

TIZIANA GUARNIERI

Curriculum vitae et studiorum

Born: January 25th, 1963 in Bologna (Italy)

Citizenship: Italian

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Focus of studies: Cell Physiology, Environmental Physiology

<https://www.Alma Mater Studiorum Università di Bologna.it/sitoweb/tiziana.guarnieri>

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<http://www.researcherid.com/rid/A-9534-2016>

DISCIPLINARY SCIENTIFIC AREA: 05/D1 (previously BIO/09) - Physiology

CURRENT ACADEMIC APPOINTMENT: Senior Assistant Professor of Physiology - Alma Mater Studiorum Università di Bologna)

Group leader of the **Laboratory of Cellular and Environmental Physiology** - Dept. of Biological, Geological, and Environmental Sciences, Alma Mater Studiorum Università di Bologna.

EDUCATION

2017- National scientific qualification, disciplinary scientific sector 05/F1 - Applied Biology

2001- present day: Senior Assistant Professor of Physiology, Dept. of Biological, Geological, and Environmental Sciences - Alma Mater Studiorum Università di Bologna

2000-2005 Qualified for the role of Associate Professor, scientific sector E04A (General Physiology), The Italian Ministry of Education, Universities and Research (MIUR).

1991-2001: Technician (category D4), Institute of Comparative Anatomy, Alma Mater Studiorum Università di Bologna.

1987-1991: PhD at Biology and Physiology of the Cell School, Institute of Comparative Anatomy, Alma Mater Studiorum Università di Bologna

1987: Qualification to practice the profession of biologist

1986: Master's degree in Biological Sciences, Alma Mater Studiorum Università di Bologna

TEACHING ACTIVITIES

<u>First cycle degree programme (L) in Biological sciences</u>	
Laboratory on Prevention Procedures and Safety	2004 - 2010
Physiology of Systems	2010 - 2014
Physiopathology Laboratory	2010 - 2014
Human Physiology and Basics of Physiopathology	2015 -
<u>Second cycle degree programme (LS) in Biological and Health Sciences</u>	
Safety in Biomedical Laboratories and Quality Certification	2004 - 2008
Environmental Physiology	2005 - 2009
<u>Second cycle degree programme (LS) in Health Biology</u>	
Environmental Physiology	2008 - 2017
Quality systems in the laboratory and management of experimental protocols	2017 - 2018
<u>Second cycle degree programme (LM) in Health Professions of Prevention Sciences</u>	
Environmental Physiology	2015 -
<u>Second cycle degree programme (LM) in Teaching and Communication of Natural Sciences</u>	
Laboratory of Didactics of The Biology	2021 -
<u>Second Level Master "Biologist for the Evaluation and Management of Risk and Quality in Living and Working environments"</u>	2013 - 2016
Head	

ACADEMIC QUALIFICATIONS

- 2020 -2021 examiner at the National Biologists' exam, Alma Mater Studiorum Università di Bologna.
- 2020 - departmental contact person for students with disabilities and specific learning disorders
- 2017 - member of Agro-food CIRI (Interdepartmental Centre for Industrial Research), Alma Mater Studiorum Università di Bologna.
- 2017 - member of Health CIRI (Interdepartmental Centre for Industrial Research), Alma Mater Studiorum Università di Bologna.
- 2016 – member of the Board of Tutors of The Collegio Superiore, the school of Excellence of Alma Mater Studiorum Università di Bologna.

- 2015 - member of Trainees Board of bachelor's degree course in Biological Sciences, Alma Mater Studiorum Università di Bologna.
- 2015-18: member of the Board of Access Requirements of master's degree course in Biology of Health, Alma Mater Studiorum Università di Bologna.
- 2014 – member of the Integrated Research Teams: Alma Food IRT (Integrated research in the agro-food sector of the University of Bologna) and Alma Gender IRT (Multidisciplinary research group of the University of Bologna dealing with gender studies and issues).
- 2013-2016: Head of the Second Level Master "Biologist for the Evaluation and Management of Risk and Quality in Living and Working environments", Dept. of Biological, Geological, and Environmental Sciences, Alma Mater Studiorum Università di Bologna.
- 2009 – member of the University Consortium "National Institute of Biostructures and Biosystems (INBB)", Rome, ITALY.
- 2001 – Supervisor of a significant number of first and second level degree dissertations.
- 2001 – Supervisor of 2 Ph.D. dissertations.

