

Looking beyond Europe: the NIDDK renal imaging workshop

When: July 12-13, 2018

Where: Bethesda, MD, USA

Organised by: National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), NIH

Objectives:

- cover the state of the art in renal imaging and advances from other research communities
- recommend targeted research programs to optimize and advance research in kidney imaging (focus: spatial and physiologic characterization, GFR evaluation, functioning nephron number)

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State of the art in renal functional imaging

- BOLD-MRI, DWI, functional imaging
- Efforts of European Consortium in MRI (PARENCHIMA)
- fast MR imaging of the kidneys, MR derived RBF measurements, ASL
- emerging techniques (CEST-MRI, MR spectroscopy, sodium MRI)

Concept to clinic – cross-cutting issue in translation

- Development and seeking regulatory approval for new contrast agents
- Contrast Toxicity: Contrast agent safety with focus on MRI
- How to turn an imaging technology into a biomarker: Bioinformatics/machine learning
- FDA Biomarker Qualification and qualified MRI Biomarkers

Industry panel

- New MR probes to monitor active fibrogenesis
- Magnetization transfer imaging (MTI)
- Ultrasound-based elasticity for kidney transplant measurements
- Elastin-based molecular MRI of fibrosis

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Talks from outside the field

- Therapeutic targets and the importance of imaging
- MR Fingerprinting (brain)
- Nerve calcium uptake in the brain
- Imaging for target engagement in oncology
- Cardiac PET

Where are we going? Toward single-nephron function and molecular imaging

- Nephron number and function in disease
- Cationized ferritin nanoparticles to measure renal glomerular microstructure and function with MRI (nephron endowment, glomerular volume, and single nephron filtration)
- Single kidney GFR by MRI in humans
- Quantitative susceptibility mapping

Break-out groups