

The Relics of Jesus and Eucharistic Miracles: The Significance of Type AB blood

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Abstract

Various relics ascribed to have been in physical contact with Jesus have been evaluated for the presence of blood, including the Tunic of Argenteuil, the Sudarium of Oviedo, and most famously, the Shroud of Turin. Congruence was reported for certain bloodstain patterns that overlap between relics, suggesting that they may have been associated with the same person. Interestingly, in all cases the blood type was found to be AB, which has also been described for certain Eucharistic miracles. Here, we discuss the theological and scientific significance of shared blood type and comment on the scientific validity of these findings.

Religious artifacts reported to contain the physical blood of Jesus: Type AB

Numerous objects have been described throughout history that were allegedly stained with the blood of Christ, particularly those associated with his passion and death. Such items include the robe Christ wore on the way to Calvary (two versions of this have been reported: The Trier Robe housed in Trier, Germany and the Tunic of Argenteuil, located near Paris, France),^{1,2} the Crown of Thorns (located in Notre Dame Cathedral in Paris),³ the spear that pierced the side of Jesus after his death (the Spear of Longinus or the Holy Lance,⁴ St. Peter's, Rome and other reported locations), the facecloth or napkin referenced in the Gospel of John (the Sudarium of Oviedo in Oviedo, Spain),^{5,6} and most notably, the reported burial cloth of Jesus (the Shroud of Turin, located in Torino, Italy).⁷⁻⁹ Additionally, various Eucharistic miracles have been recorded in which the ordinary bread and wine species exhibit properties of human flesh and blood.¹⁰⁻¹² Intriguingly, for those objects that have been examined in certain detail, including the Tunic of Argenteuil, the Sudarium, the Shroud, and various Eucharistic miracles, the blood type in each case was classified as type AB.¹³⁻¹⁷

ABO blood groups (A, B, AB, and O) were originally described by Karl Landsteiner in 1900 through his work in transplantation immunology.¹⁸ The letter designation indicates the type(s) of blood molecules (antigens) that are expressed on the surfaces of red blood cells. Type A persons express A molecules, type B persons type B; type AB individuals express both A and B molecules and type O individuals express neither A nor B. The approximate percentages of blood type in the world are 40% A, 11% B, 4% AB, and 45% O. O type blood is referred to as the universal donor (anyone can receive O type blood) and AB type blood is known as the universal recipient (any blood type can be given to a person with AB blood).¹⁹⁻²⁰

Previous studies to determine the blood type of various artifacts have relied on so-called serological tests, involving specific antibodies directed against the AB molecules themselves. DNA testing may also be used, although to date, no examination of blood type on any of the above relics has been performed using molecular biology (DNA) techniques. In the interpretation of any serological testing, it is important to know if the antibodies are binding specifically to their target molecules or just nonspecifically adhering to the sample that is being tested. For the types of studies that have been done on relics, antibodies are modified with a fluorescent or chemical tag that allows binding to be visualized through a microscope. Figure 1 shows the minimal experimental design that is used to distinguish blood type in such cases (Figure 1). Three types of antibodies are used here:

Serological Testing for Blood Type

	A	B	AB	O
Anti-A	Yes	No	Yes	No
Anti-B	No	Yes	Yes	No
Anti-X (control)	No	No	No	No

Figure 1: Serological Testing for Blood Type. Expected test results are shown for A, B, AB, and O blood types using anti-A and anti-B antibodies. Control (anti-X) antibodies are included as a critical test for specificity. See text for details.

anti-A antibodies which recognize both A and AB samples (Figure 1 top row); anti-B antibodies which recognize B and AB samples (Figure 1, middle row); and anti-X (control) antibodies, which doesn't recognize either A, B, or AB (Figure 1, bottom). Such control antibodies are very important (essential) as they demonstrate, particularly for the AB sample, that antibody binding is specific, that antibodies, in general, do not simply “stick” to the sample in a nonspecific manner. O blood cells are not recognized by either anti-A or anti-B antibodies as they fail to express A or B molecules.

