

How do you join 2 pieces of DNA together?



**Answering this question helped
launch an entire industry**

Before 1972, it was a long process...



linearize

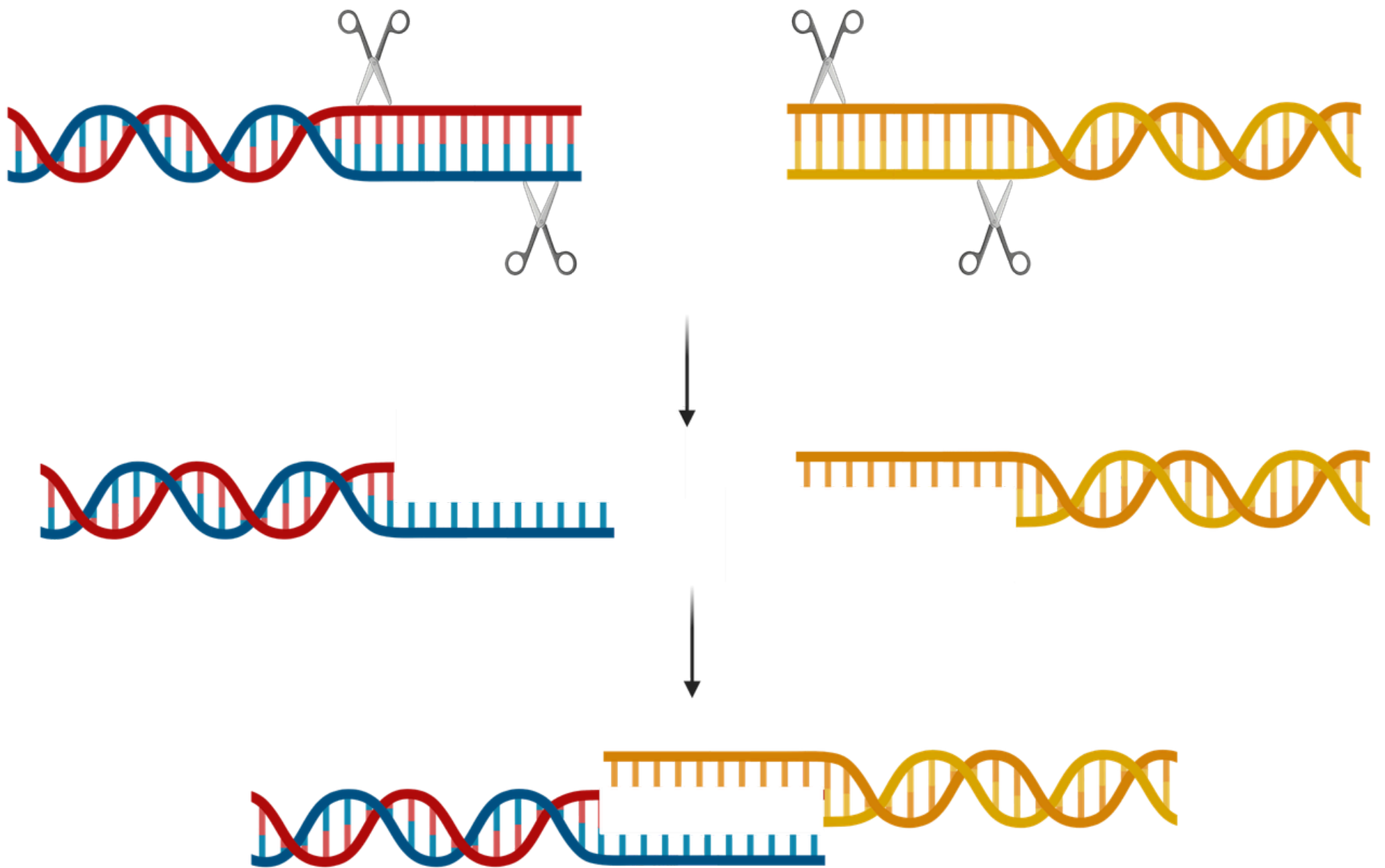


anneal, fill, seal



glue on artificial
matching tails

Janet Mertz showed that the enzyme EcoRI leaves sticky ends



DNA fragments cut with the same enzyme
could now be joined much more easily.

The step she didn't take..

The obvious next move was to put the recombinant DNA into living E. coli and grow it.

