

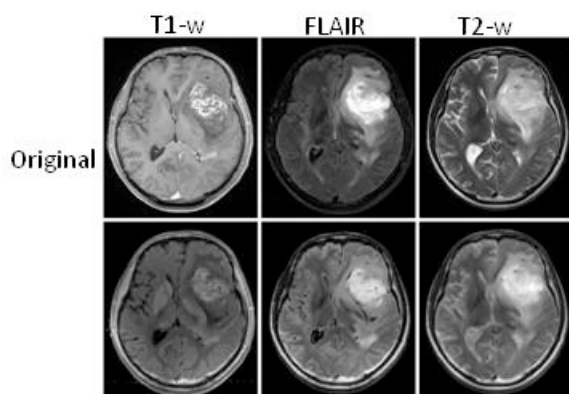
## 247 – 12ERF: New Improvement tool for MRI contrast enhancement

### Key Facts:

- ✓ Synthetic PParameter-weighted images based on Relaxometry (SPARE)
- ✓ Images can be synthesised by quantitative mapping
- ✓ T1 relaxometry is time consuming and often not practical in patients

### The Technology

This technique allows for Synthetic PParameter-weighted images based on Relaxometry (SPARE). It allows for online and offline synthesization of multiple weighted images from one acquisition. This, in turn, increases availability of different contrast for diagnosis and decreases scanning time and time a patient is within the system. The technique incorporates further a simulated T1 map allowing for further image contrast enhancement and reduces the need for lengthily T1 relaxometry sequences.



### Background

In 1984 Ortendahl and colleagues first put forward the means of synthesising images based on a spin echo signal equation derived from the Bloch equations. Although showed promise issues with inefficient SNR, low magnetic fields strengths and limited computational power for post-processing hindered the techniques place in MRI. Today this technique is possible as the above mentioned barriers have been hugely improved. An open issue however is the aquisition/determination of a T1 relaxation map. The SPARE technique follows the work of Ortendahl but extends it with a novel means of simulating a T1 map based on a relaxation ration. Thus images can be synthesised with different combination of repetition time (TR), echo time (TE), Inversion time (TI) and the relaxation ration (RR).

### Commercial Opportunity

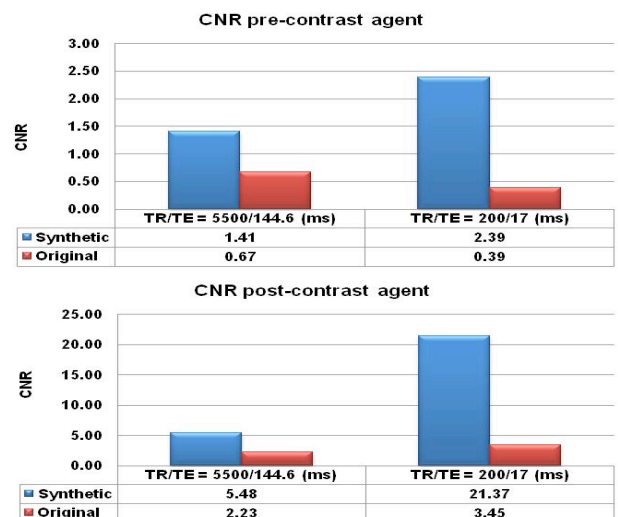
The technology is available for licensing for development and commercialization

### Inventors

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### Intellectual Property

Patent pending: 13 000 239.7



CNR of the tumor and cortex before and after contrast agent at 9.4T in a mouse model. A comparison between originally acquired images and synthesized images using the same TR and TE times.

### Advantages

- ✓ Immediate synthesization of images for initial diagnosis
- ✓ Online and offline synthesization possible
- ✓ Simulation of T1 maps enables higher contrasts
- ✓ High contrasts than available at MRI systems

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