



## Internship Opportunity in Ancient Genomics & Bio-Archaeology at the Department of Genetics, Madurai Kamaraj University (July – Dec 2026) - in collaboration with the Dept of Archaeology, Govt. of Tamil Nadu

### Decode the past with Science – Join India's first Ancient Genomics Internship

#### ANCIENT GENOMICS RESEARCH AT MKU

The Ancient Genomics Laboratory at the Department of Genetics, School of Biological Sciences, Madurai Kamaraj University, is working to decode the ancestry and cultural practices of Ancient Tamil Nadu through archaeological excavations conducted by the Department of Archaeology, Govt. of Tamil Nadu. This is an interdisciplinary Science, primarily employing genomic, molecular, proteomic, and computational biological approaches. Our research spans cutting-edge areas, including Genomics, Proteomics, Organic Molecular Profiling, Computational Genomics, Bio-Archaeology, Facial Depiction, etc. We work with several thousand modern Human genomes worldwide, a few thousand ancient Human genomes, and data from ancient Humans of Tamil Nadu. Similarly, we work with modern rice, millet, animal, and bull DNA across the globe, as well as from ancient Tamil Nadu. Our work is to reconstruct the genomes of humans, flora, and fauna from archaeological samples, position them within global datasets, and thus unravel the genetic and cultural heritage of Ancient Tamil Nadu.

**Duration:** Initially for a period of 3 months and extendable up to 6 months depending on the progress.

**Eligibility:** Those completed M.Sc. / M.Tech. in Life Sciences, Biotechnology, Bioinformatics, Genetics, Chemistry, and related courses; Students completed M.C.A. / M.Tech. in Computer applications with strong coding skills.

**Fellowship** ₹15,000/month (12 Interns)

**Coordinator:** Prof. G. Kumaresan

Head, Dept. of Genetics, School of Biological Sciences,  
Madurai Kamaraj University,  
kumaresan@mkuniversity.ac.in



# Internship in Ancient Genomics & Bio-Archaeology

at the Dept. of Genetics, MKU (July 2026 – Dec 2026)

## RESEARCH DIRECTIONS OF ANCIET GENOMICS LAB AT MKU

The Ancient Genomics Laboratory, Department of Genetics, Madurai Kamaraj University, is working to decode the genetic ancestry and cultural practices of ancient inhabitants of Tamil Nadu from the archaeological remains by working in the following aspects:

### 1. ANCIENT HUMAN GENOMICS

- Deriving DNA data from the archaeological human skeletal remains from various excavations of Tamil Nadu.
- Analysing several thousand of ancient and modern human genome data points worldwide and analysing the above-derived data with them
- Analysing the mitochondrial haplogroups of ancient and modern samples
- DNA isolation in Class 10000 Lab
- NGS Library Preparation
- Genomic Data Analysis

### 2. POPULATION GENOMICS

Analysis of thousands of modern & ancient genomes by population genomics methods and to model them with the ancient DNA data.

### 3. 10000 HUMAN GENOME ANALYSIS

Analysing the mitochondrial haplogroups of the human genomes and to model migration routes

### 4. ANCIENT ANIMAL GENOMICS

Like Human DNA analysis, but from the DNA of ancient animals from Tamil Nadu.

### 5. ANCIENT PROTEOMICS

- Isolation of Proteins from archaeological skeletal samples
- Perform Protein sequencing by LC-MS/MS
- Analysis with the databases & to identify the animal species

### 6. BIO-ARCHAEOLOGY & ORGANIC MOLECULAR PROFILING

Tracing the ancient practices such as food practices, oils used, dye used, clothing material, etc by molecular and organic molecular profiling

### 7. COMPUTING FOR BIOARCHAEOLOGY

Using computational methods to compare with different databases, develop the databases, and to query the data of interest.

### 8. ANCIENT RICE & MILLET GENOMICS

Like Human DNA analysis, but from the ancient rice and millet samples in the context of modern varieties to trace the species and the dispersal routes of agricultural practices across the globe.

