

# Curriculum Vitae

## INFORMAZIONI PERSONALI

**Nome** FABIANA  
**Cognome** GERACI  
**Recapiti** Ed 16, Facolta Scienze MM.FF.NN., Dip STEBICEF, 09123897407  
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## FORMAZIONE TITOLI

Laurea cum laude in Biological Science in 1995. PhD in Cellular Biology (Cellular and Developmental Biology) in 2003. From May 2011 to December 2019 confirmed researcher (Department STEBICEF, University of Palermo, Italy). From December 2019 to date Associate Professor (Department STEBICEF, University of Palermo, Italy).

### Contract and fellowship

1. Fellowship at the Department of cellular and Developmental Biology. Project title: "Apoptosis evaluation in mouse stem cell under stress condition" (01-06-2005/30-04-2006).
2. Fellowship at the Department of cellular and Developmental Biology. Project title: "Prevalence and genetic and environmental risk factors in Alzheimer's disease and other dementias" (01-09-2003/31-05-2005).
3. Research contract at Neuropsychiatry Institute of University of Palermo. Project title: "Epidemiology and genetic of Parkinson disease" (18-11-02/17-06-03).
4. Fellowship at the Sperimental Zooprophyllactic Institute of Sicily. Project title: "Leishsmaniosis: innovative diagnosis and epidemiological study" (02-10-1996/01-10-1997).

### International Courses

1. "Embryology: Concepts and Techniques in Modern Developmental Biology". (Woods Hole, MA dal 14 Giugno al 25 Luglio 1998).
2. "Microinjection techniques in cell biology". (Woods Hole, MA 16-23 Maggio 2000).
3. "Advances course on neuroepidemiology" (Erice from 4 to 10 November 2004).
4. "The stem cells: from theory to clinics" (Vietri sul Mare from 16 to 20 October 2003).
5. "Comparative Developmental Biology" (Sant'Angelo d'Ischia, NA from 17 to 23 April 2001).

### Award

Projects for young scientists funded by University of Palermo:

1. "Studies on mechanisms involved in cellular stress in P.lividus embryos" (1998)
2. "HSPs expression in cancer cells" (1999).
3. Award for the second best paper in 2011 among that of Cellular and Developmental Biology Dept

## ATTIVITA' DIDATTICA

### Tutor of PhD students

1. Rosaria Tinnirello PhD in Cellular biology (Cellular and Developmental Biology).
2. Walter Spinello PhD in Molecular and Biomolecular Sciences (Cellular Biology curriculum)

## ASSOCIAZIONI SCIENTIFICHE

### Affiliation to scientific society

Member of the Cell Stress Society International

Member of the Association of Cellular and Developmental Biology Member of the Society Stem Cell Research Italy.

Member of the Society GEI

Member of the ISEV (international society of extracellular vesicles) Member of the EVIta (Italian Society of the extracellular vesicles)

