapy-Traffic -BMC Biology-PEDS-J. Neurochemistry-Cancer Immunology-Expert opinion-PlosOne-Therapeutic delivery-BBA-Proteins and Proteomics-Bioanalysis-Process Biochemistry-NanoLIFE-EMBO Mol Medicine-Cellular & Molecular Biology Letters-Cardiovascular Research - Journal of Functional Foods - International Journal of Molecular Sciences - Journal of Molecular Modelling - Biomedical Spectros. and Imaging.

Pubblicazioni selezionate degli ultimi 10 anni:

- 1) Raniolo S, Vindigni G, Ottaviani A, Unida V, Iacovelli F, Manetto A, Figini M, Stella L, Desideri A, **Biocca S.** (2018) Selective targeting and degradation of doxorubicin-loaded folate-functionalized DNA nanocages. *Nanomedicine*. pii: S1549-9634(18)30034-0.
- 2) Antonini A, Caioli S, Saba L, Vindigni G, **Biocca S**, Canu N, Zona C. (2018) Membrane cholesterol depletion in cortical neurons highlights altered NMDA receptor functionality in a mouse model of amyotrophic lateral sclerosis. *Biochim Biophys Acta*. 1864(2):509-519.
- 3) Vindigni G, Raniolo S, Ottaviani A, Falconi M, Franch O, Knudsen BR, Desideri A, **Biocca S.** (2016) Receptor-Mediated Entry of Pristine Octahedral DNA Nanocages in Mammalian Cells. *ACS Nano*. 10(6):5971-9.
- 4) Franch O, Iacovelli F, Falconi M, Juul S, Ottaviani A, Benvenuti C, **Biocca S**, Ho YP, Knudsen B, Desideri A (2016) DNA hairpins promote temperature controlled cargo encapsulation in a truncated octahedral nanocage structure family *Nanoscale* 8(27):13333.
- 5) Murdocca M, Mango R, Pucci S, **Biocca S**, Testa B, Capuano R, Paolesse R, Sanchez M, Orlandi A, di Natale C, Novelli G, Sangiuolo F. (2016) The lectin-like oxidized LDL receptor-1: a new potential molecular target in colorectal cancer. *Oncotarget*. 7 (12):14765.
- 6) **Biocca S**, Iacovelli F, Matarazzo S, Vindigni G, Oteri F, Desideri A, Falconi M. (2015) Molecular mechanism of statin-mediated LOX-1 inhibition. *Cell Cycle*. 14 (10):1583-95.
- 7) **Biocca S**, and Desideri A. (2015). The Potential of Nucleic Acid-Based Nanoparticles for Biomedical Application. *Nano LIFE* 05, 1541004
- 8) Gioia M, Vindigni G, Testa B, Raniolo S, Fasciglione GF, Coletta M, **Biocca S.** (2015) Membrane Cholesterol Modulates LOX-1 Shedding in Endothelial Cells. *PLoS One*. 10(10):e0141270. eCollection.
- 9) Cardinale A, Filesi I, Singh PB, **Biocca S.** (2015) Intrabody-mediated diverting of HP1 β to the cytoplasm induces co-aggregation of H3-H4 histones and lamin-B receptor. *Exp Cell Res*. 338(1):70-81.
- 10) Cardinale A, Merlo D, Giunchedi P, **Biocca S.** (2014) Therapeutic Application of Intrabodies Against Age-Related Neurodegenerative Disorders. *Curr Pharm Des*. 20(38):6028-36.
- 11) **Biocca S**, Arcangeli T, Tagliaferri E, Testa B, Vindigni G, Oteri F, Giorgi A, Iacovelli F, Novelli G, Desideri A, Falconi M. (2013) Simulative and experim. investigation on cleavage site that generates the soluble human LOX-1. *Arch Biochem Biophys*. 540 (1-2):9-18.
- 12) Cardinale A, **Biocca S.** (2013) Gene-Based Antibody Strategies for Prion Diseases. *Int J Cell Biol*. 710406. Review.
- 13) Falconi M, Ciccone S, D'Arrigo P, Viani F, Sorge R, Novelli G, Patrizi P, Desideri A, **Biocca S.** (2013) Design of a novel LOX-1 receptor antagonist mimicking the natural substrate. *BBRC*. Aug 23; 438(2):340-5.
- 14) Matarazzo S, Quitadamo MC, Mango R, Ciccone S, Novelli G, **Biocca S.** (2012) Cholesterol-lowering drugs inhibit lectin-like oxidized low-density lipoprotein-1 receptor function by membrane raft disruption. *Mol Pharmacol*. Aug;82(2):246-54.
- 15) Canu N, Filesi I, Pristerà A, Ciotti MT, **Biocca S.** (2011) Altered intracellular distribution of PrPC and impairment of proteasome activity in tau overexpressing cortical neurons. *JAD*;27(3):603-13.
- 16) **Biocca S**, Falconi M, Filesi I, Baldini F, Vecchione L, Mango R, Romeo F, Federici G, Desideri A, Novelli G. (2009) Functional analysis and molecular dynamics simulation of LOX-1 K167N polymorphism reveal alteration of receptor activity. *PLoS One*.;4(2):e4648.
- 17) Cardinale A, **Biocca S.** (2008) The potential of intracellular antibodies for therapeutic targeting of protein-misfolding diseases. *Trends Mol Med*. 14(9):373-80.

