



# Boston Children's Hospital

Until every child is well<sup>SM</sup>

## Research Imaging Core

HARVARD MEDICAL SCHOOL  
TEACHING HOSPITAL

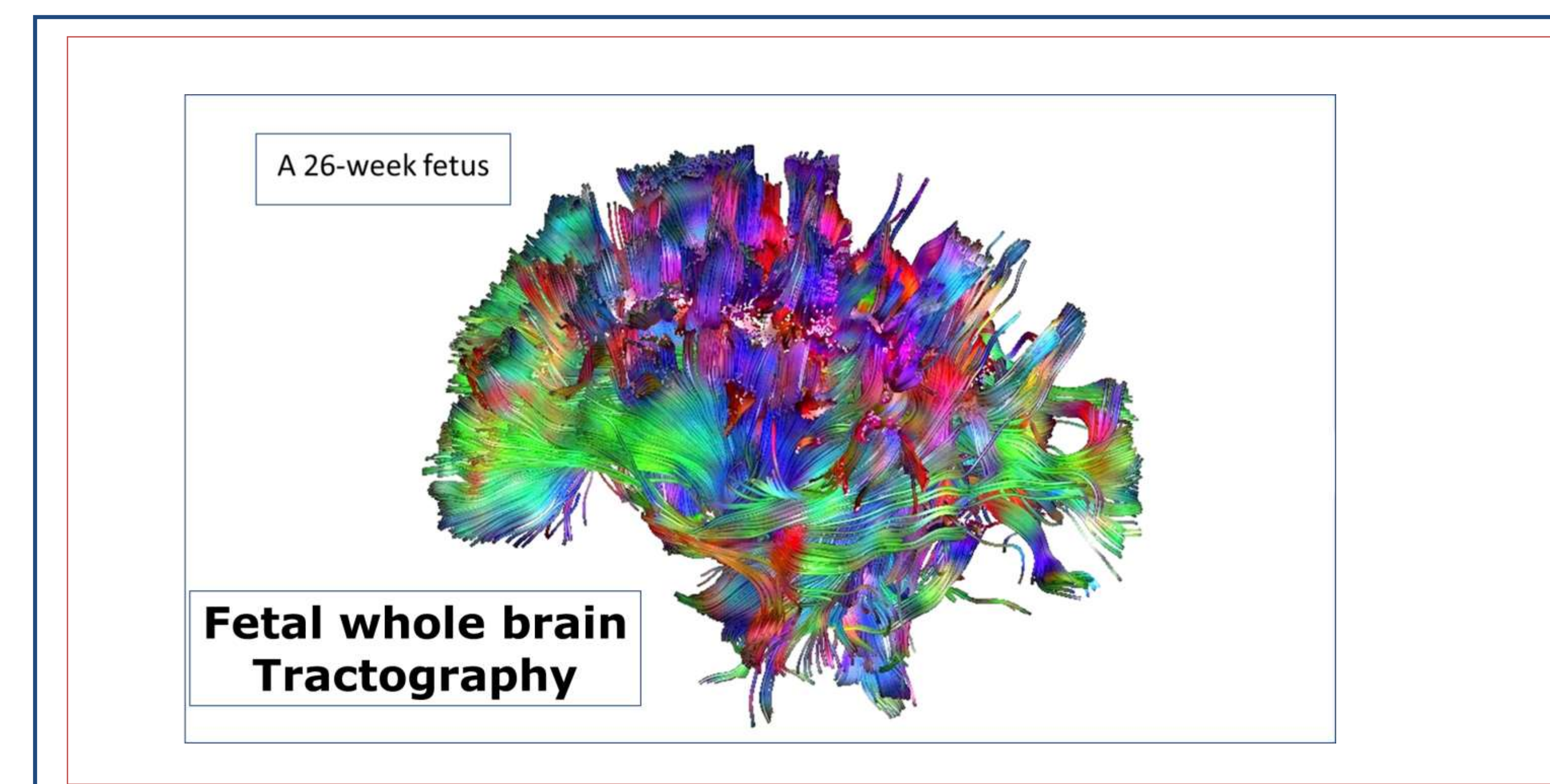
Simon K. Warfield, PhD  
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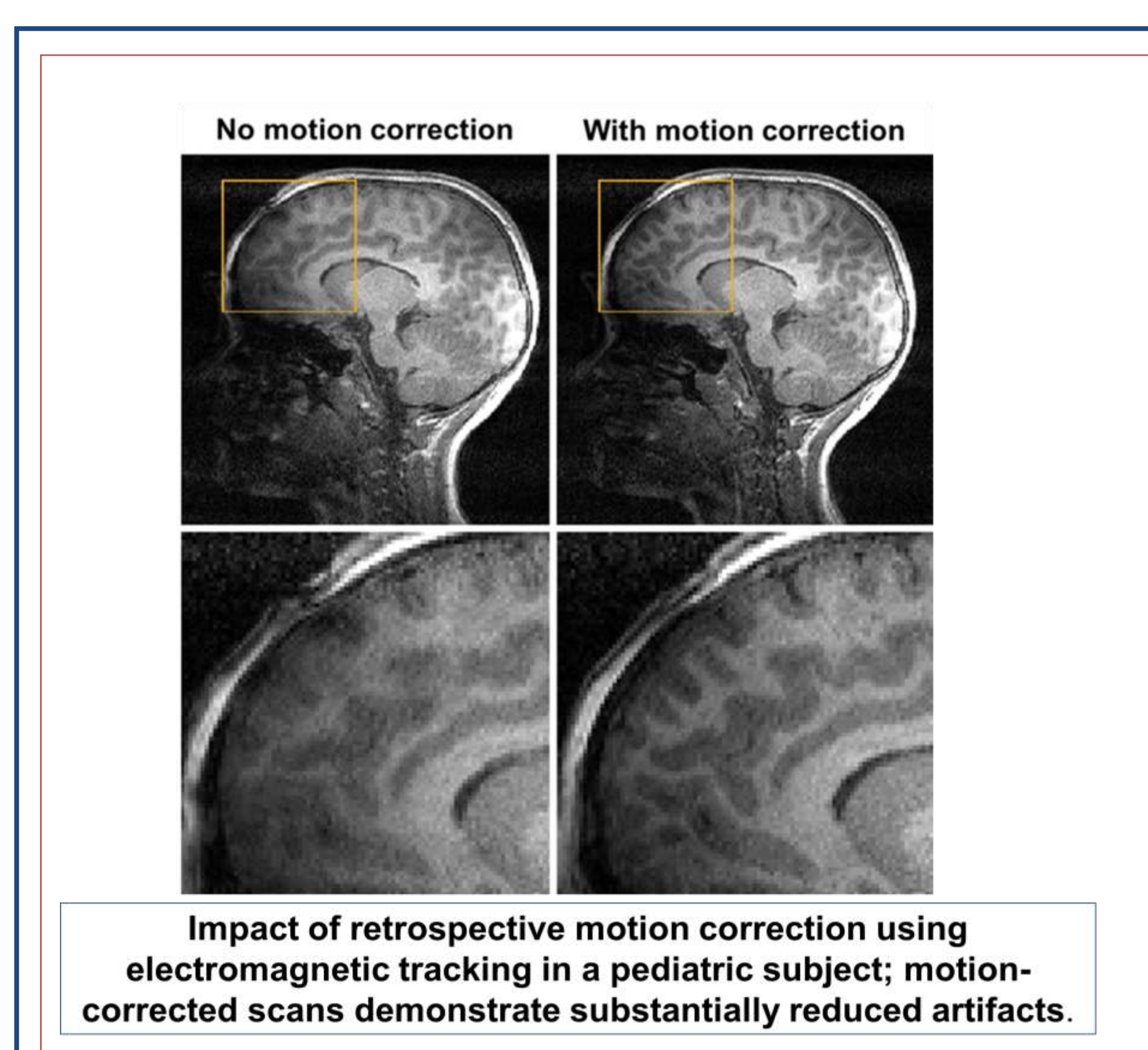
### Mission

Imaging research is a key component of Boston Children's Hospital's ongoing endeavors in advancements of pediatric medicine, and is supported by the Department of Radiology. As a leading innovator in pediatric research imaging, we are at the forefront of developing treatments and cures for diseases such as epilepsy and autism. Our mission is to assist investigators with achieving the best imaging research outcomes possible, while also assuring compliance with institutional policies.

