

Scientists find neural stem cell regulator

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Researchers at the University of Colorado School of Medicine have found that lack of a specific gene interrupts neural tube closure, a condition that can cause death or paralysis.

"The neural tube is the beginning of the brain and [spinal cord](#)," said the study's lead investigator Lee Niswander, Ph.D., professor of [pediatrics](#) at the CU School of Medicine. "A defect in the mLin41 gene doesn't allow the tube to close because not enough [neural progenitor cells](#) are being made. The study was the cover story this week in the journal *Genes & Development*.

Niswander and the paper's first author, Jianfu Chen, Ph.D., made their findings while studying neural stem cells in mice. They said the cells use distinct self-renewal programs to meet the demand of tissue growth and repair during different stages of embryonic development. The molecular mechanisms that control these programs remain largely unknown.

The researchers discovered that the gene mLin41 in mice controls the extent of neural stem cell proliferation during the process of neural closure but not at the later stage of brain development.

According to Chen, mLin41 works with small RNAs and RNA regulators that have never been investigated before in connection with neural tube formation.

Niswander, who is also an investigator with the Howard Hughes Medical Institute based in Washington, D.C., said the findings shed new light on

neural tube development.

"Our work opens up a whole other pathway toward understanding neural tube defects," she said. "It's a new and significant piece of the puzzle behind understanding how this happens."

Provided by University of Colorado Denver

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