“You are what you eat.” The old adage has for decades weighed on the minds of consumers who fret over responsible food choices. Yet what if it was literally true? What if material from our food actually made its way into the innermost control centers of our cells, taking charge of fundamental gene expression?

That is in fact what happens, according to a recent study of plant-animal microRNA transfer led by Chen-Yu Zhang of Nanjing University in China. MicroRNAs are short sequences of nucleotides—the building blocks of genetic material. Although microRNAs do not code for proteins, they prevent specific genes from giving rise to the proteins they encode. Blood samples from 21 volunteers were tested for the presence of microRNAs from crop plants, such as rice, wheat, potatoes and cabbage.

The results, published in the journal *Cell Research*, showed that the subjects’ bloodstream contained approximately 30 different microRNAs from commonly eaten plants. It appears that they can also alter cell function: a specific rice microRNA was shown to bind to and inhibit the activity of receptors controlling the removal of LDL—“bad” cholesterol—from the bloodstream. Like vitamins and minerals, microRNA may represent a previously unrecognized type of functional molecule obtained from food.

The revelation that plant microRNAs play a role in controlling human physiology highlights the fact that our bodies are highly integrated ecosystems. Zhang says the findings may also illuminate our understanding of co-evolution, a process in which genetic changes in one species trigger changes in another. For example, our ability to digest the lactose in milk after infancy arose after we domesticated cattle. Could the plants we cultivated have altered us as well? Zhang’s study is another reminder that nothing in nature exists in isolation.