Worksheet for Jamie Metzl | Genetic Engineering and the Future of Humanity (Episode 253)

If we had a time machine to bring a baby from 1,000 years ago into the 21st century, its genetic makeup would be largely the same as a baby born today. But if we brought a baby from 1,000 years — or even 100 years — in the future back to now, its outlier traits and genetic disease resistance would be beyond our imagining. This is because gene editing technology is about to change our lives, and the world, in the next few decades. The upside of being able to upgrade physical and mental traits is just too good to pass up.

But who gets to make these important decisions that will affect the entire human gene pool? Governments? Corporations? Religious leaders? Criminals? All of the above? We have to brace ourselves now for what happens when technology with the *best* potential and intentions falls into the *worst* hands later.

On this episode we're joined by Jamie Metzl, author of Hacking Darwin: Genetic Engineering and the Future of Humanity. He'll help us wrap our brains around what we can expect from a future in which manipulating the human genome will be as simple as changing lines on a blueprint, how AI and big data will contribute to the process, what an arms race that uses stem cells instead of nuclear weapons might look like, and much more.

Industrial Evolution

"We've been evolving for about four billion years since we started as a single-cell organism, and for four billion years, we've evolved by the random mutation and natural selection of Darwinian evolution," says Jamie. "Now we are amassing these incredibly powerful tools that are allowing us to shape life...and these are the early days, but we are developing the capabilities to read, write, and hack all of our genetics. The future is going to be very different from the past and we need to open our minds to what is coming — and it's coming sooner rather than later."

Imagine yourself as a hopeful parent with access to the level of genetic engineering that will be available in the not-too-distant future. Provided you're not opposed to this technology, how would you prioritize a list of three traits that could be enhanced in your future offspring? Is there any trait you wouldn't feel right about manipulating? If you are opposed to this technology, at how much of a disadvantage do you believe a child born without it would be among peers who are? Do you see a way to reconcile this with your beliefs?

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First Flights to Giant Leaps

"Different parts of the world figured out copper and bronze thousands of years different from each other," says Jamie. "But imagine if the first civilization that discovered bronze was able to just send an email to everybody else, 'Hey, we just discovered bronze. Here's the formula,' that means we're 2,000 years ahead developmentally. And that's what's happening every day, so that's why our imagination about the speed of change is often too conservative; we're looking in the rear view mirror rather than imagining what exponential change is going to look like going forward.

"There were people alive at the time of the moon landing who had also been alive at the time when the Wright Brothers had the first flight. Imagine the Wright Brothers having the first flight, and then the moon landing happening six years later. That's how to think about this pace of change. In many ways, beyond the way our brains normally function, so we have to make our brains function in ways that can take this in because it's challenging. It's rapid. And that's why this period of revolutionary technology — whether it's genomics or Al or nanotech — that's why it's so difficult for us to internalize."

What technological advances have you experienced over the course of your own life? What technological devices and practices have become obsolete in that time? What technological strides do you hope (or hope not) to witness in the decades to come?

We Are As Gods

Succinctly paring down a sentiment expressed by anthropologist Edmund Leach, Whole Earth Catalog's Stewart Brand said it most memorably: "We are as gods and might as well get good at it." We need to be careful that, in the course of weeding out biological sources of suffering, we aren't accidentally eliminating genetic diversity that has evolved without human intervention to address problems we can't even fathom.

"The danger is hubris," says Jamie. "Yes, we can eliminate malaria using gene drives, but what if we crash entire ecosystems? That's the challenge for us. Just because we have this incredible power doesn't mean that it's inevitable we're going to use it wisely. If we want to use it wisely, we'd better be having some pretty serious conversations about how to do it — and that's not what's happening now."

If you had the power to eliminate something terrible

•	— like malaria — from the planet, what would you choose, and why? How would you safeguard against this good deed causing more problems than it solves?					

Full show notes and resources for this episode can be found here.

About



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