## PUBBLICAZIONE

1. Barreca MM, Cancemi P, Geraci F. Mesenchymal and Induced Pluripotent Stem Cells-Derived Extracellular Vesicles: The New Frontier for Regenerative Medicine? *Cells*. 2020; 9:1163. doi: 10.3390/cells9051163. PMID: 32397132; PMCID: PMC7290733.
2. Notaro A, Emanuele S, Geraci F, D'Anneo A, Lauricella M, Calvaruso G, Giuliano M. WIN55,212-2-Induced Expression of Mir-29b1 Favours the Suppression of Osteosarcoma Cell Migration in a SPARC-Independent Manner. *Int J Mol Sci*. 2019;20. pii: E5235. doi: 10.3390/ijms20205235.
3. Geraci F, Ragonese P, Barreca MM, Aliotta E, Mazzola MA, Realmuto S, Vazzoler G, Savettieri G, Sconzo G, Salemi G. Differences in Intercellular Communication During Clinical Relapse and Gadolinium-Enhanced MRI in Patients With Relapsing Remitting Multiple Sclerosis: A Study of the Composition of Extracellular Vesicles in Cerebrospinal Fluid. *Front Cell Neurosci*. 2018;12:418.
4. Gargioli C, Turturici G, Barreca MM, Spinello W, Fuoco C, Testa S, Feo S, Cannata SM, Cossu G, Sconzo G, Geraci F. Oxidative stress preconditioning of mouse perivascular myogenic progenitors selects a subpopulation of cells with a distinct survival advantage in vitro and in vivo. *Cell Death Dis*. 2018;9:1.
5. Cavaliere V, Geraci F, Spinelli G. Diversification of spatiotemporal expression and copy number variation of the echinoid *hbox12/pmar1/micro1* multigene family. *PLoS One*. 2017 12:e0174404.
6. Barreca MM, Aliotta E, Geraci F. Extracellular Vesicles in Multiple Sclerosis as Possible Biomarkers: Dream or Reality? *Adv Exp Med Biol*. 2017;958:1-9.
7. Barreca MM, Spinello W, Cavaliere V, Turturici G, Sconzo G, Kaur P, Tinnirello R, Asea AA, Geraci F. Extracellular Hsp70 Enhances Mesoangioblast Migration via an Autocrine Signaling Pathway. *J Cell Physiol*. 2017; 232:1845-1861.
8. Toth PP, Patti AM, Nikolic D, Giglio RV, Castellino G, Biancucci T, Geraci F, David S, Montalto G, Rizvi A, Rizzo M. Bergamot Reduces Plasma Lipids, Atherogenic Small Dense LDL, and Subclinical Atherosclerosis in Subjects with Moderate Hypercholesterolemia: A 6 Months Prospective Study. *Front Pharmacol*. 2016; 6:299.
9. Rosaria Tinnirello, Giuseppina Turturici, Gabriella Sconzo, Walter Spinello, Alexzander A.A. Asea, Fabiana Geraci. Heat shock proteins in multiple sclerosis pathogenesis: friend or foe? In *Heat shock protein based therapies*. 2015; 151-173.
10. Turturici, G., Sconzo, G., Geraci, F. An hsf2-like factor is present in the invertebrates: Characterization and purification in sea urchin embryos and its localization in primary mesenchyme cells. *Journal of Biological Research* 2015; 144-45.
11. Turturici G, Tinnirello R, Sconzo G, Asea A, Savettieri G, Ragonese P, Geraci F. Positive or negative involvement of heat shock proteins in multiple sclerosis pathogenesis: an overview. *J Neuropathol Exp Neurol*. 2014; 73:1092-106.
12. Turturici G, Tinnirello R, Sconzo G, Geraci F. Extracellular membrane vesicles as a mechanism of cell-to-cell communication: advantages and disadvantages. *Am J Physiol Cell Physiol*. 2014; 306:C621-33.
13. Moudgil KD, Thompson SJ, Geraci F, De Paepe B, Shoenfeld Y. Heat-shock proteins in autoimmunity. *Autoimmune Dis*. 2013; 2013:621417.
14. Aridon P, Geraci F, Turturici G, D'Amelio M, Savettieri G, Sconzo G. Protective role of heat shock proteins in Parkinson's disease. *Neurodegener Dis*. 2011; 8:155-68.
15. Turturici G, Sconzo G, Geraci F. Hsp70 and its molecular role in nervous system diseases. *Biochem Res Int*. 2011; 2011:618127.
16. Pinsino A, Turturici G, Sconzo G, Geraci F. Rapid changes in heat-shock cognate 70 levels, heat-shock cognate phosphorylation state, heat-shock transcription factor, and metal transcription factor activity levels in response to heavy metal exposure during sea urchin embryonic development. *Ecotoxicology*. 2011; 20:246-54.
17. Candela ME, Geraci F, Turturici G, Taverna S, Albanese I, Sconzo G. Membrane vesicles containing matrix metalloproteinase-9 and fibroblast growth factor-2 are released into the extracellular space from mouse mesoangioblast stem cells. *J Cell Physiol*. 2010; 224:44-51.
18. Carfi-Pavia F, Turturici G, Geraci F, Brucato V, La Carrubba V, Luparello C, Sconzo G. Porous poly (L-lactic acid) scaffolds are optimal substrates for internal colonization by A6 mesoangioblasts and immunocytochemical analyses. *J Biosci*. 2009; 34:873-9.
19. Turturici G, Geraci F, Candela ME, Cossu G, Giudice G, Sconzo G. Hsp70 is required for optimal cell proliferation in mouse A6 mesoangioblast stem cells. *Biochem J*. 2009; 421:193-200.
20. Turturici G, Geraci F, Candela ME, Giudice G, Gonzalez F, Sconzo G. Hsp70 localizes differently from chaperone Hsc70 in mouse mesoangioblasts under physiological growth conditions. *J Mol Histol*. 2008; 39:571-8.
21. Giovanni Giudice, Giuseppina Turturici, Fabiana Geraci, Gabriella Sconzo. Regeneration in Invertebrates. *Rendiconti Lincei* 19; 2008, 311-324.
22. Geraci, F., Sconzo, G., Giudice, G. Starfish and *Xenopus* oocytes maturation. *Italian Journal of Zoology*. 2007; 74:107-15.
23. 12: Sisino G, Bellavia D, Corallo M, Geraci F, Barbieri R. A homemade cytospin apparatus. *Anal Biochem*. 2006; 359:283-4.
24. Geraci F, Turturici G, Galli D, Cossu G, Giudice G, Sconzo G. Stress response in mesoangioblast stem cells. *Cell Death Differ*. 2006;13:1057-63.
25. Geraci, F., Giudice, G. Sperm activation and sperm-egg interaction. 2006; 38:11-20.
26. Geraci F, Giudice G. Factors which influence sperm ability to fertilize. *J Submicrosc Cytol Pathol*. 2005; 37:215-22.
27. Geraci F, Giudice G. Mechanisms of Ca<sup>2+</sup> liberation at fertilization. *Biochem Biophys Res*

