

Business Finland Health Tuesday 1.3.2022

Tuija Keinonen, CEO, PhD Erkko Ylösmäki, R&D Director, PhD



nalainen koronarokoteyhi hankalassa tilanteessa: ") ei auta avaamaan tätä ua, se ei todennäköisesti du"

a on tähän asti tehty yliopistoissa, mutta niiden re sa. USSANOMAT

otimaista koronavirusrokotetl ehittävälle yhtiölle yhdeksän iljoonaa euroa – kehitystyö tenee

omalaiskehitteisen rokotteen uskotaan auttavan nopeasti imältään muuttuvan koronaviruksen taltuttamisessa ja toin un muassa täydennysrokotteena. TALOUSSANOMAT

Suomalainen koronarokoteyhtiö sai osakkaikseen kaksi yliopistoa – rahoitus ei vieläkään järjestynyt

Nenäsumutteena annettavaa koronarokotetta kehittävä suomalainen Rokote Laboratories sai osakkaikseen Helsingin ja Itä-Suomen yliopistot, mutta rahoitus puuttuu edelleen.

aa da





SANOMAT

Т

omalainen koronarokote ei ole amassa valtiolta toivomaansa hoitusta

naista nenäsumutteena annettavaa koronarokotetta kehittä te Laboratories ei saa valtiolta toivomaansa kymmenien mil jen rahoitusta. Soveltuvaa rahoitusta on tulossa jakoon kuus onaa euroa, työ- ja elinkeinoministeriöstä kerrotaan.

Challenges in the very beginning...

Rokote Laboratories Finland Oy

✓ Established 2020 in Finland

- ✓ Initiated from research collaboration between Universities of Helsinki & Eastern Finland
- ✓ Core expertise:
 Intranasal vaccine technology
- Current target:
 Self-administered, affordable intranasal COVID-19 vaccine
- ✓ Funding: 9 m€ in summer 2021:
 Ferring Ventures SA, Jenny and Antti Wihuri Fund , Suomen Kulttuurirahasto, Business Finland





HELSINGIN YLIOPISTO HELSINGFORS UNIVERSITET UNIVERSITY OF HELSINKI



Our Founders:





Seppo Ylä-Herttuala

MD, PhD, Professor of Molecular Medicine for A.I. Virtanen Institute for Molecular Sciences and Department of Medicine, University of Kuopio, Finland



Kalle Saksela MD, PhD, Professor of Virology and Chairman, Department of Virology in Helsinki University



Kari Alitalo

Prof. Emeritus and Academician of Science. Tenured Research Professor of the Finnish Academy of Sciences in the Faculty of Medicine of the University of Helsinki, and Director of Centre of Excellence in Translational Cancer Biology and Wihuri Research Institute



Pasi Kemppainen

Director, Global head of Santen Pharmaceutical's pharmaceutical and medical device supply chain traceability and digitalization strategy in Geneva, Switzerland





Global Challenges & Needs:



- Mutation of the SARS-CoV-2 virus (eg. Omicron)
- <u>New variant outbreaks</u> still seem to be expected
- <u>Waning immunity</u> with the current vaccines
- <u>Suboptimal protection</u> with systemic (i.m.) vaccines
- Vaccinated people can still get infected and can spread SARS-CoV-2 virus
- A large number of people worldwide remain <u>without access</u> to vaccines
- Ecological & economical burden of several booster doses (health care resources, waste etc.)
- Global shortage of materials (syringes etc) (ref. WHO's concern)

Global Challenges & Needs:

A lot of publications advocate the need for i.n. vaccines and also predict their efficiency, for example:



SCIENCE:

PERSPECTIVE

Scent of a vaccine

BY FRANCES E. LUND, TROY D. RANDALL • SCIENCE • VOL. 373, NO. 6553 • **23 JUL 2021** : 397-399 ...It seems surprising that only seven of the nearly 100 SARS-CoV-2 vaccines currently in clinical trials are delivered intranasally."

