

Review of: "The COVID 19 vaccine patent race"

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This article by Ulrich Storz is about the development process of COVID vaccines and whether the current patent system is encouraging for innovation in this domain. Author starts the article by explaining that the mRNA vaccine technology, as the building block of current COVID vaccines, is more than 20 years old. The presence of this technology is indeed an important factor in the ability of inventing COVID vaccines in such a rapid pace. Ulrich nicely provides further details on patents obtained on prior technologies related to these vaccines. Notably, one of the key patents is the one obtained by scientists at NIH, Dartmouth College, and Scripps Research Institute in 2017. He further explains the patent race among COVID vaccine makers (Moderna, BioNTech, NIH, and etc) after the publication of the SARS Cov 2 genome (the third paragraph on page 4 is not clear on where these patents are filed). According to Ulrich, these filed patents have large amounts of overlap. It is puzzling that NIH was not the winner of the vaccine race, even though it has the key patent on mRNA vaccine technology. Based on what is explained in this article, all other players in the patent race are building upon NIH's patent. It would be nice and more informative, if Ulrich adds some insight about NIH in the patent race.

In the last paragraph of page five, Ulrich concludes that innovators of vaccines for COVID mutations have a hard time to obtain patents due to what is available in the prior art in this area. He continues if such patents are granted at all, they will have a very narrow claim. This will make vaccine patents for new COVID mutations almost worthless. Author claims that this will discourage patenting and some of the "most successful drugs" will be without patent protection. As a result, this will discourage innovating these drugs.

I would like to raise a number of concerns about this conclusion. Obtaining patents can be costly for innovators due to rival's potential imitations. It can also be beneficial for innovators, as patents allow their innovators to receive licensing revenues. Thus, an innovator opts for obtaining patents if its benefits are more than its costs. In the case of COVID mutation vaccine patents, even if the claims are narrow, these patents may still result in licensing revenues for their innovator. This is because current COVID mutation vaccine may be built based on vaccine patents of previous mutations similar to the role of NIH's patent in COVID vaccine patents. Therefore, these patents are not necessarily worthless. On the other hand, according to studies by Cohen et al. (2002) and Hall et al. (2014), firms' patenting propensity is not high. Many firms may choose lead-time or secrecy for protecting their innovation (Cohen et al., 2000). Therefore, requesting a stronger patent rights in this domain as author suggests may not necessarily be needed, as vaccine innovators may use other methods of protecting their innovation.

The other point is that if author wants to see stronger patent rights in this domain, this may also hinder vaccine innovation due to potential patent thicket effects. Patent thickets are sets of overlapping intellectual property rights that subsequent innovators build their innovation upon them (Shapiro, 2010). Patent holders in the thicket require the subsequent innovator to pay licensing fees or they will hold up the subsequent innovator. There is a long list of studies in Economics literature on costs and outcomes of patent thickets. Some of them are Hall and Ziedonis (2001), Ziedonis (2004), Hall et al. (2005), Entezarkheir (2017), and etc. Thus, encouraging stronger patent rights for COVID vaccines on newer mutations may result in denser thickets with more prior patents such as the one owned by NIH for these vaccines. The denser thickets and their associated costs can also discourage these vaccines. What matters here is finding a proper balance of patent rights for such vaccines in a way that drug innovations are encouraged rather than discouraged. Finding this balance needs a more complete analysis of evidence.

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