

Biosketch

NAME ANGELA ANNA MESSINA	POSITION TITLE ASSOCIATE PROFESSOR		
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training).			
INSTITUTION AND LOCATION	DEGREE (IF APPLICABLE)	YEAR(S)	FIELD OF STUDY
University of Catania	B.S.	1988	Biological Sciences
University of Catania	PhD	1993	Biochemical Sciences
University of Catania	Specialist medical training	1998	Biochemical and Clinical Chemistry
Employment			
1987-1988	Undergraduate Researcher, Institute of Biochemistry and Pharmacology, University of Catania, Italy		
1989-1990	Staff Research Associate, Univ. of Catania, Italy		
1991-1993	Graduate Student Researcher, Univ. of Catania, Italy		
1994-1998	Postdoctoral Researcher, Univ. of Catania, Italy		
1999-2000	“Assegno di Ricerca” in Biochemical Sciences, Univ. of Catania, Italy		
2000-2014	Assistant Professor in Molecular Biology, Univ. of Catania, Italy		
2014 - present	Associate Professor in Molecular Biology, Univ. of Catania, Italy		
2018	National qualification to Full Professor in Biochemistry and in Molecular Biology		
Research Experience			
1992-1993	Dep. “Farmaco-Biologico”, Univ. of Bari (Italy), Lab of Molecular Biology		
1994-1995	Institute of Genetics, Univ. of Bari (Italy), Lab. of Genetics and Molecular Biology		
1995-1996	CNR Centre for the Study of Receptors and Biologically Active Molecules, University Cattolica “Sacro Cuore” – Rome (Italy)		
2003	Center INSERM (Institut National de la Santé et de la Recherche Médicale) Université V. Segalen – Bordeaux (FR), visiting scientist		
2003, 2005	Centre for Biomolecular Sciences (CBMS), University of St. Andrews, Scotland (UK), visiting scientist		
2012	International Agency for Research on Cancer (IARC) Lyon (FR), Lab of Cancer Biology		
2016	Neurodegenerative Disease Research Center, Arizona University (USA)		

Honors and fellowship

- 1995 CNR fellowship, University Cattolica “Sacro Cuore” – Rome (Italy)
1996-97 Three Italian Telethon short fellowship
1997-98 Postdoctoral fellowship in Biochemical and Molecular Biology Sciences, Univ. of Catania, Italy
2015 Award from Italian Society of Biophysics and Molecular Biology (SIBBM)

Funding

- 2018 Grant from Italian Ministry of University and Research, call Proof of Concept 2018, 24 months, Principal Investigator
2017 Grant “Chance 2017”, Univ. of Catania, 12 months, Principal Investigator
2017 Grant “Piano della Ricerca 2017”, Univ. of Catania, 12 months, Principal Investigator
2016 Annual Fellowship from “Fondazione Umberto Veronesi” to dr Andrea Magri for an ALS project where prof Angela Messina is Principal Investigator
2014 -16 Grant from Univ. of Catania – FIR 2014 Program, 24 months, Principal Investigator
2013 Grant from AriSLA (Italian Agency for Research on Amyotrophic Lateral Sclerosis), 15 months, Principal Investigator
2013-16 National Program for High Interest Scientific Research – PRIN 2010, 24 months, member of the research unit
2012 National Program for High Interest Scientific Research – PRIN 2012, 12 months, research unit responsible
2012 Yearly Grant from University of Catania - 12 months, Principal Investigator
2011 Yearly Grant PRA from University of Catania, 12 months, Principal Investigator
2010-12 Italian Program for High Interest Scientific Research – PRIN 2008, 24 months, member of the research unit
2007-09 National Program for High Interest Scientific Research – PRIN 2006, 36 months, member of the research unit
2002-09 Yearly Grant PRA from Univ. of Catania, 12 months, member of the research unit

Patents

- 2017 Italian patent n. 102016000026259, title: “Composto peptidico farmacologicamente attivo, procedimento per la sua preparazione e uso” – Angela Messina, Vito De Pinto, Andrea Magri, Guarino Francesca, Reina Simona.
2018 Pending international patent n. N. WO2017158502A1, title: "Pharmacologically active peptide compound, process for the preparation and use thereof" - Angela Messina, Vito De Pinto, Andrea Magri, Guarino Francesca, Reina Simona.

Main scientific interests

Molecular characterization of mitochondrial transport protein, purification of mitochondrial transport protein from healthy and pathological tissue, heterologous expression of mitochondrial transport protein, chemical-physical study and modelling of membrane proteins; involvement of VDAC in the apoptotic process; study of expression control mechanism of VDAC isoforms; structure-function study by mutagenesis techniques, proteomic analysis of complex polipeptidic mixture; DNA barcoding analysis.

