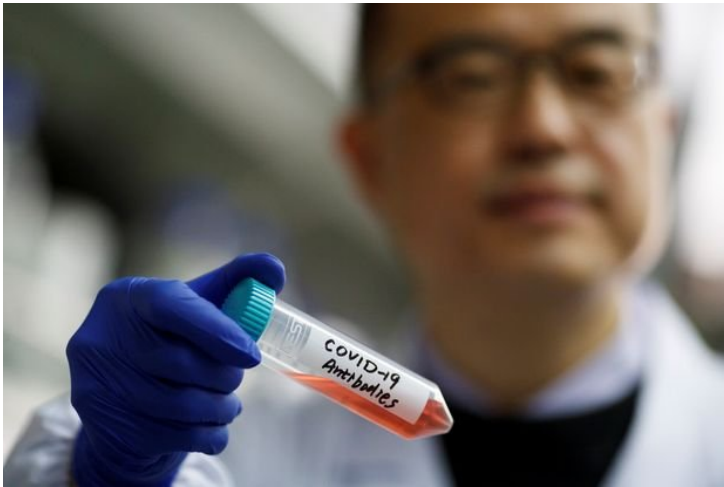


## Taiwan finds key antibodies in COVID-19 patients

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**The achievement could facilitate the development of rapid screening kits and medications**



A Taiwanese research team has produced 25 human monoclonal antibodies based on antibody gene segments from three patients infected with the COVID-19 coronavirus.

Huang Kuan-ying, a resident physician at Chang Gung Memorial Hospital who led the research team, told the press Tuesday that the achievement could facilitate the development of not only rapid screening kits but also medication that targets the virus.

Monoclonal antibodies (mAbs) are immune system proteins that are created in the lab. They are made by identical immune cells that are all clones of a unique parent cell. Like the body's own antibodies, mAbs recognize specific targets.

The mAbs, made based on antibodies in B cells of the patients, are 13 strains targeting the spike protein (S) of the coronavirus and 12 strains targeting the nucleocapsid protein (N) of the virus.

B cells are a type of white blood cell that make antibodies. They are part of the immune system and develop from stem cells in the bone marrow. They are also called B lymphocyte.

Since the antibodies can identify the virus, they are useful in two areas, including the development and production of rapid testing agents, Huang said, and if such antibody testing agents react to tissue samples containing the virus, they can show the result in a minimum of 30 minutes.

These mAbs are regarded as "magic bullets" that can cure some infectious diseases and can subsequently use in therapies. My team found that there is one particular strain among the 13 S-targeting mAbs that has the ability to block the paths that the new coronavirus can use to invade the body, Huang said.

He explained that for the virus to enter cells, it has to integrate with the cell receptor, angiotensin converting enzyme 2, which is an enzyme attached to the outer surface of cells in organs.

"The receptor is like a gate. If the virus outflanks an antibody to open it, the body will be infected," the researcher said. "But if the antibody opens the gate first, it has the opportunity to stop the virus from entering cells."

Shih Shin-ru, a professor at the Research Center for Emerging Viral Infections of Chang Gung University, said this certain mAb, which was found capable of stopping the coronavirus from invading the body, can be used in the development of COVID-19 therapies or even vaccines if it is proven effective in human tests in the future.

Compared with animal mAbs, those from humans will be safer to use in medical treatment, she added.