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Singapore creates intelligent material for delivering drugs within body

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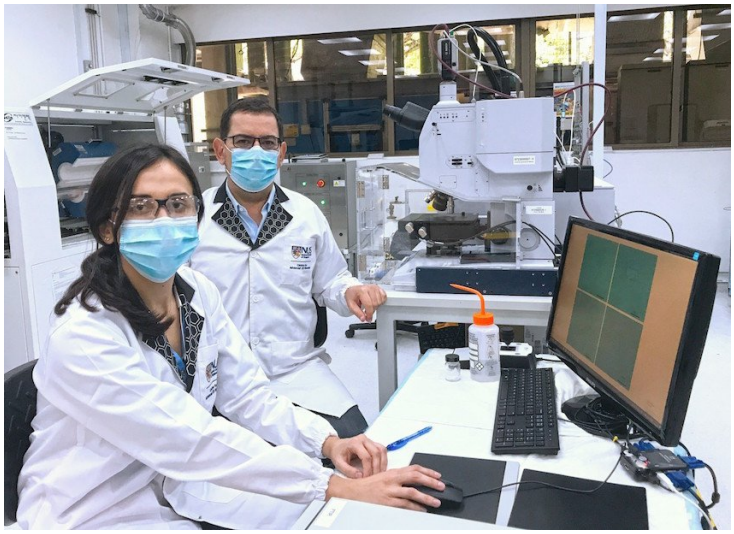

Researchers from the Centre for Advanced 2D Materials (CA2DM) at the National University of Singapore (NUS) have created a new class of intelligent materials. It has the structure of a two-dimensional (2D) material, but behaves like an electrolyte – and could be a new way to deliver drugs within the body.

Delivering drugs to a specific target inside the body using intelligent materials is particularly important for diseases like cancer, as the smart material only releases the drug payload when it detects the presence of a cancer cell, leaving the healthy cells unharmed.

The team behind the 2D-electrolytes is led by Professor Antonio Castro Neto, Director of CA2DM, and comprised researchers from CA2DM, as well as the NUS Department of Physics, and the NUS Department of Materials Science and Engineering.

“There is an uncountable number of ways to functionalise graphene and other 2D materials to transform them into 2D-electrolytes. We hope that our work will inspire scientists from different fields to further explore the properties and possible applications of 2D-electrolytes. We anticipate that as 2D-electrolytes have similarities with biological or natural systems, they are capable of spontaneously self-assemble and cross-link to form nanofibers that are promising for applications in filtration membranes, drug delivery, and smart e-textiles,” explained Prof Castro Neto.

Image caption- The team that created the 2D-electrolytes was led by Prof Antonio Castro Neto (right), Director of CA2DM. With him is Mariana Costa (left), the first author of the ground-breaking publication.