### 9. ANIMAL & PLANT SPECIES TRACING

Identification of ancient plant and animal species by PCR – Sequencing and genomics methods & to perform contemporary reference panel analysis

### 10. PLANT REMAINS FROM THE SOIL

DNA isolation from the soil/sediments and to trace the ancient plant remains in archaeological contexts

### 11. NON-CONVENTIONAL DATING

- To optimize the extraction of collagen from ancient skeletons
- GC-IR-MS for the fatty acids and organic molecules
- Amino Acid Racemization (AAR) / Electron Spin Resonance (ESR) / Obsidian Hydration Dating (*In collaboration with BARC and other Institutions*)

## REQUIREMENTS

- Strong research interest in Life Sciences, Biotechnology, Genomics, Interdisciplinary Research, or Computing Methods to support genomic research.
- Commitment to full-time lab work at MKU during internship.
- Basic knowledge of Molecular Biology / Bioinformatics / Strong Coding Skills.
- Ability to comprehend the literature and to write the reports in a short time.

## HOW TO APPLY

Register your details in the link below by uploading i) mark sheets, ii) CV, iii) brief proposal of 2 – 4 pages (on one of the above-listed 11 areas with the components of a) what you would propose to work, if selected, b) what are the key objectives, c) how will you achieve that, d) how you will make the work productive and progressive every week, e) how would you accomplish a scientific outcome in 3-4 months, and f) what is the prior literature in the field) & **Register in the link below before 5th July 2026:**

<https://forms.gle/HDrHiQP7XgBjMeaMA>

Shortlisted candidates may be invited for a selection process/ discussion, conducted by the Department of Genetics, MKU, during July 2<sup>nd</sup> week.



## FELLOWSHIP

Selected PG completed Research Interns will receive an internship of ₹15,000/month during the internship period of a maximum of 6 months, from the Ancient Genomics Project supported by the Dept. of Archaeology & Dept of Tourism, Culture and Religious Endowments, Government of Tamil Nadu.

## EXPECTATIONS

- The interns are expected to work on one of the objectives and problems related to the Ancient Genomics Project of MKU assigned by the Coordinator.
- The interns are expected i) to extensively explore the literature & comprehend, ii) to perform the assigned laboratory and computational investigation works, iii) document the experiments and outcome in the record book on daily basis, and iv) prepare brief reports at the end of every week, v) consolidated reports for every month, and vi) try hard to complete the assigned work and prepare consolidated report at the end of tenure, v) prepare a part of manuscript or scientific document with the guidance of Coordinator.
- For the interns, authorship is feasible if they can generate/contribute publishable information/data/knowledge from the work, upon publication, which would be decided by the Coordinator, based on their contribution, reproducibility, and its significance. However, the interns are not permitted to present/publish the work anywhere other than for their job requirements.

**CONTACT Prof.G.Kumaresan**, Head, Dept. of Genetics, School of Biological Sciences, Madurai Kamaraj University, [kumaresan@mkuniversity.ac.in](mailto:kumaresan@mkuniversity.ac.in)

