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Editorial

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Advancing Animal Health: From Diagnostic Precision to Novel Therapeutics

Lachhman Das Singla*

Department of Veterinary Parasitology, School of Veterinary Sciences, Abhilashi University, Mandi, Himachal Pradesh, 175045, India

*Corresponding Author
Lachhman Das Singla
eic.abt@gr-journals.com

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The intrinsic convergence of human, animal, and environmental health underpins modern biomedical science.[1–3] At the nexus of this triadic interaction lie infectious diseases, which impair animal welfare and agricultural productivity, compromise global food security, and present persistent zoonotic risks.[3] The control of these pathogens is increasingly confounded by antimicrobial resistance (AMR), driven in part by widespread antimicrobial use in food-producing animals, with serious public health ramifications.[4,5] Addressing these challenges necessitates robust diagnostic frameworks, rational therapeutics, and innovative pharmacological interventions across veterinary and comparative animal sciences.

In response to these critical needs, we introduce the inaugural issue of the *Journal of Animal Biology and Therapeutics*, a peer-reviewed, open-access forum dedicated to advancing research in veterinary medicine, animal science, and the health, welfare, and productivity of domestic, wildlife, aquatic, and laboratory species. Embracing the One Health and One Welfare paradigms, the journal serves as a multidisciplinary platform for high-impact original research, systematic reviews, meta-analyses, and clinical communications.[1,2,6]

Our inaugural issue features four contributions that collectively span the continuum from individual clinical diagnosis, through novel therapeutic strategies, to point-of-care field surveillance and clinical case management: Kaur *et al*. provide a comprehensive review of nanomedicine applications against human and veterinary helminthiases. The authors synthesize host-parasite immunobiology, anthelmintic resistance mechanisms, and plant-derived phytochemicals alongside nanoparticle-based drug delivery architectures. They highlight how nanocarriers enhance bioavailability, targeted delivery, and cellular uptake, potentially bypassing canonical drug-efflux mechanisms while emphasizing the translational hurdles remaining for clinical adoption.[7] Garcês *et al*. document a novel fatal presentation of masticatory myositis with extensive intracranial involvement in an albino Bennett's wallaby (*Notamacropus rufogriseus*). Comprehensive necropsy, histopathology, and microbiological evaluation revealed severe necrotizing and suppurative myositis secondary to *Enterobacter cloacae* complex and *Enterococcus faecalis* infection, likely precipitated by oral soft-tissue trauma. Crucially, the absence of osteolytic changes differentiates this acute phlegmonous process from classic macropodid actinomycosis ("lumpy jaw"), highlighting the necessity of systematic post-mortem evaluations in wildlife diagnostics.[8] Eravaramkunnath *et al*. report a severe case of feline babesiosis in a domestic cat in Kerala, India, characterized by profound anemia, leukopenia, and thrombocytopenia. Diagnosis was established via Giemsa-stained peripheral blood smear microscopy showing intraerythrocytic piroplasms,

and successful clinical resolution was achieved using a combination regimen of diminazene aceturate and doxycycline. The case underscores the diagnostic utility of routine hematology in resource-constrained practices while illustrating the need for accessible molecular diagnostics for definitive species-level identification.[9] Udhayavel *et al*. developed and validated a novel latex agglutination test (LAT) employing whole-cell protein antigens of *Mycoplasma ovipneumoniae* for small ruminants. Evaluated against real-time PCR, the assay demonstrated high diagnostic sensitivity (93.94%) and specificity (93.51%) with strong concordance ($\kappa = 0.852$). This rapid, low-cost penside assay offers an effective solution for epidemiological screening and flock-level disease management in low-resource field settings.[10]

Collectively, these inaugural contributions demonstrate that safeguarding animal health relies on precise diagnostics, field-deployable tools, and rational therapeutic development. They also delineate recurrent translational challenges, such as pathogen speciation, drug resistance, and laboratory-to-field implementation, which we encourage future contributors to address.

The Editorial Office remains dedicated to a rigorous, transparent, and timely peer-review process adhering to the highest standards of scientific and ethical integrity. We warmly invite researchers, clinicians, and epidemiologists to contribute their work and assist in establishing the *Journal of Animal Biology and Therapeutics* as a leading venue for integrative animal health sciences.

Conflict of Interest

The author is a co-author of one article featured in this issue (Ref. 8); its peer review and editorial handling were carried out independently of the author.

Artificial Intelligence (AI) Use Disclosure

The author declares that artificial intelligence (AI)-assisted tools were used only for language refinement, grammar improvement, and manuscript structuring purposes during the preparation of this work. All content and interpretations were reviewed and verified by the author.

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