

Autosomal DNA technique

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In news— Recently, a living descendant of the famed Lakota leader Sitting Bull has been confirmed using a novel technique for analyzing fragments of the historic figure's DNA.

The familial connection of Sitting Bull-

- The autosomal **DNA technique has been used for the first time** to identify the great-grandson and closest living relative of Sitting Bull, a prominent 19th century Native American leader.
- It took the scientists 14 years to develop a technique to search for "autosomal DNA," which is **non-sex-specific DNA that people inherit from both their mother and father.**
- The researchers compared autosomal DNA from Sitting Bull's hair sample to DNA samples from LaPointe and other Lakota Sioux to establish the familial connection.
- Usually, **genealogy studies focus on sex-specific genetic matches**, such as **zeroing in on the Y chromosome**, which is passed down to male descendants, or **specific DNA in the mitochondria** that is passed from mothers to their offspring.

Sitting Bull-

- Sitting Bull, **born in 1831, was chief and medicine man of the Hunkpapa Lakota Sioux.**
- He **united the Sioux tribes across the Great Plains** in the late 19th century and led the **resistance against settlers who were invading tribal lands.**
- He is most **famous for his victory over US General George Armstrong Custer in the Battle of the Little Bighorn river in 1876.**
- He hailed from the Lakota branch of the Great Sioux Nation or Oceti Sakowin, was killed by Native American

police in 1890.

- An Army doctor at the Fort Yates military base in North Dakota took a lock of Sitting Bull's hair and his wool leggings which helped this current research.

What is Autosomal DNA?

- All are born with 23 pairs of chromosomes (with few exceptions) that were passed down from parents through combinations of their 46 chromosomes.
- **X and Y, the two most popularly known chromosomes, are part of the 23rd pair of chromosomes.**
- They're also called the sex chromosomes because they determine what biological sex a person is born with.
- The rest of the 22 pairs are called autosomes also known as autosomal chromosomes.
- Hence Autosomal DNA is contained in the 22 pairs of chromosomes **not involved in determining a person's sex.**
- Autosomal DNA recombines in each generation, and new offspring **receive one set of chromosomes from each parent.**
- These are inherited exactly equally from both parents and roughly equally from grandparents to about 3x great-grandparents.



Usage of this technique-

- Autosomal DNA tests can tell us a lot about our ancestry

and chances of getting certain conditions with a pretty high level of accuracy.

- This is done by finding specific variations in our genes and putting them in groups with other DNA samples that have similar variations.
- The autosomal DNA technique can be used even when very limited genetic data are available.
- The technique could also be used in forensic investigations.