THE 13th INTERNATIONAL CONGRESS ON MRI &
30th ANNUAL SCIENTIFIC MEETING OF KSMRM &
7th ANNUAL MEETING OF ASMRM

ICMRI & ASMRM 2025

Illuminating the Invisible: Advances in MRI
OCTOBER 31 - NOVEMBER 1, 2025
Grand Walkerhill Seoul, Seoul, Korea
https://icmri.ksmrm.org/2025m/

MD-PhD Cross Talks

SY16-4

Sodium MR 신호를 찾아서

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As part of an MD-PhD Cross Talk session, this presentation outlines the engineering efforts to harness the faint sodium (23Na) MR signal for oncological research at 3T MRI. The clinical potential of sodium MRI in assessing tissue viability is significant, yet it is fundamentally challenged by an extremely low signal-to-noise ratio (SNR). This talk focuses on our engineering strategies to overcome this limitation for brain and breast cancer applications.

Our approach is twofold. First, we address the development of high-performance, dedicated sodium RF coils, which are crucial for maximizing the initial signal detection. Second, we explore advanced post-processing techniques to enhance the noisy data. We will highlight our work utilizing deep learning for denoising, with a particular focus on the application of BSRGAN. These combined hardware and software innovations aim to provide robust sodium images, enabling our clinical partners to explore their diagnostic and prognostic value.

Keywords: *Sodium MRI, RF coil, Denoising, Deep learning, Cancer imaging*