

For the attention of all PR parties:

June 1, 2020

National University Corporation - Tokyo Medical and Dental University
Metran Co., Ltd.

“Opening of an open-laboratory for research into next generation ventilators, and for evaluation and research, etc. of new ventilator types, with a view towards responding to the surge in numbers of novel coronavirus patients”

[Points]

- **The National University Corporation - Tokyo Medical and Dental University and Metran Co., Ltd. have commenced two new research programs utilizing the TMDU Open Innovation Institute/Institute of Integrated Innovation Advancement.**
- **The open-laboratory will be established and implemented within TMDU in accordance with the “TMDU Open Innovation System”.**

1. [Innovative Ventilator Research and Development]

Chronic obstructive pulmonary disease (COPD), an inflammatory lung disease attributable to factors such as smoking, is a lifestyle-related disease that is widespread among the middle-aged and elderly. This disease is ranked as the ninth highest cause of death in Japan; the seventh highest among men, and the number of COPD patients is expected to rise in Japan and throughout the world as the smoking population ages. At present, respiratory aid for patients with illnesses such as COPD or interstitial pneumonia requires the attachment of masks or intubation, and oxygen cylinders to supply additional oxygen. This entails QOL issues as the ability to move/exercise becomes limited, and the patient is rendered incapable of engaging in conversation or eating and drinking.

With a view towards the resolution of such issues, Metran Co., Ltd. will engage in a joint three-year project with TMDU for the “Research and development of ventilators that use cannulas (tubes attached to the nasal cavities) and do not require additional oxygen, for patients experiencing difficulties in breathing, such as COPD patients, etc.” Through this research, we will aim to realize innovative compact/lightweight ventilators that will allow treatments to be continued in settings away from hospital wards, such as for rehabilitation and during disasters, etc. without the need for mask attachment, intubation or oxygen cylinders. In addition, we will conduct research to expand applications for these new ventilators in areas such as the realization of new treatment methods to prevent COPD exacerbation, etc.

This research will be implemented with Professor Yasunari Miyazaki, of the TMDU Department of Respiratory Medicine, as the Research Supervisor.

Furthermore, Metran Co., Ltd. has concluded cooperative agreements with the Technical World Group Corporation (TWG), of Ho Chi Minh City, Vietnam, for the development/sales of medical business and medical equipment in Vietnam, and is also promoting cooperation in the medical field with Van Lang University, established in 1995 as the first private university in Vietnam. Along with this research, TMDU will be examining the promotion of business cooperation for research and education, etc. in the medical field in Vietnam, through Metran Co., Ltd.



President Tanaka, TMDU (Left) Chairman Tran Ngoc Phuc, Metran Co., Ltd. (Right)

2. [Research, etc. related to new ventilator types for use against the novel coronavirus]

Due to the worldwide surge in patients with respiratory failure, caused by the novel coronavirus (COVID-19), the appropriate deployment of ventilators to medical institutions has become a pressing issue. While each country is engaged in approaches to secure additional ventilators, the production capacity for existing products is limited, and as ventilators are sophisticated medical devices, new models are not easy to develop and produce, and there is a worldwide supply shortage.

In response to these circumstances, Metran Co., Ltd. developed the ELICIAE MV20 Ventilator based on their world leading technologies and the know-how they have cultivated to date. This ventilator boasts “simple structure/functions, simple operation, low cost” characteristics, and a short production lead-time. The MV20 allows management of respiratory failure patients, including those with Acute Respiratory Distress Syndrome (ARDS), through lung-protective ventilation. Meanwhile, as the MV20 urgently requires evaluation for application in relation to human patients, Metran Co., Ltd. and TMDU will undertake evaluations of the MV20’s effectiveness and safety from the perspectives of respiratory physiology and clinical medicine, and will jointly create “Usage Guidance” using the newly established open-laboratory to facilitate safe usage in clinical practice throughout the world.

The MV20 is thought to be particularly useful in cases where ventilator shortages occur due to explosive increases in patient numbers and in cases where medical personnel who are not skilled in the use of ventilators need to conduct respiratory management, and we have already accumulated feedback concerning specific needs in relation to the MV20 from over sixty countries worldwide. With rapid production on a scale of several thousand per month, and the contribution of the TMDU Open Innovation System to preparations such as the creation of usage guidance to facilitate emergency use in clinical practice, we believe that the MV20 will certainly save the lives of patients throughout the world, and will be of great significance to the treatment of novel coronavirus and society.

For this research, Professor Tokujiro Uchida of the TMDU Department of Anesthesiology will be the Research Supervisor, with Junior Associate Professor Kenji Wakabayashi and others of the TMDU Department of Intensive Care Medicine appointed as co-researchers, and we have secured the cooperation of Professor Masao Takata, Section of Anaesthetics, Pain Medicine & Intensive Care, Faculty of Medicine, Imperial College London (Extramural Director, TMDU), etc.

[Research related matters]

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[Press related matters]

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