**Touring our body, cell by cell: New challenges and opportunities in single cell biology**

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A revolution in cellular measurement technology is underway. Whereas prior studies have been able to analyze only the averaged outputs from heterogeneous cell population in the tissues, we now can accurately monitor genome-wide gene expression, regulation, function, cellular history, and cellular interactions in thousands of individual cells in a single experiment. These methods are key drivers in changing our previous morphotype-based organ and disease descriptions to unbiased genomic definitions and therefore improving our understanding of development, homeostasis, and disease. In this seminar, recent single cell sequencing technologies and their challenges will be discussed. In addition, I will introduce applications of single cell analysis in biology and biomedical sciences.