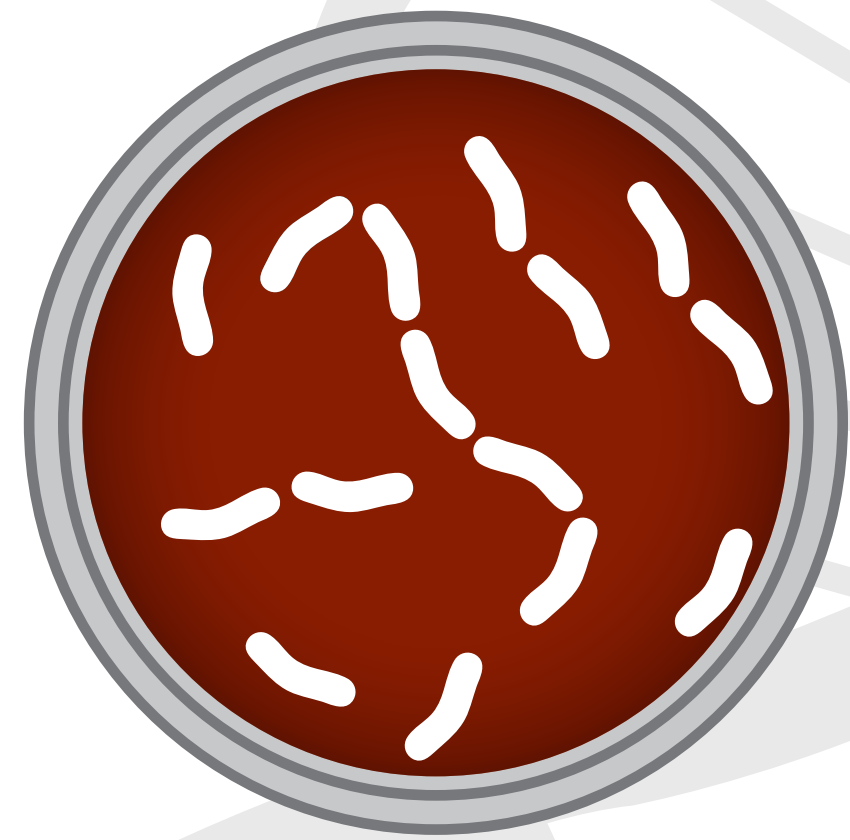


# MLVA Process

(Multiple Locus Variable-Number Tandem Repeat Analysis)

## Bacterial Culture



Boil bacteria to release DNA

- 1 Scientists take bacterial cells from an agar plate and boil the cells to release DNA.

PCR amplification

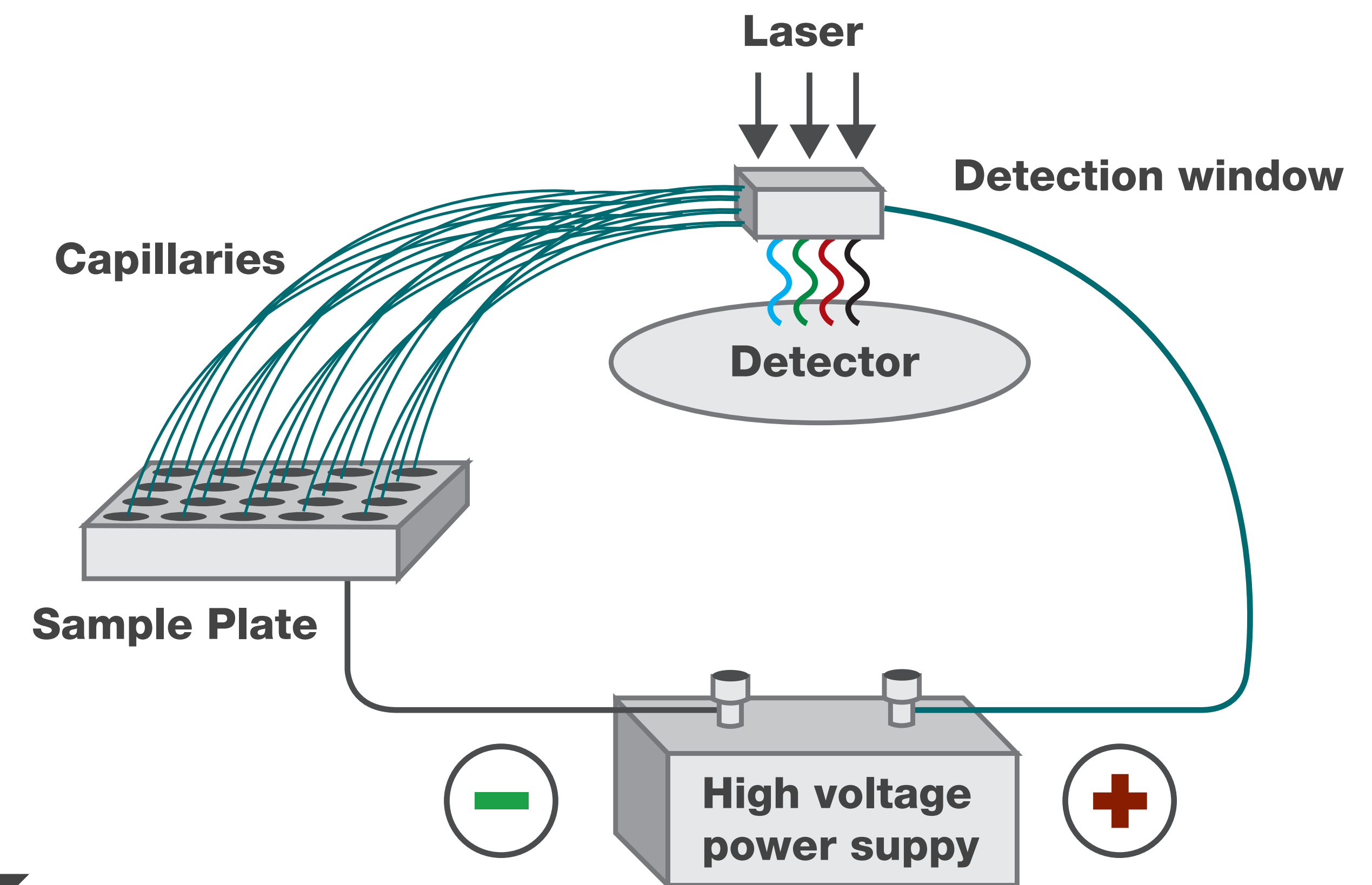
- 2 Scientists have to detect the DNA region needed for this type of fingerprinting, called the variable-number tandem repeat arrays (VNTR). To do this, they use polymerase chain reaction (PCR), which combines the DNA with chemicals to amplify the VNTR.