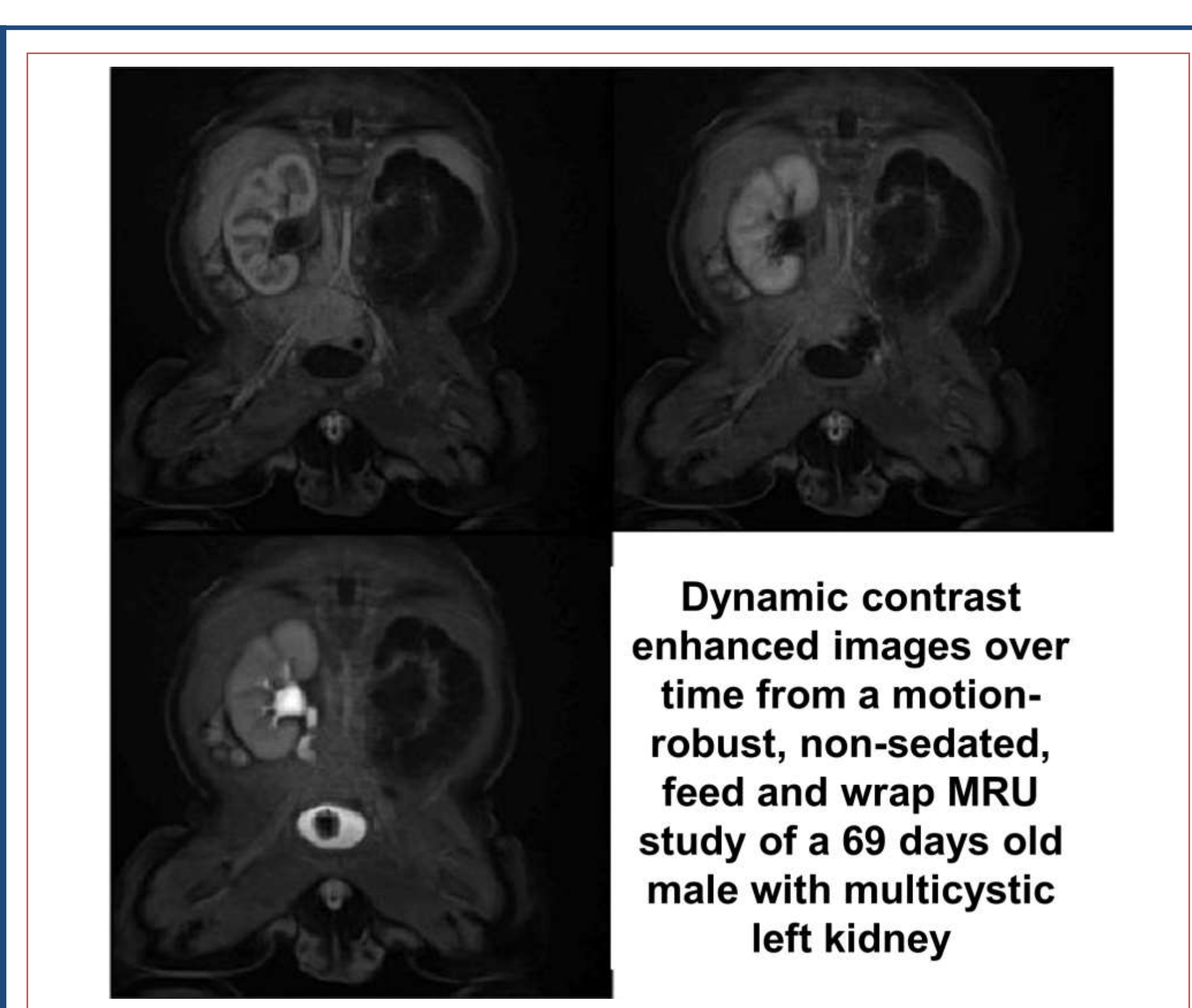


### Core Facilities

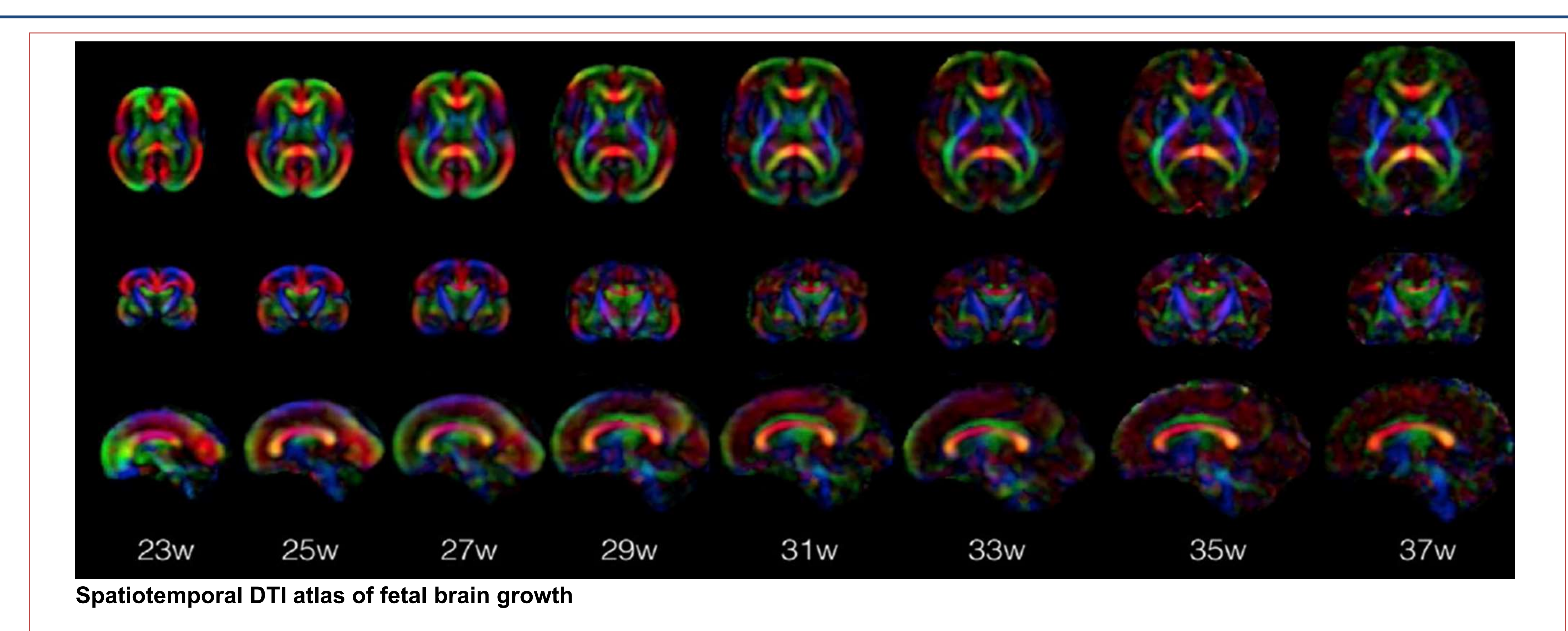
- Magnetic Resonance Imaging • Computed Tomography • Ultrasound • X-Ray • PET/Nuclear Medicine • MRI Motion Tracking System • fMRI Equipment (Audio and Visual Presentation Systems) • Mock MRI Scanner • Pediatric Neuropsychology Testing Rooms • Dedicated Pediatric Imaging Exam Rooms • Animal Imaging