OTHER SCIENTIFIC ACTIVITIES

- **Member** of the Canadian NGO "Getting to Know Cancer" [<http://www.gettingtoknowcancer.org/>].
- Co-organizer of the **Halifax Project**, a Canadian research project that took place between 2012 and 2015. It was coordinated by the Canadian NGO **Getting to Know Cancer** [<http://www.gettingtoknowcancer.org/>], a Canadian NGO that led 350 cancer scientists in 31 countries as they tackled two significant challenges in cancer research.
- **Member** of the Physiological Society (<https://www.physoc.org/>)
- **Member** of the Cell Biology and Differentiation Association (ABCD) (<https://abcd-it.org/>)
- **Scientific reviewer** for the following journals: Cancer Letters, Febs Journal, International Journal of Molecular Sciences, Cells.
- **Guest Editor**: "Cells" (MDPI)
Special Issue "Relationship Between Inflammation and Aryl hydrocarbon Receptor Pathway". First Edition.
Special Issue "Relationship Between Inflammation and Aryl hydrocarbon Receptor Pathway". Second Edition.
- **Editorial Board Member**:
"Cells" (MDPI)

MAIN RESEARCH INTERESTS

Key words: Cell signaling; Inflammation; Aryl hydrocarbon Receptor; Endocrine Interference; Network Biology; Non-Steroidal Anti-Inflammatory Drugs (NSAIDs); One Health.

I have expertise in cell physiology, cell signalling pathways and networks.

Research focus:

- cellular and molecular events sustaining and modulating the inflammatory phenotype.
- environmental aetiology of inflammation, with particular regard to endocrine interference and Aryl hydrocarbon Receptor pathway
- Network biology
- NSAIDs modulating effects of cell proliferation, with a particular attention on cyclooxygenase /lipoxygenase inhibition and membrane-related events.
- One Health

RESEARCH GRANTS and AWARDS

- Partner in the finalized research project (2002) "Study of the biological effects of endocrine disruptors chemicals (EDCs) on the endocrine systems and reproductive health" - Subproject: Effect of endocrine disruptors on estrogens action in brain stem or progenitor cells recruitment", funded by the Ministry of Health and the 'Institute for Prevention and Safety at Work - ISPESL
- Partner in the co-financed research project: "Signal transduction in hypothalamic and hippocampal neurons: cellular prionic protein effects in Kinases ERK1/2 and Fyn recruitment in memory consolidation". Programmi di Ricerca Scientifica di Rilevante Interesse Nazionale (PRIN) 2004. (2004054387_005)
- Co-principal investigator in the co-financed project: "Mammospheres as an in vitro model in the study of breast cancer stem cells. Evaluation of their possible employment in prognosis, diagnosis and therapy". Programmi di Ricerca Scientifica di Rilevante Interesse Nazionale (PRIN) 2008. (2008KTRN38_002)
- The Journal of Pathology Jeremy Jass Prize for Research Excellence in Pathology - Award presented at the Pathological Society Winter Meeting Imperial College, London, UK, 7-8th January 2010. The paper: "The basal-like breast carcinoma phenotype is regulated by SLUG gene expression" was included in "top papers" list of Journal of Pathology (2008).
- "Prevent Cancer Now" Cancer Prevention Award - 2015, (Halifax Group, 04-21-2015).
- Coordinator and Head of Scientific Research funded RFO 2008-2022.

PATENTS (From Scopus Data Base)

- **Document:** Anellated pyrrole compounds for cancer management | [Annelierte Pyrrol-Verbindungen zur Behandlung von Krebs]

<https://worldwide.espacenet.com/publicationDetails/biblio?CC=EP&NR=1884239&KC=&FT=E&locale=en> EP

Authors of Document: Laufer, Stefan; Guarnieri, Tiziana; Tavolari, Simona; Tomasi, Vittorio; Palazzini, Ernesto; Barbanti, Miriam

Applicant: MERCKLE GMBH

Year: 2008

Source of the Document: European Patent Application

Number: EP1884239

- **Document:** Anellated pyrrole compounds for cancer management

<https://appft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PG01&p=1&u=%2Fnetacgi%2FPTO%2Fsrchnum.html&r=1&f=G&l=50&s1=%2220100099730%22.PG.NR.&OS=DN/20100099730&RS=DN/20100099730>

