

Supplementary

A radio-nano-platform for T1/T2 dual mode PET-MR imaging

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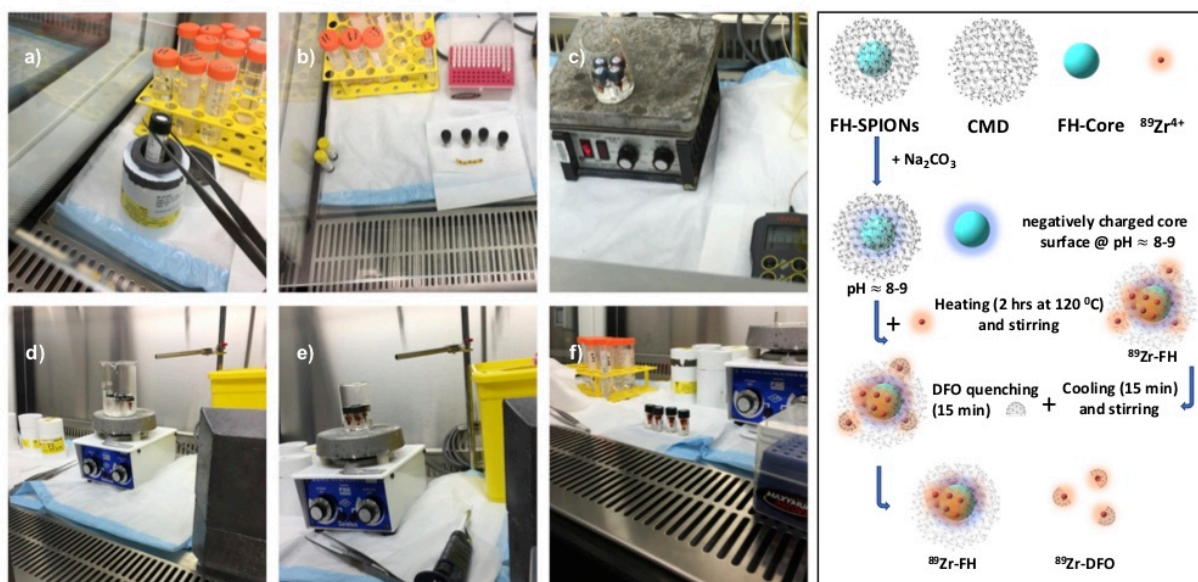


Figure S1. Experimental procedure for [^{89}Zr]Zr-FH radiolabeling. **a)** [^{89}Zr]Zr-oxalate batch; **b)** preparation of reaction mixtures; **c)** heating and stirring reaction mixtures; **d,e,f)** cooling and quenching reaction mixtures. Right panel – schematic of the HIR process.

Abbreviations: FH, Feraheme; SPION, superparamagnetic iron oxide nanoparticle; CMD, carboxymethyl dextran coating; DFO, deferoxamine mesylate salt; HIR, heat induced radiolabeling.

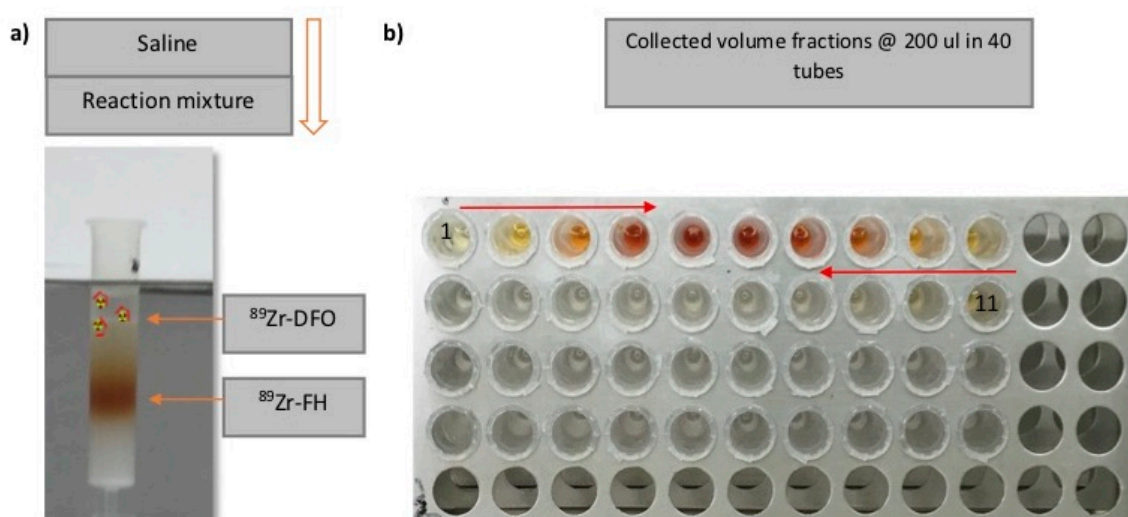


Figure S2. SEC using PD-10 analysis for [^{89}Zr]Zr-FH. **a)** PD-10 column loaded with ^{89}Zr -FH reaction mixture showing separation of [^{89}Zr]Zr-DFO complex; **b)** eluted volume fractions (at 200 μL) from PD-10 elution.

