

Via Claudio Debussy, 5 – 20143

Milano, Italia

☎ : 0033.6.24.78.20.65 / 0039. 389. 78. 444. 86

@ : alison.domingues.pro@gmail.com

26/04/1988



Postdoctoral researcher in  
Vascular Biology, Angiogenesis  
and Biotherapies

## UNIVERSITÀ DEGLI STUDI DI MILANO

selezione pubblica per la copertura di un posto di Ricercatore a tempo determinato ai sensi dell'art.24, comma 3, lettera a) della Legge 240/2010, per lo svolgimento di attività di ricerca vincolata su tematiche green e innovazione - DM 10 agosto 2021 n. 1062, per il settore concorsuale 05/D1 - FISILOGIA, SETTORE SCIENTIFICO DISCIPLINARE BIO/09 - FISILOGIA PRESSO IL DIPARTIMENTO DI BIOSCIENZE PER LO SVOLGIMENTO DI ATTIVITA' DI RICERCA VINCOLATA SU TEMATICHE INNOVAZIONE - DM 10 AGOSTO 2021 N. 1062 Codice concorso 4848

18/10/21

## Work experience

2020  
–  
Today

### Postdoctoral fellowship (“Assignisti di tipo B”) directed by Dr A Fantin

- **Dipartimento di Bioscienze, (UNIMI, Università degli Studi di Milano, Italia)**

“Defining the molecular and cellular mechanisms by which tissue macrophages promote angiogenesis in neovascular diseases.”

Model: Macrophages, Progenitor cells, Mice development, Developmental Angiogenesis, mouse models of vascular pathology –

Themes: Stem cells, Angiogenesis, Regenerative medicine, Endothelial cells and macrophages interaction

Supervising: Master student supervisor of Benedetta Valeri and Sidorela Balla

"Organ in a chip", microfluidic systems / Angiogenesis study via "High content screening" / Breeding and management of transgenic mice, genotyping / Cell lineage tracing / Murine tissue digestion and cell sorting for transcriptomic analysis / Oxygen-induced retinopathy / Lower limb ischemia / Culture of macrophages (immortalized line, differentiation of monocytes into macrophages) and endothelial cells (HUVECs, ECFCs)

2018 – 2019

### Research scholar position directed by Pr MZ Ratajczak

- **James Graham Brown Cancer Center, Stem Cell Institute (University of Louisville, Kentucky, USA) – NIH funding**

“Differentiation of Very Small Embryonic-Like stem cells into endothelial cells.”

Model: Endothelial cells, Progenitor endothelial cells, VSELs – Themes: Stem cells, Angiogenesis, Regenerative medicine, Cell therapy

Cytometry, cell sorting / Endothelial functional assays (proliferation, migration, adhesion), *in vitro* Angiogenesis assays (tubulogenesis, 3D sprouting), *in vivo* angiogenesis assays (Matrigel plug)

2015 – 2019

### Master and PhD student directed by Pr V. Nivet-Antoine – PhD defense on 20/11/2019

- **Laboratoire IThEM (Innovations thérapeutiques en hémostase, Pr P. Gaussem) Inserm UMR\_S1140 (Université Paris Descartes, Faculté de Pharmacie, Paris, FRANCE) Group 1 headed by Pr D. Smadja – Ministry of research funding (MTCI, ED 563), Mission of expertise (1 year) and Teaching mission (2 years - 128h of teaching lessons)**

- **Laboratoire MitoVasc** (*Physiopathologie cardiovasculaire et mitochondriale*) Inserm / CNRS UMR CNRS 6015 (Université d'Angers, Angers, FRANCE) headed by Dr D. Henrion – **2 months mobility with NSFA funding**

**“The role of Thioredoxin Interacting protein in angiogenesis during cardiovascular aging: “Endothelial TXNIP implication in a vascular aging model and in post-ischemic angiogenesis”**

Models: Mice, Endothelial Cells - Themes: Oxidative stress and Inflammation, Angiogenesis, Aging, Endothelial dysfunction, Metabolic stress

Handling mice breeding and genotyping, / Treatment by nanoparticles / Surgery: hind limb ischemia (laser doppler, microCT) / Organotypic culture / Vascular reactivity, arteriography / Immunohistofluorescence or immunohistochemistry / Molecular biology: Western/dot blot, ELISA, qPCR ...

