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Editorial

From the Origins of Medical Microbiology in Greece to 70 Years of Acta Microbiologica Hellenica: The Hellenic Society for Microbiology and the Evolution of Greek Microbiology as a Medical Discipline

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Abstract

The evolution of medical microbiology in Greece has been closely linked with the development of modern medical education, laboratory diagnosis, and public health. From the introduction of bacteriological principles in the late 19th century and teaching of Hygiene and Microbiology at the University of Athens in the early 20th century, Greek medical microbiology gradually evolved into an integral component of clinical and laboratory medicine. A major milestone was the establishment of the Hellenic Society for Microbiology in 1932, which has played a longstanding role in scientific communication, education, and research across the various fields of laboratory medicine. In 1956, the launch of the Society's official scientific journal, *Acta Microbiologica Hellenica* (AMH), established a dedicated platform for documenting and disseminating microbiological research in Greece. On the 70th anniversary of the first publication of *Acta Microbiologica Hellenica*, this editorial traces the development of Medical Microbiology in Greece from its origins to the present day. It also examines the role of the Hellenic Society for Microbiology and its official journal as agents of scientific continuity and as witnesses to the major transformations that have shaped laboratory medicine in Greece over more than a century.

Keywords: medical microbiology; Hellenic Society for Microbiology; Acta Microbiologica Hellenica; history of microbiology; laboratory medicine; infectious diseases; Greece

Check for updates

Received: 7 November 2026
Accepted: 10 November 2026
Published: 11 November 2026

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1. Introduction

Medical Microbiology is among the disciplines that profoundly transformed medicine in the late 19th and early 20th centuries. The establishment of the germ theory of infectious diseases, the development of bacteriology, and the gradual incorporation of laboratory methods into diagnostic practice changed not only the understanding of the etiology of infections, but also the organization of public health, hospital care, and medical education. These developments gradually reached Greece, where Microbiology initially evolved in close association with Hygiene and the prevention of infectious diseases [1].

The historical development of Medical Microbiology in Greece is not merely the history of a laboratory medicine. It reflects the broader health challenges faced by the country:

the infectious diseases of the early 20th century, the introduction of antimicrobial agents, and the emergence of antimicrobial resistance [1–5]. A pivotal institutional milestone in this trajectory was the establishment of the Hellenic Society for Microbiology (HSM) in 1932, at a time when the Greek medical specialty of Microbiology included a broad laboratory scope including Microbiology, Hematology–Blood Transfusion, Biochemistry, and Immunology [2].

A second defining milestone was the launch of the Society's scientific journal in 1956. *Acta Microbiologica Hellenica* subsequently evolved into a longitudinal record of Medical Microbiology in Greece. Overall, 1558 articles had been published from 1956 to 2014, indicating that the journal's scientific content followed the changing scientific and public health priorities of successive periods [3–5]. The 70th anniversary of the journal in 2026 provides an opportunity for a comprehensive reassessment of this trajectory.

The aim of this editorial is to outline the major stages in the development of Medical Microbiology in Greece and to examine the role of the Hellenic Society for Microbiology in preserving scientific continuity of laboratory medicine in Greece. The evidence was drawn from primary and institutional historical sources, archival material from *Acta Microbiologica Hellenica*, and official sources of the Hellenic Society for Microbiology and the Hellenic Pasteur Institute.

2. The Origins of Medical Microbiology in Greece

2.1. From the Bacteriological Revolution to the Institutionalization of Microbiology

The development of Microbiology in Greece in the late 19th century should be considered within the context of the fundamental changes occurring in European medicine at the time. Recognition of the microbial etiology of infectious diseases and the development of new laboratory techniques created a new scientific field in which experimental research became directly linked to diagnosis, prevention, and public health.

In Greece, these developments were introduced largely by physicians who had trained at major European scientific centers and returned to Greece with the emerging laboratory-based approach to medicine [1]. Early Medical Microbiology in Greece therefore developed in close association with Hygiene. An early example of the practical application of emerging microbiological knowledge was the response to rabies. In 1896, an antirabies institute was established in Athens on the initiative of microbiologist Panagiotis Pampoukis, introducing into Greece an organized approach to antirabies treatment based on the Pasteurian tradition [6].

Konstantinos Savvas (1861–1929), a pioneer military doctor and academic, occupies a central position in the early establishment of microbiology in Greece. In 1900, he was appointed to the newly established Chair of Hygiene and Microbiology at the University of Athens and founded the first university Laboratory of Hygiene and Microbiology [1,7]. The significance of that same year is also reflected in his inaugural lecture on Hygiene and Microbiology, delivered on 15 November 1900 [7].

