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Tata Memorial Hospital conducts first CAR-T cell therapy

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The CAR-T cells were designed and manufactured at Bioscience and Bioengineering (BSBE) department of IIT Bombay

Tata Memorial Hospital (TMH) recently conducted the first CAR-T cell therapy (a type of gene therapy) at the Bone Marrow Transplant unit at ACTREC in Mumbai. The CAR-T cells were designed and manufactured at Bioscience and Bioengineering (BSBE) department of IIT Bombay.

The initiative is partly supported by BIRAC-PACE scheme. The TMC-IIT Bombay team are further supported to extend this project for conducting Phase I/II trial of their CAR-T product by DBT/BIRAC, through National Biopharma Mission.

This is a “first in India” gene therapy in early phase pilot clinical trial and the dedicated efforts and excellent collaboration between IIT Bombay and Tata Memorial Hospital, Mumbai. The central government’s National Biopharma Mission-BIRAC has approved Rs 19.15 crore to the team for conducting a first-in-human phase-1/2 clinical trial of the CAR-T cells.

The clinical trials are being done by Dr (Surg Cdr) Gaurav Narula, Professor of Paediatric Oncology and Health Sciences, and his team from TMC, Mumbai, and the novel CAR-T cells that will act as drugs that were manufactured by Prof Rahul Purwar, Bioscience and Bioengineering (BSBE) department and his team at IIT Bombay. The design, development, and extensive pre-clinical testing was carried out by IIT-B as a collaborative project with Tata Memorial Center, Mumbai by the two Investigators.

Subhasis Chaudhuri, Director, IIT-B said this was a significant feat for the institute as well as the country. “We at IIT-B are delighted that our scientists along with TMH have come out with the most sophisticated therapy in cancer treatment. If the trials are successful, it may save millions of lives by making the treatment available in India at an affordable cost. It is a research of IIT-B that is expected to touch the lives of all,” said Chaudhuri.

National Biopharma Mission is also supporting the development of Lentiviral vector manufacturing facility for packaging

plasmids used to transfer the modified T cell inside the body, cGMP facility for T-cell transduction and expansion for CAR T-cell manufacturing to two other organizations. The development of CAR-T cell technology for diseases including acute lymphocytic leukaemia, multiple myeloma, glioblastoma, hepatocellular carcinoma and type-2 diabetes is supported through DBT.