Commun. 2005; 335:265-9.

28. Geraci F, Pinsino A, Turturici G, Savona R, Giudice G, Sconzo G. Nickel, lead, and cadmium induce differential cellular responses in sea urchin embryos by activating the synthesis of different HSP70s. *Biochem Biophys Res Commun.* 2004; 322:873-7.
29. Geraci F, Agueli C, Giudice G, Sconzo G. Localization of HSP70, Cdc2, and cyclin B in sea urchin oocytes in non-stressed conditions. *Biochem Biophys Res Commun.* 2003; 310:748-53.
30. Agueli C, Geraci F, Giudice G, Chimenti L, Cascino D, Sconzo G. A constitutive 70 kDa heatshock protein is localized on the fibres of spindles andasters at metaphase in an ATP-dependent manner: a new chaperone role is proposed. *Biochem J.* 2001; 360:413-9.
31. Sconzo G, Palla F, Agueli C, Spinelli G, Giudice G, Cascino D, Geraci F. Constitutive hsp70 is essential to mitosis during early cleavage of *Paracentrotus lividus* embryos: the blockage of constitutive hsp70 impairs mitosis. *Biochem Biophys Res Commun.* 1999; 260:143-9.
32. Sconzo G, Cascino D, Amore G, Geraci F, Giudice G. Effect of the IMPase inhibitor L690,330 on sea urchin development. *Cell Biol Int.* 1998; 22: 91-4.
33. Sconzo G, Geraci F, Melfi R, Cascino D, Spinelli G, Giudice G, Sirchia R. Sea urchin HSF activity in vitro and in transgenic embryos. *Biochem Biophys Res Commun.* 1997; 240:436-41.

