

Nutrition, microbiome and immunity**Subject Name:**

Nutrition, microbiome and immunity

Course Type:

Lectures/case studies with personal work

Outline:

Deficiency in or inappropriate diet intake is associated with a lack in specific micronutrients which leads to dysfunction of the immune system essential to host protection. The different arms of the immune system can be affected by inadequate nutrition including the adaptive and innate immunity (T and B lymphocyte, monocyte, phagocyte or natural killer cell function and complement responses for instance). Various pathological conditions such as obesity, nutritional behavior disorders for example can affect the immune function leading to decreased protection against pathogen, chronic inflammation, autoimmunity or increased risk of cancer. This course is centered upon the interactions between nutrition, microbiota and the normal or pathological functioning of the immune system. These topics will be covered through the following specific axes:

Axe 1: Importance of diet and nutrients in the regulation and maintenance of the physiologic function of the immune system; diet-related inflammatory responses (chronic inflammation and associated pathologies: IBD, Cancer...)

Axe 2: Modulation of the immune system by adipokines in obesity and associated disorders.

Axe 3: Impact of dietary components on gut microbiome, immunity and inflammation and physiopathologic consequences (cancer prevention, autoimmunity)

Semester Schedule and Credit:

<u>Subject</u>	<u>Year</u>	<u>Semester</u>	<u>Day/Period</u>	<u>Credit</u>
Nutrition, microbiome and immunity	2	Fall		3

Location:

University of Bordeaux (UB)

Instructor Information:

Prof N. Larmonier

General Instructional Objective (GIO):

During the proposed course, students will be exposed and learn:

- The basic aspect of immune functions in physiologic conditions and in situations of inadequate nutrition
- The mechanisms by which nutrition impact the protective activity of the immune system

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- Immune dysregulations related to changes in diet intake and the associated consequences (autoimmunity, chronic inflammation, cancer...)
- How nutrition affects the microbiota leading to change in immunity.

Specific Behavioral Objectives (SBO):

- Participants will acquire knowledge related to the modulation (positive or negative) of the different arms of the immune system by diet, how defaults or nutritional behavior disorders may indirectly affect immunity and the resulting physiological consequences.
- Student will acquired skills to critically assess results in the field related to the links between nutrition, microbiota and the induction and regulation of immune responses.

Course Overview/ Schedule:

- 1) Lectures by specialists
- 2) Analysis of published scientific data

Homework:

- At home, students will have to prepare oral presentation about analysis of scientific publications of the domain. They will have to present as a conference to other students.

Grading Method and Criteria:

- Analysis and presentation of scientific articles in the field
- Participation during lectures

Textbook/ Referenced Materials: None

Notes: None