Sara MONTICELLI

Senior postdoctoral researcher

RESEARCH EXPERIENCE

Postdoctoral fellow, October 2021 - present
IGBMC, Illkirch (France), team of Dr. Angela Giangrande – Dr. Pierre Cattenoz, FUNDED by ANR and FRC

- Macrophage functions in immunity and beyond – *5 published papers (first author DevCell 2024, co-corresponding Brain Behav Evol. 2024, Front. Immunol. 2023, PNAS 2023, Cell reports 2022) and a co-first author submitted in EMBO Rep.*

Postdoctoral fellow, April 2020 - September 2021
IGBMC, Illkirch (France), team of Dr. Angela Giangrande FUNDED by CEFIPRA

- Characterization of macrophage diversity – *1 published paper (Front Cell Dev Biol. 2021)*
- Macrophages as metabolic sensors during organ development, USIAS project in collaboration with Dr. Tina Mukherjee (inStem, India)

Visiting PhD Student, January 2019 - April 2019
IGBMC, Illkirch (France), team of Dr. Angela Giangrande (angela@igbmc.fr) FUNDED by Marco Polo

- Exploring novel roles of *ABCC1* in glial and immune cell migration

EDUCATION

PhD in Cellular and Molecular Biology, April 2020, University of Bologna (Italy)

- Thesis: "Harnessing the power of *Drosophila* model to obtain new insights on *MYC* and *ABCC1* cellular functions: from neuroblastoma to autism spectrum disorder" – *1 published paper (Biochim Biophys Acta Gene Regul Mech. 2018)*
- *Drosophila* model of chronic myeloid leukemia – *1 published paper (Haematologica 2019)*

Prof. Elena Maestrini (elena.maestrini@unibo.it), Dr. Roberto Bernardoni (roberto.bernardoni@unibo.it), grade: excellent

Master's degree in Molecular and Cellular Biology, October 2016, University of Pisa (Italy)

- Thesis: "Functional characterization of *znf367* gene in *Xenopus laevis* developing nervous system" – *1 published paper (Sci. Rep. 2018)*

Supervisor: Prof. Michela Ori (michela.ori@unipi.it), final degree mark: 110/110 cum laude

Bachelor's degree in Ecological Sciences and Biodiversity, May 2013, University of Pisa (Italy)

- Thesis: "Molecular cloning & expression analysis of *znf367* in *Xenopus laevis* and Zebrafish embryos"

Supervisor: Prof. Michela Ori (michela.ori@unipi.it), final degree mark: 110/110 cum laude

GRANTS

CNRS GdR Stem cells *in vivo* 2025 - Dr. Sara Monticelli coordinator
ANR-IA, Labex2 HEMATOPOIETIC 2024-2025 – Dr. Sara Monticelli coordinator
EU grant 2024-2027 –Prof. Christos Delidakis coordinator
ANR MacroDiv 2024-2028 – Dr. Angela Giangrande coordinator
ANR Hemo-Park 2022-2025 – Dr. Serge Birman coordinator
ANR EMAC 2021-2024 – Dr. Angela Giangrande coordinator
FRM EQUIPE 2021-2024 – Dr. Angela Giangrande coordinator

AWARDS

FRC (Fédération pour la Recherche sur le Cerveau) postdoc fellowship (2024)
CEFIPRA (Centre Franco-Indien Promotion de Recherche Avancée) postdoc fellowship (2020-2021)
Marco Polo scholarship for scientific training abroad (2019)
PhD fellowship at University of Bologna (Italy), supported by governmental funds (2016)

CONFERENCES

8th Upper Rhine Immunology (URI) meeting - October 2024 TALK
New Directions in Blood Cell Biology Meeting (NDBCBM Bangalore) – September 2024 POSTER
20th European *Drosophila* Neurobiology Conference (NeuroFly) - September 2024 POSTER
27th European *Drosophila* Research Conference (EDRC 2023) - October 2023 TALK
European developmental biology congress (EDBC) - September 2023 POSTER
IGBMC Symposium - June 2023 TALK
9th Tri-Regional stem cell & developmental biology meeting - June 2023 TALK

