



# FUNSTAR

Functional Stability Reference

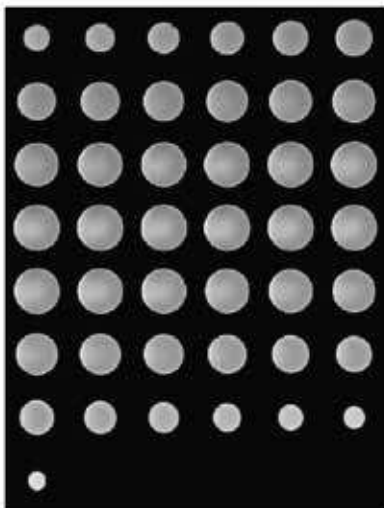
Ensure exceptional  
fMRI stability

Functional Magnetic Resonance Imaging (fMRI) pushes an MRI scanner's hardware to the limits of its performance, whilst demanding exceptional stability in order to detect small changes in blood oxygenation levels. For over 15 years MRI system stability for fMRI has been monitored using the fBIRN fMRI quality assurance protocol[1], which specifies a phantom, imaging protocol and analysis algorithm to quantify performance.

Designed to fit within modern multi-channel MRI head coils, the FUNSTAR (Functional Stability Reference) uses a proprietary, water-based, synthetic gel inside a HDPE spherical shell, resulting in a phantom that meets the characteristics established by the fBIRN committee. It can be used in conjunction with GSP Cloud, providing an easy-to-use, automated fBIRN stability analysis for dedicated management of quality assurance tests.

- The ideal solution for fMRI stability Quality Assurance testing.
- fBIRN compliant spherical gel phantom.
- Two sizes available:  
18cm and 11cm diameter.
- Homogeneous and bubble-free:  
superior image quality compared to agarose gels.
- Physiologically matched relaxation times.
- Use to assess temporal stability, SNR, uniformity and other MRI performance metrics.
- Use with GSP Cloud for an easy-to-use, automated fBIRN stability analysis.

[1] Report on a multicenter fMRI quality assurance protocol. Friedman and Glover. JMRI p827-839, Vol 23, Issue 6, 2006. (<https://doi.org/10.1002/jmri.20583>)



EPI volume acquired at 3T



Susceptibility Weighted Image acquired at 3T

More Demo Data  
at GSP Viewer:



## Goodbye Agar

We use a synthetic polymer as a gelling agent that offers several advantages over the traditional agar/agarose fBIRN phantom. Being a natural product derived from seaweed, agar is subject to significant variation in gel properties and relaxation times from batch to batch. Due to the high-temperature processing that agar requires, traditional fBIRN phantoms tend to suffer from significant bubbles. In addition, agar is mechanically fragile and a growth medium for bacteria.

Our new gel:

- Is practically bubble-free, due to our superior, room-temperature manufacturing process.
- Has enhanced standardisation of relaxation times due to control by paramagnetic salts.
- Is less prone to fracturing and more mechanically stable than agar due to its inherent elasticity.

## Automate your fBIRN QA

### FUNSTAR is designed to work with GSP Cloud:

Gold Standard Phantoms cloud-based image platform for the analysis of MRI data acquired with phantoms. GSP Cloud makes it easy to keep track of your routine fMRI QA by combining an automated fBIRN analysis pipeline with a friendly, yet powerful interface that makes uploading data and viewing results easy. The process is simple:

- Simply upload your QA study data in DICOM format.
- Select the EPI time-series to process.
- The automatic fBIRN analysis will run, producing results that can be downloaded in PDF format.
- Key performance metrics can be viewed longitudinally, making it easy to see changes in stability.

		Specification Table
<b>Sphere Diameter</b>	18cm (standard) / 11cm (pico)	
<b>Gel T1</b>	~460 ms*	
<b>Gel T2</b>	~60 ms*	
<b>Materials</b>	HDPE (spherical shell), Nylon (cap), Nitrile (cap gasket)	
<b>Phantom Contents</b>	Water-based polyacrylamide gel, doped with Manganese Chloride and CMIT:MIT based preservative.	
<b>Includes</b>	Liquid crystal thermometer Protective foam lined box. Stand	