

URL: <https://ecorner.stanford.edu/in-brief/the-accelerating-pace-of-biotech-innovation/>

Vir Biotechnology president and CEO George Scangos paints a picture of the future of biotechnology, including a vision for building safe, ethical gene therapies for many common diseases. Furthermore, he adds, advances in genomics may also allow us to significantly improve the speed and safety of clinical trials for new drugs.



Transcript

- If you think about the progress 00:00:05,400 that we've made over the last 20 years, and you extrapolate that forward, it's just incredible.. But I think extrapolating it forward isn't sufficient, because the pace at which we're advancing is accelerating.. So you have to take this second derivative action, of, (mumbles) and that's really hard to imagine, but, I think we'll be able to, already starting to be able to manipulate genes, we understand the genetic basis of disease, to intervene.. We'll find ways to intervene safely.. I mean, nobody intervenes now in, like changing genomes, right? You can change a genome with CRISPR, or you can do other things.. - Yeah.. 00:00:49,060 - There's still some safety concerns, 00:00:51,693 those are not adequately addressed yet.. And then of course, there are a lot of ethical concerns that people have as well.. - Sure.. 00:01:00,430 - But overtime, we'll figure out how to do that safely, 00:01:04,540 and change a gene that gives you a predisposition to atherosclerosis or Alzheimer's or whatever, to avoid those, minimize those..

And so, I think the combination of genetics and, you can't figure all this out, just by laboratory experiments.. A lot of it has to be guided computationally.. It's just, it's amazing.. You know, understanding brain circuits.. Being able to intervene in, psychiatric issues, depression, or-- - Yeah, I think neurological diseases are a huge, huge, 00:01:43,870 area of opportunity.. And also the aging population in the world, are all areas that will need focus.. - And if you think about now.... 00:01:57,676 Pretty confident we can tell you, if you were to.... Like, we take a blood sample today and tell you, if you get COVID, you are, or you are not gonna have a bad outcome.. If that were a simple, diagnostic test that could be ran by a hospital, rather than a really complicated test, that would be huge, right? Then you could do your clinical trials, only if those people are gonna have bad outcomes, so you would save money, 'cause you're not treating a lot of people who don't need your treatment..

I think it's highly ethical to do that.. 'Cause you know, every drug has side effects, and if people aren't gonna benefit, or they don't need it, but you expose them to the side effects anyway, that's not really an ethical thing to do.. - Just for the audience, that's a term called, 00:02:43,010 pharmacogenomics, trying to understand how your genetic makeup, affects your response to drugs, which is of course a super exciting area of research and, one that involves lots of computation, and, lots of measurements, and lots of analysis.. The opportunities are immense.. - So I think, all that's gonna change.. 00:03:04,379 So, the one thing that could get in the way, not the one thing but, we have to keep funding the industry, well.. It has to keep providing a return to investors so they, keep funding it.. I don't think this is a discussion on drug prices, but there are certain solutions to, drug prices that would crush that.. I think there other solutions that wouldn't.. So it's not an (indistinct) problem but, some of the (indistinct) reactions I think would just crush it..

So, as long as we have the right social environment, I think, the students if they were now in school, can expect to have longer, healthier lives than, we have, and we already have longer healthier lives than, my parents had...