

Regulation of gene expression is a fundamental necessity for the maintenance of the cardiovascular system and its dysregulation often leads to disease. The protein named MEF2A is known to regulate gene expression in the heart. Interestingly, MEF2A also plays an important role in other tissues such as skeletal muscle, brain and the immune system. The underlying basis of these divergent roles is thought to be the interaction of the MEF2A protein with divergent other proteins in different cell types, thus providing a basis for tissue specific regulation. In order to characterize the proteins that interact with MEF2A in muscle cells of the myocardium, and thus provide insight into cell type specific gene regulation, a protein interaction capture screen coupled with state of the art mass spectrometry was carried out to identify proteins that are associated with MEF2A in heart cells. This strategy proved successful and in the paper by Moustafa et al (2023) the group of proteins interacting with MEF2A and the biological processes that they may preside over is documented. Moreover, a previously unknown interaction between the MEF2A and STAT3 proteins was discovered. Since STAT3 has been previously shown to play a protective role in the heart, the interaction of the two proteins may have important implications for our understanding of the hierarchical control of gene expression in the heart under normal and pathological conditions.