When various bloodstained artifacts are tested for blood type, a similar experimental setup is used with a few modifications. First, it is important to emphasize that A and B molecules are not found solely on red blood cells. These same molecules, which are carbohydrate in nature, are also expressed on various bacteria, fungi, and other organisms.²¹⁻²⁶ Thus, it is entirely possible for a sample to test as positive for AB *without any red blood cells even being present*. Such results are known as “false positives” and are always a concern when dealing with aged samples. Although one cannot be entirely sure if the results are authentic when dealing with aged samples, particularly those that have been exposed to various environmental conditions, there are other essential tests that must be performed when considering the blood type of such artifacts. Namely, the same antibodies must be tested on an area devoid of any bloodstains to measure the extent of reactivity (Figure 2). Such areas should of course, not show any reactivity but are important to ensure that the binding is specific for bloodstained regions. If antibody binding of these clear areas (devoid of blood) is observed, this would immediately invalidate the results on bloodstained areas. If such areas are omitted (not tested), then the prior results on bloodstained areas are inconclusive. Restricted binding of anti-A and anti-B solely to bloodstained areas does not prove the sample is truly AB (bacteria could still be present), but is certainly a step in the right direction. For verification it is scientifically best if blood type is determined using an additional, unrelated method, preferably DNA analysis. However, such tests are often hampered by contamination with DNA from multiple sources, particularly for artifacts that have been frequently handled throughout their history.

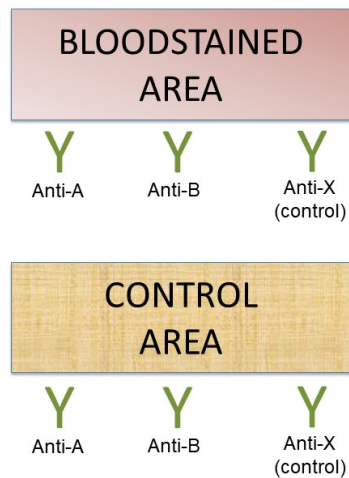


Figure 2: Serological Testing of Bloodstained Relics. In the testing of any bloodstained relics, both control and bloodstained areas must be tested to accurately evaluate the specificity of antibody reactivity. *See text for details.*

Of the above-mentioned artifacts, the studies on the Shroud of Turin and the Sudarium of Oviedo were done using relevant control antibodies (anti-X) and testing of non-bloodstained areas.^{27,28} These results suggest the blood type is AB, although further verification is important. Much less information is available regarding the details for testing on the Tunic of Argenteuil^{29,30}; here, the assignment of blood type is best described as undetermined. It should be pointed out that the blood typing findings for any of these artifacts, including the Shroud of Turin, have never been published in a refereed peer-reviewed scientific journal. Reporting of such information is limited to specialty journals or books.³¹ This is important, because to many scientists, the level of scientific scrutiny provided by peer review helps to establish a certain amount of credibility to the findings. This is not to say that all scientifically reviewed published work is beyond reproach or that reliable results may not be found elsewhere, only that in scientific circles this is the normal, expected route, particularly for original data performed on the artifact in question.

