

Supplementary Information

Non-invasive diagnosis of acute kidney injury using Mn-doped carbon dots-based magnetic resonance imaging

Xingtai Huang,^{†a} Zihan Wang,^{†a} Shujie Li,^{†b} Shiqi Lin,^a Lirong Zhang,^c Zhaowei
Meng,^b Xuejun Zhang,^a and Shao-Kai Sun^{*a}

^a School of Medical Imaging, Tianjin Medical University, Tianjin 300203, China

^b Department of Nuclear Medicine, Tianjin Medical University General Hospital,
Tianjin 300052, China

^c School of Basic Medical Sciences, Tianjin Institute of Urology, The Second Hospital
of Tianjin Medical University, Tianjin Medical University, Tianjin 300203, China

Corresponding Author

*Email: shaokaisun@tmu.edu.cn

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Supplementary Figures (Fig. S1-S10)

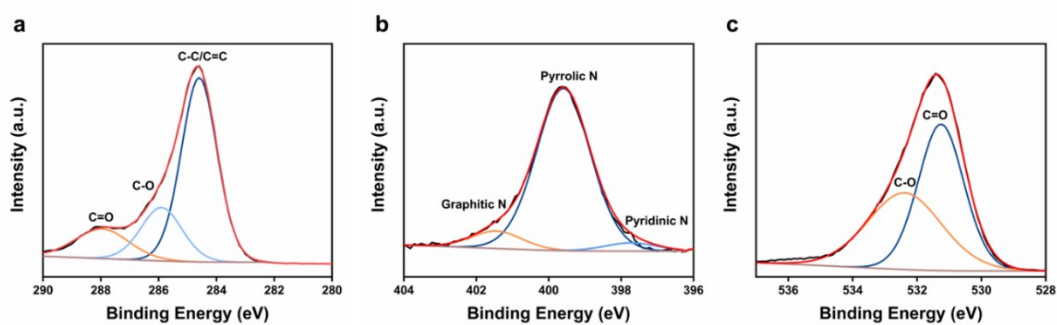


Fig. S1 The high resolution XPS spectra of (a) C 1s, (b) N 1s, (c) O 1s

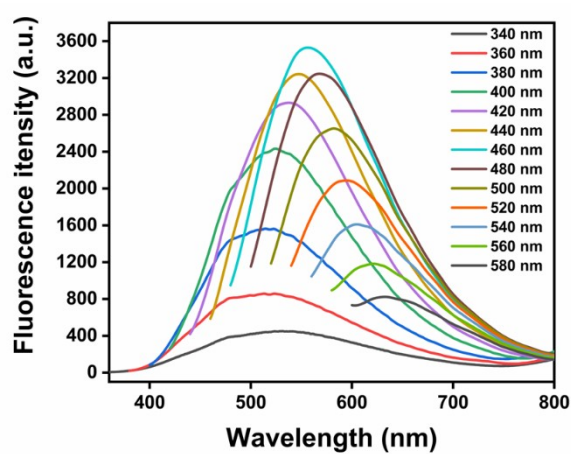


Fig. S2 Fluorescence spectrum of Mn-CDs under different excitation wavelengths (340-580 nm).

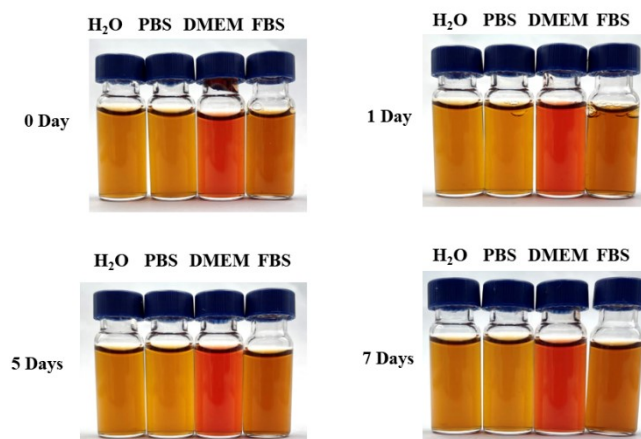


Fig. S3 The photos of Mn-CDs dissolved in different medias including H₂O, PBS (pH 7.4), DMEM, and FBS.

