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## IRINA LEONARDI, PhD

### EDUCATION

#### University of Zurich, Zurich, Switzerland

2011-2015 PhD in Biology, PhD Program in Integrative Molecular Medicine,  
Zurich Center for Integrative Human Physiology  
*Thesis: "Helminth therapy in inflammatory bowel diseases"*

#### Swiss Federal Institute of Technology ETHZ, Zurich, Switzerland

2009–2011 Master in Biology, Major: Microbiology and Immunology  
*Thesis: "TL-1R *rp2* is required for efficient protection from *Leishmania major*"*

#### Swiss Federal Institute of Technology ETHZ, Zurich, Switzerland

2006–2009 Bachelor in Biology, Chemical direction

### RESEARCH EXPERIENCE

- 2015-present *Post-doctoral Research Fellow*, Iliiev Lab,  
Jill Roberts Institute for Research in Inflammatory Bowel Disease,  
Weill Cornell Medicine, New York City, USA
- 2015 *Post-doctoral Research Associate*, Iliiev Lab,  
F. Widjaja Foundation, Cedars-Sinai, Los Angeles, USA  
*(Joined the Iliiev Lab for 3 months prior to the laboratory relocation to NYC)*
- 2011-2015 *PhD Candidate*, Rogler Lab  
Clinic for gastroenterology and hepatology, University Hospital Zurich, Zurich, Switzerland  
Topic: Helminth therapy in inflammatory bowel diseases
- 2009-2011 *MSc Candidate*, Kopf Lab  
Institute of molecular biomedicine,  
Swiss Federal Institute of Technology ETHZ, Zurich, Switzerland

### RESEARCH FUNDING, HONORS, AND AWARDS

#### Research Funding

- 2018 - present *Research Fellowship*, Crohn's and Colitis Foundation of America (3 Years).  
2015 - 2017 *Research Fellowship*, Swiss National Science Foundation, Early Post-Doc Mobility (2 Years)

#### Honors & Awards

- 2020 Research award, Cavargna Foundation, Switzerland  
2018 Best paper award, Immunology and microbial pathogenesis IMP retreat, Mohonk NY  
2018 Travel award, Kenneth Rainin Foundation, Innovations Symposium, San Francisco, USA  
2018 Research Award, Cavargna Foundation, Switzerland

- 2018 Travel award, Kenneth Rainin Foundation, Innovations Symposium, San Francisco, USA  
 2013 Travel award, Excellence cluster Inflammation at Interfaces, Hamburg, Germany

## TEACHING EXPERIENCE AND OUTREACH

- July 9, 2020 Skype a Scientist, virtual lecture with Blue Valley West High School, KY  
 Jun. 9, 2020 Virtual seminar, ACCESS seminar series, WCMC, New York City  
 Feb. 2020 Guest seminar, Bellinzona High School, Switzerland  
 2016-present Undergraduate Research Mentor, Weill Cornell Medicine  
 2016-2019 Tri-Institutional Minority Summer Scholar Research Program Mentor, Weill Cornell Medicine  
 2011-2015 Teaching assistant, Medical School, University of Zurich, Switzerland  
 Jul. 12 2015 Radio Interview, “Gli Espatriati”, Swiss-Italian public broadcasting service RSI  
 2011 Chemistry and Biology Substitute Teacher, Bellinzona High School, Switzerland  
 2009 Teaching Assistant, The Alpine Biology Center, Piora, Switzerland

## SERVICE

- Oct 14, 2020 *Guest Judge*, Medical Student Research Day, WCMC, NYC  
 Sep 24, 2020 *Organizing committee*, WCMC Postdoc Research Day  
 Aug. 21, 2020 *Guest Judge*, Pre-Health Summer Research Symposium at Hunter College, NYC  
 2020 *Ad hoc reviewer*, Frontiers Cellular and Infection Microbiology  
 2018- present *Ad hoc reviewer*, Gut microbes  
 2018 -present *Ad hoc reviewer*, Frontiers in Pharmacology  
 May 6, 2019 *Co-chair*, Mucosal Immunology Local Chapter NYC Symposium, NYC  
 2018 *Ad hoc reviewer*, Barts Charity London, UK

## MEMBERSHIP

- 2016-present *Member*, New York Academy of Science  
 2016-present *Member*, New York Host Mycobiota Group  
 2015 *Organizing committee Chair*, LSZYSN Zurich Life Science Week  
 2011-2015 *Active Member*, Life Science Zurich Young Scientist Network, LSZYSN.

