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Author: Dr. Norbert Frischauf
TU Graz, Austria, Norbert.Frischauf@cern.ch

Ms. Doris Dangler
Austria, d.dangler@ts-stellar.com

Mr. Alexander Kraus
Austria, a.kraus@ts-stellar.com

Mr. Robert Mayer
Austria, r.mayer@ts-stellar.com

Prof. Maria Sibia
University of Vienna, Austria, maria.sibia@meduniwien.ac.at

Prof. Christian Singer
University of Vienna, Austria, christian.singer@meduniwien.ac.at

Dr. Alexander Farr
University of Vienna, Austria, alex.farr@meduniwien.ac.at

Dr. Martina Sanlorenzo
University of Vienna, Austria, martina.sanlorenzo@meduniwien.ac.at

Prof. Michael Hamblin
United States, hamblin@helix.mgh.harvard.edu

MIRA - A MEDICAL PARADIGM SHIFT TO CANCER TREATMENT BANED ON A PULSED
PLASMA PROPULSION SYSTEM**Abstract**

An essential problem when treating cancer is the selective access and controlled destruction of tumour cells in the patient's body. After tumours have been surgically removed, individual tumour cells often remain in the body, out of which new tumours could develop.

The traditional follow-up treatments of chemotherapy and radiation are often unable to destroy these cancer cells in a controlled manner. And the destruction of healthy cells might cause more harm to the patient.

Based on current diagnostic methods, the possibility now exists of combining biotechnology and physics to come up with a more effective and gentle way to treat cancer. To this end, antibodies endowed with special iron nanospheres are used, as well as alternating magnetic fields which generate a force through a physical coupling that destroys the abnormal cell without harming the surrounding healthy tissue. MIRA, the Magnetic-field-based Immunotherapy for Remission using endowed Antibodies is a unique cancer therapy, highly selective, efficient, side-effect free and derived from a pulsed plasma thruster.

The procedure's physical foundation is based on alternating magnetic fields whose effects were described as early as 1942 by Hannes Alfvén, a Swede who would later win the Nobel Prize. During this process, the disruption of a magnetic field generates a force effect on magnetic conductive material that lies in close proximity to it. In nature, such effects can be seen in solar eruptions and in northern lights. In the case of MIRA, the coupling is enabled by iron nanospheres with which the antibody is endowed. The force effect on the antibodies is great enough to destroy the cell membrane, thereby irreversibly damaging the cancer cell.

This facilitates gentler treatment, since its effect can be switched on and off in a targeted manner. MIRA therefore functions like a light switch, except instead of light, a therapeutic treatment is switched on and off, precisely targeting the right spot at the right time. Depending on the treatment method, this allows the tumour to be destroyed in one or more carefully planned sessions. MIRA method's high efficiency is also manifested in its short treatment duration. Experiments performed so far have shown that 30 seconds is enough time for the selected cells to be destroyed. First in-vitro tests are foreseen to start in the 4th quarter of 2019 – if MIRA functions well, the first complete healing of surface-near cancer types (like breast, skin and prostate) is close at hand.