



Supplementary Fig. 12: Fitness landscape of the P-element under three hypotheses that could explain the observed frequency increase of internally deleted P-elements (see material and methods section 2). Graphs show for every site of the P-element the average population frequency of all internal deletions spanning the site. A high average frequency indicates that deletion of a site leads to a frequency increase of an internal deletion. A) If the frequency increase is due to drift or hitchhiking a neutral landscape is expected. B) Positive selection of internally deleted P-elements that suppress P-element activity will result in a high frequency at sites deleted in KP-like repressors and a low frequency at sites required for repressing the P-element. C) Preferential mobilization of internally deleted P-elements will lead to low frequency at sites necessary for mobilization of the P-element. Suppression of P-element activity requires an intact DNA-binding domain [N-terminal 88 amino acids, positions 153-416; (Lee et al., 1998)] and deactivation of the transposase, for example due to internal deletions in ORFs 1-3, similarly as in the KP element (808-2560) (Black et al., 1987). Required for mobilization of the P-element are the sites 1 - 136 and 2763 - 2907 (Majumdar and Rio, 2015).