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# British experts help to develop cancer-killing nanomachines

By Sarah Knapton SCIENCE EDITOR

NANOMACHINES which can drill into cancer cells, killing them in just 60 seconds, have been developed by scientists.

The tiny spinning molecules are driven by light, and spin so quickly that they can burrow their way through cell linings when activated.

In one test conducted at Durham University the nanomachines took between one and three minutes to break through the outer membrane of a prostate cancer cell, killing it instantly.

The 'motor' is a rotor-like chain of atoms that can be prompted to move in one direction, causing the molecule to rotate at high speed.

Dr Robert Pal, of Durham University, said: "We are moving towards realising our ambition to be able to use light-activated nanomachines to target cancer cells such as those in breast tumours and skin melanomas, including those resistant to existing chemotherapy.

"Once developed, this approach could provide a potential step change in non-invasive cancer treatment and greatly improve survival rates and patient welfare globally."

The scientists, whose work is reported in the journal *Nature*, created several different light-activated motorised molecules designed to home in on specific cells.

The molecules could be used either to tunnel into cells carrying therapeutic agents, or to act as weapons that open up tumour membranes.

Videos showed the cancer cell membranes bubbling under the assault.

Dr James Tour, a member of the international team from Rice University in Houston, US, said: "These nanomachines are so small that we could park 50,000 of them across the diameter of a human hair."