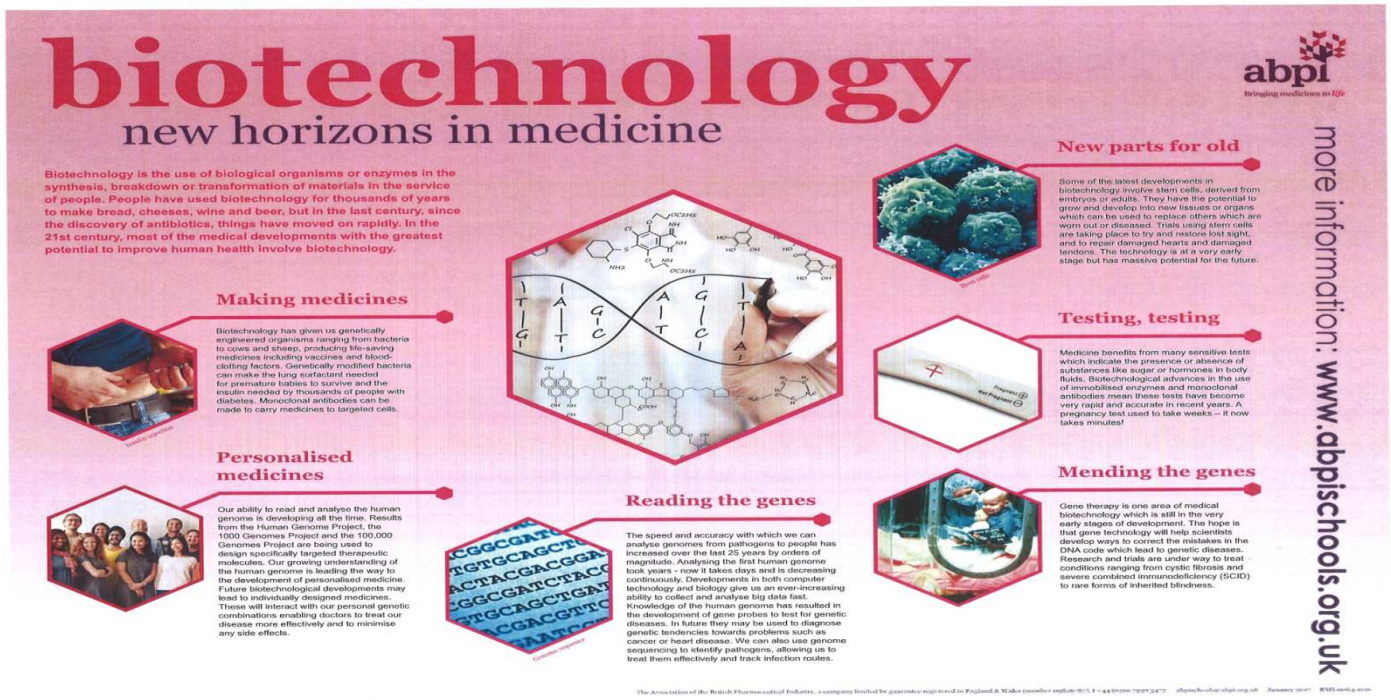
Primjena biotehnologije u genomskoj medicini

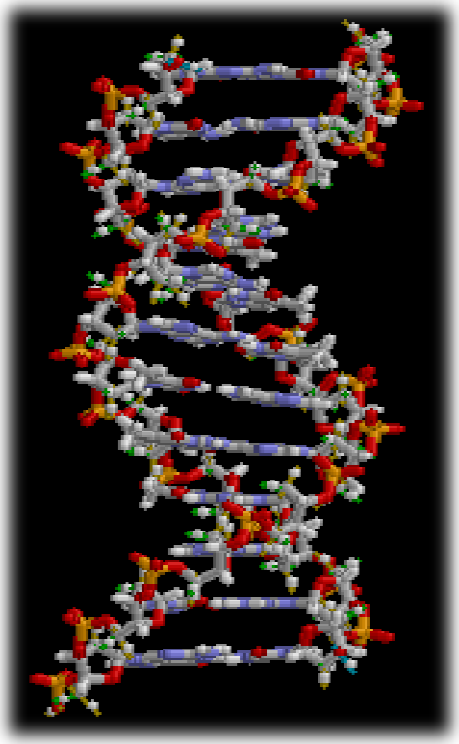
Jadranka Sertić

Biotehnologija



- Antibiotici
- Primjenjena genomika
- Genska terapija

Medicinska biotehnologija



Genetičko inženjerstvo
1982.

