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Singapore researchers develop self-illuminating nanoagents

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A research team led by Nanyang Technological University, Singapore have created polymer nanoagents that can 'light up' tiny areas of diseased tissues that conventional methods fail to detect.

The nanoagents, known as 'semiconductor polymer nanoparticles' (SPNs), can store light energy from sources such as sunlight, near-infrared light or even light from mobile phones, and then emit long-lasting 'afterglow light'.

The research team used the nanoagents to track down and lock on to diseased tissues in the body such as cancerous cells, sending back near-infrared signals which can be received and interpreted by standard imaging equipment.

When tested in mice, the method provided results 20 to 120 times more sensitive than current optical imaging methods and 10 times faster in showing up diseased tissues.

The technology can also be used to evaluate the behaviour and therapeutic outcomes of drugs in the body, for example, whether drugs induce liver damage as a side effect. The researchers now intend to conduct further trials in larger animal models.