



From *Chinese Science Bulletin* to *Science Bulletin*: celebrate the coming 50th birthday

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As the only multidisciplinary journal supervised by Chinese Academy of Sciences and the National Natural Science Foundation of China, *Science Bulletin* will usher in its 50th anniversary in 2016. A fifty-year history for a journal is always remarkable. However, the more important reason to celebrate besides the great age is: the fifty-year old journal continues to be vigorous and influential.

Sixteen years after the establishment of the Chinese version of *Kexue Tongbao*, the version of foreign languages (mainly in English) was founded and named *Chinese Science Bulletin* in 1966, to further accomplish its role of introducing breakthroughs of Chinese scientists to the world. For a very long time (from 1966 to 2013), papers published in *Chinese Science Bulletin* are primarily or partially translated from their Chinese correspondences. To further distinguish these two versions and achieve their goals, respectively, the English version of the journal was re-launched with a new name—*Science Bulletin*, and the inaugural issue started to publish from January 2015, declaring a new era of this traditional journal with “the beginning of a rejuvenated excellence”, as said by Prof. Chunli Bai, in his editorial for the opening issue [1].

In its rather glorious history, *Science Bulletin* has published many landmark discoveries of Chinese scientists, including the synthesis of bovine insulin in 1966 [2] and the well-known Chen’s theorem on Goldbach conjecture [3]. In 1977, the journal published a paper entitled “A new

type of sesquiterpene lactone—artemisinin”. In this paper, scientists from the “Artemisinin structure research group” for the first time reported the synthesis of artemisinin, an anti-malaria chemical, which was later extensively applied as anti-malarial medicine [4]. The artemisinin research received many awards including the most exciting 2015 Nobel Prize in Physiology and Medicine awarded to Prof. Youyou Tu, one of the leading scientists of this project. In 1987, the journal reported another ground-breaking study on the superconductivity of Ba-Y-Cu-O [5] and greatly promoted the development of high-temperature superconductor materials world widely.

In those early days, *Science Bulletin* mainly published papers in the subjects of physics, chemistry and earth sciences, which reflects the key developing areas of the newly founded People’s Republic of China. After a long suspension period, the publication of *Chinese Science Bulletin* resumed in 1980 with its publishing scope expanded to every areas of life sciences, especially the following topics: plant and crop sciences, genetics, evolution, developmental biology, pathogen and human health, psychology and cognitive sciences, marine biology, ecology, etc. Some research fields are rather unique to China, for example the freshwater fish study, the conservative biology of panda and the golden monkey (*Cercopithecus kandti*). In this brief summary, we will review part of milestone studies published in *Science Bulletin*, focusing on life and medical sciences, to commemorate the glorious history of the journal.

1 Crop and plant sciences

To feed 22 % of the world population with only 7 % of the world’s total arable land, China has always given the

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highest priority to agricultural development and so as the research on crop and plant sciences. One of the most remarkable breakthroughs to increase grain production to date is the development and large-scale farming of hybrid rice. The preliminary research of hybrid rice originated from the discovery of male-sterile rice by Prof. Longping Yuan, who was later known as the “Father of Hybrid Rice.” His research paper about male sterility of rice published in *Chinese Science Bulletin* [6] opens the era of “Second Green Revolution” and revolutionizes rice cultivation in China, establishing China’s world-leading position in hybrid rice research and farming. Ever since then, studies about rice development [7–9], genetic analysis and disease resistance [10–17] have constantly been the focused disciplines of *Science Bulletin*. Together with rice, researches on other important crops, such as cotton [18–23], wheat [24–26] and the model plant *Arabidopsis* [27–32], have led to further understandings of plant physiology and the mechanisms of disease resistance.

2 Fish biology and fishery biotechnology

China has a long history of freshwater fish farming. As such, another world-leading research field of China is freshwater fish physiology and reproduction. Over the years, *Science Bulletin* published many papers about fish biology and fishery biotechnology, from genetic analysis [33], hormone-regulated growth of freshwater fish, ecological genetics and selective breeding in aquaculture animals [34, 35], to gene engineering fish [36]. These studies greatly boost the cell engineering technologies, such as genome manipulation in fish. The development of transgenic fish, especially, has greatly improved the growth, color, disease resistance, survival in cold and other physiological characteristics of fish. Led by Prof. Zuoyan Zhu, scientists from Chinese Academy of Sciences produced a transgenic triploid fish with a much faster growth rate and an increased forage utilization rate compared with the control carps. More importantly, the transgenic triploid fish is completely sterile. The completely sterile transgenic triploid carp such as the all-fish growth hormone (GH) transgenic carp is very suitable for industrialized conditions [34, 37–40]. Recently, the US Food and Drug Administration (FDA) has evaluated the ecological effects of current and potential uses of the field release of GH transgenic Atlantic salmon and concluded that the fish poses no foreseeable risk to nature. The approval of transgenic fish for human consumption by US FDA would in turn foster the scientific research on fish biology and other fields of hydrobiology.

3 Pathogens and disease mechanisms

Significant regional differences in life style as well as in the economical development make infectious diseases a major threat to China. Acting as a valuable showcase of China to the international science community, *Science Bulletin* reported a series of pandemic infectious diseases in the past years. The journal reported a quick method to detect SARS coronavirus using oligonucleotide microarray shortly after the pandemic of SARS [41] and the evolution and epidemiology of foot and mouth disease [42], avian H1N1 [43] and avian H7N9 influenza [44]. In 2013, *Science Bulletin* first reported the isolation and characterization of avian H7N9 virus [45], providing immediate information about the virus. Later, one of the senior authors, Prof. Hualan Chen from the Chinese Academy of Agricultural Sciences, was selected as “Ten people who mattered this year” by the *Nature* magazine because of her contribution to H7N9 study. In addition to infectious diseases, *Science Bulletin*’s publication interest reaches to almost every subfields of medicine, including but not limited to disease diagnosis and prognosis [46], pulmonary disease [47], cancer [48–50], heart disease and stroke [51].

One of the most striking findings in biomedical science in recent years is the identification of microRNAs (miRNA). miRNAs were found to act as effective regulators of transcription and translation [52] and cancer [53, 54]. In a special topic organized by Prof. Qimin Zhan in 2014 [55], the roles of miRNAs have been investigated in the pathogenesis in several types of human malignancies, such as esophageal cancer [56], gastric cancer [57] and liver cancer [58]. Furthermore, this special topic also discussed the functions of miRNA in maintaining genomic stability [59] and the hypoxic tumor microenvironment [60]. In response to different physiological status and environmental stimulations, the expression of miRNA alters differently [61, 62].

We noticed that, among the highly cited papers published in *Science Bulletin*, topics related to clinical medicine, immunology, microbiology, neuroscience and cognitive studies, and the developmental and reproductive biology of plants have received more intensive attention from our readers. These areas will remain as the main publishing interest of *Science Bulletin*.

4 Basic research and applications of stem cells

Stem cells sustain the capacity of self-renewal and offer exciting promises in both basic and applied research. Several well-known research laboratories have published their research work in *Science Bulletin*, which attracted tremendous attention from both general public and

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