Dissemination of *RasV12*-transformed cells requires the mechanosensitive channel Piezo

Dissemination of transformed cells is a key process in metastasis. Despite its importance, how transformed cells disseminate from an intact tissue and enter the circulation is poorly understood. Here, we use a fully developed tissue, Drosophila midgut, and describe the morphologically distinct steps and the cellular events occurring over the course of *RasV12*- transformed cell dissemination. Notably, *RasV12*-transformed cells formed the Actin- and Cortactin-rich invasive protrusions that were important for breaching the extracellular matrix (ECM) and visceral muscle. Furthermore, we uncovered the essential roles of the mechanosensory channel Piezo in orchestrating dissemination of *RasV12*-transformed cells. Collectively, our study establishes an in vivo model for studying how transformed cells migrate out from a complex tissue and provides unique insights into the roles of Piezo in invasive cell behavior.