

# A new “single” era of biomedicine: Applications in cardiovascular disease and COVID-19

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## Abstract

With the development of cellular, chemical, and molecular biology, such as, single-cell, single-molecule, single-nucleus, single-chromosome and other related biotechnologies for analysis of chromatin regions, and under the help of single-nucleus and single-cell transcriptomics of human diseases in cardiovascular system, there are many novel breakthroughs in the field of life science and medicine. It can be said that a new “single” era of biomedicine comes. As transforming medical research tools at single-cell levels, single-cell technologies including single-cell RNA sequencing (scRNA-seq) provide high-resolutions insight into complex tissues covered cardiovascular and brain systems, they can help to understand molecular mechanisms of both COVID-19 and cardiovascular disease (CVD), such as atherosclerosis (AS), acute myocardial infarction (AMI), arrhythmogenic cardiomyopathy (ACM), inherited thoracic aortic aneurysm (iTAA) or ascending thoracic aortic aneurysm (ATAA), calcific aortic valve disease, heart failure, and others as well as develop novel therapeutic targets and approaches relevant for CVD and COVID-19.

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