

Epigenetic damage affects humans too says Washington State biologist

Michael Skinner, a professor of biology at Washington State University, ignited a firestorm of debate in 2005 when he and colleagues published a paper in *Science* describing how a brief, one-time exposure of pregnant rats to common agricultural chemicals led to heritable changes to their descendants, including great great-grandpups.

The controversy arose around their assertion that these changes were not passed down through mutations to the DNA, but rather by changes to so-called epigenetic marks, such as small molecules that attach to the DNA and modulate how genes work. According to conventional dogma, all of these marks—with a few notable exceptions—are erased and reset twice while a fetus develops in the womb, so any acquired epimutations should get wiped clean in the next generation.

Since that 2005 article numerous studies published by Skinner's group and others have reported transgenerational inheritance of acquired characteristics, mainly in plants, mice and rats but also in flies, worms and other species. These findings beg an obvious question: Does the same phenomenon happen in humans?

In his academic writings and an article in the August 2014 issue of *Scientific American*, Skinner says that the answer is almost certainly yes. Given the myriad aspects of biology shared among our species and others, he argues, these studies suggest that pollutants ranging from pesticides to jet fuel are partly to blame for diseases that appear even in people never exposed to the chemicals directly—people who simply inherited the epigenetic damage from their parents or grandparents.

Read the full, original story: [Can we inherit the environmental damage done to our ancestors?](#)