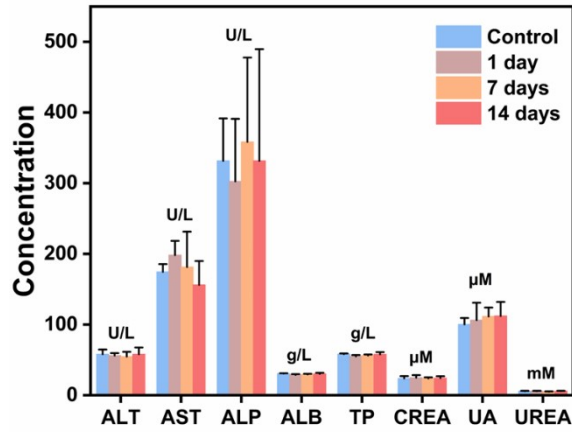


Fig. S4 The blood biochemical indicators related to liver and kidney function after intravenous injection of Mn-CDs (16 mg/kg, n=5) at 1 day, 7 days, and 14 days.

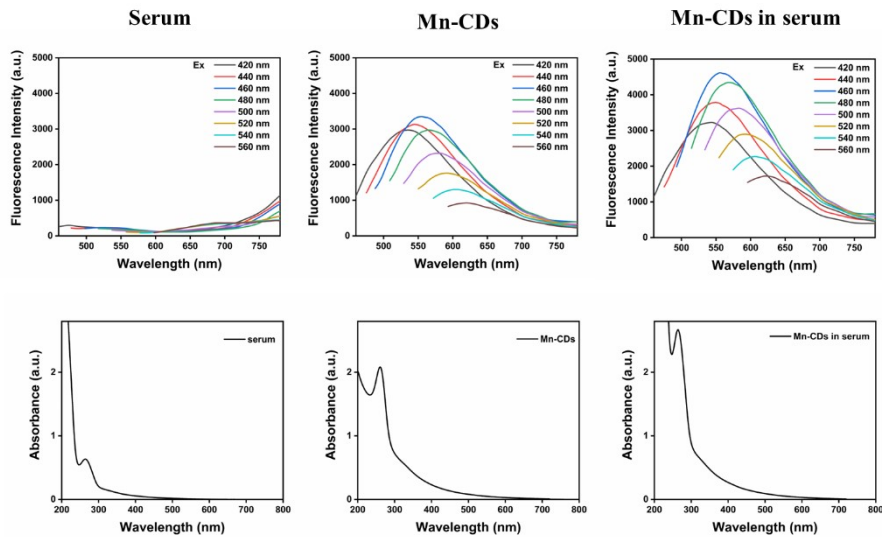


Fig. S5 The fluorescence and UV-vis absorption spectra of serum, Mn-CDs and Mn-CDs incubated with serum.

