in vitro and in vivo'\*~'\*\*. Compared with convalescent

plasma, which has limited availability and cannot be

amplified, monoclonal antibodies can be developed in

larger quantities to meet clinical requirements. Hence,

they provide the possibility for the treatment and pre-

vention of COVID-19. The neutralizing epitopes of

these monoclonal antibodies also offer important infor-

mation for vaccine design. However, the high cost and

limited capacity of manufacturing, as well as the prob-

lem of bioavailability, may restrict the wide application

of monoclonal antibody therapy.

Vaccines

Vaccination is the most effective method for a long-term

strategy for prevention and control of COVID-19 in

the future. Many different vaccine platforms against

SARS-CoV-2 are in development, the strategies of which

include recombinant vectors, DNA, mRNA in lipid nano-

particles, inactivated viruses, live attenuated viruses and

protein subunits'’\*-'\*'. As of 2 October 2020, ~174 vac-

cine candidates for COVID-19 had been reported

and 51 were in human clinical trials (COVID-19

vaccine and therapeutics tracker). Many of these vac-

cine candidates are in phase II testing, and some have

already advanced to phase III trials. A randomize4

double-blinded phase II trial of an adenovirus type

vectored vaccine expressing the SARS-CoV-2 S protein,

developed by CanSino Biologicals and the Academy of

Military Medical Sciences of China, was conducted in

603 adult volunteers in Wuhan. The vaccine has proved

to be safe and induced considerable humoral and cel-

lular immune response in most recipients after a single

immunization’. Another vectored vaccine, ChAdOx1,