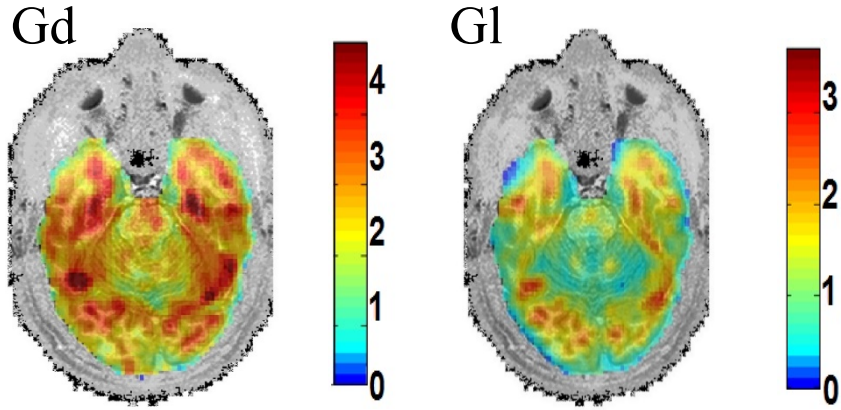


Magnetic resonance elastography accuracy and precision in rat lung and liver at 1.5 T

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Magnetic resonance elastography (MRE)



MRE outcomes

- ✓ SNR
- ✓ spatial resolution (a)
- ✓ mechanical excitation frequency (f_{exc}) (related to the wavelength λ)
- ✓ induced shear wave amplitude (A)
- ✓ method of reconstruction.

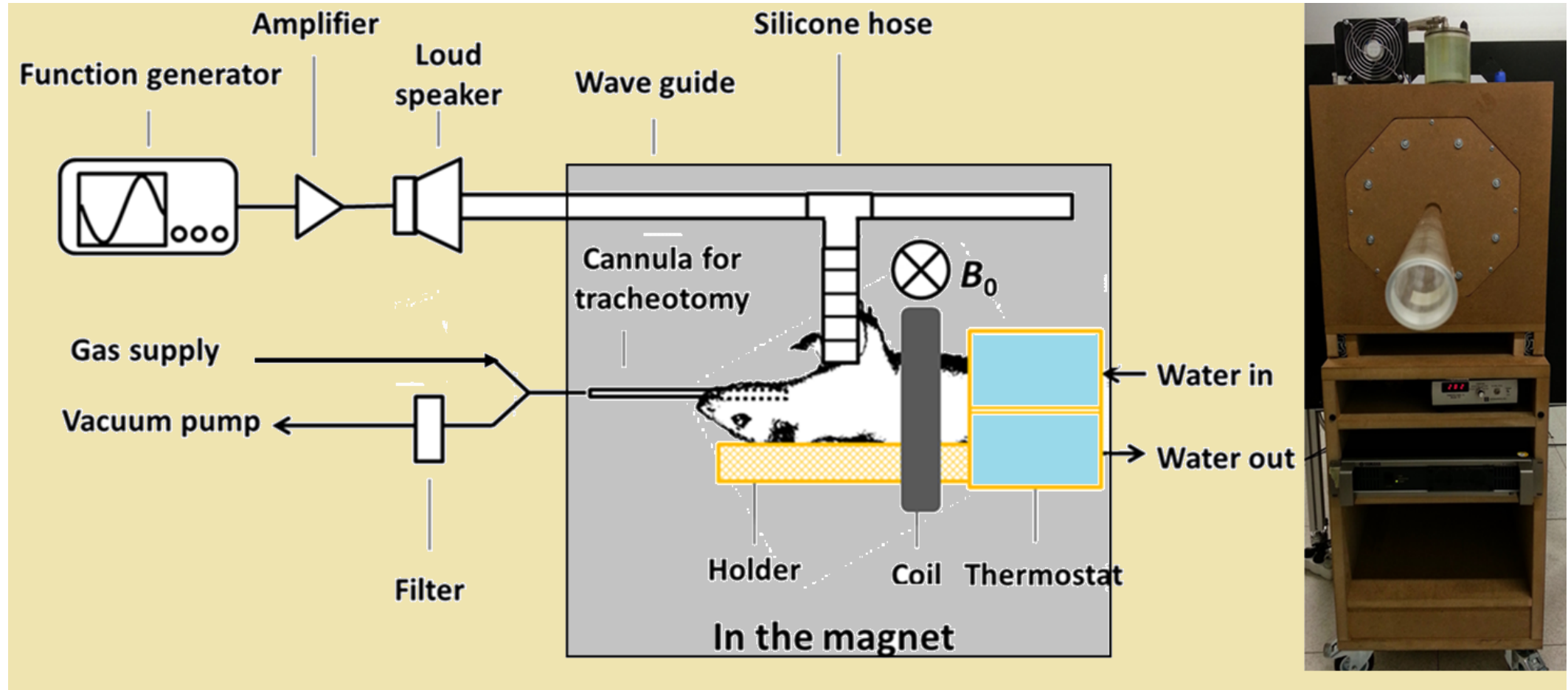
Simulation study

Optimal precision and accuracy
 $\lambda/a \approx 6 - 9$ voxels per wavelength for
 $\text{SNR} = 5 - 30$
(*reconstruction method: inversion of the 3D motion equation*)

In vivo study

What are the **optimal acquisition and reconstruction parameters** for an accurate and precise MRE outcome?

Protocol



In vivo acquisitions

- Two rats anaesthetized (isoflurane air/O₂) in supine position
- MR imaging at 1.5T (Achieva, Philips Healthcare)
- Multi-slice spin-echo, for $f_{exc} = \{188, 220, 247, 275, 309, 345\}$ Hz