



Curriculum Vitae Europass



Personal data

First and Last Name **Andrea Perrelli**
Current Address 34 South Goodman Street, 14607 - Rochester (NY), USA
Fiscal Code PRRNDR92P24E463Y
Cellular phone +39-335-6326981 / +1 (585) 710-5939
E-mail andrea.perrelli@unito.it / andrea_perrelli@urmc.rochester.edu
Nationality Italian
Date and place of birth 09/24/1992 – La Spezia (SP)
Gender M

Employment/Professional Sector

Dr. Perrelli is conducting a research project aimed at the characterization of molecular and cellular mechanisms underlying the pathogenesis of Cerebral Cavernous Malformations disease (CCM), and the development and test of innovative therapeutic and preventive approaches based on nanotechnology.

Professional experience

Date 11/01/2021 – in course
Current job position Post-doctoral fellowship at the Department of Pharmacology and Physiology at the University of Rochester, Rochester (NY, USA).

Academic curriculum

Education and training

Date 2021
PhD title at the Doctoral School in Life and Health Sciences (33rd cycle of the PhD program in Life Sciences Complex Systems) at the University of Turin.
Date 2017
Master's Degree in Medical Biotechnology (LM9), summa cum laude and dignity of the press, at the University of Turin.

Date	2015
Skills and competences	Bachelor's Degree in Biotechnology (L02), with a total score of 110/110, at the University of Pisa.
Mother tongue	Italian
Other(s) language(s)	English
Levels*	Comprehension: B1 Talk: B2 Writing: B2
	*Common European Framework of Reference for Languages
Informatic Skills	Good knowledge of Windows operating programs (Word, Excel, PowerPoint), Photoshop, scientific tools (e.g., ImageJ) and Internet.
Professional and research skills	<p>During the bachelor's degree course in Biotechnology, Dr. Andrea Perrelli carried out an experimental period of 6 months at the Laboratory of Clinical Pathology of the University of Pisa. During this period, he dealt with cell cultures and cellular treatments, in particular using carbonaceous compounds and derivatives, such as soluble graphene oxide, nanoparticles and multi-stratified sheet. The research was carried out with the aim of evaluating the cytotoxic effects of graphene oxide on <i>in vitro</i> models in order to eventually use the material as a biosensor in the evaluation of the progression or reduction of ulcerative wounds. The work was carried out in close contact with Prof. Aldo Paolicchi, head of the laboratory and ordinary professor of the Chair of Pathology at the University of Pisa.</p> <p>During the Master's Degree in Medical Biotechnology, Dr. Andrea Perrelli followed an 18-month internship at the Cellular Biology Laboratory directed by Prof. Retta, within the Department of Clinical and Biological Sciences of the University of Torino. Here the research project was based on the study of the role of loss-of-function mutation of the KRIT1 gene in the pathogenesis of Cerebral Cavernous Malformation disease (CCM, OMIM: 116860), vascular abnormalities of the central nervous system characterized by dilated and leaky blood capillaries (caverns) that can cause several clinical symptoms, such as recurrent headaches, epileptic strokes, neurological deficits and intracerebral hemorrhages. In particular, the work was performed using KRIT1^{-/-} and KRIT1^{+/+} cell models, respectively knock-out or over-expressing the KRIT1 gene, a pivotal gene involved in the maintenance of cellular junctions, in the regulation of cellular responses to endogenous and exogenous stress factors, as well as in the proper formation of a normal vasculature structure.</p> <p>The current lines of study and research projects are mainly focused on the full characterization of the cellular and molecular mechanisms underlying the pathogenesis of CCM and on the development of pharmacological therapeutic approaches through various experimental strategies, including proteomic redox analysis and nanotechnology.</p>