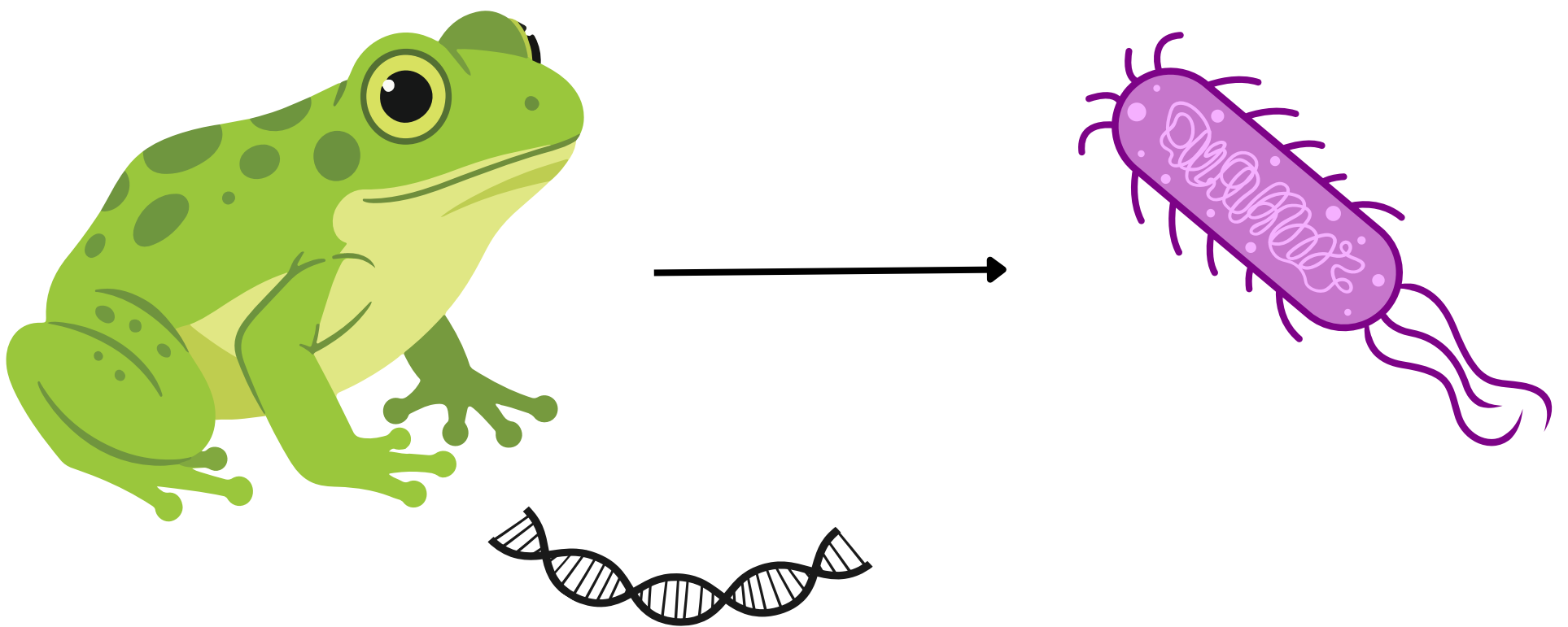
But it was halted.



Scientists feared putting a tumor virus into a gut microbe could unleash something dangerous.

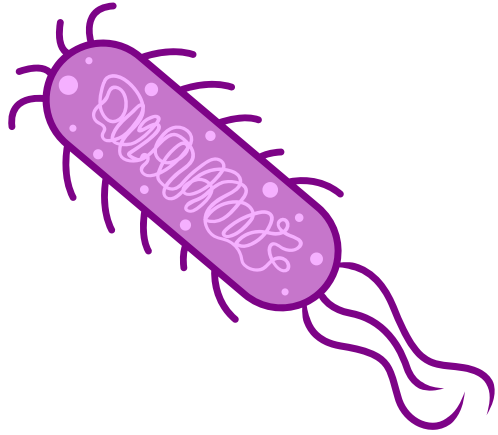
What Cohen and Boyer did

- Used the sticky-end logic Mertz helped reveal
- But with harmless bacterial plasmids instead of a tumor virus



They even showed that frog DNA could go into bacteria!

The Result



Bacteria became tiny
protein factories

Genentech

The company that
launched the biotech
industry
(co-founded by Boyer)



Recombinant human
insulin approved in
1982

Takeaway

Janet Mertz had the insight that made it all possible.

A safety moratorium stopped her at the finish line...

And the patent, company, and the commercial spotlight went to others.