



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. Gian Vincenzo Zuccotti

AJAY RATAN PASALA

CURRICULUM VITAE

PERSONAL INFORMATION

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

PRESENT OCCUPATION

Appointment	Structure
INTERNSHIP	Dip. Scienze Biomediche e Cliniche L. Sacco, University 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. (SCSVMV)	2015
Master	Medical Biotechnologies	Università degli Studi del Piemonte Orientale	2018

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City



FOREIGN LANGUAGES

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

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2016-2018	Master student merit-based scholarship, Università degli Studi del Piemonte Orientale, Novara, Italy (€ 5000)
2017	University of Eastern Piedmont (Hematology Laboratory) grants for International exposure and training internship in Hematology Laboratory Hospital De La Santa Creu I Sant Pau- Barcelona, Spain.

TRAINING OR RESEARCH ACTIVITY

I've worked as an intern during my masters in Prof. Dr. Gianluca Gaidano Laboratory where I study autoimmune disorders and patients enrolled in my research were from 7 Italian centers. 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) & 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 similar to that previously reported in ALPS patients.

On these grounds, to understand if *STAT3* mutations may be involved in ITP pathogenesis, we analyzed 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 analyzed.

Primary immune thrombocytopenia (ITP) is an acquired autoimmune bleeding disorder, accounting for about 1/3 of clinical hemorrhagic 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 fecal 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 intern in Professor. Claudio Bandi's Laboratory, 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 pediatric 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 {HRM} - Precision Melt Analysis) and Whole Genome Sequencing (WGS) - Illumina Mi-Seq/Next-Seq and Library Preparation Methods with Nextera XT library prep kit in NGS (Next Generation Sequencing) for Pathogenic microorganisms.

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

PROJECT ACTIVITY

Year	Project
2016- 2018	Molecular analysis of <i>STAT3</i> gene in Primary Immune Thrombocytopenia (ITP).
2018	Role of gut microbiota and its metabolites on human health and diseases.
2019	Study on infections caused by multi-drug resistant bacteria, and some neglected parasitic and vector-borne diseases, with particular attention to infections of pediatric interest, and the characterization of microorganisms and epidemiological reconstructions, through the application of genomic, bioinformatics and computational tools.

PATENTS

Patent

CONGRESSES AND SEMINARS

Date	Title	Place
04/17	Seminar on Iron Biology by Dr. Yelena Z Ginzburg	Novara, Italy
04/17	Seminar on Gene Therapy by Dr. Antonia Follenzi	Novara, Italy
05/17	Benefit Sharing and Global Health: toward a Model of Inclusive Excellence Led by International Faculty-Oxford Type Debates.	Novara, Italy
09/17	International Workshop, NO-CANCER 2016	Novara, Italy



	& 2017	
03/18	Seminar on BioMedical Aspects of Aging by Professor Federico Sesti	Novara, Italy

PUBLICATIONS

Books
Articles in reviews
Congress proceedings

OTHER INFORMATION

Elected as Student representative during Masters in Medical Biotechnologies, Università degli Studi del Piemonte Orientale. 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: MILAN, 31/07/19

SIGNATURE

Paola. Am. Sesti