



Editorial

# Special Issue “Celebrating Applied Sciences Reaches 20,000 Articles Milestone: Feature Papers in Applied Biosciences and Bioengineering Section”

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This Special Issue celebrates the publication of 20,000 articles in *Applied Sciences*. This Special Issue intended to collect papers featuring important and recent developments or achievements in biosciences and bioengineering, with a special emphasis on recently discovered techniques or applications. Thanks to it, we managed to gather the interdisciplinary papers, including the broad spectrum of the following topics: clinical studies, advanced diagnostics, biochemistry, bioinformatics, biomaterials, biomechanics, biomedicine, biotechnology, clinical engineering, drug delivery, microbiology, life science, neuroscience, oncobiology, physiology, radiology, and tissue engineering.

In vivo clinical studies are the most important determination of drugs' pharmacokinetics and efficacy [1–4]. In an intensive care unit clinical study, the pharmacokinetics of levetiracetam, a second-generation antiepileptic drug has been evaluated [1]. Interestingly, a controlled clinical trial supervised by Lai et al. proved that combining yoga with rehabilitation has the potential to improve depressive disorders [2], while Khan and Reilly proposed suggestions for enhanced confidence for randomized controlled trials in protective treatments against endothelial glycocalyx degradation in surgery [3]. The effects of essential oils and other substances derived from the Lamiaceae family plants as adjuvants for the treatment of periodontitis have also been discussed [4].

A number of works concerned the very important topic of searching for biomarkers of pathogenesis and the progression of pathologies, such as cancer. Heat shock proteins (HSPs) are ubiquitously expressed housekeeping chaperones responsible for maintaining homeostasis of the organisms and can be considered as physiologically expressed biomarkers of cancer, e.g., leukemia, or different pathologies including gastric diseases [5–9]. The biomarkers may be localized extracellular or extracellularly excreted [8,9]. The molecular mechanism of asthma and COPD based on extracellular nanovesicles and their putative use in therapy is discussed by Fucarino et al. [8], while Alberti et al. describe tumor-secreted extracellular vesicles as the main mediators of cell–cell communication, permitting cells to exchange proteins, lipids, and metabolites under varying pathophysiological conditions [9].

When it is not possible to perform in vivo tests, establishing an in vitro-based system that can realistically simulate in vivo conditions is desirable [10–14]. A new cell culture method by combining fluoropolymers and dot-patterned extracellular matrix substrates to achieve spheroids has thus been successfully developed [10]. A new low-cost and simple-to-use method for the determination of free biothiols in biological fluids has been also proposed [11]. Moreover, a bioinformatics-based method, which introduces thermodynamic measures and topological characteristics aimed to identify potential drug targets for pharmaco-resistant epileptic patients has been established [13]. Di Bella et al. show a relative accuracy, sensitivity, and specificity of 100% for *Salmonella* spp. detection



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and identification in comparison with the reference method ISO 6579-1:20 [14]. Interestingly, it was determined that the temperature of storage up to 7 months does not significantly affect the antioxidant properties of elderberry (*Sambucus nigra* L.) juice, which is highly rich in polyphenols, particularly flavonoids [15]. The nutritional characteristics of *Halimione portulacoides* (L.) has been widely described [16].

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