Authors of Document: Laufer, Stefan; Guarnieri, Tiziana; Tavolari, Simona; Tomasi, Vittorio; Palazzini, Ernesto; Barbanti, Miriam

Applicant: MERCKLE GMBH

Year: 2010

Source of the Document: United States Patent and Trademark Office Pre-Granted Publication

Number: US20100099730

PAST AND PRESENT NATIONAL AND INTERNATIONAL COLLABORATIONS:

- Merckle GmbH (Germany). Now: TEVA DE.
- Center for Applied Biomedical Research (CRBA) S. Orsola-Malpighi Hospital, Bologna (Pasquale Chieco, Simona Tavolari)
- Universitat Tubingen, Pharmaceutical/Medicinal Chemistry Dept., Germany (Stefan Laufer, Full Professor)
- Department of Experimental, Diagnostic and Specialty Medicine - DIMES, Experimental Pathology Unit, University of Bologna (Prof. Massimiliano Bonafè)
- Department of Experimental, Diagnostic and Specialty Medicine DIMES, Pathological Anatomy Unit, University of Bologna (Dr. Claudio Ceccarelli)
- Department of Medical and Surgical Sciences - DIMEC, General Surgery Unit, University of Bologna (Prof. Mario Taffurelli)
- University of Perugia, Dept. of Surgical Sciences and Biomedicine Dept. (Prof. Nicola Avenia)
- Santa Maria Hospital (Terni) Breast Unit, Head (Alessandro Sanguinetti)
- Department of Experimental, Diagnostic and Specialty Medicine – DIMES, Applied Biology Unit, University of Bologna (Prof.ssa Marina Marini, Dott.ssa Provvidenza Maria Abruzzo)
- ONG “Getting to Know cancer”, task force "Assessing the Carcinogenic Potential of Low Dose Exposures to Chemical Mixtures in the Environment", group “Tumor promoting inflammation”.
- CNR – Consiglio Nazionale delle Ricerche - Istituto per le Applicazioni del Calcolo "Mauro Picone" – Roma, Italy. (Dott.ssa Christine Nardini)

BIBLIOMETRIC PARAMETERS (July, 2022)

- Scopus: n° of citations = 1908; H index = 17
- Google Scholar: n° of citations = 2611; H index= 20; i10 index = 31

