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Special Issue Reprint

Antimicrobial Resistance and Virulence Mechanisms

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The worldwide emergence of antimicrobial-resistant bacteria, specially those resistant to last-resource antibiotics, is now a common problem being defined as one of three priorities for the safeguarding of One Health by the Tripartite Alliance, which includes the World Health Organization (WHO), the Food and Agriculture Organization (FAO) and the Office International des Epizooties (OIE). Bacteria resistance profiles, together with the expression of specific virulence markers, have a major influence on the outcomes of infectious diseases. These bacterial traits are interconnected, since not only the presence of antibiotics may influence bacterial virulence gene expression and consequently infection pathogenesis, but some virulence factors may also contribute to an increased bacterial resistance ability, as observed in biofilm-producing strains. The surveillance of important resistant and virulent clones and associated mobile genetic elements is essential for decision making in terms of mitigation measures to be applied for the prevention of such infections in both human and veterinary medicine. However, the role of natural environments as important components of the dissemination cycle of these strains has not been consider until recently. This Special Issue aims to publish manuscripts that contribute to the understanding of the impact of bacterial antimicrobial resistance and virulence in the three areas of the One Health triad–i.e., animal, human and environmental health.

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