



The fire of research: Katalin Karikó's legacy

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In 1985, on her 30th birthday, Katalin Karikó received a resignation letter from the university. The socialist Hungarian state was in an economic crisis, research funds were cut, and many other scientists lost their jobs. In 2020–2021, after a 35-year-long career, she received almost all the prizes and awards, which were established to honour research achievements. What has happened?

Right after the beginning of the COVID-19 pandemic, the world and also the scientific community at large, has discovered her work and important contributions to the development of the nucleoside-modified mRNA-based COVID-19 vaccines that saved millions of lives. Suddenly, everything she and her colleagues made became of huge importance. Katalin Karikó always acknowledged how much she owed to her former colleagues and mentors such as Ernő Duda and Éva Kondorosi and collaborators such as Drew Weissman, Norbert Pardi and János Ludwig but without her stubborn attitude, strong belief and hard work, the success of mRNA vaccination could have missed the COVID-19 pandemic.

Now, her life is an open book for old and young alike. She has been travelling around the world, and her scientific presentations, short and in-depth interviews and welcome speeches revealed Katalin Karikó's devotion to research and discoveries, but she never missed the opportunity to encourage the younger generation to work in science. She also gives important advice, quite rightfully with regard to her adventurous career. These are not only about not making the same mistakes, but also about how to deal with the difficulties that explorers of the unknown often encounter.

Be curious, very curious, is one of her repeated recommendations. Her life echoes this view for not giving up on the dream using mRNA as a therapeutic agent. More than

30 years of research, advancing step-by-step can be managed only if one never stops looking for new ideas.

Resistance to failure is a familiar notion for all working in science. This is why working in groups is important, as we can share the joy of success and frustration of fiascos.

Solving the problem by all means—without endurance and focus, innovative scientific work is in vain. Collaboration with experts from other fields seems to be a must. The synergistic effects of interdisciplinary research cannot be overemphasized.

A scientist cannot avoid failures when he/she tries to understand the unknown. Failures are part of everyday life, as well as criticism that one may receive from fellow colleagues. In most cases, it turns out, these are the most valuable inputs one can get; less is learnt from successes.

And this is only a little that we have learnt from her. There is no secret; the secret is in the people who have the right vision and follow the above-mentioned points.

In this volume, we have collected a small number of specific papers to express our salute for Katalin Karikó's achievements as well as for the huge work of the whole mRNA research community. Without their work, we would have lost more families, colleagues, or friends during the COVID-19 pandemic (Fig. 1).

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Fig. 1 Katalin Karikó together with Norbert Pardi at early stages of vaccine development

