UNIVERSITÀ DEGLI STUDI DI MILANO

TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO **ID CODE : 4938**

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 Biomediche e Cliniche "L. Sacco",** Scientist- in – charge: Prof. Paolo Fiorina

Ajay Ratan Pasala

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	PASALA
Name	AJAY RATAN
Date of birth	02/07/1990

PRESENT OCCUPATION

Appointment	Structure
Research Fellow	Dip. Scienze Biomediche e Cliniche L. Sacco, Universitv of Milan

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree	Bachelor of Science in Botany	University of Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya	2015
Master	Medical Biotechnologies	Università degli Studi del Piemonte Orientate	2018

FOREIGN LANGUAGES

Languages	level of knowledge
English	C2
Italian	A2
Hindi	C1
Telugu	C1

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AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2017-2018	Master student merit-based scholarship, Università degli Studi del Piemonte Orientale, Novara, Italy
2018	Premio di laurea anno 2018 Award, Novara, Italy.
2017	University of Eastern Piedmont (Haematology Laboratory) grants for International exposure and training internship in Haematology Laboratory Hospital De La Santa Creu I Sant Pau-Barcelona, Spain.

TRAINING OR RESEARCH ACTIVITY

- Student Internship during my masters in Prof. Dr. Gianluca Gaidano Laboratory where I study auto-immune disorders and patients enrolled in my research were from 7 Italian centres. My actual project was Molecular analysis of *STAT3* gene in Primary Immune Thrombocytopenia (ITP). Identification of genetic variation of *STAT3* gene in treated ITP patients from healthy controls and different subsets of ITP patients based on clinical presentation by using Polymerase Chain Reaction (PCR) Et Sanger sequencing technique.
- Germline gain-of-function mutations in the transcription factor signal transducer and activator of transcription 3 (*STAT3)* lead to lymphoproliferative and autoimmune disorders including ALPS (Autoimmune lymphoproliferative Syndrome). Functional analyses demonstrated that *STAT3* mutations confer a gain-of-function to the *STAT3* protein leading to secondary alterations in STAT5 and STAT1 phosphorylation. In addition, *STAT3* mutations also dysregulate the T-cell compartment. *STAT3* mediates the expression of a variety of genes in response to cell stimuli, and thus plays a key role in many cellular processes such as cell growth and apoptosis. A key finding was that about 20% of ITP patients have a decreased Fas function like that previously reported in ALPS patients.
- On these grounds, to understand if *STAT3* mutations may be involved in ITP pathogenesis, we analysed by Sanger sequencing 50 ITP patients provided with DNA extracted from peripheral blood (PB). Exon 5, 10, 11, 14, 21, 22, and 23, that include the most frequent mutational hotspots described in other diseases, were analysed.
- Primary immune thrombocytopenia (ITP) is an acquired autoimmune bleeding disorder, accounting for about 1/3 of clinical haemorrhagic diseases. Loss of immune tolerance leading to increased platelet destruction and decreased platelet production is the main pathogenesis of ITP. Dysbiosis of the gut microbiota was found in many autoimmune diseases like rheumatic arthritis (RA), inflammatory bowel disease (IBD), multiple sclerosis and probiotic treatment or faecal microbiota transplantation (FMT) which can regulate the gut microbiota has good clinical efficacy in those disorders. One ITP patient with ulcerative colitis (UC) was treated with FMT and got progressive but significant increase in platelet level and lasted for several years.
- Infections may also trigger autoimmune diseases and may be a complication of an already impaired immune system. The association between immune thrombocytopenia and the acquired immunodeficiency syndrome and subsequently as a presenting feature of HIV infection has been recognized. So, I started research and did internship on microbiota role in human health and diseases, to explore more about microorganism infections.
- Currently, I am working as an research fellow in Centro Di Ricerca Pediatrica Romeo Ed Enrica Invernizzi Ospedale L. Sacco, where I am working on main topics, infections caused by multi-drug resistant bacteria, and some neglected parasitic and vector-borne diseases, with particular attention to infections of paediatric interest, and the characterization of microorganisms and epidemiological reconstructions, through the application of genomic, bioinformatics and computational tools. Moreover, to conduct genomic comparisons and phylogenomic analysis; investigate the microbiota, both through amplicon-based and shotgun metagenomics approaches; produce and characterize recombinant proteins. With main laboratory skills and competences Polymerase Chain Reaction (PCR), Real Time PCR (High Resolution Melt {FIRM} - Precision Melt Analysis) and Whole Genome Sequencing (WGS) -

