Next big thing in the world of crime solving: Epigenetics?

[A]dvances in epigenetics – the study of reversible chemical modifications to chromosomes that play a role in determining which genes are activated in which cells – might soon start making their way out of research labs and into criminal forensics facilities.

…

The things we get up to while our epigenetic clocks are ticking can also leave their mark on our DNA. Cigarette smoking correlates with characteristic and persistent epigenetic changes. The same goes for cocaine, opioids and other illicit substances. There's also some evidence for epigenetic signatures of obesity, traumatic childhood experiences, exposure to tobacco in the womb, season of birth, exposure to environmental pollution, [and] exercise….

There are also ways to detect non-epigenetic evidence of environmental exposures that we all experience For example, international travel or exposure to certain chemicals or experiences can change the composition of the microbiome.

…

Existing epigenetic analysis methods also use impracticably large samples of blood or tissue, much more than is usually available at a crime scene…However, these technical challenges will hopefully soon be overcome, and it's not too early to start thinking about the legal implications of this type of information.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion, and analysis. Read full, original post: Forensic DNA profiling might be about to take a big leap forward. Are we ready?