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## **NANOTECHNOLOGY APPLIED TO NEW VACCINES: the COVID-19 case and the perspectives of application to major diseases still without vaccine coverage**

*Saturday, 28 August 2021 18:00 (2 hours)*

The primary focus of PD Dr Steve Pascolo's research activities since the beginning of his scientific career has been the use of molecular biology as a tool for improving health.

Ecole Normale Supérieure: PhD in Biochemistry

After developing an immunologically "humanized" mouse model in 1998 at Institut Pasteur in Paris, he used the model to compare vaccine formats, i.e., proteins, peptides and nucleic acids (plasmid DNA and messenger RNA), during his post-doctoral fellowship in Tuebingen, Germany.

As messenger RNA is an innovative, safe and promising vaccine format, he led a team at Tuebingen University which further optimized its efficacy and implemented its clinical evaluation from 1999 to 2006.

This was made possible through collaboration between research and clinical teams at the University Hospital of Tuebingen and a dedicated company that he co-founded, CureVac.

Numerous pre-clinical and clinical studies (from Phase I to pivotal) evaluating different formulations of mRNA vaccines across several therapeutic (e.g., anti-cancer vaccines) and prophylactic (e.g., anti-pathogen vaccines) setups are ongoing.

They foresee that mRNA-based formulations will soon be approved as therapeutic drugs and that many new formulations of mRNA will be used to address a wide range of health issues (e.g., cancer, infectious diseases, allergies, genetic diseases, regenerative medicine). Aiming to combine immunotherapies and chemotherapies for the treatment of cancer, Dr Pascolo joined the University Hospital of Zurich in 2006.

His current activities include the implementation of clinical studies (chemotherapy combinations) and, through the URPP, the pre-clinical optimization and clinical implementation of mRNA-based anti-cancer therapies. This later project comprises primarily (i) active immunotherapies using immunostimulating mRNA-based formulations that can boost natural anti-cancer immunities and (ii) passive anti-cancer immunotherapies using mRNA-coding immune receptors that can endow any relevant lymphocyte with anti-cancer capabilities.

Dr Pascolo is co-founder and CSO of CureVac AG (2000-2006); Founder and CEO of Miescher Pharma GmbH (since 2008); Founder and CEO spRNA (since 2013);

PD Dr Senior Scientist at University Hospital of Zurich at the Oncology Department (2006-2013): at the Dermatology Department (since 2013) and Messenger RNA platform (since 2016).

**Presenter:** Dr PASCOLO, Steve (University of Zurich, URPP Translational Cancer Research)

**Session Classification:** KEYNOTE LECTURE: KEYNOTE 6 → NANOTECHNOLOGY APPLIED TO NEW VACCINES