

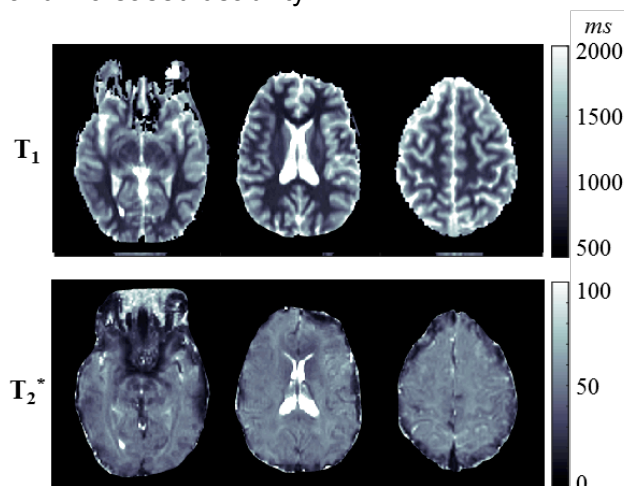
## U15-16: MR Fingerprinting (MRF) using echo-planar imaging

### Key Facts:

- ✓ Reliable quantitative T1 and T2\* imaging with magnetic resonance fingerprinting (MRF)
- ✓ Rapid measurement time of 10 seconds per slice
- ✓ High robustness due to spoiled gradient Cartesian readout with echo-planar imaging (EPI)

### The Technology

This technique provides fast and accurate T1 and T2\* in-vivo quantification within 10 seconds per slice. The MRF sequence is based on the acquisition of 160 gradient-spoiled EPI images with rapid, parallel-imaging accelerated, Cartesian readout, facilitating improved robustness and increased usability.



In-vivo T1 and T2\* maps acquired within 10 seconds per slice

### Background

Quantification of tissue properties including the relaxation parameters such as T1, T2 and T2\* has long been a major research goal in order to facilitate inter-patient comparability and quantitative diagnosis. However, long acquisition times prevent the integration of relaxation parameter mapping into clinical brain scan protocols. Recently, an emerging technique termed Magnetic Resonance Fingerprinting has been introduced and shows exceptional promise for the simultaneous, rapid, and robust quantification of multiple tissue characteristics. Current designs of MRF face several issues such as being sensitive to field inhomogeneities, banding artifacts and high sensitivity of the sequences to gradient deviations. Our Cartesian realization of MRF bases on spoiled EPI readouts for joint T1 and T2\* quantification brings cutting-edge laboratory-environment MRF to bedside used with improved robustness and increased usability.

### Commercial Opportunity

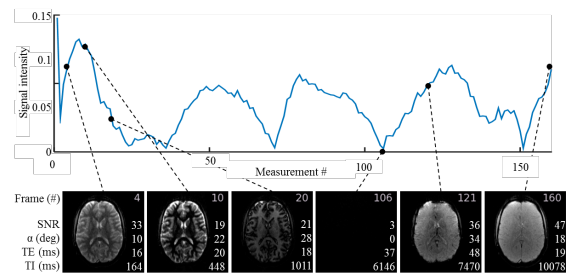
The technology is available for licensing for development and commercialization

### Inventors

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### Intellectual Property

Patent filed Dec. 2016: EP16 204 442.4



Fingerprint from one voxel of a healthy subject reconstructed from individual EPI readouts showing highly varying contrast over the course of the measurement.

### Advantages

- ✓ Rapid and reliable joint T1 and T2\* quantification
- ✓ Improved robustness to artifacts due to spoiling and Cartesian readout
- ✓ Seamless integration in widely available EPI frameworks on commercial MRI scanners

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