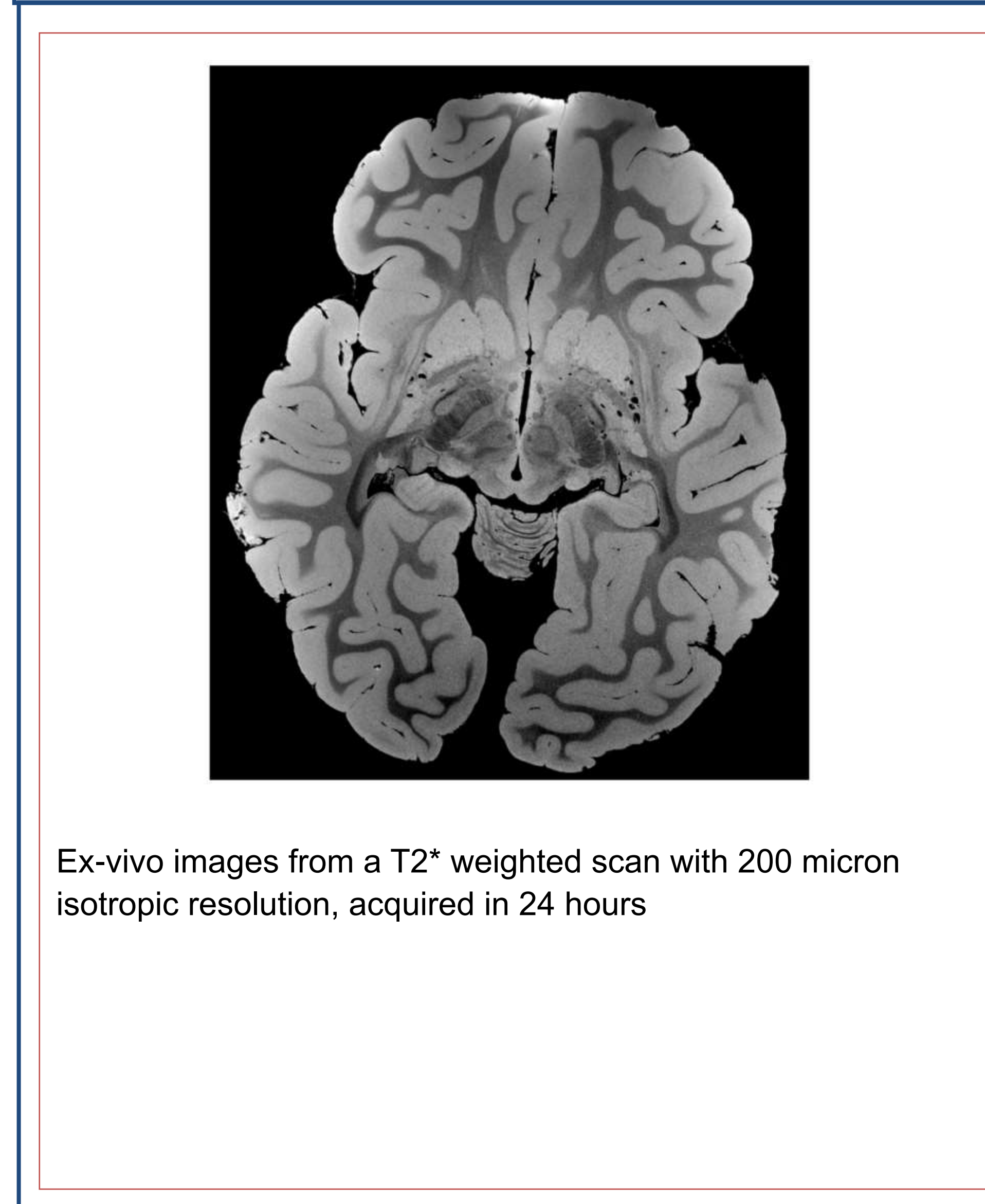
Impact of retrospective motion correction using electromagnetic tracking in a pediatric subject; motion-corrected scans demonstrate substantially reduced artifacts.



