

## Searching for the super genius genes

Shenzhen BGI prides itself on hiring young people. Most of their employees were born after 1980. Perhaps that's because they were concurrently embryonic with the genetic sequencing technologies they use at BGI every day. They have never lived in a pre-DNA conscious world.

The company, and particularly its Cognitive Genomics Group, are the focus of a documentary, *DNA Dreams*, released last year and now available on [YouTube](#).

Bowen Zhao heads the group. It's goal: to find the genes that convey super intelligence. Working with psychologists, mathematicians and an American theoretical physicist, the goal of the group is to find the genetic substrate that makes genius.

The subjects are hard to find. Zhao's group aims for about 2,000 he says in the documentary, but some scientists criticize the small size of that pool. Massachusetts geneticist [Daniel MacArthur noted](#):

If the genetics of intelligence are as complicated as those of schizophrenia, or even height—in which the effects of thousands of variants combine to influence the trait—the researchers would need at least 10,000 cases and the same number of controls to detect influential variants. And if it turns out a few rare mutations produce extreme intelligence, they will be even less likely to find them in such a relatively small sample.

Zhao and his colleagues lament that more parents of gifted kids aren't interested in having them sequenced. Something they find particularly odd and attribute to "their recent Westernization." Do they really mean scientific ignorance?

And in further conversations it becomes clear that the plan isn't just to identify these genes, but to one day put them into action. "The best humans haven't even been produced yet," says Stephen Hsu, now Vice President for Research at Michigan State. The group fantasizes about a world where parents will be able to pick their best possible child from a set of embryos, and have that one. Sounds like an expensive prospect to say the least.

The ideas thrown around in the documentary are deeply challenging. The animalistic and haunting music, editing and cavelike quiet of the cryogenic freezers don't up the warm and fuzzy factor. Nor does the callous administration of IQ tests to possible study subjects, who are about seven. But some criticisms of the company go a little to far. Take Jessica Cussins writing for *Biopolitical Times*:

"DNA Dreams could just as well be called *DNA Nightmares*. The scenarios it unfolds have a kind of eerie pseudo-logic that would be at home in a horror film. But *DNA Dreams* is a depiction of events happening right now, and that should make us all afraid."

That's stretching a bit too far. It is humbling to see the resources available to the cognitive genomics

group and BGI in general and realize how quickly some of projects could be coming down the pipeline. But it's important to examine these changes in relation to where we currently are as a society before we start screaming about designer babies.

We are already comfortable, globally, with screening fetuses for genetic disorders. And, at least anecdotally, the process is limited to disorders parents want to screen for. In my personal experience, my husband and I screened for trisomies but chose not to for cystic fibrosis, for instance. This will hopefully continue to be the paradigm when screenings include desired genes, not just pathological ones.

The ultimate applications of some of the research profiled in the film are provoking. But, fear of those implications is not a good enough reason to stop research.

**Related Resources:**

- [Disruptive genomics: Is China's BGI the epicenter of the world's biotech revolution?](#), Genetic Literacy Project
- [The old and new eugenics](#), Genetic Literacy Project
- [Pick the baby, then the mate?](#), Genetic Literacy Project