



Jan 06, 2021

# ♠ Laboratory Protocols for Ancient and Modern Dental Calculus DNA Processing (Fellows Yates et al. 2021) V.1

James A Fellows Yates<sup>1</sup>, Irina Velsko<sup>1</sup>, Franziska Aron<sup>1</sup>, Courtney Hofman<sup>2</sup>, Christina Warinner<sup>1</sup>

<sup>1</sup>Max Planck Institute for the Science of Human History;

<sup>2</sup>Laboratories of Molecular Anthropology and Microbiome Research, University of Oklahoma

1 Works

Works for me

dx.doi.org/10.17504/protocols.io.bqzemx3e

### WarinnerGroup



James Fellows Yates Max Planck Institute for the Science of Human History

### ABSTRACT

Collection of protocols used for Fellows Yates *et al.* "The evolution and changing ecology of the hominid primate oral microbiome". Bioinformatics analysis can be found on GitHub at <a href="https://github.com/jfy133/Anthropoid\_Calculus\_Microbiome\_Evolution/">https://github.com/jfy133/Anthropoid\_Calculus\_Microbiome\_Evolution/</a>.

This collection describes the laboratory procedures used for sampling, (ancient) DNA extraction, library construction and preparation for Illumina sequencing of ancient and modern dental calculus samples.

# Sampling

- Dental calculus Field-Sampling Protocol (Warinner Version)
- Dental Calculus Field-Sampling Protocol (Sabin version)

# Extraction

- Ancient DNA Extraction from Dental Calculus with Consolidant Removal
- DNA Extraction from Modern Dental Calculus

# Library preparation

- Non-UDG treated double-stranded DNA library preparation for Illumina sequencing of ancient dental calculus
- (Non-UDG treated) double-stranded modern dental calculus DNA library preparation for Illumina sequencing
- Full-UDG treated double-stranded ancient DNA library preparation for Illumina sequencing of ancient dental calculus (reduced input DNA)

# Indexing

- Illumina double-stranded DNA dual indexing for ancient DNA

# **Preparation for Sequencing**

- Amplification and Pooling

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# COLLECTION CITATION

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#### **KEYWORDS**

ancient DNA, palaeogenetics, dental calculus, microbiome, oral microbiome, oral, tooth, DNA, illumina, extraction, sampling, library construction

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**IMAGE ATTRIBUTION** 

James Fellows Yates

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**GUIDELINES** 

# **Working in an Ancient DNA Laboratory**

Some of the protocols in this collection **require** working in dedicated ancient DNA laboratories to limit modern DNA contamination.

- All steps of the protocol should take place in a clean room facility specifically designed for ancient DNA.
- The researcher performing lab work should wear correspondingly suitable lab-wear, such as:
- full-body suit with hood (e.g., Tyvek)
- hairnet
- face mask
- two pairs of clean gloves
- clean shoes
- protective glasses
- Sample processing should be carried out in separated work benches with integrated UV irradiation (e.g. Dead Air PCR work bench)
- Surfaces and equipment should be regularly decontaminated with e.g. bleach solution or Thermofisher's DNA AWAY (or similar) and irradiated with UV.

Please see the following for more detailed guidance:

Llamas, B. et al., 2017. From the field to the laboratory: Controlling DNA contamination in human ancient DNA research in the high-throughput sequencing era. STAR: Science & Technology of Archaeological Research, 3(1), pp.1–14. Available at: <a href="https://doi.org/10.1080/20548923.2016.1258824">https://doi.org/10.1080/20548923.2016.1258824</a>.

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construction and preparation for Illumina sequencing of ancient and modern dental calculus samples.

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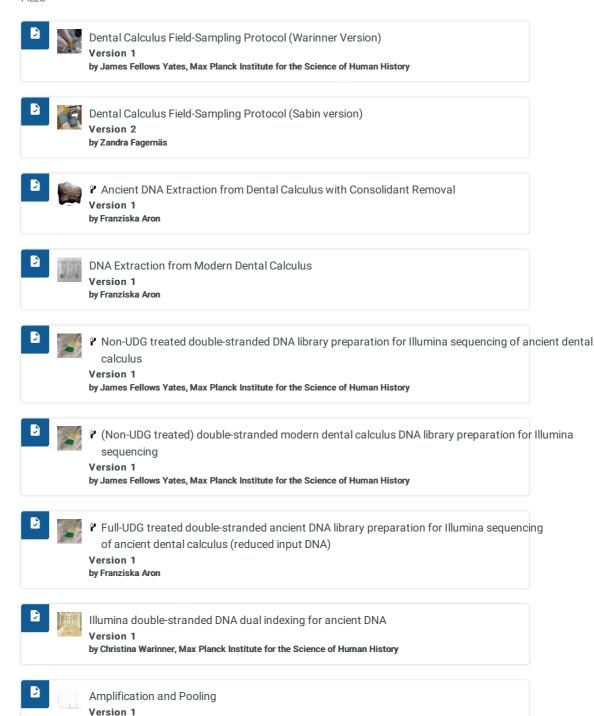
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by Franziska Aron