

D803 Cloning of Homeobox-containing gene and its expression study
in the early development of *Xenopus laevis*

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To identify *Xenopus* hox genes which has not been cloned so far, as a preliminary study, we studied the expression pattern of mouse hox-1.7 related genes in *Xenopus laevis*. Of the studied mouse hox genes, hox-1.7 showed specific expression pattern in the early development. To clone the counterpart gene of mouse hox-1.7 in *Xenopus*, mouse hox-1.7 related gene fragment was obtained by PCR using primers that correspond to the N-terminal coding region of the *Xenopus borealis* Hox-1.7 and the third helical portions of the homeodomain. The PCR product was 165 bp and in situ hybridization study showed that the *Xenopus* hox-1.7 gene expressed at st. 33/34 and in the dorsal region of the embryo including head, brain, and somites but not in the skin and endoderm. Compared with mouse hox-1.7 (mainly localized at posterior spinal cord) and *Xenopus borealis* hox-1.7 (mainly at epidermis and spinal cord), its expression pattern was much different.

D804 Transcription Factor AP-2 in Neural Induction

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Transcription factor AP-2 has been shown to have important functions in the differentiation of neural crest cell and act as a key regulator of skin development. Here, we report that AP-2 mediates neural induction in *Xenopus laevis*. RT-PCR analysis revealed that AP-2 expression increased with the start of neural induction. Animal cap assay and AP-2 antisense RNA injection was done to study the functions of AP-2 in neural induction. bFGF and Noggin were used to neuralize stage 10 *Xenopus* ectoderm (animal cap). Being used alone or together, bFGF and Noggin induced ectoderm into neural tissue as confirmed by the expression of neural marker genes such as NACM, En2 and XIHbox6. No AP-2 expression was detected in the control animal caps cultured for 24 hours. However, animal caps treated with bFGF or Noggin strongly expressed AP-2. In the AP-2 antisense RNA injected embryo, the formation of neural tissue was inhibited. Together with our previous report that AP-2 strongly expressed in the notochord, present data suggest that AP-2 mediates neural induction and the fact that different neural inducers as bFGF and Noggin have same effects on the AP-2 expression indicates that AP-2 mediates downstream pathway of neural induction.