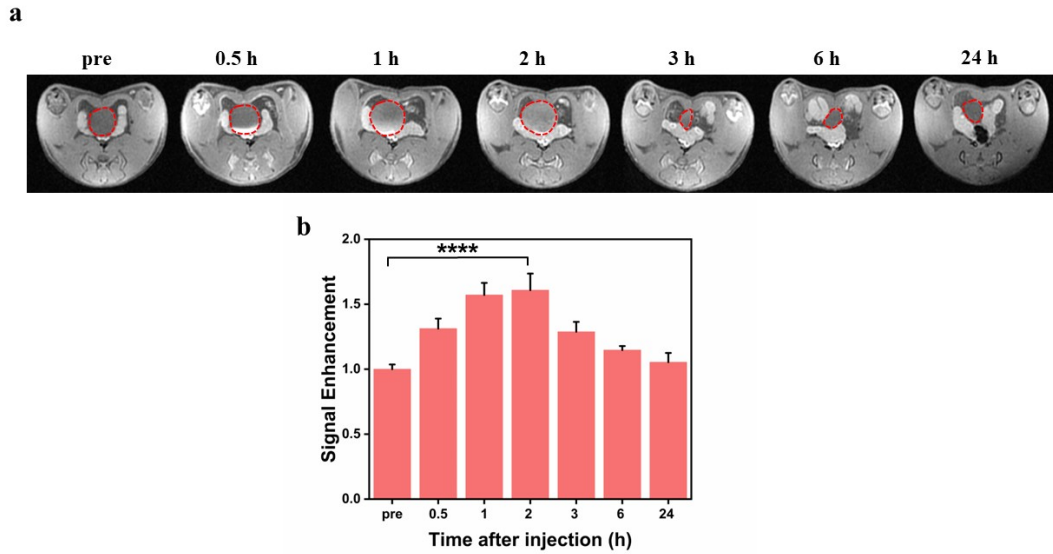


Fig. S6 (a) The MR images of bladder at different time points after injection of Mn-CDs (16 mg/kg) in normal rat. The bladder was indicated by the red dotted cycle. (b) The relative changes of bladder MR signal at each time point after injection (n=3).

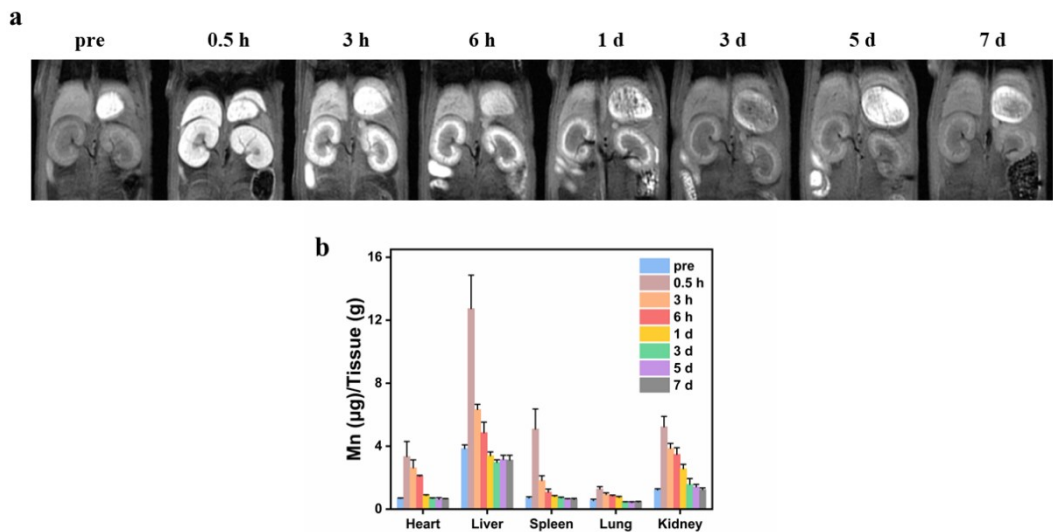


Fig. S7 (a) The abnormal MR images of normal rats at different time points after injection of Mn-CDs (16 mg/kg). (b) The contents of Mn in different organs at different time points after injection of Mn-CDs (16 mg/kg, n=3).

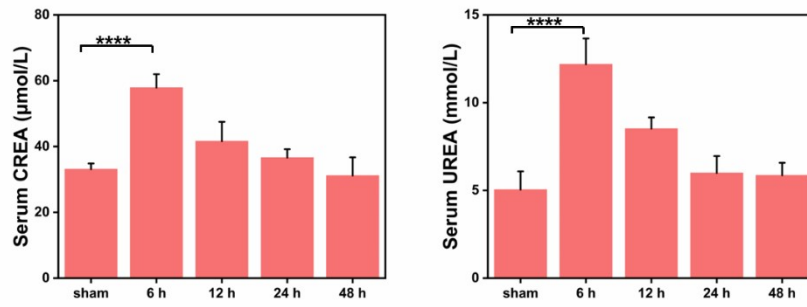


Fig. S8 Concentrations of creatinine (CREA) and urea (UREA) in serum after different perfusion times (6 h, 12 h, 24 h, and 48 h) since left renal pedicle was clamped for 1 h (n=5).

