Skin injection could allow vaccination of up to five times more people from the same supplies

April 14 2021, by Julian Vlasblom

Credit: Leiden University

The current COVID-19 vaccination campaign involves injecting the vaccine into muscle tissue, but injecting a smaller amount of vaccine in the skin might also provide good protection. The #wakeuptocorona crowdfunding campaign has enabled Anna Roukens (LUMC) to examine

the safety and efficacy of vaccination delivery via the skin.

The #wakeuptocorona crowdfunding campaign was launched just over a year ago, but has already exceeded the one million euro mark and is still underway. The funding facilitated an extension to the laboratory of Professor of Virology Eric Snijder (LUMC), and has also enabled a great deal more coronavirus research to be conducted. This month Anna Roukens, an internist and infectious disease specialist at LUMC, will begin research on Moderna vaccine delivery via the skin.

What advantage does skin vaccination offer compared with regular vaccination?

Roukens: A huge problem is that there are currently not enough supplies to vaccinate everyone at the same time. With skin vaccination, we can vaccinate more people using the same amount of vaccine. This means people would be vaccinated sooner.

Is this a new method?

No, skin vaccination isn't new. We have been using this method for some time now for rabies and yellow fever vaccinations. It is an excellent way to use the vaccine as sparingly as possible. We now want to find out whether the Moderna vaccine is also suitable for immunization via the skin. We first plan to test its safety and will then work out how much vaccine is needed to provide good protection.

So how does vaccination via the skin work?

The skin is full of dendritic cells, which act as the guards of the immune system. When they detect a virus, they warn other immune cells, which go on to attack the virus. Skin vaccination involves delivering a small

amount of the vaccine precisely where these guards are located. This ensures that no vaccine is wasted. The dendritic cells absorb the vaccine and initiate the immune response. This should ultimately protect us against coronavirus.

Will we soon be using skin vaccinations?

Possibly, but possibly not. We hope to speed up the Dutch vaccination campaign, but we are not yet sure whether the results will be available before the end of the first round of vaccinations. What we do expect, however, is more frequent coronavirus outbreaks. Moreover, almost no vaccines have yet been administered in poor countries. So we are definitely not done with vaccinations yet.

What role did #wakeuptocorona play in setting up the research?

The money raised by the campaign has been extremely important! Without the 40,000 euros from the campaign, we wouldn't have been able to start the research. We still need more money, but thanks to crowdfunding, we can now demonstrate the safety of skin vaccination. Hopefully this will help persuade even more people to donate.

What would you like to say to the 6,400 #wakeuptocorona supporters?

It's thanks to all these supporters that we can do a great deal of beneficial work. There is another major COVID-19 research , for example, in which 14 different LUMC laboratories are working together, each making use of its own expertise. This cooperation would not have been possible without their donations to the campaign. Moreover, if skin vaccination with the Moderna vaccine is effective, it will be an

important step in tackling the pandemic.

More information: #wakeuptocorona crowdfunding campaign: www.steunleiden.nl/project/wakeuptocorona

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