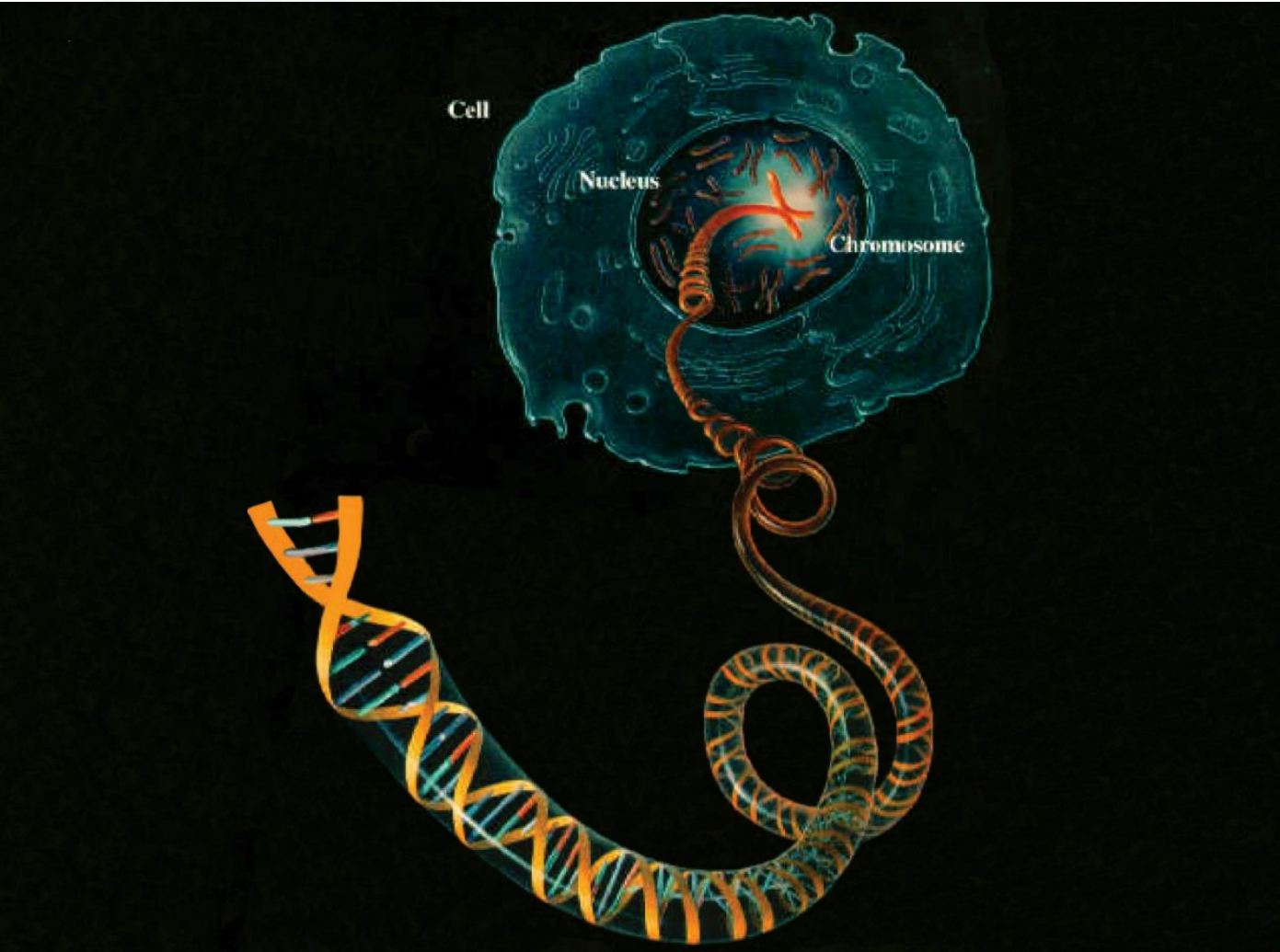




# La revolución Genómica

Catalina López Correa  
Directora Operaciones

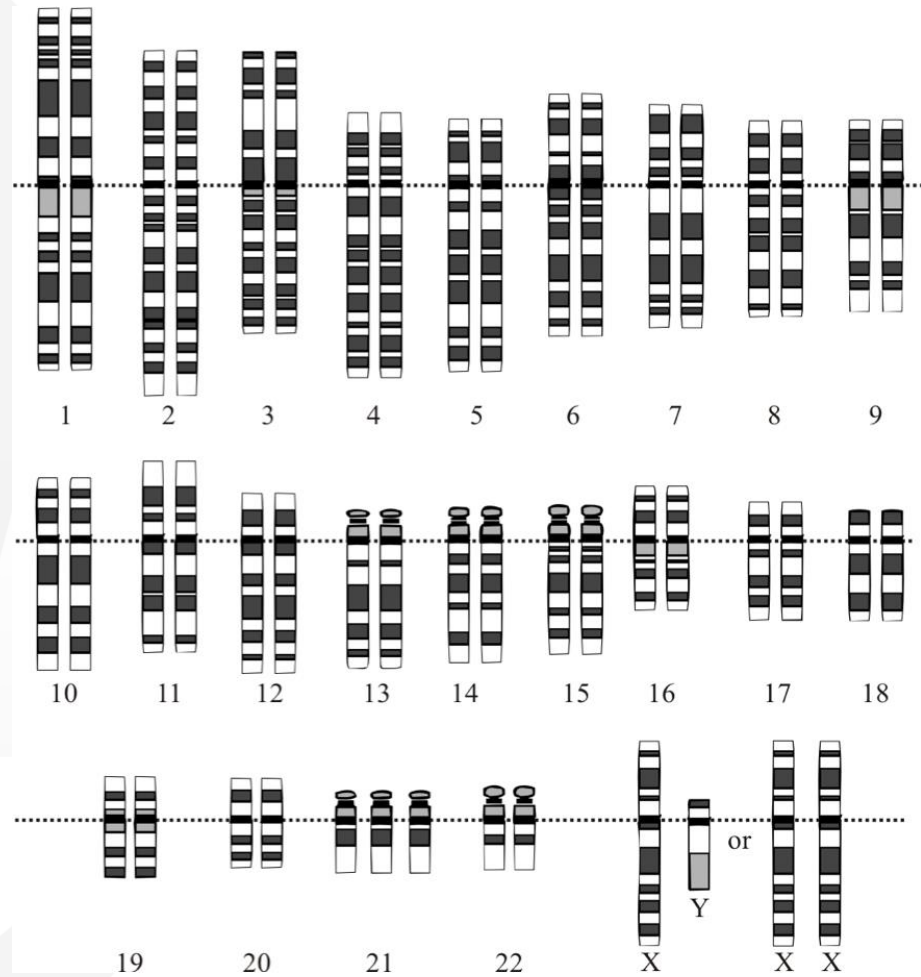
ANDI Innovatin Land Summit



# Human Genome Project

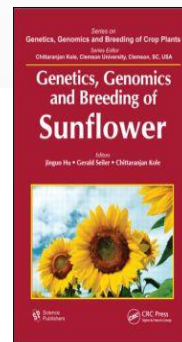
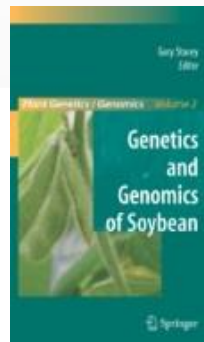
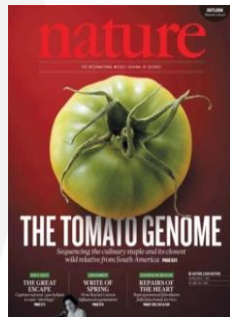