Hormoni, faktori koagulacije, cijepiva, matične stanice, tkiva, organi

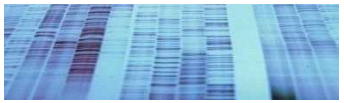
Restrikcijski enzimi
1970.

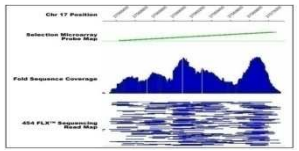
Genetički *fingerprinting*
1984.

Lančana reakcija polimerazom – PCR

Kary B Mullis, 1983.

Sekvenciranje DNA



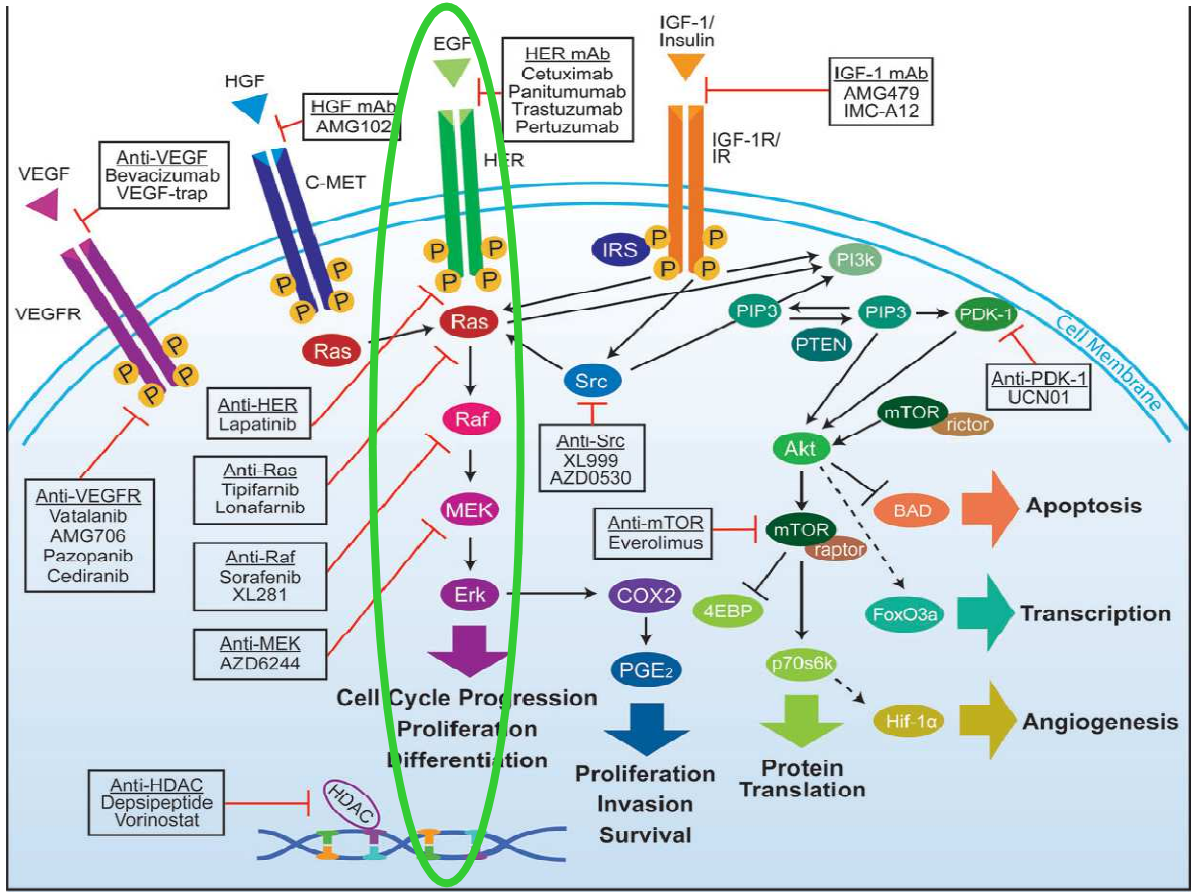


Sekvenciranje humanog genoma

EU – projekt

