

講演会

## Prof. Dr. Rainer Haag

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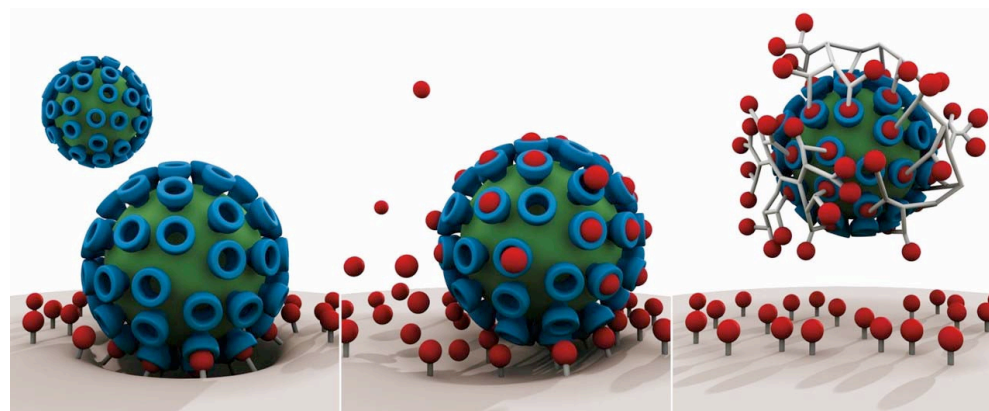
演題 : **Multivalent Nanosystems and Supramolecular Dendritic Architectures**

日時 : 令和元年 10月 11日 (金) 講演時間 15時00分~16時30分

場所 : 理学部 B 棟 301号室

**Abstract:** Multivalency is a ubiquitous phenomenon in nature involving complex binding mechanisms for achieving non-covalent strong yet reversible interactions. Interfacial multivalent interactions at pathogen-cell interfaces can be competitively inhibited by multivalent scaffolds that prevent pathogen adhesion to the cells during the initial stages of infection, while monovalent inhibition fails to inhibit the biological pathway. The lack in understanding of complex biological systems makes the design of an efficient multivalent inhibitor a toilsome task and is the reason why as of yet no multivalent anti-infective has emerged on the market until now. This talk will focus on the design and

application of dynamic 2D and 3D multivalent nanosystems as potent inhibitors for pathogens. Many of our scaffolds are based on dendritic polyglycerol architectures due to their biologically inert polyether-polyol structure with very low unspecific interaction. Also, polyglycerol due to its polar hydrophilic nature is a new alternative for polyethylene glycol (PEG). Also in supramolecular architectures dendritic polyglycerols can have stabilizing effects by hydrogen bonding. This has been used for the design of supramolecular aggregates, i.e. spherical and cylindrical micelles as well as vesicles and stomatosomes for applications in drug delivery.



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