Behavioral abnormalities observed in a mouse model of autism, such as deficits in social behavior and novelty preference, may be alleviated by treating the rodents with a drug that affects metabolism, reports a study published in *Translational Psychiatry*. The authors caution that this drug, suramin, is not a feasible treatment in humans because of potential toxic side-effects, but note that the findings may provide new avenues for therapeutic development.

Metabolic changes have been reported in neurodevelopmental disorders such as autism, which manifest themselves in behavioral abnormalities such as impaired social interaction and repetitive behavior.

Robert Naviaux and colleagues analyzed metabolic pathways in a mouse model of autism, and found that purine metabolism—a pathway that includes the synthesis and breakdown of nucleotides and
the energy molecule adenosine triphosphate—was the most affected. The authors tested the effects of suramin, a drug that binds to purine receptors, and is currently used to treat some parasitic infections, on the autism mouse model. They found that a single dose of suramin corrected metabolism abnormalities, returning metabolites to typical levels, in 6-month old adult mice (equivalent to human mature adult). Hypothesizing that these changes in metabolism affect behavior, the authors analyzed the effects of suramin on behavioral measures such as interacting with other mice and choosing alternate maze arms (a measure of repetitiveness), and found that suramin restored these to normal levels. The behavioral and metabolic effects of suramin diminished five weeks later, when the drug had washed out of their systems. The results suggest that purine metabolism plays a role in regulating behaviors associated with autism in this model.

The authors speculate that disruption of purine metabolism may be involved in activating and maintaining a metabolic response to threat called the cell danger response in this mouse model, interfering with brain function. Further research is needed to determine if these findings extend to humans.

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