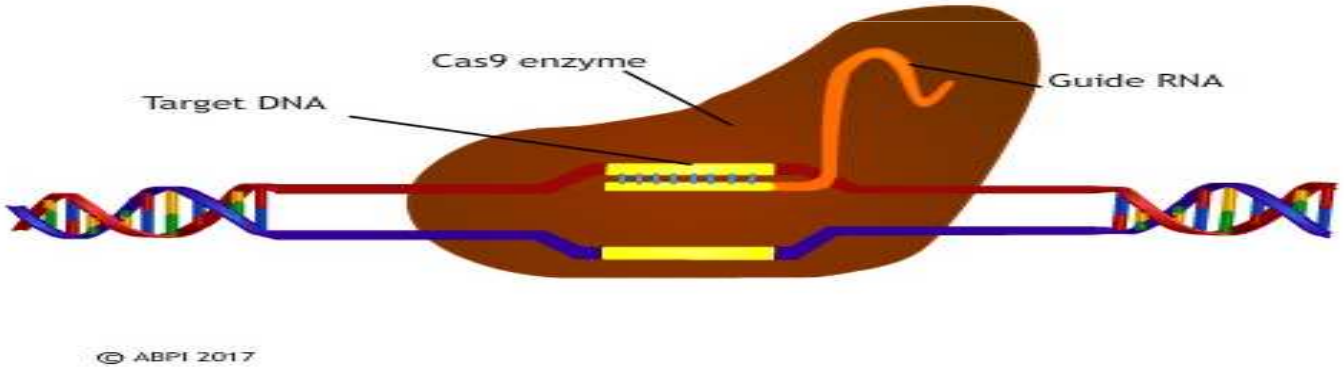
"*Towards access to 1 million Genomes in the EU by 2022“*.

Biološki lijekovi – monoklonska antitijela



Jones S i sur. PNAS 2008;105:4283-8.

Editiranje gena – CRISP-Cas9
2016.



Biochip

PRIMIJENJENA GENOMIKA

– precizna medicina

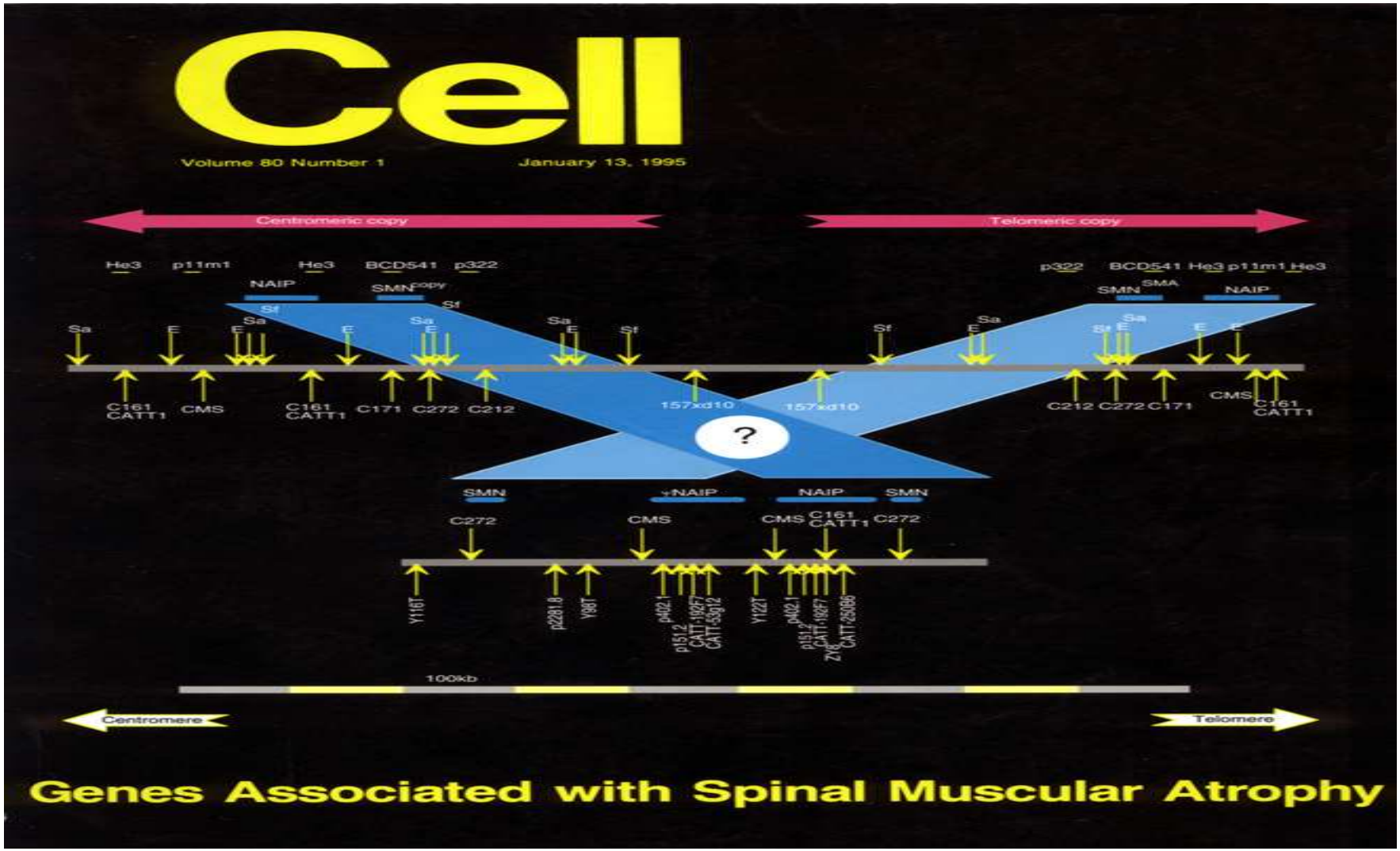
urednici: Jadranka Sertić, Stjepan Gamulin, Filip Sedlić

