



Monday March 9, 2009
11:00 to 12:30

Lyon Convention Center
France

MANAGING URBAN EPIDEMICS

2. Infectious Diseases – Strategies to combat infection

Moderator

- **Philippe Sansonetti**, Professor, Collège de France

Speakers

- **Giuseppe del Giudice**, Global Head Translational Medicine, Novartis Vaccines Research Center, Italy
- **Vincent Deubel**, Director, Institut Pasteur of Shanghai – Chinese Academy of Sciences (IPS-CAS), China
- **Peter C. Doherty**, Nobel Laureate, Medicine 1996, Australia
- **Benoit Miribel**, Director General, Fondation Mérieux

Summary

- The unwise use and anti-microbials in hospital environments poses a serious threat in the spread of infectious diseases.
- In addition, several uncertainties remain such as:
 - How will the human population behave in response to major epidemic outbreaks (population fluxes and mobility)?
 - How do molecular and cellular mechanisms of transmission between animal and human pathogens occur?
- Identifying future pathogens poses a challenge as there are many potential sources, although wildlife poses the greatest threat.
- Transmission capacity varies not only according to the age group but also to the individual status itself. This poses the question of the prevention strategy: who should be vaccinated first: the most susceptible to get the disease or those more likely to transmit?
- Pathogenesis of a virus is dependant both on the virus itself and the human recipient; furthermore, genetic reassortment, recombination, mutation or mixing of genes of two different viruses are areas where more research is needed.
- By any mean, education of the population, namely through children is critical but faces cultural issues.
- Besides the adaptive immunity, the innate immunity is a promising field of research that is being only understood recently.
- It has been recognized that this innate immunity can create a destructive response.
- There are diseases for which vaccine development should be straight forward. For others, such as AIDS or Malaria, the development is far more complex.



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- Novel adjuvants in the field of vaccines are an example of new research fields and will be increasingly essential to vaccines efficacy.
- It is important to consider an infectious disease in the context of its environment, not just the virus and the host.
- Regulatory bodies tend to be more cautious with regards to vaccine safety; this can pose a problem to public health.
- Close collaboration between Academia, Industry and Policy Makers is needed; global health cannot rely on the good will of charities.
- Accepting that future vaccines only partially protect against certain diseases, namely in combination with other treatments, will require a change in paradigm.
- Health systems in developing countries are still far too weak and need to be strengthened.
- All components of the health systems need to be put in place, not just the treatment; working towards a more global "one health" system is a way forward.
- The development of rapid diagnostic tests is an opportunity for improvement.

Quotes

"The basis for the different susceptibilities are yet to be understood"
Philippe Sansonetti

"Most of infectious diseases which may be at the origin of epidemics are zoonotic"
Vincent Deubel

"We need to better use the existing vaccines"
Giuseppe del Giudice