Peer-reviewed Publications of the last ten years:

1. A. Magri; M.C. Di Rosa; I. Orlandi; F. Guarino; S. Reina; M. Guarnaccia; G. Morello; A. GM Spampinato; S. Cavallaro; **A. Messina**; M. Vai; V. De Pinto *Deletion of Voltage-Dependent Anion Channel 1 knocks mitochondria down triggering metabolic rewiring in yeast. Cell Molec Life Sciences* 2019 Accepted.

2. A. Shteinifer-Kuzmine, R. Gupta, N. Shvil, S. Abu-Hamad, Y. Gropper, J. Hoerber, A. Magri, **A. Messina**, EN Kozlova, V. Shoshan-Barmatz, A. Israelson. *A VDAC1-derived N-terminal peptide inhibits mutant SOD1-VDAC1 interactions and toxicity in the SOD1 model of ALS*. **Front Cell Neurosci** 2019 Aug;14;13:346. doi: 10.3389/fncel.2019.00346. eCollection 2019
3. A. Magri, A. Karachitos, MC Di Rosa, S. Reina, S. Conti Nibali, **A. Messina**, H. Kmita, V. De Pinto. *Recombinant yeast VDAC2: a comparison of electrophysiological features with the native form*. **FEBS Open Bio** 2019 Jul;9(7):1184-1193. doi: 10.1002/2211-5463.12574
4. L. Leggio, F. Guarino, A. Magri, R. Accardi-Gheit, S. Reina, V. Specchia, F. Damiano, M.F. Tomasello, M. Tommasino, A. Messina. Mechanism of translation control of the alternative Drosophila melanogaster Voltage Dependent Anion-selective Channel 1 mRNAs. **Scientific Reports** (2018) 8:5347.
5. C. Guardiani, A. Magri; A. Karachitos; M.C. Di Rosa, S. Reina, I. Bodrenko; A. Messina, H. Kmita, M. Ceccarelli and V. De Pinto. *yVDAC2, the second mitochondrial porin isoform of Saccharomyces cerevisiae*. **BBA – Bioenergetics** (2018) Feb 2;1859(4):270-279. doi: 10.1016/j.bbabi.2018.01.008.
6. Magri A & Messina A. *Interactions of VDAC with Proteins Involved in Neurodegenerative Aggregation: An Opportunity for Advancement on Therapeutic Molecules*. *Curr Med Chem*. 2017;24(40):4470-4487.
7. R. Saletti, S. Reina, M.G.G. Pittalà, R. Belfiore, V. Cunsolo, A. Messina, V. De Pinto, S. Foti. *High resolution mass spectrometry characterization of the oxidation pattern of methionine and cysteine residues in rat liver mitochondria Voltage-Dependent Anion selective Channel 3 (VDAC3)*. **Biochim Biophys Acta - Biomembranes** (2016) Dec 16;1859(3):301-311.
8. A. Magri, R. Belfiore, S. Reina, M.F. Tomasello, M.C. Di Rosa, F. Guarino, L. Leggio, V. De Pinto, A. Messina. *Hexokinase I N-terminal based peptide prevents the VDAC1-SOD1 G93A interaction and reestablishes ALS cell viability*. **Scientific Reports** (2016) Oct 6:34802. DOI: 10.1038/srep34802.
9. Reina S., Checchetto V., Saletti R., Gupta A., Chaturvedi D., Guardiani C., Guarino F., Scorciapino MA, Magri A., Foti S., Ceccarelli M., Messina A., Mahalakshmi R., Szabo I. and De Pinto V. *VDAC3 as a sensor of oxidative state of the intermembrane space of mitochondria: the putative role of cysteine residue modifications*. **Oncotarget** 2016 jan 8. doi: 10.18632/oncotarget.6850.
10. V. De Pinto, S. Reina, A. Gupta, A. Messina, R. Mahalakshmi. *Role of cysteines in mammalian VDAC isoforms' function*. **Biochim Biophys Acta** (2016) Aug;1857(8):1219-1227.
11. A. Magri, M.C. Di Rosa, M.F. Tomasello, F. Guarino, S. Reina, A. Messina, V. De Pinto. *Overexpression of human SOD1 in VDAC1-less yeast restores mitochondrial functionality modulating beta-barrel outer membrane proteins genes*. **BBA Bioenergetics** (2016) Jun;1857(6):789-98.
12. Caccamo A, Shaw DM, Guarino F, Messina A, Walker AW, Oddo S. *Reduced protein turnover mediates functional deficits in transgenic mice expressing the 25kDa C-terminal fragment of TDP-43*. **Hum Mol Genet**. 2015 May 22. pii: ddv193
13. Caccamo A., Branca C., Talboom JS, Shaw DM, Turner D., Ma L., Messina A., Huang Z., Wu J., Oddo S. Reducing ribosomal protein S6 kinase 1 expression improves spatial memory and synaptic plasticity in a mouse model of Alzheimer's disease. **J Neurosci**. 2015 Oct 14;35(41):14042-56.
14. AAR Impellizzeri, M. Pappalardo, L. Basile, O. Manfra, KW Andressen, KA Krobert, A. Messina, FO Levy, S. Guccione. *Identification of essential residues for binding and activation in the human 5-HT7(a) receptor by molecular modeling and site-directed mutagenesis*. **Frontiers in Behavioral Neuroscience** May 2015, 9, article 92.
15. GF Amodeo, MA Scorciapino, A. Messina, V. De Pinto and M. Ceccarelli. *Charged Residues Distribution Modulates Selectivity of the Open State of Human Isoforms of the Voltage Dependent Anion-Selective Channel*. **PLoS One** 2014 Aug 1;9(8):e103879
16. A. Caccamo, V. De Pinto, A. Messina, C. Branca, and S. Oddo. *Genetic reduction of mTOR ameliorates Alzheimer's disease-like cognitive and pathological deficits by restoring hippocampal gene expression signature*. **J. Neurosci**. (2014) 34, 7988-98.

