Preclinical Magnetic Resonance Imaging (MRI)

SRI Biosciences provides small animal MRI services for preclinical MR imaging research requiring sensitive in vivo measurements of structure or function of tissues. Clients have access to world-class imaging scientists for guidance regarding data collection, analysis, and interpretation to effectively advance their preclinical needs.

MRI has become an increasingly valuable preclinical research tool for observing organ, tissue, or cell changes—identified by the US FDA as a growing need in the 'Critical Path' roadmap.

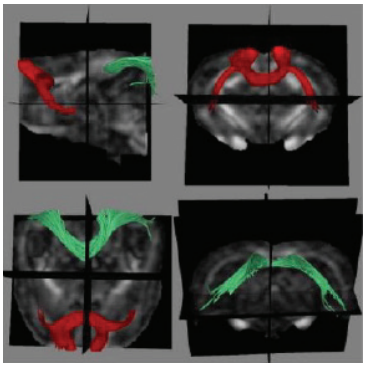
- MRI provides high spatial resolution imaging optimized for neuroscience research.
- In addition to models of neurodegenerative, psychiatric, and other CNS disorders, the system is also suitable for models of cancer, obesity (e.g., fat quantification), and evaluation of pharmacological interventions.
- Noninvasive imaging enables longitudinal measurement, increasing statistical power while decreasing the number of animals needed for study measurements.

Variety of MR methods available:

- T1 and T2 weighted structural images
- Diffusion Tensor Imaging (DTI)
- Functional MRI (fMRI)
- MR spectroscopy (MRS)

Bruker Pharmascan® 70/16 platform, with Paravision® software and a wide range of volume and surface coils:

- MRI and MRS protocols optimized for small rodents (such as rats, mice, gerbils)
- 16 cm clear bore size with 72 mm free access for the animal
- Actively shielded gradient system
- High-performance BGA-9S gradients with high amplitude, slew rates, shim strengths, and duty cycles optimized for small animal imaging



Fiber bundles through the splenium (green) and genu (red) of the corpus callosum overlaid onto FA images of the Rat brain (46-min scan).

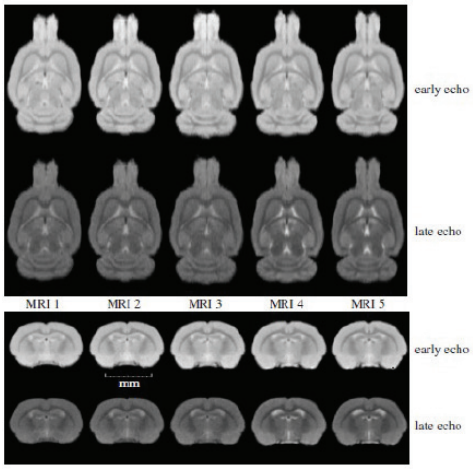
Figure 6 from Mayer et al. Neuroimage, 2007; 35(3): 1077-1085

Imaging Services

- Consulting on design of study protocols
- Animal disease models
- Customized imaging protocols
- Data compilation and analysis
- Data interpretation
- Report generation

Comprehensive Services

- Comprehensive preclinical testing services
- Experienced in human clinical research, enabling translational understanding and capabilities
- Expertise and resources in neuroscience, cancer, immunology/inflammation, infectious disease, and drug development



Early and late echo MRI of rat brains measured at 5 time points over 12 months. From Sullivan et al. Alcohol Clin Exp Res, 2006; 30(7) 1234–1247

Research Examples

Our experts have a 15-year history of rodent MR imaging and have authored or co-authored more than 400 publications.

- Zahr NM, Alt C, Mayer D, Rohlfing T, Manning-Bog A, Luong R, et al. Associations between in vivo neuroimaging and postmortem brain cytokine markers in a rodent model of Wernicke's encephalopathy. Experimental neurology. 2014;261C:109-19. doi: 10.1016/j.expneurol.2014.06.015. PubMed PMID: 24973622.
- Zahr NM, Mayer D, Rohlfing T, Hsu O, Vinco S, Orduna J, et al. Rat strain differences in brain structure and neurochemistry in response to binge alcohol. Psychopharmacology. 2014;231(2):429-45.

From Idea to IND and Beyond™

SRI Biosciences is a well-established, trusted source for a wide array of contract services under the highest industry standards. With deep scientific resources and expertise, we take R&D from idea through the start of human clinical trials. SRI Biosciences specializes in neuroscience, cancer, immunology and inflammation, and infectious disease.

SRI Biosciences™

SRI Biosciences, a division of SRI International, integrates basic biomedical research with drug and diagnostics discovery and preclinical and clinical development. SRI International, a research center headquartered in Menlo Park, California, creates world-changing solutions to make people safer, healthier, and more productive.

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