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Illumina Mi-Seq/Next-Seq and Library Preparation Methods with Nextera XT library prep kit in NGS (Next Generation Sequencing) for Pathogenic microorganisms.
- Undertaking projects of SARS-CoV-2; Real-time based SARS-Cov-2 detection assay from salivary samples
- Post-COVID MIS-C (Multisystem Inflammatory Syndrome in Children) for research and diagnostic immunological studies and pathological mechanisms.

Teaching Activities: Tutored first year master students pursuing Medical Biotechnologies, University degli Studi del Piemonte Orientate, Novara, Italy in "Functional Genomics" and "Molecular Virology" courses

PROJECT ACTIVITY

Year	Project
2016-2018	Molecular analysis of *STAT3* gene in Primary Immune Thrombocytopenia (ITP).
2018	Role of gut microbiota and its metabolites on human health and diseases.
2019-2020	Study on infections caused by multi-drug resistant bacteria, and some neglected parasitic and vector-borne diseases, with particular attention to infections of paediatric interest, and the characterization of microorganisms and epidemiological reconstructions, through the application of genomic, bioinformatics and computational tools.
2020-*till date*	Projects of SARS-Cov-2; Real-time based SARS-Cov-2 detection assay from salivary samples and post-COVID MIS-C (Multisystem Inflammatory Syndrome in Children) for research and diagnostic immunological studies and pathological mechanisms.

CONGRESSES AND SEMINARS

Date	Title	Place
March 2018	Biomedical Aspects of Aging- Short course by Professor Federico Sesti, Rutgers University, Piscataway, NJ, US.	Novara, Italy
May 2017	Benefit Sharing and Global Health: toward a Model of Inclusive Excellence Led by International Faculty-Oxford Type Debates.	Novara, Italy
October 2017	International workshop certification NO-CANCER 2017 From carcinogenesis to Therapy: new paradigms, new opportunities. (attendee)	Novara, Italy
November 2016	IRCAD (Interdisciplinary Research Center of Autoimmune Diseases Interdisciplinary Research Center on Autoimmune Diseases)- Scientific Session on “Focus on Psoriasis” University of Eastern Piedmont (UPO).	Novara, Italy
October 2016	International Conference Certification- “Basic to Translational Medicine 2016: Focus on cancer.” (attendee)	Novara, Italy

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PUBLICATIONS

Articles
Ajay Ratan Pasala, Matteo Perini, Aurora Piazza, Simona Panelli, Domenico Di Carlo, Cristian Loretelli, Alessandra Cafiso, Sonia Inglese, Gian Vincenzo Zuccotti1 and Francesco Comandatore. **Repeatability and reproducibility of the *wzi* High Resolution Melting-based clustering analysis for *Klebsiella pneumoniae* typing.** *AMB Expr*. doi: https://doi.org/10.1186/s13568-020-01164-7. PMID: 33315212
Matteo Perini, Gherard Batisti Biffignandi, Domenico Di Carlo, **Ajay Ratan Pasala**, Aurora Piazza, Simona Panelli, Gian Vincenzo Zuccotti, and Francesco Comandatore. **Melting Plot: a user-friendly online tool for epidemiological investigation using High Resolution Melting data.** *BMC Bioinformatics*. doi: https://doi.org/10.1186/s12859-021-04020-y. PMID: 33602119

OTHER INFORMATION

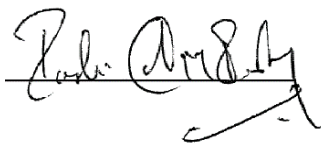
Elected as Student representative during the master's degree in medical biotechnologies, Università degli Studi del Piemonte Orientate. 2016-2017

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.

Place and date: _____Rho (Milan)_____, ____03/04/2021_____

SIGNATURE



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