OPINION

Fragile delivery

BY **APOORVA MANDAVILLI**

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Let me first apologize for not having updated the blog in a few days. I was away getting married last weekend, while news in the world of autism piled up...

Last month, while I was distracted, researchers reported in the journal ***Developmental Cell*** that the protein that?s missing in those with fragile X syndrome is necessary for ferrying other proteins to synapses.

Fragile X syndrome is caused as a result of mutations that silence the gene that encodes the fragile X mental retardation protein (FMRP).

FMRP is known to control the expression of other genes by binding their messenger RNA ? the intermediate step between DNA and protein.

Among the proteins FMRP regulates are several at the synapse, so those with the syndrome have defects in both the structure and function of synapses.

Using high-resolution fluorescence imaging to track FMRP in cultured neurons, what the researchers have discovered now is that FMRP binds to a molecular motor and carries these mRNAs from the nucleus, where they are made, to the synapses.

When FMRP is missing, the mRNAs (and therefore the proteins) don?t make it to the synapse, where they are needed for healthy brain development, learning and memory.

The researchers also identified some of the mRNAs, which may help develop treatments for the syndrome.