EDITORIAL

Looking Beyond the Obvious: Search for Novel Targets and Drugs for Reducing the Burden of Infectious Diseases

Life is not easy, it never was. With every breath, we are exposed to hundreds of infections, every passing second, a new fear of catching one infection or the other inflicts our mind. Infectious diseases claim more lives every year than all the casualties of wars since historic times. Infectious agents who live in, on and around us have emerged as biggest scourge of mankind causing significant morbidity and mortality. Every year, millions lose lives while others learn to live in the dark shadow of fear, forced to wait for their turn. The "big three" HIV, Tuberculosis and Malaria kill more than five millions annually and undermine the health and well being of the people downtrodden with poverty lacking access to healthcare. Besides, often overlooked neglected infectious diseases (NID) have emerged and affect a significant proportion of population in resource-poor settings in developing countries.

Unfortunately, prospects of curbing infectious diseases seem so bleak even now despite all the technological advances. Despite the avalanche of information resulting from genome projects, the number of drugs, developed or the ones still in pipeline are few, clearly indicating a wide innovation gap. Genomic revolution has fallen short of its promises of turning table in our crusade against infectious diseases. Decline in development of anti-infective drugs can be partly attributed to drift in focus and policies and loss of economic motivation of pharmaceutical industries which have curtailed their anti-infective research programs to pursue more rewarding and lucrative field of lifestyle diseases.

Our attempts to battle these infections are quite akin to snake and ladder game where the happiness of victory over one disease is soon tarnished by emergence of a new disease or a devastating pathogen. Diseases once confined to one geographical region are now gripping countries and regions where they were virtually unknown. These diseases are no longer marked by boundaries set by regions, sex, and economic status and affecting mankind globally. Reemergence and resurgence of diseases once thought to be conquered has raised an alarm in the scientific community. Increasing resistance to drugs once perceived as "magic bullets" is another prime concern. The pathogens often called as "messengers of deaths" evolve at such rapid rate and manage to defy our tailor-made strategies and drugs that it becomes impossible to get ahead of them in the race. Reports of spread of multi-drug resistant strains of the deadly pathogens to new locations is giving sleepless nights to researchers engaged in providing healthcare solutions. Keeping the emerging drug resistance in mind, it is of key importance to focus our research on exploring new drugs, looking beyond the obvious solutions for immediate gains. We are witnessing a staggering rise in number of cases of infectious diseases despite various initiatives and remedial measures adopted to combat these diseases. This clearly indicates some lacunae in our current strategies for battling these diseases. Time has come to change our strategies if we want to win this battle of life and death. We need to shun our dependence on the failing drugs and search for new methods, drugs and drug targets. This can be achieved by exploring metabolic pathways of these parasites and infectious agents that can yield answers to our problems by revealing some kinks in their armor. Recent applications of high throughput screening techniques and assays in drug discovery process coupled with advances in computational biology has expedited the process of target identification and small molecule screening, pharmacophore design, peptide inhibitor design and screening and succeeded to some extent in abridging the innovation gap. Such advanced methods can be applied for supplementing our arsenals with more potent drugs against these perpetrators of misery. The war on these diseases is not new to human race and in past, we have benefitted from some crude yet efficient methods based on traditional and time-tested knowledge arising from folklore. It has now become imperative to explore this hidden wealth further to attain solutions for these maladies. Drug repositioning seems to be one effective way of grabbing some low hanging fruits for drug development. The situation warrants

that the knowledge emerging from various sectors like biology, medicinal chemistry, and computational science should be integrated for designing new anti-infective agents and this can be done only by enabling strong public-private partnership in research. The quest for better drugs can be quenched by looking beyond the obvious methods and our willingness to adopt newer and safer methods and drugs while efficiently using the ones in hand.

It is with great pleasure that we introduce the special issue "Looking beyond the obvious: Search for novel targets and drugs for reducing the burden of infectious diseases"

The issue encompasses a spectrum of topics and consists of 5 excellent reviews each highlighting a specific topic. We anticipate that the scientific community will find these articles informative and beneficial.

We would like to extend our appreciation to all authors, experts in their fields, who have kindly contributed to this issue. We sincerely attribute the success of this issue to their hard work and efforts.

We express our gratitude to experts who took time off their busy schedule for reviewing the manuscripts and providing their honest opinions and invaluable insights.

We would like to thank Editor of Mini Reviews in Medicinal Chemistry for giving us this excellent opportunity of preparing the hot topic issue. We take this opportunity to thank Late Dr. Patrice Talaga and appreciate his confidence in our ability to bring forth this special issue that deals with such important topic. We would like to acknowledge the tremendous help and support from Ms. Sabiha Aftab who undertook the task of publication management and correspondence and Mr. Sehrish Ashraf and Ms. Mehwish Akhter for their wonderful assistance.

We dedicate this issue to those who are devoting their time, efforts and lives for infectious diseases research in hope of giving us a better tomorrow.

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