Abbreviations: FH, Feraheme; DFO, deferoxamine mesylate salt.

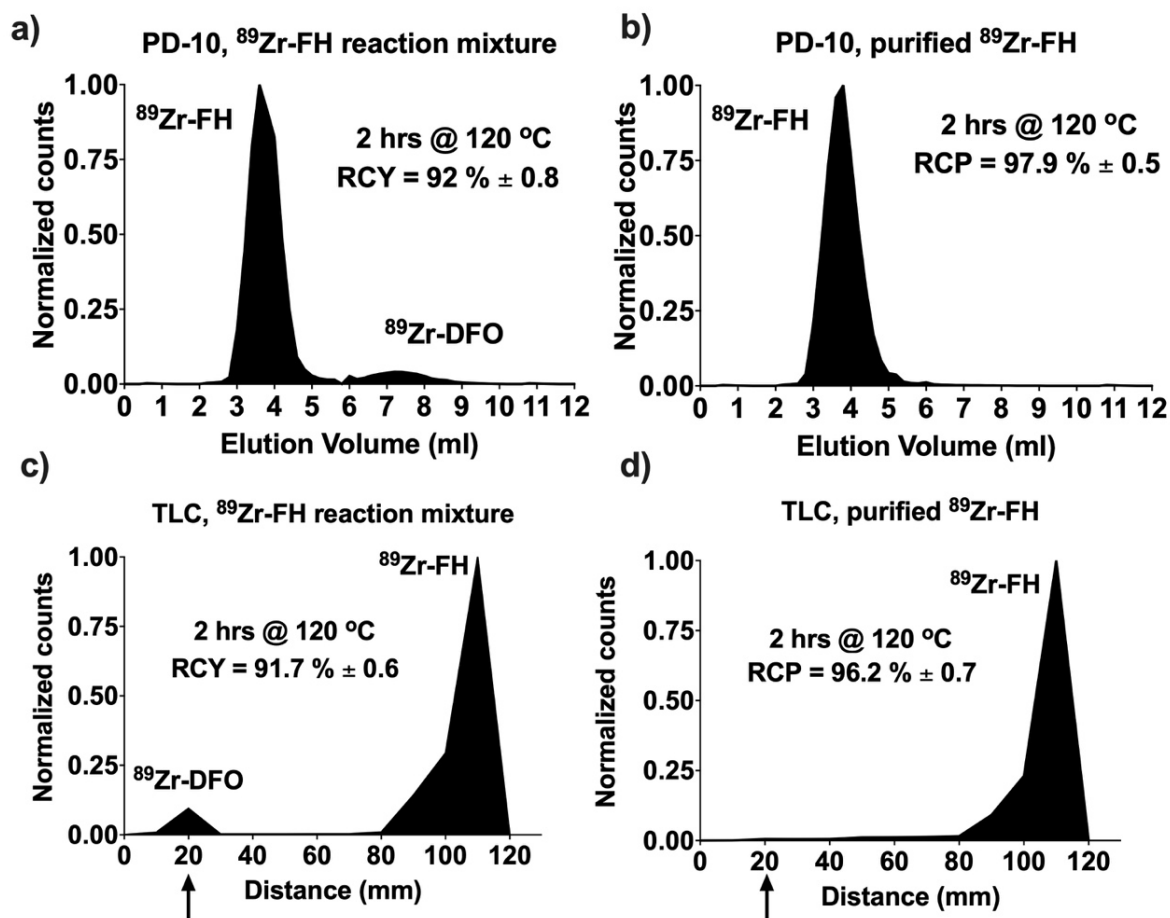


Figure S3. Radio-chemical analysis of [^{89}Zr]Zr-FH radiolabeling. Decay corrected SEC (a,b) and radio-TLC chromatogram (c,d) activity profiles for reaction and purified products. The arrows show the origin on the radio-TLC plate.

Notes: Analytical radio-TLC and PD-10 elution (at 0.2 mL fractions) activity profiles for reaction and purified [^{89}Zr]Zr-FH samples with calculated RCY and RCP. The first \approx 2.3 mL volume was collected with no activity and the next 3mL (\approx 15 collected volumes) contained the [^{89}Zr]Zr-FH; the [^{89}Zr]Zr-DFO complex was collected at \approx 5.3-10 mL.

Abbreviations: SEC, size exclusion chromatography; PD-10, polypropylene desalting 10 mL column; DFO, deferoxamine mesylate salt.