Washington University in St. Louis
Office of Technology Management

NANO-CACO3

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Background: Physiological pH changes consistently affect millions of people worldwide. A slight variation in physiological pH exposes the body to various health risks, ranging from common heartburn to the formation of malignant tumors. Conventional methods for buffering pH are accomplished through antacids, photon pump inhibitors, and H2 blockers. The use of Calcium Carbonate (CaCO3) as the active ingredient in antacids is prevalent. However, the stability and the resultant physiological effects of CaCO3 are greatly reduced pursuant to body entry. As such, a more stable composition of CaCO3 through the use of nanoparticles (nano-CaCO3) has been developed by researchers at Washington University in St. Louis.

Technology Description: Researchers have outlined two distinct methods to produce a stable range of CaCO3 nanoparticles in aqueous solution. The nanoparticles are capable of increasing pH in vivo, leading to inhibition of tumor growth. As solid tumors exploit the acidic physiological environment to facilitate metastasis, the buffering ability of CaCO3 has potential to greatly reduce rates of metastasis. The buffering capability of the CaCO3 nanoparticles is also promising as a more efficient antacid than those currently available.

Key Advantages:

- 100 percent more effective buffering capacity than commercial CaCO3
- Enhanced stability with a myriad of practical applications
- No reported toxicity or severe side effects
- Efficient tissue diffusion

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