Teaching activity	<p>AY 2018 – <i>in progress</i> - Teaching complement of the module Applied Biology, integrated course of Propaedeutic and Biomedical Sciences, of the first year of the Degree in <i>Techniques of Psychiatric Rehabilitation</i>, University of Turin.</p> <p>AY 2018 - <i>in progress</i> – Teaching complement of the module Applied Biology, integrated course of Propaedeutic and Biomedical Sciences, of the first year of the Degree in <i>Physiotherapy</i>, University of Turin.</p> <p>AY 2019 - <i>in progress</i> – Teaching complement of the module Applied Biology, integrated course of Propaedeutic and Biomedical Sciences, of the first year of the Degree in <i>Speech and language therapy</i>, University of Turin.</p> <p>AY 2019 - <i>in progress</i> – Teaching complement of the module Applied Biology, integrated course of Propaedeutic and Biomedical Sciences, of the first year of the Degree in <i>Orthoptic and ophthalmologic assistance</i>, University of Turin.</p> <p>AY 2019 - <i>in progress</i> – Teaching complement of the module Applied Biology, integrated course of Propaedeutic and Biomedical Sciences, of the first year of the Degree in <i>Childhood neuro and psychomotricity</i>, University of Turin.</p>
Research fellows	<p>Finalist at the US Regional Blavatnik Awards for Young Scientists, year 2022.</p> <p>Postdoctoral fellow at the Department of Pharmacology and Physiology of the University of Rochester, Rochester (NY, USA), years 2021-2022.</p> <p>Research fellow in Applied Biology supported by AIAC Onlus Italia, year 2021.</p> <p>Annual research fellow in Applied Biology supported by University of Torino, year 2021.</p> <p>Annual research grant in Applied Biology for Lagrange Project, supported by "Fondazione CRT", year 2017.</p>
Prizes and awards	<p>2022 PDA Career Enhancement Award, January 2023.</p> <p>Scholarship award for Virtual Keystone Symposia Meeting, October 2021.</p> <p>Young Investigator Award 2019 sponsored by SFRR Europe, June 20th, 2019.</p> <p>Travel award for SFRR-E European Meeting, Ferrara 2019.</p> <p>Travel award for XVIII National Congress AIBG, Ferrara 2018.</p>
Driving license	B

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Publications in international journals