Conference on Multiple Sclerosis - June 2023 TALK
French Society of Developmental Biology (SFBD) conference - November 2022 POSTER
6th Upper Rhine Immunology (URI) meeting - October 2022 TALK
19th European *Drosophila* Neurobiology Conference (NeuroFly 2022) - September 2022 POSTER
IGBMC Symposium - June 2022 TALK
8th Tri-Regional stem cell & developmental biology meeting - September 2021 TALK
Italian Society of Biophysics and Molecular Biology (SIBBM) meeting - June 2019 POSTER
19th Italian *Drosophila* Research Conference (XIX IDRC) - June 2018 TALK
62nd Italian Embryology Group (GEI) conference - June 2016 TALK

COMPLEMENTARY SKILLS

Supervisory experience (2018 - present):

- 1 postdoc working on macrophage heterogeneity (IGBMC, Illkirch, France)
- 3 PhD students working on macrophage heterogeneity and their role in neurodevelopment and neurodegeneration (IGBMC, Illkirch, France)
- 2 visiting PhD students working on a *Drosophila* model of Autism and on transposon biology (IGBMC, Illkirch, France)
- 2 master's students working on developmental roles of macrophages (IGBMC, Illkirch, France)

Teaching and outreach activity (2018 - present):

- Laboratory practicals in human genomics and functional genetics for master students (University of Bologna, Italy)
- Laboratory practicals in *Drosophila* genetics for high school students (Mantova, Italy)

Other activities:

- Organization of the symposium "Advances and Challenges in Innate Immunity: Lessons from *Drosophila*" (2022 - IGBMC)
- Writing of grants as coordinator (Labex2) or in collaboration with Dr. Giangrande (ANR, FRM, FRC) which we were awarded
- Reviewing of manuscripts (reviewer or co-reviewer) for several journals including Nature Communications, EMBO Journal and Frontiers In Cellular Neuroscience.
- Member of a working group at the IGBMC electron microscopy platform.

COLLABORATIONS

International collaborations: Prof. Christos Delidakis (IMBB-FORTH Crete), EU grant; Dr. Tina Mukherjee (inStem, India), IRP CNRS/Inserm/Unistra; Dr. Katrin Kierdorf (University of Freiburg), ANR grant; Dr. Daria Siekhaus (UCLA, USA).

National collaborations: Dr. Elisa Perdiguero (Pasteur Institute, Paris), ANR grant; Dr. Serge Birman (ESPCI Paris), ANR grant; Dr. Brahim Nait Oumesmar (ICM, Paris), FRC grant.

INTERNATIONAL SCIENTIFIC NETWORKS

I am the main actor in a long-standing collaboration of Dr. Giangrande with Indian scientists. In 2020 I was awarded a CEFIPRA (Centre Franco-Indien pour la Promotion de la Recherche Avancée) fellowship, and I am currently benefitting from Franco-Indian collaborative grants (USIAS - Institut d'études avancées de l'Université de Strasbourg, Dr. Mukherjee coordinator, and IRP - International research project CNRS/INSERM/UNISTRA, Dr. Giangrande coordinator). I organized the symposium "Advances and Challenges in Innate Immunity: Lessons from *Drosophila*" (2022 - IGBMC) with 7 invited international experts in fly immunity. The IRP funds an Indian PhD student that I supervise. The same IRP funds allowed me to participate in the "New Directions in Blood Cell Biology Meeting" held in Bangalore in 2024 and organized by Dr. Mukherjee and Dr. Giangrande.

PUBBLICATIONS

Monticelli S, Sakr R, Delaporte C, Zhang Gege, Tabiat T, Giangrande A, Cattenoz P. **NimA promotes cell adhesion at the blood brain barrier of *Drosophila* nervous system** (*Co-first, submitted in EMBO Rep., https://doi.org/10.1101/2025.01.15.633121*)

Monticelli S, Giangrande A. **Evolutionary conservation of the Gcm/Glide cascade: of glia and beyond.** *Brain Behav Evol.* 2025;100(1):58-66. https://doi.org/10.1159/000542753 *Review*

