

Breakthrough from Israel's MIGAL Research Institute in Development of Corona virus (COVID-19) Vaccine

- *After 4 years of research funded by Israel's Ministry of Science & Technology, MIGAL's researchers have developed an effective vaccine against avian coronavirus Infectious Bronchitis Virus (IBV), to be adapted soon and create a human vaccine against COVID-19*

Israel's Minister of Science and Technology, Mr. Ofir Akunis, commented:

"Congratulations to MIGAL on this exciting breakthrough. I am confident that there will be further rapid progress, enabling us to provide a needed response to the grave global COVID-19 threat." Minister Akunis has instructed the Director General of the **Ministry of Science and Technology** to fast-track all approval processes with the goal of bringing the human vaccine to market as quickly as possible.

After 4 years of multi-disciplinary research funded by Israel's Ministry of Science and Technology in cooperation with Israel's Ministry of Agriculture, MIGAL has achieved a scientific breakthrough that will lead to the rapid creation of a vaccine against Coronavirus. This possibility was identified as a by-product of MIGAL's development of a vaccine against IBV (Infectious Bronchitis Virus), a disease affecting poultry, whose effectiveness has been proven in pre-clinical trials carried out at the Veterinary Institute. **MIGAL has now made required genetic adjustments to adapt the vaccine to COVID-19, the human strain of coronavirus, and is working to achieve the safety approvals that will enable in-vivo testing,** enable the initiation of production of a vaccine to counter the Coronavirus epidemic currently spreading throughout the world.

From research conducted at MIGAL, it has been found that the poultry coronavirus has high genetic similarity to the human COVID-19, and that it uses the **same infection mechanism**, a fact that increases the likelihood of achieving an effective human vaccine in a very short period of time.

Commenting on the news, **David Zigdon, CEO of MIGAL GALILEE RESEARCH INSTITUTE, said,** "Given the urgent global need for a human coronavirus vaccine, we are doing everything we can to accelerate development. Our goal is to **produce the vaccine during the next 8-10 weeks, and to achieve safety approval in 90 days.** This will be an oral vaccine, making it particularly accessible to the general public. **We are currently in intensive discussions with potential partners that can help accelerate the in-human trials phase and expedite the completion final product development and regulatory activities."**

Dr. Chen Katz, MIGAL's Biotechnology Group Leader, commented, "The scientific framework for the vaccine is based on a **new protein expression vector, which forms and secretes a chimeric soluble protein that delivers the viral antigen into mucosal tissues by self-activated endocytosis** (a cellular process in which substances are brought into a cell by surrounding the material with cell membrane, forming a vesicle containing the ingested material), causing the body to form antibodies against the virus. In pre-clinical (IN-VIVO)

trials, MIGAL's researchers have demonstrated that the oral vaccination induces high levels of specific anti-IBV antibodies.

MIGAL Galilee Research Institute Ltd is a regional R&D center of the Israeli Science and Technology Ministry owned by the Galilee Development Company Ltd. In 2019, Israel's Ministry of Science and Technology provided MIGAL with NIS 30 million to fund its research, covering approximately 50% of its budget. MIGAL is an internationally-recognized multi-disciplinary applied research institute that specializes in biotechnology and computer sciences, plant science, precision agriculture and environmental sciences, and food, nutrition and health. MIGAL's employees include 90 PhDs and 190 researchers distributed across 44 research groups, each managed by a senior principal investigator. In addition, MIGAL's field researchers carry out projects in experimental farms. With unique capabilities MIGAL has evolved into an innovative research ecosystem that encourages collaboration across scientific, industrial, agricultural, academic and technological specialties, generating sustainable value to Israel's northernmost region.

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