#### Book chapter

1. Maria M. Barreca and Fabiana Geraci (2018) Double Face of eHsp70. In *Front of Different Situations. Multiple Role of eHsp70.* In A. A. A. Asea, P. Kaur (eds.), HSP70 in Human Diseases and Disorders, Heat Shock Proteins 14. Springer International Publishing AG, part of Springer Nature. Pg 133-161. ISBN 978-3-319-89550-5
2. Rosaria Tinnirello, Giuseppina Turturici, Gabriella Sconzo, Walter Spinello, Alexzander A.A. Asea, and Fabiana Geraci (2015). Heat Shock Proteins in Multiple Sclerosis Pathogenesis: Friend or Foe? In A.A.A. Asea et al. (eds.), Heat Shock Protein-Based Therapies, Heat Shock Proteins 9. Springer International Publishing Switzerland 2015. Pg 151-173. ISBN 978-3-319-17210-1
3. Gonzalez F, Sconzo G, Turturici G, Geraci F, Giudice G. (2008). Sistemas de endomembranas (RE Y GOLGI), sistema vacuolar y lisosomas. In: F. GONZALEZ, AND ARRIAGADA. *Manual de Biología Celular.* Pg 47-99. ISBN: 978-956-8029-77-7. CONCEPCION: Universidad de Concepcion (CHILE).
4. Gonzalez F, Sconzo G, Turturici G, Geraci F, Giudice G. (2008). Armazon celular organelos: citoesqueleto, mitocondria, peroxisomas y nucleo. In: F. GONZALEZ, E ARRIAGADA. *Manual de Biología Celular.* Pg 101-146. ISBN: 978-956-8029-77-7. CONCEPCION: Universidad de Concepcion (CHILE).
5. Gonzalez F, Sconzo G, Turturici G, Geraci F, Giudice G. (2008). Ciclo celular, apoptosis y envejecimiento. In: F. Gonzalez, AND Arriagada. *Manual de Biología Celular.* Pg 147-176. ISBN: 978-956-8029-77-7. CONCEPCION: Universidad de Concepcion (CHILE).
6. G. Turturici, F. Geraci, G. Sconzo, and G. Giudice. (2007). Gastrulation in sea urchin and amphibian embryos. In: *Experimental Medicine review.* Ed. A. Gerbino, Vol 1. Pg 11-14. ISBN: 978-88-89876.

#### Proceedings in international Congresses

1. G. Sconzo, R. Sirchia, G. Giudice, F. Geraci, G. Ghersi, G. Amore. "Regulation of HSP 70 transcription in sea urchin embryo". Workshop "regulation of expression of cell stress genes" (Ravello 1-3.04.1995).
2. G. Sconzo, F. Geraci, G. Giudice, R. Melfi, G. Spinelli, D. Cascino, G. Toia, R. Sirchia. "Heat shock HSP 70IV promoter and HSF characterization". Conference "Development, cell differentiation and cancer" (Pisa 28.09-2.10.1996).
3. Geraci, F., Agueli, C., Chimenti, L., Giudice, G., Cascino, D., and Sconzo, G. "Sea urchin heat shock factor activity in early and late *P.lividus* embryogenesis". European congress of cell biology (Bologna 1999).
4. Agueli, C., Geraci, F., Chimenti, L., Giudice, G., Cascino, C., and Sconzo, G. "Constitutive hsp70 and Cdc2 are located in the centrosomal structures during early cleavage of *P.lividus* embryos" European congress of cell biology (Bologna 1999).
5. Geraci F., Cascino D., Giudice G. and Sconzo G. "Characterization and localization of an HSF 2-like factor in sea urchin embryos." ELSO meeting (Nice 2002).
6. F. Geraci, G. Bruno and G. Sconzo. "Constitutive hsp70 activation in mouse stem cells". First international congress on stress responses in biology and medicine (Quebec 2003).
7. Geraci F., Bruno G., Giudice G. and Sconzo G. "Stress response of mouse A6 stem cells is similar to that of mouse 2-8 cell embryos." ELSO meeting (Dresda 2003).
8. G. Turturici, F. Geraci, A. Bonomo, M. Candela, G. Giudice, G. Sconzo "Identification of an HSF2-like factor in sea urchin embryos and its localization in primary mesenchime cells" Second international congress on "Stress response in biology and medicine" (Tomar 24-28 October 2005). Pag 51. Oral presentation
9. Geraci Fabiana, Turturici Giuseppina, Carfi Pavia Francesco, Giudice Giovanni and Sconzo Gabriella "Stress response and apoptosis in mesoangioblasts stem cells". Second international congress on "Stress response in biology and medicine" (Tomar 24-28 October 2005). Pag 80
10. F. Geraci, G. Turturici, M.E. Candela, G. Giudice and G. Sconzo "Mesoangioblast A6 stem cells release vesicles containing the inducible HSP70" IIIrd International symposium on heat shock proteins in biology and medicine (Berlin 23-25 May 2006). Pag #09

