



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE 5738

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at Dipartimento di Scienze Cliniche e di Comunità

Scientist- in - charge: Dr Ilaria Muller

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	MAIOLI
Name	SARA

PRESENT OCCUPATION

Appointment	Structure
Post graduated fellow	Department of Clinical and Community Sciences, University of Milan, Italy. Fondazione IRCCS Cà Granda, Ospedale Maggiore Policlinico.

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree	Msc Degree In Medical, Veterinary And Pharmaceutical Biotechnologies	University of Parma	2021
Other	Bsc Degree In Biotechnology	University of Parma	2018

FOREIGN LANGUAGES

Languages	level of knowledge
English	B2

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2022	TRAVEL GRANT AS A YOUNG INVESTIGATOR ORAL PRESENTATION. 44th Annual Meeting of the European Thyroid Association (ETA).
2022	Post graduated fellow (AIRC)
2021	Post graduated fellow (AIRC)



TRAINING OR RESEARCH ACTIVITY

- **June 2021 - current: Research Fellow; Endocrinology Lab - Prof. Giovanna Mantovani. Department of Clinical and Community Sciences, University of Milan, Italy.**

- Cytoskeleton actin-binding proteins as determinants and new biomarkers of pituitary tumor invasiveness and drug response with a particular focus on Filamin A (FLNA), a crucial protein in the regulation of drug responsiveness and invasiveness of endocrine tumors (AIRC).

Other projects:

- Study of TARget tissue-resident immune cells in patients with Graves' disease and Orbitopathy (STAR-GO). Phenotypical and functional characterization by flow cytometry of T and B lymphocytes subpopulation in blood, lymph nodes, thyroid and retro- orbital tissues.
- Dissecting molecular mechanisms regulating insulin-like growth factor (IGF) system in adrenocortical carcinomas. Study of the role of FLNA in regulating Wee1, the effects of Wee1 inhibition on cell proliferation and apoptosis, as well as the effects of FLNA levels on AZD efficacy (Adavosertib; pharmacological inhibitor of Wee1) in human H295R and MUC-1 cell lines.
- Long-term outcome of thyroid (atypical thyroiditis) abnormalities in patients with severe Covid-19¹
- Randomized controlled trial of Belimumab and Methylprednisolone in active moderate-severe Graves' Orbitopathy: effects on disease inactivation and on TSH-receptor stimulating antibodies.¹
- Sars-cov-2 specific T-cells in patients with thyroid disorders related to Covid-19. T-cells analysis post-infection in peripheral blood and in thyroid specimen obtained by ultrasound-guided fine needle aspiration. Analysis of cytokine production induced by SARS-COV2-derived peptides and with COVID peptide-loaded HLA multimers after HLA haplotyping ^{1,2}
- Phenotypical and functional characterization of peripheral blood-derived CD4+ T-cells in patients with Hyper-IgE syndrome (HIES) with a particular focus on Th17 and their precursor cells. Evaluation of the ability of these cells to respond to antigens belonging to opportunistic pathogens, such as *S. Aureus*, *S. Pneumonia*, *E. coli*, *M. Tuberculosis* and *C. Albicans*, that cause recurrent infections in HIES patients.²
- Effects of SARS-CoV-2 infection in T-cells of immunodeficient patients (Common Variable Disease).²

¹in collaboration with Endocrinology, Fondazione IRCCS Cà Granda, Ospedale Maggiore Policlinico, Milan, Italy.

²in collaboration with Istituto Nazionale di Genetica Molecolare (INGM) "Romeo ed Enrica Invernizzi", Milan, Italy. Lab Autoimmunity. Prof Jens Geginat.

- **Jan 2020 - Apr 2021; Master Degree Internship; Laboratory of Regenerative Morphology and Bioartificial Structures (RE.MO.BIO.S lab) - Prof. Roberto Toni.**

Dept. of Medical and Surgical Sciences, University of Parma- Italy.

H2020 SCREENED project aiming to develop three-dimensional (3D) cell-based *in vitro* tests to better characterize the effects of endocrine disruptors (EDs) on the thyroid function.



- Mar 2018 - Jun 2018: Bachelor Degree Internship; Laboratory of Biosciences, Section of Genetics and Environmental Biotechnology - Prof. Giovanna Visioli.

Dept. of Chemical Sciences, Life and Environmental Sustainability, University of Parma- Italy.

Recognition of bacterial species in biofertilizers for agricultural use.

Scientific Skills:

- **Human Samples Preparation:**

Isolation of leukocytes (T and B lymphocytes; monocytes) from peripheral blood, liquor, retro-orbital tissue and lymph nodes/thyroids ultrasound-guided-fine-needle aspiration (US-FNA).

- **Cell Culture Preparation and Maintenance:**

Primary cell lines: Human T CD4+ lymphocytes subsets obtained from blood, liquor, lymph nodes and thyroids. Co-cultures of human CD4+ T- and B- lymphocytes.