# El Genoma: código de barras individual



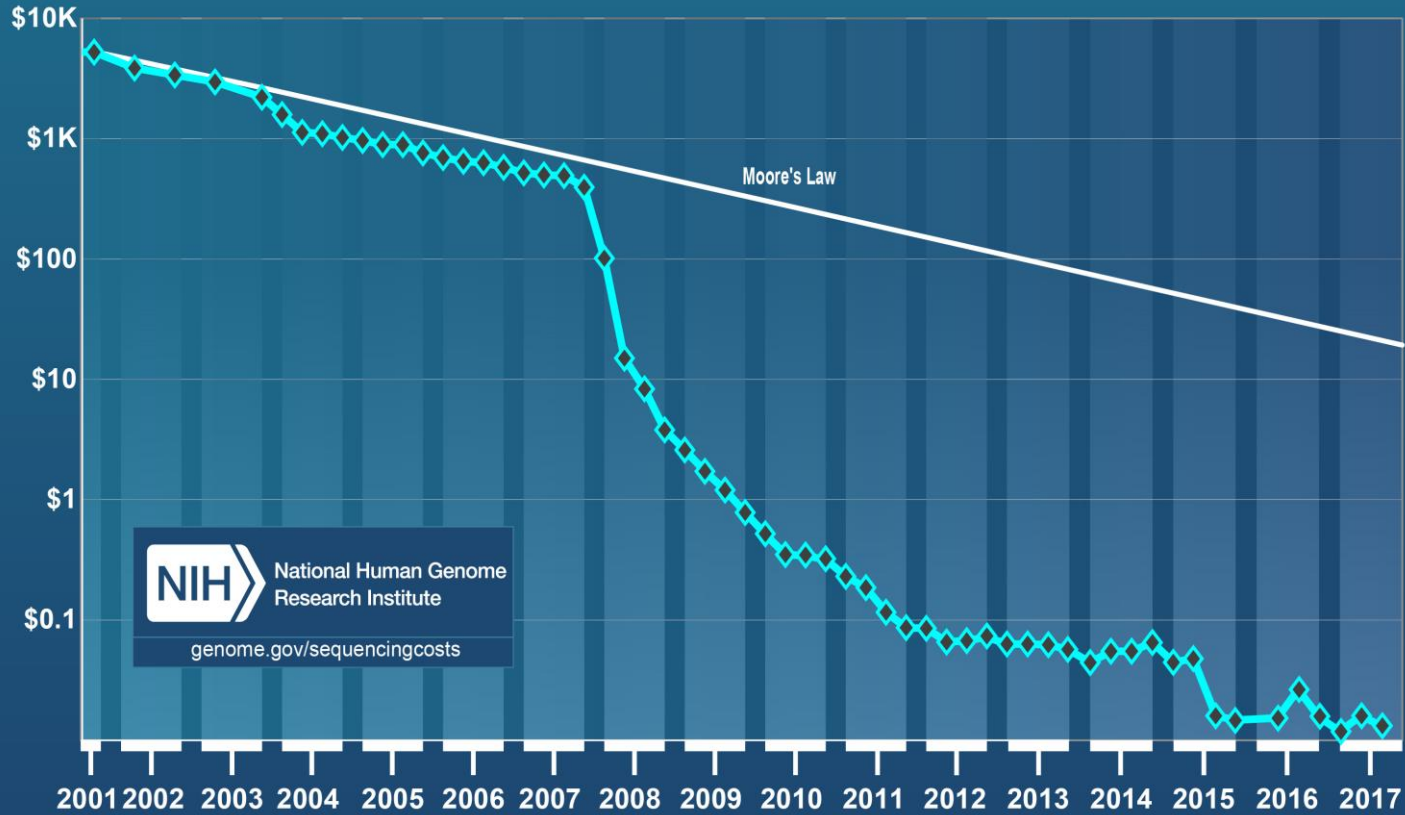
Donde hay vida  
hay ADN

Donde hay ADN  
hay Genómica



# Reducción en el costo de la secuenciación

## Cost per Raw Megabase of DNA Sequence





