

Giusy De Rosa, PhD student

BIOGRAPHICAL SKETCH

Name: Giusy De Rosa

Position:

Contact:

Pec:

Phone number

Education

2020-present: PhD student in Molecular Medicine and Medical Biotechnology at Department of Excellence Molecular Medicine and Medical Biotechnology of University of Naples Federico II, under the supervision of Prof. Giuseppe Matarese.

20/07/2020: Master's Degree in Biotechnological Science, Curriculum Medical Biotechnology, achieving 110/110 "summa cum laude". Defended thesis in Immunology titled "Study of immunological function in undernourished children with cerebral palsy". Supervisor: Prof. Giuseppe Matarese; - University of Naples Federico II.

26/10/2017: Bachelor's degree in biotechnology at "Università degli Studi Della Campania Luigi Vanvitelli, Caserta, Italy", defending thesis in Genetic Pathology. Supervisor: Prof. Nigro. Score: 107/110.

Working/Research Experience:

2023-Oct-Dec: Internship at Radboud University in Nijmegen, working under the guidance of Professor Mihai Netea, in Nijmegen (the Netherlands), on the role of trained immunity in pathological conditions; specifically on the role of different stimuli inducing training immunity (such as BCG or beta-glucan) in controlling immune tolerance, through the differentiation of T cells towards a regulatory phenotype.

2020-present: PhD fellowship at Department of Molecular Medicine and Medical Biotechnology, at university of Naples Federico II. The PhD project focuses on the study of T-regulatory cells and their molecular mechanisms of action, in particular on how T regulatory cells can perform their immunosuppressive activity by releasing extracellular vesicles, in physiological and pathological models of human diseases, such as Multiple sclerosis.

2020-Oct: Occasional service contract at the AMES diagnostic company, Casalnuovo NA. Analysis of covid-19 swabs, using RT-qPCR methods.

2019-2020: traineeship during master's degree at University of Naples Federico II, under guidance of Professor Matarese, at Department of Molecular Medicine and Medical Biotechnology. Investigation of how nutritional therapy can improve immune-metabolic balance in malnourished children with cerebral palsy.

Research and Professional Experience

Expertise:

- XF Flux Analyzer (Seahorse technology) for intracellular metabolism studies, particularly focused on exploring the intricate relationships between the immune system, metabolism, and inflammation. Experience includes investigations in both physiological contexts and autoimmune diseases, as Multiple sclerosis, both in humans and mice.
- Good experience in performing flow cytometric analysis of different peripheral blood cell populations, employing FACS flow cytometer (DIVA) and FlowJo analysis software.
- Purification of lymphocyte populations (as T-regulatory and T-conventional cells) from peripheral blood samples obtained from patients with autoimmune disorders and healthy controls, as well as including purification and isolation of Extracellular Vesicles from lymphocyte.
- Isolation of monocytes and induction of trained immunity with BCG vaccine, with international experience, at Radboud University, Nijmegen.
- Proficient in a range of laboratory techniques including SDS-PAGE, protein extraction, purification, enzymatic and immune-enzymatic assays, immunoblotting, and nucleic acid extraction (DNA and RNA), along with PCR and RT-PCR.
- Skilled in conducting *in vivo* studies of autoimmune diseases using mouse models, including the induction of experimental autoimmune encephalopathy (EAE), monitoring disease progression, sampling spleen tissues, isolating splenocytes and CNS for functional analysis. In February 2024 qualification to perform practices in vivo model, attended the course in “Scienze e tecnologie applicate agli animali utilizzati a fini scientifici Corso di Formazione per il personale con le funzioni A-B-C-D” at University of Federico II, Naples

Publications:

Procaccini C, Garavelli S, Carbone F, Di Silvestre D, La Rocca C, Greco D, Colamatteo A, Lepore MT, Russo C, De Rosa G, Faicchia D, Prattichizzo F, Grossi S, Campomenosi P, Buttari F, Mauri P, Uccelli A, Salvetti M, Brescia Morra V, Vella D, Galgani M, Mottola M, Zuccarelli B, Lanzillo R, Maniscalco GT, Centonze D, de Candia P, Matarese G. **Signals of pseudo-starvation unveil the amino acid transporter SLC7A11 as key determinant in the control of Treg cell proliferative potential.** *Immunity*. 2021 Jul 13;54(7):1543-1560.e6. doi:10.1016/j.immuni.2021.04.014. Epub 2021 May 17. PMID:34004141.

