Local scientists have developed the first-ever device to study cell migration and deformation.

Called the Biological Electro Mechanical or BioMEMs device -- it provides researchers with clues on the best way to target anti-cancer drugs.

Cancer cells have the ability to invade blood vessels and find their way into the bloodstream.

Once there, these infected cells can easily travel to other parts of the body and attack healthy organs.

Until now, scientists have been unable to understand how cancer cells are able to pass through gaps in the blood vessel -- which are 10 times smaller than the cells.

Scientist at the Institute of Bioengineering and Nanotechnology, Dr M M Maran explains.

"Once the cancer cells are inside the blood vessels, these cancer cells look for some way to migrate – this means going from one part of the organ to another. The cell size is around 30micron... which is very big, about 10 times bigger than the gap size in the blood vessel. Once the cell is inside the blood vessel, it changes its shape and size, deforms and then migrates through these small gaps."

The BioMEMs device mimics the blood vessel environment, enabling researchers to track the movement of the cancer cells.

Understanding the migration and deformation of these cancer cells will then enable scientists to study the effectiveness of drugs that target the tumours.

Dr Maran again.

"The device can be used in cancer drug evolution study. You can develop some anti-cancer drugs which stops the migration or deformation of the cancer cell. We can put the cells and the new drug inside our device and we can study the drug effect on the cancer cell, using our model. So this is an in vitro model. There is no need for a real trial on a patient or a person. Once we understand the way the cancer spreads, you can target those parameters involving cell migration or deformation. We can even develop new drugs to reduce the gap size in the blood vessel."

Which brings Dr Maran and his team one step closer to developing drugs that can zero in on cancer cells.