

Single-cell analysis - Methods and protocols
Sara Lindström and Helene Andersson-Svahn (eds), 2012
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This is certainly a timely volume in the Methods in molecular biology series: we already entered the synthetic biology era and thus we need to be aware of the new methodological advances able to fulfill the new and necessary needs for biologists, biotechnologists and nano-biotechnologists. Notably, among these, the possibility to perform single cell analysis allows researchers to capture single cell responses.

The biological analysis at the single cell level has already been analyzed by flow cytometry, laser capture micro dissection and by several microscopic techniques to get information on some of the traditional -omics (notably, genomic, proteomic and transcriptomic). Nevertheless, new and more demanding techniques (as regards the equipment cost and complexity) must be designed with a cytochemistry approach to stay ahead of new emerging nanobiotechnologies (one of the editor, Helene Andersson-Svahn is affiliated to the division of Nanobiotechnology of the AlbaNova University Centre of the Royal Institute of Technology, Stockholm; the other editor, Sara Lindström comes from the Department of Cell and Molecular Biology,

Science for Life Laboratory of the Karolinska Institute).

The first part of the book covers conventional methods while the second part details the latest findings of the miniaturized solution; I was in particular impressed by the improvements of the single cell microinjection techniques and of the traditional COMET assay, now refined for DNA sequences detection of repetitive nature and single copy genes. These techniques can be used for both basic and applied researches linking a morphological information to the reductionist answer of a molecular datum. In other words, we have acquired the fundamental technological skills to improve the targeted delivery of molecules with the -omic analysis at the single-copy genes. Chapters 15 and 16 are focused on the *single-cell-omics* analysis and the integrated (phenotypic, functional and genetic) single cell analysis.

This is an interesting book clearly written and well illustrated. In particular, I really appreciate the notes sections at the end of the chapters, full of those *kinds of tips and tricks that are crucial for succeeding with the experiments* (as the editors stress in their preface) and that normally lack in the materials and methods sections of several scientific papers. Besides, if the *in-house expertise* so generously shared by the authors is not enough to carry on experiments, the reader is invited to *contact us for complementary information*. Great !

CarloAlberto Redi
University of Pavia