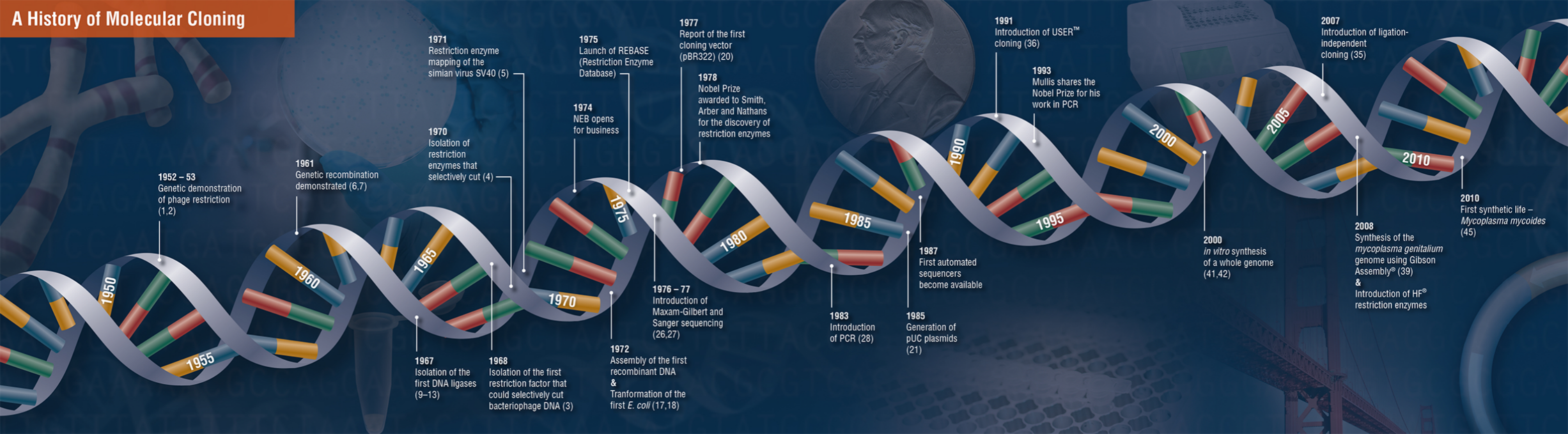


A History of Molecular Cloning



1952 – 53
Genetic demonstration of phage restriction (1,2)

1961
Genetic recombination demonstrated (6,7)

1970
Isolation of restriction enzymes that selectively cut (4)

1967
Isolation of the first DNA ligases (9–13)

1968
Isolation of the first restriction factor that could selectively cut bacteriophage DNA (3)

1971
Restriction enzyme mapping of the simian virus SV40 (5)

1974
NEB opens for business

1975
Launch of REBASE (Restriction Enzyme Database)

1972
Assembly of the first recombinant DNA & Transformation of the first *E. coli* (17,18)

1976 – 77
Introduction of Maxam-Gilbert and Sanger sequencing (26,27)

1977
Report of the first cloning vector (pBR322) (20)

1978
Nobel Prize awarded to Smith, Arber and Nathans for the discovery of restriction enzymes

1983
Introduction of PCR (28)

1985
Generation of pUC plasmids (21)

1987
First automated sequencers become available

1991
Introduction of USER™ cloning (36)

1993
Mullis shares the Nobel Prize for his work in PCR

2000
in vitro synthesis of a whole genome (41,42)

2008
Synthesis of the *mycoplasma genitalium* genome using Gibson Assembly® (39) & Introduction of HF® restriction enzymes

2007
Introduction of ligation-independent cloning (35)

2010
First synthetic life – *Mycoplasma mycoides* (45)