Supervising: Master student supervisor of Gaetane Croux, Amayelle Rey, A. Leuci and Astrid De la Roche

Teaching: Master students, Bachelor students – Animal testing regulations, involved in regulatory compliance trainings for scientific animal use

Mission: Involved in the functioning of the structure responsible for monitoring animal welfare, representative- of the PhD students at the doctoral school and university

- ➔ **Doctoral teaching mission in human and experimental physiology (128h) :** supervision of practical work in animal experiments and teaching on project design; lectures on endpoints, alternative methods and comparative biology of species in animal experimentation; setting up of e-learning for newcomers to the animal facility.
- ➔ **Anima 5:** Expertise mission in animal experimentation for supervision and monitoring of animal welfare, organization of watch planning, drafting of meeting reports of the regulatory structure for monitoring the operation of the animal facility

#### Research internship in Pharmacology directed by Dr M. Charvériat

- **ICM (Institut du cerveau et de la moelle épinière)**, Inserm UMR\_S 1127/UMR 7225 (AP-HP Hôpital de la pitié Salpêtrière, Paris, FRANCE) headed by Pr A. Brice
- **Theranexus company**

**“Modulating connexins in Amyotrophic Lateral Sclerosis treatment”**

Models: zebrafish – Themes: Oxidative stress and Inflammation, Neurodegeneration

RT-PCR, RNA Extraction and purification, Western Blot / Micro injections of morpholinos / behaviour analysis: Actimetry, movement analysis / Drug screening...

#### Pharmacy internship directed by Dr F. Fauvelle

- **Groupe hospitalier intercommunale Le Raincy-Montfermeil**, (Seine-Saint-Denis, FRANCE) headed by Dr F. Fauvelle
- **ERASMUS à l'hôpital Sao Joao** (Porto, PORTUGAL) – **3 months mobility**

**Geriatrics department - Investigation and follow-up of medical prescriptions in elderly at the hospital and retirement homes**

Survey about the impact of Geriatric Drug Guidelines on the quality Requirement of Elderly patients / Assessment of Occupational Practices on the prescription of PPI (Proton Pump Inhibitor) ...

#### Research internship in Cell biology, Physiology and Therapeutics directed by directed Pr V. Nivet-Antoine

- **ViVa team** (*Vieillesse vasculaire*), EA4466 – *Stress cellulaire, physiopathologie et stratégies thérapeutiques innovantes* (Université Paris Descartes, Faculté de Pharmacie, Paris, FRANCE) dirigé par le Pr J.-L. Beaudoux

**“Resveratrol effects on cardiovascular aging”**

Models: Mice - Themes: Oxidative stress and Inflammation, Aging, Endothelial dysfunction

Molecular biology: Western blot, ELISA, qPCR, RNA Extraction and purification / Histology...

## Education and Qualification

---

- 2019**      **PhD degree** in Vascular Biology, angiogenesis and Biotherapies at MTCI (Medications, toxicology, Chemistry and Imagery Doctoral School), Université de Paris – Thesis defense on 20/11/2019
- 2017**      **University degree** in Animal surgery, Université Paris Descartes
- 2015**      **University degree** in Animal testing, Université Paris Descartes – Designer level
- 2016**      **PharmD**, Université Paris Descartes, Faculté de pharmacie – Thesis defense on 24/10/2016 – First class honors
- 2015**      **Master** in Med Sciences - Pharmacology – Preclinical and Preclinical integrated pharmacology, Université Paris Descartes, Faculté de pharmacie
- 2006**      **French Baccaureat degree** in Sciences - 2<sup>nd</sup> class honors

## Teaching and supervising

---

- **Supervising and mentoring of Master students**  
4 students in France and 2 students in Italy
- **Doctoral teaching mission in human and experimental physiology (128h, 64h/year), Université Paris Descartes, Faculté de pharmacie, France:**  
Supervision of animal experimentation labs and project design studies  
Lectures on endpoints, alternative methods and comparative biology of species in animal experiments  
E-learning design for newcomers to the animal facility.

## Awards, Publications and communications

---

- **Poster and communications**

- 2021**      **ASH** (American Society of Hematology), Atlanta, USA – **Poster (12/21)**  
"Novel Evidence That by Employing a Two-Step Differentiation Protocol in the Presence of UM171 and Nicotinamide Acid Human Very Small Embryonic like Stem Cells (VSELs) Differentiate into Functional Endothelial Cells (ECs)"
- MyDev Meeting** (Milano, ITALIE) – **Poster**  
"Organ-specific roles for SDF1 signalling during developmental blood vessel growth"
- 2018**      **IVBM** (International Vascular Biology Meeting), Helsinki, Finlande – **Poster**  
"Thioredoxin interacting protein endothelial reduced expression protects from metabolic stress-induced impaired angiogenesis in adult mice"
- ISTH** (International Society on Thrombosis and Haemostasis), Berlin, ALLEMAGNE – **Poster**  
"Thioredoxin interacting protein endothelial deletion protects from alterations of angiogenic process in adult mice submitted to vascular accelerated aging"
- 2017**      **NSFA** (New French Society in Atherosclerosis) Biarritz, FRANCE – **Poster and Oral communication**  
"Systemic nanoparticle delivery of siRNA for Thioredoxin Interacting Protein protects from aging"
- GRRC** (Research group in Cardiology), Nantes, FRANCE – **Poster**  
"Thioredoxin interacting protein endothelial deletion protects from alterations of angiogenic process in adult mice submitted to vascular accelerated aging"

