

## **Control of a germline developmental program by the *Wolbachia* endosymbionts in filarial nematodes**

2 year-Postdoctoral Fellowship, Landmann Lab, CRBM Montpellier

We seek a talented postdoctoral fellow with an expertise in RNAseq analyses to join us to investigate the subversion of the filarial nematode germline developmental program by the *Wolbachia* bacterial endosymbionts. These nematode species (i.e. *Brugia malayi*) cause filarial diseases such as Elephantiasis and affect 120 million people in tropical areas. Parasitic filarial nematodes rely on the vertically transmitted *Wolbachia -Wb-*, present in the worm hypodermis as well as in the female germline. *Wb* removal by antibiotic therapies leads to female sterility, and is eventually lethal for adult worms. Since the discovery of this mutualism, *Wb* have become a major drug target to fight filariasis, yet almost nothing is known regarding the mechanisms underlying this symbiosis.

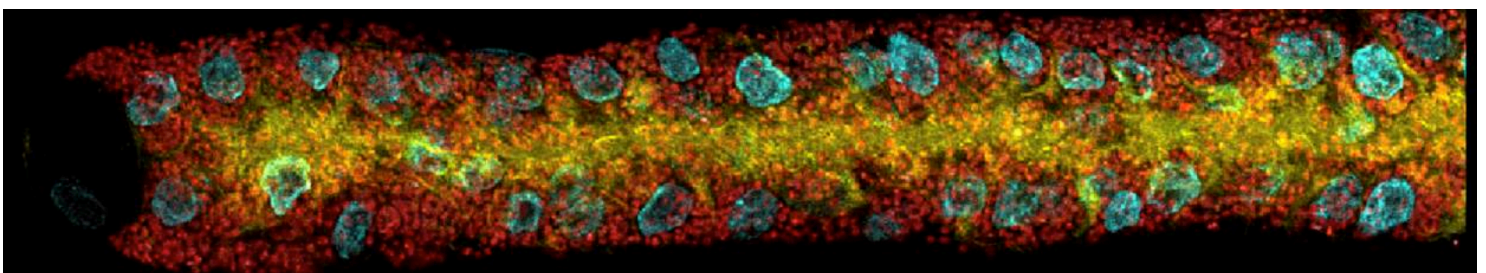
We collected pieces of evidence indicating that in the ovaries, mitotic proliferation is reduced and the behavior of the germline stem cells -GSCs- is dramatically affected in absence of *Wb*. In addition the histone modification patterns depend on *Wb* during oogenesis, and are otherwise aberrant upon *Wb* -depletion. *Wb(-)* females produce embryos with cell fate/blastomere identity defects that do not undergo morphogenesis and eventually enter apoptosis. We postulate that *Wolbachia* are essential for a proper germline developmental program to occur, possibly through subversion of its epigenetic control, and their removal leads to aberrant gene expression and to the production of faulty oocytes. The postdoctoral fellow will complete an ongoing cellular analysis of defects in *Wb(-)* ovaries, including a screening of histone modifications patterning in the germline, and carry out RNA seq experiments, from the making of libraries to data analyses. We already validated the RNAseq technique on segments of *Brugia* ovaries, giving us the opportunity to study the role of *Wolbachia* during oogenesis with an unprecedented resolution (i.e. in GSCs/mitotic proliferation versus meiosis).

The ideal candidate should be experienced in RNAseq analyses, and some knowledge in invertebrate biology from insect to nematode species is a plus. He/she will participate to the maintenance of the *Brugia* life cycle, shuffling from mosquitos to gerbils. We are part of the CRBM, the center for cell biology research in Montpellier, offering state of the art platforms and facilities.

To apply, please send your motivation letter along with your resume and with two reference letters. This position is to be filled this spring.

For more information, please contact: [frederic.landmann@crbm.cnrs.fr](mailto:frederic.landmann@crbm.cnrs.fr)

<http://www.crbm.cnrs.fr/en/>



*Wolbachia* -red foci- around the germline stem cell nuclei in a *B. malayi* ovary distal tip