

# Quantitative Analysis of Bio-Imaging Data:

## An introduction to bio-image informatics and its applications

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Bio-imaging is the most powerful tool to investigate dynamical properties of various biological phenomena. Despite rapid development of bio-imaging technology, however, only limited information that bio-images potentially contain have been exploited because of the lack of knowledge and technique on informatics to investigate bio-imaging data. Image analysis is the first key step to convert original bio-image data into quantitative data that can be processed subsequently by several statistical methods. The knowledge on image analysis is, therefore, indispensable for the future biologists to explore their bio-imaging data quantitatively [1].

In this lecture, I firstly review the field of bioimage informatics where various image analysis techniques have been developed for a variety of bio-imaging data[2]. Second, I describe the detailed procedures for 2 dimensional cell detection and tracking that is the most common but non-trivial task in bio-image analysis. Finally, I will describe briefly the image analysis and subsequent data analysis of preimplantation development of mammalian embryos in 3D[3].

### References:

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