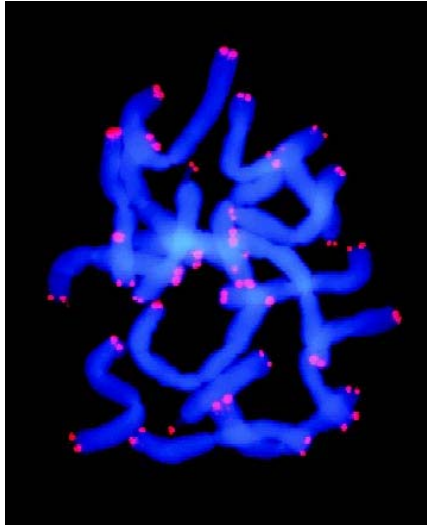


Hypervariable 'minisatellite' regions in human DNA



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[Previous Method of Genetic Analysis](#)

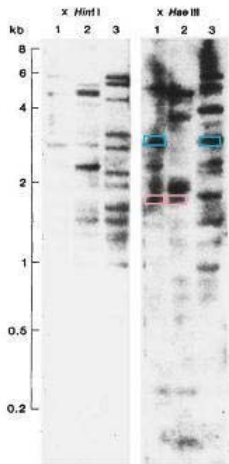
Introduction

- Genetic analysis is now simplified by the availability of probes for hypervariable regions of human DNA showing multiallelic variation and correspondingly increased heterozygosities.
- Wyman and White isolated the first by [chance](#)
- Other highly variable regions have also been discovered: near the human insulin gene, alpha-related globin genes and the c-Ha-ras-1 oncogene.
- [Minisatellite](#): variable region consisting of tandem repeats of a short sequence.
- Polymorphism results from allelic differences in the number of repeats

[The Probe](#)

Like Parents, like daughter

- Hybridization of this probe with human DNA was completed.
- To improve the detection of polymorphisms, DNA was digested with [Hinf1](#) or [HaeIII](#)
- Cleave at 4-bp sequence not present in the probe, which will release small DNA fragments
- This was completed with a daughter and her two parents. The bands were transmitted in a Mendelian fashion.



1-Daughter; 2-Mother; 3-Father

Highly Polymorphic Minisatellites

A χ Sequence in Minisatellites?

Pedigree Analysis

Conclusions

- Showed that human DNA can be used to create probes for minisatellite regions
- Showed that a core sequence can be used to analyze many regions
- More minisatellite regions exist that have different core repeat sequences
- New mutations can provide evidence about gene exchange and recombination during meiosis

Uses of DNA Fingerprints

A Historical Breakthrough

[Applications of DNA Fingerprinting](#)

[DNA fingerprinting animation](#)