

# Higher education at the Institut Hospitalo-Universitaire Méditerranée Infection

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## Abstract

Since its creation in 2011, the Institut Hospitalo-Universitaire Méditerranée Infection (IHU MI) has devoted a major part of its funding to support higher education programs. In 2017, on a recurrent budget of 5.8 million Euros per year, 2.9 (50%) were spent on infrastructure, mostly for maintenance and equipment of our new building. Among the remaining 2.9 million Euros, 2.3 (80%) have been dedicated to support higher education programs.

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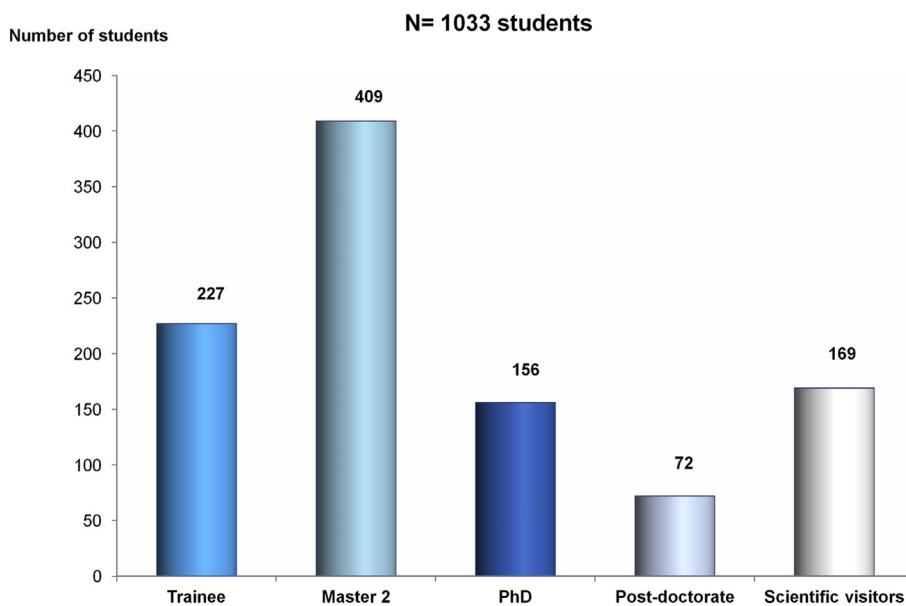
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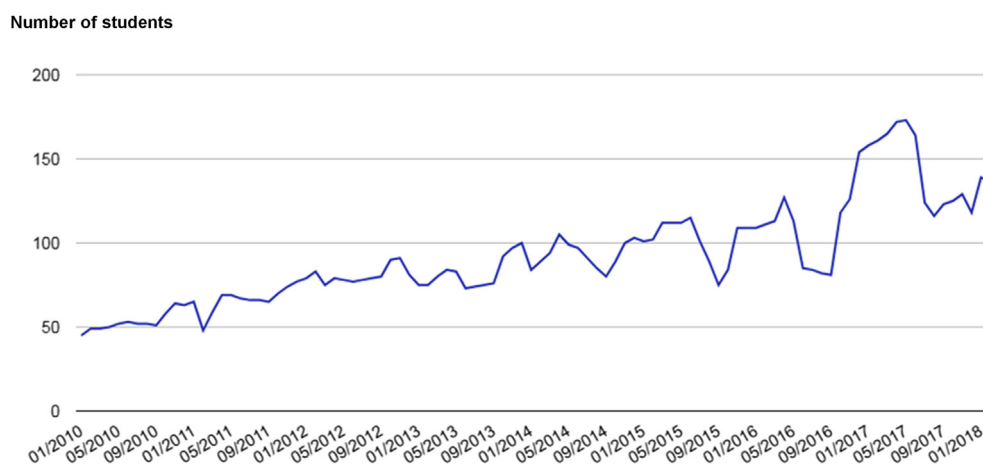
Since its creation in 2011, the Institut Hospitalo-Universitaire Méditerranée Infection (IHUMI) has devoted a major part of its funding to support higher education programs. In 2017, on a recurrent budget of €5.8 million per year, 2.9 (50%) was spent on infrastructure, mostly for maintenance and equipment of our new building. Among the remaining €2.9 million, 2.3 (80%) was dedicated to support higher education programs. Since 2010, 1033 students and scientific visitors have been welcomed at IHUMI (Fig. 1). Among these, the number of foreign students increased progressively to reach 173 in February 2017 (Fig. 2). At the beginning of 2018 they represented 70% of all students present at IHUMI (Fig. 3).