- 2016 | **GRRC** (Research group in Cardiology), Dijon, FRANCE – **Poster**  
 “Endothelial Txnip KO mice are protected from accelerated arterial aging”  
**YRLS** (Young Researchers in life Sciences), Paris, FRANCE – **Poster**  
 “Endothelial deletion of Thioredoxin-Interacting Protein protects mouse arteries from aging induced by metabolic disorders”
- 2015 | **SFA** (French Society in Angiogenesis), Paris, FRANCE – **Poster – Best poster award**  
 “High protein - low carbohydrate diet induces alterations of angiogenic process in adult mice”

## Publications

Biomolecules  
2021

**Alison Domingues**, A. Fantin  
 “Neuropilin 1 regulation of Vascular Permeability Signaling.”

Int J Mol Sci  
2021

**Alison Domingues**, J. Jolibois, P. Marquet, V. Nivet-Antoine  
 “The Emerging Role of TXNIP in Ischemic and Cardiovascular Diseases; a novel Marker and therapeutic target.”

Angiogenesis  
2020

**Alison Domingues**, C. Boisson-Vidal, P. Marquet, B. Dizier, J. Sadoine, V. Mignon, E. Vessières, V. Escriou, P. Bigey, D. Henrion, C. Chaussain, DM. Smadja, V. Nivet-Antoine  
 “Targeting TXNIP (Thioredoxin-interacting protein) protects from metabolic disorders-related impairment of vascular function and post-ischemic revascularization.”

Adv Exp Med  
Biol 2019

Suman Suman, **Alison Domingues**, Janina Ratajczak, Mariusz Z Ratajczak  
 “Potential Clinical Applications of Stem Cells in Regenerative Medicine”

Stem Cell  
Rev 2019

MZ. Ratajczak, A. Mack, K. Bujko, **Alison Domingues**, D. Pedziwiatr, M. Kucia, J. Ratajczak, H. Ulrich, Kucharska-Mazur, J. Samochowiec  
 “ATP-Nlrp3 Inflammasome-Complement Cascade Axis in Sterile Brain Inflammation in Psychiatric Patients and its Impact on Stem Cell Trafficking.”

Proc Stem  
Cell Res  
Oncog 2019

MZ. Ratajczak, **Alison Domingues**, S. Suman, AR. Straughn, SS. Kakar, M. Suszynska  
 “Novel view of the adult stem cell compartment – a developmental story of germline and parental imprinting.”

FASEB  
2018

T. Bedarida\*, **Alison Domingues\***, S. Baron, C. Ferreira, F. Vibert, C.-H. Cottart, J.-L. Paul, V. Escriou, P. Bigey, P. Gaussem, T. Leguillier, V. Nivet-Antoine \* both authors contributed equally to the work  
 “Reduced endothelial thioredoxin-interacting protein protects arteries from damage induced by metabolic stress in vivo.”

Therapie  
2015

F. Fauvelle, F. Kabirian, **Alison Domingues**, F. Tubach, N. Gault, and R. Abbas  
 “Impact d’un livret thérapeutique sur la qualité des prescriptions médicamenteuses des résidents d’EHPAD.”

## Awards

- French Ministry of Research 3 years grant for PhD
- NSFA (Nouvelle Société Française d’Athérosclérose) 2 months mobility grant to visit Dr D. Henrion’s lab in Angers
- Best poster Award at SFA meeting (Société Française d’Angiogénèse)

## Skills

**French:** native language  
**English:** professional working proficiency  
**Portuguese:** bilingual proficiency

**Spanish:** limited working proficiency  
**Italian:** Elementary

**Computer skills:** Word, Excel, PowerPoint, ImageJ, Leica software, Histolab, Zotero, Papers, GraphPad Prism, Illustrator, Photoshop...

**Technical skills:** Animal testing: Sampling organs from mice, Hindlimb ischemia Surgery, Organotypic culture, Cell culture, Molecular biology assays. Microscopy: Immunolabelling; Fluorescent confocal and transmission. Imagery: microCT, echodoppler, laser Doppler.

## Extracurricular

Driver’s license

Representative of PhD Students in Paris Descartes University: Participation to scientific council, Admission board for PhD fellowship, Organisation of « Scientific days of the doctoral school ».

YRLS - Young Researchers in Life Sciences - Scientific committee board member: Program team member, Organisation of the YRLS international conference

**Interest:** Ballet, Biking tour, Reading, Cinema, history and Exhibitions