

Bioactive Nanoclay as Magnetic Resonance Imaging Contrast Agent for Accurate Cancer Diagnosis

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BACKGROUND

- Effective cancer therapy heavily relies on accurate detection of tumour. One of the most powerful detection techniques is **magnetic resonance imaging (MRI)** with assistance of injectable **contrast agents** that are used to amplify MRI signal.
- Current challenges: chemical safety of the current commercialised contrast agent; artifacts limiting reliability and accuracy.

COMPETITIVE ADVANTAGES

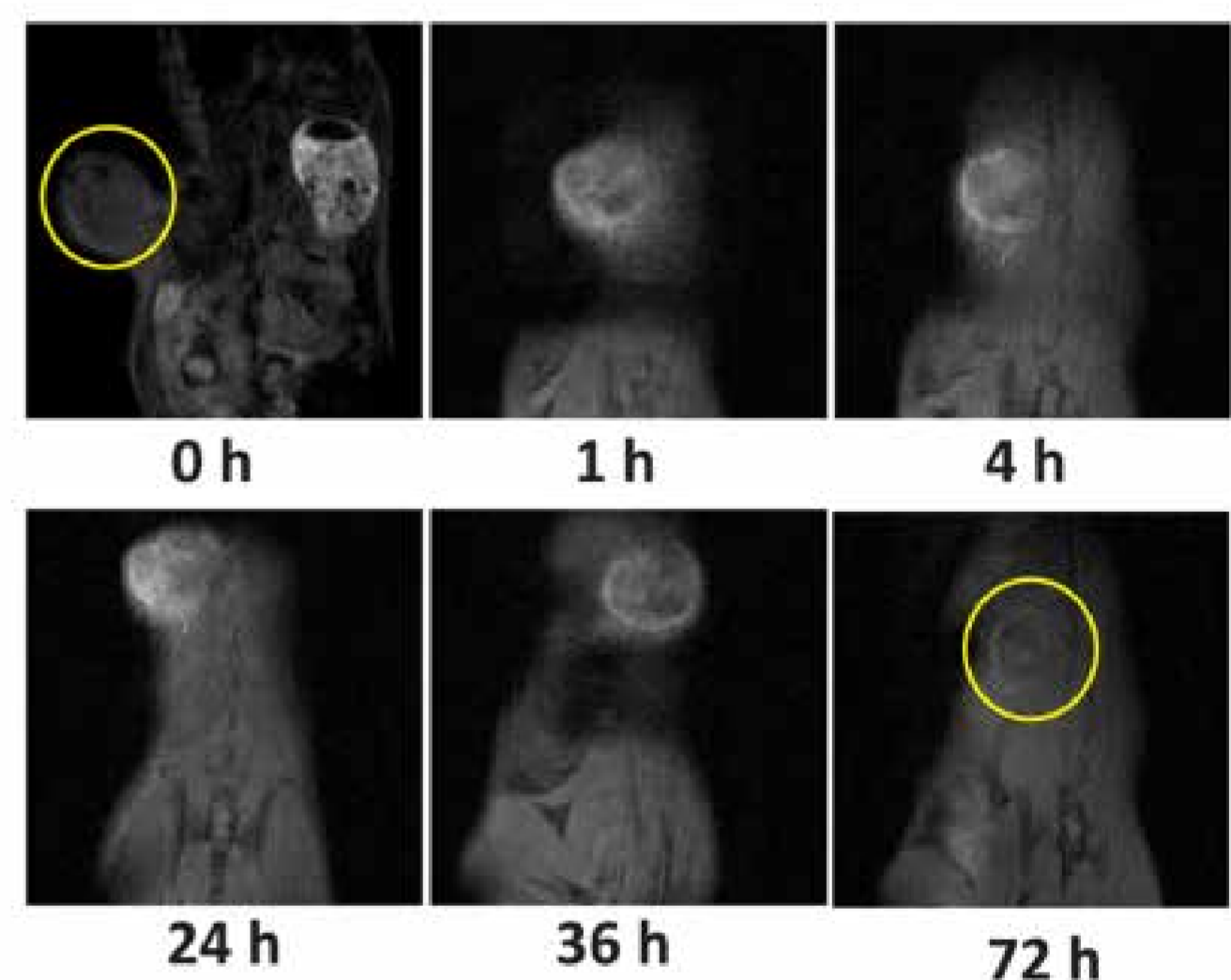
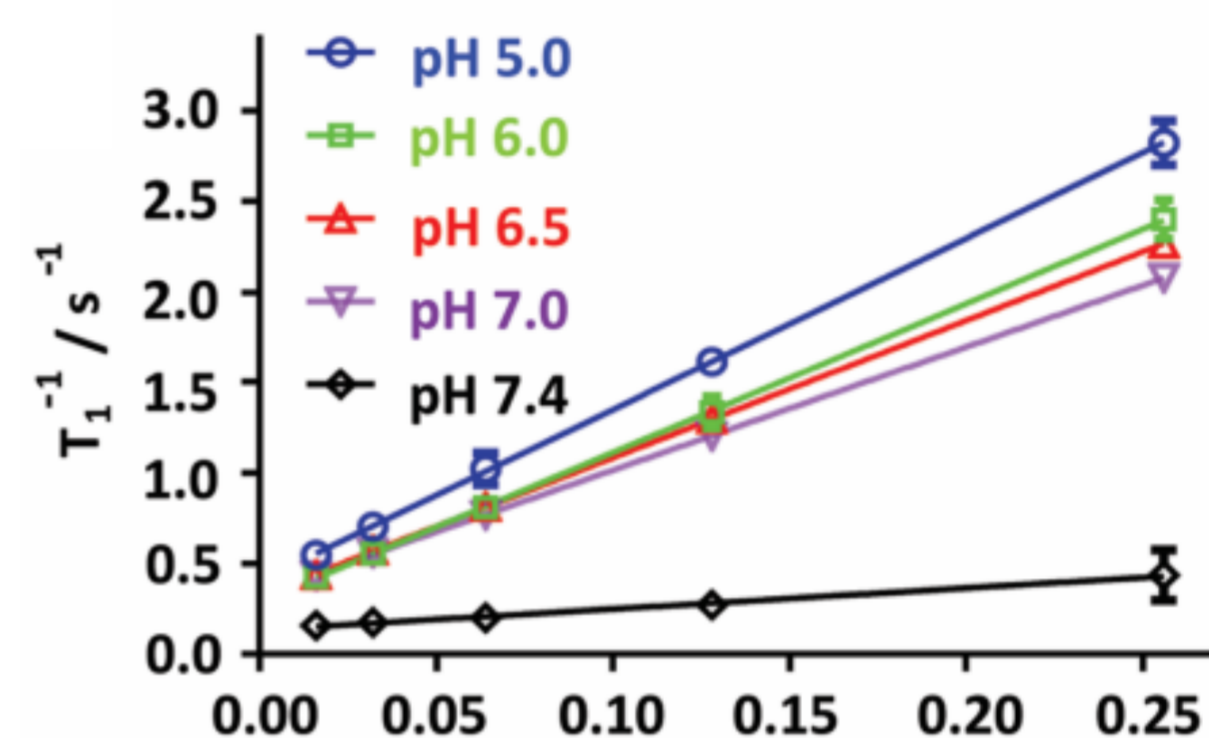
- A safe single-mode or dual-mode T1-T2 MRI contrast agent developed by using cutting-edge nanotechnology.
- Our smart contrast agents sensitively respond to ultralight tumour microenvironment, allowing MRI signal turned 'ON' in tumours and 'OFF' in blood circulation and normal tissues.
- Moreover, the bright T1 signal and dark T2 signal can be collected simultaneously to minimise artifacts via self-confirmation.

OUR EXPERTS

- Dr. Zi (Sophia) Gu, Lecturer, NHMRC EC Fellow
- Prof. Jimmy Yun, Fellow of the Australia Academy of Technological Sciences and Engineering
- Dr. Daniel Moses, Director of Medical Imaging of the Northern Network of Hospitals
- Prof. Maria Kavallaris, Head of Tumour Biology and Targeting at Children's Cancer Institute

SELECTED RECENT PROJECTS

Project 1: Single mode T1 MRI contrast agent – ultrasensitive tumour-microenvironment (ultralight acidity) response



Project 2: Dual mode T1-T2 MRI contrast agent – clear images and pH response in dual T1-T2 modes