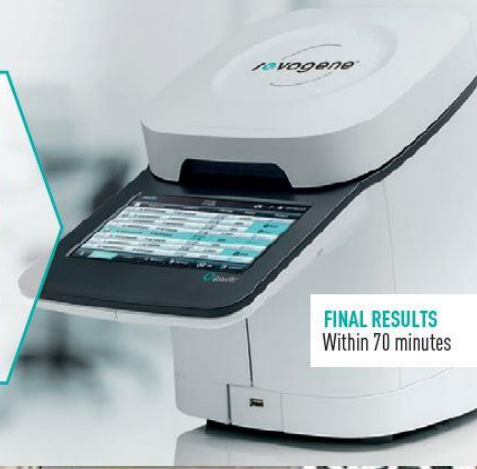
# Portabilidad



From Samples

Hands-on time < 1 minute

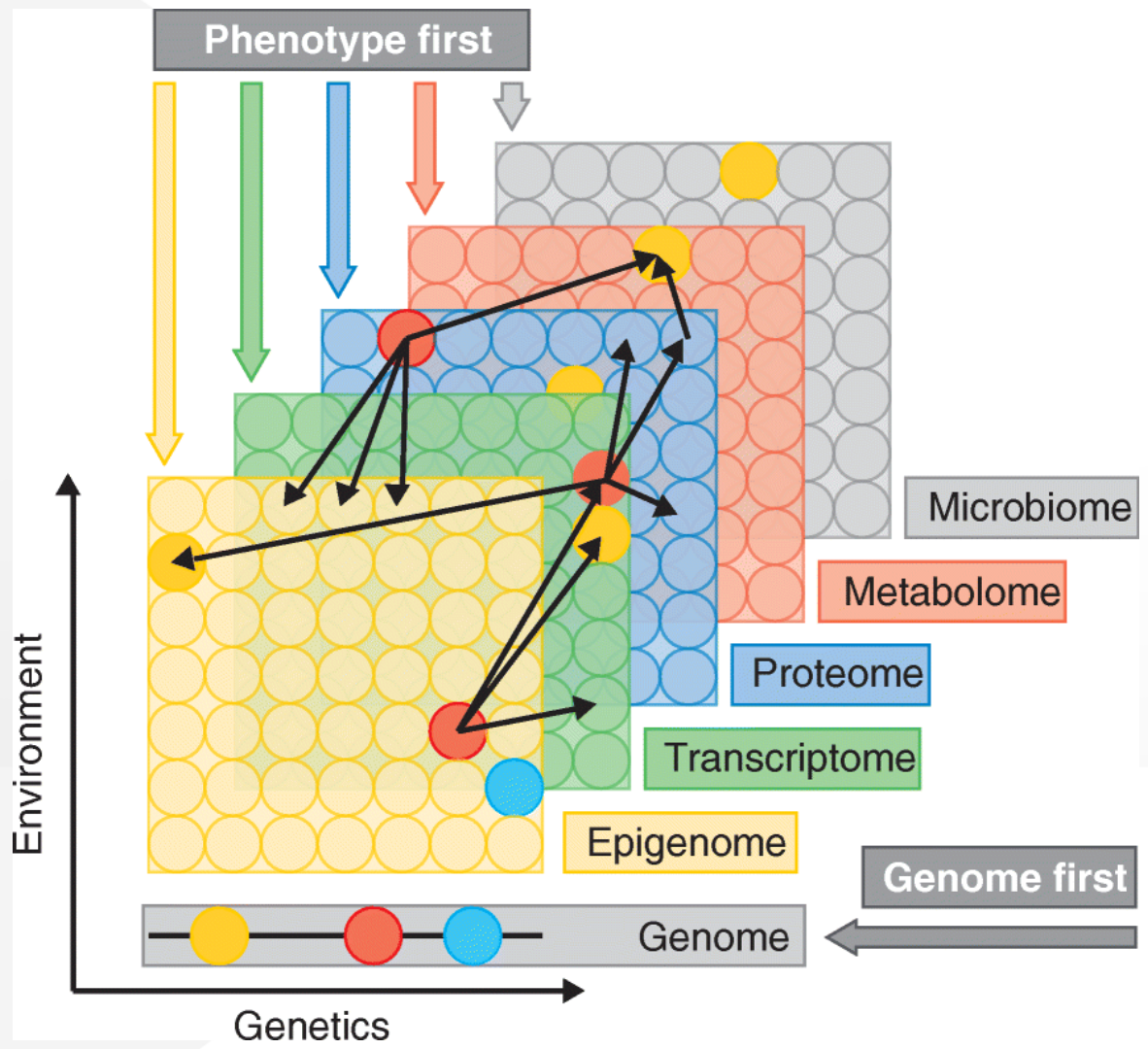
-  1 Discharge Sample
-  2 Load sample into the PIE
-  3 Place PIE into instrument and start