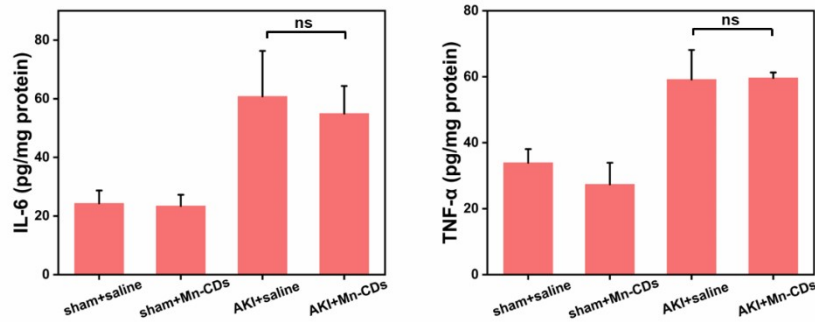


Fig. S9 The levels of inflammatory cytokines (IL-6 and TNF-α) in the left kidney of AKI rats and sham-operated rats after injection of saline or Mn-CDs (16 mg/kg, n=3).

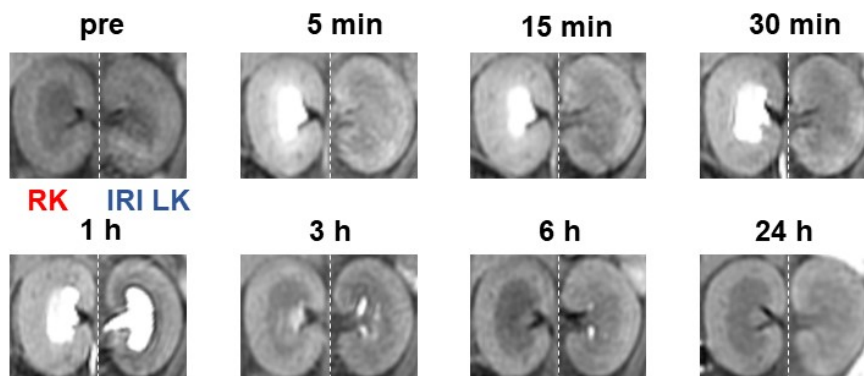


Fig. S10 MR images of kidneys in rat with IRI at different time points after intravenous injection of Gd-DTPA (0.03 mmol/kg, n=3).

