Curriculum vitae Serena Marchiò

Personal details

Born in Saluzzo, Italy, June 29, 1971
Nationality: Italian
Email: serena.marchio@unito.it
Website: https://medchirurgia.campusnet.unito.it/do/docenti.pl/Show?_id=smarchio
ORCID ID: 0000-0001-8214-0776, Scopus ID: 7801635480; Researcher ID: G-9054-2017

Education

2005	**Ph.D. (4-year Doctorate)** Biochemistry and Cell Biotechnology, University of Turin, Italy
2000	**Diploma of Specialization (4-year Medical Doctorate)** Biochemistry and Clinical Chemistry (70/70 *cum laude*), University of Turin, Italy
1996	**Professional Certification** Italian Register of Biologists
1995	**Master Degree (*Laurea Magistralis*, 5-year Course)** Biological Sciences, *curriculum* Molecular Biology (110/110 *cum laude*), University of Turin, Italy

Professional experiences and current position

3/2023 – present	**Associate Professor (PA, BIO/10)** Department of Oncology, University of Turin, Italy
3/2020 – 2/2023	**Senior Assistant Professor (RTDB, BIO/10)** Department of Oncology, University of Turin, Italy
4/2015 – 2/2020	**Junior Assistant Professor (RTDA, BIO/10)** Department of Oncology, University of Turin, Italy
9/2014 –10/2018	**Visiting Scientist** UNM Comprehensive Cancer Center and UNM School of Medicine, Albuquerque NM
2007 – 2014	**Principal Investigator** Laboratory of Tumor Microenvironment, Candiolo Cancer Institute-FPO, IRCCS, Candiolo, Italy
2007 – 2012	**Founder, CEO / CSO** APAvadis Biotechnologies, Bio-Industry Park S. Fumero, Colleretto Giacosa, Italy
2005 – 2007	**Postdoc Fellow** Division of Molecular Angiogenesis, Candiolo Cancer Institute-FPO, IRCCS, Candiolo, Italy
2001 – 2004	**Ph.D. Student** Department of Oncological Sciences, University of Turin, Italy
2000, 2004, 2007	**Visiting Scientist** M. D. Anderson Cancer Center, Houston TX (short visits, 1-2 months)
1-8/1999	**Visiting Scientist** The Burnham Institute, La Jolla Cancer Research Foundation, San Diego CA
1997 – 2000	**Specialization Student** Department of Genetics, Biology and Biochemistry, University of Turin, Italy

Participation to Directive Boards of Scientific Societies and/or Institutions

2006	**Consultant for Clinical Experimentations** RiboVax, Petit-Lancy, Genève, Switzerland
2003 – 2006	**Member of the Scientific Technical Board** Creabilis Therapeutics, Colleretto Giacosa, Italy

Honors

2009 **Zonta Club Amelia Earhart Award**
Young Women Who Excel in Science

2007 **Innovative Piedmont Enterprise Award**
Best Business Plan of the Year (to APAvadis Biotechnologies)

Teaching activity

From 2024/2025 **Multi-omics and Data Science for Precision Medicine**
Degree in AI for Biomedicine and Healthcare, University of Turin, Italy

From 2023/2024 **Biochemistry, Cellular and Molecular Biology**
Degree in AI for Biomedicine and Healthcare, University of Turin, Italy

2022 – present **Chemistry, Introductory Biochemistry, and Biochemistry**
Degree in Biomedical Laboratory Techniques – Cuneo, University of Turin, Italy

2020 – 2021 **Chemical Basis of Biological Systems (ADE)**
Master Degree in Medicine and Surgery – University of Turin, Italy

2019 – present **Biomedical Sciences 2**
Degree in Dental Hygiene – University of Turin, Italy

2015 – present **Biochemistry**
Master Degree in Medicine and Surgery – University of Turin, Italy

Research main topics

My research group investigates the tumor microenvironment using a phage display-based platform that combines high-throughput screenings, next generation sequencing, and bioinformatics. Through phage display, random peptides or antibodies are produced and selected for affinity towards a substrate of interest (a protein, a cell, a tissue, or an entire organism). This technology helps us identify molecular markers and reconstruct protein-protein interactions. For the past 25 years, we have applied phage display to numerous types of tumors to identify new targets accessible through the bloodstream, and to develop target-specific theranostic nanosystems.