FINAL RESULTS  
Within 70 minutes



# Complejidad





**Convergencia**



## **El libro de la vida**

- **Leer**
- **Escribir**
- **Editar**

## **El Genoma**





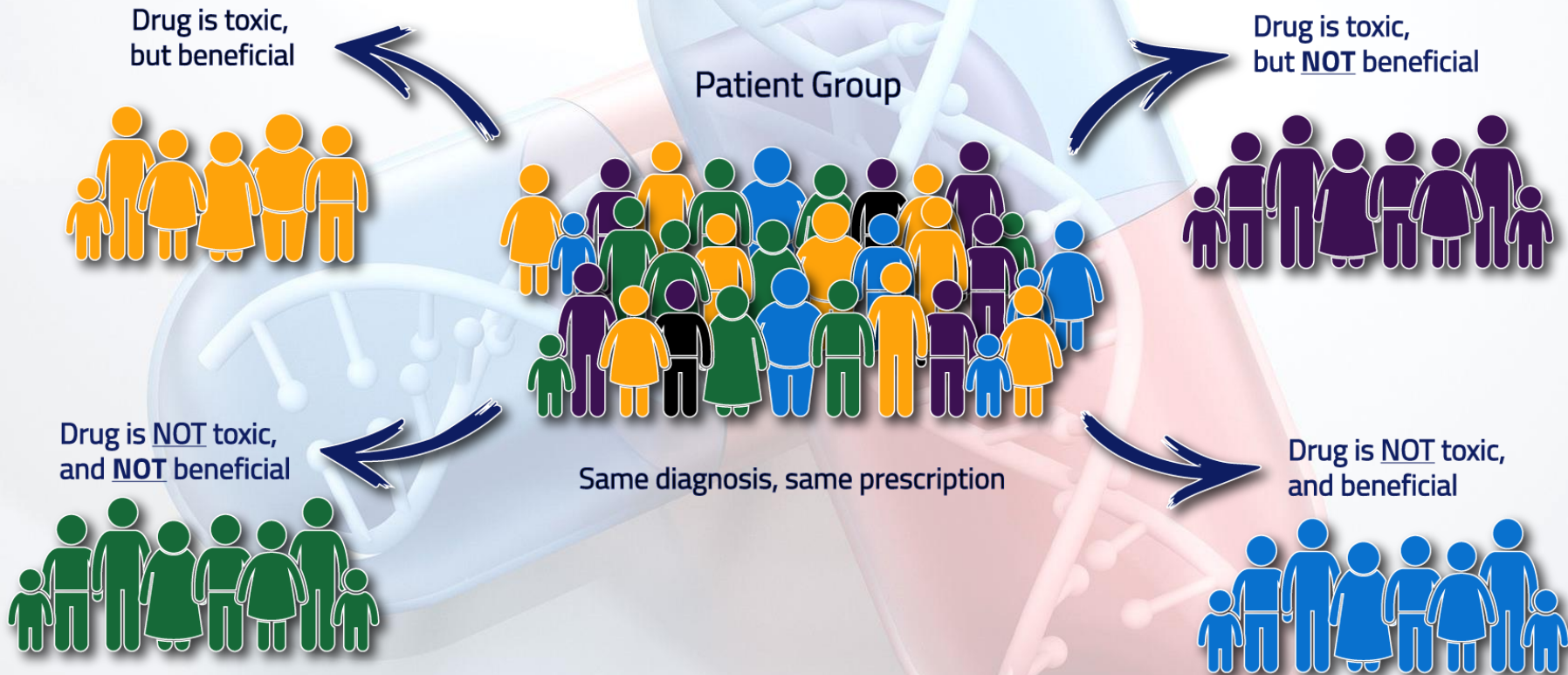
Front Line  
**Genomics**

*Unzipping genes for the good of humanity*

**Guinness record!**

**Secuenciar el  
Genoma Completo  
de un individuo en  
**19.5 horas****

# Farmacogenómica



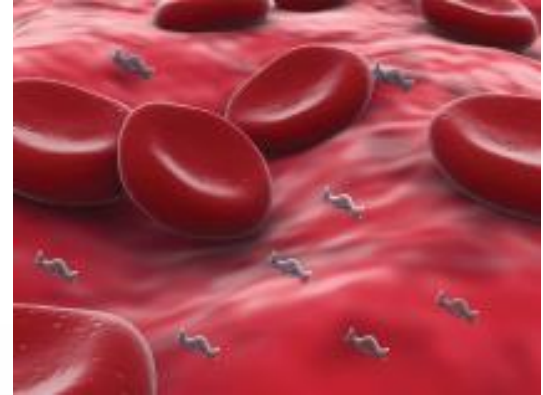


# My Medical Choice, by Angelina Jolie

New York Times, May 14<sup>th</sup> 2013



# Test prenatal no invasivo



ADN fetal en sangre materna



Secuenciación del ADN

**Conectando  
la genómica  
y las redes  
sociales**

**SCIENCE**

## **The Genomic Revolution Reaches the City Crime Lab**

How will law enforcement handle the deluge of new information available from DNA?

SARAH ZHANG SEP 22, 2017