The establishment of a university chair and laboratory marked the transition from the individual engagement of Greek physicians with bacteriology to the systematic teaching, research, and laboratory practice of Microbiology.

2.2. The Development of Microbiology Laboratories and Public Health Implications

During the same period, Microbiology began to assume a substantial role in hospital medicine. A characteristic example is "Evangelismos" Hospital, where the Microbiology Laboratory was established in 1900. By 1931, it had developed into an organized laboratory structure comprising serology, hematology, and antirabies sections and supported the diagnosis of diseases including malaria, tuberculosis, and syphilis [8].

The relationship between Microbiology and public health was equally strong. The Chair of Microbiology and Hygiene at the University of Athens actively contributed to the development of school hygiene during the first two decades of the 20th century, at a time of high childhood morbidity and mortality [9]. Medical Microbiology in Greece therefore emerged from the outset as a discipline with a dual mission: laboratory investigation of disease at the individual-patient level, and prevention and surveillance of infections at the population level.

2.3. The Hellenic Pasteur Institute and the Development of Organized Microbiological Research

The establishment of the Hellenic Pasteur Institute represented another major milestone. On 26 April 1919, the establishment of the Hellenic Pasteur Institute–Zaharoff Foundation was approved by Royal Decree, while Albert Calmette undertook its organization. The Institute was formally inaugurated in March 1920 [10].

Its establishment strengthened the connection between microbiological research and public health needs. Its early objectives included the study and control of infectious and parasitic diseases and the development of activities related to vaccines and other biological products [10].

The parallel development of university, research, and hospital structures gradually created the scientific environment within which Medical Microbiology in Greece could become established as an organized scientific field.

3. From a Scientific Community to the Hellenic Society for Microbiology

The development of Microbiology within universities, hospitals, and public health institutions during the first decades of the 20th century created a growing community of physicians and scientists sharing common laboratory and research interests. It was within this environment that the organization now known as the Hellenic Society for Microbiology was established in 1932 [2]. At its establishment, it bore the Greek name "Ελληνική Μικροβιολογική και Υγιεινολογική Ένωσις," which may be rendered in English as the "Hellenic Microbiological and Hygienic Union." The original name itself reflects the historically close relationship between Microbiology and Hygiene in Greece [2].

The significance of its establishment is better understood in the context of the broad scope of the medical specialty of Microbiology in Greece at the time. Its activities encompassed areas that today are distributed across different fields of laboratory medicine: Microbiology, Hematology–Blood Transfusion, Biochemistry, and Immunology [2].

The Society's name changed over time. From 1972 onward, it appears as the Hellenic Society for Microbiology, while maintaining institutional continuity with the organization founded in 1932 [2]. Later, in 1994, the medical specialty itself was renamed "Medical Biopathology (Microbiology)" [2]. These changes represented more than modifications in terminology; they reflected the gradual expansion and redefinition of laboratory medicine. The Society subsequently provided a common scientific forum for physicians working across these laboratory disciplines. Education and the advancement of research remained central components of its activities, while its role continued after the specialty was renamed "Medical Biopathology (Microbiology)" in 1994 [2].

The establishment of the HSM therefore represented a stage of scientific maturation: the transition of Medical Microbiology in Greece from a relatively new university and laboratory discipline into an organized scientific community with a distinct professional and academic identity.

4. *Acta Microbiologica Hellenica* as a Mirror of Medical Microbiology in Greece

In 1956, 24 years after the establishment of the HSM, the first issue of *Acta Microbiologica Hellenica* was published. The journal was launched as a Greek-language bimonthly publication and served as the Society's official scientific forum [3,11,12]. Its establishment represented an important step for the Greek microbiological community. For the first time, there was a dedicated and regularly published journal in which research activity, laboratory developments, and the public health challenges facing microbiologists in Greece could be systematically documented.

The historical value of the archives of *Acta Microbiologica Hellenica* was later demonstrated by the three-part bibliometric study by Tsiamis, Vrioni, Vogiatzakis, and Tsakris, which examined a total of 1558 publications from the period 1956–2014 [3–5]. This bibliometric assessment highlights the close relationship between the journal's scientific content, the evolution of Medical Microbiology in Greece, and the major infectious disease and public health challenges of each period [3–5]. In this respect, *Acta Microbiologica Hellenica* can be regarded not only as a vehicle for disseminating scientific knowledge but also as a longitudinal record of the evolution of Medical Microbiology in Greece.

The history of *AMH* is characterized not only by changes in its scientific content but also by gradual changes in its publication model and target readership. The journal was launched in 1956 as a Greek-language bimonthly publication. In 2009, it adopted a quarterly publication schedule, and in 2016 it became bilingual, publishing articles in both Greek and English (Figure 1) [11–13]. This transition increased its international accessibility and paved the way for the new publishing era that followed.



