

Development of countermeasures against botulinum neurotoxins

Post-doctoral position in the Unit of Bacterial Toxins at the Institut Pasteur, Paris

Background:

The Bacterial Toxins Unit at the Institut Pasteur has a long lasting tradition of fundamental and applied research on botulinum neurotoxins with a major focus in the field of Cellular Microbiology. Botulinum neurotoxins (BoNT) are known as the most toxic agents for humans in Nature. Vaccination is ethically not justified due to the low number of natural botulism cases and the widespread, highly successful use of BoNT as pharmaceutical. The only proven therapy post-BoNT deadly intoxication is the administration of BoNT serotype-specific antitoxin to neutralize circulating BoNT before neuronal uptake. Within a Franco-German consortium, we will develop a new pipeline of antitoxin production covering major BoNT serotypes as well as cutting edge cell biology methods of antitoxins qualification avoiding animal experiments.

Research Program:

We are looking to recruit a young researcher with excellent track record to join our Unit in order to develop, in collaboration with partners at Institut Cochin, an *in vitro* cell-based method that would entirely replace the animal model for BoNT neurotoxicity assessment. A reliable test of BoNT activity challenges the different steps of the intoxication process: recognition of the host cell receptor complex, translocation into the cytosol from specialized endocytic compartments and inhibition of neurotransmission. Cutting edge methods in electrophysiology combining human-PSC neuronal networks will be developed to record BoNT neurotoxicity.

Expected background :

Neuronal cell cultures (primary neurons and/or iPS) and cell biology of neurons, electrophysiology and biochemistry. Complementary backgrounds in the fields of toxins and botulinum neurotoxins in particular will be favorably considered but are not mandatory.

Practical information :

° The position is open from October 2021 for a period of two years.

° Send your CV along with a motivation letter and two recommendations letters to : emmanuel.lemichez@pasteur.fr and nadine.delarue@pasteur.fr