- 1) **Perrelli A**, Bozza A, Ferraris C, Osella S, Moglia A, Mioletti S, Battaglia L, Retta SF. (2023). Multidrug-Loaded Lipid Nanoemulsions for the Combinatorial Treatment of Cerebral Cavernous Malformation Disease. *Biomedicines*. 2023 Feb 7;11(2):480. doi: 10.3390/biomedicines11020480.
- 2) **Perrelli A**, Ferraris C, Berni E, Glading AJ, Retta SF. (2023). KRIT1: a traffic warden at the busy crossroads between redox signaling and the pathogenesis of Cerebral Cavernous Malformation disease. *Antioxid Redox Signal*. 2023 Mar;38(7-9):496-528. doi: 10.1089/ars.2021.0263.
- 3) Bianconi A, Salvati LF, **Perrelli A**, Ferraris C, Massara A, Minardi M, Aruta G, Rosso M, Massa Micon B, Garbossa D, Retta SF. (2022). Distant Recurrence of a Cerebral Cavernous Malformation in the Vicinity of a Developmental Venous Anomaly: Case Report of Local Oxy-Inflammatory Events. *Int J Mol Sci*. 2022 Nov 24;23(23):14643. doi: 10.3390/ijms232314643.
- 4) Mastrocola R, Aimaretti A, Ferreira Alves G, Cento AS, Fornelli C, Dal Bello F, Ferraris C, Goitre G, **Perrelli A** and Retta SF. (2022). Heterozygous Loss of KRIT1 in Mice Affects Metabolic Functions of the Liver, Promoting Hepatic Oxidative and Glycative Stress. *Int J Mol Sci*. 2022 Sep 22;23(19), 11151. doi.org/10.3390/ijms231911151.
- 5) Benedetti V, Canzoneri R, **Perrelli A**, Arduino C, Zonta A, Brusco A, Retta SF. (2022). Next-Generation Sequencing Advances the Genetic Diagnosis of Cerebral Cavernous Malformation (CCM). *Antioxidants (Basel)*. 2022 Jun 29;11(7):1294. doi: 10.3390/antiox11071294.
- 6) **Perrelli A** and Retta SF. (2021). Polymorphisms in genes related to oxidative stress and inflammation: emerging links with the pathogenesis and severity of Cerebral Cavernous Malformation disease. *Free Radic Biol Med*. 2021 Aug 20;172:403-417. doi: 10.1016/j.freeradbiomed.2021.06.021.
- 7) De Luca E, **Perrelli A**, Swamy H, Nitti M, Passalacqua M, Furfaro AL, Salzano AM, Scaloni A, Glading AJ, Retta SF. (2021). Protein Kinase $C\alpha$ (PKC α) Regulates the Nucleocytoplasmic Shuttling of KRIT1. *Journal of Cell Science*. 2021 Feb 4;134(3):jcs250217. doi: 10.1242/jcs.250217.
- 8) **Perrelli A**, Fatehbasharadz P, Benedetti V, Ferraris C, Fontanella M, De Luca E, Moglianetti M, Battaglia L, Retta SF. (2021). Towards precision nanomedicine for cerebrovascular diseases with emphasis on Cerebral Cavernous Malformation (CCM). *Expert Opin Drug Deliv*. 2021 Jan 6. doi: 10.1080/17425247.2021.1873273.
- 9) **Perrelli A** and Retta SF. (2020). Fluorescence Analysis of Reactive Oxygen Species (ROS) in Cellular Models of Cerebral Cavernous Malformation Disease. *Methods in Molecular Biology*. In: *Cerebral Cavernous Malformations (CCM). Methods and Protocols*; Springer Ed.; 2152; Methods Mol Biol. 2020; 2152:451-465. doi: 10.1007/978-1-0716-0640-7_34.
- 10) Goitre L, Fornelli C, Zotta A, **Perrelli A**, Retta SF. (2020). Production of KRIT1-knockout and KRIT1-knockin Mouse Embryonic Fibroblasts as Cellular Models of CCM Disease. *Methods in Molecular Biology*. In: *Cerebral Cavernous Malformations (CCM). Methods and Protocols*; Springer Ed.; 2152; Methods Mol Biol. 2020; 2152:151-167. doi: 10.1007/978-1-0716-0640-7_12.