The policy of higher education at IHUMI has several goals. The major goal is to provide a high level of education in microbiology and infectious diseases to all students. This ed-

ucation is based on courses given by experts in their field and research teams that are all in the French top ten in terms of scientific publication. Courses are given in the framework of the master's degree in infectious diseases within the doctoral school of Life Science and Health of Aix-Marseille Université. Most French and local students complete the master I (first year of the master's program) integrated in the human pathology program named 'From the gene to the disease,' which consists of courses in general microbiology, immunology, genomics and genetics. After this first year, students can integrate the master 2, which consists of five modules of specialized courses, including genomics, immunology, microbiology-microbiota, emerging and vectorized infectious diseases, and infectious diseases therapy. Among these, two modules are completed with the help of experts from Nice and Montpellier Universities, and one even takes place for a week at Montpellier University. To avoid extra costs, IHUMI organizes and supports bus transportation and accommodation for all students. Videoconferences have been developed, and several courses are available as videos on the website of the master's degree. This training strategy will be used to improve the research formation of students, including MDs from the Global South during their master I, and should



**FIG. 1.** Number of students at Institut Hospitalo-Universitaire Méditerranée Infection between 2010 and early 2018 according to degree.



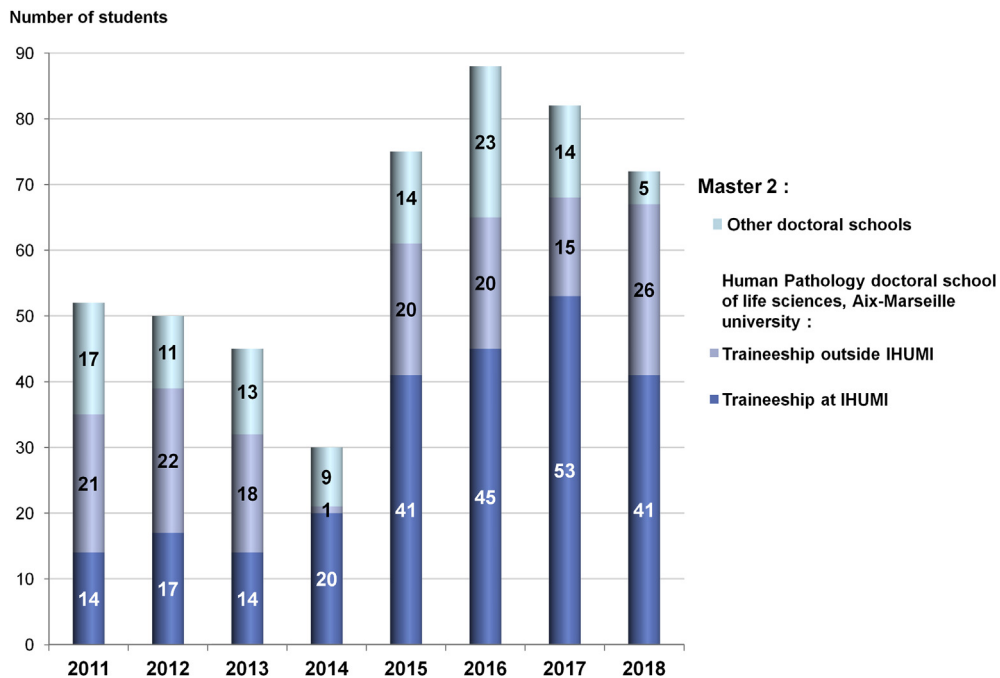
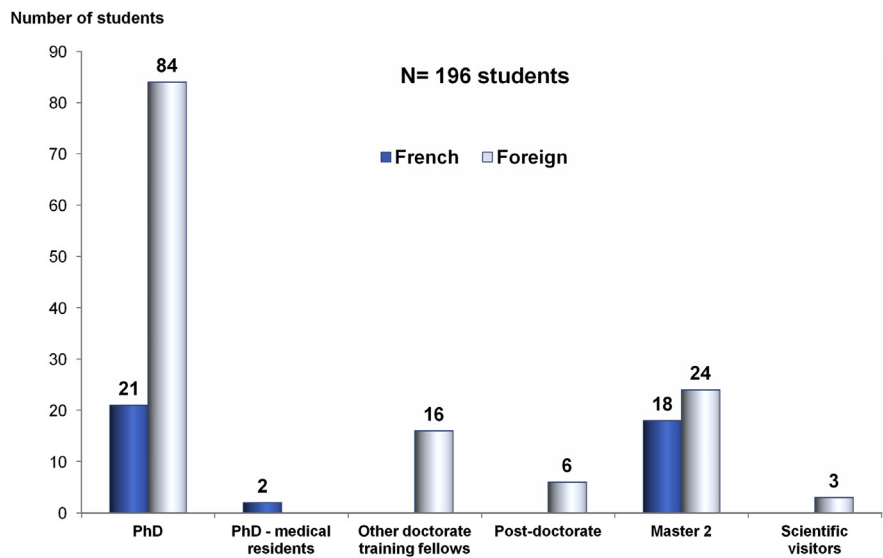
**FIG. 2.** Evolution of number of foreign students at Institut Hospitalo-Universitaire Méditerranée Infection, 2010–2018.