Main projects as PI

Funding for academic activities:

2023 **Grant for Internationalization, Department of Oncology, University of Turin, Italy**
Development of nanosystems for the diagnosis and/or therapy of *KRAS*-mutant tumors

2019 – 2025 **Italian Association for Cancer Research – Investigator Grant (AIRC-IG)**
Profiling the cell surface of human KRas-mutant cancer cells for the design of patient-tailored theranostics

2018 **Local Research, ex. 60%, Department of Oncology, University of Turin, Italy**
Mapping the surface of KRAS-mutant cancer cells to find new druggable targets

2013 **Rotaract 3020: Strategic Project 2011-2012 Rotaract Against Cancer, Rotary Club**
An integrated platform to study the microenvironment of metastatic colorectal cancers: tropism and stemness mechanisms, diagnostic and therapeutic targeting

2011 **Finalized Health Research Piedmont Region Under 40**
Molecular mechanisms underlying the hepatic colonization of metastatic colon cancer

2010 – 2013 **Intramural Grant, Candiolo Cancer Institute, FPO-IRCCS, Candiolo, Italy**
Investigating the molecular pathology of advanced colorectal cancer: coupling peptide signatures of liver metastasis microenvironment with KRAS/BRAF mutational status for the design of alternative target therapies

2010 – 2012 **Banca di Credito Cooperativo di Alba, Bra, Langhe e Roero**
See better to cure better

2008 – 2010 **Italian Association for Cancer Research – My First AIRC Grant (AIRC-MFAG)**
Investigating the extracellular signature of metastatic colon cancer

Funding for industrial activities:

2010 – 2015	**POR/FESR 2007/2013 Innovation Poles Grant** BANP – BioActive NanoParticles for diagnosis, therapy, and molecular imaging
2009 – 2012	**POR/FESR 2007/2013 I.1.1 Innovative Platform Biotechnologies for Life Sciences** DRUIDI – DRUg Innovation and DIscovery
2009	**Piedmont Region Voucher** Development of innovative diagnostic systems based on tumor- and metastasis-specific nanovectors
2008 – 2010	**Lagrange Project Felloship for APAvadis employees** Production of nanovectors for targeted drug delivery and molecular imaging
2007 – 2010	**Eporgen Venture and Piemontech Venture Capitals investment** Foundation of the company and laboratory setup

Bibliometry (updated 02/2023)

Scopus: H-index 25, citations 1986
Google Scholar: H-index 27, i10-index 43, citations 2814

10 best publications

Emerging pharmacologic targets in cerebral cavernous malformation and potential strategies to alter the natural history of a difficult disease: A Review. Chohan MO*, **Marchiò S***, Morrison LA, Sidman RL, Cavenee WK, Dejana E, Yonas H, Pasqualini R, Arap W. *JAMA Neurol*. **2019**;76(4):492-500. *co-first

Anti-GRP78 autoantibodies induce endothelial cell activation and accelerate the development of atherosclerotic lesions. Crane ED, Al-Hashimi AA, Chen J, Lynn EG, Won KD, Lhoták Š, Naeim M, Platko K, Lebeau P, Byun JH, Shayegan B, Krepinsky JC, Rayner KJ, **Marchiò S**, Pasqualini R, Arap W, Austin RC. *JCI Insight*. **2018**;3(24):e99363.

BCAM and LAMA5 mediate the recognition between tumor cells and the Eedothelium in the metastatic spreading of KRAS-mutant colorectal cancer. Bartolini A, Cardaci S, Lamba S, Oddo D, Marchiò C, Cassoni P, Amoreo CA, Corti G, Testori A, Bussolino F, Pasqualini R, Arap W, Corà D, Di Nicolantonio F, **Marchiò S**. *Clin Cancer Res*. **2016**;22(19):4923-4933.

The neuronal pentraxin-2 pathway is an unrecognized target in human neuroblastoma, which also offers prognostic value in patients. Bartolini A, Di Paolo D, Noghero A, Murgia D, Sementa AR, Cilli M, Pasqualini R, Arap W, Bussolino F, Ponzoni M, Pastorino F, **Marchiò S**. *Cancer Res*. **2015**;75(20):4265-71.

Neuroblastoma-targeted nanocarriers improve drug delivery and penetration, delay tumor growth and abrogate metastatic diffusion. Cossu I, Bottoni G, Loi M, Emionite L, Bartolini A, Di Paolo D, Brignole C, Piaggio F, Perri P, Sacchi A, Curnis F, Gagliani MC, Bruno S, Marini C, Gori A, Longhi R, Murgia D, Sementa AR, Cilli M, Tacchetti C, Corti A, Sambuceti G, **Marchiò S***, Ponzoni M*, Pastorino F*. *Biomaterials*. **2015**;68:89-99. *co-last

Novel phage display-derived neuroblastoma-targeting peptides potentiate the effect of drug nanocarriers in preclinical settings. Loi M, Di Paolo D, Soster M, Brignole C, Bartolini A, Emionite L, Sun J, Becherini P, Curnis F, Petretto A, Sani M, Gori A, Milanese M, Gambini C, Longhi R, Cilli M, Allen TM, Bussolino F, Arap W, Pasqualini R, Corti A, Ponzoni M, **Marchiò S***, Pastorino F*. *J Control Release*. **2013**;170(2):233-41. *co-last

A complex of α6 integrin and E-cadherin drives liver metastasis of colorectal cancer cells through hepatic angiopoietin-like 6. **Marchiò S**, Soster M, Cardaci S, Muratore A, Bartolini A, Barone V, Ribero D, Monti M, Bovino P, Sun J, Giavazzi R, Asioli S, Cassoni P, Capussotti L, Pucci P, Bugatti A, Rusnati M, Pasqualini R, Arap W, Bussolino F. *EMBO Mol Med*. **2012**;4(11):1156-75.