Monticelli S, Sommer A, AlHajj Hassan Z, Garcia Rodriguez C, Adé K, Cattenoz P, Delaporte C, Gomez Perdiguero E, Giangrande A. **Early-wave macrophages control late hematopoiesis**. *Dev Cell.* 2024 May 20;59(10):1284-1301.e8. https://doi.org/10.1016/j.devcel.2024.03.013 highlighted in the **CNRS journal** https://www.insb.cnrs.fr/fr/cnrsinfo/les-macrophages-precoces-influent-sur-le-fonctionnement-des-cellules-souches)

Bazzi, W., Monticelli, S., Delaporte, C., Riet, C., Giangrande, A. and Cattenoz, P.B. **Gcm counteracts Toll-induced inflammation and impacts hemocyte number through cholinergic signaling**. *Front. Immunol.* 2023 Nov 15;14:1293766. https://doi.org/10.3389/fimmu.2023.1293766

Voutyraki, C., Choromidis, A., Meligkounaki, A., Vlachopoulos, N. A., Theodorou, V., Grammenoudi, S., Athanasiadis, E., Monticelli, S., Giangrande, A., Delidakis, C., & Zacharioudaki, E. **Growth deregulation and interaction with host hemocytes contribute to tumor progression in a Drosophila brain tumor model**. *PNAS* 2023 Aug 15;120(33):e2221601120. https://doi.org/10.1073/pnas.2221601120

Pavlidaki, A., Panic, R., Monticelli, S., Riet, C., Yuasa, Y., Cattenoz, P. B., Nait-Oumesmar, B., & Giangrande, A. **An anti-inflammatory transcriptional cascade conserved from flies to humans**. *Cell Rep.* 2022 Oct 18;41(3):111506. https://doi.org/10.1016/j.celrep.2022.111506

Cattenoz, P. B., Monticelli, S., Pavlidaki, A., & Giangrande, A. **Toward a Consensus in the Repertoire of Hemocytes Identified in *Drosophila***. *Front Cell Dev Biol.* 2021 Mar 4;9:643712. https://doi.org/10.3389/fcell.2021.643712

Bernardoni, R., Giordani, G., Signorino, E., Monticelli, S., Messa, F., Pradotto, M., Rosso, V., Bracco, E., Giangrande, A., Perini, G., Saglio, G., & Cilloni, D. **A new BCR-ABL1 *Drosophila* model as a powerful tool to elucidate the pathogenesis and progression of chronic myeloid leukemia**. *Haematologica.* 2019 Apr;104(4):717-728. https://doi.org/10.3324/haematol.2018.198267

Ferrucci, F., Ciaccio, R., Monticelli, S., Pigini, P., di Giacomo, S., Purgato, S., Erriquez, D., Bernardoni, R., Norris, M., Haber, M., Milazzo, G., & Perini, G. **MAX to MYCN intracellular ratio drives the aggressive phenotype and clinical outcome of high risk neuroblastoma**. *Biochim Biophys Acta Gene Regul Mech.* 2018 Mar;1861(3):235-245. https://doi.org/10.1016/j.bbagrm.2018.01.007

Naef, V., Monticelli, S., Corsinovi, D., Mazzetto, M. T., Cellerino, A., & Ori, M. **The age-regulated zinc finger factor ZNF367 is a new modulator of neuroblast proliferation during embryonic neurogenesis**. *Sci Rep.* 2018 Aug 7;8(1):11836. https://doi.org/10.1038/s41598-018-30302-2

MANUSCRIPTS IN PREPARATION

- **Peripheral macrophages modulate fly neurodevelopment** (AlHajj Hassan Z, Tabiat T, Giangrande A and Monticelli S)
- **Homeostatic functions of macrophages** (Monticelli S and Giangrande A - EMBO Rep invited review)
- **Macrophages affect brain function in a fly Parkinson's model** (Tabiat T, Giangrande A and Monticelli S)
- **Maximal increase of MYC to MAX expression ratio impacts the Hox program** (Monticelli S, Bernardoni R, Milazzo G, Giordani G, Perini G)
- **Characterisation of the ontogeny of immune cells in *Drosophila* using scRNAseq** (collaboration with Dr. Siekhaus)
- **Immune cells metabolic state regulates systemic growth in *Drosophila*** (collaboration with Dr. Mukherjee)

Illkirch, June 14th 2025