of antibody-secreting plasma cells, and the number of isotype-switched memory B cells were indistinguishable between infected mice and their uninfected counterparts.[4] Therefore, the unintended consequences of this nonmodulated antibody production must be taken into account.

Despite these potential limitations and uncertainties, however, Lam and Farber review a technology that has immense potential for the development of antibody-based therapeutics.

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Commentary: Providing optimal care for cardiothoracic patients of the future requires expertise spanning barriers of time and specialization

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CENTRAL MESSAGE

Drs Lam and Farber explain genetic engineering strategies against viral disease, highlighting the importance of familiarity with medical knowledge across a breadth of specialties and time periods.

In this Invited Expert Opinion, Drs Lam and Farber discuss a genetic engineering strategy featuring CRISPR/Cas9 to promote B-cell expression of monoclonal antibodies against viruses—a timely and highly relevant topic as we strive to emerge from this worldwide viral pandemic.[1] It is also highly relevant to the cardiothoracic surgical community with regard to heart and lung transplantation recipients—individuals who are immunosuppressed and at risk of severe complicating viral illnesses. Although such topics may feel overwhelming to those clinicians or researchers who lack exposure to the basic science laboratory, the authors have framed this innovative investigatory work in a manner that is digestible and comprehensible to the cardiothoracic community at large.

Along with providing an overview of strategies and mechanisms for providing patients with protective antibodies, Drs Lam and Farber succinctly describe the recent study by Moffett and colleagues[2] published in *Science Immunology*. Lam and Farber do an excellent job outlining the key elements of the experimental design, its inherent limitations, and future directions. Most importantly, they discuss the relevance of these findings to patient populations treated by the cardiothoracic surgical workforce, including transplant recipients, as well as patients with myocarditis[3] or Kawasaki-like inflammatory disease[4]

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secondary to viruses for which no vaccine or antiviral exist—such as the novel coronavirus SARS-CoV2.

The emergence of COVID-19 cases has led physicians and public health officials to investigate therapeutic strategies that may have been developed or popularized for other disease states, such as chloroquine (an antimalarial),[5] metformin (an oral hypoglycemic),[6] and convalescent plasma (previously used for SARS and MERS).[7] The work done by Moffett and colleagues was aimed at RSV, with initial intended applications to HIV and EBV—yet this strategy may have relevance in the treatment of COVID-19. The notion of "teaching an old drug new tricks" is not foreign to cardiothoracic surgeons; paroxetine (an antidepressant) has been proposed to treat cardiovascular disease in diabetics,[8] metformin has been considered as a targeted therapy for lung cancer,[9] and aspirin has been recognized as a possible preventative drug for adenocarcinoma of the lung and esophagus.[10]

This contribution from Drs Lam and Farber brings to light the fact that cardiothoracic surgeons can learn from such fields as immunology and infectious disease, and, likewise, we can learn from the experiences of yesteryear to treat patients of tomorrow. This article has shed light on basic science efforts in a meaningful way for practicing clinicians. It is important to recall that we are one healthcare workforce, striving for one goal: human health. Our specialties are all interrelated, and we can continue to learn from a breadth of expertise across time and specialization.

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