Procaccini C, de Candia P, Russo C, De Rosa G, Lepore MT, Colamatteo A, Matarese G. **Caloric restriction for the immunometabolic control of human health.** *Cardiovasc Res*. 2023 Feb 2;cvad035. doi: 10.1093/cvr/cvad035. Epub ahead of print. PMID: 36848376

Clorinda Fusco#, Giusy De Rosa#, Ilaria Spatocco#, Elisabetta Vitiello, Claudio Procaccini, Chiara Frigè, Valeria Pellegrini, Rosalba La Grotta, Giuseppe Matarese, Francesco Prattichizzo and Paola de Candia (#co-first author). **Extracellular vesicles as human therapeutics: a scoping review of the literature.** In press publication in JEV (in journal of extracellular vesicles)

Fortunata Carbone, Alessandra Colamatteo, Claudia La Rocca, Maria Teresa Lepore, Claudia Russo, Giusy De Rosa, Alessandro Matarese, Claudio Procaccini, Giuseppe Matarese. **Metabolic plasticity of Treg cells in health and autoimmunity.** In press publication in JI (Journal of Immunology)

Submitted papers:

Claudio Procaccini #, Giusy De Rosa#, Claudia Russo, Dario Di Silvestre, Silvia Garavelli, Clorinda Fusco, Alessandra Colamatteo, Fabiana Passaro, Donatella Carpi, Elena Tagliabue, Francesco Prattichizzo, Francesca Brambilla, Pierluigi Mauri, Mirjam Hoxha, Valentina Bollati, Ilaria Giusti, Vincenza Dolo, Paola D'Antona, Paola Campomenosi, Valentina Mangolini, Annalisa Radeghieri, Paolo Bergese, Annamaria Finardi, Fabio Buttari, Giammarco Abbadessa, Simona Bonavita, Maria Mottola, Bruno Zuccarelli, Diego Centonze, Roberto Furlan, Giuseppe Matarese and Paola de Candia (#co-first author) **MicroRNA-142-3p functional shuttling via regulatory T cell-derived extracellular vesicles implications for human autoimmunity** (submitted in Science Translational Medicine)

Silvia Caioli; Sara Balletta; Alessandra Musella; Diego Fresegha; Krizia Sanna; Livia Guadalupi; Fortunata Carbone; Claudio Procaccini; Marta Tiberi; Alessandro Moscatelli; Valentina Vanni; Monica Nencini; Alice Tartacca; Fabrizio Mariani; Alessandro Matteocci; Teresa Micillo; Giusy De Rosa; Claudia Russo; Mario Stampanoni Bassi; Luana Gilio; Antonio Bruno; Ettore Dolcetti; Fabio Buttari; Valentina Rovella; Alessandro Usiello; Valerio Chiurchiù; Giuseppe Matarese; Georgia Mandolesi; Diego Centonze; Francesca De Vito **High-fat diet drives glutamatergic synaptic damage by shaping the gut microbiota and T cell dynamics in multiple sclerosis.** (submitted in Brain)

Congress Abstracts:

Role of SLC7A11 in the control of Treg cell homeostasis in autoimmunity.

Claudio Procaccini, Silvia Garavelli, Fortunata Carbone, Dario Di Silvestre, Claudia La Rocca, Alessandra Colamatteo, Maria Teresa Lepore, Claudia Russo, Giusy De Rosa, Fabio Buttari, Pierluigi Mauri, Antonio Uccelli, Marco Salvetti, Vincenzo Brescia Morra, Mario Galgani, Roberta Lanzillo, Georgia Teresa Maniscalco, Dario Greco, Diego Centonze, Paola de Candia, Giuseppe Matarese **AINI (Associazione Italiana Neuroimmunologia) 2021** in Verona, Italy 16-19 September

Exercise ameliorates synaptic dysfunctions and peripheral and central immune alterations in experimental Multiple Sclerosis. Antonietta Gentile, Francesca Romana Rizzo, Livia Guadalupi, Claudio Procaccini, Claudia Russo, Giusy De Rosa, Maria Teresa Lepore, Krizia Sanna, Valentina Vanni, Diego Fresegha, Francesca De Vito, Alessandra Musella, Silvia Caioli, Sara Balletta, Silvia Bullitta, Giuseppe Matarese, Georgia Mandolesi, Diego Centonze **AINI (Associazione Italiana Neuroimmunologia) 2021**, Verona, Italy 16-19 September