## **The Golden State Killer case shows how swiftly we're losing genetic privacy**

Someone may be scrutinizing your genome right now, due to sites like 23andMe, police investigations, and hackers.

By Norman A. Paradis | Updated May 5, 2018, 10:24am EDT

# Genómica y cambio climático

## Entender

*Con la genómica podemos estudiar la biodiversidad*



## Adaptar

*Con la genómica podemos seleccionar organismos que se adapten mejor al cambio climático*



## Mitigar

*Aplicaciones para disminuir el cambio climático y avanzar una economía verde*





**Editar  
el Genoma**

**El futuro es  
CRISPR**



**CRISPR puede  
corregir errores  
genéticos  
que causan  
enfermedades**



**CRISPR puede  
crear alimentos  
más saludables**



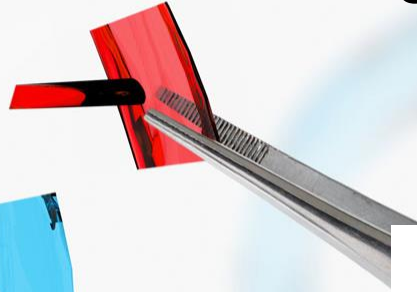
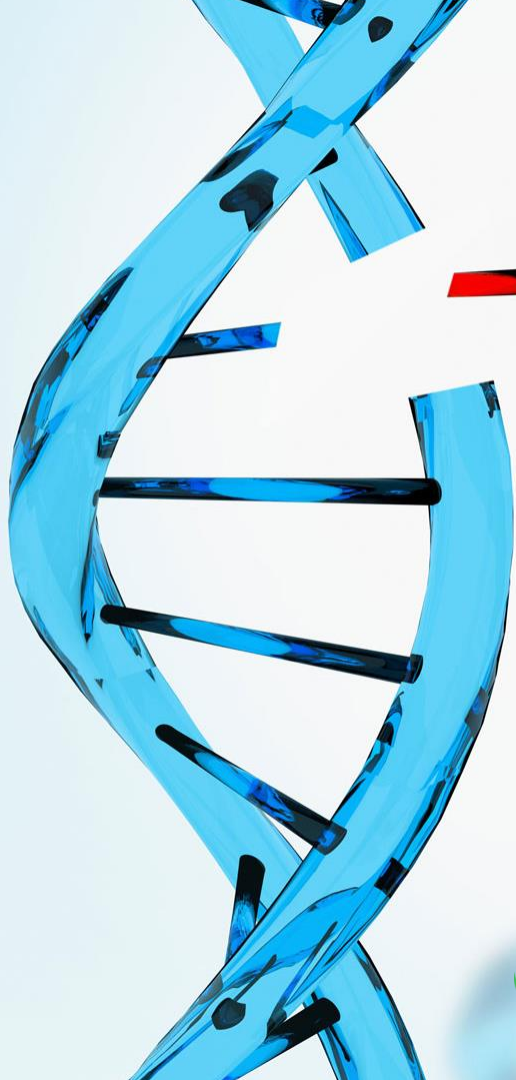
**CRISPR puede  
erradicar las  
enfermedades  
más peligrosas  
del planeta**