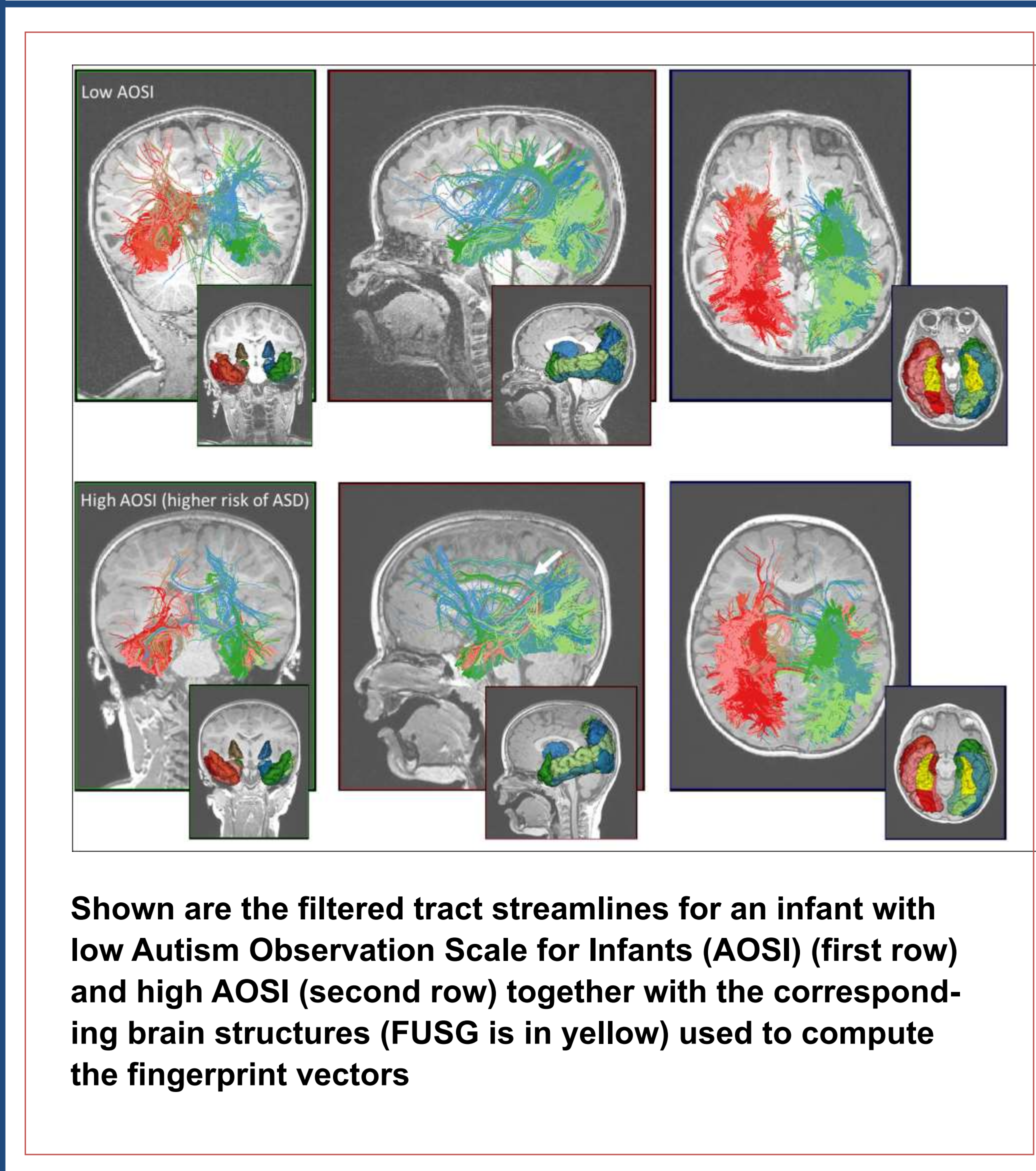
Dynamic contrast enhanced images over time from a motion-robust, non-sedated, feed and wrap MRU study of a 69 days old male with multicystic left kidney



