Further Section

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Editorial

Biological signals generated by living organisms range from changes in membrane potential or chemicals released at the molecular level to complex behavioral patterns at the sociobiological level. Living organisms change their biological signals in response to environmental variations. These signals are transmitted to their specific target cells, tissues or other organisms where they are detected and processed so that appropriate responses may be elicited to optimize the survival of the cell, organism or species.

In the past, biological signals were studied separately by different disciplines -membrane potential by neurophysiologists, neurotransmitters by neurochemists, hormones by endocrinologists, antibodies by immunologists and behaviors by sociobiologists. Similarly, the regulation, mode of transmission, and transduction of biological signal were investigated by neuroscientists, endocrinologists and biochemists, the modifications of biological signals by pharmacologists, abnormalities of biological signal producing or responding cells or tissues by pathologists, and computer models on the regulation of biological signals by biophysicists. Such separation of the disciplines studying biological signals has been very successful in past decades as evidenced by the many international journals devoted to the publication of different aspects of biological signals. Although these journals maybe limited to findings of a specific example of biological signals, a group of biological signals, a specific mode of biological signal processing, a particular gland or tissue responsible for the production of a special type or group of bio-

logical signals, they have published many fundamental and important results which add to our understanding of signals in the biological world and will remain important in the years to come. However, with the increase in the understanding of living organisms, it is becoming evident that the categorization of these disciplines is arbitrary. This has often created problems for scientists trying to keep abreast of the knowledge explosion created by other disciplines and inhibited investigations on the complex nature of communications in biological systems. Therefore, a new journal that encompasses different fields of research in 'biological signals' should be organized to meet the need of scientists worldwide. With the enthusiastic support of many scientists of different disciplines, we have established an international journal, *Biological Signals* which is

devoted to the publication of original articles, reviews and communications in the many areas of production, transmission, recognition, processing, modification, and effect of biological signals. An Editorial Board composed of experts on anatomical, biochemical, biophysical, developmental, evolutionary, immunological, molecular, pharmacological, physiological, psychological, cybernetic and mathematical modeling aspects of biological signals has been formed to review and edit papers in the broad field of biological signals. We encourage manuscripts investigating problems related to intracellular, cellular, and organismic communications in animals. Studies of biological signals may investigate problems ranging from the subcellular level (e.g. the transduction process of the membrane, cytoplasm, nucleus or cell) to the organism level (e.g. effects of pheromones on sexual behavior in insects). The approach of the problem may be from the molecular level (e.g. the effect of a hormonal signal on the transcription of mRNA or translation of protein) to the sociobiology level (e.g. flight pattern as a biological signal in the bee). The changes studied may be long term (e.g. seasonal) or short term (e.g. circadian or ultra-dian). In addition, papers on computer models, engineering concepts or the physical nature of sensory modalities related to the generation of biological signals are also encouraged.

With the cooperation of the authors, reviewers, editors, and staff of the publisher, papers submitted should be published in minimum time (e.g. 6–8 months). It is hoped that *Biological Signals* will provide 'the venue of communication' for the latest findings, concepts and insights on intracellular, cellular, and organismic communication and a useful tool to biomedical scientists in years to come.

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