

## **What does science say regarding the veracity of the Shroud of Turin? 3 key points you must know**

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The objective of this article is to share a brief analysis of key points about the Shroud of Turin from the scientific point of view. The article will be supported by scientific literature that can be found at the end of it.

The key points are a) Radiocarbon study conducted in 1988 to determine the age of the Shroud, b) some hypotheses proposed to explain the formation of the image, c) blood on the Shroud.

### **A) Radiocarbon study**

To determine the age of the Shroud of Turin, in 1988 a radiocarbon study was conducted in the laboratories of Arizona, Cambridge and Zurich. They concluded that the Shroud was produced between 1260 and 1390.

In the 1988 sample there are three points that deserve to be highlighted.

1. The sample was taken over the place where another sample had been taken in 1973, by Professor Raes for a previous study. Professor Raes found that part of the 1973 sample contained cotton (*Gossypium herbaceum*, an old Near Eastern variety) while the other part of the seam did not contain it.
2. The 1988 sample came from a single place on the Shroud.
3. No chemical investigations were conducted at the time of characterizing the 1988 sample.

Benford and Marino suggested that repairs were made on the Shroud with dyed linen to match the original material.

Dr Rogers demonstrated that the sample used for the 1988 radiocarbon study was not part of the original fabric and was invalid to determine the age of Shroud.

## **B. Some hypothesis to explain the image formation**

The following are three hypothesis that claim for the nonauthenticity of the Shroud and that they still prevail even though they were demonstrated as false:

- 1. The Shroud is a painting:** It was scientifically determined that nor paint nor pigments were responsible for the image.
- 2. The Shroud is a scorch:** according to this hypothesis, the Shroud would have been placed on a heated metal statue forming the image with the hot statue. Due to a fire in 1532, the Shroud was damaged leaving several burns and scorched parts, which allowed to compare them with the image of it. The scorched linen becomes fluorescent under ultraviolet excitation. All known scorched parts became fluorescent but this did not happen with the image. Therefore, it was shown that the image was not produced by a hot statue.
- 3. The Shroud is a photograph:** the STURP team (*Shroud of Turin Research Project*) showed that the Shroud is not a photograph, since no traces of silver (primary material sensitive to light used in the photographic process) nor liquid or semi-viscous gelatin were found ( since an emulsion so sensitive to light should be covered with these two materials).

### **C. Blood in the Shroud**

Multiple chemical studies have shown that there is blood present on the Shroud. According to Heller, Adler and collaborators, the blood present in the Shroud is, at least, of primate. However, immunological studies have not been addressed to directly rule out the presence of animal blood in the Shroud. In case it is confirmed that there is human blood in the Shroud, more studies should be carried out to rule out the presence of animal blood, since it has been suggested that the blood on the Shroud could have been retouched during its long history.

Baima Bollone and colleagues reported that the blood was AB-type. However, ABO antigens can be found in several different organisms and this is not enough to conclude that blood belongs to a human. Years later, Baima Bollone and colleagues found the M, N and S antigens in the blood. The first two antigens are shared between some primates and humans, but the S antigen is exclusively human. However, this point was not emphasized nor mentioned in the report because this relationship had not been realized. On the other hand, the information about the S antigen was only mentioned, but the results were not shown.

Studies performed by Garza-Valdés reported that the blood belong to a male human. However, this study is disputed due to the possible contamination of a third person's DNA that had manipulated the Shroud during its history.

In 2010, a new monoclonal antibody study was developed specifically for human glycophorin A that can determine the presence of human blood quickly and specifically. This study has not been done in the Shroud yet.

**Summary:**

The sample used for the Radiocarbon study conducted in 1988 was invalid. It was shown that Shroud is not a painting, not a scorch and not a photograph. There is blood present on the Shroud and it is, at least, primate.

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**References:**

Radiocarbon Study

– <https://www.shroud.com/pdfs/rogersspan2.pdf>

Some hypothesis to explain the image formation

– <https://www.shroud.com/pdfs/fivereasons.pdf>

Blood in the Shroud

– <https://www.shroud.com/pdfs/kearse1.pdf>

– <https://www.shroud.com/pdfs/kearse4.pdf>