- 11) Retta SF, **Perrelli A**, Trabalzini L, Finetti F. (2020). From Genes and Mechanisms to Molecular-Targeted Therapies: The Long Climb to the Cure of Cerebral Cavernous Malformation (CCM) Disease. *Methods in Molecular Biology*. In: *Cerebral Cavernous Malformations (CCM). Methods and Protocols*; Springer Ed.; 2152; *Methods Mol Biol.* 2020; 2152:3-25. doi: 10.1007/978-1-0716-0640-7_1.
- 12) Kim HA, **Perrelli A**, Ragni A, Retta F, De Silva TM, Sobey GC, Retta SF. (2020). Vitamin D Deficiency and the Risk of Cerebrovascular Disease. *Antioxidants (Basel)*. 2020 Apr 17; 9(4). pii: E327. doi: 10.3390/antiox9040327.
- 13) Antognelli C, **Perrelli A**, Armeni T, Nicola Talesa V, Retta SF. (2020). Dicarbonyl Stress and S-Glutathionylation in Cerebrovascular Diseases: A Focus on Cerebral Cavernous Malformations. *Antioxidants (Basel)*. 2020 Feb 1; 9(2). pii: E124. doi: 10.3390/antiox9020124.
- 14) Vieceli Dalla Sega F, Mastrocola R, Aquila G, Fortini F, Fornelli C, Zotta A, Cento AS, **Perrelli A**, Boda E, Pannuti A, Marchi S, Pinton P, Ferrari R, Rizzo P, Retta SF. (2019). KRIT1 Deficiency Promotes Aortic Endothelial Dysfunction. *Int J Mol Sci.* 2019 Oct 5; pii: E4930. doi:c10.3390/ijms20194930.
- 15) Cianfruglia L, **Perrelli A**, Fornelli C, Magini A, Gorbi S, Salzano AM, Antognelli C, Retta F, Benedetti V, Cassoni P, Emiliani C, Principato G, Scaloni A, Armeni T, Retta SF. (2019). KRIT1 Loss-Of-Function Associated with Cerebral Cavernous Malformation Disease Leads to Enhanced S-Glutathionylation of Distinct Structural and Regulatory Proteins. *Antioxidants (Basel)*. 2019 Jan 17; doi:10.3390/antiox8010027.
- 16) De Luca E, Pedone D, Moglianetti M, Pulcini D, **Perrelli A**, Retta SF, Pompa PP. (2018). Multifunctional Platinum@BSA–Rapamycin Nanocarriers for the Combinatorial Therapy of Cerebral Cavernous Malformation. *ACS Omega*. 2018 Nov 13; doi: 10.1021/acsomega.8b01653.
- 17) Finetti F, Moglia A, Schiavo I, Donnini S, Berta GN, Di Scipio F, **Perrelli A**, Fornelli C, Trabalzini L, Retta SF. (2018). Yeast-Derived Recombinant Avenanthramides Inhibit Proliferation, Migration and Epithelial Mesenchymal Transition of Colon Cancer Cells. *Nutrients*. 2018 Aug 24; doi: 10.3390/nu10091159.
- 18) **Perrelli A**, Goitre L, Salzano AM, Moglia A, Moglia A, Scaloni A, Retta SF. (2018). Biological Activities, Health Benefits, and Therapeutic Properties of Avenanthramides: From Skin Protection to Prevention and Treatment of Cerebrovascular Diseases. *Oxid Med Cell Longev*. 2018 Aug 23; 2018:6015351. doi: 10.1155/2018/6015351.
- 19) Antognelli C, Trapani E, Delle Monache S, **Perrelli A**, Daga M, Pizzimenti S, Barrera G, Cassoni P, Angelucci A, Trabalzini L, Talesa VN, Goitre L, Retta SF. (2018). KRIT1 loss-of-function induces a chronic Nrf2-mediated adaptive homeostasis that sensitizes cells to oxidative stress: Implication for Cerebral Cavernous Malformation disease. *Free Radic Biol Med*. 2018 Feb 1; 115:202-218.
- 20) Antognelli C, Trapani E, Delle Monache S, **Perrelli A**, Fornelli C, Retta F, Cassoni P, Talesa VN, Retta SF. (2017). Data in support of sustained upregulation of adaptive redox homeostasis mechanisms caused by KRIT1 loss-of-function. *Data Brief*. 2017 Dec 13; 16:929-938.

Participation to International Conferences

- 1) **Perrelli A**, Mastrocola R, Aimaretti A, Ferreira Alves G, Cento AS, Fornelli C, Dal Bello F, Ferraris C, Goitre G, and Retta SF. (2022). Heterozygous Loss of KRIT1 in Mice Affects Metabolic Functions of the Liver, Promoting Hepatic Oxidative and Glycative Stress. 18th Anniversary Alliance to Cure

Cavernous Malformation - International CCM Scientific Meeting. Durham, NC (USA), November 17-18, 2022. **Oral presentation.**

