Boffins test cancer-stinging 'nano-bee' swarms in mice

No risk of zombie-plague side effects, seemingly

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American medi-boffins say they have developed a way of using tiny nanotech devices, which they call "nanobees", to carry a potentially poisonous drug safely into the body for the purposes of killing cancerous tumours.

The "bees" are so-called - as opposed to being named "nanowasps" or "nanocobras" or whatever - because the the toxin they carry is melittin, the same used by real bees to poison their victims after stinging them.

"Melittin has been of interest to researchers because in high enough concentration it can destroy any cell it comes into contact with, making it an effective antibacterial and antifungal agent and potentially an anticancer agent," says Doc Paul Schlesinger, cell biology prof at Washington University in St Louis (WUSTL).

"Nanobees are an effective way to package the useful, but potentially deadly, melittin, sequestering it so that it neither harms normal cells nor gets degraded before it reaches its target," he adds.

According to WUSTL: The scientists tested nanobees in two kinds of mice with cancerous tumors. One mouse breed was implanted with human breast cancer cells and the other with melanoma tumors. After four to five injections of the melittin-carrying nanoparticles over several days, growth of the mice's breast cancer tumors slowed by nearly 25 percent, and the size of the mice's melanoma tumors decreased by 88 percent compared to untreated tumors.

The nanobees are tiny perfluorocarbon spheres about "six millionths of an inch" across. The scientists believe that they can be made to accumulate in tumours and even in pre-cancerous areas, so releasing their deadly payload just where it's wanted. This happens partly because tumours naturally tend to act as biological sumps, accumulating material of various kinds. The boffins were able to enhance this effect by adding a targeting agent attracted to areas where blood supply is increasing - as it does where cancerous growths are developing.

This could mean that the nanobees would be capable of tackling cancer proactively, before it was fully developed. "We are learning more and more about tumor biology," says Schlesinger. "That knowledge could soon allow us to create nanoparticles targeted for specific tumors using the nanobee approach."

The obvious zombie-plague consideration - those zombie plagues which don't arrive from space are typically the result of nanotechnology and/or cures for cancer, AIDS etc. - would seem baseless in this case. The "targeting" ability of the nanobees works simply by allowing them to circulate through the body many times until they pass through a cancerous region and stick: they aren't like tiny submarines, able to navigate about and perhaps decide to do something other than what their designers intended.

At any rate, there's no mention from the scientists of their test mice - following the remission or cure of their cancer - then turning into brain-scoffing photophobic shamblers able to pass on their condition via bites or scratches.The latest nanobees study from Schlesinger and his colleague will be advance published online today by the *Journal of Clinical Investigation*. ® Free whitepaper – PC-disable delivers intelligent client-side protection for lost or stolen notebooks