MEDICINSKA NAKLADA

Personalizirana medicina

- **Spinalna mišična atrofija –** *protusmjerni oligonukleotidi*
- **Cistična fibroza –** *terapija prema mutacijama*
- **Multipla endokrina neoplazija tipa 2 –** *tireoidektomija*
- **Imunodeficijencija SCID** *– transplantacija koštane srži*
- **Monogenski dijabetes (precizni dijabetes) –** *inzulin/sulfonilurea*

Spinalna mišićna atrofija - ***spinraza***



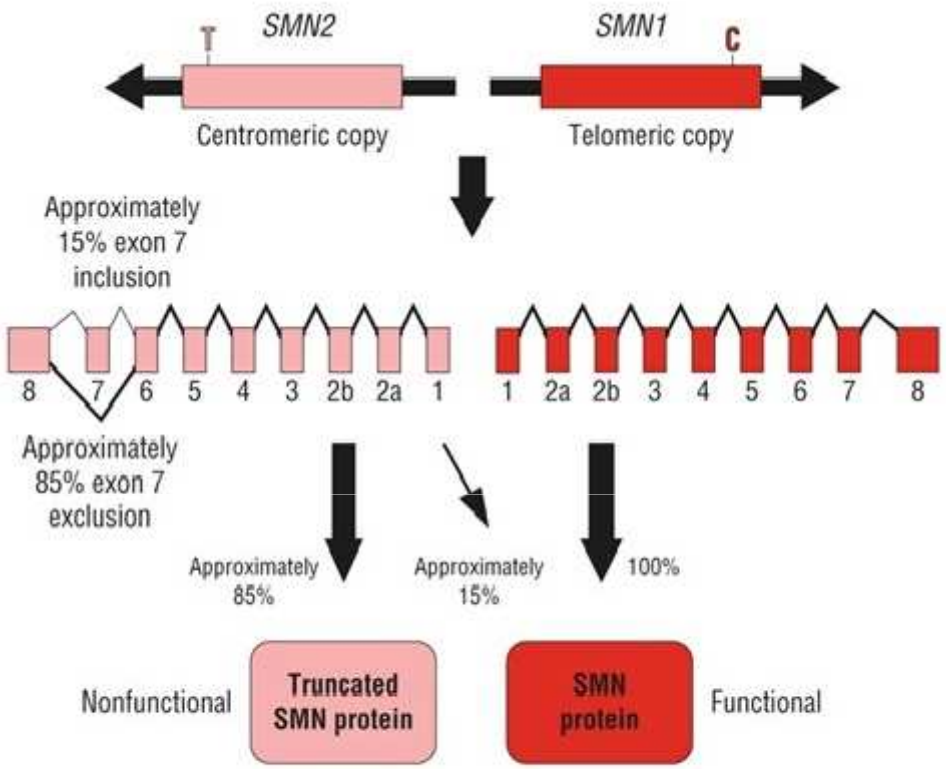
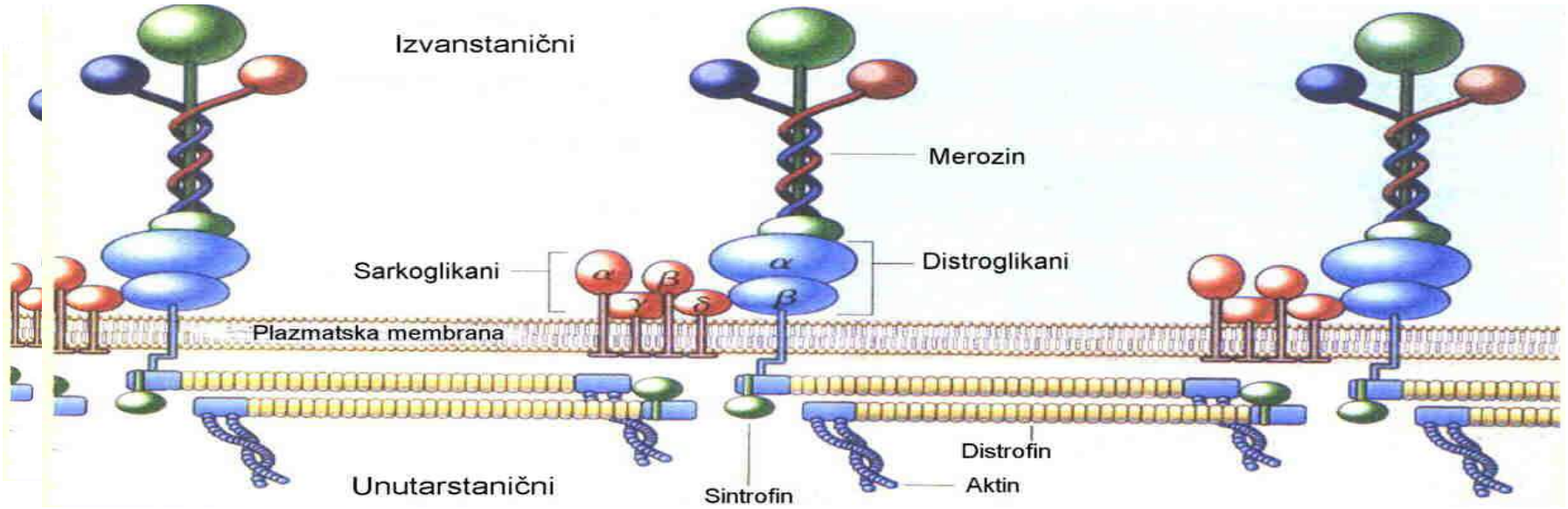
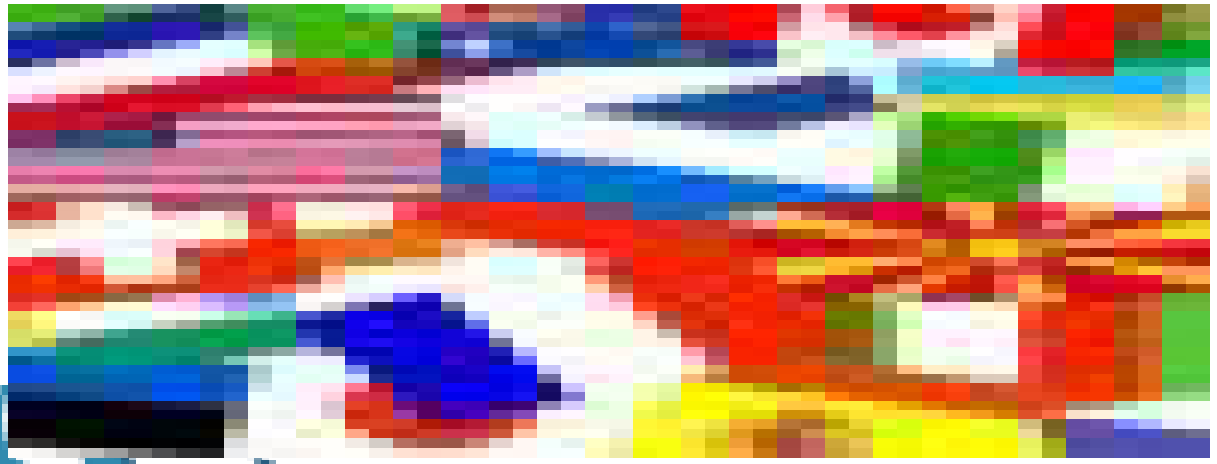


