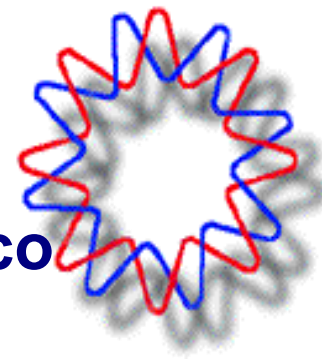




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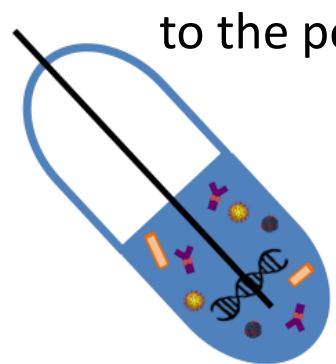


Laura A. Palomares

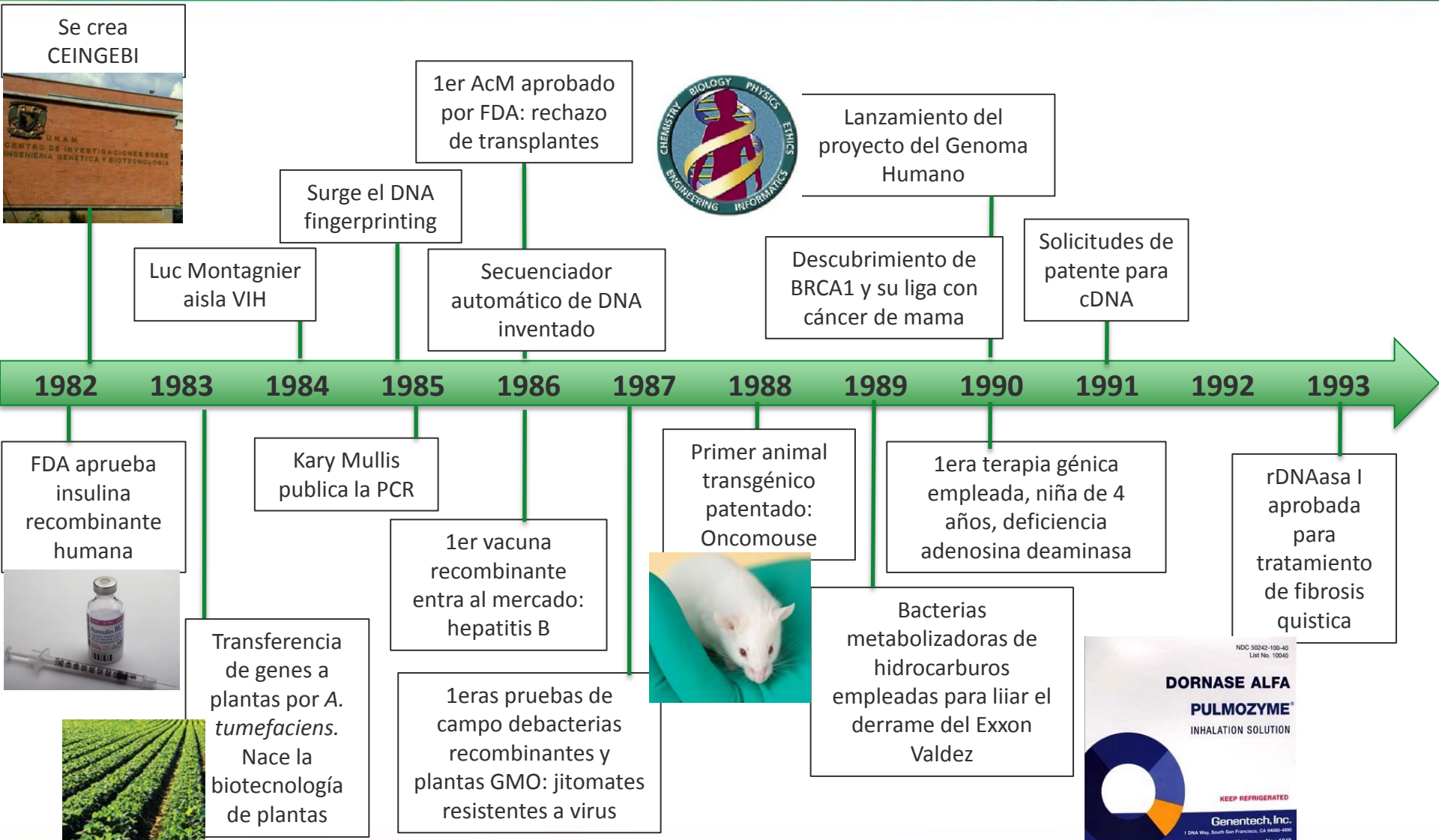
Health and Pharmaceutical Biotechnology

- CHALLENGE: We live in a world where children are dying of preventable and curable disease
- CHALLENGE: We live in a world where health care is a privilege even in the so called developed countries
- CHALLENGE: We live in a world where state of the art drugs are unaffordable to the population