Figure 1. Evolution of *Acta Microbiologica Hellenica* across seven decades.

5. Early Periods of *Acta Microbiologica Hellenica*

5.1. 1956–1979: Classical Bacteriology, Infectious Diseases, and the Emergence of Hospital-Acquired Infections

The first period in the journal's history coincided with profound changes in the epidemiology of infectious diseases. The introduction of antimicrobial agents and the expansion of vaccination programs were transforming the management of many infections, while the development of hospitals created new challenges.

The bibliometric analysis of the period 1956–1979 showed that publications reflected major public health problems, including poliomyelitis, while classical bacteriology occupied a central position [3]. Among the microorganisms frequently investigated were Staphylococcus aureus, Escherichia coli, and Pseudomonas aeruginosa [3].

During the 1970s, publications addressing hospital-acquired infections and antimicrobial susceptibility began to appear more systematically [3]. This development marked an important transition: Medical Microbiology in Greece was no longer concerned solely with classical community-acquired infectious diseases but increasingly with infections associated with the expanding hospital environment.

5.2. 1980–1999: New Pathogens and New Diagnostic Requirements

The final two decades of the 20th century were characterized by the emergence of HIV/AIDS, the growing importance of viral hepatitis, the development of new diagnostic methods, and increasing concern regarding hospital-acquired infections.

Publications in *Acta Microbiologica Hellenica* during 1980–1999 followed the changing challenges posed by infectious diseases and public health, with particular interest in hospital-acquired infections [4]. Classical bacteriology remained important, but the scientific spectrum broadened with advances in Virology, Immunology, and newer laboratory approaches. This period reflects the gradual transition of the microbiology laboratory from an environment based primarily on culture, microscopy, and conventional serological techniques toward an increasingly complex laboratory setting.

5.3. 2000–2014: Hospital-Acquired Infections and Antimicrobial Resistance

During 2000–2014, hospital-acquired infections and antimicrobial resistance became central themes in the journal [5]. Frequently studied bacterial pathogens included *Staphylococcus aureus*, *Enterococcus* spp., *Pseudomonas aeruginosa*, *Escherichia coli*, and *Klebsiella pneumoniae* [5]. Virology also occupied an important position, with publications addressing influenza viruses, viral hepatitis, cytomegalovirus, and parvovirus B19. In Medical Mycology, Candida and Aspergillus, among other medically important fungi, were subjects of investigation [5].

The overall picture was now that of a mature discipline required to address not only the identification of the etiological agent of infection but also complex issues involving antimicrobial resistance, hospital transmission, epidemiology, and laboratory diagnosis.

5.4. 2015–2023: From Molecular Microbiology to the COVID-19 Pandemic

At a broader scientific level, this period coincided with the rapid integration of molecular techniques, multiplex diagnostic assays, MALDI-TOF mass spectrometry, and sequencing technologies into modern Microbiology. At the same time, antimicrobial resistance remained a major challenge for clinical medicine and public health.

The COVID-19 pandemic highlighted with particular intensity the importance of laboratory Microbiology. The widespread implementation of molecular testing and, subsequently, genomic surveillance of SARS-CoV-2 placed the laboratory at the center of the response to a global public health crisis. This development was also reflected in *AMH*. As early as the first issue of 2020, the journal published an article addressing the evolution of the SARS-CoV-2 pandemic in Greece, quarantine measures, and anticipated future developments; in 2021, it published a review of microbiological diagnostic methods for SARS-CoV-2 infection [14,15]. This period is particularly significant in the historical development of Microbiology: more than a century after its early close association with Hygiene and epidemic control, the discipline once again found itself at the core of the public health response.

The period before and after the pandemic was also characterized by the incorporation of technologies that substantially changed the routine operation of the microbiology laboratory. MALDI-TOF mass spectrometry dramatically reduced the time required for the identification of many microorganisms, while molecular techniques enabled rapid detection

of pathogens and, in selected applications, markers of antimicrobial resistance. In 2023, for example, *AMH* published a review on the applications of MALDI-TOF mass spectrometry in the diagnosis of mycobacterial infections [16].

5.5. 2024–2026: A New Era for Acta Microbiologica Hellenica

The year 2024 marked another milestone in the history of the journal. From 1 January 2024, publication of *Acta Microbiologica Hellenica* was continued by MDPI in collaboration with the Hellenic Society for Microbiology [11,12]. This transition did not represent the creation of a new journal, but rather the continuation of a title whose history dates back to 1956. The change represented the latest stage in a gradual process of internationalization. Since 2024, the journal has been published quarterly, exclusively in English, within an electronic open access environment [11,12].