- 2) Retta SF, **Perrelli A**, Ferraris C, Berni E, Glading AJ. CCM disease from a redox perspective: KRIT1 acts as a traffic warden at the busy crossroads between redox signaling and CCM pathogenesis. 18th Anniversary Alliance to Cure Cavernous Malformation - International CCM Scientific Meeting. Durham, NC (USA), November 17-18, 2022.
- 3) **Perrelli A**, Ferraris C, Berni E, Moglia A, Battaglia L, Retta SF. Avenanthramides: antioxidant and anti-inflammatory activities from oats to human therapy. Annual Meeting of the Society for Free Radical Research Europe (SFRR-E) conference 2022. Ghent (Belgium), August 24-26, 2022. **Oral presentation.**
- 4) **Perrelli A**, Ferraris C, De Luca E, Swamy H, Glading AJ, Retta SF. Protein kinase $C\alpha$ regulates the nucleocytoplasmic shuttling of KRIT1. NAVBO Vascular Biology 2021. Virtual Conference, October 25-29, 2021.
- 5) Mastrocola R, Aimaretti E, Fornelli C, Cento AS, **Perrelli A**, Retta SF. KRIT1 gene deletion in mice affects hepatic glucose metabolism through FoxO1 depletion inducing glycative stress. 28th Annual Conference of the Society for Redox Biology and Medicine. Savannah (USA), November 15-18, 2021.
- 6) **Perrelli A**, De Luca E, Swamy H, Nitti M, Passalacqua M, Furfaro AL, Salzano AM, Scaloni A, Glading AJ, Retta SF. Protein Kinase $C\alpha$ (PKC α) Regulates the Nucleocytoplasmic Shuttling of KRIT1. Annual Meeting of the Society for Free Radical Research Europe (SFRR-E) conference 2021. Belgrade (Serbia), June 15-18, 2021. **Oral presentation.**
- 7) De Luca E, **Perrelli A**, Swamy H, Nitti M, Passalacqua M, Furfaro AL, Salzano AM, Scaloni A, Glading AJ, Retta SF. Protein Kinase $C\alpha$ (PKC α) Regulates the Nucleocytoplasmic Shuttling of KRIT1. EXPERIMENTAL BIOLOGY 2021. Virtual Conference, April 27-30, 2021.
- 8) **Perrelli A**, Battaglia LS, Retta SF. Development of combinatorial targeted therapeutic strategies based on nanotechnology for Cerebral Cavernous Malformation disease treatment. NANO-DAY IV Conference. Milano (Italy), December 11-14, 2019. **Oral presentation.**
- 9) Mastrocola R, Cento AS, Fornelli C, Zotta A, **Perrelli A**, Retta SF. KRIT1/CCM1 loss-of-function mutations impair anti-glycative and anti-oxidant systems worsening high fructose diet-induced hepatic dismetabolism. 26th Annual Conference of the Society for Redox Biology and Medicine. Las Vegas (USA), November 20-23, 2019.
- 10) **Perrelli A**, Viecei Dalla Sega F, Mastrocola R, Aquila G, Fortini F, Fornelli C, Zotta A, Cento AS, Boda E, Pannuti A, Marchi S, Pinton P, Ferrari R, Rizzo P, Retta SF. KRIT1 deficiency promotes aortic endothelial dysfunction and atherosclerosis. 15th Annual Angioma Alliance - CCM Scientific Meeting. Washington, DC (USA), November 7-8, 2019.
- 11) **Perrelli A**, Viecei Dalla Sega F, Mastrocola R, Aquila G, Fortini F, Fornelli C, Zotta A, Cento AS, Boda E, Pannuti A, Marchi S, Pinton P, Ferrari R, Rizzo P, Retta SF. KRIT1 deficiency promotes aortic endothelial dysfunction and atherosclerosis. XX Scientific Convention Fondazione Telethon. Riva del Garda (Italy), October 28-20, 2019.
- 12) **Perrelli A**, De Luca E, Pedone D, Moglianetti M, Fornelli C, Zotta A, Pulcini D, Pompa PP, Retta SF. Multifunctional Platinum@BSA-Rapamycin Nanocarriers for Combinatorial Therapy of Cerebral Cavernous Malformation disease. Annual Meeting of the Society for Free Radical Research Europe (SFRR-E) conference 2019. Ferrara (Italy), June 19-21, 2019. **Oral presentation.**
- 13) Mastrocola R, Cento AS, Fornelli C, Zotta A, **Perrelli A**, Retta SF. KRIT1/CCM1 loss-of-function worsen fructose diet-induced hepatic dismetabolism and impairs advanced glycation endproducts

receptors and detoxification. Annual Meeting of the Society for Free Radical Research Europe (SFRR-E) conference 2019. Ferrara (Italy), June 19-21, 2019.