## PRESENTATIONS

- Jun. 4, 2020 Virtual invited seminar, Guts & Bugs series, Edelblum Lab (Rutgers)  
 Jan. 23, 2020 Oral Presentation, Crohn’s & Colitis Congress, Austin, USA  
 Feb. 8, 2019 Oral Presentation, Crohn’s & Colitis Congress, Las Vegas, USA  
 Sep. 12, 2018 Invited Seminar, NYC IBD Research Day, NYU Langone Health, New York City  
 Oct. 17, 2016 Oral Presentation, the 4th Annual Meeting of the International Cytokine and Interferon (ICIS) San Francisco.

## PUBLICATIONS

### Original Publications

#### 2020

- **Leonardi I**, et al. Fungal trans-kingdom dynamics linked to responsiveness to fecal microbiota transplantation (FMT) therapy in ulcerative colitis, *Cell Host Microbe*, 2020, 27 (5), 823-829.e3, doi: [10.1016/j.chom.2020.03.006](https://doi.org/10.1016/j.chom.2020.03.006)\*  
\**Featured article and cover story*

#### 2019

- Moeller JB, **Leonardi I**, et al. Modulation of the fungal mycobiome is regulated by the chitin-binding receptor. *J Exp Med*. 2019, 216 (12), 2689-2700, doi: [10.1084/jem.20182244](https://doi.org/10.1084/jem.20182244)
- Rosshart SP, Herz J, Vassallo BG, Hunter A, Wall MK, Badger JH, McCulloch JA, Anastasakis DG, Sarshad AA, **Leonardi I**, et al. Laboratory mice born to wild mice have natural microbiota and model human immune responses. *Science*. 2019 Aug 2;365(6452). doi: [10.1126/science.aaw4361](https://doi.org/10.1126/science.aaw4361)
- Zhang X, Alexander N, **Leonardi I**, Rapid antigen diversification through mitotic recombination in the human malaria parasite Plasmodium falciparum., *PLoS Biol*. 2019 May 13;17(5):e3000271. doi: [10.1371/journal.pbio.3000271](https://doi.org/10.1371/journal.pbio.3000271).
- Doron I, **Leonardi I**, Iliev ID. Profound mycobiome differences between segregated mouse colonies do not influence Th17 responses to a newly introduced gut fungal commensal. *Fungal Genet Biol*. 2019 Jun;127:45-49. doi: [10.1016/j.fgb.2019.03.001](https://doi.org/10.1016/j.fgb.2019.03.001).

#### 2018

- Li X, **Leonardi I**, et al. Response to Fungal Dysbiosis by Gut-Resident CX3CR1<sup>+</sup> Mononuclear Phagocytes Aggravates Allergic Airway Disease. *Cell Host Microbe*. 2018 Dec 12;24(6):847-856.e4. doi: [10.1016/j.chom.2018.11.003](https://doi.org/10.1016/j.chom.2018.11.003). \*  
\**Featured article and cover story*
- Barbet G, Sander LE, Geswell M, **Leonardi I**, et al. Sensing Microbial Viability through Bacterial RNA Augments T Follicular Helper Cell and Antibody Responses. *Immunity*. 2018 Mar 20;48(3):584-598.e5. doi: [10.1016/j.immuni.2018.02.015](https://doi.org/10.1016/j.immuni.2018.02.015).
- Wang Y, de Vallière C, Imenez Silva PH, **Leonardi I**, et al. The Proton-activated Receptor GPR4 Modulates Intestinal Inflammation. *J Crohns Colitis*. 2018 Feb 28;12(3):355-368. doi: [10.1093/ecco-icc/jjx147](https://doi.org/10.1093/ecco-icc/jjx147).
- **Leonardi I**, et al. CX3CR1<sup>+</sup> mononuclear phagocytes control immunity to intestinal fungi. *Science*. 2018 Jan 12; 359(6372):232-236. doi: [10.1126/science.aao1503](https://doi.org/10.1126/science.aao1503). \*  
\**Featured in two F1000 Faculty Opinions Recommendations*

#### 2017

- **Leonardi I**, et al. Preventive Trichuris suis ova (TSO) treatment protects immunocompetent rabbits from DSS colitis but may be detrimental under conditions of immunosuppression. *Sci Rep*. 2017 Nov 28;7(1):16500. doi: [10.1038/s41598-017-16287-4](https://doi.org/10.1038/s41598-017-16287-4).

