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**March 31, 2005**

## **Neural induction-regulating genes identified with *Xenopus* microarray**

**By  
NewsRx.com**

A set of genes with putative roles in neural induction have been identified through *Xenopus* microarray analysis.

"To isolate novel genes regulating neural induction," scientists in the United States "used a DNA microarray approach."

"As neural induction is thought to occur by means of the inhibition of bone morphogenetic protein (BMP) signaling, BMP signaling was inhibited in ectodermal cells by overexpression of a dominant-negative receptor," explained Y. Shin and colleagues at the University of California-Irvine.

"RNAs were isolated from control animal cap explants and from dominant-negative BMP receptor expressing animal caps and subjected to a microarray experiment using newly generated high-density *Xenopus* DNA microarray chips representing over 17,000 unigenes," the investigators wrote in the journal *Developmental Dynamics*. They "identified 77 genes that are induced in animal caps after inhibition of BMP signaling, and all of these genes were subjected to whole-mount in situ hybridization analysis."

"Thirty-two genes showed specific expression in neural tissues," test results indicated. "Of the 32, 14 genes have never been linked to neural induction."

"Two genes that are highly induced by BMP inhibition are inhibitors of Wnt signaling, suggesting that a key step in neural induction is to produce Wnt antagonists to promote anterior neural plate development," according to the report.

"Our current analysis also proves that a microarray approach is useful in identifying novel candidate factors involved in neural induction and patterning," the researchers noted in conclusion.

Shin and coauthors published their findings in *Developmental Dynamics* (Identification of neural genes using *Xenopus* DNA microarrays. *Develop Dynam*, 2005;232(2):432-444).

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The publisher of the journal *Developmental Dynamics* can be contacted at: Wiley-Liss, Division John Wiley & Sons Inc., 111 River St., Hoboken, NJ 07030, USA.

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