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# ACCEPTED MANUSCRIPT

## Bone morphogenetic protein 4 expression in the developing

#### lumbosacral spinal cord of rat embryos with anorectal

#### malformations

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concept discussed in this article.

#### Highlights

- BMP4 plays an important role in the differentiation and proliferation of neural progenitor cells both in normal and anorectal malformation fetal rats .
- The decreased BMP4 expression found in the ARMs group was likely a factor involved in dysplasia of the lumbosacral spinal cord in these rats

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#### Abstract

Although there are improvements in treatment of anorectal malformations (ARMs), patients can still develop fecal incontinence, constipation, and soiling with loss in quality of

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