Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Convincing the confidence to conquer COVID-19: From epidemiological intervention to laboratory investigation

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Emerging and reemerging human-infecting viruses have been representing a massive threat to public health and have raised global concerns in recent years [1,2]. While scientists and the public have worried and prepared for the emerging influenza-induced pandemic, the recognized first coronavirus caused pandemic raided the humans. As the new disease's etiology recognized as coronavirus disease 2019 (COVID-19), severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) has spread throughout the world in a few months since late 2019 and thus far has caused more than 50 million infections with over 1 million deaths. In front of this severe and complicated new infectious disease, many countries, including China, have well-controlled the domestic transmission of COVID-19, based on positive attitudes, practical strategies, and scientific measures. The two primary forefronts in combating the new virus are epidemiological intervention and laboratory investigation. The field surveillance and intervention strategies comprise the origin tracing, the transmission route investigation, quarantine of the contacts, and other epidemiological emergency disposals. The laboratory activities involve studies on the diagnostic agents, drug and vaccine development, viral pathogenesis, and host immunity. Meanwhile, biosafety is unanimously recognized as the most crucial issue in safeguarding these processes. This thematic issue is dedicated to the most recent studies covering these strategies, which may provide recommendations for controlling COVID-19.

Although the origin tracing of SARS-CoV-2 is still on the way, the satisfactory control of the COVID-19 epidemic in China leaves adequate time for the public health workers to trace the source and the transmission route of recent sporadic cases in different provinces. The epidemiological investigation of a reemerging COVID-19 outbreak Xinfadi market of Beijing in June 2020 linked the introduction of SARS-CoV-2 with cold-chain transportation in the frozen food industry for the first time. The highly identical genetic characteristics of SARS-CoV-2 sequenced from the clinical specimens of human cases, and environmental samples indicate that the wet and cold market has become a "hub" for SARS-CoV-2 transmitting some cases within a short period [3,4]. Recently in Tianjin and Dalian of China, sporadic COVID-19 cases that had participated in the transport of the infected batch of imported frozen products have been reported. Meanwhile, environmental swab samples related to imported cold chain food contacted by the cases were tested nucleic acid lively for SARS-CoV-2 [5,6]. Notably, SARS-CoV-2 were isolated from the imported frozen cod outer package's surface for the first time worldwide during the epidemiological investigation of reemergent cases of COVID-19 in Qingdao [7]. All this evidence showed that COVID-19 could be introduced through the contamination of the imported cold chain products, shedding light on the origin of the COVID-19 outbreak in Huanan Seafood Market of Wuhan at the end of 2019 to be reconsidered.

With the experiences and measures established during the previous emerging and reemerging infectious diseases, COVID-19 is currently well controlled in China, with sporadic cases occasionally emerging [8]. However, the current general epidemic trend of COVID-19 worldwide is full of gloom and doom. D'Arienzo et al., indicated that during the early spread of SARS-CoV-2 in Italy, the basic reproduction number associated with the Italian outbreak may retain within a relative high range [9]. Meanwhile, a recent study by Jiang et al. also clarified the influence of the COVID-19 pandemic on other prevalent diseases, i.e., influenza, which will help improve control and prevention of these infectious diseases co-prevalence [10].

Given the highly contagious and pathogenic characteristics of SARS-CoV-2, considering biosafety issues are a prerequisite for all the laboratory activities around this virus. It is suggested to reinforce the necessity for BSL-3 and even BSL-4 laboratories as a fundamental part of the quick public health responses. Meanwhile, the establishment of technical systems that can be applied in biosafety level 2 (BSL-2) facilities is also imperative for the laboratory investigation and development of medical interventions for SARS-CoV-2. Tan et al. developed an easily accessible and reliable pseudotyped SARS-CoV-2 system for studying the neutralizing efficiency of antibodies and the virus's entry process in a BSL-2 laboratory [11]. In the meantime, the nucleic acid detection of SARS-CoV-2 is still the most popular diagnostic method for COVID-19. Wang and colleagues shared their experience on the development of two TaqMan real-time RT-PCR assays for rapid, sensitive, and specific detection of SARS-CoV-2 in clinical

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specimens, providing diagnostic supports on the control of the current pandemic [12].

Hundreds of vaccines and drugs against SARS-CoV-2 are under development through close international cooperation. Yusuf Mummed reviewed the molecular basis of SARS-CoV-2 pathogenesis and summarized the potential targets for new drug development and the most promising targets based on repositioning drugs. This work may enlighten a way forward to achieve future treatment of COVID-19 [13]. Sami Ullah Bhat and his colleagues minutely summarized the current knowledge of COVID-19 and other coronavirus-related infectious diseases, covering the history of different coronaviruses, genome structure and pathogenesis, and diagnosis and treatment of COVID-19 [14]. The continuously updating knowledge of COVID-19, especially the comparative studies with other coronaviruses, may accelerate the vaccine and drug development against the current COVID-19 disaster. Developing prevention and treatment reagents for the current pandemic of SARS-CoV-2 may also enable the world to prepare for the future occurrence of the coronavirus induced diseases based on the development of universal vaccines and bi- or multi-specific inhibitors.

As a newly emerging infectious disease that is spreading in 220 countries/regions to wreak havoc to human beings around the world in several months, COVID-19 is recognized as one of the infectious diseases with the fastest speed to spread, the broadest range of infection, and the most difficult to prevent and control in human history. Lessons learned from the previous controlling of other infectious diseases such as influenza and plague, etc., have shed light on the front line for fighting against COVID-19, i.e., the combination of epidemiological intervention, laboratory investigation, and safeguard biosafety principles. The current joint taskforces with multidisciplinary coordination have been working well to control the disease in a series of countries, including China. However, the elimination of COVID-19 still needs more time, tremendous efforts, and confidence of everybody in the world. The final victory over the current COVID-19 pandemic will convince the world of the belief in preparing for future pandemics.

Conflict of interest statement

The authors declare that there are no conflicts of interest. Given their roles as Editorial Board Member, William J. Liu and Guizhen Wu had no involvement in the peer-review of this article and had no access to information regarding its peer-review. Full responsibility for the editorial process for this article was delegated to the editor Jianwei Wang.

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