11. Geraci F, Turturici G, Candela M E, Lonobile G, Taverna S, Giudice G, and Sconzo G. Shedding of vesicle from mesoangioblast A6 stem cells. International congress "Cellular and Developmental Biology: In Memory of Alberto Monroy". Cell Biology International. 2006. 30: Pag e10.
12. Turturici G, Geraci F, Candela M E, Fascetto E, Giudice G, Gonzalez F, and Sconzo G. Hsp70 in mesoangioblast A6 stem cells. International congress "Cellular and Developmental Biology: In Memory of Alberto Monroy". Cell Biology International. (2006) 30: Pag e17.
13. Geraci F, Turturici G, Candela ME, Vittorelli ML, Taverna S, Salamone M, Giudice G, and Sconzo G. Shedding of membrane vesicles containing HSP70 and FGF-2 from A6 stem cells. Third International Congress on Stress Responses in Biology and Medicine. (Budapest 23-26 August 2007). Pag 62.
14. Turturici G, Geraci F, Candela M E and Sconzo G. Intracellular and extracellular Hsp70 in mouse mesoangioblast stem cells. Second international meeting Cell stress and apoptosis. (Fisciano, 3-4 July 2008). Pag 23. Oral presentation
15. R. Tinnirello, G. Turturici, G. Sconzo, Geraci F (Sheffield 2013). Hsp70 level regulates MMP2 expression in mesoangioblast stem cells. In: VI International Congress on Stress Proteins in Biology and Medicine. p. 109. Oral presentation.
16. Rosaria Tinnirello, Walter Spinello, Giuseppima Turturici, Linda Sansiverino and Fabiana Geraci. Mesoangioblast stem cell membrane vesicles are carriers for molecules involved in autocrine and paracrine signals. In Frontiers and regenerative medicine. (Torino, 18-20 February 2015). P. 106.

#### Proceedings in Journal

1. Ragonese P, Mazzola MA, Geraci F, Turturici G, Musso G, Tinnirello R, Lo Re V, Realmuto S, Lo Re M, Aridon P, Salemi G, Sconzo G, Savettieri G (2014). Extracellular vesicles isolated by cerebrospinal fluid as biomarkers of inflammation in multiple sclerosis and inflammatory neurological diseases. In: Neurology. 82 (10 Supplement) P4.27. Neurology, Lippincott, Williams & Wilkins, ISSN: 0028-3878, Philadelphia, 26 April - 2 May 2014.
2. Ragonese P, Geraci F, Mazzola Ma, Turturici G, Musso G, Tinnirello R, Lo Re V, Realmuto S, Lo Re M, Aridon P, Salemi G, Sconzo G, Savettieri G (2014). Extracellular Vesicles In Cerebrospinal Fluid As Markers Of Cns Inflammation. Neurological Sciences, ISSN: 1590-1874; P612.
3. Geraci F, Barreca MM, Aliotta E, Petruzzelli C, Sansiverino L, Falcon-Perez J, Royo F, Spinello W (2016). Paracrine effect of membrane vesicles released by mouse mesoangioblast stem cells. Journal of Extracellular Vesicles, vol. 5:1 31552, p. 157, ISSN: 2001-3078, doi: 10.3402/jev.v5.31552.
4. Barreca MM, Sconzo G, Geraci F (2017). Paracrine roles of extracellular vesicles released by mouse mesoangioblasts. European Journal of Histochemistry, vol. 61/supplement 1, p. 4, ISSN: 1121-760X.
5. Turturici G, Gargioli C, Barreca MM, Fuoco C, Testa S, Feo S, Cannata SM, Cossu G, Sconzo G, Geraci F (2017). H2O2 resistant mesoangioblast clone isolation with a distinct survival advantage in vitro and in vivo. European Journal of Histochemistry, vol. 61/supplement 1, p. 31-32, ISSN: 1121-760X.
6. Maria Magdalena Barreca, Fabiana Geraci (2018). Mesoangioblast derived extracellular vesicles have paracrine effects on different cell types. Journal of extracellular vesicles, vol. 7/supplemental 1, 1461450, p. 132.
7. M. M. Barreca, G. Sconzo, F. Geraci (2018). H2O2 induces necroptosis in mesoangioblast stem cells. European Journal of Histochemistry, vol. 62/supplement 1, p. 3, ISSN: 1121-760X.

