



# Alternative slice ordering for improved MRI perfusion imaging

**A novel method for the alternative ordering of slices in multi-band echo planar imaging arterial spin labeling (MB-EPI ASL) imaging for improved image quality.**

**IP Status:** US Patent Issued; Patent No. 11,965,950

## Applications

- Reduction in artifacts that occur at high acceleration rates with simultaneous multi-slice or multiband techniques
- Increased robustness to subject motion during acquisition
- Improved perfusion imaging in the brain and other organs
- Suppression of banding artifacts

## Technology Overview

Use of simultaneous multi-slice (SMS) or multiband (MB) acceleration techniques for high-resolution arterial spin labeling (ASL) is a perfusion imaging technique that can provide quantitative measurements of cerebral blood flow as a surrogate marker of brain metabolism and function. Standard acceleration methods can result in significant errors and banding artifacts in images when there is patient movement, which can decrease clinical utility. Researchers at the University of Minnesota have developed novel alternative slice acquisition order schemes for highly accelerated echo planar imaging arterial spin labeling (MB-EPI ASL) imaging. These new methods change the order in which different slices of the brain are scanned, reducing artifacts and making the images clearer and more accurate. This new scanning order can be applied to other organs and different types of MRI scans, making it broadly useful.

## Phase of Development

**TRL: 4-5**

Validated on a clinical Siemens 3T Prisma MRI Scanner.

## Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

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## Researchers

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## Technology ID

2019-148

## Category

Engineering & Physical  
Sciences/MRI & Spectroscopy  
Life Sciences/Diagnostics &  
Imaging  
Life Sciences/MRI &  
Spectroscopy  
Life Sciences/Neuroscience

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