

Three-Dimensional Balanced Steady State Free Precession Ultra-short Echo Time Magnetic Resonance Imaging

Tech ID: 34505 / UC Case 2023-168-0

VALUE PROPOSITION

Conventional MRI lacks sensitivity for quantifying myelin damage, but advanced MRI techniques are proving effective.

The development of targeted therapeutics requires histological validation of myelin imaging results, alongside the

crucial task of establishing correlations between myelin imaging results and clinical assessments, so that the

effectiveness of therapeutic interventions can be evaluated. To this end, improvements in imaging for multiple sclerosis

and other diseases of the myelin or white matter loss diseases are still needed.

TECHNOLOGY DESCRIPTION

UCSF investigators have developed a novel MRI sequence to image myelin bilayer in the brain. This sequence is more

efficient and provides several different contrasts with single acquisition, and the sensitivity of the sequence to

abnormalities in the brain was demonstrated in multiple sclerosis patients.

RELATED MATERIALS

- ▶ Shen, X., Caverzasi, E., Yang, Y., Liu, X., Green, A., Henry, R. G., Emir, U., & Larson, P. E. Z. (2024). 3D balanced SSFP UTE MRI for multiple contrasts whole brain imaging. *Magnetic Resonance in Medicine*, 92(2), 702–714.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

MRI, myelin imaging, white matter loss, pulse sequence, ultra-short echo time, 3D rosette trajectory, balanced steady-state free precession

CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Health
- ▶ **Medical**
- ▶ Disease: Autoimmune and Inflammation
- ▶ Disease: Central Nervous System
- ▶ Research Tools
- ▶ Screening
- ▶ Software

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