17. A. Messina, S. Reina, F. Guarino, A. Magri, F. Tomasello, R. E. Clark, R. R. Ramsay and V. De Pinto. *Live cell interactome of the human Voltage Dependent Anion Channel 3 (VDAC3) revealed in HeLa cells by Affinity Purification Tag Technique*. **Molecular BioSystems** (2014) Aug;10(8):2134-45.
18. M.F. Tomasello, F. Guarino, S. Reina, A. Messina, V. De Pinto. *The voltage-dependent anion channel 1 (VDAC1) topography in the mitochondrial outer membrane as detected in intact cell*. **PLoS One** (2013) 8, e81522.
19. S. Reina, A. Magri, M. Lolicato, F. Guarino, A. Impellizzeri, E. Maier, R. Benz, M. Ceccarelli, V. De Pinto, A. Messina. *Deletion of strands 9 and 10 converts VDAC1 voltage-dependance in an asymmetrical process*. **Biochim Biophys Acta**. (2013) 1827, 793-805.
20. D. De Stefani, A. Bononi, A. Romagnoli, A. Messina, V. De Pinto, P. Pinton and R. Rizzuto. *VDAC1 selectively transfers apoptotic Ca²⁺ signals to mitochondria*. **Cell Death Diff.** (2012) 19, 267-273.
21. A. Messina, S. Reina, F. Guarino and V. De Pinto. *VDAC isoforms in mammals*. **Biochim Biophys Acta – Biomembranes** (2012) 1818, 1466-1476.
22. A.M. Pappalardo, F. Guarino, S. Reina, A. Messina and V. De Pinto. *Geographically widespread swordfish barcode stock identification: a case study of its application*. **PLoS One** (2011) 6, e25516.
23. M. Lolicato, S. Reina, A. Messina, A. Guarnera, M. Winterhalter, R. Benz and V. De Pinto. *Generation of artificial channels by multimerization of beta-strands from natural porin*. **Biol. Chem.** (2011) 392, 617-624.
24. V. De Pinto, A. Messina, D.J. Lane, A. Lawen. *Voltage-dependent anion-selective channel (VDAC) in the plasma membrane*. **FEBS Lett.** (2010) 584, 1793-9.
25. S. Reina, V. Palermo, A. Guarnera, F. Guarino, A. Messina, C. Mazzoni, V. De Pinto. *Swapping of the N-terminus of VDAC1 with VDAC3 restores full activity of the channel and confers anti-ageing features to the cell*. **FEBS Lett.** (2010) 584, 2837-44.
26. V. De Pinto, F. Guarino, A. Guarnera, A. Messina, S. Reina, F.M. Tomasello, V. Palermo, C. Mazzoni. *Characterization of human VDAC isoforms: A peculiar function for VDAC3?* **Biochim Biophys Acta - Bioenergetics** (2010) 1797, 1268-75.
27. M.F. Tomasello, A. Messina, L. Lartigue, L. Schembri, C. Medina, S. Reina, D. Thoraval, M. Crouzet, F. Ichas, V. De Pinto, F. De Giorgi. *Outer membrane VDAC1 controls permeability transition of the inner mitochondrial membrane in cellulo during stress-induced apoptosis*. **Cell Res.** (2009) 19, 1363-76.
28. V.A. Menzel, M.C. Cassará, R. Benz, V. De Pinto, A. Messina, V. Cunsolo, R. Saletti, K.D. Hinsch, E. Hinsch. *Molecular and functional characterization of VDAC2 purified from mammal spermatozoa*. **Biosci. Rep.** (2009) 29, 351-62.