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Reviews on the Mechanisms of Antibiotic Action

Guest Editor:

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Message from the Guest Editor

At the start of the 21st century, a rapid decline in the useful lifetime of many anti-bacterial drugs has been observed, while for some medications, such as silver, the useful lifetime is now in excess of five thousand years. Why the rather large difference? Simply a difference in the mechanisms of action. Modern anti-bacterials are, in general, highly specific desactivators of certain proteins; unfortunately, they strongly resemble natural anti-bacterials, and so bacteria are ready to deal with them, hence the low activity lifetimes.

Systems such as silver have no clear targets. Action via cell wall destruction, DNA inactivation, enzyme blocking, reactive oxygen species formation, cell destruction, and combinations of all of these are proposed. This brings us to the problem of how to analyse, at the molecular level, cell activity, which requires new analytical methods.

From there it will be found that even simple analyses of the constituents of cells and tissues are, in fact, sadly lacking.

Hence, when suitable information finally becomes available, it should be possible to build modeling systems capable of giving correct route maps to new and novel long-lifetime antibiotics.

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Editor-in-Chief

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Message from the Editor-in-Chief

There are very few fields that attract as much attention as scientific endeavor related to antibiotic discovery, use and preservation. The public, patients, scientists, clinicians, policy-makers, NGOs, governments, and supra-governmental organizations are all focusing intensively on it: all are concerned that we use our existing agents more effectively, and develop and evaluate new interventions in time to face emerging challenges for the benefit of present and future generations. We need every discipline to contribute and collaborate: molecular, microbiological, clinical, epidemiological, geographic, economic, social scientific and policy disciples are all key. *Antibiotics* is a nimble, inclusive and rigorous indexed journal as an enabling platform for all who can contribute to solving the greatest broad concerns of the modern world.

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