QASPER

Quantitative **AS**L **Pe**rfusion **R**eference

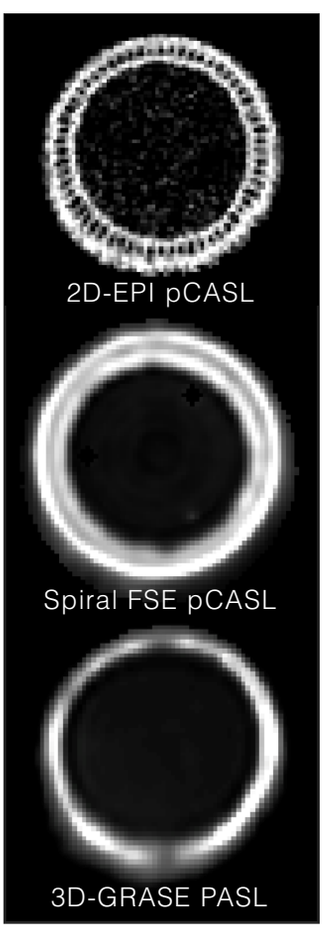
A true reference standard for ASL perfusion MRI

QASPER (**Q**uantitative **A**rterial **S**pin Labelling **Pe**rfusion **R**eference) is a calibration and quality assurance standard for MRI perfusion measurements using Arterial Spin Labelling (ASL). It simulates the process of the delivery of arterial blood to an organ in a controlled and reproducible manner.

Why use QASPER?

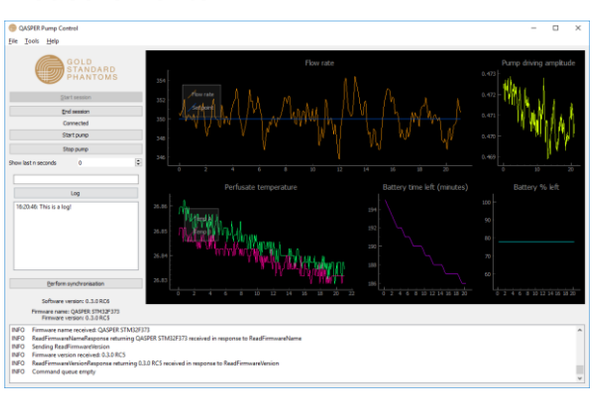
Are you using ASL to track disease progression? Do you wonder if quantitative ASL values vary because of hardware or physiology? QASPER can help you:

1. Ensure consistency of your ASL acquisitions over time.
2. Develop new ASL pulse sequences.
3. Compare and benchmark data acquired from different ASL sequences and MRI scanners.



How does QASPER work?

QASPER is a complete, easy-to-use phantom for Arterial Spin Labelling. It mimics the delivery of blood to the capillary bed using a porous polyethylene plastic substrate that has pore sizes comparable to the capillaries (approx. 10um), which is fed by 60 arteriole scale tubes arranged in a ring. This results in an approximately toroidal-shaped region of perfusion signal. Unlike a volunteer, the delivery rate of perfusate (the water-based liquid that circulates) is consistent every time, therefore the QASPER phantom is a stable reference that can be used to assess system variability for ASL perfusion MRI measurements.



At the heart of the QASPER phantom is an MRI compatible pump that delivers liquid at a known flow rate. Its flow rate can be monitored, controlled and recorded in real time by software, providing complete assurance during image acquisition that the phantom is operating as intended.

Gold Standard Phantoms Limited
Registered address: Unit 103 Belgravia Workshops, 159-163 Marlborough Road, London, N19 4NF
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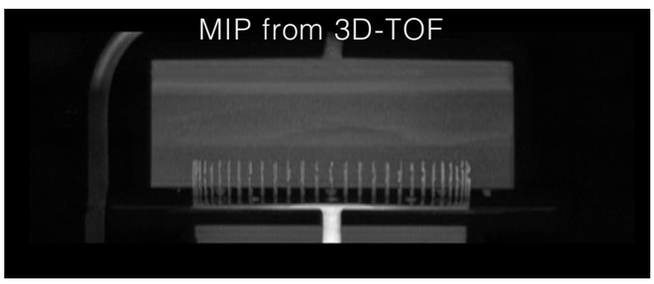
QASPER

Quantitative ASL Perfusion Reference



Not just for perfusion

QASPER's flow path comprises of three different compartments, simulating both macroscopic and microscopic vasculature. This means that QASPER is also great for MR-angiography and flow.

Easy to use

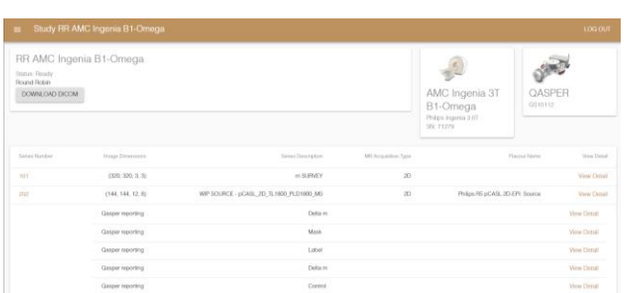
QASPER is straightforward and fast to set up. Simply place the phantom on the patient couch, connect the power supply via the supplied cable and switch on. The phantom stays filled with perfusate, and there's no need to run tubing through waveguides.

Automate your ASL QA

QASPER 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 ASL QA by combining an automated analysis pipeline with a friendly, yet powerful interface that makes uploading data and viewing results easy.

The process is simple:

1. Simply upload your ASL QA study data in DICOM format.
2. Select the ASL acquisitions to process.
3. The automated analysis pipeline will run.
4. Key performance metrics can be viewed longitudinally, making it easy to see if there are changes in system stability.



Contact **info@goldstandardphantoms.com** or visit **www.goldstandardphantoms.com/qasper** for more details.

Compatible MRI Field Strengths	1.5T, 3T, 7T
Compatible MRI Coils	All multi-channel clinical head coils currently on the market
System Flow Range	100 – 400ml/min, 350ml/min nominal.
Arterial Transit Time	0.5 - 1.5 seconds at 350ml/min
Vascular compartment sizes	Arterial compartment: 6mm ID diameter Arteriole compartment: 1mm diameter Microvascular compartment: min 3um, max 28um, mean 7um.
Perfusate	Water-based, T1~1.8s (3T, 20°C), viscosity 1.65mPa.s (20°C). Phantom is supplied filled and is a closed system so does not require draining/re-filling.
Flow Measurement	Calibrated optical turbine flow meter, 3% accuracy
Temperature Measurement	0.1°C accuracy, 10°C to 40°C range.
System Comprises	QASPER Phantom, Phantom Power Supply, QASPER-LINK Wireless Transceiver, QASPER-LINK USB Transceiver, Wheeled transport case (95x69x37cm), all cables and chargers.
Phantom Power Supply	11.7V Li-ion rechargeable battery (approximately 2 hours of usage), additional power supplies can be ordered.
Communications	2.4GHz wireless data link in magnet room. Fibre optic data link between magnet room and control PC (waveguide required).
Warranty	One year. Additional service plan can be purchased.
Overall dimensions (L/W/H)	79.4cm x 39.1cm x 18.8cm
Phantom weight	13kg

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