



# Università di Roma "Tor Vergata"

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**Dipartimento di Scienze e Tecnologie Chimiche**

Via della Ricerca Scientifica - 00133 Roma

Tel. +39 06 72594014 - Fax +39 06 72594328

## **AVVISO DI SEMINARIO**

*Venerdì 13 Marzo 2015 ore 12.00*

*Aula seminari*

*Dipartimento di Scienze e Tecnologie Chimiche*

**Prof. Maarten Merkx**

**Technische Universiteit Eindhoven**

**Terrà un seminario dal titolo:**

**“Engineering biomolecular switches for  
antibody sensing and actuation”**

Proponente: Prof. Francesco Ricci



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## **Engineering biomolecular switches for antibody sensing and actuation**

Prof. Maarten Merkx  
Technische Universiteit Eindhoven

### **Abstract:**

Antibody-based molecular recognition plays a dominant role in the life sciences ranging from applications in diagnostics and molecular imaging to targeted drug delivery and therapy. Antibodies are important biomarkers in broad range of diseases, and particularly important for the diagnosis and surveillance of infectious diseases, autoimmune diseases and allergies. In addition, antibody-based drug therapies constitute an important part of newly introduced drugs, most importantly in the field of oncology and inflammatory diseases. From a molecular engineering perspective, antibodies are attractive because their characteristic Y-shaped presentation of (at least) two antigen binding domains allows for the development of generic biomolecular switch mechanisms. In my lecture I'll show how these unique structural features of antibodies can be harnessed to develop new concepts for point-of-care antibody diagnostics and the control of antibody-based targeting. Examples include the development of switchable reporter enzymes that allow simple colorimetric or luminescent detection of antibodies directly in solution and the use of bivalent peptide-DNA conjugates as easily applicable molecular locks to control antibody activity using DNA-based logic gates.