Immortalized cell lines: Human endothelium (HUVEC), Human breast cancer (MCF-7), mouse fibroblasts (SWISS 3T3), rat thyroid (FRTL-5), Chinese hamster ovary (CHO) cell lines.

Methods for Cell differentiation: 2D and 3D differentiation (using Matrigel) of a rat thyroid clone into thyroid follicles, pancreatic b cells and type II pneumocytes.

- **Assays:**

Total protein dosage and ELISA assay; Stimulating (TSAb) and Blocking (TBAb) Luciferase assay; Neutral TRAb assay; T-cells: Antigen specificity (peptides) and heat killed bacteria stimulation, T-cells polyclonal activation; Cell proliferation tests using C-QUANT cell proliferation assay kit and spectrophotometer analysis; Western blotting.

- **Techniques:**

- *Flow Cytometry:* Preparation of human and murine samples for the analysis of surface/ intracellular/ intranuclear markers and phosphorylated STAT proteins for Flow cytometry; Analysis of apoptosis and cell cycle; Independent user of BD FACSCanto™ II (3 laser) and BD FACSsymphony™ (5 laser).

- *Immunohistochemistry:* Preparation of samples for staining with primary/secondary antibodies of interest; Cutting of tissue sections embedded in paraffin with microtome and Standard tissue stains (Hematoxylin and Eosin).

- **Molecular Biology:**

RNA and DNA extraction from human cells and murine cells/tissues, PCR, RT-qPCR.

- **Computer:**

Independent user of Microsoft office (MS Word, Excel, Power Point, Outlook), Graphpad Prism, Flowjo, BD FACSdiva, PAST statistical tool.

PROJECT ACTIVITY

Year	Project
2022-current	"Cytoskeleton actin-binding proteins as determinants and new biomarkers of pituitary tumor invasiveness and drug response". Prof. Giovanna Mantovani Department of Clinical and Community Sciences, University of Milan, Italy
2021-2022	Cytoskeleton actin-binding proteins as determinants and new biomarkers of pituitary tumor invasiveness and drug response". Prof. Giovanna Mantovani Department of Clinical and Community Sciences, University of Milan, Italy



2020-2021	H2020 SCREENED project aiming to develop three-dimensional (3D) cell- based in vitro tests to better characterize the effects of endocrine disruptors (EDs) on the thyroid function. Prof. Roberto Toni Department of Medical and Surgical Sciences, University of Parma, Italy.
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CONGRESSES AND SEMINARS

Date	Title	Place
22-25 th May, 2023.	Immune signatures of target tissue-resident lymphocytes in patients with graves' disease and orbitopathy. Poster	XIV NATIONAL SIICA (Società Italiana di Immunologia, Immunologia Clinica e Allergologia). Verona-Italy
1 th -3 th Dec, 2022	Caratterizzazione immunofenotipica di linfociti residenti in tessuti bersaglio in pazienti con morbo di Basedow e oftalmopatia basedowiana. Poster	Associazione Italiana Tiroide, Salerno, Italy
10 th -13 th Sept, 2022	Study of TARget tissue-resident immune cells in Graves disease and Orbitopathy (STAR- GO): preliminary findings with a novel extensive immunophenotyping panel. Oral Communication	44th Annual Meeting of the European Thyroid Association, Brussels, Belgium
8 th Jun, 2022.	Study of target tissue-resident immune cells in Graves disease and orbitopathy: early results from immunophenotypic characterization. Poster	11th Milan Meets Immunology meeting, IRCCS Ospedale San Raffaele, Milan, Italy

PUBLICATIONS

Articles in reviews
Silvestri Y., Clemente F., Maioli S., Carelli E., Moschetti G., Espadas A., De Feo T., Salvi M., Mantovani G., Bombaci M., Pesce E., Grifantini R., Abrignani S., Geginat J. & Muller I.; <i>Sars-Cov-2 Specific T-Cells In Patients With Thyroid Disorders Related To Covid-19 Are Enriched In The Thyroid And Acquire A Tissue-Resident Memory Phenotype. Submitted to clinical immunology, March 2023.</i>
Muller I., Daturi A., Varallo M., Re T.R., Dazzi D., Maioli S., Crivicich E., Di Marco F., Longari V., Dazzi B., Castellani M., Mantovani G., Arosio M., Salvi M.; (2023) <i>Long-Term Outcome Of Thyroid Abnormalities In Patients With Severe Covid-19.</i> European Thyroid Journal. http://dx.doi.org/10.1530/ETJ-22-0200 .
Toni R., Conza G., Barbaro F., Zini N., Consolini E., Dallatana D., Antoniel M., Quarantini E.; Quarantini M., Maioli S., Bruni C.A., Elviri L., Panseri S., Sprio S., Sandri M. and Tempieri A.; (2022) <i>Microtopography of immune Cells in Osteoporosis and Bone Lesions by Endocrine Disruptors.</i> Front. Immunol., Vol 11 Article 1737. doi: 10.3389/fimmu.2020.01737

Congress proceedings
Maioli S., Salvi M., Moschetti G., Crosti M., Crivicich E., Di Marco F., Curro N., Dolci A., Arosio M., Mantovani G., Dayan C., Geginat J. & Muller I.; (2022) <i>Study of target tissue-resident immune cells in graves' disease</i>



and orbitopathy (STAR-GO): preliminary findings with a novel extensive immunophenotyping panel. Endocrine Abstracts, Volume 84 ISSN 1479-6848L. doi: 10.1530/endoabs.84.OP-11-54.

