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Scientists see boom for biotechnology by Jean-Louis Santini

The promising potential of biotechnology remains largely unused, especially in such crucial areas as healthcare and production of environmentally friendly fuels, scientists said.

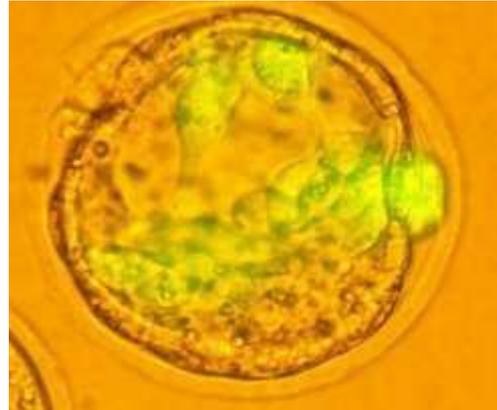
The experts gathered here at an annual conference of the American Association for the Advancement of Science predicted that biotechnology was likely to experience a boom in coming years.

"What you have seen over the last 35 years of biotech are tremendous applications, immediate applications of biotech starting with recombinant therapeutics all the way through," said Drew Endy, assistant professor of bioengineering at Stanford University.

He said the phenomenon can be explained by the fact that no one thus far has even "scratched the surface" of the promising science.

But Endy argued that science was moving forward fast. In only six years, he said, the gene sequencing project went from reading a bacteria genome to reading a human genome.

Last year, researchers at the Venter Institute built a bacteria genome from scratch, he noted.



A 2003 handout picture received by the Seoul research institute Maria BioTech shows human embryonic stem cells. The promising potential of biotechnology remains largely unused, especially in such crucial areas as healthcare and production of environmentally friendly fuels, scientists said.

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"I bet we will be able to construct a human chromosome, and the yeast genome," Endy said, offering a six-year forecast. "It sounds a little bit crazy because it's an exponential improvement in the tools."

He said there were lots of opportunities to take those tools forward.

"We are advocating now a national initiative in synthetic biology that would include in part a route map for getting better in building genetic material, constructing DNA from scratch and assembling it into genes and genomes," the scientist pointed out.

Jay Keasling, professor of biochemical engineering at the University of California at Berkeley, said his project was using a microbe in order to produce a drug while significantly reducing its cost.

"We anticipate in one or two years that the optimization process will be completed and that production of the drug will commence and have it in the hands of people in Africa shortly thereafter," Keasling said.

Meanwhile, Christina Smolke, assistant professor of bioengineering at Stanford University spoke about her efforts to design molecules that go into the cell and analyse the cellular state before delivering a therapeutic effect.

"Our goal is to make more effective therapies by taking advantage of the natural capabilities of our immune system and introducing slight modifications in cases where it is not doing what we would like it to do," she said.

Smolke said she hoped to translate her technologies into intelligent cellular therapeutics for glioma cancer patients in the next five years.

"That's a very optimistic view ...but so far things are moving quickly," she pointed out.