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PROFILE:

- Experimental technics: Microbiological analysis, Molecular Biology, Imaging and Microscopy, Immunological analysis and scale-up production (Using bioreactor).
- Rich experience in *in vitro* and *in vivo* experimental models.
- Computer skills: Microsoft office, bioinformatic expertise, Icy software, Zotero.
- Languages: French and english (Very good communication skills, both written and spoken), Arabic (first language).

EDUCATION:

University of Burgundy Franche-Comté, UMR PAM, Dijon, France.

- Research engineer in microbiology, Mars 2018 July 2018.
- Ph.D. Microbiology, Science of food, June 2018.

Lebanese University, Lebanon.

- M.S. 2. Microbiology of Food and Quality Control, 2014. (Graduated with honor, Ranking: 1; First degree fellowship (Average 15.2/20)).
- M.S. 1. Biotechnology, 2013 (Average 15.1/20).
- B.S. Biology, 2012.

RESEARCH INTERESTS:

- Intestinal diseases development (notably infectious diseases) and the host immune system responses.
- Maintenance of intestinal homeostasis against pathophysiological conditions using food supplements Focus on signaling pathways in interest:
- Probiotics and their beneficial properties on human health
- Micronutrients and their impacts on the regulation of intestinal immunity
- Autophagy mechanism processing and its regulation in response to microbial agents (bacteria, virus and parasite)

RESEARCH EXPERIENCE:

• University of Burgundy and Welience Satt Grand-Est, Dijon, France.

Research engineer in Microbiology, March 2018 – July 2018.

My work focuses on the scale-up production of a new formulation of probiotics (A confidential subject). For this project, I have developed an industrial culture medium for *Lactobacillus* probiotic bacteria and succeeded in using it for bacterial growth on a pre-industrial scale (fermentation 5L). These formulations are tested for its adhesion capacities on *in vitro* models and its retention during preserving (under its lyophilized forms).

• University of Burgundy, UMR PAM, Dijon, France.

Ph.D. candidate, March 2015- March 2018.

During my three years of Ph.D., my research project focused on the modulation of the intestinal innate immunity, especially autophagy mechanism, in basal and pathological conditions. I have been interested in studying the effect of dietary supplements found in functional foods such as probiotics and polyphenols. On a one hand, we studied the effect of conventional Lactobacillus probiotic strains on autophagy regulation (Topic 1) within intestinal epithelial cells aiming at identifying novel criterion to select probiotic strains. In addition, we designed recombinant Lactobacillus probiotic strains that are able to express and secrete a cell-permeable autophagy-inducible peptide in the aim to boost their basal effect. On another hand, recent works identified numerous polyphenols that show inducible effects on autophagy in treating pathological traits using in vitro and in vivo models. In my framework, I was interested in a selective form of autophagy called xenophagy, designated to eliminate invasive pathogens, linked to infectious disease development. My thesis research highlights a novel strategy to stimulate xenophagy using a nutritional intervention based on polyphenol administration, notably resveratrol, that could boost intracellular pathogens elimination in the intestine (Topic 2). Noting that a cross-talk between the two topics has been characterized. We demonstrated that a dietary complement fusing both of Lactobacillus and Resveratrol, may enhance probiotic implantation within the intestine leading to biofilm structures (microbial communities resting on a solid support) and their antiinflammatory properties also.

My PhD work gives rise to three papers:

1. Al Azzaz J, Rieu A, Aires V, Delmas D, Chluba J, Winckler P, Bringer M-A, Lamarche J, Vervandier-Fasseur D, Dalle F, Lapaquette P and Guzzo J (2019). Resveratrol-Induced Xenophagy Promotes Intracellular Bacteria Clearance in Intestinal Epithelial Cells and Macrophages. Front. Immunol. 9:3149. doi: 10.3389/fimmu.2018.03149.

2. Modulation of autophagy by Lactobacillus strains in intestinal epithelial cell – Paper in processing

3. Resveratrol favors biofilm formation and immunomodulatory properties of probiotics *Lactobacillus* casei ATCC334 – Paper in processing

REFRENCES:

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