# MKU Ancient DNA and Bio-Archaeology Research Work, Publications & in News

Ancient Genomics & Bioarchaeology Research Summary in the Archaeology Conferences, 2026/ Indus Workshop Course	<a href="https://www.youtube.com/watch?v=IBH7-Exyn9c&amp;t=11160s">https://www.youtube.com/watch?v=IBH7-Exyn9c&amp;t=11160s</a> (3:04:44 to 03:33:57) <a href="https://www.youtube.com/watch?v=BVNe-wpFoYU">https://www.youtube.com/watch?v=BVNe-wpFoYU</a> <a href="https://www.youtube.com/watch?v=v1CFgMryceM&amp;t=3004s">https://www.youtube.com/watch?v=v1CFgMryceM&amp;t=3004s</a> <a href="https://www.youtube.com/watch?v=v1CFgMryceM">https://www.youtube.com/watch?v=v1CFgMryceM</a> <a href="https://www.facebook.com/watch/?v=1289559412316995&amp;rdid=kcqMgctit2anw9Yx">https://www.facebook.com/watch/?v=1289559412316995&amp;rdid=kcqMgctit2anw9Yx</a>	
Research Publications	<a href="https://scholar.google.com/citations?hl=en&amp;user=IW9ckW8AAAAJ&amp;view_op=listworks&amp;sortby=pubdate">https://scholar.google.com/citations?hl=en&amp;user=IW9ckW8AAAAJ&amp;view_op=listworks&amp;sortby=pubdate</a>	
BBC News	<a href="https://www.bbc.com/news/articles/c9d061dv36lo">https://www.bbc.com/news/articles/c9d061dv36lo</a>	
Live Science	<a href="https://www.livescience.com/archaeology/new-reconstructions-show-piercing-eyes-of-men-who-lived-2-500-years-ago-in-mysterious-indian-civilization">https://www.livescience.com/archaeology/new-reconstructions-show-piercing-eyes-of-men-who-lived-2-500-years-ago-in-mysterious-indian-civilization</a> <a href="https://www.youtube.com/watch?v=yCh2Vf94ih0">https://www.youtube.com/watch?v=yCh2Vf94ih0</a>	
Times of India	<a href="https://timesofindia.indiatimes.com/videos/news/tn-ancient-dna-and-bsl-3-laboratories-inaugurated-at-madurai-kamaraj-university/videoshow/95689335.cms">https://timesofindia.indiatimes.com/videos/news/tn-ancient-dna-and-bsl-3-laboratories-inaugurated-at-madurai-kamaraj-university/videoshow/95689335.cms</a> <a href="https://timesofindia.indiatimes.com/city/madurai/mku-gets-ancient-dna-lab-to-study-archaeological-digs/articleshow/95592494.cms">https://timesofindia.indiatimes.com/city/madurai/mku-gets-ancient-dna-lab-to-study-archaeological-digs/articleshow/95592494.cms</a> <a href="https://www.youtube.com/watch?v=4gl1hWMs9MA">https://www.youtube.com/watch?v=4gl1hWMs9MA</a>	
The Hindu	<a href="https://www.thehindu.com/news/cities/Madurai/mku-harvard-university-to-collaborate-in-dna-study-madurai/article29512576.ece">https://www.thehindu.com/news/cities/Madurai/mku-harvard-university-to-collaborate-in-dna-study-madurai/article29512576.ece</a> <a href="https://www.thehindu.com/news/cities/Madurai/ancient-dna-and-bsl-3-laboratories-inaugurated-in-madurai-kamaraj-university/article66150429.ece">https://www.thehindu.com/news/cities/Madurai/ancient-dna-and-bsl-3-laboratories-inaugurated-in-madurai-kamaraj-university/article66150429.ece</a>	
Deccan Herald	<a href="https://www.deccanherald.com/india/harvard-team-helps-tamil-nadu-lab-with-ancient-dna-extraction-and-analysis-1191996.htm">https://www.deccanherald.com/india/harvard-team-helps-tamil-nadu-lab-with-ancient-dna-extraction-and-analysis-1191996.htm</a> <a href="https://www.deccanherald.com/india/tamil-nadu/keeladi-inhabitants-involved-in-animal-husbandry-says-report-3771393">https://www.deccanherald.com/india/tamil-nadu/keeladi-inhabitants-involved-in-animal-husbandry-says-report-3771393</a>	
Other News	<a href="https://www.youtube.com/watch?v=cIaRdRasyak">https://www.youtube.com/watch?v=cIaRdRasyak</a> <a href="https://www.youtube.com/watch?v=5IUaKmkAGJw">https://www.youtube.com/watch?v=5IUaKmkAGJw</a> <a href="https://www.youtube.com/watch?v=XVBl1RY7WEc">https://www.youtube.com/watch?v=XVBl1RY7WEc</a> <a href="https://www.youtube.com/watch?v=jLKsDKqPqis">https://www.youtube.com/watch?v=jLKsDKqPqis</a>	

**University & Dept. Webpage:**  
<https://mkuniversity.ac.in/new/school/sbs/kumaresan.php>

**Lab webpage**



<https://genomeinsights.in/>

