Cardiac Fibrosis

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Fibrosis is defined as excess deposition of extracellular matrix, mainly collagen. It occurs in many tissues such as the heart, lung, and kidney, and can be induced by not only diseases but also drugs, including chemical compounds. As turnover of collagen is extremely slow, it is very difficult to recover the functions of the tissues suffered from fibrosis to normal levels. So far, there are no drugs to target fibrosis in various tissues. In the heart, fibrosis is accompanied with heart failure, and is believed as one of the causes of diastolic dysfunction. In heart failure, the heart does not provide enough blood to peripheral tissue. □-Adrenergic receptor blockers are frequently used for the treatment of heart failure. Although □-blockers are effective for heat failure patients, we found that a □-blocker can cause fibrosis in the heart. This fibrotic process was mediated by□-arrestin, a protein that works as a regulator of receptor activity. I would like to introduce the role of □-arrestin in b-blocker-induced cardiac fibrosis.