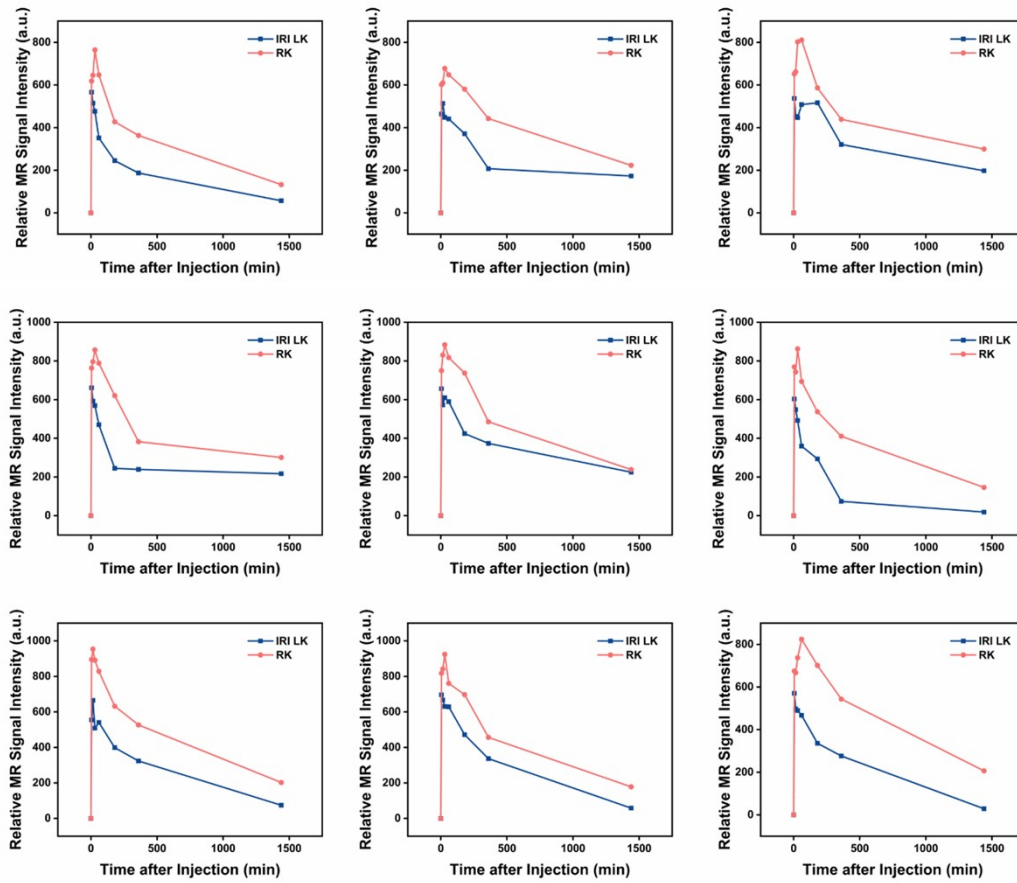


Fig. S11 Relative MR signal intensity curve of LK and RK in each rat with IRI after intravenous injection of Mn-CDs (n=10, including one in Fig. 3d).

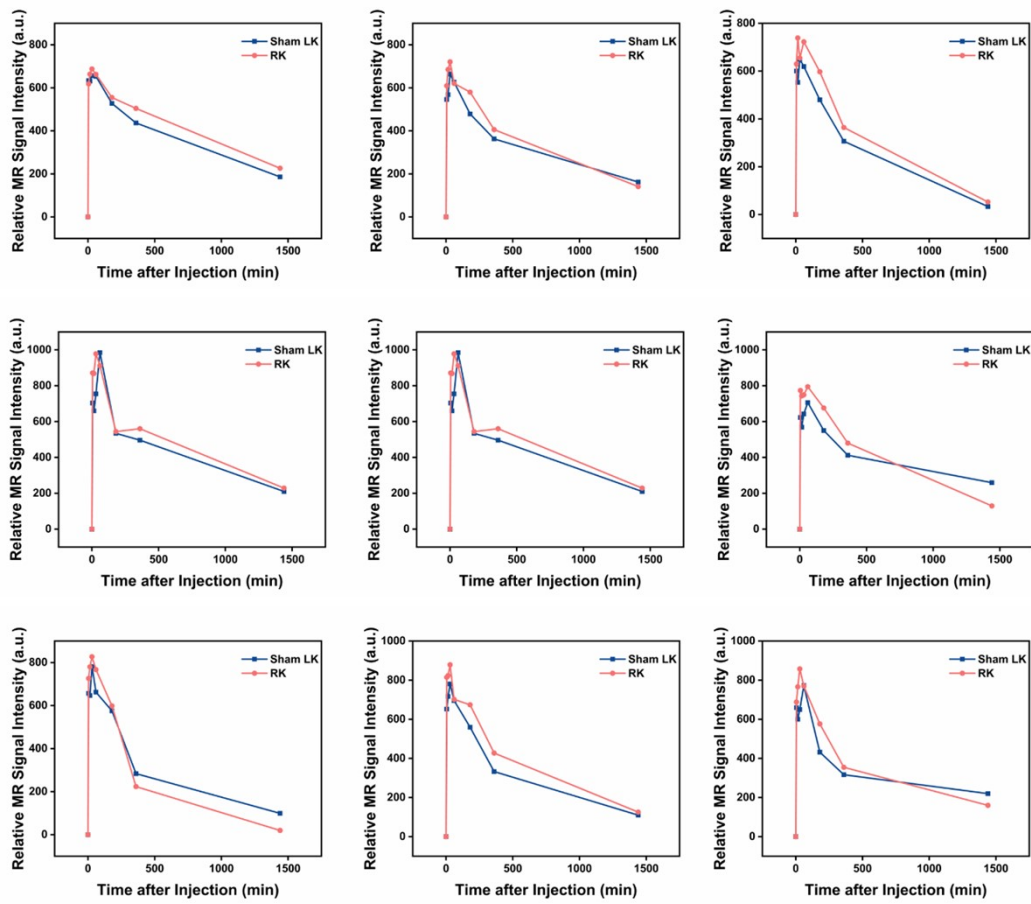


Fig. S12 Relative MR signal intensity curve of LK and RK in each rat with sham operation after intravenous injection of Mn-CDs (n=10, including one in Fig. 3e).