Image credit: Stephen J. Kolb, MD, PhD; John T. Kissel, MD; Wikimedia CC

DMD distrofin - 30 godina dijagnostike



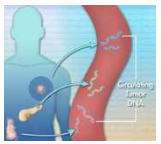
KBC ZAGREB

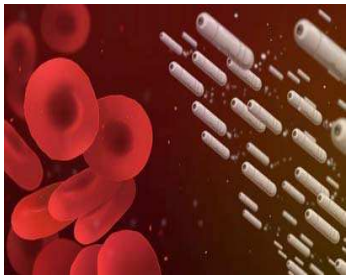


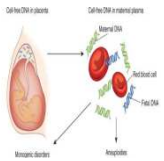
TREAT-NMD

Neuromuscular Network

Nanotehnologije

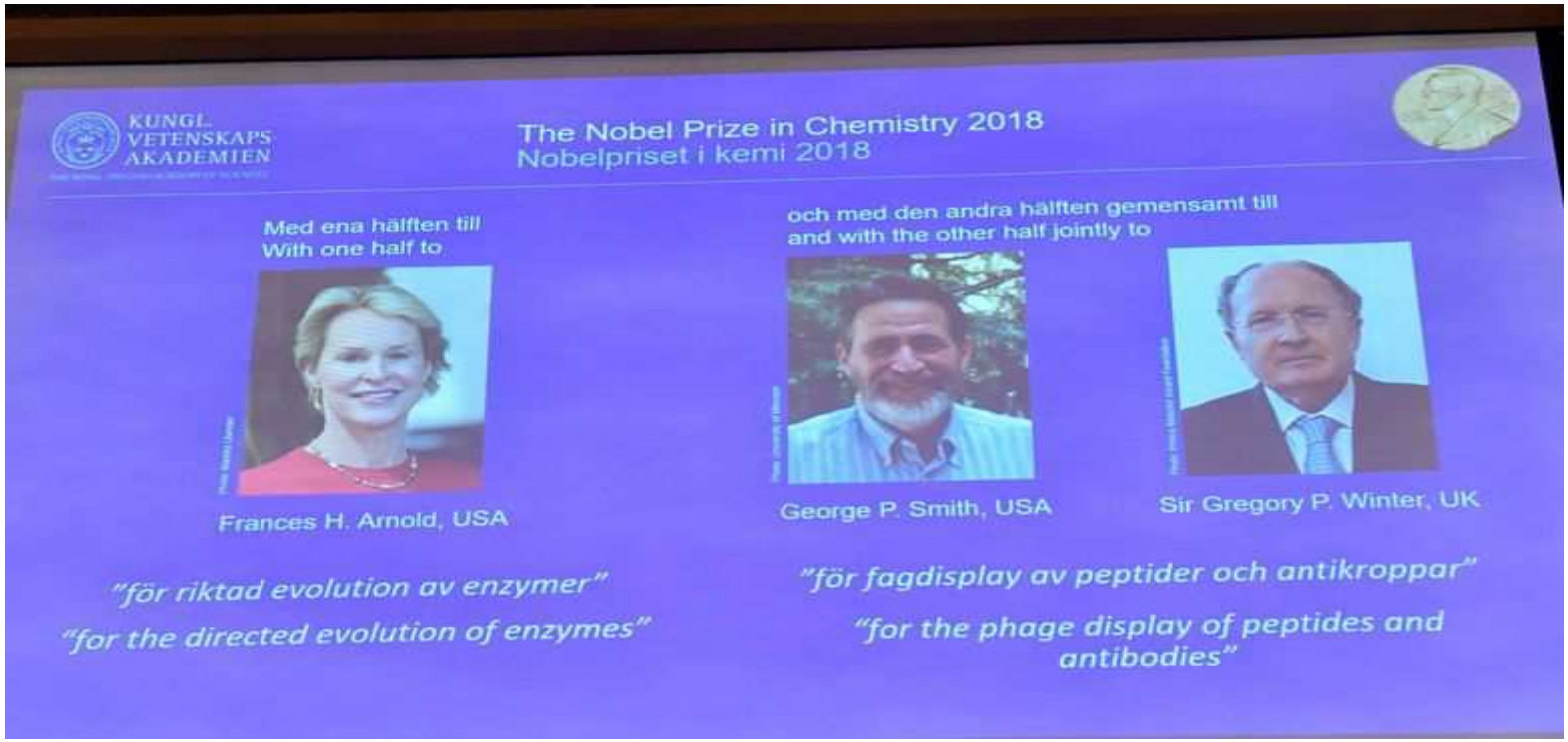






Nobelova nagrada za kemiju 2016.

Biotehnologija i medicina



Nobelova nagrada za kemiju 2018.

Prošlost - sadašnjost –budućnost ?

Hvala za pozornost!

Jadranka Sertić

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