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EXPRESSION OF MICRORNA-122 CONTRIBUTES TO CARDIOMYOCYTE APOPTOSIS IN PAX-8 DEFICIENT MICE WITH VENTRICULAR SEPTUM DEFECT

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Objectives The microRNAs (miRNAs) can post-transcriptionally regulate gene expression and heart development. Pax-8 gene knockout mice have apparent heart abnormalities. This study investigated the role of miRNAs in regulation of cardiac apoptosis and development in the knockout mice.

Methods microRNA microarrays demonstrated differential expression of microRNAs between Pax-8−/− and Pax-8+/− mice, confirmed by real-time PCR.

Results miR-122 was up-regulated by 1.92 folds in Pax-8-/- mice. There were ventricular septum defects in Pax-8−/− mice, and increased numbers of apoptotic cells in the left ventricular wall and interventricular septum in Pax-8−/− mice. In H9C2 myocytes, treatment with miR-122 mimics or miR-122 inhibitor affect the expression of CCK-8 and activity of Caspase-3.

Conclusions The miR-122 is upregulated in the myocytes of Pax-8-/- mice and may participate in the apoptotic gene expression and pathogenesis of heart development defect.