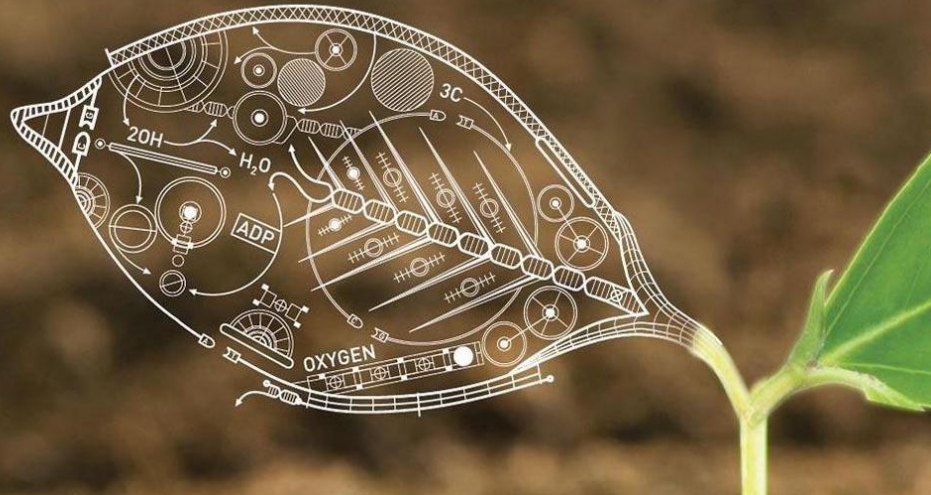
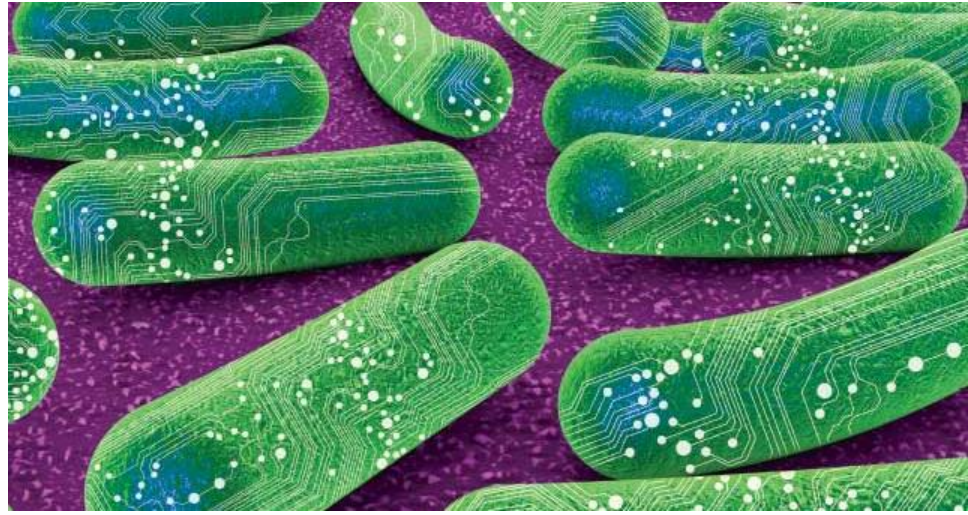
**CRISPR puede  
hacer a los  
animales  
resistentes a  
ciertas  
enfermedades**



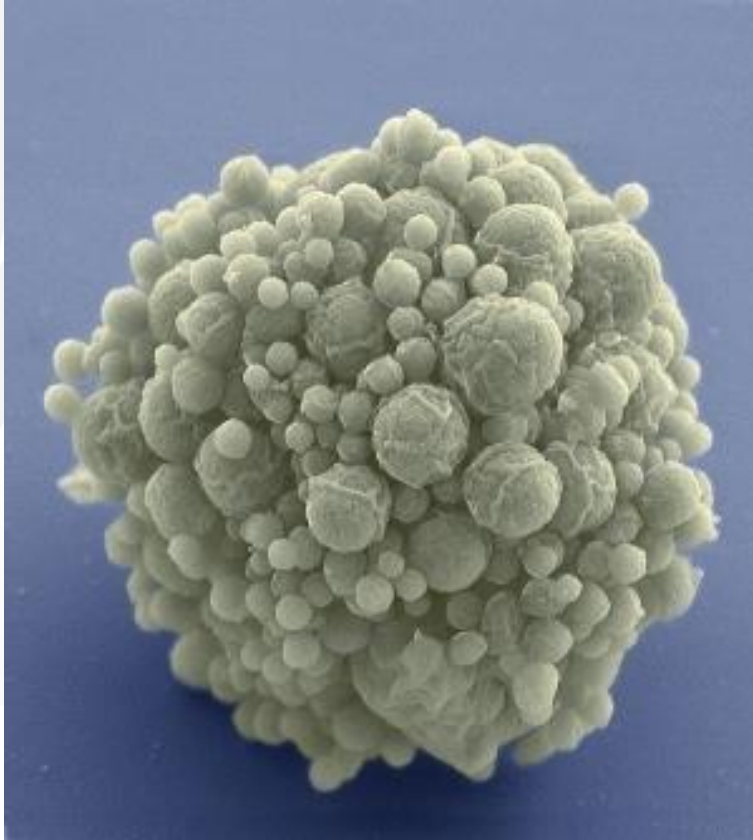
# CRISPR Startups están cambiando el futuro de la biotecnología



# Biología Sintética



## Escribiendo el DNA



BIOTECHNOLOGY

# Race to design life heats up

*Craig Venter's minimal-cell triumph comes as the CRISPR gene-editing method provides alternative ways to tinker with life's building blocks.*

BY EWEN CALLAWAY

Genomics entrepreneur Craig Venter has created a synthetic cell that contains the smallest genome of any known, independent organism. Functioning with 473 genes, the cell is a milestone in his team's 20-year quest to reduce life to its bare essentials and, by extension, to design life from scratch.

