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Pannier is a Transcriptional Target and Partner of Tinman during *Drosophila* CardiogenesisKathleen Gajewski ^{a, 1} ... Robert A. Schulz ^{a, 2} [Show more](#)<https://doi.org/10.1006/dbio.2001.0220>[Get rights and content](#)Under an Elsevier [user license](#)[open archive](#)

Abstract

During *Drosophila* embryogenesis, the homeobox gene *tinman* is expressed in the dorsal mesoderm where it functions in the specification of precursor cells of the heart, visceral, and dorsal body wall muscles. The GATA factor gene *pannier* is similarly expressed in the dorsal-most part of the mesoderm where it is required for the formation of the cardiac cell lineage. Despite these overlapping expression and functional properties, potential genetic and molecular interactions between the two genes remain largely unexplored. Here, we show that *pannier* is a direct transcriptional target of Tinman in the heart-forming region. The resulting coexpression of the two factors allows them to function combinatorially in the regulation of cardiac gene expression, and a physical interaction of the proteins has been demonstrated in cultured cells. We also define functional domains of Tinman and Pannier that are required for their synergistic activation of the *D-mef2* differentiation gene *in vivo*. Together, these results provide important insights into the genetic mechanisms controlling heart formation in the *Drosophila* model system.

Keywords

cardiogenic factors; D-MEF2; heart; Pannier; protein interactions; Tinman; transcriptional enhancer

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2 To whom correspondence should be addressed. Fax: (713) 790-0329. E-mail: ras@mdanderson.org.

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