

Biotechnology worksheet

DNA Fingerprinting

1. Go to <http://www.dnai.org/d/index.html> and click on "Human Identification" and then on "Profiling" and answer the following questions: Click on the button "DNA variations and fingerprints". Then click on button A DNA variation. What does VNTR stand for?
2. What does STR stand for?
3. A certain locus is described as 3/10. What does that mean?
4. What is special about the markers used in DNA typing?
5. Now click on the button "The first DNA "fingerprints"" (next to the DNA variation button) . What did Jeffreys restrict?
6. Assuming that Jeffreys used the same restriction enzymes to restrict the genomes of different people, what would cause differences in length of the fragments?
7. What does Southern blotting accomplish?
8. The first gel that you see in the animation has a full smear going down both lanes. Why is that?
9. How did Jeffreys identify the location of polymorphic VNTRs in the smear?
10. What do you need to do to visualize the results?
11. What is the advantage of using single-locus probes?
12. When looking at the lanes in the D1S80 locus gel, lane A has two radioactive probes bound, while lane B has only one. Explain.
13. Summarize the steps in making a VNTR profile from a tissue sample.
14. Now click on "Today's DNA profile". Where are STRs located?
15. How many STRs does the FBI test?
16. Are those STRs linked or inherited independently from each other?