Venter, who has co-founded a company that seeks to harness synthetic cells for making

industrial products, says that the feat heralds the creation of customized cells to make drugs, fuels and other products. But an explosion in powerful 'gene-editing' techniques, which enable relatively easy and selective tinkering with genomes, raises a niggling question: why go to the trouble of making new life forms when you can simply tweak it?

Unlike the first synthetic cells made in 2010 (ref. 1), in which Venter's team at the J. Craig Venter Institute in La Jolla, California, copied

an existing bacterial genome and transplanted it into another cell, the genome of the minimal cells is like nothing in nature. Venter says that the cell, which is described in a paper released on 24 March in *Science*<sup>2</sup>, constitutes a brand-new, artificial species.

"The idea of building whole genomes is one of the dreams and promises of synthetic biology," says Paul Freemont, a synthetic biologist at Imperial College London who is not involved in the work. ▶

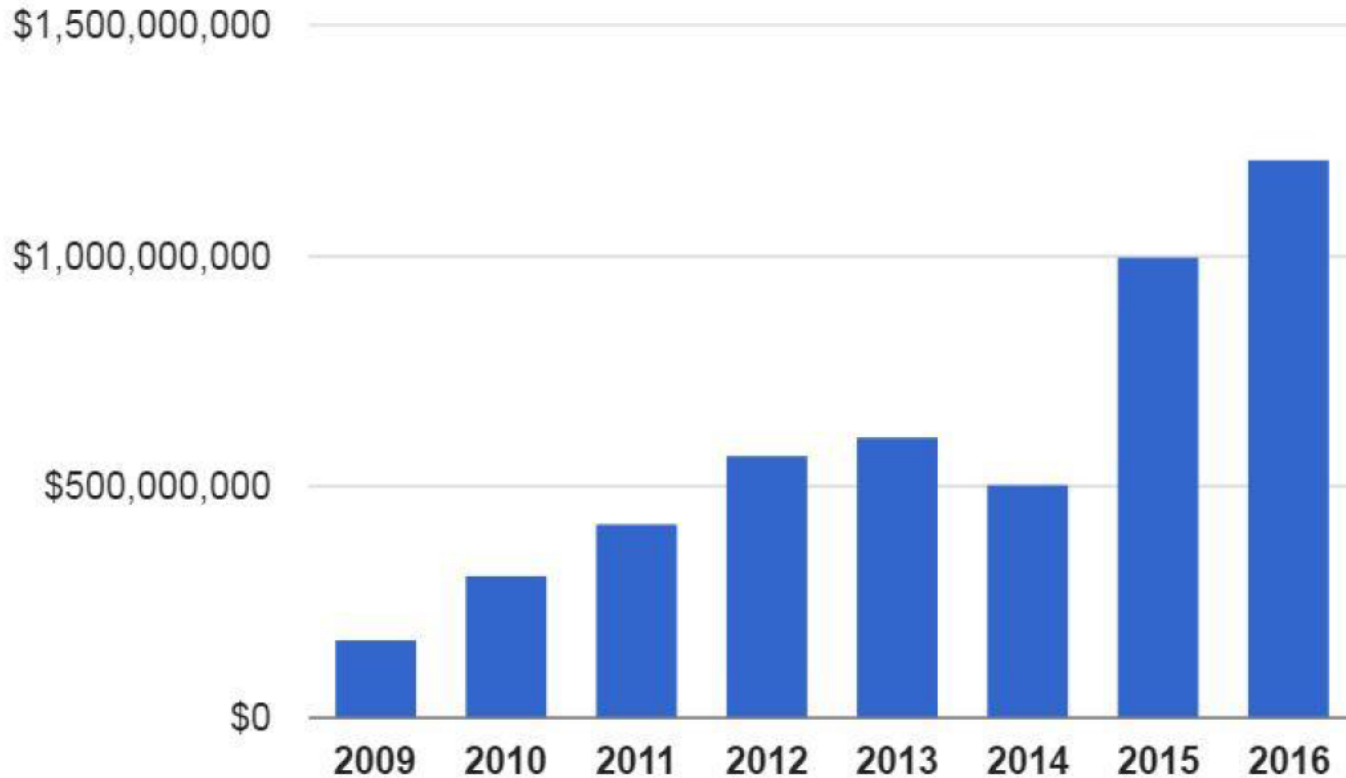
31 MARCH 2016 | VOL 531 | NATURE | 557

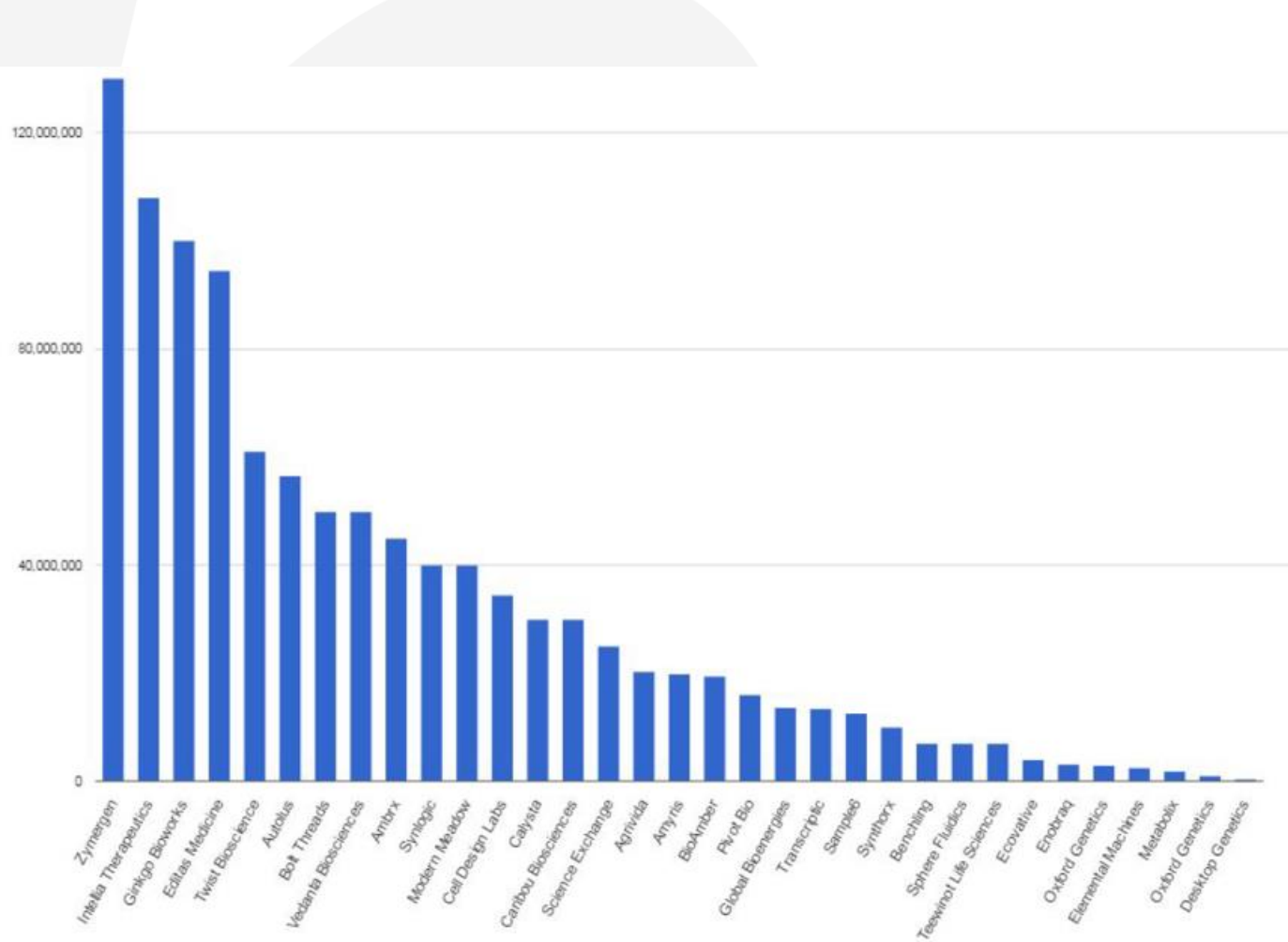
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**En el 2016, Craig Venter diseña primera célula "mínima" sintética con solo 473 genes**

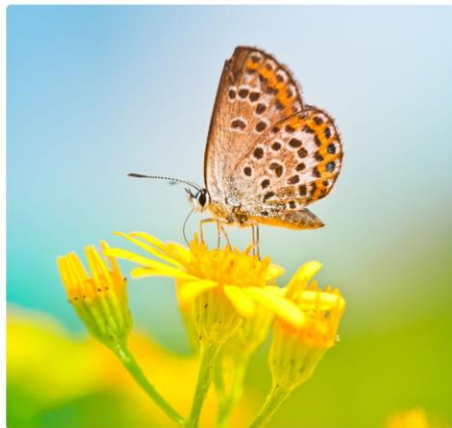


# Inversiones en biología sintética están creciendo de forma global





**> 1 billón de dólares invertidos en compañías de biología sintética en el 2016**



**El cielo es el  
limite!**





 @clopezcorrea

 @Ruta\_N