#### ATTIVITA' SCIENTIFICHE

##### External referee for grant proposal

1. 2011 external referee for Prinses Beatrix Fonds.
2. 2011 external referee for The Netherlands Organization for Health Research and Development (ZonMw).
3. 2018 Referee for the Multiple Sclerosis Society UK for the project "Investigating extracellular vesicles as a source of protein 'fingerprints' associated with RRMS to SPMS disease transition"

##### Editorial activities

##### Referee for the following journals

1. Annals of Clinical and Translational Neurology
2. Biochemistry and Cell Biology
3. Biologia
4. BioFactors.
5. Brain Research.
6. Brain Sciences
7. British Journal of Medicine and Medical Research (BJMMR)

8. Cancers
9. Cells
10. Current Pharmaceutical Design
11. Ecotoxicology
12. Ecotoxicology and Environmental safety
13. Frontiers in Oncology
14. Frontiers in Pharmacology
15. International Journal of Biochemistry Research & Review
16. International Journal of Developmental Neuroscience
17. International Journal of Environmental Research and Public Health (IJERPH)
18. International Journal of Molecular Sciences (IJMS)
19. Journal of Advances in Medical and Pharmaceutical Sciences (JAMPS)
20. Journal of Pharmacy and Pharmacology (JPP)
21. Molecular and Cellular Biochemistry.
22. Neuropeptides
23. Neuroscience Letters (NSL)
24. Nutrients
25. The Protein Journal (JOPC)
26. Toxicology

#### Guest editor

2012 Invited guest editor for the Special issue devoted to the role of heat-shock proteins in diseases of autoimmune origin for the journal "Autoimmune diseases".

#### Editor

2017 Editor of the volume: "Multiple Sclerosis: bench to Bedside-global perspective on a silent killer". Advances in Experimental Medicine and Biology 958. Eds. Springer.

#### Referee for a book chapter:

"Monoclonal Natural antibodies for the treatment of Neurologic Disease" in Lecture Notes in Medical Diagnosis and Treatment - Immunotherapeutic Approaches for Neurological Diseases: Natural Monoclonal Antibodies and Conventional Monoclonal Antibodies. iConcept Press Ltd.

#### Editorial board

- 2017 Member of the Editorial board of International Journal of Multiple Sclerosis and Related Disorders
- 2017 Member of the Editorial board of Scientific Journal of Multiple Sclerosis
- 2017 Member of the Editorial board of Current Advances in Cell Stem Cells
- 2017 Member of the Editorial board of The Open Biochemistry Journal

#### Review editor:

1. Frontiers in Pharmacology and drugs Discovery (2015-)

Organization of national meeting

Organizer of the VI Cellular and Developmental Biology Meeting (December 2008).

### **AMBITI DI RICERCA**

Research activity has been mainly focused on mouse stem cells. The recent research regards stem cell communication mediated by membrane vesicles, both in autocrine and paracrine way. Furthermore, extracellular vesicle role is evaluated in multiple sclerosis as possible biomarker.