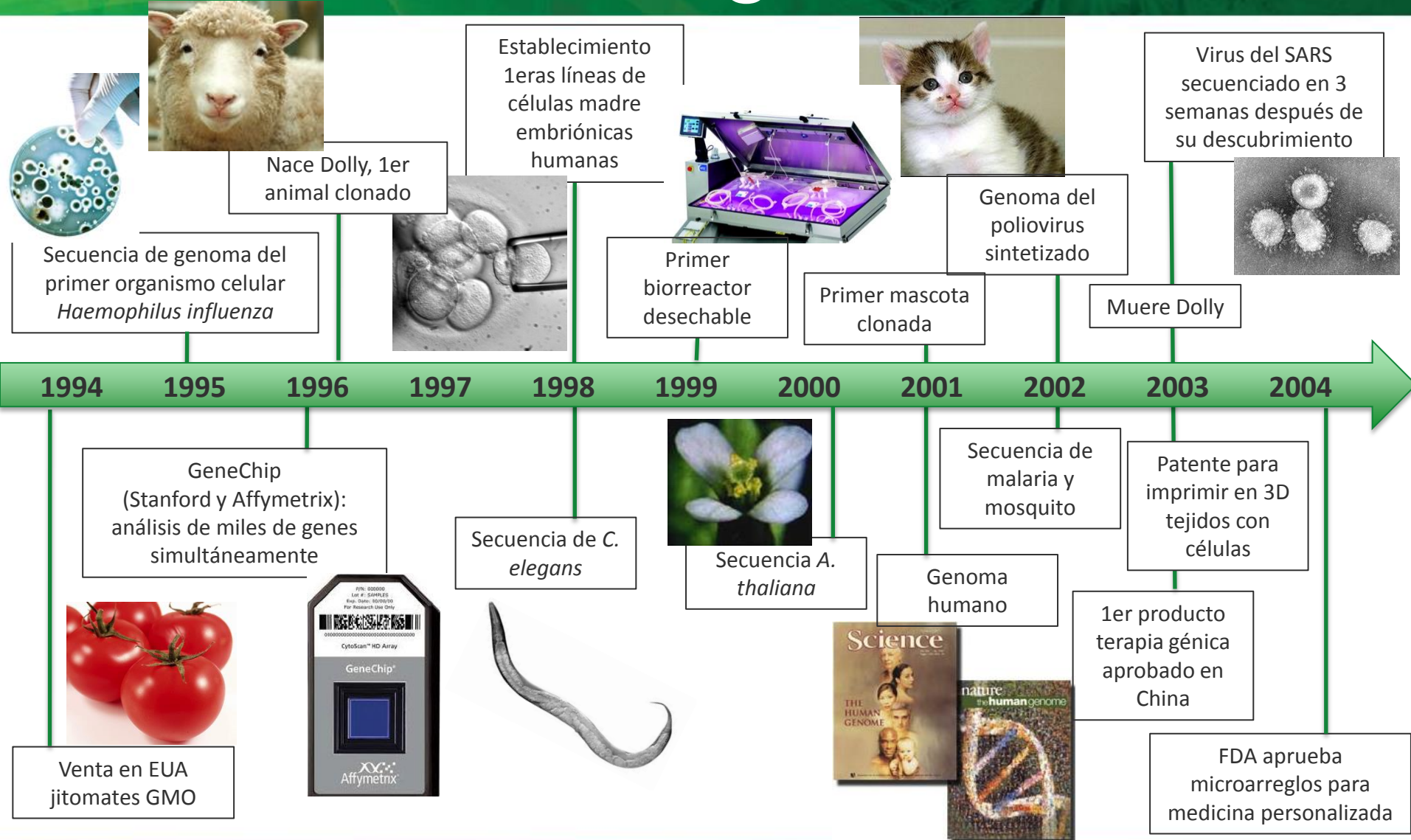
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Hitos en Biotecnología



Hitos en Biotecnología



Hitos en Biotecnología



Mapeo genoma arroz

Reprogramación de células madre

Vacuna recombinante contra papilomavirus aprobada

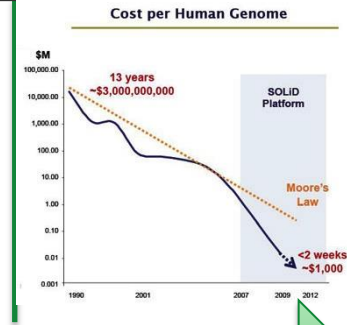


Genoma del maíz

Impresión de piel por impresoras 3-D

Secuenciación de genoma humano completo en menos de 1 semana por USD\$1,000

CRISPR-CAS9 para editar genomas



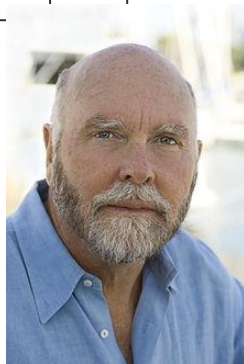
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

Genoma del chimpancé secuenciado

1er vacuna (veterinaria) producida en plantas aprobada

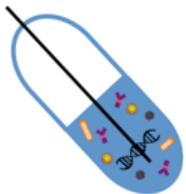
"Vida Sintética" (Craig Venter): Transplante genoma sintético capaz de autoreplicarse en bacteria

FDA emite borrador para reglamentar biosimilares

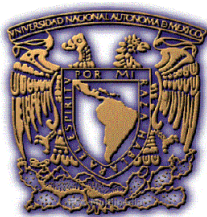
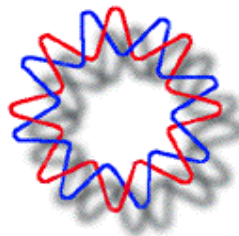


FDA aprueba terapia celular por transplante de células hematopoyéticas progenitoras

- Change of paradigm technologies result in:
 - Personalized medicine
 - New tools for diagnostics (available to all)
 - More active role of patients
- And more things are coming
 - Plant on a chip for drug manufacture
 - AI for diagnosis and for prescription
 - Organ production (food too)
 - Gene editing (CRISPER/Cas9 technology)



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Menaces and opportunities for addressing SDG

- People as high consumers of drugs/ generating waste
 - Antibiotic/antiviral resistance: Appearance of new resistant strains and disease
- Misinformation: Education is key
- Technology not attending disease relevant in underdeveloped areas
- Changes of way of life: new ailments,
 - Obesity, hearing and eyesight loss, muscle and arthricular pain
 - Depression and other mental health issues



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