Combined targeting of perivascular and endothelial tumor cells enhances anti-tumor efficacy of liposomal chemotherapy in neuroblastoma. Loi M, **Marchiò S**, Becherini P, Di Paolo D, Soster M, Curnis F, Brignole C, Pagnan G, Perri P, Caffa I, Longhi R, Nico B, Bussolino F, Gambini C, Ribatti D, Cilli M, Arap W, Pasqualini R, Allen TM, Corti A, Ponzoni M, Pastorino F. *J Control Release*. **2010**;145(1):66-73.

Cell surface-associated Tat modulates HIV-1 infection and spreading through a specific interaction with gp120 viral envelope protein. **Marchiò S**, Alfano M, Primo L, Gramaglia D, Butini L, Gennero L, De Vivo E, Arap W, Giacca M, Pasqualini R, Bussolino F. *Blood*. **2005**;105(7):2802-11.

Aminopeptidase A is a functional target in angiogenic blood vessels. **Marchiò S**, Lahdenranta J, Schlingemann RO, Valdembri D, Wesseling P, Arap MA, Hajitou A, Ozawa MG, Trepel M, Giordano RJ, Nanus DM, Dijkman HB, Oosterwijk E, Sidman RL, Cooper MD, Bussolino F, Pasqualini R, Arap W. *Cancer Cell*. **2004**;5(2):151-62.

Publications in the last 5 yrs (2018-2022)

Investigation into the use of encorafenib to develop potential PROTACs directed against BRAFV600E protein. Marini E, Marino M, Gionfriddo G, Maione F, Pandini M, Oddo D, Giorgis M, Rolando B, Blua F, Gastaldi S, **Marchiò S**, Kovachka S, Spyrakis F, Gianquinto E, Di Nicolantonio F, Bertinaria M. *Molecules*. **2022**;27(23):8513.

Advanced cellular models for preclinical drug testing: From 2D cultures to organ-on-a-chip technology. Foglizzo V, Cocco E, **Marchiò S**. *Cancers*. **2022**;14(15):3692.

Nanoparticles as physically- and biochemically-tuned drug formulations for cancers therapy. Foglizzo V, **Marchiò S**. *Cancers*. **2022**;14(10):2473.

Paclitaxel restores sensitivity to chemotherapy in preclinical models of multidrug-resistant intrahepatic cholangiocarcinoma. Massa A, Peraldo-Neia C, Vita F, Varamo C, Basiricò M, Raggi C, Bernabei P, Erriquez J, Sarotto I, Leone F, **Marchiò S*** Cavalloni G* Aglietta M* *Front Oncol*. **2022**;12:771418. *co-last

Bacteriophages as therapeutic and diagnostic vehicles in cancer. Foglizzo V, **Marchiò S**. *Pharmaceuticals*. **2021**;14(2):161.

Phage display-based nanotechnology applications in cancer immunotherapy. Goracci M, Pignochino Y, **Marchiò S**. *Molecules*. **2020**;25(4):843.

A functional idiotype/anti-idiotype network is active in genetically gluten-intolerant individuals negative for both celiac disease-related intestinal damage and serum autoantibodies. Quaglia S, Ferrara F, De Leo L, Ziberna F, Vatta S, **Marchiò S**, Sblattero D, Ventura A, Not T. *J Immunol*. **2019**;202(4):1079-1087.

Emerging pharmacologic targets in cerebral cavernous malformation and potential strategies to alter the natural history of a difficult disease: a Review. Chohan MO*, **Marchiò S***, Morrison LA, Sidman RL, Cavenee WK, Dejana E, Yonas H, Pasqualini R, Arap W. *JAMA Neurol*. **2019**;76(4):492-500. *co-first

Anti-GRP78 autoantibodies induce endothelial cell activation and accelerate the development of atherosclerotic lesions. Crane ED, Al-Hashimi AA, Chen J, Lynn EG, Won KD, Lhoták Š, Naeim M, Platko K, Lebeau P, Byun JH, Shayegan B, Krepinsky JC, Rayner KJ, **Marchiò S**, Pasqualini R, Arap W, Austin RC. *JCI Insight*. **2018**;3(24):e99363.

Therapeutic targeting of membrane-associated GRP78 in leukemia and lymphoma: preclinical efficacy in vitro and formal toxicity study of BMTP-78 in rodents and primates. Staquicini DI, D'Angelo S, Ferrara F, Karjalainen K, Sharma G, Smith TL, Tarleton CA, Jaalouk DE, Kuniyasu A, Baze WB, Chaffee BK, Hanley PW, Barnhart KF, Koivunen E, **Marchiò S**, Sidman RL, Cortes JE, Kantarjian HM, Arap W, Pasqualini R. *Pharmacogenomics J*. **2018**;18(3):436-443.