decrease academic failures. However, master 2 degree students following a master 2 degree at another doctoral school are welcome every year after a selection based on a background of excellence (Fig. 4). This master 2 degree is open to scientists and medical students, with medical students being mostly residents in medical and pharmaceutical specialties in relation with infectious diseases (Fig. 5). Master 2 degree students all receive a stipend that covers the required period of 6 months spent in a laboratory of IHUMI. Specifically for foreign students, this stipend covers the period of courses

between October and January and may cover for some selected students the period between June (first session of master 2 degree examination) and September (second session of master 2 degree examination).

The second goal of IHUMI in terms of education is to promote the formation of students from the Global South so they can benefit from a high level of education in microbiology and infectious diseases. The objective is to enable them to return in their country of origin and build, usually out of nothing, modern research laboratories. These students, as well as senior re-

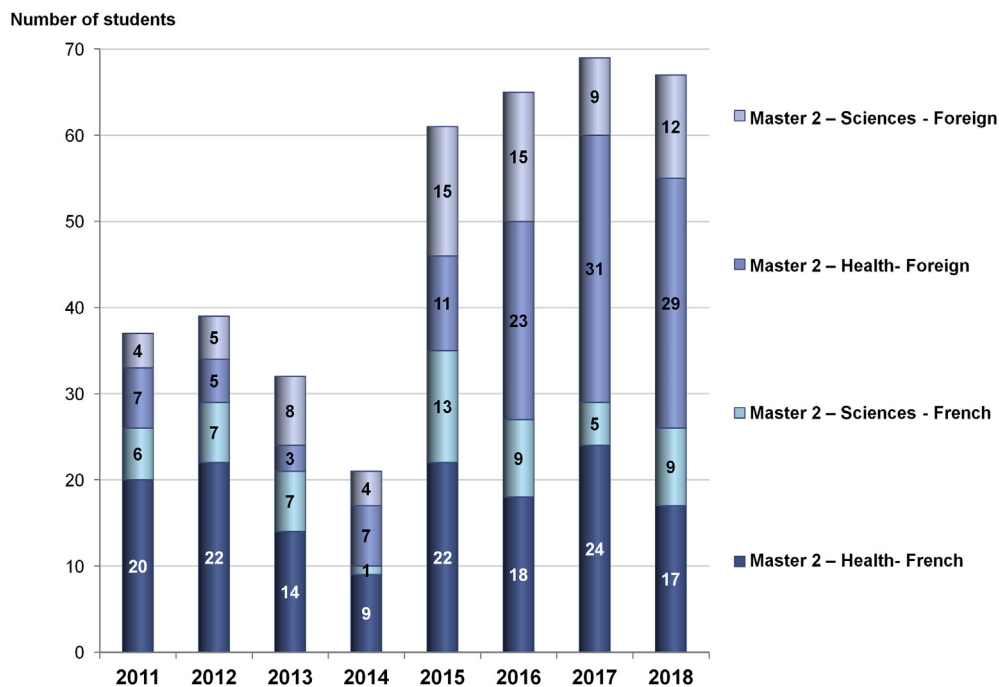
**FIG. 3.** Number of French and foreign students at Institut Hospitalo-Universitaire Méditerranée Infection according to their degree and training, early 2018.