Issues in the blood typing of Eucharistic Miracles

Various Eucharistic miracles have been described throughout history, including those in which the consecrated hosts literally turn into what appears to be physical flesh and blood.³²⁻³⁴ The purpose of this article is not to deliberate the totality of the various properties of these occurrences, but simply to focus on the blood type. To date, the blood types described for various Eucharistic miracles is in each case AB, which is often used to claim their relationship with one another and certain above-mentioned relics, particularly the Shroud. Such reports are often limited in their presentation of data, making them difficult to track to the original source. Regardless, the inherent problem in any of these investigations is that there is no “off-site” for control testing to ensure the antibody binding is specific (Figure 2, bottom). The closest thing might be an unconsecrated host, but for aged artifacts this would need to be from exactly the same physical location and time point as the original artifact to maintain strict validity. Moreover, in all of the Eucharistic Miracle results presented to date, including those published in a scientific journal for the Miracle of Lanciano³⁵⁻³⁷, no control antibodies were ever used to demonstrate at a minimum, that antibody binding was specific. Thus, the results of blood type AB for such miracles are inconclusive on several levels. Such data could very easily be explained either by nonspecific binding of antibodies or by simple contamination with bacteria or other organisms that express AB molecules. As mentioned previously, a positive result could occur even in the absence of red blood cells or red blood cell products. The data certainly could not be used to augment a claim for any relationship to the Shroud. It should also be noted that even for artifacts that may share the same blood type, for example (upon further verification) the Shroud and the Sudarium, this does not ensure that the bloodstains originated from the same individual. This is only made possible by DNA testing, which provides a much greater level of

scrutiny and sensitivity.

What is the theological significance of the blood type of Christ?

Assuming an established, verifiable sample of the blood of Jesus was available for testing, the assertion could be made on theological grounds that type O (the universal donor) might be the most fitting as Christ freely shed his blood for all mankind, whomever will accept him. Alternatively, others might suggest that AB (the universal recipient) might also be appropriate as Christ receives all those who come to him. Where does this leave type A or type B: are these to be viewed as less desirable because no apparent analogy can be drawn from them? Of course not. Such musings reveal the risk of trying to make certain connections that detract from the main point: that Christ in his physical body offered himself as a living sacrifice for all. In any such relics, there are considerations that are more appropriate for science than theology and vice versa. For example, science may authenticate that the blood is of human origin and determine the ABO type from such relics; however, no experimentation ever be able to prove that items such as the Shroud of Turin or the Tunic of Argenteuil were once physically in contact with the body of Jesus. This would require a verified sample (from Jesus) for comparative analysis. Scientifically, it is important and necessary to know if the article is potentially genuine. In any such studies on religious artifacts, however, there is always a point where the science application ceases and the spiritual belief must subsequently progress. For the faithful, the most valuable attribute of any such artifacts is what they represent in the context of the gospels.

Multiple challenging questions remain regarding the bloodstains on the abovementioned relics. To date, blood type analysis has been done on relatively limited sites for any of these artifacts. If multiple sites were sampled throughout a single object, would they show identical results? This would be an important starting point before beginning to conclude their relationship with other relics. Ultimately, the only genuine way to establish that such objects were related to the same person would be through genetic (DNA) analysis, which may or may not be possible given DNA degradation and/or contamination. Revolutionary strides have been made within the past thirty years, however, allowing DNA sequencing from relatively small amounts of material. For the cloth objects, sampling from within interior of the cloth (many bloodstains soak through) might help curtail the extent of contamination present from prior handling.

Science and theology reach an interesting intersection when considering such questions as did Jesus have a similar or different blood type from that of Mary, who conceived by the Holy Spirit? Blood type is typically governed by inheritance of genetic material (DNA) from both parents; exactly how does this occur in the case of the conception and birth of Jesus? Is this a question more suited for theology than science or can both contribute, perhaps unequally? Such questions are stimulating to consider and must have a congruent answer between the two, although it is not readily apparent in the present age.

Finally, in the case of artifacts, particularly in trying to establish a relationship based on shared blood type, it should be emphasized that the correlation is only as scientifically strong as the data's weakest link. As described, caution must be used in the interpretation of any such bloodstain experiments, particularly those that omit important (essential) control testing. Any scientific conclusions drawn from such studies are null and void and cannot be used to establish physical correlations; certain theological associations can remain intact, however, particularly those that link events important in the passion of Jesus.

Endnotes

1. G. Lucotte, et al., *Le linceul de Turin et la tunique d'Argenteuil* (Paris: Presses De La Renaissance, 2006).

2. G. Gorny, et al., *Witnesses to Mystery* (San Francisco: Ignatius Press, 2013).

3. *Ibid.*, 2.

