

## Letter to the Editor

## Achieving Vaccine for COVID-19: Hope for AIDS and Hepatitis C Vaccine?

Rozhan Khezri<sup>1</sup>, Rohollah Valizadeh<sup>2</sup>, Payam Nozad<sup>3</sup>, Mousa Ghelichi-Ghojogh<sup>4\*</sup> 

1. MSc of Epidemiology, Urmia Health center, Urmia University of Medical Sciences, Urmia, Iran.

2. Ph.D. Candidate in Epidemiology, Student Research Committee, School of Public Health, Iran University of Medical Sciences, Tehran, Iran.

3. MD, Health Center of Urmia, Urmia University of Medical Sciences, Urmia, Iran.

4. Department of Epidemiology, Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran.

**\*Corresponding Author:** Mousa Ghelichi-Ghojogh, Student Research Committee, Shiraz University of Medical Sciences, Shiraz, Iran. Postal code: 71357-44658, Tel: +98 7137256007. Fax: +987132359317; Email: [mghelichi2000@yahoo.com](mailto:mghelichi2000@yahoo.com)

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### Dear Editor

Thanks to current medical advances, many diseases are preventable or curable; however, the emergence of an epidemic or pandemic without definitive treatment poses a major challenge for the medical community and the general population. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) an emerging disease, common between humans and animals, appeared in 2019 and led to COVID-19 (1). Coronaviruses are the cause of 15% of respiratory diseases and can be transmitted from animal to human or vice versa. COVID-19 has high transmissibility; also its latency period is long (2). COVID-19 can infect individuals through means such as respiratory droplets and contact with secretions containing the virus. COVID-19 is considered a multi-organic disease. Coronaviruses are a family of RNA and other Nidovirales. Acquired Immunodeficiency Syndrome (AIDS) is a member of the Lentivirus family of animal retroviruses, which can cause long-term latent infection in cells and short-term cytotoxic effects leading to progressive and fatal diseases. Each human

immunodeficiency virus (HIV) consists of two identical single-stranded RNA molecules encoded in viral proteins. The virus has the same basic nucleic acid sequence as all known retroviruses (3). The hepatitis C virus also infects people through similar routes of HIV transmission, with an emphasis on blood transfusions. It is a member of the Flaviviridae and Hepacivirus (4). So far, no approved vaccine has been developed for hepatitis C and HIV (5). Currently, more than 120 million people have been infected and 2.5 million deaths due to COVID-19 have been reported worldwide; while, the number of people living with HIV and hepatitis C are 38 million and 71 million, respectively; all being RNA virus-induced diseases. So far, no vaccine for hepatitis C and HIV has been approved, while in November 2020 Pfizer and Moderna (6, 7) announced positive results from the analysis of their phase III pilot trials about their vaccine against acute respiratory syndrome virus (SARS-COV-2). In November 2020, Pfizer and Moderna announced positive results in the effectiveness of their vaccine against SARS-COV-2 (6, 7). Pfizer company in collaboration with BioNTech

completed a clinical trial to develop a potential RNA vaccine to prevent the spread of COVID-19, the two companies had been working together in 2018 to develop a vaccine against the flu, however, following the COVID-19 pandemic, they focused their efforts on producing a vaccine for the COVID-19 (7, 8). Considering the same importance of COVID-19, AIDS and hepatitis C regarding the following:

- All three are virus-induced viral diseases
- Their transmission is from human to human
- The viruses that cause these diseases are in the group of RNA viruses
- The outbreak of these diseases causes pandemics and high mortality in the world
- Finally, COVID-19 and AIDS were originally transmitted from animals to humans

Therefore, with the development of a vaccine for COVID-19, it could be a potential window for vaccines against AIDS and hepatitis C; these hopes will not be far from the expectation.

## Conflicts of Interest

The authors declare that there are no conflicts of interest.

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