At the same time, its scientific scope continues to reflect the historical breadth of laboratory medicine in Greece, encompassing Clinical Microbiology, Laboratory Hematology, Medical Biochemistry, and Immunology [11]. In the same year, the One Health approach was explicitly incorporated into the journal's expanded scope, acknowledging the close interdependence of human, animal, and environmental health [13]. This development is particularly relevant at a time when zoonotic diseases, emerging infections, and antimicrobial resistance increasingly demonstrate the need for interdisciplinary approaches.

Importantly, the internationalization of the journal has not been accompanied by a departure from its historical identity. The History of Microbiology remains explicitly included within the scope of *Acta Microbiologica Hellenica*, alongside Bacteriology, Virology, Mycology, Parasitology, and the broader fields of laboratory medicine [11–13]. The 2024 transition can therefore be viewed not as a departure from the journal's previous trajectory, but as an effort to bring a longstanding Greek scientific tradition into a more international publishing environment.

5.6. Continuity Through Transformation

In the early 20th century, the microbiology laboratory developed as a tool for controlling infectious diseases and protecting public health. Today, antimicrobial resistance, pandemics, emerging infections, and the One Health approach reproduce, under different scientific circumstances, the same fundamental need: close integration of the laboratory, clinical medicine, epidemiology, and public health. Within this context, Hellenic Society for Microbiology and *Acta Microbiologica Hellenica* are of particular historical interest. Their scientific content has not remained static but has evolved alongside the changing scientific and epidemiological landscape (Table 1).

The internationalization of *Acta Microbiologica Hellenica* since 2024 creates a new balance between historical identity and international orientation. Its 70-year tradition should not be regarded as an element of inertia, but rather as a foundation on which the next phase of its publishing history can be built. The 70th anniversary of the first publication of *Acta Microbiologica Hellenica* provides an opportunity not only to revisit the history of a scientific journal but also to reassess the development of Medical Microbiology in Greece. From the introduction of modern bacteriology, the establishment of the first university and hospital laboratories, and the foundation of the Hellenic Pasteur Institute to the establishment of the Hellenic Society for Microbiology in 1932 and its journal in 1956, an organized scientific community with a distinct identity gradually emerged. Over the seven decades that followed, the pages of *Acta Microbiologica Hellenica* documented the transition from classical bacteriology to hospital-acquired infections, antimicrobial resistance, and the modern molecular era. This evolution makes the journal not only a vehicle for scientific communication but also a historical archive of Medical Microbiology in Greece.

Table 1. Selected milestones in the development of Medical Microbiology in Greece and the history of *Acta Microbiologica Hellenica*.

Year	Milestone
1896	Establishment of the Athens Antirabies Institute
1900	Establishment of the Chair and Laboratory of Hygiene and Microbiology at the University of Athens
1900	Establishment of the Microbiology Laboratory at "Evangelismos" Hospital
1919	Approval of the establishment of the Hellenic Pasteur Institute–Zaharoff Foundation
1920	Inauguration of the Hellenic Pasteur Institute
1932	Establishment of the "Hellenic Microbiological and Hygienic Union" (English rendering of the original Greek name)
1956	First issue of *Acta Microbiologica Hellenica*
1972	Adoption of the name "Hellenic Society for Microbiology"
1994	Renaming of the medical specialty as "Medical Biopathology (Microbiology)"
2009	Transition of *AMH* to quarterly publication
2016	Transition of *AMH* to bilingual publication
2020	The COVID-19 pandemic enters the journal's scientific content
2024	Continuation of publication in collaboration with MDPI and the beginning of a new international publishing era
2024	Explicit incorporation of the One Health approach into the journal's expanded scope
2026	70th anniversary of the first publication of *AMH*

In 2026, *Acta Microbiologica Hellenica* enters the eighth decade of its history within an international, open access publishing environment. The challenge for the future is twofold: to further strengthen its international scientific presence while preserving its connection with the scientific community and historical tradition that led to its creation. Seventy years after its first issue, *Acta Microbiologica Hellenica* represents not only part of the history of Medical Microbiology in Greece but also an active contributor to its future development.

Author Contributions: Conceptualization, A.G.T. and G.V.; validation, A.G.T., G.V. and C.T.; investigation, A.G.T. and G.V.; writing—original draft preparation, A.G.T. and G.V.; writing—review and editing, A.G.T., G.V., C.T. and M.P.; supervision, G.V. and M.P. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: No new data were created or analyzed in this study. Data sharing is not applicable to this article.

Conflicts of Interest: The authors declare no conflicts of interest.

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