



## **Prof. Levente Emody**

### **Research Areas:**

- pathomechanism of infections by Escherichia coli
- Other microbes such as Salmonella, Yersinia and Proteus
- Medical and clinical microbiology

### **Which factors are important to develop strategies that do not only improve our current situation concerning pathogenic microbes immediately, but also lead to a sustainable change?**

Globalization has markedly affected practically all dimensions of our inanimate and animate environment. Beside significant changes in the liable host populations drastic shifts have been witnessed also at the side of the pathogens. Emerging and re-emerging infections, development and spread of clones with high virulence or multiresistance all put a substantial burden on health care, economy, and other fields of life. These challenges definitely need a global scale intervention in order to sustain effective countermeasures. We can now characterize pathogens at a nucleotide base level, apply sophisticated methods in diagnostics and epidemiology.

Bioinformatics enables us to prepare and utilize global health statistics, and yields an almost unlimited access to professional literature and expert recommendations in clinical microbiology. To develop new effective antimicrobials and vaccines, however, long time research and implementation periods are needed. Medical and health science education should better consider the effects of global changes on pathogens and the society, and increase alertness toward this dimension. It is also important to educate the public to have correct ideas on the subject, and not to purchase false knowledge or misinterpretations from popular sources which may lead to bad conclusion and improper actions.

### **Which changes affect Microbiology in particular and how do you deal with this challenge in terms of operationalizing changes and predict future developments?**

Microbiology has witnessed substantial changes both as a science and a field of various applicatilities. Its scientific share has developed enormously, and yielded very accurate methods for basic science (including test and vehicle objects for molecular biology).

Globalization has affected the agriculture, food industry, trade, macro- and microenvironment, the access to social and health care facilities, and human mobility to mention only a part of the implicated areas. All these fields profit from the development of microbiology.

Beyond application of traditional methods molecular microbiology technologies provide quick, specific and sensitive procedures to diagnose infections; control and prevent epidemics.

Bioinformatics allows to trace the appearance and spread of vicious pathogens allowing epidemiological follows-ups and predictions, and implement preventive public health measures. The proper utilization of the predictions is highly dependent on the compliance of all parts concerned in decision making and effectuation.