Interleaved TMS/fMRI

Study human brain functionality in real-time

With this complete turnkey TMS/fMRI research solution, it is possible to induce neural activity safely into targeted cortical regions, directly in the MRI scanner. Features of the MagVenture TMS/fMRI solution further include:

- Special TMS coils for use inside the MRI scanner
- Reduced RF noise filters and controllers
- Built-in dynamic leakage current reduction for minimizing artefacts
- Stimulator-controlled recharge delay and parameters
- High quality imaging
- Ability to add inside/inbore neuronavigation
- Full control via synchronization of TMS, scanner and peripheral equipment, incl. neuronavigation and functional data formats (Analyze, DICOM, MNI, IfTI)
- EEG electrode localization and position export in flexible data format
- Export of stimulation parameters (e.g. EMG, amplitude, mapping results) along with the acquired stimulation location as functional image data
- Open documentation format: All data stored is written in XML format for easy post processing
- The MRI compatible solution can easily be extended to a 2-in-1 solution for navigation outside the MRI environment

A dedicated 7-channel coil array

For high sensitivity TMS/fMRI, particularly at the stimulation site, a dedicated 7-channel, ultra-slim RF coil array may be used with both of MagVenture's MRI coils, further adding:

- Improved signal-to-noise ratio over a traditional birdcage MRI head coil
- Enhanced coil position flexibility

Developed in collaboration with leading MRI centers around the world.
More than 50 active TMS/fMRi installations globally, resulting in at least 15 published studies so far.

The 7-channel coil array was developed in close collaboration with the Medical University of Vienna and provides excellent image quality.

Recommended interleaved TMS/fMRI solution

- **Stimulator:** R30, R30 MO, X100, X100 MO or XP Orange Edition, depending on application
- **Coils:** MRI-B91 Air Cooled or MRI-B91 (uncooled)
  Two dedicated 7-channel coil arrays or a birdcage
- **Coil holder:** Dedicated coil holder for optimal positioning
- **Filter**: RF Filter with neuronavigation

Uninterrupted operation program

MagVenture offers a special plan and program for re-provisioning of MRI coils providing a solution for uninterrupted system uptime at a fixed cost*.

I've seen it turn from a DIY project to a works-straight-out-of-the-box system by MagVenture. We see virtually no artefacts related to the MR compatible TMS coil. RF noise is very well dealt with by the filter provided. The setup is also a painless procedure, with MagVenture experts coming to help with all aspects of installation and first use. The TMS coil holder is a handy design, and we no longer have to design and manufacture our coil holders in house like we used to!

- Dr. Eva Feredoes, University of Reading, UK

*May not be available in your region. Please consult with your national MagVenture representative.