Muller I., Varallo M., Daturi A., Re T., Maioli S., Longari V., Silvestri Y., Geginat J., Mantovani G., Arosio M., Salvi M.; (2022) *Functional and immunological features of covid-19 associated atypical thyroiditis*. Meeting Program and Abstracts Thyroid. Published in Volume: 32 Issue S1: P-1-A-135. <http://doi.org/10.1089/thy.2022.29137>.

Salvi M., Muller I., Curro` N., Bagnaresi F., Maioli S., Dazzi B., Montacchini B., Covelli D., Campi I., Vannucchi G., Dazzi D., Arosio M. (2022) *Randomized controlled trial of belimumab and methylprednisolone in active moderate-severe graves' orbitopathy: effects on disease inactivation and on tsh-receptor stimulating antibodies*. Meeting Program and Abstracts Thyroid. Published in Volume: 32 Issue S1: P-1-A-135. <http://doi.org/10.1089/thy.2022.29137>.

Muller I., Maioli S., Moschetti G., Crosti M., Crivicich E., Di Marco F., Currò N., Dolci A., Arosio M., Mantovani G., Geginat J., Salvi M.; (2022) *Study of target Tissue-Resident immune cells in Grave's disease and Orbitopathy (STAR-GO): preliminary findings of immunophenotyping by flow cytometry*. Meeting Program and Abstracts Thyroid, Volume: 32 Issue S1, P-1-A-135. doi:10.1089/thy.2022.29137.abstracts

OTHER INFORMATION

Certified courses and congresses:

- *R Programming A-ZTM: R For Data Science*, Udemy, Apr 2023.
- *CyTOF Primo congresso Italiano- Humanitas, Rozzano (MI)- Oct 2022.*
- *Biologia e gestione degli animali da laboratorio, moduli 3.1, 4, 5, 6.1, 7. DM 5 Roditori e Lagomorfi (19,5 ECM).(FAD)- Istituto zooprofilattico sperimentale della Lombardia e Dell'Emilia Romagna "Bruno Ubertini"- Oct 2022.*
- *Zebrafish come organismo modello: approcci sperimentali in vitro e in vivo per la ricerca scientifica (4 ECM) - (FAD) - IZSLER Istituto zooprofilattico sperimentale della Lombardia e Dell'Emilia Romagna "Bruno Ubertini" Oct 2022.*
- *Cellule in vitro: uno strumento avanzato diagnostico e di terapia avanzata (5 ECM) -(FAD) - IZSLER Istituto zooprofilattico sperimentale della Lombardia e Dell'Emilia Romagna "Bruno Ubertini" - Sep 2022.*
- *B2 TOEIC®, the Test of English for International Communication, Listening and Reading score: 805/- ETS Global- Aug 2022.*
- *Scopus per il calcolo dell'H-index, Università degli Studi di Milano, servizio bibliotecario d'Ateneo- Mar 2022.*
- *Web of Science per il calcolo dell'H-index, Università degli Studi di Milano, servizio bibliotecario d'Ateneo- Mar 2022.*
- *I principali indicatori bibliometrici per le riviste: JCR, SNIP, SJR e Citescore, Università degli Studi di Milano, servizio bibliotecario d'Ateneo- Mar 2022.*
- *Corso introduttivo alla sperimentazione animale-Istituto di Scienze Farmacologiche I.RC.C.S. Mario Negri, Milan-Dec 2021.*
- *Cytek Aurora Training - INGM-ISTITUTO NAZIONALE GENETICA MOLECOLARE "Romeo ed Enrica Invernizzi", Milan- Oct 2021.*
- *Advanced flow cytometry Practical and theoretical Training - INGM-ISTITUTO NAZIONALE GENETICA MOLECOLARE "Romeo ed Enrica Invernizzi", Milan- Sep 2021.*
- *Basic flow cytometry Practical and theoretical Training -INGM-ISTITUTO NAZIONALE GENETICA MOLECOLARE "Romeo ed Enrica Invernizzi", Milan- Jun 2021.*



Affiliations to scientific societies:

- Jul 2022 – current: Società Italiana di Endocrinologia (SIE)
- Sep 2022 – current: European Thyroid Association (ETA)

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

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Place and date: Milano, 26/04/2023