第324回 大阪大学神経科学懇話会

日時：平成**26**年**5**月**19**日（月）午後**6**時～午後**7**時

場所：大阪大学 医学部 講義棟2階 第2講義室

演題：*Bio-functionalized 2D-surfaces and 3D-scaffolds to study cell adhesion and axon guidance*

演者：Dr. Martin Bastmeyer, Ph.D.
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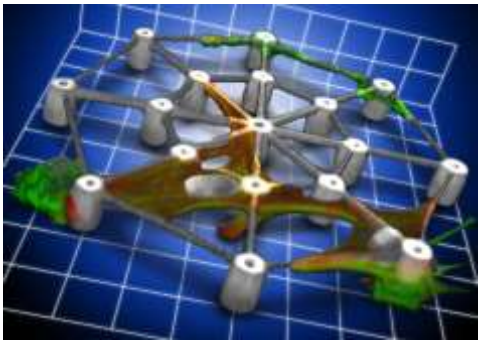
Zoological Institute, Cell-and Neurobiology
Germany

要旨：

Surface functionalization with biomolecules in a precise, patterned, and quantitative manner opens novel and fascinating strategies to study cellular responses to external stimuli. In this presentation I will discuss two aspects of recent work in my laboratory:

1. The retinotectal system is a major model to investigate the development of topographic axonal projections. It is well established that counter-gradients of ephrin-A ligands and EphA receptors along the retinal and tectal axes provide pivotal chemoaffinity cues to the retinal axons. We apply a combination of computational modelling approaches and different surface functionalization techniques using the relevant guidance molecules to understand how axonal growth cones read out complex information patterns in their environment.
2. Our current knowledge on cell behavior and differentiation is primarily derived from studies on rigid and planar 2D tissue culture substrates. I will introduce how direct laser writing (DLW) into biocompatible photoresists can be applied to design 3D cellular microenvironments with defined geometries, precise bio-functionalization, and adjustable flexibility. These 3D substrates enable to study the influence of physical aspects in the environment on cell migration and cellular differentiation. In addition, they allow visualizing and measuring cell adhesion forces.



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