**FIG. 4.** Number of master 2 students at Institut Hospitalo-Universitaire Méditerranée Infection since its creation in 2010, according to doctoral school and location of their training.

searchers visiting IHUMI, have access to IHUMI as free visitors (usually supported by a grant from their country of origin) or through inscription at the doctoral school, for a master 2 degree or PhD degree. To promote access to PhD degrees for foreign students, IHUMI provides several dedicated grants

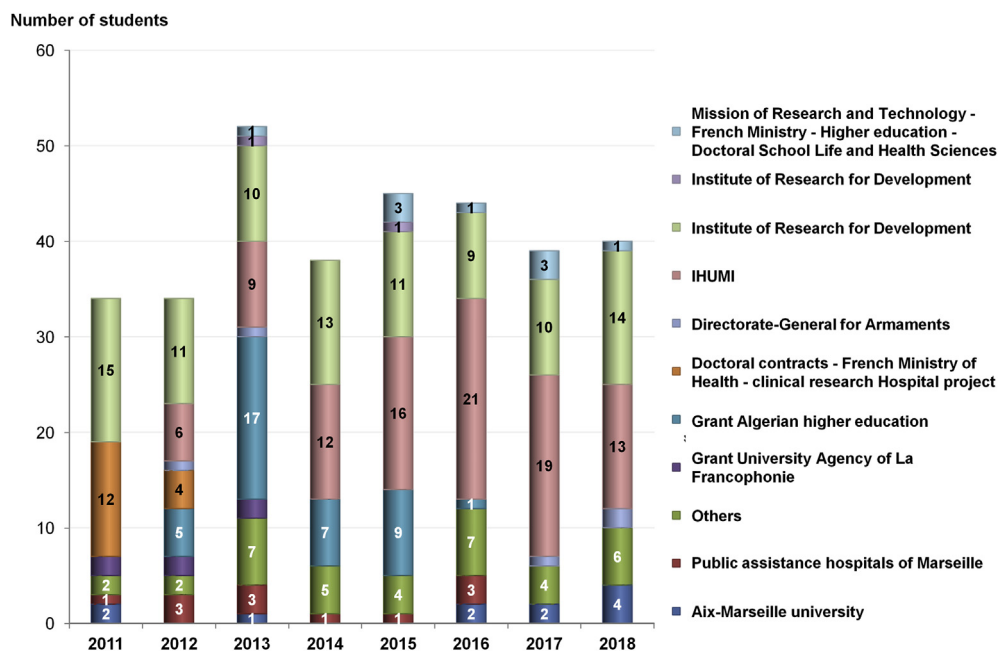
every year. Most of them are grants for direct access to a PhD degree, but two grants have been dedicated to the best foreign students following a master 2 degree and who have been deprived of access to French ministry grants because they did not follow the French master 1 degree program.



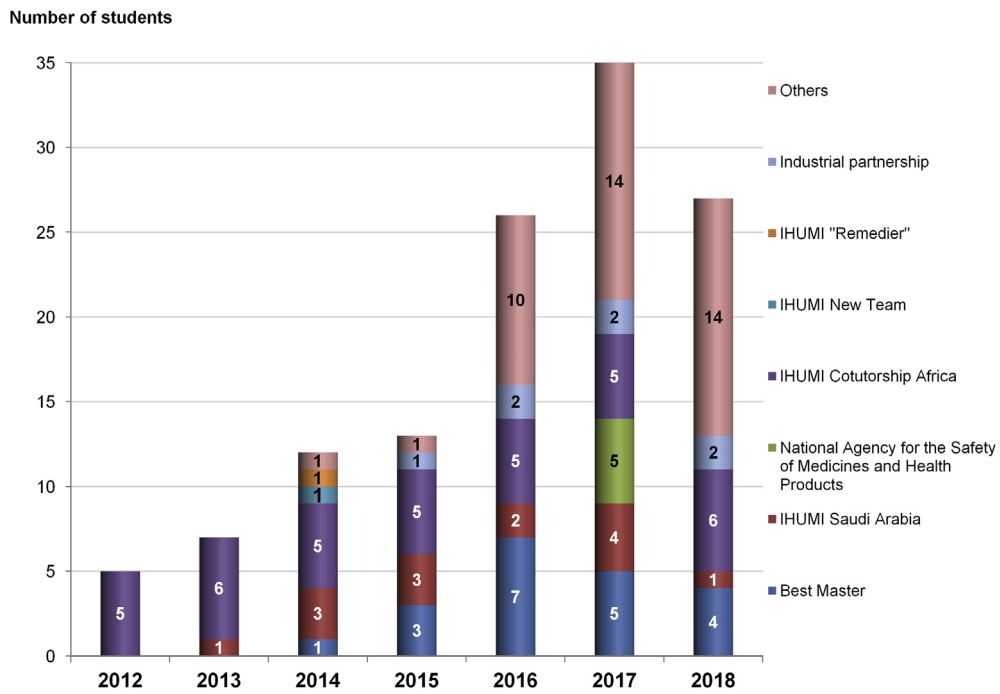
**FIG. 5.** Number of foreign and French master 2 students in infectious diseases or sciences at Institut Hospitalo-Universitaire Méditerranée Infection between 2011 and 2018.

