Non-coding RNA therapy for cardiac regeneration

There is an impelling need to develop effective therapies for cardiac repair in patients with myocardial infarction. In contrast to other species that can regenerate the heart throughout their entire life, post-natal damage to the myocardium in mammals is repaired through fibrosis and scarring. Work performed by my laboratory over the past few years has indicated that cardiac regeneration can be obtained by stimulating proliferation of the survived cardiomyocytes. This can be achieved by administering specific microRNAs, which were identified by functional high throughput screenings and act by activating the YAP transcriptional cofactor. Using AAV vectors to deliver these microRNAs, cardiac regeneration was achieved in hearts of infarcted rodents and of larger animals.