JAMA:

Medical News & Perspectives

FREE

October 14, 2021

Trying to Block SARS-CoV-2 Transmission With Intranasal Vaccines

Rita Rubin, MA

Article Information

JAMA. 2021;326(17):1661-1663. doi:10.1001/jama.2021.18143

C urrently available COVID-19 vaccines are highly effective at reducing symptom severity, but they don't appear to prevent SARS-CoV-2 from gaining a toehold in the nose. Ensconced there, the virus can stealthily replicate and then, expelled by coughing or sneezing, go on to infect others.



What is the biggest difference Intranasal vaccine vs. intramuscular vaccine?



A vaccine administered onto the nasal mucosa is expected to provide <u>more effective protection from</u> <u>infection and transmission</u> than a vaccine administered into the muscle, due to the <u>induction of</u> <u>secretory IgA and mucosal T cell</u> <u>immunity</u>



Frances E. Lund and Troy D. Randall *Science* **373** (6553), 397-399. 2021.



Our approach - Benefits of intranasal vaccines:





 Expected to prevent virus infection, transmission and disease	Non-invasive, needle-free	Easy administration (incl. self- administration)
No requirement for trained healtcare personnel)	Needle-associated risks eliminated (infections, injuries)	High compliance (ideal for children, people afraid of needles, elderly)
More ecologial and economical	Meets global demand	Effective way to get more people vaccinated in a shorter timeline



Development of FINCoVac 2.0 vaccine against SARS-CoV-2:

- Consists of an adenoviral vector expressing a modified Spike protein of SARS-CoV-2 virus
- Designed to program nasopharyngeal cells to produce the vaccine antigen, and to elicit strong mucosal and systemic immune responses against the SARS-CoV-2 Spike protein
- ✓ Does not contain the actual SARS-CoV-2 virus







General development plan & schedule

ROKOTE LABORATORIES

Future: Our vaccine technology – platform

- Readily adaptable FINCoVac 2.0 vaccine could help in responding to future SARS-CoV-2 variants
- FINCoVac 2.1 in development
- The same platform can be exploited to develop vaccines against other viruses to come, allowing us to protect ourselves against the threat of other pandemics in the future



Other Covid-19 NASAL vaccines trials in development globally:

- ✓ 114 vaccines in clinical trials
- ✓ Only 13 intranasal administration (trials)

 NOTE:
 ✓ Only 3 intranasal vaccines similar type (adenovirus vector) to FINCoVac 2.0 in global development. Our vaccine is the only one in EU area.

Coronavirus Vaccine Tracker

By Carl Zimmer, Jonathan Corum, Sui-Lee Wee and Matthew Kristoffersen Updated Jan. 31, 2022

PHASE 1	PHASE 1/2	PHASE 2	PHASE 2/3	PHASE 3	AUTHORIZED	APPROVED	ABANDONED
28	21	17	11	37	18	10	10
Vaccines testing safety and dosage	Combined trials	Vaccines in expanded safety trials	Combined trials	Vaccines in large-scale efficacy tests	Vaccines in early or limited use	Vaccines approved for full use	Vaccines abandoned after trials

Vaccines typically require years of research and testing before reaching the clinic, but in 2020, scientists embarked on a race to produce safe and effective coronavirus vaccines in record time. Researchers are currently testing **114 vaccines** in clinical trials on humans, and 48 have reached the final stages of testing. More than 75 preclinical vaccines are under active investigation in animals.



A large number of people worldwide still remain <u>without access</u> to vaccines





Vaccine Market Estimates*:

GLOBAL VACCINE MARKET:

- \$55,4B (2020)
- \$187B (2021)

GLOBAL INFLUENZA VACCINE MARKET:

- \$5,9B (2020)
- Projected to grow \$10.7B (2028)

GLOBAL COVID-19 MARKET:

- \$65,6B (2021), non-Chinese vaccines
- \$137B (2021)
- Projected to grow 84,9B (2022), non-Chinese vaccines

Health, Pharma & Medtech > Pharmaceutical Products & Market

Forecasted sales of select COVID-19 vaccines worldwide in 2021 and 2022

(in billion U.S. dollars)



*By Fortune Business Insights, Airfinity, GlobeNewswire





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Building a safer future

> Kiitos ! Thank You !



