OPINION

Model empathy

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Rats possess a surprising **sense of empathy**, according to research published last week in *Science*. The animals will work to free a trapped compatriot, even when there is food nearby.

The findings highlight one more reason why rats, with their repertoire of complex social behaviors, may be ideally suited for autism studies.

Last month at the **Society for Neuroscience annual meeting** in Washington, D.C., researchers announced that they had created seven **rat models of autism** by deleting individual genes implicated in the disorder. The test developed in the *Science* study could be used to study how disrupting these genes might influence these animals' sense of empathy.

The capacity to recognize and share another's feeling has traditionally been thought to be limited to primates, though some instances of apparent empathy have been observed in the wild. The new study, from the University of Chicago, is the first to show the emotion among rodents in a controlled lab setting.

In the study, researchers put pairs of rats that had been caged together into a box in which one could roam freely and the other was confined to a small tube. After several training sessions, most of the free rats learned to open the tube and free their trapped cage mates. The rats freed their friends even with a distracting stash of chocolate chips nearby, and then shared the chocolate with them. I guess even rats think chocolate is better when enjoyed with a friend.

The researchers say this behavior goes beyond 'emotional contagion' — the spread of fear, distress or even pain among people or animals — because it requires that the rat overcome its fear and figure out how to free its cage mate.

It's not entirely clear whether this rat behavior has any relevance for studying autism. There is some evidence that people with autism lack 'cognitive empathy,' the ability to recognize another

person’s emotional state relying only on non-verbal clues. But if they understand another’s feelings through some other means — for example, by being told — they experience ‘affective empathy,’ a normal or even heightened emotional response.

A behavioral test to study a simplified version of empathy in animals might help scientists to parse different aspects of this complex emotion. For example, not all rats in the study learned to open the door and free their companions. The team is planning studies to look for the biological basis for this difference.

It seems that female rats may also be more likely to open the door than males are. That’s consistent with the idea, also controversial, that females are generally more empathetic than males. Or maybe, as women are well aware, they are just smarter.