BIBLIOGRAPHY

1. Calabretta MM, Gregucci D, Guarnieri T, Bonini M, Elisa Neri, Zangheri M, Michelini, E: Bioluminescence Sensing in 3D Spherical Microtissues for Multiple Bioactivity Analysis of Environmental Samples. *Sensors*, (2022), 22 (12): 4568. doi: 10.3390/s22124568.
2. Guarnieri, T. Hypothesis: Emerging roles for Aryl hydrocarbon Receptor in orchestrating CoV-2-related inflammation. *Cells*, (2022) 11 (4): 648. doi: 10.3390/cells11040648.
3. Sorrentino R, Carlson KJ, Figus C, Pietrobelli A, Stephens NB, DeMars LJD, Saers JPP, Armando J, Bettuzzi M, Guarnieri T, Oxilia G, Vazzana A, Parr W, Turley K, Morigi MP, Stock JT, Ryan T M, Benazzi S, Marchi D and Belcastro MG. The talar morphology of a hypochondroplastic dwarf: A case study from the Italian Late Antique period. *International Journal of Osteoarchaeology*, (2022) 32 (2): 429-443. doi: 10.1002/oa.3078.
4. Sorrentino R, Stephens NB, Marchi D, DeMars LJD, Figus C, Bortolini E, Badino F, Saers JPP, Bettuzzi M, Boschini F, Capecchi G, Feletti F, Guarnieri T, May H, Morigi MP, Parr W, Ricci S, Ronchitelli A, Stock JT, Carlson KJ, Ryan TM, Belcastro MG, Benazzi S. Unique foot posture in Neanderthals reflects their body mass and high mechanical stress. *J Hum Evol*. 2021;161:103093. doi: 10.1016/j.jhevol.2021.103093. Epub 2021 Nov 5. PubMed PMID: 34749003.
5. Guarnieri T. Aryl Hydrocarbon Receptor Connects Inflammation to Breast Cancer. *Int J Mol Sci*. 2020 Jul 24;21(15). doi: 10.3390/ijms21155264. Review. PubMed PMID: 32722276; PubMed Central PMCID: PMC7432832.
6. Guarnieri T, Abruzzo PM, Bolotta A. More than a cell biosensor: aryl hydrocarbon receptor at the intersection of physiology and inflammation. *Am J Physiol Cell Physiol*. 2020 Jun 1;318(6):C1078-C1082. doi: 10.1152/ajpcell.00493.2019. Epub 2020 Mar 25. Review. PubMed PMID: 32208988.
7. Abruzzo PM, Matté A, Bolotta A, Federti E, Ghezzi A, Guarnieri T, Marini M, Posar A, Siciliano A, De Franceschi L, Visconti P. Plasma peroxiredoxin changes and inflammatory cytokines support the involvement of neuro-inflammation and oxidative stress in Autism Spectrum Disorder. *J Transl Med*. 2019 Oct 2;17(1):332. doi: 10.1186/s12967-019-2076-z. PubMed PMID: 31578139; PubMed Central PMCID: PMC6775664.
8. Guarnieri T. Non Steroidal Anti Inflammatory Drugs As Gatekeepers Of Colon Carcinoma Highlight New Scenarios Beyond Cyclooxygenases Inhibition. *Curr Cancer Drug Targets*. 2016;16(2):186-97. doi: 10.2174/1568009615666150827093012. Review. PubMed PMID: 26310524.
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- Gonzalez L, Soucek L, Jian L, D'Abronzio LS, Lin LT, Li L, Gulliver L, McCawley LJ, Memeo L, Vermeulen L, Leyns L, Zhang L, Valverde M, Khatami M, Romano MF, Chapellier M, Williams MA, Wade M, Manjili MH, Leonart ME, Xia M, Gonzalez MJ, Karamouzis MV, Kirsch-Volders M, Vaccari M, Kuemmerle NB, Singh N, Cruickshanks N, Kleinstreuer N, van Larebeke N, Ahmed N, Ogunkua O, Krishnakumar PK, Vadgama P, Marignani PA, Ghosh PM, Ostrosky-Wegman P, Thompson PA, Dent P, Heneberg P, Darbre P, Sing Leung P, Nangia-Makker P, Cheng QS, Robey RB, Al-Temaimi R, Roy R, Andrade-Vieira R, Sinha RK, Mehta R, Vento R, Di Fiore R, Ponce-Cusi R, Dornetshuber-Fleiss R, Nahta R, Castellino RC, Palorini R, Abd Hamid R, Langie SA, Eltom SE, Brooks SA, Ryeom S, Wise SS, Bay SN, Harris SA, Papagerakis S, Romano S, Pavanello S, Eriksson S, Forte S, Casey SC, Luanpitpong S, Lee TJ, Otsuki T, Chen T, Massfelder T, Sanderson T, Guarnieri T, Hultman T, Dormoy V, Odero-Marah V, Sabbisetti V, Maguer-Satta V, Rathmell WK, Engström W, Decker WK, Bisson WH, Rojanasakul Y, Luqmani Y, Chen Z, Hu Z. Assessing the carcinogenic potential of low-dose exposures to chemical mixtures in the environment: the challenge ahead. *Carcinogenesis*. 2015 Jun;36 Suppl 1:S254-96. doi: 10.1093/carcin/bgv039. Review. PubMed PMID: 26106142; PubMed Central PMCID: PMC4480130.
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 11. Brandi G, Tavolari S, Guarnieri T, Di Marco M, Paterini P, Macchini M, Di Girolamo S, Papi A, De Rosa F, Biasco G. Antiprotease strategy in pancreatic cancer treatment: emergence from a preclinical study. *Pancreas*. 2014 Jan;43(1):53-63. doi: 10.1097/MPA.0b013e3182a6486e. PubMed PMID: 24201777.
 12. Tavolari S, Munarini A, Storci G, Laufer S, Chieco P, Guarnieri T. The decrease of cell membrane fluidity by the non-steroidal anti-inflammatory drug Licofelone inhibits epidermal growth factor receptor signalling and triggers apoptosis in HCA-7 colon cancer cells. *Cancer Lett*. 2012 Aug 28;321(2):187-94. doi: 10.1016/j.canlet.2012.02.003. Epub 2012 Feb 14. PubMed PMID: 22343320.
 13. Papi A, Guarnieri T, Storci G, Santini D, Ceccarelli C, Taffurelli M, De Carolis S, Avenia N, Sanguinetti A, Sidoni A, Orlandi M, Bonafé M. Nuclear receptors agonists exert opposing effects on the inflammation dependent survival of breast cancer stem cells. *Cell Death Differ*. 2012 Jul;19(7):1208-19. doi: 10.1038/cdd.2011.207. Epub 2012 Jan 20. PubMed PMID: 22261616; PubMed Central PMCID: PMC3374082.
 14. Storci G, Sansone P, Mari S, D'Uva G, Tavolari S, Guarnieri T, Taffurelli M, Ceccarelli C, Santini D, Chieco P, Marcu KB, Bonafé M. TNFalpha up-regulates SLUG via the NF-kappaB/HIF1alpha axis, which imparts breast cancer cells with a stem cell-like phenotype. *J Cell Physiol*. 2010 Nov;225(3):682-91. doi: 10.1002/jcp.22264. PubMed PMID: 20509143; PubMed Central PMCID: PMC2939957.

