# **COVID-19** Prevention

1) coordinated and consistent stay-at-home orders across multiple jurisdictions, including potential nation-wide mandates; 2) rapid scale-up of SARS-CoV-2 testing; and 3) improving healthcare capacity to respond. The editorial outlines those areas, the rationale behind them, and the call for innovation and the engagement of bold public health leadership to empower courageous political action to reduce the number of people who will die during this pandemic<sup>1)</sup>.

## Peer-to-Peer Contact Tracing

Yasaka et al. proposed smartphone-based contact tracing method presents a novel solution which preserves privacy while demonstrating the potential to suppress an epidemic or pandemic outbreak. This application could potentially be applied to the current COVID-19 pandemic as well as other epidemics or pandemics in the future, in order to achieve a middle ground between drastic isolation measures and unmitigated disease spread <sup>2)</sup>.

### Immunization

Routine childhood immunization may protect against COVID-19<sup>3)</sup>.

#### **Respirator disinfection**

Ultraviolet germicidal irradiation: possible method for respirator disinfection to facilitate reuse during COVID-19 pandemic <sup>4)</sup>.

### Vaccines

Several vaccines have been introduced to combat the coronavirus infectious disease-2019 (COVID-19) pandemic, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Current SARS-CoV-2 vaccines include mRNA-containing lipid [ nanoparticle]]s or adenoviral vectors that encode the SARS-CoV-2 Spike (S) protein of SARS-CoV-2, inactivated virus, or protein subunits. Despite growing success in worldwide vaccination efforts, additional capabilities may be needed in the future to address issues such as stability and storage requirements, need for vaccine boosters, desirability of different routes of administration, and emergence of SARS-CoV-2 variants such as the Delta variant. Here, we present a novel, well-characterized SARS-CoV-2 vaccine candidate based on extracellular vesicles (EVs) of Salmonella typhimurium that are decorated with the mammalian cell culture-derived Spike receptor-binding domain (RBD). RBD-conjugated outer membrane vesicles (RBD-OMVs) were used to immunize the golden Syrian hamster (Mesocricetus auratus) model of COVID-19. Intranasal immunization resulted in high titres of blood anti-RBD IgG as well as detectable mucosal responses. Neutralizing antibody activity against wild-type and Delta variants was evident in all vaccinated subjects. Upon challenge with live virus, hamsters immunized with RBD-OMV, but not animals immunized with unconjugated OMVs or a vehicle control, avoided body mass loss, had lower virus

titres in bronchoalveolar lavage fluid, and experienced less severe lung pathology. Our results emphasize the value and versatility of OMV-based vaccine approaches <sup>5)</sup>.

Zhang et al. conducted an online search for all treatment options related to coronavirus infections as well as some RNA-virus infection and found that general treatments, coronavirus-specific treatments, and antiviral treatments should be useful in fighting COVID-19. They suggested that the nutritional status of each infected patient should be evaluated before the administration of general treatments and the current children's RNA-virus vaccines including influenza vaccine should be immunized for uninfected people and health care workers. In addition, convalescent plasma should be given to COVID-19 patients if it is available. In conclusion, they suggested that all the potential interventions be implemented to control the emerging COVID-19 if the infection is uncontrollable.<sup>6</sup>.

#### 1)

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3)

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