



Compliments of Lakehead University's Paleo-DNA Laboratory

April 2007

Volume 4, Issue 3

The Paleo-DNA Laboratory is your ISO 17025 accredited lab for:

- **Forensic DNA Analysis**
- **Mitochondrial DNA analysis**
- **Y-Chromosomal DNA**
- **Nuclear DNA Analysis**

**Important Dates:**

2007 Ancient DNA Training Program May 22 to June 9

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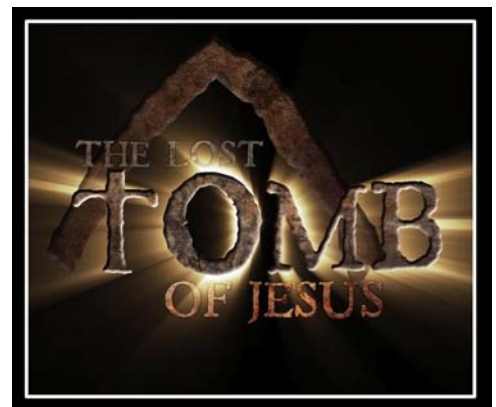
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## Remains of Jesus?

Remains acquired from the suspected family tomb of Jesus Christ have been analyzed at the Paleo-DNA Laboratory. Human residue from ossuaries supposedly belonging to Jesus and Mary Magdalene were sent to the laboratory for DNA analysis. Both nuclear and mitochondrial DNA analysis were attempted but the samples were extremely degraded. A small fragment of mitochondrial DNA was obtained from both samples. Since the DNA profiles generated were not the same for both samples, the analysis confirmed that these two samples were not maternally related. A

documentary from director Simcha Jacobovici and executive producer James Cameron entitled "[The Lost Tomb of Jesus](#)" has since been aired on The Discovery Channel and various other networks.



[www.ancientdna.com](http://www.ancientdna.com)

## 2007 Ancient DNA Training Program

Applications are being accepted for the Lakehead University Paleo-DNA Laboratory 2007 Ancient DNA Training Program to run May 22 – June 09, 2007. The course caters to international interest in DNA



techniques, PCR amplification, sequencing, and analysis software that are used in leading DNA laboratories. This year's guest lecturers include Dr. Ovchinnikov (Neanderthal DNA), Dr. Vaidyanathan (entomology), and Dr. Varney (forensic anthropology). Please check our [website](#) for more exciting details.

*“Mitochondrial DNA  
is in our blood.”*

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We value your feedback. If you would like to comment on any issue or would like to suggest ideas to discuss in a future newsletter, please refer to the following link:

<http://lucas.lakeheadu.ca/customersurvey>

## Soldiers Identified

The Paleo-DNA Laboratory is assisting with the identification of unknown Canadian soldiers currently listed as Missing In Action after the WWI Battle at Vimy Ridge, France. The project, headed by Scientific Officer Dr. Carney Matheson, has been underway for over a year. Using DNA analysis such as Y-chromosomal analysis (Y-STR) and mitochondrial DNA analysis, Matheson and his team of scientists, genealogists, and historians have been able to use the DNA profiles of MIA remains to match to modern day relatives for identification. In the past the Paleo-DNA Laboratory has worked on identifying Canadian MIA's from the 1917 WWI battle of Passchendaele (also known as the battle of Ypres). For more information see [www.cmi-canada.org](http://www.cmi-canada.org).



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## MtDNA Analysis-Linear Array vs. Sequencing

There are many laboratories starting to offer mitochondrial DNA (mtDNA) analysis. Does this mean that every lab will do the same type of analysis? Unlike DNA fingerprinting (STR analysis) where commercial kits are used to achieve results, most laboratories that offer mitochondrial DNA analysis either develop in-house methods or use the mtDNA linear array. In-house methods usually involve acquiring a specific length of mitochondrial sequence and comparing each base pair of DNA of that sequence to the standard Cambridge Reference

Sequence. The mtDNA linear array is a more economical test that selects positions within the mtDNA to determine if a specific base of DNA is present or not. It does not read the entire target area. This method is good for exclusion of comparison samples but not inclusions. If inclusions occur when comparing linear array results, a full mtDNA sequence should be generated to compare each base of the profile, especially those base positions not analyzed in the linear array. Since its inception, the Paleo-DNA Laboratory uses methods developed in-house for mitochondrial DNA analysis .