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Growing Up Poor Can Alter Your Genes

An interview with Professor Michael Kobor
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How are genes changed by experience?

We look at how our genes' activities are regulated by various environments, broadly speaking, and how experiences during early life change the activity of our genes in a way that might last our entire lifetime. Primarily at this point, we have done quite a bit of work in looking at early life poverty, so socioeconomic status in early life. We have done work on looking at family environments, so the amount of stress that might exist in a family and how that in turn might change the activity of our genes.

What is your research?

I always equate a gene with a light bulb, and as you know, a light bulb can be totally off or totally on, or if you live in a sort of fancy house and you have a dimmer, you can put your light bulb anywhere in between. And so as you might know, we have 25,000 genes, so I imagine 25,000 light bulbs with different intensities and so what the epigenetics then does, it's essentially a dimmer that regulates the activity of this light bulb. And so what we're looking at is both the intensity of the light bulb and the setting of the dimmer through these epigenetic modifications. What I think we have shown in these early studies is that indeed there's biological residue, if you wish, of early life poverty that sticks with us for the rest of our life.

How can your research shape public policy?

I think what it provides in terms of the potential to shape public policy, is really the cognizance, the recognition that environments, broadly speaking – the social environments that we touched upon – they do literally get under the skin to change the way our genes work. And I think, it's my hope, that ultimately this will help policy makers to have this sort of strong, you know, molecular or physical evidence about the environment shaping who we are.