4. H. Thurston, "The Holy Lance." *The Catholic Encyclopedia*. Vol. 8. (New York: Robert Appleton Company, 1910).
5. K. Kears, "Icons, Science, and Faith: Comparative Examination of the Shroud of Turin and the Sudarium of Oviedo", *Theology and Science* 11 (2013): 52-61.
6. *Ibid.*, 2
7. P. L. Baima Bollone et al., "Identification of the group of the traces of human blood on the Shroud," *Shroud Spectrum International* 6 (1983): 3–6.
8. *Ibid.*, 2.
9. *Ibid.*, 5.
10. J. C. Cruz, *Eucharistic Miracles and Eucharistic Phenomena in the Lives of the Saints* (Rockford, TAN Books, 1991).
11. B. Lord, *The Miracle of the Eucharist of Lanciano* (Morrilton: Journeys of Faith, 2009).
12. N. Hallett, "How Eucharistic miracles show Christ's blood type," *Catholic Herald* 15 June, 2017, <https://catholicherald.co.uk/commentandblogs/2017/06/15/how-eucharistic-miracles-show-christs-blood-type/>.
13. R. Becker, "Eucharistic Miracles and the Divine Blood Type", *National Catholic Register* May 17, 2018, <http://www.ncregister.com/blog/becker/eucharistic-miracles-and-the-divine-blood-type>
14. C. Callum, "5 Incredible Eucharistic Miracles from the last 25 Years", *Diocese of Westminster* 6 January, 2016, <http://dowym.com/voices/5-incredible-eucharistic-miracles-from-the-last-25-years/>.
15. Linoli, O. "Histological, Immunological and Biochemical Studies on the Flesh and Blood of the Eucharistic Miracle of Lanciano (8th Century)," *Quaderni Sclavo di Diagnostica Clinica e di Laboratorio* 3 (1971): 661–674.
16. *Ibid.*, 12.
17. *Ibid.*, 5.
18. P. Speiser, *Karl Landsteiner, the discoverer of the blood-groups and a pioneer in the field of immunology: Biography of a Nobel Prize winner of the Vienna Medical School* (Wien: Hollinek 1975).
19. P. Deves, *Roitt's Essential Immunology*, (Hoboken: Wiley Blackwell, 2006).
20. About Blood Types, 2019, <https://www.donateblood.com.au/learn/about-blood>
21. F. Yamamoto, "Review: ABO blood group system-ABH oligosaccharide antigens, anti-A and anti-B, A and B glycosyltransferases, and ABO genes", *Immunohematology* 20: (2004) 3-22.
22. A. Varki et al., *Essentials of Glycobiology* (Cold Spring Harbor: Cold Spring Harbor Laboratory Press, 2009).
23. S. H. Spalter, et al., "Normal human serum contains natural antibodies reactive with autologous ABO blood group antigens", *Blood* 93 (1999): 4418-4424.

24. C.J. van Oss, "Letter to the Editor: Natural versus Regular Antibodies", *The Protein Journal* 23 (2004): 357.
25. P. Hooft, et al., "Bloodgroup simulating activity in aerobic gramnegative oral bacteria cultured from fresh corpses", *Forensic Science International* 50: (1991) 263-268.
26. G.V. Hart, et al., "Blood group testing of ancient material", *Masca J.* 1 (1980): 141-145.
27. *Ibid*, 5.
28. *Ibid*, 7.
29. *Ibid*, 1.
30. *Ibid*, 2.
31. K. P. Kearse, "What type of blood is present on the Shroud of Turin: Existing Data vs. To Be Determined", <https://www.shroud.com/pdfs/kearse4.pdf> (2019).
32. *Ibid*, 10.
33. *Ibid*, 11.
34. *Ibid*, 15.
35. *Ibid*, 12.
36. *Ibid*, 13.
37. *Ibid*, 15.