15. Tavolari S, Bonafè M, Marini M, Ferreri C, Bartolini G, Brighenti E, Manara S, Tomasi V, Laufer S, Guarnieri T. Licofelone, a dual COX/5-LOX inhibitor, induces apoptosis in HCA-7 colon cancer cells through the mitochondrial pathway independently from its ability to affect the arachidonic acid cascade. *Carcinogenesis*. 2008 Feb;29(2):371-80. doi: 10.1093/carcin/bgm265. Epub 2007 Nov 21. PubMed PMID: 18033773.
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CONTRIBUTIONS IN ENCYCLOPAEDIAS

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OTHER RECENT ACTIVITIES

1. **Guarnieri T.** The cross talk between interleukin 6/STAT3 signalling pathway and the aryl hydrocarbon receptor (AhR) suggests a role for AhR in the modulation of the inflammatory response in human breast cells. ABCD Congress (Bologna, Italy - 21-23 September 2017).
2. Sorrentino Rita, Carlson K. J., Orr C.M., Pietrobelli A., Figus C., Jashashvili T, Saers J. P. P., **Guarnieri T.**, Fiorenza L., Novak M., Stock J. T., Williams S.A., Patel B. A., Marchi D., Belcastro M. G., Benazzi S., *Morphological variation of the hominid navicular bone: Implications for behavioral driven divergence*, in: 11th Symposium on Morphometrics and Evolution of Shape, 30 June-2 July 2021 : programme, abstracts and instructions for participants and panelists, 2021, pp. 68 - 69 (1th Symposium on Morphometrics and Evolution of Shape, Online, 30th June-2nd July 2021).
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4. **Guarnieri T.** Interferenza endocrina: un problema attuale con radici lontane. Winter School “This is Public Health: One Health” – Alma Mater Studiorum Università di Bologna. (20 October 2021).
Invited Speech

5. Giovanna Maria Dimitri; Paolo Tieri; **Tiziana Guarnieri**; Luigi Manni; Davide Martelli; Claudia Sala; Anna Plaksienko; Claudia Angelini; Francesca Frascella; Lucia Napione; Christine Nardini, *Revisiting the inflammatory pathway with network biology*, in: BBCC2021 Bioinformatics and Computational Biology Conference, 2021(atti di: BBCC2021 - Bioinformatics and Computational Biology Conference, online, December 1-3, 2021).

6. **Tiziana Guarnieri**, *I nuovi targets molecolari per il trattamento del cancro*, in: AA.VV., “Le cinque giornate dell’oncologia integrata: approcci multidisciplinari per la prevenzione, la cura del tumore e il sostegno alla persona malata”, 2021, pp. 1 - 7 (atti di: “Le cinque giornate dell’oncologia integrata: approcci multidisciplinari per la prevenzione, la cura del tumore e il sostegno alla persona malata”, online, 07/09/2021-**03/12/2021**) organizzato delle Delegazioni ONB (Ordine Nazionale dei Biologi) di Toscana-Umbria, Emilia Romagna-Marche e Piemonte, Liguria e Valle D’Aosta. **Invited speech.**