A unique Extradenticle recruitment mode in the Drosophila Hox protein Ultrabithorax

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Hox transcription factors are essential for shaping body morphology in development and evolution. The control of Hox protein activity in part arises from interaction with the PBC class of partners, pre-B cell transcription factor (Pbx) proteins in vertebrates and Extradenticle (Exd) in Drosophila. Characterized interactions occur through a single mode, involving a short hexapeptide motif in the Hox protein. This apparent uniqueness in Hox-PBC interaction provides little mechanistic insight in how the same cofactors endow Hox proteins with specific and diverse activities. Here, we identify in the Drosophila Ultrabithorax (Ubx) protein a short motif responsible for an alternative mode of Exd recruitment. Together with previous reports, this finding highlights that the Hox protein Ubx has multiple ways to interact with the Exd cofactor and suggests that flexibility in Hox-PBC contacts contributes to specify and diversify Hox protein function.

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