



Agribusiness

NTU and SMART develop sustainable antimicrobials for dairy industry

Newsflash Asia - October 13, 2025

Researchers from Nanyang Technological University, Singapore (NTU Singapore) and the Singapore-MIT Alliance for Research and Technology (SMART) have developed innovative antimicrobial compounds to combat bovine mastitis, a costly infection affecting the dairy industry. This breakthrough offers a sustainable alternative to antibiotics, addressing concerns over antibiotic resistance and milk contamination.

The novel compounds, known as oligoimidazolium carbon acids (OIMs), were tested in preliminary farm trials, demonstrating their effectiveness in preventing udder infections without adverse effects on milk quality. Professor Mary Chan from NTU Singapore highlighted the potential of these compounds, stating they “didn’t spoil the cows’ milk nor make it unsafe for consumption.”

The research, published in **Nature Communications**, has attracted interest from agricultural companies in Australia, Belgium, Malaysia, and New Zealand. These firms are keen to explore the commercial potential of OIMs as a safer, environmentally friendly alternative to traditional antiseptics like iodine and chlorhexidine, which can irritate udders and harm the environment.

Professor Paula Hammond from MIT noted the team’s plans to collaborate with industry partners for larger trials and commercialisation. The compounds’ ability to kill multi-drug-resistant bacteria in mice suggests further applications in the biomedical field, according to Professor Kevin Pethe of NTU.

The development of OIMs represents a significant step forward in addressing the challenges faced by the dairy industry, offering a promising solution to reduce the reliance on antibiotics and improve sustainability.