

Kerala

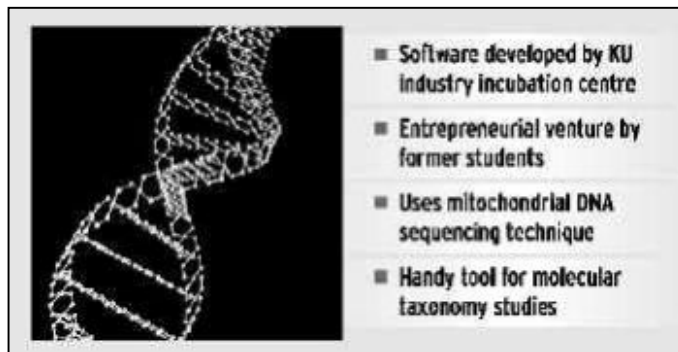
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Online tool for tracing matrilineal ancestry

G. Mahadevan

Former Kerala University students design special software



THIRUVANANTHAPURAM: Sooryakiran Bioinformatics, a company functioning in the Industry Incubation Centre (IIC) of the University of Kerala, has designed a software that can be used, among other things, to trace a person's matrilineal ancestry using the technique of mitochondrial DNA sequencing.

The company, which was set up by the former students of the Centre for Bioinformatics of the University, has developed this software for a U.S.-based life science company Argus Biosciences.

The software 'GEN-SNiP' is available for free use on the web site 'http://www.argusbio.com/sooryakiran/gensnip/gensnip.php'. The software was designed by a team led by G. Gopakumar and Lijo Anto.

Apart from its use in tracing the matrilineal ancestry, the software can also be used to find out whether two animals share a common ancestry and also for mapping the family tree of plant varieties.

Acuthsankar S. Nair, head of the Centre for Bioinformatics, told *The Hindu* that for detecting common ancestry in people the software finds out common patterns in the sequences of their mitochondrial DNA. "There is a region in the mitochondrial DNA sequence called the D-loop consisting of 1,100 base pairs.

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Also known as the hypervariable region this records evolution-induced changes in the DNA sequence much faster than any other region. People with similar mitochondrial mutations are group into what is called a haplogroup. Each person in a haplogroup can trace his or her ancestry to a single person," he explained.

[`Mitochondrial Eve'](#)

Mitochondrial DNA is inherited only from the mother. It has been scientifically determined that the `Mitochondrial Eve'— the common maternal ancestor of all people alive today — lived in Africa approximately 1,60,000 years ago, he added.

GEN- SNIp by default uses the revised Cambridge Reference Sequence (rCRS) — the revised sequence of the first human mitochondrial genome to be completely determined in 1981— for its operations.

However the software can also compare any two given DNA sequences for similarities or variations.

Argus Biosciences reportedly charges 400 U.S. dollars for sequencing the mitochondrial DNA of a client and 40 dollars for isolating the D-loop. According to Dr. Nair, the D-loop isolation can also be done in India. Once this is over the comparison can be done online for free using Sooryakiran's software.

According to information made available from the company the software uses the technique of `sequence alignment' to identify similar patterns in two DNA sequences.

[Molecular taxonomy studies](#)

Sooryakiran's software would come in handy for scientists engaged in molecular taxonomy studies, the head of the department of Zoology, University of Kerala Oommen V. Oommen told *The Hindu* .

"Comparing DNA sequences are very laborious. Using a software this can be speeded up and made more precise," he added.

The real importance of this product, according to Dr. Nair, is that a group of former university students who set up an entrepreneurial venture — one that is being incubated by the University itself — were able to develop a software as per the requirements of an overseas client.

"Dr. David white who heads Argus has appreciated the product's quality and its on-time delivery," Dr. Nair added.

The University has set up the IIC for encouraging similar entrepreneurial ventures from its students.

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