Polypurine/polypyrimidine sequence elements of the murine homeo box loci, *Hox-1*, *-2* and *-3*

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Polypurine/polypyrimidine (pPu/pPy) sequence elements have been shown to be a major type of repetitive element in the mouse genome with a reiteration frequency of $6-10 \times 10^4$ copies (1). The regions of S1 nuclease sensitivity associated with the 5' region of eukaryotic genes have been shown to map to regions of purine-pyrimidine asymmetry (2,3,4). The role these sequences may play in gene expression remains speculative but their association with genetic elements known to regulate gene expression and their ability to modify chromatin structure supports the investigation of their distribution and function.

In this paper we describe pPu/pPy elements (CT/AG)_n, associated with the murine homeo box loci *Hox-1*, *-2*, and *-3* (5,6,7,8,9). We first identified a pPu/pPy 5' of *Hox-2,3* consisting of the dinucleotide CT repeated thirty-four times. A similar element, (CT)₂₆, was identified 3' of the *Hox-2,5* homeo box. To determine whether these dinucleotide repeats were a common feature in the vicinity of homeo box genes Southern blot hybridization was performed to homeo box containing phage DNA using ³²P-dATP end labelled oligonucleotide (AG)₁₂ as a probe under high-stringency conditions (10). The results are summarized in the Figure. The fragments hybridizing to the oligonucleotide are indicated by arrows.

Additional work will be necessary to determine whether these sequences result in an altered chromatin conformation. As in other genes--these sequences may serve to identify regions involved with the control of homeo box gene expression.

FIGURE. Restriction maps of the three *Hox* loci for the restriction enzymes *Eco* R1 and *Hind* III. The rectangles are the sites of the homeo boxes, whose names and transcriptional orientations are indicated above. The lines under the maps show the seven phage, whose names are listed to the right. The arrows indicate the locations of the ten regions identified as containing homology to the oligonucleotide.

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