ACADEMIC AND SCIENTIFIC CURRICULUM OF PROF. SILVIA BIOCCA

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Education, employment and research experience

- 1975 Degree in Biology with honours, University of Roma "La Sapienza".
- 1976 Assistant Professor in Applied Biochemistry, University of Roma.
- 1978-79 Research Associate, Washington University, St. Louis, Mo, USA.
- 1980-87 Research Associate at the Institute of Neurobiology, CNR, Roma
- 1981-92 Staff Scientist, University "La Sapienza", Dpt. Biochemistry.
- 1992-2003 Staff Scientist, University of "Tor Vergata"
- 1999-01 Professor of Physiology, University of Roma, Dpt. Medical Engineering.
- 2004-now Associate Professor of Clinical Biochemistry, University of Roma, School of Medicine.
- 1995-now Group leader of a research laboratory at the University of Roma "Tor Vergata".

Grants

- 1998-2000 CEE Biotechnology grant (BIO CT 972285) "Intracellular Antibodies"
- 1999-2000 CEE Biotechnology grant (BIO4-98-0203) "A mouse model for regulatable, site specific integration and expression of introduced genes."
- 2001-2004 CEE Biotech. grant (QLRT-1999-30345) "Development of novel gene expression and genome modification strategies"
- 2002-2003 MURST Project from the Istituto Superiore della Sanità
- 2004-2006 FIRB Project
- 2010 PRIN Project on "LOX-1 role in atherosclerosis and myocardial infarction.
- 2018 Grant "Mission: Sustainability" (D. R. n. 2817 del 22/12/2016)

Patents and honours:

- 1992 International Patent (ENEA-CNR) N° 91A000474 titled: "Plasmidic vectors for the expression of immunoglobulins in plants"
- 1997 Honoured with the "Steven Newburgh Prize" for Medicine.

Reviewer of scientific Journals and Foundations:

FEBS Letter - Analytical Biochemistry - European Journal of Biochemistry - Biochimica and Biophysica Acta - The American Journal of Pathology - The Wellcome Trust (Grant Application) - Israel Science Foundation - United States-Israel Binational Science Foundation - Science - EMBO J - Biochem. J - J. Biol. Chem. - Immunotherapy - Traffic - BMC Biology - PEDS - J. Neurochemistry - Cancer Immunology - Expert opinion - PlosOne - Therapeutic delivery - BBA-Proteins and Proteomics - Bioanalysis - Process Biochemistry- NanoLIFE- EMBO Mol Medicine - Cellular &

Selected peer-reviewed publications of the last 10 years:

- 1) Raniolo S, Vindigni G, Ottaviani A, Unida V, Iacovelli F, Manetto A, Figini M, Stella L, Desideri A, **Biocca S.** (2018) Selective targeting and degradation of doxorubicin-loaded folate-functionalized DNA nanocages. *Nanomedicine*. pii: S1549-9634(18)30034-0.
- 2) Antonini A, Caioli S, Saba L, Vindigni G, **Biocca S**, Canu N, Zona C. (2018) Membrane cholesterol depletion in cortical neurons highlights altered NMDA receptor functionality in a mouse model of amyotrophic lateral sclerosis. *Biochim Biophys Acta*. 1864(2):509-519.
- 3) Vindigni G, Raniolo S, Ottaviani A, Falconi M, Franch O, Knudsen BR, Desideri A, **Biocca S.** (2016) Receptor-Mediated Entry of Pristine Octahedral DNA Nanocages in Mammalian Cells. *ACS Nano*. 10(6):5971-9.
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- 8) Gioia M, Vindigni G, Testa B, Raniolo S, Fasciglione GF, Coletta M, **Biocca S.** (2015) Membrane Cholesterol Modulates LOX-1 Shedding in Endothelial Cells. *PLoS One*. 10(10):e0141270. eCollection.
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- 15) Canu N, Filesi I, Pristerà A, Ciotti MT, **Biocca S.** (2011) Altered intracellular distribution of PrPC and impairment of proteasome activity in tau overexpressing cortical neurons. *JAD*;27(3):603-13.
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