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## Windpipe Transplant Breakthrough

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The groundbreaking technology also means for the first time tissue transplants can be carried out without the need for anti-rejection drugs.

Five months on, the patient, 30-year-old mother-of-two Claudia Castillo, is in perfect health, The Lancet reports. She needed the transplant to save a lung after contracting tuberculosis. The Colombian woman's airways had been damaged by the disease.

Scientists from Bristol helped grow the cells for the transplant and the European team believes such tailor-made organs could become the norm. To make the new airway, the doctors took a donor windpipe, or trachea, from a patient who had recently died. Then they used strong chemicals and enzymes to wash away all of the cells from the donor trachea, leaving only a tissue scaffold made of the fibrous protein collagen. This gave them a structure to repopulate with cells from Ms Castillo herself, which could then be used in an operation to repair her damaged left bronchus - a branch of the windpipe.

How windpipe transplant works:

By using Ms Castillo's own cells the doctors were able to trick her body into thinking the donated trachea was part of it, thus avoiding rejection. Two types of cell were taken from Ms Castillo: cells lining her windpipe, and adult stem cells - very immature cells from the bone marrow - which could be encouraged to grow into the cells that normally surround the windpipe.

After four days of growth in the lab in a special rotating bioreactor, the newly-coated donor windpipe was ready to be transplanted into Ms Castillo.

Her surgeon, Professor Paolo Macchiarini of the Hospital Cl

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