

NEWS

# Clinical trial planned for Rett syndrome treatment

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Resources for Rett: Insulin-like growth factor could alleviate the symptoms of the syndrome, scientists say.

Treatment with the insulin-like growth factor (IGF) greatly improves the health of mouse models of Rett syndrome ? a regressive genetic disorder that causes mental retardation, respiratory problems, and autistic features ? according to unpublished research presented Monday at the **Society for Neuroscience conference** in Washington, D.C.

Thanks to the success of these animal experiments, researchers at Children's Hospital Boston are setting up a clinical trial to test whether IGF can improve the breathing of 30 pre-adolescent girls with Rett syndrome.

Researchers led by **Huda Zoghbi** at the Baylor College of Medicine **first linked Rett syndrome to mutations in the MeCP2 gene** in 1999. Since then, Zoghbi and others have created three different MeCP2-deficient mouse models of the disorder.

In experiments described Monday, researchers injected MeCP2 knockout mice with a peptide derivative of IGF. The growth factor is known to affect the signaling of another protein, brain-derived neurotrophic factor (BDNF), a known target of the MeCP2 protein.

The IGF treatment led to significant improvements in brain weight, neuron size, gait, nighttime movement and tremors compared with untreated animals, reported **Daniela Tropea**, a postdoctoral fellow in **Mriganka Sur's laboratory** at the Massachusetts Institute of Technology. The treatment also significantly increased the mice's lifespan, although they still lived a shorter time than do healthy mice.

Tropea and **Omar Khwaja**, a pediatric neurologist at Children's Hospital Boston, are seeking funding for clinical trials of IGF. Khwaja says the trial design is being approved by the hospital's institutional review board. He hopes to begin recruiting patients in March.

Unlike BDNF, IGF can cross the blood-brain barrier. What's more, because the drug is approved by the FDA for treating children with short stature, clinicians have already worked out optimum dosages.

Khwaja says there are two safety concerns with IGF, however. First, because IGF is structurally similar to insulin, its use could lower blood sugar to unsafe levels. "It has been used for growth disorders in children, so it has a reasonably safe side-effect profile. But girls with Rett syndrome are much more fragile populations," he notes.

Second, IGF might have unwanted effects on bone growth. To avoid those effects, the trial will test girls of only ages 2 through 12 who have not yet reached puberty.

Although the results are promising, Tropea is careful to note that the treatment did not completely rescue the deficits in the Rett mice. "They were all significant improvements, but we shouldn't expect a miracle," she says.

For all reports from the Society for Neuroscience annual meeting, [click here](#).