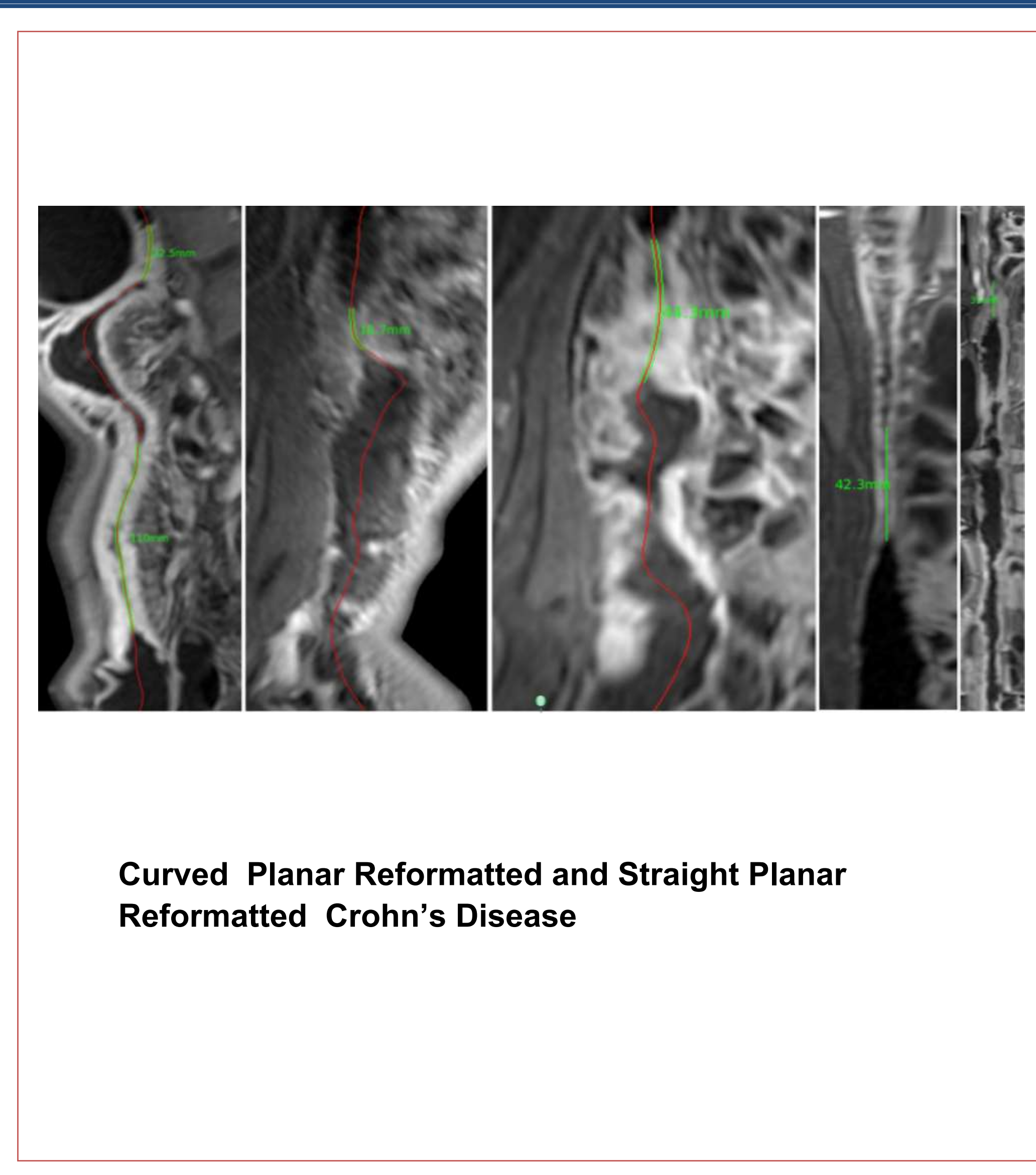
Spatiotemporal DTI atlas of fetal brain growth