PCR product analysis

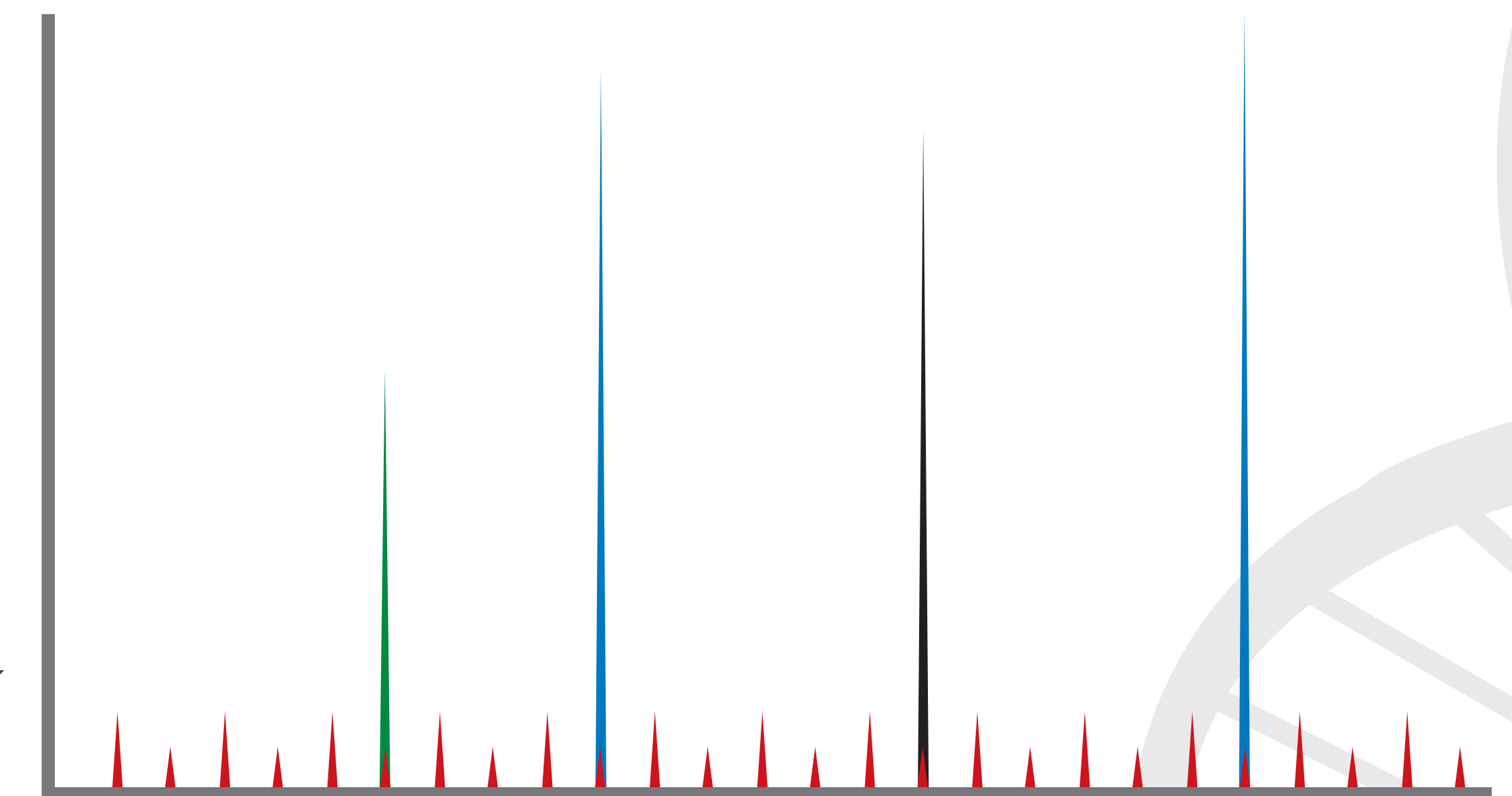
- 3 After PCR, scientists must determine the size of the PCR products. The different sizes will tell scientists how related the bacterial strains are to each other.

Load plate into device

- 4 Scientists load the PCR products into a sample analysis plate and mix them with chemicals that help them determine the size of the product.



- 5 Using capillary electrophoresis, the fragment analysis solution is run through a gel matrix in an electric field to determine the sizes of the DNA fragments.



- 6 The data output of the MLVA process is called an electropherogram. It shows the DNA standards of known size in red, and the sizes of the PCR products in blue, green, and black. The PCR products sizes are converted into allele types using special software, which lets scientists determine how closely they are related.