

UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA



VENICE ASIAGO 2016

DATE: 27<sup>th</sup> August 2016

TIME: 14:00 - 16:00

LOCATION: Osservatorio Astronomico di Asiago, via dell'Osservatorio, 8; Asiago, Vicenza

***Host-pathogen interaction: the paradigmatic case of *Helicobacter pylori* and its role in gastroduodenal pathologies with particular reference to China***

**Prof. Cesare Montecucco**  
**University of Padova**

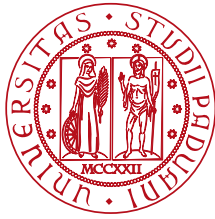
**ABSTRACT**

*Helicobacter pylori* is a human specific pathogen that colonized the gastric mucosa of humans and humans for millions of years and it is responsible for severe gastroduodenal diseases, including ulcers and stomach cancers.

Many strains are known but the more virulent ones have a higher prevalence in Asia. These latter strains contain a pathogenicity island that includes a gene dubbed CagA linked to stomach cancers. In addition, two major virulent proteins dubbed VacA and HP-Nap have been discovered and their mechanism of action will be described and correlated to the *H. pylori* associated disease. Finally, the current status of the development of an anti *H. pylori* vaccine will be described.

**FURTHER READINGS**

- 1) Montecucco, C. and Rappuoli, R., (2001). Living dangerously: how *Helicobacter pylori* survives in the human stomach. *Nature Reviews. Molecular Cell Biology*. Vol.2:457-466.
- 2) Cover, T.L. and Peek, R.M., Jr. (2013). Diet, microbial virulence, and *Helicobacter pylori*-induced gastric cancer. *Gut Microbes*, 4:6:482–493.
- 3) Hussein, I.H., et al., (2015). Vaccines through centuries: Major cornerstones of global health. *Frontiers in Public Health*, Vol. 3, Article 269. doi: 10.3389/fpubh.2015.00269.



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TIME: 16:15 - 17:30

LOCATION: Osservatorio Astronomico di Asiago, via dell'Osservatorio, 8; Asiago, Vicenza

### ***The history of tetanus, of its toxin and of anti-tetanus vaccine***

**Prof. Cesare Montecucco**  
**University of Padova**

#### **ABSTRACT**

This lecture will illustrate tetanus as a paradigmatic disease for medicine, science and social health. The discovery of the disease and the definition of its symptoms will be described and will be followed by the history of the discovery of tetanus neurotoxin. The lecture will then describe the mechanism of action of tetanus neurotoxin from its uptake by peripheral nerves, its journey inside motor axon by retroaxonal transport to reach the inhibitory interneurons of the spinal cord, the entry into these latter cells. We will then illustrate the toxin metalloproteolytic activity specific for the synaptic vesicle protein VAMP which causes the complete blockade of neurotransmitter release with the consequent spastic paralysis characteristic of tetanus.

#### **FURTHER READINGS**

Provided by the Professor in PDF form.