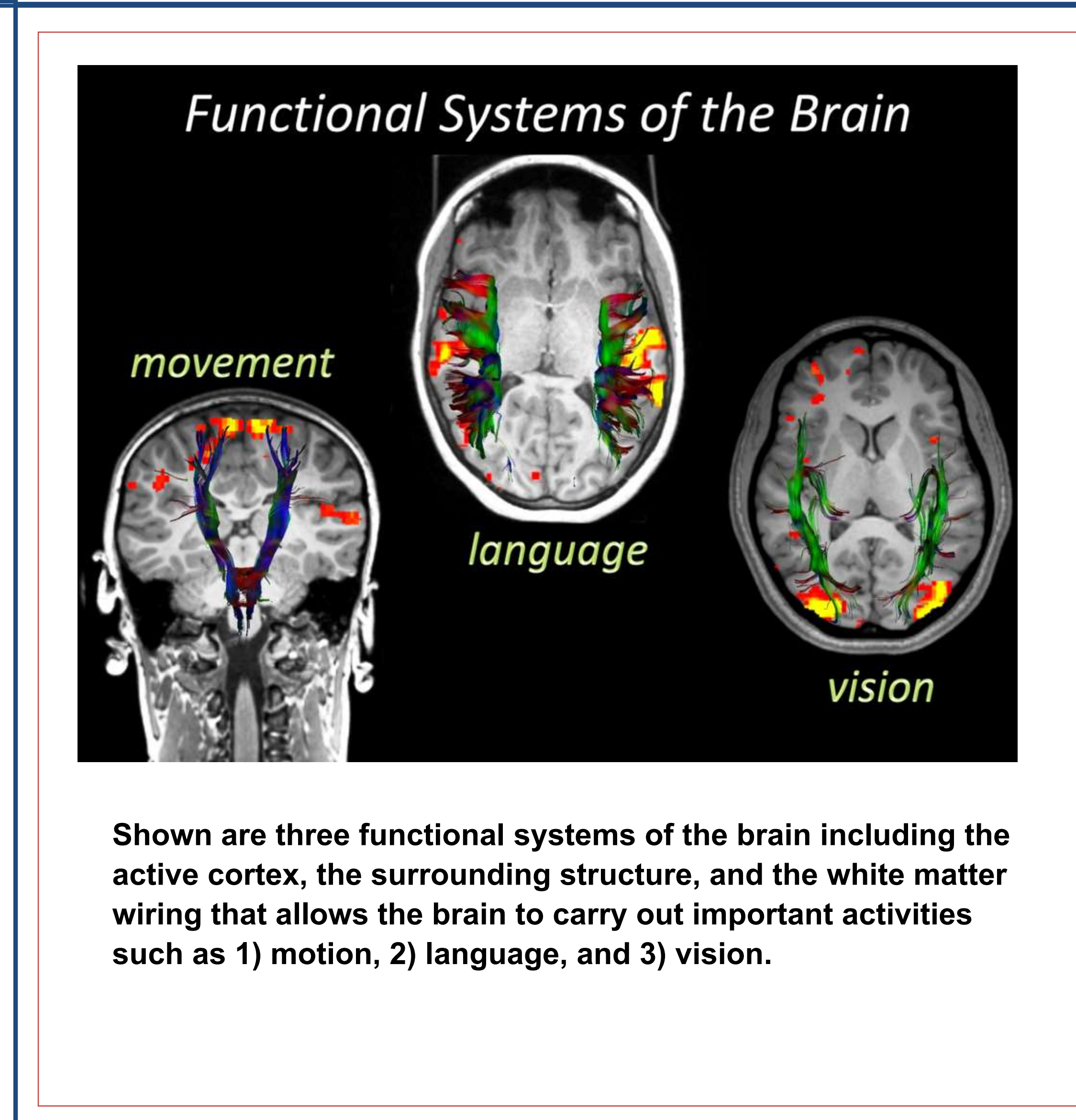
Ex-vivo images from a T2\* weighted scan with 200 micron isotropic resolution, acquired in 24 hours



Shown are the filtered tract streamlines for an infant with low Autism Observation Scale for Infants (AOSI) (first row) and high AOSI (second row) together with the corresponding brain structures (FUSG is in yellow) used to compute the fingerprint vectors



Curved Planar Reformatted and Straight Planar Reformatted Crohn's Disease



Shown are three functional systems of the brain including the active cortex, the surrounding structure, and the white matter wiring that allows the brain to carry out important activities such as 1) motion, 2) language, and 3) vision.

### Core Services

- Protocol Design, Consultation, and Setup • Data Analysis (Diffusion Tractography, Volumetry, QA) • Equipment Training • Data Transfer and Storage • Application Training (Scheduling, Equipment/Room Availability) • Imaging of Ex-Vivo Specimens •