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康奈尔大学研究人员研究出能够防止癌细胞扩散纳米材料

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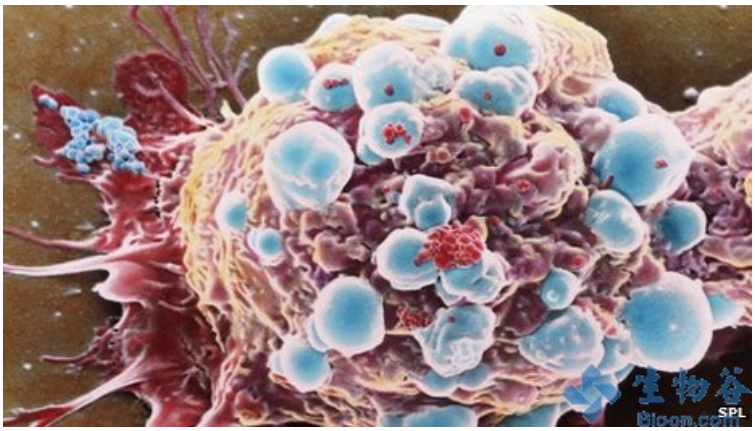

2014年1月7日讯 /生物谷BIOON/ --康奈尔大学研究人员最近研发出一种纳米材料可能能够摧毁血液中肿瘤细胞并防止癌细胞扩散。癌症后期会造成癌细胞的转移，使得肿瘤病灶遍布全身，最终造成患者死亡。负责这项研究的Prof Michael King表示由90%的癌症患者最终是死于癌症扩散。而此项研究的结果则是相当令人振奋的，如果能够最终实现，将对癌症治疗起到十分重要的作用。不过目前这一研究还处于早期阶段，需要进行更深入一步的研究。

研究人员将一种名为Trail的蛋白附着在纳米颗粒上，这种纳米颗粒一旦进入血液将定位在白细胞上，白细胞即可据此定位在血液中扩散的癌细胞，试验结果显示，结果显着，血液中肿瘤细胞水平降低显着。目前研究人员希望今后这种疗法与化疗、放疗等疗法结合起来。（生物谷Bioon.com）

详细英文报道：

Cancer-killing "sticky balls" can destroy tumour cells in the blood and may prevent cancers spreading, early research suggests.

The most dangerous and deadly stage of a tumour is when it spreads around the body.

Scientists at Cornell University, in the US, have designed nanoparticles that stay in the bloodstream and kill migrating cancer cells on contact.

They said the impact was "dramatic" but there was "a lot more work to be done".

One of the biggest factors in life expectancy after being diagnosed with cancer is whether the tumour has spread to become a metastatic cancer.

"About 90% of cancer deaths are related to metastases," said lead researcher Prof Michael King.

On the trail

The team at Cornell devised a new way of tackling the problem.

They attached a cancer-killing protein called Trail, which has already been used in cancer trials, and other sticky proteins to tiny spheres or nanoparticles.

When these sticky spheres were injected into the blood, they latched on to white blood cells.

Tests showed that in the rough and tumble of the bloodstream, the white blood cells would bump into any tumour cells which had broken off the main tumour and were trying to spread.

The report in Proceedings of the National Academy of Sciences showed the resulting contact with the Trail protein then triggered the death of the tumour cells.

Prof King told the BBC: "The data shows a dramatic effect: it's not a slight change in the number of cancer cells.

"The results are quite remarkable actually, in human blood and in mice. After two hours of blood flow, they [the tumour cells] have literally disintegrated."

He believes the nanoparticles could be used used before surgery or radiotherapy, which can result in tumour cells being shed from the main tumour.

It could also be used in patients with very aggressive tumours to prevent them spreading.

However, much more safety testing in mice and larger animals will be needed before any attempt at a human trial is made.

So far the evidence suggests the system has no knock-on effect for the immune system and does not damage other blood cells or the lining of blood vessels.

But Prof King cautioned: "There's a lot of work to be done. Various breakthroughs are needed before this could be a benefit to patients."