

's gut. That suggests that the specific mix of microbes in our guts might help determine what kinds of brains we have — how our brain circuits develop and how they're wired. Of course, this doesn't mean that the microbes are causing changes in brain structure, or in behavior. But other researchers have been trying to figure out a possible connection by looking at gut microbes in mice. There they've found changes in both brain chemistry and behavior. One experiment involved replacing the gut bacteria of anxious mice with bacteria from fearless mice. It worked the other way around, too — bold mice became timid when they got the microbes of anxious ones. And aggressive mice calmed down when the scientists altered their microbes by changing their diet, feeding them probiotics or dosing them with antibiotics. To find out what might be causing the behavior changes, Collins and his colleagues then measured brain chemistry in mice. They found changes in a part of the brain involved in emotion and mood, including increases in a chemical called brain-derived neurotrophic factor, which plays a role in learning and memory. Scientists also have been working on a really obvious question — how the gut microbes could talk to the brain. A big nerve known as the vagus nerve, which runs all the way from the brain to the abdomen,