

Singapore develops microdroplets to reduce colorectal tumour growth at potentially lower cost

September 4, 2026 | News

Colorectal cancer is the second leading cause of cancer death worldwide



Scientists from Nanyang Technological University (NTU), Singapore have developed microscopic peptide droplets that deliver large amounts of gene silencing molecules into cancer and immune cells, reducing the growth of hard-to-treat colorectal tumours by about 67 per cent in mice.

The patent-pending system uses small interfering RNA, or siRNA, to disrupt the production of two proteins that cancer cells exploit to evade attacks by the immune system.

In the animal study, the combined siRNA treatment suppressed tumour growth to a level comparable to a combination of anti-PD-1 and anti-PD-L1 antibody treatments used as a benchmark. The researchers estimate that an siRNA-based approach could potentially cost five to 10 times less to produce than monoclonal antibody treatments if successfully developed and scaled up.

The team plans to test the platform in larger animal models to assess safety, dosing and how long the gene-silencing effect lasts. As the siRNA cargo can be changed, the same platform could potentially be adapted to target other cancers and diseases.

In Singapore, 12,950 colorectal cancer cases were diagnosed between 2019 and 2023. It was the second most commonly diagnosed cancer in both men and women, accounting for about 16 per cent of cancers in men and 13 per cent in women.