Immunity and nutritional status: pilot study of immunological function in undernourished children with cerebral palsy. Giusy De Rosa, Elena Scarpato, Claudio Procaccini, Claudia Russo, Sara Bruzzaniti, Maria Rosaria Serra, Maria Teresa Fioretti, Erasmo Miele, Annamaria Staiano, Giuseppe Matarese **SIICA (Società Italiana di Immunologia, immunologia Clinica e Allergologia) 2022**, in Naples, Italy-May 23-26 2022

Nutrient-specific control of immunological self-tolerance in Experimental Autoimmune Encephalomyelitis Claudia Russo, Giusy De Rosa, Claudia La Rocca, Vincenzo Di Marino, Fortunata Carbone, Claudio Procaccini, Giuseppe Matarese **AINI 2023**, in Palermo, Italy-May 3-6 2023

Halting type 1 diabetes progression: use of regulatory T cell-derived extracellular vesicles Clorinda Fusco, Claudio Procaccini, Giusy De Rosa, Claudia Russo, Elisabetta Vitiello, Alessandra Colamatteo, Mario Galgani, Giuseppe Matarese, Paola de Candia **ISEV (International society, for Extracellular vesicles) 2023**, in Seattle May 17-21 2023

Characterization of regulatory T cell-specific KV1.3 Knock-out mouse model Beatrice Angi, Tatiana Varanita, Ferenc Erdelyi, Zsuzsanna Keresztesi, Claudia Russo, Giusy De Rosa, Claudio Procaccini, Giuseppe Matarese and Ildiko Szabo **-5th International Conference on Immunometabolism: Molecular and Cellular Immunology of Metabolism**, in Chania, Greece- May 21-26 2023

Key role of microRNA-142-3p shuttling via extracellular vesicles in regulatory T cell function during autoimmunity Claudio Procaccini, Giusy De Rosa, Claudia Russo, Fortunata Carbone, Dario Di Silvestre, Alessandra Colamatteo, Claudia La Rocca, Vincenzo Di Marino, Annamaria Finardi, Fabio Buttari, Gianmarco Abbadessa, Simona Bonavita, Antonio Uccelli, Marco Salvetti, Diego Centonze, Roberto Furlan, Giuseppe Matarese, Paola De Candia; **ECTRIMS Copenhagen Denmark; September 18-20 2024**

Human Regulatory T cell-derived Extracellular Vesicles in the control of immune tolerance Giusy De Rosa, Claudia Russo, Dario Di Silvestre, Alessandra Colamatteo, Clorinda Fusco, Claudia La Rocca, Fortunata Carbone, Vincenzo Di Marino, Silvia Garavelli, Francesca Brambilla, Pierluigi Mauri, Valentina Bollati, Annamaria Finardi, Fabio Buttari, Gianmarco Abbadessa, Simona Bonavita, Antonio Uccelli, Marco Salvetti, Diego Centonze, Roberto Furlan, Giuseppe Matarese, Paola de Candia, Claudio Procaccini. **XXXII congress AINI (associazione italiana neuroimmunologia) Cagliari, Sardinia, May 6-9, 2024**

B cell metabolic reprogram in multiple sclerosis: insights on bioenergetics pathways and differentiation status Claudio Procaccini, Daniela Ricci, Claudia Russo, Dorian Landi, Giusy De Rosa, Marilena P. Etna, Francesca Napoli, Girolama A. Marfia, Giuseppe Matarese, Eliana M. Coccia, Martina Severa. **XXXII congress AINI (associazione italiana neuroimmunologia) Cagliari, Sardinia, May 6-9, 2024**

Dietary manipulation to control immunological self-tolerance in Experimental Autoimmune Encephalomyelitis Claudia Russo, Giusy De Rosa, Claudia La Rocca, Vincenzo Di Marino, Fortunata Carbone, Claudio Procaccini, Giuseppe Matarese **7th European Congress of immunology ECI 2024 Dublin, 1-4 September**

Honors and Awards

- Winner of a PhD fellowship in Department of Excellence of Molecular Medicine and Medical Biotechnology, at University of Naples Federico II Italy (2020)
- Winner of "Sergio Marchionne achievement awards" to academic results (2022)

Mother tongue	Italian
Skill in another language	English
Reading	Good
Writing	Good
Speaking	Good
Technical skills and competences	Excellent use of Windows and Mac OS operating systems; Good knowledge of Microsoft Office (Word, Excel, Power Point). Excellent knowledge of protein quantization (Image J), statistical analysis (GraphPad Prism) and .fcs file analysis (FlowJo) programs.

Naples 11/04/2024