- 14) **Perrelli A**, Antognelli C, Cianfruglia L, Armeni T, Salzano AM, Fornelli C, Benedetti V, Geddo F, Scaloni A, Trabalzini L, Retta SF. Moving towards prognostic biomarkers and therapeutic strategies for CCM disease: KRIT1 loss-of-function causes increases in protein S-glutathionylation. 14th Annual Angioma Alliance - CCM Scientific Meeting. Washington, DC (USA), November 8-9, 2018. **Oral presentation.**
- 15) Pedone D, De Luca E, Moglianetti M, Pulcini D, **Perrelli A**, Retta SF and Pompa PP. Platinum nanoparticles as multifunctional active nanocarriers integrating the function of high-performance antioxidant drugs. International Conference On Nanomedicine And Nanobiotechnology 2018. Rome (Italy), September 26-28, 2018.
- 16) **Perrelli A**, Antognelli C, Trapani E, Delle Monache S, Fornelli C, Zotta A, Talesa V, Goitre L, Glading A, Retta SF. Adaptive redox homeostasis mechanisms underlie Cerebral Cavernous Malformation disease pathogenesis. XVIII Congresso Nazionale AIBG. Ferrara (Italy), September 21-22, 2018.
- 17) Viecei Dalla Sega F, Fortini F, Aquila G, Marracino L, Trapani E, Fornelli C, **Perrelli A**, Marchi S, Pinton P, Retta SF, Rizzo P. Krit1 loss-of-function increases TNF- α -induced apoptosis by inhibiting Notch1 in endothelial cells. 35th Annual Meeting of the ISHR European Section. Amsterdam (Netherlands), July 16-19, 2018.
- 18) Trapani E, Antognelli C, Delle Monache S, **Perrelli A**, Fornelli C, Benedetti V, Sarri S, Costantino G, Geddo F, Zotta A, Talesa V, Goitre L and Retta SF. KRIT1 loss-of-function induces a chronic Nrf2-mediated adaptive homeostasis that sensitizes cells to oxidative stress: implication for Cerebral Cavernous Malformation disease. European Human Genetics Conference. Milan (Italy), June 16-19, 2018.
- 19) **Perrelli A**, Trapani E, Antognelli C, Delle Monache S, Fornelli C, Benedetti V, Costantino G, Geddo F, Zotta A, Sarri S, Bratti G, Goitre L, Retta SF. KRIT1 loss-of-function induces a sustained Nrf2-mediated adaptive homeostasis that sensitizes cells to oxidative stress: implication for Cerebral Cavernous Malformation disease. 19th Biennial Meeting of the Society for Free Radical Research International (SFRRRI) conference. Lisbon (Portugal), June 4-7, 2018.
- 20) Fornelli C, Trapani E, Mastrocola R, **Perrelli A**, Benedetti V, Zotta A, Costantino G, Geddo F, Boda E, Biasi F, Goitre L, Retta SF. Identification of Risk Factors and Biomarkers of Diagnostic and Prognostic Value Associated with Clinical Progression and Severity of Cerebral Cavernous Malformations. 19th Biennial Meeting of the Society for Free Radical Research International (SFRRRI) conference. Lisbon (Portugal), June 4-7, 2018.
- 21) Trapani E, Antognelli C, Delle Monache S, **Perrelli A**, Fornelli C, Benedetti V, Sarri S, Costantino G, Geddo F, Zotta A, Talesa V, Goitre L and Retta SF. KRIT1 loss-of-function induces a chronic Nrf2-mediated adaptive homeostasis that sensitizes cells to oxidative stress: implication for Cerebral Cavernous Malformation disease. Keystone Symposia Meeting - "Vascular Biology and Human Diseases: From Molecular Pathways to Novel Therapeutics". Santa Fe, New Mexico (USA), 25 February - March 1, 2018.
- 22) Trapani E, Antognelli C, Goitre L, **Perrelli A**, Sarri S, Barrera G, Talesa V, Trabalzini L, Retta SF. Altered redox homeostasis and signaling in Cerebral Cavernous Malformation disease: towards a complex but unifying pathogenic mechanism and therapeutic implications. Meeting of the International HNE-Club. "Reactive Oxygen Species and Lipid Peroxidation in Human Health and Disease". Graz (Austria), September 14-15, 2017.