- Gerstgrasser A, Melhem H, **Leonardi I**, et al. Cell-specific Activation of the Nrf2 Antioxidant Pathway Increases Mucosal Inflammation in Acute but Not in Chronic Colitis. *J Crohns Colitis*. 2017 Apr 1;11(4):485-499. doi: [10.1093/ecco-jcc/jjw172](https://doi.org/10.1093/ecco-jcc/jjw172).

### Older Publications

- Kasper SH, Spalinger MR, **Leonardi I**, et al. Deficiency of Protein Tyrosine Phosphatase Non-Receptor Type 2 in Intestinal Epithelial Cells Has No Appreciable Impact on Dextran Sulphate Sodium Colitis Severity But Promotes Wound Healing. *Digestion*. 2016;93(4):249-59. doi: [10.1159/000445289](https://doi.org/10.1159/000445289).
- **Leonardi I**, et al. Oral administration of dextran sodium sulphate induces a caecum-localized colitis in rabbits. *Int J Exp Pathol*. 2015 Jun;96(3):151-62. doi: [10.1111/iecp.12117](https://doi.org/10.1111/iecp.12117).
- Engler DB, **Leonardi I**, et al. Helicobacter pylori-specific protection against inflammatory bowel disease requires the NLRP3 inflammasome and IL-18. *Inflamm Bowel Dis*. 2015 Apr;21(4):854-61. doi: [10.1097/MIB.0000000000000318](https://doi.org/10.1097/MIB.0000000000000318).
- Frey-Wagner I, Fischbeck A, Cee A, **Leonardi I**, et al. Effects of retinoids in mouse models of colitis: benefit or danger to the gastrointestinal tract?. *Inflamm Bowel Dis*. 2013 Oct;19(11):2356-65. doi: [10.1097/MIB.0b013e31829cf1fc](https://doi.org/10.1097/MIB.0b013e31829cf1fc).

### Reviews and Commentaries

- Fiers W, **Leonardi I**, Iliev ID. From birth and throughout life: Fungal microbiota in nutrition, metabolic health and cancer of the gastrointestinal tract. *Ann Rev Nutrition*, 2020 Aug; 20. doi: [10.1146/annurev-nutr-013120-043659](https://doi.org/10.1146/annurev-nutr-013120-043659). Review.
- Li XV, **Leonardi I**, Iliev ID. Gut Mycobiota in Immunity and Inflammatory Disease. *Immunity*. 2019 Jun 18;50(6):1365-1379. doi: [10.1016/j.immuni.2019.05.023](https://doi.org/10.1016/j.immuni.2019.05.023). Review.
- **Leonardi I**, Li X, Iliev ID. Macrophage interactions with fungi and bacteria in inflammatory bowel disease. *Curr Opin Gastroenterol*. 2018 Nov;34(6):392-397. doi: [10.1097/MOG.0000000000000479](https://doi.org/10.1097/MOG.0000000000000479).
- Li X, **Leonardi I**, Iliev ID. Candidalysin sets off the innate alarm. *Sci Immunol*. 2017 Nov 3;2(17). doi: [10.1126/sciimmunol.aao5703](https://doi.org/10.1126/sciimmunol.aao5703).
- Iliev ID, **Leonardi I**. Fungal dysbiosis: immunity and interactions at mucosal barriers. *Nat Rev Immunol*. 2017 Oct;17(10):635-646. doi: [10.1038/nri.2017.55](https://doi.org/10.1038/nri.2017.55). Epub 2017 Jun 12.  
\* 100 citations
- **Leonardi I**, Frey I, Rogler G. Helminth therapy for organic diseases?. *Transl Res*. 2015 Dec;166(6):586-601. doi: [10.1016/j.trsl.2015.06.016](https://doi.org/10.1016/j.trsl.2015.06.016).

### Publications under Revision

- **Leonardi I**, et al. Mucosa-associated gut fungi modulate intestinal physiology to affect host immunity and behavior, *in revision in Cell*, 2020 (first round)
- **Doron I**, **Leonardi I**, The human gut mycobiota regulates protective immunity through the induction of systemic antibodies against pathogenic fungi, *in revision in Cell*, 2020 (first round)

## **PATENTS**

- Iliev ID, **Leonardi I**, Theranostic test for antifungal treatment of inflammatory disease  
WO2019126556, 27.06.2019.