Among students pursuing a PhD degree at the IHU, funding comes from various sources (Fig. 6) but in the recent years, IHUMI has been the main funding source (Fig. 7). The field of research in infectious diseases is the most developed at IHUMI.

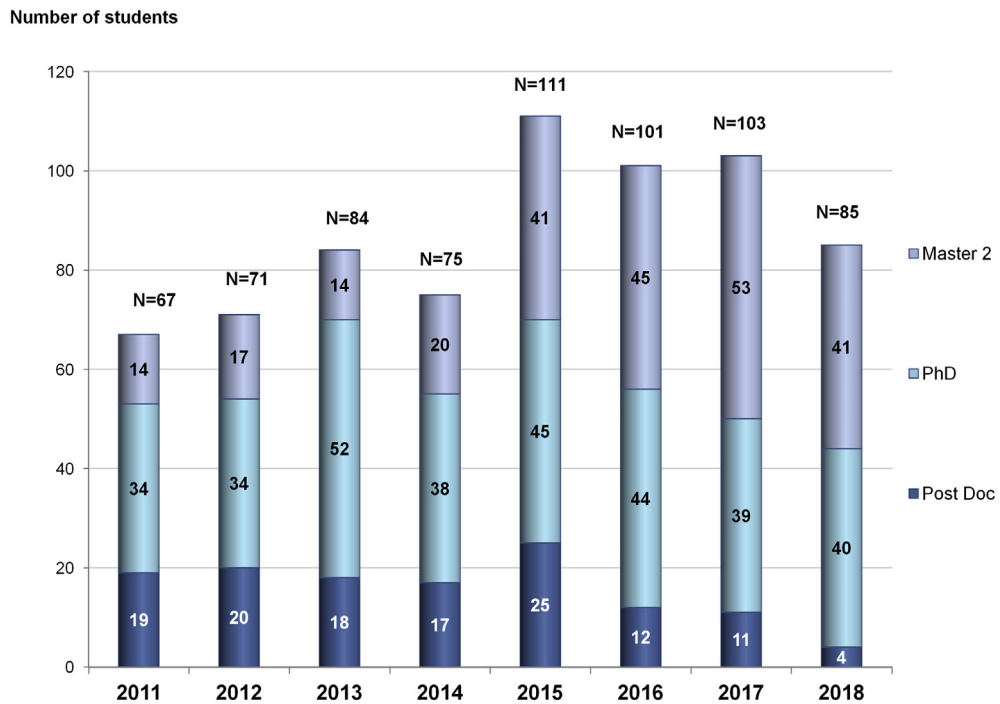
Since the creation of the IHU, 148 theses have been defended (mainly in the fields of infectious diseases and microbiology), and among the new doctors, 95 originated from the Global South and the IHU provided 50 financial support packages. Finally, IHUMI



**FIG. 6.** Number of new PhD fellowships at Institut Hospitalo-Universitaire Méditerranée Infection between 2011 and 2018 according to funding sources.



**FIG. 7.** Number of PhD fellowships newly funded by Institut Hospitalo-Universitaire Méditerranée Infection between 2011 and 2018 according to funding sources.



**FIG. 8.** Number of fellowships newly funded by Institut Hospitalo-Universitaire Méditerranée Infection between 2011 and 2018 according to degree.

funds also postdoctoral students. Overall, approximately 100 students are supported by IHUMI (Fig. 8). To date, this collaboration has allowed the creation of research laboratories headed by former IHUMI students in Algeria, Senegal and Guinea.

**Conflict of interest**

None declared.