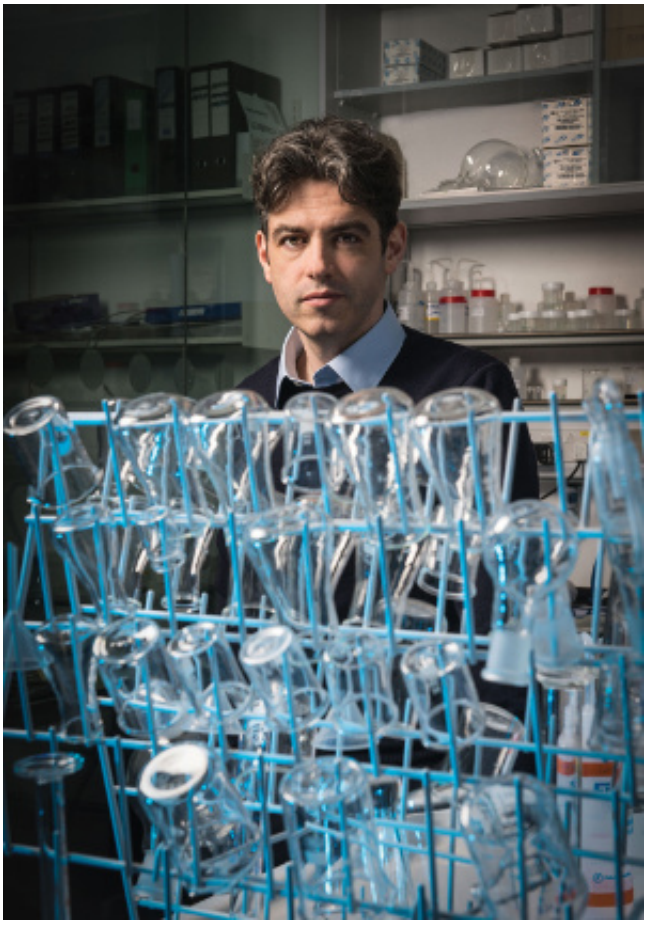
# Digital chemistry set reaches new heights with space launch

February 16 2017, by Ross Barker



Professor Lee Cronin

A University of Glasgow research project is set to get underway beyond the earth's atmosphere following a successful launch into space today

(Wednesday 15 February).

The project could help future space explorers create their own chemicals and drugs on demand, allowing them to maximise the efficiency of their launch payloads by taking raw chemical ingredients with them rather than specific medications. They could then use digital chemistry technology to make drugs and other materials as required.

A DIDO2 nano-satellite containing an experiment designed by Professor Lee Cronin, the University's Regius Chair of Chemistry, was one of 103 launched into space this morning on an Indian Space Research Organisation (ISRO) rocket. Professor Cronin and his research team developed the launch in partnership with SpacePharma, a company which specialises in providing scientists with access to microgravity environments.

The mission, part of the ISRO's Polar Satellite Launch Vehicle programme, was successfully launched just before 4am GMT/ 9am local time at Sriharikota, around 80km from Chennai.

The experiment is a continuation of previous research from the Cronin Group which aims to digitise chemistry and make it possible for chemical compounds of all kinds to be 'printed' on demand.

During the experiment, the research team will remotely activate a microfluidic device inside the satellite which will bring together chemical agents. Using an onboard microscope, they will be able to watch the agents react, forming crystals of a drug currently being developed for use in as a possible anti-cancer treatment.

Professor Cronin said: "This is a fantastic opportunity to literally take the Cronin Group's research to new heights. Low- and zero-gravity environments offer a wide range of new opportunities for science, and

we're excited to see how this experiment progresses.

"Imagine you are on living on Mars and you need access to a drug that you have not taken with you, this approach might allow you to use a digital blueprint and make the drug on demand from a minimal set of chemicals.

"This collaboration is exciting since we are going to be able to do a digitally controlled chemical experiment in space that produces a complex organic molecule that is part of a class of anti-cancer drugs under study in my laboratory. We chose this molecule as it complex one-pot three step assembly and ends by producing the drug candidate in highly pure crystalline form."

Yossi Yamin, founder and CEO of SpacePharma, said: "We are really excited that Professor Cronin is using our nano-satellite for his digital chemical experiments and we hope this will pave the way for developing chemistry in space including drug manufacturing and testing."

Provided by University of Glasgow

Citation: Digital chemistry set reaches new heights with space launch (2017, February 16) retrieved 20 March 2024 from https://phys.org/news/2017-02-digital-chemistry-heights-space.html